September 16, 2021
Kleinfelder File No. RAL21R130513

Mr. John L. Pilipchuk, LG, PE
North Carolina Department of Transportation
State Geotechnical Engineer
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

SUBJECT: Preliminary Site Assessment Report
Parcel 84, Hamby, William H & Jennifer W
WBS Element No. 44691.1.1, TIP No. R-5759
Proposed widening of NC 115 from US 421 to 2nd Street in Wilkesboro and North Wilkesboro, Wilkes County, NC
Kleinfelder Project No. 20221238.001A

Dear Mr. Pilipchuk,

Kleinfelder is pleased to provide its report detailing the activities conducted as part of the preliminary site assessment for the subject project.

Kleinfelder appreciates the opportunity to be of service to you. Should you have questions or require additional information, please do not hesitate to contact the undersigned.

Sincerely,
KLEINFELDER, INC.

Evan D. Amber
Staff Professional I

Michael J Burns, LG
Environmental Program Manager

EDA/MJB:asp

© 2021 Kleinfelder

KLEINFELDER 3200 Gateway Centre Blvd. Suite 100, Morrisville, NC 27560 **p |** 919.755.5011

PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 84, HAMBY, WILLIAM H & JENNIFER W
PIN 2200405
1524 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 44691.1.1
STATE PROJECT R-5759
PROPOSED WIDENING OF NC 115 FROM US 421 TO 2ND STREET IN WILKESBORO AND NORTH WILKESBORO

KLEINFELDER PROJECT NO. 20221238.001A

SEPTEMBER 16, 2021

Copyright 2021 Kleinfelder
All Rights Reserved

ONLY THE CLIENT OR ITS DESIGNATED REPRESENTATIVES MAY USE THIS DOCUMENT AND ONLY FOR THE SPECIFIC PROJECT FOR WHICH THIS REPORT WAS PREPARED.

A Report Prepared for:

Mr. John L. Pilipchuk, LG, PE
North Carolina Department of Transportation
State Geotechnical Engineer
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 84, HAMBY, WILLIAM H & JENNIFER W
PIN 2200405
1524 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 44691.1.1
STATE PROJECT R-5759
PROPOSED WIDENING OF NC 115 FROM US 421 TO 2ND STREET IN WILKESBORO AND NORTH WILKESBORO

Prepared by:

Evan D. Amber
Staff Professional I

Abigail R. Shurtleff
Staff Professional II

Reviewed by:

Michael J. Burns, LG
Environmental Program Manager

KLEINFELDER
3200 Gateway Centre Blvd. | Suite 100
Raleigh, North Carolina 27560
P | 919.755.5011

September 16, 2021

Kleinfelder Project No. 20221238.001A

© 2021 Kleinfelder

PRELIMINARY SITE ASSESSMENT REPORT

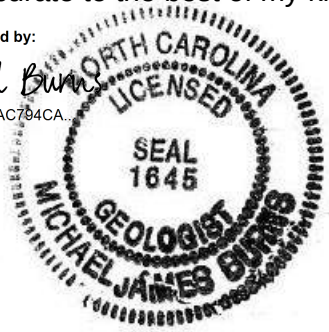
Site Name and Location:	Parcel 84 1524 Statesville Road North Wilkesboro, Wilkes County, North Carolina
Latitude and Longitude:	36.154730°N, -81.115668°W
County Parcel Number	2200405
Facility ID Number:	N/A
Leaking UST Incident:	N/A
State Project No.:	R-5759
NCDOT Project No.:	NCDOT WBS Element 44691.1.1
Description:	Proposed widening of NC 115 from US 421 to 2nd Street in Wilkesboro and North Wilkesboro
Date of Report:	September 16, 2021
Consultant:	Kleinfelder, Inc. 3200 Gateway Center Boulevard | Suite 100 Morrisville, North Carolina 27560 Corporate Geology License No. C-521 Corporate Licensure for Engineering F-1312

SEAL AND SIGNATURE OF CERTIFYING LICENSED GEOLOGIST

I, Michael J Burns, a Licensed Geologist for Kleinfelder, Inc., do certify that the information contained in this report is correct and accurate to the best of my knowledge.

DocuSigned by:
Michael Burns
7E53DC44AC794CA...

Michael J Burns, LG
NC License No. 1645



© 2021 Kleinfelder

TABLE OF CONTENTS

1 INTRODUCTION 4
1.1 SITE DESCRIPTION 4
1.2 SCOPE OF WORK 5

2 HISTORY 6
2.1 PARCEL USAGE 6
2.2 FACILITY ID NUMBERS 6
2.3 GROUNDWATER INCIDENT NUMBERS 6

3 OBSERVATIONS 7
3.1 GROUNDWATER MONITORING WELLS 7
3.2 ACTIVE USTS 7
3.3 FEATURES APPARENT BEYOND THE PROJECT STUDY AREA 7

4 METHODS 8
4.1 PROPERTY OWNER CONTACTS 8
4.2 HEALTH AND SAFETY 8
4.3 GEOPHYSICAL INVESTIGATION 8
4.4 SOIL ASSESSMENT 9
4.5 SOIL ANALYSIS 10

5 RESULTS 11
5.1 GEOPHYSICAL INVESTIGATION 11
5.2 SOIL SAMPLING DATA 11
5.3 SAMPLE OBSERVATIONS 11
5.4 QUANTITY CALCULATIONS 12

6 CONCLUSIONS 13

7 RECOMMENDATIONS 14

8 LIMITATIONS 15

TABLES

1 Soil Sample Screening Results
2 Soil Sample Analytical Summary

FIGURES

1 Site Location
2 Site Plan

APPENDICES

A Site Photographs
B Geophysical Survey Report
C Boring Logs
D Analytical Reports and Graphs

© 2021 Kleinfelder

PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 84, HAMBY, WILLIAM H & JENNIFER W
PIN 2200405
1524 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 44691.1.1
STATE PROJECT R-5759
PROPOSED WIDENING OF NC 115 FROM US 421 TO 2ND STREET IN WILKESBORO AND NORTH WILKESBORO

1 INTRODUCTION

Kleinfelder, Inc. (Kleinfelder) has prepared this Preliminary Site Assessment (PSA) report to document assessment activities performed on Parcel 84 (the assessment area is hereafter referred to as the "Project Study Area"). The Project Study Area consists of the northeastern portion of a parcel that is within the right-of-way and/or easement on Wilkes County Tax Assessor's Office Parcel Number 2200405. Parcel 84 is currently occupied by a used car lot and an office building. Parcel 84 is located along the western side of NC 115 (US 421 BUS AKA Statesville Road), approximately 400-ft northwest of the intersection with North Carolina State Road (SR) 2448 (Damascus Church Road AKA Hunter Road), in North Wilkesboro, Wilkes County, North Carolina (Figure 1).

The Pre-Scoping Comments letter, dated September 20, 2018, prepared by the North Carlina Department of Transportation (NCDOT), did not provide information regarding Parcel 84. Kleinfelder identified the site as an apparently inactive gas station with a pump island remaining on site in the Request for Technical and Cost Proposal (RFP), dated June 1, 2021. As such, the purpose of the PSA was to evaluate whether underground storage tanks and associated soil and/or groundwater contamination is present in the Project Study Area that may result in increased project costs and future liability if acquired by the NCDOT.

1.1 SITE DESCRIPTION

Parcel 84 has listed owners of Hamby, William H. & Jennifer W. The parcel's street address is 1524 Statesville Road. The parcel consists of a used car lot and an office building in the northeastern portion of the parcel, facing NC 115. The remainder of the parcel is occupied by maintained grass areas. The parcel is bounded by vacant, vegetated land and wooded land to the northwest, west, and southeast, beyond which are residential homes; by NC 115 to the north

© 2021 Kleinfelder

and to the east, beyond which is a restaurant (TJ's Café) and an automotive repair facility (Black's Collision Repair Center); and by Old US 421 Road to the north, beyond which is an agricultural equipment supplier business (B&R Equipment). Photographs of the Project Study Area are provided in Appendix A.

1.2 SCOPE OF WORK

Kleinfelder conducted this PSA in accordance with the NCDOT's June 1, 2021, RFP and Kleinfelder's June 16, 2021, Technical and Cost Proposal. The NCDOT granted a formal Notice to Proceed on June 21, 2021.

© 2021 Kleinfelder

2 HISTORY

2.1 PARCEL USAGE

The parcel consists of a used car lot and an office building surrounded by maintained grass areas.

The September 20, 2018 Pre-Scoping Comments letter did not include information regarding Parcel 84. Kleinfelder identified the historical usage of the site as an inactive retail gas fueling station. The proposed NCDOT easement passes through the parcel and the prior location of a pump island, and through the likely location of an existing or former UST bed.

Kleinfelder conducted historical research to determine whether additional environmental listings were identified for Parcel 84. The following are the results of the additional research:

- Based on a review of historical aerial photographs using Google Earth Pro and the NCDOT Historical Aerial Imagery Index, the site appeared to have been developed as a retail gas fueling station from at least 1980 until at least 2018. The vegetated lands surrounding the office building in the northern, western, and southern portions of the parcel were cleared of trees around 2012. Between 2018 and 2021, the site was converted to a used car lot and the asphalt pavement area was expanded. Historical imagery was not available prior to 1980.
- Kleinfelder searched the registered underground storage tank (UST) database, maintained by the NCDEQ. The site was not listed with a Facility ID Number.
- No other listings for Parcel 84 were identified on any of the available NCDEQ pollution incident databases.

2.2 FACILITY ID NUMBERS

Kleinfelder reviewed the NCDEQ UST database for Parcel 84. The site was not listed with a Facility ID Number.

2.3 GROUNDWATER INCIDENT NUMBERS

No active groundwater incidents are known to be associated with Parcel 84 at this time.

© 2021 Kleinfelder

3 OBSERVATIONS

3.1 GROUNDWATER MONITORING WELLS

No active groundwater monitoring wells were observed on Parcel 84 at the time of site exploration, Tuesday, August 3, 2021, and Wednesday August 4, 2021.

3.2 ACTIVE USTS

Based on review of the NCDEQ UST database, site visits and previous reports, there are no active regulated USTs located on site. There is a known former UST bed adjacent to the northeastern side of the office building facing NC 115 and along the western boundary of the Project Study Area. Site personnel were under the impression that the USTs had been removed when the fuel island was removed to facilitate development of the property into a used car lot. Concrete debris from the former fuel island was evident just off the paved asphalt parking area south of the building. Former fuel ports and/or product piping were also observed in this area.

3.3 FEATURES APPARENT BEYOND THE PROJECT STUDY AREA

The Project Study Area consisted of the northeastern portion of the parcel within the NCDOT right-of-way or easement. Adjacent to the southeastern side of the office building, just outside of the Project Study Area, an inactive earthen oil pit was observed. According to site personnel, the oil pit was used for automotive and equipment oil changes. Photographs of the oil pit are provided in Appendix A. There were no other features of concern observed in other portions of the parcel beyond the Project Study Area.

© 2021 Kleinfelder

4 METHODS

4.1 PROPERTY OWNER CONTACTS

As part of Kleinfelder's scope of work, the listed property owner was contacted about the work schedule for the field work and the type of work being performed. The owner did not express any concern or special conditions associated with the work being performed.

4.2 HEALTH AND SAFETY

Prior to commencing the field work, Kleinfelder personnel developed a Site-Specific Health and Safety Plan (HASP) covering activities to be performed. The site-specific HASP was discussed with all Kleinfelder personnel involved with the project and at a daily on-site "tail gate" safety meetings with subcontractors and sub consultants. In addition to the HASP, Kleinfelder utilized its comprehensive Corporate Health and Safety Program, targeted to address those specific and critical tasks that involve Kleinfelder personnel and subcontractors. The Loss Prevention System (LPS™), a behavior-based program, is Kleinfelder's company-wide safety system implemented and embraced by all levels of the company.

4.3 GEOPHYSICAL INVESTIGATION

Pyramid Environmental & Engineering, P.C (Pyramid) conducted a geophysical investigation in the Project Study Area between July 14 and 16, 2021. Pyramid utilized electromagnetic (EM) induction technology and ground penetrating radar (GPR) to locate potential geophysical anomalies and potential USTs within the Project Study Area.

A total of eight (8) EM anomalies were identified, of which six (6) were directly attributed to visible cultural features at the ground surface, reinforced concrete, or known utilities. One (1) EM anomaly was associated with metal and concrete debris in the southeastern portion of the Project Study Area. One (1) EM anomaly was associated with three (3) probable USTs located beneath the concrete sidewalk along the northeastern side of the office building facing NC 115. Probable UST #1 is approximately 16-ft long by 5-ft wide, Probable UST #2 is approximately 10-ft long by 5-ft wide, and Probable UST #3 is approximately 13-ft long by 5-ft wide.

A copy of the Pyramid Geophysical Investigation Report, detailing the field methodology, is included in Appendix B, and the locations of the probable USTs are indicated on Figure 2.

© 2021 Kleinfelder

4.4 SOIL ASSESSMENT

The scope of work for the soil assessment was to evaluate the presence of soil contamination along the existing right-of-way and/or easement to evaluate whether known impact is present in this area and maybe migrating off-site. The soil borings were planned to be advanced to maximum depths of 12-feet below the ground surface (ft bgs) since the depth of the UST basin may be up to 10-ft bgs. Field screening using a photoionization detector (PID) was conducted at 1-foot intervals beginning from the ground surface to total boring depth. The soil sample with the highest PID reading above background or the sample from the maximum drilled depth was selected for on-site laboratory analyses.

Prior to the drilling activities, public utilities were marked by NC One Call and private utilities were marked by Pyramid.

Kleinfelder subcontracted South Atlantic Environmental Drilling and Construction Company (SAEDACCO) to perform the drilling on-site on August 3, 2021, and August 4, 2021. SAEDACCO advanced ten (10) soil borings (P84-B1 through P84-B10) by direct-push technology at locations specified by Kleinfelder. The soil boring locations were identified in the field using a GPS. The borings were located within the right-of-way surrounding and projecting outwards from the UST bed into the paved asphalt area and the maintained grass area in the eastern and southeastern portions of the Project Study Area, respectively. Additional borings were advanced in the vicinity of the historical fuel island and in the northern portion of the Project Study Area. Five (5) soil borings were advanced to 15-ft bgs (P84-B6 through B84-B10) to define the vertical extent of suspected soil contamination along the eastern corner of the UST bed. The soil boring locations are shown on Figure 2.

Soil samples were collected by driving Macro Core™ samplers in 5-foot intervals to boring termination (where direct-push technology was applied). Each soil core was cut open, the soil samples were classified, and the soil divided into 1-foot sections. Each 1-foot section, collected via either method, was screened in the field using a PID. The PID readings are summarized in Table 1.

Soils were determined to be primarily red and reddish-brown sandy silts, clayey silts, and silty sands, with lenses of white and yellowish-brown silts and sands. Groundwater was not

© 2021 Kleinfelder

encountered in any of the borings at the termination depths of 12-ft bgs and 15-ft bgs. Copies of the boring logs are included in Appendix C.

4.5 SOIL ANALYSIS

The PID readings from soil boring P84-B2 ranged from 39.9 parts per million (ppm) to 140.0 ppm between 9 to 12-ft bgs, with the highest reading at 11-ft bgs. The PID readings from soil boring P84-B8 ranged from 84.6 ppm to 152.9 ppm between 13 to 15-ft bgs, with the highest reading at 15-ft bgs. All other advanced soil boring PID readings were noted to be low. Based on the PID data and visual observations, between one and four of the samples from each boring was selected for on-site laboratory analysis.

Selected samples were analyzed by RED Lab, LLC utilizing ultraviolet fluorescence (UVF) methodology to provide real-time analytical results of Total Petroleum Hydrocarbons (TPH), Gasoline Range Organics (GRO), Diesel Range Organics (DRO), and benzene, toluene, ethylbenzene, and total xylenes (BTEX). The UVF method was selected because of the suspected historical use of petroleum products on Parcel 84. The UVF analysis also provided data regarding Environmental Protection Agency 16 total Polycyclic Aromatic Hydrocarbons (PAHs), and Benzo(a)pyrene (BaP).

© 2021 Kleinfelder

5 RESULTS

5.1 GEOPHYSICAL INVESTIGATION

The EM and GPR surveys did not identify unknown geophysical anomalies within the Project Study Area but did identify three (3) probable USTs located beneath the concrete sidewalk southeast of the building on-site. Probable UST #1 is approximately 16-ft long by 5-ft wide, Probable UST #2 is approximately 10-ft long by 5-ft wide, and Probable UST #3 is approximately 13-ft long by 5-ft wide.

5.2 SOIL SAMPLING DATA

The UVF analysis of soil samples indicated the presence of petroleum impact within the existing right-of-way above NCDEQ Action Levels for soil boring P84-B2 at 8, 9, and 11-ft bgs. Based on corresponding PID readings, contamination at soil boring P84-B2 is estimated to be between 7 and 12-ft bgs. The UVF analysis of soil boring P84-B8 did not indicate the presence of petroleum impact above NCDEQ Action Levels at 11 or 12-ft bgs; however, the high PID readings of 84.6 ppm to 152.9 ppm from 13 to 15-ft bgs likely suggest the presence of petroleum impact above NCDEQ action levels at these depths. Kleinfelder did not assess if soil contamination may be present below 15-ft bgs. Soil borings P84-B2 and P84-B8 were advanced adjacent to and eastwards from the eastern corner of the former UST bed, respectively. The UVF analysis of all other soil samples did not indicate the presence of petroleum impact within other portions of the existing right-of-way above NCDEQ Action Levels. A summary of soil sample PID readings are presented in Table 1, and laboratory analytical results are presented in Table 2. The laboratory results associated with each boring are presented on Figure 2, along with the estimated horizontal area of petroleum impact. The laboratory report and graphs are included in Appendix D.

5.3 SAMPLE OBSERVATIONS

Soils were observed for any obvious evidence of contamination. An odor of petroleum was observed for soil boring P84-B1 at 11-ft bgs, for soil boring P84-B2 from 7 to 12-ft bgs, and for soil boring P84-B7 at 13-ft bgs. No visual or olfactory evidence of contamination was noted for the other soil samples from the advanced borings.

© 2021 Kleinfelder

5.4 QUANTITY CALCULATIONS

The area of petroleum impact above the NCDEQ action levels in the current right-of-way is suspected to be emanating from the southeastern corner of the former UST bed and measures approximately 16-ft wide by 20-ft long. It is unknown whether the plume extends at all westerly, underneath of the commercial building, and this area is outside of the Project Study Area. The estimated area of petroleum impact is depicted on Figure 2.

Estimated Area = 320 square feet-(ft^2)

Estimated Thickness = 8-ft

Estimated Impact = 94.8 cubic yards (yd^3)

© 2021 Kleinfelder

6 CONCLUSIONS

Based on results of the EM/GPR survey, soil assessment and field observations, Kleinfelder has reached the following conclusions:

- The GPR and EM investigation identified three (3) probable USTs located beneath the concrete sidewalk on the northeastern side of the building on-site. Probable UST #1 is approximately 16-ft long by 5-ft wide, Probable UST #2 is approximately 10-ft long by 5-ft wide, and Probable UST #3 is approximately 13-ft long by 5-ft wide.
- The site is not listed in the NCDEQ UST Database with a Facility ID Number, thus the exact age and/or construction of the three (3) probable USTs identified during the geophysical survey are not known. An inactive earthen oil pit was also observed along the eastern side of the office building, just outside of the Project Study Area and east of the probable UST bed.
- Petroleum soil impact was detected in two (2) borings advanced within the current right-of-way above the NCDEQ Action Levels for TPH GRO and DRO. The suspected source of the soil contamination is the southeastern corner of the UST bed at approximately 7-ft bgs. The petroleum soil impact is estimated to extend to at least 15-ft bgs and at least 20-ft southeasterly from the source; it unknown whether the impact extends beneath the commercial building on-site. The total volume of petroleum-impacted soils within the Project Study Area is estimated at 94.8-yd^3.
- Groundwater was not encountered at the total soil boring depths of 12-ft or 15-ft bgs.

© 2021 Kleinfelder

7 RECOMMENDATIONS

Based on results of this Preliminary Site Assessment, Kleinfelder recommends additional sampling or special handling of soils be performed within the estimated area of petroleum impact in the Project Study Area on Parcel 84 in North Wilkesboro, Wilkes County, North Carolina as depicted on Figure 2.

© 2021 Kleinfelder

8 LIMITATIONS

Kleinfelder's work will be performed in a manner consistent with that level of care and skill ordinarily exercised by other members of its profession practicing in the same locality, under similar conditions and at the date the services are provided. Kleinfelder's conclusions, opinions and recommendations will be based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, Kleinfelder's clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface studies or field tests, should be performed to reduce uncertainties. Acceptance of this report will indicate that NCDOT has reviewed the document and determined that it does not need or want a greater level of service than provided.

During the course of the performance of Kleinfelder's services, hazardous materials may have been discovered. Kleinfelder assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Nothing contained in this report should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, or generator, or person who arranges for disposal, transport, storage or treatment of hazardous materials within the meaning of any governmental statute, regulation or order. NCDOT is solely responsible for directing notification of all governmental agencies, and the public at large, of the existence, release, treatment or disposal of any hazardous materials observed at the project site, either before or during performance of

© 2021 Kleinfelder

Kleinfelder's services. NCDOT is responsible for directing all arrangements to lawfully store, treat, recycle, dispose, or otherwise handle hazardous materials, including cuttings and samples resulting from Kleinfelder's services.

© 2021 Kleinfelder

TABLES

© 2021 Kleinfelder

Table 1: Soil Sample Screening Results

Date	Sample ID	Depth (ft)	PID Reading	Notes
8/3/2021	R-5759-P84-B1	1	2.1	
		2	2.7	
		3	0.9	
		4	2.7	
		5	2.9	
		6	3.1	
		7	1.4	
		8	0.3	
		9	2.4	
		10	8.8	UVF Analysis
		11	2.0	UVF Analysis
		12	2.8	
8/3/2021	R-5759-P84-B2	1	1.2	
		2	0.2	
		3	0.0	
		4	0.3	
		5	0.8	UVF Analysis
		6	0.1	
		7	7.2	
		8	11.9	UVF Analysis
		9	51.1	UVF Analysis
		10	39.9	
		11	140.0	UVF Analysis
		12	80.1	
8/3/2021	R-5759-P84-B3	1	1.6	
		2	1.1	
		3	1.5	
		4	0.4	
		5	0.2	
		6	1.0	
		7	0.5	
		8	0.3	
		9	0.3	
		10	0.6	
		11	0.9	
		12	1.2	UVF Analysis
8/3/2021	R-5759-P84-B4	1	1.1	
		2	2.3	
		3	1.9	
		4	0.5	
		5	1.0	
		6	1.2	
		7	3.5	
		8	6.5	UVF Analysis
		9	2.4	
		10	1.4	
		11	1.9	
		12	1.2	
8/3/2021	R-5759-P84-B5	1	0.2	
		2	0.6	
		3	1.9	
		4	1.3	
		5	2.6	UVF Analysis
		6	1.2	
		7	1.6	
		8	1.6	
		9	0.6	
		10	1.7	
		11	0.6	
		12	1.7	
8/3/2021	R-5759-P84-B6	1	1.9	
		2	2.0	
		3	2.3	
		4	2.3	
		5	1.1	
		6	1.4	
		7	2.6	
		8	1.1	
		9	0.2	UVF Analysis
		10	3.0	
		11	1.6	
		12	1.3	
		13	1.7	
		14	1.1	
		15	1.1	
8/4/2021	R-5759-P84-B7	1	0.1	
		2	1.5	
		3	1.5	
		4	1.9	
		5	0.7	
		6	0.6	
		7	2.3	
		8	1.8	
		9	1.5	
		10	0.3	
		11	5.6	
		12	7.5	
		13	8.3	UVF Analysis
		14	4.9	
		15	2.7	
8/4/2021	R-5759-P84-B8	1	2.8	
		2	2.4	
		3	0.4	
		4	1.7	
		5	2.6	
		6	2.9	
		7	3.5	
		8	0.5	
		9	2.0	
		10	5.5	
		11	4.0	UVF Analysis
		12	13.6	UVF Analysis
		13	121.7	
		14	84.6	
		15	153.9	
8/4/2021	R-5759-P84-B9	1	0.4	
		2	0.8	
		3	0.7	
		4	1.6	
		5	0.7	
		6	1.3	
		7	1.5	
		8	1.2	
		9	2.3	
		10	0.7	
		11	2.2	
		12	2.5	UVF Analysis
		13	1.8	
		14	1.0	
		15	0.6	
8/4/2021	R-5759-P84-B10	1	4.1	UVF Analysis
		2	2.8	
		3	1.1	
		4	1.7	
		5	2.5	
		6	0.1	
		7	0.5	
		8	2.1	
		9	0.7	
		10	2.4	
		11	2.4	
		12	2.9	
		13	1.6	
		14	1.4	
		15	3.1	UVF Analysis

Notes:
1) PID = Photoionization Detector
2) PID readings in parts per million (ppm)
3) NA = Not Analyzed
4) UVF = Ultraviolet Flourescence

TABLE 2: Soil Sample Analytical Summary

Parameter	Analytical Results																Comparison Criteria		
	Soil Sample Results																		
Sample ID	P84-B1-10	P84-B1-11	P84-B2-5	P84-B2-8	P84-B2-9	P84-B2-11	P84-B3-12	P84-B4-8	P84-B5-5	P84-B6-9	P84-B7-13	P84-B8-11	P84-B8-12	P84-P9-12	P84-B10-1	P84-B10-15	State Action Level	Protection of Groundwater	Residential Health
PID Reading (ppm)	8.8	2.0	0.8	11.9	51.1	140.0	1.2	6.5	2.6	0.2	8.3	4.0	13.6	2.5	4.1	3.1			
Collection Depth (ft bgs)	10	11	5	8	9	11	12	8	5	9	13	11	12	12	1	15			
Collection Date	8/3/21	8/3/21	8/3/21	8/3/21	8/3/21	8/3/21	8/3/21	8/3/21	8/3/21	8/3/21	8/4/21	8/4/21	8/4/21	8/4/21	8/4/21	8/4/21			
UVF Method																			
Diesel Range Organics	**1.2**	**4.1**	**0.9**	**470**	**2,119**	**3,113**	**0.9**	<0.23	**4.7**	**0.3**	**0.8**	**0.7**	**12.9**	<0.16	**2.7**	**0.5**	100	--	--
Gasoline Range Organics	<0.50	<0.40	<0.50	**390**	**1,299**	**1,658**	<0.60	<0.50	<0.50	<0.40	**2.4**	<0.50	<0.50	<0.40	<0.40	<0.60	50	--	--

Notes:
Results displayed in milligrams per kilogram (mg/kg)
ft bgs = Feet below ground surface
Bold = Above Laboratory Detection Level
Highlighted concentrations exceed the NCDEQ action level
UVF = Ultraviolet Flouresence

FIGURES

© 2021 Kleinfelder

R-5759	FIGURE
PARCEL 84	1

SITE LOCATION

0 1500 3000

FEET

PARCEL 84 - WILLIAM H. & JENNIFER W. HAMBY
1524 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NC

Kleinfelder
3200 Gateway Centre Blvd | Suite 100
Morrisville, NC 27560
License No. C-521

p | 919.755.5011 f | 919.755.1414

Drawn By: ARS	State Project: R-5759
Checked By: MJB	Date: September 9, 2021

NC GRID
NAD 83 NA 2011

P84

Call

RIVER ROAD LIBERTY GROVE RD
Yadkin River
GREEN SHEPHERD FARM RD
ARMORY RD
EASTOVER DR
CEDAR LN
BROWN RIDGE RD
HOLLAND WOODS RD
PONDVIEW DR
OLD STATE HWY 60
DAMASCUS CHURCH RD
FISHING CREEK RD
Fishing Cr
OLD US 421 RD
VIRGINIA'S DR
PARKS RIDGE RD
CLARK RD
HENRYS COUNTRY RD
SPEEDWAY
COMBS RD
ALLISON LN
DAN CALL RD
CICERO RD
BREEZE HILL RD
H ANDERSON RD
HUNTER RD
CAMP JOE HARRIS RD
MOORE RIDGE RD
FISHING CREEK ARBOR RD
ARBOR GABLES LN
BENS MILL RD
FISHING CREEK RD
EDGEWOOD
115
Bus 421
421
F

LEGEND

- P84-B1 — SOIL BORING LOCATION
- PROPOSED RIGHT-OF-WAY
- PROPOSED DRAINAGE STRUCTURE
- PROPOSED EASEMENT
- P84-B1-10 — ID - DEPTH
- UST — UST LOCATION
- KNOWN SOIL CONTAMINATION
- POTENTIAL SOIL CONTAMINATION

SOIL ANALYTICAL RESULTS (mg/kg)

ID	GRO	DRO
P84-B1-10	<0.50	1.2
P84-B1-11	<0.40	4.1
P84-B2-5	<0.50	0.9
P84-B2-8	**390**	**470**
P84-B2-9	**1,299**	**2,119**
P84-B2-11	**1,658**	**3,113**
P84-B3-12	<0.60	0.9
P84-B4-8	<0.50	<0.23
P84-B5-5	<0.50	4.7
P84-B6-9	<0.40	0.3
P84-B7-13	2.4	0.8
P84-B8-11	<0.50	0.7
P84-B8-12	<0.50	12.9
P84-B9-12	<0.40	<0.16
P84-B10-1	<0.40	2.7
P84-B10-15	<0.60	0.5

NOTES:
1) All results reported in mg/kg
2) DRO = Diesel Range Organics
3) GRO = Gasoline Range Organics
4) Bold concentrations exceed the NCDEQ TPH Action Limit

PARCEL 84 - WILLIAM H. & JENNIFER W. HAMBY
1524 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NC

Kleinfelder
3200 Gateway Centre Blvd | Suite 100
Morrisville, NC 27560
License No. C-521
p | 919.755.5011 f | 919.755.1414

Drawn By: ARS	Date: September 13, 2021
Checked By: MJB	State Project: R-5759

R-5759	FIGURE
PARCEL 84	2

SITE PLAN

0 50 FEET

TRUSTEES OF DAMASCUS BAPTIST CHURCH DB 998 PG 7

GLADYS B. SHELTON
UNABLE TO LOCATE DEED OF RECORD
WB????

GAIRA AND EULOGIO CRUZ DB 1235 PG 99

JAMES A. AND OLLIE BAILEY DB 967 PG 185

NANCY ELLEDGE BENTON
DB 1236 PG 22

FREDRICK I. AND SAVANNAH F. BARBER
DB 855 PG 502

FORMER EARTHEN OIL PIT

Approx. N

N 50° 56' 50.3" W

N 55° 56' 50.3" W

GPS R5759-4

REMOVE

FILL W/ FLOWABLE FILL

APPENDIX A
SITE PHOTOGRAPHS

© 2021 Kleinfelder



View facing southeast from the northwest corner of the Project Study Area along NC 115.



View facing south from the eastern boundary of the Project Study Area long NC 115, towards the used car lot and convenience store.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: August 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 84, Nancy Elledge Benton AKA Hamby, William H & Jennifer W 1524 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-1**



View facing northwest from the southeast corner of the Project Study Area along NC 115.



View facing northwest from the southwestern corner of the Project Study Area, towards a pile of metal and concrete debris, an inactive earthen oil pit, and the former UST bed in front of the convenience store.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: August 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 84, Nancy Elledge Benton AKA Hamby, William H & Jennifer W 1524 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-2**



View facing northeast towards NC 115 along the southeastern side of the convenience store, depicting an earthen oil pit.



Former fuel ports associated with an inactive UST bed in front of the convenience store facing NC 115.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: August 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 84, Nancy Elledge Benton AKA Hamby, William H & Jennifer W 1524 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-3**



The former UST bed with three probable USTs outlined with white spray paint on the northern side of the convenience store facing NC 115.



View facing west towards depicting the convenience store, the southern corner of the former UST bed, and the top of an inactive earthen oil pit.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: August 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 84, Nancy Elledge Benton AKA Hamby, William H & Jennifer W 1524 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-4**

APPENDIX B

GEOPHYSICAL SURVEY REPORT

© 2021 Kleinfelder

PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2021-190)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION:
PARCEL 84
NCDOT PROJECT U-5759

1524 STATESVILLE ROAD, NORTH WILKESBORO, NC

August 6, 2021

Report prepared for: **Michael Burns, P.G.**
Kleinfelder, Inc.
3200 Gateway Centre Blvd., Suite 100
Morrisville, NC 27560

Prepared by: _____
Eric C. Cross, P.G.
NC License #2181

Reviewed by: _____
Douglas A. Canavello, 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 84 - 1524 Statesville Road
North Wilkesboro, Wilkes County, North Carolina

Table of Contents

Executive Summary 1
Introduction 2
Field Methodology 2
Discussion of Results 3
Discussion of EM Results 3
Discussion of GPR Results 4
Summary & Conclusions 5
Limitations 5

Figures

Figure 1 – Parcel 84 - Geophysical Survey Boundaries and Site Photographs
Figure 2 – Parcel 84 - EM61 Metal Detection Contour Map
Figure 3 – Parcel 84 - GPR Transect Locations and Select Images
Figure 4 – Parcel 84 - 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 Environmental (Pyramid) conducted a geophysical investigation for Kleinfelder, Inc. at Parcel 84, located at 1524 Statesville Road, in North Wilkesboro, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project U-5759). 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 July 14-16, 2021, 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 eight EM anomalies were identified. The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR was performed 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 metallic debris.

Three probable USTs were identified under the sidewalk in front of the building. Probable UST #1 is approximately 16 feet long by 5 feet wide, Probable UST #2 is approximately 10 feet long by 5 feet wide, and Probable UST #3 is approximately 13 feet long by 5 feet wide. Collectively, the geophysical data recorded evidence of three probable metallic USTs at Parcel 84.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Kleinfelder, Inc. at Parcel 84, located at 1524 Statesville Road, in North Wilkesboro, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project U-5759). 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 July 14-16, 2021, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site consisted of an apparent former gas station 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 July 16, 2021, using a Geophysical Survey Systems, Inc. (GSSI) SIR 4000 control unit coupled to 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 DF 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	Metal Debris	
2	Building/**Three Probable USTs**	✓
3	Reinforced Concrete	
4	Utility	✓
5	Utility/Mailbox	✓
6	Vehicles	✓
7	Trailer	
8	Sign	

The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface, including metal debris, a building, reinforced concrete, utilities, a mailbox, vehicles, a trailer, and a sign. GPR was performed around the building and the vehicles to confirm that the metallic 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 twelve formal GPR transects were performed at the site.

GPR Transects 1-12 were performed across the areas of significant metallic interference. GPR Transects 1-4 were performed on the sidewalk in front of the building. Transects 1-3 showed large, high-amplitude hyperbolic reflectors and Transect 4 showed three large, high-amplitude lateral reflectors, typical of USTs. These features have been classified as three probable USTs. Probable UST #1 is approximately 16 feet long by 5 feet wide, Probable UST #2 is approximately 10 feet long by 5 feet wide, and Probable UST #3 is approximately 13 feet long by 5 feet wide. **Figure 4** provides the locations and sizes of the three probable USTs, overlain on an aerial, along with ground-level photographs. The remaining transects showed evidence of possible buried utilities and/or debris.

Collectively, the geophysical data recorded evidence of three probable metallic USTs at Parcel 84. **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 84 in North Wilkesboro, 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.
- GPR was performed 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 metallic debris.
- Three probable USTs were identified under the sidewalk in front of the building. Probable UST #1 is approximately 16 feet long by 5 feet wide, Probable UST #2 is approximately 10 feet long by 5 feet wide, and Probable UST #3 is approximately 13 feet long by 5 feet wide.
- Collectively, the geophysical data recorded evidence of three probable metallic USTs at Parcel 84.

LIMITATIONS

Geophysical surveys have been performed and this report was prepared for Kleinfelder, Inc. 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 Northwest)



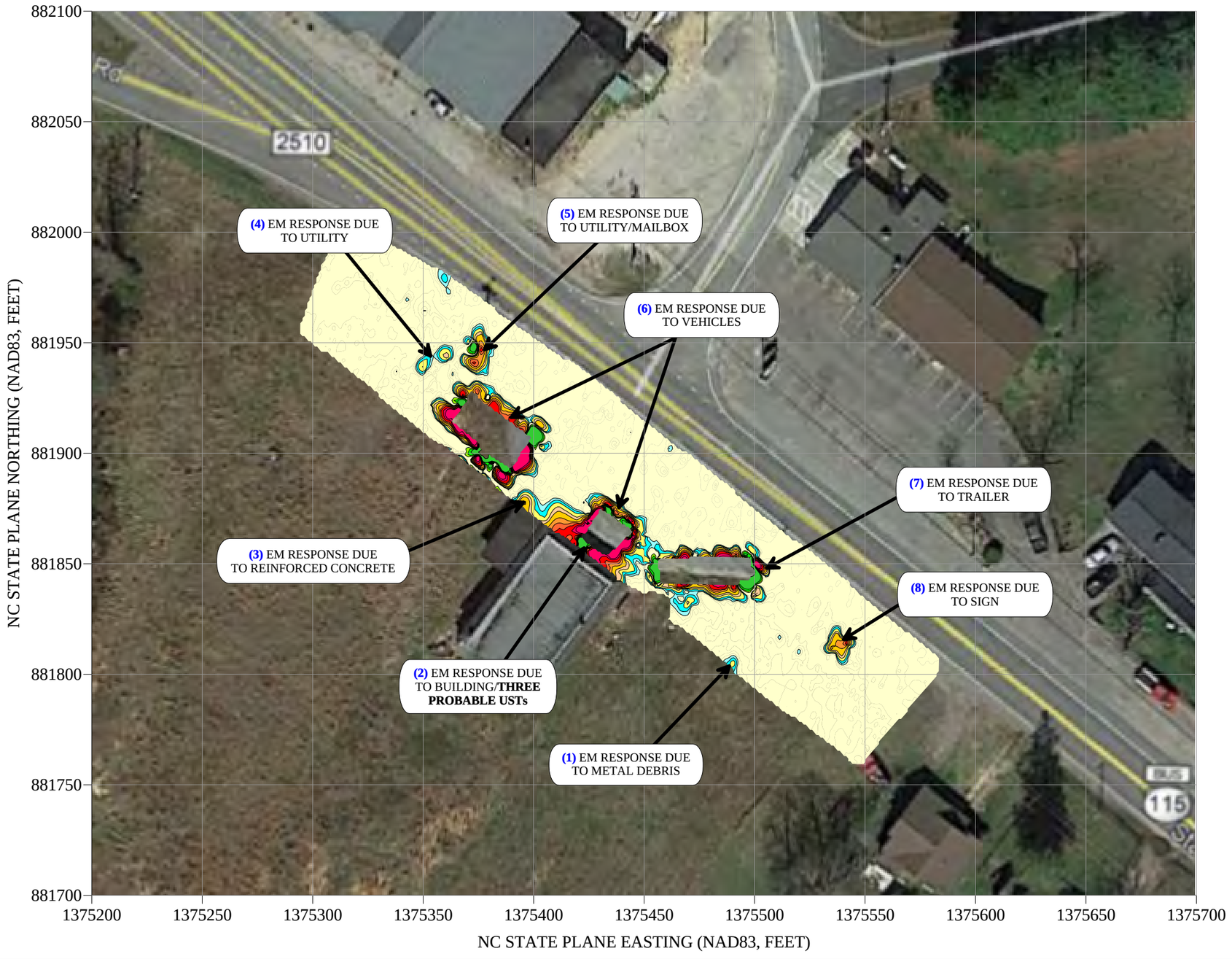
View of Survey Area (Facing Approximately Southeast)

N

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

PROJECT: PARCEL 84 NORTH WILKESBORO, NORTH CAROLINA NCDOT PROJECT U-5759	TITLE: PARCEL 84 - GEOPHYSICAL SURVEY BOUNDARIES AND SITE PHOTOGRAPHS	DATE: 7/19/2021 PYRAMID PROJECT #: 2021-190	CLIENT: Kleinfelder **FIGURE 1**

EM61 METAL DETECTION RESULTS



EVIDENCE OF THREE PROBABLE 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 July 14, 2021, using a Geonics EM61-MK2 instrument. Verification GPR data were collected using a GSSI SIR 4000 instrument with a 350 MHz HS antenna on July 16, 2021.

EM61 Metal Detection Response (millivolts)

N

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

PROJECT: PARCEL 84
NORTH WILKESBORO, NORTH CAROLINA
NCDOT PROJECT U-5759

TITLE: PARCEL 84 -
EM61 METAL DETECTION CONTOUR MAP

DATE: 7/19/2021

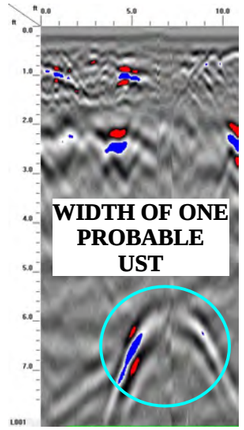
PYRAMID PROJECT #: 2021-190

CLIENT: Kleinfelder

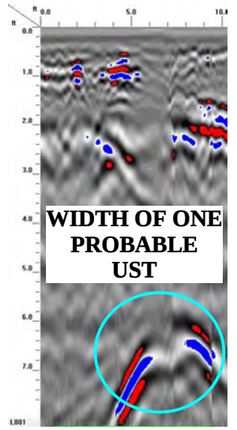
FIGURE 2

GPR TRANSECT LOCATIONS

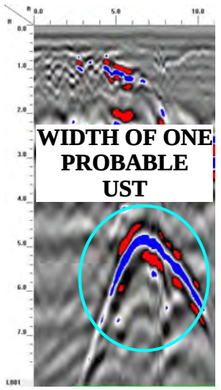




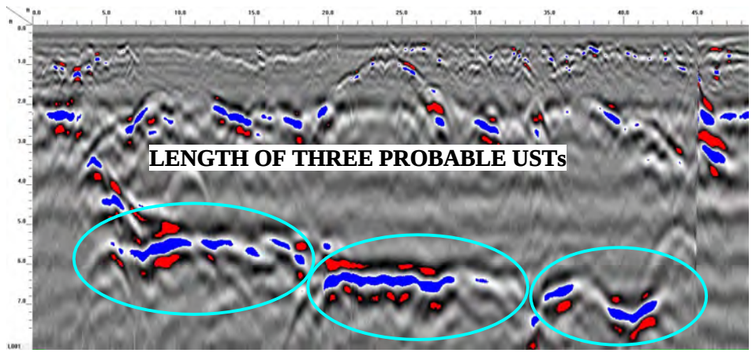
GPR TRANSECT 1 (T1)



GPR TRANSECT 2 (T2)



GPR TRANSECT 3 (T3)



GPR TRANSECT 4 (T4)

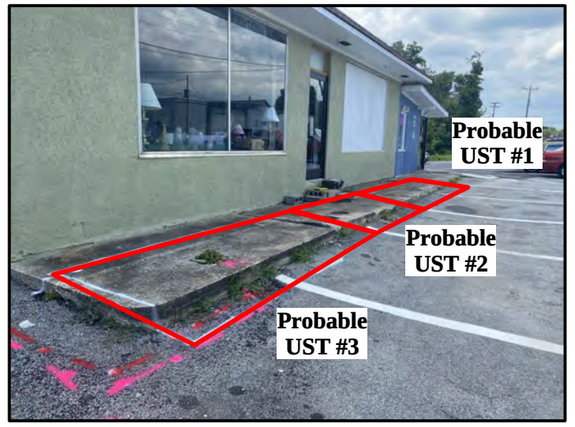
N

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

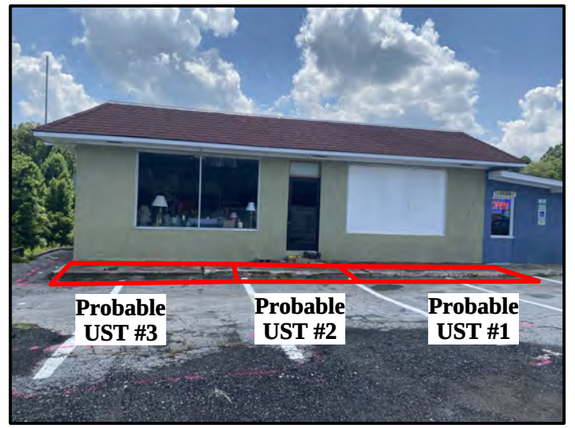
PROJECT: PARCEL 84 NORTH WILKESBORO, NORTH CAROLINA NCDOT PROJECT U-5759	TITLE: PARCEL 84 - GPR TRANSECT LOCATIONS AND SELECT IMAGES	DATE: 7/19/2021	CLIENT: Kleinfelder
		PYRAMID PROJECT #: 2021-190	**FIGURE 3**

LOCATIONS OF THREE PROBABLE USTs





View of Three Probable USTs
(Facing Approximately Northwest)



View of Three Probable USTs
(Facing Approximately Southwest)

N

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

PROJECT: PARCEL 84 NORTH WILKESBORO, NORTH CAROLINA NCDOT PROJECT U-5759	TITLE: PARCEL 84 - LOCATIONS AND SIZES OF THREE PROBABLE USTs	DATE: 7/19/2021	CLIENT: Kleinfelder
		PYRAMID PROJECT #: 2021-190	**FIGURE 4**

THREE PROBABLE USTs

LEGEND

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

EM61 Metal Detection Response
(millivolts)

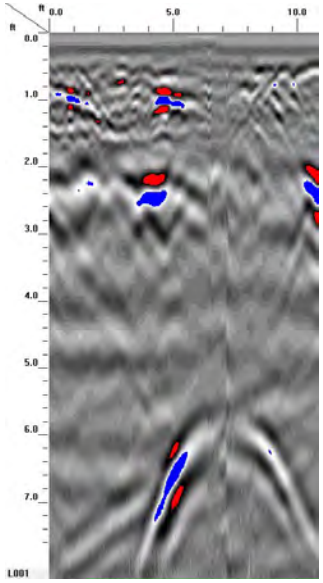
1000 750 500 400 300 200 150 100 75 60 50 40 30 -90 -100 -200 -400 -5000

0 25 50
FEET

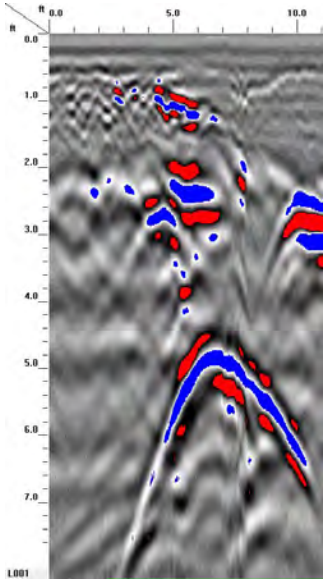
N

TITLE: OVERLAY OF METAL DETECTION RESULTS AND THREE PROBABLE USTs ON NCDOT ENGINEERING PLANS	
PROJECT: PARCEL 84 WILKESBORO, NORTH CAROLINA NCDOT PROJECT R-5759	
PYRAMID GEOPHYSICS 503 INDUSTRIAL AVENUE GREENSBORO, NC 27406 336.335.3174 (p) 336.691.0648 (f) License # C1251 Eng. / #C257 Geology	
DATE: 8-9-2021	REVISION NO. 0
PYRAMID PROJECT NO. 2021-190	FIGURE NO. 5

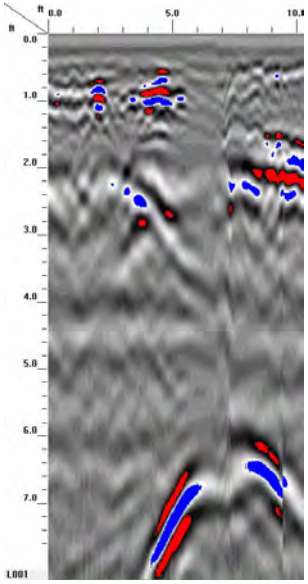
Appendix A – GPR Transect Images



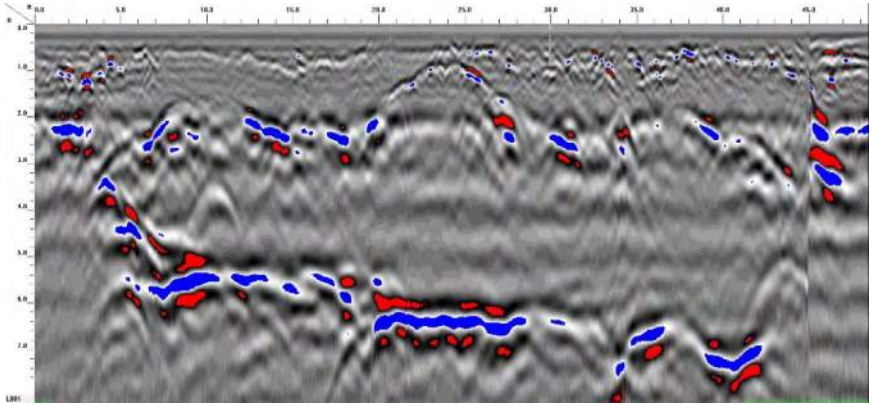
GPR TRANSECT 1



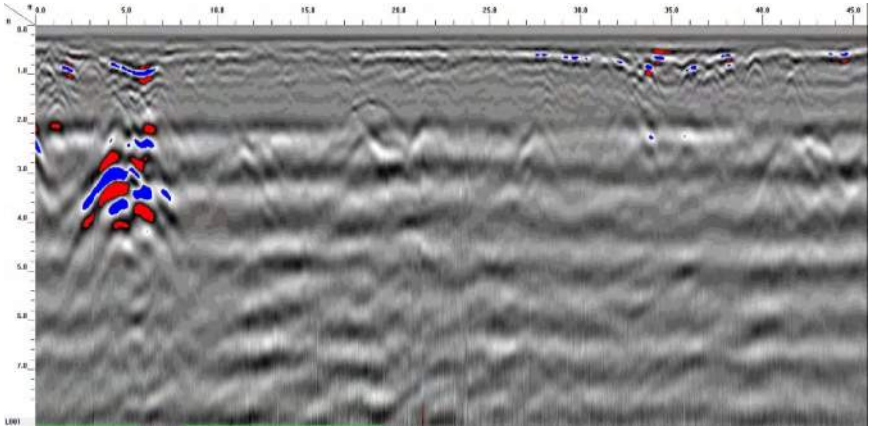
GPR TRANSECT 3



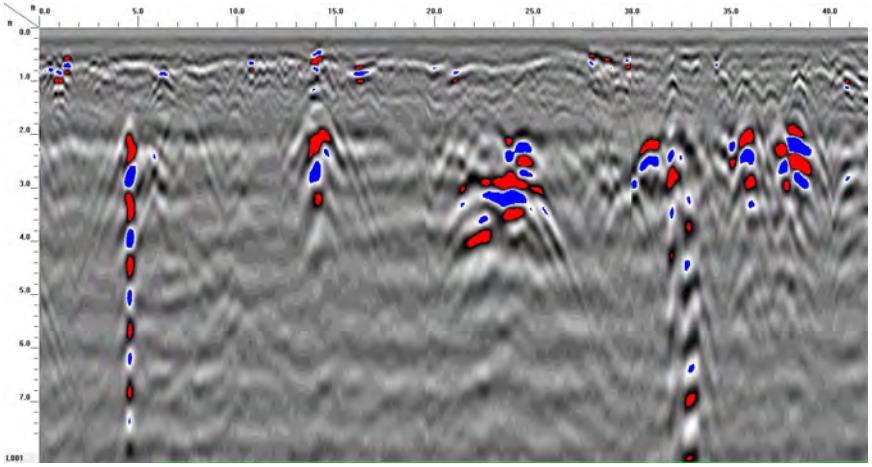
GPR TRANSECT 2



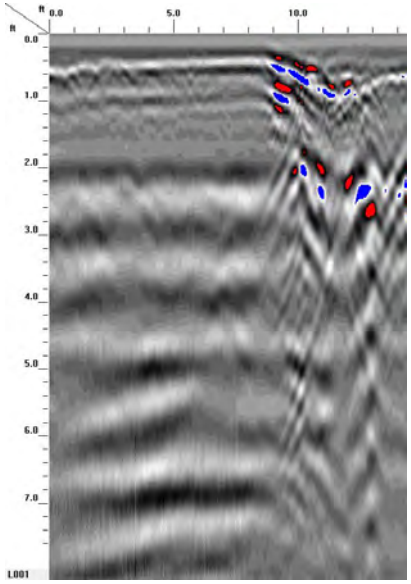
GPR TRANSECT 4



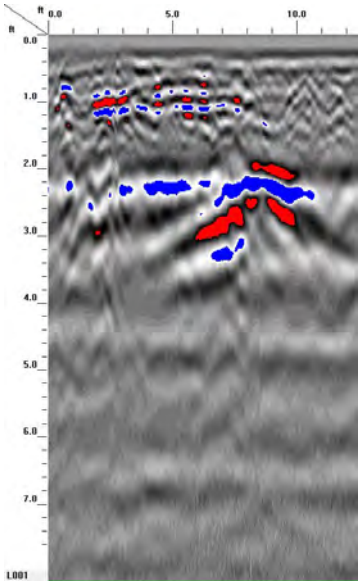
GPR TRANSECT 5



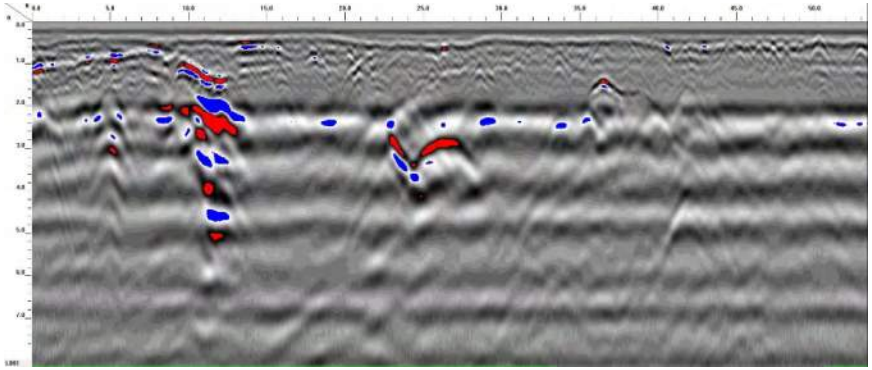
GPR TRANSECT 7



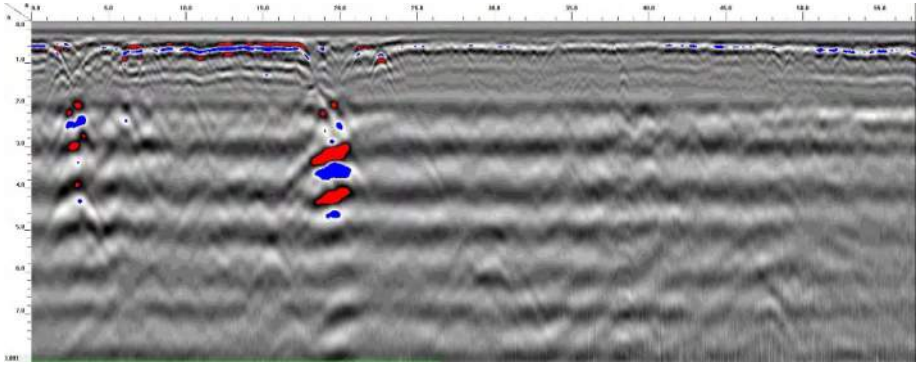
GPR TRANSECT 6



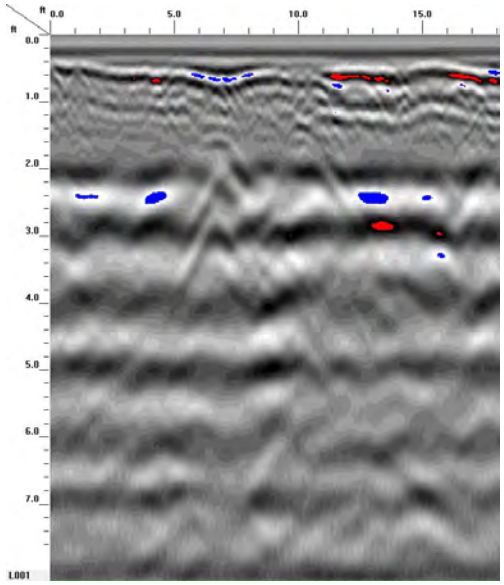
GPR TRANSECT 8



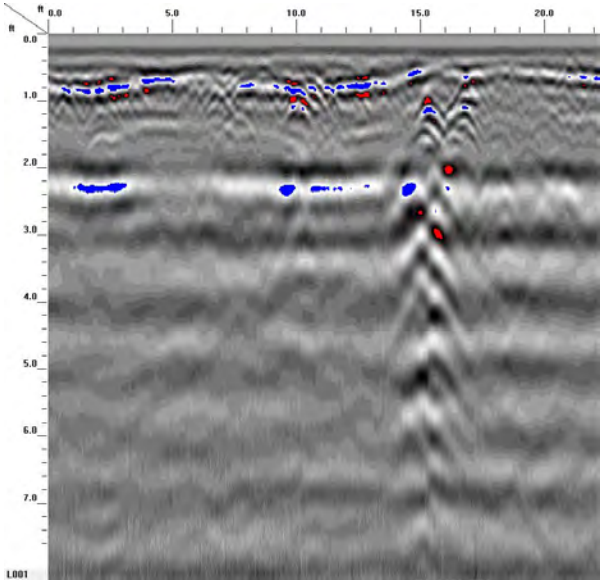
GPR TRANSECT 9



GPR TRANSECT 11



GPR TRANSECT 10



GPR TRANSECT 12

APPENDIX C
BORING LOGS

© 2021 Kleinfelder

PLOTTED: 08/13/2021 11:50 AM BY: EAmber

ENVIRONMENTAL BORING LOG P84-B1

Date Begin - End:	8/03/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	CLOUDY	**Bore Diameter:**	

FIELD EXPLORATION

Surface Condition: Asphalt

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
							ASPHALT: black
					2.1		**Sandy CLAY**: reddish brown
					2.7		
					0.9		
					2.7		
					2.9		**Sandy SILT**: reddish brown
5	Geoprobe				3.1		
					1.4		**Sandy SILT**: white and red
					0.3		
					2.4		
					8.8		**Sandy SILT**: red
10					2.0		
					2.8		**Sandy SILT**: white and red, odor, odor of petroleum

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221238.001A
DRAWN BY: EA
CHECKED BY: MJB
DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P84-B1

NCDOT R-5759 PSAs
North Wilkesboro, NC

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
PROJECT NUMBER: 20221238.001A
OFFICE FILTER: RALEIGH

PLOTTED: 08/13/2021 11:50 AM BY: EAmber

ENVIRONMENTAL BORING LOG P84-B2

Date Begin - End:	8/03/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	CLOUDY	**Bore Diameter:**	

FIELD EXPLORATION

Surface Condition: Asphalt

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
							ASPHALT: black
	Geoprobe				1.2		**Clayey SILT**: reddish brown
					0.2		
					0.0		
					0.3		
					0.8		
5					0.1		
					7.2		
					11.9		**Sandy SILT**: yellowish brown, odor
					51.1		
					39.9		**Silty SAND**: white, strong odor
10					140.0		
					80.1		

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20221238.001A
DRAWN BY:	EA
CHECKED BY:	MJB
DATE:	8/12/2021

ENVIRONMENTAL BORING LOG
P84-B2

NCDOT R-5759 PSAs
North Wilkesboro, NC

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
PROJECT NUMBER: 20221238.001A
OFFICE FILTER: RALEIGH

PLOTTED: 08/13/2021 11:50 AM BY: EAmber

ENVIRONMENTAL BORING LOG P84-B3

Date Begin - End:	8/03/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	CLOUDY	**Bore Diameter:**	

FIELD EXPLORATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Surface Condition: Asphalt / Lithologic Description
							ASPHALT: black
					1.6		**SILT**: reddish brown and pink
					1.1		
					1.5		
					0.4		**Clayey SILT**: reddish brown
					0.2		
5	Geoprobe				1.0		
					0.5		
					0.3		
					0.3		**Sandy SILT**: reddish brown
					0.6		
10					0.9		
					1.2		**Silty SAND**: white

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20221238.001A
DRAWN BY:	EA
CHECKED BY:	MJB
DATE:	8/12/2021

ENVIRONMENTAL BORING LOG
P84-B3

NCDOT R-5759 PSAs
North Wilkesboro, NC

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
PROJECT NUMBER: 20221238.001A
OFFICE FILTER: RALEIGH

Date Begin - End:	8/03/2021	**Drilling Company:**	SAEDACCO	**ENVIRONMENTAL BORING LOG P84-B4**	
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe		
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column		
Weather:	CLOUDY	**Bore Diameter:**			

FIELD EXPLORATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Surface Condition: Asphalt / Lithologic Description
							ASPHALT: black
	Geoprobe				1.1		**Clayey SILT**: reddish brown
					2.3		
					1.9		
					0.5		
5					1.0		
					1.2		
					3.5		
					6.5		**Sandy SILT**: white
					2.4		
					1.4		
10							**SILT**: reddish brown
					1.9		
					1.2		

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20221238.001A
DRAWN BY:	EA
CHECKED BY:	MJB
DATE:	8/12/2021

ENVIRONMENTAL BORING LOG
P84-B4

NCDOT R-5759 PSAs
North Wilkesboro, NC

PLOTTED: 08/13/2021 11:50 AM BY: EAmber
OFFICE FILTER: RALEIGH
PROJECT NUMBER: 20221238.001A
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
gINT FILE: Klf_gint_master_2022

Date Begin - End:	8/03/2021	**Drilling Company:**	SAEDACCO	**ENVIRONMENTAL BORING LOG P84-B5**	
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe		
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column		
Weather:	CLOUDY	**Bore Diameter:**			

FIELD EXPLORATION

Surface Condition: Bare Earth and Grass

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
	Geoprobe				0.2		**Clayey SILT**: reddish brown
					0.6		
					1.9		
					1.3		
5					2.6		
					1.2		
					1.6		
					1.6		**Silty SAND**: white
					0.6		
					1.7		**Sandy SILT**: reddish brown
10					0.6		**SILT**: yellowish brown
					1.7		**SILT**: white

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20221238.001A
DRAWN BY:	EA
CHECKED BY:	MJB
DATE:	8/12/2021

ENVIRONMENTAL BORING LOG
P84-B5

NCDOT R-5759 PSAs
North Wilkesboro, NC

PLOTTED: 08/13/2021 11:50 AM BY: EAmber
OFFICE FILTER: RALEIGH
PROJECT NUMBER: 20221238.001A
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
gINT FILE: Klf_gint_master_2022

Date Begin - End:	8/03/2021	**Drilling Company:**	SAEDACCO	**ENVIRONMENTAL BORING LOG P84-B6**	
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT		
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe		
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column		
Weather:	CLOUDY	**Bore Diameter:**			

FIELD EXPLORATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Surface Condition: Asphalt / Lithologic Description
							ASPHALT: black
	Geoprobe				1.9		**SILT**: yellowish brown and white
					2.0		
					2.3		
					1.1		
					1.4		
5							
					2.6		**Sandy SILT**: white
					1.1		**SILT**: yellowish brown
					0.2		
					3.0		
							SAND: white
10					1.6		
							Sandy SILT: white
					1.6		
					1.3		
							Sandy SILT: white and yellowish brown
					1.7		
					1.1		
15					1.1		

The borehole was terminated at approximately 15 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221238.001A
DRAWN BY: EA
CHECKED BY: MJB
DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P84-B6

NCDOT R-5759 PSAs
North Wilkesboro, NC

PLOTTED: 08/13/2021 11:51 AM BY: EAmber
OFFICE FILTER: RALEIGH
PROJECT NUMBER: 20221238.001A
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
gINT FILE: Klf_gint_master_2022

ENVIRONMENTAL BORING LOG P84-B7

Date Begin - End:	8/04/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	SUNNY	**Bore Diameter:**	

FIELD EXPLORATION

Surface Condition: Asphalt

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
							ASPHALT: black
					0.1		**Sandy CLAY**: reddish brown
					1.5		
					1.5		
							Sandy SILT: yellowish brown
					1.9		
							SILT: pink and white and reddish brown
5					0.7		
					0.6		
					2.3		
	Geoprobe				1.8		
					1.5		
					0.3		**Silty SAND**: white
10							**Sandy SILT**: reddish brown
					5.6		
					7.5		
							Silty SAND: white
					8.3		
							Sandy SILT: yellowish brown, odor
					4.9		
					2.7		**Silty SAND**: white
15							

The borehole was terminated at approximately 15 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221238.001A
DRAWN BY: EA
CHECKED BY: MJB
DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P84-B7

NCDOT R-5759 PSAs
North Wilkesboro, NC

PLOTTED: 08/13/2021 11:51 AM BY: EAmber
OFFICE FILTER: RALEIGH
PROJECT NUMBER: 20221238.001A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]

Date Begin - End:	8/04/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	SUNNY	**Bore Diameter:**	

ENVIRONMENTAL BORING LOG P84-B8

FIELD EXPLORATION

Surface Condition: Asphalt

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
							ASPHALT: black
					2.8		**Clayey SILT**: reddish brown
					2.4		
					0.4		
					1.7		**Sandy SILT**: yellowish brown
5					2.6		
					2.9		
	Geoprobe				3.5		**Silty SAND**: white
					0.5		
					2.0		
					5.5		**Sandy SILT**: reddish brown and white
10					4.0		
					13.6		
					121.7		
					84.6		
					153.9		
15							

The borehole was terminated at approximately 15 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221238.001A
DRAWN BY: EA
CHECKED BY: MJB
DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P84-B8

NCDOT R-5759 PSAs
North Wilkesboro, NC

PLOTTED: 08/13/2021 11:51 AM BY: EAmber
OFFICE FILTER: RALEIGH
PROJECT NUMBER: 20221238.001A
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
gINT FILE: Klf_gint_master_2022

Date Begin - End:	8/04/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	SUNNY	**Bore Diameter:**	

ENVIRONMENTAL BORING LOG P84-B9

FIELD EXPLORATION

Surface Condition: Grass & Weeds

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
							TOPSOIL: brown
					0.4		**SILT**: reddish brown
					0.8		
					0.7		**Clayey SILT**: reddish brown and yellowish brown
					1.6		
					0.7		**Sandy SILT**: reddish brown with white
5					1.3		
					1.5		
	Geoprobe						**SAND**: white
					1.2		**SILT**: reddish brown
					2.3		
					0.7		**Sandy SILT**: reddish brown and yellowish brown
10					2.2		
					2.5		
					1.8		**SAND**: white
							Sandy SILT with Silt: reddish brown and white
					1.0		
							Clayey SILT: reddish brown and brown
15					0.6		

The borehole was terminated at approximately 15 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221238.001A
DRAWN BY: EA
CHECKED BY: MJB
DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P84-B9

NCDOT R-5759 PSAs
North Wilkesboro, NC

PLOTTED: 08/13/2021 11:51 AM BY: EAmber
OFFICE FILTER: RALEIGH
PROJECT NUMBER: 20221238.001A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]

ENVIRONMENTAL BORING LOG P84-B10

Date Begin - End:	8/04/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	SUNNY	**Bore Diameter:**	

FIELD EXPLORATION

Surface Condition: Asphalt

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
							ASPHALT: black
					4.1		**Silty CLAY**: yellowish brown
					2.8		
					1.1		**Clayey SILT**: reddish brown
					1.7		
					2.5		**SILT**: white and reddish brown and yellowish brown
5					0.1		
					0.5		
	Geoprobe				2.1		
					0.7		
					2.4		
10					2.4		
					2.9		**Sandy SILT**: white and pink
					1.6		**Clayey SILT**: reddish brown
					1.4		
					3.1		**SAND**: white
15							

The borehole was terminated at approximately 15 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221238.001A
DRAWN BY: EA
CHECKED BY: MJB
DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P84-B10

NCDOT R-5759 PSAs
North Wilkesboro, NC

PLOTTED: 08/16/2021 09:46 AM BY: EAmber
OFFICE FILTER: RALEIGH
PROJECT NUMBER: 20221238.001A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]

APPENDIX D

ANALYTICAL REPORT AND GRAPHS

© 2021 Kleinfelder

Hydrocarbon Analysis Results

QED

Client: KLEINFELDER

Address:

REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Samples taken Tuesday, August 3, 2021
Samples extracted Tuesday, August 3, 2021
Samples analysed Tuesday, August 3, 2021

Contact: ABI SHURTLEFF

Operator MAX MOYER

Project: R-5759 ; PARCEL 84

T03308

Matrix	Sample ID	Dilution used	BTEX C6-C9	GRO C5-C10	DRO C10-C35	TPH C5-C35	Total Aromatics C10-C35	16 EPA PAHs	BaP	% Ratios C5:10	% Ratios C10:C 18	% Ratios C18+	HC Fingerprint Match
Soil	B1 - 10	22.0	<0.5	<0.5	1.2	1.2	0.7	0.09	<0.007	0	100	0	Residual PHC
Soil	B1 - 11	19.0	<0.4	<0.4	4.1	4.1	1.2	0.06	<0.004	0	96.8	3.2	V.Deg.PHC 46.5%,(FCM)
Soil	B2 - 8	26.0	<0.6	390	470	860	88.2	3.3	0.001	84.1	15.8	0.1	Deg.Light Fuel 56%,(FCM)
Soil	B2 - 9	144.0	<3.6	1299	2119	3418	187.4	7.3	<0.028	89.3	10.6	0.1	Deg.Kerosene 90.1%,(FCM)
Soil	B2 - 11	170.0	<4.3	1658	3113	4771	260	10.2	<0.0	88.5	11.5	0	Deg.Kerosene 90.6%,(FCM)
Soil	B3 - 12	24.0	<0.6	<0.6	0.9	0.9	0.7	0.09	<0.005	0	97.4	2.6	Residual PHC
Soil	B4 - 8	23.0	<0.5	<0.5	<0.23	<0.5	<0.012	<0.012	<0.007	0	0	0	PHC ND,(FCM)
Soil	B2 - 5	22.0	<0.5	<0.5	0.9	0.9	0.4	0.013	0.001	0	92.7	7.3	V.Deg.PHC 55.9%,(FCM)
Soil	B5 - 5	20.0	<0.5	<0.5	4.7	4.7	2	0.1	0.002	0	80.8	19.2	V.Deg.PHC 94.9%,(FCM),(BO)

Initial Calibrator QC check OK

Final FCM QC Check OK 108.9%

Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

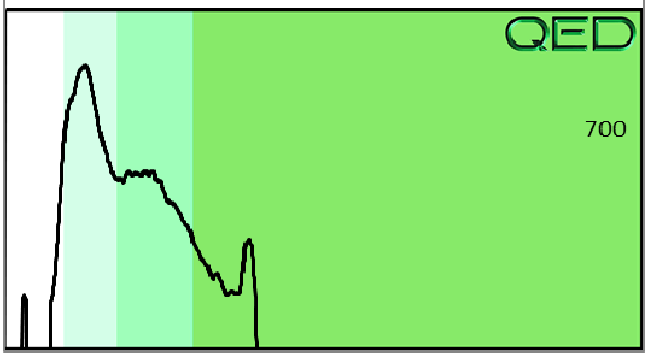
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**

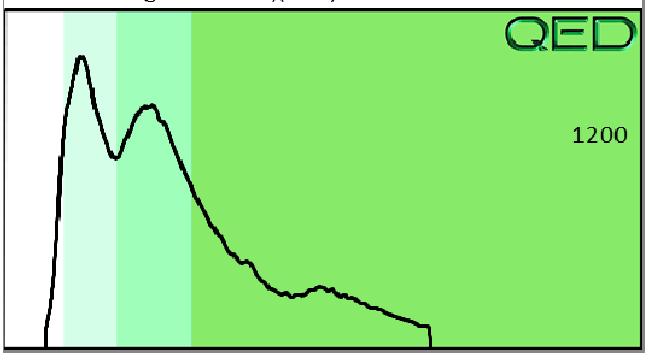
QED Hydrocarbon Fingerprints

Project: R-5759 ; PARCEL _ ##################

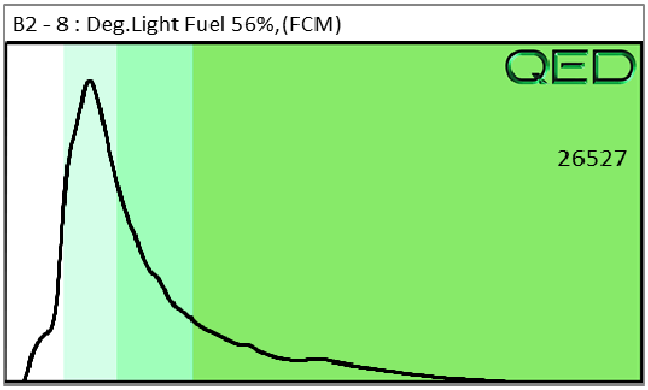
B1 - 10 : Residual PHC



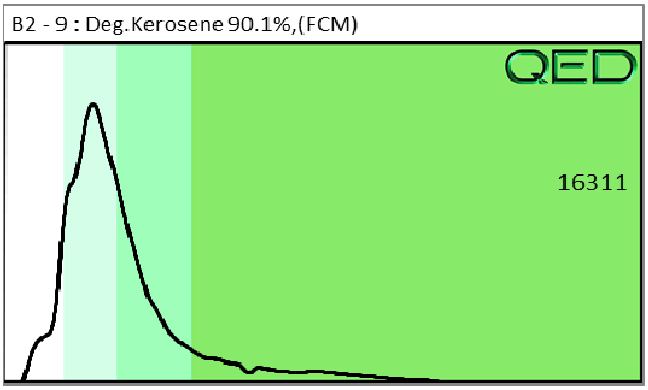
B1 - 11 : V.Deg.PHC 46.5%,(FCM)



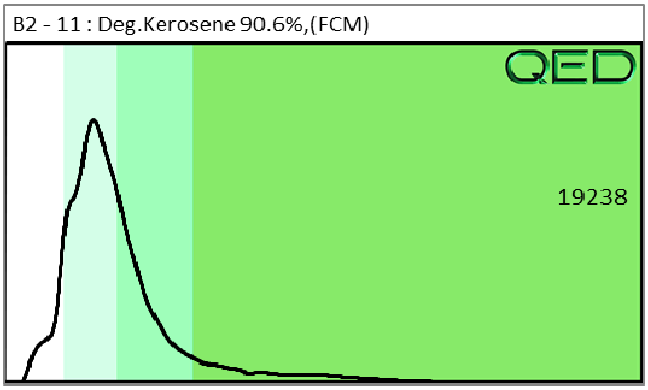
B2 - 8 : Deg.Light Fuel 56%,(FCM)



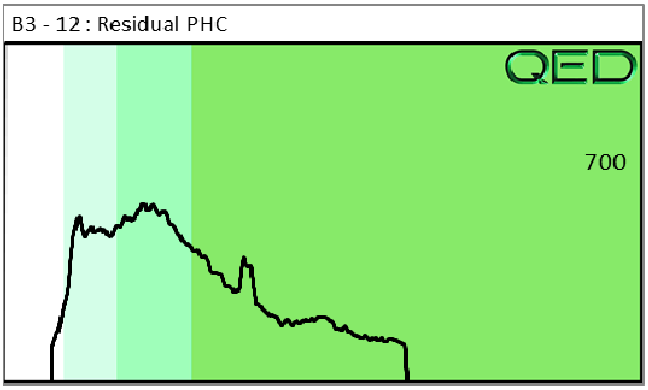
B2 - 9 : Deg.Kerosene 90.1%,(FCM)



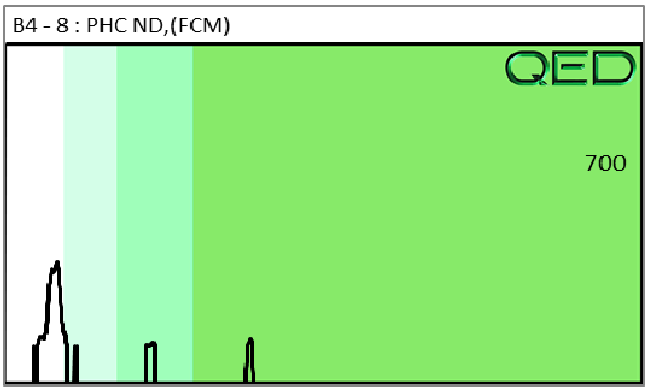
B2 - 11 : Deg.Kerosene 90.6%,(FCM)



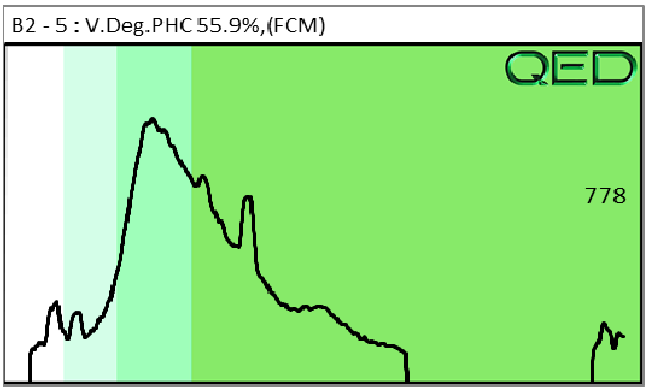
B3 - 12 : Residual PHC



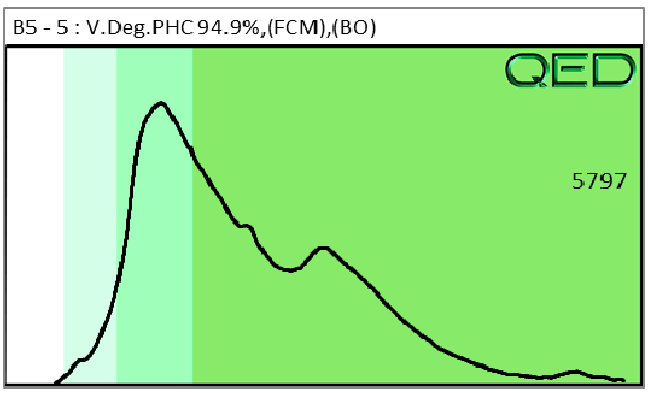
B4 - 8 : PHC ND,(FCM)



B2 - 5 : V.Deg.PHC 55.9%,(FCM)



B5 - 5 : V.Deg.PHC 94.9%,(FCM),(BO)



Hydrocarbon Analysis Results

QED

Client: KLEINFELDER

Address:

REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Samples taken Tuesday, August 3, 2021
Samples extracted Tuesday, August 3, 2021
Samples analysed Tuesday, August 3, 2021

Contact: ABI SHURTLEFF

Operator MAX MOYER

Project: R-5759 ; PARCEL 84

T03308

Matrix	Sample ID	Dilution used	BTEX C6-C9	GRO C5-C10	DRO C10-C35	TPH C5-C35	Total Aromatics C10-C35	16 EPA PAHs	BaP	% Ratios C5:10	% Ratios C10:C 18	% Ratios C18+	HC Fingerprint Match
Soil	B6 - 9	19.0	<0.4	<0.4	0.3	0.3	0.31	0.014	<0.003	0	87	13	PHC ND,(FCM)
Soil	B7 - 13	19.0	<0.4	2.4	0.8	3.25	0.6	0.07	<0.006	83	16.6	0.4	Residual PHC
Soil	B8 - 11	21.0	<0.5	<0.5	0.7	0.7	0.6	0.07	<0.005	0	96.6	3.4	Residual PHC
Soil	B8 - 12	23.0	<0.5	<0.5	12.9	12.9	7.1	0.26	<0.007	0	99.4	0.6	Deg.Light PHC 77.4%,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 90.1%

Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

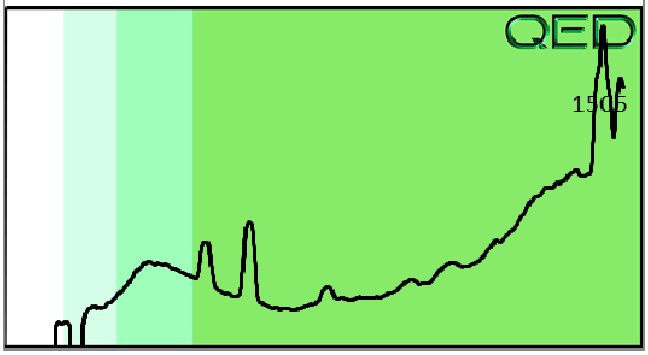
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**

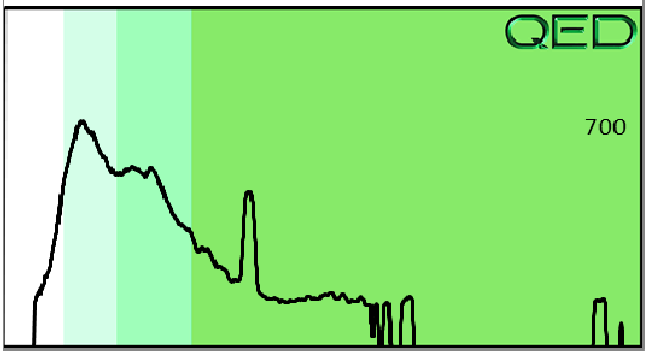
QED Hydrocarbon Fingerprints

Project: R-5759 ; PARCEL 84 ##################

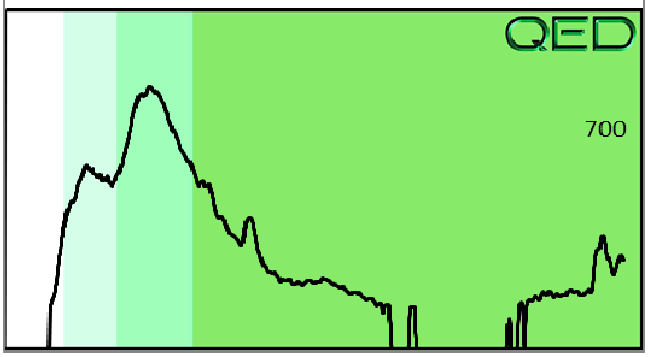
B6 - 9 : PHC ND,(FCM)



B7 - 13 : Residual PHC



B8 - 11 : Residual PHC



B8 - 12 : Deg.Light PHC 77.4%,(FCM)



Hydrocarbon Analysis Results

QED

Client: KLEINFELDER

Address:

REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Samples taken Wednesday, August 4, 2021
Samples extracted Wednesday, August 4, 2021
Samples analysed Wednesday, August 4, 2021

Contact: ABI SHURTLEFF

Operator MAX MOYER

Project: R-5759 ; PARCEL 84

T03308

Matrix	Sample ID	Dilution used	BTEX C6-C9	GRO C5-C10	DRO C10-C35	TPH C5-C35	Total Aromatics C10-C35	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
										C5:10	C10:C 18	C18+	
Soil	B9 - 12	16.0	<0.4	<0.4	<0.16	0.011	0.011	0.001	<0.005	0	100	0	Residual HC
Soil	B10 - 1	19.0	<0.4	<0.4	2.7	2.7	1.2	0.06	0.001	0	84.4	15.6	V.Deg.Light Fuel 89.9%,(FCM)
Soil	B10 - 15	24.0	<0.6	<0.6	0.5	0.5	0.4	0.06	<0.007	0	97.4	2.6	Residual PHC

Initial Calibrator QC check OK

Final FCM QC Check OK 94.9%

Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

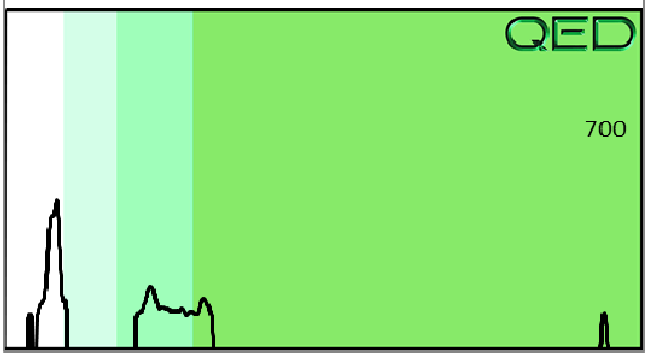
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**

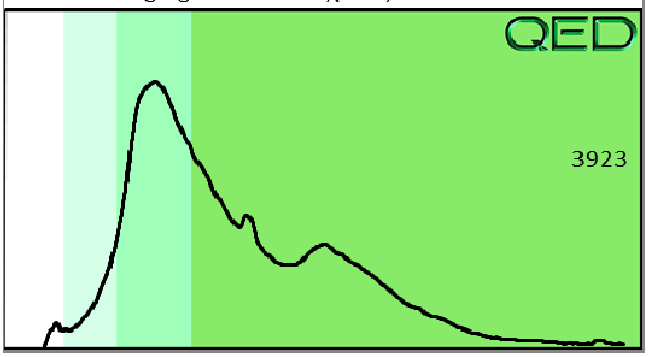
QED Hydrocarbon Fingerprints

Project: R-5759 ; PARCEL 84 ##################

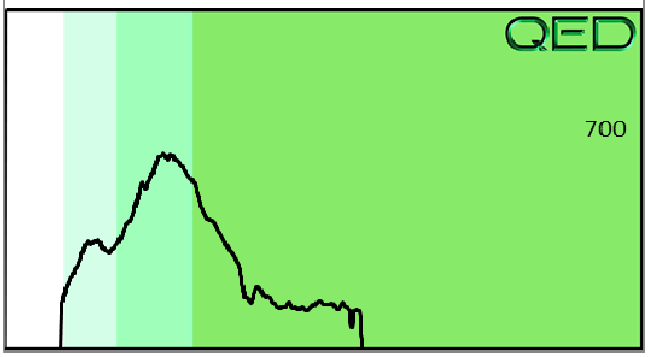
B9 - 12 : Residual HC



B10 - 1 : V.Deg.Light Fuel 89.9%,(FCM)



B10 - 15 : Residual PHC



September 10, 2021
Kleinfelder File No. RAL21R130262

Mr. John L. Pilipchuk, LG, PE
North Carolina Department of Transportation
State Geotechnical Engineer
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

SUBJECT: Preliminary Site Assessment Report
Parcel 86, Harold T and Linda A Call
WBS Element No. 44691.1.1, TIP No. R-5759
Proposed widening of NC 115 from US 421 to 2nd Street in Wilkesboro and North Wilkesboro, Wilkes County, NC
Kleinfelder Project No. 20221238.001A

Dear Mr. Pilipchuk,

Kleinfelder is pleased to provide its report detailing the activities conducted as part of the preliminary site assessment for the subject project.

Kleinfelder appreciates the opportunity to be of service to you. Should you have questions or require additional information, please do not hesitate to contact the undersigned.

Sincerely,
KLEINFELDER, INC.

Evan D. Amber
Environmental Staff Professional I

Michael J Burns
Environmental Program Manager, LG

EDA/MJB:asp

© 2021 Kleinfelder

KLEINFELDER 3200 Gateway Centre Blvd. Suite 100, Morrisville, NC 27560 **p |** 919.755.5011

PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 86, HAROLD T AND LINDA A CALL
PIN 2206906
1681 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 44691.1.1
STATE PROJECT R-5759
PROPOSED WIDENING OF NC 115 FROM US 421 TO 2ND STREET IN WILKESBORO AND NORTH WILKESBORO

KLEINFELDER PROJECT NO. 20221238.001A

SEPTEMBER 10, 2021

Copyright 2021 Kleinfelder
All Rights Reserved

ONLY THE CLIENT OR ITS DESIGNATED REPRESENTATIVES MAY USE THIS DOCUMENT AND ONLY FOR THE SPECIFIC PROJECT FOR WHICH THIS REPORT WAS PREPARED.

A Report Prepared for:

Mr. John L. Pilipchuk, LG, PE
North Carolina Department of Transportation
State Geotechnical Engineer
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 86, HAROLD T AND LINDA A CALL
PIN 2206906
1681 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 44691.1.1
STATE PROJECT R-5759
PROPOSED WIDENING OF NC 115 FROM US 421 TO 2ND STREET IN WILKESBORO AND NORTH WILKESBORO

Prepared by:

Evan D. Amber
Environmental Staff Professional I

Abigail R. Shurtleff
Staff Professional II

Reviewed by:

Michael J. Burns
Environmental Program Manager, LG

KLEINFELDER
3200 Gateway Centre Blvd. | Suite 100
Raleigh, North Carolina 27560
P | 919.755.5011

September 10, 2021

Kleinfelder Project No. 20221238.001A

© 2021 Kleinfelder

PRELIMINARY SITE ASSESSMENT REPORT

Site Name and Location:	Parcel 86 1681 Statesville Road North Wilkesboro, Wilkes County, North Carolina
Latitude and Longitude:	36.153391°N, -81.113088°W
County Parcel Number	2206906
Facility ID Number:	N/A
Leaking UST Incident:	N/A
State Project No.:	R-5759
NCDOT Project No.:	NCDOT WBS Element 44691.1.1
Description:	Proposed widening of NC 115 from US 421 to 2nd Street in Wilkesboro and North Wilkesboro
Date of Report:	September 10, 2021
Consultant:	Kleinfelder, Inc. 3200 Gateway Center Boulevard | Suite 100 Morrisville, North Carolina 27560 Corporate Geology License No. C-521 Corporate Licensure for Engineering F-1312

SEAL AND SIGNATURE OF CERTIFYING LICENSED GEOLOGIST

I, Michael J Burns, a Licensed Geologist for Kleinfelder, Inc., do certify that the information contained in this report is correct and accurate to the best of my knowledge.

DocuSigned by:
Michael Burns
7E53DC44AC794CA...

NORTH CAROLINA LICENSED SEAL 1645 GEOLOGIST MICHAEL JAMES BURNS

Michael J Burns, LG
NC License No. 1645

© 2021 Kleinfelder

TABLE OF CONTENTS

1 INTRODUCTION 4

1.1 SITE DESCRIPTION 4
1.2 SCOPE OF WORK 5

2 HISTORY 6

2.1 PARCEL USAGE 6
2.2 FACILITY ID NUMBERS 6
2.3 GROUNDWATER INCIDENT NUMBERS 6

3 OBSERVATIONS 7

3.1 GROUNDWATER MONITORING WELLS 7
3.2 ACTIVE USTS 7
3.3 FEATURES APPARENT BEYOND THE PROJECT STUDY AREA 7
3.4 INTERIOR OF THE AUTOMOTIVE GARAGE 7

4 METHODS 8

4.1 PROPERTY OWNER CONTACTS 8
4.2 HEALTH AND SAFETY 8
4.3 GEOPHYSICAL INVESTIGATION 8
4.4 SOIL ASSESSMENT 8
4.5 SOIL ANALYSIS 9

5 RESULTS 11

5.1 GEOPHYSICAL INVESTIGATION 11
5.2 SOIL SAMPLING DATA 11
5.3 SAMPLE OBSERVATIONS 11
5.4 QUANTITY CALCULATIONS 11

6 CONCLUSIONS 12

7 RECOMMENDATIONS 13

8 LIMITATIONS 14

TABLES

1 Soil Sample Screening Results
2 Soil Sample Analytical Summary

FIGURES

1 Site Location
2 Site Plan

APPENDICES

A Site Photographs
B Geophysical Survey Report
C Boring Logs
D Analytical Reports and Graphs

© 2021 Kleinfelder

PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 86, HAROLD T AND LINDA A CALL
PIN 2206906
1681 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 44691.1.1
STATE PROJECT R-5759
PROPOSED WIDENING OF NC 115 FROM US 421 TO 2ND STREET IN WILKESBORO AND NORTH WILKESBORO

1 INTRODUCTION

Kleinfelder, Inc. (Kleinfelder) has prepared this Preliminary Site Assessment (PSA) report to document assessment activities performed on Parcel 86 (the assessment area is hereafter referred to as the "Project Study Area"). The Project Study Area consists of the western and southern portions of a parcel that are within the right-of-way and/or easement on Wilkes County Tax Assessor's Office Parcel Number 2206906. Parcel 86 is currently occupied by an inactive gas station. Parcel 86 is located along the eastern side of NC 115 (US 421 BUS AKA Statesville Road), west of Eagle Lane, in North Wilkesboro, Wilkes County, North Carolina (Figure 1).

Based on the information provided in the Pre-Scoping Comments letter, dated September 20, 2018, prepared by the North Carlina Department of Transportation (NCDOT), the parcel (listed as Site # 12 in the letter) was reported as an apparently inactive gas station with a building remaining on site that has two bay doors and that may have in-ground hydraulic lifts. A fuel canopy and former fuel pump were also reported to remain on site. As such, the purpose of the PSA was to evaluate whether contaminated soil is present in the Project Study Area that may result in increased project costs and future liability if acquired by the NCDOT.

1.1 SITE DESCRIPTION

Parcel 86 has listed owners of Harold T and Linda A Call. The parcel's street address is 1681 Statesville Road. The parcel consists of an inactive retail gasoline filling station, including a former fuel island underneath a fuel canopy in the western portion of the parcel, a storefront or office building in the central portion of the parcel, a former automotive business (Jon's Racing & Fabrication) with two bay doors in the northern portion of the parcel, a residential home beyond the Project Study Area in the eastern portion of the parcel, and maintained grass areas in the northeastern portion of the parcel.

© 2021 Kleinfelder

The parcel is bounded by vacant, vegetated land and wooded land to the north, beyond which are residential homes; by NC 115 to the west, beyond which is the Broadway Volunteer Fire Department building and its associated asphalt parking area, and an electrical substation, residential homes, and maintained grass and wooded land areas; and by residential homes to the east and to the southeast, beyond which is Eagle Lane, residential homes, and maintained grass areas.

Photographs of the Project Study Area are provided in Appendix A.

1.2 SCOPE OF WORK

Kleinfelder conducted this PSA in accordance with the NCDOT's June 1, 2021, Request for Technical and Cost Proposal (RFP) and Kleinfelder's June 16, 2021, Technical and Cost Proposal. The NCDOT granted a formal Notice to Proceed on June 21, 2021.

© 2021 Kleinfelder

2 HISTORY

2.1 PARCEL USAGE

The parcel consists of an inactive retail gasoline filling station and former convenience store and maintenance garage.

The September 20, 2018 Pre-Scoping Comments letter did not list a Facility ID Number associated with the property, but did identify a building with two bay doors that may contain hydraulic lifts, a fuel canopy, and a former fuel island. The proposed NCDOT easement passes through the fuel canopy and the likely location of an existing or former underground storage tank (UST) bed.

Kleinfelder conducted historical research to determine whether additional environmental listings were identified for Parcel 86. The following are the results of the additional research:

- Based on a review of historical aerial photographs using Google Earth Pro and the NCDOT Historical Aerial Imagery Index, the site appeared to have similar development since at least 1980. Historical imagery was not available prior to this year.
- Kleinfelder searched the registered underground storage tank (UST) database, maintained by the NCDEQ. The site was not listed with a Facility ID Number.
- No other listings for Parcel 86 were identified on any of the available NCDEQ pollution incident databases.

2.2 FACILITY ID NUMBERS

Kleinfelder reviewed the NCDEQ UST database for Parcel 86. The site was not listed with a Facility ID Number.

2.3 GROUNDWATER INCIDENT NUMBERS

No active groundwater incidents are known to be associated with Parcel 86 at this time.

© 2021 Kleinfelder

3 OBSERVATIONS

3.1 GROUNDWATER MONITORING WELLS

No active groundwater monitoring wells were observed on Parcel 86 at the time of site exploration, Tuesday, August 3, 2021.

3.2 ACTIVE USTS

Based on review of the NCDEQ UST database, site visits and previous reports, there are no active USTs located on site. An inactive UST fuel port was observed north of the fuel canopy along the eastern boundary of the Project Study Area. A photograph of the fuel port is provided in Appendix A.

3.3 FEATURES APPARENT BEYOND THE PROJECT STUDY AREA

The Project Study Area consisted of the western and southern portions of the parcel within the NCDOT right-of-way or easement. Outside of the Project Study Area, in the eastern portion of the property, a residential home was observed. There were no other features of concern observed in other portions of the parcel beyond the Project Study Area.

3.4 INTERIOR OF THE AUTOMOTIVE GARAGE

Kleinfelder was not able to inspect the interior of the automotive garage on Parcel 86 to evaluate for the presence of in-ground hydraulic lifts, as Kleinfelder had not received entry authorization from the NCDOT Right of Way Agent by the time of site exploration, Tuesday August 3, 2021.

© 2021 Kleinfelder

4 METHODS

4.1 PROPERTY OWNER CONTACTS

As part of Kleinfelder's scope of work, the listed property owner was contacted about the work schedule for the field work and the type of work being performed. The owner did not express any concern or special conditions associated with the work being performed.

4.2 HEALTH AND SAFETY

Prior to commencing the field work, Kleinfelder personnel developed a Site-Specific Health and Safety Plan (HASP) covering activities to be performed. The site-specific HASP was discussed with all Kleinfelder personnel involved with the project and at a daily on-site "tail gate" safety meetings with subcontractors and sub consultants. In addition to the HASP, Kleinfelder utilized its comprehensive Corporate Health and Safety Program, targeted to address those specific and critical tasks that involve Kleinfelder personnel and subcontractors. The Loss Prevention System (LPS™), a behavior-based program, is Kleinfelder's company-wide safety system implemented and embraced by all levels of the company.

4.3 GEOPHYSICAL INVESTIGATION

Pyramid Environmental & Engineering, P.C (Pyramid) conducted a geophysical investigation in the Project Study Area between July 14 and 16, 2021. Pyramid utilized electromagnetic (EM) induction technology and ground penetrating radar (GPR) to locate potential geophysical anomalies and potential USTs within the Project Study Area.

A total of six (6) EM anomalies were identified, which were all directly attributed to visible cultural features at the ground surface, including guy wires, buildings, an air conditioner, a fence, and a former fuel island.

A copy of the Pyramid Geophysical Investigation Report, detailing the field methodology, is included in Appendix B.

4.4 SOIL ASSESSMENT

The scope of work for the soil assessment was to evaluate the presence of soil contamination along the existing right-of-way and/or easement to evaluate whether known impact is present in this area and maybe migrating off-site. The soil borings were planned to be advanced to maximum depths of 12-feet below the ground surface (ft bgs) since the depth of the UST basin may be up to 10-ft bgs. Field screening using a photoionization detector (PID) was conducted at 1-foot

© 2021 Kleinfelder

intervals beginning from the ground surface to total boring depth. The soil sample with the highest PID reading above background or the sample from the maximum drilled depth was selected for on-site laboratory analyses.

Prior to the drilling activities, public utilities were marked by NC One Call and private utilities were marked by Pyramid.

Kleinfelder subcontracted South Atlantic Environmental Drilling and Construction Company (SAEDACCO) to perform the drilling on-site on August 3, 2021. SAEDACCO advanced four (4) soil borings (P86-B1 through P86-B4) by direct-push technology at locations specified by Kleinfelder. The soil boring locations were identified in the field using a GPS. The borings were located within the right-of-way southeast of the former storefront or office building, along NC 115 adjacent to the fuel island, and in the vicinity of the building with two bay doors. The soil boring locations are shown on Figure 2.

Soil samples were collected by driving Macro Core™ samplers in 5-foot intervals to boring termination where direct-push technology was applied. Each soil core was cut open, the soil samples were classified, and the soil divided into 1-foot sections. Each 1-foot section, collected via either method, was screened in the field using a PID. The PID readings are summarized in Table 1.

Soils were determined to be primarily a reddish-brown and yellowish-brown silt, except for soil boring P86-B1 which primarily consisted of reddish-brown sandy silt with lenses of white and brown or gray sand. Soil boring P86-B1 had limited recovery of soil from 1 to 5-ft bgs. Groundwater was not encountered in any of the borings at the termination depths of 12-ft bgs. Copies of the boring logs are included in Appendix C.

4.5 SOIL ANALYSIS

The PID readings from soil borings advanced were noted to be low, with a maximum of concentration of 6.7 parts per million (ppm) from soil boring P86-B4 at 9-ft bgs. Based on the PID data and visual observations, one (1) or two (2) of the samples from each boring was selected for on-site laboratory analysis.

Selected samples were analyzed by RED Lab, LLC utilizing ultraviolet fluorescence (UVF) methodology to provide real-time analytical results of Total Petroleum Hydrocarbons (TPH), Gasoline Range Organics (GRO), Diesel Range Organics (DRO), and benzene, toluene,

© 2021 Kleinfelder

ethylbenzene, and total xylenes (BTEX). The UVF method was selected because of the known historical use of petroleum products on Parcel 86. The UVF analysis also provided data regarding Environmental Protection Agency 16 total Polycyclic Aromatic Hydrocarbons (PAHs), and Benzo(a)pyrene (BaP).

© 2021 Kleinfelder

5 RESULTS

5.1 GEOPHYSICAL INVESTIGATION

The EM and GPR surveys did not identify USTs or unknown geophysical anomalies within the Project Study Area.

5.2 SOIL SAMPLING DATA

The UVF analysis of soil samples did not indicate the presence of petroleum impact in any of the soil samples analyzed. As such, shallow soil impact does not appear to be present within the existing right-of-way above NCDEQ Action Levels. A summary of soil sample PID readings are presented in Table 1, and laboratory analytical results are presented in Table 2. The laboratory results associated with each boring are presented on Figure 2. The laboratory report and graphs are included in Appendix D.

5.3 SAMPLE OBSERVATIONS

Soils were observed for any obvious evidence of contamination. No visual or olfactory evidence of contamination was noted in any of the soil samples from the borings.

5.4 QUANTITY CALCULATIONS

Kleinfelder did not identify soil impact in the current right-of-way.

© 2021 Kleinfelder

6 CONCLUSIONS

Based on results of the EM/GPR survey, soil assessment and field observations, Kleinfelder has reached the following conclusions:

- The GPR and EM investigation did not identify USTs or unknown features.
- The site is not listed in the NCDEQ UST Database with a Facility ID Number. No indication of the presence or likely presence of inactive USTs was observed on Parcel 84 at the time of site exploration, August 3, 2021.
- No soil impact was detected in borings advanced within the current right-of-way above the NCDEQ Action Levels for TPH GRO and DRO.
- Groundwater was not encountered in the soil borings at a depth of 12-ft bgs.
- Kleinfelder was not provided access by the NCDOT Right of Way Agent to the interior of the automotive garage building to evaluate for the presence of in-ground hydraulic lifts by the time of site exploration, August 3, 2021.

© 2021 Kleinfelder

7 RECOMMENDATIONS

Based on results of this Preliminary Site Assessment, Kleinfelder recommends no additional sampling or special handling of soils be performed within the Project Study Area on Parcel 86 in North Wilkesboro, Wilkes County, North Carolina.

© 2021 Kleinfelder

8 LIMITATIONS

Kleinfelder's work will be performed in a manner consistent with that level of care and skill ordinarily exercised by other members of its profession practicing in the same locality, under similar conditions and at the date the services are provided. Kleinfelder's conclusions, opinions and recommendations will be based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, Kleinfelder's clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface studies or field tests, should be performed to reduce uncertainties. Acceptance of this report will indicate that NCDOT has reviewed the document and determined that it does not need or want a greater level of service than provided.

During the course of the performance of Kleinfelder's services, hazardous materials may have been discovered. Kleinfelder assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Nothing contained in this report should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, or generator, or person who arranges for disposal, transport, storage or treatment of hazardous materials within the meaning of any governmental statute, regulation or order. NCDOT is solely responsible for directing notification of all governmental agencies, and the public at large, of the existence, release, treatment or disposal of any hazardous materials observed at the project site, either before or during performance of

© 2021 Kleinfelder

Kleinfelder's services. NCDOT is responsible for directing all arrangements to lawfully store, treat, recycle, dispose, or otherwise handle hazardous materials, including cuttings and samples resulting from Kleinfelder's services.

© 2021 Kleinfelder

TABLES

© 2021 Kleinfelder

Table 1: Soil Sample Screening Results

Date	Sample ID	Depth (ft)	PID Reading	Notes
8/3/2021	R-5759-P86-B1	1	2.0	Limited Recovery
		2	NA	Limited Recovery
		3	3.2	Limited Recovery
		4	0.0	Limited Recovery
		5	0.3	Limited Recovery
		6	0.2	
		7	0.3	
		8	1.3	
		9	1.5	
		10	3.6	UVF Analysis
		11	2.8	
		12	1.9	
8/3/2021	R-5759-P86-B2	1	1.0	
		2	0.1	
		3	5.3	UVF Analysis
		4	0.0	
		5	3.9	
		6	2.6	
		7	1.3	
		8	4.4	
		9	2.6	
		10	3.9	
		11	3.2	
		12	4.0	UVF Analysis
8/3/2021	R-5759-P86-B3	1	1.7	
		2	1.0	
		3	3.9	
		4	3.0	
		5	4.2	
		6	5.7	
		7	4.1	
		8	6.0	
		9	6.7	UVF Analysis
		10	1.3	
		11	5.1	
		12	1.9	
8/3/2021	R-5759-P86-B4	1	3.5	
		2	1.3	
		3	4.9	
		4	2.1	
		5	1.6	
		6	1.1	
		7	5.0	
		8	0.5	
		9	6.9	UVF Analysis
		10	3.2	
		11	6.8	
		12	4.6	

Notes:
1) PID = Photoionization Detector
2) PID readings in parts per million (ppm)
3) NA = Not Analyzed
4) UVF = Ultraviolet Flourescence

TABLE 2: Soil Sample Analytical Summary

Parameter	Analytical Results					Comparison Criteria		
	Soil Sample Results							
Sample ID	P86-B1-10	P86-B2-3	P86-B2-12	P86-B3-9	P86-B4-9	State Action Level	Protection of Groundwater	Residential Health
PID Reading (ppm)	3.6	5.3	4.0	6.7	6.9			
Collection Depth (ft bgs)	10	3	12	9	9			
Collection Date	8/3/21	8/3/21	8/3/21	8/3/21	8/3/21			
UVF Method								
Diesel Range Organics	**1.3**	**2.4**	**0.5**	**0.4**	<0.24	100	--	--
Gasoline Range Organics	<0.50	<0.50	<0.50	<0.50	<0.60	50	--	--

Notes:

Results displayed in milligrams per kilogram (mg/kg)
ft bgs = Feet below ground surface
Bold = Above Laboratory Detection Level
Highlighted concentrations exceed the NCDEQ action level
UVF = Ultraviolet Flouresence

FIGURES

© 2021 Kleinfelder

R-5759	FIGURE
PARCEL 86	1

SITE LOCATION

0 1500 3000

FEET

PARCEL 86 - HAROLD T. & LINDA A. CALL
1681 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NC

Kleinfelder
3200 Gateway Centre Blvd | Suite 100
Morrisville, NC 27560
License No. C-521

p | 919.755.5011 f | 919.755.1414

Drawn By: ARS	State Project: R-5759
Checked By: MJB	Date: September 9, 2021

NC GRID
NAD 83 NA 2011

P86

Call

RIVER ROAD LIBERTY GROVE RD
Yadkin River
GREEN SHEPHERD FARM RD
ARMORY RD
EASTOVER DR
CEDAR LN
BROWN RIDGE RD
HOLLAND WOODS RD
PONDVIEW DR
OLD STATE HWY 60
VIRGINIA'S DR
FISHING CREEK RD
OLD US 421 RD
PARKS RIDGE RD
CLARK RD
HENRYS COUNTRY RD
SPEEDWAY
COMBS RD
ALLISON LN
DAN CALL RD
CICERO RD
BREEZE HILL RD
H ANDERSON RD
HUNTER RD
CAMP JOE HARRIS RD
DAMASCUS CHURCH RD
MOORE RIDGE RD
FISHING CREEK ARBOR RD
ARBOR GABLES LN
BENS MILL RD
FISHING CREEK RD
EDGEWOOD
Fishing Cr
Fishing Cr
115
Bus 421
421
421
421
1000
1100
1200
1300
1400
1500

R-5759	FIGURE
PARCEL 86	2

SITE MAP

0 30 60
FEET

Fill port (approx. location)

LEGEND

P86-B1	SOIL BORING LOCATION
	PROPOSED RIGHT-OF-WAY
	PROPOSED DRAINAGE STRUCTURE
	PROPOSED EASEMENT
P86-B1-10	ID - DEPTH

SOIL ANALYTICAL RESULTS
(mg/kg)

ID	GRO	DRO
P86-B1-10	<0.50	1.3
P86-B2-3	<0.50	2.4
P86-B2-12	<0.50	0.5
P86-B3-9	<0.50	0.4
P86-B4-9	<0.60	<0.24

NOTES:
1) All results reported in mg/kg
2) DRO = Diesel Range Organics
3) GRO = Gasoline Range Organics
4) Bold concentrations exceed the NCDEQ TPH Action Limit

PARCEL 86 - HAROLD T. & LINDA A. CALL
1681 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NC

Kleinfelder
3200 Gateway Centre Blvd | Suite 100
Morrisville, NC 27560
License No. C-521

p | 919.755.5011 f | 919.755.1414

Drawn By: ARS	Date: September 9, 2021
Checked By: MJB	State Project: R-5759

APPENDIX A
SITE PHOTOGRAPHS

© 2021 Kleinfelder



View facing northwest from the southwestern corner of the Project Study Area. The depicted buildings are beyond the Project Study Area.



View facing northwest from the eastern portion of the Project Study Area, depicting the area underneath the fuel canopy along NC 115.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: August 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 86, Harold T and Linda A Call 1681 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-1**



Former fuel island located in the western portion of the Project Study Area beneath a fuel canopy.



Inactive UST fuel port north of the fuel canopy along the eastern boundary of the Project Study Area.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: August 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 86, Harold T and Linda A Call 1681 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-2**



View facing southeast from the northeastern portion of the Project Study Area along NC 115.



Building with two bay doors that may contain in-ground hydraulic lifts located in the northeastern portion of the Project Study Area.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: August 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 86, Harold T and Linda A Call 1681 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-3**



View facing into the basement entryway along the northern side of the building with two bay doors, located in the northeastern corner of the Project Study Area.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: August 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 86, Harold T and Linda A Call 1681 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-4**

APPENDIX B

GEOPHYSICAL SURVEY REPORT

© 2021 Kleinfelder

PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2021-190)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION:
PARCEL 86
NCDOT PROJECT U-5759

1681 STATESVILLE ROAD, NORTH WILKESBORO, NC

August 6, 2021

Report prepared for: **Michael Burns, P.G.**
Kleinfelder, Inc.
3200 Gateway Centre Blvd., Suite 100
Morrisville, NC 27560

Prepared by: _____
Eric C. Cross, P.G.
NC License #2181

Reviewed by: _____
Douglas A. Canavello, 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 86 - 1681 Statesville Road
North Wilkesboro, Wilkes County, North Carolina

Table of Contents

Executive Summary 1
Introduction 2
Field Methodology 2
Discussion of Results 3
Discussion of EM Results 3
Discussion of GPR Results 4
Summary & Conclusions 4
Limitations 5

Figures

Figure 1 – Parcel 86 - Geophysical Survey Boundaries and Site Photographs
Figure 2 – Parcel 86 - EM61 Metal Detection Contour Map
Figure 3 – Parcel 86 - GPR Transect Locations and Images
Figure 4 – Overlay of Metal Detection Results on NCDOT Engineering Plans

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 Environmental (Pyramid) conducted a geophysical investigation for Kleinfelder, Inc. at Parcel 86, located at 1681 Statesville Road, in North Wilkesboro, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project U-5759). 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 July 14-16, 2021, 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 six EM anomalies were identified. All of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR was performed 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 buried debris. Collectively, the geophysical data recorded no evidence of metallic USTs at Parcel 86.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Kleinfelder, Inc. at Parcel 86, located at 1681 Statesville Road, in North Wilkesboro, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project U-5759). 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 July 14-16, 2021, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site consisted of an apparent former gas station 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 July 16, 2021, using a Geophysical Survey Systems, Inc. (GSSI) UtilityScan DF unit equipped with a dual frequency 300/800 MHz 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 DF 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	Guy Wires	
2	Building	✓
3	Air Conditioner	
4	Building	✓
5	Fence	
6	Former Pump Island	✓

All of the EM anomalies were directly attributed to visible cultural features at the ground surface, including guy wires, buildings, an air conditioner, a fence, and a former pump island. GPR was performed around the buildings and the former pump island to confirm that the metallic 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 the transect images. A total of five formal GPR transects were performed at the site.

GPR Transects 1-5 were performed across the areas of significant metallic interference. These transects showed evidence of buried utilities and/or debris, but no evidence of more significant structures such as USTs was observed.

Collectively, the geophysical data recorded no evidence of metallic USTs at Parcel 86. **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 86 in North Wilkesboro, 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 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 buried debris.
- Collectively, the geophysical data recorded no evidence of metallic USTs at Parcel 86.

LIMITATIONS

Geophysical surveys have been performed and this report was prepared for Kleinfelder, Inc. 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 Northwest)



View of Survey Area (Facing Approximately East)

N

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

PROJECT	PARCEL 86 NORTH WILKESBORO, NORTH CAROLINA NCDOT PROJECT U-5759	TITLE	PARCEL 86 - GEOPHYSICAL SURVEY BOUNDARIES AND SITE PHOTOGRAPHS	DATE 7/19/2021 PYRAMID PROJECT #: 2021-190	CLIENT Kleinfelder **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 July 14, 2021, using a Geonics EM61-MK2 instrument. Verification GPR data were collected using a GSSI SIR 4000 instrument with a 350 MHz HS antenna on July 16, 2021.

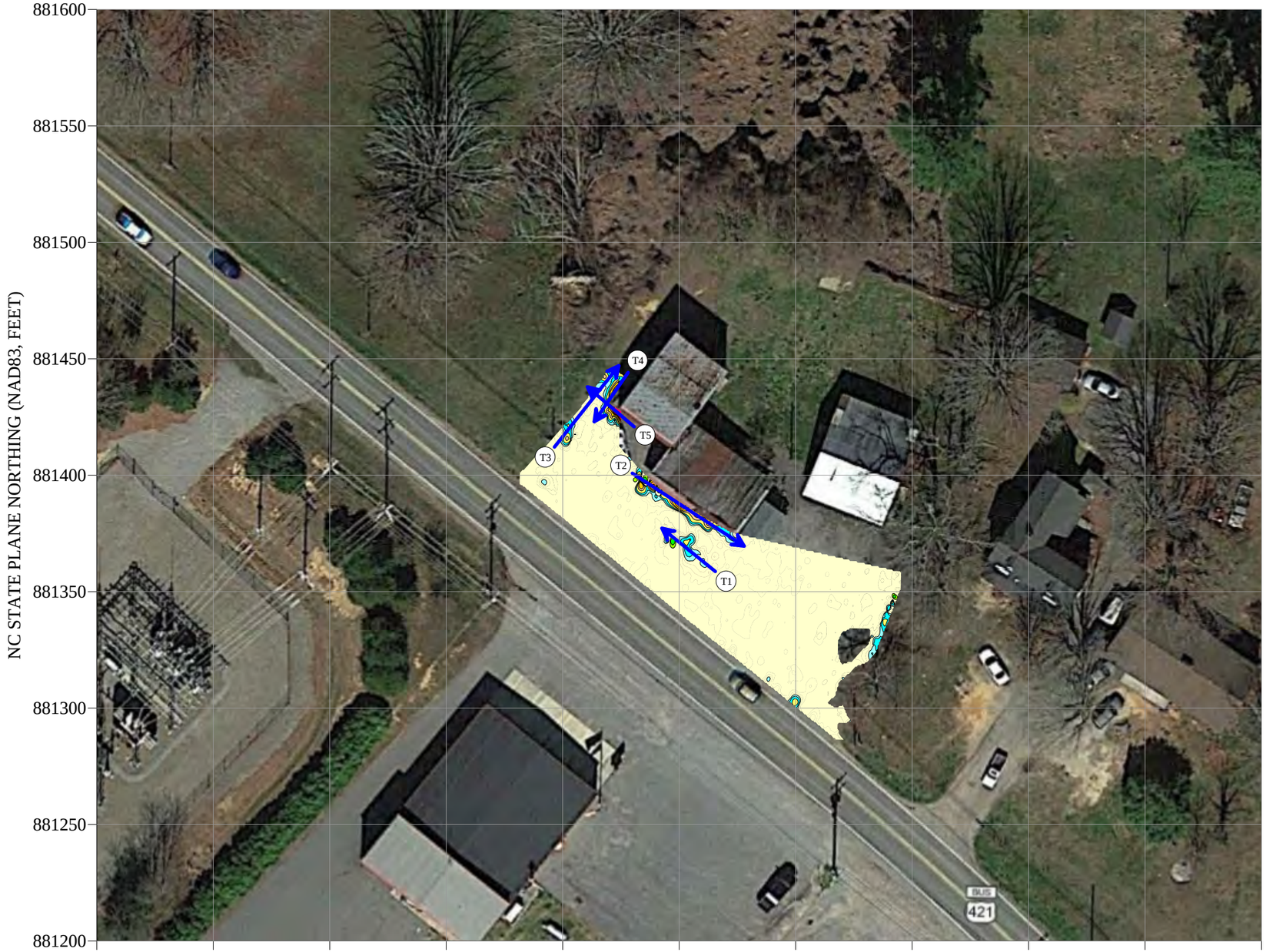
EM61 Metal Detection Response (millivolts)

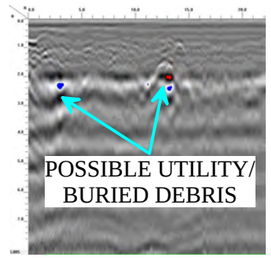
N

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

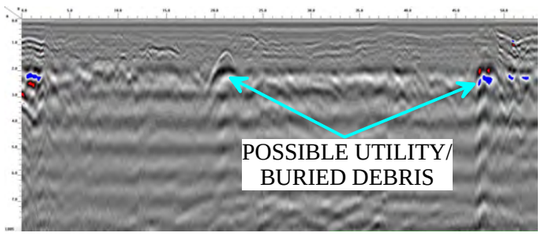
PROJECT: PARCEL 86 NORTH WILKESBORO, NORTH CAROLINA NCDOT PROJECT U-5759	TITLE: PARCEL 86 - EM61 METAL DETECTION CONTOUR MAP	DATE: 7/19/2021	CLIENT: Kleinfelder
		PYRAMID PROJECT #: 2021-190	**FIGURE 2**

GPR TRANSECT LOCATIONS

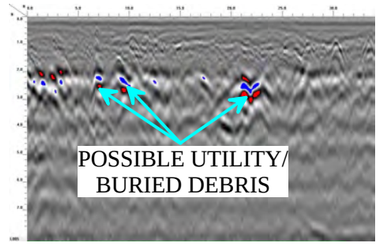




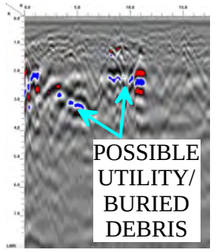
GPR TRANSECT 1 (T1)



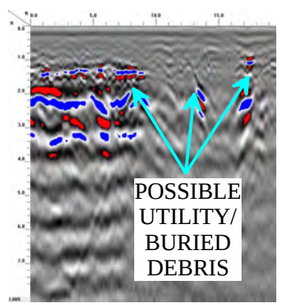
GPR TRANSECT 2 (T2)



GPR TRANSECT 3 (T3)



GPR TRANSECT 4 (T4)



GPR TRANSECT 5 (T5)

N

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

PROJECT: PARCEL 86 NORTH WILKESBORO, NORTH CAROLINA NCDOT PROJECT U-5759	TITLE: PARCEL 86 - GPR TRANSECT LOCATIONS AND IMAGES	DATE: 7/19/2021	CLIENT: Kleinfelder
		PYRAMID PROJECT #: 2021-190	**FIGURE 3**

LEGEND

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

EM61 Metal Detection Response (millivolts)

1000 750 500 400 300 200 150 100 75 60 50 40 30 -90 -100 -200 -400 -5000

0 25 50
FEET

N

TITLE
OVERLAY OF METAL DETECTION RESULTS ON NCDOT ENGINEERING PLANS

PROJECT
PARCEL 86
WILKESBORO, NORTH CAROLINA
NCDOT PROJECT R-5759

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

DATE: 8-9-2021	REVISION NO. 0
PYRAMID PROJECT NO. 2021-190	FIGURE NO. 4

APPENDIX C
BORING LOGS

© 2021 Kleinfelder

ENVIRONMENTAL BORING LOG P86-B1

Date Begin - End:	8/03/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	RAIN	**Bore Diameter:**	

FIELD EXPLORATION

Surface Condition: Asphalt

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
							ASPHALT: black
					2.0		Limited recovery 1-5 ft **Sandy SILT**: reddish brown
					NA		
					3.2		
					0.0		
					0.3		
5							
	Geoprobe						**SAND**: gray
					0.2		
							SILT: reddish brown
					0.3		
					1.3		
					1.5		
							Silty SAND: white and brown
					3.6		
10							
							SILT: yellowish brown
					2.8		
					1.9		

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Limited recovery from 1-5 ft. below ground surface.
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221238.001A
DRAWN BY: EA
CHECKED BY: MJB
DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P86-B1

NCDOT R-5759 PSAs
North Wilkesboro, NC

PLOTTED: 08/13/2021 11:51 AM BY: EAmber
OFFICE FILTER: RALEIGH
PROJECT NUMBER: 20221238.001A
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
gINT FILE: Klf_gint_master_2022

Date Begin - End:	8/03/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	RAIN	**Bore Diameter:**	

ENVIRONMENTAL BORING LOG P86-B2

FIELD EXPLORATION

Surface Condition: Asphalt

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
							ASPHALT: black
					1.0		**SILT**: reddish brown
					0.1		
					5.3		
					0.0		
					3.9		
5	Geoprobe				2.6		
					1.3		
					4.4		
					2.6		**SILT**: yellowish brown and white
					3.9		
10					3.2		
					4.0		**SILT**: reddish brown

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221238.001A
DRAWN BY: EA
CHECKED BY: MJB
DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P86-B2

NCDOT R-5759 PSAs
North Wilkesboro, NC

PLOTTED: 08/13/2021 11:51 AM BY: EAmber
OFFICE FILTER: RALEIGH
PROJECT NUMBER: 20221238.001A
gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]

Date Begin - End:	8/03/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	RAIN	**Bore Diameter:**	

ENVIRONMENTAL BORING LOG P86-B3

FIELD EXPLORATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Surface Condition: Asphalt / Lithologic Description
							ASPHALT: black
					1.7		**SILT**: reddish brown and yellowish brown
					1.0		
					3.9		
					3.0		
					4.2		
5	Geoprobe				5.7		
					4.1		
					6.0		
					6.7		
					1.3		
10					5.1		
					1.9		

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20221238.001A
DRAWN BY:	EA
CHECKED BY:	MJB
DATE:	8/12/2021

ENVIRONMENTAL BORING LOG
P86-B3

NCDOT R-5759 PSAs
North Wilkesboro, NC

PLOTTED: 08/13/2021 11:51 AM BY: EAmber
OFFICE FILTER: RALEIGH
PROJECT NUMBER: 20221238.001A
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
gINT FILE: Klf_gint_master_2022

ENVIRONMENTAL BORING LOG P86-B4

Date Begin - End:	8/03/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	RAIN	**Bore Diameter:**	

FIELD EXPLORATION

Surface Condition: Asphalt

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
							ASPHALT: black
					3.5		**SAND**: brown
					1.3		**Clayey SILT**: reddish brown
					5.9		
					2.1		
5	Geoprobe				1.6		
					1.1		
					5.0		**Sandy SILT**: yellowish brown
					0.5		**SILT**: reddish brown and yellowish brown
					6.9		
10					3.2		
					6.8		
					4.6		**SILT**: white and brown

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221238.001A
DRAWN BY: EA
CHECKED BY: MJB
DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P86-B4

NCDOT R-5759 PSAs
North Wilkesboro, NC

PLOTTED: 08/13/2021 11:51 AM BY: EAmber
OFFICE FILTER: RALEIGH
PROJECT NUMBER: 20221238.001A
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
gINT FILE: Klf_gint_master_2022

APPENDIX D

ANALYTICAL REPORT AND GRAPHS

© 2021 Kleinfelder

Hydrocarbon Analysis Results

QED

Client: KLEINFELDER

Address:

REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Samples taken Tuesday, August 3, 2021

Samples extracted Tuesday, August 3, 2021

Samples analysed Tuesday, August 3, 2021

Contact: ABI SHURTLEFF

Operator MAX MOYER

Project: R-5759 ; PARCEL 86

T03308

Matrix	Sample ID	Dilution used	BTEX C6-C9	GRO C5-C10	DRO C10-C35	TPH C5-C35	Total Aromatics C10-C35	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
										C5:10	C10:C 18	C18+	
Soil	B1 - 10	20.0	<0.5	<0.5	1.3	1.3	0.5	0.025	<0.001	0	93.5	6.5	V.Deg.PHC 71.3%,(FCM)
Soil	B2 - 3	21.0	<0.5	<0.5	2.4	2.4	1.1	0.06	0.003	0	85.2	14.8	V.Deg.Light Fuel 77%,(FCM)
Soil	B2 - 12	20.0	<0.5	<0.5	0.5	0.5	0.4	0.05	0.006	0	97.8	2.2	Residual PHC

Initial Calibrator QC check OK

Final FCM QC Check OK 96.5%

Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

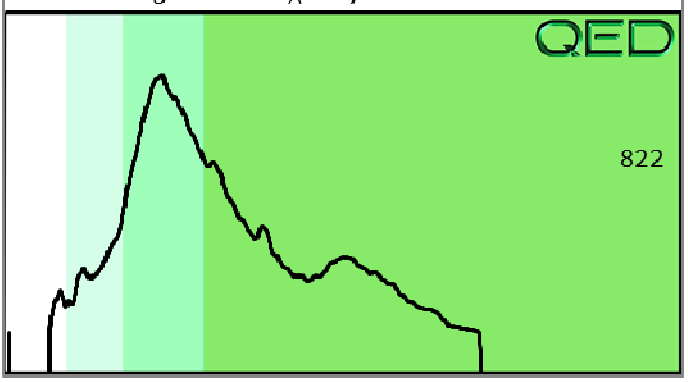
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**

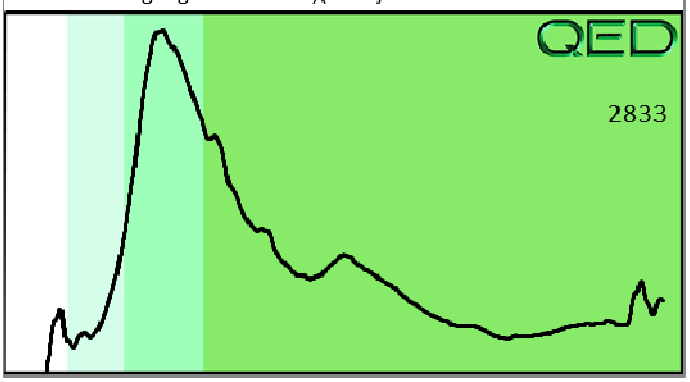
QED Hydrocarbon Fingerprints

Project: R-5759 ; PARCEL 86 ##################

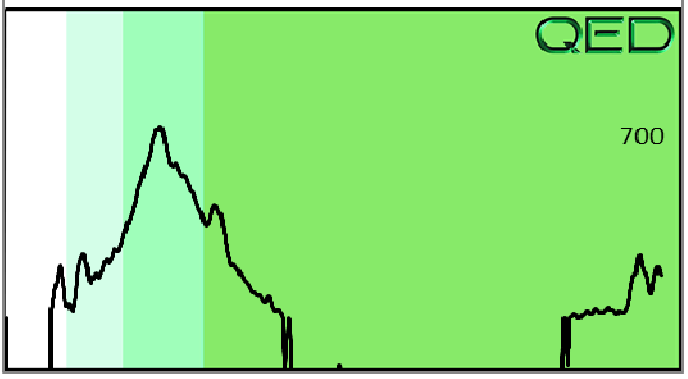
B1 - 10 : V.Deg.PHC 71.3%,(FCM)



B2 - 3 : V.Deg.Light Fuel 77%,(FCM)



B2 - 12 : Residual PHC



Hydrocarbon Analysis Results

QED

Client: KLEINFELDER

Address:

REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Samples taken Tuesday, August 3, 2021

Samples extracted Tuesday, August 3, 2021

Samples analysed Tuesday, August 3, 2021

Contact: ABI SHURTLEFF

Operator MAX MOYER

Project: R-5759 ; PARCEL 86

T03308

Matrix	Sample ID	Dilution used	BTEX C6-C9	GRO C5-C10	DRO C10-C35	TPH C5-C35	Total Aromatics C10-C35	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
										C5:10	C10:C18	C18+	
Soil	B3 - 9	22.0	<0.5	<0.5	0.4	0.4	0.29	0.03	<0.007	0	95.1	4.9	PHC ND,(FCM)
Soil	B4 - 9	24.0	<0.6	<0.6	<0.24	<0.6	<0.012	<0.012	<0.007	0	0	0	PHC ND,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 104.9%

Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

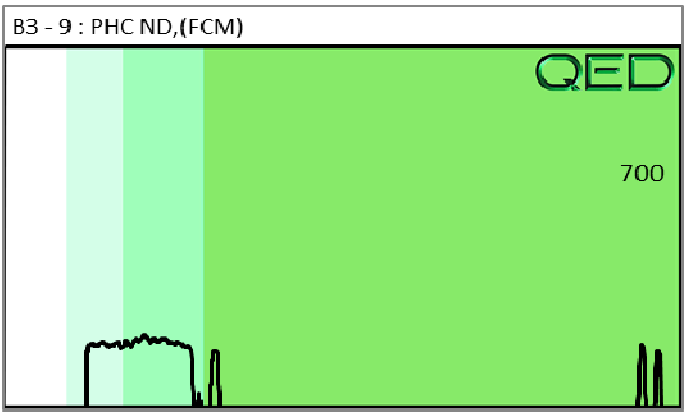
Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

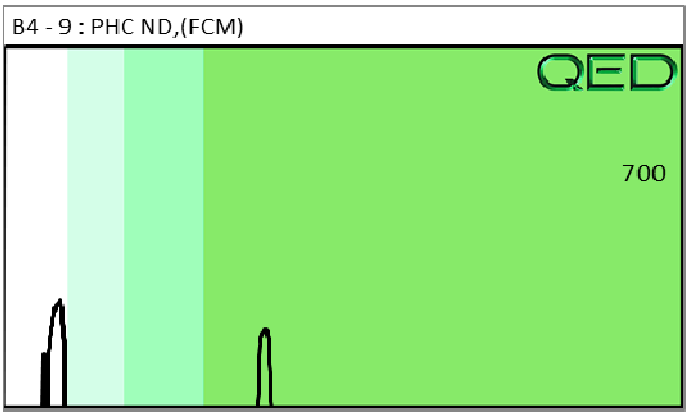
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**

QED Hydrocarbon Fingerprints

Project: R-5759 ; PARCEL 86 ##################





September 10, 2021
Kleinfelder File No. RAL21R130271

Mr. John L. Pilipchuk, LG., PE
North Carolina Department of Transportation
State Geotechnical Engineer
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

SUBJECT: Preliminary Site Assessment Report
Parcel 91, Beatrice B. and Ralph Welborn AKA Beatrice B. Welborn
WBS Element No. 44691.1.1, TIP No. R-5759
Proposed widening of NC 115 from US 421 to 2nd Street in Wilkesboro and North Wilkesboro, Wilkes County, NC
Kleinfelder Project No. 20221238.001A

Dear Mr. Pilipchuk:

Kleinfelder is pleased to provide its report detailing the activities conducted as part of the preliminary site assessment for the subject project.

Kleinfelder appreciates the opportunity to be of service to you. Should you have questions or require additional information, please do not hesitate to contact the undersigned.

Sincerely,
KLEINFELDER, INC.

Evan D. Amber
Staff Professional I

Michael J Burns, LG
Environmental Program Manager

EDA/MJB:asp

© 2021 Kleinfelder

PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 91, BEATRICE B. AND RALPH WELBORN AKA BEATRICE B. WELBORN
PIN 2200991
1487 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 44691.1.1
STATE PROJECT R-5759
PROPOSED WIDENING OF NC 115 FROM US 421 TO 2ND STREET IN WILKESBORO AND NORTH WILKESBORO

KLEINFELDER PROJECT NO. 20221238.001A

SEPTEMBER 10, 2021

Copyright 2021 Kleinfelder
All Rights Reserved

ONLY THE CLIENT OR ITS DESIGNATED REPRESENTATIVES MAY USE THIS DOCUMENT AND ONLY FOR THE SPECIFIC PROJECT FOR WHICH THIS REPORT WAS PREPARED.

A Report Prepared for:

Mr. John L. Pilipchuk, LG., PE
North Carolina Department of Transportation
State Geotechnical Engineer
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 91, BEATRICE B. AND RALPH WELBORN AKA BEATRICE B. WELBORN
PIN 2200991
1487 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 44691.1.1
STATE PROJECT R-5759
PROPOSED WIDENING OF NC 115 FROM US 421 TO 2ND STREET IN WILKESBORO AND NORTH WILKESBORO

Prepared by:

Evan D. Amber
Staff Professional I

Abigail R. Shurtleff
Staff Professional II

Reviewed by:

Michael J. Burns, LG
Environmental Program Manager

KLEINFELDER
3200 Gateway Centre Blvd. | Suite 100
Raleigh, North Carolina 27560
P | 919.755.5011

September 10, 2021

Kleinfelder Project No. 20221238.001A

© 2021 Kleinfelder

PRELIMINARY SITE ASSESSMENT REPORT

Site Name and Location:	Parcel 91 1487 Statesville Road North Wilkesboro, Wilkes County, North Carolina
Latitude and Longitude:	36.15526°N, -81.11600°W
County Parcel Number	2200991
Facility ID Number:	N/A
Leaking UST Incident:	N/A
State Project No.:	R-5759
NCDOT Project No.:	NCDOT WBS Element 44691.1.1
Description:	Proposed widening of NC 115 from US 421 to 2nd Street in Wilkesboro and North Wilkesboro
Date of Report:	September 10, 2021
Consultant:	Kleinfelder, Inc. 3200 Gateway Center Boulevard | Suite 100 Morrisville, North Carolina 27560 Corporate Geology License No. C-521 Corporate Licensure for Engineering F-1312

SEAL AND SIGNATURE OF CERTIFYING LICENSED GEOLOGIST

I, Michael J Burns, a Licensed Geologist for Kleinfelder, Inc., do certify that the information contained in this report is correct and accurate to the best of my knowledge.

DocuSigned by:
Michael Burns
7E53DC44AC794CA...

NORTH CAROLINA LICENSED SEAL 1645 GEOLOGIST MICHAEL JAMES BURNS

Michael J Burns, LG
NC License No. 1645

© 2021 Kleinfelder

TABLE OF CONTENTS

1 INTRODUCTION 4

1.1 SITE DESCRIPTION 4
1.2 SCOPE OF WORK 5

2 HISTORY 6

2.1 PARCEL USAGE 6
2.2 FACILITY ID NUMBERS 6
2.3 GROUNDWATER INCIDENT NUMBERS 6

3 OBSERVATIONS 7

3.1 GROUNDWATER MONITORING WELLS 7
3.2 ACTIVE USTS 7
3.3 PROJECT STUDY AREA 7
3.4 FEATURES APPARENT BEYOND THE PROJECT STUDY AREA 7
3.5 INTERIOR OF THE AUTOMOTIVE GARAGE 7

4 METHODS 8

4.1 PROPERTY OWNER CONTACTS 8
4.2 HEALTH AND SAFETY 8
4.3 GEOPHYSICAL INVESTIGATION 8
4.4 SOIL ASSESSMENT 9
4.5 SOIL ANALYSIS 10

5 RESULTS 11

5.1 GEOPHYSICAL INVESTIGATION 11
5.2 SOIL SAMPLING DATA 11
5.3 SAMPLE OBSERVATIONS 11
5.4 QUANTITY CALCULATIONS 11

6 CONCLUSIONS 12

7 RECOMMENDATIONS 13

8 LIMITATIONS 14

TABLES

1 Soil Sample Screening Results
2 Soil Sample Analytical Summary

FIGURES

1 Site Location
2 Site Plan

APPENDICES

A Site Photographs
B Geophysical Survey Report
C Boring Logs
D Analytical Reports and Graphs

© 2021 Kleinfelder

PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 91, BEATRICE B. AND RALPH WELBORN AKA BEATRICE B. WELBORN
PIN 2200991
1487 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 44691.1.1
STATE PROJECT R-5759
PROPOSED WIDENING OF NC 115 FROM US 421 TO 2ND STREET IN WILKESBORO AND NORTH WILKESBORO

1 INTRODUCTION

Kleinfelder, Inc. (Kleinfelder) has prepared this Preliminary Site Assessment (PSA) report to document assessment activities performed on Parcel 91 (the assessment area is hereafter referred to as the "Project Study Area"). The Project Study Area consists of the western, northern, and southern portions of a parcel that are within the right-of-way and/or easement on Wilkes County Tax Assessor's Office Parcel Number 2200991. Parcel 91 is currently occupied by an active automotive service station and an automobile and tire salvage yard. Parcel 91 is located along the eastern side of NC 115 (US 421 BUS AKA Statesville Road), west of Armory Road, in North Wilkesboro, Wilkes County, North Carolina (Figure 1).

Based on the information provided in the Pre-Scoping Comments letter, dated September 20, 2018, prepared by the North Carlina Department of Transportation (NCDOT), the parcel (listed as Site # 13 in the letter) was reported as an active automotive service station with a building remaining on site that has two bay doors and that may have hydraulic lifts with in-ground components. The site was also reported to have been used as an automobile and tire salvage yard since 2015. As such, the purpose of the PSA was to: (A) evaluate whether contaminated soil is present in the Project Study Area that may result in increased project costs and future liability if acquired by the NCDOT; and (B) coordinate with the NCDOT Right of Way Agent to inspect the interior of the automotive garage on Parcel 91 to evaluate for the presence of in-ground hydraulic lifts.

1.1 SITE DESCRIPTION

Parcel 91 has listed owners of Beatrice B. and Ralph Welborn AKA Beatrice B. Welborn. The parcel's street address is 1487 Statesville Road. The parcel consists of an active automotive service station (Black's Collision Repair Center) in the southeastern portion of the parcel that includes an office building and a garage with two bay doors that may contain in-ground hydraulic

© 2021 Kleinfelder

lifts, and also an automobile and tire salvage yard in the western and northern portions of the parcel.

The parcel is bounded by NC 115 and Old US 421 Road to the west, beyond which is vacant, vegetated and wooded land and residential homes; by NC 115 to the south, beyond which is a used car lot and office building and vacant, vegetated and wooded land; by Armory Road to the east, beyond which is a restaurant (TJ's Café) and residential homes; by Armory Road to the north, beyond which are residential homes and wooded land; and by a residential home to the northwest, beyond which is an automotive repair station (Hayes Reynolds Wrecker Services).

Photographs of the Project Study Area are provided in Appendix A.

1.2 SCOPE OF WORK

Kleinfelder conducted this PSA in accordance with the NCDOT's June 1, 2021, Request for Technical and Cost Proposal (RFP) and Kleinfelder's June 16, 2021, Technical and Cost Proposal. The NCDOT granted a formal Notice to Proceed on June 21, 2021.

© 2021 Kleinfelder

2 HISTORY

2.1 PARCEL USAGE

The parcel consists of an active automotive service station and an automobile and tire salvage yard.

The September 20, 2018 Pre-Scoping Comments letter did not list a Facility ID Number associated with the property, but did identify a building with two bay doors that may contain hydraulic lifts with in-ground components, and also that the site was used for automobile and tire salvage since 2015. The proposed NCDOT easement passes through a portion of the parcel and suggests that the building that may contain in-ground hydraulic lifts will be demolished by NCDOT.

Kleinfelder conducted historical research to determine whether additional environmental listings were identified for Parcel 91. The following are the results of the additional research:

- Based on a review of historical aerial photographs using Google Earth Pro and the NCDOT Historical Aerial Imagery Index, the site appeared to have similar development since at least December 30, 1960. Historical imagery was not available prior to this year.
- Kleinfelder searched the registered underground storage tank (UST) database, maintained by the NCDEQ. The site was not listed with a Facility ID Number.
- No other listings for Parcel 91 were identified on any of the available NCDEQ pollution incident databases.

2.2 FACILITY ID NUMBERS

Kleinfelder reviewed the NCDEQ UST database for Parcel 91. The site was not listed with a Facility ID Number.

2.3 GROUNDWATER INCIDENT NUMBERS

No active groundwater incidents are known to be associated with Parcel 91 at this time.

© 2021 Kleinfelder

3 OBSERVATIONS

3.1 GROUNDWATER MONITORING WELLS

No active groundwater monitoring wells were observed on Parcel 91 at the time of site exploration, Wednesday, August 4, 2021.

3.2 ACTIVE USTS

Based on review of the NCDEQ UST database, site visits and previous reports, there are no active USTs located on site.

3.3 PROJECT STUDY AREA

The northwestern portion of the Project Study Area was observed to be primarily occupied by a paved asphalt surface for equipment/automotive repair at the time of site exploration, Wednesday August 4, 2021. Based on conversations with the site owner and occupants, this portion of the Project Study Area is leased to a private individual for storage and/or minor repair operations. Significant surface staining and a petroleum odor were noted in this area, beneath obvious sources of petroleum contamination, including heavy equipment, automobiles, a school bus, and engine parts. The individual responsible for this area was not available for interview at the time of site exploration.

3.4 FEATURES APPARENT BEYOND THE PROJECT STUDY AREA

The Project Study Area consisted of the western, northern, and southern portions of the parcel within the NCDOT right-of-way or easement. There were no features of concern observed in other portions of the parcel beyond the Project Study Area.

3.5 INTERIOR OF THE AUTOMOTIVE GARAGE

Kleinfelder was not able to inspect the interior of the automotive garage on Parcel 91 to evaluate for the presence of in-ground hydraulic lifts, as Kleinfelder had not received entry authorization from the NCDOT Right of Way Agent by the time of site exploration, Wednesday, August 4, 2021.

© 2021 Kleinfelder

4 METHODS

4.1 PROPERTY OWNER CONTACTS

As part of Kleinfelder's scope of work, the listed property owner was contacted about the work schedule for the field work and the type of work being performed. The owner did not express any concern or special conditions associated with the work being performed.

4.2 HEALTH AND SAFETY

Prior to commencing the field work, Kleinfelder personnel developed a Site-Specific Health and Safety Plan (HASP) covering activities to be performed. The site-specific HASP was discussed with all Kleinfelder personnel involved with the project and at a daily on-site "tail gate" safety meetings with subcontractors and sub consultants. In addition to the HASP, Kleinfelder utilized its comprehensive Corporate Health and Safety Program, targeted to address those specific and critical tasks that involve Kleinfelder personnel and subcontractors. The Loss Prevention System (LPS™), a behavior-based program, is Kleinfelder's company-wide safety system implemented and embraced by all levels of the company.

4.3 GEOPHYSICAL INVESTIGATION

Pyramid Environmental & Engineering, P.C (Pyramid) conducted a geophysical investigation in the Project Study Area between July 14 and 16, 2021. Pyramid utilized electromagnetic (EM) induction technology and ground penetrating radar (GPR) to locate potential geophysical anomalies and potential USTs within the Project Study Area.

A total of nine (9) EM anomalies were identified, of which eight (8) were directly attributed to visible cultural features at the ground surface, including a manhole, a building, vehicles, utilities, fences, a storm drainpipe, metal on the ground surface, trailers, and heavy equipment. One (1) EM anomaly (listed as Metallic Anomaly #8 in the geophysical report) was attributed to suspected buried metallic debris in the southeastern corner of the Project Study Area. No evidence of significant structures such as USTs was observed. However, the northern portion of the Project Study Area contained a variety of vehicles, heavy equipment, and piles of metallic debris, which prevented effective investigation with GPR.

A copy of the Pyramid Geophysical Investigation Report, detailing the field methodology, is included in Appendix B.

© 2021 Kleinfelder

4.4 SOIL ASSESSMENT

The scope of work for the soil assessment was to evaluate the presence of soil contamination along the existing right-of-way and/or easement to evaluate whether known impact is present in this area and maybe migrating off-site. The soil borings were planned to be advanced to maximum depths of 12-feet below the ground surface (ft bgs) since the depth of any former UST basins may be up to 10-ft bgs. Field screening using a photoionization detector (PID) was conducted at 1-foot intervals beginning from the ground surface to total boring depth. The soil sample with the highest PID reading above background or the sample from the maximum drilled depth was selected for on-site laboratory analyses.

Prior to the drilling activities, public utilities were marked by NC One Call and private utilities were marked by Pyramid.

Kleinfelder subcontracted South Atlantic Environmental Drilling and Construction Company (SAEDACCO) to perform the drilling on-site on August 4, 2021. SAEDACCO advanced six (6) soil borings (P91-B1 through P91-B6) by direct-push technology at locations specified by Kleinfelder. The soil boring locations were identified in the field using a GPS. The borings were located within the right-of-way southeast and west of the automotive garage building in the vicinity of the two bay doors along NC 115, and in the western and northern portions of the Project Study Area. Soil Boring P91-B6 was advanced to 5-ft bgs to assess if observed petroleum surface staining had migrated deeper into the soil underneath of the asphalt surface in the northwestern portion of the Project Study Area. The soil boring locations are shown on Figure 2.

Soil samples were collected by driving Macro Core™ samplers in 5-foot intervals to boring termination where direct-push technology was applied. Each soil core was cut open, the soil samples were classified, and the soil divided into 1-foot sections. Each 1-foot section, collected via either method, was screened in the field using a PID. The PID readings are summarized in Table 1.

Soils were determined to be primarily composed of reddish-brown and yellowish-brown silts and clayey silts, with lenses of white and brown sands and sandy silts. Groundwater was not encountered in any of the borings at the termination depths of 12-ft bgs. Copies of the boring logs are included in Appendix C.

© 2021 Kleinfelder

4.5 SOIL ANALYSIS

The PID readings from soil borings advanced were noted to be low, with a maximum concentration of 8.7 parts per million (ppm) from soil boring P91-B5 at 6-ft bgs. Based on the PID data and visual observations, one or two of the samples from each boring was selected for on-site laboratory analysis. Four soil samples were collected from soil boring P91-B6 to both confirm contamination of observed surface staining from equipment maintenance activities, and to assess the potential for deeper impacts to surrounding site soils.

Selected samples were analyzed by RED Lab, LLC utilizing ultraviolet fluorescence (UVF) methodology to provide real-time analytical results of Total Petroleum Hydrocarbons (TPH), Gasoline Range Organics (GRO), Diesel Range Organics (DRO), and benzene, toluene, ethylbenzene, and total xylenes (BTEX). The UVF method was selected because of the known historical and current use of petroleum products on Parcel 91. The UVF analysis also provided data regarding Environmental Protection Agency 16 total Polycyclic Aromatic Hydrocarbons (PAHs), and Benzo(a)pyrene (BaP).

© 2021 Kleinfelder

5 RESULTS

5.1 GEOPHYSICAL INVESTIGATION

The EM and GPR surveys did not identify USTs or unknown geophysical anomalies within the accessible portions of the Project Study Area.

5.2 SOIL SAMPLING DATA

The UVF analysis of soil samples indicated the presence of petroleum impact within the existing right-of-way above NCDEQ Action Levels only at the asphalt surface for soil boring P91-B6 (0-ft bgs) with a GRO of 372 ppm (NCDEQ State Action Level of 50 ppm) and a DRO of 96.3 ppm (slightly below the NCDEQ State Action Level of 100 ppm). The UVF analyses of samples from soil boring P91-B6 at subsequent depths did not indicate the presence of petroleum impact above NCDEQ Action Levels, suggesting that petroleum impact has not migrated deeper into the soils below the approximately 6-inch asphalt and underlying gravel fill surface. The UVF analysis of all other soil samples did not indicate the presence of petroleum impact within other portions of the existing right-of-way above NCDEQ Action Levels. A summary of soil sample PID readings are presented in Table 1, and laboratory analytical results are presented in Table 2. The laboratory results associated with each boring are presented on Figure 2, along with the estimated area of surface staining observed within the vicinity of soil boring P91-B6. The laboratory report and graphs are included in Appendix D.

5.3 SAMPLE OBSERVATIONS

Soils were observed for any obvious evidence of contamination. Site personnel observed asphalt surface staining with an odor of petroleum at the location of soil boring P91-B6. A photograph of the petroleum surface staining is provided in Appendix A. No visual or olfactory evidence of contamination was noted for the other soil samples from the advanced borings.

5.4 QUANTITY CALCULATIONS

The area of petroleum impact above the NCDEQ action levels in the current right-of-way appears to be limited to the asphalt surface of the northwestern portion of the Project Study Area, in the vicinity of soil boring P91-B6 (0-ft bgs). Vertical petroleum impact beneath the approximately 6-inch asphalt and underlying gravel fill surface was not detected. The irregular area of petroleum impact is depicted on Figure 2 and is estimated at approximately 220-cubic feet (ft^3).

© 2021 Kleinfelder

6 CONCLUSIONS

Based on results of the EM/GPR survey, soil assessment and field observations, Kleinfelder has reached the following conclusions:

- The GPR and EM investigation did not identify USTs or unknown features within the accessible portions of the Project Study Area.
- The site is not listed in the NCDEQ UST Database with a Facility ID Number. No indication of the presence or likely presence of inactive USTs was observed on Parcel 91 at the time of site exploration, August 4, 2021.
- Petroleum impact was detected in one (1) boring advanced within the current right-of-way above the NCDEQ Action Level for TPH GRO. The suspected source of the contamination is apparent petroleum spills on the asphalt surface in the northwestern portion of the Project Study Area from evident equipment and/or automotive repair. The horizontal extent of petroleum impact is estimated to encompass approximately 220-ft^3. Vertical petroleum impact below the approximate 6-inch asphalt and underlying gravel surface to site soils was not detected in subsequent soil samples. Therefore, petroleum-impacts appear to be limited to the upper 6-inches of asphalt and gravel fill.
- Groundwater was not encountered in the soil borings at a depth of 12-ft bgs.
- Kleinfelder was not provided access by the NCDOT Right of Way Agent to the interior of the automotive garage building to evaluate for the presence of in-ground hydraulic lifts by the time of site exploration, August 4, 2021.

© 2021 Kleinfelder

7 RECOMMENDATIONS

Based on results of this Preliminary Site Assessment, Kleinfelder recommends the removal of the estimated 440-ft^2 area of shallow petroleum impacted surfaces within the northwestern portion of the Project Study Area, as depicted on Figure 2, on Parcel 91 in North Wilkesboro, Wilkes County, North Carolina. No additional sampling or special handling of soils on Parcel 91 is recommended at this time.

© 2021 Kleinfelder

8 LIMITATIONS

Kleinfelder's work will be performed in a manner consistent with that level of care and skill ordinarily exercised by other members of its profession practicing in the same locality, under similar conditions and at the date the services are provided. Kleinfelder's conclusions, opinions and recommendations will be based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, Kleinfelder's clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface studies or field tests, should be performed to reduce uncertainties. Acceptance of this report will indicate that NCDOT has reviewed the document and determined that it does not need or want a greater level of service than provided.

During the course of the performance of Kleinfelder's services, hazardous materials may have been discovered. Kleinfelder assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Nothing contained in this report should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, or generator, or person who arranges for disposal, transport, storage or treatment of hazardous materials within the meaning of any governmental statute, regulation or order. NCDOT is solely responsible for directing notification of all governmental agencies, and the public at large, of the existence, release, treatment or disposal of any hazardous materials observed at the project site, either before or during performance of Kleinfelder's services. NCDOT is responsible for directing all arrangements to lawfully store, treat,

© 2021 Kleinfelder

recycle, dispose, or otherwise handle hazardous materials, including cuttings and samples resulting from Kleinfelder's services.

© 2021 Kleinfelder

TABLES

© 2021 Kleinfelder

Table 1: Soil Sample Screening Results

Date	Sample ID	Depth (ft)	PID Reading	Notes
8/4/2021	R-5759-P91-B1	1	0.9	
		2	2.7	
		3	0.1	
		4	4.3	UVF Analysis
		5	3.7	
		6	3.8	
		7	0.3	
		8	0.9	
		9	2.0	
		10	2.3	
		11	3.5	UVF Analysis
		12	1.1	
8/4/2021	R-5759-P91-B2	1	1.1	
		2	1.7	
		3	1.6	
		4	1.4	
		5	2.6	
		6	0.7	
		7	2.2	
		8	4.0	UVF Analysis
		9	0.6	
		10	1.8	
		11	3.3	
		12	1.2	
8/4/2021	R-5759-P91-B3	1	3.9	
		2	2.0	
		3	3.7	
		4	5.1	UVF Analysis
		5	3.6	
		6	2.9	
		7	3.2	
		8	3.1	
		9	5.0	UVF Analysis
		10	3.5	
		11	4.1	
		12	0.9	
8/4/2021	R-5759-P91-B4	1	4.3	
		2	3.5	
		3	6.0	
		4	4.6	
		5	5.0	
		6	6.1	UVF Analysis
		7	5.1	
		8	4.3	
		9	0.7	
		10	1.2	
		11	1.4	
		12	4.2	
8/4/2021	R-5759-P91-B5	1	1.4	
		2	2.6	
		3	3.7	
		4	5.7	
		5	1.9	
		6	8.7	
		7	5.2	
		8	3.0	
		9	3.1	
		10	6.4	
		11	9.1	UVF Analysis
		12	5.8	
8/4/2021	R-5759-P91-B6	0	0.8	Surface contamination. UVF anaylsis
		1	0.5	UVF Analysis
		2	4.8	UVF Analysis
		3	2.8	
		4	3.5	
		5	5.1	UVF Analysis

Notes:
1) PID = Photoionization Detector
2) PID readings in parts per million (ppm)
3) NA = Not Analyzed
4) UVF = Ultraviolet Flourescence

TABLE 2: Soil Sample Analytical Summary

Parameter	Analytical Results											Comparison Criteria		
	Soil Sample Results													
Sample ID	P91-B1-4	P91-B1-11	P91-B2-8	P91-B3-4	P91-B3-9	P91-B4-6	P91-B5-11	P91-B6-0	P91-B6-1	P91-B6-2	P91-B6-5	State Action Level	Protection of Groundwater	Residential Health
PID Reading (ppm)	4.3	3.5	4.0	5.1	5.0	6.1	9.1	0.8	0.5	4.8	5.1			
Collection Depth (ft bgs)	4	11	8	4	9	6	11	0	1	2	5			
Collection Date	8/4/21	8/4/21	8/4/21	8/4/21	8/4/21	8/4/21	8/4/21	8/4/21	8/4/21	8/4/21	8/4/21			
UVF Method														
Diesel Range Organics	<0.20	<0.26	<0.19	<0.23	<0.21	<0.29	<0.21	**96.3**	**1.4**	<0.25	<0.22	100	--	--
Gasoline Range Organics	<0.50	<0.60	<0.40	<0.50	<0.50	<0.70	<0.50	**372**	<0.70	<0.60	<0.50	50	--	--

Notes:
Results displayed in milligrams per kilogram (mg/kg)
ft bgs = Feet below ground surface
Bold = Above Laboratory Detection Level
Highlighted concentrations exceed the NCDEQ action level
UVF = Ultraviolet Flouresence

FIGURES

© 2021 Kleinfelder

R-5759	FIGURE
PARCEL 91	1

SITE LOCATION

0 1500 3000

FEET

PARCEL 91 - BEATRICE B. & RALPH WELBORN
1487 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NC

Kleinfelder
3200 Gateway Centre Blvd | Suite 100
Morrisville, NC 27560
License No. C-521

p | 919.755.5011 f | 919.755.1414

Drawn By: ARS	State Project: R-5759
Checked By: MJB	Date: September 9, 2021

NC GRID
NAD 83 NA 2011

RIVER ROAD LIBERTY GROVE RD
Yadkin River
GREEN SHEPHERD FARM RD
ARMORY RD
EASTOVER DR
CEDAR LN
115
Bus 421
P91
BROWN RIDGE RD
HOLLAND WOODS RD
PONDVIEW DR
OLD STATE HWY 60
DAMASCUS CHURCH RD
FISHING CREEK RD
VIRGINIA'S DR
Fishing Cr
PARKS RIDGE RD
CLARK RD
HENRYS COUNTRY RD
SPEEDWAY
COMBS RD
ALLISON LN
BREEZE HILL RD
DAN CALL RD
Call
CICERO RD
CAMP JOE HARRIS RD
OLD US 421 RD
H ANDERSON RD
HUNTER RD
MOORE RIDGE RD
FISHING CREEK ARBOR RD
ARBOR GABLES LN
BENS MILL RD
FISHING CREEK RD
EDGEWOOD
421

R-5759	FIGURE
PARCEL 91	2

SITE MAP

0 50 100

FEET

SURFACE PETROLEUM STAINING ON PAVEMENT

BEATRICE B. AND RALPH WELBORN (91*)
DB 669 PG 675

MAZIE ARLEEN JOHNSON (90)
DB 1135 PG 40
DB 883 PG 18

REMOVE

FILL W/ FLOWABLE FILL

CLASS 'B' RIP-RAP
EST. 2 TON
EST. 7 SYGF

SR 2335 ARMORY RD

N RIDGE RD

ISBLK BUS

ISMTL BUS

ISMF BUS

ISBKD

1½SBKD

BST

CONC

72"CHL & 3SBW

15" CMP

10' BST

30.00' EXISTING R/W

PUE

W/LT

CB-E

CB-F

CB-G

TB 2GI

36" ROCK WALL

N 02°41'25" W 326.91'

N 42°35'09" E 72"CHL & 3SBW

P91-B1

P91-B2

P91-B3

P91-B4

P91-B5

P91-B6

LEGEND

P91-B1	SOIL BORING LOCATION
	PROPOSED RIGHT-OF-WAY
	PROPOSED DRAINAGE STRUCTURE
	PROPOSED EASEMENT
P91-B1-4	ID - DEPTH
	KNOWN SOIL CONTAMINATION

SOIL ANALYTICAL RESULTS (mg/kg)

ID	GRO	DRO
P91-B1-4	<0.50	<0.20
P91-B1-11	<0.60	<0.26
P91-B2-8	<0.40	<0.19
P91-B3-4	<0.50	<0.23
P91-B3-9	<0.50	<0.21
P91-B4-6	<0.70	<0.29
P91-B5-11	<0.50	<0.21
P91-B6-0	**372**	96.3
P91-B6-1	<0.70	1.4
P91-B6-2	<0.60	<0.25
P91-B6-5	<0.50	<0.22

NOTES:
1) All results reported in mg/kg
2) DRO = Diesel Range Organics
3) GRO = Gasoline Range Organics
4) Bold concentrations exceed the NCDEQ TPH Action Limit

PARCEL 91 - BEATRICE B. & RALPH WELBORN
1487 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NC

Kleinfelder
3200 Gateway Centre Blvd | Suite 100
Morrisville, NC 27560
License No. C-521

p | 919.755.5011 f | 919.755.1414

Drawn By: ARS	Date: September 10, 2021
Checked By: MJB	State Project: R-5759

APPENDIX A
SITE PHOTOGRAPHS

© 2021 Kleinfelder



View facing northwest from the southeastern corner of the Project Study Area along NC 115.



View facing north from the southeastern corner of the Project Study Area.

Original in Color

KLEINFELDER Bright People. Right Solutions. www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: September 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 91, Beatrice B. and Ralph Welborn AKA Beatrice B. Welborn 1487 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-1**



View facing northeast from the northwestern portion of the Project Study Area, along the northern side of the automotive repair garage and into a vehicle storage area.



View facing southeast from the northwestern corner of the Project Study Area.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: September 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 91, Beatrice B. and Ralph Welborn AKA Beatrice B. Welborn 1487 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-2**



View facing northeast from the northwestern portion of the Project Study Area, along the northern boundary of the Project Study Area.



View facing southeast from the northern portion of the Project Study Area.

Original in Color

KLEINFELDER
Bright People. Right Solutions.
www.kleinfelder.com

PROJECT NO:	20221238.001A
DRAWN:	September 2021
DRAWN BY:	EDA
CHECKED BY:	MB
FILE NAME:	Photo Pages

SITE PHOTOGRAPHS

Preliminary Site Assessment Report
R-5759 – Parcel 91, Beatrice B. and Ralph Welborn AKA Beatrice B. Welborn
1487 Statesville Road
North Wilkesboro, Wilkes County, NC 28659

FIGURE

A-3



Vehicle parts stored on the paved asphalt in the northwestern portion of the Project Study Area.



Stored vehicles on the paved asphalt in the northwestern portion of the Project Study Area, depicting surface petroleum staining.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: September 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 91, Beatrice B. and Ralph Welborn AKA Beatrice B. Welborn 1487 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-4**



View facing northeast from the northern portion of the Project Study Area.



View facing north from the northern portion of the Project Study Area.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: September 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 91, Beatrice B. and Ralph Welborn AKA Beatrice B. Welborn 1487 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-5**



View facing southeast from the northern portion of the Project Study Area.



View facing southeast from the northeastern boundary of the Project Study Area.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: September 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 91, Beatrice B. and Ralph Welborn AKA Beatrice B. Welborn 1487 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-6**

APPENDIX B

GEOPHYSICAL SURVEY REPORT

© 2021 Kleinfelder

PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2021-190)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION:
PARCEL 91
NCDOT PROJECT U-5759

1487 STATESVILLE ROAD, NORTH WILKESBORO, NC

August 6, 2021

Report prepared for: **Michael Burns, P.G.**
Kleinfelder, Inc.
3200 Gateway Centre Blvd., Suite 100
Morrisville, NC 27560

Prepared by: _____

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

Reviewed by: _____

Douglas A. Canavello, 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 91 - 1487 Statesville Road
North Wilkesboro, Wilkes County, North Carolina

Table of Contents

Executive Summary 1
Introduction 2
Field Methodology 2
Discussion of Results 4
Discussion of EM Results 4
Discussion of GPR Results 4
Summary & Conclusions 5
Limitations 5

Figures

Figure 1 – Parcel 91 - Geophysical Survey Boundaries and Site Photographs
Figure 2 – Parcel 91 - EM61 Metal Detection Contour Map
Figure 3 – Parcel 91 - GPR Transect Locations and Images
Figure 4 – Overlay of Metal Detection Results on NCDOT Engineering Plans

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 Environmental (Pyramid) conducted a geophysical investigation for Kleinfelder, Inc. at Parcel 91, located at 1487 Statesville Road, in North Wilkesboro, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project U-5759). 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 July 15-20, 2021, 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 nine EM anomalies were identified. The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR was performed 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 buried metallic debris. Collectively, the geophysical data recorded no evidence of metallic USTs at Parcel 91.

It should be noted that the northern portion of the property contained a variety of vehicles, heavy equipment, and piles of metallic debris. These areas were not able to be effectively investigated with GPR. These areas could be revisited in a supplemental geophysical investigation should they be cleared of these objects.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Kleinfelder, Inc. at Parcel 91, located at 1487 Statesville Road, in North Wilkesboro, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project U-5759). 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 July 15-20, 2021, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site consisted of an active maintenance garage surrounded by asphalt, concrete, and grass surfaces. It should be noted that the northern portion of the property contained a variety of vehicles, heavy equipment, and piles of metallic debris. These areas were not able to be effectively investigated with GPR. These areas could be revisited in a supplemental geophysical investigation should they be cleared of these objects. 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 July 20, 2021, using a Geophysical Survey Systems, Inc. (GSSI) SIR 4000 control unit coupled to 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 DF 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	Manhole	
2	Building/Vehicles	✓
3	Reinforced Concrete Pipe	
4	Utility	
5	Fence	
6	Storm Drain Pipe	
7	Metal on Ground/Vehicles/Trailers/Heavy Equipment/Fence	
8	Suspected Buried Metallic Debris	✓
9	Utility	

The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface, including a manhole, a building, vehicles, utilities, fences, a storm drain pipe, metal on the ground, trailers, and heavy equipment. EM Anomaly 8 was investigated with GPR to examine whether the anomaly was the result of a significant structure such as a UST. GPR was performed around the building, vehicles, and heavy equipment to confirm that the metallic 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 the transect images. A total of four formal GPR transects were performed at the site.

GPR Transects 1 and 2 were performed across EM Anomaly 8. These transects showed small, shallow, high-amplitude reflectors consistent with suspected buried metallic debris. The remaining transects were performed across the areas of significant metallic interference and showed evidence of possible utilities and/or buried debris. No evidence of significant structures such as USTs was observed.

Collectively, the geophysical data recorded no evidence of metallic USTs at Parcel 91. It should be noted that the northern portion of the property contained a variety of vehicles, heavy equipment, and piles of metallic debris. These areas were not able to be effectively investigated with GPR. These areas could be revisited in a supplemental geophysical investigation should they be cleared of these objects. **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 91 in North Wilkesboro, 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.
- GPR was performed 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 buried metallic debris.
- Collectively, the geophysical data recorded no evidence of metallic USTs at Parcel 91. It should be noted that the northern portion of the property contained a variety of vehicles, heavy equipment, and piles of metallic debris. These areas were not able to be effectively investigated with GPR. These areas could be revisited in a supplemental geophysical investigation should they be cleared of these objects.

LIMITATIONS

Geophysical surveys have been performed and this report was prepared for Kleinfelder, Inc. 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 Northwest)

N

PYRAMID GEOPHYSICS

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

PROJECT	PARCEL 91 NORTH WILKESBORO, NORTH CAROLINA NCDOT PROJECT U-5759	TITLE	PARCEL 91 - GEOPHYSICAL SURVEY BOUNDARIES AND SITE PHOTOGRAPHS	DATE 7/19/2021 PYRAMID PROJECT #: 2021-190
				CLIENT Kleinfelder **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 July 15, 2021, using a Geonics EM61-MK2 instrument. Verification GPR data were collected using a GSSI SIR 4000 instrument with a 350 MHz HS antenna on July 20, 2021.

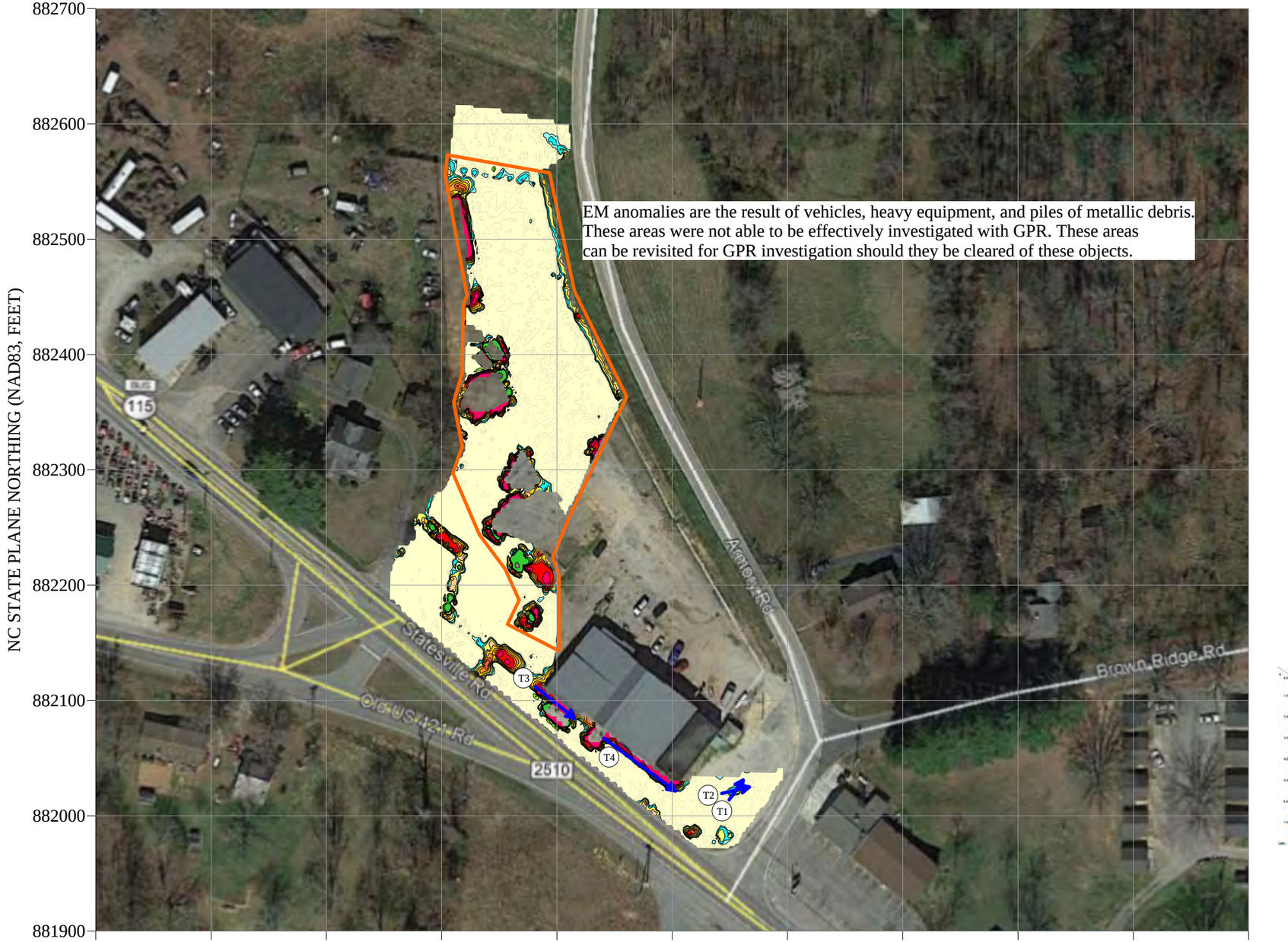
EM61 Metal Detection Response (millivolts)

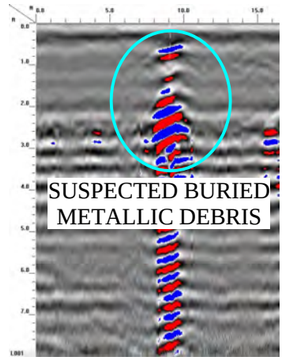
N

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

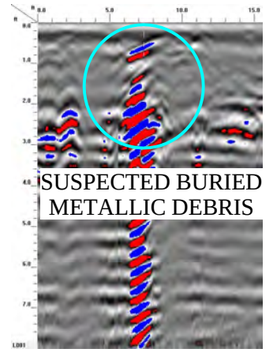
PROJECT: PARCEL 91 NORTH WILKESBORO, NORTH CAROLINA NCDOT PROJECT U-5759	TITLE: PARCEL 91 - EM61 METAL DETECTION CONTOUR MAP	DATE: 7/19/2021	CLIENT: Kleinfelder
		PYRAMID PROJECT #: 2021-190	**FIGURE 2**

GPR TRANSECT LOCATIONS

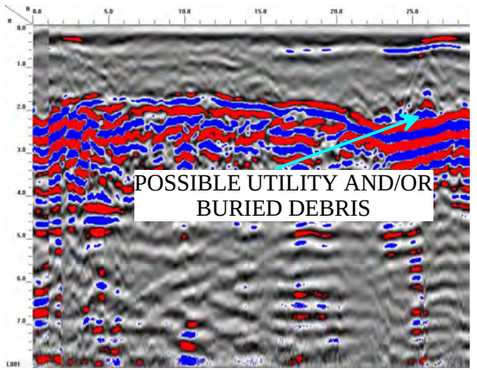




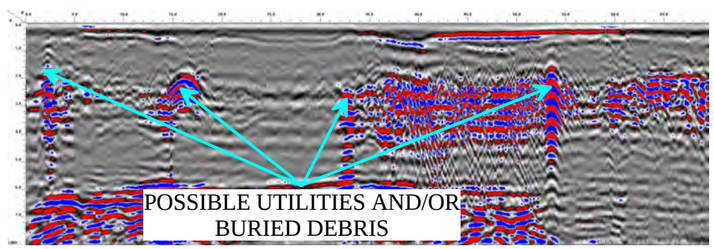
GPR TRANSECT 1 (T1)



GPR TRANSECT 1 (T2)



GPR TRANSECT 3 (T3)



GPR TRANSECT 4 (T4)

N

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

PROJECT: PARCEL 91 NORTH WILKESBORO, NORTH CAROLINA NCDOT PROJECT U-5759	TITLE: PARCEL 91 - GPR TRANSECT LOCATIONS AND IMAGES	DATE: 7/19/2021	CLIENT: Kleinfelder
		PYRAMID PROJECT #: 2021-190	**FIGURE 3**

LEGEND

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

EM61 Metal Detection Response
(millivolts)

1000 750 500 400 300 200 150 100 75 60 50 40 30 -90 -100 -200 -400 -5000

0 50 100
FEET

N

TITLE
OVERLAY OF METAL DETECTION RESULTS
ON NCDOT ENGINEERING PLANS

PROJECT
PARCEL 91
WILKESBORO, NORTH CAROLINA
NCDOT PROJECT R-5759

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

DATE: 8-9-2021	REVISION NO. 0
PYRAMID PROJECT NO. 2021-190	FIGURE NO. 4

APPENDIX C
BORING LOGS

© 2021 Kleinfelder

Date Begin - End:	8/04/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	SUNNY	**Bore Diameter:**	

ENVIRONMENTAL BORING LOG P91-B1

FIELD EXPLORATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Surface Condition: Gravel / Lithologic Description
							GRAVEL: gray
					0.9		**SILT**: yellowish brown
					2.7		**SAND**: white
					0.1		
					4.3		**Sandy SILT**: yellowish brown
5	Geoprobe				3.7		
					3.8		
					0.3		
					0.9		**Clayey SILT**: reddish brown and white
					2.0		**SILT**: red
					2.3		**SILT**: yellowish brown, slightly micaceous
10					3.5		
					1.1		

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221238.001A
DRAWN BY: EA
CHECKED BY: MJB
DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P91-B1

NCDOT R-5759 PSAs
North Wilkesboro, NC

PLOTTED: 08/13/2021 11:51 AM BY: EAmber
OFFICE FILTER: RALEIGH
PROJECT NUMBER: 20221238.001A
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
gINT FILE: Klf_gint_master_2022

PLOTTED: 08/13/2021 11:51 AM BY: EAmber

ENVIRONMENTAL BORING LOG P91-B2

Date Begin - End:	8/04/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	SUNNY	**Bore Diameter:**	

FIELD EXPLORATION

Surface Condition: Gravel

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
							GRAVEL: gray
					1.1		**Sandy SILT**: white and brown
					1.7		**SILT**: white
					1.6		**Clayey SILT**: yellowish brown
					1.4		
							SILT: white
					2.6		**Clayey SILT**: reddish brown
5	Geoprobe						**SILT**: yellowish brown
					0.7		
					2.2		
					4.0		
					0.6		
					1.8		
10							
					3.3		
					1.2		

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20221238.001A
DRAWN BY:	EA
CHECKED BY:	MJB
DATE:	8/12/2021

ENVIRONMENTAL BORING LOG
P91-B2

NCDOT R-5759 PSAs
North Wilkesboro, NC

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
PROJECT NUMBER: 20221238.001A
OFFICE FILTER: RALEIGH

Date Begin - End:	8/04/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	SUNNY	**Bore Diameter:**	

ENVIRONMENTAL BORING LOG P91-B3

FIELD EXPLORATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Surface Condition: Gravel / Lithologic Description
							GRAVEL: gray
	Geoprobe				3.9		**Clayey SILT**: white and pink
					2.0		
					3.7		
					5.1		
							Silty SAND: white
5					3.6		
					2.9		**SILT**: white and yellowish brown
					3.2		
					3.1		
					5.0		
					3.5		
10							**Clayey SILT**: reddish brown and yellowish brown and multicolored
					4.1		
					0.9		

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20221238.001A
DRAWN BY:	EA
CHECKED BY:	MJB
DATE:	8/12/2021

ENVIRONMENTAL BORING LOG
P91-B3

NCDOT R-5759 PSAs
North Wilkesboro, NC

PLOTTED: 08/13/2021 11:51 AM BY: EAmber
OFFICE FILTER: RALEIGH
PROJECT NUMBER: 20221238.001A
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
gINT FILE: Klf_gint_master_2022

PLOTTED: 08/13/2021 11:51 AM BY: EAmber

ENVIRONMENTAL BORING LOG P91-B4

Date Begin - End:	8/04/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	SUNNY	**Bore Diameter:**	

FIELD EXPLORATION

Surface Condition: Gravel

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
	Geoprobe						**GRAVEL**: gray
					4.3		**Sandy SILT**: reddish brown
					3.5		
					6.0		
					4.6		**Clayey SILT**: yellowish brown with white
5					5.0		
					6.1		
					5.1		**SILT**: white
					4.3		**SILT**: reddish brown and yellowish brown
					0.7		
					1.2		**Clayey SILT**: yellowish brown
10					1.4		
					4.2		

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20221238.001A
DRAWN BY:	EA
CHECKED BY:	MJB
DATE:	8/12/2021

ENVIRONMENTAL BORING LOG
P91-B4

NCDOT R-5759 PSAs
North Wilkesboro, NC

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
PROJECT NUMBER: 20221238.001A
OFFICE FILTER: RALEIGH

PLOTTED: 08/13/2021 11:51 AM BY: EAmber

ENVIRONMENTAL BORING LOG P91-B5

Date Begin - End:	8/04/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	SUNNY	**Bore Diameter:**	

FIELD EXPLORATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Surface Condition: Gravel / Lithologic Description
							GRAVEL: gray
					1.4		**Silty CLAY**: reddish brown
					2.6		
							SILT: reddish brown
					3.7		
					5.7		
					1.9		
5	Geoprobe				8.7		
					5.2		
					3.0		
					3.1		
							SILT: reddish brown and yellowish brown, slightly micaceous
					6.4		
10							**SILT**: reddish brown
					9.1		
					5.8		

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221238.001A
DRAWN BY: EA
CHECKED BY: MJB
DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P91-B5

NCDOT R-5759 PSAs
North Wilkesboro, NC

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
PROJECT NUMBER: 20221238.001A
OFFICE FILTER: RALEIGH

PLOTTED: 08/13/2021 11:51 AM BY: EAmber

ENVIRONMENTAL BORING LOG P91-B6

Date Begin - End:	8/04/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	SUNNY	**Bore Diameter:**	

FIELD EXPLORATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Surface Condition: Asphalt / Lithologic Description
	Geoprobe		Surface contamination		0.8		**ASPHALT**: black, petroleum staining, surface contamination
					0.5		**GRAVEL**: gray, gravel fill
					4.8		**Clayey SILT**: reddish brown
					2.8		**SILT**: reddish brown, slightly micaceous
					3.5		**SILT**: reddish brown and pink
					5.1		**SILT**: reddish brown
5							

The borehole was terminated at approximately 5 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20221238.001A
DRAWN BY:	EA
CHECKED BY:	MJB
DATE:	8/12/2021

ENVIRONMENTAL BORING LOG
P91-B6

NCDOT R-5759 PSAs
North Wilkesboro, NC

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
PROJECT NUMBER: 20221238.001A
OFFICE FILTER: RALEIGH

APPENDIX D

ANALYTICAL REPORT AND GRAPHS

© 2021 Kleinfelder

Hydrocarbon Analysis Results

QED

Client: KLEINFELDER

Address:

REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Samples taken Wednesday, August 4, 2021
Samples extracted Wednesday, August 4, 2021
Samples analysed Wednesday, August 4, 2021

Contact: ABI SHURTLEFF

Operator MAX MOYER

Project: R-5759 ; PARCEL 91

T03308

Matrix	Sample ID	Dilution used	BTEX C6-C9	GRO C5-C10	DRO C10-C35	TPH C5-C35	Total Aromatics C10-C35	16 EPA PAHs	BaP	% Ratios C5:10	% Ratios C10:C18	% Ratios C18+	HC Fingerprint Match
Soil	B1 - 4	20.0	<0.5	<0.5	<0.2	<0.5	<0.01	<0.01	<0.006	0	0	0	PHC ND,(FCM)
Soil	B1 - 11	26.0	<0.6	<0.6	<0.26	<0.6	<0.013	<0.013	<0.008	0	0	0	PHC ND,(FCM)
Soil	B2 - 8	19.0	<0.4	<0.4	<0.19	<0.4	<0.01	<0.01	<0.006	0	0	0	PHC ND,(FCM)
Soil	B3 - 4	23.0	<0.5	<0.5	<0.23	<0.5	<0.012	<0.012	<0.007	0	0	0	PHC ND,(FCM)
Soil	B3 - 9	21.0	<0.5	<0.5	<0.21	<0.5	<0.011	<0.011	<0.006	0	0	0	PHC ND,(FCM)
Soil	B4 - 6	29.0	<0.7	<0.7	<0.29	<0.7	<0.015	<0.015	<0.009	0	0	0	PHC ND,(FCM)
Soil	B5 - 11	21.0	<0.5	<0.5	<0.21	<0.5	<0.011	<0.011	<0.006	0	0	0	PHC ND,(FCM)
Soil	B6 - 5	22.0	<0.5	<0.5	<0.22	<0.5	<0.011	<0.011	<0.007	0	0	0	PHC ND,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 92.1%

Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

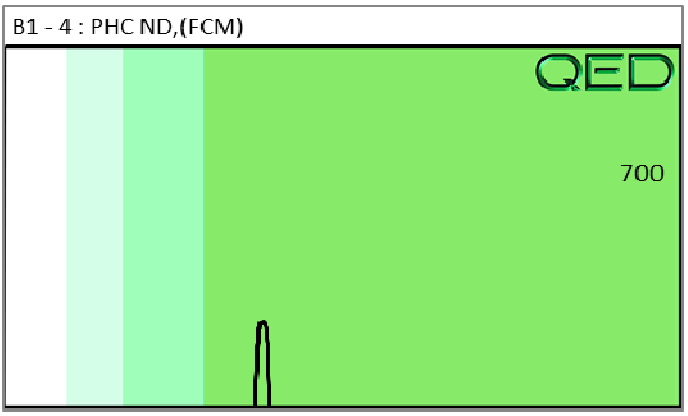
Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

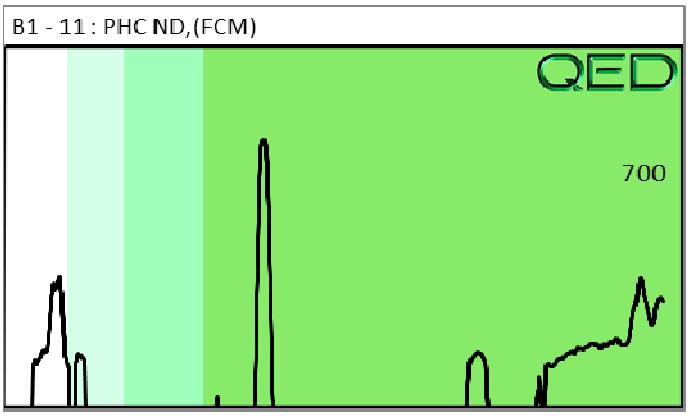
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

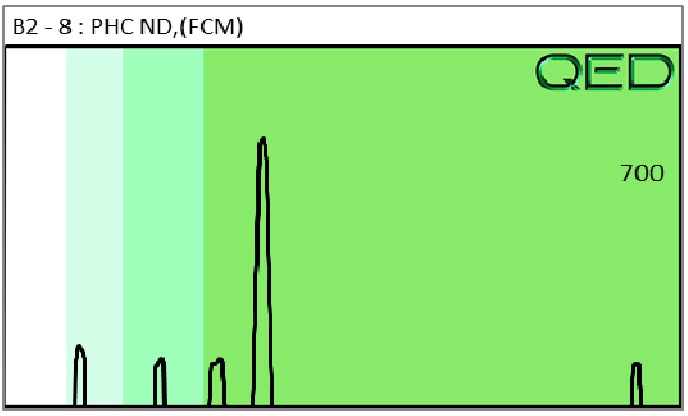
% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**

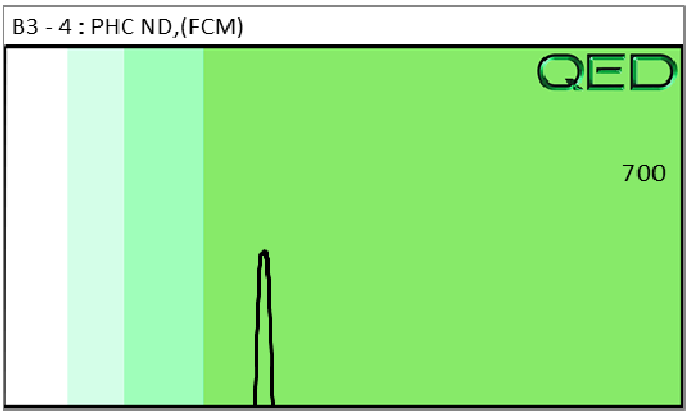
QED Hydrocarbon Fingerprints

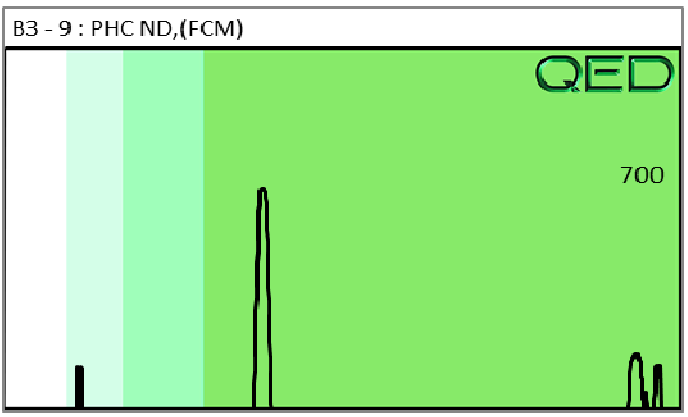
Project: R-5759 ; PARCEL 91 ##################

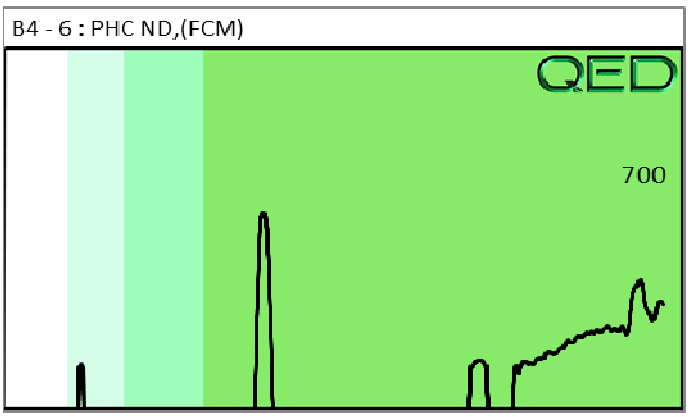


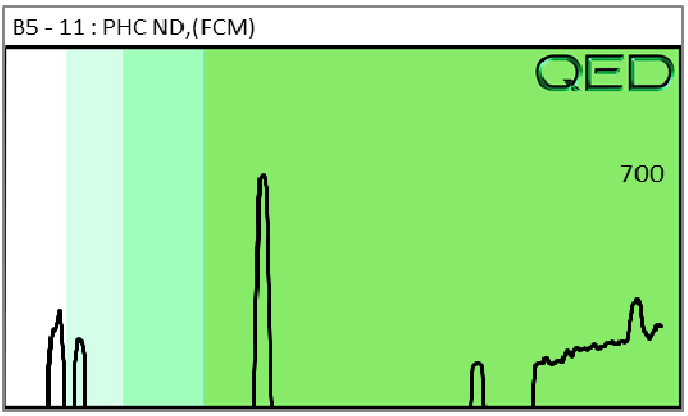


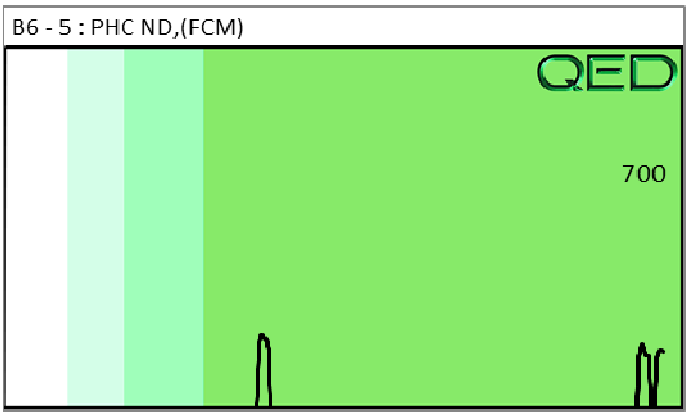












Hydrocarbon Analysis Results

QED

Client: KLEINFELDER

Address:

REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS

AQROS

Samples taken Wednesday, August 4, 2021

Samples extracted Wednesday, August 4, 2021

Samples analysed Wednesday, August 4, 2021

Contact: ABI SHURTLEFF

Operator MAX MOYER

Project: R-5759 ; PARCEL 91

T03308

Matrix	Sample ID	Dilution used	BTEX C6-C9	GRO C5-C10	DRO C10-C35	TPH C5-C35	Total Aromatics C10-C35	16 EPA PAHs	BaP	% Ratios C5:10	% Ratios C10:C 18	% Ratios C18+	HC Fingerprint Match
Soil	P91 SURFACE CONTAM	236.0	<5.9	372	96.3	468.3	35.6	1.7	0.022	92.6	6.4	1	V.Deg.PHC 89%,(FCM)
Soil	B6 - 1	28.0	<0.7	<0.7	1.4	1.4	0.8	0.05	0.002	0	90.4	9.6	V.Deg.PHC 64%,(FCM)
Soil	B6 - 2	25.0	<0.6	<0.6	<0.25	<0.6	<0.013	<0.013	<0.008	0	0	0	PHC ND,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 100.0%

Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

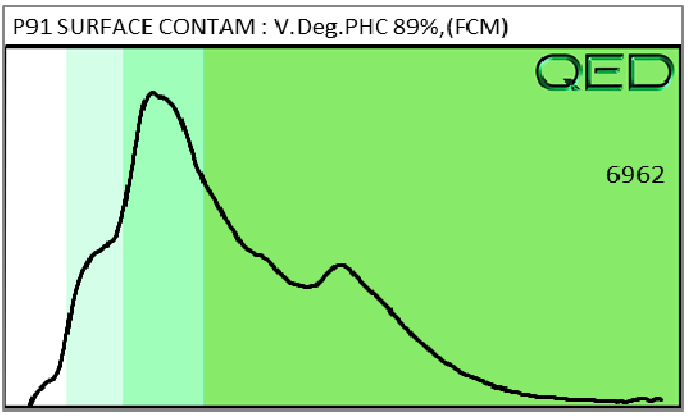
Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

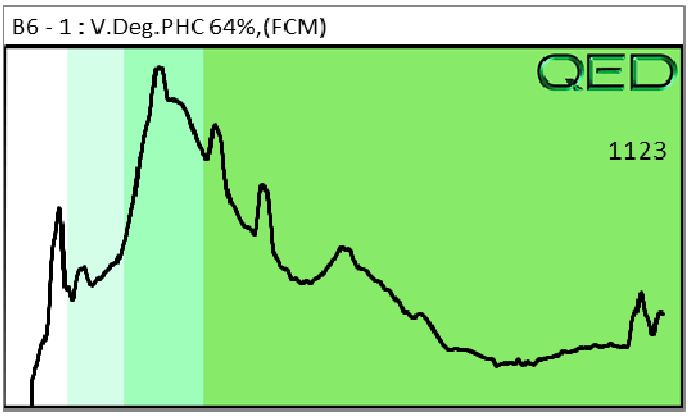
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

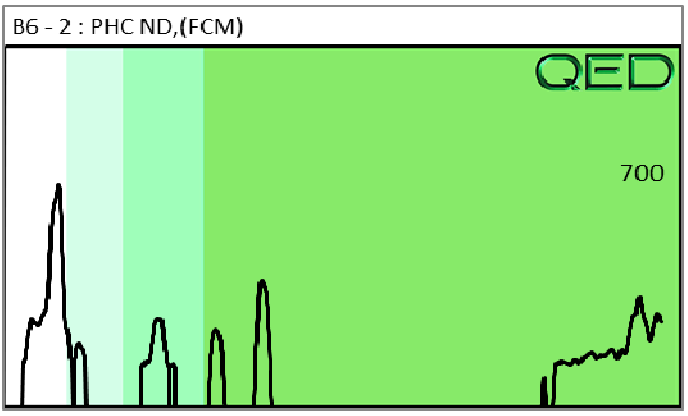
% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**

QED Hydrocarbon Fingerprints

Project: R-5759 ; PARCEL 91 ##################







KLEINFELDER
Bright People. Right Solutions.

September 15, 2021
Kleinfelder File No. RAL21R130439

Mr. John L. Pilipchuk, LG, PE
North Carolina Department of Transportation
State Geotechnical Engineer
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

SUBJECT: Preliminary Site Assessment Report
Parcel 92, Hayes & Faye Yates Reynolds AKA Reynolds, Hayes
WBS Element No. 44691.1.1, TIP No. R-5759
Proposed widening of NC 115 from US 421 to 2nd Street in Wilkesboro and North Wilkesboro, Wilkes County, NC
Kleinfelder Project No. 20221238.001A

Dear Mr. Pilipchuk,

Kleinfelder is pleased to provide its report detailing the activities conducted as part of the preliminary site assessment for the subject project.

Kleinfelder appreciates the opportunity to be of service to you. Should you have questions or require additional information, please do not hesitate to contact the undersigned.

Sincerely,
KLEINFELDER, INC.

Evan D. Amber
Staff Professional I

Michael J Burns, LG
Environmental Program Manager

EDA/MJB:asp

© 2021 Kleinfelder

KLEINFELDER 3200 Gateway Centre Blvd. Suite 100, Morrisville, NC 27560 **p |** 919.755.5011

PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 92, HAYES & FAYE YATES REYNOLDS AKA REYNOLDS, HAYES
PIN 2202460
1411 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 44691.1.1
STATE PROJECT R-5759
PROPOSED WIDENING OF NC 115 FROM US 421 TO 2ND STREET IN WILKESBORO AND NORTH WILKESBORO

KLEINFELDER PROJECT NO. 20221238.001A

SEPTEMBER 15, 2021

Copyright 2021 Kleinfelder
All Rights Reserved

ONLY THE CLIENT OR ITS DESIGNATED REPRESENTATIVES MAY USE THIS DOCUMENT AND ONLY FOR THE SPECIFIC PROJECT FOR WHICH THIS REPORT WAS PREPARED.

A Report Prepared for:

Mr. John L. Pilipchuk, LG, PE
North Carolina Department of Transportation
State Geotechnical Engineer
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 92, HAYES & FAYE YATES REYNOLDS AKA REYNOLDS, HAYES
PIN 2202460
1411 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 44691.1.1
STATE PROJECT R-5759
PROPOSED WIDENING OF NC 115 FROM US 421 TO 2ND STREET IN WILKESBORO AND NORTH WILKESBORO

Prepared by:

Evan D. Amber
Staff Professional I

Abigail R. Shurtleff
Staff Professional II

Reviewed by:

Michael J. Burns, LG
Environmental Program Manager

KLEINFELDER
3200 Gateway Centre Blvd. | Suite 100
Raleigh, North Carolina 27560
P | 919.755.5011

September 15, 2021

Kleinfelder Project No. 20221238.001A

© 2021 Kleinfelder

PRELIMINARY SITE ASSESSMENT REPORT

Site Name and Location:	Parcel 92 1411 Statesville Road North Wilkesboro, Wilkes County, North Carolina
Latitude and Longitude:	36.156086°N, -81.117400°W
County Parcel Number	2202460
Facility ID Number:	N/A
Leaking UST Incident:	N/A
State Project No.:	R-5759
NCDOT Project No.:	NCDOT WBS Element 44691.1.1
Description:	Proposed widening of NC 115 from US 421 to 2nd Street in Wilkesboro and North Wilkesboro
Date of Report:	September 15, 2021
Consultant:	Kleinfelder, Inc. 3200 Gateway Center Boulevard | Suite 100 Morrisville, North Carolina 27560 Corporate Geology License No. C-521 Corporate Licensure for Engineering F-1312

SEAL AND SIGNATURE OF CERTIFYING LICENSED GEOLOGIST

I, Michael J Burns, a Licensed Geologist for Kleinfelder, Inc., do certify that the information contained in this report is correct and accurate to the best of my knowledge.

DocuSigned by:
Michael Burns
7E53DC44AC794CA...

NORTH CAROLINA LICENSED SEAL 1645 GEOLOGIST MICHAEL JAMES BURNS

Michael J Burns, LG
NC License No. 1645

© 2021 Kleinfelder

TABLE OF CONTENTS

1 INTRODUCTION 4
1.1 SITE DESCRIPTION 4
1.2 SCOPE OF WORK 5

2 HISTORY 6
2.1 PARCEL USAGE 6
2.2 FACILITY ID NUMBERS 6
2.3 GROUNDWATER INCIDENT NUMBERS 6

3 OBSERVATIONS 7
3.1 GROUNDWATER MONITORING WELLS 7
3.2 ACTIVE USTS 7
3.3 FEATURES APPARENT BEYOND THE PROJECT STUDY AREA 7
3.4 INTERIOR OF THE EQUIPMENT MAINTENANCE FACILITY 7

4 METHODS 8
4.1 PROPERTY OWNER CONTACTS 8
4.2 HEALTH AND SAFETY 8
4.3 GEOPHYSICAL INVESTIGATION 8
4.4 SOIL ASSESSMENT 9
4.5 SOIL ANALYSIS 10

5 RESULTS 11
5.1 GEOPHYSICAL INVESTIGATION 11
5.2 SOIL SAMPLING DATA 11
5.3 SAMPLE OBSERVATIONS 11
5.4 QUANTITY CALCULATIONS 11

6 CONCLUSIONS 12

7 RECOMMENDATIONS 13

8 LIMITATIONS 14

TABLES

1 Soil Sample Screening Results
2 Soil Sample Analytical Summary

FIGURES

1 Site Location
2 Site Plan

APPENDICES

A Site Photographs
B Geophysical Survey Report
C Boring Logs
D Analytical Reports and Graphs

© 2021 Kleinfelder

PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 92, HAYES & FAYE YATES REYNOLDS AKA REYNOLDS, HAYES
PIN 2202460
1411 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 44691.1.1
STATE PROJECT R-5759
PROPOSED WIDENING OF NC 115 FROM US 421 TO 2ND STREET IN WILKESBORO AND NORTH WILKESBORO

1 INTRODUCTION

Kleinfelder, Inc. (Kleinfelder) has prepared this Preliminary Site Assessment (PSA) report to document assessment activities performed on Parcel 92 (the assessment area is hereafter referred to as the "Project Study Area"). The Project Study Area consists of the northwestern, western, and southeastern portions of a parcel that are within the right-of-way and/or easement on Wilkes County Tax Assessor's Office Parcel Number 2202460. Parcel 92 is currently occupied by a private residence and garages. Parcel 92 is located along the eastern side of NC 115 (US 421 BUS AKA Statesville Road), west of Armory Road, in North Wilkesboro, Wilkes County, North Carolina (Figure 1).

Based on the information provided in the Pre-Scoping Comments letter, dated September 20, 2018, prepared by the North Carlina Department of Transportation (NCDOT), the parcel (listed as Site # 15 in the letter) was reported as an apparent equipment maintenance facility with two buildings remaining on site that have four bay doors and that may contain hydraulic lifts with in-ground components. As such, the purpose of the PSA was to: (A) evaluate whether contaminated soil is present in the Project Study Area that may result in increased project costs and future liability if acquired by the NCDOT; and (B) coordinate with the NCDOT Right of Way Agent to inspect the interior of the equipment maintenance facility on Parcel 92 to evaluate for the presence of in-ground hydraulic lifts.

1.1 SITE DESCRIPTION

Parcel 92 has listed owners of Hayes & Faye Yates Reynolds AKA Reynolds, Hayes. The parcel's street address is 1411 Statesville Road. The parcel consists of a residential home in the southeastern portion of the parcel, an apparent former equipment maintenance facility and towing company in the center portion of the parcel, maintained grass and gravel areas used for vehicle

© 2021 Kleinfelder

storage in the western and northern portions of the parcel, and a residential home in the northern corner of the parcel.

The parcel is bounded by vacant, vegetated land and wooded land to the north, beyond which are residential homes; by NC 115 to the west, beyond which is a church building (New Direction Ministries), an agricultural equipment supplier property (B & R Equipment), and Old US 421 Road; by an automotive repair garage (Black's Collision Repair Center) to the southeast, beyond which is Armory Road, a restaurant (TJ's Café), and residential homes; and by Armory Road to the east and to the northeast, beyond which are vacant, vegetated and wooded lands.

Photographs of the Project Study Area are provided in Appendix A.

1.2 SCOPE OF WORK

Kleinfelder conducted this PSA in accordance with the NCDOT's June 1, 2021, Request for Technical and Cost Proposal (RFP) and Kleinfelder's June 16, 2021, Technical and Cost Proposal. The NCDOT granted a formal Notice to Proceed on June 21, 2021.

© 2021 Kleinfelder

2 HISTORY

2.1 PARCEL USAGE

The parcel consists of a residential home in the southeastern portion of the parcel, an apparent former equipment maintenance facility and towing company in the center portion of the parcel, maintained grass and gravel areas used for vehicle storage in the western and northern portions of the parcel, and a residential home in the northern corner of the parcel.

The September 20, 2018 Pre-Scoping Comments letter did not list a Facility ID Number associated with the property, but did identify two buildings that have four bay doors that may contain hydraulic lifts with in-ground components. The proposed NCDOT easement passes through a portion of the parcel that encompasses most of the western garage building and suggests that the building will be demolished by NCDOT.

Kleinfelder conducted historical research to determine whether additional environmental listings were identified for Parcel 92. The following are the results of the additional research:

- Based on a review of historical aerial photographs using Google Earth Pro and the NCDOT Historical Aerial Imagery Index, the site appeared to have similar development since at least 1981 and was likely under development in 1960. Historical imagery was not available prior to 1960.
- Kleinfelder searched the registered underground storage tank (UST) database, maintained by the NCDEQ. The site was not listed with a Facility ID Number.
- No other listings for Parcel 92 were identified on any of the available NCDEQ pollution incident databases.

2.2 FACILITY ID NUMBERS

Kleinfelder reviewed the NCDEQ UST database for Parcel 92. The site was not listed with a Facility ID Number.

2.3 GROUNDWATER INCIDENT NUMBERS

No active groundwater incidents are known to be associated with Parcel 92 at this time.

© 2021 Kleinfelder

3 OBSERVATIONS

3.1 GROUNDWATER MONITORING WELLS

No active groundwater monitoring wells were observed on Parcel 92 at the time of site exploration, Wednesday, August 4, 2021.

3.2 ACTIVE USTS

Based on review of the NCDEQ UST database, site visits and previous reports, there are no active USTs located on site.

3.3 FEATURES APPARENT BEYOND THE PROJECT STUDY AREA

The Project Study Area consisted of the northwestern, western, and southeastern portions of the parcel within the NCDOT right-of-way or easement. One of the two buildings having two bay doors identified in the September 20, 2018 Pre-Scoping Comments letter is located east of the Project Study Area. Inside of the northern bay door of the western equipment repair building (constructed perpendicular to NC 115), outside of the Project Study Area, a floor drain system and 55-gallon drums with unknown contents were observed. Outside of the Project Study Area, parked vehicles and trailers were observed in the northern portion of the parcel and a residential home was observed in the northern corner of the parcel.

3.4 INTERIOR OF THE EQUIPMENT MAINTENANCE FACILITY

Kleinfelder was not able to observe the interior of the equipment maintenance facility buildings on Parcel 92 to evaluate for the presence of in-ground hydraulic lifts, as Kleinfelder had not received entry authorization from the NCDOT Right of Way Agent by the time of site exploration, Wednesday August 4, 2021.

© 2021 Kleinfelder

4 METHODS

4.1 PROPERTY OWNER CONTACTS

As part of Kleinfelder's scope of work, the listed property owner was contacted about the work schedule for the field work and the type of work being performed. The owner did not express any concern or special conditions associated with the work being performed.

4.2 HEALTH AND SAFETY

Prior to commencing the field work, Kleinfelder personnel developed a Site-Specific Health and Safety Plan (HASP) covering activities to be performed. The site-specific HASP was discussed with all Kleinfelder personnel involved with the project and at a daily on-site "tail gate" safety meetings with subcontractors and sub consultants. In addition to the HASP, Kleinfelder utilized its comprehensive Corporate Health and Safety Program, targeted to address those specific and critical tasks that involve Kleinfelder personnel and subcontractors. The Loss Prevention System (LPS™), a behavior-based program, is Kleinfelder's company-wide safety system implemented and embraced by all levels of the company.

4.3 GEOPHYSICAL INVESTIGATION

Pyramid Environmental & Engineering, P.C (Pyramid) conducted a geophysical investigation in the Project Study Area between July 14 and 16, 2021. Pyramid utilized electromagnetic (EM) induction technology and ground penetrating radar (GPR) to locate potential geophysical anomalies and potential USTs within the Project Study Area.

A total of seven (7) EM anomalies were identified, of which six (6) were directly attributed to visible cultural features at the ground surface, including mailboxes, buildings, trailers, reinforced concrete, a swing set, a house with a propane aboveground storage tank (AST) in the southeastern portion of the Project Study Area, and a sign. One (1) EM anomaly in the southeastern corner of the Project Study Area (listed as Metallic Anomaly #6 in the geophysical report) was attributed to suspected buried metal.

A copy of the Pyramid Geophysical Investigation Report, detailing the field methodology, is included in Appendix B.

© 2021 Kleinfelder

4.4 SOIL ASSESSMENT

The scope of work for the soil assessment was to evaluate the presence of soil contamination along the existing right-of-way and/or easement to evaluate whether known impact is present in this area and maybe migrating off-site. The soil borings were planned to be advanced to maximum depths of 12-feet below the ground surface (ft bgs) since the depth of any former UST basins may be up to 10-ft bgs. Field screening using a photoionization detector (PID) was conducted at 1-foot intervals beginning from the ground surface to total boring depth. The soil sample with the highest PID reading above background or the sample from the maximum drilled depth was selected for on-site laboratory analyses.

Prior to the drilling activities, public utilities were marked by NC One Call and private utilities were marked by Pyramid.

Kleinfelder subcontracted South Atlantic Environmental Drilling and Construction Company (SAEDACCO) to perform the drilling on-site on August 4, 2021. SAEDACCO advanced six (6) soil borings (P92-B1 through P92-B6) by direct-push technology at locations specified by Kleinfelder. The soil boring locations were identified in the field using a GPS. The borings were located within the right-of-way in the vicinity of the residential home in the southeastern portion of the Project Study Area, in the vicinity of the bay doors of the western equipment maintenance building, and in the western and northern portions of the Project Study Area. The soil boring locations are shown on Figure 2.

Soil samples were collected by driving Macro Core™ samplers in 5-foot intervals to boring termination where direct-push technology was applied. Each soil core was cut open, the soil samples were classified, and the soil divided into 1-foot sections. Each 1-foot section, collected via either method, was screened in the field using a PID. The PID readings are summarized in Table 1.

Soils were determined to be primarily composed of red, reddish-brown, and yellowish-brown silts, clayey silts, and silty clays, with lenses of multicolored sandy silts and slightly micaceous silts. Soil boring P92-B2 contained rock fragments at 11-ft bgs. Groundwater was not encountered in any of the borings at the termination depths of 12-ft bgs. Copies of the boring logs are included in Appendix C.

© 2021 Kleinfelder

4.5 SOIL ANALYSIS

The PID readings from soil borings advanced were noted to be low, with a maximum of concentration of 15.8 parts per million (ppm) from soil boring P92-B1 at 9-ft bgs. Based on the PID data and visual observations, one of the samples from each boring was selected for on-site laboratory analysis.

Selected samples were analyzed by RED Lab, LLC utilizing ultraviolet fluorescence (UVF) methodology to provide real-time analytical results of Total Petroleum Hydrocarbons (TPH), Gasoline Range Organics (GRO), Diesel Range Organics (DRO), and benzene, toluene, ethylbenzene, and total xylenes (BTEX). The UVF method was selected because of the suspected historical use of petroleum products on Parcel 92. The UVF analysis also provided data regarding Environmental Protection Agency 16 total Polycyclic Aromatic Hydrocarbons (PAHs), and Benzo(a)pyrene (BaP).

© 2021 Kleinfelder

5 RESULTS

5.1 GEOPHYSICAL INVESTIGATION

The EM and GPR surveys did not identify USTs or unknown geophysical anomalies within the Project Study Area.

5.2 SOIL SAMPLING DATA

The UVF analysis of soil samples did not indicate the presence of petroleum impact in any of the soil samples analyzed. As such, shallow soil impact does not appear to be present within the existing right-of-way above NCDEQ Action Levels. A summary of soil sample PID readings are presented in Table 1, and laboratory analytical results are presented in Table 2. The laboratory results associated with each boring are presented on Figure 2. The laboratory report and graphs are included in Appendix D.

5.3 SAMPLE OBSERVATIONS

Soils were observed for any obvious evidence of contamination. No visual or olfactory evidence of contamination was noted in any of the soil samples from the borings.

5.4 QUANTITY CALCULATIONS

Kleinfelder did not identify soil impact in the current right-of-way.

© 2021 Kleinfelder

6 CONCLUSIONS

Based on results of the EM/GPR survey, soil assessment and field observations, Kleinfelder has reached the following conclusions:

- The GPR and EM investigation did not identify USTs or unknown features.
- The site is not listed in the NCDEQ UST Database with a Facility ID Number. No indication of the presence or likely presence of inactive USTs was observed on Parcel 92 at the time of site exploration, August 4, 2021.
- No soil impact was detected in borings advanced within the current right-of-way above the NCDEQ Action Levels for TPH GRO and DRO.
- Groundwater was not encountered in the soil borings at a depth of 12-ft bgs.
- Kleinfelder was not provided access by the NCDOT Right of Way Agent to the interior of the equipment maintenance facility buildings to evaluate for the presence of in-ground hydraulic lifts by the time of site exploration, August 4, 2021.

© 2021 Kleinfelder

7 RECOMMENDATIONS

Based on results of this Preliminary Site Assessment, Kleinfelder recommends that no additional sampling or special handling of soils be performed within the Project Study Area on Parcel 92 in North Wilkesboro, Wilkes County, North Carolina.

© 2021 Kleinfelder

8 LIMITATIONS

Kleinfelder's work will be performed in a manner consistent with that level of care and skill ordinarily exercised by other members of its profession practicing in the same locality, under similar conditions and at the date the services are provided. Kleinfelder's conclusions, opinions and recommendations will be based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, Kleinfelder's clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface studies or field tests, should be performed to reduce uncertainties. Acceptance of this report will indicate that NCDOT has reviewed the document and determined that it does not need or want a greater level of service than provided.

During the course of the performance of Kleinfelder's services, hazardous materials may have been discovered. Kleinfelder assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Nothing contained in this report should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, or generator, or person who arranges for disposal, transport, storage or treatment of hazardous materials within the meaning of any governmental statute, regulation or order. NCDOT is solely responsible for directing notification of all governmental agencies, and the public at large, of the existence, release, treatment or disposal of any hazardous materials observed at the project site, either before or during performance of

© 2021 Kleinfelder

Kleinfelder's services. NCDOT is responsible for directing all arrangements to lawfully store, treat, recycle, dispose, or otherwise handle hazardous materials, including cuttings and samples resulting from Kleinfelder's services.

© 2021 Kleinfelder

TABLES

© 2021 Kleinfelder

Table 1: Soil Sample Screening Results

Date	Sample ID	Depth (ft)	PID Reading	Notes
8/4/2021	R-5759-P92-B1	1	1.6	
		2	5.9	
		3	6.9	
		4	2.3	
		5	9.1	
		6	7.2	
		7	2.8	
		8	13.6	
		9	15.8	UVF Analysis
		10	5.9	
		11	1.5	
		12	5.0	
8/4/2021	R-5759-P92-B2	1	0.1	
		2	0.9	
		3	3.8	
		4	4.9	
		5	3.0	
		6	6.6	
		7	7.1	
		8	1.9	
		9	7.6	UVF Analysis
		10	1.5	
		11	6.8	
		12	5.9	
8/4/2021	R-5759-P92-B3	1	6.0	
		2	4.3	
		3	4.4	
		4	2.6	
		5	6.2	
		6	3.8	
		7	2.9	
		8	2.6	
		9	5.2	
		10	2.4	
		11	7.3	UVF Analysis
		12	3.6	
8/4/2021	R-5759-P92-B4	1	1.4	
		2	3.5	
		3	3.3	
		4	2.6	
		5	4.0	
		6	8.4	
		7	4.8	
		8	7.8	
		9	8.6	UVF Analysis
		10	6.1	
		11	4.1	
		12	3.9	
8/4/2021	R-5759-P92-B5	1	0.7	
		2	3.1	
		3	3.3	
		4	5.3	UVF Analysis
		5	0.5	
		6	1.4	
		7	2.8	
		8	2.1	
		9	2.9	
		10	4.4	
		11	3.2	
		12	3.0	
8/4/2021	R-5759-P92-B6	1	4.9	
		2	1.5	
		3	0.3	
		4	6.7	UVF Analysis
		5	5.2	
		6	6.5	
		7	4.4	
		8	4.2	
		9	1.9	
		10	5.0	
		11	3.2	
		12	3.9	

Notes:
1) PID = Photoionization Detector
2) PID readings in parts per million (ppm)
3) NA = Not Analyzed
4) UVF = Ultraviolet Flourescence

TABLE 2: Soil Sample Analytical Summary

Parameter	Analytical Results						Comparison Criteria		
	Soil Sample Results								
Sample ID	P92-B1-9	P92-B2-9	P92-B3-11	P92-B4-9	P92-B5-4	P92-B6-4	State Action Level	Protection of Groundwater	Residential Health
PID Reading (ppm)	15.8	7.6	7.3	8.6	5.3	6.7			
Collection Depth (ft bgs)	9	9	11	9	4	4			
Collection Date	8/4/21	8/4/21	8/4/21	8/4/21	8/4/21	8/4/21			
UVF Method									
Diesel Range Organics	<0.21	<0.21	**0.11**	<0.19	<0.20	<0.21	100	--	--
Gasoline Range Organics	<0.50	<0.50	<0.60	<0.40	<0.50	<0.50	50	--	--

Notes:

Results displayed in milligrams per kilogram (mg/kg)
ft bgs = Feet below ground surface
Bold = Above Laboratory Detection Level
Highlighted concentrations exceed the NCDEQ action level
UVF = Ultraviolet Flouresence

FIGURES

© 2021 Kleinfelder

R-5759	FIGURE
PARCEL 92	1

SITE LOCATION

0 1500 3000

FEET

PARCEL 92 - HAYES & FAYE YATES REYNOLDS
1411 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NC

Kleinfelder
3200 Gateway Centre Blvd | Suite 100
Morrisville, NC 27560
License No. C-521

p | 919.755.5011 f | 919.755.1414

Drawn By: ARS	State Project: R-5759
Checked By: MJB	Date: September 9, 2021

NC GRID
NAD 83 NA 2011

RIVER ROAD LIBERTY GROVE RD
Yadkin River
GREEN SHEPHERD FARM RD
ARMORY RD
EASTOVER DR
CEDAR LN
115
P92
Bus 421
BROWN RIDGE RD
HOLLAND WOODS RD
PONDVIEW DR
OLD STATE HWY 60
VIRGINIA'S DR
FISHING CREEK RD
Fishing Cr
PARKS RIDGE RD
CLARK RD
HENRYS COUNTRY RD
DAMASCUS CHURCH RD
CAMP JOE HARRIS RD
HUNTER RD
BREEZE HILL RD
H ANDERSON RD
OLD US 421 RD
Fishing Cr
ALLISON LN
DAN CALL RD
Call
CICERO RD
COMBS RD
SPEEDWAY
421
MOORE RIDGE RD
FISHING CREEK ARBOR RD
ARBOR GABLES LN
BENS MILL RD
FISHING CREEK RD
EDGEWOOD RD

R-5759	FIGURE
PARCEL 92	2

SITE MAP

0 50 100
FEET

N 52° 28' 09.0" W

36" ROCK WALL

FLOWABLE FILL

CB-G

CB-E

BL- 19

CONC HW

US 421 BUS

NC 115

EIP

-DRW9- PT Sta. 11+91.08

N 50° 45' 21.0" W

HTR

-L- POT Sta. 109+55.52 =
-DRW9- POT Sta. 12+25.00

-L- POT Sta. 105+00.14 =
-C4- POC Sta. 13+42.67

-L- PI Sta. 104+27.86

+35.00 -L- 50.00' RT

+60.00 50.00' LT

1½SBKD

ISMF BUS

ISBLK BUS

HAYES AND FAYE YATES REYNOLDS
DB 472 PG 516

92*

Approx. N

CLASS 'B' RIP-RAP
EST. 2 TON
EST. 7 SYGF

SPECIAL CUT 'V' DITCH
SEE DETAIL 1

72" CHL & 3SBW

N 02°47'25" W
326.97'

-Y11-

91*

BEATRICE B. AND RALPH WELBORN
DB 669 PG 675

+08.00 50.00' LT

-Y11- PRC Sta. 14+08.00

N 49°46'25" W
324.92'

EIP

N 39°14'35" E
382.73'

N 30°42'17" W
239.64'

FILL W/FLOWABLE FILL

+08.00 50.00' RT

+08.63 50.00' LT

-Y11- PT Sta. 15+08.63

+50.00

90

LEGEND

P92-B1	SOIL BORING LOCATION
	PROPOSED RIGHT-OF-WAY
	PROPOSED DRAINAGE STRUCTURE
	PROPOSED EASEMENT
P92-B1-9	ID - DEPTH

SOIL ANALYTICAL RESULTS (mg/kg)

ID	GRO	DRO
P92-B1-9	<0.50	<0.21
P92-B2-9	<0.50	<0.21
P92-B3-11	<0.60	0.11
P92-B4-9	<0.40	<0.19
P92-B5-4	<0.50	<0.20
P92-B6-4	<0.50	<0.21

NOTES:
1) All results reported in mg/kg
2) DRO = Diesel Range Organics
3) GRO = Gasoline Range Organics
4) Bold concentrations exceed the NCDEQ TPH Action Limit

PARCEL 92 - HAYES & FAYE YATES REYNOLDS
1411 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NC

Kleinfelder
3200 Gateway Centre Blvd | Suite 100
Morrisville, NC 27560
License No. C-521
p | 919.755.5011 f | 919.755.1414

Drawn By: ARS	Date: September 9, 2021
Checked By: MJB	State Project: R-5759

APPENDIX A

SITE PHOTOGRAPHS

© 2021 Kleinfelder



View facing northwest from the southern portion of the Project Study Area along NC 115.



View facing north from the southern portion of the Project Study Area, depicting the automotive garage.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: September 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 92, Hayes & Faye Yates Reynolds AKA Reynolds, Hayes 1411 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-1**



View facing into the garage bay along the southwestern side of the automotive garage building in the central portion of the Project Study Area.



View facing northwest from the central portion of the Project Study Area north of the automotive garage building, along NC 115.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: September 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 92, Hayes & Faye Yates Reynolds AKA Reynolds, Hayes 1411 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-2**



View facing east along the northern side of the automotive garage building in the central portion of the Project Study Area.



View facing southeast from the northwestern portion of the Project Study Area, along NC 115.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: September 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 92, Hayes & Faye Yates Reynolds AKA Reynolds, Hayes 1411 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-3**



View facing southeast from the northwestern corner of the Project Study Area, along NC 115.

Original in Color

KLEINFELDER Bright People. Right Solutions. www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: September 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 92, Hayes & Faye Yates Reynolds AKA Reynolds, Hayes 1411 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-4**

APPENDIX B

GEOPHYSICAL SURVEY REPORT

© 2021 Kleinfelder

PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2021-190)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION:
PARCEL 92
NCDOT PROJECT U-5759

1411 STATESVILLE ROAD, NORTH WILKESBORO, NC

August 6, 2021

Report prepared for: **Michael Burns, P.G.**
Kleinfelder, Inc.
3200 Gateway Centre Blvd., Suite 100
Morrisville, NC 27560

Prepared by: _____
Eric C. Cross, P.G.
NC License #2181

Reviewed by: _____
Douglas A. Canavello, 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 92 - 1411 Statesville Road
North Wilkesboro, Wilkes County, North Carolina

Table of Contents

Executive Summary 1
Introduction 2
Field Methodology 2
Discussion of Results 3
Discussion of EM Results 3
Discussion of GPR Results 4
Summary & Conclusions 5
Limitations 5

Figures

Figure 1 – Parcel 92 - Geophysical Survey Boundaries and Site Photographs
Figure 2 – Parcel 92 - EM61 Metal Detection Contour Map
Figure 3 – Parcel 92 - GPR Transect Locations and Select Images
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 Environmental (Pyramid) conducted a geophysical investigation for Kleinfelder, Inc. at Parcel 92, located at 1411 Statesville Road, in North Wilkesboro, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project U-5759). 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 July 16-20, 2021, 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. GPR was performed 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 buried debris. Collectively, the geophysical data recorded no evidence of metallic USTs at Parcel 92.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Kleinfelder, Inc. at Parcel 92, located at 1411 Statesville Road, in North Wilkesboro, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project U-5759). 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 July 16-20, 2021, 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 garage, a house, and two mobile homes 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 July 20, 2021, using a Geophysical Survey Systems, Inc. (GSSI) SIR 4000 control unit coupled to 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 DF 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	Mailboxes	
2	Trailers	✓
3	Building	✓
4	Building/Reinforced Concrete	✓
5	Swing Set/House/Propane AST	✓
6	Sign/Suspected Buried Metal	✓
7	Mailbox	

The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface, including mailboxes, trailers, buildings, reinforced concrete, a swing set, a house, a propane AST, and a sign. EM Anomaly 6 was investigated with GPR to examine whether the anomaly was the result of significant structures such as a USTs. GPR was also performed around the buildings, trailers, and other metallic surface features to confirm that the metallic 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 sixteen formal GPR transects were performed at the site.

GPR Transects 1-16 were performed across the areas of significant metallic interference. GPR Transects 11 and 12 confirmed the presence of reinforcement within the concrete slab. GPR Transect 16 showed a small, shallow lateral reflector consistent with buried metal. The remaining transects showed evidence of buried utilities and/or debris.

Collectively, the geophysical data recorded no evidence of metallic USTs at Parcel 92. **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 92 in North Wilkesboro, 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.
- GPR was performed 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 buried debris.
- Collectively, the geophysical data recorded no evidence of metallic USTs at Parcel 92.

LIMITATIONS

Geophysical surveys have been performed and this report was prepared for Kleinfelder, Inc. 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 Northwest)



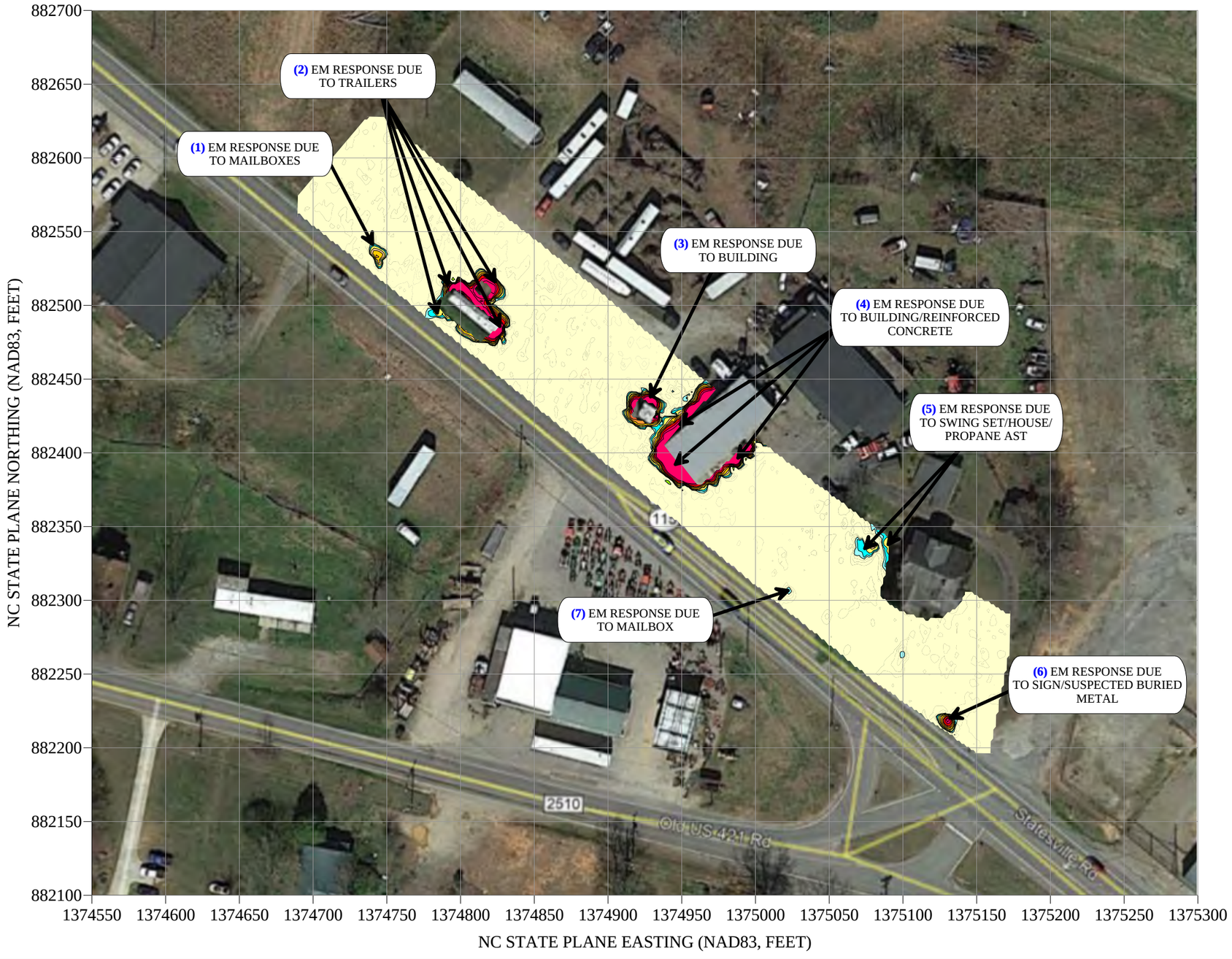
View of Survey Area (Facing Approximately Northwest)

N

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

PROJECT	PARCEL 92 NORTH WILKESBORO, NORTH CAROLINA NCDOT PROJECT U-5759	TITLE	PARCEL 92 - GEOPHYSICAL SURVEY BOUNDARIES AND SITE PHOTOGRAPHS	DATE 7/19/2021 PYRAMID PROJECT #: 2021-190
				CLIENT Kleinfelder **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 July 16, 2021, using a Geonics EM61-MK2 instrument. Verification GPR data were collected using a GSSI SIR 4000 instrument with a 350 MHz HS antenna on July 20, 2021.

EM61 Metal Detection Response (millivolts)

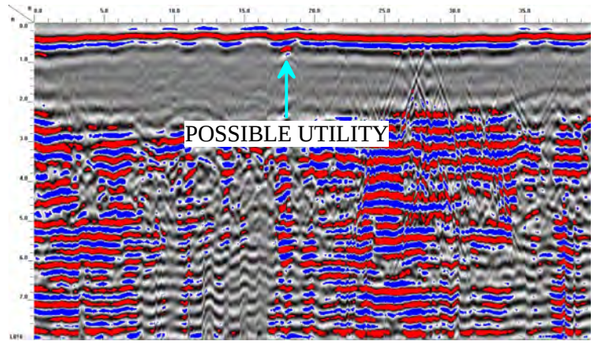
N

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

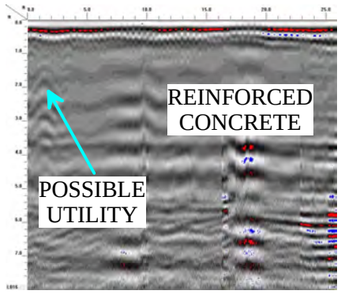
PROJECT	PARCEL 92 NORTH WILKESBORO, NORTH CAROLINA NCDOT PROJECT U-5759
TITLE	PARCEL 92 - EM61 METAL DETECTION CONTOUR MAP
DATE	7/19/2021
CLIENT	Kleinfelder
PYRAMID PROJECT #:	2021-190
	FIGURE 2

GPR TRANSECT LOCATIONS

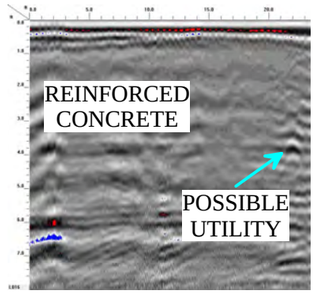




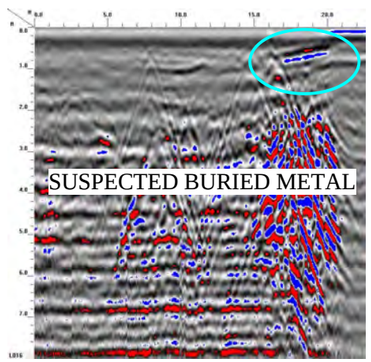
GPR TRANSECT 2 (T2)



GPR TRANSECT 11 (T11)



GPR TRANSECT 12 (T12)



GPR TRANSECT 16 (T16)

N

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

PROJECT	PARCEL 92 NORTH WILKESBORO, NORTH CAROLINA NCDOT PROJECT U-5759
TITLE	PARCEL 92 - GPR TRANSECT LOCATIONS AND SELECT IMAGES
DATE	7/19/2021
CLIENT	Kleinfelder
PYRAMID PROJECT #:	2021-190
	FIGURE 3

LEGEND

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

EM61 Metal Detection Response
(millivolts)

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

0 25 50
FEET

N

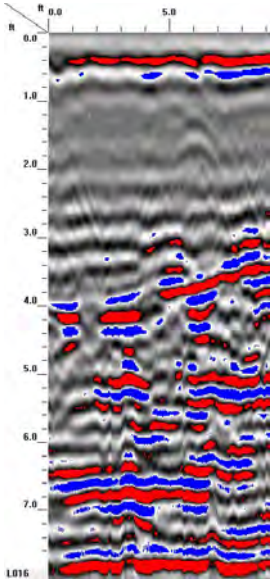
TITLE
OVERLAY OF METAL DETECTION RESULTS
ON NCDOT ENGINEERING PLANS

PROJECT
PARCEL 92
WILKESBORO, NORTH CAROLINA
NCDOT PROJECT R-5759

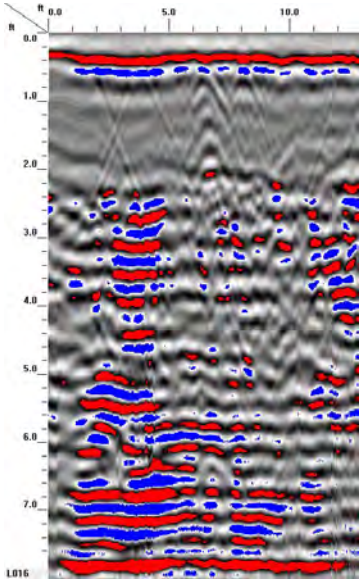
PYRAMID GEOPHYSICS
503 INDUSTRIAL AVENUE
GREENSBORO, NC 27406
336.335.3174 (p) 336.691.0648 (f)
License # C1251 Eng. / #C257 Geology

DATE: 8-9-2021	REVISION NO. 0
PYRAMID PROJECT NO. 2021-190	FIGURE NO. 4

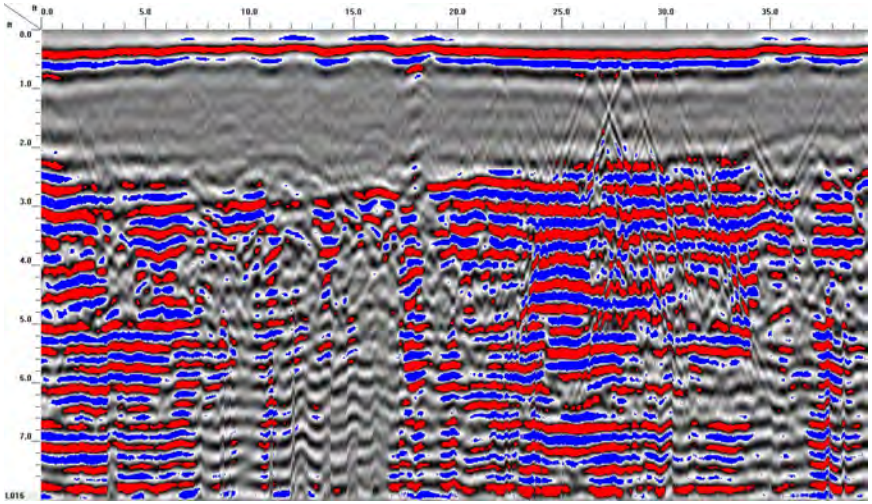
Appendix A – GPR Transect Images



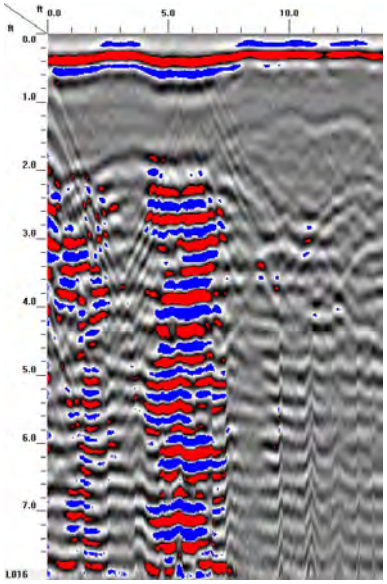
GPR TRANSECT 1



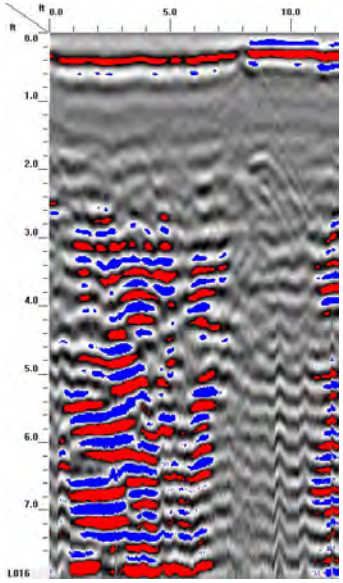
GPR TRANSECT 3



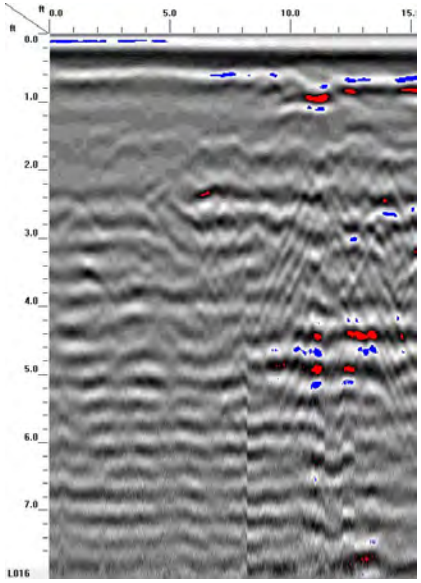
GPR TRANSECT 2



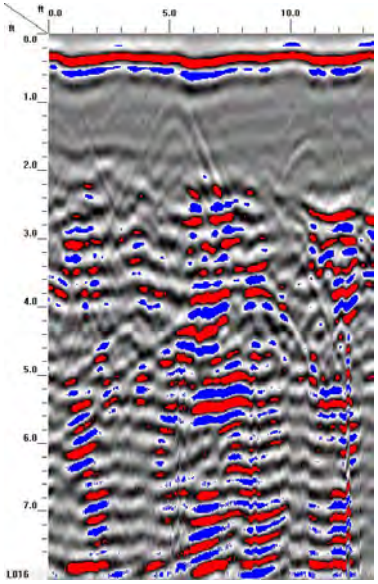
GPR TRANSECT 4



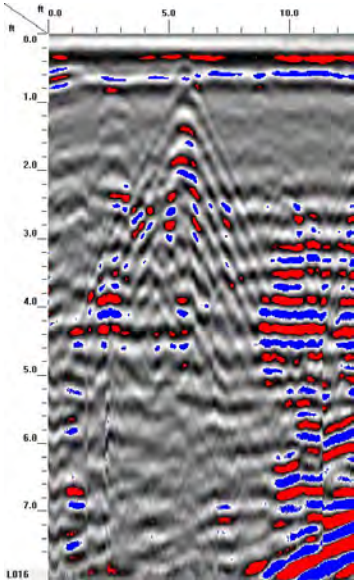
GPR TRANSECT 5



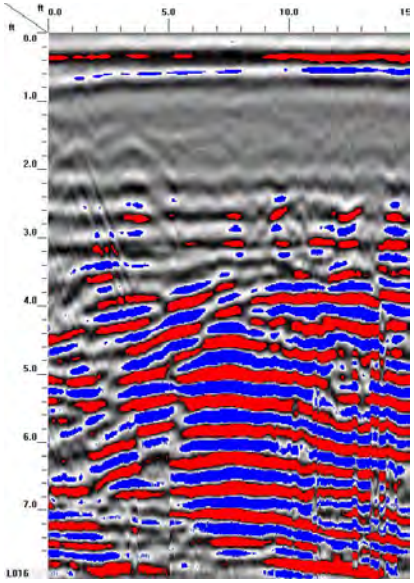
GPR TRANSECT 7



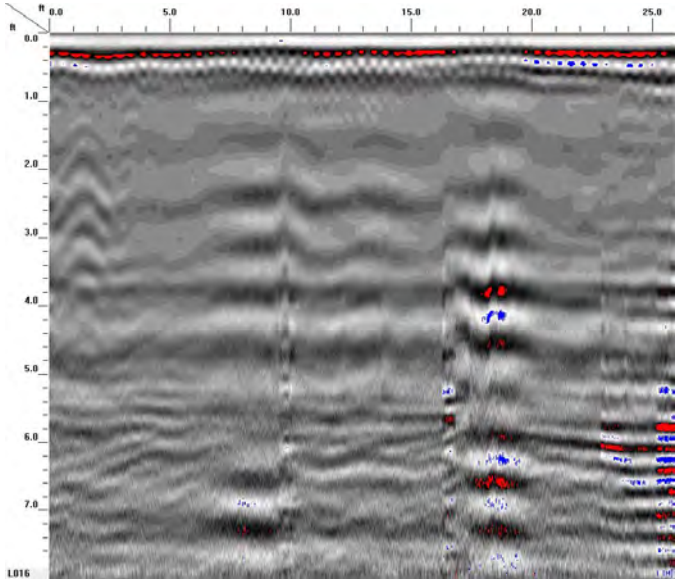
GPR TRANSECT 6



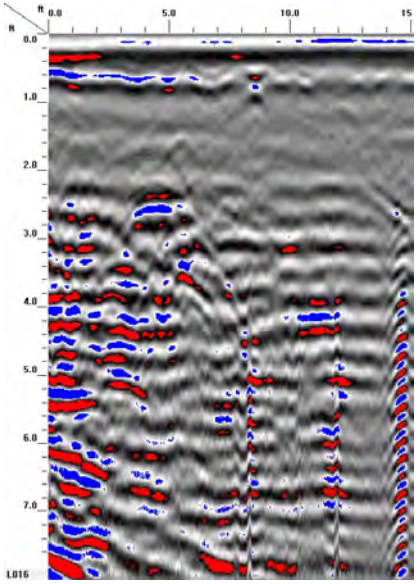
GPR TRANSECT 8



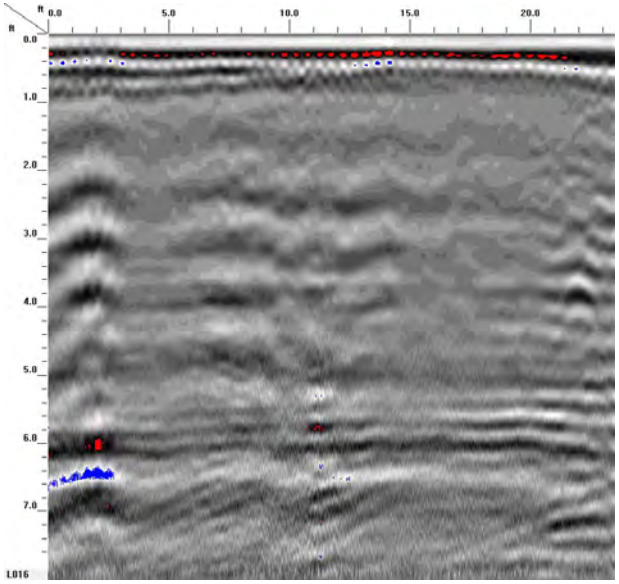
GPR TRANSECT 9



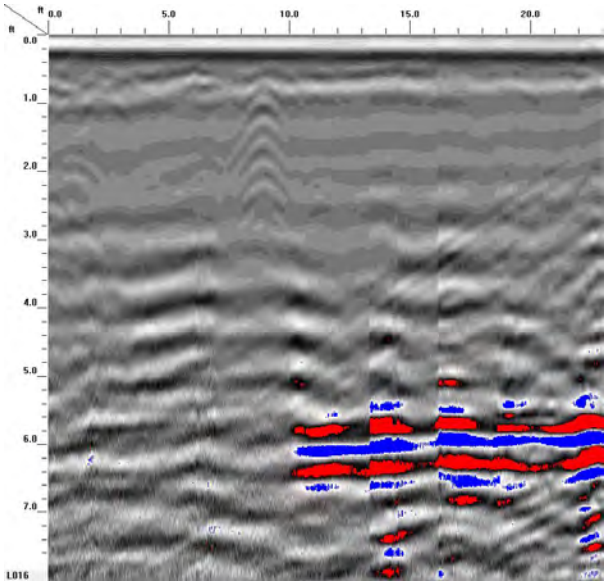
GPR TRANSECT 11



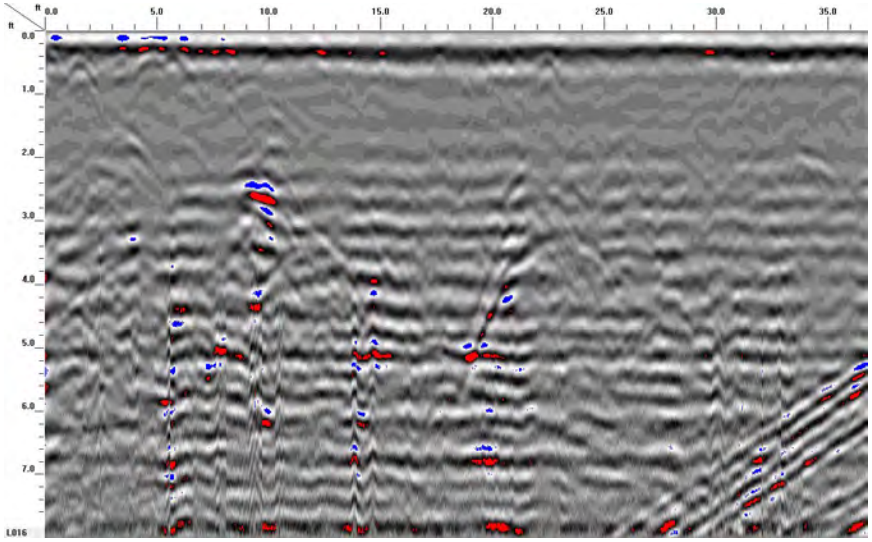
GPR TRANSECT 10



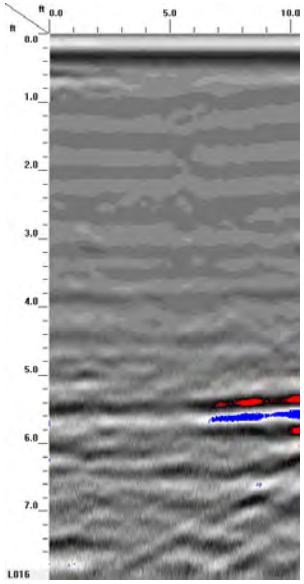
GPR TRANSECT 12



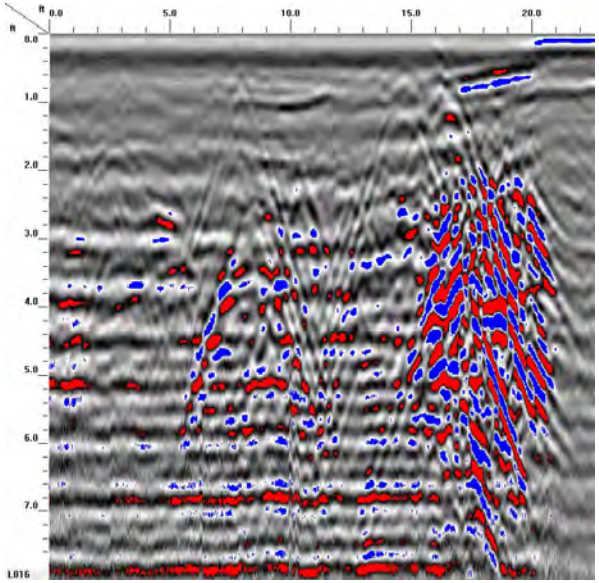
GPR TRANSECT 13



GPR TRANSECT 15



GPR TRANSECT 14



GPR TRANSECT 16

APPENDIX C
BORING LOGS

© 2021 Kleinfelder

ENVIRONMENTAL BORING LOG P92-B1

Date Begin - End:	8/04/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	SUNNY	**Bore Diameter:**	

FIELD EXPLORATION

Surface Condition: Grass & Weeds

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
					1.6		**TOPSOIL**: brown
					5.9		**Silty CLAY**: yellowish brown
					6.9		**Clayey SILT**: red, slightly micaceous
					2.3		
					9.1		
5	Geoprobe				7.2		
					2.8		**SILT**: red and yellowish brown
					13.6		
					15.8		
					5.9		
10					1.5		
					5.0		

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221238.001A
DRAWN BY: EA
CHECKED BY: MJB
DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P92-B1

NCDOT R-5759 PSAs
North Wilkesboro, NC

PLOTTED: 08/13/2021 11:51 AM BY: EAmber
OFFICE FILTER: RALEIGH
PROJECT NUMBER: 20221238.001A
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
gINT FILE: Klf_gint_master_2022

PLOTTED: 08/13/2021 11:51 AM BY: EAmber

ENVIRONMENTAL BORING LOG P92-B2

Date Begin - End:	8/04/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	SUNNY	**Bore Diameter:**	

FIELD EXPLORATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Surface Condition: Asphalt / Lithologic Description
							ASPHALT: black
					0.1		**CLAY**: red
					0.9		**Clayey SILT**: reddish brown
					3.8		
					4.9		**SILT**: reddish brown and yellowish brown
5					3.0		
	Geoprobe				6.6		
					7.1		**Sandy SILT**: reddish brown
					1.9		
					7.6		
10					1.5		
					6.8		
					5.9		**SILT with Cobbles**: reddish brown, very micaceous and with rock fragments

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221238.001A
DRAWN BY: EA
CHECKED BY: MJB
DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P92-B2

NCDOT R-5759 PSAs
North Wilkesboro, NC

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
PROJECT NUMBER: 20221238.001A
OFFICE FILTER: RALEIGH

PLOTTED: 08/13/2021 11:51 AM BY: EAmber

ENVIRONMENTAL BORING LOG P92-B3

Date Begin - End:	8/04/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	SUNNY	**Bore Diameter:**	

FIELD EXPLORATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Surface Condition: Asphalt / Lithologic Description
							ASPHALT: black
					6.0		**Clayey SILT**: red
					4.3		
					4.4		**SILT**: pink and yellowish brown
					2.6		
					6.2		
5	Geoprobe						**SILT**: reddish brown and pink and white
					3.8		
					2.9		
					2.6		
					5.2		
					2.4		
10							
					7.3		
					3.6		

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.:	20221238.001A
DRAWN BY:	EA
CHECKED BY:	MJB
DATE:	8/12/2021

ENVIRONMENTAL BORING LOG
P92-B3

NCDOT R-5759 PSAs
North Wilkesboro, NC

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [_KLF_ENVIRONMENTAL LOG]
PROJECT NUMBER: 20221238.001A
OFFICE FILTER: RALEIGH

PLOTTED: 08/13/2021 11:51 AM BY: EAmber

ENVIRONMENTAL BORING LOG P92-B4

Date Begin - End:	8/04/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	SUNNY	**Bore Diameter:**	

FIELD EXPLORATION

Surface Condition: Grass & Weeds

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
							TOPSOIL: brown
					1.4		**Clayey SILT**: reddish brown
					3.5		
					3.3		**Silty CLAY**: red
					2.6		
					4.0		**SILT**: reddish brown, slightly micaceous
5	Geoprobe				8.4		**SILT**: yellowish brown
					4.8		
					7.8		
					8.6		
					6.1		
10					4.1		
					3.9		

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221238.001A
DRAWN BY: EA
CHECKED BY: MJB
DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P92-B4

NCDOT R-5759 PSAs
North Wilkesboro, NC

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
PROJECT NUMBER: 20221238.001A
OFFICE FILTER: RALEIGH

PLOTTED: 08/13/2021 11:51 AM BY: EAmber

ENVIRONMENTAL BORING LOG P92-B5

Date Begin - End:	8/04/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	SUNNY	**Bore Diameter:**	

FIELD EXPLORATION

Surface Condition: Grass & Weeds

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
					0.7		**TOPSOIL**: brown
					3.1		**Clayey SILT**: reddish brown
					3.3		**CLAY**: red
					5.3		
5	Geoprobe				0.5		
					1.4		
					2.8		
					2.1		
					2.9		**Clayey SILT**: red and reddish yellow
					4.4		**SILT**: reddish brown
10					3.2		**Sandy SILT**: multicolored
					3.0		**SILT**: red and reddish brown

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221238.001A
DRAWN BY: EA
CHECKED BY: MJB
DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P92-B5

NCDOT R-5759 PSAs
North Wilkesboro, NC

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
PROJECT NUMBER: 20221238.001A
OFFICE FILTER: RALEIGH

PLOTTED: 08/13/2021 11:51 AM BY: EAmber

ENVIRONMENTAL BORING LOG P92-B6

Date Begin - End:	8/04/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	SUNNY	**Bore Diameter:**	

FIELD EXPLORATION

Surface Condition: Grass & Weeds

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Lithologic Description
							TOPSOIL: brown
					4.9		**Silty CLAY**: red
					1.5		
					0.3		
					6.7		**Sandy SILT**: pink and reddish brown and multicolored
5	Geoprobe				5.2		
					6.5		
					4.4		
					4.2		
					1.9		
					5.0		**SILT**: reddish brown
10					3.2		**Sandy SILT**: reddish brown and yellowish brown and multicolored, slightly micaceous around 12-ft bgs
					3.9		

The borehole was terminated at approximately 12 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221238.001A
DRAWN BY: EA
CHECKED BY: MJB
DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P92-B6

NCDOT R-5759 PSAs
North Wilkesboro, NC

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
PROJECT NUMBER: 20221238.001A
OFFICE FILTER: RALEIGH

APPENDIX D

ANALYTICAL REPORT AND GRAPHS

© 2021 Kleinfelder

Hydrocarbon Analysis Results

QED

Client: KLEINFELDER

Address:

REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Samples taken Wednesday, August 4, 2021

Samples extracted Wednesday, August 4, 2021

Samples analysed Wednesday, August 4, 2021

Contact: ABI SHURTLEFF

Operator MAX MOYER

Project: R-5759 ; PARCEL 92

T03308

Matrix	Sample ID	Dilution used	BTEX C6-C9	GRO C5-C10	DRO C10-C35	TPH C5-C35	Total Aromatics C10-C35	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
										C5:10	C10:C18	C18+	
Soil	B1 - 9	21.0	<0.5	<0.5	<0.21	<0.5	<0.011	<0.011	<0.006	0	0	0	PHC ND,(FCM)
Soil	B2 - 9	21.0	<0.5	<0.5	<0.21	<0.5	<0.011	<0.011	<0.006	0	0	0	PHC ND,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 92.5%

Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

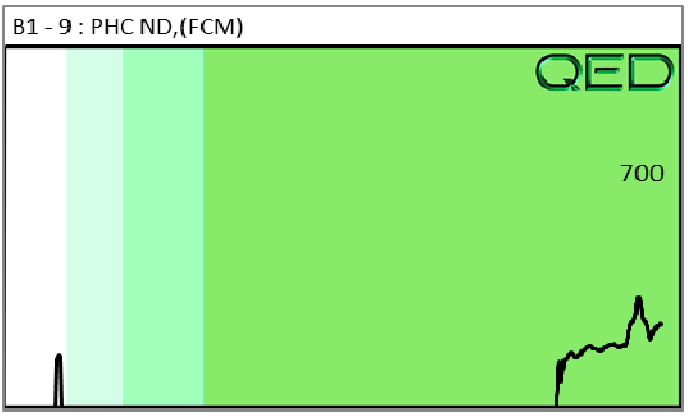
Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

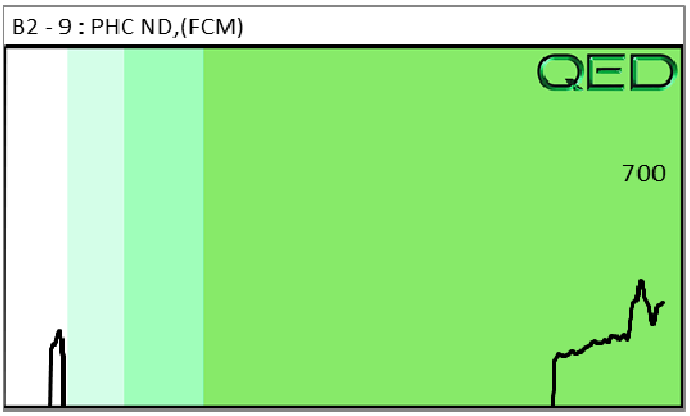
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**

QED Hydrocarbon Fingerprints

Project: R-5759 ; PARCEL 92 ##################





Hydrocarbon Analysis Results

QED

Client: KLEINFELDER

Address:

REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Samples taken Wednesday, August 4, 2021

Samples extracted Wednesday, August 4, 2021

Samples analysed Wednesday, August 4, 2021

Contact: ABI SHURTLEFF

Operator MAX MOYER

Project: R-5759 ; PARCEL 92

T03308

Matrix	Sample ID	Dilution used	BTEX C6-C9	GRO C5-C10	DRO C10-C35	TPH C5-C35	Total Aromatics C10-C35	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
										C5:10	C10:C18	C18+	
Soil	B3 - 11	24.0	<0.6	<0.6	0.11	0.11	0.1	0.009	<0.007	0	87.8	12.2	Residual HC
Soil	B4 - 9	19.0	<0.4	<0.4	<0.19	0.012	0.012	0.001	<0.006	0	100	0	PHC ND,(FCM)
Soil	B5 - 4	20.0	<0.5	<0.5	<0.2	<0.5	<0.01	<0.01	<0.006	0	0	0	PHC ND,(FCM)
Soil	B6 - 4	21.0	<0.5	<0.5	<0.21	<0.5	<0.011	<0.011	<0.006	0	0	0	PHC ND,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 101.0%

Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

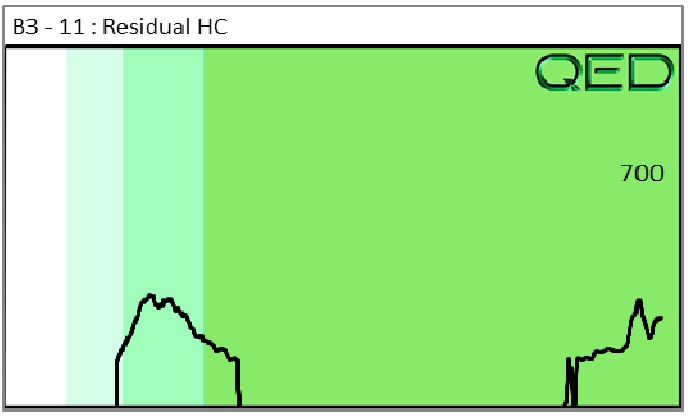
Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

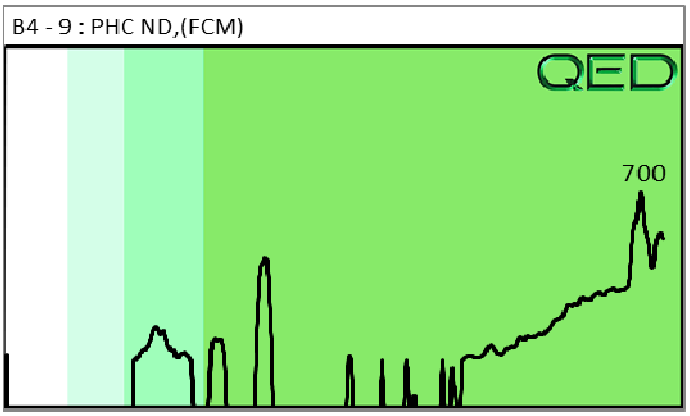
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

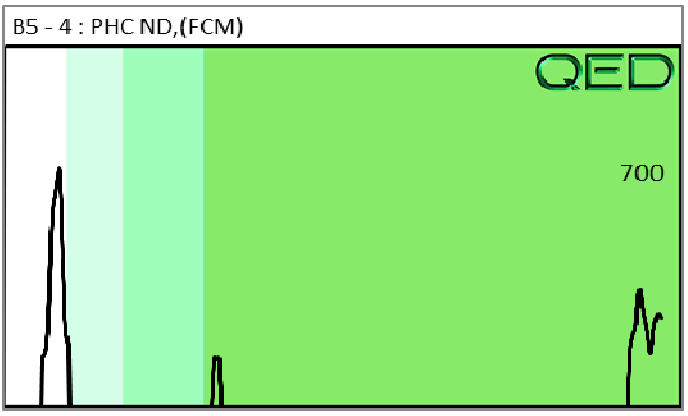
% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**

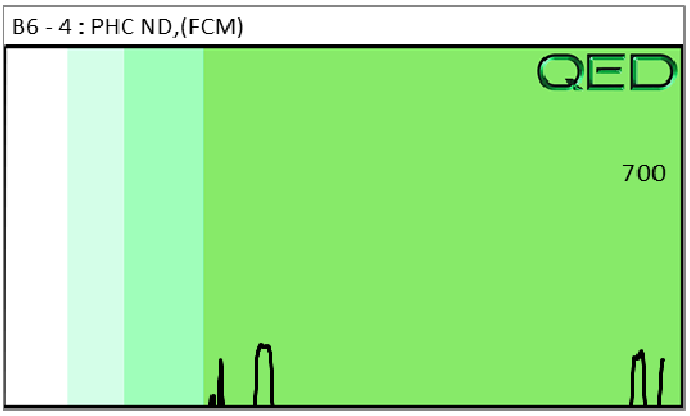
QED Hydrocarbon Fingerprints

Project: R-5759 ; PARCEL 92 ##################









September 16, 2021
Kleinfelder File No. RAL21R130546

Mr. John L. Pilipchuk, LG, PE
North Carolina Department of Transportation
State Geotechnical Engineer
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

SUBJECT: Preliminary Site Assessment Report
Parcel 117, Gregory Allen and Brenda Kay Stewart AKA Stuart, Brenda Anderson
WBS Element No. 44691.1.1, TIP No. R-5759
Proposed widening of NC 115 from US 421 to 2nd Street in Wilkesboro and North Wilkesboro, Wilkes County, NC
Kleinfelder Project No. 20221238.001A

Dear Mr. Pilipchuk,

Kleinfelder is pleased to provide its report detailing the activities conducted as part of the preliminary site assessment for the subject project.

Kleinfelder appreciates the opportunity to be of service to you. Should you have questions or require additional information, please do not hesitate to contact the undersigned.

Sincerely,
KLEINFELDER, INC.

Evan D. Amber
Staff Professional I

Michael J Burns, LG
Environmental Program Manager

EDA/MJB:asp

© 2021 Kleinfelder

KLEINFELDER 3200 Gateway Centre Blvd. Suite 100, Morrisville, NC 27560 **p |** 919.755.5011

PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 117, GREGORY ALLEN AND BRENDA KAY STEWART AKA STUART, BRENDA ANDERSON
PIN 2202113 & 2207614
1055 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 44691.1.1
STATE PROJECT R-5759
PROPOSED WIDENING OF NC 115 FROM US 421 TO 2ND STREET IN WILKESBORO AND NORTH WILKESBORO

KLEINFELDER PROJECT NO. 20221238.001A

SEPTEMBER 16, 2021

Copyright 2021 Kleinfelder
All Rights Reserved

ONLY THE CLIENT OR ITS DESIGNATED REPRESENTATIVES MAY USE THIS DOCUMENT AND ONLY FOR THE SPECIFIC PROJECT FOR WHICH THIS REPORT WAS PREPARED.

A Report Prepared for:

Mr. John L. Pilipchuk, LG, PE
North Carolina Department of Transportation
State Geotechnical Engineer
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 117, GREGORY ALLEN AND BRENDA KAY STEWART AKA STUART, BRENDA ANDERSON
PIN 2202113 & 2207614
1055 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 44691.1.1
STATE PROJECT R-5759
PROPOSED WIDENING OF NC 115 FROM US 421 TO 2ND STREET IN WILKESBORO AND NORTH WILKESBORO

Prepared by:

Evan D. Amber
Staff Professional I

Abigail R. Shurtleff
Staff Professional II

Reviewed by:

Michael J. Burns, LG
Environmental Program Manager

KLEINFELDER
3200 Gateway Centre Blvd. | Suite 100
Raleigh, North Carolina 27560
P | 919.755.5011

September 16, 2021

Kleinfelder Project No. 20221238.001A

© 2021 Kleinfelder

PRELIMINARY SITE ASSESSMENT REPORT

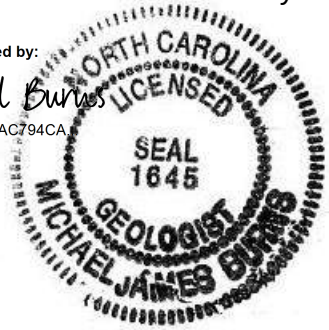
Site Name and Location:	Parcel 117 1055 Statesville Road North Wilkesboro, Wilkes County, North Carolina
Latitude and Longitude:	36.15920°N, -81.12232°W
County Parcel Number	2202113 & 2207614
Facility ID Number:	N/A
Leaking UST Incident:	N/A
State Project No.:	R-5759
NCDOT Project No.:	NCDOT WBS Element 44691.1.1
Description:	Proposed widening of NC 115 from US 421 to 2nd Street in Wilkesboro and North Wilkesboro
Date of Report:	September 16, 2021
Consultant:	Kleinfelder, Inc. 3200 Gateway Center Boulevard | Suite 100 Morrisville, North Carolina 27560 Corporate Geology License No. C-521 Corporate Licensure for Engineering F-1312

SEAL AND SIGNATURE OF CERTIFYING LICENSED GEOLOGIST

I, Michael J Burns, a Licensed Geologist for Kleinfelder, Inc., do certify that the information contained in this report is correct and accurate to the best of my knowledge.

DocuSigned by:
Michael Burns
7E53DC44AC794CA...

Michael J Burns, LG
NC License No. 1645



© 2021 Kleinfelder

TABLE OF CONTENTS

1 INTRODUCTION 4
1.1 SITE DESCRIPTION 4
1.2 SCOPE OF WORK 5

2 HISTORY 6
2.1 PARCEL USAGE 6
2.2 FACILITY ID NUMBERS 7
2.3 GROUNDWATER INCIDENT NUMBERS 7

3 OBSERVATIONS 8
3.1 GROUNDWATER MONITORING WELLS 8
3.2 ACTIVE USTS 8
3.3 FEATURES APPARENT BEYOND THE PROJECT STUDY AREA 8
3.4 INTERIOR OF THE GARAGE BUILDING 8

4 METHODS 9
4.1 PROPERTY OWNER CONTACTS 9
4.2 HEALTH AND SAFETY 9
4.3 GEOPHYSICAL INVESTIGATION 9
4.4 SOIL ASSESSMENT 10
4.5 SOIL ANALYSIS 11

5 RESULTS 12
5.1 GEOPHYSICAL INVESTIGATION 12
5.2 SOIL SAMPLING DATA 12
5.3 SAMPLE OBSERVATIONS 12
5.4 QUANTITY CALCULATIONS 12

6 CONCLUSIONS 13

7 RECOMMENDATIONS 14

8 LIMITATIONS 15

TABLES

1 Soil Sample Screening Results
2 Soil Sample Analytical Summary

FIGURES

1 Site Location Map
2 Site Plan

APPENDICES

A Site Photographs
B Geophysical Survey Report
C Boring Logs
D Analytical Reports and Graphs

© 2021 Kleinfelder

PRELIMINARY SITE ASSESSMENT REPORT
PARCEL 117, GREGORY ALLEN AND BRENDA KAY STEWART AKA STUART, BRENDA ANDERSON
PIN 2202113 & 2207614
1055 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 44691.1.1
STATE PROJECT R-5759
PROPOSED WIDENING OF NC 115 FROM US 421 TO 2ND STREET IN WILKESBORO AND NORTH WILKESBORO

1 INTRODUCTION

Kleinfelder, Inc. (Kleinfelder) has prepared this Preliminary Site Assessment (PSA) report to document assessment activities performed on Parcel 117 (the assessment area is hereafter referred to as the "Project Study Area"). The Project Study Area consists of the northwestern, southern, and eastern portions of two parcels that are within the right-of-way and/or easement on Wilkes County Tax Assessor's Office Parcel Numbers 2202113 & 2207614. Parcel 117 is currently occupied by an office building of Jerry Love Realtor. Parcel 117 is located along the eastern side of NC 115 (US 421 BUS AKA Statesville Road), north of Cedar Lane, in North Wilkesboro, Wilkes County, North Carolina (Figure 1).

Based on the information provided in the Pre-Scoping Comments letter, dated September 20, 2018, prepared by the North Carlina Department of Transportation (NCDOT), the parcel (listed as Site # 16 in the letter) was described as the site of an office building of Jerry Love Realtor, and reportedly may have been a former retail gasoline filling station until about 1993. The letter listed anticipated impacts as the possible presence of underground storage tanks (USTs) and petroleum impacted soil and/or groundwater. As such, the purpose of the PSA was to evaluate whether USTs are present in the Project Study Area and to observe for the presence of hydraulic lifts in one parcel building. The presence of USTs and/or hydraulic lifts may result in increased project costs and future liability if acquired by the NCDOT.

1.1 SITE DESCRIPTION

Parcel 117 has listed owners of Gregory Allen and Brenda Kay Stewart AKA Stuart, Brenda Anderson. The parcel's street address is 1055 Statesville Road. The parcel consists of an office building (Jerry Love Realtor) in the southern portion of the parcel and a garage building with two bay doors in the northeastern portion of the parcel, which respectively may have formerly

© 2021 Kleinfelder

supported a retail gasoline fueling station and an automotive service garage; also apparent were maintained grass areas and a mobile home in the central portion of the parcel, and a paved asphalt driveway, a residential home, and a private shed in the northwestern portion of the parcel.

The parcel is bounded by NC 115 to the south and to the west, beyond which are residential homes, a gray-painted cinderblock garage with two bay doors, and wooded land; by Cedar Lane to the east, beyond which are wooded lands and residential homes; by wooded land to the north, beyond which are residential homes; and by commercial land to the west associated with a restaurant (Ted's Famous Kickin' Chicken), beyond which are vacant, vegetated and wooded lands.

Photographs of the Project Study Area are provided in Appendix A.

1.2 SCOPE OF WORK

Kleinfelder conducted this PSA in accordance with the NCDOT's June 1, 2021, Request for Technical and Cost Proposal (RFP) and Kleinfelder's June 16, 2021, Technical and Cost Proposal. The NCDOT granted a formal Notice to Proceed on June 21, 2021.

© 2021 Kleinfelder

2 HISTORY

2.1 PARCEL USAGE

The 1.69-acre parcel consists of an office building (Jerry Love Realtor) in the southern portion of the parcel and a garage building with two bay doors in the northeastern portion of the parcel, which respectively may have formerly supported a retail gasoline fueling station and an automotive service garage; also apparent were maintained grass areas and a mobile home in the central portion of the parcel, and a paved asphalt driveway, a residential home, and a private shed in the northwestern portion of the parcel.

The September 20, 2018, Pre-Scoping Comments letter did not list a Facility ID Number associated with the property, but did identify that the site may have been a former retail gasoline fueling station until about 1993. The proposed NCDOT easement passes through a portion of the parcel that encompasses a portion of the current office building and suggests that the building may be demolished by NCDOT.

Kleinfelder conducted historical research to determine whether additional environmental listings were identified for Parcel 117. The following are the results of the additional research:

- Based on a review of historical aerial photographs using Google Earth Pro, the NCDOT Historical Aerial Imagery Index, and parcel tax records, the blue and white painted 1,244 square foot (ft^2) residential home in the northwestern portion of the parcel and the 480-ft^2 garage building with two bay doors along Cedar Lane in the northeastern portion of the parcel were both constructed in 1938. A 2,400- ft^2 asphalt driveway was added on the eastern side of the residential home in 1968. The gray-painted cinderblock building at the intersection of Statesville Road and Cedar Lane (i.e., the current office building of Jerry Love Realtor) was apparent in aerial imagery from March 1964, but the construction date was not listed in the property tax records. Historical imagery prior to 1964 was not available. The mobile home in the central portion of the parcel was established on-site in 1986.
- Kleinfelder searched the registered UST database, maintained by the NCDEQ. The site was not listed with a Facility ID Number.
- No other listings for Parcel 117 were identified on any of the available NCDEQ pollution incident databases.

© 2021 Kleinfelder

2.2 FACILITY ID NUMBERS

Kleinfelder reviewed the NCDEQ UST database for Parcel 117. The site was not listed with a Facility ID Number.

2.3 GROUNDWATER INCIDENT NUMBERS

No active groundwater incidents are known to be associated with Parcel 117 at this time.

© 2021 Kleinfelder

3 OBSERVATIONS

3.1 GROUNDWATER MONITORING WELLS

No active groundwater monitoring wells were observed on Parcel 117 at the time of site exploration, Thursday, August 5, 2021.

3.2 ACTIVE USTS

Based on review of the NCDEQ UST database, site visits and previous reports, there is one (1) probable UST along the northern side of the blue and white painted residential home in the northernmost portion of the Project Study Area. The probable UST is likely inactive, but this could not be confirmed at the time of site exploration, August 5, 2021. A photograph of the probable UST area is provided in Appendix A.

3.3 FEATURES APPARENT BEYOND THE PROJECT STUDY AREA

The Project Study Area consisted of the northwestern, southern, and eastern portions of two parcels within the NCDOT right-of-way or easement. An approximately 500-gallon aboveground storage tank (AST) was observed along the northern side of the blue and white painted residential home in the northernmost portion of the Project Study Area. The AST is located adjacent to a probable UST and stressed vegetation was observed. The AST may contain heating oil. A photograph of the AST is provided in Appendix A. A mobile home was also observed in the central portion of the parcel, northeast of the Project Study Area. A private shed was observed northeast of the Project Study Area at the end of the paved asphalt driveway for the residential home in the northern portion of the parcel.

3.4 INTERIOR OF THE GARAGE BUILDING

Kleinfelder was not able to observe the interior of the garage building on Parcel 117 to evaluate for the presence of in-ground hydraulic lifts, as Kleinfelder had not received entry authorization from the NCDOT Right of Way Agent by the time of site exploration, Thursday, August 5, 2021.

© 2021 Kleinfelder

4 METHODS

4.1 PROPERTY OWNER CONTACTS

As part of Kleinfelder's scope of work, the listed property owner was contacted about the work schedule for the field work and the type of work being performed. The owner did not express any concern or special conditions associated with the work being performed.

4.2 HEALTH AND SAFETY

Prior to commencing the field work, Kleinfelder personnel developed a Site-Specific Health and Safety Plan (HASP) covering activities to be performed. The site-specific HASP was discussed with all Kleinfelder personnel involved with the project and at a daily on-site "tail gate" safety meetings with subcontractors and sub consultants. In addition to the HASP, Kleinfelder utilized its comprehensive Corporate Health and Safety Program, targeted to address those specific and critical tasks that involve Kleinfelder personnel and subcontractors. The Loss Prevention System (LPS™), a behavior-based program, is Kleinfelder's company-wide safety system implemented and embraced by all levels of the company.

4.3 GEOPHYSICAL INVESTIGATION

Pyramid Environmental & Engineering, P.C (Pyramid) conducted a geophysical investigation in the Project Study Area between July 14 and 16, 2021. Pyramid utilized electromagnetic (EM) induction technology and ground penetrating radar (GPR) to locate potential geophysical anomalies and potential USTs within the Project Study Area.

A total of thirteen (13) EM anomalies were identified, of which eleven (11) were directly attributed to visible cultural features at the ground surface, including steel storm pipes, a sign, a mailbox, metal on the ground surface, buildings, an AST, a mobile home, an air conditioner, and metal doors. One (1) EM anomaly (listed as Metallic Anomaly #11 in the geophysical report) was attributed to suspected buried metallic debris in the eastern portion of the Project Study Area along Cedar Lane. One (1) EM anomaly (listed as Metallic Anomaly #6 in the geophysical report) was attributed to a probable UST along the northern side of the blue and white painted residential home in the northernmost portion of the Project Study Area. Probable UST #1 is approximately 8.5-ft long by 6-ft wide.

© 2021 Kleinfelder

A copy of the Pyramid Geophysical Investigation Report, detailing the field methodology, is included in Appendix B.

4.4 SOIL ASSESSMENT

The scope of work for the soil assessment was to evaluate the presence of soil contamination along the existing right-of-way and/or easement to evaluate whether known impact is present in this area and maybe migrating off-site. The soil borings were planned to be advanced to maximum depths of 10-feet below the ground surface (ft bgs) which is estimated to be one foot below the bottom of the tank. Field screening using a photoionization detector (PID) was conducted at 1-foot intervals beginning from the ground surface to total boring depth. The soil sample with the highest PID reading above background or the sample from the maximum drilled depth was selected for on-site laboratory analyses.

Prior to the drilling activities, public utilities were marked by NC One Call and private utilities were marked by Pyramid.

Kleinfelder subcontracted South Atlantic Environmental Drilling and Construction Company (SAEDACCO) to perform the drilling on-site on August 5, 2021. SAEDACCO advanced two (2) soil borings (P117-B1 and P117-B2) by direct-push technology at locations specified by Kleinfelder. The soil boring locations were identified in the field using a GPS. The borings were located within the right-of-way adjacent to the AST and Probable UST #1 in the northernmost portion of the Project Study Area. The soil boring locations are shown on Figure 2.

Soil samples were collected by driving Macro Core™ samplers in 5-foot intervals to boring termination where direct-push technology was applied. Each soil core was cut open, the soil samples were classified, and the soil divided into 1-foot sections. Each 1-foot section, collected via either method, was screened in the field using a PID. The PID readings are summarized in Table 1.

Soils from soil boring P117-B1 were determined to be primarily composed of red and yellowish-brown clayey silt from below the topsoil to about 5-ft bgs, and to be primarily composed of yellowish-brown and reddish-brown silt from 5-10-ft bgs. Soils from soil boring P117-B2 were determined to be primarily composed of white and yellowish-brown sand from below the topsoil to about 4-ft bgs, and to be primarily composed of yellowish-brown and reddish-brown silt from 4-

© 2021 Kleinfelder

10-ft bgs. Groundwater was not encountered in any of the borings at the termination depths of 10-ft bgs. Copies of the boring logs are included in Appendix C.

4.5 SOIL ANALYSIS

The PID readings from soil borings advanced were noted to be low, with a maximum of concentration of 10.4 parts per million (ppm) from soil boring P117-B2 at 2-ft bgs. Based on the PID data and visual observations, one or two of the samples from each boring were selected for on-site laboratory analysis.

Selected samples were analyzed by RED Lab, LLC utilizing ultraviolet fluorescence (UVF) methodology to provide real-time analytical results of Total Petroleum Hydrocarbons (TPH), Gasoline Range Organics (GRO), Diesel Range Organics (DRO), and benzene, toluene, ethylbenzene, and total xylenes (BTEX). The UVF method was selected because of the suspected historical or current use of petroleum products on Parcel 117. The UVF analysis also provided data regarding Environmental Protection Agency 16 total Polycyclic Aromatic Hydrocarbons (PAHs), and Benzo(a)pyrene (BaP).

© 2021 Kleinfelder

5 RESULTS

5.1 GEOPHYSICAL INVESTIGATION

The EM and GPR surveys did not identify unknown geophysical anomalies within the Project Study Area. One (1) probable UST was identified along the northern side of the blue and white painted residential home in the northernmost portion of the Project Study Area. Probable UST #1 is approximately 8.5-ft long by 6-ft wide.

5.2 SOIL SAMPLING DATA

The UVF analysis of soil samples did not indicate the presence of petroleum impact in any of the soil samples analyzed. As such, shallow soil impact does not appear to be present within the existing right-of-way above NCDEQ Action Levels. A summary of soil sample PID readings are presented in Table 1, and laboratory analytical results are presented in Table 2. The laboratory results associated with each boring are presented on Figure 2. The laboratory report and graphs are included in Appendix D.

5.3 SAMPLE OBSERVATIONS

Soils were observed for any obvious evidence of contamination. No visual or olfactory evidence of contamination was noted in any of the soil samples from the borings.

5.4 QUANTITY CALCULATIONS

Kleinfelder did not identify soil impact in the current right-of-way.

© 2021 Kleinfelder

6 CONCLUSIONS

Based on results of the EM/GPR survey, soil assessment and field observations, Kleinfelder has reached the following conclusions:

- The GPR and EM investigation did not identify unknown features. The GPR and EM investigation identified one (1) probable UST along the northern side of the blue and white painted residential home in the northernmost portion of the Project Study Area. Probable UST #1 is approximately 8.5-ft long by 6-ft wide.
- The site is not listed in the NCDEQ UST Database with a Facility ID Number. There is one (1) probable UST along the northern side of the blue and white painted residential home in the northernmost portion of the Project Study Area. The probable UST is likely inactive, but this could not be confirmed at the time of site exploration, August 5, 2021.
- An approximately 500-gallon AST that may contain heating oil was observed along the northern side of the blue and white painted residential home in the northernmost portion of the Project Study Area adjacent to Probable UST #1, with stressed vegetation noted at the time of site exploration, August 5, 2021.
- No soil impact was detected in borings advanced within the current right-of-way above the NCDEQ Action Levels for TPH GRO and DRO.
- Groundwater was not encountered in the soil borings at a depth of 10-ft bgs.
- Kleinfelder was not provided access to the interior of the garage building to observe for the presence of in-ground hydraulic lifts by the time of site exploration, Thursday, August 5, 2021. As such, the presence/absence of in-ground hydraulic lifts is unknown at this time.

© 2021 Kleinfelder

7 RECOMMENDATIONS

Based on results of this Preliminary Site Assessment completed with limiting conditions, Kleinfelder recommends no additional sampling or special handling of soils be performed within the Project Study Area on Parcel 117 in North Wilkesboro, Wilkes County, North Carolina.

© 2021 Kleinfelder

8 LIMITATIONS

Kleinfelder's work will be performed in a manner consistent with that level of care and skill ordinarily exercised by other members of its profession practicing in the same locality, under similar conditions and at the date the services are provided. Kleinfelder's conclusions, opinions and recommendations will be based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, Kleinfelder's clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface studies or field tests, should be performed to reduce uncertainties. Acceptance of this report will indicate that NCDOT has reviewed the document and determined that it does not need or want a greater level of service than provided.

During the course of the performance of Kleinfelder's services, hazardous materials may have been discovered. Kleinfelder assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Nothing contained in this report should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, or generator, or person who arranges for disposal, transport, storage or treatment of hazardous materials within the meaning of any governmental statute, regulation or order. NCDOT is solely responsible for directing notification of all governmental agencies, and the public at large, of the existence, release, treatment or disposal of any hazardous materials observed at the project site, either before or during performance of

© 2021 Kleinfelder

Kleinfelder's services. NCDOT is responsible for directing all arrangements to lawfully store, treat, recycle, dispose, or otherwise handle hazardous materials, including cuttings and samples resulting from Kleinfelder's services.

© 2021 Kleinfelder

TABLES

© 2021 Kleinfelder

Table 1: Soil Sample Screening Results

Date	Sample ID	Depth (ft)	PID Reading	Notes
8/5/2021	R-5759-P117-B1	1	1.1	
		2	2.4	
		3	3.1	
		4	4.6	
		5	3.5	
		6	5.0	
		7	6.3	UVF Analysis
		8	2.9	
		9	0.5	
		10	4.6	
8/5/2021	R-5759-P117-B2	1	5.1	
		2	10.4	UVF Analysis
		3	3.9	
		4	4.1	
		5	3.9	
		6	7.2	
		7	1.5	
		8	1.8	
		9	2.0	
		10	5.2	UVF Analysis

1) PID = Photoionization Detector
2) PID readings in parts per million (ppm)
3) NA = Not Analyzed
4) UVF = Ultraviolet Flourescence

TABLE 2: Soil Sample Analytical Summary

Parameter	Analytical Results			Comparison Criteria		
	Soil Sample Results					
Sample ID	P117-B1-7	P117-B2-2	P117-B2-10	State Action Level	Protection of Groundwater	Residential Health
PID Reading (ppm)	6.3	10.4	5.2			
Collection Depth (ft bgs)	7	2	10			
Collection Date	8/5/21	8/5/21	8/5/21			
UVF Method						
Diesel Range Organics	**0.16**	<0.12	<0.2	100	--	--
Gasoline Range Organics	<0.6	<0.3	<0.5	50	--	--

Notes:

Results displayed in milligrams per kilogram (mg/kg)
ft bgs = Feet below ground surface
Bold = Above Laboratory Detection Level
Highlighted concentrations exceed the NCDEQ action level
UVF = Ultraviolet Flouresence

FIGURES

© 2021 Kleinfelder

R-5759	FIGURE
PARCEL 117	1

SITE LOCATION

0 1500 3000

FEET

PARCEL 117 - GREGORY ALLEN & BRENDA KAY STEWART
1055 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NC

Kleinfelder
3200 Gateway Centre Blvd | Suite 100
Morrisville, NC 27560
License No. C-521
p | 919.755.5011 f | 919.755.1414

Drawn By: ARS	State Project: R-5759
Checked By: MJB	Date: September 15, 2021

NC GRID
NAD 83 NA 2011

P117

Call

R-5759	FIGURE
PARCEL 117	2

SITE PLAN

0 30 60

FEET

FILL WITH FLOWABLE FILL

-L- POT Sta. 127+89.90 =
-DRW7- POT Sta. 12+03.50

117*

GREGORY ALLEN AND
BRENDA KAY STUART
DB 1220 PG 211

N 39° 21' 49.6" E

50.00'

EXISTING R/W

30" C&G

15"RCP

18"CMP

INV=1089.17'

INV=1109.18'

10"CMP

36" CONC

84" CONC

24" R

REMOVE

REMOVE GR

EIP

CB-F

CB-E

CR

8' GR

GR

EXISTING EY15

P117-B2

P117-B1

163
162
164
167
169

LEGEND

P117-B1	SOIL BORING LOCATION
	PROPOSED RIGHT-OF-WAY
	PROPOSED DRAINAGE STRUCTURE
	PROPOSED EASEMENT
P117-B1-7	ID - DEPTH
UST	PROBABLE UST

PARCEL 117 - GREGORY ALLEN & BRENDA KAY STEWART
1055 STATESVILLE ROAD
NORTH WILKESBORO, WILKES COUNTY, NC

Kleinfelder
3200 Gateway Centre Blvd | Suite 100
Morrisville, NC 27560
License No. C-521

p | 919.755.5011 f | 919.755.1414

Drawn By: ARS	Date: September 8, 2021
Checked By: MJB	State Project: R-5759

SOIL ANALYTICAL RESULTS
(mg/kg)

ID	GRO	DRO
P117-B1-7	<0.60	0.16
P117-B2-2	<0.30	<0.12
P117-B2-10	<0.50	<0.20

NOTES:
1) All results reported in mg/kg
2) DRO = Diesel Range Organics
3) GRO = Gasoline Range Organics
4) Bold concentrations exceed the NCDEQ TPH Action Limit

APPENDIX A
SITE PHOTOGRAPHS

© 2021 Kleinfelder



View facing northwest from the southern corner of the Project Study Area, along NC 115 at the corner of NC 115 and Cedar Lane and depicting the office building of Jerry Love Realtor.



View facing northeast from the southern corer of the Project Study Area, along Cedar Lane at the intersection of Cedar Lane and NC 115.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: September 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 117, Gregory Allen and Brenda Kay Stewart AKA Stuart, Brenda Anderson 1055 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-1**



View facing west from the eastern portion of the Project Study Area, depicting the northeastern side of the gray-painted cinderblock building.



View facing northwest from the southern portion of the Project Study Area, west of the gray-painted cinderblock building and along NC 115.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: September 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 117, Gregory Allen and Brenda Kay Stewart AKA Stuart, Brenda Anderson 1055 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-2**



View facing southwest from the northeastern corner of the Project Study Area, depicting the garage with two bay doors located along Cedar Lane.



View facing southwest from the northeastern corner of the Project Study Area, along Cedar Lane.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: September 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 117, Gregory Allen and Brenda Kay Stewart AKA Stuart, Brenda Anderson 1055 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-3**



View facing north from the northeastern portion of the Project Study Area, depicting the garage with two bay doors located along Cedar Lane.



View facing northeast from the northeastern portion of the parcel, depicting the western side of the garage with two bay doors located along Cedar Lane.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: September 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 117, Gregory Allen and Brenda Kay Stewart AKA Stuart, Brenda Anderson 1055 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-4**



View facing southeast from the western portion of the Project Study Area, along NC 115.



View facing northeast from the northwestern portion of the Project Study Area, depicting a shed adjacent to the blue and white painted house along the northernmost portion of the parcel.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: September 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 117, Gregory Allen and Brenda Kay Stewart AKA Stuart, Brenda Anderson 1055 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-5**



View facing north from the northwestern portion of the Project Study Area, depicting the blue and white painted house along the northernmost portion of the parcel (1055 Statesville Road).



View facing east from the northwestern corner of the Project Study Area, depicting a 500-gallon AST (likely heating oil) along the northern side of the blue and white painted house in the northernmost portion of the parcel. One (1) probable heating oil UST adjacent to the AST was observed as part of the geophysical survey and was outlined with white spray paint.

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT NO:20221238.001A DRAWN: September 2021 DRAWN BY: EDA CHECKED BY: MB FILE NAME: Photo Pages	**SITE PHOTOGRAPHS** Preliminary Site Assessment Report R-5759 – Parcel 117, Gregory Allen and Brenda Kay Stewart AKA Stuart, Brenda Anderson 1055 & 2454 Statesville Road North Wilkesboro, Wilkes County, NC 28659	FIGURE **A-6**

APPENDIX B

GEOPHYSICAL SURVEY REPORT

© 2021 Kleinfelder

PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2021-190)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION:
PARCEL 117
NCDOT PROJECT U-5759

1055 & 2454 STATESVILLE ROAD, NORTH WILKESBORO, NC

August 6, 2021

Report prepared for: **Michael Burns, P.G.**
Kleinfelder, Inc.
3200 Gateway Centre Blvd., Suite 100
Morrisville, NC 27560

Prepared by: _____
Eric C. Cross, P.G.
NC License #2181

Reviewed by: _____
Douglas A. Canavello, 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 117 - 1055 & 2454 Statesville Road
North Wilkesboro, Wilkes County, North Carolina

Table of Contents

Executive Summary 1
Introduction 2
Field Methodology 2
Discussion of Results 3
Discussion of EM Results 3
Discussion of GPR Results 4
Summary & Conclusions 5
Limitations 6

Figures

Figure 1 – Parcel 117 - Geophysical Survey Boundaries and Site Photographs
Figure 2 – Parcel 117 - EM61 Metal Detection Contour Map
Figure 3 – Parcel 117 - GPR Transect Locations and Select Images
Figure 4 – Parcel 117 - Location and Size of One Probable UST
Figure 5 – Overlay of Metal Detection Results and One Probable UST 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 Environmental (Pyramid) conducted a geophysical investigation for Kleinfelder, Inc. at Parcel 117, located at 1055 & 2454 Statesville Road, in North Wilkesboro, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project U-5759). 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 July 14-20, 2021, 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. The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR was performed 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 buried debris.

A probable UST was identified next to the aboveground storage tank (AST) on the northwest side of the westernmost house. Probable UST #1 is approximately 8.5 feet long by 6 feet wide. Collectively, the geophysical data recorded evidence of one probable UST at Parcel 117.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Kleinfelder, Inc. at Parcel 117, located at 1055 & 2454 Statesville Road, in North Wilkesboro, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project U-5759). 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 July 14-20, 2021, 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 house, a mobile home, a garage, and a commercial building, surrounded by asphalt 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 July 20, 2021, using a Geophysical Survey Systems, Inc. (GSSI) SIR 4000 control unit coupled to 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 DF 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	Steel Storm Pipe	
2	Sign	
3	Steel Storm Pipe	
4	Mailbox	
5	Metal on Ground Surface	
6	Building/AST/**One Probable UST**	✓
7	Building	✓
8	Mobile Home	✓
9	Air Conditioner	
10	Building/Metal Door	✓
11	Suspected Buried Metallic Debris	✓
12	Building/Metal Door	✓
13	Metal on Ground Surface	

The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface, including steel storm pipes, a sign, a mailbox, metal on the ground surface, buildings, an AST, a mobile home, an air conditioner, and metal doors. EM Anomalies 6 and 11 were investigated with GPR to examine whether the anomalies were the result of significant structures such as a USTs. GPR was also performed around areas of significant metallic interference to confirm that the metallic 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 nine formal GPR transects were performed at the site.

GPR Transects 2 and 3 were performed across EM Anomaly 11. These transects showed shallow reflectors consistent with suspected buried metallic debris. No evidence of significant structures such as USTs was observed.

GPR Transects 3-9 were performed across the areas of significant metallic interference. GPR Transects 8 and 9 were performed next to the AST on the northwest side of the westernmost house. These transects showed a large, high-amplitude lateral reflector and a large, high-amplitude hyperbolic reflector consistent with a UST. Probable UST #1 is approximately 8.5 feet long by 6 feet wide. **Figure 4** provides the location and size of the probable UST, overlain on an aerial, along with ground-level photographs. The remaining transects showed evidence of possible buried utilities and/or debris.

Collectively, the geophysical data recorded evidence of one probable UST at Parcel 117. **Figure 5** provides an overlay of the metal detection results and one probable UST on the NCDOT engineering plans for reference.

SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 and GPR data collected at Parcel 117 in North Wilkesboro, 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.
- GPR was performed 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 buried debris.
- A probable UST was identified next to the AST on the northwest side of the westernmost house. Probable UST #1 is approximately 8.5 feet long by 6 feet wide.
- Collectively, the geophysical data recorded evidence of one probable UST at Parcel 117.

LIMITATIONS

Geophysical surveys have been performed and this report was prepared for Kleinfelder, Inc. 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 Northwest)



View of Survey Area (Facing Approximately Northeast)

N

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

PROJECT	PARCEL 117 NORTH WILKESBORO, NORTH CAROLINA NCDOT PROJECT U-5759
TITLE	PARCEL 117 - GEOPHYSICAL SURVEY BOUNDARIES AND SITE PHOTOGRAPHS
DATE	7/19/2021
CLIENT	Kleinfelder
PYRAMID PROJECT #:	2021-190
	FIGURE 1

EM61 METAL DETECTION RESULTS



EVIDENCE OF ONE PROBABLE METALLIC UST 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 July 14, 2021, using a Geonics EM61-MK2 instrument. Verification GPR data were collected using a GSSI SIR 4000 instrument with a 350 MHz HS antenna on July 20, 2021.

EM61 Metal Detection Response (millivolts)



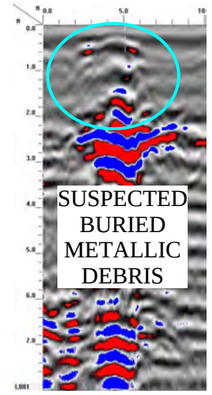
N

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

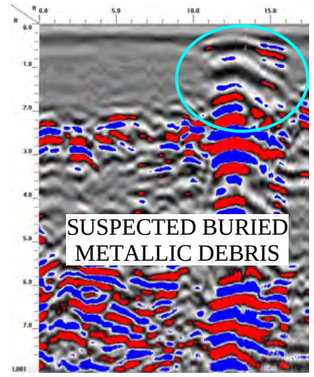
PROJECT	PARCEL 117 NORTH WILKESBORO, NORTH CAROLINA NCDOT PROJECT U-5759	TITLE	PARCEL 117 - EM61 METAL DETECTION CONTOUR MAP
DATE	7/19/2021	CLIENT	Kleinfelder
PYRAMID PROJECT #:	2021-190		**FIGURE 2**

GPR TRANSECT LOCATIONS

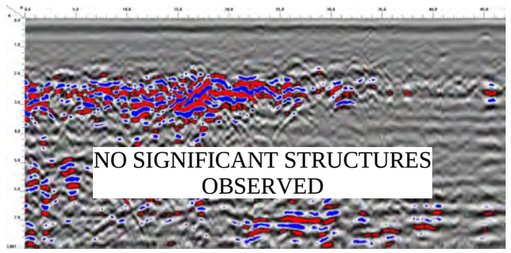




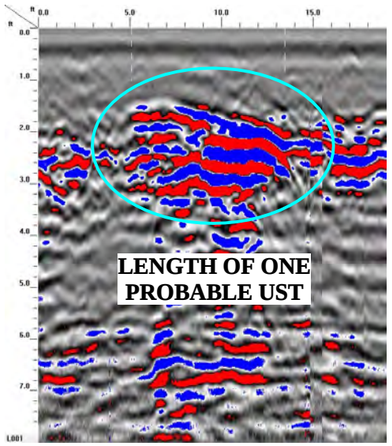
GPR TRANSECT 2 (T2)



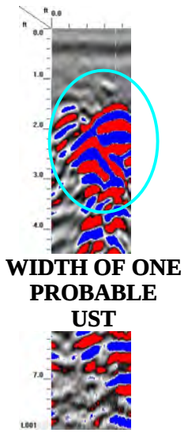
GPR TRANSECT 3 (T3)



GPR TRANSECT 6 (T6)



GPR TRANSECT 8 (T8)



GPR TRANSECT 9 (T9)

N

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

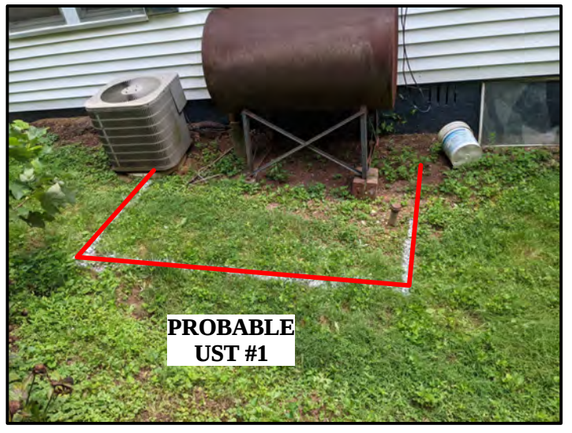
PROJECT	PARCEL 117 NORTH WILKESBORO, NORTH CAROLINA NCDOT PROJECT U-5759	DATE	7/19/2021
TITLE	PARCEL 117 - GPR TRANSECT LOCATIONS AND SELECT IMAGES	CLIENT	Kleinfelder
		PYRAMID PROJECT #:	2021-190
			FIGURE 3

LOCATION OF ONE PROBABLE UST





View of One Probable UST
(Facing Approximately North)

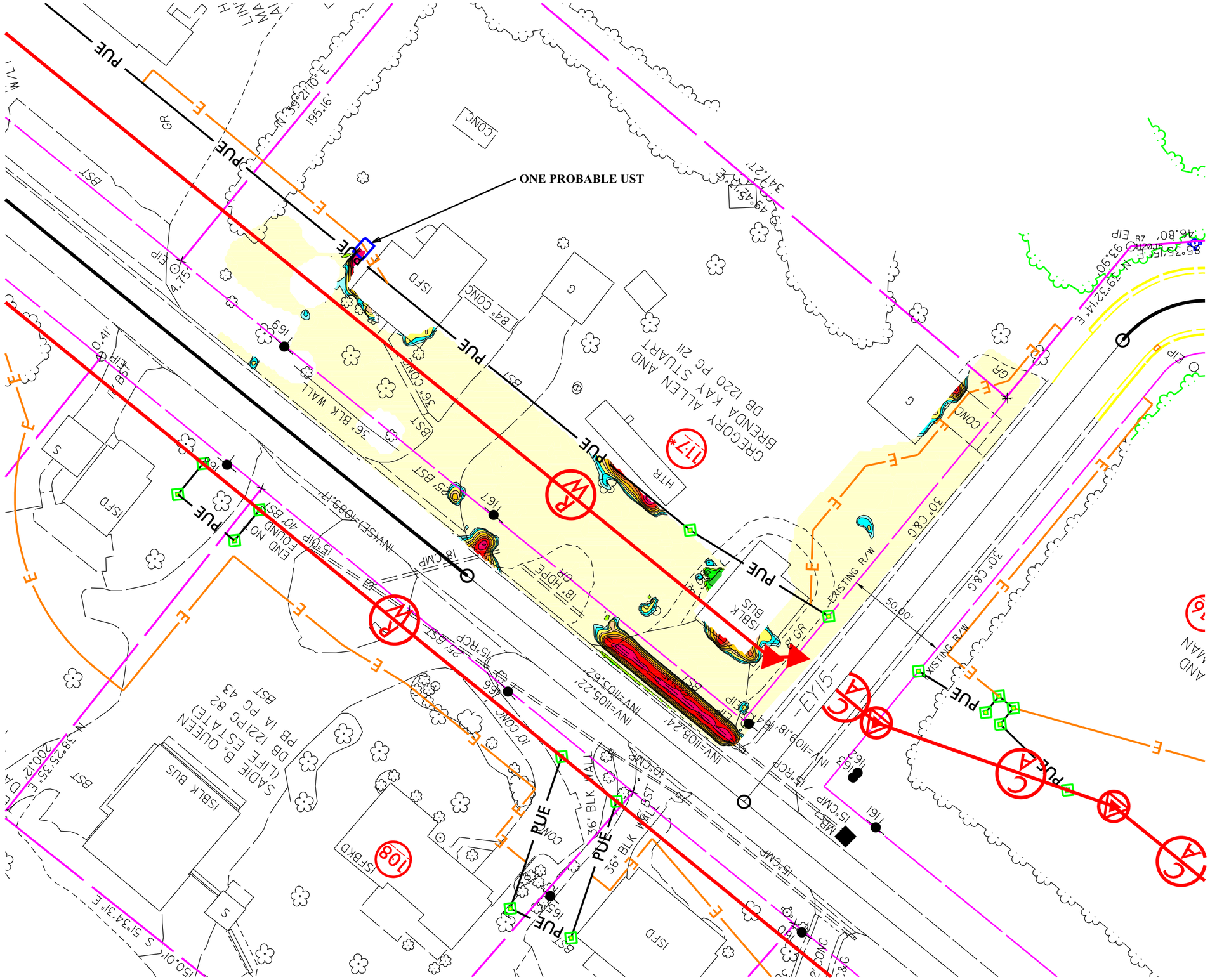


View of One Probable UST
(Facing Approximately East)

N

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

PROJECT	PARCEL 117 NORTH WILKESBORO, NORTH CAROLINA NCDOT PROJECT U-5759	TITLE	PARCEL 117 - LOCATION AND SIZE OF ONE PROBABLE UST	DATE	7/19/2021
				PYRAMID PROJECT #:	2021-190
CLIENT	Kleinfelder				
FIGURE 4					



LEGEND

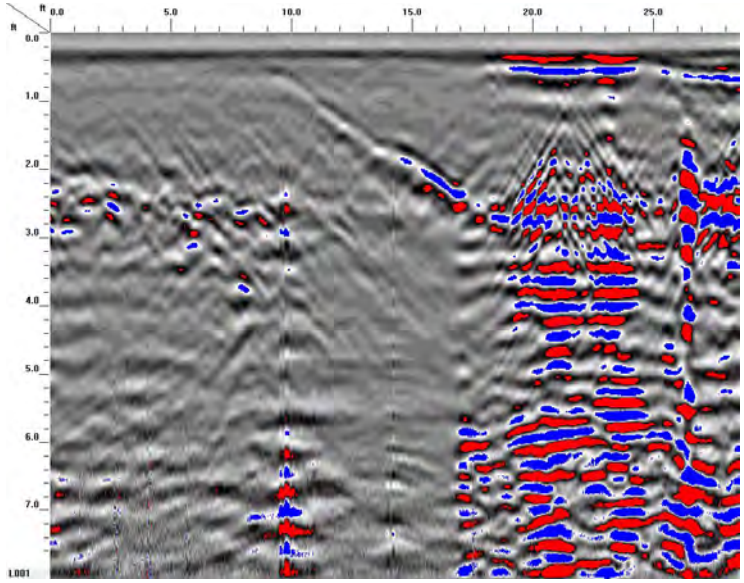
- EXISTING ROW
- EXISTING PROPERTY BOUNDARY
- PROPOSED ROW LINE
- E — TEMPORARY CONSTRUCTION EASEMENT
- PUE — PROPOSED PERMANENT UTILITY
- PROPOSED SS CUT LINE
- PROPOSED SS FILL LINE
- PROBABLE UST

EM61 Metal Detection Response (millivolts)

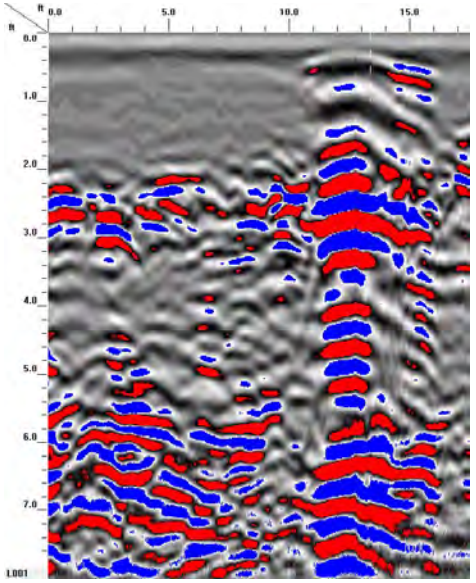
1000 750 500 400 300 200 150 100 75 60 50 40 30 -90 -100 -200 -400 -5000

TITLE	OVERLAY OF METAL DETECTION RESULTS AND ONE PROBABLE UST ON NCDOT ENGINEERING PLANS
PROJECT	PARCEL 117 WILKESBORO, NORTH CAROLINA NCDOT PROJECT R-5759
PYRAMID GEOPHYSICS	503 INDUSTRIAL AVENUE GREENSBORO, NC 27406 336.335.3174 (p) 336.691.0648 (f) License # C1251 Eng. / #C257 Geology
DATE: 8-9-2021	REVISION NO. 0
PYRAMID PROJECT NO. 2021-190	FIGURE NO. 5

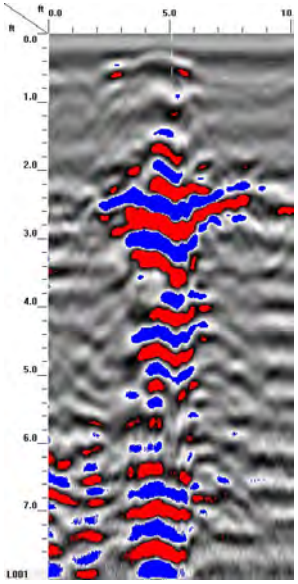
Appendix A – GPR Transect Images



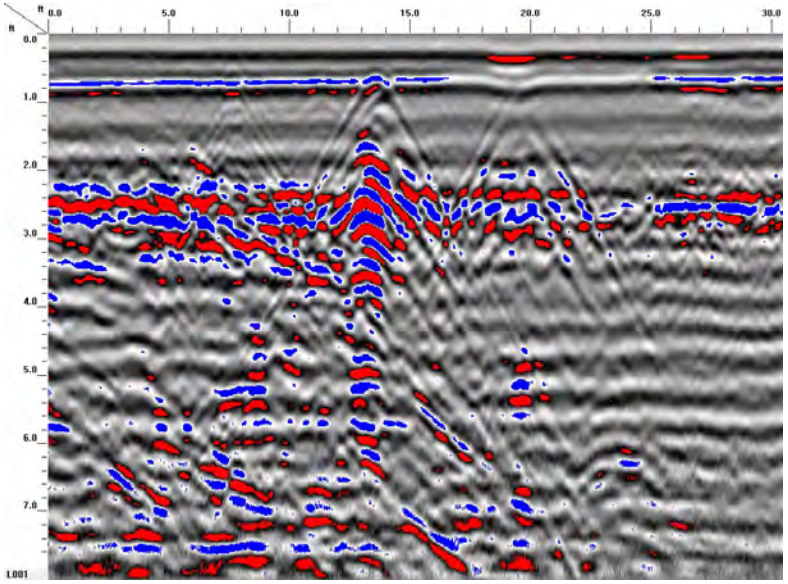
GPR TRANSECT 1



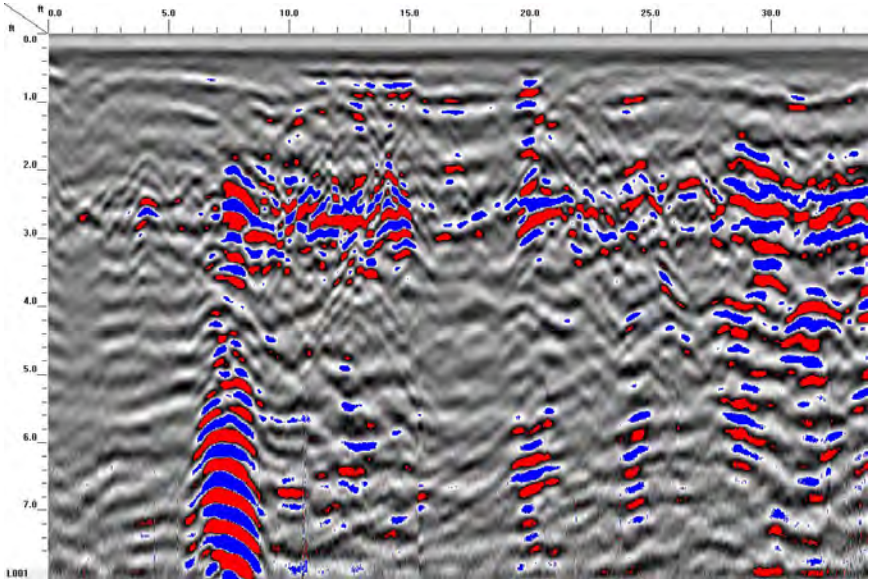
GPR TRANSECT 3



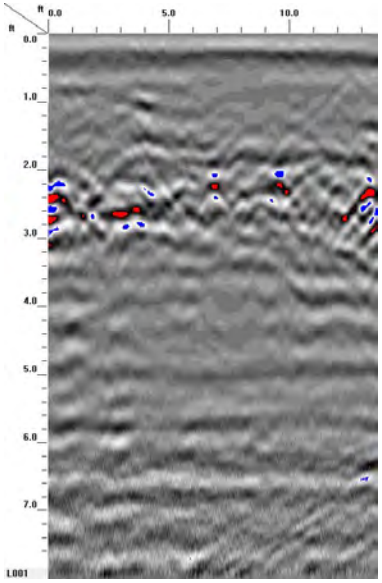
GPR TRANSECT 2



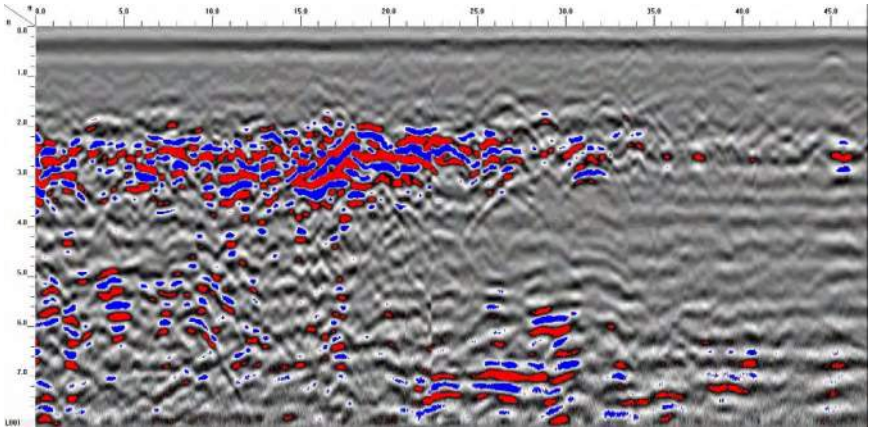
GPR TRANSECT 4



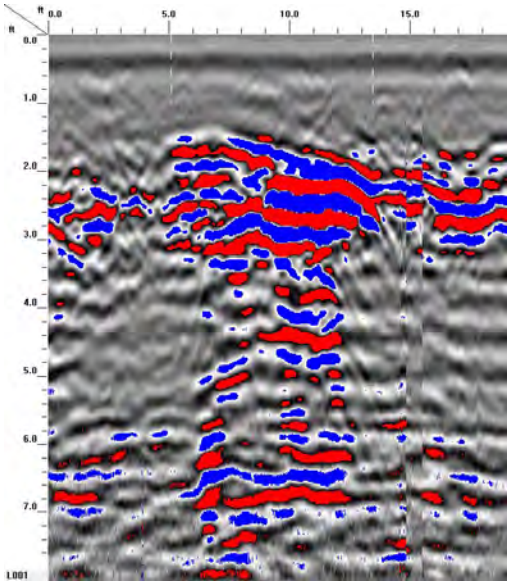
GPR TRANSECT 5



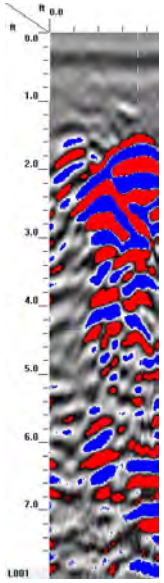
GPR TRANSECT 7



GPR TRANSECT 6



GPR TRANSECT 8



GPR TRANSECT 9

APPENDIX C

BORING LOGS

© 2021 Kleinfelder

PLOTTED: 08/13/2021 11:52 AM BY: EAmber

ENVIRONMENTAL BORING LOG P117-B1

Date Begin - End:	8/05/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	SUNNY	**Bore Diameter:**	

FIELD EXPLORATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Surface Condition: Grass & Weeds / Lithologic Description
							TOPSOIL: brown
					1.1		**Clayey SILT**: red and yellowish brown
					2.4		
					3.1		
					4.6		
					3.5		
5	Geoprobe						**SILT**: yellowish brown and reddish brown
					5.0		
					6.3		
					2.9		
					0.5		
					4.6		
10							

The borehole was terminated at approximately 10 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221238.001A
DRAWN BY: EA
CHECKED BY: MJB
DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P117-B1

NCDOT R-5759 PSAs
North Wilkesboro, NC

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
PROJECT NUMBER: 20221238.001A
OFFICE FILTER: RALEIGH

PLOTTED: 08/13/2021 11:52 AM BY: EAmber

ENVIRONMENTAL BORING LOG P117-B2

Date Begin - End:	8/05/2021	**Drilling Company:**	SAEDACCO
Logged By:	E. AMBER	**Drill Crew:**	S. HUNT
Hor.-Vert. Datum:	Not Available	**Drilling Equipment:**	6620DT GeoProbe
Plunge:	-90 degrees	**Drilling Method:**	See Drilling Method Column
Weather:	SUNNY	**Bore Diameter:**	

FIELD EXPLORATION

Depth (feet)	Drilling Method	Sample Type	Sample Number	Recovery (NR=No Recovery)	PID / FID (ppmv)	Graphical Log	Surface Condition: Grass & Weeds / Lithologic Description
							TOPSOIL: brown
					5.1		**SAND**: white and yellowish brown
					10.4		
					3.9		
					4.1		
5	Geoprobe				3.9		**SILT**: yellowish brown and reddish brown
					7.2		
					1.5		
					1.8		
					2.0		
					5.2		
10							

The borehole was terminated at approximately 10 ft. below ground surface.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
The environmental boring was backfilled with bentonite.

KLEINFELDER
Bright People. Right Solutions.

PROJECT NO.: 20221238.001A
DRAWN BY: EA
CHECKED BY: MJB
DATE: 8/12/2021

ENVIRONMENTAL BORING LOG
P117-B2

NCDOT R-5759 PSAs
North Wilkesboro, NC

gINT FILE: Klf_gint_master_2022
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2022.GLB [KLF_ENVIRONMENTAL LOG]
PROJECT NUMBER: 20221238.001A
OFFICE FILTER: RALEIGH

APPENDIX D

ANALYTICAL REPORT AND GRAPHS

© 2021 Kleinfelder

Hydrocarbon Analysis Results

QED

Client: KLEINFELDER

Address:

REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Samples taken Thursday, August 5, 2021

Samples extracted Thursday, August 5, 2021

Samples analysed Thursday, August 5, 2021

Contact: ABI SHURTLEFF

Operator MAX MOYER

Project: R-5759 ; PARCEL 117

T03308

Matrix	Sample ID	Dilution used	BTEX C6-C9	GRO C5-C10	DRO C10-C35	TPH C5-C35	Total Aromatics C10-C35	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
										C5:10	C10:C 18	C18+	
Soil	B1 - 7	25.0	<0.6	<0.6	0.16	0.16	0.14	0.015	<0.008	0	91.9	8.1	Residual HC
Soil	B2 - 2	12.0	<0.3	<0.3	<0.12	0.008	0.008	0.001	<0.004	0	100	0	Residual HC
Soil	B2 - 10	20.0	<0.5	<0.5	<0.2	0.022	0.022	0.001	<0.006	0	52.8	47.2	Residual HC

Initial Calibrator QC check OK

Final FCM QC Check OK 97.5%

Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**

QED Hydrocarbon Fingerprints

Project: R-5759 ; PARCEL 117 ##################

