


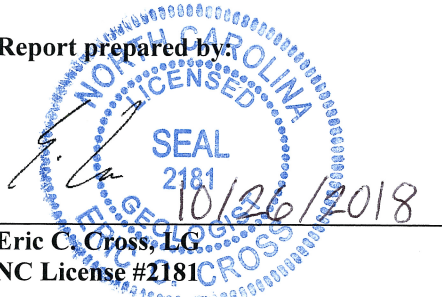
Pyramid Environmental & Engineering, P.C. Project # 2018-242
Preliminary Site Assessment (PSA) – Parcel 005 - EAC Investments, LLC

PRELIMINARY SITE ASSESSMENT
PARCEL 005 - EAC INVESTMENTS, LLC
1105 MEBANE OAKS ROAD
MEBANE, ALAMANCE COUNTY, NORTH CAROLINA
STATE PROJECT: I-5711
WBS ELEMENT: 50401.1.FS1
OCTOBER 20, 2018


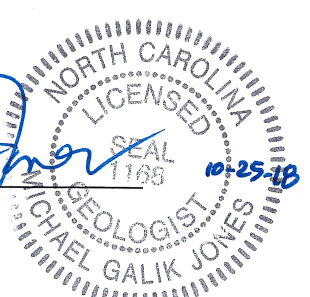
Report prepared for:

Mr. Gordon Box
GeoEnvironmental Section
Geotechnical Engineering Unit
North Carolina Department of Transportation
1020 Birch Ridge Drive
Raleigh, NC 27610

Report prepared by:



Eric C. Cross, LG
NC License #2181

Report reviewed by:



Michael G. Jones, LG
NC License #1168



PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.
P.O. BOX 16265
GREENSBORO, NC 27416-0265
(336) 335-3174

C-257 –Geology
C-1251 – Engineering

TABLE OF CONTENTS

EXECUTIVE SUMMARY OF RESULTS	1
1.0 INTRODUCTION.....	4
1.1 BACKGROUND INFORMATION	4
1.2 PROJECT INFORMATION	4
2.0 SITE HISTORY	5
3.0 GEOPHYSICAL INVESTIGATION	6
4.0 SOIL SAMPLING ACTIVITIES & RESULTS.....	7
4.1 SOIL ASSESSMENT FIELD ACTIVITIES	7
4.2 SOIL SAMPLE ANALYTICAL RESULTS	7
4.3 TEMPORARY MONITORING WELL INSTALLATION	8
5.0 CONCLUSIONS AND RECOMMENDATIONS	9
5.1 GEOPHYSICAL INVESTIGATION	9
5.2 LIMITED SOIL ASSESSMENT.....	9
5.3 LIMITED GROUNDWATER ASSESSMENT	9
5.4 RECOMMENDATIONS.....	10
6.0 LIMITATIONS.....	10
7.0 CLOSURE	10

TABLE OF CONTENTS (Continued)

FIGURES

Figure 1: Topographic Map

Figure 2: Soil Boring Locations and Three Known USTs

TABLES

Table 1: Summary of Soil Field Screening Results

Table 2: Summary of Soil Sample QED Analytical Results for GRO/DRO

APPENDICES

Appendix A: Historical Aerial Photographs

Appendix B: Environmental Incident Documents

Appendix C: Geophysical Investigation Report

Appendix D: Soil Boring Logs

Appendix E: RED Lab QED HC-1 Hydrocarbon Analysis Results

Acronyms

BLS	Below Land Surface
BTEX	Benzene, Toluene, Ethylbenzene, & Xylenes
CADD	Computer Aided Design and Drafting
COC	Chain of Custody
CSA.....	Comprehensive Site Assessment
DEQ	Department of Environmental Quality
DRO	Diesel Range Organics
DWM	Division of Waste Management
EM.....	Electromagnetic (as with EM-61)
EPA.....	Environmental Protection Agency
GRO	Gasoline Range Organics
GCLs.....	Gross Contaminant Levels
GPR.....	Ground Penetrating Radar
HASP	Health & Safety Plan
MSCC	Maximum Soil Contaminant Concentration
MTBE	Methyl Tertiary Butyl Ether
µg/L.....	Micrograms per Liter
mg/kg	Milligram per kilogram
NPDES.....	National Pollution Discharge Elimination System
NCAC	North Carolina Administrative Code
NCDOT.....	North Carolina Department of Transportation
OSHA.....	Occupational Safety and Health Administration
OVA.....	Organic Vapor Analyzer
PPM.....	Parts Per Million
PID	Photo-ionization Detector
PSA	Preliminary Site Assessment
PVC.....	Poly-vinyl Chloride
RFP	Request for Proposal
ROW	Right of Way
SVOCs	Semi-Volatile Organic Compounds
TW	Temporary Well
TPH.....	Total Petroleum Hydrocarbons
UVF.....	Ultraviolet Fluorescence (UVF) QED Analyzer
UST.....	Underground Storage Tank
US EPA.....	United States Environmental Protection Agency
VOCs.....	Volatile Organic Compounds

**PRELIMINARY SITE ASSESSMENT
PARCEL 005 - EAC INVESTMENTS, LLC
1105 MEBANE OAKS ROAD
MEBANE, ALAMANCE COUNTY, NORTH CAROLINA**

EXECUTIVE SUMMARY OF RESULTS

Pyramid Environmental & Engineering P.C. (Pyramid) has prepared this Preliminary Site Assessment (PSA) report documenting background information, field activities, assessment activities, findings, conclusions, and recommendations for Parcel 005, owned by EAC Investments, LLC. The property currently contains an active gas station surrounded by asphalt and grass medians at 1105 Mebane Oaks Road, Mebane, NC. This PSA was conducted on behalf of the North Carolina Department of Transportation (NCDOT) in accordance with Pyramid's August 9, 2018, technical proposal. This PSA is a part of State Project I-5711.

The purpose of this assessment was to determine the presence or absence of underground storage tanks (USTs) and impacted soils between the existing edge of pavement and the proposed Right-Of-Way (ROW) and/or easements, whichever distance was greater. The PSA was conducted with particular attention to the areas to be cut as indicated by slope stake lines and cross-sections or to be excavated for the installation of drainage features.

The following statements summarize the results of the PSA:

- **Site History:** Pyramid interviewed DEQ personnel, interviewed property owners, and reviewed aerial photographs to assess past uses of the property. Pyramid reviewed historical aerial photographs obtained from Google Earth dating back to 1993. Historical information reviewed as part of the PSA indicated that the property was undeveloped in 1998. The 2005 aerial shows the gas station building on the property, indicating that construction of the building occurred sometime between 1998 and 2005. Visual observations and the NCDOT documents indicate that three known USTs are currently operating at the facility. Records review provided the following UST and Facility ID information for the property: UST Number WS-8994, Facility ID 36280.

On August 31, 2018, Pyramid emailed the Alamance County parcel address (1105 Mebane Oaks Road, Mebane, NC) to Ms. Mindy Leopard, Hydrogeologist with the Department of Environmental Quality (DEQ), UST Section, with a request to investigate any environmental incidents associated with the parcel. Ms. Leopard responded to the email and verified that Groundwater Incident #44230 is associated with this site and has been closed out.

Pyramid reviewed the environmental incident documents associated with the above-referenced incident. The documents indicate that a UST petroleum release was reported at the site in October 2013. Soil sampling was completed in association with an Initial Abatement Action Report submitted in December 2013. The DEQ reviewed the report and granted a Notice of No Further Action (NNFA) for the site in January 2014.

On September 10, 2018, Pyramid Project Manager Eric Cross performed a site investigation at the property. Mr. Cross did not observe any significant environmental risks on the property at the time of the investigation. Out of the three known USTs, the two southern USTs were observed to be within the NCDOT proposed ROW. The northern of the three known USTs is directly adjacent to the proposed ROW on its west side, with its east edge apparently on the proposed ROW line.

- **Geophysical Survey:** A total of nine EM anomalies were identified. The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. The EM survey recorded three high-amplitude anomalies associated with the three known USTs, and one EM anomaly associated with unknown buried metal. These anomalies were further investigated with GPR.

GPR verified the sizes and orientations of the three known USTs. The northern UST (UST #1) was approximately 16 feet long by 7 feet wide. The central UST (UST #2) was approximately 28 feet long by 8 feet wide. The southern UST (UST #3) was approximately 38.5 feet long by 8 feet wide. GPR recorded evidence of isolated high-amplitude reflectors in the southern portion of the property that lacked the size and characteristics typically associated with a UST. This feature was classified as a no confidence anomaly. This anomaly was approximately 4 feet long by 2.5 feet wide. Collectively, the geophysical data recorded evidence of three known USTs and one no confidence anomaly at Parcel 5.

- **Limited Soil Assessment:** A total of five soil borings were performed across the property. Soil samples were screened in the field using an organic vapor analyzer (OVA) and select soil samples were analyzed for Diesel Range Organics (DRO) and Gasoline Range Organics (GRO) using a QED Analyzer. The DEQ action level for TPH-GRO is 50 milligrams per kilogram (mg/kg) and the action level for TPH-DRO is 100 mg/kg. Soil samples were screened with an OVA and select soil samples were analyzed for DRO and GRO using a QED Analyzer. None of the soil samples analyzed exhibited DRO or GRO concentrations above DEQ action levels.

- **Limited Groundwater Assessment:** The water table was not encountered in the upper 8 feet of the soil column that was sampled during this PSA. Review of the NCDOT engineering plans for this parcel indicate that groundwater will not be encountered during construction activities, based on shallow excavations and a water table depth greater than 8 feet below the ground surface. Therefore, it was not necessary to collect a groundwater sample.
- **Contaminated Soil Volumes:** No evidence of petroleum-impacted soils (DRO/GRO > DEQ Action Levels) was observed during this investigation. Therefore, no recommendations for the treatment, handling, or disposal of such materials are warranted.

It should be noted that, if impacted soil is encountered during road construction outside of the area analyzed by this investigation, the impacted soil should be managed according to NC DEQ Division of Waste Management (DWM) guidelines and disposed of at a permitted facility.

1.0 INTRODUCTION

Pyramid Environmental & Engineering P.C. (Pyramid) has prepared this Preliminary Site Assessment (PSA) report documenting background information, field activities, assessment activities, findings, conclusions, and recommendations for Parcel 005, owned by EAC Investments, LLC. The property currently contains an active gas station surrounded by asphalt and grass medians at 1105 Mebane Oaks Road, Mebane, NC. This PSA was conducted on behalf of the North Carolina Department of Transportation (NCDOT) in accordance with Pyramid's August 9, 2018, technical proposal. This PSA is a part of State Project I-5711.

The purpose of this assessment was to determine the presence or absence of underground storage tanks (USTs) and impacted soils between the existing edge of pavement and the proposed Right-Of-Way (ROW) and/or easements, whichever distance was greater. The PSA was conducted with particular attention to the areas to be cut as indicated by slope stake lines and cross-sections or to be excavated for the installation of drainage features. The location of the subject site is shown on **Figure 1**.

1.1 Background Information

Based on the NCDOT's August 1, 2018, *Request for Technical and Cost Proposal (RFP)*, the PSA was conducted between the existing edge of pavement and the proposed ROW and/or easement lines (whichever distance was greater), with emphasis on the areas to be cut as indicated by slope stake lines and cross-sections or to be excavated for the installation of drainage features and/or other utilities, in accordance with the CADD files provided to Pyramid by the NCDOT. The PSA included the following:

- Research the properties for past uses and possible releases.
- Conduct a preliminary geophysical site assessment and limited soil assessment across the entire parcel with emphasis on the areas to be cut as indicated by slope stake lines and cross-sections or to be excavated for the installation of drainage features and/or other utilities.
- If groundwater is likely to be encountered by subsequent excavation required by construction, then Pyramid will attempt to obtain a groundwater sample from the parcel.

1.2 Project Information

Prior to field activities, a Health and Safety Plan was prepared. Prior to drilling activities, the public underground utilities were located and marked by the North Carolina One-Call Service. Pyramid's geophysical staff provided additional private utility locating services to mark the on-site private, buried utilities.

2.0 SITE HISTORY

The NCDOT Pre-Scope comments for Parcel 005 in the RFP documents provided to Pyramid on August 1, 2018, provided the following background information related to the site:

“Currently convenience store/gas station. Three tanks currently in use. GWI # 44230 is associated with this site and has closed out.”

Pyramid interviewed DEQ personnel, interviewed property owners, and reviewed aerial photographs to assess past uses of the property. Pyramid reviewed historical aerial photographs obtained from Google Earth dating back to 1993. Aerial photographs ranging from 1993 to 2017 are included in **Appendix A**. Historical information reviewed as part of the PSA indicated that the property was undeveloped in 1998. The 2005 aerial shows the gas station building on the property, indicating that construction of the building occurred sometime between 1998 and 2005. Visual observations and the NCDOT documents indicate that three known USTs are currently operating at the facility. Records review provided the following UST and Facility ID information for the property: UST Number WS-8994, Facility ID 36280.

On August 31, 2018, Pyramid emailed the Alamance County parcel address (1105 Mebane Oaks Road, Mebane, NC) to Ms. Mindy Lepard, Hydrogeologist with the Department of Environmental Quality (DEQ), UST Section, with a request to investigate any environmental incidents associated with the parcel. Ms. Lepard responded to the email and verified that Groundwater Incident #44230 is associated with this site and has been closed out.

Pyramid reviewed the environmental incident documents associated with the above-referenced incident. The documents indicate that a UST petroleum release was reported at the site in October 2013. Soil sampling was completed in association with an Initial Abatement Action Report submitted in December 2013. The DEQ reviewed the report and granted a Notice of No Further Action (NNFA) for the site in January 2014. The NNFA letter and environmental sampling reports associated with the incident are included as **Appendix B**.

On September 10, 2018, Pyramid Project Manager Eric Cross performed a site investigation at the property. Mr. Cross did not observe any significant environmental risks on the property at the time of the investigation. The three known USTs were observed to be within the NCDOT proposed ROW and/or easements.

3.0 GEOPHYSICAL INVESTIGATION

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

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

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of nine EM anomalies were identified. The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. The EM survey recorded three high-amplitude anomalies associated with the three known USTs, and one EM anomaly associated with unknown buried metal. These anomalies were further investigated with GPR.

GPR verified the sizes and orientations of the three known USTs. The northern UST (UST #1) was approximately 16 feet long by 7 feet wide. The central UST (UST #2) was approximately 28 feet long by 8 feet wide. The southern UST (UST #3) was approximately 38.5 feet long by 8 feet wide. GPR recorded evidence of isolated high-amplitude reflectors in the southern portion of the property that lacked the size and characteristics typically associated with a UST. This feature was classified as a no confidence anomaly. This anomaly was approximately 4 feet long by 2.5 feet wide. Collectively, the geophysical data recorded evidence of three known USTs and one no confidence anomaly at Parcel 5.

The full details of the geophysical investigation are documented in Pyramid’s Geophysical Investigation Report, dated September 17, 2018, which is included as **Appendix C**.

4.0 SOIL SAMPLING ACTIVITIES & RESULTS

4.1 Soil Assessment Field Activities

On October 2, 2018, Pyramid mobilized to the site, drilled soil borings and collected the proposed soil samples for the PSA. Five (5) soil borings (5-1 through 5-5) were advanced on the subject property. The soil borings were completed using a truck-mounted Geoprobe drill rig. The selected locations were chosen to avoid public utilities along the adjacent roads and private utilities associated with the business while remaining in the proposed ROW and/or easement, or within other areas of concern such as proposed drainage features and areas designated for soil removal as indicated by the NCDOT engineering plans. The locations of the borings are shown on **Figure 2**.

Soil samples were continuously collected in four-foot long disposable sleeves from each boring for geologic description and visual examination for signs of contamination. Soil recovered from each sleeve was screened in the field using an Organic Vapor Analyzer (OVA) approximately every 2 feet, depending on the soil recovery. In general, the soil sample with the highest OVA reading was selected from each boring for QED Ultra-Violet Fluorescence (UVF) laboratory analysis. If field screening detected multiple elevated readings, then additional soil samples from each boring were selectively chosen for UVF analysis. The soil boring logs with the soil descriptions, visual examination, and OVA screening results are included in **Appendix D**. The OVA field screening results are summarized in **Table 1**. To prevent cross-contamination, new disposable nitrile gloves were worn by the sampling technician during the sampling activities and were changed between samples. Petroleum odor was not detected in any of the boring samples during the field screening.

The soil samples selected for total petroleum hydrocarbon (TPH) analyses were analyzed utilizing the QED UVF HC-1 Analyzer system from RED Lab. The DEQ & NCDOT now accept this instrument as an analytical method to provide total petroleum hydrocarbon (TPH) results for soil analysis for PSA projects. Pyramid preserved the samples for UVF analysis in methanol-filled containers provided by RED Lab, an approved laboratory for performing the UVF screening. The samples were analyzed in the field in real-time when possible by a Pyramid employee who has been certified by RED Lab to perform the QED analyses. The soil samples selected for analysis using the QED Analyzer were analyzed for TPH as diesel range organics (DRO) and TPH as gasoline range organics (GRO).

4.2 Soil Sample Analytical Results

QED Results

The DEQ action level for TPH-GRO is 50 milligrams per kilogram (mg/kg) and the action level for TPH-DRO is 100 mg/kg. Soil samples were screened with an OVA and select soil samples were analyzed for DRO and GRO using a QED Analyzer. None of the

soil samples analyzed exhibited DRO or GRO concentrations above DEQ action levels. The soil sample QED results are summarized in **Table 2**. A copy of the QED analysis report is included in **Appendix E**.

4.3 Temporary Monitoring Well Installation

The water table was not encountered in the upper 8 feet of the soil column that was sampled during this PSA. Review of the NCDOT engineering plans for this parcel indicate that groundwater will not be encountered during construction activities, based on shallow excavations and a water table depth greater than 8 feet below the ground surface. Therefore, it was not necessary to collect a groundwater sample.

5.0 CONCLUSIONS AND RECOMMENDATIONS

As requested by the NCDOT, Pyramid has completed a PSA at Parcel 005 (EAC Investments, LLC) located at 1105 Mebane Oaks Road, Mebane, NC. The following is a summary of the assessment activities and results.

5.1 Geophysical Investigation

Pyramid performed electromagnetic (EM) and ground penetrating radar (GPR) surveys across the accessible portions of the Parcel. A total of nine EM anomalies were identified. The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. The EM survey recorded three high-amplitude anomalies associated with the three known USTs, and one EM anomaly associated with unknown buried metal. These anomalies were further investigated with GPR.

GPR verified the sizes and orientations of the three known USTs. The northern UST (UST #1) was approximately 16 feet long by 7 feet wide. The central UST (UST #2) was approximately 28 feet long by 8 feet wide. The southern UST (UST #3) was approximately 38.5 feet long by 8 feet wide. GPR recorded evidence of isolated high-amplitude reflectors in the southern portion of the property that lacked the size and characteristics typically associated with a UST. This feature was classified as a no confidence anomaly. This anomaly was approximately 4 feet long by 2.5 feet wide. Collectively, the geophysical data recorded evidence of three known USTs and one no confidence anomaly at Parcel 5.

5.2 Limited Soil Assessment

The DEQ action level for TPH-GRO is 50 milligrams per kilogram (mg/kg) and the action level for TPH-DRO is 100 mg/kg. Soil samples were screened with an OVA and select soil samples were analyzed for DRO and GRO using a QED Analyzer. None of the soil samples analyzed exhibited DRO or GRO concentrations above DEQ action levels.

5.3 Limited Groundwater Assessment

The water table was not encountered in the upper 8 feet of the soil column that was sampled during this PSA. Review of the NCDOT engineering plans for this parcel indicate that groundwater will not be encountered during construction activities, based on shallow excavations and a water table depth greater than 8 feet below the ground surface. Therefore, it was not necessary to collect a groundwater sample.

5.4 Recommendations

Petroleum-Impacted Soils

No evidence of petroleum-impacted soils (DRO/GRO > DEQ Action Levels) was observed during this investigation. Therefore, no recommendations for the treatment, handling, or disposal of such materials are warranted.

Out of the three known USTs, the two southern USTs were observed to be within the NCDOT proposed ROW. The northern of the three known USTs is directly adjacent to the proposed ROW on its west side, with its east edge apparently on the proposed ROW line.

It should be noted that, if impacted soil is encountered during road construction outside of the area analyzed by this investigation, the impacted soil should be managed according to NC DEQ Division of Waste Management (DWM) guidelines and disposed of at a permitted facility.

6.0 LIMITATIONS

The results of this preliminary investigation are limited to the boring locations completed during this limited assessment and presented in this report. The laboratory results only reflect the current conditions at the locations sampled on the date this PSA was performed.

7.0 CLOSURE

This report was prepared for, and is available solely for use by, the NCDOT and their designees. The contents thereof may not be used or relied upon by any other person without the express written consent and authorization of Pyramid Environmental & Engineering, P.C. (Pyramid). The observations, conclusions, and recommendations documented in this report are based on site conditions and information reviewed at the time of Pyramid's investigation. Pyramid appreciates the opportunity to provide this environmental service.

FIGURES

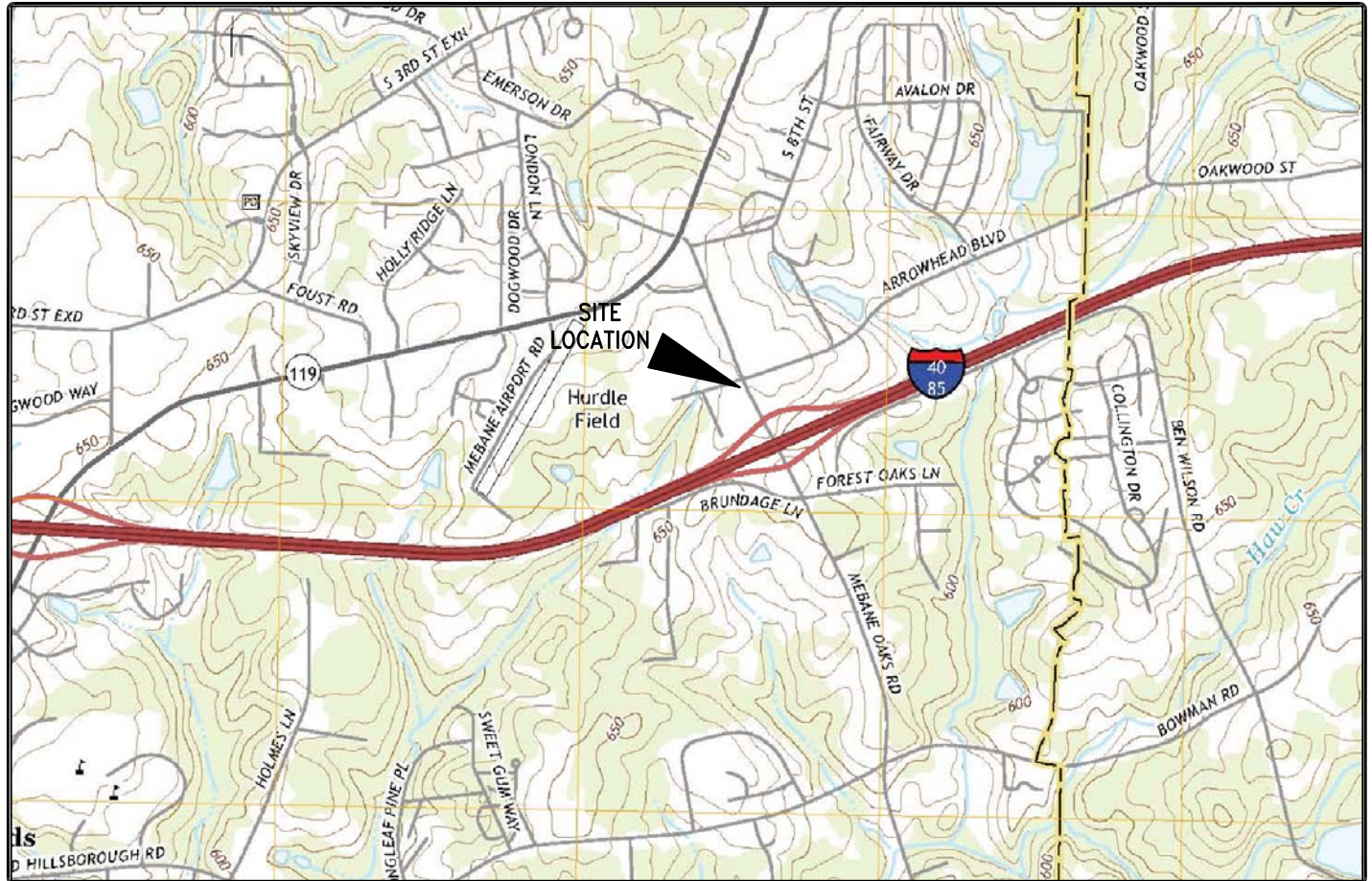
USGS TOPOGRAPHIC MAP

SITE:

PARCEL 005

LOCATION:

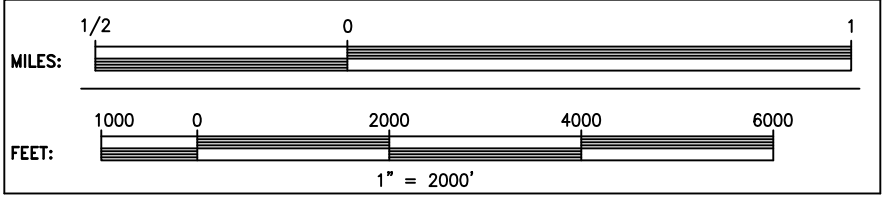
MEBANE, NORTH CAROLINA



USGS IDENTIFICATION

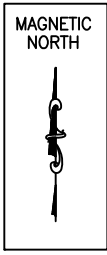
SCALES

USGS 7.5 MINUTE MAP	MEBANE, N.C.
ORIGINAL DATE:	1969
PHOTOREVISION DATE:	2016

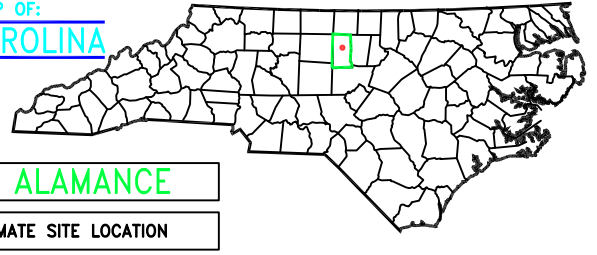


	PRIMARY HIGHWAY, HARD SURFACE
	SECONDARY HIGHWAY, HARD SURFACE
	LIGHT-DUTY ROAD HARD OR IMPROVED SURFACE
	UNIMPROVED ROAD
	STATE ROAD
	U.S. ROUTE
	INTERSTATE ROUTE

NOTES: TOPOGRAPHICAL CONTOUR INTERVAL = 10 FEET
 PHOTOREVISIONS DENOTED IN PURPLE



COUNTY MAP OF:
NORTH CAROLINA



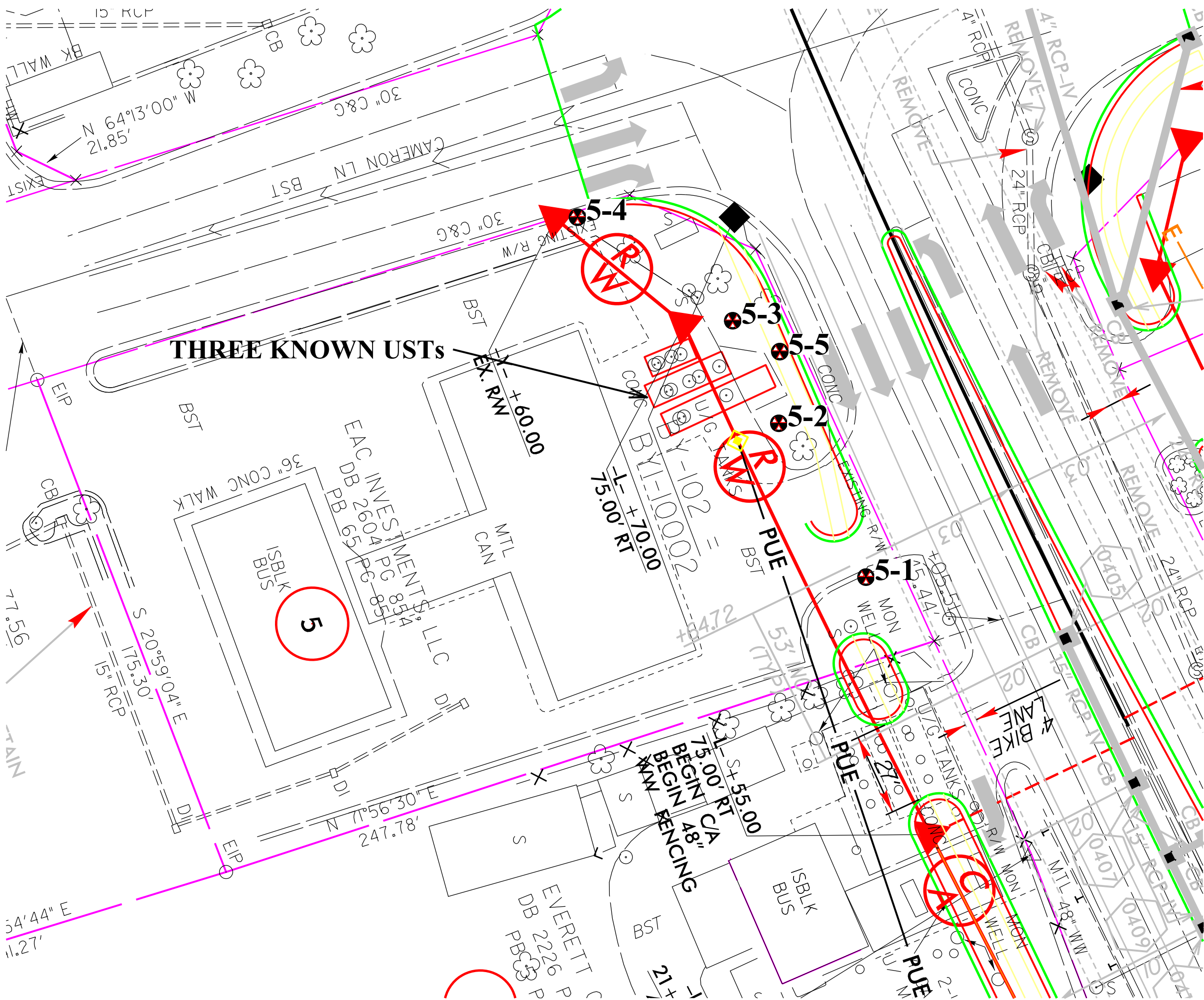
	COUNTY: ALAMANCE
	APPROXIMATE SITE LOCATION



CLIENT:	NCDOT I-5711
PROPERTY NAME:	1105 MEBANE OAKS RD.
CITY:	MEBANE
STATE:	NORTH CAROLINA
TITLE:	TOPOGRAPHIC MAP

SCALE:	1" = 2000'
DATE:	10/10/18
DRAWING NAME:	USGSTOPO
DRAWN BY:	KAM
CHECK BY:	TDL
JOB NO.:	2018-242
TYPE:	PSA
FIGURE NUMBER:	1

NOTES
 TOPOGRAPHIC MAP USED IN THIS GRAPHIC IS MAPPED, EDITED, AND PUBLISHED BY THE UNITED STATES GEOLOGIC SURVEY, DEPARTMENT OF THE INTERIOR, RESTON VIRGINIA.
 THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS.

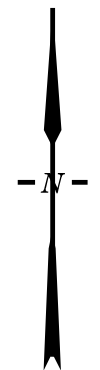
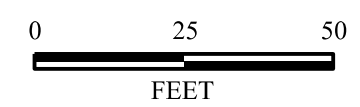


THREE KNOWN USTs

LEGEND

- EXISTING ROW
- EXISTING PROPERTY BOUNDARY
- PROPOSED ROW LINE
- TEMPORARY CONSTRUCTION EASEMENT
- PDE - PROPOSED PERMANENT DRAINAGE
- PUE - PROPOSED PERMANENT UTILITY
- - - PROPOSED SS CUT LINE
- - - PROPOSED SS FILL LINE
- PROPOSED DRAINAGE PIPING
- SOIL BORING LOCATION
- KNOWN UST WITHIN SURVEY AREA

Analytical results are presented in Table 2 of PSA Report



<small>TITLE</small>	SOIL BORING LOCATIONS AND THREE KNOWN USTs	
<small>PROJECT</small>	PARCEL 5 MEBANE, NORTH CAROLINA NCDOT PROJECT I-5711	
	503 INDUSTRIAL AVENUE GREENSBORO, NC 27406 336.335.3174 (p) 336.691.0648 (f) License # C1251 Eng. / #C257 Geology	
<small>DATE:</small> 10-10-2018	<small>REVISION NO.</small> 0	
<small>PYRAMID PROJECT NO.</small> 2018-242	<small>FIGURE NO.</small> 2	

TABLES

TABLE 1
Summary of Soil Field Screening Results
NCDOT Project I-5711
Parcel 005 - Speedway
1105 Mebane Oaks Road
Mebane, Alamance County, North Carolina

SOIL BORING 10/2/2018	SAMPLE ID	DEPTH (feet bgs)	PID READINGS (PPM)
5-1	5-1(0-2)	0 to 2	2.0
	5-1(2-4)	2 to 4	1.3
	5-1(4-6)	4 to 6	1.6
	5-1(6-8)	6 to 8	1.3
5-2	5-2(0-2)	0 to 2	2.7
	5-2(2-4)	2 to 4	2.8
	5-2(4-6)	4 to 6	3.0
	5-2(6-8)	6 to 8	2.2
5-3	5-3(0-2)	0 to 2	2.8
	5-3(2-4)	2 to 4	3.6
	5-3(4-6)	4 to 6	No Recovery
	5-3(6-8)	6 to 8	3.9
5-4	5-4(0-2)	0 to 2	No Recovery
	5-4(2-4)	2 to 4	2.1
	5-4(4-6)	4 to 6	2.2
	5-4(6-8)	6 to 8	1.5
5-5	5-5(2-3)	2 to 3	0.4

bgs= below ground surface

PID= photo-ionization detector

PPM= parts-per-million

☐ = sampled for lab analysis &/or QROS-QED analysis

OVA= Organic Vapor Analyzer

TABLE 2
Summary of Soil Sample QED Analytical Results for GRO/DRO
 NCDOT State Project I-5711
 Parcel 5 (Speedway) - 1105 Mebane Oaks Road
 Mebane, Alamance County, North Carolina

SAMPLE ID	DATE	DEPTH (feet)	PID (ppm)	QROS - QED Analysis		
				GRO (mg/kg) (C5-C10)	DRO (mg/kg) (C10-C35)	TPH (mg/kg) (C5-C35)
5-1(2-4)	10/2/2018	2-4	1.3	<0.52	<0.52	<0.52
5-2(2-4)	10/2/2018	2-4	2.8	<0.35	<0.35	<0.35
5-2(4-6)	10/2/2018	4-6	3.0	1.6	0.57	2.17
5-3(2-4)	10/2/2018	2-4	3.6	1.6	1.8	3.4
5-3(6-8)	10/2/2018	6-8	3.9	3.1	4.6	7.7
5-4(4-6)	10/2/2018	4-6	2.2	<0.36	<0.36	<0.36
5-5(2-3)	10/2/2018	2-3	0.4	3.5	0.57	4.07
NC Initial Action Level - UST Section for 5035/5030-GRO; 3550-DRO				50	100	NA

PID= photo-ionization detector
 PPM= parts-per-million

GRO= Gasoline Range Organics
 DRO= Diesel Range Organics
 mg/kg= milligrams-per-kilogram

TPH= Total Petroleum
 Hydrocarbons (GRO + DRO)

NA= Not Applicable

* Bold values indicate concentrations above initial action levels

APPENDIX A

1993 Aerial Photograph

Parcel 5



Cameron Ln

1007

Arrowhead Blvd

Parcel 5

Mebane Oaks Rd

185 Frontage Rd

Google Earth

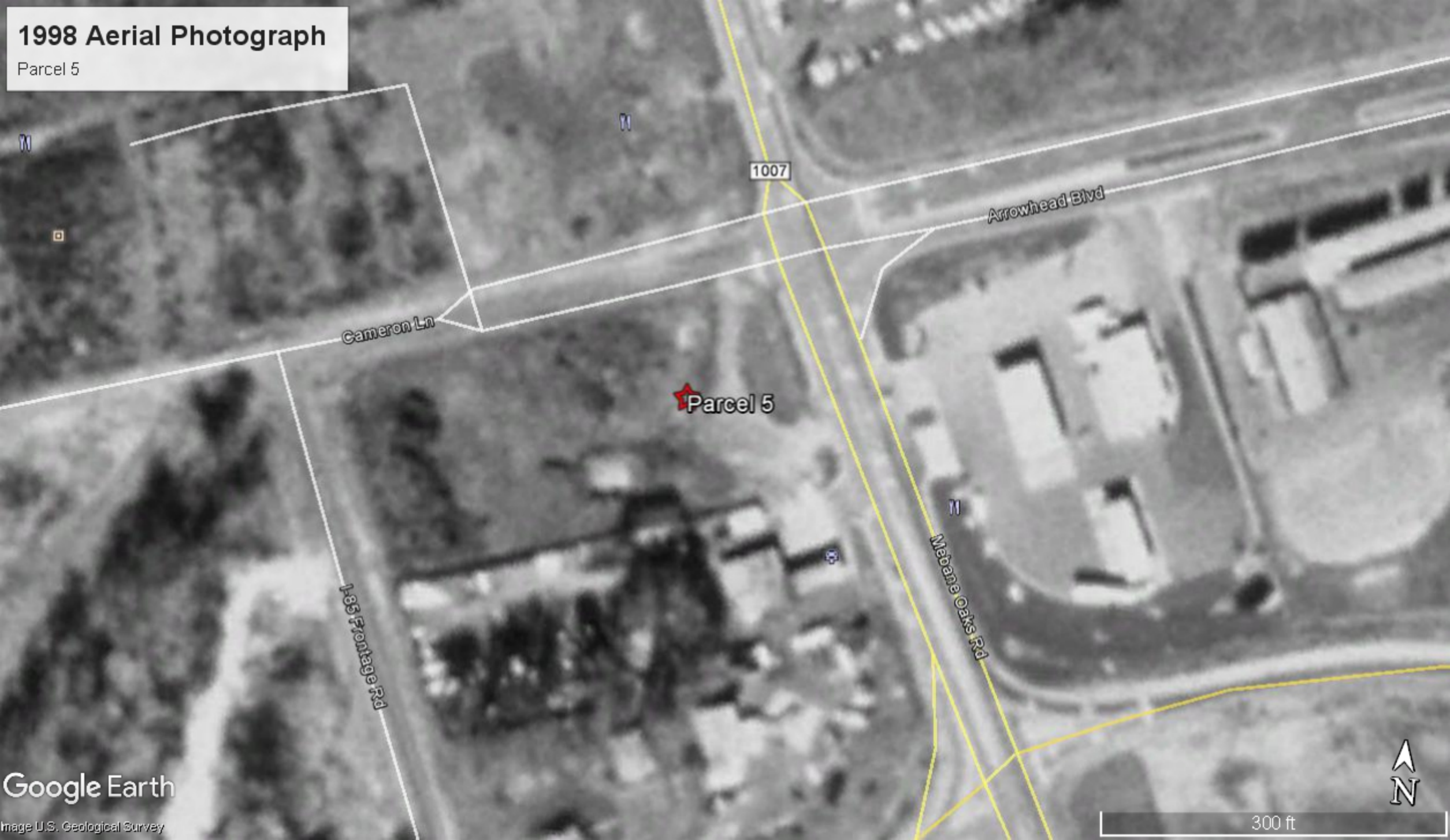
Image U.S. Geological Survey



300 ft

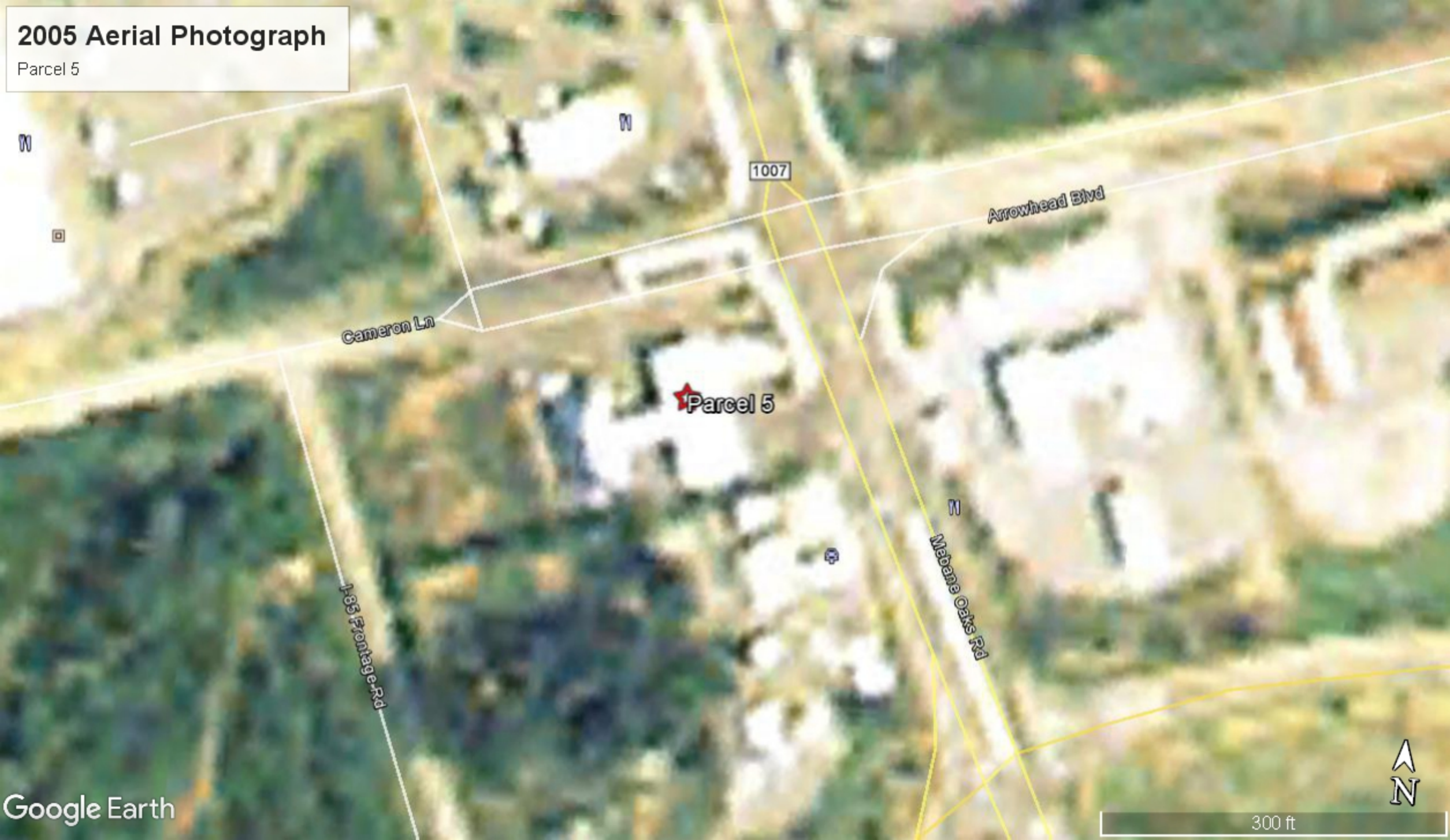
1998 Aerial Photograph

Parcel 5



2005 Aerial Photograph

Parcel 5



1007

Arrowhead Blvd

Cameron Ln

Parcel 5

183 Fontaine Rd

Mebane Oaks Rd



300 ft

2017 Aerial Photograph
Parcel 5



Parcel 5

Cameron Ln

1007

Arrowhead Blvd

Mebane Oaks Rd

185 Frontage Rd

APPENDIX B



North Carolina Department of Environment and Natural Resources

Pat McCrory, Governor

Division of Waste Management
UST Section

John E. Skvarla, III, Secretary
Dexter R. Matthews, Director

January 9, 2014

WILCOHESS, LLC
Mr. Stephen Williams
5446 University Parkway
Winston-Salem, NC 27105

Re: Notice of No Further Action
15A NCAC 2L .0407(d)
Risk-based Assessment and Corrective Action
for Petroleum Underground Storage Tanks

WILCOHESS #168
1105 Mebane Oaks Road, Mebane, NC
Alamance County
Incident Number (if applicable): 44230
Risk Classification: Low
Ranking: LOR

Dear Mr. Williams:

The Initial Abatement Action Report received by the UST Section, Winston-Salem Regional Office on December 27, 2013 has been reviewed. The review indicates that after tank closure and soil excavation soil contamination does not exceed the lower of the soil-to-groundwater or residential maximum soil contaminant concentrations (MSCCs), established in Title 15A NCAC 2L .0411.

The UST Section determines that no further action is warranted for this incident. This determination shall apply unless the UST Section later finds that the discharge or release poses an unacceptable risk or a potentially unacceptable risk to human health or the environment. Pursuant to Title 15A NCAC 2L .0407(a) you have a continuing obligation to notify the Department of any changes that might affect the risk or land use classifications that have been assigned.

This No Further Action determination applies only to the subject incident; for any other incidents at the subject site, the responsible party must continue to address contamination as required.

If you have any questions regarding this notice, please contact me at the address or telephone number listed below.

Sincerely,

Karen J. Hall
Environmental Sr. Technician
Winston-Salem Regional Office

cc: Alamance County Health Department

UST Regional Offices

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

Fayetteville (FAY) – 225 Green Street, Suite 714, Systel Building, Fayetteville, NC 28301 **(910) 433-3300**

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

Raleigh (RRO) – 1628 Mail Service Center, Raleigh, NC 27699 (919) **791-4200**

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

Wilmington (WIL) – 127 Cardinal Drive Extension, Wilmington, NC 28405 **(910) 796-7215**

Winston-Salem (WS) – 585 Waughtown Street, Winston-Salem, NC 27107 **(336) 771-5000**

Guilford County Environmental Health, 400 West Market Street, Suite 300, Greensboro, NC 27401, **(336) 641-3771**

UST-61

24-Hour Release and UST Leak Reporting Form.

For Releases in NC

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

(DWM USE ONLY) Incident # Risk (H,I,L,U) Received On Received By Reported by (circle one): Phone, Fax or Report Region

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

Facility ID Number 000036280 Date Leak Discovered 10/3/13 Comm/Non-Commercial? Comm Reg/Non-regulated? Reg

INCIDENT DESCRIPTION

Incident Name: WILCOHESS #168

Address: 1105 Mebane Oaks Road

County: Alamance

City/Town: Mebane

Zip Code: 27302

Regional Office (circle one): Asheville, Mooresville, Fayetteville, Raleigh, Washington, Wilmington, Winston-Salem

Latitude (decimal degrees): 36.0727

Longitude (decimal degrees) : 79.2735

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

Petroleum Impact to the subsurface was observed as part of a non-regulatory sub-surface investigation. (see attached). There is no known impact to receptors

Obtained by:

- GPS
Topographic map
GIS Address matching
Other
Unknown

Describe location:

HOW RELEASE WAS DISCOVERED (Release Code)

(Check one)

- Release Detection Equipment or Methods
During UST Closure/Removal
Property Transfer
Visual/Odor
Water in Tank
Water Supply Well Contamination
Groundwater Contamination
Surface Water Contamination
Other (specify)

SOURCE OF CONTAMINATION

Source of Release

(Check one to indicate primary source)

- Tank
Piping
Dispenser
Submersible Turbine Pump
Delivery Problem
Other
Unknown

Cause of Release

(Check one to indicate primary cause)

- Spill
Overfill
Corrosion
Physical or Mechanical Damage
Install Problem
Other
Unknown

Type of Release

(Check one)

- Petroleum
Non-Petroleum
Both
Location (Check one)
Facility
Residence
Other

Product Type Released

(Check one to indicate primary product type released)

- Gasoline/ Diesel/ Kerosene
Heating Oil
Other Petroleum Products
Metals
Other Inorganics
Other Organics
Diesel/Veg. Oil Blend
Vegetable Oil 100%
E10 - E20
E21 - E84
E85 - E99
Ethanol 100%
E01 - E09

Definitions presented on reverse

Definitions presented on reverse

Ownership

- 1. Municipal 2. Military 3. Unknown 4. Private 5. Federal 6. County 7. State

Operation Type

- 1. Public Service 2. Agricultural 3. Residential 4. Education/Relig. 5. Industrial 6. Commercial 7. Mining

IMPACT ON DRINKING WATER SUPPLIES

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

Number of Water Supply Wells Affected _____

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

- 1.
- 2.
- 3.

UST SYSTEM OWNER

UST Owner/Company **WILCOHESS LLC**

Point of Contact Mr. Stephen Williams	Address 5446 University Parkway
---	---

City Winston-Salem	State NC	Zip Code 27105	Telephone Number 336.767.6280
------------------------------	--------------------	--------------------------	---

UST SYSTEM OPERATOR

UST Operator/Company WILCOHESS LLC	Address 5446 University Parkway
--	---

City Winston-Salem	State NC	Zip Code 27105	Telephone Number 336.767.6280
------------------------------	--------------------	--------------------------	---

LANDOWNER AT LOCATION OF UST INCIDENT

Landowner WILCOHESS LLC	Address 5446 University Parkway
-----------------------------------	---

City Winston-Salem	State NC	Zip Code 27105	Telephone Number 336.767.6280
------------------------------	--------------------	--------------------------	---

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

See Attached

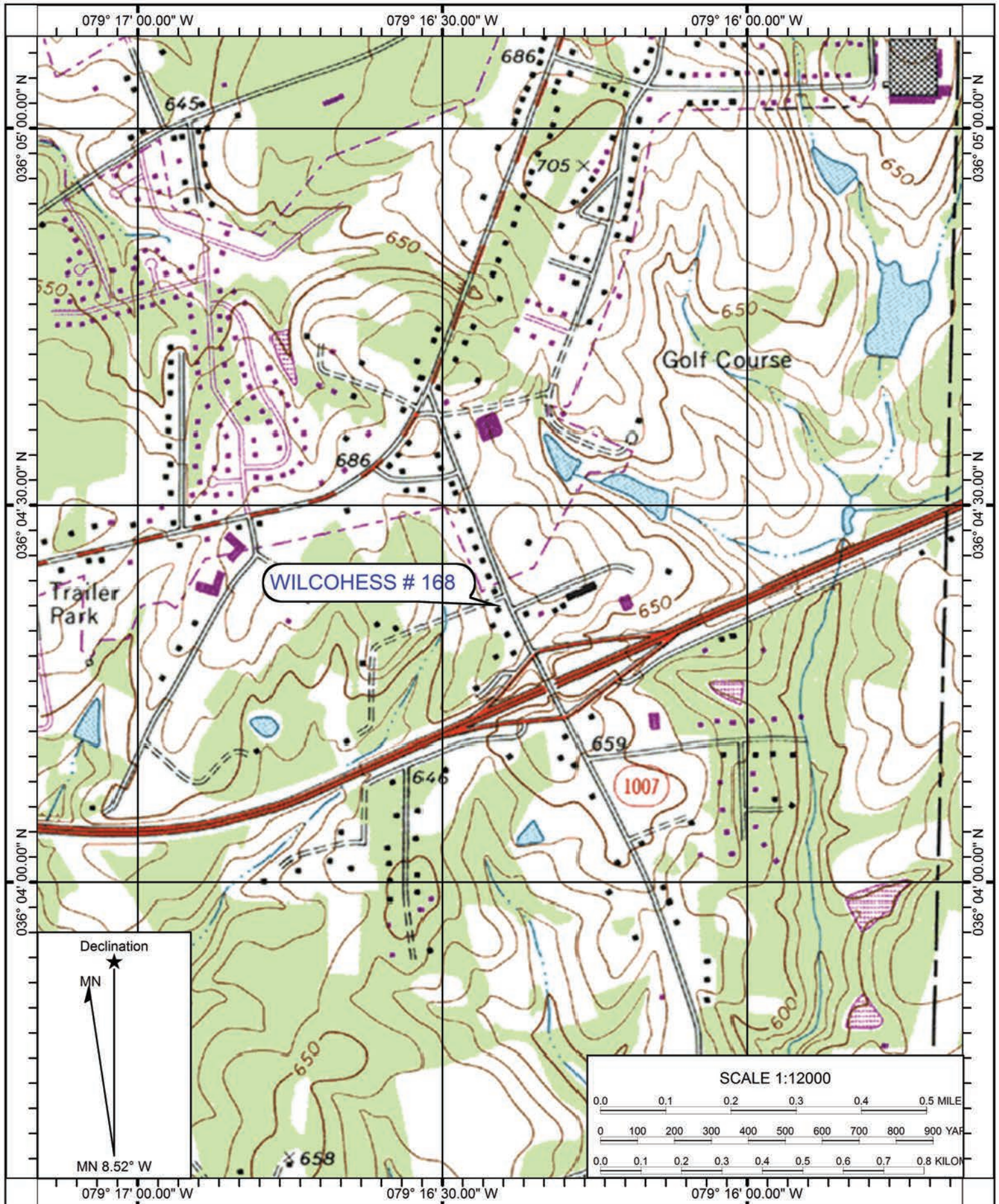
Person Reporting Incident R. Nelson Dail	Company Simon & Associates, Inc.	Telephone Number 540.951.4234
Title President	Address P.O. Box 10007 Blacksburg, VA 24062	Date 10-4-13

Definitions of Sources

- Tank: means the tank that stores the product and is part of the underground storage tank system
- Piping: means the piping and connectors running from the tank or submersible turbine pump to the dispenser or other end-use equipment (Vent, vapor recovery, or fill lines are excluded.)
- Dispenser: includes the dispenser and the equipment used to connect the dispenser to the piping (e.g., a release from a suction pump or from components located above the shear valve)
- Submersible Turbine Pump (STP) Area includes the submersible turbine pump head (typically located in the tank sump), the line leak detector, and the piping that connects the submersible turbine pump to the tank
- Delivery Problem: identifies releases that occurred during product delivery to the tank. (Typical causes associated with this source are spills and overfills.)
- Other: serves as the option to use when the release source is known but does not fit into one of the preceding categories (e.g., for releases from vent lines, vapor recovery lines, and fill lines)
- Unknown: identifies releases for which the source has not been determined

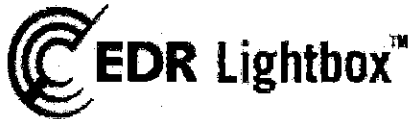
Definitions of Causes

- Spill: use this cause when a spill occurs (e.g., when the delivery hose is disconnected from the tank fill pipe or when the nozzle is removed from the dispenser)
- Overfill: use when an overfill occurs (e.g., overfills may occur from the fill pipe at the tank or when the nozzle fails to shut off at the dispenser)
- Physical or Mechanical Damage: use for all types of physical or mechanical damage, except corrosion (e.g., puncture of tank or piping, loose fittings, broken components, and components that have changed dimension)
- Corrosion: use when a metal tank, piping, or other component has a release due to corrosion (e.g., for steel, corrosion takes the form of rust)
- Installation Problem: use when the problem is determined to have occurred specifically because the UST system was not installed properly
- Other: use this option when the cause is known but does not fit into one of the preceding categories (e.g., putting regulated substances into monitoring wells)
- Unknown: use when the cause has not been determined

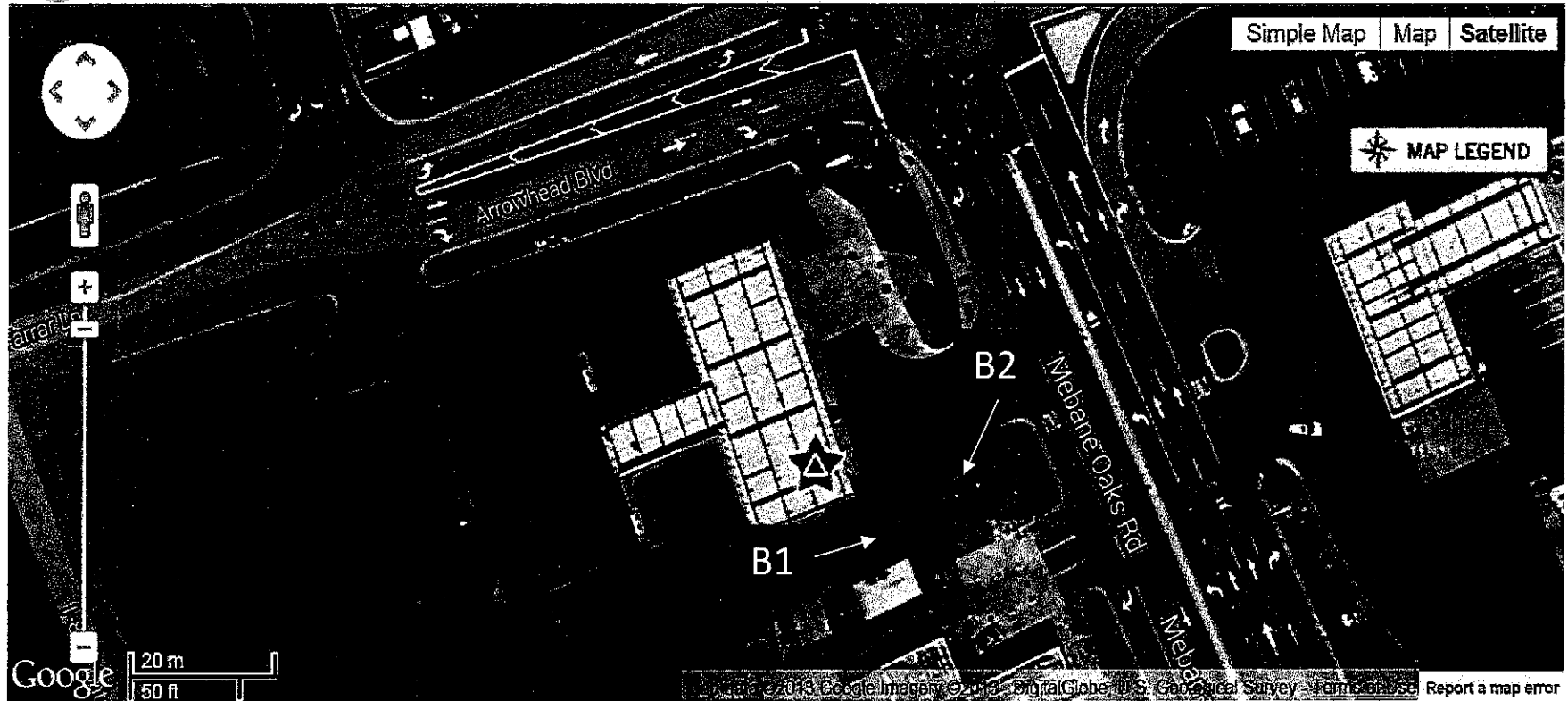


Name: MEBANE
 Date: 10/04/13
 Scale: 1 inch = 1,000 ft.

Figure 1. WILCOHESS #168



Wilco Hess #168
1105 Mebane Oaks Rd
Mebane, NC 27302



SITE MAP
WilcoHess #0168
1105 Mebane Oaks Road, Mebane, North Carolina

Figure
1

Accutest Laboratories Southeast, Inc. 10/2/2013 10:37

Job Number: FA8440
 Account: Earth Systems, Inc
 Project: Wilco 168; Mebane, NC
 Project Number:
 Results flagged as "Exceed" if any of the selected criteria exceeded (most stringent). Legend: Exceed

Client Sample ID:	NC 2L Groundwater Standards + Interim (IMACs) (NCDENR 04/13) ¹	NC UST GW GCL (Gross Contamination Levels) (NCDENR 4/16/12)	NC UST Soil MSCC Soil-to-Water (NCDENR 4/16/12) ²	NC Soil PSRG - Residential Health-Based (NCDENR 7/13)	B-1	
Lab Sample ID:					FA8440-2	
Date Sampled:					9/22/2013	
Matrix:					Ground Water	

NC 2L Groundwater (SWB 15-2209)

Benzene	ug/l	1	5000	-	-	8.3	
Toluene	ug/l	800	260000	-	-	277	
Ethylbenzene	ug/l	600	84500	-	-	26	
Xylene (total)	ug/l	500	85500	-	-	97	
Methyl Tert Butyl Ether	ug/l	20	20000	-	-	11	

NC Standard Levels (SWB 15-2209)

Acenaphthene	ug/l	80	2120	-	-	0.89 U	
Acenaphthylene	ug/l	200	1965	-	-	0.89 U	
Anthracene	ug/l	2000	2000	-	-	0.89 U	
Benzo(a)anthracene	ug/l	0.05	4.7	-	-	0.044 U	
Benzo(a)pyrene	ug/l	0.005	0.81	-	-	0.044 U	
Benzo(b)fluoranthene	ug/l	0.05	0.75	-	-	0.044 U	
Benzo(g,h,i)perylene	ug/l	200	200	-	-	0.044 U	
Benzo(k)fluoranthene	ug/l	0.5	0.5	-	-	0.044 U	
Chrysene	ug/l	5	5	-	-	0.44 U	
Dibenzo(a,h)anthracene	ug/l	0.005	1.2	-	-	0.044 U	
Fluoranthene	ug/l	300	300	-	-	0.044 U	
Fluorene	ug/l	300	990	-	-	0.89 U	
Indeno(1,2,3-cd)pyrene	ug/l	0.05	0.05	-	-	0.044 U	
Naphthalene	ug/l	6	6000	-	-	0.89 U	
1-Methylnaphthalene	ug/l	1	1000	-	-	0.44 U	
2-Methylnaphthalene	ug/l	30	12500	-	-	0.44 U	
Phenanthrene	ug/l	200	410	-	-	0.89 U	
Pyrene	ug/l	200	200	-	-	0.44 U	

Client Sample ID:	NC 2L Groundwater Standards + Interim (IMACs) (NCDENR 04/13) ¹	NC UST GW GCL (Gross Contamination Levels) (NCDENR 4/16/12)	NC UST Soil MSCC Soil-to-Water (NCDENR 4/16/12) ²	NC Soil PSRG - Residential Health-Based (NCDENR 7/13)	B-1	B-2
Lab Sample ID:					FA8440-1	FA8440-3
Date Sampled:					9/22/2013	9/22/2013
Matrix:					Soil	Soil

NC 2L Groundwater (SWB 15-2209)

Benzene	mg/kg	-	-	0.0058	1.1	0.0014 U	0.0017 U
Toluene	mg/kg	-	-	4.3	820	0.0014 U	0.0017 U
Ethylbenzene	mg/kg	-	-	4.9	5.4	0.0018 U	0.0019 U
Xylene (total)	mg/kg	-	-	4.6	130	0.0044 U	0.0053 U
Methyl Tert Butyl Ether	mg/kg	-	-	0.091	43	0.0014 U	0.0017 U

NC Standard Levels (SWB 15-2209)

Acenaphthene	mg/kg	-	-	8.2	880	0.20 U	0.17 U
Acenaphthylene	mg/kg	-	-	11	NA	0.20 U	0.17 U
Anthracene	mg/kg	-	-	940	3400	0.20 U	0.17 U
Benzo(a)anthracene	mg/kg	-	-	0.35	0.15	0.012 U	0.011 U
Benzo(a)pyrene	mg/kg	-	-	0.086	0.015	0.012 U	0.011 U
Benzo(b)fluoranthene	mg/kg	-	-	1.2	0.15	0.012 U	0.011 U
Benzo(g,h,i)perylene	mg/kg	-	-	6400	-	0.012 U	0.011 U
Benzo(k)fluoranthene	mg/kg	-	-	12	1.5	0.012 U	0.011 U
Chrysene	mg/kg	-	-	39	15	0.099 U	0.086 U
Dibenzo(a,h)anthracene	mg/kg	-	-	0.17	0.015	0.012 U	0.011 U
Fluoranthene	mg/kg	-	-	290	460	0.099 U	0.086 U
Fluorene	mg/kg	-	-	47	460	0.20 U	0.17 U
Indeno(1,2,3-cd)pyrene	mg/kg	-	-	3.4	0.15	0.012 U	0.011 U
Naphthalene	mg/kg	-	-	0.16	3.8	0.20 U	0.17 U
1-Methylnaphthalene	mg/kg	-	-	0.004	16	0.099 U	0.086 U
2-Methylnaphthalene	mg/kg	-	-	3.6	46	0.099 U	0.086 U
Phenanthrene	mg/kg	-	-	66	-	0.20 U	0.17 U
Pyrene	mg/kg	-	-	270	340	0.099 U	0.086 U

Soil (SWB 15-2209)

Solids, Percent	%	-	-	-	-	67%	70%
-----------------	---	---	---	---	---	-----	-----

Regulatory limits listed in this document have been obtained from the latest version of the regulations cited and are used for advisory purposes only. Accutest assumes no responsibility for errors in regulatory documents or changes to criteria detailed in later versions of the referenced regulation. It is the responsibility of the user to verify these limits before using or reporting any data.

¹ result exceeded regulatory criteria.

² NOTE: The 2L GW standards include the following criteria that must be determined manually: Endrin + Endrin Aldehyde + Endrin Ketone < 2 ug/l; hexachlorocyclohexane isomers (alpha+beta+delta+gamma) < .02 ug/l; Aromatics carbon C9-C22 (C9- C10 Aromatics + C11-C22 Aromatics) < 200 ug/l

³ NOTE: These standards include the following value that must be determined manually: Aromatics C9-C22 (C9- C10 Aromatics + C11-C22 Aromatics) < 31 mg/kg.

TABLE 1: SOIL SCREENING RESULTS

Facility Name: WilcoHess No. 0168, Mebane, North Carolina

SAMPLE					SCREENING RESULTS	COMMENTS
BORING NO.	DATE COLLECTED	DEPTH TO WATER	SAMPLE INTERVAL (FBLs)	MOISTURE CONTENT	NET READING (ppm)	
B-1	9/22/2013	32	0 - 2	Dry	0.0	
			2 - 4	Dry	0.0	
			4 - 6	Dry	0.0	
			6 - 8	Dry	0.0	
			8 - 10	Dry	0.0	
			10 - 12	Dry	0.0	
			12 - 14	Dry	0.0	
			14 - 16	Dry	0.0	
			16 - 18	Dry	0.0	
			18 - 20	Dry	0.0	
			20 - 22	Dry	0.0	
			22 - 24	Dry	0.0	
			24 - 26	Moist	0.0	
			26 - 28	Moist	0.0	Soil Sample Collected for Lab Analyses
			28 - 30	Moist	0.0	
30 - 32	Wet	0.0				
32 - 34	Wet	0.0				
35	Wet	refusal	GW Sample Collected for Lab Analyses @ 31 - 35' bls			
B-2	9/22/2013	> 35	0 - 2	Dry	0.0	
			2 - 4	Dry	0.0	
			4 - 6	Dry	0.0	
			6 - 8	Dry	0.0	
			8 - 10	Dry	0.0	
			10 - 12	Dry	0.0	
			12 - 14	Dry	0.0	
			14 - 16	Dry	0.0	
			16 - 18	Dry	0.0	
			18 - 20	Dry	0.0	
			20 - 22	Dry	0.0	
			22 - 24	Dry	0.0	
			24 - 26	Dry	0.0	
			26 - 28	Dry	0.0	Soil Sample Collected for Lab Analyses
			28 - 30	Dry	0.0	
30 - 32	Dry	0.0				
32 - 34	Dry	0.0				
35	Dry	refusal				

Soil samples were screened using a organic vapor analyzer (OVA)

FBLs = Feet Below Land Surface

PPM = Parts Per Million

GW = Groundwater

TABLE 2: SOIL ANALYTICAL RESULTS

Facility Name: WilcoHess No. 0168, Mebane, North Carolina

Facility Name: WilcoHess No. 168, Mebane, North Carolina											
Location	Date	Collection Interval	OVA Response	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	1-Methyl naphthalene	2-Methyl naphthalene
B-1	09/22/13	26 - 28	0.0	0.0014 U	0.0014 U	0.0016 U	0.0044 U	0.0014 U	0.20 U	0.099 U	0.099 U
B-2	08/22/13	26 - 28	0.0	0.0017 U	0.0017 U	0.0019 U	0.0053 U	0.0017 U	0.17 U	0.086 U	0.086 U
Soil to Groundwater MSCC (mg/kg)				0.0056	4.3	4.9	4.6	0.091	0.16	0.004	3.6
Residential MSCC (mg/kg)				18	1200	1560	3129	350	313	20	63
Industrial MSCC (mg/kg)				164	32000	40000	81760	3100	8176	100	1635

Analytical Results reported in milligrams per kilogram (mg/kg)

MSCC = Maximum Soil Contaminant Concentration

MTBE = Methyl tert-Butyl Ether

Values in bold type exceed their respective Soil to Groundwater MSCC

Qualifiers:

U = Result below Method Detection Limit (MDL)

J = Estimated Value

TABLE 3: GROUNDWATER ANALYTICAL RESULTS

Facility Name: WilcoHess No. 0168, Mebane, North Carolina

Sample									
Location	Date	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	Naphthalene	1-Methyl Naphthalene	2-Methyl Naphthalene
B-1	09/22/13	8.3	21.4	2.3	9.1	1.1	0.89 U	0.44 U	0.44 U
NC GW Quality Standard		1	600	600	500	20	6	1	30
GCL		5000	260000	84500	85500	200000	6000	1000	12500

Analytical results reported in micrograms per liter (µg/L)

MTBE = Methyl tert-Butyl Ether

NC GW Quality Standard = North Carolina Groundwater Quality Standard

GCL = Gross Contamination Levels for Groundwater

Concentrations in bold exceed NC GW Quality Standard

Qualifiers:

U = Result below Method Detection Limit (MDL)

J = Estimated Value



10/02/13

Technical Report for

Earth Systems, Inc
Wilco 168; Mebane, NC

Accutest Job Number: FA8440

Sampling Date: 09/22/13

Report to:

Earth Systems

zlowenstein@earthsys.net

ATTN: Zach Lowenstein

Total number of pages in report: 14



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi
Harry Behzadi, Ph.D.
Laboratory Director

Client Service contact: Sue Bell 407-425-6700

Certifications: FL (E83510), LA (03051), KS (E-10327), IA (366), IL (200063), NC (573), NJ (F1002), SC (96038001)
DoD ELAP (L-A-B L2229), CA (04226CA), TX (T104704404), PA (68-03573), VA (460177),
AK, AR, GA, KY, MA, NV, OK, UT, WA

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.
Test results relate only to samples analyzed.

Table of Contents

Sections:

1

2

3

4

-1-

Section 1: Sample Summary	3
Section 2: Summary of Hits	4
Section 3: Sample Results	5
3.1: FA8440-1: B-1	6
3.2: FA8440-2: B-1	8
3.3: FA8440-3: B-2	10
Section 4: Misc. Forms	12
4.1: Chain of Custody	13

Sample Summary

Earth Systems, Inc

Job No: FA8440

Wilco 168; Mebane, NC

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
FA8440-1	09/22/13	13:00	BD	09/24/13	SO Soil	B-1
FA8440-2	09/22/13	13:10	BD	09/24/13	AQ Ground Water	B-1
FA8440-3	09/22/13	13:55	BD	09/24/13	SO Soil	B-2

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Summary of Hits

Job Number: FA8440
Account: Earth Systems, Inc
Project: Wilco 168; Mebane, NC
Collected: 09/22/13

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

FA8440-1 **B-1**

No hits reported in this sample.

FA8440-2 **B-1**

Benzene	8.3	1.0	0.21	ug/l	SW846 8260B
Toluene	21.4	1.0	0.20	ug/l	SW846 8260B
Ethylbenzene	2.3	1.0	0.29	ug/l	SW846 8260B
Xylene (total)	9.1	3.0	0.50	ug/l	SW846 8260B
Methyl Tert Butyl Ether	1.1	1.0	0.21	ug/l	SW846 8260B
Fluoranthene ^a	0.44 J	2.2	0.44	ug/l	SW846 8310

FA8440-3 **B-2**

No hits reported in this sample.

(a) All hits confirmed by spectral match using a diode array detector.



Sample Results

Report of Analysis

Report of Analysis



Client Sample ID: B-1		Date Sampled: 09/22/13
Lab Sample ID: FA8440-1		Date Received: 09/24/13
Matrix: SO - Soil		Percent Solids: 67.1
Method: SW846 8260B		
Project: Wilco 168; Mebane, NC		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y10916.D	1	09/25/13	EP	n/a	n/a	VY484
Run #2							

	Initial Weight
Run #1	5.24 g
Run #2	

Pnrgeable Aromatics, MTBE

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0014 U	0.0071	0.0014	mg/kg	
108-88-3	Toluene	0.0014 U	0.0071	0.0014	mg/kg	
100-41-4	Ethylbenzene	0.0016 U	0.0071	0.0016	mg/kg	
1330-20-7	Xylene (total)	0.0044 U	0.021	0.0044	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	0.0014 U	0.0071	0.0014	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		75-124%
2037-26-5	Toluene-D8	117%		75-126%
460-00-4	4-Bromofluorobenzene	122%		71-133%
17060-07-0	1,2-Dichloroethane-D4	105%		72-135%

U = Not detected MDL - Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

3.1
3

Client Sample ID: B-1		Date Sampled: 09/22/13
Lab Sample ID: FA8440-1		Date Received: 09/24/13
Matrix: SO - Soil		Percent Solids: 67.1
Method: SW846 8310 SW846 3550C		
Project: Wilco 168; Mebane, NC		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE083432.D	1	09/26/13	RS	09/25/13	OP48734	GEE2990
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.2 g	5.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	0.20 U	0.49	0.20	mg/kg	
208-96-8	Acenaphthylene	0.20 U	0.49	0.20	mg/kg	
120-12-7	Anthracene	0.20 U	0.49	0.20	mg/kg	
56-55-3	Benzo(a)anthracene	0.012 U	0.49	0.012	mg/kg	
50-32-8	Benzo(a)pyrene	0.012 U	0.049	0.012	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.012 U	0.049	0.012	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.012 U	0.049	0.012	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.012 U	0.049	0.012	mg/kg	
218-01-9	Chrysene	0.099 U	0.49	0.099	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.012 U	0.049	0.012	mg/kg	
206-44-0	Fluoranthene	0.099 U	0.49	0.099	mg/kg	
86-73-7	Fluorene	0.20 U	0.49	0.20	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.012 U	0.049	0.012	mg/kg	
91-20-3	Naphthalene	0.20 U	0.49	0.20	mg/kg	
90-12-0	1-Methylnaphthalene	0.099 U	0.49	0.099	mg/kg	
91-57-6	2-Methylnaphthalene	0.099 U	0.49	0.099	mg/kg	
85-01-8	Phenanthrene	0.20 U	0.49	0.20	mg/kg	
129-00-0	Pyrene	0.099 U	0.49	0.099	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	78%		46-144%
92-94-4	p-Terphenyl	83%		61-139%

U = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

32
3

Client Sample ID: B-1	Date Sampled: 09/22/13
Lab Sample ID: FA8440-2	Date Received: 09/24/13
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260B	
Project: Wilco 168; Mebane, NC	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	J089116.D	1	09/27/13	MM	n/a	n/a	VJ4487
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

Purgeable Aromatics, MTBE

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	8.3	1.0	0.21	ug/l	
108-88-3	Toluene	21.4	1.0	0.20	ug/l	
100-41-4	Ethylbenzene	2.3	1.0	0.29	ug/l	
1330-20-7	Xylene (total)	9.1	3.0	0.50	ug/l	
1634-04-4	Methyl Tert Butyl Ether	1.1	1.0	0.21	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		83-118%
17060-07-0	1,2-Dichloroethane-D4	98%		79-125%
2037-26-5	Toluene-D8	93%		85-112%
460-00-4	4-Bromofluorobenzene	90%		83-118%

U = Not detected MDL - Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Page 1 of 1

3.2

Client Sample ID: B-1		
Lab Sample ID: FA8440-2		Date Sampled: 09/22/13
Matrix: AQ - Ground Water		Date Received: 09/24/13
Method: SW846 8310 SW846 3510C		Percent Solids: n/a
Project: Wilco 168; Mebane, NC		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	AA071846.D	1	09/26/13	RS	09/26/13	OP48748	GAA2806
Run #2							

	Initial Volume	Final Volume
Run #1	900 ml	1.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	0.89 U	2.2	0.89	ug/l	
208-96-8	Acenaphthylene	0.89 U	2.2	0.89	ug/l	
120-12-7	Anthracene	0.89 U	2.2	0.89	ug/l	
56-55-3	Benzo(a)anthracene	0.044 U	0.22	0.044	ug/l	
50-32-8	Benzo(a)pyrene	0.044 U	0.22	0.044	ug/l	
205-99-2	Benzo(b)fluoranthene	0.044 U	0.22	0.044	ug/l	
191-24-2	Benzo(g,h,i)perylene	0.044 U	0.22	0.044	ug/l	
207-08-9	Benzo(k)fluoranthene	0.044 U	0.22	0.044	ug/l	
218-01-9	Chrysene	0.44 U	2.2	0.44	ug/l	
53-70-3	Dibenzo(a,h)anthracene	0.044 U	0.22	0.044	ug/l	
206-44-0	Fluoranthene	0.44	2.2	0.44	ug/l	J
86-73-7	Fluorene	0.89 U	2.2	0.89	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	0.044 U	0.22	0.044	ug/l	
91-20-3	Naphthalene	0.89 U	2.2	0.89	ug/l	
90-12-0	1-Methylnaphthalene	0.44 U	2.2	0.44	ug/l	
91-57-6	2-Methylnaphthalene	0.44 U	2.2	0.44	ug/l	
85-01-8	Phenanthrene	0.89 U	2.2	0.89	ug/l	
129-00-0	Pyrene	0.44 U	2.2	0.44	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	83%		43-122%
92-94-4	p-Terphenyl	85%		30-122%

(a) All hits confirmed by spectral match using a diode array detector.

U = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis



Client Sample ID: B-2	Date Sampled: 09/22/13
Lab Sample ID: FA8440-3	Date Received: 09/24/13
Matrix: SO - Soil	Percent Solids: 77.7
Method: SW846 8260B	
Project: Wilco 168; Mebane, NC	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y10917.D	1	09/25/13	EP	n/a	n/a	VY484
Run #2							

Run #	Initial Weight
Run #1	3.74 g
Run #2	

Purgeable Aromatics, MTBE

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0017 U	0.0086	0.0017	mg/kg	
108-88-3	Toluene	0.0017 U	0.0086	0.0017	mg/kg	
100-41-4	Ethylbenzene	0.0019 U	0.0086	0.0019	mg/kg	
1330-20-7	Xylene (total)	0.0053 U	0.026	0.0053	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	0.0017 U	0.0086	0.0017	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		75-124%
2037-26-5	Toluene-D8	119%		75-126%
460-00-4	4-Bromofluorobenzene	120%		71-133%
17060-07-0	1,2-Dichloroethane-D4	105%		72-135%

U = Not detected MDL - Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis



Client Sample ID: B-2		Date Sampled: 09/22/13
Lab Sample ID: FA8440-3		Date Received: 09/24/13
Matrix: SO - Soil		Percent Solids: 77.7
Method: SW846 8310 SW846 3550C		
Project: Wilco 168; Mebane, NC		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EE083468.D	1	09/27/13	RS	09/26/13	OP48759	GEE2992
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.1 g	5.0 ml
Run #2		

Polynuclear Aromatic Hydrocarbons

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	0.17 U	0.43	0.17	mg/kg	
208-96-8	Acenaphthylene	0.17 U	0.43	0.17	mg/kg	
120-12-7	Anthracene	0.17 U	0.43	0.17	mg/kg	
56-55-3	Benzo(a)anthracene	0.011 U	0.43	0.011	mg/kg	
50-32-8	Benzo(a)pyrene	0.011 U	0.043	0.011	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.011 U	0.043	0.011	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.011 U	0.043	0.011	mg/kg	
207-08-9	Benzo(k)fluoranthene	0.011 U	0.043	0.011	mg/kg	
218-01-9	Chrysene	0.086 U	0.43	0.086	mg/kg	
53-70-3	Dibenzo(a,h)anthracene	0.011 U	0.043	0.011	mg/kg	
206-44-0	Fluoranthene	0.086 U	0.43	0.086	mg/kg	
86-73-7	Fluorene	0.17 U	0.43	0.17	mg/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	0.011 U	0.043	0.011	mg/kg	
91-20-3	Naphthalene	0.17 U	0.43	0.17	mg/kg	
90-12-0	1-Methylnaphthalene	0.086 U	0.43	0.086	mg/kg	
91-57-6	2-Methylnaphthalene	0.086 U	0.43	0.086	mg/kg	
85-01-8	Phenanthrene	0.17 U	0.43	0.17	mg/kg	
129-00-0	Pyrene	0.086 U	0.43	0.086	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	84%		46-144%
92-94-4	p-Terphenyl	92%		61-139%

U = Not detected MDL - Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



Accutest Laboratories Southeast Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, FL 32811
TEL: 407-423-6700 • FAX: 407-423-0707
www.accutest.com

Accutest JOB # **FA8440** PAGE **1** OF **1**

Client / Reporting Information		Project Information		Analytical Information										Matrix Codes			
Company Name <i>Earth Systems</i>		Project Name <i>Wilco 168</i>												DW - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SD - Soil BL - Sludge LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe			
Address <i>6015 Hutton Rd</i>		Street															
City <i>Tampa</i> State <i>FL</i> Zip <i>33616</i>		City <i>Mebane</i> State <i>NC</i>															
Project Contact <i>Rick Dinkla</i> Email		Project #															
Phone # <i>813 588 3985</i>		Fax #												LAB USE ONLY			
Sample(s) Name(s) (Printed) <i>Brian Dinning</i>		Client Purchase Order #															
Accutest Station #	Field ID / Point of Collection	DATE		SAMPLED BY	MATRIX	TOTAL # OF BOTTLES	OTHER	ZONE	SIC	SHT	HAND	SODA	WASHING	T.WATER	MESH	BEX/HTBE	PAH/PCO
		TIME	TIME														
1	B-1	12/13	1300	RD	SO	4		1								✓	✓
2	B-1	↓	1310	↓	6W	↓		1	3							✓	✓
3	B-2	↓	1335	↓	SO	↓		1								✓	✓
TURNAROUND TIME (Business Days)		Approved By: / Rush Code		Data Deliverable Information										Comments / Remarks			
<input type="checkbox"/> 10 Days Standard <input checked="" type="checkbox"/> 7 Day RUSH <input type="checkbox"/> 6 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY <input type="checkbox"/> OTHER				<input checked="" type="checkbox"/> COMMERCIAL "A" (RESULTS ONLY) <input type="checkbox"/> COMMERCIAL "B" (RESULTS PLUS QC) <input type="checkbox"/> REDT1 (EPA LEVEL 3) RALEIGH, NC <input type="checkbox"/> FULT1 (EPA LEVEL 4) <input type="checkbox"/> EDD'S SVC CENTER										Hess Rates			
Emergency or Rush T/A Data Available VIA Email or Lablink																	
Sample Custody must be documented below each time samples change possession, including courier delivery.																	
Relinquished by Sampler: <i>RD</i>		Date Time: <i>12/13 10:30</i>		Received By: <i>Brent Rader</i>		Relinquished by: <i>Brent Rader</i>		Date Time: <i>12/13 16:00</i>		Received By: <i>FX</i>		Relinquished by: <i>RD</i>		Date Time: <i>12/13 13</i>		Received By: <i>8</i>	
Lab Use Only: Custody Seal In Place: Y N Temp Blank Provided: Y N Preserved where Applicable: Y N Total # of Coolers: Cooler Temperature (s) Celsius: <i>26</i>																	

4.1
4

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: FA8440 CLIENT: Earth System PROJECT: Wilco 168
 DATE/TIME RECEIVED: 09-24-13 930 (MM/DD/YY 24:00) NUMBER OF COOLERS RECEIVED: 1
 METHOD OF DELIVERY: FEDEX UPS ACCUTEST COURIER GREYHOUND DELIVERY OTHER
 AIRBILL NUMBERS: 7967 4952 9373

COOLER INFORMATION

- CUSTODY SEAL NOT PRESENT OR NOT INTACT
- CHAIN OF CUSTODY NOT RECEIVED (COC)
- ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- TEMPERATURE CRITERIA NOT MET
- WET ICE PRESENT

TRIP BLANK INFORMATION

- TRIP BLANK PROVIDED
- TRIP BLANK NOT PROVIDED
- TRIP BLANK NOT ON COC
- TRIP BLANK INTACT
- TRIP BLANK NOT INTACT
- RECEIVED WATER TRIP BLANK
- RECEIVED SOIL TRIP BLANK

MISC. INFORMATION

NUMBER OF INCORBS? 25-GRAM 5-GRAM
 NUMBER OF 5035 FIELD KITS? 2
 NUMBER OF LAB FILTERED METALS?

TEMPERATURE INFORMATION

IR THERM ID 1 CORR. FACTOR 16.4
 OBSERVED TEMPS: 2.2
 CORRECTED TEMPS: 2.6

SAMPLE INFORMATION

- SAMPLE LABELS PRESENT ON ALL BOTTLES
- INCORRECT NUMBER OF CONTAINERS USED
- SAMPLE RECEIVED IMPROPERLY PRESERVED
- INSUFFICIENT VOLUME FOR ANALYSIS
- DATES/TIMES ON COC DO NOT MATCH SAMPLE LABEL
- ID'S ON COC DO NOT MATCH LABEL
- VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- UNCLEAR FILTERING OR COMPOSITING INSTRUCTIONS
- SAMPLE CONTAINER(S) RECEIVED BROKEN
- % SOLIDS JAR NOT RECEIVED
- 5035 FIELD KIT FROZEN WITHIN 48 HOUR'S
- RESIDUAL CHLORINE PRESENT

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

SUMMARY OF COMMENTS: Remained in cooler 8310 Sample #2

TECHNICIAN SIGNATURE/DATE

R. Wilco 09-24-13

REVIEWER SIGNATURE/DATE

[Signature] 09/24/13

NF 12/10

receipt confirmation 122810.xls

4.1
4

APPENDIX C



PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2018-242)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION: PARCEL 5 NCDOT PROJECT I-5711 (50401.1.FS1)

1105 MEBANE OAKS ROAD, MEBANE, NC

SEPTEMBER 17, 2018

Report prepared for: Gordon Box
NCDOT Geotechnical Engineering Unit
1020 Birch Ridge Drive
Raleigh, NC 27610

Prepared by: _____

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

Reviewed by: _____

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

503 INDUSTRIAL AVENUE, GREENSBORO, NC 27406

P: 336.335.3174 F: 336.691.0648

C257: GEOLOGY C1251: ENGINEERING

GEOPHYSICAL INVESTIGATION REPORT
Parcel 5 – 1105 Mebane Oaks Road
Mebane, Alamance County, North Carolina

Table of Contents

Executive Summary	1
Introduction.....	2
Field Methodology.....	2
Discussion of Results.....	3
<i>Discussion of EM Results</i>	3
<i>Discussion of GPR Results</i>	4
Summary & Conclusions	5
Limitations	6

Figures

- Figure 1 – Parcel 5 - Geophysical Survey Boundaries and Site Photographs
- Figure 2 – Parcel 5 - EM61 Results Contour Map
- Figure 3 – Parcel 5 - GPR Transect Locations and Images
- Figure 4 – Parcel 5 - Locations and Sizes of Three Known USTs and One No Confidence Anomaly
- Figure 5 – Overlay of Geophysical Survey Boundaries with Three Known USTs and One No Confidence Anomaly on NCDOT Engineering Plans

LIST OF ACRONYMS

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

EXECUTIVE SUMMARY

Project Description: Pyramid Environmental conducted a geophysical investigation for the North Carolina Department of Transportation (NCDOT) at Parcel 5, located at 1105 Mebane Oaks Road, in Mebane, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project I-5711). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted from September 10-12, 2018, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

Geophysical Results: The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of nine EM anomalies were identified. The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. The EM survey recorded three high-amplitude anomalies associated with the three known USTs, and one EM anomaly associated with unknown buried metal. These anomalies were further investigated with GPR.

GPR verified the sizes and orientations of the three known USTs. The northern UST (UST #1) was approximately 16 feet long by 7 feet wide. The central UST (UST #2) was approximately 28 feet long by 8 feet wide. The southern UST (UST #3) was approximately 38.5 feet long by 8 feet wide. GPR recorded evidence of isolated high-amplitude reflectors in the southern portion of the property that lacked the size and characteristics typically associated with a UST. This feature was classified as a no confidence anomaly. This anomaly was approximately 4 feet long by 2.5 feet wide. Collectively, the geophysical data recorded evidence of three known USTs and one no confidence anomaly at Parcel 5.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for the North Carolina Department of Transportation (NCDOT) at Parcel 5, located at 1105 Mebane Oaks Road, in Mebane, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project I-5711). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted from September 10-12, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site included an active gas station surrounded by concrete, asphalt, and grass surfaces. Three known USTs were observed within the geophysical survey area during the investigation. An aerial photograph showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

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

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

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

GPR data were acquired across select EM anomalies on September 12, 2018, 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, asphalt/concrete patch, etc.	Possible UST Sufficient geophysical data from either magnetic or radar surveys that is characteristic of a tank. Additional data is not sufficient enough to confirm or deny the presence of a UST.	Anomaly noted but not characteristic of a UST. Should be noted in the text and may be called out in the figures at the geophysicist’s discretion.

DISCUSSION OF RESULTS

Discussion of EM Results

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

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

LIST OF METALLIC ANOMALIES IDENTIFIED BY EM SURVEY

Metallic Anomaly #	Cause of Anomaly	Investigated with GPR
1	Pole/Utilities	
2	Utility Box	
3	Vent Pipes	
4	Three Known USTs	☑
5	Pole/Utilities	
6	Sign Post	
7	No Confidence Anomaly	☑
8	Mailbox/Sign	
9	Sign Post	

The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface, including poles, utilities, vent pipes, known USTs, sign posts, a sign, and a mailbox. Three large high-amplitude EM anomalies (Anomaly 4) were associated with three known USTs within the survey area. GPR was performed across the known USTs to verify their sizes and orientations.

Anomaly 7 was associated with unknown buried metal and was further investigated with GPR.

Discussion of GPR Results

Figure 3 presents the locations of the formal GPR transects performed at the property, as well as the transect images. A total of two GPR transects were performed at the site. GPR Transect 1 was performed across the widths of the three known USTs associated with EM Anomaly 4 to verify their sizes and orientations. The northern UST (UST #1) was approximately 16 feet long by 7 feet wide. The central UST (UST #2) was approximately 28 feet long by 8 feet wide. The southern UST (UST #3) was approximately 38.5 feet long by 8 feet wide.

GPR Transect 2 was performed across EM Anomaly 7. This transect recorded isolated high-amplitude reflectors that lacked the size and characteristics typically associated with a UST. Therefore, this feature is classified as a no confidence anomaly. This anomaly was approximately 4 feet long by 2.5 feet wide. **Figure 4** provides the locations and sizes of the three known USTs and one no confidence anomaly overlain on an aerial, along with ground-level photographs.

Collectively, the geophysical data recorded evidence of three known USTs and one no confidence anomaly at Parcel 5. **Figure 5** provides an overlay of the geophysical survey area and the locations of the known USTs onto the NCDOT MicroStation engineering plans for reference.

SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 and GPR data collected at Parcel 5 in Mebane, North Carolina, provides the following summary and conclusions:

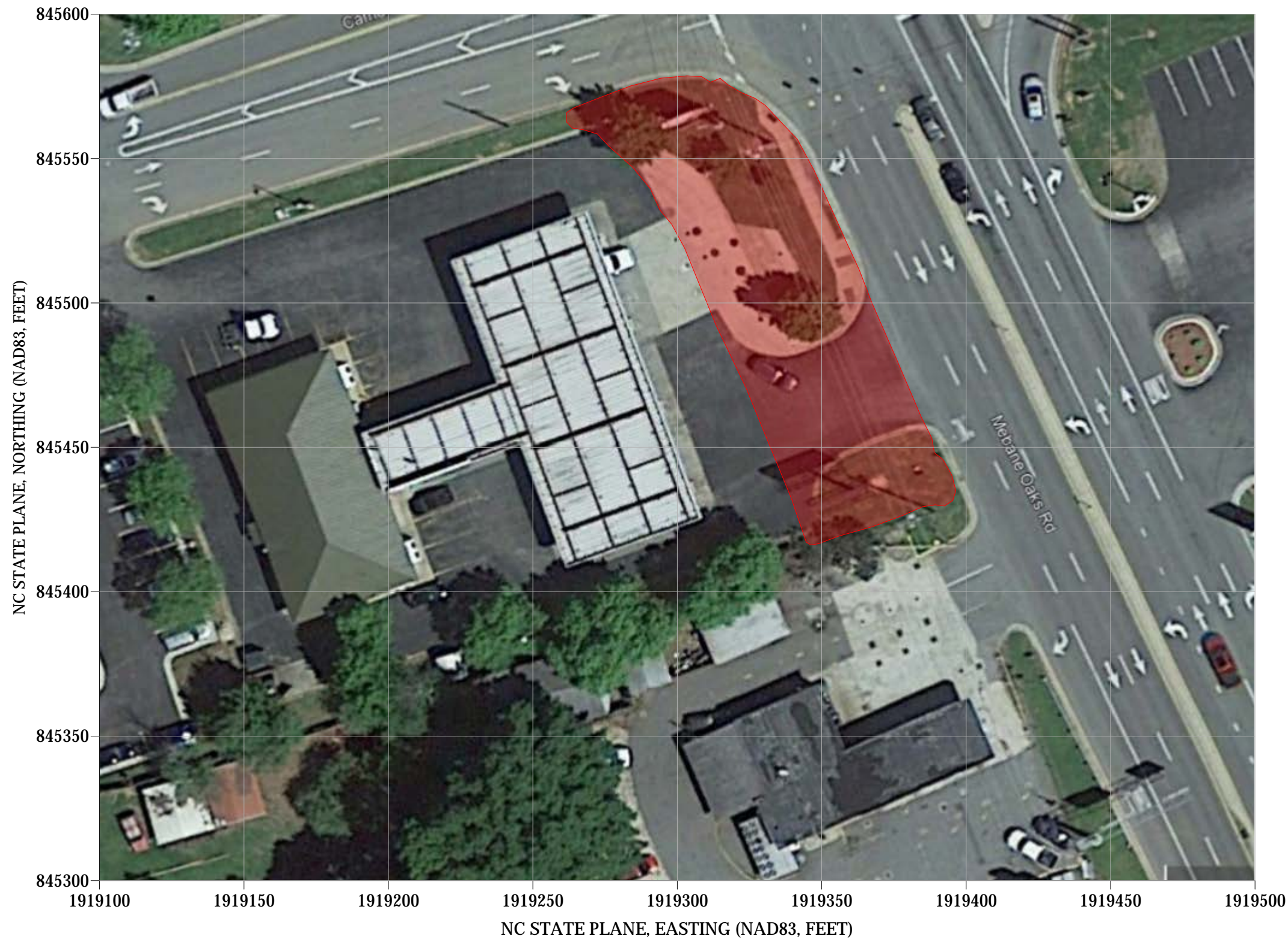
- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface.
- The EM survey recorded three high-amplitude anomalies associated with the three known USTs, and one EM anomaly associated with unknown buried metal. These anomalies were further investigated with GPR.
- GPR verified the sizes and orientations of the three known USTs.
- The northern UST (UST #1) was approximately 16 feet long by 7 feet wide. The central UST (UST #2) was approximately 28 feet long by 8 feet wide. The southern UST (UST #3) was approximately 38.5 feet long by 8 feet wide.
- GPR recorded evidence of isolated high-amplitude reflectors in the southern portion of the property that lacked the size and characteristics typically associated with a UST. This feature was classified as a no confidence anomaly. This anomaly was approximately 4 feet long by 2.5 feet wide.

- Collectively, the geophysical data recorded evidence of three known USTs and one no confidence anomaly at Parcel 5.

LIMITATIONS

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

APPROXIMATE BOUNDARIES OF GEOPHYSICAL SURVEY AREA



View of Survey Area
(Facing Approximately East)



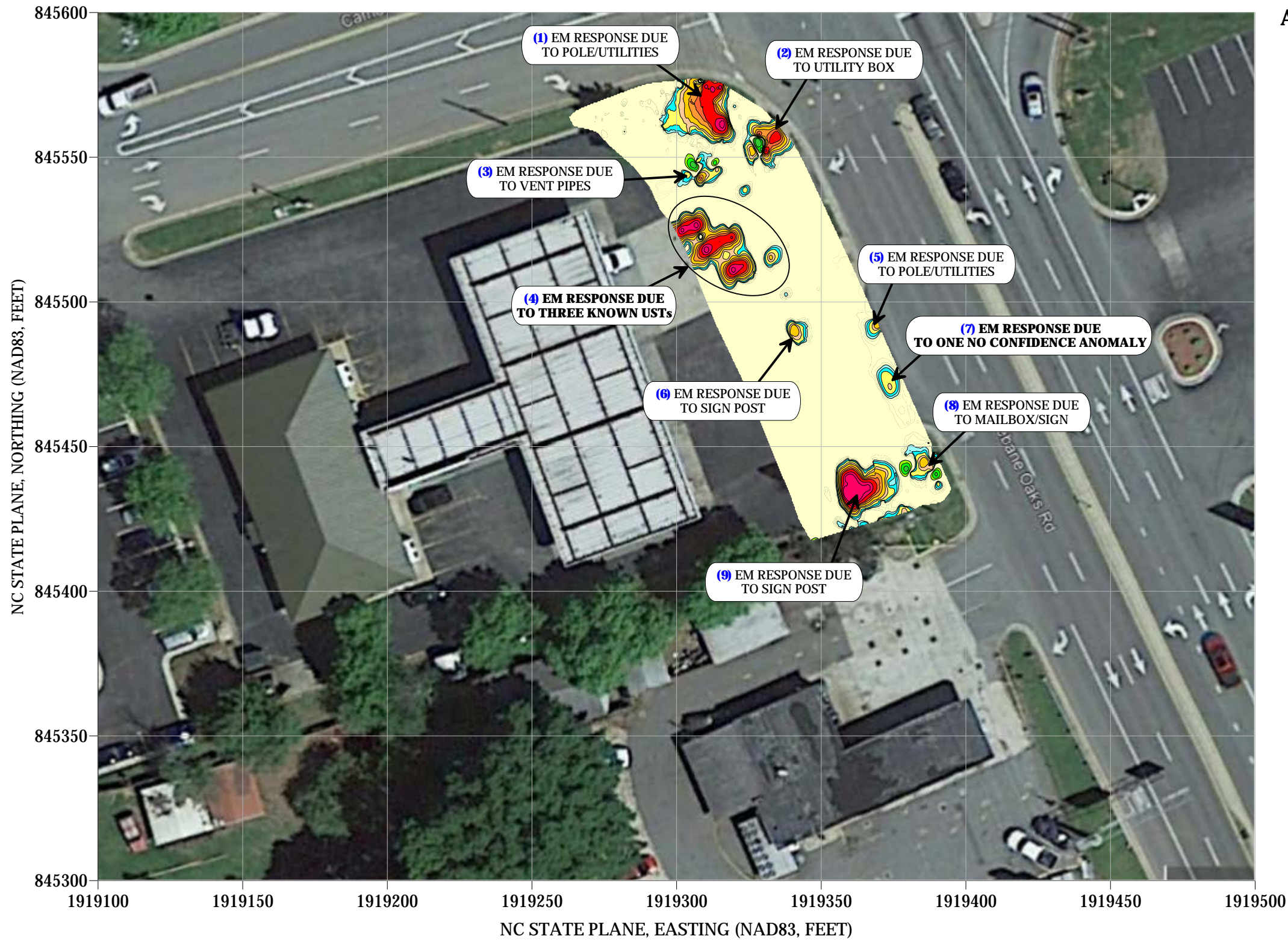
View of Survey Area
(Facing Approximately North)



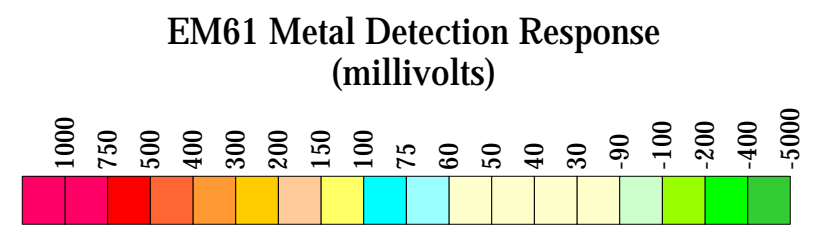
<p>503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology</p>	<p>PROJECT</p> <p>PARCEL 5 MEBANE, NORTH CAROLINA NCDOT PROJECT I-5711</p>	<p>TITLE</p> <p>PARCEL 5 - GEOPHYSICAL SURVEY BOUNDARIES AND SITE PHOTOGRAPHS</p>	<p>DATE</p> <p>9/10/2018</p>	<p>CLIENT</p> <p>NCDOT</p>
			<p>PYRAMID PROJECT #:</p> <p>2018-242</p>	<p>FIGURE 1</p>


EM61 METAL DETECTION RESULTS

EVIDENCE OF THREE KNOWN USTs AND ONE NO CONFIDENCE ANOMALY OBSERVED.

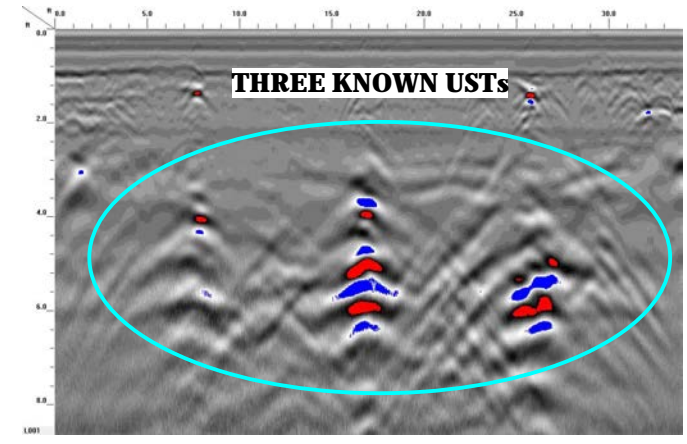


The contour plot shows the differential results of the EM61 instrument in millivolts (mV). The differential results focus on larger metallic objects such as USTs and drums. The EM61 data were collected on September 10, 2018, using a Geonics EM61 instrument. Verification GPR data were collected using a GSSI UtilityScan DF instrument with a dual frequency 300/800 MHz antenna on September 12, 2018.

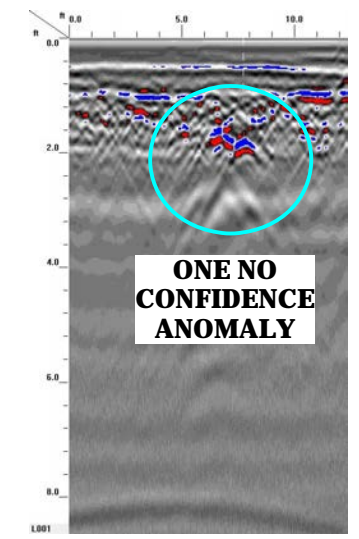


 503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	PROJECT PARCEL 5 MEBANE, NORTH CAROLINA NCDOT PROJECT I-5711	TITLE PARCEL 5 - EM61 METAL DETECTION CONTOUR MAP	DATE	9/10/2018	CLIENT	NCDOT
			PYRAMID PROJECT #:	2018-242	FIGURE 2	

LOCATIONS OF GPR TRANSECTS




GPR TRANSECT 1 (T1)



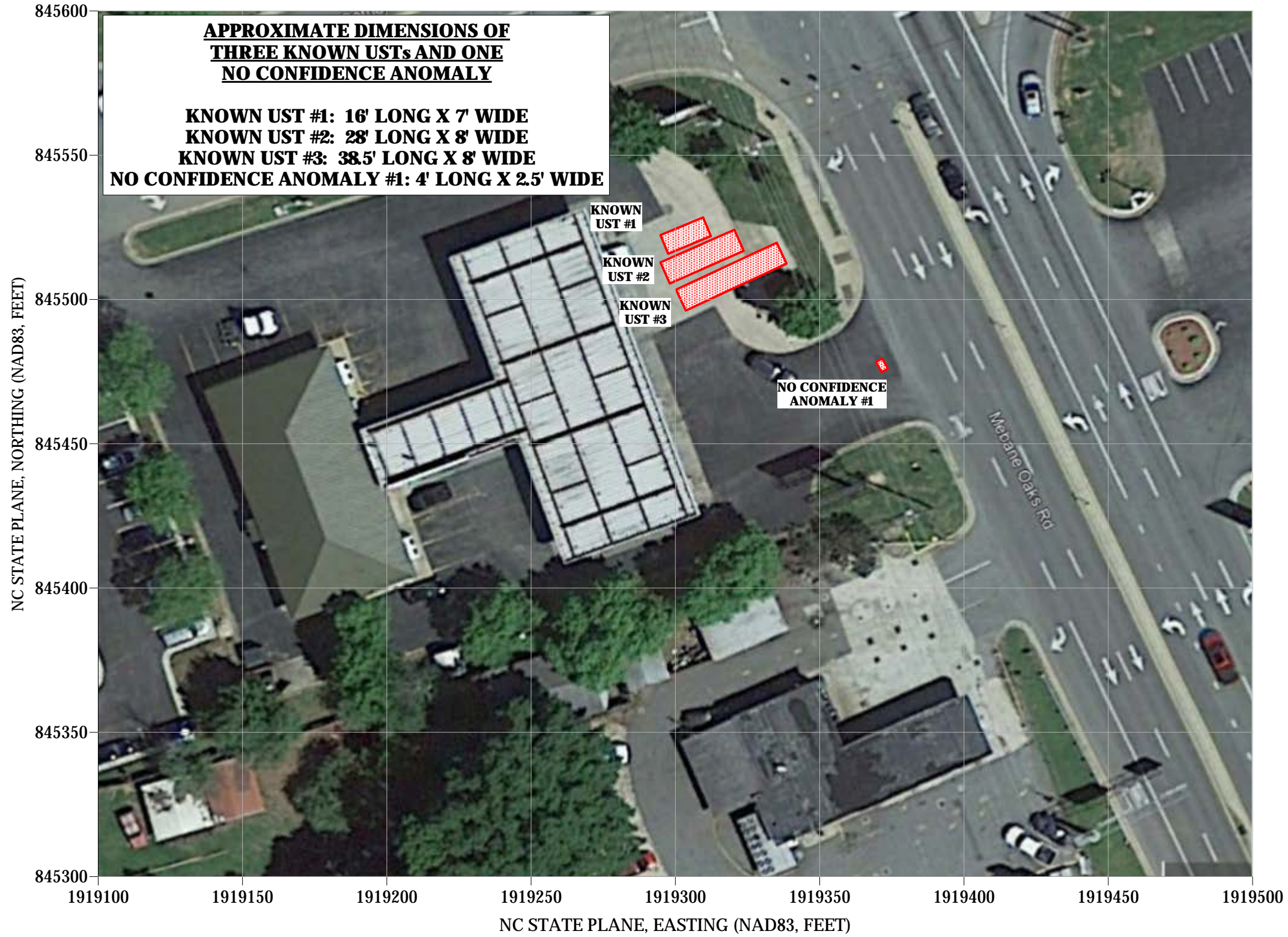
GPR TRANSECT 2 (T2)

*EXTENSIVE GPR SCANS WERE CONDUCTED OVER THE ENTIRE SITE. TRANSECT LINES ON THE MAP ABOVE INDICATE LOCATIONS WHERE DATA WERE SAVED. THESE LOCATIONS WERE CHOSEN TO HIGHLIGHT STRUCTURES IDENTIFIED IN THE SUBSURFACE OR TRANSECTS THAT ARE REPRESENTATIVE OF GENERAL SUBSURFACE CONDITIONS.



 503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	PROJECT PARCEL 5 MEBANE, NORTH CAROLINA NCDOT PROJECT I-5711	TITLE PARCEL 5 - GPR TRANSECT LOCATIONS AND IMAGES	DATE	9/12/2018	CLIENT	NCDOT
			PYRAMID PROJECT #:	2018-242	FIGURE 3	

LOCATIONS OF THREE KNOWN USTs AND ONE NO CONFIDENCE ANOMALY



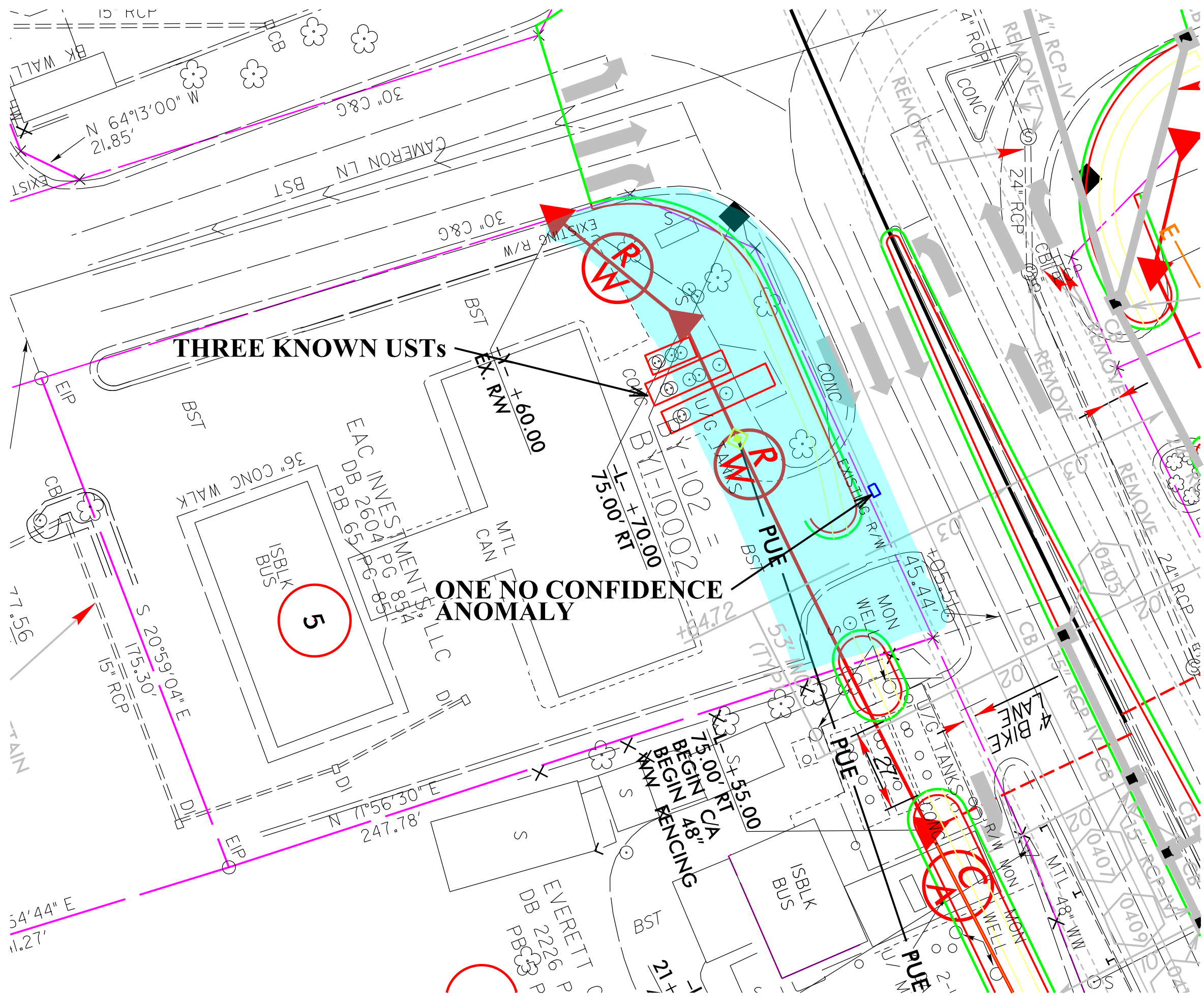
View of Three Known USTs Facing Approximately North



View of One No Confidence Anomaly Facing Approximately North

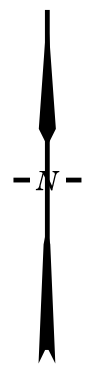
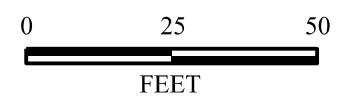


	503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	PROJECT PARCEL 5 MEBANE, NORTH CAROLINA NCDOT PROJECT I-5711	TITLE PARCEL 5 - LOCATIONS AND SIZES OF THREE KNOWN USTs AND ONE NO CONFIDENCE ANOMALY	DATE	9/12/2018	CLIENT	NCDOT
				PYRAMID PROJECT #:	2018-242	FIGURE 4	



LEGEND

- EXISTING ROW
- EXISTING PROPERTY BOUNDARY
- PROPOSED ROW LINE
- TEMPORARY CONSTRUCTION EASEMENT
- PDE - PROPOSED PERMANENT DRAINAGE
- PUE - PROPOSED PERMANENT UTILITY
- - - PROPOSED SS CUT LINE
- - - PROPOSED SS FILL LINE
- PROPOSED DRAINAGE PIPING
- GEOPHYSICAL SURVEY AREA
- KNOWN UST WITHIN SURVEY AREA
- NO CONFIDENCE ANOMALY



TITLE OVERLAY OF GEOPHYSICAL SURVEY BOUNDARIES AND 3 KNOWN USTs/1 NO CONFIDENCE ANOM. ON NCDOT ENGINEERING PLANS	
PROJECT PARCEL 5 MEBANE, NORTH CAROLINA NCDOT PROJECT I-5711	
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="font-size: 0.8em;"> 503 INDUSTRIAL AVENUE GREENSBORO, NC 27406 336.335.3174 (p) 336.691.0648 (f) License # C1251 Eng. / #C257 Geology </div> </div>	
DATE: 09-18-2018	REVISION NO. 0
PYRAMID PROJECT NO. 2018-242	FIGURE NO. 5

APPENDIX D

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: PROJECT NUMBER:	NC DOT I-5711, Parcel 005, Mebane, NC (2018-242)	BORING/WELL NO:	5-4
SITE LOCATION:	Alamance County, NC	BORING/WELL LOCATION:	Parcel 005, NE portion
START DATE:	10/02/18	COMPLETED:	10/02/18
GEOLOGIST:	M. Trifunovic / T. Leatherman	DRILLER:	Solutions-IES
DRILL METHOD:	Geoprobe	SAMPLE METHOD:	Macro-core
BORING DIA:	2-inch	CASING DIA:	N/A
TOTAL DEPTH:	8 feet	CASING DEPTH:	N/A

DEPTH (ft.)	VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC.	OVA RESULTS PERCENT RECOVERY BLOW COUNTS
----------------	---	--

DEPTH (ft.)	VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC.	OVA RESULTS PERCENT RECOVERY BLOW COUNTS
		Core Sample Depths
0-2	No Recovery	No Recovery
2-4	Reddish-brown, silty-clay (ML), dry, no odor	PID= 2.1 PPM
4-6	Reddish-brown, silty-clay (ML), moist, no odor	PID= 2.2 PPM
6-8	Reddish-brown, silty-clay (ML), moist, no odor	PID= 1.5 PPM
	Water table not encountered	

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
 SCREEN LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
 DEPTH TO TOP OF SAND _____ BAGS OF SAND _____.
 DEPTH TO TOP SEAL _____ BENTONITE USED _____ BAGS OF CEMENT USED 0.

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: PROJECT NUMBER:	NC DOT I-5711, Parcel 005, Mebane, NC (2018-242)	BORING/WELL NO:	5-5
SITE LOCATION:	Alamance County, NC	BORING/WELL LOCATION:	Parcel 005, NE portion
START DATE:	10/02/18	COMPLETED:	10/02/18
GEOLOGIST:	M. Trifunovic / T. Leatherman	DRILLER:	Solutions-IES
DRILL METHOD:	Hand-Auger	SAMPLE METHOD:	Hand-Auger Bucket
BORING DIA:	2-inch	CASING DIA:	N/A
TOTAL DEPTH:	3 feet	CASING DEPTH:	N/A

DEPTH (ft.)	VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC.	OVA RESULTS PERCENT RECOVERY BLOW COUNTS
----------------	---	--

		Core Sample Depths
0-3	Reddish-brown, silty-clay (ML), moist, no odor	PID= 0.4 PPM
	Hand-auger refusal at 3 feet.	
	Water table not encountered	

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
 SCREEN LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
 DEPTH TO TOP OF SAND _____ BAGS OF SAND _____.
 DEPTH TO TOP SEAL _____ BENTONITE USED _____ BAGS OF CEMENT USED 0.

APPENDIX E



Hydrocarbon Analysis Results

Client: NCDOT Alamance Mebane Parcel 005
Address: Speedway Mebane Oaks Road
 Mebane, NC

Samples taken Seven
Samples extracted Seven
Samples analysed Seven

Contact: **Operator** Tim Leatherman

Project: NCDOT Alamance Mebane Parcel 005

H09382

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
										C5 - C10	C10 - C18	C18	
s	5-1(2-4)	20.6	<0.52	<0.52	<0.52	<0.52	<0.1	<0.17	<0.021	0	0	100	Residual HC,(BO)
s	5-2(2-4)	13.9	<0.35	<0.35	<0.35	<0.35	<0.07	<0.11	<0.014	0	20	80	,(FCM),(BO),(P)
s	5-2(4-6)	22.8	<0.57	1.6	0.57	2.17	0.36	<0.18	<0.023	84.2	9.9	5.9	V.Deg.PHC 74%,(FCM),(P)
s	5-3(2-4)	21.5	<0.54	1.6	1.8	3.4	0.93	<0.17	<0.021	67.5	21.9	10.7	Deg.PHC 79.1%,(FCM)
s	5-5(2-3)	22.8	<0.57	3.5	0.57	4.07	0.41	<0.18	<0.023	91.4	5.5	3.1	V.Deg.PHC 75.2%,(FCM)
s	5-3(6-8)	25.5	<0.64	3.1	4.6	7.7	3.7	<0.2	<0.025	78.9	16.2	4.9	Deg.Fuel 79.8%,(FCM),(P)
s	5-4(4-6)	14.4	<0.36	<0.36	<0.36	<0.36	<0.07	<0.12	<0.014	0	32.1	67.9	Residual HC,(BO),(P)

Initial Calibrator QC check **OK**

Final FCM QC Check **OK**

95.4 %

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

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

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

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

