PRELIMINARY SITE ASSESSMENT

PARCEL 78, HUTCHINSONS, LLC
1330 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:

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C-257 –Geology
C-1251 - Engineering

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PRELIMINARY SITE ASSESSMENT
PARCEL 78, HUTCHINSONS, LLC
1330 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 78, Hutchinsons, 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:** Historical information reviewed as part of the PSA indicated that the main truck repair building that is currently on the property closest to Elkin Highway was constructed sometime between 1958 and 1966. The 1958 aerial shows the property partially cleared, with structures on the south side of the parcel, and undeveloped open land at the location of the current repair facility. The existing repair facility building first appears on the 1966 aerial photograph, indicating it was constructed between 1958 and 1966. No other significant changes occurred to the structures between 1966 and the present.

  On May 22, 2013, Pyramid emailed the Wilkes County parcel addresses to Ms. Carin Kromm, the Winston-Salem Regional Office Supervisor for the North Carolina Department of Environment and Natural Resources (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 no environmental incidents are recorded for the Hutchinsons, LLC property in the DENR database.

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

- **Limited Soil Assessment:** A total of four 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 hydrocarbon (TPH) petroleum contamination. The QED results for soil samples 78-2(7.5), 78-3(5), and 78-4(5) did not detect TPH gasoline range organic (GRO) or TPH diesel range organic (DRO) concentrations above detection limits. Soil sample 78-1(5) detected TPH-DRO concentration above detection limits, but below 10 milligram-per-kilogram (mg/kg).

- **Limited Groundwater Assessment:** The depth to groundwater in the temporary well (TW) at boring 78-1(TW) on the Hutchinsons, LLC property was approximately 12.1 feet below land surface (BLS). One groundwater sample was obtained for laboratory analysis. The analysis did not detect any compounds above laboratory detection limits in the groundwater sample.

- **Contaminated Soil Volumes:** Soils with DRO above detection limits but below 10 mg/kg were observed at the location of boring 78-1. Pyramid reviewed the NCDOT Microstation computer-aided design and drafting (CADD) files to determine proposed excavation/earthwork plans at the locations of the impacted soils. The NCDOT Microstation cross section file that was the closest to boring 78-1 (Cross Section -L- Sta. 116+50.00) indicates that the NCDOT plans to be placing fill at this location, however, proposed earthwork down to approximately 1 foot below the ground surface is observed further away from the road near the boring. Conservatively, Pyramid has calculated volumes of impacted soil based on 1 and 5 feet of excavation below the ground surface at the location of boring 78-1. A radius of 75 feet around the boring was used to calculate volumes. Pyramid's PSA investigation resulted in an estimated area of **17,670 square feet of impacted soil** in the vicinity of boring 78-1. **A 1-foot excavation depth results in an approximate volume of 17,670 cubic feet, or 655 cubic yards of impacted soils at the location of boring 78-1**. A more conservative estimate using an excavation depth of 5 feet below the ground surface results in approximately **88,350 cubic feet, or 3,272 cubic yards of impacted soil between 0 to 5 feet** at the location of 78-1.

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 Hutchinsons, LLC. The Hutchinsons, LLC property is currently operating as a truck and trailer repair facility, located at 1330 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 between the proposed easement/proposed right of way and the existing right of way/edge of pavement (State Project R-2603). The location of the subject site is shown on **Figure 1**.

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 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 wells.

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 a records review of the NC DENR file, interviewed NC DENR personnel, interviewed property owners, 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 main truck repair building that is currently on the property closest to Elkin Highway was constructed sometime between 1958 and 1966. The 1958 aerial shows the property partially cleared, with structures on the south side of the parcel, and undeveloped open land at the location of the current repair facility. The existing repair facility building first appears on the 1966 aerial photograph, indicating it was constructed between 1958 and 1966. No other significant changes occurred to the structures between 1966 and the present.

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 no environmental incidents are recorded for the Hutchinsons, LLC property in the DENR database.

3.0 Geophysical Investigation

Pyramid performed an electromagnetic (EM) survey across the accessible portions of the Parcel. All of the EM61 anomalies detected could be attributed to visible objects at the ground surface such as fences and drainage features. No anomalies were characteristic of USTs, and ground penetrating radar (GPR) data were not required for further investigation.

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 and 12, 2013, Pyramid mobilized to the site and drilled soil borings, installed one temporary monitoring well (TW), and collected the proposed soil samples and groundwater sample for the PSA. The soil borings and temporary well were completed using a track mounted Geoprobe® Direct-Push rig and hand-auger. Four (4) soil borings (78-1, 78-2, 78-3, and 78-4) 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 boring 78-1 was installed near drainage feature 1121, adjacent to the proposed/existing bridge area. Soil boring 78-2 was installed at drainage feature 1115, at the location of a proposed 36-inch drainage pipe. Boring 78-3 was installed at drainage feature 1104, adjacent to the intersection of multiple proposed drainage pipes. Boring 78-4 was installed at drainage feature 1109, at the location of a proposed 30-inch drainage pipe. All borings were located as close as possible to the proposed drainage features. The locations of the borings are shown on **Figure 2**.

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 to undergo 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. No duplicate soil samples were selected for laboratory analysis for Parcel 78.

4.2 Soil Sample Analytical Results

The QED results for soil samples 78-2(7.5), 78-3(5), and 78-4(5) did not detect TPH-GRO or TPH-DRO concentrations above detection limits. Soil sample 78-1(5) detected TPH-DRO concentration above detection limits, but below 10 mg/kg (a concentration of 4.3 mg/kg). The NC DENR action levels for TPH-GRO and TPH-DRO is 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**.

4.3 Temporary Monitoring Well Installation

On June 11, 2013, Pyramid converted soil boring 78-1 into a 1-inch diameter temporary monitoring well. Soil boring 78-1(TW) was completed to a total depth of 15 feet below land surface (BLS). The temporary well at 78-1 was constructed with 5 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 11, 2013, the temporary monitoring well 78-1(TW) was gauged using a properly decontaminated electric water level probe. The depth-to-groundwater was measured at 12.1 feet BLS. The temporary monitoring well was sampled using new 0.5-inch disposable bailers. Upon completion of the gauging and sampling, the temporary monitoring well was properly abandoned by the drillers by removing the casing, and filling the borehole with bentonite chips and portland cement.

4.4 Groundwater Analytical Results

The groundwater sample 78-1(TW) was placed in laboratory prepared containers for analysis of volatile organic compounds (VOCs) by EPA Method 6200B, and the samples were shipped to Pace Analytical in Huntersville, NC. The laboratory results did not detect any compounds above laboratory detection limits in the groundwater sample. The groundwater results for sample 78-1(TW) are summarized in **Table 3**. A copy of the laboratory report and chain-of-custody is included in **Appendix E**.

5.0 Conclusions and Recommendations

As requested by NCDOT, Pyramid has completed a PSA at the Hutchinsons, LLC property (Parcel 78) located 1330 Elkin Highway, North Wilkesboro, NC. The following is a summary of the assessment activities and results.

5.1 Geophysical Investigation

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

5.2 Limited Soil Assessment

The QED results for soil samples 78-2(7.5), 78-3(5), and 78-4(5) did not detect TPH-GRO or TPH-DRO concentrations above detection limits. Soil sample 78-1(5) detected TPH-DRO concentration above detection limits, but below 10 mg/kg (a concentration of 4.3 mg/kg).

5.3 Limited Groundwater Assessment

Soil boring 78-1 was converted into a 1-inch diameter temporary monitoring well to a total depth of 15 feet bls. The depth-to-groundwater was gauged at 12.1 feet BLS. The laboratory did not detect any compounds above laboratory detection limits in the groundwater sample.

5.4 Recommendations

During road construction activities, it is possible the NCDOT may encounter petroleum impacted soil near soil boring 78-1. The direct source of this petroleum was not evidenced in the field.

Soils with DRO concentrations above detection limits but below 10 mg/kg were observed at the location of boring 78-1. Pyramid reviewed the NCDOT Microstation CADD files to determine proposed excavation/earthwork plans at the locations of the impacted soils. The NCDOT Microstation cross section file that was the closest to boring 78-1 (Cross Section -L- Sta. 116+50.00) indicates that the NCDOT plans to be placing fill at this location, however, proposed earthwork down to approximately 1 foot below the ground surface is observed further away from the road near the boring. Conservatively, Pyramid has calculated volumes of impacted soil based on 1 and 5 feet of excavation below the ground surface at the location of boring 78-1. A radius of 75 feet around the boring was used to calculate volumes. Pyramid's PSA investigation resulted in an estimated area of 17,670 square feet of impacted soil in the vicinity of boring 78-1. A 1-foot excavation depth results in an approximate volume of 17,670 cubic feet, or 655 cubic yards of impacted soils at the location of boring 78-1. A more conservative estimate using an excavation depth of 5 feet below the ground surface results in approximately 88,350

cubic feet, or 3,272 cubic yards of impacted soil between 0 to 5 feet at the location of 78-1.

The estimates of soil volumes above are based on applying conservative areas of contaminated soil surrounding the location of the boring. Due to the limited amount of soil data collected at this time, more refined areas were not assessed.

If impacted soil is removed at the location of this soil boring, 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.

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.

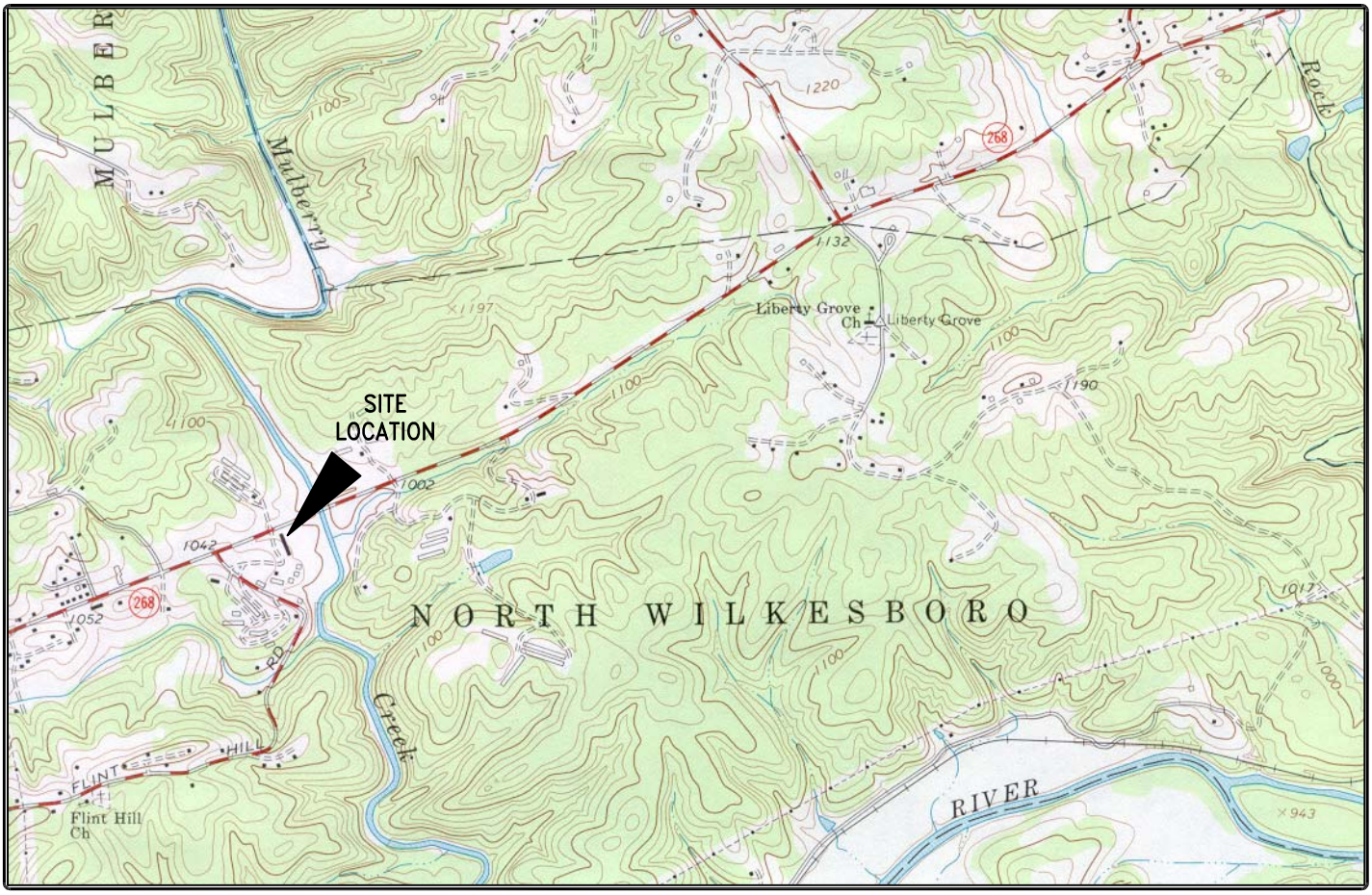
7.0 Closure

This report was prepared for, and is available solely for use by 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: 1330 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

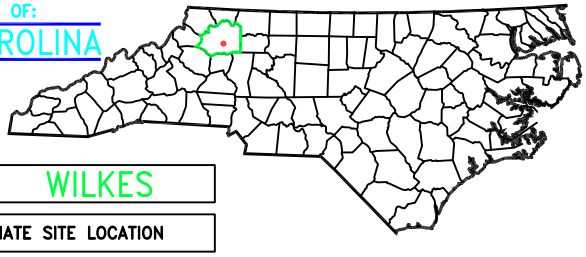
FEET: 1000 0 2000 4000 6000

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 78, HUTCHINSON, LLC
CITY: N. WILKESBORO STATE: NORTH CAROLINA
TITLE: TOPOGRAPHIC MAP

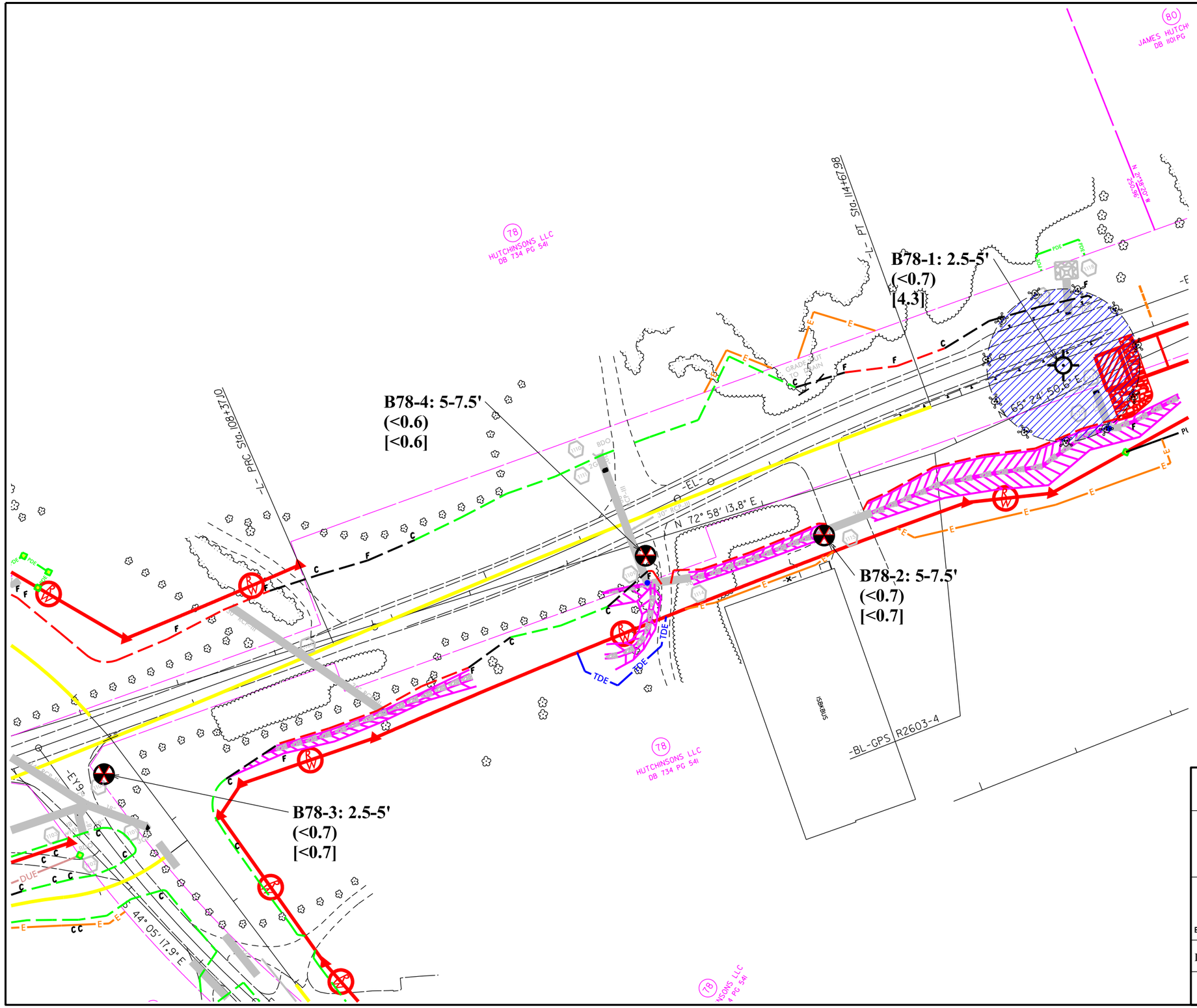
SCALE: 1"=2000'
DATE: 7/9/13
DRAWING NAME: USGSTOPO

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.



LEGEND

- PROPOSED UTILITY EASEMENT
- EXISTING ROW
- EXISTING PROPERTY BOUNDARY
- PROPOSED ROW
- PROPOSED CONST. EASEMENT
- PROP. DRAINAGE UTIL. EASEMENT
- PROPOSED SS CUT LINE
- PROPOSED SS FILL LINE
- PROPOSED SS TRANSITION LINE
- PROPOSED DRAINAGE PIPING
- PROPOSED DRAINAGE EASEMENT
- PROPOSED CATCH BASIN
- SOIL SAMPLE BORING LOCATION
- BORING CONVERTED TO MW
- AREA OF CONTAMINATION (>BDL, <10 PPM)

(<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

0 100 200

FEET

TITLE

SOIL BORING LOCATIONS AND
ESTIMATED AREA OF CONTAMINATION

PROJECT

NCDOT ROW PROJECT R-2603 (36001.1.2)
Hutchinsons, LLC - PARCEL 078
NC 268, WILKES COUNTY, NORTH CAROLINA

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

TABLES

TABLE 1

Summary of Soil Field Screening Results

NCDOT Project R-2603

805 Elkin Highway (NC268) - Parcel 78

North Wilkesboro, Wilkes County, North Carolina

SOIL BORING	SAMPLE ID	DEPTH (feet bgs)	OVA/FID READINGS (PPM)
78-1	78-1(2.5)	0 to 2.5	0.0
	78-1(5.0)	2.5 to 5	0.0
	78-1(7.5)	5 to 7.5	0.0
	78-1(10)	7.5 to 10	0.0
78-2	78-2(2-5)	2 to 5	0.0
	78-2(5.0)	2.5 to 5	0.0
	78-2(7.5)	5 to 7.5	0.5
	78-2(10)	7.5 to 10	0.0
78-3	78-3(2.5)	0 to 2.5	0.0
	78-3(5.0)	2.5 to 5	0.0
	78-3(7.5)	5 to 7.5	0.0
	78-3(10)	7.5 to 10	0.0
78-4	78-4(2.5)	0 to 2.5	<1
	78-4(5)	2.5 to 5	<1

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
1330 Elkin Highway (NC 268) - Parcel 78
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)**
78-1(5)	6/11/2013	2.5 to 5	0.0	<0.7	4.3	4.3	------	------
78-2(7.5)	6/11/2013	5 to 7.5	0.5	<0.7	<0.7	<0.7	------	------
78-3(5.0)	6/11/2013	2.5 to 5	0.0	<0.7	<0.7	<0.7	------	------
78-4(5.0)	6/12/2013	5 to 7.5	<1	<0.6	<0.6	<0.6	------	------
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

TABLE 3

Summary of Groundwater Analytical Results

NCDOT State Project R-2603
726 Elkin Highway (NC 268) - Parcel 78
North Wilkesboro, Wilkes County, North Carolina

PARAMETER	UNITS	SAMPLE ID	NCAC 2L GROUNDWATER STANDARD
		71-8(TW)	
EPA Method 6200B; Sample Collection Date: 6/11/13			
Benzene	ug/L	ND	1
Chloroform	ug/L	ND	70
Diisopropyl Ether (IPE)	ug/L	ND	70
Ethyl Benzene	ug/L	ND	600
Isopropylbenzene (Cumene)	ug/L	ND	70
Naphthalene	ug/L	ND	6
Styrene	ug/L	ND	70
Toluene	ug/L	ND	600
Total Xylenes	ug/L	ND	500
n-Propylbenzene	ug/L	ND	70
sec-Butylbenzene	ug/L	ND	70
tert-Butyl methyl ether (MTBE)	ug/L	ND	20
tert-Butylbenzene	ug/L	ND	70
1,2,4-Trimethylbenzene	ug/L	ND	400
1,2-Dichloroethane	ug/L	ND	0.4
1,3,5-Trimethylbenzene	ug/L	ND	400
4-Isopropyltoluene	ug/L	ND	25
All Other Parameters	ug/L	ND	NA

ug/L= micrograms-per-liter
ND= Not Detected
NA= Not Applicable

APPENDIX A

Google earth

feet 700

meters 200

Google earth

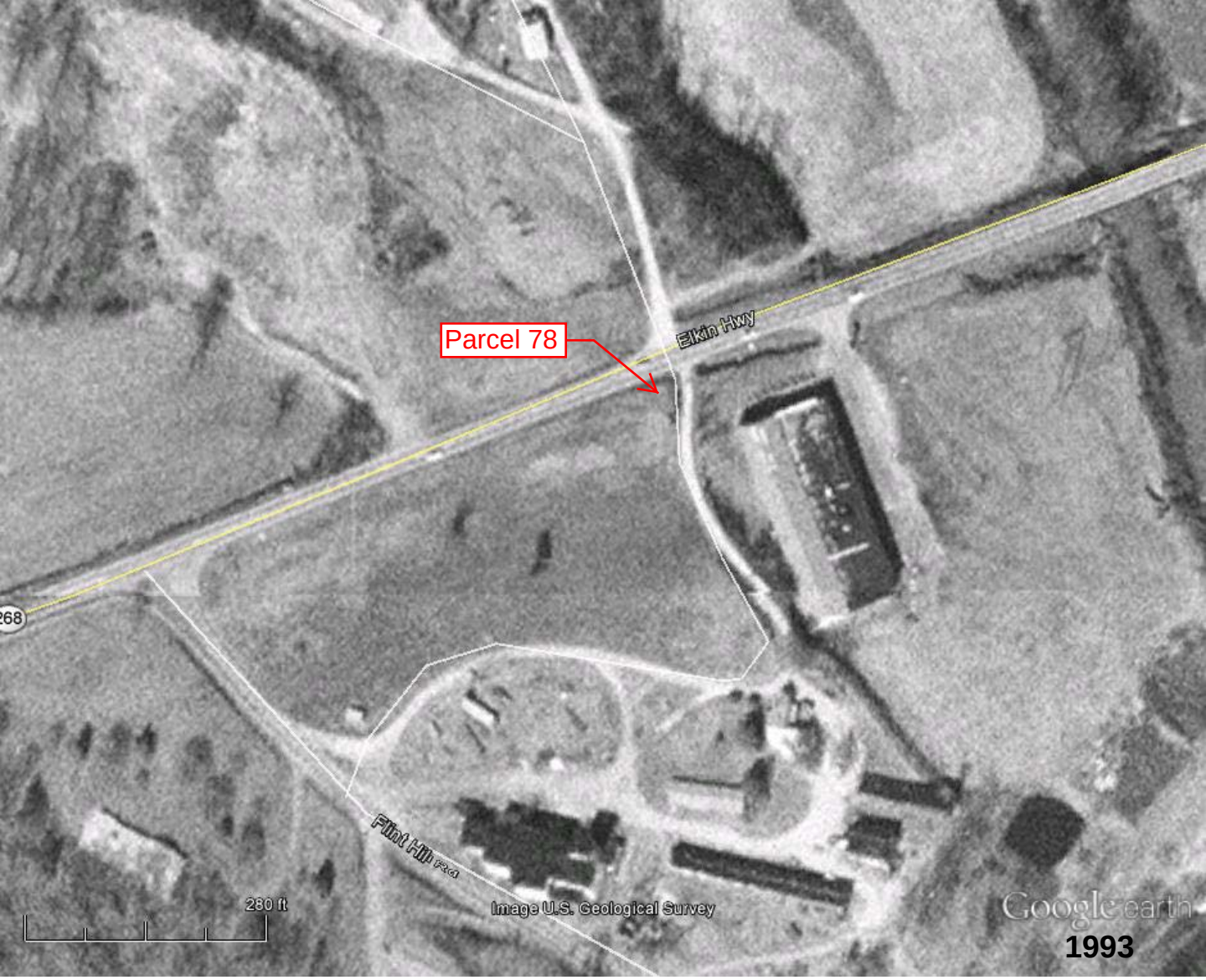
feet 1000

meters 300

Google earth

feet 800

meters 200



Google earth

feet 700

meters 200


Parcel 78
1966


Parcel 78
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 78 – UNDERGROUND STORAGE TANK INVESTIGATION

NORTH WILKESBORO, WILKES COUNTY, NC

JULY 10, 2013

Report prepared for:

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C257: GEOLOGY C1251: ENGINEERING

GEOPHYSICAL INVESTIGATION REPORT
NCDOT PRELIMINARY SITE ASSESSMENT
PARCEL 78 – 1330 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 EM61 anomalies detected could be attributed to visible objects at the ground surface such as fences and drainage features. 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 78 (Hutchinsons, LLC, 268 Truck and Trailer Repair), located at 1330 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 300 feet along NC 268, and extending approximately 100 feet at its maximum north/south distance from NC 268 south into the property. Conducted on May 23, 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 and grassy open areas, as well as an inaccessible drainage ditch and heavily vegetated area to the west of the survey boundaries. 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 23, 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: A large storm drain pipe extended under the ground across the site at an average vertical coordinate of Y=80 between X=20 and X=200. The pipe then turned to the southwest. The pipe is delineated on **Figure 2** by a dashed black line, and the EM feature surrounding it is the result of the metal pipe. The EM feature between X=20 and X-90 at Y=20 was the result of a metal guardrail adjacent to NC 268. The EM anomaly centered at X=100, Y=45 was the result of a metal trailer. The collection of EM anomalies centered at X=135, Y=75 were the combined result of a manhole cover, metal sign, power pole, and metal tables. The EM anomaly at

X=190, Y=110 was the result of a parked vehicle. The EM features directly surrounding the inaccessible area at the southeast portion of the survey grid were the result of metal tables and poles underneath a metal canopy. The EM features directly surrounding the inaccessible area on the west side of the survey grid were the result of metal-wrapped containers. All anomalies were attributed to cultural features, and GPR data were not required for further investigation.

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 west, 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 78, 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 EM61 anomalies detected could be attributed to visible objects at the ground surface such as fences and drainage features. 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 Site and Building
(Facing Approximately West)

Portion of Geophysical Survey Area
(Facing Approximately East)

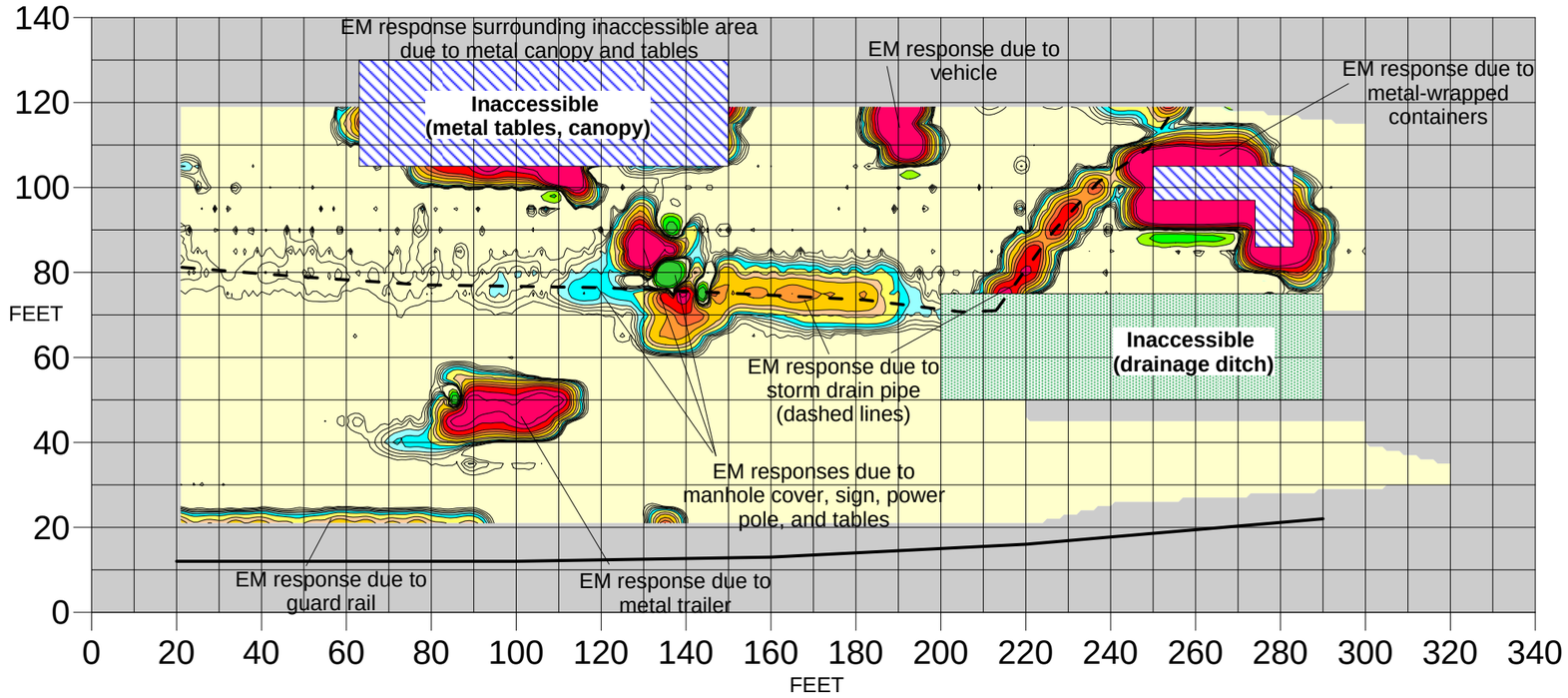
PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT	NC DEPARTMENT OF TRANSPORTATION	DATE	07/04/13	DRWN	ECC
SITE	PARCEL 78, WILKES COUNTY (DOT ROW PROJECT)	LAY		CHKD	
CITY	N. WILKESBORO	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	JND	2013-131	FIGURE	

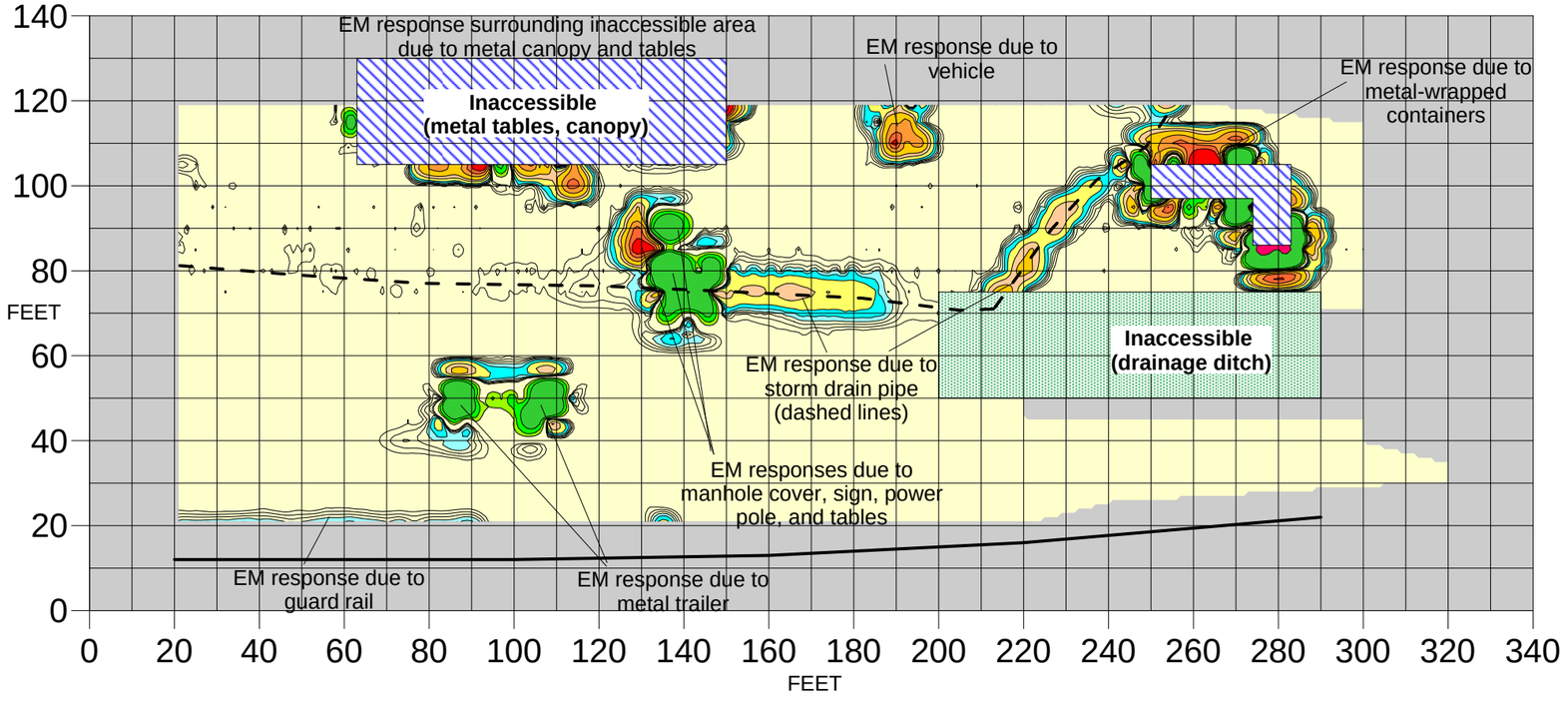
GEOPHYSICAL
SURVEY BOUNDARIES &
SITE PHOTOGRAPHS

FIGURE 1

EM61 Bottom Coil Results



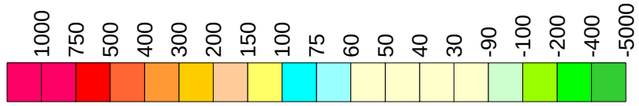
EM61 Differential Results



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 23, 2013 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were not required due to all EM anomalies being directly attributed to visible objects at the ground surface and/or utilities.

EM61 Metal Detection Response (millivolts)



N

TITLE
PARCEL 78 - 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	CLIENT
07/04/2013	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 78, Hutchinsons, LLC N. Wilkesboro, NC / 2013-131	**BORING/WELL NO:**	78-1(TW)
SITE LOCATION:	1330 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 78, Hutchinsons, LLC, Property, East Near Creek
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:	15 feet	**CASING DEPTH:**	15-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
0-3'	Brown, clayey-silt (CL), dry, no odor	OVA=78-1(0-2.5): 0.0 PPM
3-4'	Gravel	OVA=78-1(2.5-5): 0.0 PPM
4-8'	Reddish brown, silt with mica (MH), dry, no odor	OVA=78-1(5-7.5): 0.0 PPM
8-13'	Brown, very fine sand with some silt (SM), moist, no odor	OVA=78-1(7.5-10): 0.0 PPM
13-15'	Brown, medium grained sand (SP), very moist to saturated, no odor	
	Set 1-inch diameter temporary well at 15 feet with bottom 10 feet of	
	screen.	
	Depth to groundwater = 12.1 feet below ground surface	

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) 5 DEPTH (ft) 0-5 DIAMETER (in) 1 MATERIAL PVC.
SCREEN LENGTH (ft) 10 DEPTH (ft) 5-15 DIAMETER (in) 1 MATERIAL PVC.
DEPTH TO TOP OF SAND 3 BAGS OF SAND 0.5.
DEPTH TO TOP SEAL 1 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 78, Hutchinsons, LLC N. Wilkesboro, NC / 2013-131	**BORING/WELL NO:**	78-2
SITE LOCATION:	1330 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 78, Hutchinsons, LLC, Property, Center Near 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
0-3'	Brown, clayey-silt with large pebbles & mica (MH-CL), dry, no odor	OVA=78-2(0-2.5): 0.0 PPM
3-10'	Reddish-brown, clayey-silt with mica (MH), dry, no odor	OVA=78-2(2.5-5): 0.0 PPM
		OVA=78-2(5-7.5): 0.5 PPM
		OVA=78-2(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 ___.

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: **PROJECT NUMBER:**	NC DOT R-2603 Parcel 78, Hutchinsons, LLC N. Wilkesboro, NC / 2013-131	**BORING/WELL NO:**	78-3
SITE LOCATION:	1330 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 78, Hutchinsons, LLC Property, West Edge
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
0-6'	Brown, clayey-silt with mica minerals (MH), dry, no odor	OVA=78-3(0-2.5): 0.0 PPM
6-8'	Brown and white, clayey-silt with large pebbles (CL to ML), dry, no odor	OVA=78-3(2.5-5): 0.0 PPM
8-10'	Brown to white, silt with large pebbles (rock fragments) (ML),	OVA=78-3(5-7.5): 0.0 PPM
	dry, no odor	OVA=78-3(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 ___.

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

PROJECT NAME: **PROJECT NUMBER:**	NC DOT R-2603 Parcel 78, Hutchinsons, LLC N. Wilkesboro, NC / 2013-131	**BORING/WELL NO:**	78-4
SITE LOCATION:	1330 Elkin Highway Wilkes County, NC	**BORING/WELL LOCATION:**	Parcel 78, Hutchinsons, LLC, Property, Center
START DATE:	6/12/13	**COMPLETED:**	6/12/13
GEOLOGIST:	B. Higgins	**DRILLER:**	Pyramid - Tim Leatherman
DRILL METHOD:	Hand-auger	**SAMPLE METHOD:**	Hand-auger Bucket
BORING DIA:	3.75-inch	**CASING DIA:**	N/A
TOTAL DEPTH:	5 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
0-2.5'	Brown, medium grained micaceous silt (MH), no obvious odor	OVA=78-4(0-2.5): <1 PPM
2.5-5'	Red-orange, medium dark brown to black, micaceous sandy-silt (SM to	OVA=78-4(2.5-5): <1 PPM
	MH), Pieces of consolidated weathered rock, hard drilling,	
	no obvious odor.	

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

AQROS

Hydrocarbon Analysis Results

Client: NC Department of Transportation
Address: 1330 Elkin Highway

3 **Samples analysed**

Contact:

Operator Tim Leatherman

Project: NCDOT R-2603

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	78-1(5)	14.3	<0.7	<0.7	4.3	4.3	1.02	< 0.07	< 0.036	44.2	45.9	10	Degraded Fuel (est) 93.6%
s	78-2(7.5)	13.5	<0.7	<0.7	<0.7	<0.7	< 0.67	< 0.07	< 0.034	0	84.9	15.1	Match not possible
s	78-3(5.0)	14.3	<0.7	<0.7	<0.7	<0.7	< 0.71	< 0.07	< 0.036	0	0	100	Match not possible
s	78-3(5.0) REP	14.3	<0.7	<0.7	<0.7	<0.7	< 0.71	< 0.07	< 0.036	0	0	100	Particulate

Initial Calibrator QC check

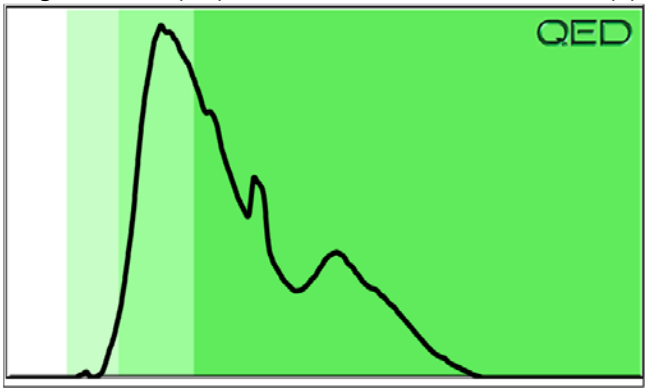
Low Range Calibrator Final check
High Range Calibrator Final check

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

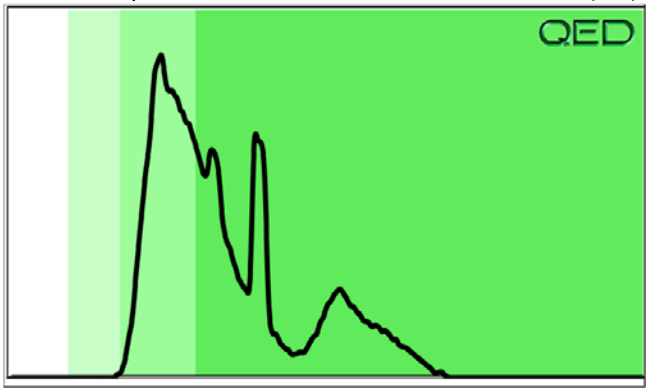
Fingerprints provide a tentative hydrocarbon identification based on operator selected library matches
Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match
(SBS)= site specific background subracted (LBS)= Library background subtracted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

Project NCDOT R-2603

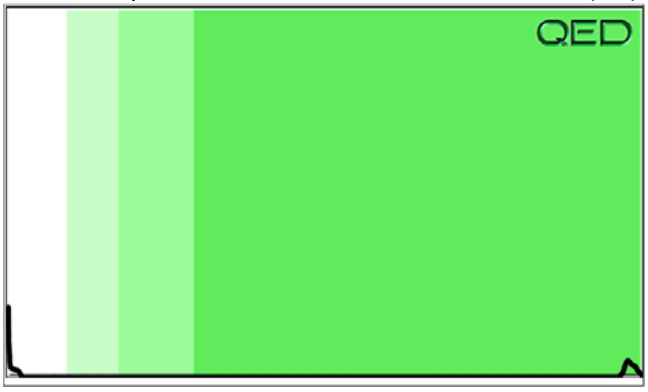
Degraded Fuel (est) 93.6% 78-1(5)



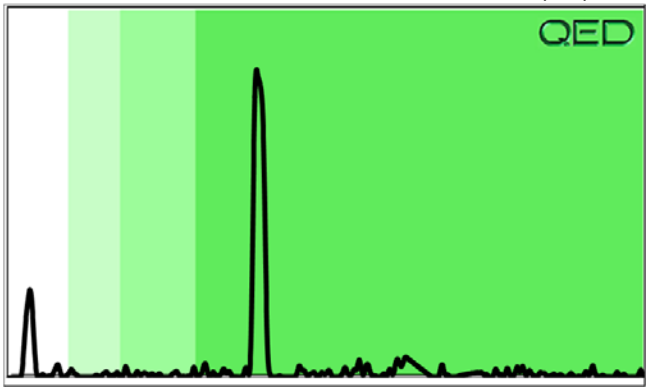
Match not possible 78-2(7.5)



Match not possible 78-3(5.0)



Particulate 78-3(5.0) REP



QED

AQROS

Hydrocarbon Analysis Results

Client: NC Department of Transportation
Address: Parcels 78 & 94

2 **Samples analysed**

Contact:

Operator Tim Leatherman

Project: NCDOT R-2603

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	78-4(5.0)	11.8	<0.6	<0.6	<0.6	<0.6	< 0.59	< 0.06	< 0.029	0	100	0	Particulate
s	78-4(5.0) REP	11.8	<0.6	<0.6	<0.6	<0.6	< 0.59	< 0.06	< 0.029	0	0	100	Particulate
s	78-4(5.0) REP2	11.8	<0.6	<0.6	<0.6	<0.6	< 0.59	< 0.06	< 0.029	0	100	0	Particulate
s	94-7(2.5)	14.3	<0.7	<0.7	21.9	21.9	21.86	3.54	< 0.036	21.7	21.6	56.7	PAH

Initial Calibrator QC check

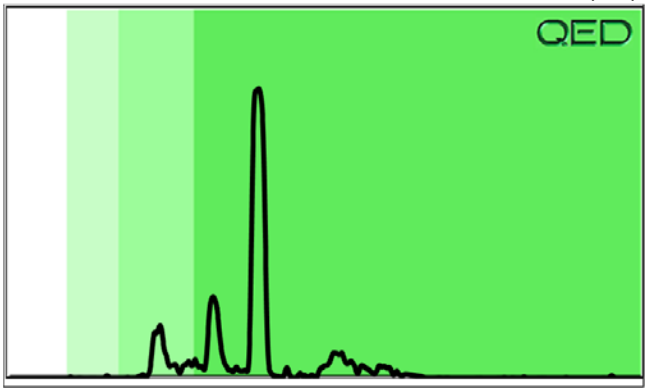
Low Range Calibrator Final check
High Range Calibrator Final check

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

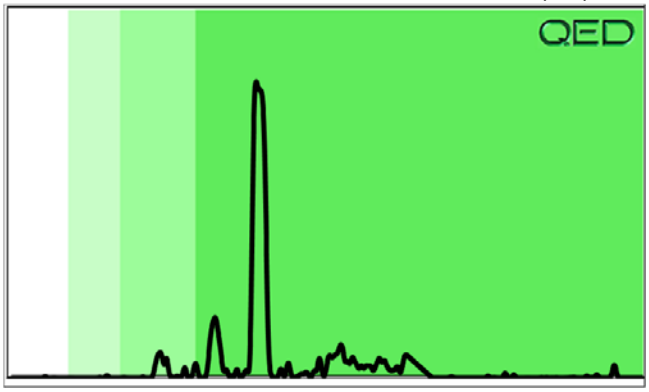
Fingerprints provide a tentative hydrocarbon identification based on operator selected library matches
Fingerprint match abbreviations Est = Specific calibrator not used, result estimated (PFM)= Poor library fingerprint match
(SBS)= site specific background subracted (LBS)= Library background subtracted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

Project NCDOT R-2603

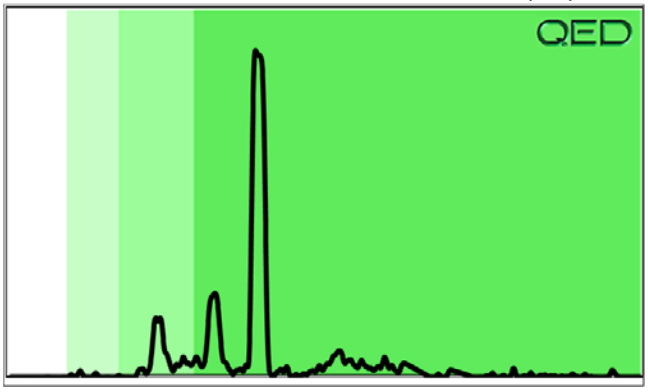
Particulate 78-4(5.0)



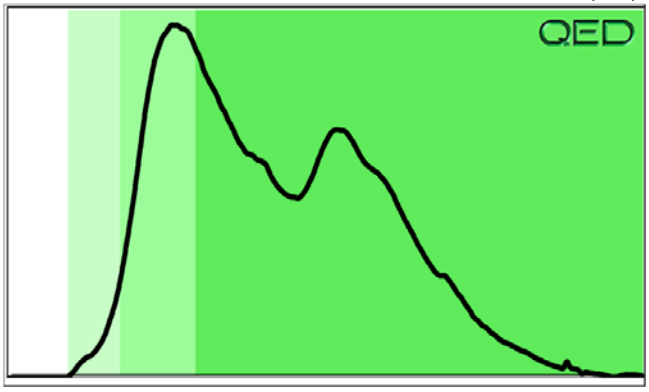
Particulate 78-4(5.0) REP



Particulate 78-4(5.0) REP2



PAH 94-7(2.5)



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 24, 2013

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

RE: Project: R-2603 Parcel 78 36001.1.2
Pace Project No.: 92161349

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

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Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: R-2603 Parcel 78 36001.1.2
Pace Project No.: 92161349

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

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Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: R-2603 Parcel 78 36001.1.2
Pace Project No.: 92161349

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92161349001	**78-1 (TW)**	SM 6200B	CAH	64	PASI-C

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PROJECT NARRATIVE

Project: R-2603 Parcel 78 36001.1.2
Pace Project No.: 92161349

Method: **SM 6200B**
Description: 6200B MSV
Client: NCDOT West Central
Date: June 24, 2013

General Information:
1 sample was analyzed for SM 6200B. 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.

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.

QC Batch: MSV/23350

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92161461003

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 995346)
  - 1,1-Dichloropropene
  - Carbon tetrachloride
  - Methylene Chloride
- MSD (Lab ID: 995347)
  - 1,1,1-Trichloroethane
  - 1,1-Dichloroethene
  - 1,1-Dichloropropene
  - 1,3-Dichloropropane
  - Carbon tetrachloride
  - Chloroform
  - Methylene Chloride
  - Vinyl chloride
  - trans-1,3-Dichloropropene

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PROJECT NARRATIVE

Project: R-2603 Parcel 78 36001.1.2
Pace Project No.: 92161349

Method: **SM 6200B**
Description: 6200B MSV
Client: NCDOT West Central
Date: June 24, 2013

Additional Comments:

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

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Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: R-2603 Parcel 78 36001.1.2
Pace Project No.: 92161349

Sample: 78-1 (TW) **Lab ID: 92161349001** Collected: 06/11/13 14:00 Received: 06/12/13 15:42 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6200B MSV	Analytical Method: SM 6200B							
Benzene	ND	ug/L	0.50	1		06/20/13 18:39	71-43-2	
Bromobenzene	ND	ug/L	0.50	1		06/20/13 18:39	108-86-1	
Bromochloromethane	ND	ug/L	0.50	1		06/20/13 18:39	74-97-5	
Bromodichloromethane	ND	ug/L	0.50	1		06/20/13 18:39	75-27-4	
Bromoform	ND	ug/L	0.50	1		06/20/13 18:39	75-25-2	
Bromomethane	ND	ug/L	5.0	1		06/20/13 18:39	74-83-9	
n-Butylbenzene	ND	ug/L	0.50	1		06/20/13 18:39	104-51-8	
sec-Butylbenzene	ND	ug/L	0.50	1		06/20/13 18:39	135-98-8	
tert-Butylbenzene	ND	ug/L	0.50	1		06/20/13 18:39	98-06-6	
Carbon tetrachloride	ND	ug/L	0.50	1		06/20/13 18:39	56-23-5	
Chlorobenzene	ND	ug/L	0.50	1		06/20/13 18:39	108-90-7	
Chloroethane	ND	ug/L	1.0	1		06/20/13 18:39	75-00-3	
Chloroform	ND	ug/L	0.50	1		06/20/13 18:39	67-66-3	
Chloromethane	ND	ug/L	1.0	1		06/20/13 18:39	74-87-3	
2-Chlorotoluene	ND	ug/L	0.50	1		06/20/13 18:39	95-49-8	
4-Chlorotoluene	ND	ug/L	0.50	1		06/20/13 18:39	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	1		06/20/13 18:39	96-12-8	
Dibromochloromethane	ND	ug/L	0.50	1		06/20/13 18:39	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	0.50	1		06/20/13 18:39	106-93-4	
Dibromomethane	ND	ug/L	0.50	1		06/20/13 18:39	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	0.50	1		06/20/13 18:39	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	0.50	1		06/20/13 18:39	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	0.50	1		06/20/13 18:39	106-46-7	
Dichlorodifluoromethane	ND	ug/L	0.50	1		06/20/13 18:39	75-71-8	
1,1-Dichloroethane	ND	ug/L	0.50	1		06/20/13 18:39	75-34-3	
1,2-Dichloroethane	ND	ug/L	0.50	1		06/20/13 18:39	107-06-2	
1,1-Dichloroethene	ND	ug/L	0.50	1		06/20/13 18:39	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	0.50	1		06/20/13 18:39	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	0.50	1		06/20/13 18:39	156-60-5	
1,2-Dichloropropane	ND	ug/L	0.50	1		06/20/13 18:39	78-87-5	
1,3-Dichloropropane	ND	ug/L	0.50	1		06/20/13 18:39	142-28-9	
2,2-Dichloropropane	ND	ug/L	0.50	1		06/20/13 18:39	594-20-7	
1,1-Dichloropropene	ND	ug/L	0.50	1		06/20/13 18:39	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	0.50	1		06/20/13 18:39	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	0.50	1		06/20/13 18:39	10061-02-6	
Diisopropyl ether	ND	ug/L	0.50	1		06/20/13 18:39	108-20-3	
Ethylbenzene	ND	ug/L	0.50	1		06/20/13 18:39	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.0	1		06/20/13 18:39	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	0.50	1		06/20/13 18:39	98-82-8	
Methylene Chloride	ND	ug/L	2.0	1		06/20/13 18:39	75-09-2	
Methyl-tert-butyl ether	ND	ug/L	0.50	1		06/20/13 18:39	1634-04-4	
Naphthalene	ND	ug/L	2.0	1		06/20/13 18:39	91-20-3	
n-Propylbenzene	ND	ug/L	0.50	1		06/20/13 18:39	103-65-1	
Styrene	ND	ug/L	0.50	1		06/20/13 18:39	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	1		06/20/13 18:39	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1		06/20/13 18:39	79-34-5	
Tetrachloroethene	ND	ug/L	0.50	1		06/20/13 18:39	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: R-2603 Parcel 78 36001.1.2
Pace Project No.: 92161349

Sample: 78-1 (TW) **Lab ID: 92161349001** Collected: 06/11/13 14:00 Received: 06/12/13 15:42 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6200B MSV	Analytical Method: SM 6200B							
Toluene	ND	ug/L	0.50	1		06/20/13 18:39	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.0	1		06/20/13 18:39	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.0	1		06/20/13 18:39	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	0.50	1		06/20/13 18:39	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	0.50	1		06/20/13 18:39	79-00-5	
Trichloroethene	ND	ug/L	0.50	1		06/20/13 18:39	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		06/20/13 18:39	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	0.50	1		06/20/13 18:39	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	0.50	1		06/20/13 18:39	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	0.50	1		06/20/13 18:39	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		06/20/13 18:39	75-01-4	
m&p-Xylene	ND	ug/L	1.0	1		06/20/13 18:39	179601-23-1	
o-Xylene	ND	ug/L	0.50	1		06/20/13 18:39	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	101	%	70-130	1		06/20/13 18:39	17060-07-0	
Dibromofluoromethane (S)	102	%	70-130	1		06/20/13 18:39	1868-53-7	
4-Bromofluorobenzene (S)	97	%	70-130	1		06/20/13 18:39	460-00-4	
Toluene-d8 (S)	99	%	70-130	1		06/20/13 18:39	2037-26-5	

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QUALITY CONTROL DATA

Project: R-2603 Parcel 78 36001.1.2
Pace Project No.: 92161349

QC Batch: MSV/23350
QC Batch Method: SM 6200B
Analysis Method: SM 6200B
Analysis Description: 6200B MSV
Associated Lab Samples: 92161349001

METHOD BLANK: 995344
Matrix: Water
Associated Lab Samples: 92161349001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	0.50	06/20/13 13:58	
1,1,1-Trichloroethane	ug/L	ND	0.50	06/20/13 13:58	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/20/13 13:58	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/20/13 13:58	
1,1-Dichloroethane	ug/L	ND	0.50	06/20/13 13:58	
1,1-Dichloroethene	ug/L	ND	0.50	06/20/13 13:58	
1,1-Dichloropropene	ug/L	ND	0.50	06/20/13 13:58	
1,2,3-Trichlorobenzene	ug/L	ND	2.0	06/20/13 13:58	
1,2,3-Trichloropropane	ug/L	ND	0.50	06/20/13 13:58	
1,2,4-Trichlorobenzene	ug/L	ND	2.0	06/20/13 13:58	
1,2,4-Trimethylbenzene	ug/L	ND	0.50	06/20/13 13:58	
1,2-Dibromo-3-chloropropane	ug/L	ND	1.0	06/20/13 13:58	
1,2-Dibromoethane (EDB)	ug/L	ND	0.50	06/20/13 13:58	
1,2-Dichlorobenzene	ug/L	ND	0.50	06/20/13 13:58	
1,2-Dichloroethane	ug/L	ND	0.50	06/20/13 13:58	
1,2-Dichloropropane	ug/L	ND	0.50	06/20/13 13:58	
1,3,5-Trimethylbenzene	ug/L	ND	0.50	06/20/13 13:58	
1,3-Dichlorobenzene	ug/L	ND	0.50	06/20/13 13:58	
1,3-Dichloropropane	ug/L	ND	0.50	06/20/13 13:58	
1,4-Dichlorobenzene	ug/L	ND	0.50	06/20/13 13:58	
2,2-Dichloropropane	ug/L	ND	0.50	06/20/13 13:58	
2-Chlorotoluene	ug/L	ND	0.50	06/20/13 13:58	
4-Chlorotoluene	ug/L	ND	0.50	06/20/13 13:58	
Benzene	ug/L	ND	0.50	06/20/13 13:58	
Bromobenzene	ug/L	ND	0.50	06/20/13 13:58	
Bromochloromethane	ug/L	ND	0.50	06/20/13 13:58	
Bromodichloromethane	ug/L	ND	0.50	06/20/13 13:58	
Bromoform	ug/L	ND	0.50	06/20/13 13:58	
Bromomethane	ug/L	ND	5.0	06/20/13 13:58	
Carbon tetrachloride	ug/L	ND	0.50	06/20/13 13:58	
Chlorobenzene	ug/L	ND	0.50	06/20/13 13:58	
Chloroethane	ug/L	ND	1.0	06/20/13 13:58	
Chloroform	ug/L	ND	0.50	06/20/13 13:58	
Chloromethane	ug/L	ND	1.0	06/20/13 13:58	
cis-1,2-Dichloroethene	ug/L	ND	0.50	06/20/13 13:58	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/20/13 13:58	
Dibromochloromethane	ug/L	ND	0.50	06/20/13 13:58	
Dibromomethane	ug/L	ND	0.50	06/20/13 13:58	
Dichlorodifluoromethane	ug/L	ND	0.50	06/20/13 13:58	
Diisopropyl ether	ug/L	ND	0.50	06/20/13 13:58	
Ethylbenzene	ug/L	ND	0.50	06/20/13 13:58	
Hexachloro-1,3-butadiene	ug/L	ND	2.0	06/20/13 13:58	
Isopropylbenzene (Cumene)	ug/L	ND	0.50	06/20/13 13:58	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: R-2603 Parcel 78 36001.1.2
Pace Project No.: 92161349

METHOD BLANK: 995344 Matrix: Water

Associated Lab Samples: 92161349001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
m&p-Xylene	ug/L	ND	1.0	06/20/13 13:58	
Methyl-tert-butyl ether	ug/L	ND	0.50	06/20/13 13:58	
Methylene Chloride	ug/L	ND	2.0	06/20/13 13:58	
n-Butylbenzene	ug/L	ND	0.50	06/20/13 13:58	
n-Propylbenzene	ug/L	ND	0.50	06/20/13 13:58	
Naphthalene	ug/L	ND	2.0	06/20/13 13:58	
o-Xylene	ug/L	ND	0.50	06/20/13 13:58	
sec-Butylbenzene	ug/L	ND	0.50	06/20/13 13:58	
Styrene	ug/L	ND	0.50	06/20/13 13:58	
tert-Butylbenzene	ug/L	ND	0.50	06/20/13 13:58	
Tetrachloroethene	ug/L	ND	0.50	06/20/13 13:58	
Toluene	ug/L	ND	0.50	06/20/13 13:58	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/20/13 13:58	
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/20/13 13:58	
Trichloroethene	ug/L	ND	0.50	06/20/13 13:58	
Trichlorofluoromethane	ug/L	ND	1.0	06/20/13 13:58	
Vinyl chloride	ug/L	ND	1.0	06/20/13 13:58	
1,2-Dichloroethane-d4 (S)	%	98	70-130	06/20/13 13:58	
4-Bromofluorobenzene (S)	%	98	70-130	06/20/13 13:58	
Dibromofluoromethane (S)	%	103	70-130	06/20/13 13:58	
Toluene-d8 (S)	%	101	70-130	06/20/13 13:58	

LABORATORY CONTROL SAMPLE: 995345

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	48.8	98	60-140	
1,1,1-Trichloroethane	ug/L	50	49.4	99	60-140	
1,1,2,2-Tetrachloroethane	ug/L	50	49.4	99	60-140	
1,1,2-Trichloroethane	ug/L	50	50.5	101	60-140	
1,1-Dichloroethane	ug/L	50	48.2	96	60-140	
1,1-Dichloroethene	ug/L	50	48.3	97	60-140	
1,1-Dichloropropene	ug/L	50	60.3	121	60-140	
1,2,3-Trichlorobenzene	ug/L	50	52.9	106	60-140	
1,2,3-Trichloropropane	ug/L	50	54.1	108	60-140	
1,2,4-Trichlorobenzene	ug/L	50	52.6	105	60-140	
1,2,4-Trimethylbenzene	ug/L	50	49.0	98	60-140	
1,2-Dibromo-3-chloropropane	ug/L	50	48.7	97	60-140	
1,2-Dibromoethane (EDB)	ug/L	50	56.4	113	60-140	CU
1,2-Dichlorobenzene	ug/L	50	50.5	101	60-140	
1,2-Dichloroethane	ug/L	50	46.4	93	60-140	
1,2-Dichloropropane	ug/L	50	50.1	100	60-140	
1,3,5-Trimethylbenzene	ug/L	50	48.0	96	60-140	
1,3-Dichlorobenzene	ug/L	50	47.7	95	60-140	
1,3-Dichloropropane	ug/L	50	53.3	107	60-140	
1,4-Dichlorobenzene	ug/L	50	52.6	105	60-140	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: R-2603 Parcel 78 36001.1.2
Pace Project No.: 92161349

LABORATORY CONTROL SAMPLE: 995345

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	47.4	95	60-140	
2-Chlorotoluene	ug/L	50	50.5	101	60-140	
4-Chlorotoluene	ug/L	50	46.6	93	60-140	
Benzene	ug/L	50	48.4	97	60-140	
Bromobenzene	ug/L	50	48.9	98	60-140	
Bromochloromethane	ug/L	50	50.8	102	60-140	
Bromodichloromethane	ug/L	50	49.9	100	60-140	
Bromoform	ug/L	50	52.8	106	60-140	
Bromomethane	ug/L	50	47.2	94	60-140	
Carbon tetrachloride	ug/L	50	54.8	110	60-140	
Chlorobenzene	ug/L	50	51.5	103	60-140	
Chloroethane	ug/L	50	45.6	91	60-140	
Chloroform	ug/L	50	49.1	98	60-140	
Chloromethane	ug/L	50	49.3	99	60-140	
cis-1,2-Dichloroethene	ug/L	50	46.9	94	60-140	
cis-1,3-Dichloropropene	ug/L	50	52.6	105	60-140	
Dibromochloromethane	ug/L	50	52.8	106	60-140	
Dibromomethane	ug/L	50	46.4	93	60-140	
Dichlorodifluoromethane	ug/L	50	36.9	74	60-140	
Diisopropyl ether	ug/L	50	50.2	100	60-140	
Ethylbenzene	ug/L	50	51.5	103	60-140	
Hexachloro-1,3-butadiene	ug/L	50	49.5	99	60-140	
Isopropylbenzene (Cumene)	ug/L	50	50.1	100	60-140	
m&p-Xylene	ug/L	100	100	100	60-140	
Methyl-tert-butyl ether	ug/L	50	51.2	102	60-140	
Methylene Chloride	ug/L	50	55.2	110	60-140	
n-Butylbenzene	ug/L	50	49.0	98	60-140	
n-Propylbenzene	ug/L	50	47.7	95	60-140	
Naphthalene	ug/L	50	53.1	106	60-140	
o-Xylene	ug/L	50	47.7	95	60-140	
sec-Butylbenzene	ug/L	50	45.7	91	60-140	
Styrene	ug/L	50	52.7	105	60-140	
tert-Butylbenzene	ug/L	50	45.9	92	60-140	
Tetrachloroethene	ug/L	50	51.1	102	60-140	
Toluene	ug/L	50	45.4	91	60-140	
trans-1,2-Dichloroethene	ug/L	50	49.2	98	60-140	
trans-1,3-Dichloropropene	ug/L	50	56.7	113	60-140	
Trichloroethene	ug/L	50	49.7	99	60-140	
Trichlorofluoromethane	ug/L	50	44.5	89	60-140	
Vinyl chloride	ug/L	50	45.7	91	60-140	
1,2-Dichloroethane-d4 (S)	%			93	70-130	
4-Bromofluorobenzene (S)	%			103	70-130	
Dibromofluoromethane (S)	%			99	70-130	
Toluene-d8 (S)	%			99	70-130	

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QUALITY CONTROL DATA

Project: R-2603 Parcel 78 36001.1.2
Pace Project No.: 92161349

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 995346 995347

Parameter	Units	92161461003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	23.2	25.0	116	125	60-140	7	
1,1,1-Trichloroethane	ug/L	ND	20	20	25.9	28.7	129	143	60-140	10	M0
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	24.1	25.4	121	127	60-140	5	
1,1,2-Trichloroethane	ug/L	ND	20	20	24.1	26.4	120	132	60-140	9	
1,1-Dichloroethane	ug/L	ND	20	20	26.1	26.7	130	134	60-140	2	
1,1-Dichloroethene	ug/L	ND	20	20	26.8	29.9	134	150	60-140	11	M0
1,1-Dichloropropene	ug/L	ND	20	20	30.9	33.3	155	167	60-140	7	M0
1,2,3-Trichlorobenzene	ug/L	ND	20	20	24.2	25.8	118	126	60-140	6	
1,2,3-Trichloropropane	ug/L	ND	20	20	26.7	27.6	133	138	60-140	4	
1,2,4-Trichlorobenzene	ug/L	ND	20	20	25.8	26.5	127	130	60-140	3	
1,2,4-Trimethylbenzene	ug/L	ND	20	20	24.9	26.4	125	132	60-140	6	
1,2-Dibromo-3-chloropropane	ug/L	ND	20	20	25.4	26.0	127	130	60-140	2	
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	27.0	27.2	135	136	60-140	1	
1,2-Dichlorobenzene	ug/L	ND	20	20	25.0	26.3	125	131	60-140	5	
1,2-Dichloroethane	ug/L	ND	20	20	22.0	22.1	110	111	60-140	0	
1,2-Dichloropropane	ug/L	ND	20	20	24.6	28.1	123	140	60-140	13	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	24.4	26.6	122	133	60-140	9	
1,3-Dichlorobenzene	ug/L	ND	20	20	23.9	25.2	120	126	60-140	5	
1,3-Dichloropropane	ug/L	ND	20	20	27.4	28.2	137	141	60-140	3	M0
1,4-Dichlorobenzene	ug/L	ND	20	20	25.4	27.9	127	140	60-140	10	
2,2-Dichloropropane	ug/L	ND	20	20	24.5	25.3	122	126	60-140	3	
2-Chlorotoluene	ug/L	ND	20	20	26.4	27.8	132	139	60-140	5	
4-Chlorotoluene	ug/L	ND	20	20	23.0	24.6	115	123	60-140	7	
Benzene	ug/L	ND	20	20	24.0	25.8	120	129	60-140	7	
Bromobenzene	ug/L	ND	20	20	25.9	26.9	130	134	60-140	4	
Bromochloromethane	ug/L	ND	20	20	24.2	27.3	121	137	60-140	12	
Bromodichloromethane	ug/L	ND	20	20	24.1	25.7	121	128	60-140	6	
Bromoform	ug/L	ND	20	20	24.8	25.6	124	128	60-140	3	
Bromomethane	ug/L	ND	20	20	21.5	24.4	107	122	60-140	13	
Carbon tetrachloride	ug/L	ND	20	20	28.7	31.5	144	158	60-140	9	M0
Chlorobenzene	ug/L	ND	20	20	25.5	27.0	128	135	60-140	6	
Chloroethane	ug/L	ND	20	20	27.3	28.1	137	140	60-140	3	
Chloroform	ug/L	ND	20	20	27.0	28.4	135	142	60-140	5	M0
Chloromethane	ug/L	ND	20	20	23.8	24.6	119	123	60-140	3	
cis-1,2-Dichloroethene	ug/L	ND	20	20	25.6	26.5	128	132	60-140	3	
cis-1,3-Dichloropropene	ug/L	ND	20	20	25.9	26.7	129	133	60-140	3	
Dibromochloromethane	ug/L	ND	20	20	25.0	27.2	125	136	60-140	8	
Dibromomethane	ug/L	ND	20	20	22.8	22.6	114	113	60-140	1	
Dichlorodifluoromethane	ug/L	ND	20	20	20.0	21.6	100	108	60-140	7	
Diisopropyl ether	ug/L	ND	20	20	26.0	27.8	130	139	60-140	7	
Ethylbenzene	ug/L	ND	20	20	25.9	27.1	130	135	60-140	4	
Hexachloro-1,3-butadiene	ug/L	ND	20	20	24.2	25.6	121	128	60-140	6	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	24.7	25.1	123	126	60-140	2	
m&p-Xylene	ug/L	ND	40	40	49.8	52.5	124	131	60-140	5	
Methyl-tert-butyl ether	ug/L	1.9	20	20	28.7	29.3	134	137	60-140	2	
Methylene Chloride	ug/L	ND	20	20	28.1	30.0	141	150	60-140	7	M0
n-Butylbenzene	ug/L	ND	20	20	25.5	26.5	127	133	60-140	4	

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 78 36001.1.2
Pace Project No.: 92161349

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 995346 995347

Parameter	Units	92161461003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
n-Propylbenzene	ug/L	ND	20	20	24.9	26.6	124	132	60-140	7	
Naphthalene	ug/L	ND	20	20	24.3	26.4	118	129	60-140	8	
o-Xylene	ug/L	ND	20	20	24.3	25.0	121	125	60-140	3	
sec-Butylbenzene	ug/L	ND	20	20	24.2	25.4	120	126	60-140	5	
Styrene	ug/L	ND	20	20	25.1	25.6	126	128	60-140	2	
tert-Butylbenzene	ug/L	ND	20	20	23.9	26.1	119	131	60-140	9	
Tetrachloroethene	ug/L	ND	20	20	25.6	27.6	126	136	60-140	8	
Toluene	ug/L	ND	20	20	23.2	24.4	116	122	60-140	5	
trans-1,2-Dichloroethene	ug/L	ND	20	20	25.7	28.0	128	140	60-140	9	
trans-1,3-Dichloropropene	ug/L	ND	20	20	26.7	29.0	133	145	60-140	8	M0
Trichloroethene	ug/L	ND	20	20	24.2	26.2	121	131	60-140	8	
Trichlorofluoromethane	ug/L	ND	20	20	25.9	26.9	130	134	60-140	4	
Vinyl chloride	ug/L	ND	20	20	25.2	28.4	126	142	60-140	12	M0
1,2-Dichloroethane-d4 (S)	%						99	99	70-130		
4-Bromofluorobenzene (S)	%						100	98	70-130		
Dibromofluoromethane (S)	%						100	99	70-130		
Toluene-d8 (S)	%						96	98	70-130		

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QUALIFIERS

Project: R-2603 Parcel 78 36001.1.2
Pace Project No.: 92161349

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

ANALYTE QUALIFIERS

CU	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: R-2603 Parcel 78 36001.1.2
Pace Project No.: 92161349

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92161349001	**78-1 (TW)**	SM 6200B	MSV/23350		

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: Pyanol

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: JMT 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: VG Date: 6/12/13

SRF Review: VG 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)

WO# : 92161349

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

1667306

Section A — Required Client Information:
Company: Pyramid Environmental
Address: 603 Industrial Ave. Greensboro NC
Email To: Tim@Pyramidenvironmental.com
Phone: 336-335-3174 Fax:
Requested Due Date/TAT: NORMAL

Section B — Required Project Information:
Report To: Tim Leatherman
Copy To:
Purchase Order No.: WBS 36001.1.2
Project Name: NCDOT R-2603 Parcel 78
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 #: 5900-2

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	6200B	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	78-1(TW)	WT	G			6/11/13	1400		4				X						X		001
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

92161349

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
PARCEL # 78	Ryan Kramer/Pyramid	6/12/13	08:00		6/12	11:31	1.4	Y	N	Y
		6-12-13	15:42		6/12	1542				

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)

ORIGINAL

*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.