

October 10, 2019 Kleinfelder File No. RAL19R102413

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 Parcels 50, 56, 60 – BH & HH Realty, LLC WBS Element No. 54035.1.1, TIP No. U-5757 NC 8 (Winston Road) from 9th Street to SR 1408 (Biesecker Rd) in Lexington. Widen to multi lanes Kleinfelder Project No. 20201105.001A

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.

Abigail R. Shurtleff

Environmental Staff Professional

Michael J Burns, PG

Michael J Burns, PG Environmental Program Manager

ARS/MJB:asp

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PRELIMINARY SITE ASSESSMENT REPORT PARCELS 50, 56, 60 – BH & HH REALTY, LLC PARCEL 11332E0000012 1496 OLD US HIGHWAY 52 LEXINGTON, DAVIDSON COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 54035.1.1 STATE PROJECT U-5757 NC 8 (WINSTON RD) FROM 9TH STREET TO SR 1408 (BIESECKER RD) IN LEXINGTON. WIDEN TO MULTI LANES

KLEINFELDER PROJECT NO. 20201105.001A

OCTOBER 10, 2019

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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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Prepared by:

Abigail R. Shurtleff W Environmental Staff Professional

Reviewed by:

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October 10, 2019

Kleinfelder Project No. 20201105.001A

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PRELIMINARY SITE ASSESSMENT REPORT

Site Name and Location:	Parcels 50, 56, & 60 1496 Old US Highway 52 Lexington, Davidson County, North Carolina
Latitude and Longitude:	35.845926°N, -80.253739°W
County Parcel Number	11332E0000012
Facility ID Number:	N/A
Leaking UST Incident:	N/A
State Project No.:	U-5757
NCDOT Project No.:	NCDOT WBS Element 54035.1.1
Description:	NC 8 (Winston Rd) from 9 th Street to SR 1408 (Biesecker Rd) in Lexington. Widen to multi lanes
Date of Report:	October 10, 2019
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 Ar Burn 7E53DC44AC794CA	10/28/2019	CENSED AND
Michael J Burns, LG NC License No. 1645		1645 CHOLOGIS



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PRELIMINARY SITE ASSESSMENT PARCELS 50, 56, 60 – BH & HH REALTY, LLC PARCEL 11332E0000012 1496 OLD US HIGHWAY 52 LEXINGTON, DAVIDSON COUNTY, NORTH CAROLINA

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1 INTRODUCTION

Kleinfelder, Inc. (Kleinfelder) has prepared this Preliminary Site Assessment (PSA) report to document assessment activities performed on a parcel known by the Davidson County, NC Tax Assessor's Office as Parcel Number 11332E0000012 and by NCDOT as Parcels 50, 56, and 60 (the assessment area is hereafter referred to as the "Project Study Area"). The Project Study Area consists of the western portions of all three parcels and the southern portion of Parcel 50. The parcels are collectively occupied by a used car dealership and associated maintenance buildings. The parcels are located northeast of the intersection of NC Highway 8 (Winston Road) and Evans Street and northwest of the intersection of Evans Street and Michael Alley, in the Town of Lexington, Davidson County, North Carolina (Figure 1).

The parcel was not previously covered in the Hazardous Materials Survey Report, dated February 28, 2019, prepared by Kleinfelder for SEPI Engineering & Construction. As such, the purpose of the PSA was to evaluate whether unknown USTs or contaminated soil are 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

Parcels 50, 56, and 60 have a listed owner of BH & HH Realty, LLC. The parcels have a collective street address of 1496 Old US Highway 52. The parcels are occupied by a used car dealership, Phoenix Pre-Owned Motors, Inc., and associated maintenance bays, storage sheds, and offices along with paved and gravel parking areas. The parcels are bounded by Evans Street to the south, beyond which is a vacant former tire store and heavily vegetated area; by NC Highway 8 (Winston Road) to the west, beyond which is residential and commercial land; by a car wash (Parcel 62) to the north; and by Michael Alley to the east, beyond which is residential land. 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 May 24, 2019, Request for Technical and Cost Proposal (RFP) and Kleinfelder's June 18, 2019 Technical and Cost Proposal. The NCDOT granted a formal Notice to Proceed on June 27, 2019.



2 HISTORY

2.1 PARCEL USAGE

The parcel consists of a used car dealership, Phoenix Pre-Owned Motors, Inc., and associated maintenance bays, storage sheds, and offices. The entirety of the properties is occupied by buildings or paved and/or gravel parking areas.

The parcels were not previously covered in Kleinfelder's 2018 Hazardous Materials Survey Report.

Kleinfelder conducted historical research to determine whether environmental listings of concern were identified for Parcels 50, 56, and 60. The following are the results of the additional research:

- Based on a review of aerial photographs, the site appears to have been occupied by residential and agricultural land from at least 1936 to 1998, and by the used car dealership (in varying configurations) from at least 2002 to present day.
- Kleinfelder searched the registered UST database, maintained by the North Carolina Department of Environmental Quality (NCDEQ). The site was not listed.
- Kleinfelder searched the NCDEQ's online Division of Waste Management Site Locator Tool to obtain any other records of environmental concern. The site was not listed.

2.2 FACILITY ID NUMBERS

Kleinfelder reviewed the NCDEQ UST database for Parcels 50, 56, and 60. The parcels were not identified in the database.

2.3 GROUNDWATER INCIDENT NUMBERS

No groundwater incident numbers are known to be associated with Parcels 50, 56, or 60 at this time.



3 OBSERVATIONS

3.1 GROUNDWATER MONITORING WELLS

No groundwater monitoring wells were found within the Project Study Area at the time of site exploration, August 7th, 8th, and September 3rd, 2019.

3.2 ACTIVE USTS

Based on a review of the NCDEQ UST database and contact with site personnel, no active USTs are known to be located on Parcels 50, 56 or 60 at this time.

3.3 OTHER FEATURES APPARENT BEYOND PROJECT STUDY AREA

The Project Study Area consisted on the western portion of all three parcels and the southern portion of Parcel 50. The eastern portion of the parcels, beyond the Project Study Area, was observed to be occupied by automotive maintenance areas and storage sheds. There were no other features of concern observed beyond the Project Study Area, including in-ground hydraulic lifts. The shop on parcel 56 was observed to have at least two and up to four aboveground hydraulic lifts as well as an aboveground lift within a covered shed southwest of the shop. Two manholes behind the shop may be associated with an oil/water separator system. The interior of the shops on parcels 50 and 60 could not be observed for the presence of lifts, but the roof heights of these shops do not appear to be high enough to lift vehicles.



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 onsite "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 16th and 18th, 2019. Pyramid utilized electromagnetic (EM) induction technology and ground penetrating radar (GPR) to locate potential geophysical anomalies and potential USTs within the Project Study Area.

Evidence of one (1) possible UST within the southern survey area of Parcel 50 was discovered. No evidence of subsurface anomalies indicative of USTs or other buried structures was found on Parcels 56 or 60. The UST was located southeast of the building on Parcel 50, and is approximately 22.5 feet long by 7 feet wide (thus, approximately 6,475 gallons in capacity). The approximate location of the UST is depicted on Figure 2.

A copy of the Pyramid Geophysical Investigation Report, detailing the field methodology and depicting the location of the possible UST, 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, and, if encountered, to define the horizontal and vertical extent of the contamination. Soil borings were planned to be advanced to maximum



depths of 10 feet below the ground surface (bgs) unless groundwater was encountered. Field screening using a photo ionization detector (PID) was to be conducted at 1-foot intervals beginning at 0 foot to 1 foot. The soil sample with the highest PID reading above background or the sample from the maximum drilled depth would be 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 Quantex, Inc. (Quantex) to perform the drilling on all three parcels on August 7th and 8th, 2019. Prior to the initial boring and after each subsequent boring, the sampling equipment was decontaminated. Quantex advanced three (3) soil borings on Parcel 50 (P50-B1 through P50-B3), three (3) soil borings on Parcel 56 (P56-B1 through P56-B3), and two (2) soil borings on Parcel 60 (P60-B1 through P60-B2) by direct-push technology from the ground surface to boring termination (10 feet bgs) at locations specified by Kleinfelder. Kleinfelder subcontracted South Atlantic Environmental Drilling and Construction Company (SAEDACCO) to perform additional drilling on Parcel 50 on September 3rd, 2019. SAEDACCO advanced three (3) soil borings on the southeastern portion of Parcel 50 (P50-B4 through P50-B6) in the vicinity of the possible UST. Since the tank was estimated to be seven feet in diameter and assumed to be buried two feet below the ground surface, Kleinfelder advanced the borings around the possible UST one foot below the tank or 10 feet bgs.

The soil boring locations were identified in the field using a GPS. The soil boring locations are shown on Figure 2. The borings were located within the public utility easement along NC Highway 8 (Winston Road) and the western and southern parcel boundaries. Soil samples were collected by driving Macro Core[™] samplers in 5-foot intervals. Each soil core was cut open, the soil samples were classified, and the soil was divided into 1-foot sections. Each 1-foot section was screened in the field using a PID. The PID readings are summarized in Table 1.

Soils on the western portion of Parcel 50 were determined to be primarily a silty clay within the upper 5 feet, underlain by a silt or clayey silt, underlain by a sandy silt. Soils in the vicinity of the possible UST on Parcel 50 were primarily a loose gravelly sand within the upper 4 feet, underlain by several feet of clay then several feet of clayey silt or silt. Soils on Parcel 56 were determined to be primarily clay within the upper 5 feet underlain by clayey silt. Soils on Parcel 60 were determined to be primarily silt within the upper 4 feet, underlain by several feet of silty clay then



clayey, sandy silt. Groundwater was not encountered in any of the borings at the termination depth of 10 feet 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. Based on the PID data and visual observations, one or two samples from each boring advanced in August were selected for on-site laboratory analysis, and one sample from soil boring P50-B4 advanced in the vicinity of the UST on Parcel 50 in September was selected for off-site laboratory analysis.

The on-site 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 possible use of petroleum products on Parcels 50, 56, and 60. The UVF analysis also provided data regarding Environmental Protection Agency 16 total Polycyclic Aromatic Hydrocarbons (PAHs), and Benzo(a)pyrene (BaP).

The off-site sample (P50-B4-5) was analyzed by Prism Laboratories of Charlotte, NC for TPH GRO and DRO, because the previous contents of the probable UST were assumed to be used for fueling vehicles or heating. Samples were collected directly from the soil core utilizing disposable nitrile gloves and a disposable plastic corer. Samples were iced upon collection. The Chain of Custody can be found in Appendix D.



5.1 GEOPHYSICAL INVESTIGATION

The EM and GPR surveys identified one (1) possible UST, approximately 7-ft in diameter, 22.5-ft in length, and 6,475-gallons in capacity, in the southeastern portion of Parcel 50 within the public utility easement.

5.2 SOIL SAMPLING DATA

The UVF analysis of soil samples did not indicate the presence of petroleum impact above NCDEQ Action Limits in any of the soil samples analyzed. As such, shallow soil impact does not appear to be present within the existing right-of-way or along the western and southern parcel boundaries. Samples collected within the right-of-way and public utility easement around the probable UST did not indicate that the tank has leaked. A summary of soil sample analytical results is presented in Table 2. The laboratory results associated with each soil boring are presented on Figure 3. 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 quantifiable soil impact within the current right-of-way and parcel boundaries.



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 one (1) possible UST located on the southeastern portion of Parcel 50 within the public utility easement.
- The parcels are not associated with any known active USTs, groundwater incidents, or database listings of environmental concern.
- No soil impact above the NCDEQ Action Limits for TPH GRO and DRO was detected in borings advanced along NC Highway 8 (Winston Road) and the western parcel boundaries or along Evans Street and the southern boundary of Parcel 50.
- Groundwater was not encountered in the soil borings at a depth of 10 feet bgs.



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 Parcels 50, 56, and 60 in Lexington, Davidson County, North Carolina.



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



TABLES

Table 1: Soil Samp	le Screening Results			
Date	Sample ID	Depth (ft)	PID Reading	Notes
		1	1.0	
		2	0.8	
8/7/2019	LI5757-P50-B1	3	0.9	
		4	1.8	
		5	7.6	UVF Analysis
	00101-1 00-01	6	9.9	
		7	11.4	
		8	8.7	
		9	14.3	UVF Analysis
		10	12.2	
		1	0.1	
		2	0.2	
		3	0.2	
		4	0.3	
9/7/2010	UE757 DE0 D2	5	0.4	
0///2019	05757-P50-B2	6	0.5	
		7	0.6	
		8	0.4	
		9	0.3	
		10	0.7	LIVE Analysis
		1	0.2	• · · · · · · · · · · · · · · · · · · ·
		2	0.2	
		3	0.2	
		4	0.2	
		5	0.2	
8/7/2019	U5757-P50-B3	6	0.3	LIVE Analysis
		7	0.3	OVI Analysis
		8	0.2	
		9	0.3	
		10	0.0	
		10	ND	
		2	NR	
		- 3	NR	
		3	1.2	
		4	1.2	Offeite Analyzic
9/3/2019	U5757-P50-B4	6	0.9	Unsite Analysis
		0	0.9	
		1	1.0	
		0	0.9	
		9	1.3	
		10	1.1	
		1	0.4	
		2	1.6	
		3	1.5	
		4	2.1	
9/3/2019	U5757-P50-B5	5	2.6	
		6	2.5	
		/	0.7	
		8	1.8	
		9	1.2	
		10	0.2	
		1	0.1	
		2	NR	
		3	NR	
	U5757-P50-B6	4	1.1	
9/3/2019		5	0.6	
		6	0.4	
		7	0.4	
		8	0.8	
		9	0.1	
		10	0.0	
		1	0.0	
		2	0.0	
		3	0.0	
	U5757-P56-B1	4	0.1	
9/9/2010		5	0.0	
0/0/2013		6	0.1	
		7	0.2	
		8	0.5	UVF Analysis
		9	0.2	
		10	0.2	
		1	0.1	
		2	0.1	
		3	1.0	
		4	1.0	
9/9/2010	115757 050 00	5	0.7	
0/0/2019	00101-F00-B2	6	1.5	
		7	1.0	
		8	1.9	UVF Analysis
		9	1.6	
		10	0.6	
		1	0.0	
		2	0.6	
		3	0.8	
		4	0.8	
8/8/2010	115757-P56-R3	5	0.8	UVF Analysis
0/0/2019	00707=F00=D0	6	0.6	
		7	0.5	
		8	0.6	
		9	0.6	
		10	0.3	
		1	2.4	
		2	7.7	
		3	5.0	UVF Analysis
		4	2.9	
8/9/2010	115757 D60 D4	5	3.9	
0/0/2019	U3/3/-P0U-B1	6	3.9	
		7	3.9	
		8	4.0	UVF Analysis
		9	3.0	
		10	2.7	
		1	0.9	
		2	3.0	
		3	3.7	
		4	3.0	
0/0/00/10		5	5.1	UVF Analysis
8/8/2019	U5757-P60-B2	6	4.3	e
		7	3.4	
		8	2.5	
		9	3.3	
		10	1.2	

Notes: 1) PID = Photoionization Detector 2) PID readings in parts per million (ppm) 3) NR = no recovery

TABLE 2: Soil Sample Analytical Summary

Parameter	Analytical Results													
	Soil Sample Results							Comp	arison Criteria					
Sample ID	P50-B1-5	P50-B1-9	P50-B2-10	P50-B3-6	P50-B4-5	P56-B1-8	P56-B2-8	P56-B3-5	P60-B1-3	P60-B1-8	P60-B2-5			
PID Reading (ppm)	7.6	14.3	0.7	0.3	0.9	0.5	1.9	0.8	5.0	4.0	5.1	State Action Limit	Protection of	Residential
Collection Depth (ft bgs)	5	9	10	6	5	8	8	5	3	8	5	State Action Limit	Groundwater	Health
Collection Date	8/7/19	8/7/19	8/7/19	8/7/19	9/3/19	8/8/19	8/8/19	8/8/19	8/8/19	8/8/19	8/8/19			
UVF Method														
Diesel Range Organics	<0.58	<0.56	<0.59	<0.5	N/A	0.44	<0.45	< 0.33	5.9	<0.49	<0.54	100		
Gasoline Range Organics	<0.58	<0.56	<0.59	<0.5	N/A	<0.44	<0.45	< 0.33	<0.52	<0.49	<0.54	50		
EPA Method 8015C	-													
Gasoline Range Organics	N/A	N/A	N/A	N/A	<1.9	N/A	N/A	N/A	N/A	N/A	N/A	50		
Diesel Range Organics	N/A	N/A	N/A	N/A	<2.8	N/A	N/A	N/A	N/A	N/A	N/A	100		

Notes:

Results displayed in milligram per kilogram (mg/kg) ft bgs = Feet below ground surface Bold = Above Laboratory Detection Limit UVF = Ultraviolet Flouresence

N/A = Not Analyzed EPA = Environmental Protection Agency



FIGURES











APPENDIX A SITE PHOTOGRAPHS



View facing south along Winston Road on Parcel 50.



View facing east away from Winston Road on Parcel 50.

Original in Color

	PROJECT NO:20201105.001A DRAWN: September 2019	SITE PHOTOGRAPHS	FIGURE
KLEINFELDER Bright People. Right Solutions. www.kleinfelder.com	DRAWN BY: ARS CHECKED BY: MB FILE NAME: Photo Pages	Preliminary Site Assessment Report U-5757-P50, 56, 60 Lexington, Davidson County, North Carolina	A-1



View facing north along Winston Road towards Parcel 56 and 60.



View facing westerly toward Winston Road on Parcel 50.

Original in Color

	PROJECT NO:20201105.001A DRAWN: September 2019	SITE PHOTOGRAPHS	FIGURE
KLEINFELDER Bright People. Right Solutions. www.kleinfelder.com	DRAWN BY: ARS CHECKED BY: MB FILE NAME: Photo Pages	Preliminary Site Assessment Report U-5757-P50, 56, 60 Lexington, Davidson County, North Carolina	A-1



APPENDIX B GEOPHYSICAL SURVEY REPORT



PYRAMID GEOPHYSICAL SERVICES (PROJECT 2019-211)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION: PARCELS 50, 56, & 60 NCDOT PROJECT U-5757 (54035.1.1)

1496 WINSTON ROAD, LEXINGTON, NC

August 20, 2019

Report prepared for:

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Engineering Plans

Appendices

Appendix A - GPR Transect Images

LIST OF ACRONYMS

DFDual Frequency	
EMElectromagnetic	
GPRGround Penetrating Radar	
GPSGlobal Positioning System	
NCDOTNorth Carolina Department of Transportati	on
ROWRight-of-Way	
USTUnderground Storage Tank	

EXECUTIVE SUMMARY

Project Description: Pyramid Environmental conducted a geophysical investigation for Kleinfelder, Inc. at Parcels 50, 56, & 60 located at 1496 Winston Road in Lexington, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project U-5757). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted from July 16-18, 2019, 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 seventeen EM anomalies were identified. The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR performed in most of the areas of interference from the vehicles and the fences did not reveal any significant buried structures.

GPR performed around the vehicles in the southeastern portion of the property showed a long lateral reflector consistent with the length of a UST. GPR also showed a smaller lateral reflector inconsistent with the hyperbolic reflector typical of the width of a UST. This feature is classified as a possible UST and is approximately 22.5 feet long by 7 feet wide. Collectively, the geophysical data recorded evidence of one possible UST within the survey area at Parcels 50, 56, & 60.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Kleinfelder, Inc. at Parcels 50, 56, & 60 located at 1496 Winston Road in Lexington, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project U-5757). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted from July 16-18, 2019, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site included multiple commercial buildings surrounded by asphalt, gravel, and concrete 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 18, 2019, 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 DF 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, asphal/concrete patch, etc.	Possible UST Sufficient geophysical data from either magnetic or radar surveys that is characteristic of a tank. Additional data is not sufficient enough to confirm or deny the presence of a UST.	Anomaly noted but not characteristic of a UST. Should be noted in the text and may be called out in the figures at the geophysicist's discretion.

DISCUSSION OF RESULTS

Discussion of EM Results

A contour plot of the EM61 results obtained across the survey area at the property is presented in **Figure 2**. Each EM anomaly is numbered for reference in the figure. The following table presents the list of EM anomalies and the cause of the metallic response, if known:

Metallic Anomaly #	Cause of Anomaly	Investigated with GPR
1	Fence	
2	Sign	
3	Water Meter	
4	Fence	
5	Flagpole	
6	Suspected Debris/Utility	✓
7	Utility	
8	Water Meter	
9	Sign	
10	Reinforced Concrete Pipe	✓
11	Water Meter	
12	Sign	
13	Fence/Vehicles	✓
14	Lights	
15	Suspected Metallic Debris	✓
16	Vehicles	✓
17	Vehicles/One Possible UST	✓

LIST OF METALLIC ANOMALIES IDENTIFIED BY EM SURVEY

The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface including fences, signs, water meters, a flagpole, vehicles, and lights. EM Anomalies 6 and 15 were suspected to be the result of suspected buried metallic debris and a buried utility and were investigated further with GPR. EM Anomaly 10 was suspected to be the result of a reinforced concrete pipe and was further investigated with GPR. GPR scans were also performed around the areas of interference caused by the vehicles and fence (Anomalies 13, 16, and 17) to verify that no buried structures were obscured by the interference.

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 39 formal GPR transects were performed at the site.

GPR Transects 1-2, 3-4, 5-7, 8-10, 21, 25-28, 29-33, and 34-35 were performed across areas of interference caused by the vehicles at the site (EM Anomaly 16). GPR Transects 37-39 were performed across areas of interference caused by vehicles and the fence (EM Anomaly 13). No evidence of buried structures such as USTs was observed.

GPR Transects 11-20 were performed across EM Anomaly 17. GPR Transect 19 showed a long lateral reflector consistent with the length of a UST. GPR Transect 20 showed a smaller lateral reflector inconsistent with the hyperbolic reflector typical of the width of a UST. This feature is classified as a possible UST (Possible UST #1). Possible UST #1 was approximately 22.5 feet long and 7 feet wide. **Figure 4** provides the location and size of the possible UST overlain on an aerial, along with ground-level photographs.

GPR Transects 22 and 23-24 were performed across areas associated with a suspected utility and suspected buried metallic debris (EM Anomalies 6 and 15). These transects recorded evidence of isolated hyperbolic reflectors that were characteristic of a buried utility and minor reflectors associated with increases in signal penetration relative to the surrounding soil that are typical indicators of buried metallic debris. No evidence of any buried structures such as USTs was observed.

GPR Transect 36 was performed across an anomaly suspected to be a reinforced concrete pipe (EM Anomaly 10). This transect confirmed the presence of reinforcement in the concrete pipe. No evidence of buried structures such as USTs was observed.

Collectively, the geophysical data <u>recorded evidence of one possible UST within the survey</u> <u>area at Parcels 50, 56, & 60</u>. **Figure 5** provides an overlay of the metal detection results and the locations of the possible UST on the NCDOT MicroStation engineering plans for reference.
SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 and GPR data collected at Parcels 50, 56, & 60 in Lexington, 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 performed in most of the areas of interference from the vehicles and the fences did not reveal any significant buried structures.
- GPR performed around the vehicles in the southeastern portion of the property showed a long lateral reflector consistent with the length of a UST. GPR also showed a smaller lateral reflector inconsistent with the hyperbolic reflector typical of the width of a UST. This feature is classified as a possible UST and is approximately 22.5 feet long by 7 feet wide.
- Collectively, the geophysical data <u>recorded evidence of one possible UST within</u> <u>the survey area at Parcels 50, 56, & 60</u>.

LIMITATIONS

Geophysical surveys have been performed and this report was prepared for Kleinfelder 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 765375 Call & Long & Long & 765325 CALIFORNIA MARTIN 765275 NC STATE PLANE, NORTHING (NAD83, FEET) 765225 8기 📭 765175 765125 **新社 日相任 就回** 765075 765025 764975 1628200 1628250 1628300 1628350 1628400 1628450 1628500 1628550 1628600 1628650 1628700 NC STATE PLANE, EASTING (NAD83, FEET)



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

PARCELS 50, 56, & 60 LEXINGTON, NORTH CAROLINA NCDOT PROJECT U-5757 TITLE PARCEL 50, 56, & 60 - GEOPHYSICAL SURVEY BOUNDARIES AND SITE PHOTOGRAPHS





EVIDENCE OF ONE POSSIBLE 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 16, 2019, using a Geonics EM61-MK2 instrument. Verification GPR data were collected using a GSSI UtilityScan DF instrument with a dual frequency 300/800 MHz antenna on July 18, 2019.





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J	DATE	7/19/2019	CLIENT	KLEINFELDER
	PYRAMID PROJECT #:	2019-211		FIGURE 2







View of One Possible UST Facing Approximately South



View of One Possible UST Facing Approximately East



)F	DATE	7/19/2019	CLIENT	KLEINFELDER
	PYRAMID PROJECT #:	2019-211		FIGURE 4





Appendix A – GPR Transect Images





GPR TRANSECT 2



GPR TRANSECT 3







GPR TRANSECT 6





GPR TRANSECT 8





GPR TRANSECT 10



GPR TRANSECT 11









GPR TRANSECT 14





GPR TRANSECT 18



GPR TRANSECT 19



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GPR TRANSECT 21



GPR TRANSECT 22



GPR TRANSECT 23







GPR TRANSECT 26





GPR TRANSECT 28





GPR TRANSECT 30





GPR TRANSECT 32





GPR TRANSECT 34



GPT TRANSECT 35





GPR TRANSECT 37







APPENDIX C BORING LOGS

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					0.4		SILT with Clay: white and rea	ddish yellow, dry to moist						
	-				0.4									
					0.1		SILT with Clay: light brown a	nd pink, moist to wet						
10-					0.0									
	-	The bo	orehole was	terminat	ted at a	approx	mately 10 ft. below ground surfac	Ce. <u>GROUNDWATER LEVE</u> Groundwater was not ob <u>GENERAL NOTES:</u> An iPad integrated GPS accuracy of 5 meters. The boring was backfille	EL INFORMATION: served during drilling or a unit was used to locate th d with bentonite	fter completion. le borehole with an				
			<u> </u>				PROJECT NO.: 20201105.001A	BORING LOG	P50-B6					
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OFFICE FILTER: RALEIGH

Date Be	gin -	End	8/08/2	019			Drill	ling Company	y: Qu	antex	BC	RING LOG P56-B	1
Logged	By:		A Shu	rtleff			Drill	Crew:	And	drew C			
HorVer	t. Da	atum	WGS	1984 -	Not A	vaila	ble Drill	ling Equipme	nt: Ge	nuine Geoprobe			
Plunge:			-90 de	grees			Drill	ling Method:	See	Drilling Method Column			
Weather	:		65°F (Clear			Bore	ehole Diamet	er:				
									FIELD EX	PLORATION			
feet)	Method	type	Number	ry Recovery)	ID (ppmv)	cal Log				Latitude: 35.84585° N Longitude: -80.25376° E Surface Condition: Gravel			
pth (lling	mple	mple	covel R=Nc	D / FI	aphic							
De	Ō	Sa	Sa	Ϋ́́Ϋ́	PIC	ő				Lithologic Description			
						$^{\circ}$	Decorat	tive Red Gravel	GRAVEL				
					0.0		CLAY: r	red, dry to moist	t, trace silt				
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	ct Pu:						SILT wi	ith Clay: reddish	h yellow and	red, dry to moist			
	Dire				0.1								
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					0.2								
			P56-B1-8		0.5								
							CLAY: I	light gray and re	eddish yellow	dry to moist			
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10-					0.2								
	-	The	borehole was	termina	ted at a	approx	imately 10	ft. below ground	l surface.	GROUNDWATER LEVE Groundwater was not ob GENERAL NOTES: An iPad integrated GPS accuracy of 5 meters. The boring was backfilled	L INFORMATION: served during drilling or a unit was used to locate th d with bentonite	fter completion. le borehole with an	
			\					PROJECT NO.: 20201105.001A	: A	BORING LOG	P56-B1		
$ $ κ	L	E	INF	E	LC)E	R	DRAWN BYA S	SHURTLEFF		5757	7	
			Bright Peo	ple. R	ight s	Solut	ions.	CHECKED BY:	M BURNS	Biesecker R	load		
	_	1						DATE	10/8/2010	Lexington,	NC		
								UNIL.	10/0/2019			PAGE: 1 of 1	

OFFICE FILTER: RALEIGH

Date Be	gin -	End	: 8/08/2	2019			Dri	illing Company:	Quantex		во	RING LOG P56-B2
Logged	By:		A Shu	Irtleff			Dri	ill Crew:	Andrew	C		
HorVer	t. Da	atum	: WGS	1984 -	Not A	vaila	ble Dri	illing Equipment:	Genuine	Geoprobe		
Plunge:			-90 de	grees			Dri	illing Method:	See Drillin	g Method Column		
Weather	:		_65°F (Clear			Во	rehole Diameter:				
								FI	ELD EXPLOR	ATION		
	5		er	ery)	(<i>ب</i> د							
Ĵ.	sthoo	/pe	qun	SCOV	udd)	Log				Latitude: 35.84585° N Longitude: -80.25376° E		
(fee	¥ ∎	le T	e N	ery lo Ré	Ē	lical				Surface Condition: Grave	I	
epth	llin	amp	amp	ecov IR=N	D/1	raph						
ă	ā	ů	ő	ΨZ	E	0	Deser	ative Ded Cravel CDA		Lithologic Description		
						0	Decor	alive Red Graver GRA	VEL			
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			D56 B2 8		10							
			F 30-B2-0		1.9							
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	-						SILT V	with Clay: light gray ar	nd reddish yell	ow, dry to moist, trace sand		
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10-	_				0.0							
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										accuracy of 5 meters. The boring was backfille	d with bentonite	
· ·	-											
								20201105 001A		BORING LOG	P56-B2	
<i>[</i>												
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		_	Bright Peo	ople. R	ight !	Solut	ions.	CHECKED BY: MI	BURNS	Biesecker F	Road	
	_	1								Lexington,	NC	
								DATE: 10	/8/2019			PAGE: 1 of 1

OFFICE FILTER: RALEIGH

Date Be	gin -	End	: 8/08/2	019			Drilling Company:	Quantex		во	RING LOG P56-B3
Logged	By:		A Shu	rtleff			Drill Crew:	Andrew C			
HorVer	t. Da	atum	: WGS	1984 -	Not A	vaila	ble Drilling Equipment:	Genuine Ge	oprobe		
Plunge:			-90 de	grees			Drilling Method:	See Drilling Me	thod Column		
Weather	:		_65°F C	Clear			Borehole Diameter:				
							FI	ELD EXPLORATI	NC		
			'n	ery)	()						
₽ ₽	thod	be	nbe	COVE	bpm	Log			Latitude: 35.84585° N Longitude: -80.25376° F		
(fee	Me	e Ty	e N	ery o Re) OI=	ical			Surface Condition: Gravel		
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ă	ā	ő	ő	₽Z	Ы	Ū	Descentive Ded Orevel ODA		Lithologic Description		
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							CLAY: red, dry to moist, trac	ce silt			
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	-										
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	s										
	leeve		P56-B3-5		0.8						
5-	S ysr										
	ect Pl										
	Diz				0.6						
							Clayey SILT: reddish yellow	and red, dry to me	bist		
					0.5						
					0.6						
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							CLAY with Silt: light gray ar	nd reddish yellow,	dry to moist, trace sand		
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					0.3						
10-											
		The	have belower				instals 10 ft below everyal curf		GROUNDWATER LEVEL INFO	RMATION:	ften envelation
		The	borenole was	termina	ted at a	approx	imately 10 it. below ground surfa	ace.	Groundwater was not observed GENERAL NOTES:	during drilling or a	tter completion.
									An iPad integrated GPS unit wa accuracy of 5 meters.	is used to locate th	e borehole with an
									The boring was backfilled with b	entonite	
	-										
	_										
							PROJECT NO.: 20201105 001A		BORING LOG P56	-B3	
ľ											
$ \kappa$	L	E	'INF	EL	LC	DE	CR DRAWN BY A SHUR				9
		0	Bright Peo	ple. R	ight s	Solut	ions. CHECKED BY: ME	BURNS	Biesecker Road		_
	_	1						/8/2019	Lexington, NC		
								0.2013			PAGE: 1 of 1

OFFICE FILTER: RALEIGH

	ate Beg	jin -	End	8/08/2	019			Drilling Company:	Quantex	BC	RING LOG P60-B1			
L	ogged I	By:		A Shu	rtleff			Drill Crew:	Andrew C					
H	lorVert	t. Da	tum	WGS	1984 -	Not A	vaila	ble Drilling Equipment:	Genuine Geoprobe					
P	lunge:			-90 de	grees			Drilling Method:	See Drilling Method Column					
V	Veather			_65°F C	Clear			Borehole Diameter:						
								FIE	ELD EXPLORATION					
				er	iry)	 								
	$\overline{\mathbf{x}}$	thod	be	mbe	cove	mdc	_{-og}		Latitude: 35.84620° N					
	(feet	Me	e Ty	e Nu	o Re	l) (I	cal I		Surface Condition: Concret	te				
	pth	illing	du	Idm	R=N	D/F	aphi							
	De	þ	Sa	Sa	Re Re	ЫЧ	ō		Lithologic Description					
							A A A	CONCRETE						
						2.4		SILT: dark brown, dry to mois	st, trace organic					
	-													
						7.7								
	-							SII T: light brown dry to mois	st					
	_			P60-B1-3		5.0								
						2.9								
	-							CLAY with Silt: light brown a	and yellowish brown, dry to moist					
		leeve				3.9								
	5-	s hs												
		ect PL												
	3.9													
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						3.9								
	-													
				D60 D1 9		10								
	-			F00-B1-0		4.0								
								Clayey SILT with Sand: reddish yellow nodules light greenish gray, dry to moist						
						3.0								
	-													
						2.7								
	10-													
			The	borobolo was	tormina	tod at a	nnrov	imatoly 10 ft, bolow ground surfa	GROUNDWATER LEVE	L INFORMATION:	fter completion			
	_		THE		termina		appiox	inately to it. below ground suna	GENERAL NOTES:					
									An IPad Integrated GPS accuracy of 5 meters.	unit was used to locate tr	ie dorenole with an			
									The boring was backfille	d with bentonite				
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	KLEINFELDER							CR DRAWN BY A SHUR	TLEFF NCDOT: U-	5757	10			
1			1	Bright Peo	ple. R	ight !	Solut	ions. CHECKED BY: M B	BURNS Biesecker F	Road				
		-	/					DATE: 10/	8/2019 Lexington,	NC				
											PAGE: 1 Of 1			

OFFICE FILTER: RALEIGH

Logged By: A.Shulet/ DHI Crew: Andrew C. Ver.Vert. Datum: VCGS 193: Available Diffinitie Regulation: See Drilling Method: See Drilling Method: Weather 707 Clear Borehald Blander: See Drilling Method: See Drilling Method: Image: 100 diggeos Drilling Method: See Drilling Method: See Drilling Method: Image: 100 diggeos Drilling Method: See Drilling Method: See Drilling Method: Image: 100 diggeos Image: Drilling Method: See Drilling Method: See Drilling Method: Image: 100 diggeos 100 diggeos Image: Image: See Drilling Method: Image: 100 diggeos 100 diggeos Image: Image: Image: Image: Image: 100 diggeos 100 diggeos 100 diggeos Image: Image: Image: Image: Image: 100 diggeos 100 diggeos 100 diggeos 100 diggeos Image: Image: <t< th=""><th colspan="3">Date Begin - End:</th><th>8/08/2</th><th colspan="3">8/08/2019</th><th>Drilling Company:</th><th>Quantex</th><th>BC</th><th>RING LOG P60-B2</th></t<>	Date Begin - End:			8/08/2	8/08/2019			Drilling Company:	Quantex	BC	RING LOG P60-B2				
Hor. Vect. Datum: VVCS 1994. Not Axailable Diffing Equipment: Certuine Georgical Vivesther: 70°F Clear Borthole Diameter: Vivesther: 70°F Clear Borthole Diameter: Vivesther: 70°F Clear Bit Mitchice: Sectors 100 sectors 3.8422 n. table 5.8422 n. table 5.842 n. table 5.8422 n. table 5.8422 n. table 5.8422 n. table 5.8422 n. table 5.8421 n	Logged By:			A Shu	rtleff			Drill Crew:	Andrew C						
Plungs:	HorVert. Datum: WGS 1984 - Not Ava					Not A	vaila	able Drilling Equipment: Genuine Geoprobe							
Weather: TOT' Clear Borchold Diameter: FIELD EXPLORATION Instruct 20 SH027 M Linguide: 80 SH027 M Subject 20 SH	Plunge:90 degrees D							Drilling Method:	See Drilling Method Column						
FIELD EXPLORATION Interface of MAGE? IN Latence 30 MAGE?	Weather	:		_70°F (Clear			Borehole Diameter:							
Image: second	FIELD EXPLORATION														
B B B B B B B CONCRETE CONCRETE CONCRETE CONCRETE CONCRETE CONCRETE CONCRETE Image: Concrete	oth (feet)	ling Method	nple Type	nple Number	overy =No Recovery)	/ FID (ppmv)	phical Log	Latitude: 35.84622° N Longitude: -80.25402° E Surface Condition: Concrete							
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CLAY: light brown and reddish brown, dry to moist CLAY: light brown and reddish brown, dry to moist CLAY with Silt: light brown and yellowish brown, dry to moist CLAY with Silt: light brown and yellowish brown, dry to moist CLAY with Silt: light brown and yellowish brown, dry to moist CLAY with Silt: light brown and yellowish brown, dry to moist CLAY with Silt: light brown and yellowish brown, dry to moist CLAY with Silt: light brown and yellowish brown, dry to moist CLAY with Silt: light brown and yellowish brown, dry to moist CLAY with Silt and Sand: reddish yellow nodules light greentsh gray, dry to moist The borshole was termineted at approximately 10 ft. below ground surface. CREATER TO CLAY with Silt and Sand: reddish yellow nodules light greentsh gray, dry to moist The borshole was termineted at approximately 10 ft. below ground surface. CREATER TO CLAY with Silt and Sand: reddish yellow nodules light greentsh gray, dry to moist The borshole was termineted at approximately 10 ft. below ground surface. The borshole was termineted at approximately 10 ft. below ground surface. The borshole was termineted at approximately 10 ft. below ground surface. The borshole was termineted at approximately 10 ft. below ground surface. The borshole was termineted at approximately 10 ft. below ground surface. The borshole was termineted at approximately 10 ft. below ground surface. The borshole was termineted at approximately 10 ft. below ground surface. The borshole was termineted at approximately 10 ft. below ground surface. The borshole was termineted at approximately 10 ft. below ground surface. The borshole was termineted at approximately 10 ft. below ground surface. The borshole was termineted at approximately 10 ft. below ground surface. The borshole was termineted at approximately 10 ft. below ground surface. The borshole was termineted at approximately 10 ft. below ground surface. The borshole was term						3.0									
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10 12 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: An iPad integrated GPS unit was used to locate the borehole with an accuracy of 5 meters. The boring was backfilled with bentonite Image: Completion of the completion of						3.3		CLAY with Silt and Sand: re	vith Silt and Sand: reddish yellow nodules light greenish gray, dry to moist						
10 1.2 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: An IPad integrated GPS unit was used to locate the borehole with an accuracy of 5 meters. The boring was backfilled with bentonite Image: Project NO: BORING LOG P60-B2 PROJECT NO: 2020 1105.001A Image: Project Right People. Right Solutions. Drawn Bya SHURTLEFF CHECKED BY: M BURNS DATE: 10/8/2019 BORING LOG P60-B2 NCDOT: U-5757 Biesecker Road Lexington, NC 11 PAGE: 101															
10 The borehole was terminated at approximately 10 ft. below ground surface. GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after completion. GRERAL NOTES: An IPad integrated GPS unit was used to locate the borehole with an accuracy of 5 meters. The boring was backfilled with bentonite PROJECT NO.: 20201105.001A BORING LOG P60-B2 PROJECT NO.: Digitable People. Right Solutions. PROJECT NO.: 20201105.001A BORING LOG P60-B2 PROJECT NO.: DIDITION BY A SHURTLEFF NCDOT: U-5757 11 PROJECT NO.: DIDITION DRAWN BYA SHURTLEFF NCDOT: U-5757 11 PAGE: 10/8/2019 DATE: 10/8/2019 DATE: 10/8/2019 PAGE: 10f1															
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: An Curacy of 5 meters. The boring was backfilled with bentonite PROJECT NO:: 20201105.001A PROJECT NO:: 20201105.001A PROJECT NO:: 20201105.001A BORING LOG P60-B2 DRAWN BYA SHURTLEFF CHECKED BY: M BURNS DATE: 10/8/2019 NCDOT: U-5757 Biesecker Road Lexington, NC 11	10-														
Image: Second system PROJECT NO.: 20201105.001A BORING LOG P60-B2 Image: Bright People. Right Solutions. DRAWN BYA SHURTLEFF NCDOT: U-5757 Image: Biesecker Road DATE: 10/8/2019	The borehole was terminated at approximately 10 ft. below ground surface.														
KLEINFELDER DRAWN BYA SHURTLEFF NCDOT: U-5757 11 Bright People. Right Solutions. CHECKED BY: M BURNS Biesecker Road Lexington, NC 11 DATE: 10/8/2019 PAGE: 1 of 1								PROJECT NO.: 20201105.001A	PROJECT NO.: 20201105.001A BORING LOG P60-B2						
Bright People. Right Solutions. CHECKED BY: M BURNS Biesecker Road Lexington, NC DATE: 10/8/2019 PAGE: 1 of 1	KLEINFELDER						DE	CR DRAWN BY A SHUR	TLEFF NCDOT: U	-5757	11				
DATE: 10/8/2019 PAGE: 1 of 1	Bright People. Right Solutions.					ight S	Solut	ions. CHECKED BY: ME	BURNS Biesecker	Road					
		-	/					DATE: 10/	8/2019	, 110	PAGE: 1 of 1				

OFFICE FILTER: RALEIGH



APPENDIX D ANALYTICAL REPORT AND GRAPHS



													F03640	
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	
										% light	% mid	% heavy		
s	P50 - B1 - 5	23.2	<0.58	<0.58	<0.58	<0.58	<0.12	<0.19	<0.023	0	0	0	PHC not detected,(BO)	
s	P50 - B1 - 9	22.4	<0.56	<0.56	<0.56	<0.56	<0.11	<0.18	<0.022	0	0	0	PHC not detected,(BO)	
S	P50 - B2 - 10	23.4	<0.59	<0.59	<0.59	<0.59	<0.12	<0.19	<0.023	0	0	0	PHC not detected	
s	P50 - B3 - 6	20.0	<0.5	<0.5	<0.5	<0.5	<0.1	<0.16	<0.02	0	0	0	PHC not detected,(BO)	
	Initial C	alibrator	QC check	OK					Final F	CM QC	Check	OK		95.7 %
Results generated by a QED HC-1 analyser. Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values are not corrected for moisture or stone content														
Fingerprints provide a tentative hydrocarbon identification. The abbreviations are:- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for sample fingerprint match to library														
(SBS) or (LE	(SBS) or (LBS) = Site Specific or Library Background Subtraction applied to result : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate present													







Results generated by a QED HC-1 analyser. Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values are not corrected for moisture or stone content Fingerprints provide a tentative hydrocarbon identification. The abbreviations are:- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for sample fingerprint match to library (SBS) or (LBS) = Site Specific or Library Background Subtraction applied to result : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate present

QED

700





Results generated by a QED HC-1 analyser. Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values are not corrected for moisture or stone content Fingerprints provide a tentative hydrocarbon identification. The abbreviations are:- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for sample fingerprint match to library (SBS) or (LBS) = Site Specific or Library Background Subtraction applied to result : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate present
Project: NCDOT U-5757 ; PARCEL 60

QED

700





Full-Service Analytical & Environmental Solutions NC Certification No. 402 NC Drinking Water Cert No. 37735 SC Certification No. 99012

9/11/19 13:49

Kleinfelder SE, Inc. (Morrisville) Mike Burns 3200 Gateway Centre Blvd. Suite 100 Morrisville, NC 27560 Project: U5757

Lab Submittal Date: 09/05/2019 Prism Work Order: 9090051

This data package contains the analytical results for the project identified above and includes a Case Narrative, Sample Results and Chain of Custody. Unless otherwise noted, all samples were received in acceptable condition and processed according to the referenced methods.

Data qualifiers are flagged individually on each sample. A key reference for the data qualifiers appears at the end of this case narrative.

Please call if you have any questions relating to this analytical report.

Respectfully,

PRISM LABORATORIES, INC.

Angela D. Overcash VP Laboratory Services

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Reviewed By Terri W. Cole For Angela D. Overcash Project Manager

Data Qualifiers Key Reference:

- RLM Sample container suspected to have low methanol content. Results possibly biased high.
- SR Surrogate recovery outside the QC limits.
- BRL Below Reporting Limit
- MDL Method Detection Limit
- RPD Relative Percent Difference
- * Results reported to the reporting limit. All other results are reported to the MDL with values between MDL and reporting limit indicated with a J.

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449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543 Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409

Sample Receipt Summary



09/11/2019

Prism Work Order: 9090051

Client Sample ID	Lab Sample ID	Matrix	Date/Time Sampled	Date/Time Received
P62-B8-1	9090051-01	Solid	09/03/19 17:15	09/05/19 17:00
P13-B5-6	9090051-02	Solid	09/03/19 11:25	09/05/19 17:00
P50-B4-5	9090051-03	Solid	09/03/19 16:00	09/05/19 17:00

Samples were received in good condition at 2.4 degrees C unless otherwise noted.

Full-Service Analytical & Environmental Solutions

Summary of Detections

09/11/2019 Prism Work Order: 9090051

Prism ID	Client ID	Parameter	Method	Result	Units
9090051-01	P62-B8-1	Diesel Range Organics	*8015C	32	mg/kg dry



09/11/2019

Kleinfelder SE, Inc. (Morrisville)	Project: U5757
Attn: Mike Burns	
3200 Gateway Centre Blvd. Suite 100	
Morrisville, NC 27560	Sample Matrix: Solid

Client Sample ID: P62-B8-1 Prism Sample ID: 9090051-01 Prism Work Order: 9090051 Time Collected: 09/03/19 17:15 Time Submitted: 09/05/19 17:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	32	mg/kg dry	8.2	2.8	1	*8015C	9/9/19 13:01	ZRC	P910080
			Surrogate			Recov	very	Control L	.imits
			o-Terphenyl			78	%	31-123	
Gasoline Range Organics by GC/FID									RLM
Gasoline Range Organics	BRL	mg/kg dry	6.0	1.6	50	*8015C	9/9/19 13:46	TBL	P910087
			Surrogate			Recov	very	Control L	.imits
			a,a,a-Trifluo	rotoluene		14	1 %	50-137	SR
General Chemistry Parameters									
% Solids	85.0	% by Weight	0.100	0.100	1	*SM2540 G	9/9/19 7:50	EDV	P910085



09/11/2019

Kleinfelder SE, Inc. (Morrisville)	Project: U5757
Attn: Mike Burns	
3200 Gateway Centre Blvd. Suite 100	
Morrisville, NC 27560	Sample Matrix: Solid

Client Sample ID: P13-B5-6 Prism Sample ID: 9090051-02 Prism Work Order: 9090051 Time Collected: 09/03/19 11:25 Time Submitted: 09/05/19 17:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	BRL	mg/kg dry	8.6	2.9	1	*8015C	9/6/19 19:50	ZRC	P9I0080
			Surrogate			Recov	very	Control L	imits.
			o-Terphenyl		83	83 %		31-123	
Gasoline Range Organics by GC/FID									RLM
Gasoline Range Organics	BRL	mg/kg dry	6.2	1.7	50	*8015C	9/9/19 14:14	TBL	P9I0087
			Surrogate			Recov	very	Control L	.imits
			a,a,a-Trifluo	rotoluene		16:	3 %	50-137	SR
General Chemistry Parameters									
% Solids	81.5	% by Weight	0.100	0.100	1	*SM2540 G	9/9/19 7:50	EDV	P910085



09/11/2019

Kleinfelder SE, Inc. (Morrisville)	Project: U5757
Attn: Mike Burns	
3200 Gateway Centre Blvd. Suite 100	
Morrisville, NC 27560	Sample Matrix: Solid

Client Sample ID: P50-B4-5 Prism Sample ID: 9090051-03 Prism Work Order: 9090051 Time Collected: 09/03/19 16:00 Time Submitted: 09/05/19 17:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	BRL	mg/kg dry	8.5	2.8	1	*8015C	9/6/19 20:28	ZRC	P9I0080
			Surrogate			Recov	ery	Control L	imits.
			o-Terphenyl			75	%	31-123	
Gasoline Range Organics by GC/FID									RLM
Gasoline Range Organics	BRL	mg/kg dry	6.8	1.9	50	*8015C	9/9/19 14:42	TBL	P9I0087
			Surrogate			Recov	ery	Control L	.imits
			a,a,a-Trifluo	rotoluene		15:	3 %	50-137	SR
General Chemistry Parameters									
% Solids	82.6	% by Weight	0.100	0.100	1	*SM2540 G	9/9/19 7:50	EDV	P910085



Project: U5757

Prism Work Order: 9090051 Time Submitted: 9/5/2019 5:00:00PM

Kleinfelder SE, Inc. (Morrisville) Attn: Mike Burns 3200 Gateway Centre Blvd. Suite 100 Morrisville, NC 27560

Gasoline Range Organics by GC/FID - Quality Control

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P9I0087 - 5030B										
Blank (P9I0087-BLK1)			I	Prepared	& Analyze	d: 09/09/1	9			
Gasoline Range Organics	BRL	5.0	mg/kg wet							
Surrogate: a,a,a-Trifluorotoluene	5.75		mg/kg wet	5.000		115	50-137			
LCS (P9I0087-BS1)			I	Prepared	& Analyze	d: 09/09/1	9			
Gasoline Range Organics	49.2	5.0	mg/kg wet	50.00		98	41-138			
Surrogate: a,a,a-Trifluorotoluene	5.55		mg/kg wet	5.000		111	50-137			
LCS Dup (P9I0087-BSD1)			I	Prepared	& Analyze	d: 09/09/1	9			
Gasoline Range Organics	49.5	5.0	mg/kg wet	50.00		99	41-138	0.6	20	
Surrogate: a,a,a-Trifluorotoluene	5.35		mg/kg wet	5.000		107	50-137			



Project: U5757

Prism Work Order: 9090051 Time Submitted: 9/5/2019 5:00:00PM

Kleinfelder SE, Inc. (Morrisville) Attn: Mike Burns 3200 Gateway Centre Blvd. Suite 100 Morrisville, NC 27560

Diesel Range Organics by GC/FID - Quality Control

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P9I0080 - 3546										
Blank (P9I0080-BLK1)				Prepared	& Analyze	d: 09/06/1	9			
Diesel Range Organics	BRL	7.0	mg/kg wet							
Surrogate: o-Terphenyl	1.09		mg/kg wet	1.333		82	31-123			
LCS (P910080-BS1)				Prepared	& Analyze	d: 09/06/1	9			
Diesel Range Organics	67.9	7.0	mg/kg wet	66.67		102	46-126			
Surrogate: o-Terphenyl	1.16		mg/kg wet	1.333		87	31-123			
LCS Dup (P9I0080-BSD1)				Prepared	& Analyze	d: 09/06/1	9			
Diesel Range Organics	68.6	7.0	mg/kg wet	66.67		103	46-126	1	20	
Surrogate: o-Terphenyl	1.17		mg/kg wet	1.333		88	31-123			
Matrix Spike (P9I0080-MS1)	Sou	urce: 909005	1-03	Prepared	& Analyze	d: 09/06/1	9			
Diesel Range Organics	69.1	8.4	mg/kg dry	80.46	BRL	86	50-117			
Surrogate: o-Terphenyl	1.18		mg/kg dry	1.609		74	31-123			
Matrix Spike Dup (P9I0080-MSD1)	Sou	urce: 909005	1-03	Prepared	& Analyze	d: 09/06/1	9			
Diesel Range Organics	65.9	8.5	mg/kg dry	80.73	BRL	82	50-117	5	24	
Surrogate: o-Terphenyl	1.17		mg/kg dry	1.615		73	31-123			

Sample Extraction Data

Prep Method: 3546

Lab Number	Batch	Initial	Final	Date/Time
9090051-01	P910080	30.1 g	1 mL	09/06/19 9:35
9090051-02	P9I0080	30.11 g	1 mL	09/06/19 9:35
9090051-03	P9I0080	30.03 g	1 mL	09/06/19 9:35

Prep Method: 5030B

Lab Number	Batch	Initial	Final	Date/Time
9090051-01	P910087	4.92 mL	5 mL	09/09/19 7:39
9090051-02	P910087	4.94 mL	5 mL	09/09/19 7:39
9090051-03	P910087	4.44 mL	5 mL	09/09/19 7:39

Prep Method: Solids, Dry Weight

Lab Number	Batch	Initial	Final	Date/Time
9090051-01	P910085	30 g	30 g	09/06/19 13:40
9090051-02	P910085	30 g	30 g	09/06/19 13:40
9090051-03	P910085	30 g	30 g	09/06/19 13:40

*CONTAINER TYPE CO		Method of Shipment: NOTE: AL	Relinquished By: Signature)	Relingbayed By (Signature)	Relinquished By: (Fignature)	Sampler's Signature						P50-B4-5		p13-85-6	4	P62-B8-1	SAMPLE DESCRIPTION	CLIENT	Phone: <u>919 755 501</u> Email Address: <u>m</u> EDD Type: PDF <u>E</u> Site Location Name: <u>Site Location Physical</u>	Client Company Name Report To/Contact Na Reporting Address:
DES: A = Amber	C GROUNDWA	L SAMPLE COOLERS	P.	Collean Kuli	ne(Prism Project N	L & D			0121 11 1,		-	-				913/19	COLLECTED	DATE	Address: Wiv	TOORES, INC. TOORES, INC. TOORES, INC. TOOR Road - Charlog S29-6364 - Fax: 7 S29-6364 - Fax: 7 S29-636
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October 14, 2019 Kleinfelder File No. RAL19R102483

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 62 Laser Investments, LLC WBS Element No. 54035.1.1, TIP No. U-5757 NC 8 (Winston Road) from 9th Street to SR 1408 (Biesecker Rd) in Lexington. Widen to multi lanes Kleinfelder Project No. 20201105.001A

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.**

Abiggil R. Shurtleff UU Environmental Staff Professional

Michael J Burns, PG Environmental Program Manager

ARS/MJB:asp

U-5757-P62 20201105.001A | RAL19R102483 © 2019 Kleinfelder 1544 Old US Hwy 52 October 14, 2019 www.kleinfelder.com



PRELIMINARY SITE ASSESSMENT REPORT PARCEL 62 LASER INVESTMENTS, LLC PARCEL 11332C00P0020B 1544 OLD US HIGHWAY 52 LEXINGTON, DAVIDSON COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 54035.1.1 STATE PROJECT U-5757 NC 8 (WINSTON RD) FROM 9TH STREET TO SR 1408 (BIESECKER RD) IN LEXINGTON. WIDEN TO MULTI LANES

KLEINFELDER PROJECT NO. 20201105.001A

OCTOBER 14, 2019

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U-5757-P62 20201105.001A | RAL19R102483 © 2019 Kleinfelder 1544 Old US Highway 52 October 14, 2019 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

PRELIMINARY SITE ASSESSMENT REPORT PARCEL 62 LASER INVESTMENTS, LLC PARCEL 11332C00P0020B 1544 OLD US HIGHWAY 52 LEXINGTON, DAVIDSON COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 54035.1.1 STATE PROJECT U-5757 NC 8 (WINSTON RD) FROM 9TH STREET TO SR 1408 (BIESECKER RD) IN LEXINGTON. WIDEN TO MULTI LANES

Prepared by:

Abigal R. Shurtleff UU Environmental Staff Professional

Reviewed by:

115

Michael J. Burns, PG Environmental Program Manager

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

October 14, 2019

Kleinfelder Project No. 20201105.001A

KLEINFELDER right People. Right Sol

PRELIMINARY SITE ASSESSMENT REPORT

Site Name and Location:	Parcel 62 1544 Old US Highway 52 Lexington, Davidson County, North Carolina
Latitude and Longitude:	35.846614°N, -80.253992°W
County Parcel Number	11332C00P0009
Facility ID Number:	N/A
Leaking UST Incident:	N/A
State Project No.:	U-5757
NCDOT Project No.:	NCDOT WBS Element 54035.1.1
Description:	NC 8 (Winston Rd) from 9 th Street to SR 1408 (Biesecker Rd) in Lexington. Widen to multi lanes
Date of Report:	October 14, 2019
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: Mahal Ar Burn 7E53DC44AC794CA	10/28/2019	CARDON CARD
Michael J Burns, LG NC License No. 1645		SEAL 1645 OLOGIS VAMES



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- 2 Site Map
- 3 Soil Sample Analytical Results

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- B Geophysical Survey Report
- C Boring Logs
- D Analytical Reports and Graphs



PRELIMINARY SITE ASSESSMENT PARCEL 62 LASER INVESTMENTS LLC PARCEL 11332C00P0009 1544 OLD US HIGHWAY 52 LEXINGTON, DAVIDSON COUNTY, NORTH CAROLINA

NCDOT WBS ELEMENT 54035.1.1 STATE PROJECT U-5757 NC 8 (WINSTON RD) FROM 9TH STREET TO SR 1408 (BIESECKER RD) IN LEXINGTON. WIDEN TO MULTI LANES

1 INTRODUCTION

Kleinfelder, Inc. (Kleinfelder) has prepared this Preliminary Site Assessment (PSA) report to document assessment activities performed on a parcel known by the Davidson County, NC Tax Assessor's Office as Parcel Number 11332C00P0009 and by NCDOT as Parcel 62 (the assessment area is hereafter referred to as the "Project Study Area"). The Project Study Area consists of the western portion of Parcel 62. Parcel 62 is currently primarily occupied by a car wash, Laser Express Auto Wash, and is located east of a portion of NC Highway 8 (Winston Road), west of a portion of Michael Alley, in the Town of Lexington, Davidson County, North Carolina (Figure 1).

Parcel 62 is not mentioned in the Hazardous Materials Survey Report, dated February 28, 2018, prepared by Kleinfelder for SEPI Engineering & Construction. As such, the purpose of the PSA was to evaluate whether unknown USTs or contaminated soil are 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 62 has a listed owner of Laser Investments, LLC. The parcel has a street address of 1544 Old US Highway 52. The majority of the parcel is currently occupied by a car wash, Laser Express Auto Wash, with associated vacuum islands, wash building, and paved asphalt parking areas. The eastern portion of the parcel appears to be utilized for vehicle storage for the northern adjoining parcel (Parcel 65; reportedly also owned by Laser Investments, LLC). The parcel is bounded by an automotive service center to the north (Sav-Mart); by a used car dealership with associated maintenance bays, sheds, and offices to the south; by NC Highway 8 (Winston Road) to the west, beyond which is residential and commercial land; and by Michael Alley to the east,



beyond which is vacant residential land and Mt. Carmel Free Will Baptist Church. 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 May 24, 2019, Request for Technical and Cost Proposal (RFP) and Kleinfelder's June 18, 2019 Technical and Cost Proposal. The NCDOT granted a formal Notice to Proceed on June 27, 2019.



2 HISTORY

2.1 PARCEL USAGE

The majority of the parcel consists of a car wash, Laser Express Auto Wash, with two (2) associated vacuum islands, a drive-though wash building, and paved asphalt parking areas. The eastern portion of the parcel, a maintained grass lawn, appears to be used intermittently for vehicle storage for the northern adjoining parcel (Parcel 65; reportedly owned by the same entity as Parcel 62).

Parcel 62 is not mentioned in the 2018 Hazardous Materials Survey Report prepared by Kleinfelder for SEPI Engineering & Construction.

Kleinfelder conducted historical research to determine whether listings of environmental concern were identified for Parcel 62. The following are the results of the additional research:

- Based on a review of aerial photographs, the site appears to have been occupied by rural residential land from at least 1936 to 2002, with the current car wash building apparent by at least 2005. The eastern portion of the parcel, a maintained grass lawn, appears to have been utilized intermittently for vehicle storage for the northern adjoining property (Parcel 65) since at least 2008.
- Kleinfelder searched the registered UST database, maintained by the North Carolina Department of Environmental Quality (NCDEQ). The site was not listed.
- Kleinfelder utilized the NCDEQ online Division of Waste Management Site Locator Tool, which depicted Parcel 62 as associated with Leaking UST Incident #30638. However, this incident is actually associated with the former Pantry #3183 located at 1401 Winston Road, approximately 0.12-miles south of Parcel 62. This site is known by NCDOT as Parcel 40 and is discussed in a separate PSA.
- No other listings for Parcel 62 were identified on any of the available NCDEQ pollution incident databases.

2.2 FACILITY ID NUMBERS

Kleinfelder reviewed the NCDEQ UST database for Parcel 62. The parcel was not identified as having active and/or inactive registered USTs on-site.



2.3 GROUNDWATER INCIDENT NUMBERS

Parcel 62 is erroneously associated with Leaking UST Incident #30638 on the NCDEQ online Site Locator Tool. However, this incident is actually associated with the former Pantry #3183 located at 1401 Winston Road, approximately 0.12-miles south of Parcel 62. This site is known by NCDOT as Parcel 40 and is discussed in a separate PSA.



3 OBSERVATIONS

3.1 GROUNDWATER MONITORING WELLS

No current or former groundwater monitoring wells were observed on Parcel 62 at the time of site exploration, August 8, 2019.

3.2 ACTIVE USTS

Based on review of the NCDEQ UST database, site visits and previous reports, there are no (0) active or inactive USTs located within the Project Study Area.

3.3 OTHER FEATURES APPARENT BEYOND PROJECT STUDY AREA

The Project Study Area consisted on the western portion of the parcel. There were no features of concern observed in the car wash or vacuum areas of the parcel or in the eastern portion of the parcel, beyond the Project Study Area. No in-ground oil/water separators were observed by Kleinfelder personnel at the time of site exploration.



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 on July 16, 2019. Pyramid utilized electromagnetic (EM) induction technology to locate potential geophysical anomalies and potential USTs within the Project Study Area.

There were no EM responses that were not associated with known utilities, vehicles, or other previously known conditions.

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, and, if encountered, to determine the horizontal and vertical extent of contamination. The soil borings were planned to be advanced to maximum depths of 10 feet below the ground surface (bgs) unless groundwater was encountered. Field screening using a photo ionization detector (PID) was to be conducted at 1-foot intervals



beginning at 0 foot to 1 foot. The soil sample with the highest PID reading above background or the sample from the maximum drilled depth would be 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 Quantex, Inc. (Quantex) to perform the drilling on-site on August 8, 2019. Quantex advanced six (6) soil borings (P62-B1 through P62-B6) by direct-push technology from the ground surface to boring termination at locations specified by Kleinfelder. The borings were located within the public utility easement and/or right-of-way along NC Highway 8 (Winston Road) and the western and southern parcel boundaries. Soil borings P62-B1 and P62-B2 were advanced to 10-ft bgs in the vicinity of proposed catch basins to be located on-site. However, olfactory evidence of soil contamination from 1 to 2 feet bgs was detected in soil boring P62-B2. Therefore, soil borings P62-B3, P62-B4, and P62-B6 were advanced to the south, east, and west of soil boring P62-B2, respectively, to 5-ft bgs in an attempt to define the horizontal extent of contamination. Two (2) soil borings were attempted by Quantex to the north of P62-B2; however, refusal was met onto an unknown concrete surface at approximately 1-foot bgs, and the borings were terminated. Olfactory evidence of contamination was detected in P62-B4, which necessitated the advancement of P62-B5 farther to the east, which did not return olfactory evidence of contamination.

Kleinfelder then subcontracted South Atlantic Environmental Drilling and Construction Company (SAEDACCO) to perform additional drilling on-site on September 3, 2019. SAEDACCO advanced two (2) soil borings (P62-B7 through P62-B8) by direct-push technology from the ground surface to boring termination at locations specified by Kleinfelder. Soil boring P62-B7 was advanced north of soil boring P62-B2 in a further attempt to delineate the northern extent of soil contamination. P62-B7 returned loose fill and little recovery within the upper three feet of soil where olfactory evidence of contamination had been present within soil boring P62-B2. Therefore, soil boring P62-B8 was advanced further north of soil boring P62-B7 to recover soil from within the upper three feet, which was partially successful. It appears that the upper 2 to 3 feet of soil underneath the paved asphalt on the western portion of the site are a loose sandy fill, which has displaced the contaminated upper portion of soil. Soil boring P62-B7 and P62-B8 were advanced only to 5 feet bgs where olfactory evidence of contamination had been previously identified.



All soil boring locations were identified in the field using a GPS, and soil boring locations are shown on Figure 2. Soil samples were collected by driving Macro Core[™] samplers in 5-foot intervals. Each soil core was cut open, the soil samples were classified, and the soil was divided into 1-foot sections. Each 1-foot section was screened in the field using a PID. The PID readings are summarized in Table 1.

Soils were determined to be primarily a clay within the upper two feet, underlain by three feet of silty clay, underlain by clayey silt or silt. A layer approximately 6-inches thick of dark brown and black silt with olfactory evidence of contamination was encountered just beneath the asphalt or concrete surface of soil borings P62-B2, P62-B4, and P62-B6. Groundwater was not encountered in any of the borings at the termination depths of 5 or 10 feet 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 the exception of P62-B4 and P62-B6. Based on the PID data and visual/olfactory observations, one or two of the samples from each boring were selected for on-site laboratory analysis. One sample for P62-B8 was selected for off-site laboratory analysis, as on-site analysis was not available during the second soil sampling event.

The on-site 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 possible use of petroleum products on Parcel 62. The UVF analysis also provided data regarding Environmental Protection Agency 16 total Polycyclic Aromatic Hydrocarbons (PAHs), and Benzo(a)pyrene (BaP).

The off-site sample (P62-B8-1) was analyzed by Prism Laboratories of Charlotte, NC for TPH GRO and DRO, because of the previously obtained soil sample results from on-site laboratory analysis. Samples were collected directly from the soil core utilizing disposable nitrile gloves and a disposable plastic corer. Samples were iced upon collection. The Chain of Custody can be found in Appendix D.



5 RESULTS

5.1 GEOPHYSICAL INVESTIGATION

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

5.2 SOIL SAMPLING DATA

The UVF analysis of soil samples indicated TPH DRO above the NCDEQ Action Limit in soil samples collected from 1-ft bgs in soil borings P62-B2, P62-B4, and P62-B6. Soils samples collected from 2-ft bgs in soil borings P62-B2 and P62-B4 returned TPH DRO below the NCDEQ Action Limit. This, along with significantly lower PID readings from 2-ft bgs in all three contaminated borings, suggests that vertical contamination is limited to the upper foot of soil. Soil samples collected from 1-ft bgs from soil borings P62-B1, P62-B3, P62-B5, and P62-B8 returned TPH DRO below the NCDEQ Action Limits, which was utilized to determine the horizontal extent of contamination. Fingerprint analysis indicated the contamination is likely degraded fuel.

As such, shallow soil impact appears to be present within the existing right-of-way and public utility easements, within the parcel boundaries, above NCDEQ Action Limits. A summary of soil sample analytical results is presented in Table 2. The laboratory results associated with each soil boring are presented on Figure 3 as well as the estimated area of contamination. The laboratory report and graphs are included in Appendix D.

5.3 SAMPLE OBSERVATIONS

Soils were observed for any obvious evidence of contamination. Obvious olfactory evidence of contamination was noted in the soil samples collected between ground surface and 1-foot bgs in soil borings P62-B2, P62-B4, and P62-B6. No other visual or olfactory evidence of contamination as noted in soil samples collected from other borings or below 1-foot bgs in soil borings P62-B2, P62-B4, or P62-B6.

5.4 QUANTITY CALCULATIONS

Kleinfelder identified quantifiable soil impact in the current right-of-way. It should be noted that soil borings P62-B4 and P62-B5, utilized to determine the eastern extent of soil contamination, were placed based on field observations of marked rights-of-way and utility easements (pavement markings and stakes), which appear to differ from those locations depicted on Figure 2 utilizing



the NCDOT MicroStation files. As such, portions of contamination may extend outside of the rightof-way or public utility easement.

Below is the estimated quantity of impacted soil on-site:

- (Figure 3) Estimated Area of Contamination: 16-ft wide x 43-ft long
- (Appendix C) Estimated Thickness: Between ground surface at 1-ft bgs
- Total: 17.2 tons petroleum-contaminated soils



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 within the Project Study Area.
- Parcel 62 is erroneously associated with Leaking UST Incident #30638 on the NCDEQ online Site Locator Tool. However, this incident is actually associated with the former Pantry #3183 located at 1401 Winston Road, approximately 0.12-miles south of Parcel 62.
- Soil impact was detected above the NCDEQ Action Limits for TPH DRO between the ground surface and 1-ft bgs in borings P62-B2, P62-B4, and P62-B6. The vertical extent of contamination appears to be confined to the upper foot of soil, and the horizontal extent of contamination was defined by obtaining soil samples below the NCDEQ Action Limit for TPH DRO from 1-ft bgs in borings P62-B1, P62-B5, P62-B3, and P62-B8.
- Approximately 17 tons of petroleum-contaminated soils are present within the upper foot of the southwestern portion of Parcel 62.
- Groundwater was not encountered in the soil borings at depths of 5 to 10 feet bgs.



7 RECOMMENDATIONS

Based on results of this Preliminary Site Assessment, Kleinfelder recommends additional sampling and special handling of petroleum-contaminated soils be performed within the Project Study Area on Parcel 62 in Lexington, Davidson County, North Carolina.



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



TABLES

Date	Sample ID	Depth (ft)	PID Reading	Notes
		1	0.2	UVF Analysis
		2	0.0	,
		3	0.2	
		4	0.3	
0/0/0040		5	0.0	
8/8/2019	U5757-P62-B1	6	0.0	
		7	0.1	
		8	0.9	UVF Analysis
		9	0.1	
		10	0.8	
		1	5.5	UVF Analysis
		2	0.6	UVF Analysis
		3	1.0	
		4	0.5	
8/8/2010	LI5757_P62_B2	5	0.7	
0/0/2013	03737-1 02-02	6	1.3	
		7	1.1	
		8	0.9	
		9	0.7	
		10	0.3	
		1	1.9	UVF Analysis
		2	2.1	
8/8/2019	U5757-P62-B3	3	1.9	
		4	2.5	
		5	2.1	
		1	101.8	UVF Analysis
		2	3.4	UVF Analysis
8/8/2019	U5757-P62-B4	3	1.1	
		4	1.9	
		5	1.2	
		1	1.5	UVF Analysis
		2	1.9	
8/8/2019	U5757-P62-B5	3	2.5	
		4	1.9	
		5	2.3	
		1	41.2	UVF Analysis
0/0/2040		2	4.2	
8/8/2019	U5/5/-P62-B6	3	2.3	
		4	3.1	
		5	1.9	
0/2/2040		2	0.3	
91312019	U3/3/-P02-B/	3	0.3	
		4	0.5	
		C d	0.0	Officito Apolyoia
			0.0	Unsile Analysis
0/3/2010	115757 062 89	2	0.0	
91312019	00/0/-202-00	3	0.0	
		4 	0.0	
		Ð	0.0	

Table 1: Soil Sample Screening Results

Notes:

1) PID = Photoionization Detector

2) PID readings in parts per million (ppm)

3) NR = no recovery

TABLE 2: Soil Sample Analytical Summary

Parameter					Comparison Criteria								
Sample ID	P62-B1-1	P62-B1-8	P62-B2-1	P62-B2-2	P62-B3-1	P62-B4-1	P62-B4-2	P62-B5-1	P62-B6-1	P62-B8-1		Protection of Groundwater	Residential Health
PID Reading (ppm)	0.2	0.9	5.5	0.6	1.9	101.8	3.4	1.5	41.2	0.0	State Action Limit		
Collection Depth (ft bgs)	1	8	1	2	1	3.4	2	1	1	1			
Collection Date	8/8/19	8/8/19	8/8/19	8/8/19	8/8/19	8/8/19	8/8/19	8/8/19	8/8/19	9/3/19			
UVF Method	_												
Diesel Range Organics	26.9	1.0	1,584	18.9	0.52	20,654	16.8	22.3	10,445	0.36	100		
Gasoline Range Organics	<0.49	<0.5	<6.2	<0.42	<0.52	<79.6	<0.52	<0.44	<93.1	<0.5	50		
EPA Method 8015C													
Diesel Range Organics	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	32	100		
Gasoline Range Organics	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1.6	50		

Notes:

Results displayed in milligram per kilogram (mg/kg) ft bgs = Feet below ground surface

Bold = Above Laboratory Detection Limit Highlighted = Above State Action Limit

UVF = Ultraviolet Flouresence

EPA = Environmental Protection Agency



FIGURES










APPENDIX A SITE PHOTOGRAPHS



View facing southwesterly along Winston Road on Parcel 62 including vacuum island.



View facing northeasterly toward the Laser Express car wash on Parcel 62.

Original in Color

	PROJECT NO:20201105.001A	
	DRAWN: September 2019	ା
	DRAWN BY: ARS	
KLEINFELDER	CHECKED BY: MB	Prelimir
Bright People. Right Solutions.	FILE NAME:	
www.kleinfelder.com	Photo Pages	Lexington, L

TE PHOTOGRAPHS	FIGURE
ary Site Assessment Report U-5757-P62 Davidson County, North Carolina	A-1



View facing north along Winston Road on Parcel 62.

Original in Color

	PROJECT NO:20201105.001A DRAWN: September 2019	SITE PHOTOGRAPHS	FIGURE
KLEINFELDER Bright People. Right Solutions. www.kleinfelder.com	DRAWN BY: ARS CHECKED BY: MB FILE NAME: Photo Pages	Preliminary Site Assessment Report U-5757-P62 Lexington, Davidson County, North Carolina	A-2



APPENDIX B GEOPHYSICAL SURVEY REPORT



PYRAMID GEOPHYSICAL SERVICES (PROJECT 2019-211)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION: PARCEL 62 NCDOT PROJECT U-5757 (54035.1.1)

1544 WINSTON ROAD, LEXINGTON, NC

August 20, 2019

Report prepared for:

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

Figures

Figure 1 – Parcel 62 - Geophysical Survey Boundaries and Site Photographs
Figure 2 – Parcel 62 - EM61 Results Contour Map
Figure 3 – Overlay of Metal Detection Results onto the NCDOT Engineering Plans

LIST OF ACRONYMS

DFDual Frequency	
EMElectromagnetic	
GPRGround Penetrating Radar	
GPSGlobal Positioning System	
NCDOTNorth Carolina Department of Transportati	on
ROWRight-of-Way	
USTUnderground Storage Tank	

EXECUTIVE SUMMARY

Project Description: Pyramid Environmental conducted a geophysical investigation for Kleinfelder, Inc. at Parcel 62 located at 1544 Winston Road in Lexington, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project U-5757). 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, 2019, 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 an electromagnetic (EM) induction-metal detection survey. A total of five EM anomalies were identified. The five EM anomalies were directly attributed to visible cultural features; therefore, verification GPR was not required. The geophysical data <u>did not record any evidence of unknown metallic USTs at Parcel 62</u>.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Kleinfelder, Inc. at Parcel 62 located at 1544 Winston Road in Lexington, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project U-5757). 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, 2019, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site included an asphalt parking lot surrounded by grass and concrete 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 an electromagnetic (EM) induction-metal detection survey. 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.

Verification GPR was not required due to all EM anomalies being directly attributed to visible cultural features at the ground surface (see *Discussion of Results* section below).

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, asphal/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	Vacuums	
2	Fence	
3	Light	
4	Fence	
5	Sign	

Five EM anomalies were recorded, and all anomalies were associated with visible cultural features at the ground surface, including vacuums, a fence, a light, and a sign.

The geophysical data <u>did not record any evidence of unknown metallic USTs at Parcel 62</u>. **Figure 3** provides an overlay of the metal detection results on the NCDOT MicroStation engineering plans for reference.

SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 and GPR data collected at Parcel 62 in Lexington, North Carolina, provides the following summary and conclusions:

- The EM61 survey provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- The five EM anomalies identified at the site were directly attributed to visible cultural features; therefore, verification GPR was not required.
- The geophysical data <u>did not record any evidence of unknown metallic USTs at</u> <u>Parcel 62</u>.

LIMITATIONS

Geophysical surveys have been performed and this report was prepared for Kleinfelder in accordance with generally accepted guidelines for EM61 surveys. It is generally recognized that the results of the EM61 surveys are non-unique and may not represent actual subsurface conditions. The EM61 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





View of Survey Area (Facing Approximately South)



View of Survey Area (Facing Approximately North)



DATE	7/19/2019	CLIENT	KLEINFELDER	
PYRAMID PROJECT #:	2019-211	FIGURE 1		



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, 2019, using a Geonics EM61-MK2 instrument. All of the EM anomalies were a result of features at the ground surface and verfication GPR was not required.





	DATE	7/19/2019	CLIENT	KLEINFELDER
	PYRAMID PROJECT #:	2019-211		FIGURE 2





APPENDIX C BORING LOGS

Dat	e Beg	jin -	- End: 8/08/2019 Dr					Dri	lling Company:	Qua	ntex	BO	RING LOG P62-B1
Log	iged E	By:		A Shu	rtleff			Dri	II Crew:	And	rew C		
Hor	Vert	. Da	tum	: WGS	1984 -	Not A	vaila	ble Dri	lling Equipment:	Gen	uine Geoprobe		
Plu	nge:			-90 de	grees			Dri	lling Method:	See [Drilling Method Column		
Wea	ather:			_70°F (Clear			Bo	rehole Diameter:				
									FI	ELD EXF	PLORATION		
		~		er	ery)	(או							
	it)	sthoo	/pe	qun	SCOVE	ndq)	Log				Latitude: 35.84652° N Longitude: -80.25400° E		
	(fee	g₩	e T	e N	lo R	Ē	lical				Surface Condition: Aspha	alt	
	epth	rillin	amp	amp	ecov IR=N	D/	raph						
			S	S	RE	<u>م</u>	U	ASPH	МТ		Lithologic Description	1	
	_			P62-B1-1		0.2		CLAY:	brown, dry to moist, t	trace silt			
						0.0							
	-							CLAY	with Silt: reddish bro	wn streal	ked black, dry to moist		
						02							
	_					0.2							
						0.3							
	-	SS											
		Sleev				0.0	rzau	SILT v	vith Clay: reddish yellow and reddish brown, dry to moist				
	5—	ush (
		ect P											
	_	ā				0.0							
						0.1							
	-												
				P62-B1-8		0.9							
	-					0.0							
						0.1							
	-												
						0.8							
	10—												
			The	borehole was	termina	ited at a	approx	imately 1) ft. below ground surfa	ace.	GROUNDWATER LEV Groundwater was not o	EL INFORMATION: bserved during drilling or a	fter completion.
	_										GENERAL NOTES: An iPad integrated GPS	S unit was used to locate th	e borehole with an
											accuracy of 5 meters.	ed with bentonite	
											The borning was backlin		
	-												
	-	-											
									PROJECT NO .:				
									20201105.001A		DURING LUC	5 1 02-01	
	1		_			, -							
(K	L	L	INF	Ę		Ľ	R	DRAWN BYA SHUR	KILEFF	NCDOT: U	-5757	1
			/	Bright Peo	ople. R	ight S	olut	ions.	CHECKED BY: ME	BURNS	Biesecker	Road NC	
			/						DATE: 10	/8/2019	Lexington	,	PAGE: 1 of 1

PLOTTED: 10/08/2019 04:13 PM BY: AShurtleff

OFFICE FILTER: RALEIGH

gINT FILE: KIF gint, master, 2020 gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2020.GLB [_KLF_ENVIRONMENTAL LOG]

	Date Beç	gin -	En	d: <u>8/08/2</u>	019			Dri	lling Company:	Quar	ntex	ВО	RING LOG P62-B2
	Logged	By:		A Shu	rtleff			Dri	II Crew:	Andr	ew C		
	HorVer	t. Da	atun	n: WGS	1984 -	Not A	vaila	ble Dri	lling Equipment:	Genu	line Geoprobe		
	Plunge:			-90 de	grees			Dri	lling Method:	See D	rilling Method Column		
	Weather			70°F C	Clear			Bo	rehole Diameter:				
					r	1			FI	ELD EXP	LORATION		
	oth (feet)	ing Method	nple Type	nple Number	overy =No Recovery)	/ FID (ppmv)	phical Log				Latitude: 35.84652° N Longitude: -80.25400° E Surface Condition: Concre	te	
	Dep	Drill	San	San	Rec (NR	PID	Gra				Lithologic Description		
								CONC	RETE with Gravel				
				P62-B2-B1		5.5		SILT: (dark brown and black,	odor, dry	to moist, trace silt		
	-							CLAY:	reddish brown and lig	ht brown	weak odor, dry to moist, trace sil		
				P62-B2-2		0.6							
	-							CLAY	with Silt: reddish vello	ow streak	ed black, dry to moist		
	-	-				1.0		U LA					
	-	es				0.5							
		Sleev				0.7							
	5- Since the second s												
	-	-				1.1							
	-	-				0.9							
						0.7							
	-							CLAY:	light greenish grav st	reaked pa	le red. drv to moist, iron oxide sta	ining	
,						0.3				p-	,,		
	10-		The	e borehole was	termina	0.3 ited at a	approx	imately 1	0 ft. below ground surfa	ace.	GROUNDWATER LEVE Groundwater was not of	EL INFORMATION: Deserved during drilling or a	fter completion.
I	-	-									<u>GENERAL NOTES:</u> An iPad integrated GPS accuracy of 5 meters. The boring was backfille	unit was used to locate th d with bentonite	e borehole with an
1	-	-											
I													
1									PROJECT NO.: 20201105.001A		BORING LOG	962-B2	
	K	L	E	E/NF	E	LC	DE	R	DRAWN BYA SHUR			5757	2
				Bright Peo	ple. R	ight s	Solut	ions.	CHECKED BY: ME	BURNS	Biesecker F	Road	
			/						DATE: 10/	/8/2019	Lexington,	NC	
									10,				PAGE: 1 of 1

PLOTTED: 10/08/2019 04:13 PM BY: AShurtleff

OFFICE FILTER: RALEIGH

gINT FILE: KIF gint master_2020 PROJECT NUMBER: 20201105.001A gINT TEMPLATE: E:KLF_STANDARD_GINT_LIBRARY_2020.GLB_[KLF_ENVIRONMENTAL LOG]

urtleff	Date Beg	jin -	Enc	d: 8/08/2	019			Drilling Con	npany:	Quantex		BO	RING LOG P62-B3			
ASh	Logged E	By:		A Shu	rtleff			Drill Crew:		Andrew C						
BY:	HorVert	. Da	tum	: WGS	1984 -	Not A	vaila	ble Drilling Equ	ipment:	Genuine Geoprobe	e					
3 PM	Plunge:			-90 de	grees			Drilling Met	hod:	See Drilling Method Co	blumn					
04:1	Weather:			80°F (Clear			Borehole Di	iameter:							
/2019									FIEL	D EXPLORATION						
10/08/				J.	(Ju	Ś										
ËD:	t	thod	be	admi	cove	bpm	Год			Latitu Longitu	ude: 35.84652° N					
ЦОЦ	(fee	g Me	e Ty	e Nr	ery lo Re) OI=	ical			Surfac	e Condition: Grass					
₽.	epth	rillinç	amp	amp	ecov IR=N	I / I	raph									
ŀ	Ō	Ō	ů	ŭ	22 2	Ы	0 III	SILT: brown and	light brown d	Lithol	ogic Description					
									light brown, u	ly to moist						
				P62-B3-1		1.9	$\left \right \right $	SILT: red, dry to	SILT: red, dry to moist, trace clay, micaceous							
								-		-						
	-															
						2.1										
	-	/es						CLAY with Silt: reddish yellow and light brown, dry to moist								
		Sleev							CLAY with Silt: reddish yellow and light brown, dry to moist							
		Push				1.9										
		Direct														
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		2.5														
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	-															
_																
LEIGH						2.1										
RA :	5															
ILTEF	0								GROUNDWATER LEVEL INFORMATION:							
-ICE F			The	borehole was	termina	ited at a	approx	imately 5 ft. below g	round surface.	Groun GENE	dwater was not ob RAL NOTES:	served during drilling or a	fter completion.			
OFF										An iPa accura	ad integrated GPS acy of 5 meters.	unit was used to locate th	e borehole with an			
	-									The bo	oring was backfille	d with excavated material				
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TAL L																
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r_202 STAN							PROJEC	T NO.:	R		P62-B3					
naste KLF_(2020110	5.001A								
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PLATI		KLEINFELDE									NCDOT: U-	5757 202d	3			
FILE: TEMF			/	Dirgitt Fe0	ρις. Λ	ignt 3	Joiul	CHECKE	UBI: MBU	CNN	Lexington,	NC				
gINT gINT								DATE:	DATE: 10/8/2019 PAGE:							

urtleff	Date Beg	jin -	Enc	l: <u>8/08/2</u>	019		Drilling Company: Quantex BORING LO										
ASh	Logged I	By:		A Shu	rtleff			Drill Crew:	_	Andrew C							
1 BY:	HorVert	t. Da	tum	: WGS	1984 -	Not A	vaila	ble Drilling Equip	pment:	Genuine Geoprobe							
3 PM	Plunge:			-90 de	grees			Drilling Methe	od:	See Drilling Method Column							
04:1	Weather:			75°F (Clear			Borehole Dia	meter:								
/2019									FIELD	EXPLORATION							
.ОТТЕD: 10/08/	(feet)	Method	e Type	e Number	ry o Recovery)	ID (ppmv)	cal Log			Latitude: 35.8465 Longitude: -80.254 Surface Condition: C	2° N 00° E oncrete						
Ы	Depth	Drilling	Sample	Sample	Recove (NR=No	PID / F	Graphi			Lithologic Descri	ption						
ŀ		-						CONCRETE									
							4 4 4										
				P62-B4-1		101.8		SILT: dark brown a	SILT: dark brown and black, odor, dry to moist, trace silt								
	-							CLAY: reddish bro	CLAY: reddish brown and light brown, weak odor, dry to moist, trace silt								
				P62-B4-2		3.4											
	-	eves						CLAY with Silt: reddish yellow streaked black, no odor, dry to moist									
		sh Slee															
		nd 1.1															
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		1.9															
		1.9															
	-	-															
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LEIG						1.2											
R: R∕	5-																
OFFICE FILTE	-		The	borehole was	termina	ited at a	approx	mately 5 ft. below gro	ely 5 ft. below ground surface. GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after <u>GENERAL NOTES</u> : An iPad integrated GPS unit was used to locate the b accuracy of 5 meters. The boring was backfilled with excavated material								
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R: 20																	
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ter_20 _STAI	\bigcirc							PROJECT	NO.:	BORING	.OG P62-B4						
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If_gint \TE: I)E		YA SHURTL		[·]]-5757	4					
:MPL/		Bright People. Right Solutio						Dutions. CHECKED BY: M BURNS Biesecker Road									
NT FII VT TE			/					DATE:	10/8/2	019	jton, NC						
all all								I				PAGE. 1011					

nurtleff	Date Beg	gin -	Enc	l: <u>8/08/2</u>	019			Drilling Company: Quantex BORING LOG P									
: ASh	Logged	By:		A Shu	rtleff			Drill Crew:	Andrew C								
A BY:	HorVer	t. Da	atum	WGS	1984 -	Not A	vailal	ble Drilling Equipment:	Genuine Geoprobe								
13 PN	Plunge:			-90 de	grees			Drilling Method:	See Drilling Method Column	I							
9 04:	Weather			_80°F C	Clear			Borehole Diameter:									
8/201								FIEI	_D EXPLORATION								
10/08		5		e	ery)	(vr											
TED:	et)	etho	ype	qun	ecov	udd)	Log		Latitude: 3 Longitude:	85.84652° N -80.25400° E							
LOT	ו (fee	В	le T	le N	ery Vo R	FID	lical		Surface Co	ndition: Grass	3						
<u> </u>	Dept	Drillin	Samp	Samp	Recov	/ DI	Brapl		Lithologic	Description							
ŀ			0)	0)	щĘ	ш		SILT: brown and red, dry	Litilologic	Description							
				P62-B5-1		1.5		SILT: brown and reddish brow	T: brown and reddish brown, dry to moist, trace clay, micaceous								
	-																
						19											
						1.0											
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		sh Sle															
								CLAY with Silf: raddish vellow and light brown, do to maist									
	-																
								About 3-4" of very moist silty of	LAY with Silt: reddish yellow and light brown, dry to moist \bout 3-4" of very moist silty clay at 3'								
		1.9															
	=																
НÐ																	
ZALE						2.3											
Ë	5-																
E FILT			The	borehole was	termina	ited at a	pproxi	mately 5 ft. below ground surface	. <u>GROUNDV</u> Groundwat	VATER LEVE er was not ob	EL INFORMATION: pserved during drilling or a	fter completion.					
DFFIC									<u>GENERAL</u> An iPad int	NOTES: egrated GPS	unit was used to locate th	e borehole with an					
0	-								accuracy of The boring	f 5 meters. was backfille	d with excavated material						
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Klf_gi LATE:	KLEINFELDEF						Έ		LEFF	ICDOT: U-	5757	5					
ILLE:		Bright People. Right Solution						ONS. CHECKED BY: M BU	JRNS E	Biesecker F	Road						
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J, J, L								· ·	· ·								

urtleff	Date Beg	jin -	Enc	d: 8/08/2	019			Drilling Company:	Quantex	во	RING LOG P62-B6					
ASh	Logged E	By:		A Shu	rtleff			Drill Crew:	Andrew C							
BY:	HorVert	. Da	tum	: WGS	1984 -	Not A	vaila	ble Drilling Equipment:	Genuine Geoprobe							
3 PM	Plunge:			-90 de	grees			Drilling Method:	See Drilling Method Column							
04:1	Weather:			75°F (Clear			Borehole Diameter:								
/2019								FIE	LD EXPLORATION							
10/08/				J.	(Â	5										
PLOTTED:	ר (feet)	ig Method	ole Type	ole Numbe	/ery No Recove	FID (ppm	hical Log		Latitude: 35.84652° Longitude: -80.25400' Surface Condition: Con	N E prete						
	Jept	Drillin	Samp	Samp	Recov) DI	Grapl		Lithologic Descripti	20						
ŀ			0,	0)	ш.		P	CONCRETE with Gravel	Lithologic Descripti							
				P62-B6-1		41.2		ILT: dark brown and black, odor, dry to moist, trace silt								
	_															
								LAY: reddish brown and light brown, weak odor, dry to moist, trace silt								
						12										
						4.2										
	-	seves						CLAY with Silt: reddish yellow streaked black, no odor, dry to moist								
		h Slee														
		t Pus				2.3										
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Ъ																
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5. 2.	5—															
OFFICE FILTE	-		The	borehole was	termina	ited at a	approxi	mately 5 ft. below ground surface	VEL INFORMATION: observed during drilling or a PS unit was used to locate th illed with excavated material	fter completion. e borehole with an						
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maste :KLF_								20201105.001A								
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PLAT							Solut		IRNS NCDOT:	J-5757 r Road	U					
TEM		_	/		,			olutions. CHECKED BY: M BURNS Biesecker Road Lexington, NC								
gINT gINT			-01					DATE: 10/8/2019 PAGE:								

untleff	Date Beg	jin -	End	: 9/03/2	019			Drilling Company:	SAEDACCO	ВС	ORING LOG P62-B7				
ASh	Logged E	By:		A Shu	rtleff			Drill Crew:	Brian E						
BY:	HorVert	. Da	tum	: WGS	1984 -	Not A	vaila	ole Drilling Equipment:	Genuine Geoprobe						
3 PM	Plunge:			-90 de	grees			Drilling Method:	See Drilling Method Column						
04:1	Weather:			90°F C	Clear			Borehole Diameter:							
2019								FIE	LD EXPLORATION						
0/08/				Ļ	کر ا	S									
LOTTED: 1	(feet)	g Method	le Type	le Numbe	ery Jo Recovei	FID (ppm/	nical Log		Latitude: 35.84 Longitude: -80.2 Surface Conditio	4646° N 25391° E n: Asphalt					
Ш.	lepth	rillin	amp	amp	ecov NR=N	D/	iraph		Little de sie Des						
ŀ			S	S	2 E	۵.	U	ASPHALT	Lithologic Des	scription					
							٥Y	Loose Fill SAND with Gravel	light gray, dry						
	-						စီစို								
						0.3	١٢٥								
	-	es													
		Sleev					٥Q								
		Push				0.3									
	-							CLAY with Silt: reddish yellow	v and red, dry to moist						
		0.5													
		0.5													
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EIGH						0.0									
RAL	_														
FILTER	5-		The						GROUNDWAT	ER LEVEL INFORMATION:					
FICE			The	Dorenole was	termina	led al a	ipproxi	matery 5 It. below ground surface	GENERAL NO	as not observed during drilling or a TES: ted ODS weitwee weed to least at	after completion.				
OF									An IPad Integra accuracy of 5 n	neters.	ne borenole with an				
	-								The boring was	backfilled with excavated materia	1				
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gINT gINT								DATE: 10/8	/2019	PAGE: 1					

urtleff	Date Beg	jin -	Enc	d: 9/03/2	019			Drilling Company:	SAEDACCO	EDACCO BORING LOG P62-B8					
ASh	Logged B	By:		A Shu	rtleff			Drill Crew:	Brian E						
ΒY:	HorVert	. Da	ntum	: WGS	1984 -	Not A	vaila	ble Drilling Equipment:	Genuine Geo	probe					
4 PM	Plunge:			-90 de	grees			Drilling Method:	See Drilling Met	hod Column					
04:1	Weather:			90°F (Clear			Borehole Diameter:							
/2019								FIE	LD EXPLORATIO	N					
PLOTTED: 10/08/	ר (feet)	ig Method	ole Type	ole Number	very No Recovery)	FID (ppmv)	hical Log		\$	Latitude: 35.84646° N Longitude: -80.25391° E Surface Condition: Aspha	lt				
	epth	rillin	amp	amp	R=N	D /	irapt								
			S	S	2 E	4	Ū	ASPHALT		Lithologic Description					
	-			P62-B8-1		0.0	10000	Loose Fill SAND with Gravel	light gray, dry	e sand					
						0.0		Cizi: groomon gray and gray,							
EIGH	0.0 - Diect Bry Steeves - 0.5 - 0.0					0.0		CLAY with Silt: reddish yellow and red, dry to moist							
RALE						0.0									
OFFICE FILTER: G]	5- The borehole was terminated at approximate						approxi	mately 5 ft. below ground surface	tely 5 ft. below ground surface. GROUNDWATER LEVEL INFORMATION: Groundwater was not observed during drilling or after <u>GENERAL NOTES</u> : An iPad integrated GPS unit was used to locate the t accuracy of 5 meters. The boring was backfilled with excavated material						
PROJECT NUMBER: 20201105.001A D_GINT_LIBRARY_2020.GLB															
gINT FILE: KIf_gint_master_2020 gINT TEMPLATE: E:KLF_STANDARC	KLEINFELDER Bright People. Right Solutions.						DE Soluti	PROJECT NO.: 20201105.001A DRAWN BYA SHURT CHECKED BY: M BI DATE: 10/8	LEFF JRNS 5/2019	BORING LOG NCDOT: U- Biesecker F Lexington,	B P62-B8 5757 Road NC	8 PAGE: 1 of 1			



APPENDIX D ANALYTICAL REPORT AND GRAPHS







Client: KLEINFELDER Address:

Contact: ABI SHURTLEFF

Operator

Samples taken

Samples extracted

Samples analysed

MAX MOYER

Thursday, August 8, 2019

Thursday, August 8, 2019

Thursday, August 8, 2019

Project: NCDOT U-5757 ; PARCEL 62

													F03640
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
										% light	% mid	% heavy	
s	P62 - B1 - 8	20.0	<0.5	<0.5	1	1	0.46	<0.16	<0.02	0	69.3	30.7	Deg Fuel 91.2%,(FCM)
s	P62 - B2 - 1	247.0	<6.2	<6.2	1584	1584	171.8	6.4	<0.25	0	76.5	23.5	Deg.Fuel 87.3%,(FCM)
s	P62 - B2 - 2	16.9	<0.42	<0.42	18.9	18.9	12	0.46	<0.017	0	70.8	29.2	Deg.Fuel 72.9%,(FCM)
,									, !				
, ,													
,													
,,													
,,													
	Initia	Calibrator	QC check	OK					Final F	см ос	Check	OK	101.3 %
Results gen	erated by a QED HC-1 analyser. Conce	entration value	s in mg/kg fo	or soil sample:	s and mg/L for	r water sample	es. Soil value	es are not cr	prrected for r	moisture	or stone	e content	
Fingerprints	provide a tentative hydrocarbon identifica	tion. The abbr	eviations are	- FCM = Re	sults calculate	ed using Fund	lamental Calibr	ation Mode	: % = confid	lence for	sample	fingerpri	nt match to library
(SBS) or (LF	3S) = Site Specific or Library Background	Subtraction ar	plied to resu	ult : (PFM) = P	'oor Fingerprir	nt Match : (T)	= Turbid : (P) =	= Particulate	present			5.	,

Project: NCDOT U-5757 ; PARCEL 62

QED Hydrocarbon Fingerprints











Client: KLEINFELDER Address:

Contact: ABI SHURTLEFF

Samples taken

Operator

Samples extracted

Samples analysed

MAX MOYER

Thursday, August 8, 2019

Thursday, August 8, 2019

Thursday, August 8, 2019

Project: NCDOT U-5757 ; PARCEL 62

													F03640
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
										% light	% mid	% heavy	
S	P62 - B1 - 1	19.4	<0.49	<0.49	26.9	26.9	19.4	0.73	<0.019	0	72.1	27.9	Deg.Fuel 70.8%,(FCM)
S	P62 - B3 - 1	20.6	<0.52	<0.52	0.52	0.52	0.56	<0.17	<0.021	0	50.1	49.9	V.Deg.PHC 66.8%,(FCM)
S	P62 - B4 - 1	3184.0	<79.6	<79.6	20654	20654	1932	72	<3.2	0	78.2	21.8	Deg.Fuel 79.3%,(FCM)
S	P62 - B4 - 2	20.8	<0.52	<0.52	16.8	16.8	15.7	0.58	<0.021	0	74.1	25.9	Deg.Fuel 80.2%,(FCM)
S	P62 - B5 - 1	17.7	<0.44	<0.44	22.3	22.3	10.6	0.45	<0.018	0	68.6	31.4	V.Deg.PHC 92.7%,(FCM)
S	P62 - B6 - 1	3756.0	<93.9	<93.9	10445	10445	3690	141.7	<3.8	0	75.7	24.3	Deg.Fuel 81.1%,(FCM)
	Initial C	alibrator	QC check	OK					Final F	CM QC	Check	OK	101.1 %
Results gene	erated by a QED HC-1 analyser. Concentr	ation values	in mg/kg fo	r soil samples	and mg/L for	water sample	s. Soil value	s are not co	rrected for r	moisture o	or stone	content	
Fingerprints	provide a tentative hydrocarbon identification	n. The abbre	viations are	- FCM = Res	sults calculate	d using Funda	amental Calibra	ation Mode :	: % = confid	ence for s	sample	fingerprir	it match to library
(SBS) or (LE	3S) = Site Specific or Library Background Sul	btraction ap	olied to resu	lt : (PFM) = P	oor Fingerprir	t Match : (T) :	= Turbid : (P) =	Particulate	present				





Full-Service Analytical & Environmental Solutions

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

9/11/19 13:49

Kleinfelder SE, Inc. (Morrisville) Mike Burns 3200 Gateway Centre Blvd. Suite 100 Morrisville, NC 27560 Project: U5757

Lab Submittal Date: 09/05/2019 Prism Work Order: 9090051

This data package contains the analytical results for the project identified above and includes a Case Narrative, Sample Results and Chain of Custody. Unless otherwise noted, all samples were received in acceptable condition and processed according to the referenced methods.

Data qualifiers are flagged individually on each sample. A key reference for the data qualifiers appears at the end of this case narrative.

Please call if you have any questions relating to this analytical report.

Respectfully,

PRISM LABORATORIES, INC.

Angela D. Overcash VP Laboratory Services

arrivate

Reviewed By Terri W. Cole For Angela D. Overcash Project Manager

Data Qualifiers Key Reference:

- RLM Sample container suspected to have low methanol content. Results possibly biased high.
- SR Surrogate recovery outside the QC limits.
- BRL Below Reporting Limit
- MDL Method Detection Limit
- RPD Relative Percent Difference
- * Results reported to the reporting limit. All other results are reported to the MDL with values between MDL and reporting limit indicated with a J.

This report should not be reproduced, except in its entirety, without the written consent of Prism Laboratories, Inc.

449 Springbrook Road - P.O. Box 240543 - Charlotte, NC 28224-0543 Phone: 704/529-6364 - Toll Free Number: 1-800/529-6364 - Fax: 704/525-0409

Sample Receipt Summary



09/11/2019

Prism Work Order: 9090051

Client Sample ID	Lab Sample ID	Matrix	Date/Time Sampled	Date/Time Received
P62-B8-1	9090051-01	Solid	09/03/19 17:15	09/05/19 17:00
P13-B5-6	9090051-02	Solid	09/03/19 11:25	09/05/19 17:00
P50-B4-5	9090051-03	Solid	09/03/19 16:00	09/05/19 17:00

Samples were received in good condition at 2.4 degrees C unless otherwise noted.

Full-Service Analytical & Environmental Solutions

Summary of Detections

09/11/2019 Prism Work Order: 9090051

Prism ID	Client ID	Parameter	Method	Result	Units
9090051-01	P62-B8-1	Diesel Range Organics	*8015C	32	mg/kg dry



09/11/2019

Kleinfelder SE, Inc. (Morrisville)	Project: U5757
Attn: Mike Burns	
3200 Gateway Centre Blvd. Suite 100	
Morrisville, NC 27560	Sample Matrix: Solid

Client Sample ID: P62-B8-1 Prism Sample ID: 9090051-01 Prism Work Order: 9090051 Time Collected: 09/03/19 17:15 Time Submitted: 09/05/19 17:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	32	mg/kg dry	8.2	2.8	1	*8015C	9/9/19 13:01	ZRC	P910080
			Surrogate			Recov	ery	Control L	.imits
			o-Terphenyl			78	%	31-123	
Gasoline Range Organics by GC/FID									RLM
Gasoline Range Organics	BRL	mg/kg dry	6.0	1.6	50	*8015C	9/9/19 13:46	TBL	P9I0087
			Surrogate			Recov	ery	Control L	.imits
			a,a,a-Trifluo	rotoluene		14:	1 %	50-137	SR
General Chemistry Parameters									
% Solids	85.0	% by Weight	0.100	0.100	1	*SM2540 G	9/9/19 7:50	EDV	P910085



09/11/2019

Kleinfelder SE, Inc. (Morrisville)	Project: U5757
Attn: Mike Burns	
3200 Gateway Centre Blvd. Suite 100	
Morrisville, NC 27560	Sample Matrix: Solid

Client Sample ID: P13-B5-6 Prism Sample ID: 9090051-02 Prism Work Order: 9090051 Time Collected: 09/03/19 11:25 Time Submitted: 09/05/19 17:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	BRL	mg/kg dry	8.6	2.9	1	*8015C	9/6/19 19:50	ZRC	P9I0080
			Surrogate			Recov	very	Control L	imits.
			o-Terphenyl			83	1%	31-123	
Gasoline Range Organics by GC/FID									RLM
Gasoline Range Organics	BRL	mg/kg dry	6.2	1.7	50	*8015C	9/9/19 14:14	TBL	P9I0087
			Surrogate			Recov	very	Control L	.imits
			a,a,a-Trifluoi	rotoluene		163	3 %	50-137	SR
General Chemistry Parameters									
% Solids	81.5	% by Weight	0.100	0.100	1	*SM2540 G	9/9/19 7:50	EDV	P910085



09/11/2019

Kleinfelder SE, Inc. (Morrisville)	Project: U5757
Attn: Mike Burns	
3200 Gateway Centre Blvd. Suite 100	
Morrisville, NC 27560	Sample Matrix: Solid

Client Sample ID: P50-B4-5 Prism Sample ID: 9090051-03 Prism Work Order: 9090051 Time Collected: 09/03/19 16:00 Time Submitted: 09/05/19 17:00

Parameter	Result	Units	Report Limit	MDL	Dilution Factor	Method	Analysis Date/Time	Analyst	Batch ID
Diesel Range Organics by GC/FID									
Diesel Range Organics	BRL	mg/kg dry	8.5	2.8	1	*8015C	9/6/19 20:28	ZRC	P9I0080
			Surrogate			Recov	very	Control L	imits.
			o-Terphenyl			75	5 %	31-123	
Gasoline Range Organics by GC/FID									RLM
Gasoline Range Organics	BRL	mg/kg dry	6.8	1.9	50	*8015C	9/9/19 14:42	TBL	P9I0087
			Surrogate			Recov	very	Control L	.imits
			a,a,a-Trifluo	rotoluene		15:	3 %	50-137	SR
General Chemistry Parameters									
% Solids	82.6	% by Weight	0.100	0.100	1	*SM2540 G	9/9/19 7:50	EDV	P910085



Project: U5757

Prism Work Order: 9090051 Time Submitted: 9/5/2019 5:00:00PM

Kleinfelder SE, Inc. (Morrisville) Attn: Mike Burns 3200 Gateway Centre Blvd. Suite 100 Morrisville, NC 27560

Gasoline Range Organics by GC/FID - Quality Control

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P9I0087 - 5030B										
Blank (P9I0087-BLK1)	Prepared & Analyzed: 09/09/19									
Gasoline Range Organics	BRL	5.0	mg/kg wet							
Surrogate: a,a,a-Trifluorotoluene	5.75		mg/kg wet	5.000		115	50-137			
LCS (P9I0087-BS1)			I	Prepared	& Analyze	d: 09/09/1	9			
Gasoline Range Organics	49.2	5.0	mg/kg wet	50.00		98	41-138			
Surrogate: a,a,a-Trifluorotoluene	5.55		mg/kg wet	5.000		111	50-137			
LCS Dup (P9I0087-BSD1)			I	Prepared	& Analyze	d: 09/09/1	9			
Gasoline Range Organics	49.5	5.0	mg/kg wet	50.00		99	41-138	0.6	20	
Surrogate: a,a,a-Trifluorotoluene	5.35		mg/kg wet	5.000		107	50-137			



Level II QC Report 9/11/19

Prism Work Order: 9090051

Time Submitted: 9/5/2019 5:00:00PM

Project: U5757

Kleinfelder SE, Inc. (Morrisville) Attn: Mike Burns 3200 Gateway Centre Blvd. Suite 100 Morrisville, NC 27560

Diesel Range Organics by GC/FID - Quality Control

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch P9I0080 - 3546										
Blank (P9I0080-BLK1)				Prepared	& Analyze	d: 09/06/1	9			
Diesel Range Organics	BRL	7.0	mg/kg wet							
Surrogate: o-Terphenyl	1.09		mg/kg wet	1.333		82	31-123			
LCS (P910080-BS1)				Prepared	& Analyze	d: 09/06/1	9			
Diesel Range Organics	67.9	7.0	mg/kg wet	66.67		102	46-126			
Surrogate: o-Terphenyl	1.16		mg/kg wet	1.333		87	31-123			
LCS Dup (P9I0080-BSD1)				Prepared	& Analyze	d: 09/06/1	9			
Diesel Range Organics	68.6	7.0	mg/kg wet	66.67		103	46-126	1	20	
Surrogate: o-Terphenyl	1.17		mg/kg wet	1.333		88	31-123			
Matrix Spike (P9l0080-MS1)	Sou	rce: 909005	1-03	Prepared	& Analyze	d: 09/06/1	9			
Diesel Range Organics	69.1	8.4	mg/kg dry	80.46	BRL	86	50-117			
Surrogate: o-Terphenyl	1.18		mg/kg dry	1.609		74	31-123			
Matrix Spike Dup (P9l0080-MSD1)	Sou	rce: 909005	1-03	Prepared	& Analyze	d: 09/06/1	9			
Diesel Range Organics	65.9	8.5	mg/kg dry	80.73	BRL	82	50-117	5	24	
Surrogate: o-Terphenvl	1.17		ma/ka drv	1.615		73	31-123			

Sample Extraction Data

Prep Method: 3546

Lab Number	Batch	Initial	Final	Date/Time
9090051-01	P910080	30.1 g	1 mL	09/06/19 9:35
9090051-02	P9I0080	30.11 g	1 mL	09/06/19 9:35
9090051-03	P9I0080	30.03 g	1 mL	09/06/19 9:35

Prep Method: 5030B

Lab Number	Batch	Initial	Final	Date/Time
9090051-01	P910087	4.92 mL	5 mL	09/09/19 7:39
9090051-02	P910087	4.94 mL	5 mL	09/09/19 7:39
9090051-03	P910087	4.44 mL	5 mL	09/09/19 7:39

Prep Method: Solids, Dry Weight

Lab Number	Batch	Initial	Final	Date/Time																	
9090051-01	P910085	30 g	30 g	09/06/19 13:40																	
9090051-02	P910085	30 g	30 g	09/06/19 13:40																	
9090051-03	P910085	30 g	30 g	09/06/19 13:40																	
*CONTAINER TYPE CODI	NPDES: UPS GHand-defi NC I SC NC I SC	Method of Shipment: NOTE: ALL SAMPLES	Relinquished By: (Signature)	Relinquered By (Signature)	reinquisted by: (signature)	Upon relinquishing, this C submitted in writing to the	Sampler's Signature					<u> </u>	P50-B4-5		P13-B5-6	Ļ	P62-B8-1 0	SAMPLE DESCRIPTION	CLIENT	Client Company Name: Report To/Contact Nam Reporting Address: 3 Sulte 100, Mon Phone: <u>419</u> 755 5011 Email Address: <u>mit</u> EDD Type: PDF <u>Exc</u> Site Location Name: Site Location Physical A	PRIS
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