



September 20, 2021  
Kleinfelder File No. RAL21R130655

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 121, Randy V. and Sandra J. Bell AKA Parker, James L  
WBS Element No. 44691.1.1, TIP No. R-5759  
Proposed widening of NC 115 from US 421 to 2<sup>nd</sup> 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

R-5759-P121  
20221238.001A | RAL21R130655  
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909 Statesville Road  
September 20, 2021  
[www.kleinfelder.com](http://www.kleinfelder.com)



**PRELIMINARY SITE ASSESSMENT REPORT  
PARCEL 121, RANDY V. AND SANDRA J. BELL AKA PARKER,  
JAMES L  
PIN 1402990  
909 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 2<sup>ND</sup>  
STREET IN WILKESBORO AND NORTH WILKESBORO**

**KLEINFELDER PROJECT NO. 20221238.001A**

**SEPTEMBER 20, 2021**

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**909 Statesville Road  
September 20, 2021  
[www.kleinfelder.com](http://www.kleinfelder.com)**

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

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**PROPOSED WIDENING OF NC 115 FROM US 421 TO 2<sup>ND</sup> STREET IN WILKESBORO AND**  
**NORTH WILKESBORO**

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September 20, 2021

Kleinfelder Project No. 20221238.001A

## PRELIMINARY SITE ASSESSMENT REPORT

**Site Name and Location:** Parcel 121  
909 Statesville Road  
North Wilkesboro, Wilkes County, North Carolina

**Latitude and Longitude:** 36.16203°N, -81.12496°W

**County Parcel Number** 1402990

**Facility ID Number:** N/A

**Leaking UST Incident:** N/A

**State Project No.:** R-5759

**NCDOT Project No.:** NCDOT WBS Element 44691.1.1

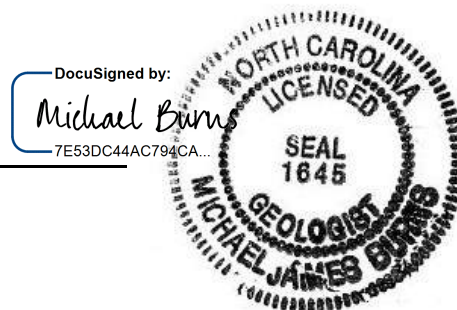
**Description:** Proposed widening of NC 115 from US 421 to 2<sup>nd</sup> Street in Wilkesboro and North Wilkesboro

**Date of Report:** September 20, 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.



Michael J Burns, LG  
NC License No. 1645

## TABLE OF CONTENTS

|          |                                                           |           |
|----------|-----------------------------------------------------------|-----------|
| <b>1</b> | <b>INTRODUCTION .....</b>                                 | <b>4</b>  |
|          | 1.1 SITE DESCRIPTION .....                                | 4         |
|          | 1.2 SCOPE OF WORK .....                                   | 5         |
| <b>2</b> | <b>HISTORY .....</b>                                      | <b>6</b>  |
|          | 2.1 PARCEL USAGE .....                                    | 6         |
|          | 2.2 FACILITY ID NUMBERS .....                             | 7         |
|          | 2.3 GROUNDWATER INCIDENT NUMBERS .....                    | 7         |
| <b>3</b> | <b>OBSERVATIONS .....</b>                                 | <b>8</b>  |
|          | 3.1 GROUNDWATER MONITORING WELLS .....                    | 8         |
|          | 3.2 ACTIVE USTS .....                                     | 8         |
|          | 3.3 FEATURES APPARENT BEYOND THE PROJECT STUDY AREA ..... | 8         |
| <b>4</b> | <b>METHODS .....</b>                                      | <b>9</b>  |
|          | 4.1 PROPERTY OWNER CONTACTS .....                         | 9         |
|          | 4.2 HEALTH AND SAFETY .....                               | 9         |
|          | 4.3 GEOPHYSICAL INVESTIGATION .....                       | 9         |
| <b>5</b> | <b>RESULTS .....</b>                                      | <b>10</b> |
|          | 5.1 GEOPHYSICAL INVESTIGATION .....                       | 10        |
| <b>6</b> | <b>CONCLUSIONS .....</b>                                  | <b>11</b> |
| <b>7</b> | <b>RECOMMENDATIONS .....</b>                              | <b>12</b> |
| <b>8</b> | <b>LIMITATIONS .....</b>                                  | <b>13</b> |

### FIGURES

- 1 Site Location
- 2 Site Plan

### APPENDICES

- A Site Photographs
- B Geophysical Survey Report

**PRELIMINARY SITE ASSESSMENT REPORT  
PARCEL 121, RANDY V. AND SANDRA J. BELL AKA PARKER, JAMES L  
PIN 1402990  
909 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 2<sup>ND</sup> 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 121 (the assessment area is hereafter referred to as the "Project Study Area"). The Project Study Area consists of the western and eastern portions of a parcel that are within the right-of-way and/or easement on Wilkes County Tax Assessor's Office Parcel Number 1402990. Parcel 121 is currently occupied by an office building/shop for an electrical services business. Parcel 121 is located along the eastern side of NC 115 (US 421 BUS AKA Statesville Road), north of Eastover Road, in North Wilkesboro, Wilkes County, North Carolina (Figure 1).

Information regarding Parcel 121 was not provided in the Pre-Scoping Comments letter, dated September 20, 2018, prepared by the North Carolina Department of Transportation (NCDOT). Kleinfelder's Technical and Cost Proposal, dated June 16, 2021, identified the site as the location of an office building for an electrical services business consisting of a painted cinder block building with one bay door. As such, the purpose of the PSA was to: (A) conduct a geophysical survey to evaluate for the presence of underground storage tanks (USTs), magnetic anomalies, and/or buried debris within the Project Study Area; and to (B) recommend additional assessments to the NCDOT if the geophysical survey identified conditions that may warrant further environmental investigation on Parcel 121.

### **1.1 SITE DESCRIPTION**

Parcel 121 has listed owners of Randy V. and Sandra J. Bell AKA Parker, James L. The parcel's street address is 909 Statesville Road. The parcel consists of a gray-painted cinder block office building with one bay door for an electrical services business (Rick's Electrical Service, Inc.) in the northern portion of the parcel, an equipment storage area and canopy along the eastern side of the office building, a paved asphalt and gravel fill parking area in the northern and western

portions of the parcel, and maintained grass areas in the southern and eastern portions of the parcel.

The parcel is bounded by NC 115 to the west, beyond which is wooded land, Highland Drive, and residential homes; by Eastover Drive to the south, beyond which is wooded land and a restaurant (Ted's Famous Kickin' Chicken); and by wooded land to the east and to the north, beyond which are residential homes.

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.

## 2 HISTORY

---

### 2.1 PARCEL USAGE

The 0.3-acre parcel consists of a gray-painted cinder block office building with one bay door for an electrical services business (Rick's Electrical Service, Inc.) in the northern portion of the parcel, an equipment storage area and canopy along the eastern side of the office building, a paved asphalt and gravel fill parking area in the northern and western portions of the parcel, and maintained grass areas in the southern and eastern portions of the parcel.

The September 20, 2018 Pre-Scoping Comments letter did not provide information regarding Parcel 121. The proposed NCDOT easement passes through the eastern and western portions of the parcel and does not include the office building or the adjacent equipment storage area and canopy.

Kleinfelder conducted historical research to determine whether additional environmental listings were identified for Parcel 121. 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 Wilkes County parcel tax records, the 1,300 square foot (ft<sup>2</sup>) office building (listed as a “warehouse” in county tax records) and the 1,584-ft<sup>2</sup> canopy structure were on-site since at least 1959, although the exact dates of construction were not listed. A chain link fence was added to the property in 1975 around a 750-ft<sup>2</sup> area encompassing a portion of the apparent current equipment storage area underneath of the canopy structure. Historical imagery was not available prior to 1959.
- Deed ownership of the parcel was transferred from J.C. and Ollie B. Wilcox to Thurmand Y. and Jewell A. Brown on October 25, 1984, and from Jewell A. Brown to James L. Parker on August 16, 2016. Kleinfelder did not identify any restrictions associated with the deed ownership. There were no available online records of alternative heating sources or USTs associated with the property.
- Kleinfelder searched the register UST database, maintained by the NCDEQ. The site was not listed with a Facility ID Number.
- No other listings for Parcel 121 were identified on any of the available NCDEQ pollution incident databases.

## 2.2 FACILITY ID NUMBERS

Kleinfelder reviewed the NCDEQ UST database for Parcel 121. 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 121 at this time.

### 3 OBSERVATIONS

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#### 3.1 GROUNDWATER MONITORING WELLS

No active groundwater monitoring wells were observed on Parcel 121 at the time of site exploration, Wednesday, July 14, 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.

#### 3.3 FEATURES APPARENT BEYOND THE PROJECT STUDY AREA

The Project Study Area consisted of the western and eastern portions of the parcel within the NCDOT right-of-way or easement. The office building/shop with one bay door, located in the northern portion of the parcel, is outside of the Project Study Area. Floor drains were observed in front of the bay door on the western side of the building facing NC 115. Adjacent to the eastern side of the building, outside of the Project Study Area, an apparent equipment storage area and canopy structure was observed. No other features of concern were observed outside of the Project Study Area at the time of site exploration, Wednesday, July 14, 2021. Photographs of features outside of the Project Study Area are included in Appendix A.

## 4 METHODS

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### 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, including steel storm pipes, drop inlets, a metal door, a mailbox, a guardrail, a building, metal debris on the ground surface, and a fence.

One (1) EM anomaly (listed as Metallic Anomaly #3 in the geophysical report) was attributed to suspected buried metallic debris underneath of the paved asphalt and gravel fill parking area in the western portion of the Project Study Area. One (1) EM anomaly (listed as Metallic Anomaly #5 in the geophysical report) was attributed to a building and suspected buried utilities and/or debris in the western portion of the Project Study Area northwest of the northwestern corner of the office building.

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

## 5 RESULTS

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### 5.1 GEOPHYSICAL INVESTIGATION

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

## 6 CONCLUSIONS

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Based on results of the EM/GPR survey 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 121 at the time of site exploration, July 14, 2021.
- No other features of concern were observed at the time of site exploration, July 14, 2021.
- Kleinfelder did not identify conditions or records that would warrant further environmental investigation on Parcel 121.

## 7 RECOMMENDATIONS

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Based on results of this Preliminary Site Assessment completed, Kleinfelder recommends no additional sampling or special handling of soils be performed within the Project Study Area on Parcel 121 in North Wilkesboro, Wilkes County, North Carolina.

## 8 LIMITATIONS

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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.

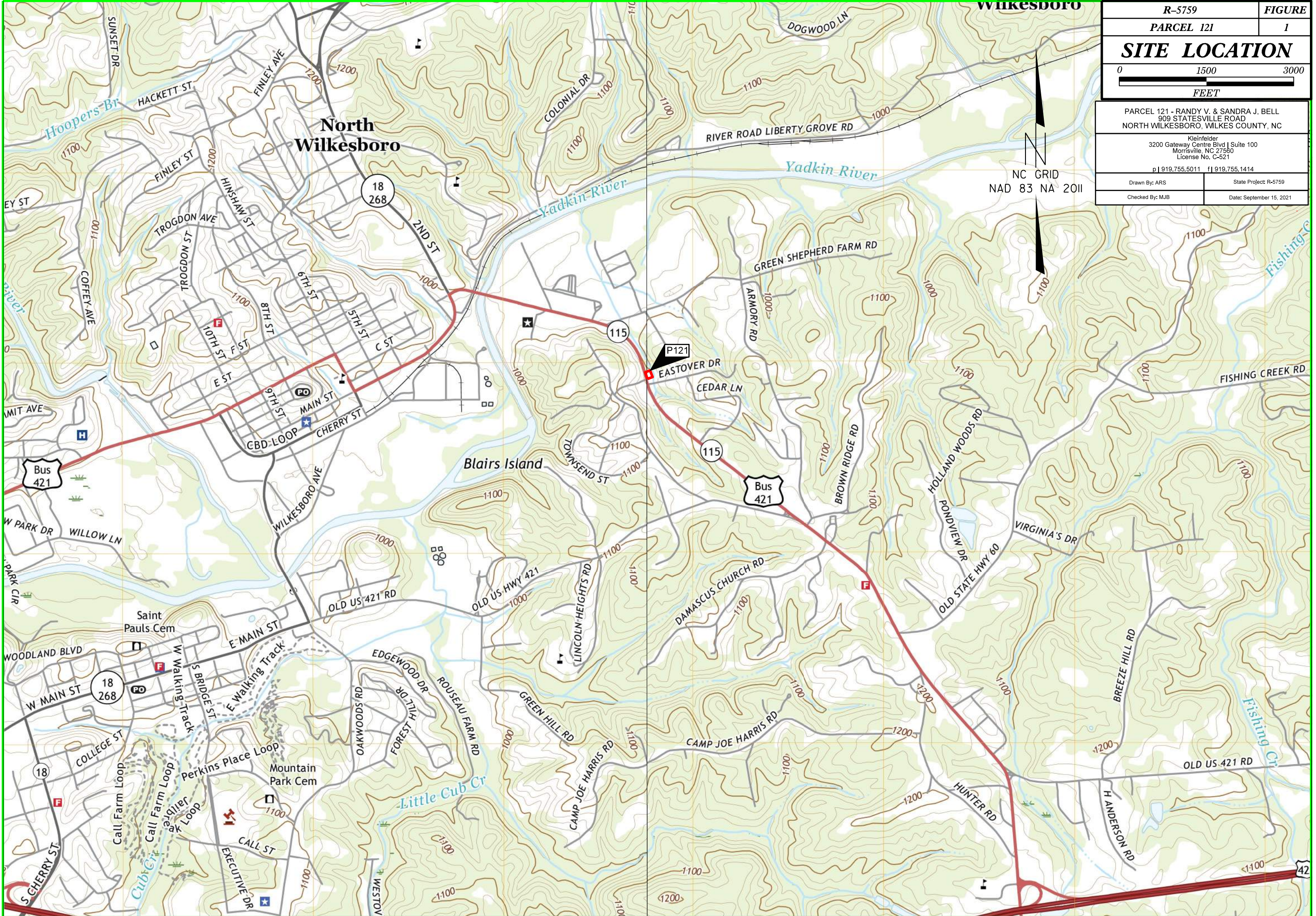
Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations 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,

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

## FIGURES

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| R-5759                                                                                                                                 |                          | FIGURE |
|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------|
| PARCEL 121                                                                                                                             |                          | 1      |
| <b>SITE LOCATION</b>                                                                                                                   |                          |        |
| 0 1500 3000<br>FEET                                                                                                                    |                          |        |
| PARCEL 121 - RANDY V. & SANDRA J. BELL<br>909 STATESVILLE ROAD<br>NORTH WILKESBORO, WILKES COUNTY, NC                                  |                          |        |
| Kleinfelder<br>3200 Gateway Centre Blvd   Suite 100<br>Morrisville, NC 27560<br>License No. C-521<br>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

PARCEL 121 - JAMES L. PARKER  
909 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 16, 2021

Checked By: MJB

State Project: R-5759

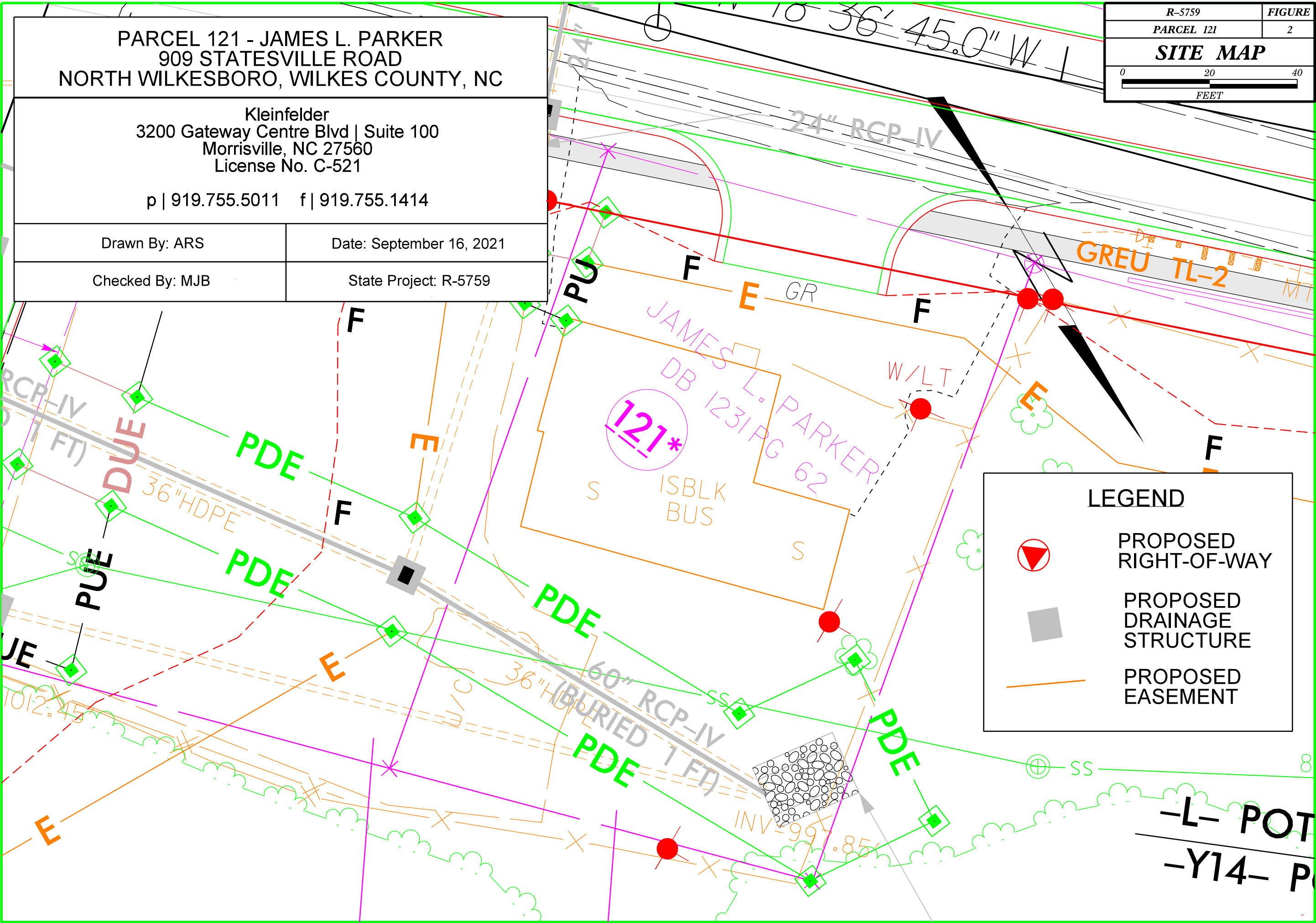
R-5759

FIGURE

PARCEL 121

2

**SITE MAP**



## APPENDIX A

### SITE PHOTOGRAPHS

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



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

*Original in Color*

|                                                                                                                                                                                                                               |                           |                                                                                                                                                                                    |                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
|  <div><b>KLEINFELDER</b><br/><i>Bright People. Right Solutions.</i><br/><a href="http://www.kleinfelder.com">www.kleinfelder.com</a></div> | PROJECT NO:20221238.001A  | <b>SITE PHOTOGRAPHS</b>                                                                                                                                                            | <b>FIGURE</b><br><br><b>A-1</b> |
|                                                                                                                                                                                                                               | DRAWN: September 2021     |                                                                                                                                                                                    |                                 |
|                                                                                                                                                                                                                               | DRAWN BY: EDA             | Preliminary Site Assessment Report<br>R-5759 – Parcel 121, Randy V. and Sandra J.<br>Bell AKA Parker, James L<br>909 Statesville Road<br>North Wilkesboro, Wilkes County, NC 28659 |                                 |
|                                                                                                                                                                                                                               | CHECKED BY: MB            |                                                                                                                                                                                    |                                 |
|                                                                                                                                                                                                                               | FILE NAME:<br>Photo Pages |                                                                                                                                                                                    |                                 |



View facing northeast from the southwestern corner of the Project Study Area along NC 115.



Floor drains in front of the bay door on the western side of the building facing NC 115.

*Original in Color*

|                                                                                                                                                                                                                               |                           |                                                                                                                                                                                    |                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
|  <div><b>KLEINFELDER</b><br/><i>Bright People. Right Solutions.</i><br/><a href="http://www.kleinfelder.com">www.kleinfelder.com</a></div> | PROJECT NO:20221238.001A  | <b>SITE PHOTOGRAPHS</b>                                                                                                                                                            | <b>FIGURE</b><br><br><b>A-2</b> |
|                                                                                                                                                                                                                               | DRAWN: September 2021     |                                                                                                                                                                                    |                                 |
|                                                                                                                                                                                                                               | DRAWN BY: EDA             | Preliminary Site Assessment Report<br>R-5759 – Parcel 121, Randy V. and Sandra J.<br>Bell AKA Parker, James L<br>909 Statesville Road<br>North Wilkesboro, Wilkes County, NC 28659 |                                 |
|                                                                                                                                                                                                                               | CHECKED BY: MB            |                                                                                                                                                                                    |                                 |
|                                                                                                                                                                                                                               | FILE NAME:<br>Photo Pages |                                                                                                                                                                                    |                                 |



View facing north from the eastern portion of the Project Study Area, depicting the equipment storage area located along the eastern side of the building and outside of the Project Study Area.

*Original in Color*

|                                                                                                                                                                                  |                           |                                                                                                                                                                                    |                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
|  <p><b>KLEINFELDER</b><br/><i>Bright People. Right Solutions.</i><br/>www.kleinfelder.com</p> | PROJECT NO:20221238.001A  | <b>SITE PHOTOGRAPHS</b>                                                                                                                                                            | <b>FIGURE</b><br><br><b>A-3</b> |
|                                                                                                                                                                                  | DRAWN: September 2021     |                                                                                                                                                                                    |                                 |
|                                                                                                                                                                                  | DRAWN BY: EDA             | Preliminary Site Assessment Report<br>R-5759 – Parcel 121, Randy V. and Sandra J.<br>Bell AKA Parker, James L<br>909 Statesville Road<br>North Wilkesboro, Wilkes County, NC 28659 |                                 |
|                                                                                                                                                                                  | CHECKED BY: MB            |                                                                                                                                                                                    |                                 |
|                                                                                                                                                                                  | FILE NAME:<br>Photo Pages |                                                                                                                                                                                    |                                 |

**APPENDIX B**  
**GEOPHYSICAL SURVEY REPORT**

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PYRAMID GEOPHYSICAL SERVICES  
(PROJECT 2021-190)

# GEOPHYSICAL SURVEY

---

## METALLIC UST INVESTIGATION: PARCEL 121 NCDOT PROJECT U-5759

909 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: \_\_\_\_\_

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

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

Reviewed by: \_\_\_\_\_

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

Douglas A. Canavella, P.G.  
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C257: GEOLOGY

C1251: ENGINEERING

**GEOPHYSICAL INVESTIGATION REPORT**  
**Parcel 121 - 909 Statesville Road**  
**North Wilkesboro, Wilkes County, North Carolina**

**Table of Contents**

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

**Figures**

- Figure 1 – Parcel 121 - Geophysical Survey Boundaries and Site Photographs
- Figure 2 – Parcel 121 - EM61 Metal Detection Contour Map
- Figure 3 – Parcel 121 - 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 121, located at 909 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 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 buried debris. Collectively, the geophysical data recorded no evidence of metallic USTs at Parcel 121.

## INTRODUCTION

---

Pyramid Environmental conducted a geophysical investigation for Kleinfelder, Inc. at Parcel 121, located at 909 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 a commercial building surrounded by asphalt, gravel, and grass surfaces. An aerial photograph showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

## FIELD METHODOLOGY

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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<br>on NCDOT Projects                                           |                                                                                                                                                                                                                                                        |                                                                                                                                                                                                               |                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| High Confidence                                                                                                  | Intermediate Confidence                                                                                                                                                                                                                                | Low Confidence                                                                                                                                                                                                | No Confidence                                                                                                                                     |
| <b>Known UST</b><br>Active tank - spatial location, orientation, and approximate depth determined by geophysics. | <b>Probable UST</b><br>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. | <b>Possible UST</b><br>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/Drop Inlet      |                       |
| 2                  | Metal Door                       |                       |
| 3                  | Suspected Buried Metallic Debris | ✓                     |
| 4                  | Mailbox/Guardrail                |                       |
| 5                  | Building/Suspected Utility       | ✓                     |
| 6                  | Metal Debris on Ground           | ✓                     |
| 7                  | Fence                            | ✓                     |
| 8                  | Drop Inlet                       |                       |

The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface, including steel storm pipes, drop inlets, a metal door, a mailbox, a guardrail, a building, metal debris on the ground, and a fence. EM Anomaly 3 was investigated with GPR to examine whether the anomaly was the result of a significant structure such as a UST. 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 the images. A total of five formal GPR transects were performed at the site.

GPR Transects 1, 2, and 5 were performed across the areas of significant metallic interference. These transects showed evidence of possible buried utilities and/or debris. GPR Transects 3 and 4 were performed across EM Anomaly 3. These transects showed small, shallow reflectors consistent with buried metallic debris.

Collectively, the geophysical data recorded no evidence of metallic USTs at Parcel 121.

**Figure 4** provides an overlay of the metal detection results on the NCDOT engineering plans for reference.

## SUMMARY & CONCLUSIONS

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Pyramid's evaluation of the EM61 and GPR data collected at Parcel 121 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 121.

## LIMITATIONS

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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 North)



View of Survey Area (Facing Approximately North)



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PROJECT  
PARCEL 121  
NORTH WILKESBORO, NORTH CAROLINA  
NCDOT PROJECT U-5759

TITLE  
PARCEL 121 -  
GEOPHYSICAL SURVEY BOUNDARIES  
AND SITE PHOTOGRAPHS

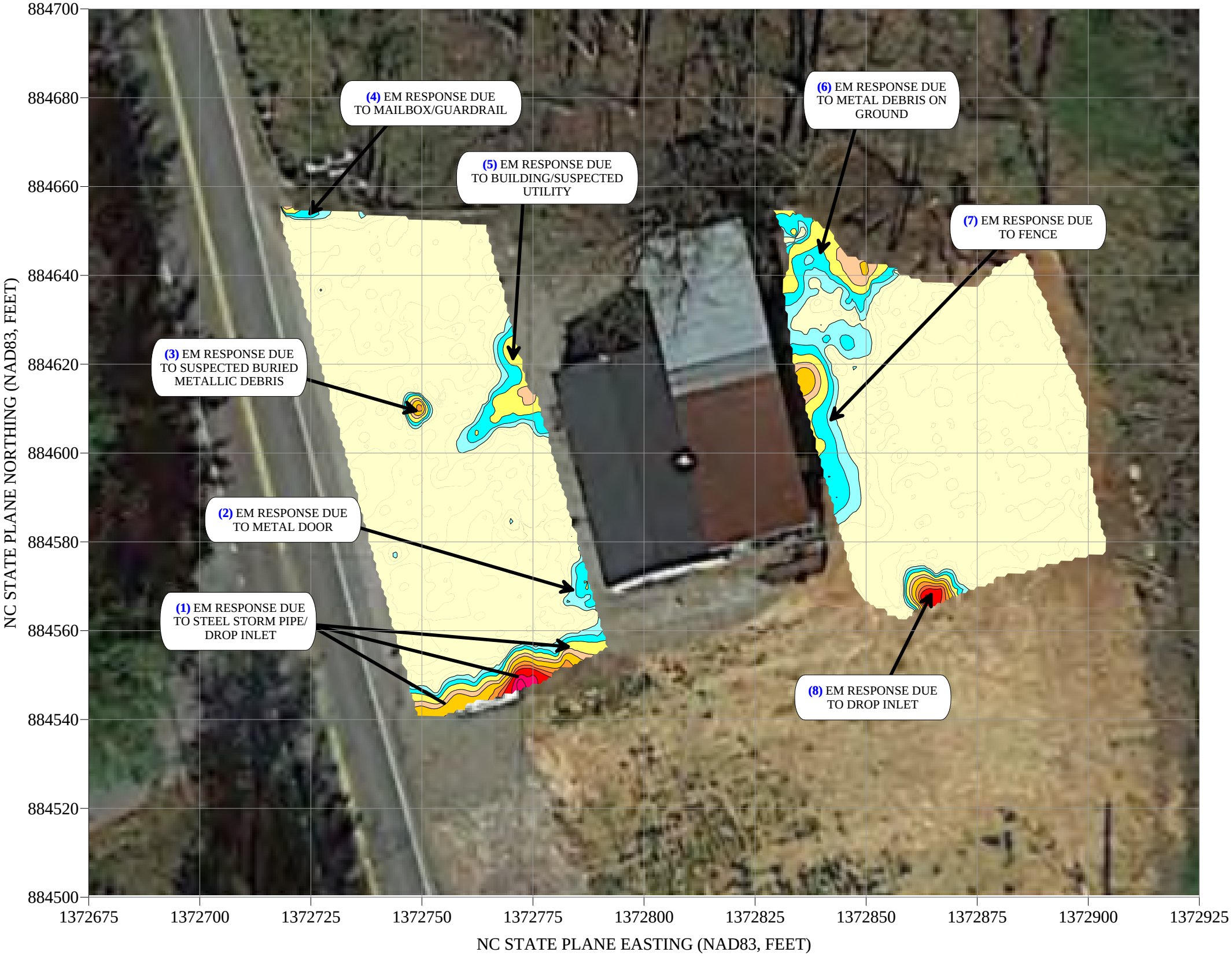
DATE 7/19/2021

CLIENT Kleinfelder

PYRAMID  
PROJECT #: 2021-190

**FIGURE 1**

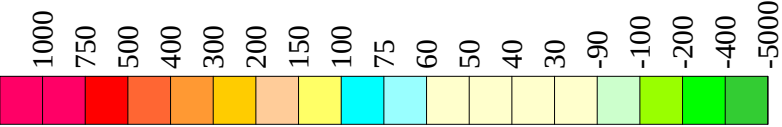
EM61 METAL DETECTION RESULTS



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)



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PROJECT  
PARCEL 121  
NORTH WILKESBORO, NORTH CAROLINA  
NCDOT PROJECT U-5759

TITLE  
PARCEL 121 -  
EM61 METAL DETECTION CONTOUR MAP

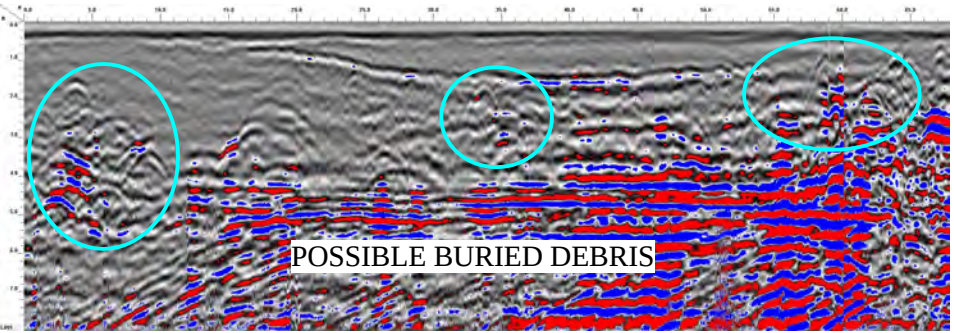
DATE  
7/19/2021

PYRAMID  
PROJECT #:  
2021-190

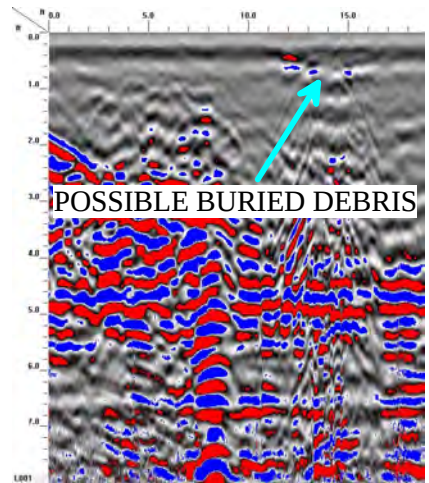
CLIENT  
Kleinfelder

FIGURE 2

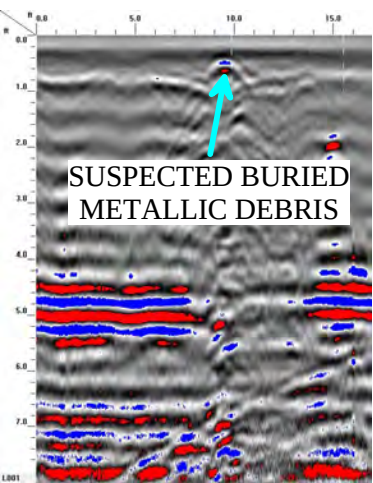
GPR TRANSECT LOCATIONS



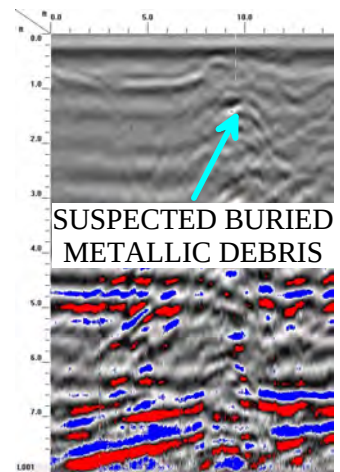
GPR TRANSECT 1 (T1)



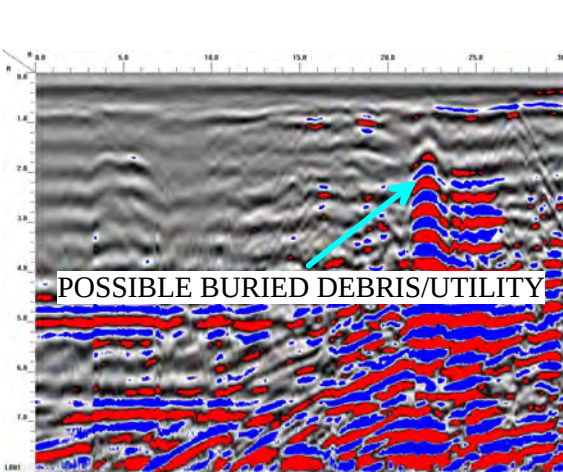
GPR TRANSECT 2 (T2)



GPR TRANSECT 3 (T3)



GPR TRANSECT 4 (T4)



GPR TRANSECT 5 (T5)



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PROJECT  
PARCEL 121  
NORTH WILKESBORO, NORTH CAROLINA  
NCDOT PROJECT U-5759

TITLE  
PARCEL 121 -  
GPR TRANSECT LOCATIONS AND IMAGES

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**FIGURE 3**

