PRELIMINARY SITE ASSESSMENT

PARCEL 73, TP WILKES, LLC
800 ELKIN HIGHWAY (NC 268)
NORTH WILKESBORO, WILKES COUNTY, NORTH CAROLINA
STATE PROJECT: R-2603
WBS ELEMENT: 36001.1.2
July 22, 2013

Report prepared for:

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

Report prepared by:

Timothy D. Leatherman, LG
NC License #1787

NORTH CAROLINA LICENSED SEAL 1787 GEOLOGIST TIMOTHY D. LEATHERMAN

Report reviewed by:

Michael G. Jones, LG
NC License #1168

NORTH CAROLINA LICENSED SEAL 1168 GEOLOGIST MICHAEL GALIK JONES

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

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

TABLE OF CONTENTS (Continued)

FIGURES

TABLES

APPENDICES

PRELIMINARY SITE ASSESSMENT
PARCEL 73, TP WILKES, LLC
800 ELKIN HIGHWAY (NC 286)
NORTH WILKESBORO, WILKES 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 the Parcel 73, TP Wilkes, LLC. The purpose of this assessment was to determine the presence or absence of underground storage tanks (USTs) and impacted soils at the subject property within the proposed easement and between the existing right of way (ROW) and edge of pavement with emphasis on the areas of proposed drainage structures (State Project R-2603). This preliminary site assessment was conducted on behalf of the North Carolina Department of Transportation (NCDOT) in accordance with Pyramid's May 7, 2013, technical proposal.

The following statements summarize the results of the PSA:

- **Site History:** A review of the North Carolina Department of Environment and Natural Resources (NC DENR) registered UST database and incident database indicated no incidents for the TP Wilkes, LLC property (Parcel 73). On May 22, 2013, Pyramid emailed the Wilkes County parcel addresses to Ms. Carin Kromm, the Winston-Salem Regional Office Supervisor for the NC DENR UST Section, with a request to investigate any incidents associated with the parcels. On June 6th, Ms. Kromm responded to the email and stated that site address 800 Elkin Highway does not have any incidents in the database.

- **Geophysical Survey:** The geophysical investigation provided no evidence of metallic USTs within the proposed ROW and/ or easement.

- **Limited Soil Assessment:** A total of five borings were performed across the property and one soil sample from each boring was analyzed with the QED UVF HC-1 Analyzer system from QROS-US for total petroleum hydrocarbons (TPH) petroleum contamination. The QED results for soil samples 73-1(10), 73-2(10), 73-3(2.5), 73-4(5), and 73-5(2.5) did not detect TPH gasoline range organics (GRO) or TPH diesel range organics (DRO) concentrations above detection limits of <0.7 milligrams-per-kilogram (mg/kg) and <0.6 mg/kg.

- **Limited Groundwater Assessment:** Groundwater was not encountered in the temporary monitoring well at 73-1(TW), and thus no groundwater sample was analyzed. Site observations indicate it is likely the depth of the water table is well below any planned excavation associated with road construction at this property. The depth to groundwater at boring 73-1(TW) on the property was deeper than 25 feet below land surface (BLS).

- **Contaminated Soil Volumes:** No petroleum-impacted soils were encountered during the PSA investigation at Parcel 73, nor were any probable or possible USTs encountered within the proposed right of way or easement. Therefore, no recommendations are necessary for the treatment or disposal of such materials. 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 DENR Division of Waste Management (DWM) UST Section 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 the parcel of TP Wilkes, LLC. The TP Wilkes, LLC property is currently a vacant commercial property (Parcel 73), located at 800 Elkin Highway (NC 268) in North Wilkesboro, NC. This preliminary site assessment was conducted on behalf of the NCDOT in accordance with Pyramid's May 7, 2013, technical proposal.

The purpose of this assessment was to determine the presence or absence of underground storage tanks (USTs) and impacted soils at the subject properties in the proposed easement and existing right of way and edge of pavement (State Project R-2603). The location of the subject site is shown on **Figure 1,** and the property boundaries and owner information are shown in **Figure 2.**

1.1 Background Information

Based on the NCDOT's March 22, 2013, *Request for Technical and Cost Proposal*, the PSA was conducted in the proposed easement and the area between the existing NCDOT right of way and the edge of pavement with emphasis on the areas of proposed drainage features, in accordance with the computer-aided drafting and design (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 in the proposed easement and the area between the existing ROW and the edge of pavement with emphasis on the proposed drainage features.
- Report the depth to groundwater for each site and attempt to obtain one groundwater sample for each site for laboratory analysis by installing one temporary monitoring well.

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. A private utility locator, Northstate Utility Locating Incorporated of Colfax, North Carolina was used to mark the on-site private, buried utilities.

2.0 Site History

Pyramid completed an NC DENR records review, interviewed NCDENR personnel, and reviewed aerial photographs to assess past uses of the property. It should be noted that the NCDOT directed Pyramid to not obtain a First Search radius report detailing the history of the site and surrounding area. For this reason, Pyramid reviewed historical aerial photographs dating back to 1958 available from Wilkes Soil and Water

Conservation office in Wilkesboro and on Google Earth for past uses. The 1958, 1966, 1993, 2006, 2008, and 2012 aerial photographs are included in **Appendix A**. Historical information reviewed as part of the PSA indicated that the TP Wilkes, LLC property was first developed for use before 1958. The earliest aerial to show the building was the 1958 aerial. The 1993 aerial indicates the property was once used as a mobile home/trailer park.

On May 22, 2013, Pyramid emailed the Wilkes County parcel addresses to Ms. Carin Kromm, the Winston-Salem Regional Office Supervisor for the NC DENR UST Section, with a request to investigate any incidents associated with the parcels. On June 6, 2013, Ms. Kromm responded to the email and stated that site address 800 Elkin Highway does not have any environmental incidents in the NC DENR database.

3.0 Geophysical Investigation

Pyramid performed an electromagnetic (EM) survey across the accessible portions of the Parcel. The majority of the EM61 anomalies detected could be attributed to visible objects at the ground surface such as fences and drainage features. The remaining EM features were minor, and were attributed to metallic debris. No anomalies were characteristic of USTs, and ground penetrating radar (GPR) data were not required for further investigation. No evidence was observed to indicate the presence of metallic USTs within the survey area.

The geophysical investigation provided no evidence of metallic USTs within the proposed ROW and/or easement.

The full details of the geophysical investigation are included in the Geophysical Investigation Report as **Appendix B**.

4.0 Soil Sampling Activities & Results

4.1 Soil Assessment Field Activities

On June 11, 2013, Pyramid mobilized to the site and drilled soil borings, installed one temporary monitoring well (TW), and collected the proposed soil samples for the PSA. The soil borings and temporary well were completed using a track mounted Geoprobe® Direct-Push rig and hand-auger. Five (5) soil borings (73-1, 73-2, 73-3, 73-4, and 73-5) were advanced on the subject property between the NCDOT proposed easement, existing ROW and edge of pavement. The selected locations were chosen to avoid public utilities along Elkin Highway, and private utilities associated with the business while remaining in the proposed right of way area. Soil borings 73-1, 73-4, and 73-5 were installed at or near proposed drainage features 0958, 1009, and 1011, respectfully. Soil borings 73-2

and 73-3 were installed between the front of the old building and edge of pavement. The locations of the borings are shown on **Figure 3**.

Soil samples were continuously collected in five 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) every 2 to 2.5 feet depending on the soil recovery of each sleeve. In general, the soil sample with the highest OVA reading was selected from each boring for laboratory analysis. The soil boring logs with the soil descriptions, visual examination, and OVA screening results are included in **Appendix C**. 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.

The soil samples selected for Total Petroleum Hydrocarbon (TPH) analyses were analyzed utilizing the QED UVF HC-1 Analyzer system from QROS-US. The NCDOT has indicated that this instrument is an acceptable method to provide total petroleum hydrocarbon (TPH) results for soil analysis for the PSA projects. Pyramid's QED-certified technician worked with Pyramid's on-site staff geologist to perform soil contaminant analysis. 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). The soil samples selected for analysis using the QED were preserved in the field with methanol and were analyzed at the end of each day using the QED. Additionally, 10% of soil samples collected were submitted to a laboratory for analysis to verify the QED results.

The duplicate soil samples selected for laboratory analyses were placed in laboratory prepared containers and shipped to Pace Analytical in Huntersville, NC, to be analyzed under the direction of Pace Analytical Project Manager Kevin Godwin. The selected soil samples were analyzed for TPH as gasoline range organics GRO by EPA Method 8015C/5035 and DRO by EPA Method 8015C/3541.

4.2 Soil Sample Analytical Results

The QED results for soil samples 73-1(10), 73-2(10), 73-3(2.5), 73-4(5), and 73-5(2.5) did not detect TPH-GRO or TPH-DRO concentrations above detection limits. The detection limits for GRO were 0.7 mg/kg, and 0.6 mg/kg for DRO. The NCDENR action levels for TPH-GRO and TPH-DRO are 10 mg/kg. The soil sample QED results are summarized in **Table 2**. A copy of the QED analysis report is included in **Appendix D**.

A duplicate of soil sample 73-2(10) was shipped to Pace Analytical for laboratory analysis. The laboratory results for soil sample 73-2 did not detect TPH-GRO or TPH-DRO concentrations above laboratory detection limits. The soil sample laboratory results

are summarized in **Table 2**. A copy of the laboratory report and chain-of-custody is included in **Appendix E**.

4.3 Temporary Monitoring Well Installation

On June 11, 2013, Pyramid converted soil boring 73-1 into a 1-inch diameter temporary monitoring well. Soil boring 73-1(TW) was completed to a total depth of 25 feet below land surface (BLS). The temporary well at 73-1 was constructed with 15 feet of 1-inch diameter of schedule 80 PVC casing and 10 feet of 1-inch diameter of schedule 80 PVC slotted screen. The temporary well was set in the boring with 10 feet of slotted screen at the bottom of the well.

On June 12, 2013, the temporary monitoring well 73-1(TW) was gauged using a properly decontaminated electric water level probe. On June 12, 2013, no water was detected in temporary well 73-1. Upon completion of the gauging, the temporary monitoring well was properly abandoned by the drillers by removing all the casing, and filling the borehole with bentonite chips and portland cement.

4.4 Groundwater Analytical Results

Groundwater was not encountered in the temporary monitoring well at 73-1(TW), and thus no groundwater sample was analyzed. Site observations indicate it is likely the depth of the water table is well below any planned excavation associated with road construction at this property.

5.0 Conclusions and Recommendations

As requested by NCDOT, Pyramid has completed a PSA at the TP Wilkes, LLC property (Parcel 73) located 800 Elkin Highway, North Wilkesboro, NC. The following is a summary of the assessment activities and results.

5.1 Geophysical Investigation

The geophysical investigation suggests that no evidence of metallic USTs was recorded within the proposed ROW and/or easement.

5.2 Limited Soil Assessment

The QED results for soil samples 73-1(10), 73-2(10), 73-3(2.5), 73-4(5), and 73-5(2.5) did not detect TPH-GRO or TPH-DRO concentrations above detection limits (<0.7 mg/kg and <0.6 mg/kg). A duplicate of soil sample 73-2(10) was shipped to Pace Analytical for laboratory analysis. The laboratory results for soil sample 73-2(10) was below laboratory detection limits for TPH-GRO and TPH-DRO. The NC DENR action levels for TPH-GRO and TPH-DRO are both 10 mg/kg.

5.3 Limited Groundwater Assessment

Groundwater was not encountered in the temporary monitoring well at 73-1(TW), and thus no groundwater sample was analyzed. Site observations indicate it is likely the depth of the water table is well below any planned excavation associated with road construction at this property.

5.4 Recommendations

No petroleum-impacted soils were encountered during the PSA investigation at Parcel 73, nor were any probable or possible USTs encountered within the proposed right of way or easement. Therefore, no recommendations are necessary for the treatment or disposal of such materials.

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 NCDENR DWM UST Section Guidelines and disposed of at a permitted facility.

6.0 Limitations

The results of this PSA 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 the PSA was performed.

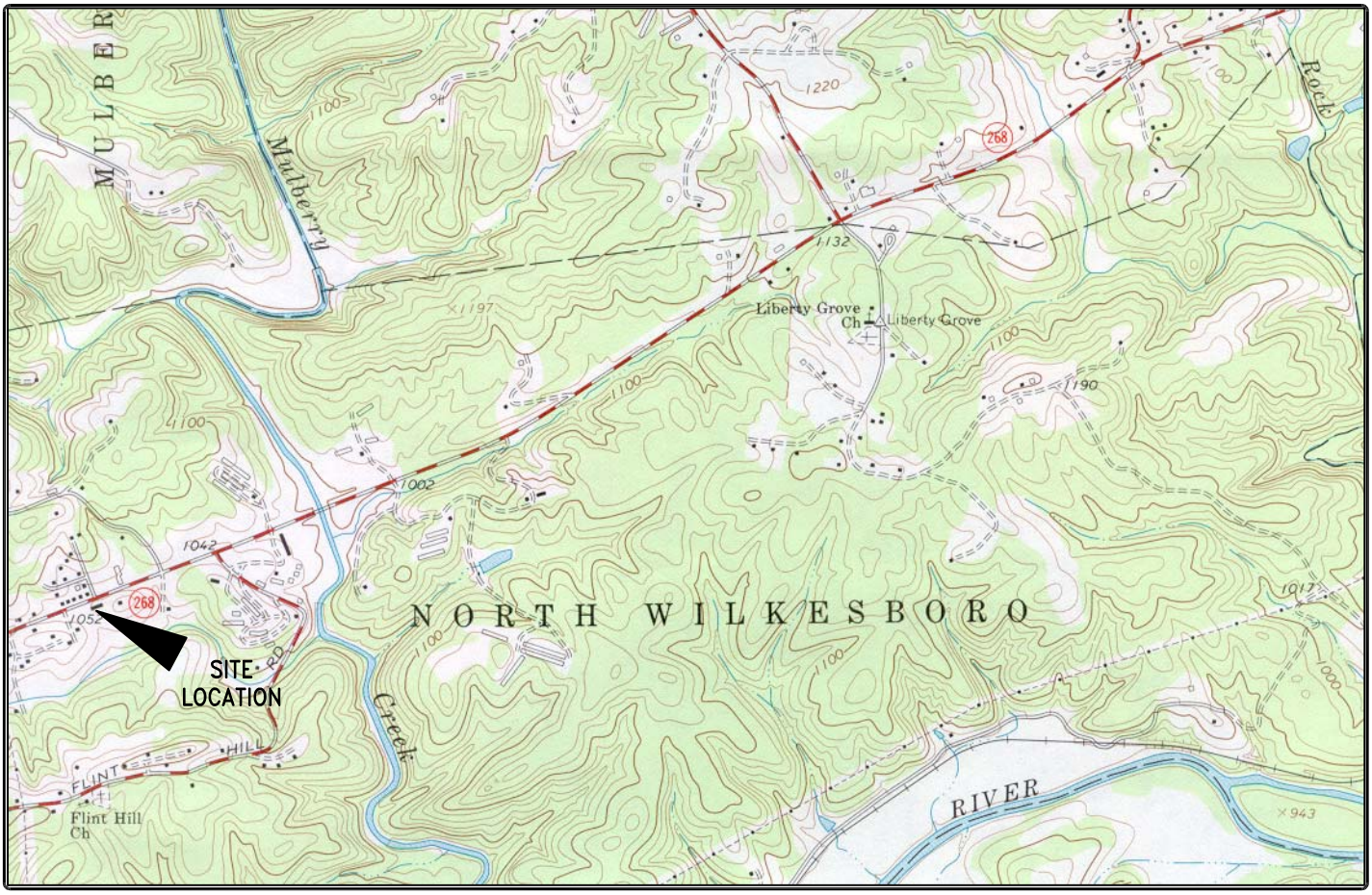
7.0 Closure

This report was prepared for, and is available solely for use by 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: 800 ELKIN HIGHWAY LOCATION: N. WILKESBORO, NORTH CAROLINA



USGS IDENTIFICATION

USGS 7.5 MINUTE MAP	ROARING RIVER, N.C.
ORIGINAL DATE:	1966
PHOTOREVISION DATE:	NA
PRIMARY HIGHWAY, HARD SURFACE	
SECONDARY HIGHWAY, HARD SURFACE	
LIGHT-DUTY ROAD HARD OR IMPROVED SURFACE	
UNIMPROVED ROAD	
STATE ROAD	
U.S. ROUTE	
INTERSTATE ROUTE	

SCALES

MILES: 1/2 0 1

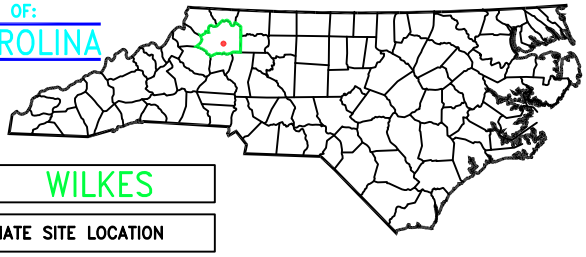
FEET: 1000 0 2000 4000 6000

1" = 2000'

NOTES: ▶ TOPOGRAPHICAL CONTOUR INTERVAL = 20 FEET
▶ PHOTOREVISIONS DENOTED IN PURPLE

MAGNETIC NORTH

COUNTY MAP OF: NORTH CAROLINA



COUNTY: WILKES

APPROXIMATE SITE LOCATION

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT: NCDOT R-2603
PROPERTY NAME: PARCEL 73, TP WILKES, LLC
CITY: N. WILKESBORO STATE: NORTH CAROLINA
TITLE: TOPOGRAPHIC MAP

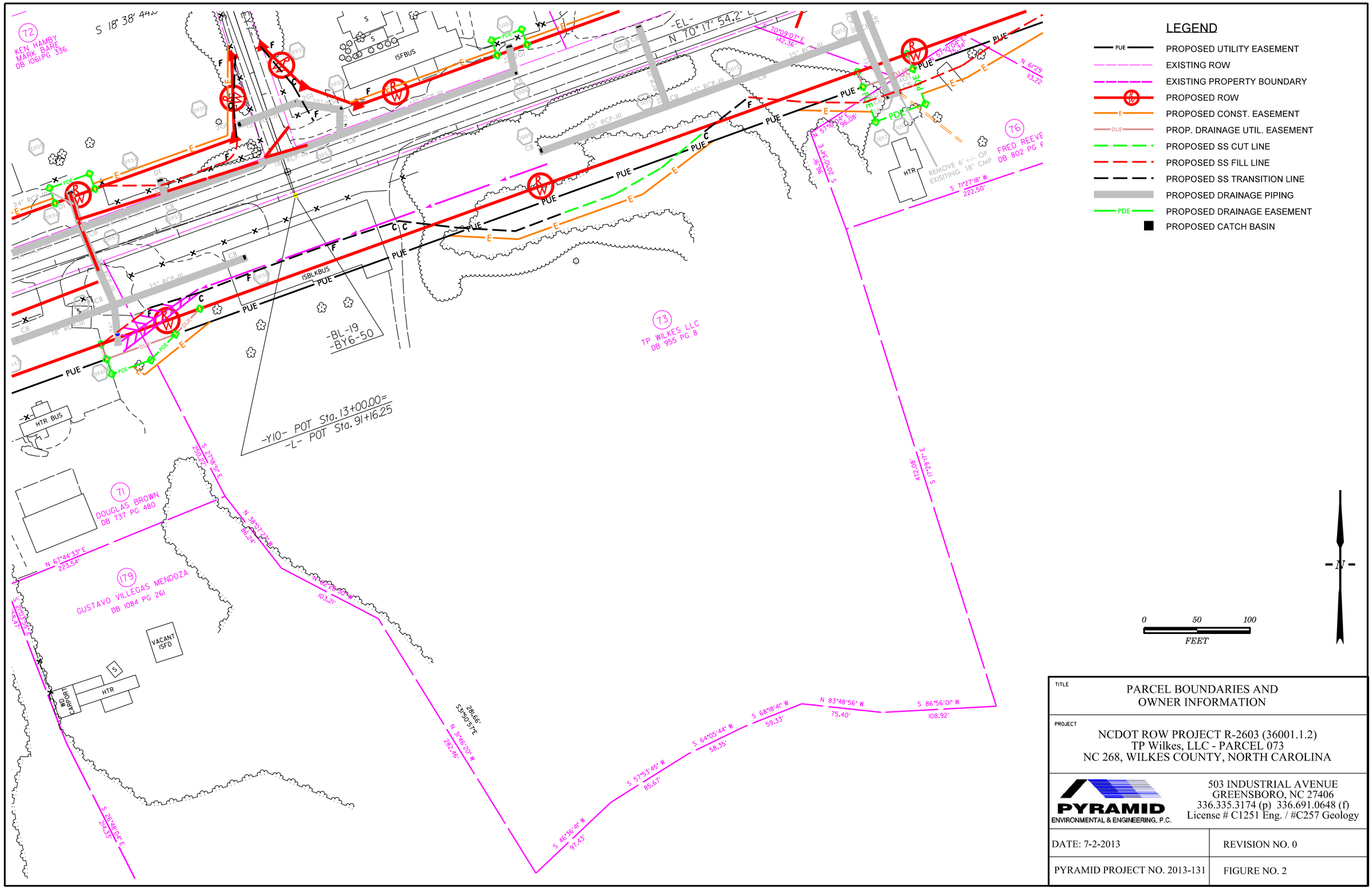
SCALE: 1"=2000'
DATE: 7/9/13
DRAWING NAME: USGSTOPO

DRAWN BY: KAM
CHECK BY: TDL
JOB NO.: 2013-131
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.



TITLE

PARCEL BOUNDARIES AND
OWNER INFORMATION

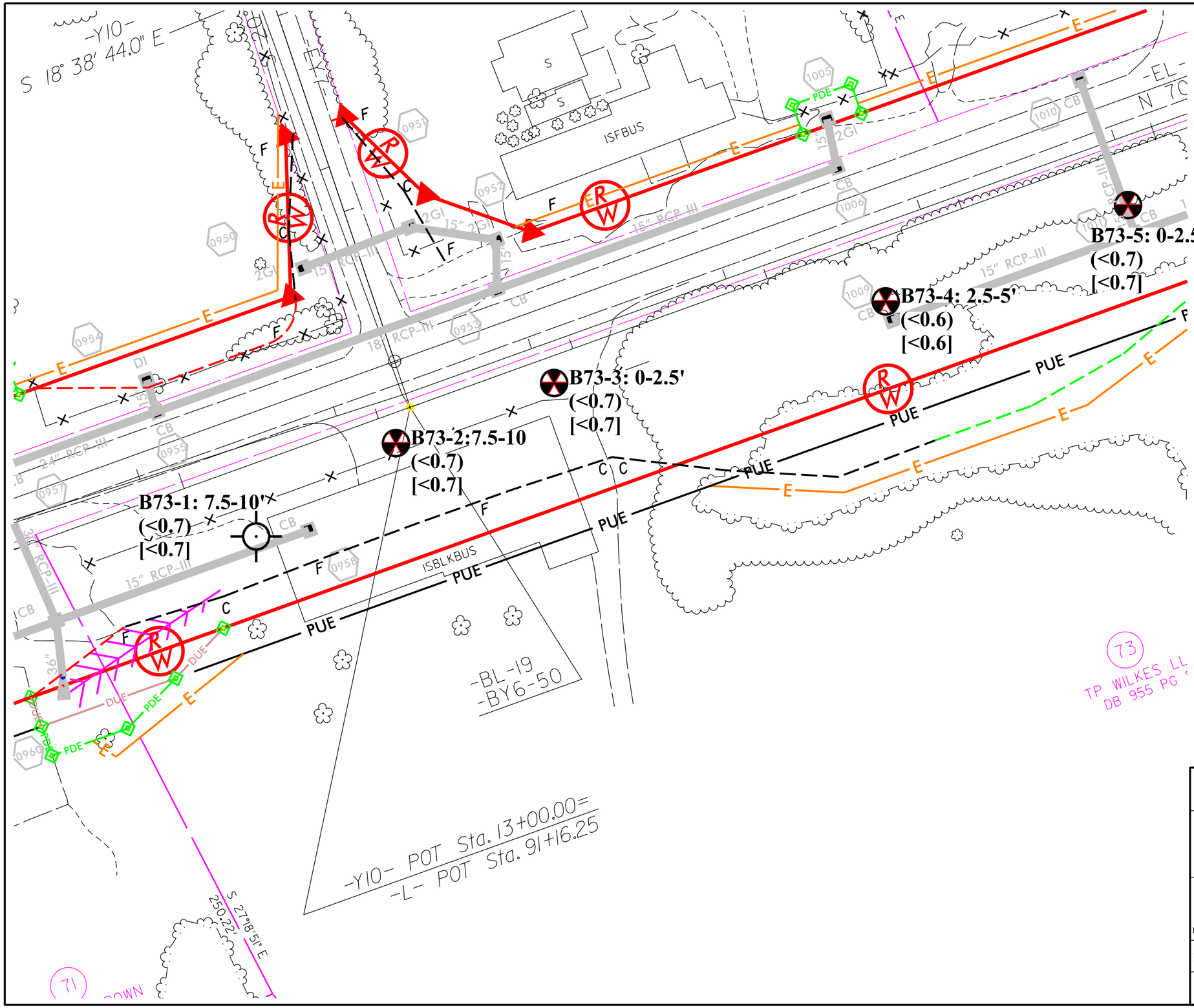
PROJECT

NCDOT ROW PROJECT R-2603 (36001.1.2)
TP Wilkes, LLC - PARCEL 073
NC 268, WILKES COUNTY, NORTH CAROLINA

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

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

DATE: 7-2-2013	REVISION NO. 0
PYRAMID PROJECT NO. 2013-131	FIGURE NO. 2



LEGEND

- PUE — PROPOSED UTILITY EASEMENT
- EXISTING ROW
- EXISTING PROPERTY BOUNDARY
- PROPOSED ROW
- E — PROPOSED CONST. EASEMENT
- DUE — PROP. DRAINAGE UTIL. EASEMENT
- PROPOSED SS CUT LINE
- PROPOSED SS FILL LINE
- PROPOSED SS TRANSITION LINE
- PROPOSED DRAINAGE PIPING
- PDE — PROPOSED DRAINAGE EASEMENT
- PROPOSED CATCH BASIN
- SOIL SAMPLE BORING LOCATION
- BORING CONVERTED TO MW

(<6.1) TPH-DRO concentration (mg/kg)
[<6.1] TPH-GRO concentration (mg/kg)

(Analytical data obtained by the method of QROS, QED Analyzer)

N

0 50 100

FEET

TITLE
SOIL BORING LOCATIONS AND
ESTIMATED AREA OF CONTAMINATION

PROJECT
NCDOT ROW PROJECT R-2603 (36001.1.2)
TP Wilkes, LLC - PARCEL 073
NC 268, WILKES COUNTY, NORTH CAROLINA

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.
503 INDUSTRIAL AVENUE
GREENSBORO, NC 27406
336.335.3174 (p) 336.691.0648 (f)
License # C1251 Eng. / #C257 Geology

DATE: 7-2-2013	REVISION NO. 0
PYRAMID PROJECT NO. 2013-131	FIGURE NO. 3

TABLES

TABLE 1

Summary of Soil Field Screening Results

NCDOT Project R-2603

800 Elkin Highway (NC268) - Parcel 73

North Wilkesboro, Wilkes County, North Carolina

SOIL BORING	SAMPLE ID	DEPTH (feet bgs)	OVA/FID READINGS (PPM)
73-1	73-1(2.5)	0 to 2.5	<1
	73-1(5)	2.5 to 5	<1
	73-1(7.5)	5 to 7.5	<1
	73-1(10)	**7.5 to 10**	**1.0**
73-2	73-2(2.5)	0 to 2.5	1.5
	73-2(5.0)	2.5 to 5	1.7
	73-2(7.5)	5 to 7.5	2.0
	73-2(10)	**7.5 to 10**	**2.5**
73-3	**73-3(2.5)**	**0 to 2.5**	**2.5**
	73-3(5.0)	2.5 to 5	<1
	73-3(7.5)	5 to 7.5	<1
	73-3(10)	7.5 to 10	<1
73-4	73-4(2.5)	0 to 2.5	<1
	73-4(4.0)	2.5 to 4	<1
	73-4(5.0)	**2.5 to 5**	**1.5**
	73-4(8.0)	5 to 8	1.0
73-5	**73-5(2.5)**	**0 to 2.5**	**0.5**
	73-5(5.0)	2.5 to 5	0.0
	73-5(7.5)	5 to 7.5	0.0
	73-5(10)	7.5 to 10	0.0

bgs= below ground surface

FID= flame-ionization detector

PPM= parts-per-million

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

OVA= Organic Vapor Analyzer

TABLE 2

Summary of Soil Sample Analytical Results

NCDOT State Project R-2603
800 Elkin Highway (NC 268) - Parcel 73
North Wilkesboro, Wilkes County, North Carolina

				QROS - QED Analysis			Laboratory Analysis (Pace)	
SAMPLE ID	**DATE**	**DEPTH (feet)**	**FID/OVA (ppm)**	**GRO (mg/kg) (C5-C10)**	**DRO (mg/kg) (C10-C35)**	**TPH (mg/kg) (C5-C35)**	**EPA Method 3550 DRO (mg/kg)**	**EPA Method 5035 GRO (mg/kg)**
73-1(10)	6/11/2013	7.5 to 10	1.0	<0.7	<0.7	<0.7	------	------
73-2(10)	6/11/2013	7.5 to 10	2.5	<0.7	<0.7	<0.7	<6.4	<6.0
73-3(2.5)	6/11/2013	0 to 2.5	2.5	<0.7	<0.7	<0.7	------	------
73-4(5)	6/11/2013	2.5 to 5	1.5	<0.6	<0.6	<0.6	------	------
73-5(2.5)	6/11/2013	0 to 2.5	0.5	<0.7	<0.7	<0.7	------	------
NC Initial Action Level - UST Section for 5035/5030-GRO; 3550-DRO				10	10	NA	10	10

FID= flame-ionizaton 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
"------" = No Laboratory Analysis

* Bold values indicate concentrations above initial action levels

APPENDIX A

Google earth

feet 1000

meters 300

Google earth

feet 1000

meters 300

Google earth

feet 1000

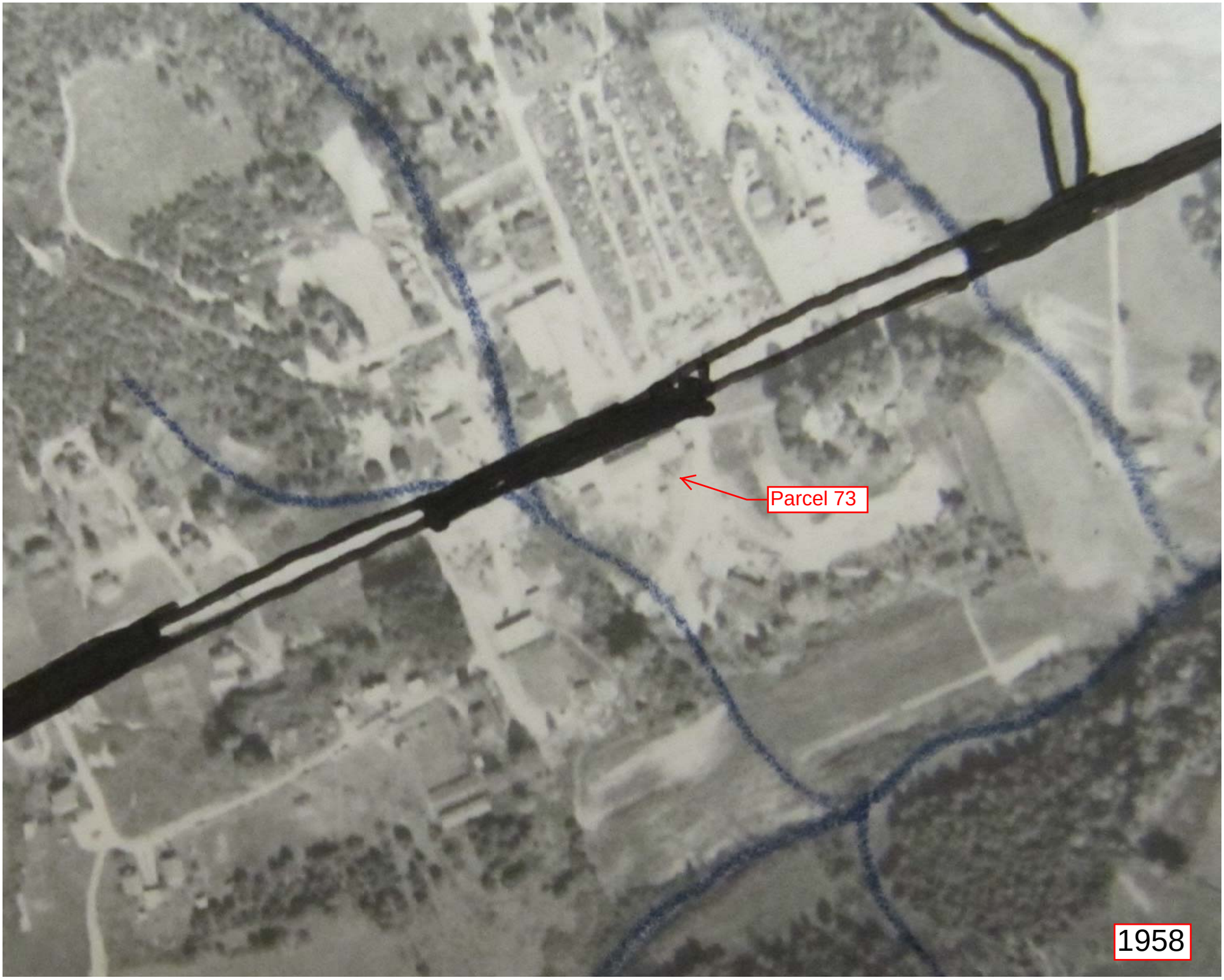
meters 300

Google earth

feet 700

meters 200


Parcel 73
1966


Parcel 73
1958

APPENDIX B

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.

PYRAMID ENVIRONMENTAL & ENGINEERING
(PROJECT 2013-131)

NCDOT PROJECT R-2603 (WBS 36000.1.1)

GEOPHYSICAL SURVEYS OF PARCEL 73 – UNDERGROUND STORAGE TANK INVESTIGATION

NORTH WILKESBORO, WILKES COUNTY, NC

JULY 10, 2013

Report prepared for:

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

Prepared by: _____

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

Reviewed by: _____

Douglas A. Canavello, L.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
NCDOT PRELIMINARY SITE ASSESSMENT
PARCEL 73 – 800 ELKIN HIGHWAY
North Wilkesboro, Wilkes County, North Carolina

Table of Contents

Figures

EXECUTIVE SUMMARY

- Electromagnetic (EM) and Ground Penetrating Radar (GPR) surveys were performed across the accessible portions of the Parcel.
- The majority of the EM61 anomalies detected could be attributed to visible objects at the ground surface such as fences and drainage features. The remaining EM features were minor, and were attributed to metallic debris. No anomalies were characteristic of USTs, and GPR data were not required for further investigation.
- The geophysical investigation provided no evidence of metallic USTs within the proposed ROW and/or easement.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for the North Carolina Department of Transportation (NCDOT) at Parcel 73 (TP Wilkes, LLC, Bread of Life Church), located at 800 Elkin Highway, North Wilkesboro, NC. The geophysical investigation was performed as part of the Preliminary Site Assessment (PSA) conducted by Pyramid at nine separate parcels along NC 268, and focused on the area between the current edge of pavement along NC 268 and the proposed right of way (ROW) and/or easement, whichever was greater. The survey area extended across the northern portion of the parcel, spanning a distance of approximately 280 feet along NC 268, and extending approximately 85 feet at its maximum north/south distance from NC 268 south into the property. Conducted on May 22, 2013, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site consisted of a combination of gravel parking space, concrete and grassy open areas. Aerial photographs showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

Prior to conducting the geophysical investigation, a 20-foot by 10-foot survey grid was established across the geophysical survey areas using measuring tapes and water-based marking paint. These grid

marks were used as X-Y coordinates for location control when collecting the geophysical data and establishing base maps for the geophysical results.

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. The EM survey was performed on May 22, 2013, using a Geonics EM61 metal detection instrument. 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, parallel survey lines spaced five feet apart. The data were downloaded to a computer and reviewed in the field and office using the Geonics DAT61 and Surfer for Windows Version 11.0 software programs.

GPR data were not required for this parcel's geophysical investigation because all EM anomalies detected could be directly attributed to cultural features such as fences, signs, and other visible objects (see Discussion below).

DISCUSSION OF RESULTS

Contour plots of the EM61 bottom coil and differential results obtained across the survey areas at the property are presented in **Figure 2**. The bottom coil results represent the most sensitive component of the EM61 instrument and detect metal objects regardless of size. The bottom coil response can be used to delineate metal conduits or utility lines, small, isolated metal objects, and areas containing insignificant metal debris. The differential results are obtained from the difference between the top and bottom coils of the EM61 instrument. The differential results focus on the larger metal objects such as drum and UST-size objects and ignore the smaller insignificant metal objects.

Discussion of EM Anomalies: The EM response across the entire survey area at Y=45 was due to a metal fence extending across the property. Higher amplitude responses associated with this feature from X=40 to X=120 were due to the combined effects of the fence as well as reinforced concrete and metal posts. The minor anomaly at X=125, Y=25 was likely the result of isolated metallic debris. The anomaly at X=285, Y=20 was due to a manhole cover. The anomaly at X=290, Y=55 was the result of a power pole. The anomaly at X=205, Y=100 was the result of metal utility pipes attached to the corner of the building. The remaining anomalies to the west of the building were minor, and

were concluded to likely be the result of isolated metallic debris. Their size and amplitude were not large enough to be possible structures such as USTs.

The geophysical investigation did not record evidence of metallic USTs within the proposed ROW and/or easement in the accessible areas of the parcel property. It should be noted that the parcel boundaries extended further to the east, however, this area was steeply sloped and heavily vegetated, and was not accessible by the geophysical instruments.

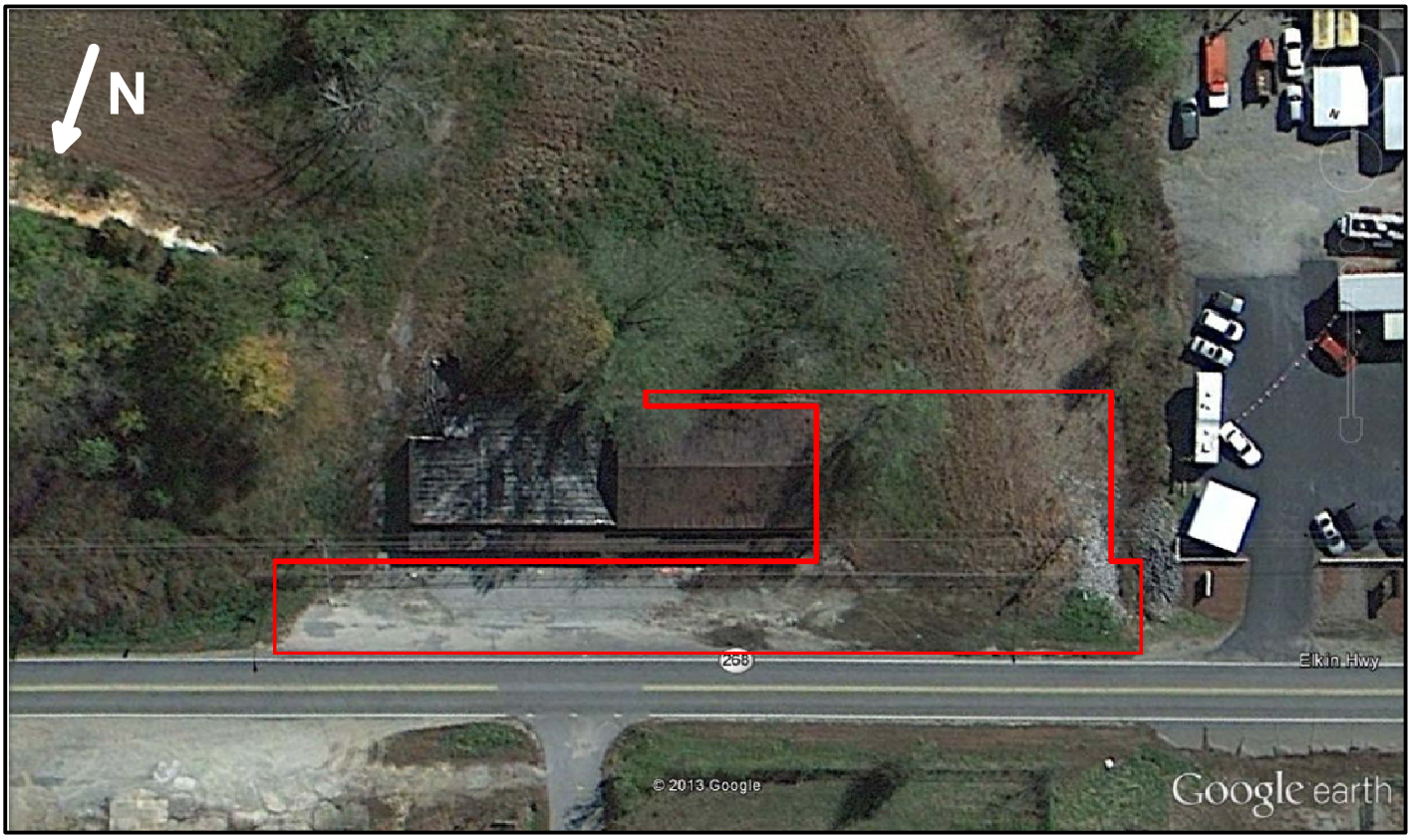
SUMMARY & CONCLUSIONS

Our evaluation of the EM61 data collected across Parcel 73, North Wilkesboro, North Carolina provides the following summary and conclusions:

- The EM61 survey provided reliable results for the detection of metallic USTs within the geophysical survey area.
- The majority of the EM61 anomalies detected could be attributed to visible objects at the ground surface such as fences and drainage features. The remaining EM features were minor, and were attributed to metallic debris. No anomalies were characteristic of USTs, and GPR data were not required for further investigation.
- The geophysical investigation provided no evidence of metallic USTs within the proposed ROW and/or easement.

LIMITATIONS

Geophysical surveys have been performed and this report 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 that metallic USTs do not lie within the survey area of the Wilkes County property, but that none were detected. Additionally, it should be understood that areas containing vehicles or other restrictions to the accessibility of the geophysical instruments could not be investigated.



Aerial Photograph Showing Approximate Geophysical Survey Boundaries

Photograph of Bread of Life Church Building
(Facing Approximately South)

Northern Portion of Geophysical Survey Area
(Facing Approximately West)

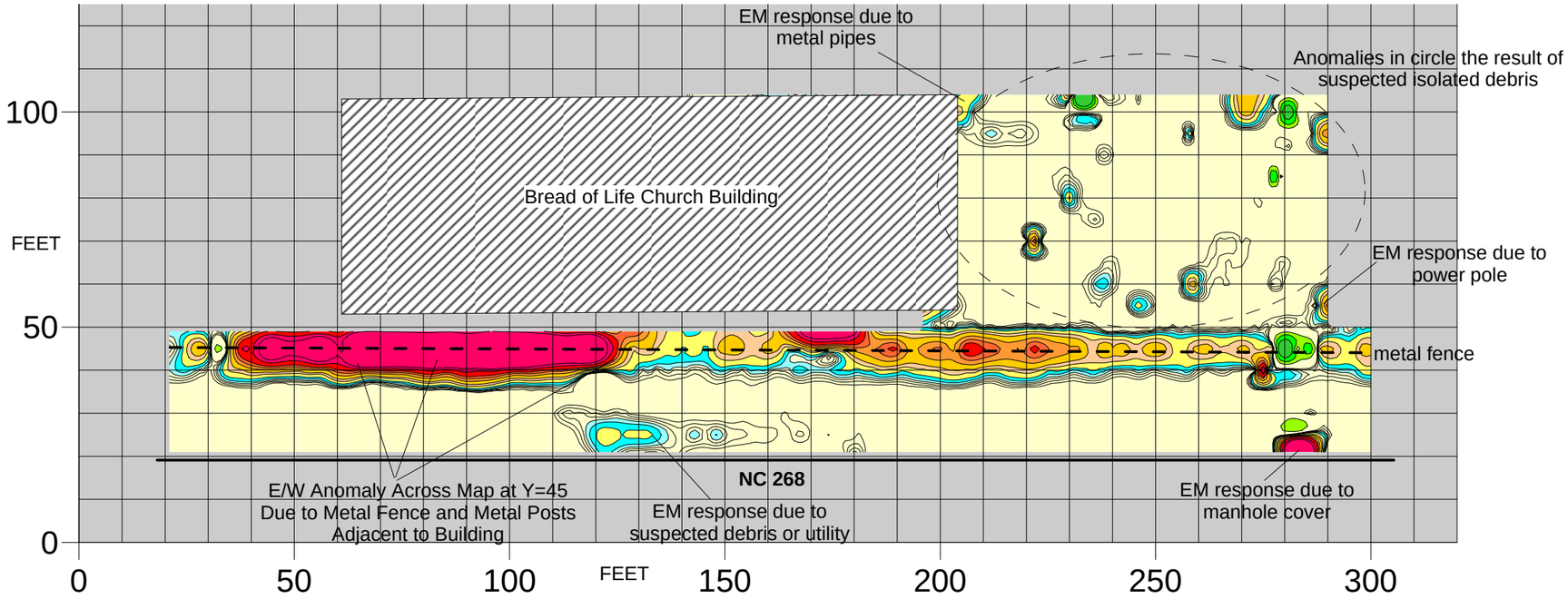
PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT	NC DEPARTMENT OF TRANSPORTATION	DATE	07/04/13	DRWN	ECC
SITE	PARCEL 73, WILKES COUNTY (DOT ROW PROJECT)	LAY		CHKD	
CITY	N. WILKESBORO	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	JAD	2013-131	FIGURE	

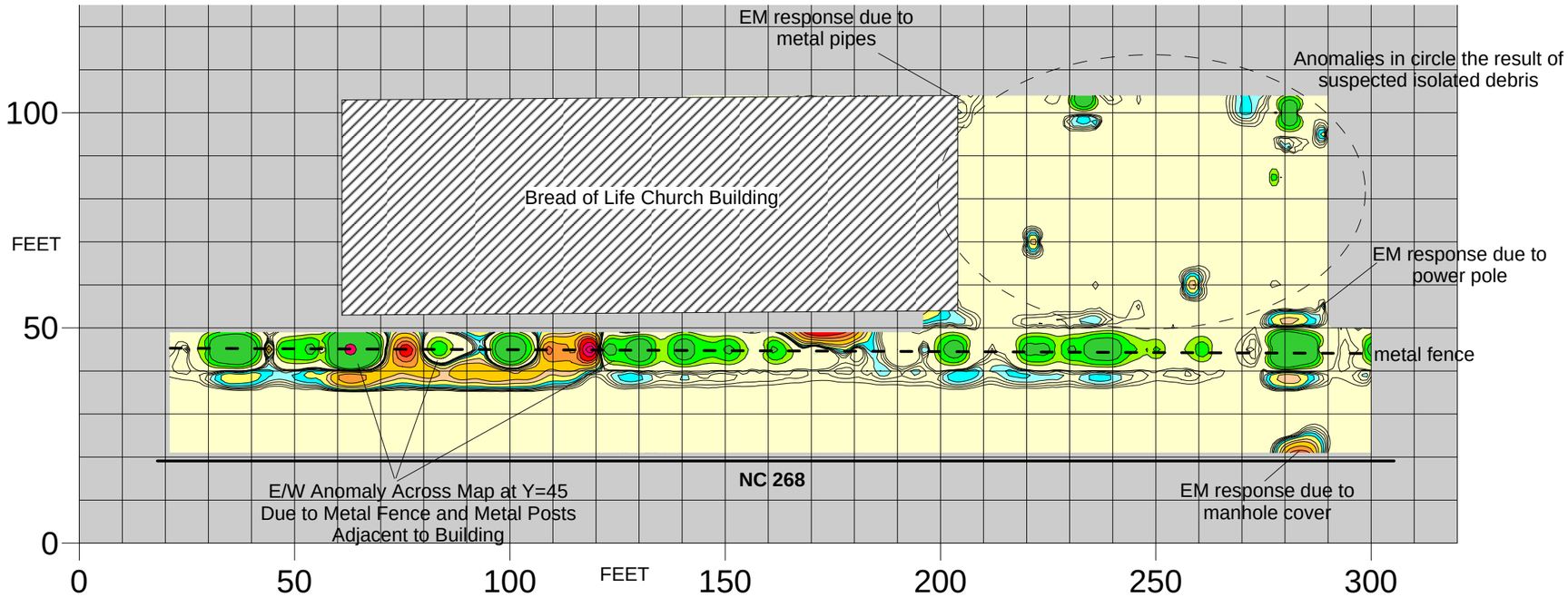
GEOPHYSICAL
SURVEY BOUNDARIES &
SITE PHOTOGRAPHS

FIGURE 1

EM61 Bottom Coil Results



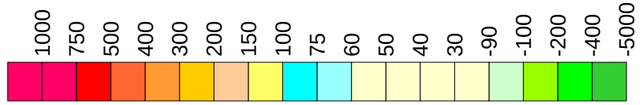
EM61 Differential Results



NO EVIDENCE OF METALLIC USTs OBSERVED

The contour plots show the bottom coil (most sensitive) and differential results of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The differential response focuses on larger, buried metallic objects such as drums and USTs and ignores smaller miscellaneous buried, metal debris.The EM61 data were collected on May 22, 2013 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were not required due to all EM anomalies being atributed to visible objects at the ground surface, or too minor to be considered structures such as USTs.

EM61 Metal Detection Response (millivolts)



N

TITLE
PARCEL 73 - EM61 BOTTOM COIL & DIFFERENTIAL RESULTS CONTOUR MAP

PROJECT
NC DEPARTMENT OF TRANSPORTATION
ROW IMPROVEMENT PROJECT
N. WILKESBORO, WILKES COUNTY, NC

PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.
503 INDUSTRIAL AVENUE
GREENSBORO, NC 27460
(336) 335-3174 (p) (336) 691-0648 (f)
License # C1251 Eng. / License # C257 Geology

DATE 07/04/2013

CLIENT NCDOT

PYRAMID PROJECT #: 2013-131

FIGURE 2

APPENDIX C

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: **PROJECT NUMBER:**	NC DOT R-2603 Parcel 73, TP Wilkes, LLC N. Wilkesboro, NC / 2013-131	**BORING/WELL NO:**	73-1(TW)
SITE LOCATION:	800 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 73, TP Wilkes, LLC Property, West Side
START DATE:	6/11/13	**COMPLETED:**	6/11/13
GEOLOGIST:	R. Kramer	**DRILLER:**	Geologic Exploration
DRILL METHOD:	Geoprobe	**SAMPLE METHOD:**	Macro-core
BORING DIA:	2-inch	**CASING DIA:**	1-inch
TOTAL DEPTH:	25 feet	**CASING DEPTH:**	25-feet

DEPTH (ft.)	**VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC.**	**OVA RESULTS PERCENT RECOVERY BLOW COUNTS**
	Depths correspond to soil type transitions	Core Sample Depths
0-4'	Reddish brown to tan, clayey-silt (CL), dry, no odor	OVA=73-1(0-2.5): <1 PPM
4-7'	Brown, clayey-sandy-silt loam (SM to ML), dry, no odor	OVA=73-1(2.5-5): <1 PPM
7-14'	Reddish brown, silt with mica minerals (MH), moist, no odor	OVA=73-1(5-7.5): <1 PPM
14-16'	Reddish brown, silt with small pebbles & mica, (MH), moist, no odor	OVA=73-1(7.5-10): 1.0 PPM
16-18'	Reddish brown, silt with mica (MH), moist, no odor	
18-18.5'	White, clayey-silt layer (CL)	
18.5-25'	Reddish brown, clayey silt (CL), moist, no odor	
	Set 1-inch diameter temporary well at 25 feet with bottom 10 feet of	
	screen.	
	Depth to groundwater = DRY	
	Set over night & was still DRY.	

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) 15 DEPTH (ft) 0-15 DIAMETER (in) 1 MATERIAL PVC.
SCREEN LENGTH (ft) 10 DEPTH (ft) 15-25 DIAMETER (in) 1 MATERIAL PVC.
DEPTH TO TOP OF SAND 13 BAGS OF SAND 0.5.
DEPTH TO TOP SEAL 10 BENTONITE USED 0.25 BAGS OF CEMENT USED 0.

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: **PROJECT NUMBER:**	NC DOT R-2603 Parcel 73, TP Wilkes, LLC N. Wilkesboro, NC / 2013-131	**BORING/WELL NO:**	73-2
SITE LOCATION:	800 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 73, TP Wilkes, LLC Property, In-front of Building
START DATE:	6/11/13	**COMPLETED:**	6/11/13
GEOLOGIST:	R. Kramer	**DRILLER:**	Geologic Exploration
DRILL METHOD:	Geoprobe	**SAMPLE METHOD:**	Macro-core
BORING DIA:	2-inch	**CASING DIA:**	N/A
TOTAL DEPTH:	10 feet	**CASING DEPTH:**	N/A

DEPTH (ft.)	**VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC.**	**OVA RESULTS PERCENT RECOVERY BLOW COUNTS**
	Depths correspond to soil type transitions	Core Sample Depths
0-1'	Asphalt and gravel	OVA=73-2(0-2.5): 1.5 PPM
0-3'	Reddish brown, clayey-silt (CL), dry, slight organic odor	OVA=73-2(2.5-5): 1.7 PPM
3-7'	Brown, clayey-silt (CL), dry, no odor	OVA=73-2(5-7.5): 2.0 PPM
7-10'	Reddish brown to white, silt with mica (MH), dry, no odor	OVA=73-2(7.5-10): 2.5 PPM

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 ___.

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: **PROJECT NUMBER:**	NC DOT R-2603 Parcel 73, TP Wilkes, LLC N. Wilkesboro, NC / 2013-131	**BORING/WELL NO:**	73-3
SITE LOCATION:	800 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 73, TP Wilkes, LLC Property, East of Building
START DATE:	6/11/13	**COMPLETED:**	6/11/13
GEOLOGIST:	R. Kramer	**DRILLER:**	Geologic Exploration
DRILL METHOD:	Geoprobe	**SAMPLE METHOD:**	Macro-core
BORING DIA:	2-inch	**CASING DIA:**	N/A
TOTAL DEPTH:	10 feet	**CASING DEPTH:**	N/A

DEPTH (ft.)	**VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC.**	**OVA RESULTS PERCENT RECOVERY BLOW COUNTS**
	Depths correspond to soil type transitions	Core Sample Depths
0-1'	Asphalt and gravel	OVA=73-3(0-2.5): 2.5 PPM
1-2'	Brown, clayey-silt (CL), dry, no odor	OVA=73-3(2.5-5): <1 PPM
2-6'	Brown to white, silt with large quartz pebbles (ML), dry, no odor	OVA=73-3(5-7.5): <1 PPM
6-10'	Reddish brown, clayey-silt (CL), moist, no odor	OVA=73-3(7.5-10): <1 PPM

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 ___.

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: **PROJECT NUMBER:**	NC DOT R-2603 Parcel 73, TP Wilkes, LLC N. Wilkesboro, NC / 2013-131	**BORING/WELL NO:**	73-4
SITE LOCATION:	800 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 73, TP Wilkes, LLC Property, Hill East of Building
START DATE:	6/11/13	**COMPLETED:**	6/11/13
GEOLOGIST:	R. Kramer	**DRILLER:**	Pyramid - Tim Leatherman
DRILL METHOD:	Hand-Auger	**SAMPLE METHOD:**	Hand-Auger Bucket
BORING DIA:	3.75-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**
	Depths correspond to soil type transitions	Core Sample Depths
0-4'	Brown, clayey-silt (CL), moist, no odor	OVA=73-4(0-2.5): <1 PPM
4-7'	Reddish brown to white, silt (ML), moist, no odor	OVA=73-4(2.5-4): <1 PPM
7-8'	Reddish brown, silt (ML), dry, no odor	OVA=73-4(4-5): 1.5 PPM
		OVA=73-4(5-8): 1.0 PPM

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 ___.

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: **PROJECT NUMBER:**	NC DOT R-2603 Parcel 73, TP Wilkes, LLC N. Wilkesboro, NC / 2013-131	**BORING/WELL NO:**	73-5
SITE LOCATION:	800 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 73, TP Wilkes, LLC Property, East of Building
START DATE:	6/11/13	**COMPLETED:**	6/11/13
GEOLOGIST:	R. Kramer	**DRILLER:**	Geologic Exploration
DRILL METHOD:	Geoprobe	**SAMPLE METHOD:**	Macro-core
BORING DIA:	2-inch	**CASING DIA:**	N/A
TOTAL DEPTH:	10 feet	**CASING DEPTH:**	N/A

DEPTH (ft.)	**VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC.**	**OVA RESULTS PERCENT RECOVERY BLOW COUNTS**
	Depths correspond to soil type transitions	Core Sample Depths
0-2'	Brown, clayey-silt (CL), dry, no odor	OVA=73-5(0-2.5): 0.5 PPM
2-3'	Brown to white, silt (ML), dry, no odor	OVA=73-5(2.5-5): 0.0 PPM
3-10'	Reddish brown, silt (ML), dry, no odor	OVA=73-5(5-7.5): 0.0 PPM
		OVA=73-5(7.5-10): 0.0 PPM

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 ___.

APPENDIX D

QED

QROS

Hydrocarbon Analysis Results

Client: NC Department of Transportation
Address: 800 Elkin Highway

5 **Samples analysed**

Contact:

Operator Tim Leatherman

Project: NCDOT R-2603, Pyramid 2013-131

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	73-1(10)	14.1	<0.7	<0.7	<0.7	<0.7	< 0.71	< 0.07	< 0.035	0	0	100	Match not possible
s	73-2(10)	14.4	<0.7	<0.7	<0.7	<0.7	< 0.72	< 0.07	< 0.036	0	91.9	8.1	Match not possible
s	73-(2.5)	14.9	<0.7	<0.7	<0.7	<0.7	< 0.74	< 0.07	< 0.037	0	72.1	27.9	PAH
s	73-4(5)	12.5	<0.6	<0.6	<0.6	<0.6	< 0.63	< 0.06	< 0.031	0	0	100	Match not possible
s	73-5(2.5)	14.7	<0.7	<0.7	<0.7	<0.7	< 0.74	< 0.07	< 0.037	0	0	100	Particulate
s	73-5(2.5) REP	14.7	<0.7	<0.7	<0.7	<0.7	< 0.74	< 0.07	< 0.037	0	0	100	Particulate
s	73-5(2.5) REP2	14.7	<0.7	<0.7	<0.7	<0.7	< 0.74	< 0.07	< 0.037	0	0	100	Match not possible

Initial Calibrator QC check

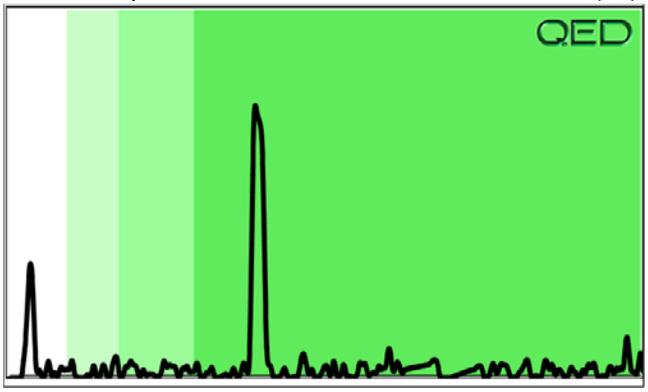
Low Range Calibrator Final check
High Range Calibrator Final check

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

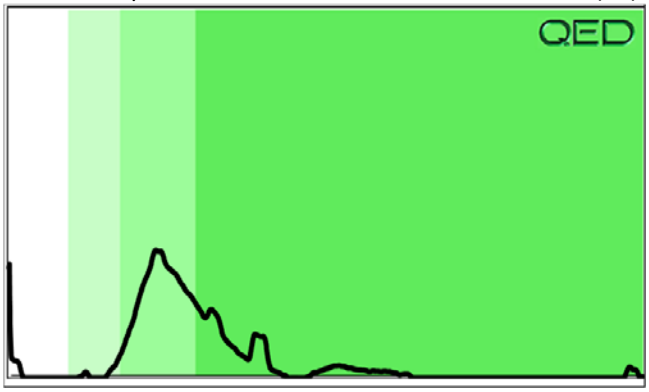
Fingerprints provide a tentative hydrocarbon identification based on operator selected library matches
Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match
(SBS)= site specific background subracted (LBS)= Library background subtracted % = match confidence

Project NCDOT R-2603 73-1,2,3,4&5

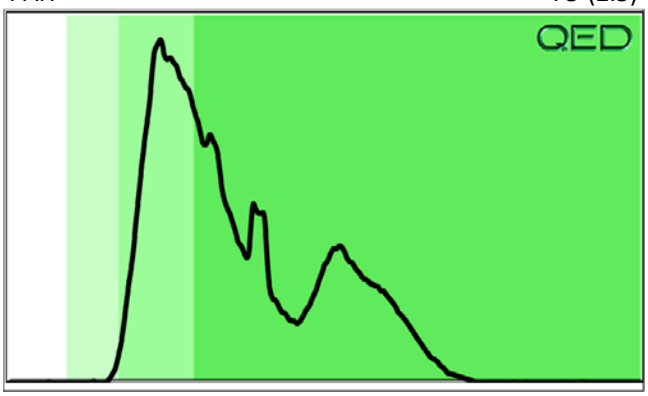
Match not possible 73-1(10)



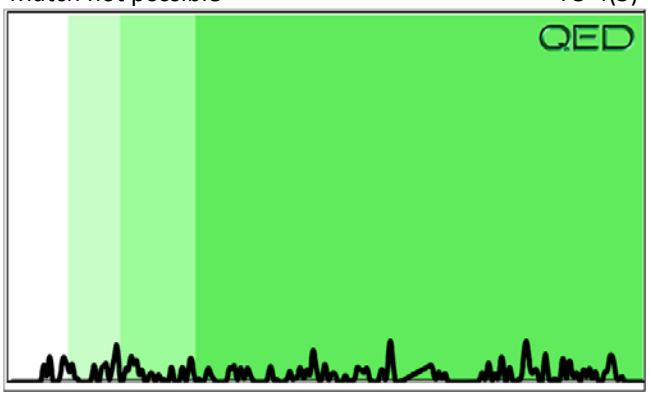
Match not possible 73-2(10)



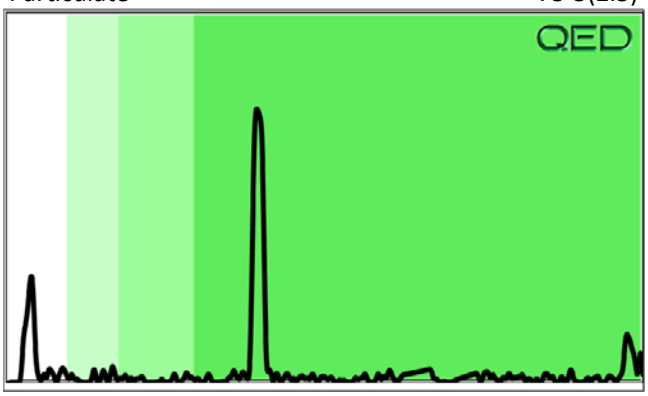
PAH 73-(2.5)



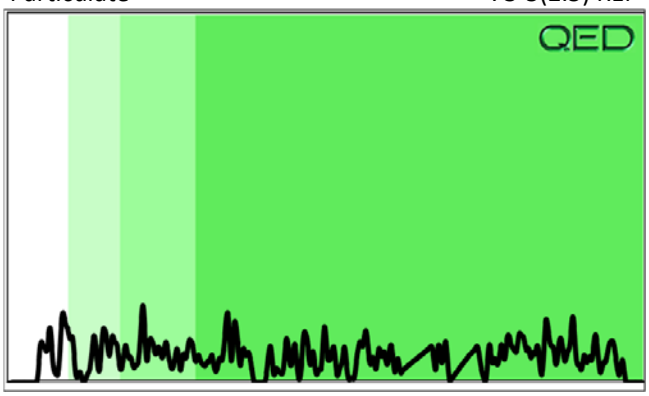
Match not possible 73-4(5)



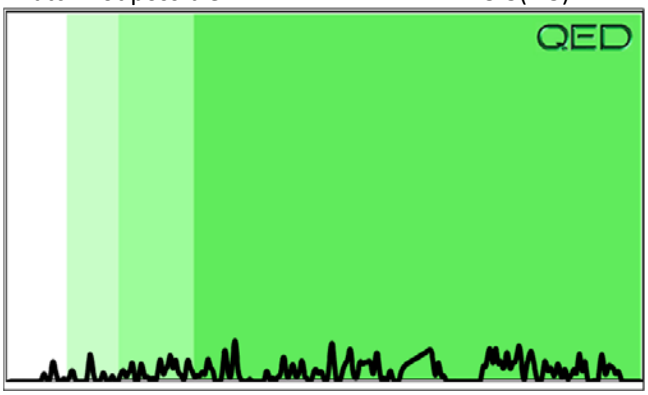
Particulate 73-5(2.5)



Particulate 73-5(2.5) REP



Match not possible 73-5(2.5) REP2



APPENDIX E

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

June 19, 2013

Chemical Testing Engineer
NCDOT
Materials & Tests Unit
1801 Blue Ridge Road
Raleigh, NC 27607

RE: Project: R-2603 Parcel 73 36001.1.2
Pace Project No.: 92161353

Dear Chemical Engineer:
Enclosed are the analytical results for sample(s) received by the laboratory on June 12, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kevin Godwin

kevin.godwin@pacelabs.com
Project Manager

Enclosures

cc: Tim Leatherman, Pyramid

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: R-2603 Parcel 73 36001.1.2
Pace Project No.: 92161353

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: R-2603 Parcel 73 36001.1.2
Pace Project No.: 92161353

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92161353001	**73-2 (10')**	EPA 8015 Modified	EJK	2	PASI-C
		EPA 8015 Modified	GAW	2	PASI-C
		ASTM D2974-87	JEA	1	PASI-C

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

PROJECT NARRATIVE

Project: R-2603 Parcel 73 36001.1.2
Pace Project No.: 92161353

Method: **EPA 8015 Modified**
Description: 8015 GCS THC-Diesel
Client: NCDOT West Central
Date: June 19, 2013

General Information:
1 sample was analyzed for EPA 8015 Modified. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3546 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

PROJECT NARRATIVE

Project: R-2603 Parcel 73 36001.1.2
Pace Project No.: 92161353

Method: **EPA 8015 Modified**
Description: Gasoline Range Organics
Client: NCDOT West Central
Date: June 19, 2013

General Information:
1 sample was analyzed for EPA 8015 Modified. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 5035A/5030B with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: R-2603 Parcel 73 36001.1.2
Pace Project No.: 92161353

Sample: 73-2 (10') **Lab ID: 92161353001** Collected: 06/11/13 10:00 Received: 06/12/13 15:42 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015 GCS THC-Diesel	Analytical Method: EPA 8015 Modified Preparation Method: EPA 3546							
Diesel Components	ND	mg/kg	6.4	1	06/12/13 17:30	06/13/13 12:35	68334-30-5	
Surrogates								
n-Pentacosane (S)	84	%	41-119	1	06/12/13 17:30	06/13/13 12:35	629-99-2	
Gasoline Range Organics	Analytical Method: EPA 8015 Modified Preparation Method: EPA 5035A/5030B							
Gasoline Range Organics	ND	mg/kg	6.0	1	06/13/13 13:09	06/14/13 15:06	8006-61-9	
Surrogates								
4-Bromofluorobenzene (S)	97	%	70-167	1	06/13/13 13:09	06/14/13 15:06	460-00-4	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**21.5**	%	0.10	1		06/19/13 13:44		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: R-2603 Parcel 73 36001.1.2
Pace Project No.: 92161353

QC Batch: GCV/6988
QC Batch Method: EPA 5035A/5030B
Analysis Method: EPA 8015 Modified
Analysis Description: Gasoline Range Organics
Associated Lab Samples: 92161353001

METHOD BLANK: 992052 Matrix: Solid
Associated Lab Samples: 92161353001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	6.0	06/14/13 09:23	
4-Bromofluorobenzene (S)	%	82	70-167	06/14/13 09:23	

LABORATORY CONTROL SAMPLE: 992053

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	49.9	47.4	95	70-165	
4-Bromofluorobenzene (S)	%			90	70-167	

MATRIX SPIKE SAMPLE: 992897

Parameter	Units	92161404002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	ND	55.8	65.9	118	47-187	
4-Bromofluorobenzene (S)	%				90	70-167	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: R-2603 Parcel 73 36001.1.2
Pace Project No.: 92161353

QC Batch: OEXT/22536
QC Batch Method: EPA 3546
Analysis Method: EPA 8015 Modified
Analysis Description: 8015 Solid GCSV
Associated Lab Samples: 92161353001

METHOD BLANK: 990888 Matrix: Solid
Associated Lab Samples: 92161353001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Components	mg/kg	ND	5.0	06/12/13 12:13	
n-Pentacosane (S)	%	94	41-119	06/12/13 12:13	

LABORATORY CONTROL SAMPLE: 990889

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diesel Components	mg/kg	66.7	53.5	80	49-113	
n-Pentacosane (S)	%			82	41-119	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 990890 990891

Parameter	Units	92161133002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Diesel Components	mg/kg	ND	77.3	77.3	66.9	58.5	84	73	10-146	13	
n-Pentacosane (S)	%						101	87	41-119		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: R-2603 Parcel 73 36001.1.2
Pace Project No.: 92161353

QC Batch: PMST/5615
QC Batch Method: ASTM D2974-87
Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92161353001

SAMPLE DUPLICATE: 994365

Parameter	Units	92161399004 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	34.1	35.3	3	

SAMPLE DUPLICATE: 994366

Parameter	Units	92161618001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	0.14	0.16	14	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: R-2603 Parcel 73 36001.1.2
Pace Project No.: 92161353

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: R-2603 Parcel 73 36001.1.2
Pace Project No.: 92161353

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92161353001	**73-2 (10')**	EPA 3546	OEXT/22536	EPA 8015 Modified	GCSV/14847
92161353001	**73-2 (10')**	EPA 5035A/5030B	GCV/6988	EPA 8015 Modified	GCV/6990
92161353001	**73-2 (10')**	ASTM D2974-87	PMST/5615		

Pace Analytical	Sample Condition Upon Receipt (SCUR)	Page 1 of 2
	Document Number: F-CHR-CS-03-rev.11	Issuing Authority: Pace Huntersville Quality Office

Client Name: Pyramax

Where Received: ☐ Huntersville ☐ Asheville ☐ Eden ☐ Raleigh

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Optional
Proj. Due Date:
Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other_____

Thermometer Used: IR Gun T1102 T1301 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Temp Correction Factor **T1102**: No Correction **T1301**: No Correction

Corrected Cooler Temp.: 1.4 **C** **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C **Comments:**

Date and Initials of person examining contents: JM 6/12

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix:_____		
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☑No	
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted:_____ Date/Time:_____

Comments/ Resolution:_____

SCURF Review: JG **Date:** 6/12/13

SRF Review: JG **Date:** 6/13/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1667307

Section A Required Client Information:

Company: Pyramid Environmental
Address: 503 Industrial Ave
Greensboro, NC
Email To: Ryan
Phone: 336.335.3174 Fax:
Requested Due Date/TAT: Normal

Section B Required Project Information:

Report To: Tim LeFevre
Copy To: Pyramid
Purchase Order No.: WBS 36001.1.2
Project Name: NCDOT R-2603 Parcel 73
Project Number: WBS 36001.1.2

Section C Invoice Information:

Attention:
Company Name: NCDOT
Address:
Pace Quote Reference: WBS 36001.1.2 NCDOT
Pace Project Manager: Kevin Godwin
Pace Profile #: 5900-1

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: NC

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE)

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test ↓ Y/N	5035-GRO	3550 DRO	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	73-2 (10')	SL	G			6/11/13	10:00		4	X						X			XX	X		92161353
2																						001
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

Requested Analysis Filtered (Y/N)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
* PARCEL #73	Ryan Kramer / Pyramid	6/12/13	0800	Zpeed	6/12	1131	1.4	Y	N	Y
	Zpeed	6/12/13	1542	Omaha / Pace	6/12	1542				

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ryan Kramer

SIGNATURE of SAMPLER: Ryan Kramer DATE Signed (MM/DD/YY): 6/12/13

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

APPENDIX F

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Eric Cross, Ryan Kramer **Date:** 5/22/13 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

E. Cross & R. Kramer:
On site: 8AM
Mobilize to site. Performed geophysical surveys using EM61 magnetometer and/or GPR.
Performed geophysical data analysis/processing in field and in evening.
Leave site: 6PM
Associated mileage – 84 miles

T. Leatherman:
Travel to Soil & Water offices in Wilkesboro, NC to review maps/aerials
Hours associated with trip - 7
Associated mileage – 191 miles

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Eric Cross, Ryan Kramer, Tim Leatherman **Date:** 5/23/13 **Mon Tue Wed Th Fri Sat**

TASKS PERFORMED:

E. Cross & R. Kramer
On site: 8AM
Performed geophysical surveys using EM61 magnetometer and/or GPR. Performed geophysical data analysis/processing in field and in evening.
Leave site: 6PM

T. Leatherman
Site Reconnaissance
Hours associated with recon – 7
Mileage for recon – 185

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Eric Cross, Ryan Kramer **Date:** 5/24/13 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

On site: 8AM
Performed geophysical surveys using EM61 magnetometer and/or GPR. Performed geophysical data analysis/processing in field and in evening.
Leave site: 6PM

Demobilization Mileage - 150

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Eric Cross, Time Leatherman **Date:** 6/3/13 **Mon** **Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

E. Cross
On site: 8AM
Mobilize to site. Performed geophysical surveys using EM61 magnetometer and/or GPR.
Performed geophysical data analysis/processing in field and in evening.
Leave site: 6PM
Mobilization mileage – 150 miles

T. Leatherman
Mobilize to site, assist with geophysics.
Hours – 5
Mileage for mobilization/demobilization – 203

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Eric Cross, Time Leatherman **Date:** 6/4/13 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

E. Cross & T. Leatherman
On site: 8AM
Performed geophysical surveys using EM61 magnetometer and/or GPR. Performed geophysical data analysis/processing in field. Investigated proposed boring locations. Supervised utility locating.
Leave site: 4PM

E. Cross demobilization mileage: 150

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Tim Leatherman **Date:** 6/7/13 **MonTue Wed Th Fri Sat Sun**

TASKS PERFORMED:

Travel to NCDENR Regional Office to perform file review
Hours associated with file review – 4.75
Mileage to travel to regional office – 58

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Tim Leatherman, Ryan Kramer **Date:** 6/10/13 **Mon** **Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

Mobilize to job site from Greensboro. Performed geoprobe boring supervision, soil and groundwater sampling, QED analysis. Hours for personnel vary, see timesheets.

Mileage associated with mobilization/demobilization for all vehicles, week of June 10th = 542

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Tim Leatherman, Ryan Kramer **Date:** 6/11/13 **Mon Tue Wed Th Fri Sat Sun**

TASKS PERFORMED:

Performed geoprobe boring supervision, soil and groundwater sampling, QED analysis. Hours for personnel vary, see timesheets.

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Tim Leatherman, Ryan Kramer, Brett Higgins **Date:** 6/12/13 **Mon Tue Wed Th Fri**

TASKS PERFORMED:

Performed geoprobe boring supervision, soil and groundwater sampling, QED analysis. Hours for personnel vary, see timesheets.

FIELD PERSONNEL LOG

PROJECT NAME: NCDOT Wilkes County ROW PARCELS 71, 72, 73, 74, 78, 94, 97/99, AND 102 **PROJECT NO.:** R-2603

Name: Tim Leatherman, Brett Higgins **Date:** 6/13/13 **Mon Tue Wed Th Fri**

TASKS PERFORMED:

Performed geoprobe boring supervision, soil and groundwater sampling, QED analysis. Travel to Greensboro from job site. Hours for personnel vary, see timesheets.