

Via NC DOT FTS

November 30, 2022

NC DOT Geotechnical Unit
GeoEnvironmental Section
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

Attention: Mr. Ashley Cox, LG

Re: Geophysical Survey Report – Parcel 10
NC DOT State Project No. R-5600
WBS Element No. 45818.1.FR1
Sylva, Jackson County, North Carolina
H&H Job No. ROW-704

Dear Ashley:

Please find the attached PDF copy of the Geophysical Survey Report for the Shirley Sutton property (Parcel 10) located in Sylva, Jackson County, North Carolina. Please return via DocuSign for final signatures. If you have any questions or need additional information, please contact us at (704) 586-0007.

Sincerely,

Hart & Hickman, PC



David Graham, PG
Senior Project Geologist



Matt Bramblett, PE
Principal

Attachment

Geophysical Survey Report NC DOT Parcel 10

360 W. Main St.
Sylva, Jackson County
North Carolina

H&H Job No. ROW-704
State Project: R-5600
WBS Element No. 45818.1.FR1
November 30, 2022



SMARTER ENVIRONMENTAL SOLUTIONS

#C-1269 Engineering
#-245 Geology

2923 South Tryon Street, Suite 100
Charlotte, NC 28203
704.586.0007 main

3921 Sunset Ridge Rd , Suite 301
Raleigh, NC 27607
919.847.4241 main

www.harthickman.com

Via NC DOT FTS

November 30, 2022

NC DOT - Geotechnical Unit
GeoEnvironmental Section
1589 Mail Service Center
Raleigh, NC 27699-1589

Attention: Mr. Ashley Cox, LG

Re: Geophysical Survey
NC DOT Parcel 10
360 W. Main Street, Sylva, Jackson County, North Carolina
State Project: R-5600; WBS Element No. 45818.1.FR1
H&H Job No. ROW-704

Dear Ashley:

1.0 Introduction and Background Information

Hart & Hickman, PC (H&H) has prepared this letter report documenting geophysical survey activities conducted at the Shirley Sutton property (Parcel 10) located at 360 W. Main St. in Sylva, Jackson County, North Carolina. The geophysical survey activities were conducted on behalf of the North Carolina Department of Transportation (NC DOT) in accordance with H&H's August 17, 2022 proposal. Based on discussions between H&H and NC DOT, no soil assessment activities were conducted on Parcel 10.

This geophysical survey was conducted to evaluate the potential for underground storage tank (UST) systems on proposed right of way and construction easement areas on Parcel 10 related to proposed road improvements along W. Main Street. (State Project R-5600). This NC DOT road improvement project includes new curb and gutters, storm water drainage piping, sidewalks, etc. Parcel 10 was vacant at the time of the geophysical survey activities. A one-story building with garage is located on the western portion of the property. A site location map is included as Figure 1. NC DOT's preliminary plan sheet depicting Parcel 10 is included in Appendix A.

H&H searched the North Carolina Department of Environmental Quality (NC DEQ) Laserfiche website and NC DEQ UST databases for incident files related to the Parcel 10 address to better target UST system areas and to check for locations of previously reported impacts. DOT information indicates this property was previously occupied by Silva Brakes and Automotive. However, NC DEQ's Site Locator Tool website indicates UST Incident No. 28270 (Silva Brakes and Automotive) is located on the adjacent property to the west at 414 W. Main Street. Based on the NC DEQ Registered Tank Database, no USTs were registered for Parcel 10. Pertinent information regarding the Silva Brakes and Automotive Facility are included in Appendix B.

H&H subcontracted with Pyramid Geophysical Services (Pyramid) of Greensboro, NC to conduct the geophysical survey. The geophysical survey activities are discussed below.

2.0 Geophysical Survey Activities

H&H reviewed the results of the geophysical survey performed on Parcel 10 by Pyramid on September 26 and 27, 2022. Pyramid utilized electromagnetic (EM) induction technology and ground penetrating radar (GPR) to identify potential geophysical anomalies and potential USTs at the site.

A total of seven EM anomalies were identified at the site. The EM anomalies were attributed to known surface metallic objects such as above-ground metal structures (i.e. metal poles, metal guardrail, etc.) that were not characteristic signatures of USTs. The EM/GPR survey detected the presence of three probable USTs on Parcel 10. The approximate dimensions of UST #1 and UST #2 are 13 ft long by 5.5 ft wide. The approximate dimensions UST #3 are 9 ft long by 5.5 ft wide. H&H identified potential fill ports near each of the USTs. The manhole near UST#1 could not be opened and the manhole near UST-2 appeared to be filled with soil and/or concrete. An approximate 2-inch diameter metal pipe was identified above grade near UST#3. Pyramid's report, including figures depicting the results of the EM/GPR survey, is provided in Appendix C. Photographs of the suspected UST locations are included in in Appendix D.

3.0 Conclusions

H&H has reviewed the results of a geophysical survey conducted on Parcel 10 located at 360 W. Main Street in Sylva, Jackson County, North Carolina. Three probable USTs were identified on Parcel 10. If a UST is encountered during construction activities, the UST system(s) and their contents should be removed in accordance with NC DEQ regulations and properly disposed. Impacted media encountered during road construction activities, if any, should be properly managed and disposed at a permitted facility.

Should you have any questions or need additional information, please do not hesitate to contact us at (704) 586-0007.

Sincerely,

Hart & Hickman, PC

DocuSigned by:

David Graham

12/05/2022

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David Graham, PG

Senior Project Geologist



DocuSigned by:

Matt Bramblett

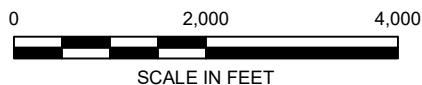
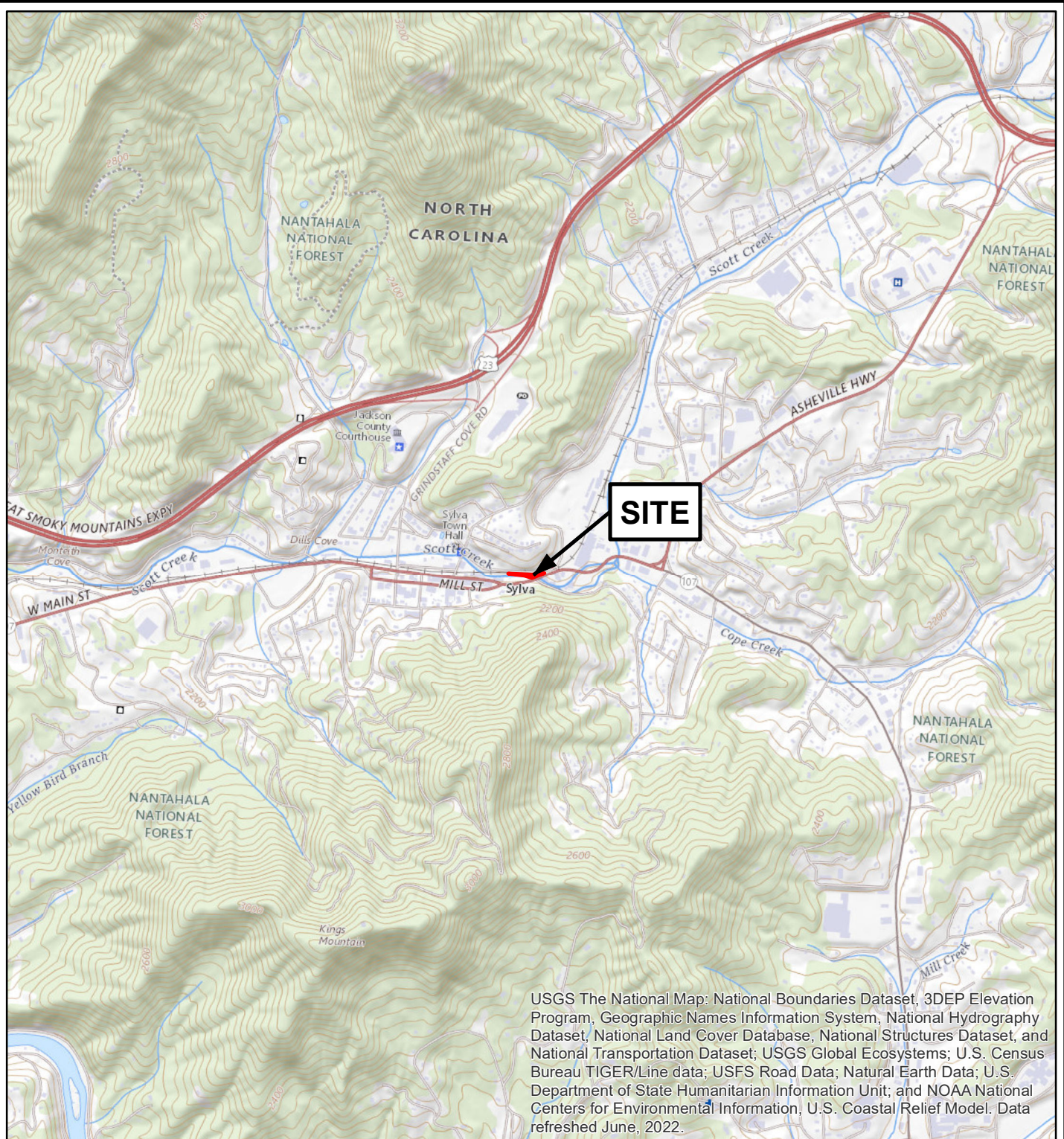
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Matt Bramblett, PE

Principal and Project Manager

Not considered final unless all signatures are completed.

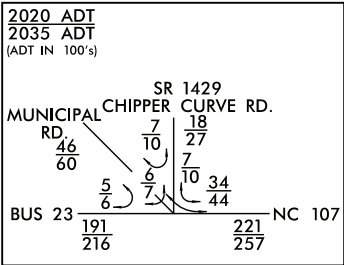
Attachments



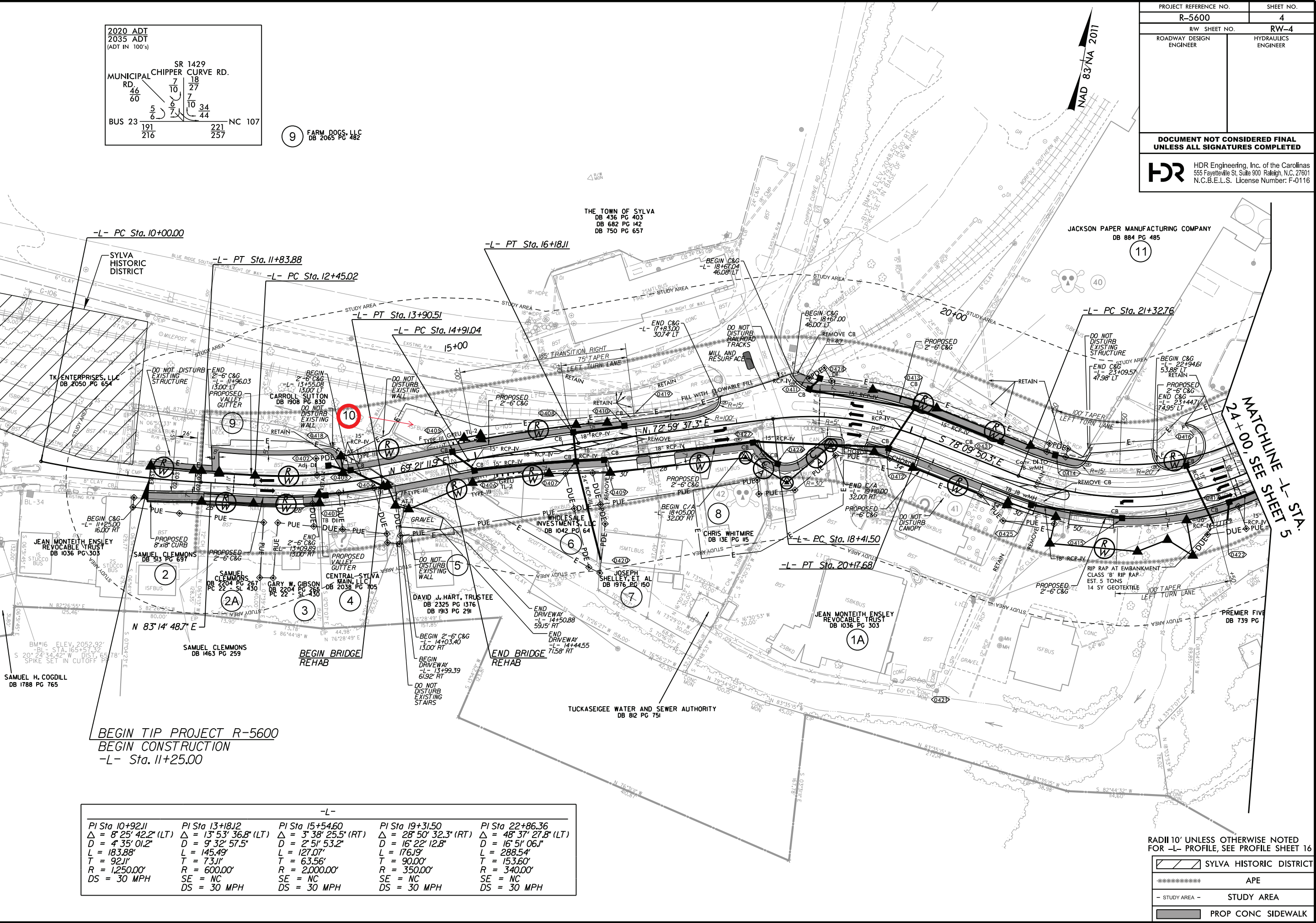
U.S.G.S. QUADRANGLE MAP
SYLVA SOUTH, NORTH CAROLINA 2022
 QUADRANGLE
 7.5 MINUTE SERIES (TOPOGRAPHIC)

TITLE SITE LOCATION MAP	
PROJECT NCDOT PARCEL 10 360 W. MAIN ST SYLVA, NORTH CAROLINA	
 2923 South Tryon Street - Suite 100 Charlotte, North Carolina 28203 704-586-0007 (p) 704-586-0373 (f) License # C-1269 / # C-245 Geology	
DATE: 10-5-22	REVISION NO: 0
JOB NO: ROW-704	FIGURE NO: 1

Appendix A
NC DOT Preliminary Plan



9 FARM DOGS, LLC
DB 2065 PG 482



BEGIN TIP PROJECT R-5600
BEGIN CONSTRUCTION
-L- Sta. 11+25.00

-L-				
PI Sta 10+92.11	PI Sta 13+18.12	PI Sta 15+54.60	PI Sta 19+31.50	PI Sta 22+86.36
$\Delta = 8^{\circ} 25' 42.2''$ (LT)	$\Delta = 13^{\circ} 53' 36.8''$ (LT)	$\Delta = 3^{\circ} 38' 25.5''$ (RT)	$\Delta = 28^{\circ} 50' 32.3''$ (RT)	$\Delta = 48^{\circ} 37' 27.8''$ (LT)
D = 4' 35' 01.2"	D = 9' 32' 57.5"	D = 2' 51' 53.2"	D = 16' 22' 12.8"	D = 16' 51' 06.1"
L = 183.88'	L = 145.49'	L = 127.07'	L = 176.19'	L = 288.54'
T = 92.11'	T = 73.11'	T = 63.56'	T = 90.00'	T = 153.60'
R = 1,250.00'	R = 600.00'	R = 2,000.00'	R = 350.00'	R = 340.00'
DS = 30 MPH	SE = NC DS = 30 MPH	SE = NC DS = 30 MPH	SE = NC DS = 30 MPH	SE = NC DS = 30 MPH

RADII 10' UNLESS OTHERWISE NOTED
FOR -L- PROFILE, SEE PROFILE SHEET 16

	SYLVA HISTORIC DISTRICT
*****	APE
- STUDY AREA -	STUDY AREA
	PROP CONC SIDEWALK

REVISIONS
10/20/2021 PARCEL 1 REMOVED; TCE REVISED; PARCEL 2
7/29/2022 PARCELS 4 & 5, ROW REVISED AND DUE ADDED; PARCELS 2A, 3, 4 DUE REVISED; PARCELS 3 & 4 PUE REVISED; PARCEL 9 PDE ADDED
PLOT DRIVER: NCDOT.pdf_color_eng_50.ppt DATE: 7/29/2022 TIME: 1:53:11 PM
USER: ASNIDER
FILE: \

Appendix B

Sylva Brakes and Automotive Environmental Documents

1325 Dills Cove Rd.
Sylva, NC 28779



Phone & Fax
(828) 586-3955

Mountaingeology@AOL.com

Sylva Brakes and Automotive -ID # 0-029441
Combined
UST-12 Closure Report
Limited Site Assessment Report
Soil Cleanup Report with Closure Request

02/11/05

Summary Statement

Three 8,000 gallon tanks have been removed, soil contamination less than industrial/commercial levels was encountered and a small area of soil contamination greater than residential levels was excavated. Groundwater contamination is less than gross contamination levels and marginally above groundwater 2L standards. The site is in an industrial/commercial area, zoned for business, has no water wells within 1,500 ft., public water was supplied, and the nearest place of public assembly is 900 ft. away.

Based on the location and contamination characteristics, I recommend the site be considered low risk industrial/commercial and hereby request closure.

I, Michael H. Owens, a licensed geologist for Mountain Geology, Inc, do certify that the information contained in this report is correct and accurate to the best of my knowledge.

Michael H Owens

MICHAEL H. OWENS PG

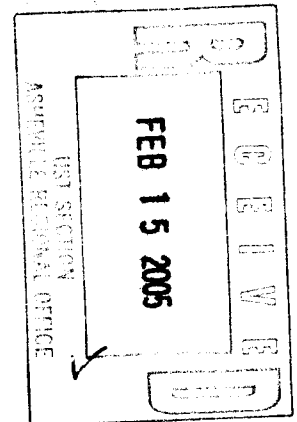


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Conclusions and Recommendations	Page 6

List of Attachments

1. UST-3
2. Area Map
3. Site Map
4. Soil Analysis Summary – Table B-3
5. Groundwater Analysis Summary – Table B-4
6. Tank Disposal Certificate
7. Residuals Disposal Manifest
8. Ownership – Table B-6
9. Risk Characterization (LSA) Questionnaire
10. Analytical Reports and Chains of Custody

General Information

Facility	(Currently inactive, last operation 2000) Sylva Brakes and Automotive ID# 0-029441 Main Street Sylva, Jackson County, NC Latitude 35° 22' 26"N Longitude 83° 13' 12"W
Owner	Larry Michael Evers 552 Corbin Road Franklin, NC 28734 Telephone 828-389-4321 (home) 828-421-2829 (cell)
Contacts	Primary & Closure Larry Michael Evers 552 Corbin Road Franklin, NC 28734 Telephone 828-389-4321 (home) 828-421-2829 (cell)
Consultant	Mountain Geology, Inc. Michael H. Owens 1325 Dills Cove Road Sylva, NC 28779 Telephone 828-586-3955
Lab	Test America 122 Lyman Street Asheville, NC 28801 Telephone 828-254-5169 Certification # 387

UST System Information

- Three 8,000 gallon gasoline tanks (21 ft long x 8 ft dia.)
- Four dispensers and associated piping
- Installed/replaced 1987?

Release Information

- Closure Sampling in November 2004 indicated GRO contamination up to 57,600 mg/kg
- Interpreted as result of overfill, unknown quantity

Closure Procedure

Preparations

- UST-3 submitted
- Neo Corporation contracted to empty and dispose tanks

Residuals

- Residual material was removed and disposed by the Neo Corporation (Attachment # 7)

Tank Disposal

- The excavated components (tanks & lines) were in excellent condition with no obvious corrosion, cracks, or leaks. They were disposed by the Neo Corporation (Attachment # 6)

Soil Excavation

Material over the tanks (4 ft. thick) and adjacent (3 ft. wide) to the west and south sides of the tank nest to tank bottoms (12 ft. deep) was excavated for tank removal. Due to close quarters, excavated material was sequentially placed back into the pit for tank removal, and then later removed for land application. The bulk of material removed was mixed composition fill (clay to gravel) with stream sediments under the tank nest.

After sampling results indicated contaminated soil, primarily below the fill pipe areas of the west and south tanks, additional material from this area was excavated into the water table and removed for land application. The pit was backfilled with broken concrete pavement (from removal excavation), clean #57 stone at the bottom in the water table, and crusher run material to the surface.

Contaminated soil was temporarily stored on site under and on plastic or placed back in the pit. At final excavation it was removed, transported, and disposed on Evers property in Macon County, NC.

Site Investigation

Quality Control

All samples were collected, preserved, and transported to the lab consistent with UST section guidelines. They were collected into containers prepared by the lab, placed into iced coolers, then into refrigerator, then into iced coolers and transported to the lab within the appropriate time frames. The attached chains of custody indicate dates and times of collection and lab submittals.

Soil Sampling

The attached map (Attachment #2) shows the locations of soil samples (ME 1-15), Table B-3 (Attachment #4) summarizes results, and analytical reports are in attachment #10. Samples ME 1-3, 8-11, 13 & 14 were collected from an excavator bucket from beneath the tanks, ME 4-7 were from material immediately below the dispensers, ME 12 was a stock pile composite, and ME 15 was from the west sidewall. All except ME 12 were grab samples.

Groundwater Sampling

When the pit was backfilled a two inch PVC screen was placed in the groundwater with a riser to the surface. Clean #57 stone was filled around the screen and crusher run material was filled to the surface. Groundwater was purged and sampled consistent with monitor well procedures as sample ME 16. The location is shown on the map (Attachment #2) analyses summarized in table B-4 (Attachment #5) and analytical reports are in attachment #10.

Investigation Results

Soil samples (except ME 12 and ME 15) were analyzed by methods 8015B (GRO), MADEP, and 8260B. ME 12 (stockpile) was by 8015B (GRO) only and ME 15 was by MADEP and 8260B. The analyses indicate a concentration of gasoline component contaminants generally beneath the fill areas of the west and south tanks (samples ME 1, ME 2, ME 8), and lesser amounts elsewhere. All the analyte concentrations are less than the industrial/commercial maximum contaminant cleanup levels. Only nine contaminants (in samples ME 1, ME 2, ME 8) are above the residential levels. The soil in the area of these samples was removed and the sidewall soil sampled. Groundwater was sampled and analyzed by MADEP and 602 methods as sample ME 16. Results indicate some contamination. All detected analytes are below gross contamination

levels. VPH C5-C8, VPH C9- C10, benzene, and ethylbenzene are above the 2L standards in the 10-100X range. (See attachment #5, table B-4)

Risk Characterization (LSA)

The surrounding area has been examined consistent with the LSA requirements. Three features of concern were found within 1,500ft. of the site. A senior center, public pool, and playground are located approximately 1,500ft. west-northwest. The New Life Church is some 900ft. west, and the New Harvest Church is 1,400 +/- ft. east-southeast. No wells or other items of concern were found. Attachment #2, an area map, shows these locations and other features. The risk classification questionnaire is attachment #9, and property owners are listed in Table B-6, attachment #8.

Conclusions and Recommendations

Analytical results of the soil samples indicate no contaminant levels above the industrial/commercial limits and only nine are above the residential limits. These nine are concentrated in the ME 1, ME 2, & ME 8 samples, located beneath the fill areas of the western and southern tanks. Furthermore, most, if not all, of the contaminated soil in this area has been removed.

Groundwater contamination, while present, is relatively minor, well below gross contamination levels and moderately above the 2L standards. The only possible impact is to the surface water of Scotts Creek. Toluene at 246 ug/l is more than 10X the surface water standard (0.36 ug/l). However, there are no indications (sheen) of surface water impact in this high velocity, high volume stream. Also, discussions between NCDENR Water Quality and UST personnel indicate the site should be considered as low risk.

The site is in an industrial/commercial area, the nearest place of public assembly is some 900ft. west, no wells are within 1,500ft. of the site, and public water is supplied throughout the area. The only surface waters are Scotts Creek and Cope Creek; both traverse areas with extensive industrial/commercial activities and many petroleum storage tanks. Also, based on the physical characteristics of the site, the nature of the surrounding area, and the municipal zoning, it is difficult to imagine any realistic situation where long term exposure to contaminants could occur.

Based on the levels of contamination, removal of some of the contamination, and the site conditions I recommend the site be considered low risk in an industrial/commercial category and I request it be closed.



MICHAEL H. OWENS PG

UST-3

Notice of Intent: UST Permanent Closure or Change-in-Service

FOR TANKS IN
NC

Return completed form to:

The DWM Regional Office located in the area where the facility is located. SEE MAP ON THE BACK OF THIS FORM FOR REGIONAL OFFICE ADDRESSES.

STATE USE ONLY

ID. #

Date Received

INSTRUCTIONS

Complete and return at least five (5) working days prior to closure or change-in-service if a Professional Engineer (P.E.) or a Licensed Geologist (L.G.) provides supervision for closure or change-in-service site assessment activities and signs and seals all closure reports. Otherwise, a thirty (30) day notice is required.

I. OWNERSHIP OF TANKS

Owner Name (Corporation, Individual, Public Agency, or Other Entity)
552 W. Main Street
Franklin
NC
28734
State
28734
Area Code
Phone Number

II. LOCATION

Facility Name or Company
5100 E. Main Street
Franklin
NC
28734
Facility ID # (If known)
Street Address
City
County
Zip Code
Area Code
Phone Number

III. CONTACT PERSONNEL

Name
Job Title
Phone Number

IV. TANK REMOVAL, CLOSURE IN PLACE, CHANGE-IN SERVICE

- Contact local fire marshal.
- Plan entire closure event.
- Conduct Site Soil Assessment.
- If removing tanks or closing in place, refer to API Publication 2015 Cleaning Petroleum Storage Tanks and 1604 Removal and Disposal of Used Underground Petroleum Storage Tanks.
- Provide a sketch locating piping, tanks and soil sampling locations.
- Submit a closure report in the format of UST-12 (including the form UST-2) within thirty (30) days following the site investigation.
- If a release from the tanks has occurred, the site assessment portion of the tank closure must be conducted under the supervision of a P.E. or L.G., with all closure site assessment reports bearing the signature and seal of the P.E. or L.G. If a release has not occurred, the supervision, signature or seal of a P.E. or L.G. is not required.
- Keep closure records for three (3) years.

V. WORK TO BE PERFORMED BY

Contractor Name
Address
Contact Person
Primary Consultant
State
Zip Code
Phone No.
Phone No.

VI. TANKS SCHEDULED FOR CLOSURE OR CHANGE-IN-SERVICE

Tank ID #	Tank Capacity	Last Contents	Proposed Activity		
			Removal	Closure Abandonment in Place	Change-In-Service New Contents Stored
35112	0.000 m ³ / 661	gasoline	☒	☐	☐
			☒	☐	☐
			☒	☐	☐
			☐	☐	☐
			☐	☐	☐

VII. OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE

Understand that I can be held responsible for environmental damage resulting from the improper disposal of my USTs. Read note on the back of this form before signing.

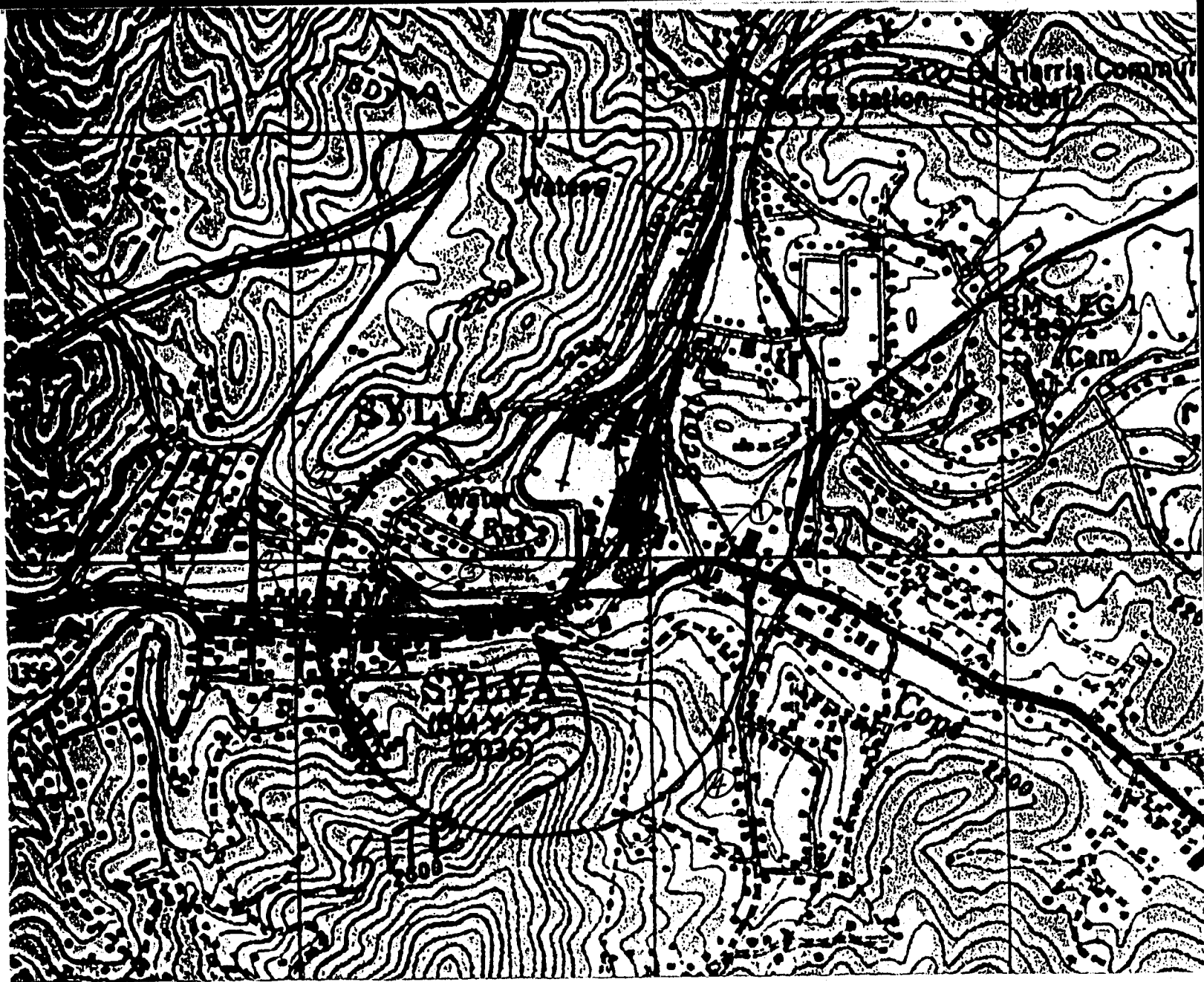
Print name and official title

Signature

Date Signed

SCHEDULED REMOVAL DATE

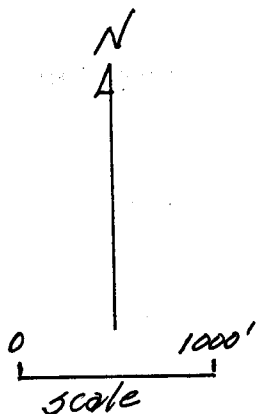
Notify your DWM Regional Office 48 hours before this date if scheduled removal date changes



Sylva Brakes & Automotive Area Map

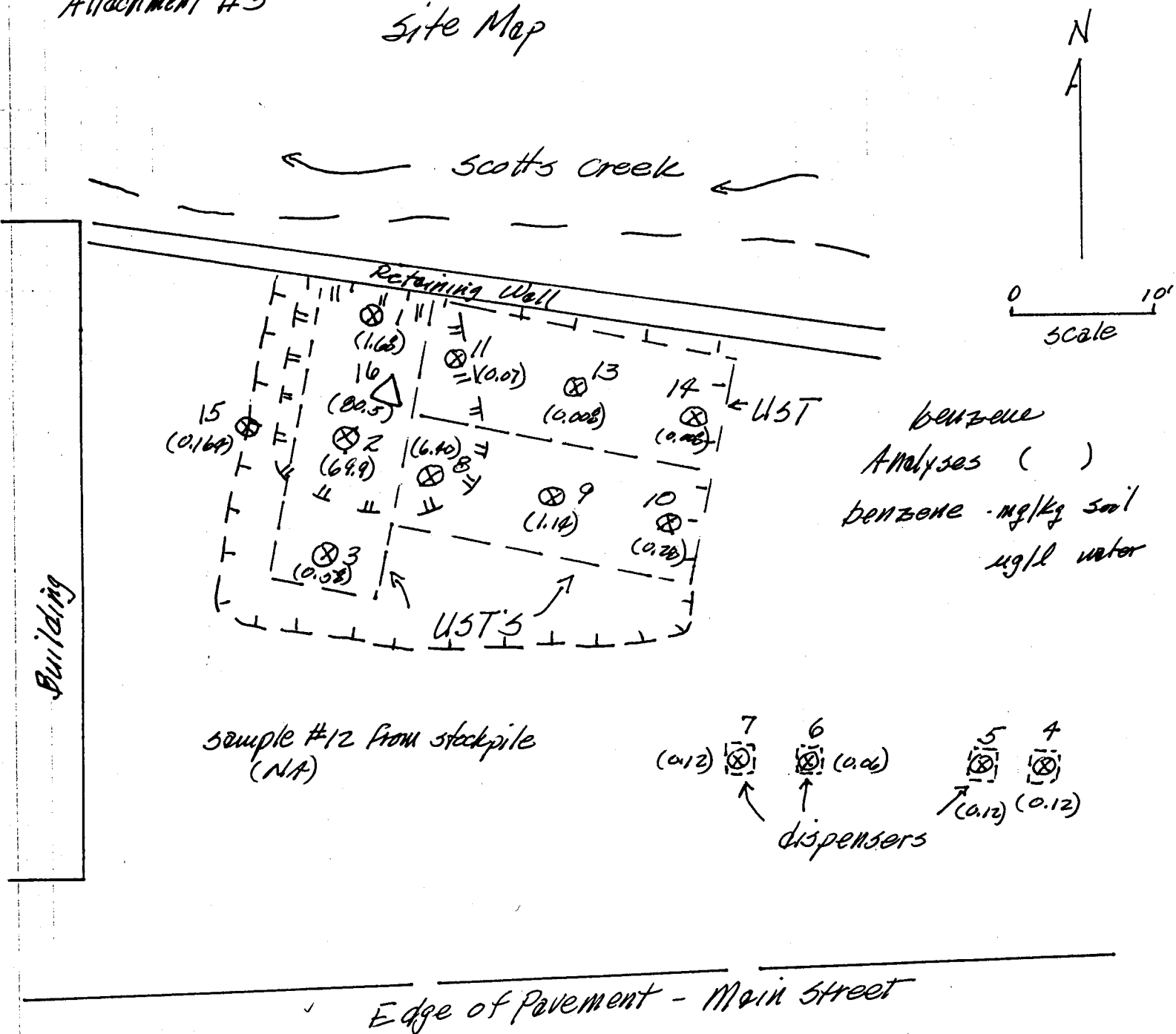
items of interest

- ① Scott's Creek & Lape Creek
- ② Senior Center, swimming pool, playground
- ③ New Life Church
- ④ New Harvest Church



Attachment #2

Site Map



Evers Project - 5x1 1/2 Brakes & Automotive - Sketch Map
 pace, tape, & compass

- ⊗³ sample location & # - soil
- △¹⁶ sample location & # - groundwater
- ⌞ excavation extent ± for tank removal
- ⌞ excavation extent ± of contaminated soil

Table B-3

Summary of Soil Sampling Results

Facility ID#: 0-029441

Analytical Method (eg, VOC by EPA 8260) →	MADEP	C5-C8 Aliph.	C9-C18 Aliph.	C9-C22 Arom	Benzene	n-Butyl. benzene	sec-Butyl. benzene	Benzene	Ethyl. benzene	Isopropyl benzene	Naphtha. benzene	H-Propyl. benzene	1,2,4-Tr. methyl. benzene	1,3,5-Tr. methyl. benzene	Toluene	Xylenes
Sample ID	MADEP	C5-C8 Aliph.	C9-C18 Aliph.	C9-C22 Arom	Benzene	n-Butyl. benzene	sec-Butyl. benzene	Benzene	Ethyl. benzene	Isopropyl benzene	Naphtha. benzene	H-Propyl. benzene	1,2,4-Tr. methyl. benzene	1,3,5-Tr. methyl. benzene	Toluene	Xylenes
ME1	11/18/04	13	1080	2930	1640	1.68	23.9	4.95	171	10.3	35.5	41.2	261	181	41.5	824
ME2	"	13	1200	11600	5490	69.9	58.2	14.4	456	35.5	127	152	720	262	1210	1940
ME3	"	13	52.3	184	104	0.581	2.07	0.529	8.01	0.992	2.83	4.00	19.4	4.30	1.06	21.1
ME4	11/19/04	1	ND	ND	ND	0.123	ND	ND	0.0276	ND	ND	ND	0.0098	0.0049	0.185	0.0985
ME5	"	1	30.1	90.8	55.4	0.118	ND	ND	0.0528	ND	0.0136	0.00493	0.0164	0.00608	0.943	0.169
ME6	"	1	ND	ND	ND	0.0573	ND	ND	0.0051	ND	0.00578	ND	0.0087	0.00428	0.0725	0.0340
Soil to ground water MSCC (mg/kg)		72	3255	34	0.056	4	3	0.24	2	0.58	7	5				
Residential MSCC (mg/kg)		939	9386	469	22	156	156	1560	1564	63	156	782	3200			
Industrial/Commercial MSCC (mg/kg)		24528	245240	12264	2.00	4088	4088	4000	40880	1635	4088	20440	82000			

Results mg/kg

Table B-3

Summary of Soil Sampling Results

Facility ID#: 0-029441

Analytical Method (eg., YOC by EPA 8260) →				MADEP	MADEP	MADEP	C9-C22 Atom	Benzene	n-Butyl Benzene	sec-Butyl Benzene	Ethyl Benzene	Isopropyl Benzene	Naphthalene	m-Propyl Benzene	1,2,4-Trimethyl Benzene	1,3,5-Tri-Methyl-Benzene	Toluene	Xylenes
Sample ID	Contaminant of Concern →		Sample Depth (ft BGS)	C5-C8 Aliph.	C9-C18 Aliph.	C9-C22 Atom	Benzene	n-Butyl Benzene	sec-Butyl Benzene	Ethyl Benzene	Isopropyl Benzene	Naphthalene	m-Propyl Benzene	1,2,4-Trimethyl Benzene	1,3,5-Tri-Methyl-Benzene			
	Date Collected (m/d/yyyy)																	
ME7	11/19/04	1		ND	ND	ND	ND	0.115	ND	ND	0.014	ND	ND	ND	ND	0.0025	0.165	0.0497
ME8	"	13		1460	2140	925	640	5.75	1.98	64.6	3.91	15.6	17.1	96.4	34.9	174	326	
ME9	"	13		116	296	148	1.14	1.01	0.234	8.43	0.583	6.34	2.59	19.6	5.12	11.2	43.5	
ME10	"	13		28	150	104	0.283	0.466	ND	2.72	0.255	4.12	1.05	7.15	2.22	0.160	9.14	
ME11	"	13		ND	ND	ND	0.0692	ND	0.0083	0.224	0.0169	0.231	0.0497	0.758	0.153	0.0233	0.579	
ME13	"	13		ND	ND	ND	0.0079	ND	ND	ND	0.0034	ND	0.0418	ND	0.0069	ND	0.0083	0.0116
Soil to ground water MSGC (mg/kg)				72	3255	34	0.056	4	3	0.24	2	0.58	2	8	7		5	
Residential MSGC (mg/kg)				939	9386	469	22	156	156	1560	1564	63	156	782	782	3200	3200	
Industrial/Commercial MSGC (mg/kg)				24528	245240	12264	2.00	4088	4088	4000	40880	1635	4088	20440	20440	82000	200000	

Results mg/kg

Facility ID#: 0-029441

Analytical Method (e.g., VOC by EPA 8260)	MADEP	MADEP	MADEP	C9-C18 Aliph.	C9-C22 Arom.	Benzene	n-Butyl Benzene	Sec-Butyl Benzene	Ethyl Benzene	Isopropyl Benzene	Naphtha. Iene	n-Propyl Benzene	1,2,4-Tr. Methyl Benzene	1,3,5-Tr. Methyl Benzene	Toluene	Xylenes
Sample ID	Contaminant of Concern	Date Collected (m/d/yyyy)	Sample Depth (ft BGS)													
MB14		11/19/04	13	ND	ND	0.0083	ND	ND	0.0198	0.00275	0.0833	0.00830	0.0709	0.0316	0.0084	0.0452
MB15		11/15/05	10	ND	ND	0.164	0.0212	0.0097	0.502	0.030	0.110	0.101	0.135	0.0233	0.0156	0.195
Soil to groundwater MSCC (mg/kg)	72	3255	34	0.056	4	3	0.24	2	0.58	2	8	7	7	5		
Residential MSCC (mg/kg)	939	9386	469	22	156	156	1560	1564	63	156	782	782	20440	3200	82000	200000
Industrial/Commercial MSCC (mg/kg)	24528	245280	12264	2.00	4088	4088	4000	40880	1635	4088	20440	20440	20440	3200	82000	200000

Results mg/kg

Table B-4

Summary of Groundwater Sampling Results

Incident Number and Name: Sylvia Brakes & Automotive Facility ID#: 0-029441

[illegible]

detected analytes ug/l

FROM : 4_EVERS...

PHONE NO. : 828 369 6885

Jan. 10 2005 11:12AM F1

Attachment #6



P.O. BOX 646, WAYNESVILLE, NC 28786
828.456.4332 828.456.4216

TANK DISPOSAL MANIFEST

1) Tank Owner/Authorized Representative: Name and Mailing Address

Mike Evers

UST Site Address

Former Shell Gas Station

552 Corbin Road

314 West Main Street

Franklin, N.C. 28734

(828) 421-2879

Sylva, N.C. 28779

2) Tank Owner/Authorized Representative:

Contact

Phone #:

3) Description of Tanks:

Tank No.	Capacity	Previous Contents	Comments
001	6000 gallons	Gasoline	8' X 16'

4) Tank Owner/Authorized Representative Certification: The undersigned certifies that the above listed storage tanks have been removed from the premises of the tank owner.

R. Mike Evers

Printed/Typed Name

Signature

Month/Day/Year

5) Transporter: The undersigned certifies that the above listed storage tanks have been transported to

NEO Corporation, 289 Silkwood Drive, Canton, North Carolina 28718

The above tank was decontaminated by NEO Corporation and all waste residuals were properly disposed.

Printed/Typed Name

Alan Farmer NEO Corporation

Signature

Month/Day/Year
01/06/05

6) Disposal Certification: The above listed tank was received by

Recycling Facility:

Craig H Farmer

Printed/Typed Name

Signature

1-10-05
Month/Day/Year



P.O. BOX 646, WAYNESVILLE, NC 28786
828.456.4332 828.456.4216

TANK DISPOSAL MANIFEST

1) Tank Owner/Authorized Representative: Name and Mailing Address

Mike Evers

UST Site Address

Former Shell Gas Station

552 Corbin Road

314 West Main Street

Franklin, N.C. 28734

(828) 421-2829

Sylva, N.C. 28779

2) Tank Owner/Authorized Representative:

Contact

Phone #:

3) Description of Tanks:

<u>Tank No.</u>	<u>Capacity</u>	<u>Previous Contents</u>	<u>Comments</u>
002	6000 gallons	Gasoline	8' X 16'

4) Tank Owner/Authorized Representative Certification : The undersigned certifies that the above listed storage tanks have been removed from the premises of the tank owner.

Mike Evers ME 1-12-05
Printed/Typed Name Signature Month/Day/Year

5) Transporter : The undersigned certifies that the above listed storage tanks have been transported to
NEO Corporation, 289 Silkwood Drive; Canton, North Carolina 28716
The above tank was decontaminated by NEO Corporation and all waste residuals were properly disposed.

Alan Farmer NEO Corporation Alan Farmer 01/06/05
Printed/Typed Name Signature Month/Day/Year

6) Disposal Certification : The above listed tank has had the ends removed by
NEO Corporation and will be used for purposes other than a storage vessel.

Recycling Facility:

Raymond West Raymond West 1-6-05
Printed/Typed Name Signature Month/Day/Year



P.O. BOX 646, WAYNESVILLE, NC 28786
828.456.4332 828.456.4216

TANK DISPOSAL MANIFEST

1) Tank Owner/Authorized Representative: Name and Mailing Address

Mike Evers

UST Site Address

Former Shell Gas Station

552 Corbin Road

314 West Main Street

Franklin, N.C. 28734

(828) 421-2829

Sylva, N.C. 28779

2) Tank Owner/Authorized Representative:

Contact

Phone #:

3) Description of Tanks:

<u>Tank No.</u>	<u>Capacity</u>	<u>Previous Contents</u>	<u>Comments</u>
003	6000 gallons	Gasoline	8' X 16'

4) Tank Owner/Authorized Representative Certification : The undersigned certifies that the above listed storage tanks have been removed from the premises of the tank owner.

Mike Evers
Printed/Typed Name

Mike Evers
Signature

1-12-05
Month/Day/Year

5) Transporter : The undersigned certifies that the above listed storage tanks have been transported to
NEO Corporation, 289 Silkwood Drive; Canton, North Carolina 28716

The above tank was decontaminated by NEO Corporation and all waste residuals were properly disposed.

Printed/Typed Name
Alan Farmer NEO Corporation

Signature
Alan Farmer

Month/Day/Year
01/06/05

6) Disposal Certification : The above listed tank has had the ends removed by
NEO Corporation and will be used for purposes other than a storage vessel.

Recycling Facility:

Raymond West
Printed/Typed Name

Raymond West
Signature

1-6-05
Month/Day/Year

Attachment #7

Waynesville Corporate Home Office
P.O. Box 646, Waynesville, NC 28786
Fax (828)456-4216 Phone (828)456-4332

To: Mike Owens

Company :

Fax Number : 1-828-586-3955

Phone Number :

From : Reception Desk

Fax Number : 828-456-4216

Phone Number 828-456-4332

Time Sent : Friday, Feb 11, 2005 10:49AM

Pages : 3

Description :

Mr. Owens,

Attached please find the straight bill of lading and the pending hazardous waste manifest. The completed manifest will be sent to you upon its receipt.

Should you have any questions or require additional information please contact me at the number below.

Thank you,
Laura Rich
NEO Corporation
828.456.4332
828.456.4216 (fax)

Visit NEO on the world wide web at www.neocorporation.com

4-80160-08

Dec 15 2004 4:07PM HP LASERJET FAX

3366749955

p.3

ATTENTION SHIPPERS!

FREIGHT CHARGES ARE PREPAID ON THIS BILL OF LADING UNLESS MARKED COLLECT

STRAIGHT BILL OF LADING

ORIGINAL - NOT NEGOTIABLE

Shipper No. _____

Carrier No. _____

Date _____

Page 1 of 1

NEO Corporation

(Name of Carrier)

(SCAC)

TO: Consignee Soil Remedies, Inc. Address 289 Wheely Lane Mebane, NC 27302 Phone (919) 563-4459		FROM: Shipper Mike Evers Address 552 Corbin Road Franklin, N.C. 28734 24 hr. Emergency Contact Tel. No. (828) 421-2829	
Route		Vehicle Number	
No. of Units & Container Type	HM	BASIC DESCRIPTION Proper Shipping Name, Hazard Class, Identification Number (UN or NA), Packing Group, per 172.101, 172.202, 172.302	TOTAL QUANTITY (Weight, Volume, Gallons, etc.)
3 DM		Non Regulated Material (TPH Soil)	
PLACARDS TENDERED: YES NO		REMIT C.O.D. TO: ADDRESS	
Note: (1) Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding _____ per _____ (2) Where the applicable provisions specify a limitation of the carrier's liability absent a release or a value declaration by the shipper and the shipper does not release the carrier's liability or declare a value, the carrier shall be liable for the loss of the property described below.		I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national government regulations.	
		COD Amt \$	COD FEE Prepaid Collect \$
		TOTAL CHARGES \$	
		FREIGHT CHARGES FREIGHT PREPAID except when box is checked ☐	
RECEIVED, subject to the classifications and terms in effect on the date of the Bill of Lading, of the property described below, which said company (the word company being in apparent good order, except as noted (contents and condition of contents of packages unknown), stored, consigned, and delivered as indicated below, with said company (the word company being understood throughout this bill of lading as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, it on its own road or its own water line, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each order of all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein stated, which are hereby agreed to by the shipper and accepted for himself and his assigns.			
SHIPPER <i>Larry Evers</i>		CARRIER NEO Corp	
PER		PER M.D. Hest	
		DATE	

4-801160-05

Emergency Contact Telephone Number

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. C. E. S. Q. G.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address Mike Evers 552 Corbin Road Franklin, N.C. 28734				A. State Manifest Document Number		
4. Generator's Phone (828) 421-2829				B. State Generator's ID		
5. Transporter 1 Company Name NEO Corporation		5. US EPA ID Number N. C. R. 0. 0. 0. 0. 9. 4. 2. 3		C. State Transporter's ID		
7. Transporter 2 Company Name S & W Chemicals, Inc.		6. US EPA ID Number N. C. R. 0. 0. 0. 139. 9. 5. 6. 8		D. Transporter's Phone 828-456-4332		
9. Designated Facility Name and Site Address Eco-Flo 2750 Patterson Street Greensboro, N.C. 27407		10. US EPA ID Number N. C. D. 9. 8. 0. 8. 4. 2. 1. 3. 2		E. State Transporter's ID		
				F. Transporter's Phone 828-328-6310		
				G. State Facility's ID		
				H. Facility's Phone 336-855-7925		
11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)				12. Containers	13. Total Quantity	14. Unit Wt/Vol
a. ☒ Waste Gasoline, 3, UN 1203, II				No. Type		Waste No.
				0 0 2 D M	P	DD01, DD18
b.						
c.						
d.						
J. Additional Descriptions for Materials Listed Above				K. Handling Codes for Wastes Listed Above		
15. Special Handling Instructions and Additional Information Emergency Contact # 800-424-9300 Chemtrec - Caller must identify S & W Chemicals, Inc. S & W Job #						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimized the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						
Printed/Typed Name LARRY M. EVERS		Signature Larry Evers		Month Day Year 01/06/05		
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature Mike Holt		Month Day Year 01/19/05		
Printed/Typed Name MIKE HOLT		Signature Mike Holt		Month Day Year 01/19/05		
18. Transporter 2 Acknowledgement of Receipt of Materials		Signature Jerry Day		Month Day Year 01/19/05		
Printed/Typed Name JERRY DAY		Signature Jerry Day		Month Day Year 01/19/05		
19. Discrepancy Indication Space						
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 18.						
Printed/Typed Name		Signature		Month Day Year		

TRANSPORTER #1

Table B-6

Surrounding
Property Owners/ Occupants

Incident No. and Name: Sylvia Brooks & Auto

Facility ID#: 0-029441

[illegible]

Risk Characterization

Submit the following questionnaire in its entirety. Answer all questions completely. Attach additional pages as needed to fully explain answers. Base answers/explanations on information known or required to be obtained during the Limited Site Assessment.

NOTE: Source area means point of release from a UST system.

Limited Site Assessment Risk Classification and Land Use Form

Part I - Groundwater/Surface Water/Vapor Impacts

High Risk

1. Has the release contaminated any water supply well including any well used for non-drinking purposes? YES/NO
2. Is a water supply well used for drinking water located within 1,000 feet of the source area of the release? YES/NO
3. Is a water supply well not used for drinking water (e.g., irrigation, washing cars, industrial cooling water, filling swimming pools) located within 250 feet of the source area of the release? YES/NO
4. Does groundwater within 500 feet of the source area of the release have the potential for future use (there is no other source of water supply other than the groundwater)? YES/NO
5. Do vapors from the release pose a threat of explosion because of accumulation of the vapors in a confined space or pose any other serious threat to public health, public safety or the environment? YES/NO

If yes, describe.

6. Are there any other factors that would cause the release to pose an imminent danger to public health, public safety, or the environment? YES/NO

If yes, describe.

Intermediate Risk

7. Is a surface water body located within 500 feet of the source area of the release? YES/NO
If YES, does the maximum groundwater contaminant concentration exceed the surface water quality standards and criteria found in 15A NCAC 2B .0200 by a factor of 10? YES/NO
8. Is the source area of the release located within a approved or planned wellhead protection area as defined in 42 USC 300h-7(e)? YES/NO
If yes, describe.

9. Is the release located in the Coastal Plain physiographic region as designated on a map entitled "Geology of North Carolina" published by the Department in 1985? YES/NO

If YES, is the source area of the release located in an area in which there is recharge to an unconfined or semi-confined deeper aquifer that is being used or may be used as a source of drinking water? YES/NO

If YES, describe.

10. Do the levels of groundwater contamination for any contaminant exceed the gross contamination levels (see Table 9) established by the Department? YES/NO

Part II - Land Use

Property Containing Source Area of Release

The questions below pertain to the property containing the source area of the release.

1. Does the property contain one or more primary or secondary residences (permanent or temporary)? Describe. YES/NO
2. Does the property contain a school, daycare center, hospital, playground, park, recreation area, church, nursing home, or other place of public assembly? Describe. YES/NO
3. Does the property contain a commercial (e.g., retail, warehouse, office/business space, etc.) or industrial (e.g., manufacturing, utilities, industrial research and development, chemical/petroleum bulk storage, etc.) enterprise, an inactive commercial or industrial enterprise, or is the land undeveloped? Describe. *Service station*
inactive - closed YES/NO
4. Do children visit the property? Explain. *only in passing by - sidewalk on other side of street* YES/NO
- Is access to the property reliably restricted consistent with its use (e.g., by fences, security personnel or both)? Explain. *highly visible site - police patrol* YES/NO
5. Do pavement, buildings, or other structures cap the contaminated soil? Describe. *covered with gravel* YES/NO
- If yes, what mechanisms are in place or can be put into place to ensure that the contaminated soil will remain capped in the foreseeable future?
6. What is the zoning status of the property? *B-2 business district*
7. Is the use of the property likely to change in the next 20 years? Explain. *unknown? - being considered as garage* YES/NO

Property Surrounding Source Area of Release

The questions below pertain to the area within 1,500 feet of the source area of the release (excludes property containing source area of the release):

1. What is the distance from the source area of the release to the nearest primary or secondary residence (permanent or temporary)?

240 ± ft.

2. What is the distance from the source area of the release to the nearest school, daycare center, hospital, playground, park, recreation area, church, nursing home or other place of public assembly?

900 ± ft.

3. What is the zoning status of properties in the surrounding area?

B-2 Business District

4. Briefly characterize the use and activities of the land in the surrounding area.

real estate offices (2), tire repair facility,
used car lot, automobile dealer, restaurant

C. Receptor Information

1. Water Supply Wells None within 1500 ft.

2. Public Water Supplies

Are public water supplies available within 1,500 feet of the source area of the release? ☒ YES ☐ NO

If yes, where is the location of the nearest public water lines and the source(s) of the public water supply. (indicate on map) Describe. Water supplied to site

3. Surface Water

Identify all surface water bodies (e.g., ditch, pond, stream, lake, river) within 1,500 feet of the source area of the release. This information must be shown on the USGS topographic map. Scotts Creek

4. Wellhead Protection Areas

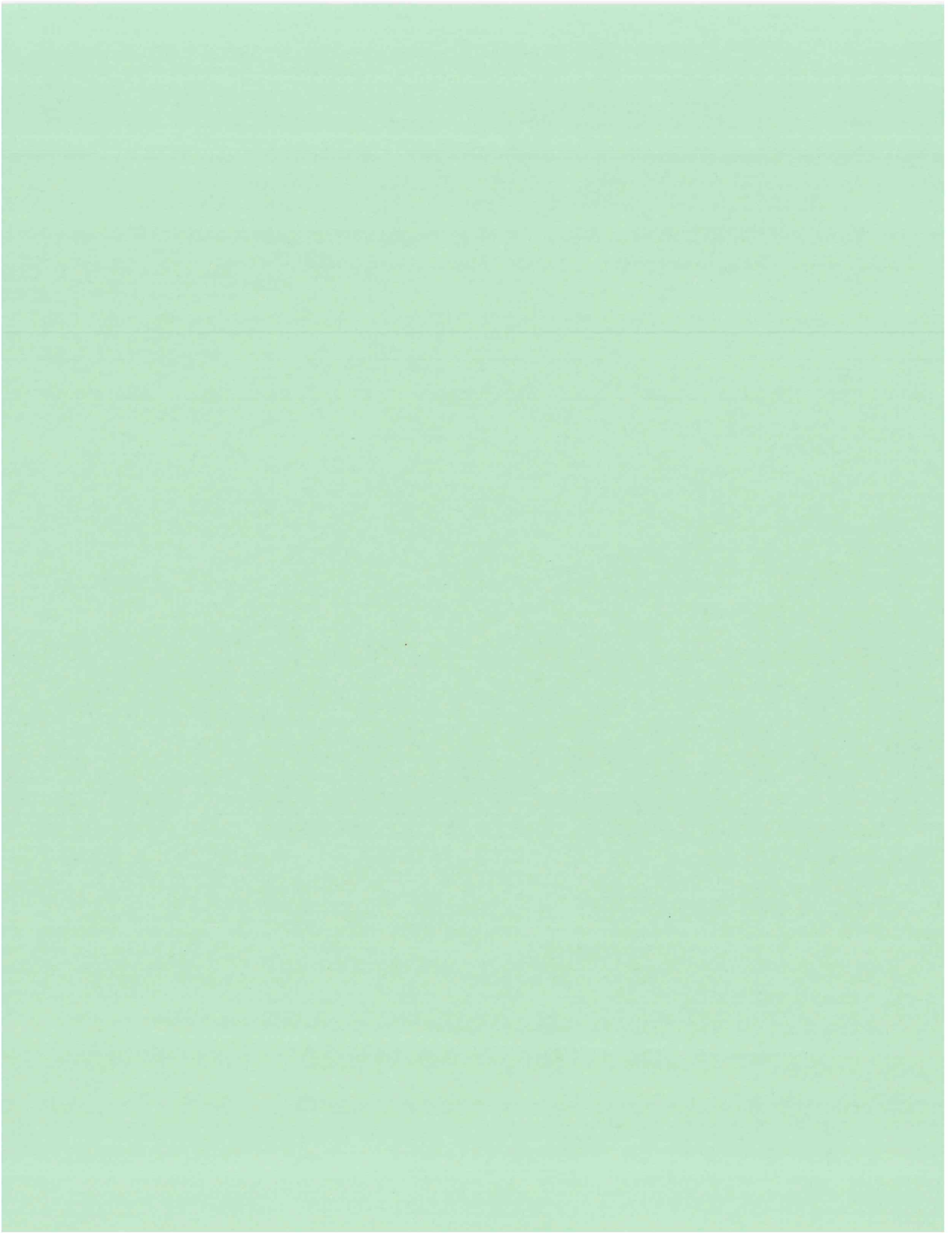
Identify all planned or approved wellhead protection areas (e.g., ditch, pond, stream, lake, river) within 1,500 feet of the source area of the release. This information must be shown on the USGS topographic map. Wellhead protection areas are defined in 42 USC 300h-7(e). None

5. Describe Deep Aquifers in the Coastal Plain Physiographic Region (refer to page 19 of the guidelines):

NOTE: This requirement only pertains to releases in the Coastal Plain physiographic region as designated on a map entitled "Geology of North Carolina" published by the Department in 1985.

6. Describe Subsurface Structures

None within 40 ± ft of source



NORTH CAROLINA
JACKSON COUNTY

THE CERTIFICATE OF

Sharon H. Frizzle

IS CERTIFIED TO BE CORRECT:

Joe Hamilton

REGISTER OF DEEDS

By: Stephanie Hissom, Dep.



Doc ID: 003263780002 Type: CRP
Recorded: 03/10/2005 at 01:07:46 PM
Fee Amt: \$17.00 Page 1 of 2
Jackson County, NC
Joe Hamilton Register of Deeds

BK **1486** PG **283-284**

NOTICE OF RESIDUAL PETROLEUM

DBA Sylva Brales + Assignment

Larry Michael Evers owner, JACKSON County, North Carolina
(Site name)

The property that is the subject of this Notice (hereinafter referred to as the "Site") contains residual petroleum and is an Underground Storage Tank (UST) incident under North Carolina's Statutes and Regulations, which consist of N.C.G.S. 143-215.94 and regulations adopted thereunder. This Notice is part of a remedial action for the Site that has been approved by the Secretary (or his/her delegate) of the North Carolina Department of Environment and Natural Resources (or its successor in function), as authorized by N.C.G.S. Section 143B-279.9 and 143B-279.11. The North Carolina Department of Environment and Natural Resources shall hereinafter be referred to as "DENR".

NOTICE

Petroleum product was released and/or discharged at the Site. Petroleum constituents remain on the site, but are not a danger to public health and the environment, provided that the restrictions described herein, and any other measures required by DENR pursuant to N.C.G.S. Sections 143B-279.9 and 143B-279.11, are strictly complied with. This "Notice of Residual Petroleum" is composed of a description of the property, the location of the residual petroleum and the land use restrictions on the Site. The Notice has been approved and notarized by DENR pursuant to N.C.G.S. Sections 143B-279.9 and 143B-279.11 and has/shall be recorded at the JACKSON Co.

(name of county)

Register of Deeds' office Book 948, Page 428.

Source Property

Larry Michael Evers of Franklin NC is the owner in fee
(Owner's name) (city & state of homeowner)

simple of all or a portion of the Site, which is located in the County of JACKSON Co., State of North Carolina, and is known and legally described as:

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of _____, Sylva _____ Township, Jackson _____ County, North Carolina and more particularly described as follows:

Lots 21, 22, 23 and 24 of the Grindstaff and Dills Addition to the Town of Sylva, as shown on a plat recorded in Plat Book 1, at Page 141, Jackson County Registry, reference to which is hereby made for a more particular description.

PERPETUAL LAND USE RESTRICTIONS

Groundwater: Groundwater from the site is prohibited from use as a water supply. Water supply wells of any kind shall not be installed or operated on the site.

ENFORCEMENT

The above land use restriction(s) shall be enforced by any owner, operator, or other party responsible for the Site. The above land use restriction(s) may also be enforced by DENR through any of the remedies provided by law or by means of a civil action, and may also be enforced by any unit of local government having jurisdiction over any part of the Site. Any attempt to cancel this Notice without the approval of DENR (or its successor in function) shall be subject to enforcement by DENR to the full extent of the law. Failure by any party required or authorized to enforce any of the above restriction(s) shall in no event be deemed a waiver of the right to do so thereafter as to the same violation or as to one occurring prior or subsequent thereto.

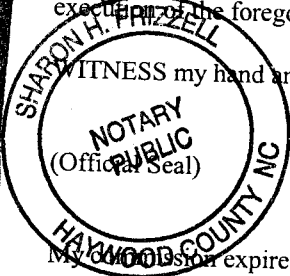
IN WITNESS WHEREOF, Larry Michael Evers has caused this Notice to be executed pursuant to N.C.G.S. Sections 143B-279.9 and 143B-279.11, this 10th day of MARCH, 2005.

By: Larry Michael Evers
(name of responsible party if agent is signing)
(signature of responsible party, attorney or other agent if there is one)
owner
(Title of agent for responsible party if there is one)

Signatory's name typed or printed: Larry Michael Evers

NORTH CAROLINA
Haywood COUNTY

I, Sharon H. Frizzell, a Notary Public for said County and State, do hereby certify that Larry Michael Evers personally appeared before me this day and acknowledged the due execution of the foregoing instrument.



WITNESS my hand and official seal, this the 10th day of MARCH, 2005.

Sharon H. Frizzell
Notary Public (signature)

My commission expires 07-16, 2005.

Approved for the purposes of N.C.G.S. 143B-279.11

Jan Andersen
(signature of Regional Supervisor)
JAN ANDERSEN, Regional Supervisor
(printed name of Regional Supervisor)
ASHEVILLE Regional Office
(name of Region)

UST Section
Division of Waste Management
Department of Environment and Natural Resources

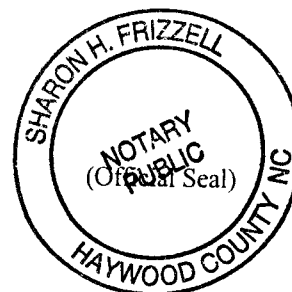
NORTH CAROLINA
Haywood COUNTY

I, Sharon H. Frizzell, Notary Public of said County and State, do hereby certify that Jan Andersen did personally appear and sign before me this the 10th day of

MARCH, 2005.

Sharon H. Frizzell
Notary Public (signature)

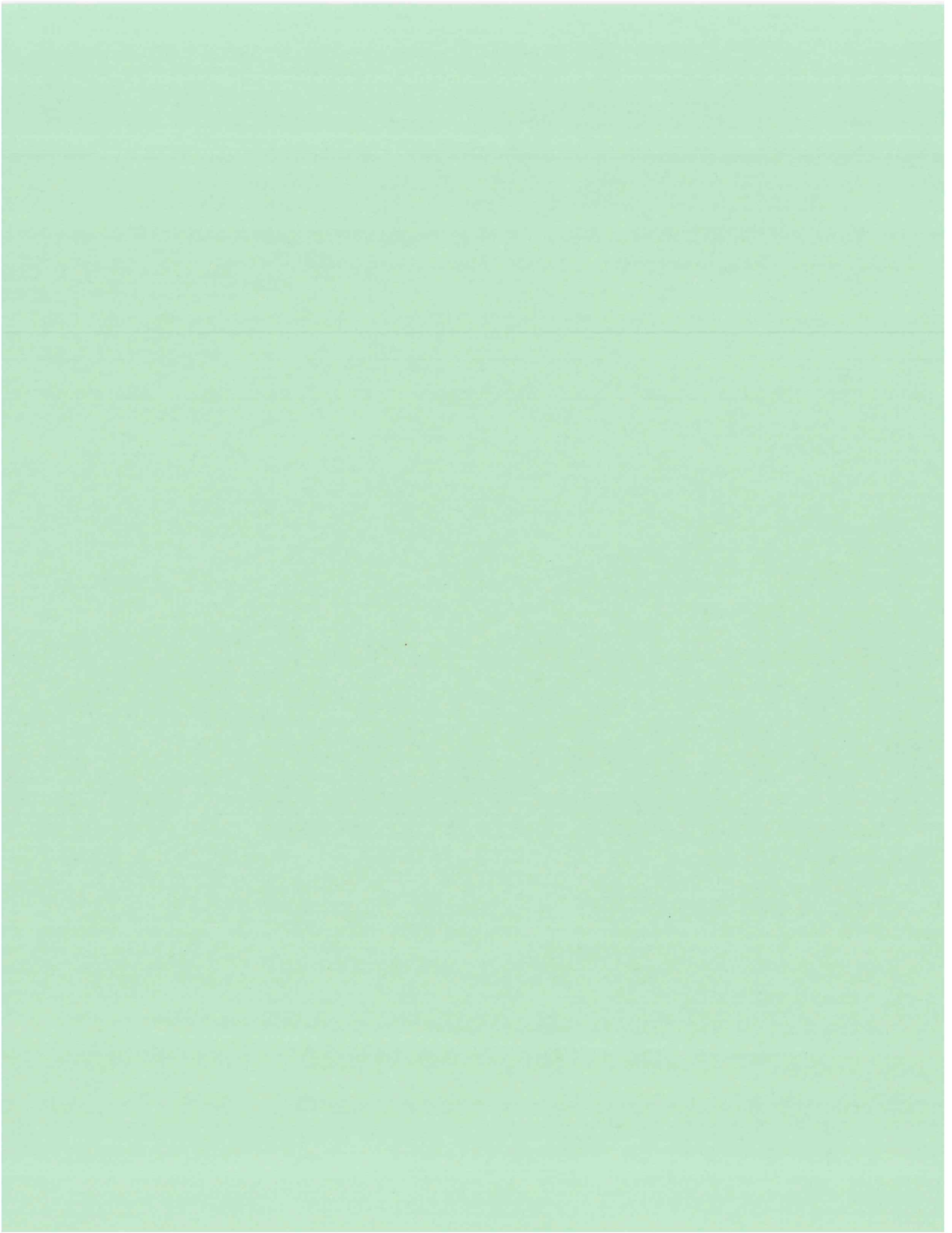
My commission expires 07-16, 2005.



RECEIVED

UST SECTION
ASHEVILLE REGIONAL OFFICE

REGIONAL
OFFICE





North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor
William G. Ross Jr., Secretary

Division of Waste Management
Underground Storage Tank Section

Dexter R. Matthews, Director

March 10, 2005

Mr. Larry Michael Evers
552 Corbin Road
Franklin, NC 28734

Sylva Brakes and Automotive
Sylva, Jackson County
Incident Number: 28270
Ranking: L 60 R

Dear Mr. Evers:

I have received the faxed copy of the certified Notice of Residual Petroleum for the subject site. Thank you for your cooperation in this matter. I look forward to receiving the original Notice to be maintained in our files. No further action will be required at this time.

Thank you for your cooperation in this matter. If you have any questions please do not hesitate to contact me at 828-296-4642.

Sincerely,

Diane M. A. Eskenasy, L.G.
Hydrogeologist
Asheville Regional Office

cc: Jackson County Health Department
Mike Owens, Mountain Geology, Inc., 1325 Dills Cove Road, Sylva, NC 28779

UST Regional Offices

Asheville (ARO) – 2090 US Highway 70, Swannanoa, NC 28778 (828) 296-4500

Fayetteville (FAY) – Systel Building, Suite 714, Fayetteville, NC 28301 (910) 486-1541

Mooresville (MOR) – 610 East Center Avenue, Suite 301, Mooresville, NC 28115 (704) 663-1699

Raleigh (RRO) – 1628 Mail Service Center, Raleigh, NC 27699 (919) 571-4700

Washington (WAS) – 943 Washington Square Mall, Washington, NC 27889 (252) 946-6481

Wilmington (WIL) – 127 Cardinal Street Extension, Wilmington, NC 28405 (910) 395-3900

Winston-Salem (WS) – 585 Waughtown Street, Winston-Salem, NC 27107 (336) 771-4600

Appendix C

Pyramid Geophysical Survey Report



PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2022-260)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION: PARCEL 10 NCDOT PROJECT R-5600 (45818.1.FR1)

360 WEST MAIN STREET, SYLVA, NC

October 21, 2022

Report prepared for: David Graham, P.G.
Hart & Hickman, P.C.
2923 South Tryon Street, Suite 100
Charlotte, NC 28203

Prepared by: _____

A handwritten signature in black ink, appearing to read "E. Cross".

Eric C. Cross, P.G.
NC License #2181

Reviewed by: _____

A handwritten signature in black ink, appearing to read "Doug Canavella".

Douglas A. Canavella, P.G.
NC License #1066

503 INDUSTRIAL AVENUE, GREENSBORO, NC 27406

P: 336.335.3174 F: 336.691.0648

C257: GEOLOGY

C1251: ENGINEERING

GEOPHYSICAL INVESTIGATION REPORT
Parcel 10 - 360 West Main Street
Sylva, Jackson County, North Carolina

Table of Contents

Executive Summary	1
Introduction.....	2
Field Methodology.....	2
Discussion of Results.....	3
<i>Discussion of EM Results</i>	3
<i>Discussion of GPR Results</i>	4
Summary & Conclusions	5
Limitations	5

Figures

- Figure 1 – Parcel 10 - Geophysical Survey Boundaries and Site Photographs
- Figure 2 – Parcel 10 - EM61 Metal Detection Contour Map
- Figure 3 – Parcel 10 - GPR Transect Locations and Select Images
- Figure 4 – Parcel 10 - Locations and Sizes of Three Probable USTs
- Figure 5 – Overlay of Metal Detection Results and Three Probable USTs on NCDOT Engineering Plans

Appendices

- Appendix A – GPR Transect Images

LIST OF ACRONYMS

CADD	Computer Assisted Drafting and Design
DF	Dual Frequency
EM.....	Electromagnetic
GPR.....	Ground Penetrating Radar
GPS	Global Positioning System
NCDOT.....	North Carolina Department of Transportation
ROW	Right-of-Way
UST	Underground Storage Tank

EXECUTIVE SUMMARY

Project Description: Pyramid Geophysical Services (Pyramid), a department within Pyramid Environmental & Engineering, P.C., conducted a geophysical investigation for Hart & Hickman, P.C. (Hart & Hickman) at Parcel 10, located at 360 West Main Street, in Sylva, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project R-5600). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted from September 26-27, 2022, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

Geophysical Results: The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of seven EM anomalies were identified. The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. The geophysical survey identified evidence of utilities and/or smaller fragments of buried debris.

Three probable USTs were observed off the northeastern corner of the building. Probable USTs #1 and #2 are each approximately 13 feet long by 5.5 feet wide. Probable UST #3 is approximately 9 feet long by 5.5 feet wide. Collectively, the geophysical data recorded evidence of three probable USTs at Parcel 10.

INTRODUCTION

Pyramid Geophysical Services (Pyramid), a department within Pyramid Environmental & Engineering, P.C., conducted a geophysical investigation for Hart & Hickman, P.C. (Hart & Hickman) at Parcel 10, located at 360 West Main Street, in Sylva, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project R-5600). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted from September 26-27, 2022, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site consisted of a commercial building surrounded by asphalt, concrete, gravel, and grass surfaces. An aerial photograph, showing the survey area boundaries, and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. Pyramid collected the EM data using a Geonics EM61-MK2 (EM61) metal detector integrated with a Geode External GPS/GLONASS receiver. The integrated GPS system allows the location of the instrument to be recorded in real-time during data collection, resulting in an EM data set that is geo-referenced and can be overlain on aerial photographs and CADD drawings. A boundary grid was established around the perimeter of the site with marks every 10 feet to maintain orientation of the instrument throughout the survey and assure complete coverage of the area.

According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. The EM61 data were digitally collected at

approximately 0.8-foot intervals along north-south trending or east-west trending, generally parallel survey lines, spaced five feet apart. The data were downloaded to a computer and reviewed in the field and office using the Geonics NAV61 and Surfer for Windows Version 15.0 software programs.

GPR data were acquired across select EM anomalies on September 27, 2022, using a Geophysical Survey Systems, Inc. (GSSI) SIR 4000 unit equipped with a 350 MHz HS antenna. Data were collected both in reconnaissance fashion as well as along formal transect lines across EM features. The GPR data were viewed in real-time using a vertical scan of 512 samples, at a rate of 48 scans per second. GPR data were viewed down to a maximum depth of approximately 6 feet, based on dielectric constants calculated by the SIR 4000 unit in the field during the reconnaissance scans. GPR transects across specific anomalies were saved to the hard drive of the SIR 4000 unit for post-processing and figure generation.

Pyramid's classifications of USTs for the purposes of this report are based directly on the geophysical UST ratings provided by the NCDOT. These ratings are as follows:

Geophysical Surveys for Underground Storage Tanks on NCDOT Projects			
High Confidence	Intermediate Confidence	Low Confidence	No Confidence
Known UST Active tank - spatial location, orientation, and approximate depth determined by geophysics.	Probable UST Sufficient geophysical data from both magnetic and radar surveys that is characteristic of a tank. Interpretation may be supported by physical evidence such as fill/vent pipe, metal cover plate, asphalt/concrete patch, etc.	Possible UST Sufficient geophysical data from either magnetic or radar surveys that is characteristic of a tank. Additional data is not sufficient enough to confirm or deny the presence of a UST.	Anomaly noted but not characteristic of a UST. Should be noted in the text and may be called out in the figures at the geophysicist's discretion.

DISCUSSION OF RESULTS

Discussion of EM Results

A contour plot of the EM61 results obtained across the survey area at the property is presented in **Figure 2**. Each EM anomaly is numbered for reference in the figure. The

following table presents the list of EM anomalies and the cause of the metallic response, if known:

Metallic Anomaly #	Cause of Anomaly	Investigated with GPR
1	Sign/Cut Poles	✓
2	Three Probable USTs	✓
3	Cut Poles	
4	Hydrant	
5	Metal Pole	
6	Guardrail	
7	Utility	✓

The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface, including cut poles, a hydrant, a metal pole, a guardrail, a sign, and a utility. GPR was performed across EM Anomalies 1, 2, and 7 to investigate whether the anomalies were the result of more significant structures such as USTs.

Discussion of GPR Results

Figure 3 presents the locations of the formal GPR transects performed at the property as well as select transect images. All of the transect images are included in **Appendix A**. A total of nine formal GPR transects were performed at the site.

GPR Transects 1 and 8-9 were performed across EM Anomalies 1 and 7, respectively. None of these transects showed evidence of significant structures such as USTs. Evidence of utilities and/or smaller fragments of buried debris was observed.

GPR Transects 2-7 were performed in the northwestern portion of the parking lot, across EM Anomaly 2. GPR Transect 2 showed two large, high-amplitude hyperbolic reflectors and GPR Transect 5 showed one large, high-amplitude reflector. GPR Transects 3-4 and 6 each showed high-amplitude lateral reflectors. These reflectors are typical of USTs. Probable USTs #1 and #2 are each approximately 13 feet long by 5.5 feet wide. Probable UST #3 is approximately 9 feet long by 5.5 feet wide. **Figure 4** provides the locations and sizes of the three probable USTs, overlain on an aerial, along with ground-level

photographs. GPR Transect 7 showed evidence of remnants of infrastructure, possibly a pump island.

Collectively, the geophysical data recorded evidence of three probable USTs at Parcel 10. **Figure 5** provides an overlay of the metal detection results and three probable USTs on the NCDOT engineering plans for reference.

SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 and GPR data collected at Parcel 10 in Sylva, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface.
- The geophysical survey identified evidence of utilities and/or smaller fragments of buried debris.
- Three probable USTs were observed off the northeastern corner of the building. Probable USTs #1 and #2 are each approximately 13 feet long by 5.5 feet wide. Probable UST #3 is approximately 9 feet long by 5.5 feet wide.
- Collectively, the geophysical data recorded evidence of three probable USTs at Parcel 10.

LIMITATIONS

Geophysical surveys have been performed and this report was prepared for Hart & Hickman, P.C. in accordance with generally accepted guidelines for EM61 and GPR surveys. It is generally recognized that the results of the EM61 and GPR surveys are non-unique and may not represent actual subsurface conditions. The EM61 and GPR results obtained for this project have not conclusively determined the definitive presence or absence of metallic USTs, but the evidence collected is sufficient to result in the

conclusions made in this report. Additionally, it should be understood that areas containing extensive vegetation, reinforced concrete, or other restrictions to the accessibility of the geophysical instruments could not be fully investigated.

APPROXIMATE BOUNDARIES OF GEOPHYSICAL SURVEY AREA



View of Survey Area (Facing Approximately West)



View of Survey Area (Facing Approximately East)



503 INDUSTRIAL AVENUE
GREENSBORO, NC 27406
(336) 335-3174 (p) (336) 691-0648 (f)
License # C1251 Eng. / License # C257 Geology

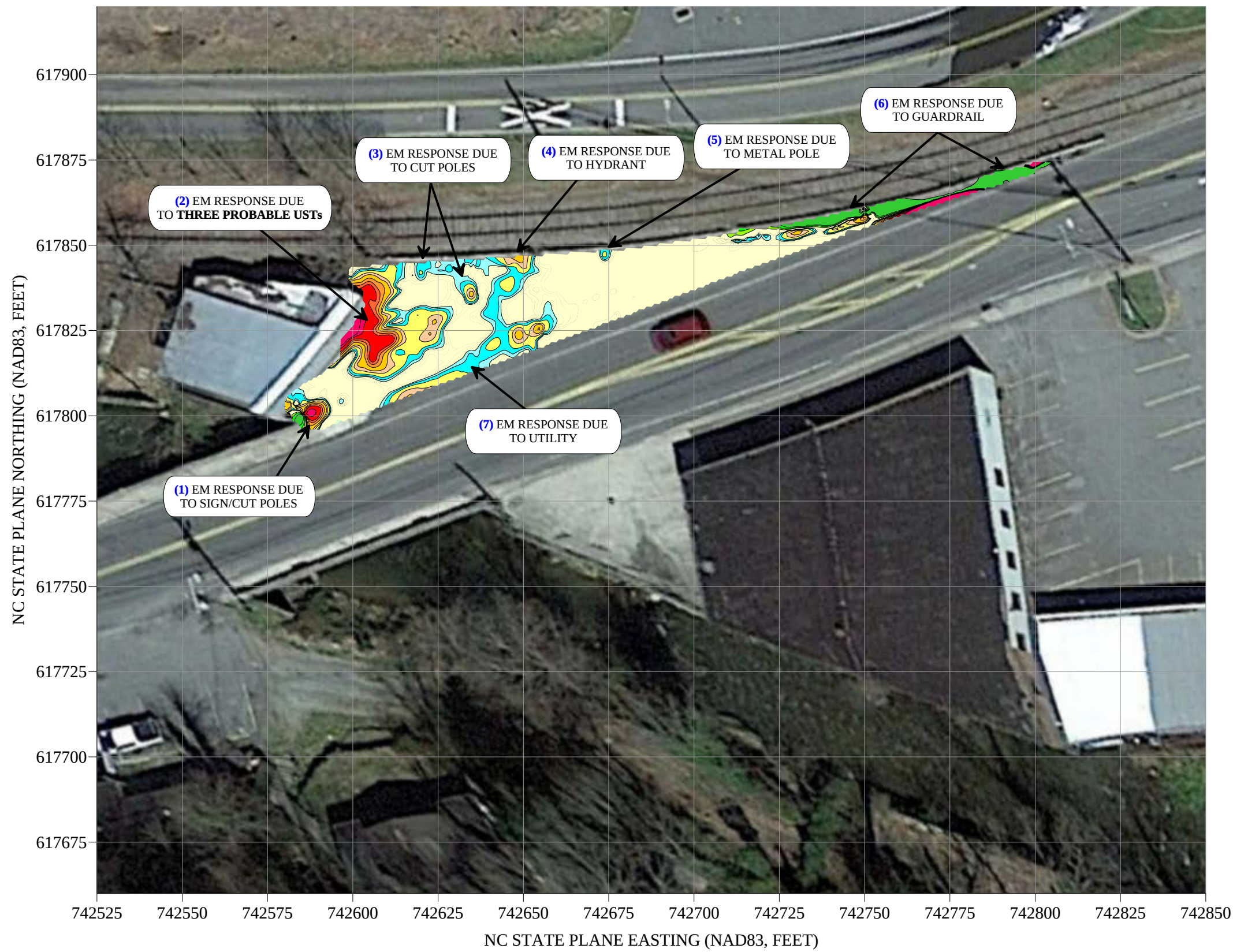
PROJECT
PARCEL 10
SYLVA, NORTH CAROLINA
NCDOT PROJECT R-5600

TITLE
PARCEL 10 -
GEOPHYSICAL SURVEY BOUNDARIES
AND SITE PHOTOGRAPHS

DATE
9/30/2022
PYRAMID
PROJECT #:
2022-260

CLIENT
HART & HICKMAN
FIGURE 1

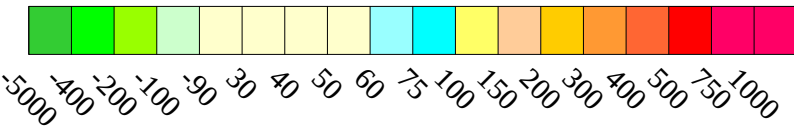
EM61 METAL DETECTION RESULTS



EVIDENCE OF THREE PROBABLE USTs WAS OBSERVED.

The contour plot shows the differential results of the EM61 instrument in millivolts (mV). The differential results focus on larger metallic objects such as USTs and drums. The EM data were collected on September 26, 2022, using a Geonics EM61-MK2 instrument. Verification GPR data were collected using a GSSI SIR 4000 instrument with a 350 MHz HS antenna on September 27, 2022.

EM61 Metal Detection Response (millivolts)



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License # C1251 Eng. / License # C257 Geology

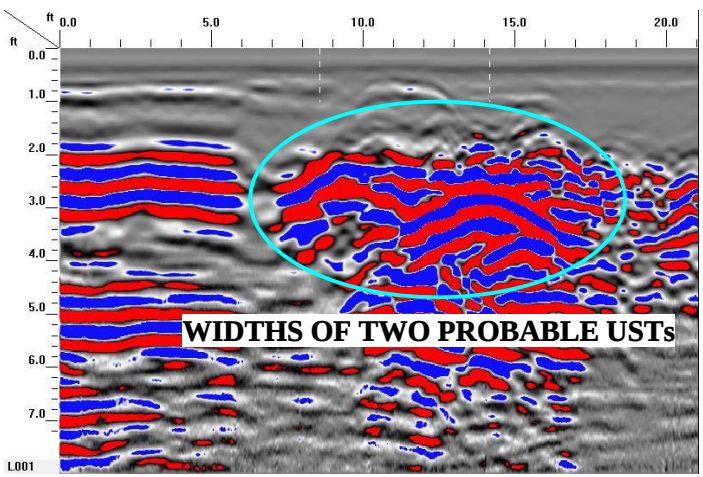
PROJECT
PARCEL 10
SYLVA, NORTH CAROLINA
NCDOT PROJECT R-5600

TITLE
PARCEL 10 -
EM61 METAL DETECTION CONTOUR MAP

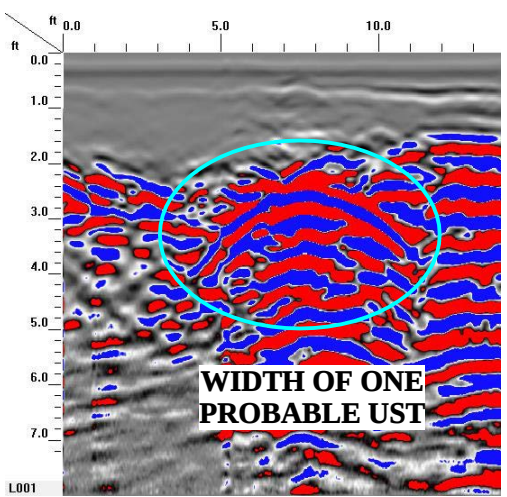
DATE
9/30/2022
PYRAMID
PROJECT #: 2022-260

CLIENT
HART & HICKMAN
FIGURE 2

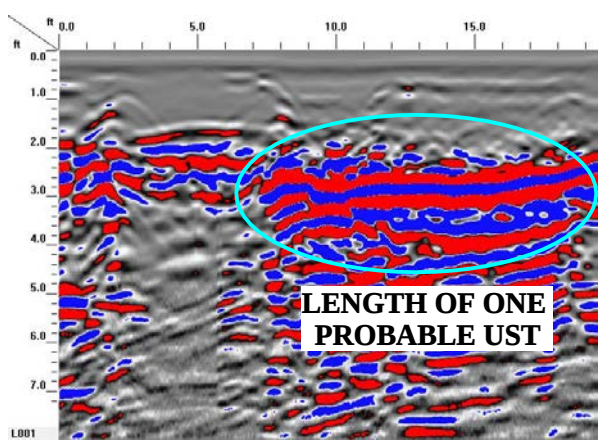
GPR TRANSECT LOCATIONS



GPR TRANSECT 2 (T2)



GPR TRANSECT 5 (T5)

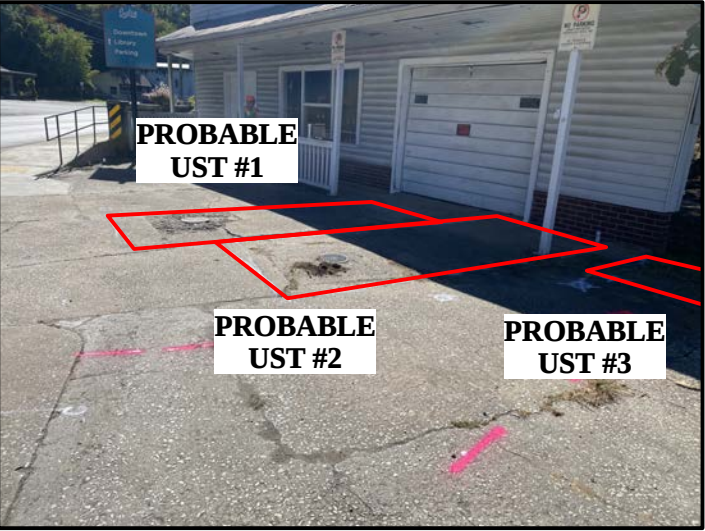


GPR TRANSECT 3 (T3)

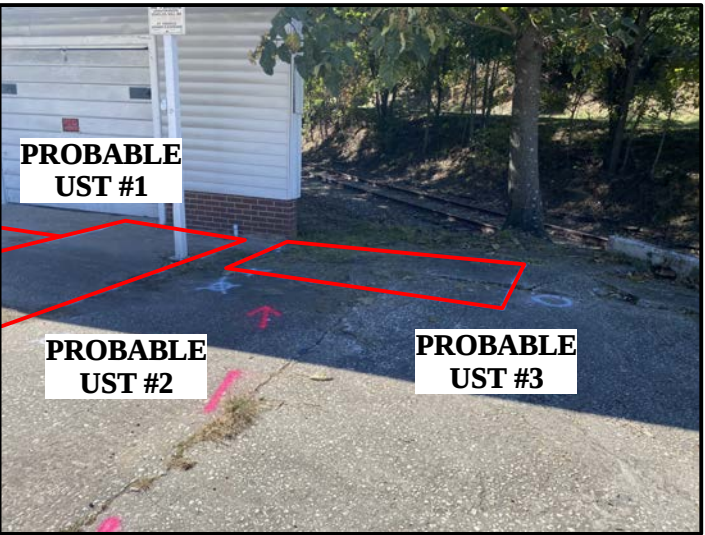


 503 INDUSTRIAL AVENUE GREENSBORO, NC 27406 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	PROJECT PARCEL 10 SYLVA, NORTH CAROLINA NCDOT PROJECT R-5600	TITLE PARCEL 10 - GPR TRANSECT LOCATIONS AND SELECT IMAGES	DATE 9/30/2022	CLIENT HART & HICKMAN
			PYRAMID PROJECT #: 2022-260	FIGURE 3

LOCATIONS OF THREE PROBABLE USTs



View of Three Probable USTs
(Facing Approximately Southwest)



View of Three Probable USTs
(Facing Approximately Northwest)



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GREENSBORO, NC 27406
(336) 335-3174 (p) (336) 691-0648 (f)
License # C1251 Eng. / License # C257 Geology

PROJECT
PARCEL 10
SYLVA, NORTH CAROLINA
NCDOT PROJECT R-5600

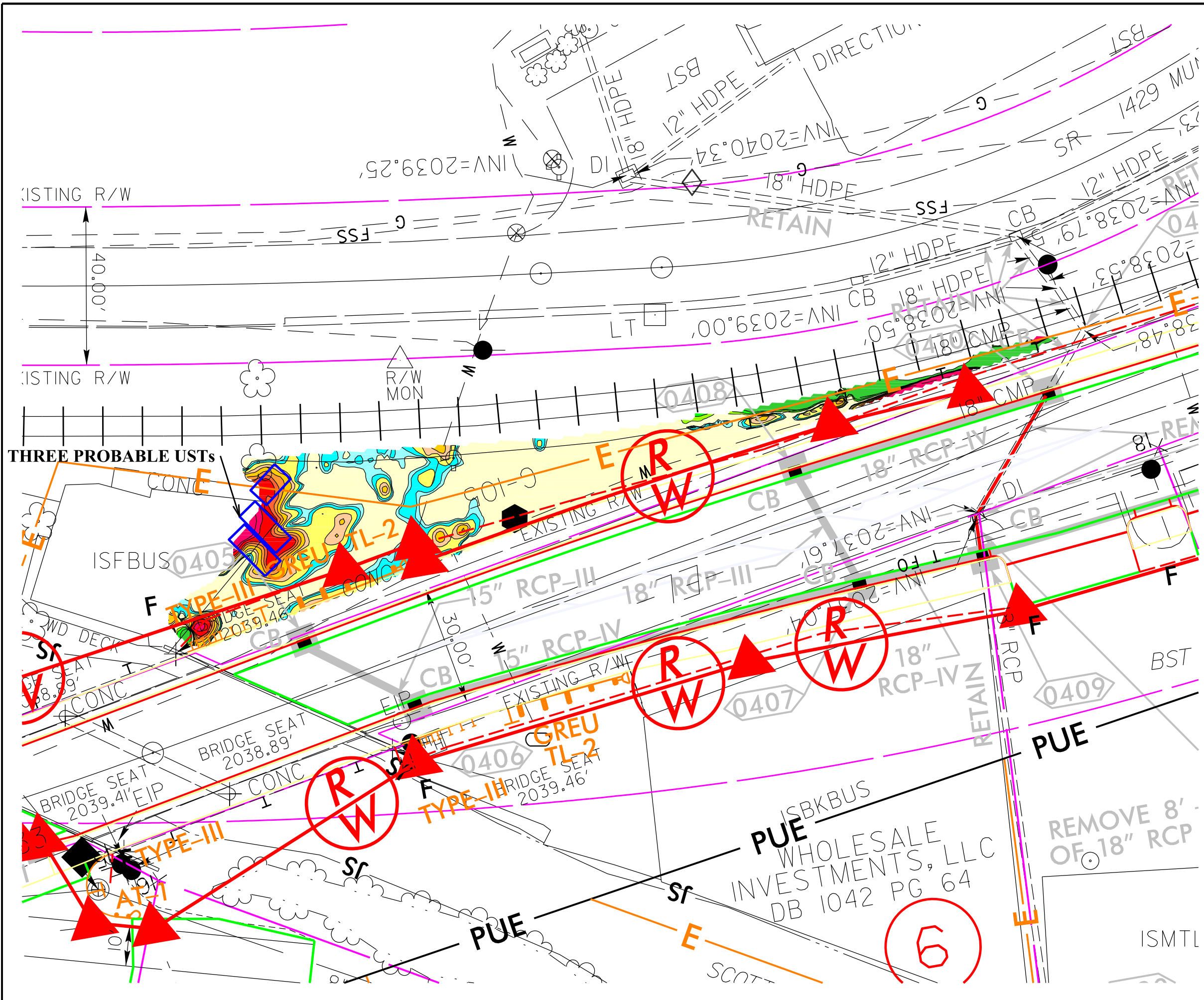
TITLE
PARCEL 10 -
LOCATIONS AND SIZES OF THREE
PROBABLE USTs

DATE
9/30/2022

PYRAMID
PROJECT #:
2022-260

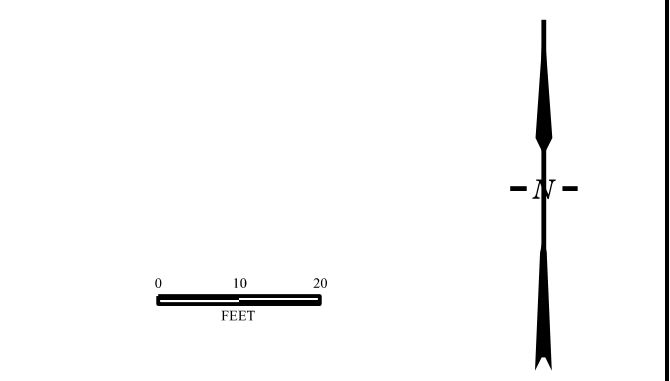
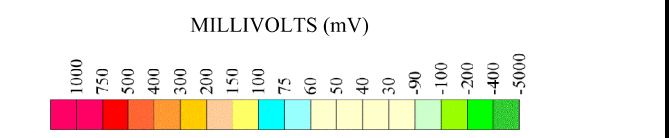
CLIENT
HART & HICKMAN

FIGURE 4



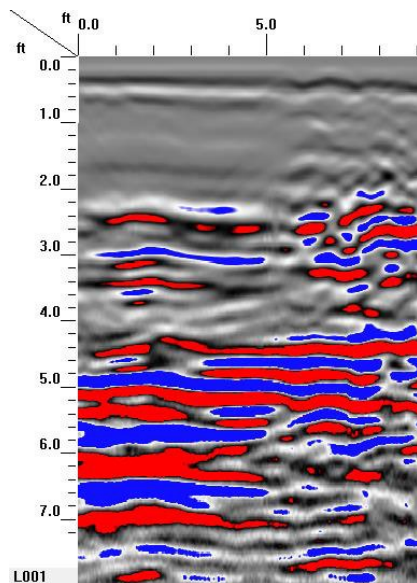
LEGEND

- EXISTING ROW
- EXISTING PROPERTY BOUNDARY
- PROPOSED ROW LINE
- TEMPORARY CONSTRUCTION EASEMENT
- PUE - PERMANENT UTILITY EASEMENT
- PROPOSED SS CUT LINE
- PROPOSED SS FILL LINE
- PROBABLE UST

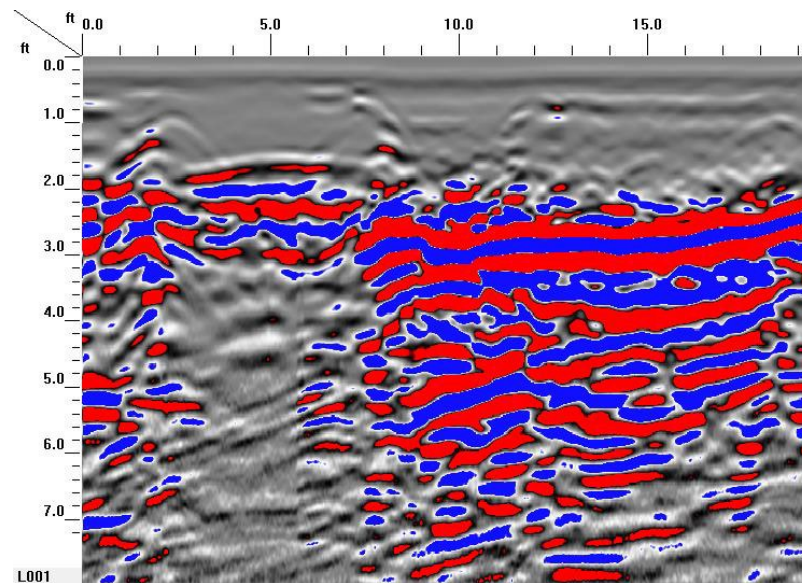


TITLE	OVERLAY OF METAL DETECTION RESULTS AND THREE PROBABLE USTs ON NCDOT ENGINEERING PLANS		
PROJECT	PARCEL 10 SYLVA, NORTH CAROLINA NCDOT PROJECT R-5600		
	 503 INDUSTRIAL AVENUE GREENSBORO, NC 27406 336.335.3174 (p) 336.691.0648 (f) License # C1251 Eng. / #C257 Geology		
DATE: 10-3-2022	REVISION NO. 0		
PYRAMID PROJECT NO. 2022-260	FIGURE NO. 5		

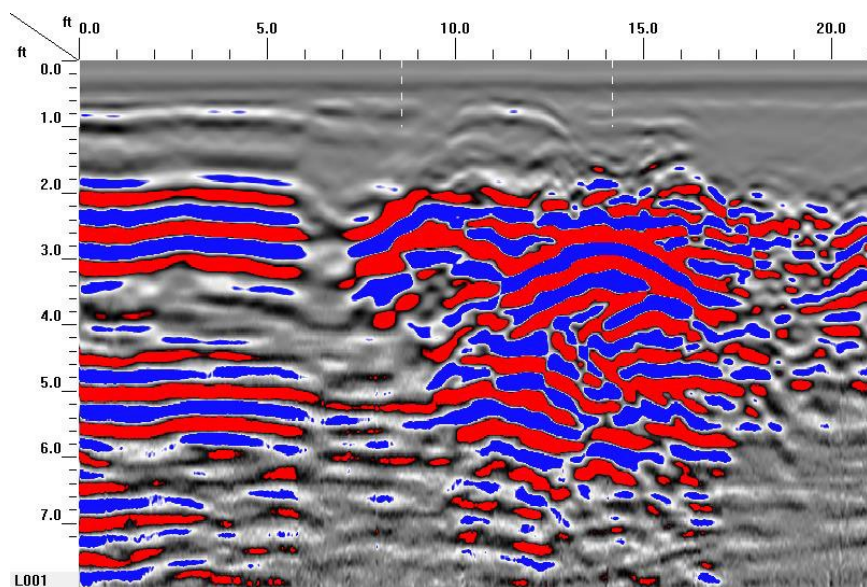
Appendix A – GPR Transect Images



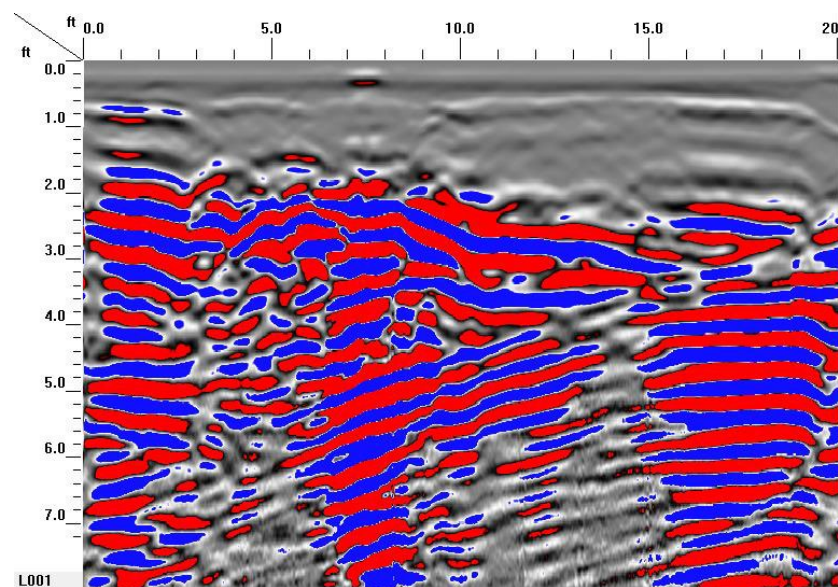
GPR TRANSECT 1



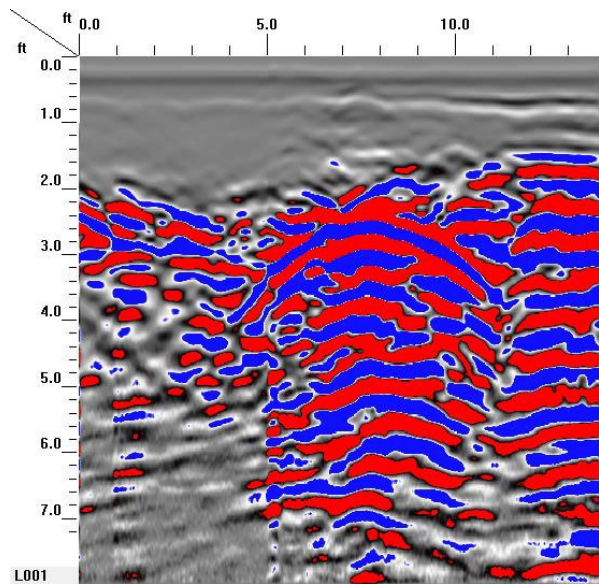
GPR TRANSECT 3



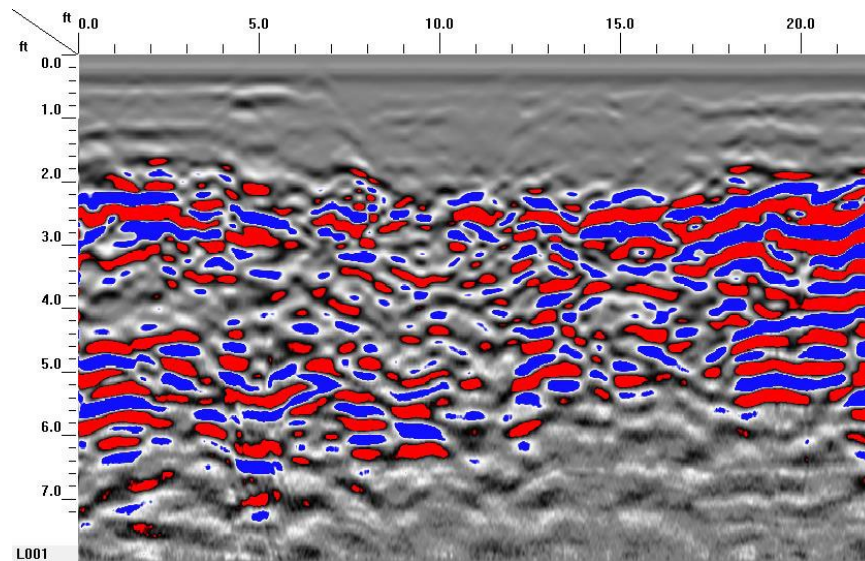
GPR TRANSECT 2



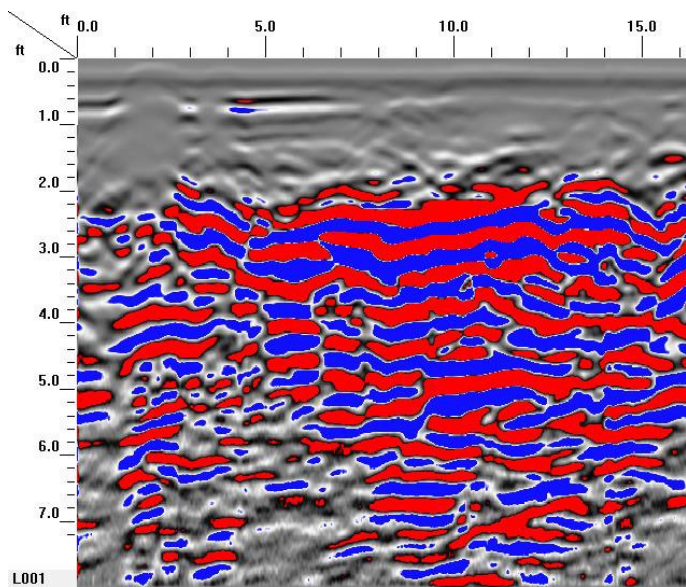
GPR TRANSECT 4



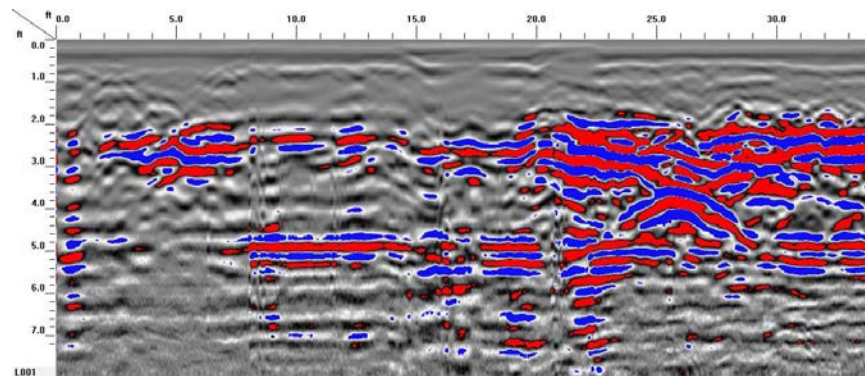
GPR TRANSECT 5



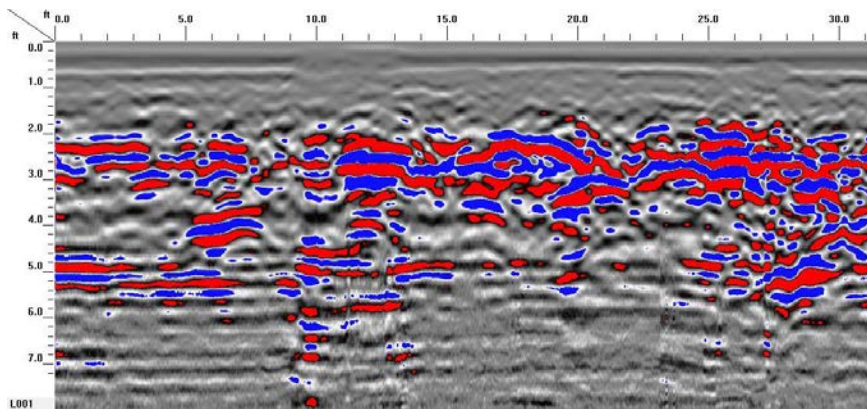
GPR TRANSECT 6



GPR TRANSECT 7



GPR TRANSECT 8



GPR TRANSECT 9

Appendix D

Photographs



Photograph 1: View of potential fill ports near UST #1 and UST #2.



Photograph 2: View of potential fill port near UST #3.

Via NC DOT FTS

November 30, 2022

NC DOT Geotechnical Unit
GeoEnvironmental Section
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

Attention: Mr. Ashley Cox, LG

Re: Geophysical Survey Report – Parcel 30
NC DOT State Project No. R-5600
WBS Element No. 45818.1.FR1
Sylva, Jackson County, North Carolina
H&H Job No. ROW-704

Dear Ashley:

Please find the attached PDF copy of the Geophysical Survey Report for the K&HB Enterprises, LLC property (Parcel 30) located in Sylva, Jackson County, North Carolina. Please return via DocuSign for final signatures. If you have any questions or need additional information, please contact us at (704) 586-0007.

Sincerely,

Hart & Hickman, PC



David Graham, PG
Senior Project Geologist



Matt Bramblett, PE
Principal

Attachment

Geophysical Survey Report NC DOT Parcel 30

**32 Asheville Highway
Sylva, Jackson County
North Carolina**

**H&H Job No. ROW-704
State Project: R-5600
WBS Element No. 45818.1.FR1
November 30, 2022**



**#C-1269 Engineering
#-245 Geology**

2923 South Tryon Street, Suite 100
Charlotte, NC 28203
704.586.0007 main

3921 Sunset Ridge Rd , Suite 301
Raleigh, NC 27607
919.847.4241 main

www.harthickman.com

Via NC DOT FTS

November 30, 2022

NC DOT - Geotechnical Unit
GeoEnvironmental Section
1589 Mail Service Center
Raleigh, NC 27699-1589

Attention: Mr. Ashley Cox, LG

Re: Geophysical Survey
NC DOT Parcel 30
32 Asheville Highway, Sylva, Jackson County, North Carolina
State Project: R-5600; WBS Element No. 45818.1.FR1
H&H Job No. ROW-704

Dear Ashley:

1.0 Introduction and Background Information

Hart & Hickman, PC (H&H) has prepared this letter report documenting geophysical survey activities conducted on the K&HB Enterprises, LLC property (Parcel 30) located at 32 Asheville Highway in Sylva, Jackson County, North Carolina. The geophysical survey activities were conducted on behalf of the North Carolina Department of Transportation (NC DOT) in accordance with H&H's August 17, 2022 proposal.

This geophysical survey was conducted to evaluate the potential for underground storage tank (UST) systems on proposed right of way and construction easement areas on Parcel 30 related to proposed road improvements along W. Main St. and Asheville Highway (State Project R-5600). This NC DOT road improvement project includes new curb and gutters, stormwater drainage piping, sidewalks, etc. Parcel 30 is currently occupied by a vacant one-story building (former medical clinic) and parking areas. A site location map is included as Figure 1. NC DOT's plan sheet depicting Parcel 30 is included in Appendix A.

H&H searched the North Carolina Department of Environmental Quality (NC DEQ) Laserfiche website and NC DEQ UST databases for incident files related to the Parcel 30 address to better target UST system areas and to check for locations of previously reported impacts. According to NC DEQ's Site Locator Tool website, the site was previously occupied by Cagles Auto Service, and NC DEQ Incident No. 13738 is associated with this property. Review of limited NC DEQ files indicate that three gasoline USTs were removed from the property in the early 1990's. Based on UST closure soil analytical results, DEQ's predecessor (North Carolina Department of Environment, Health, and Natural Resources) issued a letter dated May 27, 1993 that no further soil removal or soil sampling was required at the site. The location of the former UST system is unknown. Available files obtained from NC DEQ's Laserfiche website for Parcel 30 are included in Appendix B.

H&H subcontracted with Pyramid Geophysical Services (Pyramid) of Greensboro, NC to conduct the geophysical survey to screen for the presence of remaining USTs. The geophysical survey activities are discussed below.

2.0 Geophysical Survey Activities

H&H reviewed the results of the geophysical survey performed on Parcel 30 by Pyramid on September 26 and 27, 2022. Pyramid utilized electromagnetic (EM) induction technology and ground penetrating radar (GPR) to identify potential geophysical anomalies and potential USTs at the site.

A total of thirteen EM anomalies were identified at the site. The EM anomalies were attributed to known surface metallic objects such as above-ground metal structures (i.e. manholes, drop inlets, etc.) that were not characteristic signatures of USTs. The EM/GPR results indicated that no potential USTs were identified on Parcel 30. Pyramid's report, including figures depicting the results of the EM/GPR survey, is provided in Appendix C.

3.0 Conclusions

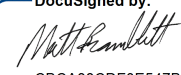
H&H has reviewed NC DEQ incident files and the results of a geophysical survey conducted on Parcel 30 located at 32 Asheville Highway in Sylva, Jackson County, North Carolina. NC DEQ incident files indicate that Parcel 30 was previously occupied by Cagles Auto Service (NC DEQ Incident No. 13738). Three gasoline USTs were removed from the site in the early 1990's. DEQ's predecessor (North Carolina Department of Environment, Health, and Natural Resources) issued a letter dated May 27, 1993 that no further soil removal or soil sampling was required at the site. No USTs were identified on Parcel 30 during geophysical survey activities. If a UST is encountered during construction activities, the UST system(s) and their contents should be removed in accordance with NC DEQ regulations and properly disposed. Impacted media encountered during road construction activities, if any, should be properly managed and disposed at a permitted facility.

Should you have any questions or need additional information, please do not hesitate to contact us at (704) 586-0007.

Sincerely,

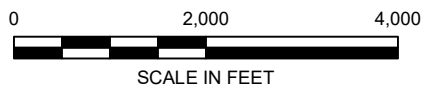
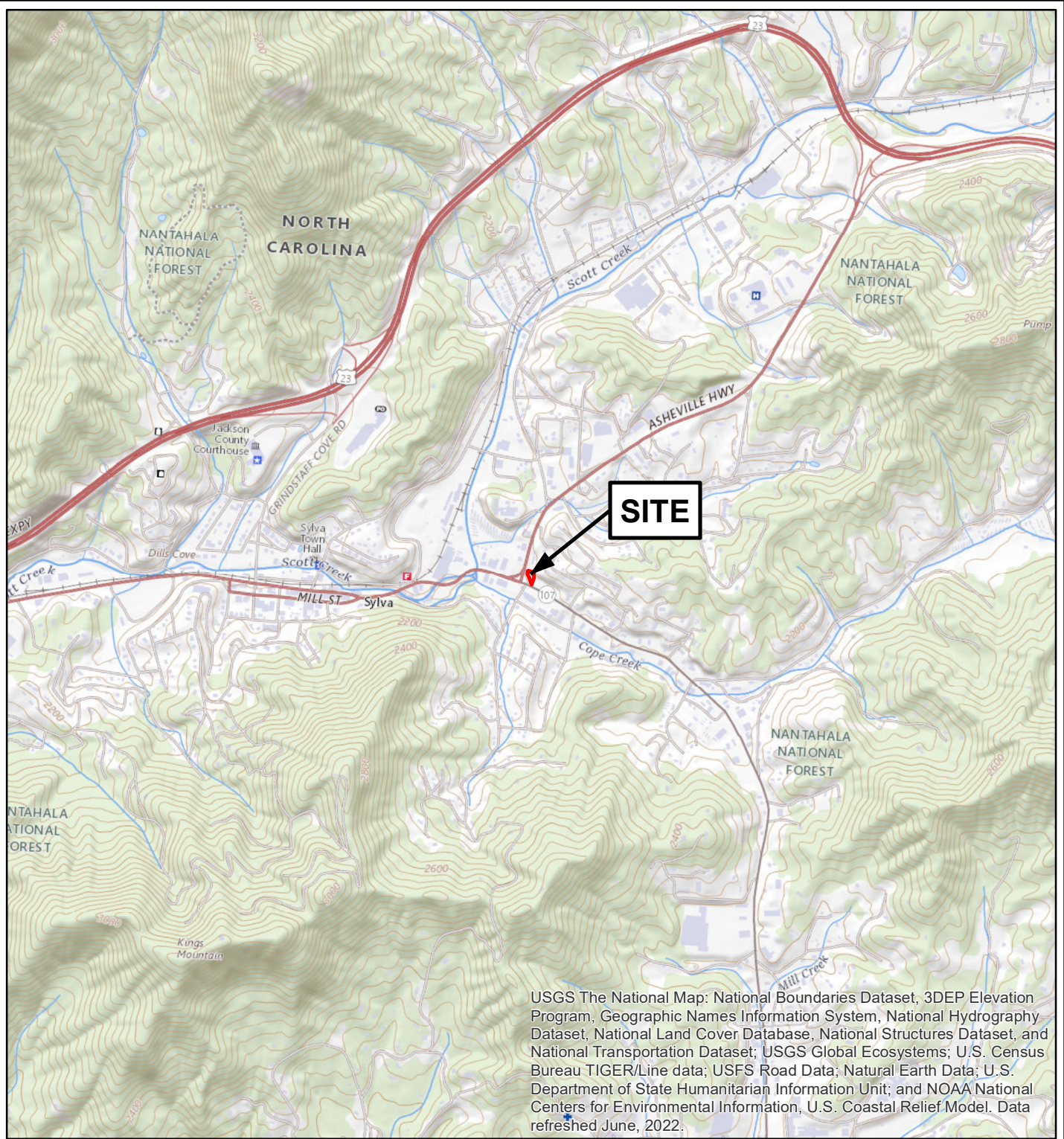
Hart & Hickman, PC

DocuSigned by:
 12/05/2022
9F6FA06E6BA34BE...
David Graham, PG
Senior Project Geologist

DocuSigned by:
 ...
CBCA88CDF0E547B...
Matt Bramblett, PE
Principal and Project Manager



Not considered final unless all signatures are completed.
Attachments



U.S.G.S. QUADRANGLE MAP
SYLVA SOUTH, NORTH CAROLINA 2019
QUADRANGLE
7.5 MINUTE SERIES (TOPOGRAPHIC)

TITLE SITE LOCATION MAP	
PROJECT NCDOT PARCEL 30 32 ASHEVILLE HIGHWAY SYLVA, NORTH CAROLINA	
 2923 South Tryon Street - Suite 100 Charlotte, North Carolina 28203 704-586-0007 (p) 704-586-0373 (f) License # C-1269 / # C-245 Geology	
DATE: 10-5-22	REVISION NO: 0
JOB NO: ROW-704	FIGURE NO: 1

Appendix A
NC DOT Preliminary Plan

-L-		
PI Sta 22+86.36	PI Sta 27+43.07	PI Sta 34+05.95
$\Delta = 46^{\circ} 37' 27.8" (LT)$	$\Delta = 55^{\circ} 37' 20.3" (RT)$	$\Delta = 12^{\circ} 29' 09.5" (RT)$
D = 16' 51" 06.1'	D = 9' 23' 33.9"	D = 3' 10' 59.2"
L = 288.54'	L = 592.18'	L = 392.26'
T = 153.60'	T = 321.77'	T = 196.9'
R = 340.00'	R = 610.00'	R = 1,800.00'
SE = NC	SE = NC	SE = 03
DS = 30 MPH	DS = 30 MPH	DS = 30 MPH

28 THE FISH CAMPA, LLC
DB 2170 PG 196

CHRISTOPHER HAMILTON, ET UX, ET AL
DB 2303 PG 1452
DB 2275 PG 475
DB 2274 PG 804
DB 1419 PG 806

-Y-	
PI Sta 12+56.00	PI Sta 15+66.64
$\Delta = 3^{\circ} 55' 51.7''$ (RT)	$\Delta = 3^{\circ} 31' 55.3''$ (LT)
$D = 1^{\circ} 12' 04.2''$	$D = 1^{\circ} 12' 04.2''$
$L = 327.27'$	$L = 294.05'$
$T = 163.70'$	$T = 147.07'$
$R = 4,770.00'$	$R = 4,770.00'$
SE = NC	SE = NC
DS = 40 MPH	DS = 40 MPH

-Y4-

PI Sta 12+57.18
 $\Delta = 9^{\circ} 07' 22.9" (LT)$
 $D = 14^{\circ} 19' 26.2"$
 $L = 63.69'$
 $T = 31.91'$
 $R = 400.00'$
 $SE = NC$
 $DS = 30 \text{ MPH}$

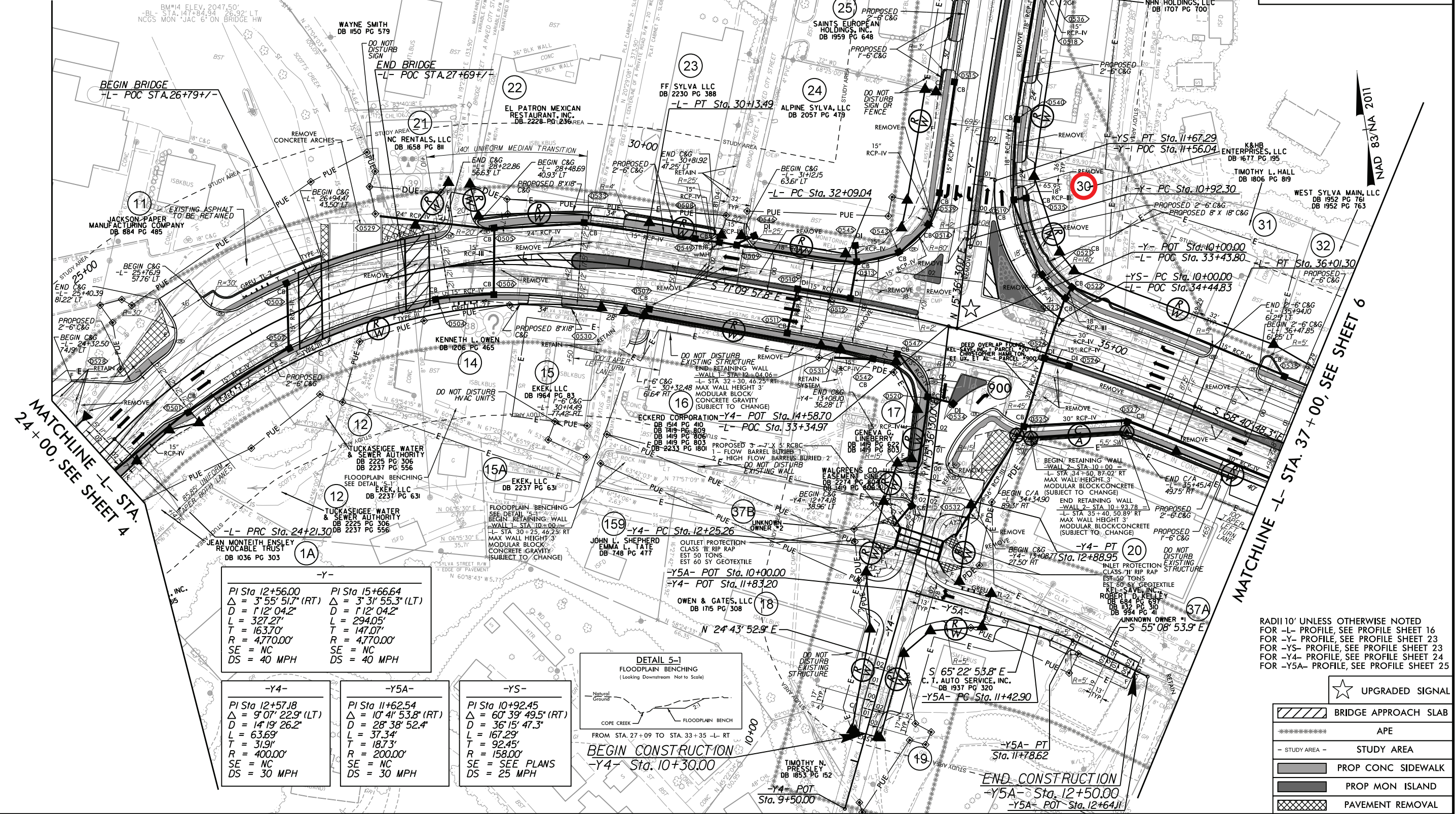
-Y5A-

PI Sta 11+62.54
 $\Delta = 10^{\circ} 41' 53.8''$ (RT)
 $D = 28^{\circ} 38' 52.4''$
 $L = 37.34'$
 $T = 18.73'$
 $R = 200.00'$
 $SE = NC$
 $DS = 30$ MPH

-YS-

PI Sta 10+92.45
 $\Delta = 60^{\circ} 39' 49.5''$ (RT)
 $D = 36^{\circ} 15' 47.3''$
 $L = 167.29'$
 $T = 92.45'$
 $R = 158.00'$
SE = SEE PLANS
DS = 25 MPH

PROJECT REFERENCE NO.	SHEET NO.
R-5600	5
R/W SHEET NO.	RW-5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

 HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

RADII 10' UNLESS OTHERWISE NOTED
 FOR -L- PROFILE, SEE PROFILE SHEET 16
 FOR -Y- PROFILE, SEE PROFILE SHEET 23
 FOR -YS- PROFILE, SEE PROFILE SHEET 23
 FOR -Y4- PROFILE, SEE PROFILE SHEET 24
 FOR -Y5A- PROFILE, SEE PROFILE SHEET 25

★ UPGRADED SIGNAL

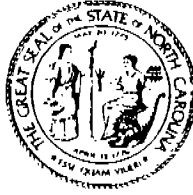
	BRIDGE APPROACH SLAB
*****	APE
- STUDY AREA -	STUDY AREA
	PROP CONC SIDEWALK
	PROP MON ISLAND
	PAVEMENT REMOVAL

ROW AND PUE REVISED: PARCELS 15 & 16; TCE REVISED: PARCELS 15, 15A, 16, & 159
 10/25/2021 PARCEL OWNERS 12 & 13 COMBINED INTO: PARCEL 12; PARCEL OWNERS 20, 33 & 34 COMBINED INTO: PARCEL 20
 2/8/2022 PARCEL 378 ADDED; PARCELS 15, 15A, 16, 17, 18, 19, 20, 37A, 37B, & 159 BOUNDARIES REVISED
 7/9/2022

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt
PENTABLE: R5600_pshpfl.tbl
USER: ASNIDER
DATE: 7/29/2022
TIME: 1:53:20 PM

Appendix B

Historical Environmental Documents



State of North Carolina
Department of Environment, Health, and Natural Resources

Asheville Regional Office

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary

DIVISION OF ENVIRONMENTAL MANAGEMENT
GROUNDWATER SECTION

Ann B. Orr
Regional Manager

May 27, 1993

Mr. Mike Owens
66 Dill Cove Road
Sylva, North Carolina 28779

Need
GW UST-2

Dear Mr. Owens:

SUBJECT: Underground Storage Tank Closure
Cagles Auto Service
Jackson County, North Carolina

MINN PIPE
No Notice?

Based upon the laboratory results of soil sampling performed during tank removal activities at the subject site, no further soil removal or sampling will be required at this time. However, I can find no record of this office being notified prior to the removal of the USTs. In addition, a Site Investigation Report form (GW/UST-2) was not included with the closure report as required. I have enclosed the applicable UST closure forms which must be completed and returned to this office.

If you have any questions you may telephone me at (704) 251-6208.

Sincerely,

Sylva
Texaco
3-gas

Michael E. Streeter
Hydrogeological Technician

/mes _____

Enclosures

cc: Carl Cagle
Burrie Boshoff

POLLUTION INCIDENT/U.S.T. LEAK REPORTING FORM

Department of Environment, Health, Natural Resources
Division of Environmental Management
GROUNDWATER SECTION

Confirm. GW Contamination (Y/N) N
Major Soil Contamination (Y/N) N
Minor Soil Contamination (Y/N) Y

Incident # _____
Date Incident Occurred
or Leak Detected 4-9-93

INCIDENT DESCRIPTION

Incident Location/Name Cagle's Auto Service (ID# 6-617475)
Address P.O. Box 639
City/Town Sylva County Jackson Region Asheville
Briefly Describe Incident Minor petroleum hydrocarbon soil contamination detected during UST removal.

POTENTIAL SOURCE OWNER-OPERATOR

Potential Source Owner-Operator Carl Cagle Telephone _____
Company _____ Street Address P.O. Box 639
City Sylva County Jackson State NC Zip Code 28779

OWNERSHIP

0. N/A 1. Municipal 2. Military 3. Unknown 4. Private 5. Federal 6. County 7. State

OPERATION TYPE

0. N/A 1. Public Service 2. Agricultural 3. Residential 4. Educational/Relig. 5. Industrial 6. Commercial 7. Mining

POLLUTANTS INVOLVED

MATERIALS INVOLVED	AMOUNT LOST	AMOUNT RECOVERED
<u>gasoline</u>	<u>cleaned out 3-27-95</u>	

SOURCE OF POLLUTION

PRIMARY SOURCE OF POLLUTION (Select one)	PRIMARY POLLUTANT TYPE (Select one)	LOCATION	SETTING
1. Intentional dump	1. Pesticide/herbicide	1. Facility	1. Residential
2. Pit, pond, lagoon	2. Radioactive waste	2. Railroad	2. Industrial
3. Leak-underground	3. Gasoline/diesel	3. Waterway	3. Urban
4. Spray irrigation	4. Heating oil	4. Pipeline	4. Rural
5. Land application	5. Other petroleum prod.	5. Dumpsite	
6. Animal feedlot	6. Sewage/septage	6. Highway	
7. Source unknown	7. Fertilizers	7. Residence	
8. Septic tank	8. Sludge	8. Other	
9. Sewer line	9. Solid waste leachate		
10. Stockpile	10. Metals		
11. Landfill	11. Other inorganics		
12. Spill-surface	12. Other organics		

D.E.M. Regional Contact Mike Streater Signature M-Streater Date 3-27-95
Site Priority Ranking Minor

Appendix C
Pyramid Geophysical Survey Report



PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2022-260)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION: PARCEL 30 NCDOT PROJECT R-5600 (45818.1.FR1)

32 ASHEVILLE HIGHWAY, SYLVA, NC

October 21, 2022

Report prepared for: David Graham, P.G.
Hart & Hickman, P.C.
2923 South Tryon Street, Suite 100
Charlotte, NC 28203

Prepared by: _____

A handwritten signature in black ink, appearing to read "E. Cross".

Eric C. Cross, P.G.
NC License #2181

Reviewed by: _____

A handwritten signature in black ink, appearing to read "Doug Canavella".

Douglas A. Canavella, P.G.
NC License #1066

503 INDUSTRIAL AVENUE, GREENSBORO, NC 27406

P: 336.335.3174 F: 336.691.0648

C257: GEOLOGY

C1251: ENGINEERING

GEOPHYSICAL INVESTIGATION REPORT
Parcel 30 - 32 Asheville Highway
Sylva, Jackson County, North Carolina

Table of Contents

Executive Summary	1
Introduction.....	2
Field Methodology.....	2
Discussion of Results.....	3
<i>Discussion of EM Results</i>	3
<i>Discussion of GPR Results</i>	4
Summary & Conclusions	5
Limitations	5

Figures

- Figure 1 – Parcel 30 - Geophysical Survey Boundaries and Site Photographs
- Figure 2 – Parcel 30 - EM61 Metal Detection Contour Map
- Figure 3 – Parcel 30 - GPR Transect Locations and Select Image
- Figure 4 – Overlay of Metal Detection Results on NCDOT Engineering Plans

Appendices

- Appendix A – GPR Transect Images

LIST OF ACRONYMS

CADD	Computer Assisted Drafting and Design
DF	Dual Frequency
EM.....	Electromagnetic
GPR.....	Ground Penetrating Radar
GPS	Global Positioning System
NCDOT.....	North Carolina Department of Transportation
ROW	Right-of-Way
UST	Underground Storage Tank

EXECUTIVE SUMMARY

Project Description: Pyramid Geophysical Services (Pyramid), a department within Pyramid Environmental & Engineering, P.C., conducted a geophysical investigation for Hart & Hickman, P.C. (Hart & Hickman) at Parcel 30, located at 32 Asheville Highway, in Sylva, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project R-5600). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted from September 26-27, 2022, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

Geophysical Results: The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of thirteen EM anomalies were identified. All of the EM anomalies were directly attributed to visible cultural features at the ground surface. The geophysical survey identified evidence of utilities and/or smaller fragments of buried debris. Collectively, the geophysical data recorded no evidence of metallic USTs at Parcel 30.

INTRODUCTION

Pyramid Geophysical Services (Pyramid), a department within Pyramid Environmental & Engineering, P.C., conducted a geophysical investigation for Hart & Hickman, P.C. (Hart & Hickman) at Parcel 30, located at 32 Asheville Highway, in Sylva, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project R-5600). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted from September 26-27, 2022, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site consisted of a vacant office building surrounded by asphalt, concrete, and grass surfaces. An aerial photograph, showing the survey area boundaries, and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. Pyramid collected the EM data using a Geonics EM61-MK2 (EM61) metal detector integrated with a Geode External GPS/GLONASS receiver. The integrated GPS system allows the location of the instrument to be recorded in real-time during data collection, resulting in an EM data set that is geo-referenced and can be overlain on aerial photographs and CADD drawings. A boundary grid was established around the perimeter of the site with marks every 10 feet to maintain orientation of the instrument throughout the survey and assure complete coverage of the area.

According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. The EM61 data were digitally collected at

approximately 0.8-foot intervals along north-south trending or east-west trending, generally parallel survey lines, spaced five feet apart. The data were downloaded to a computer and reviewed in the field and office using the Geonics NAV61 and Surfer for Windows Version 15.0 software programs.

GPR data were acquired across select EM anomalies on September 27, 2022, using a Geophysical Survey Systems, Inc. (GSSI) SIR 4000 unit equipped with a 350 MHz HS antenna. Data were collected both in reconnaissance fashion as well as along formal transect lines across EM features. The GPR data were viewed in real-time using a vertical scan of 512 samples, at a rate of 48 scans per second. GPR data were viewed down to a maximum depth of approximately 6 feet, based on dielectric constants calculated by the SIR 4000 unit in the field during the reconnaissance scans. GPR transects across specific anomalies were saved to the hard drive of the SIR 4000 unit for post-processing and figure generation.

Pyramid's classifications of USTs for the purposes of this report are based directly on the geophysical UST ratings provided by the NCDOT. These ratings are as follows:

Geophysical Surveys for Underground Storage Tanks on NCDOT Projects			
High Confidence	Intermediate Confidence	Low Confidence	No Confidence
Known UST Active tank - spatial location, orientation, and approximate depth determined by geophysics.	Probable UST Sufficient geophysical data from both magnetic and radar surveys that is characteristic of a tank. Interpretation may be supported by physical evidence such as fill/vent pipe, metal cover plate, asphalt/concrete patch, etc.	Possible UST Sufficient geophysical data from either magnetic or radar surveys that is characteristic of a tank. Additional data is not sufficient enough to confirm or deny the presence of a UST.	Anomaly noted but not characteristic of a UST. Should be noted in the text and may be called out in the figures at the geophysicist's discretion.

DISCUSSION OF RESULTS

Discussion of EM Results

A contour plot of the EM61 results obtained across the survey area at the property is presented in **Figure 2**. Each EM anomaly is numbered for reference in the figure. The

following table presents the list of EM anomalies and the cause of the metallic response, if known:

LIST OF METALLIC ANOMALIES IDENTIFIED BY EM SURVEY

Metallic Anomaly #	Cause of Anomaly	Investigated with GPR
1	Corrugated Steel Pipe	
2	Drop Inlet	
3	Drop Inlets	
4	Sign	
5	Drop Inlet	
6	Utility	
7	Manhole	
8	Utility	
9	Manhole	
10	Manhole/Sign	
11	Drop Inlet	
12	Utility	
13	Manhole	

All of the EM anomalies were directly attributed to visible cultural features at the ground surface, including a corrugated steel pipe, drop inlets, signs, manholes, and utilities.

Discussion of GPR Results

Figure 3 presents the locations of the formal GPR transects performed at the property as well as a select transect image. All of the transect images are included in **Appendix A**. A total of two formal GPR transects were performed at the site.

GPR Transects 1-2 were performed as general reconnaissance scans at the request of Hart & Hickman. Neither transect showed evidence of significant structures such as USTs. Evidence of utilities and/or smaller fragments of buried debris was observed.

Collectively, the geophysical data recorded no evidence of metallic USTs at Parcel 30. **Figure 4** provides an overlay of the metal detection results on the NCDOT engineering plans for reference.

SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 and GPR data collected at Parcel 30 in Sylva, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- All of the EM anomalies were directly attributed to visible cultural features at the ground surface.
- The geophysical survey identified evidence of utilities and/or smaller fragments of buried debris.
- Collectively, the geophysical data recorded no evidence of metallic USTs at Parcel 30.

LIMITATIONS

Geophysical surveys have been performed and this report was prepared for Hart & Hickman, P.C. in accordance with generally accepted guidelines for EM61 and GPR surveys. It is generally recognized that the results of the EM61 and GPR surveys are non-unique and may not represent actual subsurface conditions. The EM61 and GPR results obtained for this project have not conclusively determined the definitive presence or absence of metallic USTs, but the evidence collected is sufficient to result in the conclusions made in this report. Additionally, it should be understood that areas containing extensive vegetation, reinforced concrete, or other restrictions to the accessibility of the geophysical instruments could not be fully investigated.

APPROXIMATE BOUNDARIES OF GEOPHYSICAL SURVEY AREA



View of Survey Area (Facing Approximately North)

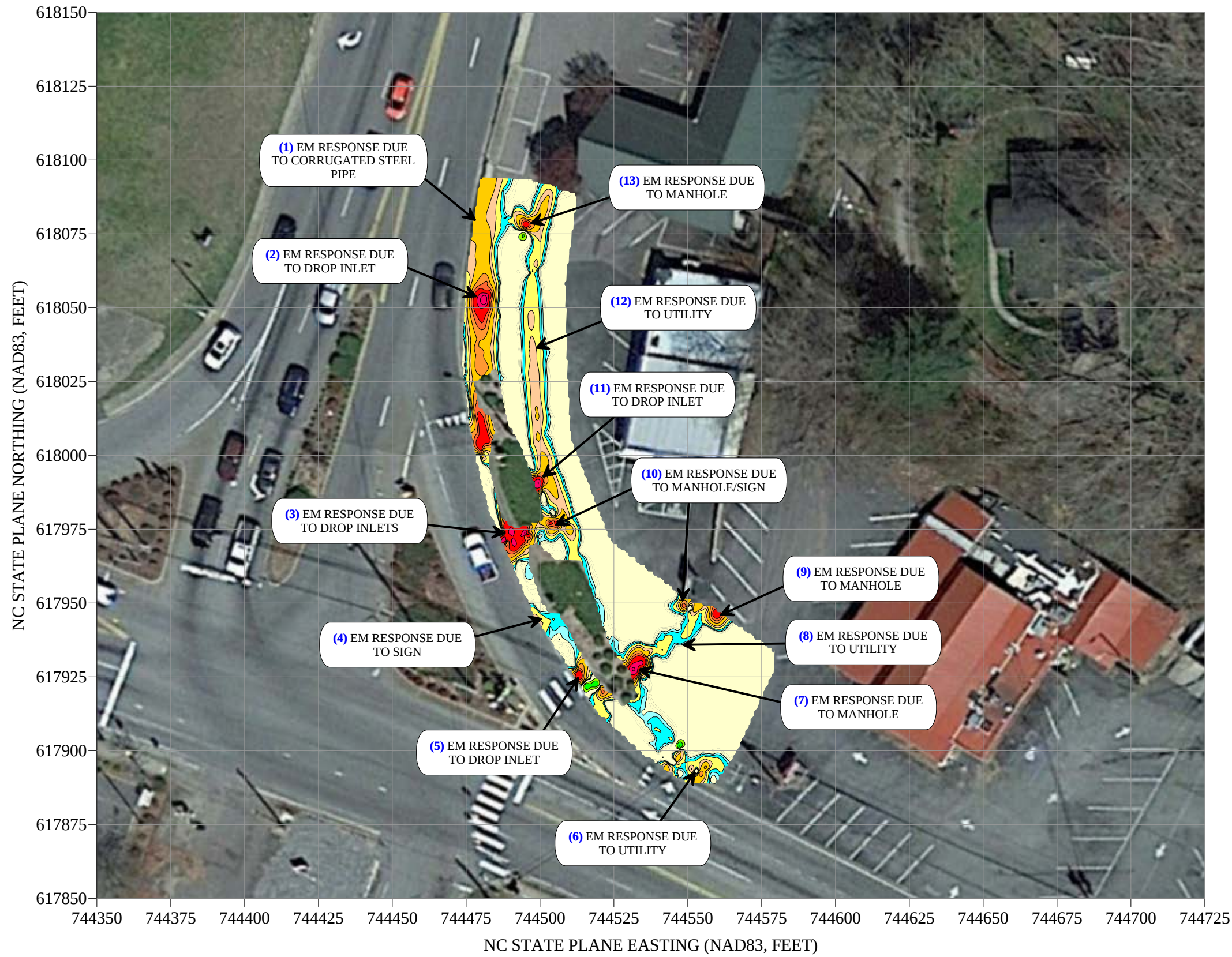


View of Survey Area (Facing Approximately Southeast)



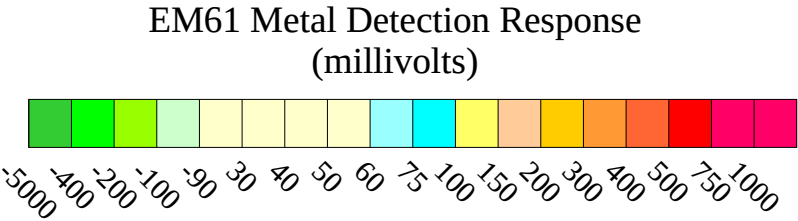
 503 INDUSTRIAL AVENUE GREENSBORO, NC 27406 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	PROJECT PARCEL 30 SYLVA, NORTH CAROLINA NCDOT PROJECT R-5600	TITLE PARCEL 30 - GEOPHYSICAL SURVEY BOUNDARIES AND SITE PHOTOGRAPHS	DATE 9/30/2022	CLIENT HART & HICKMAN
			PYRAMID PROJECT #: 2022-260	FIGURE 1

EM61 METAL DETECTION RESULTS



NO EVIDENCE OF METALLIC USTs WAS OBSERVED.

The contour plot shows the differential results of the EM61 instrument in millivolts (mV). The differential results focus on larger metallic objects such as USTs and drums. The EM data were collected on September 26, 2022, using a Geonics EM61-MK2 instrument. Verification GPR data were collected using a GSSI SIR 4000 instrument with a 350 MHz HS antenna on September 27, 2022.



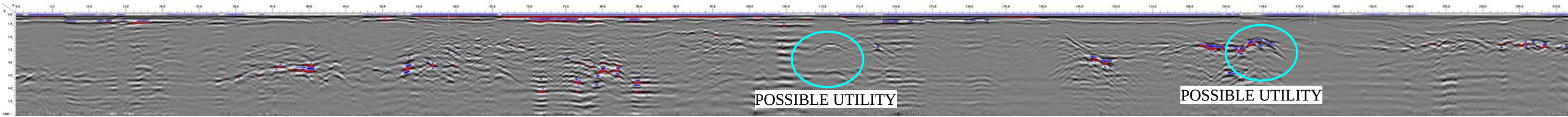
503 INDUSTRIAL AVENUE
GREENSBORO, NC 27406
(336) 335-3174 (p) (336) 691-0648 (f)
License # C1251 Eng. / License # C257 Geology

PROJECT
PARCEL 30
SYLVA, NORTH CAROLINA
NCDOT PROJECT R-5600

TITLE
PARCEL 30 -
EM61 METAL DETECTION CONTOUR MAP

DATE	9/30/2022	CLIENT	HART & HICKMAN
PYRAMID PROJECT #:	2022-260	FIGURE 2	

GPR TRANSECT LOCATIONS



GPR TRANSECT 1 (T1)



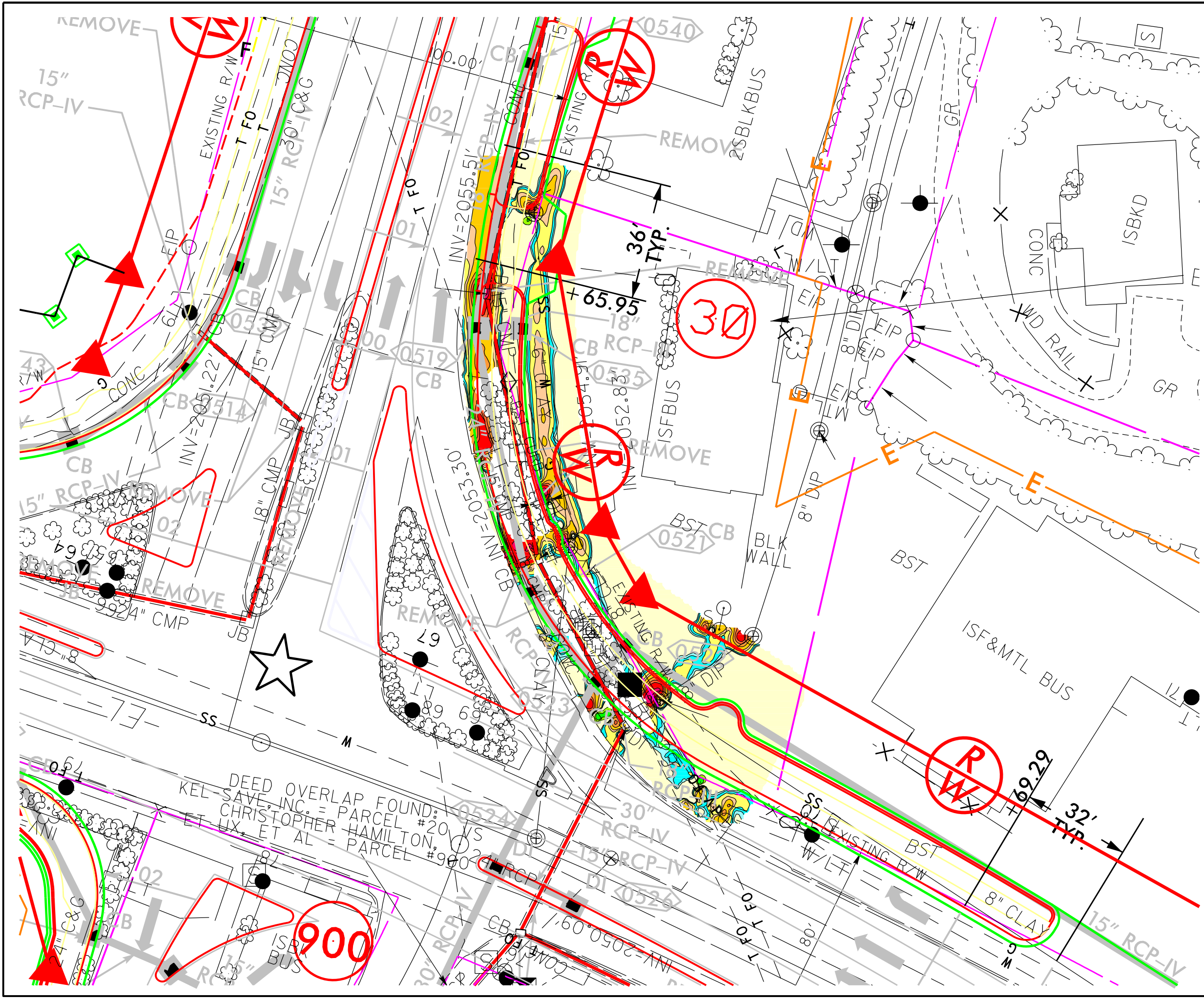
503 INDUSTRIAL AVENUE
GREENSBORO, NC 27406
(336) 335-3174 (p) (336) 691-0648 (f)
License # C1251 Eng. / License # C257 Geology

PROJECT
PARCEL 30
SYLVA, NORTH CAROLINA
NCDOT PROJECT R-5600

TITLE
PARCEL 30 -
GPR TRANSECT LOCATIONS AND SELECT IMAGE

DATE
9/30/2022
PYRAMID
PROJECT #: 2022-260

CLIENT
HART & HICKMAN
FIGURE 3



LEGEND

- EXISTING ROW
- EXISTING PROPERTY BOUNDARY
- PROPOSED ROW LINE
- TEMPORARY CONSTRUCTION EASEMENT
- PERMANENT UTILITY EASEMENT
- PROPOSED SS CUT LINE
- PROPOSED SS FILL LINE

MILLIVOLTS (mV)

1000 750 500 400 300 200 150 100 75 60 50 40 30 20 10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -200 -400 -5000

TITLE
OVERLAY OF METAL DETECTION RESULTS
ON NCDOT ENGINEERING PLANS

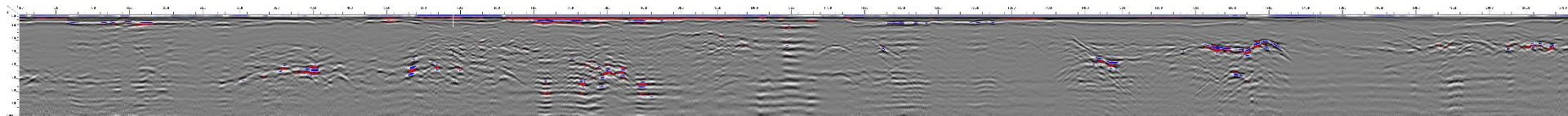
PROJECT
PARCEL 30
SYLVA, NORTH CAROLINA
NCDOT PROJECT R-5600

503 INDUSTRIAL AVENUE
GREENSBORO, NC 27406
336.335.3174 (p) 336.691.0648 (f)
License # C1251 Eng. / #C257 Geology

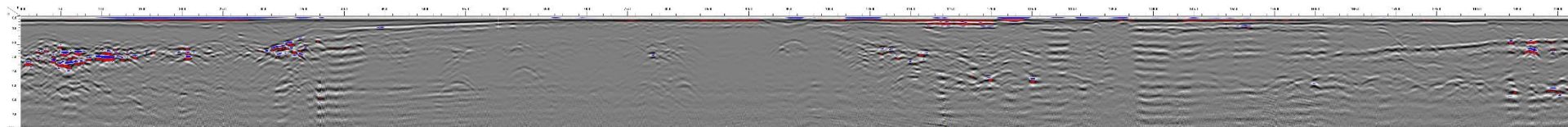
DATE: 10-3-2022
PYRAMID PROJECT NO. 2022-260

REVISION NO. 0
FIGURE NO. 4

Appendix A – GPR Transect Images



GPR TRANSECT 1



GPR TRANSECT 2

Via NC DOT FTS

November 30, 2022

NC DOT Geotechnical Unit
GeoEnvironmental Section
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

Attention: Mr. Ashley Cox, LG

Re: Geophysical Survey Report – Parcel 48
NC DOT State Project No. R-5600
WBS Element No. 45818.1.FR1
Sylva, Jackson County, North Carolina
H&H Job No. ROW-704

Dear Ashley:

Please find the attached PDF copy of the Geophysical Survey Report for the Robert L. Middleton property (Parcel 48) located in Sylva, Jackson County, North Carolina. Please return via DocuSign for final signatures. If you have any questions or need additional information, please contact us at (704) 586-0007.

Sincerely,

Hart & Hickman, PC



David Graham, PG
Senior Project Geologist



Matt Bramblett, PE
Principal

Attachment

Geophysical Survey Report NC DOT Parcel 48

195 E. Main St.
Sylva, Jackson County
North Carolina

H&H Job No. ROW-704
State Project: R-5600
WBS Element No. 45818.1.FR1
November 30, 2022



SMARTER ENVIRONMENTAL SOLUTIONS

#C-1269 Engineering
#-245 Geology

2923 South Tryon Street, Suite 100
Charlotte, NC 28203
704.586.0007 main

3921 Sunset Ridge Rd , Suite 301
Raleigh, NC 27607
919.847.4241 main

www.harthickman.com

Via NC DOT FTS

November 30, 2022

NC DOT - Geotechnical Unit
GeoEnvironmental Section
1589 Mail Service Center
Raleigh, NC 27699-1589

Attention: Mr. Ashley Cox, LG

Re: Geophysical Survey
NC DOT Parcel 48
195 E. Main Street, Sylva, Jackson County, North Carolina
State Project: R-5600; WBS Element No. 45818.1.FR1
H&H Job No. ROW-704

Dear Ashley:

1.0 Introduction and Background Information

Hart & Hickman, PC (H&H) has prepared this letter report documenting geophysical survey activities conducted at the Robert L. Middleton property (Parcel 48) located at 195 E. Main Street in Sylva, Jackson County, North Carolina. The geophysical survey activities were conducted on behalf of the North Carolina Department of Transportation (NC DOT) in accordance with H&H's August 17, 2022 proposal.

The purpose of the geophysical survey was to evaluate the potential for underground storage tank (UST) systems on proposed right of way and construction easement areas on Parcel 48 related to proposed road improvements along E. Main St. (State Project R-5600). This NC DOT road improvement project includes new curb and gutters, stormwater drainage piping, sidewalks, etc. Parcel 48 is occupied by East Main Auto, an auto sales facility. A site location map is included as Figure 1. NC DOT's plan sheet depicting Parcel 48 is included in Appendix A.

H&H searched the North Carolina Department of Environmental Quality (NC DEQ) Laserfiche website and NC DEQ UST databases for incident files related to the Parcel 48 address to better target UST system areas and to check for locations of previously reported impacts. A review of NC DEQ files indicated that the site was previously occupied by Middleton's Amoco, and NC DEQ Incident No. 22986 is associated with this property. According to Underground Storage Tank Closure Report dated September 6, 2000 prepared by Mountain Geology, Inc., low-level total petroleum hydrocarbons (TPH) as gasoline range organics (GRO) was identified in one of ten soil samples collected during removal of three 3,000-gallon gasoline USTs in March 2000. After a small amount of soil was excavated from this location, no petroleum-related constituents were detected in a subsequent soil sample collected near the impacted sample location noted above. The former UST locations and associated dispenser island appear to have been located outside of proposed NC DOT work areas. DEQ's predecessor (North Carolina Department of Environment and Natural Resources) issued a No Further Action letter for this Site in 2000. Available files obtained from NC DEQ's Laserfiche website for Parcel 48 are included in Appendix B.

H&H subcontracted with Pyramid Geophysical Services (Pyramid) of Greensboro, NC to conduct the geophysical survey to screen for additional USTs. The geophysical survey activities are discussed below.

2.0 Geophysical Survey Activities

H&H reviewed the results of the geophysical survey performed at the site by Pyramid on September 27, 2022. Pyramid utilized electromagnetic (EM) induction technology and ground penetrating radar (GPR) to identify potential geophysical anomalies and potential USTs at the site.

A total of five EM anomalies were identified at the site. The EM anomalies were attributed to known surface metallic objects such as above-ground metal structures (i.e. former dispenser island, manhole, etc.) that were not characteristic signatures of USTs. The former dispenser island (noted on Pyramid's Figure 2) is located just outside of the proposed NC DOT construction easement. The EM/GPR results indicated that no suspected USTs were identified

on Parcel 48. Pyramid's report, including figures depicting the results of the EM/GPR survey, is provided in Appendix C.

3.0 Conclusions

H&H has reviewed NC DEQ incident files and the results of a geophysical survey conducted on Parcel 48 located at 195 E. Main Street in Sylva, Jackson County, North Carolina. NC DEQ files indicate the site was previously occupied by Middleton's Amoco (NC DEQ Incident No. 22986). Three gasoline USTs were removed from the site in 2000. Based on UST closure sample results in 2000, DEQ issued a NFA letter for this Site. The former USTs and associated dispensers appear to have been located outside of proposed NC DOT work areas. No USTs were identified on Parcel 48 during geophysical survey activities. If a UST is encountered during construction activities, the UST system(s) and their contents should be removed in accordance with NC DEQ regulations and properly disposed. Impacted media encountered during road construction activities, if any, should be properly managed and disposed at a permitted facility.

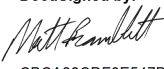
Should you have any questions or need additional information, please do not hesitate to contact us at (704) 586-0007.

Sincerely,

Hart & Hickman, PC

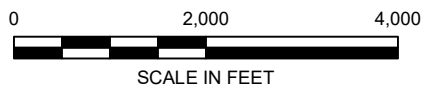
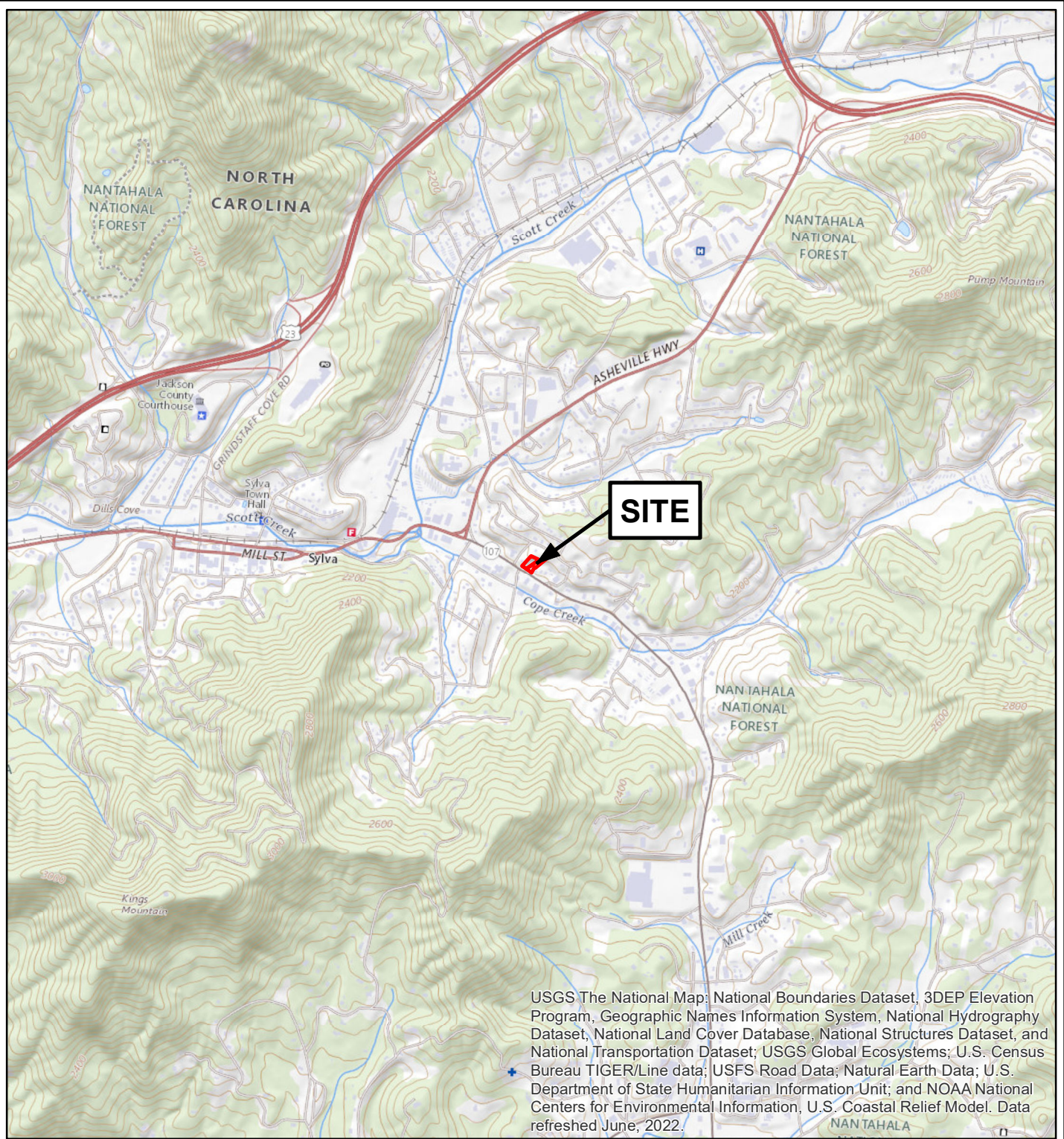
DocuSigned by:

9F6FAD6E6BA34BE... 12/05/2022
David Graham, PG
Senior Project Geologist

DocuSigned by:

CBCA88CDF0E547B...
Matt Bramblett, PE
Principal and Project Manager



Not considered final unless all signatures are completed.
Attachments



U.S.G.S. QUADRANGLE MAP
SYLVA SOUTH, NORTH CAROLINA 2019
 QUADRANGLE
 7.5 MINUTE SERIES (TOPOGRAPHIC)

TITLE SITE LOCATION MAP	
PROJECT NCDOT PARCEL 48 195 E. MAIN ST SYLVA, NORTH CAROLINA	
 2923 South Tryon Street - Suite 100 Charlotte, North Carolina 28203 704-586-0007 (p) 704-586-0373 (f) License # C-1269 / # C-245 Geology	
DATE: 10-5-22	REVISION NO: 0
JOB NO: ROW-704	FIGURE NO: 1

Appendix A
NC DOT Preliminary Plan

Appendix B

Historical Environmental Documents

1325 Dills Cove Rd.
Sylva, NC 28779



Phone & Fax
(828) 586-3955

Middleton's Amoco
Underground Storage Tank closure Report
09/06/00

Summary

Ten samples were collected on 03/29/00, one contained 20.3 mg/kg (method 5030), the others were ND. The same location was resampled 08/17/00; both in-place and excavated material were ND. These results coupled with the lack of any other evidence of contamination indicates the site is clean and no further work needed.

I. General Information

A. Ownership

Facility - The Estate of John C. and Zadio Middleton
191 East Main Street
Sylva, NC 28779
telephone: (828) 586-0339

Tanks - Hackney Petroleum Company
Carolina Oil & Gas, Inc.
Knoxville, TN

B. Operator

-not in operation since late 1980's

C. Facility Information

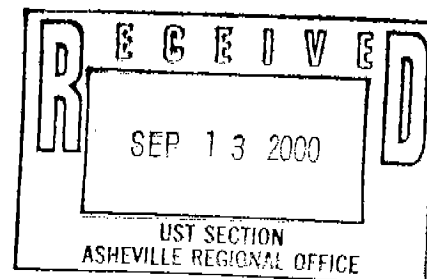
- The Estate of John C & Zadio Middleton
191 East Main Street
Sylva, NC 28779

ID# 009932
Jackson County
telephone (828) 586-0339

D. Contacts

- Sons of John C & Zadio Middleton
Bob, Gene, Earl
191 East Main Street
Sylva, NC 28779

telephone (828) 586 0339



Contractor

- Mike Cooper
Sylva, NC 28779

telephone (828) 586-9430

Consultant

- Mountain Geology, Inc.
1325 Dills Cove Rd.
Sylva, NC 28779

telephone (828) 586-3955

Laboratory

- Test America/Specialized Assays
122 Lyman Street
Asheville, NC 28801

telephone (828) 254-5169
certification # 387

E. UST Information

<u>#</u>	<u>installed</u>	<u>gallons</u>	<u>dia</u>	<u>length</u>	<u>contents</u>
1	1966	3000	5'	18'	gasoline
2	1966	3000	5'	18'	gasoline
3	1966	3000	5'	18'	gasoline

F. Site Characteristics

1. Past releases - none
2. Facility inactive - last in operation late 1980's
3. Surrounding property - commercial
4. Geology - tank pit, 6-8 feet of fill material
overlying saprolite

II Closure Procedures

A. Preparations - notified UST Section

B&C. Residual material, tanks pumped out by NEO Corporation

C. Water Sampling - not applicable

D. Quality Control

- All samples were collected and transported consistent with the NCDENR
- UST Section Guidelines and procedures

Samples	Collection date & time	delivery date & time
M1 thru M10	03/29, 9:50-10:10am	03/30, 3:09pm
M11 & M12	08/17, 8:30-8:45am	08/17, 10:52am

E. Investigation results

- all samples were analyzed by method 5030, M1 contained 20.3 mg/kg.
- The M1 location was resampled M10 & M11 with ND results

IV Conclusions & Recommendations

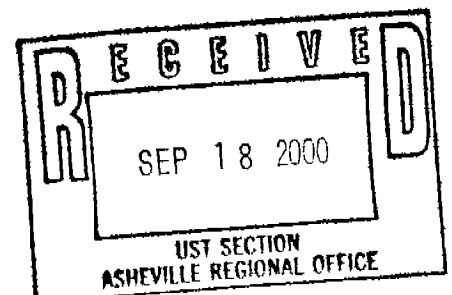
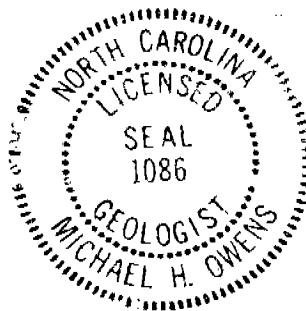
The lack of contamination indicated by field observations and sample analyses suggests this site is "clean" and no further action is recommended.

Michael H. Owens

MICHAEL H. OWENS

Attachments

Location Map
Site Map
Analyses
Chains of Custody



**SPECIALIZED ASSAYS, INC.**

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

TESTAMERICA 5781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A43723
Sample ID: M-1
Sample Type: Soil
Site ID:

Project: MIDDLETON
Project Name:
Sampler: MH OWENS

Date Collected: 3/29/00
Time Collected: 9:50
Date Received: 3/31/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	20.3	mg/kg	5.41	4.00	1	4/ 5/00	3:13	Ciesielski	3015M/3030	2235
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	78.	%			1	4/ 5/00	8:49	C. Terry	CLP	1516

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surrt-a,a,a-Trifluorotoluene	102.	50. - 150.

All metal and organic results have been corrected for dry weight.

These results relate only to the items tested.
This report shall not be reproduced except in full and with
permission of the laboratory.

Report Approved By: W. J. A. Dunn

Report Date: 4/ 8/00

Theodore J. Duello, Ph.D., Technical Serv.
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Gail A. Lage, Technical Serv.

Paul E. Lane, Jr., Lab Director
Glenn L. Norton, Technical Serv.
Kelly S. Ruppel, Technical Serv.
Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 387

End of Sample Report.

**SPECIALIZED ASSAYS, INC.**

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

TESTAMERICA 5781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A43724
Sample ID: M-2
Sample Type: Soil
Site ID:

Project: MIDDLETON
Project Name:
Sampler: MH OWENS

Date Collected: 3/29/00
Time Collected: 9:55
Date Received: 3/31/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	DII Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	ng/kg	6.94	4.00	1	4/ 5/00	19:24	Ciesielski	8015N/5030	2235
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	72.	%			1	4/ 5/00	8:48	E. Terry	CLP	1516

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surr-a, a, a-Trifluorotoluene	97.	50. - 150.

All metal and organic results have been corrected for dry weight.

These results relate only to the items tested.
This report shall not be reproduced except in full and with
permission of the laboratory.

Report Approved By: Walter D. Dunn

Report Date: 4/ 8/00

Theodore J. Duello, Ph.D., Technical Serv.
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Gail A. Lage, Technical Serv.

Paul E. Lane, Jr., Lab Director
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Laboratory Certification Number: 387

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Nashville, TN 37204-0566
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ANALYTICAL REPORT

TESTAMERICA 5781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A43724
Sample ID: M-2
Sample Type: Soil
Site ID:

Project: MIDDLETON
Project Name:
Sampler: MH OWENS

Date Collected: 3/29/00
Time Collected: 9:55
Date Received: 3/31/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	DII Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	ng/kg	6.94	4.00	1	4/ 5/00	19:24	Ciesielski	8015N/5030	2235
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	72.	%			1	4/ 5/00	8:48	E. Terry	CLP	1516

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surr-a, a, a-Trifluorotoluene	97.	50. - 150.

All metal and organic results have been corrected for dry weight.

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Report Approved By: Walter D. Dunn

Report Date: 4/ 8/00

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Laboratory Certification Number: 387

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**SPECIALIZED ASSAYS, INC.**

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ANALYTICAL REPORT

TESTAMERICA 5781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A43725
Sample ID: M-3
Sample Type: Soil
Site ID:

Project: MIDDLETON
Project Name:
Sampler: MH OWENS

Date Collected: 3/29/00
Time Collected: 9:57
Date Received: 3/31/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Qua Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	ng/kg	6.67	4.00	1	4/ 5/00	5:27	Ciesielski	8015M/5030	2235
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	75.	%			1	4/ 5/00	8:49	C. Terry	CLP	1516

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surv-a,1,1-Trifluorotoluene	101.	50. - 150.

All metal and organic results have been corrected for dry weight.

These results relate only to the items tested.
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Report Approved By: Michael A. Dunn

Report Date: 4/ 8/00

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Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Gail A. Lage, Technical Serv.

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Laboratory Certification Number: 387

End of Sample Report.

**SPECIALIZED ASSAYS, INC.**

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ANALYTICAL REPORT

TESTAMERICA 5781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A43726
Sample ID: M-4
Sample Type: Soil
Site ID:

Project: MIDDLETON
Project Name:
Sampler: MH OWENS

Date Collected: 3/29/00
Time Collected: 9:58
Date Received: 3/31/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	ug/kg	6.33	4.00	1	4/ 5/00	6:00	Ciesielski	8015M/5030	2235
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	79.	%			1	4/ 5/00	8:49	C. Terry	CLP	1516

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surr-a,a,a-Trifluorotoluene	101.	50. - 150.

All metal and organic results have been corrected for dry weight.

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Report Approved By: *Michael H. Dunn*

Report Date: 4/ 8/00

Theodore J. Duallo, Ph.D., Technical Serv.
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Gail A. Lage, Technical Serv.

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Laboratory Certification Number: 387

End of Sample Report.

**SPECIALIZED ASSAYS, INC.**

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P.O. Box 40566
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Phone 1-615-726-0177

ANALYTICAL REPORT

TESTAMERICA 3781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A43727
Sample ID: M-5
Sample Type: Soil
Site ID:

Project: MIDDLETON
Project Name:
Sampler: MH OWENS

Date Collected: 3/29/00
Time Collected: 10:00
Date Received: 3/31/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
IPH (Gasoline Range)	ND	ng/kg	6.25	4.00	1	4/ 5/00	6:34	Ciesielski	6015M/5030	2235
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	80.	%			1	4/ 5/00	8:49	C. Terry	CLP	1316

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
SURR-a,a,a-Trifluorotoluene	102.	50. - 150.

All metal and organic results have been corrected for dry weight.

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Report Approved By: Wendy A. Dunn

Report Date: 4/ 8/00

Theodore J. Duello, Ph.D., Technical Serv.
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Gail A. Lage, Technical Serv.

Paul E. Lane, Jr., Lab Director
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Laboratory Certification Number: 387

End of Sample Report.

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ANALYTICAL REPORT

TESTAMERICA 5781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A43728
Sample ID: M-6
Sample Type: Soil
Site ID:

Project: MIDDLETON
Project Name:
Sampler: MH DWENS

Date Collected: 3/29/00
Time Collected: 10:10
Date Received: 3/31/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Guar Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	mg/kg	5.31	4.00	1	4/ 5/00	7:07	Ciesielski	8015M/5030	2235
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	86.	%			1	4/ 5/00	8:49	C. Terry	CLP	1516

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surv-a,1,3-Trifluorotoluene	102.	50. - 150.

All metal and organic results have been corrected for dry weight.

These results relate only to the items tested.

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Report Approved By: William B. Rupp

Report Date: 4/ 8/00

Theodore J. Duello, Ph.D., Technical Serv.
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Gail A Lage, Technical Serv.

Paul E. Lane, Jr., Lab Director
Glenn L. Norton, Technical Serv.
Kelly S. Ruppel, Technical Serv.
Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 387

End of Sample Report.

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ANALYTICAL REPORT

TESTAMERICA 3781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A43729
Sample ID: M-7
Sample Type: Soil
Site ID:

Project: MIDDLETON
Project Name:
Sampler: MH OWENS

Date Collected: 3/29/00
Time Collected: 10:10
Date Received: 3/31/00
Time Received: 9:00

Analyste	Result	Units	Report Limit	Quan Limit	DIL Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	ng/kg	6.17	4.00	1	4/ 5/00	7:40	Giesielski	8015M/5030	2235
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	81.	%			1	4/ 5/00	8:49	C. Terry	CLP	1516

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surrogate-a,a,a-Trifluorotoluene	97.	50. - 150.

All metal and organic results have been corrected for dry weight.

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Report Approved By: Michael H. Dunn

Report Date: 4/ 8/00

Theodore J. Duello, Ph.D., Technical Serv.
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Gail A. Lage, Technical Serv.

Paul E. Lane, Jr., Lab Director
Glenn L. Norton, Technical Serv.
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Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 387

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**SPECIALIZED ASSAYS, INC.**

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ANALYTICAL REPORT

TESTAMERICA 5781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A43730
Sample ID: M-8
Sample Type: Soil
Site ID:

Project: MIDDLETON
Project Name:
Sampler: MH DWENS

Date Collected: 3/29/00
Time Collected: 10:25
Date Received: 3/31/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	mg/kg	6.58	4.00	1	4/ 5/00	8:14	Ciesielski	8015M/S030	2235
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	76.	%			1	4/ 5/00	8:49	C. Terry	CLP	1516

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surr-a,p,a-Trifluorotoluene	100.	50. - 150.

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Report Approved By: Michael H. Dunn

Report Date: 4/ 8/00

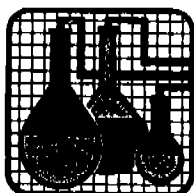
Theodore J. Duello, Ph.D., Technical Serv.
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Gail A. Lage, Technical Serv.

Paul E. Lane, Jr., Lab Director
Glenn L. Norton, Technical Serv.
Kelly S. Kuppel, Technical Serv.
Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 387

End of Sample Report.

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Phone 1-615-726-0177

ANALYTICAL REPORT

TESTAMERICA 3781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A43731
Sample ID: M-9
Sample Type: Soil
Site ID:

Project: MIDDLETON
Project Name:
Sampler: MH OWENS

Date Collected: 3/29/00
Time Collected: 10:30
Date Received: 3/31/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	DIL Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	ng/kg	6.33	4.00	1	4/ 5/00	8:47	Ciesielski	8015M/5030	2235
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	79.	%			1	4/ 5/00	8:49	C. Terry	CLP	1516

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surrogate-a,b-Trifluorotoluene	101.	50. - 150.

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Report Approved By: Wm Dunn

Report Date: 4/ 8/00

Theodore J. Duello, Ph.D., Technical Serv.
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Gail A. Lage, Technical Serv.

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Laboratory Certification Number: 387

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PROJECT QUALITY CONTROL DATA**Matrix Spike Recovery**

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	R.C. Batch	Sample Spiked
TPH (Gasoline Range)	ng/kg	6.37	55.7	50.0	99	62. - 129.	2235	Blank

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	R.C. Batch
TPH (Gasoline Range)	ng/kg	55.7	54.6	2.35	21.	2235

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	R.C. Batch
TPH (Gasoline Range)	ng/kg	50.0	55.7	112	70 - 130	2235

Blank Data

Analyte	Blank Value	Units	R.C. Batch
TPH (Gasoline Range)	< 5.00	ng/kg	2235

2960 Foster Creighton Dr
Nashville, TN 37204
615-726-0177
Fax: 615-726-0954

ANALYTICAL REPORT

TESTAMERICA-ASHEVILLE 5781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A116775
Sample ID: M 11
Sample Type: Soil
Site ID:

Project:
Project Name: MIDDLETON
Sampler: M. H. OWENS

Date Collected: 8/17/00
Time Collected: 8:30
Date Received: 8/18/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	mg/kg	6.94	4.00	1	8/21/00	3:29	Ciesielski	8015M/5030	64
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	72	%			1	8/23/00	10:23	D. Yeager	CLP	458

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surv-a, a, a-Trifluorotoluene	100.	50. - 150.

All metal and organic results have been corrected for dry weight.

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Report Approved By:

Report Date: 8/26/00

Paul E. Lane, Jr., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director

Gail A. Lage, Technical Serv.
Glenn L. Norton, Technical Serv.
Kelly S. Comstock, Technical Serv.
Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 387

End of Sample Report.

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Nashville, TN 37204
615-726-0177
Fax: 615-726-0954

ANALYTICAL REPORT

TESTAMERICA-ASHEVILLE 5781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A116776
Sample ID: M 12
Sample Type: Soil
Site ID:

Project:
Project Name: MIDDLETON
Sampler: M. H. OWENS

Date Collected: 8/17/00
Time Collected: 8:45
Date Received: 8/18/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Run Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	ng/kg	6.67	9.00	1	8/21/00	9:59	Ciesielski	8015M/3030	69
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	75.	%			1	8/25/00	9:19	D. Yeager	CLP	3380

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surv-a,a,e-Trifluorotoluene	99.	50. - 150.

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Report Approved By:

Report Date: 8/26/00

Paul E. Lane, Jr., Lab Director
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Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director

Gail A. Lage, Technical Serv.
Glenn L. Norton, Technical Serv.
Kelly S. Comstock, Technical Serv.
Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 387

End of Sample Report.

TESTAMERICA INC.

Chain of Custody Record

Page 1 of 1

☒ Asheville, NC (A) ☐ Bartlett, IL (C) ☐ Cedar Falls, IA (E) ☐ Charlotte, NC (G) ☐ Dayton, OH (I) ☐ Lumberton, NC (K) ☐ Nashville, TN (M) ☐ Pontiac, MI (O) ☐ Rockford, IL (Q)
 (828) 254-5169 (630) 289-3100 (319) 277-2401 (704) 392-1164 (937) 294-6856 (910) 738-6190 (615) 726-0177 (248) 332-1940 (815) 874-2171
☐ Atlanta, GA (B) ☐ Brighton, CO (D) ☐ Charleston, SC (F) ☐ Columbia, SC (H) ☐ Davenport, IA (J) ☐ Indianapolis, IN (L) ☐ Macon, GA (N) ☐ Orlando, FL (P) ☐ Watertown, WI (R)
 (770) 368-0636 (303) 659-0497 (843) 849-6550 (803) 796-8989 (319) 323-7944 (317) 842-4261 (912) 757-0811 (407) 851-2560 (920) 261-1660

Client: Mountain Geology Project No.: 5781 REQUESTED PARAMETERS
 Invoice Address: same
 Attn: MH OWENS
 Sampled By: MH OWENS
 P.O. No.: 11
 Quote No.: 186134
 State Samples Collected: 0209

TURNAROUND TIME
☒ Standard
☐ Rush (surcharges may apply) Date Needed:

Sample ID	Date	Time	Comp (C) Grab (G)	Matrix	Lab Use	# and type of containers	REMARKS
M-1	3/29	9:30	G	Soil	43723	1	
M-2		9:35			24	1	
M-3		9:37			25	1	
M-4		9:38			26	1	
M-5		10:00			27	1	
M-6		10:03			28	1	
M-7		10:10			29	1	
M-8		10:25			30	1	
M-9		10:30			31	1	
M-10		10:40			43732	1	

QC Deliverables: ☐ None ☐ Level 2 - Batch QC ☐ Level 3 ☐ Level 4 ☐ Other
 Init Lab Temp 3 Rec Lab Temp 3

COMMENTS:

Relinquished By: MH OWENS Date: 3/30/00 Time: 8:00
 Relinquished By: Donald Yeard Date: 3/30/00 Time: 15:52
 Relinquished By: Date: Time:
 Relinquished By: Date: Time:

LAB USE ONLY:
 Received By: Donald Yeard Date: 3/30/00 Time: 15:09
 Received By: Date: Time:
 Received By: Date: Time:
 Received By: Date: 3-31-00 Time: 9:00

Custody Seal: ☐ Yes ☐ No ☐ N/A
 Bottles Supplied By TA: ☐ Yes ☐ No

TESTAMERICA INC.

[illegible]

**SPECIALIZED ASSAYS, INC.**

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

TESTAMERICA 5781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A43725
Sample ID: M-3
Sample Type: Soil
Site ID:

Project: MIDDLETON
Project Name:
Sampler: MH OWENS

Date Collected: 3/29/00
Time Collected: 9:57
Date Received: 3/31/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Qua Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	ng/kg	6.67	4.00	1	4/ 5/00	5:27	Ciesielski	8015M/5030	2235
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	75.	%			1	4/ 5/00	8:49	C. Terry	CLP	1516

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surv-a,1,1-Trifluorotoluene	101.	50. - 150.

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Report Approved By: Michael A. Dunn

Report Date: 4/ 8/00

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Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 387

End of Sample Report.

**SPECIALIZED ASSAYS, INC.**

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P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

TESTAMERICA 5781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A43726
Sample ID: M-4
Sample Type: Soil
Site ID:

Project: MIDDLETON
Project Name:
Sampler: MH OWENS

Date Collected: 3/29/00
Time Collected: 9:58
Date Received: 3/31/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Run Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	ug/kg	6.33	4.00	1	4/ 5/00	6:00	Ciesielski	8015M/5030	2235
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	79.	%			1	4/ 5/00	8:49	C. Terry	CLP	1516

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surr-a,a,a-Trifluorotoluene	101.	50. - 150.

All metal and organic results have been corrected for dry weight.

These results relate only to the items tested.
This report shall not be reproduced except in full and with
permission of the laboratory.

Report Approved By: *Michael H. Dunn*

Report Date: 4/ 8/00

Theodore J. Duallo, Ph.D., Technical Serv.
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Gail A. Lage, Technical Serv.

Paul E. Lane, Jr., Lab Director
Glenn L. Norton, Technical Serv.
Kelly S. Ruppel, Technical Serv.
Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 387

End of Sample Report.

**SPECIALIZED ASSAYS, INC.**

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

TESTAMERICA 3781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A43727
Sample ID: M-5
Sample Type: Soil
Site ID:

Project: MIDDLETON
Project Name:
Sampler: MH OWENS

Date Collected: 3/29/00
Time Collected: 10:00
Date Received: 3/31/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
IPH (Gasoline Range)	ND	ng/kg	6.25	4.00	1	4/ 5/00	6:34	Ciesielski	6015M/5030	2235
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	80.	%			1	4/ 5/00	8:49	C. Terry	CLP	1316

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
SURR-a,a,a-Trifluorotoluene	102.	50. - 150.

All metal and organic results have been corrected for dry weight.

These results relate only to the items tested.
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permission of the laboratory.

Report Approved By: Wendy A. Dunn

Report Date: 4/ 8/00

Theodore J. Duello, Ph.D., Technical Serv.
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Gail A. Lage, Technical Serv.

Paul E. Lane, Jr., Lab Director
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Kelly S. Ruppel, Technical Serv.
Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 387

End of Sample Report.

**SPECIALIZED ASSAYS, INC.**

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ANALYTICAL REPORT

TESTAMERICA 5781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A43728
Sample ID: M-6
Sample Type: Soil
Site ID:

Project: MIDDLETON
Project Name:
Sampler: MH DWENS

Date Collected: 3/29/00
Time Collected: 10:10
Date Received: 3/31/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Guar Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	mg/kg	5.31	4.00	1	4/ 5/00	7:07	Ciesielski	8015M/5030	2235
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	86.	%			1	4/ 5/00	8:49	C. Terry	CLP	1516

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surv-a,1,3-Trifluorotoluene	102.	50. - 150.

All metal and organic results have been corrected for dry weight.

These results relate only to the items tested.

This report shall not be reproduced except in full and with permission of the laboratory.

Report Approved By: William B. Rupp

Report Date: 4/ 8/00

Theodore J. Duello, Ph.D., Technical Serv.
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Gail A Lage, Technical Serv.

Paul E. Lane, Jr., Lab Director
Glenn L. Norton, Technical Serv.
Kelly S. Ruppel, Technical Serv.
Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 387

End of Sample Report.

COPY 1

**SPECIALIZED ASSAYS, INC.**

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

TESTAMERICA 3781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A43729
Sample ID: M-7
Sample Type: Soil
Site ID:

Project: MIDDLETON
Project Name:
Sampler: MH OWENS

Date Collected: 3/29/00
Time Collected: 10:10
Date Received: 3/31/00
Time Received: 9:00

Analyste	Result	Units	Report Limit	Quan Limit	DIL Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	ng/kg	6.17	4.00	1	4/ 5/00	7:40	Giesielski	8015M/5030	2235
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	81.	%			1	4/ 5/00	8:49	C. Terry	CLP	1516

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surrogate-a,a,a-Trifluorotoluene	97.	50. - 150.

All metal and organic results have been corrected for dry weight.

These results relate only to the items tested.

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Report Approved By: Michael H. Dunn

Report Date: 4/ 8/00

Theodore J. Duello, Ph.D., Technical Serv.
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Gail A. Lage, Technical Serv.

Paul E. Lane, Jr., Lab Director
Glenn L. Norton, Technical Serv.
Kelly S. Ruppel, Technical Serv.
Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 387

End of Sample Report.

**SPECIALIZED ASSAYS, INC.**

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

TESTAMERICA 5781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A43730
Sample ID: M-8
Sample Type: Soil
Site ID:

Project: MIDDLETON
Project Name:
Sampler: MH DWENS

Date Collected: 3/29/00
Time Collected: 10:25
Date Received: 3/31/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	mg/kg	6.58	4.00	1	4/ 5/00	8:14	Ciesielski	8015M/S030	2235
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	76.	%			1	4/ 5/00	8:49	C. Terry	CLP	1516

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surr-a,p,a-Trifluorotoluene	100.	50. - 150.

All metal and organic results have been corrected for dry weight.

These results relate only to the items tested.
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permission of the laboratory.

Report Approved By: Michael H. Dunn

Report Date: 4/ 8/00

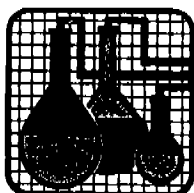
Theodore J. Duello, Ph.D., Technical Serv.
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Gail A. Lage, Technical Serv.

Paul E. Lane, Jr., Lab Director
Glenn L. Norton, Technical Serv.
Kelly S. Kuppel, Technical Serv.
Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 387

End of Sample Report.

COPY 1

**SPECIALIZED ASSAYS, INC.**

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

TESTAMERICA 3781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A43731
Sample ID: M-9
Sample Type: Soil
Site ID:

Project: MIDDLETON
Project Name:
Sampler: MH OWENS

Date Collected: 3/29/00
Time Collected: 10:30
Date Received: 3/31/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	DIL Factor	Date	Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	ng/kg	6.33	4.00	1	4/ 5/00	8:47	Ciesielski	8015M/5030	2235
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	79.	%			1	4/ 5/00	8:49	C. Terry	CLP	1516

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surrogate-a,b-Trifluorotoluene	101.	50. - 150.

All metal and organic results have been corrected for dry weight.

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permission of the laboratory.

Report Approved By: Wm Dunn

Report Date: 4/ 8/00

Theodore J. Duello, Ph.D., Technical Serv.
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director
Gail A. Lage, Technical Serv.

Paul E. Lane, Jr., Lab Director
Glenn L. Norton, Technical Serv.
Kelly S. Ruppel, Technical Serv.
Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 387

End of Sample Report.

**SPECIALIZED ASSAYS, INC.**

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

PROJECT QUALITY CONTROL DATA**Matrix Spike Recovery**

Analyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	A.C. Batch	Sample Spiked
TPH (Gasoline Range)	ng/kg	6.37	55.7	50.0	99	62. - 129.	2235	Blank

Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	RPD	Limit	A.C. Batch
TPH (Gasoline Range)	ng/kg	55.7	54.6	2.35	21.	2235

Laboratory Control Data

Analyte	units	Known Val.	Analyzed Val	% Recovery	Target Range	A.C. Batch
TPH (Gasoline Range)	ng/kg	50.0	55.7	112	70 - 130	2235

Blank Data

Analyte	Blank Value	Units	A.C. Batch
TPH (Gasoline Range)	< 5.00	ng/kg	2235

2960 Foster Creighton Dr
Nashville, TN 37204
615-726-0177
Fax: 615-726-0954

ANALYTICAL REPORT

TESTAMERICA-ASHEVILLE 5781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A116775
Sample ID: M 11
Sample Type: Soil
Site ID:

Project:
Project Name: MIDDLETON
Sampler: M. H. OWENS

Date Collected: 8/17/00
Time Collected: 8:30
Date Received: 8/18/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	mg/kg	6.94	4.00	1	8/21/00	3:29	Ciesielski	8015M/5030	64
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	72	%			1	8/23/00	10:23	D. Yeager	CLP	458

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surv-a, a, a-Trifluorotoluene	100.	50. - 150.

All metal and organic results have been corrected for dry weight.

These results relate only to the items tested.
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permission of the laboratory.

Report Approved By:

Report Date: 8/26/00

Paul E. Lane, Jr., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director

Gail A. Lage, Technical Serv.
Glenn L. Norton, Technical Serv.
Kelly S. Comstock, Technical Serv.
Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 387

End of Sample Report.

2960 Foster Creighton Dr
Nashville, TN 37204
615-726-0177
Fax: 615-726-0954

ANALYTICAL REPORT

TESTAMERICA-ASHEVILLE 5781
DINAH TRAMMEL
122 LYMAN STREET
ASHEVILLE, NC 28801

Lab Number: 00-A116776
Sample ID: M 12
Sample Type: Soil
Site ID:

Project:
Project Name: MIDDLETON
Sampler: M. H. OWENS

Date Collected: 8/17/00
Time Collected: 8:45
Date Received: 8/18/00
Time Received: 9:00

Analyte	Result	Units	Report Limit	Run Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Batch
ORGANIC PARAMETERS										
TPH (Gasoline Range)	ND	ng/kg	6.67	9.00	1	8/21/00	9:59	Ciesielski	8015M/3030	69
GENERAL CHEMISTRY PARAMETERS										
% Dry Weight	75.	%			1	8/25/00	9:19	D. Yeager	CLP	3380

ND = Not detected at the report limit.

Surrogate	% Recovery	Target Range
surv-a,a,e-Trifluorotoluene	99.	50. - 150.

All metal and organic results have been corrected for dry weight.

These results relate only to the items tested.
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permission of the laboratory.

Report Approved By:

Report Date: 8/26/00

Paul E. Lane, Jr., Lab Director
Michael H. Dunn, M.S., Technical Director
Johnny A. Mitchell, Dir. Technical Serv.
Eric S. Smith, Assistant Technical Director

Gail A. Lage, Technical Serv.
Glenn L. Norton, Technical Serv.
Kelly S. Comstock, Technical Serv.
Pamela A. Langford, Technical Serv.

Laboratory Certification Number: 387

End of Sample Report.

TESTAMERICA INC.

Chain of Custody Record

Page 1 of 1

☒ Asheville, NC (A) ☐ Bartlett, IL (C) ☐ Cedar Falls, IA (E) ☐ Charlotte, NC (G) ☐ Dayton, OH (I) ☐ Lumberton, NC (K) ☐ Nashville, TN (M) ☐ Pontiac, MI (O) ☐ Rockford, IL (Q)
 (828) 254-5169 (630) 289-3100 (319) 277-2401 (704) 392-1164 (937) 294-6856 (910) 738-6190 (615) 726-0177 (248) 332-1940 (815) 874-2171
☐ Atlanta, GA (B) ☐ Brighton, CO (D) ☐ Charleston, SC (F) ☐ Columbia, SC (H) ☐ Davenport, IA (J) ☐ Indianapolis, IN (L) ☐ Macon, GA (N) ☐ Orlando, FL (P) ☐ Watertown, WI (R)
 (770) 368-0636 (303) 659-0497 (843) 849-6550 (803) 796-8989 (319) 323-7944 (317) 842-4261 (912) 757-0811 (407) 851-2560 (920) 261-1660

Client: Mountain Geology Project No.: 5781 REQUESTED PARAMETERS
 Invoice Address: same
 Attn: MH OWENS
 Sampled By: MH OWENS
 P.O. No.: 11
 Quote No.:
 State Samples Collected:
 TURNAROUND TIME
☒ Standard
☐ Rush (surcharges may apply) Date Needed:

Is this work being conducted for regulatory compliance monitoring? Yes No ☒ No ☒
 Is this work being conducted for regulatory enforcement action? Yes No ☒ No ☒
 Which regulations apply:
 RCRA NPDES Wastewater
 UST ☒ Drinking Water
 Other None

Sample ID	Date	Time	Comp (C) Grab (G)	Matrix	Lab Use	# and type of containers	REMARKS
M-1	3/29	9:30	G	Soil	43723	1	
M-2		9:35			24	1	
M-3		9:37			25	1	
M-4		9:38			26	1	
M-5		10:00			27	1	
M-6		10:03			28	1	
M-7		10:10			29	1	
M-8		10:25			30	1	
M-9		10:30			31	1	
M-10		10:40			43732	1	

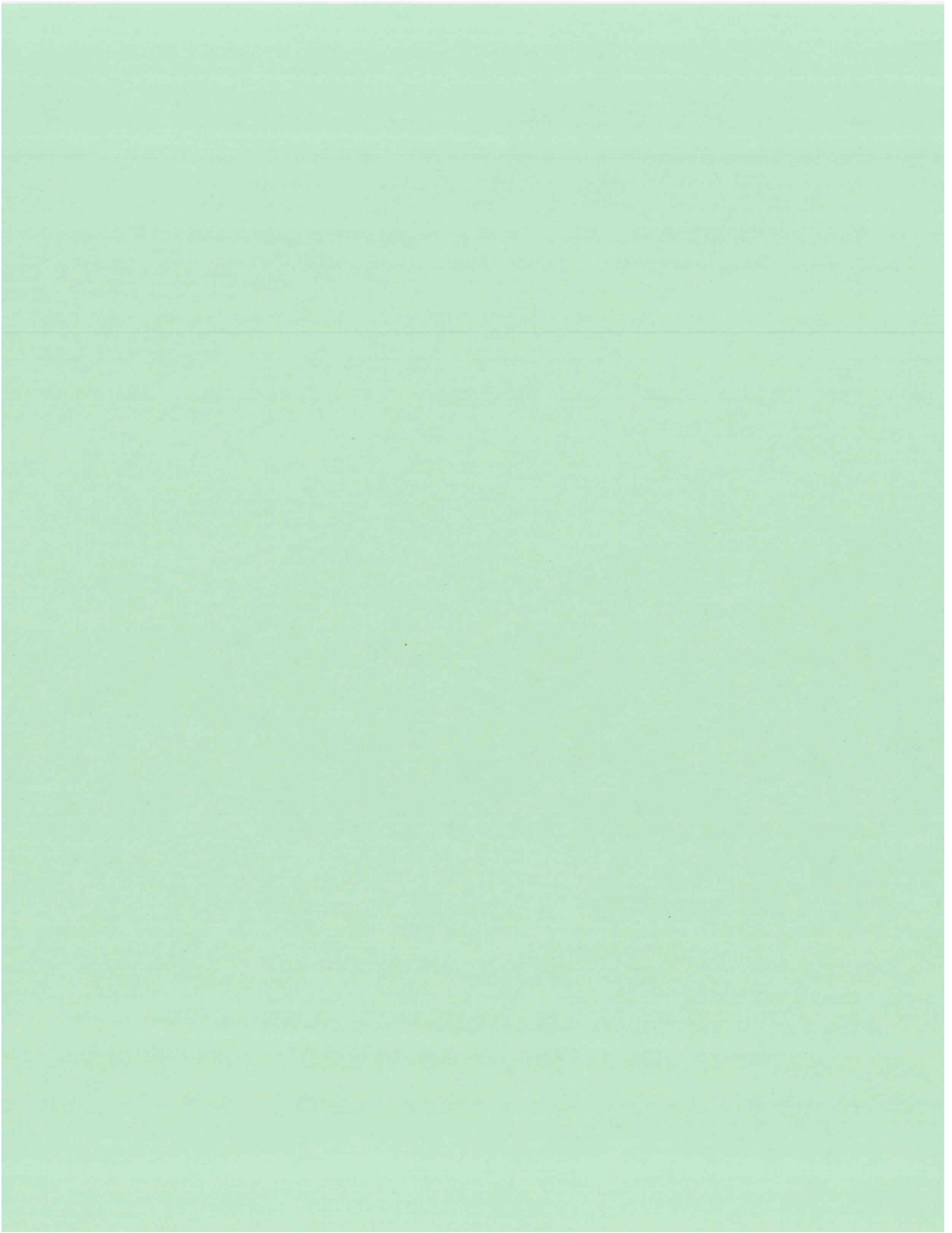
QC Deliverables: ☐ None ☐ Level 2 - Batch QC ☐ Level 3 ☐ Level 4 ☐ Other
 Init Lab Temp 3 Rec Lab Temp 3

COMMENTS:

Relinquished By: MH OWENS Date: 3/30/00 Time: 8:00
 Relinquished By: Donald Yeard Date: 3/30/00 Time: 15:52
 Relinquished By: Donald Yeard Date: Time:
 Relinquished By: Donald Yeard Date: 3-31-00 Time: 9:00
 Custody Seal: ☐ Yes ☐ No ☐ N/A
 Bottles Supplied by TA: ☐ Yes ☐ No

TESTAMERICA INC.

[illegible]



24-Hour Release and UST Leak Reporting Form

This form should be completed and submitted to the UST Section's regional office following a known or suspected release from an underground storage tank (UST) system. This form is required to be submitted within 24 hours of discovery of a known or suspected release.

Suspected Contamination? (Y/N) N
 Confirmed GW Contamination? (Y/N) N
 Confirmed Soil Contamination? (Y/N) Y
 Free Product? (Y/N) N If Yes, State
 Greatest Thickness _____

Facility ID Number 0-009932
 Date Leak Discovered 8/14/00
 Comm/Non-Commercial? Comm
 Reg/Non-regulated? Reg

INCIDENT DESCRIPTIONIncident Name: MIDDLETON'S AMOCOAddress: 191 E MAIN ST.County: JACKSONCity/Town: SYLVARegional Office (circle one): Asheville, Mooresville, Fayetteville, Raleigh, Washington, Wilmington, Winston-SalemLatitude (dd.mm.ssss): 35 22 28Longitude (ddd.mm.ssss): 83 12 42Confirmed by GPS? (Y/N) N

Briefly describe suspected or confirmed release: (including but not limited to: Nature and extent of release, date of release, amount of release, amount of free product present and recovery efforts, initial responses conducted, impacts to receptors)

Minor soil contamination discovered during the removal of 3-300 gal. USTs at the subject location. One sample contained 20.3 mg/kg per EPA Method 8030. After small amount of contaminated soil was overexcavated the resample revealed NO. A no further action letter was done on 9/14/00 per appropriate transaction request.

CLOSED OUT 9/14/00**HOW RELEASE WAS DISCOVERED**

(Check one)

☐ Release Detection Equipment or Methods
☒ During UST Closure/Removal
☐ Property Transfer

☐ Visual/Odor
☐ Water in Tank
☐ Water Supply Well Contamination

☐ Groundwater Contamination
☐ Surface Water Contamination
☐ Other (specify) _____

SOURCE OF CONTAMINATION**Primary Source of Contamination**

(Check one)

- ☐ Suspected UST Release
☐ Confirmed UST Release (Also check one below):
☐ A. Dispenser
☐ B. Line Release
☒ C. Tank Release
☐ D. Spill/Overfill
☐ E. Exact Failure Location Unknown or Multiple Failures
☐ Unknown Source (Believed to be UST Source, explain in "Incident Description" above)

Primary Contaminant Type

(Check one)

- ☒ Gasoline/Diesel/Kerosene
☐ Heating Oil
☐ Other Petroleum Products
☐ Metals
☐ Other Inorganics
☐ Other Organics

Location

(Check one)

- ☒ Facility
☐ Residence
☐ Other

Setting

(Check one)

- ☐ Residential
☐ Industrial
☒ Urban
☐ Rural

Ownership1. Municipal 2. Military 3. Unknown 4. Private 5. Federal 6. County 7. State**Operation Type**1. Public Service 2. Agricultural 3. Residential 4. Education/Relig. 5. Industrial 6. Commercial 7. MiningJAN ANDERSEN 1/17/01
Jan Andersen

IMPACT ON DRINKING WATER SUPPLIES

Water Supply Wells Affected? 1. Yes 2. No 3. Unknown

Number of Water Supply Wells Affected _____

Water Supply Wells Contaminated: (Include Users Names, Addresses and Phone Numbers. Attach additional sheet if necessary)

1.

2.

3.

UST SYSTEM OWNER

UST Owner/Company

CAROLINA OIL & GAS CO., INC. / HACKNEY PETROLEUM, INC.

Point of Contact

AL PARROTT

Address

P.O. BOX 50038

City

KNOXVILLE

State

TN

Zip Code

37950-0038

Telephone Number

615-584-9600

UST SYSTEM OPERATOR

UST Operator/Company

NOT IN OPERATION SINCE LATE 1980s

Address

City

NO INFO

State

Zip Code

Telephone Number

LANDOWNER AT LOCATION OF UST INCIDENT

Landowner

MIDDLETON

Address

THE ESTATE OF JOHN C. & ZADIE

191 E. MAIN ST

City

SYLVA

State

NC

Zip Code

28779

Telephone Number

828-586-0339

Draw Sketch of Area (showing two major road intersections) or Attach Map

Person Reporting Incident

MIKE OWENS

Company

MOUNTAIN GEOLOGY, INC.

Telephone Number

828-586-3955

Title

OWNER Consultant

Address

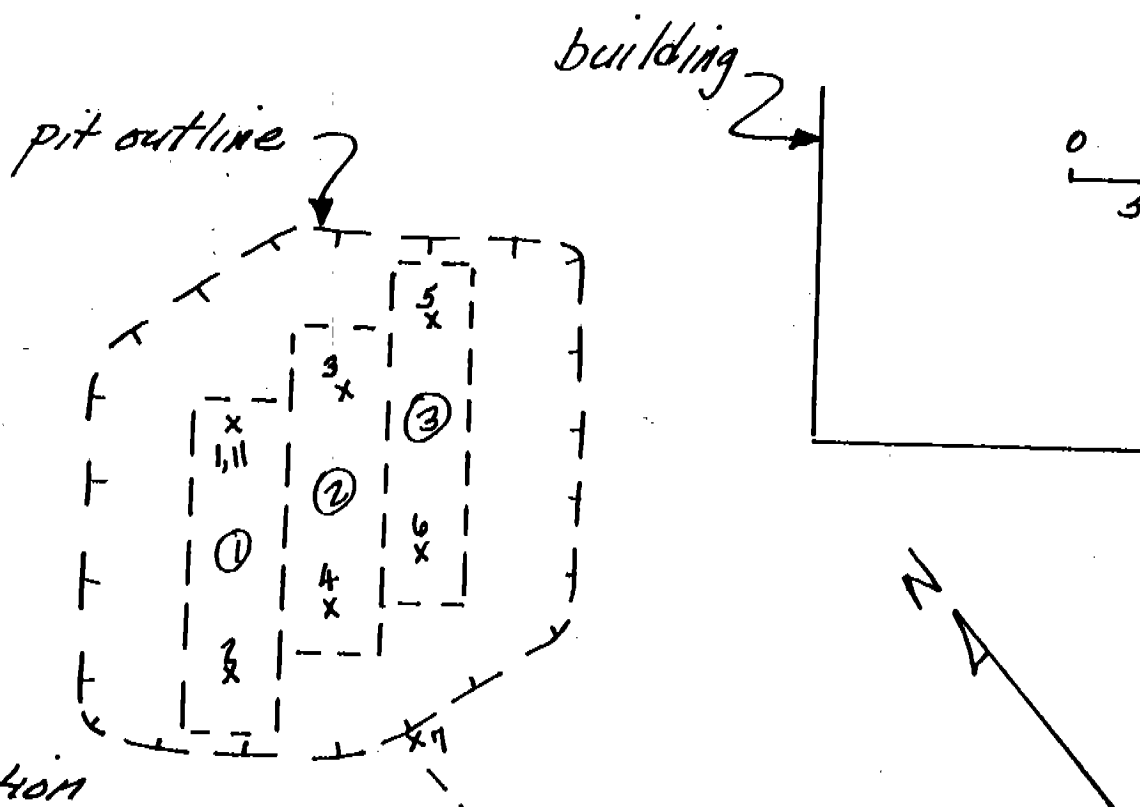
1325 DILLS COVE ROAD

Date

9/13/00



Location Map
portion of Sylva, North & South
USGS Quads



Explanation

③ gasoline
UST (3000 gal.)
location & #

2
x sample location
& # M

product lines

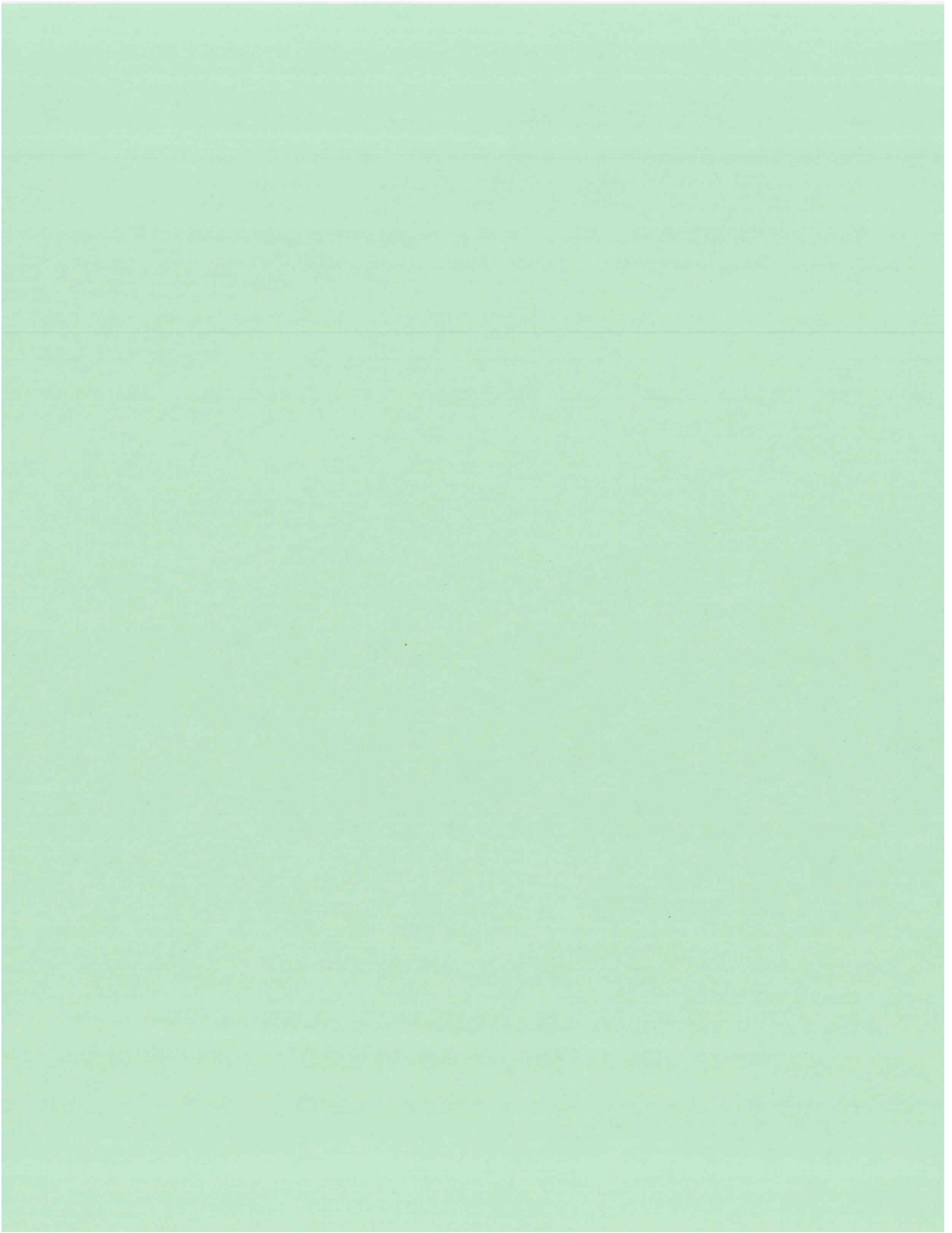
10 9 8
(x x x)
island

analyses (5030)

M1 20.3 mg/kg

M2-M12 (stack pile) ND

Site Map



NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
ASHEVILLE REGIONAL OFFICE



JAMES B. HUNT JR.
GOVERNOR

WAYNE MCDEVITT
SECRETARY

September 14, 2000

Mr. Bob Middleton
The Estate of John & Zadie Middleton
191 East Main Street
Sylva, NC 28779

RE: Notice of No Further Action
15A NCAC 2L .0115(h)
RISK-BASED ASSESSMENT AND
CORRECTIVE ACTION FOR
PETROLEUM UNDERGROUND
STORAGE TANKS
Middleton's Amoco
191 East Main St., Sylva
Fac. ID No. 0-009932
Jackson County
UST Closure Report

Dear Mr. Middleton:

On September 13, 2000 the Division of Waste Management (DWM), Asheville Regional Office, received a Closure Report for the above-referenced site. A review of the report shows that analytical results of soil samples collected during closure indicates no contamination above DWM maximum soil contaminant concentrations in accordance with UST Closure Policy, dated August 24, 1998. Based on information provided to date, the DWM classifies the risk posed by the discharge or release as low risk and determines that no further action is required. This determination shall apply unless the DWM later determines that the discharge or release poses an unacceptable risk or a potentially unacceptable risk to human health or the environment.

Pursuant to 15A NCAC 2L .0115(e), you have a continuing obligation to notify the DWM of any changes that you know of or should know of, that might affect the level of risk assigned to the discharge or release.

Should you have any questions, please contact me at (828) 251-6208.

Sincerely,

Janice C. Andersen
UST Regional Supervisor

cc: Ruth Straus
Mike Owens, Mountain Geology, Inc.

Appendix C
Pyramid Geophysical Survey Report



PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2022-260)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION: PARCEL 48 NCDOT PROJECT R-5600 (45818.1.FR1)

195 EAST MAIN STREET, SYLVA, NC

October 21, 2022

Report prepared for: David Graham, P.G.
Hart & Hickman, P.C.
2923 South Tryon Street, Suite 100
Charlotte, NC 28203

Prepared by: _____

A handwritten signature in black ink, appearing to read "E. Cross".

Eric C. Cross, P.G.
NC License #2181

Reviewed by: _____

A handwritten signature in black ink, appearing to read "Doug Canavella".

Douglas A. Canavella, P.G.
NC License #1066

503 INDUSTRIAL AVENUE, GREENSBORO, NC 27406

P: 336.335.3174 F: 336.691.0648

C257: GEOLOGY

C1251: ENGINEERING

GEOPHYSICAL INVESTIGATION REPORT
Parcel 48 - 195 East Main Street
Sylva, Jackson County, North Carolina

Table of Contents

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LIST OF ACRONYMS

CADD	Computer Assisted Drafting and Design
DF	Dual Frequency
EM.....	Electromagnetic
GPR.....	Ground Penetrating Radar
GPS	Global Positioning System
NCDOT.....	North Carolina Department of Transportation
ROW	Right-of-Way
UST	Underground Storage Tank

EXECUTIVE SUMMARY

Project Description: Pyramid Geophysical Services (Pyramid), a department within Pyramid Environmental & Engineering, P.C., conducted a geophysical investigation for Hart & Hickman, P.C. (Hart & Hickman) at Parcel 48, located at 195 East Main Street, in Sylva, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project R-5600). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted on September 27, 2022, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

Geophysical Results: The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of five EM anomalies were identified. All of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR was performed across and around all sources of significant metallic interference to confirm that the interference did not obscure any significant structures such as USTs. The geophysical survey identified evidence of utilities and/or smaller fragments of buried debris. Collectively, the geophysical data recorded no evidence of metallic USTs at Parcel 48.

INTRODUCTION

Pyramid Geophysical Services (Pyramid), a department within Pyramid Environmental & Engineering, P.C., conducted a geophysical investigation for Hart & Hickman, P.C. (Hart & Hickman) at Parcel 48, located at 195 East Main Street, in Sylva, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project R-5600). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted on September 27, 2022, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site consisted of a used car dealership surrounded by asphalt, gravel, and grass surfaces. An aerial photograph, showing the survey area boundaries, and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. Pyramid collected the EM data using a Geonics EM61-MK2 (EM61) metal detector integrated with a Geode External GPS/GLONASS receiver. The integrated GPS system allows the location of the instrument to be recorded in real-time during data collection, resulting in an EM data set that is geo-referenced and can be overlain on aerial photographs and CADD drawings. A boundary grid was established around the perimeter of the site with marks every 10 feet to maintain orientation of the instrument throughout the survey and assure complete coverage of the area.

According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. The EM61 data were digitally collected at

approximately 0.8-foot intervals along north-south trending or east-west trending, generally parallel survey lines, spaced five feet apart. The data were downloaded to a computer and reviewed in the field and office using the Geonics NAV61 and Surfer for Windows Version 15.0 software programs.

GPR data were acquired across select EM anomalies on September 27, 2022, using a Geophysical Survey Systems, Inc. (GSSI) SIR 4000 unit equipped with a 350 MHz HS antenna. Data were collected both in reconnaissance fashion as well as along formal transect lines across EM features. The GPR data were viewed in real-time using a vertical scan of 512 samples, at a rate of 48 scans per second. GPR data were viewed down to a maximum depth of approximately 6 feet, based on dielectric constants calculated by the SIR 4000 unit in the field during the reconnaissance scans. GPR transects across specific anomalies were saved to the hard drive of the SIR 4000 unit for post-processing and figure generation.

Pyramid's classifications of USTs for the purposes of this report are based directly on the geophysical UST ratings provided by the NCDOT. These ratings are as follows:

Geophysical Surveys for Underground Storage Tanks on NCDOT Projects			
High Confidence	Intermediate Confidence	Low Confidence	No Confidence
Known UST Active tank - spatial location, orientation, and approximate depth determined by geophysics.	Probable UST Sufficient geophysical data from both magnetic and radar surveys that is characteristic of a tank. Interpretation may be supported by physical evidence such as fill/vent pipe, metal cover plate, asphalt/concrete patch, etc.	Possible UST Sufficient geophysical data from either magnetic or radar surveys that is characteristic of a tank. Additional data is not sufficient enough to confirm or deny the presence of a UST.	Anomaly noted but not characteristic of a UST. Should be noted in the text and may be called out in the figures at the geophysicist's discretion.

DISCUSSION OF RESULTS

Discussion of EM Results

A contour plot of the EM61 results obtained across the survey area at the property is presented in **Figure 2**. Each EM anomaly is numbered for reference in the figure. The

following table presents the list of EM anomalies and the cause of the metallic response, if known:

LIST OF METALLIC ANOMALIES IDENTIFIED BY EM SURVEY

Metallic Anomaly #	Cause of Anomaly	Investigated with GPR
1	Utility	
2	Vehicles	✓
3	Fuel Pump/Light	✓
4	Sign	
5	Manhole	

All of the EM anomalies were directly attributed to visible cultural features at the ground surface, including a utility, vehicles, a fuel pump, a light, a sign, and a manhole. GPR was performed across and around all sources of significant metallic interference to confirm that the interference did not obscure any significant structures such as USTs.

Discussion of GPR Results

Figure 3 presents the locations of the formal GPR transects performed at the property as well as select transect images. All of the transect images are included in **Appendix A**. A total of fourteen formal GPR transects were performed at the site.

GPR Transects 1-2 were performed as general reconnaissance scans at the request of Hart & Hickman. GPR Transects 3-14 were performed across and around areas of significant metallic interference. None of these transects showed evidence of significant structures such as USTs. Evidence of utilities and/or smaller fragments of buried debris was observed.

Collectively, the geophysical data recorded no evidence of metallic USTs at Parcel 48. **Figure 4** provides an overlay of the metal detection results on the NCDOT engineering plans for reference.

SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 and GPR data collected at Parcel 48 in Sylva, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- All of the EM anomalies were directly attributed to visible cultural features at the ground surface.
- GPR was performed across and around all sources of significant metallic interference to confirm that the interference did not obscure any significant structures such as USTs.
- The geophysical survey identified evidence of utilities and/or smaller fragments of buried debris.
- Collectively, the geophysical data recorded no evidence of metallic USTs at Parcel 48.

LIMITATIONS

Geophysical surveys have been performed and this report was prepared for Hart & Hickman, P.C. in accordance with generally accepted guidelines for EM61 and GPR surveys. It is generally recognized that the results of the EM61 and GPR surveys are non-unique and may not represent actual subsurface conditions. The EM61 and GPR results obtained for this project have not conclusively determined the definitive presence or absence of metallic USTs, but the evidence collected is sufficient to result in the conclusions made in this report. Additionally, it should be understood that areas containing extensive vegetation, reinforced concrete, or other restrictions to the accessibility of the geophysical instruments could not be fully investigated.

APPROXIMATE BOUNDARIES OF GEOPHYSICAL SURVEY AREA



View of Survey Area (Facing Approximately Southeast)



View of Survey Area (Facing Approximately South)



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PROJECT
PARCEL 48
SYLVA, NORTH CAROLINA
NCDOT PROJECT R-5600

TITLE
PARCEL 48 -
GEOPHYSICAL SURVEY BOUNDARIES
AND SITE PHOTOGRAPHS

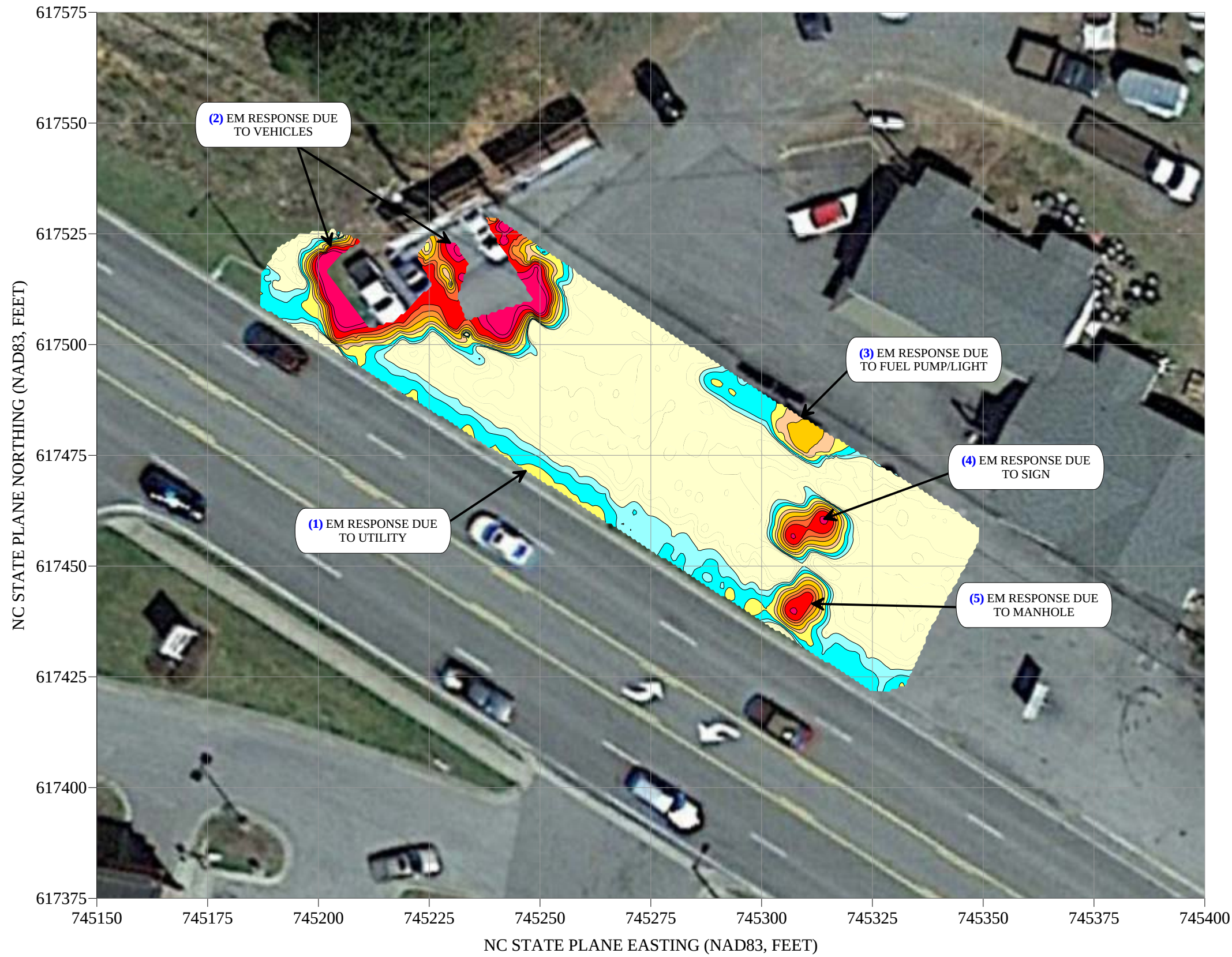
DATE
9/30/2022

PYRAMID
PROJECT #:
2022-260

CLIENT
HART & HICKMAN

FIGURE 1

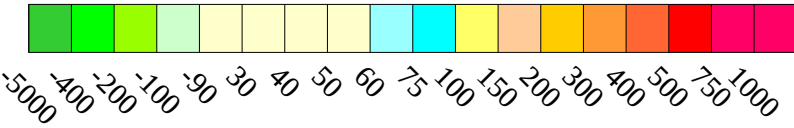
EM61 METAL DETECTION RESULTS



NO EVIDENCE OF METALLIC
USTs WAS OBSERVED.

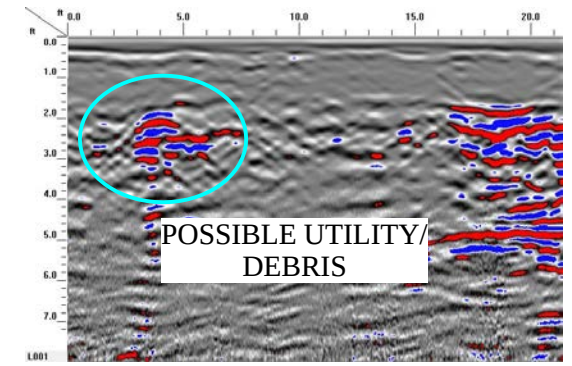
The contour plot shows the differential results of the EM61 instrument in millivolts (mV). The differential results focus on larger metallic objects such as USTs and drums. The EM data were collected on September 27, 2022, using a Geonics EM61-MK2 instrument. Verification GPR data were collected using a GSSI SIR 4000 instrument with a 350 MHz HS antenna on September 27, 2022.

EM61 Metal Detection Response
(millivolts)

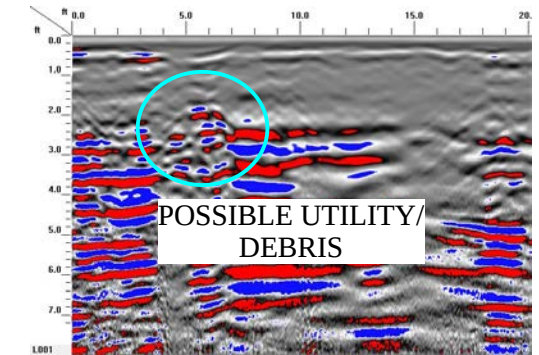


 503 INDUSTRIAL AVENUE GREENSBORO, NC 27406 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	PROJECT PARCEL 48 SYLVA, NORTH CAROLINA NCDOT PROJECT R-5600	TITLE PARCEL 48 - EM61 METAL DETECTION CONTOUR MAP	DATE 9/30/2022	CLIENT HART & HICKMAN
			PYRAMID PROJECT #: 2022-260	FIGURE 2

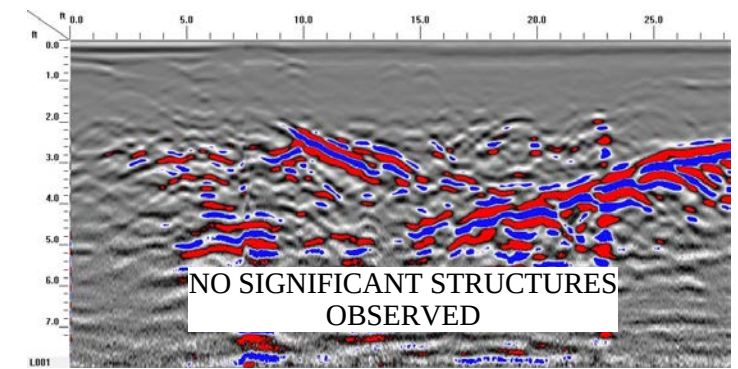
GPR TRANSECT LOCATIONS



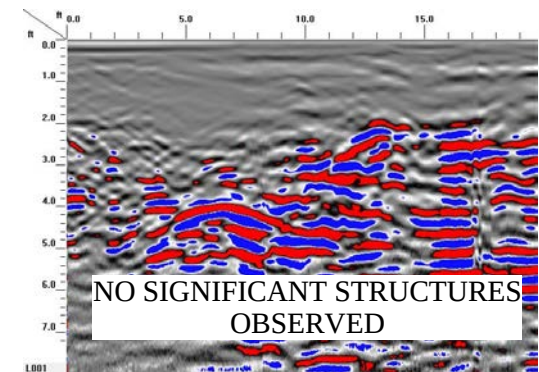
GPR TRANSECT 3 (T3)



GPR TRANSECT 6 (T6)



GPR TRANSECT 8 (T8)



GPR TRANSECT 10 (T10)



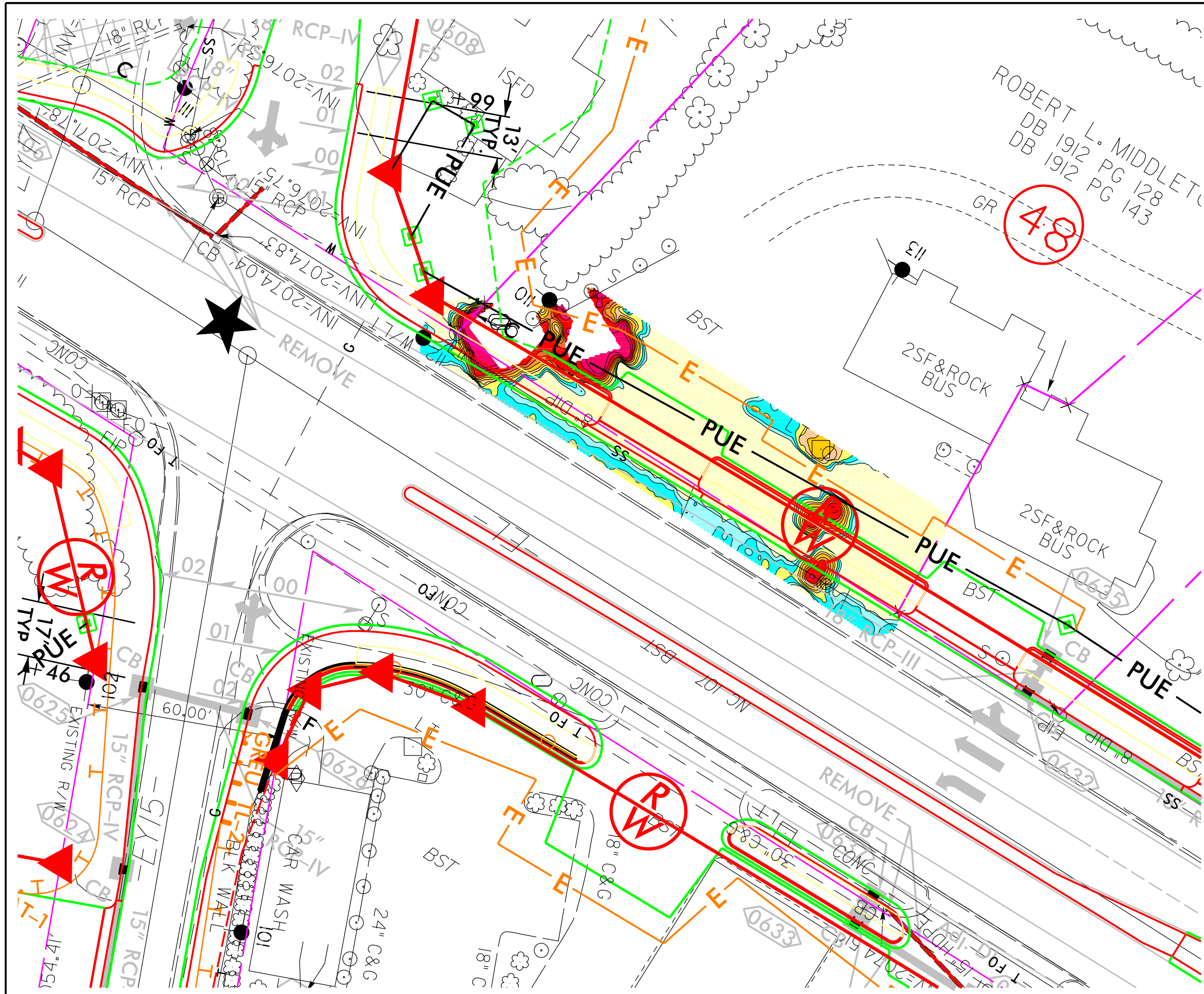
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PROJECT
PARCEL 48
SYLVA, NORTH CAROLINA
NCDOT PROJECT R-5600

TITLE
PARCEL 48 -
GPR TRANSECT LOCATIONS AND SELECT IMAGES

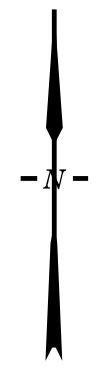
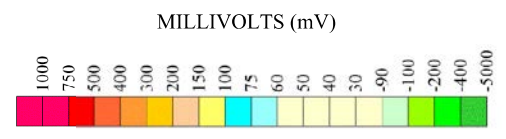
DATE
9/30/2022
PYRAMID
PROJECT #:
2022-260

CLIENT
HART & HICKMAN
FIGURE 3



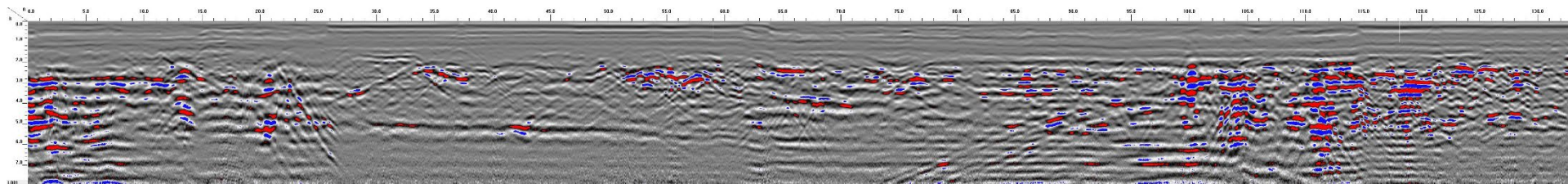
LEGEND

- EXISTING ROW
- EXISTING PROPERTY BOUNDARY
- PROPOSED ROW LINE
- E TEMPORARY CONSTRUCTION EASEMENT
- PUE PERMANENT UTILITY EASEMENT
- PROPOSED SS CUT LINE
- PROPOSED SS FILL LINE

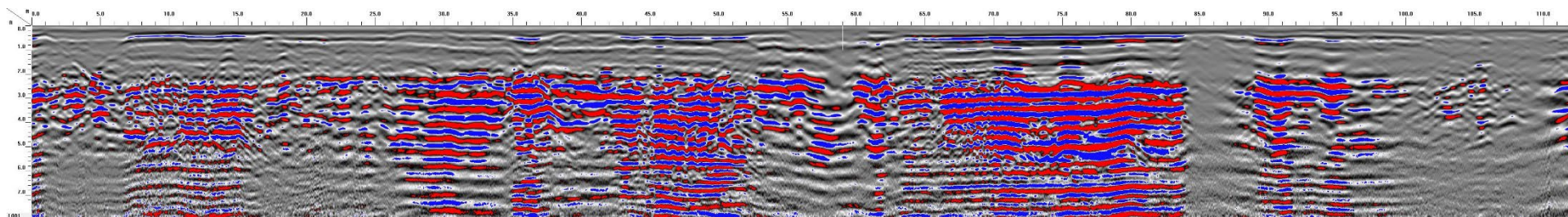


TITLE OVERLAY OF METAL DETECTION RESULTS ON NCDOT ENGINEERING PLANS	
PROJECT PARCEL 48 SYLVA, NORTH CAROLINA NCDOT PROJECT R-5600	
503 INDUSTRIAL AVENUE GREENSBORO, NC 27406 336.335.3174 (p) 336.691.0648 (f) License # C1251 Eng. / #C257 Geology	
DATE: 10-3-2022	REVISION NO. 0
PYRAMID PROJECT NO. 2022-260	FIGURE NO. 4

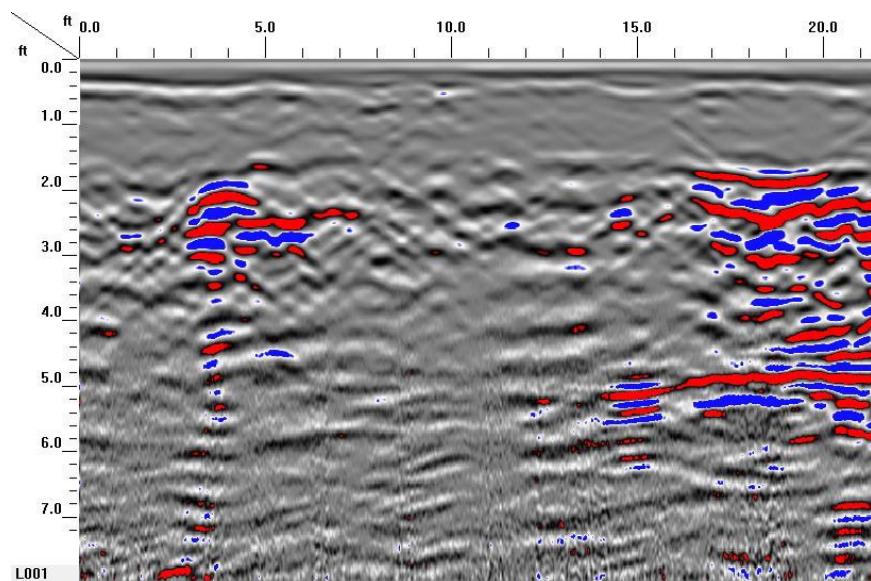
Appendix A – GPR Transect Images



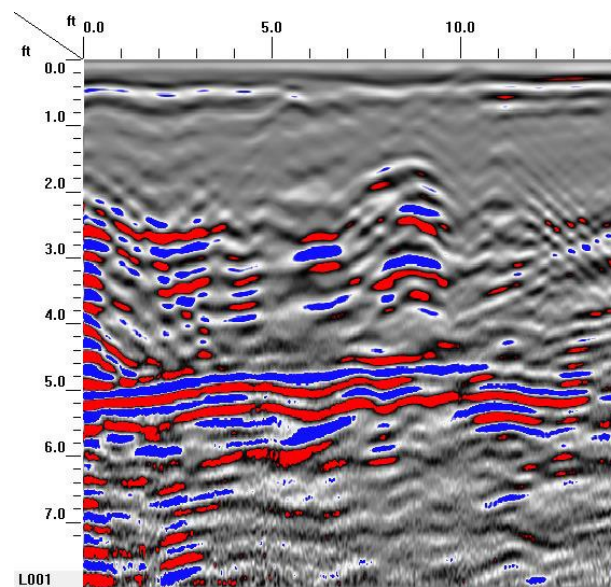
GPR TRANSECT 1



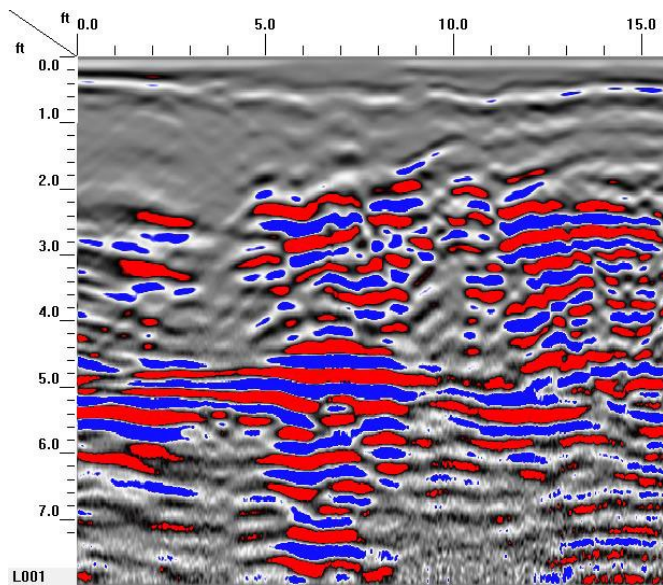
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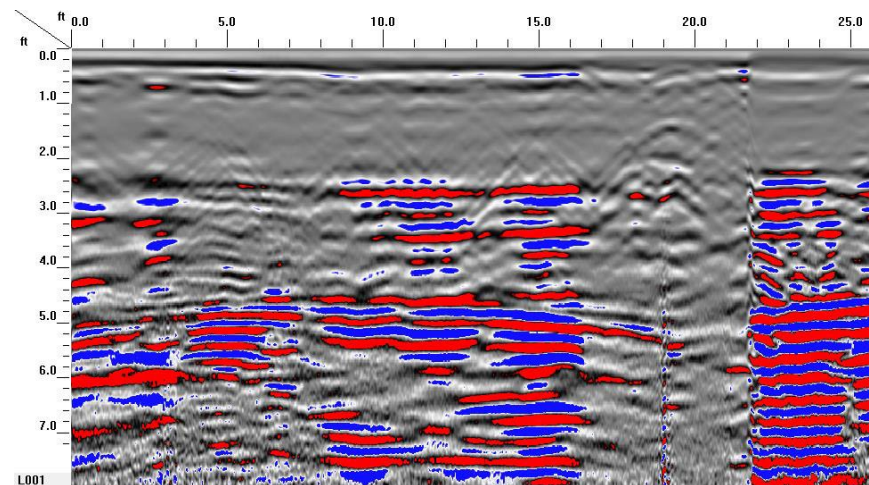
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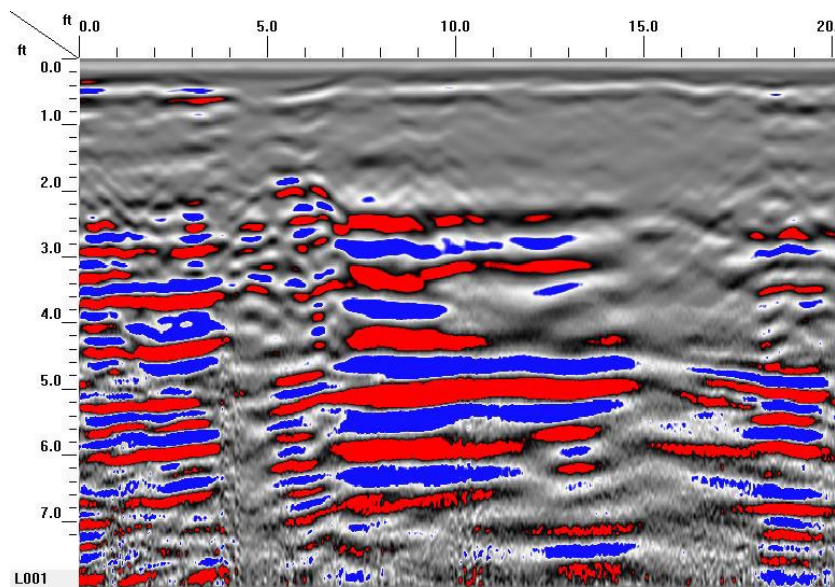
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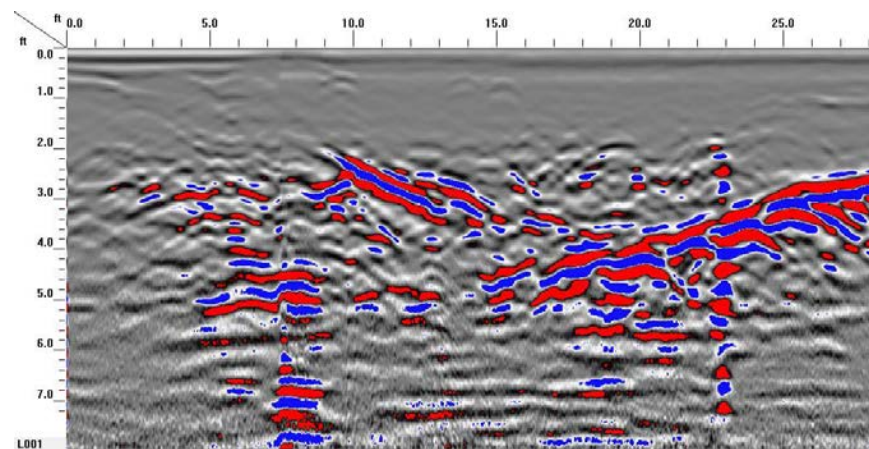
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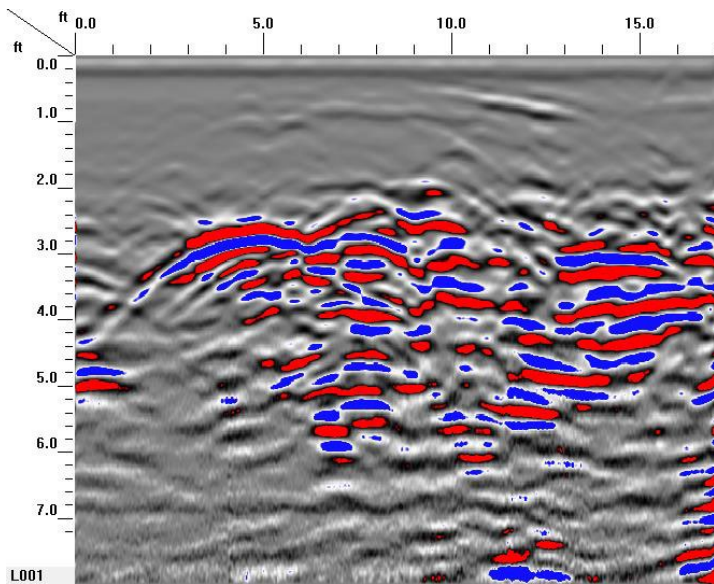
GPR TRANSECT 7



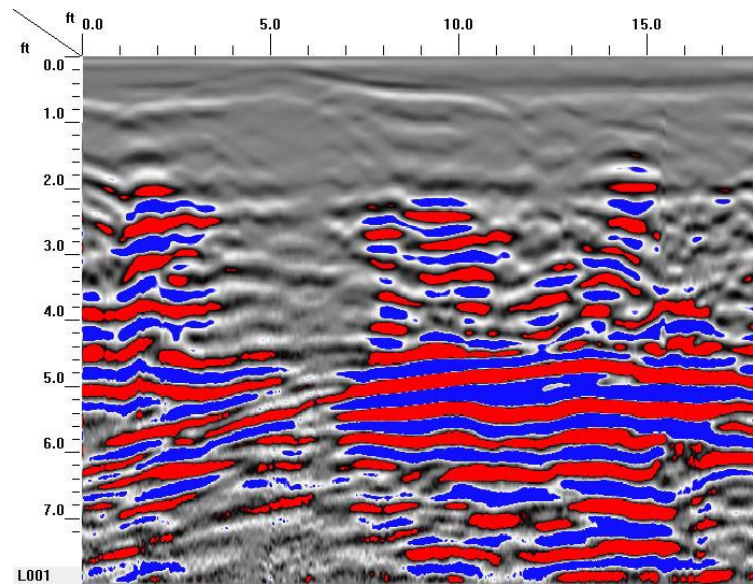
GPR TRANSECT 6



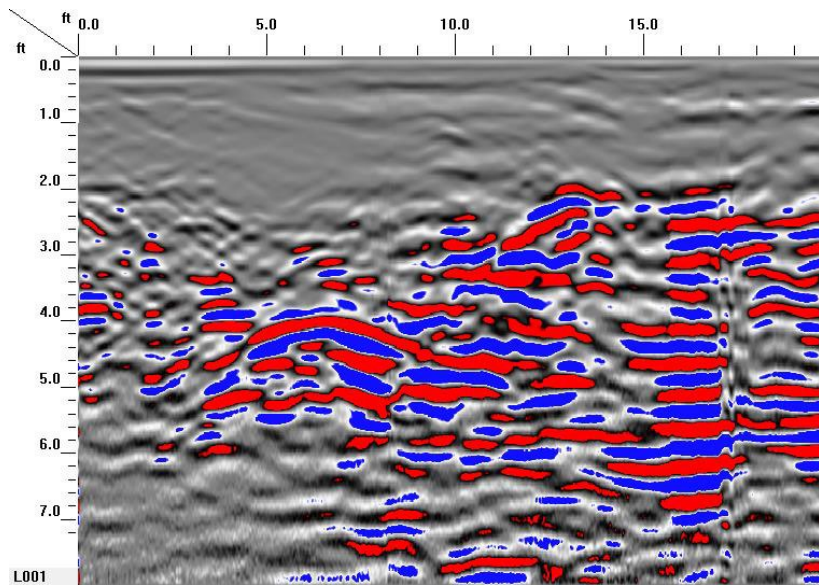
GPR TRANSECT 8



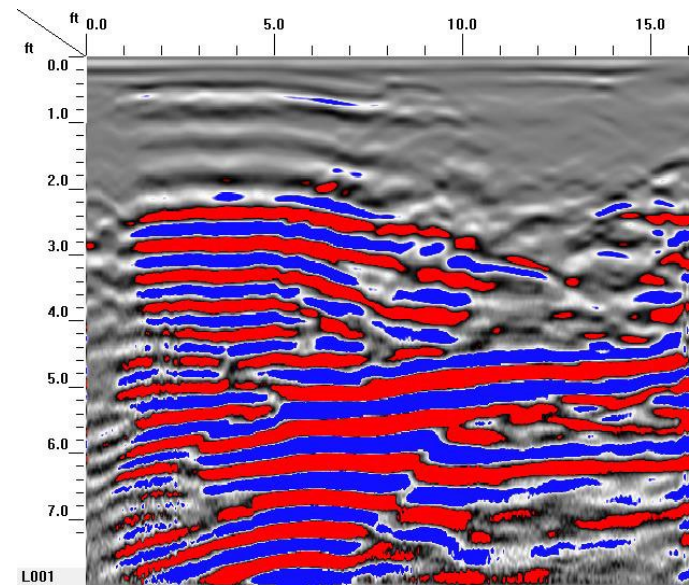
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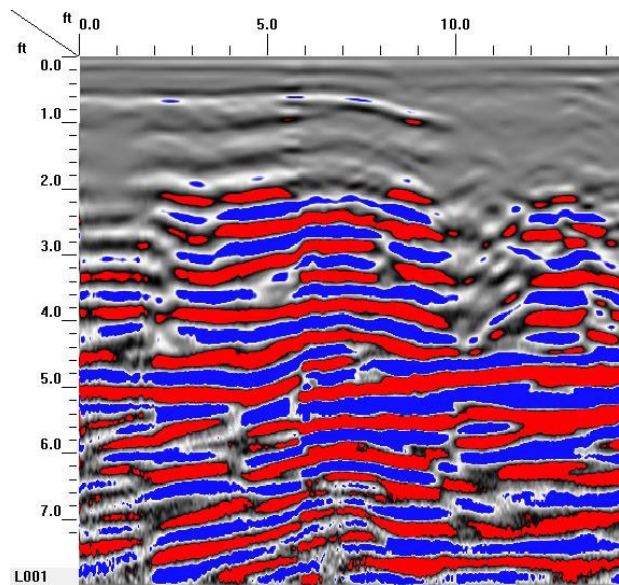
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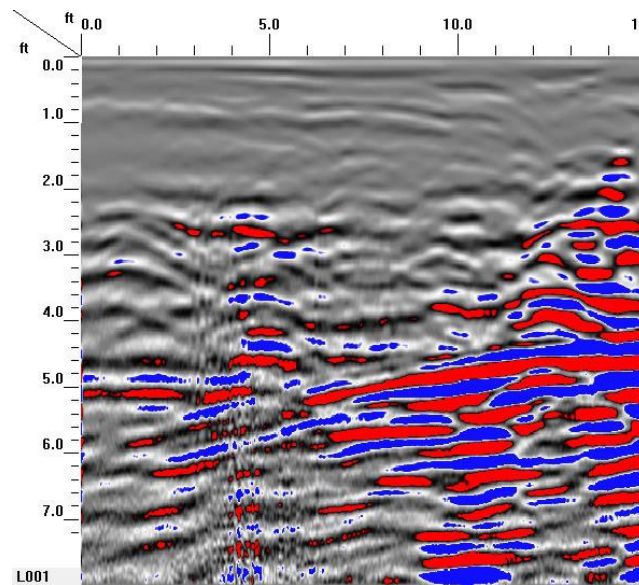
GPR TRANSECT 10



GPR TRANSECT 12



GPR TRANSECT 13



GPR TRANSECT 14