

Pyramid Environmental & Engineering, P.C. Project # 2014-093
Preliminary Site Assessment (PSA) – Parcel 001, Kenneth Etheridge

PRELIMINARY SITE ASSESSMENT
PARCEL 001 – KENNETH ETHERIDGE
375 BAGLEY ROAD
KENLY, JOHNSTON COUNTY, NORTH CAROLINA
NC PIN: 264600-83-2660
STATE PROJECT: I-3318BB
WBS ELEMENT: 34182.2.1
JUNE 27, 2014

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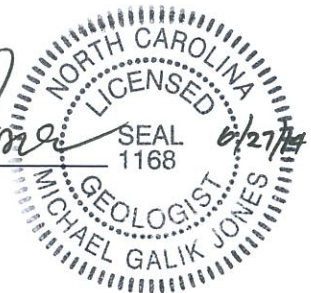
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Acronyms

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

**PRELIMINARY SITE ASSESSMENT
PARCEL 001, KENNETH ETHERIDGE
375 BAGLEY ROAD
KENLY, JOHNSTON COUNTY, NORTH CAROLINA**

EXECUTIVE SUMMARY OF RESULTS

Pyramid Environmental & Engineering P.C. (Pyramid) has prepared this Preliminary Site Assessment (PSA) report documenting background information, field activities, assessment activities, findings, conclusions, and recommendations for Parcel 001, Kenneth Etheridge. The purpose of this assessment was to determine the presence or absence of underground storage tanks (USTs) and impacted soils between the existing edge of pavement and the proposed ROW and/or easements, whichever distance was greater. This PSA is a part of State Project I-3318BB. The PSA was conducted with particular attention to the areas to be cut as indicated by slope stake lines and cross sections or to be excavated for the installation of drainage features. This preliminary site assessment was conducted on behalf of the North Carolina Department of Transportation (NCDOT) in accordance with Pyramid's April 23, 2014, technical proposal.

The following statements summarize the results of the PSA:

- **Site History:** On May 6, 2014, Pyramid emailed the Johnston County I-3318BB parcel address (375 Bagley Road in Kenly, NC) to Mr. Jeremy Poplawski, Johnston County Incident Manager, with the Fayetteville Regional Office for the DENR UST Section, with a request to investigate any environmental incidents associated with the parcel. On May 7, 2014, Mr. Poplawski responded to the email and stated that site address and facility name we provided to him did not match. The facility ID # 13316 with a facility name "Waste Management" had an owner being Etheridge Oil Co, Inc. The associated address however, was 401 Bagley Road and not 375 Bagley Road as the RFP initially described. Mr. Poplawski located a UST record for the subject property. One registered 20,000-gallon diesel UST was installed on the property on April 23, 1986. NCDENR did not locate any environmental incidents in the DENR database.

On May 13, 2014, Pyramid Project Manager Eric Cross performed a site visit at the property. Mr. Cross spoke with Ms. Marie Williamson (dispatcher) at the front desk of the Waste Management office building. Ms. Williamson confirmed that one diesel UST was located adjacent to the main building. The main building was located a significant distance west of the area of interest for the NCDOT proposed ROW and construction. Ms. Williamson was not aware of the existence of any structures or buildings in the past that may have been located in the

NCDOT ROW or easements. To her knowledge the area of interest only contained an access road, grassy areas, and forest areas, and had been undeveloped during her time working at the facility. She was not aware of any environmental incidents associated with the property.

- **Geophysical Survey:** A large portion of the parcel was inaccessible due to dense/tall vegetation and forest. All of the EM61 anomalies detected could be attributed to visible objects at the ground surface such as fences, or marked underground utilities. The geophysical investigation did not record evidence of metallic USTs at the property.
- **Limited Soil Assessment:** A total of seven borings were performed across the property. Soil samples were screened with a PID, and select soil samples were analyzed for DRO and GRO using a QED Analyzer. The DENR action levels for both TPH-GRO and TPH-DRO are 10 mg/kg. None of the samples analyzed exhibited DRO and GRO concentrations above 10 mg/kg. All QED results were either below 10 mg/kg DRO/GRO or at levels below detection by the instrument.
- **Limited Groundwater Assessment:** Soil boring 1-4 was converted into a 1-inch diameter temporary monitoring well to a total depth of 8 feet BLS. The depth-to-groundwater was measured at 2.5 feet BLS. The 6200B laboratory analysis did not detect any VOCs exhibiting concentrations above NCAC 2L groundwater standards in the sample.

Review of the NCDOT engineering plans indicates that the NCDOT may encounter groundwater at the property during construction activities. The results of this PSA do not indicate that any contamination is present in the groundwater at the location of sampling.

- **Contaminated Soil Volumes:** No evidence of petroleum-impacted soils (DRO/GRO > 10mg/kg) was observed during this investigation. Therefore, no recommendations for the treatment, handling, or disposal of such materials are warranted.

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

1.0 Introduction

Pyramid Environmental & Engineering P.C. (Pyramid) has prepared this Preliminary Site Assessment (PSA) report documenting background information, field activities, assessment activities, findings, conclusions, and recommendations for Parcel 001, Kenneth Etheridge. The Kenneth Etheridge property is currently operating as a Waste Management facility at 375 Bagley Road, Kenly, NC. This preliminary site assessment was conducted on behalf of the North Carolina Department of Transportation (NCDOT) in accordance with Pyramid's April 23, 2014, technical proposal. This PSA is a part of State Project I-3318BB.

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

1.1 Background Information

Based on the NCDOT's April 15, 2014, *Request for Technical and Cost Proposal*, the PSA was conducted between the existing edge of pavement and the proposed ROW and/or easements, whichever distance was greater, with emphasis on the areas to be cut as indicated by slope stake lines and cross sections or to be excavated for the installation of drainage features and/or other utilities, in accordance with the CADD files provided to Pyramid by the NCDOT. The PSA included the following:

- Research the properties for past uses and possible releases.
- Conduct a preliminary geophysical site assessment and limited soil assessment across the entire parcel with emphasis on the areas to be cut as indicated by slope stake lines and cross sections or to be excavated for the installation of drainage features and/or other utilities.
- If a NCDENR Groundwater Incident has been assigned to a parcel, then a single groundwater sample will be collected (or attempted) from the parcel if groundwater is encountered in any of the soil borings on that parcel incidentally during the course of attaining the depths required for objective of soil sampling. At parcels without NCDENR assigned Groundwater Incidents, if groundwater is likely to be encountered by subsequent excavation required by construction, then Pyramid will attempt to obtain a groundwater sample from the parcel.

1.2 Project Information

Prior to field activities, a Health and Safety Plan was prepared. Prior to drilling activities, the public underground utilities were located and marked by the North Carolina One-Call Service. 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

The NCDOT description of Parcel 001 in the RFP provided to Pyramid on April 15, 2014, provided the following background information related to the site:

“This site was observed to operate as a Waste Management maintenance facility and storage lot during a site reconnaissance on June 9, 2011. The site is located on the eastern side of Bagley Road, approximately 600 feet north of I-95. Dispenser pumps and a UST were observed under the southern portion of building. An AST was observed in the middle, eastern side of building. According to NDCENR’s UST Section Registry there is on active UST on the site.”

Pyramid interviewed DENR personnel, interviewed property owners, and reviewed aerial photographs to assess past uses of the property. Pyramid reviewed historical aerial photographs obtained from the Johnston County GIS website and Google Earth dating back to 1937. The 1937, 1948, 1956, 1971, 1988, 1993, 1999, 2004, 2006, 2008, 2009 and 2012 aerial photographs are included in **Appendix A**. Historical information reviewed as part of the PSA indicated that the Kenneth Etheridge property was first developed for commercial use between 1971 and 1988. The earliest aerial that appeared to show the building was the 1988 aerial. The 1971 aerial photo shows the property to be undeveloped agricultural land.

On May 6, 2014, Pyramid emailed the Johnston County I-3318BB parcel address (375 Bagley Road in Kenly, NC) to Mr. Jeremy Poplawski, Johnston County Incident Manager, with the Fayetteville Regional Office for the DENR UST Section, with a request to investigate any environmental incidents associated with the parcel. On May 7, 2014, Mr. Poplawski responded to the email and stated that site address and facility name we provided to him did not match. The facility ID # 13316 with a facility name “Waste Management” had an owner being Etheridge Oil Co, Inc. The associated address however, is 401 Bagley Road and not 375 Bagley Road as the PSA initially described. Mr. Poplawski located a UST record for the subject property that is included in **Appendix B**. One registered 20,000-gallon diesel UST was installed on the property on April 23, 1986. NCDENR did not locate any environmental incidents in the DENR database.

On May 13, 2014, Pyramid Project Manager Eric Cross performed a site visit at the property. Mr. Cross spoke with Ms. Marie Williamson (dispatcher) at the front desk of the Waste Management office building. Ms. Williamson confirmed that one diesel UST was located adjacent to the main building. The main building was located a significant distance west of the area of interest for the NCDOT proposed ROW and construction. Ms. Williamson was not aware of the existence of any structures or buildings in the past that may have been located in the NCDOT ROW or easements. To her knowledge the area of interest only contained an access road, grassy areas, and forest areas, and had been undeveloped during her time working at the facility. She was not aware of any environmental incidents associated with the property.

3.0 Geophysical Investigation

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

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

Pyramid performed electromagnetic (EM) and ground penetrating radar (GPR) surveys across the accessible portions of the Parcel. A large portion of the parcel was inaccessible due to dense/tall vegetation and forest. All of the EM61 anomalies detected could be attributed to visible objects at the ground surface such as fences, or marked underground utilities. The geophysical investigation did not record evidence of metallic USTs at the property.

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

4.0 Soil Sampling Activities & Results

4.1 Soil Assessment Field Activities

On June 3 and 4, 2014, Pyramid mobilized to the site, drilled soil borings and collected the proposed soil samples for the PSA. Seven (7) soil borings (1-1 through 1-7) were advanced on the subject property between the NCDOT proposed ROW and easements, and edge of pavement. Six of the soil borings were completed using a truck mounted GeoProbe drill rig, and one boring was completed using a hand auger. The selected locations were chosen to avoid public utilities along the adjacent roads and private utilities associated with the business while remaining in the proposed right of way and/or easement.

The soil borings were installed at or adjacent to proposed drainage features, as indicated by the NCDOT engineering plans, or generally within the proposed ROW and/or easement to obtain additional information. The locations of the borings are shown on **Figure 2**.

Soil samples were continuously collected in four-foot long disposable sleeves (or directly from the hand auger bucket for boring 1-7) from each boring for geologic description, and visual examination for signs of contamination. Soil recovered from each sleeve was screened in the field using a Photo-Ionization Detector (PID) approximately every 2 feet depending on the soil recovery of each sleeve. In general, the soil sample with the highest PID reading was selected from each boring for laboratory analysis. If field screening detected an elevated reading, then additional soil samples from each boring were selectively analyzed with the QED UVF HC-1 Analyzer. The soil boring logs with the soil descriptions, visual examination, and PID screening results are included in **Appendix D**. The PID 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. No petroleum odor was detected in any of the borings during the field screening.

The soil samples selected for Total Petroleum Hydrocarbon (TPH) analyses were analyzed utilizing the QED UVF HC-1 Analyzer system from 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 performed the soil analyses. The soil samples selected for analysis using the QED Analyzer were analyzed for TPH as diesel range organics (DRO) and TPH as gasoline range organics (GRO). 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.

4.2 Soil Sample Analytical Results

QED Results

The DENR action levels for both TPH-GRO and TPH-DRO are 10 mg/kg. Soil samples were screened with a PID, and select soil samples were analyzed for DRO and GRO using a QED Analyzer. None of the soil samples analyzed exhibited DRO and GRO concentrations above 10 mg/kg. The soil sample QED results are summarized in **Table 2**. A copy of the QED analysis report is included in **Appendix E**.

4.3 Temporary Monitoring Well Installation

On June 3, 2014, Pyramid converted soil boring 1-4 into a 1-inch diameter temporary monitoring well (TW). This location was chosen based on PID and QED readings, and its location within a proposed drainage easement. Soil boring 1-4(TW) was completed to a total depth of 8 feet below land surface (BLS). The temporary well was constructed with 8 feet of 1-inch diameter of schedule 80 PVC slotted screen.

The depth-to-groundwater was measured at 2.5 feet BLS. The temporary monitoring well was sampled using a new 0.5-inch diameter disposable bailer. 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 1-4(TW) was placed in laboratory prepared containers for analysis of volatile organic compounds (VOCs) using EPA Method 6200B. The sample was shipped to Pace Analytical in Huntersville, NC. The 6200B laboratory analysis did not detect any concentrations of VOCs above NCAC 2L groundwater standards in the sample. The groundwater results for sample 1-4(TW) are summarized in **Table 3**. A copy of the laboratory report and chain-of-custody is included in **Appendix F**.

5.0 Conclusions and Recommendations

As requested by NCDOT, Pyramid has completed a PSA at the Kenneth Etheridge property located at 375 Bagley Road, Kenly, NC (Parcel 001). The following is a summary of the assessment activities and results. Personnel logs for all field work are included in **Appendix G**.

5.1 Geophysical Investigation

A large portion of the parcel was inaccessible due to dense/tall vegetation and forest. All of the EM61 anomalies detected could be attributed to visible objects at the ground surface such as fences, or marked underground utilities. The geophysical investigation did not record evidence of metallic USTs at the property.

5.2 Limited Soil Assessment

The DENR action levels for both TPH-GRO and TPH-DRO are 10 mg/kg. Soil samples were screened with a PID, and select soil samples were analyzed for DRO and GRO using a QED Analyzer. None of the samples analyzed exhibited DRO and GRO concentrations above 10 mg/kg. All QED results were either below 10 mg/kg DRO/GRO or at levels below detection by the instrument.

5.3 Limited Groundwater Assessment

Soil boring 1-4 was converted into a 1-inch diameter temporary monitoring well to a total depth of 8 feet BLS. The depth-to-groundwater was measured at 2.5 feet BLS. The 6200B laboratory analysis did not detect any VOCs exhibiting concentrations above NCAC 2L groundwater standards in the sample.

Review of the NCDOT engineering plans indicates that the NCDOT may encounter groundwater at the property during construction activities. The results of this PSA do not indicate that any contamination is present in the groundwater at the location of sampling.

5.4 Recommendations

Petroleum-Impacted Soils

No evidence of petroleum-impacted soils (DRO/GRO > 10mg/kg) was observed during this investigation. Therefore, no recommendations for the treatment, handling, or disposal of such materials are warranted.

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

6.0 Limitations

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

7.0 Closure

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

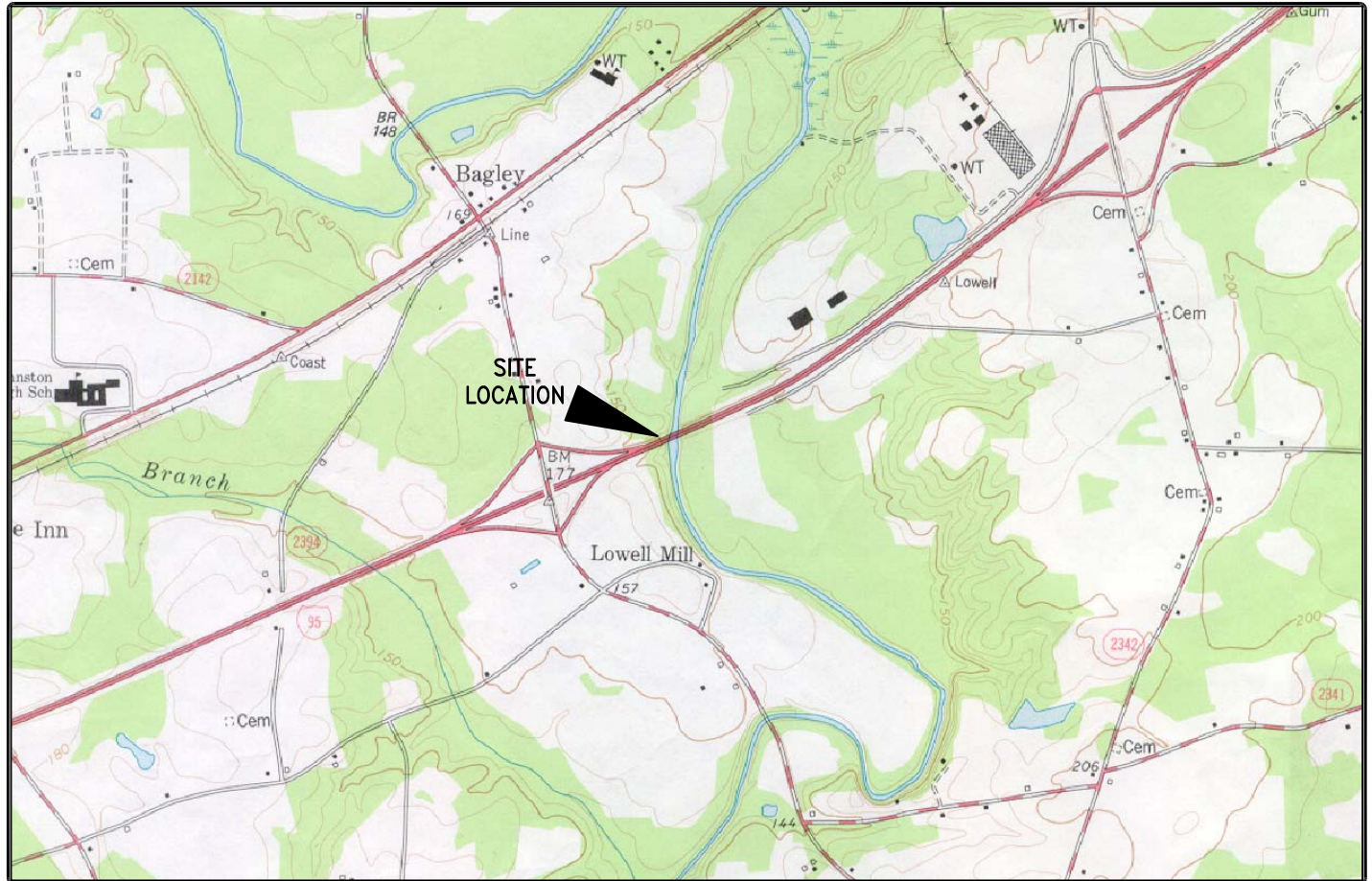
USGS TOPOGRAPHIC MAP

SITE:

375 BAGLEY ROAD.

LOCATION:

KENLY, NORTH CAROLINA



USGS IDENTIFICATION

SCALES

USGS 7.5 MINUTE MAP

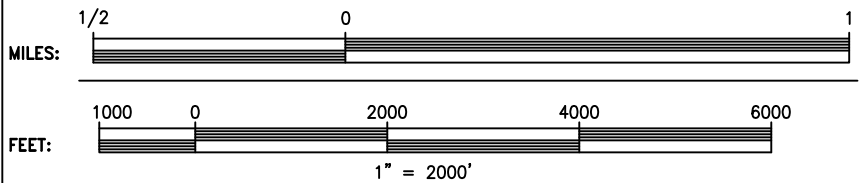
KENLY WEST, N.C.

ORIGINAL DATE:

1978

PHOTOREVISION DATE:

NA



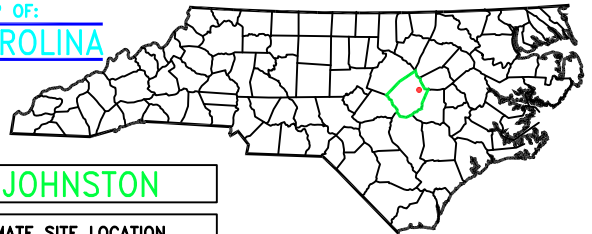
	PRIMARY HIGHWAY, HARD SURFACE
	SECONDARY HIGHWAY, HARD SURFACE
	LIGHT-DUTY ROAD HARD OR IMPROVED SURFACE
	UNIMPROVED ROAD
	STATE ROAD
	U.S. ROUTE
	INTERSTATE ROUTE

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

MAGNETIC NORTH



COUNTY MAP OF:
NORTH CAROLINA



COUNTY: **JOHNSTON**

APPROXIMATE SITE LOCATION



CLIENT: NC DOT I-3318BB

PROPERTY NAME: PARCEL 001, KENNETH ETHERIDGE

CITY: KENLY

STATE: NORTH CAROLINA

TITLE: TOPOGRAPHIC MAP

SCALE:
 1"=2000'

DATE:
 6/16/14

DRAWING NAME:
 USGSTOPO

DRAWN BY: KAM

CHECK BY: TDL

JOB NO.: 2014-093

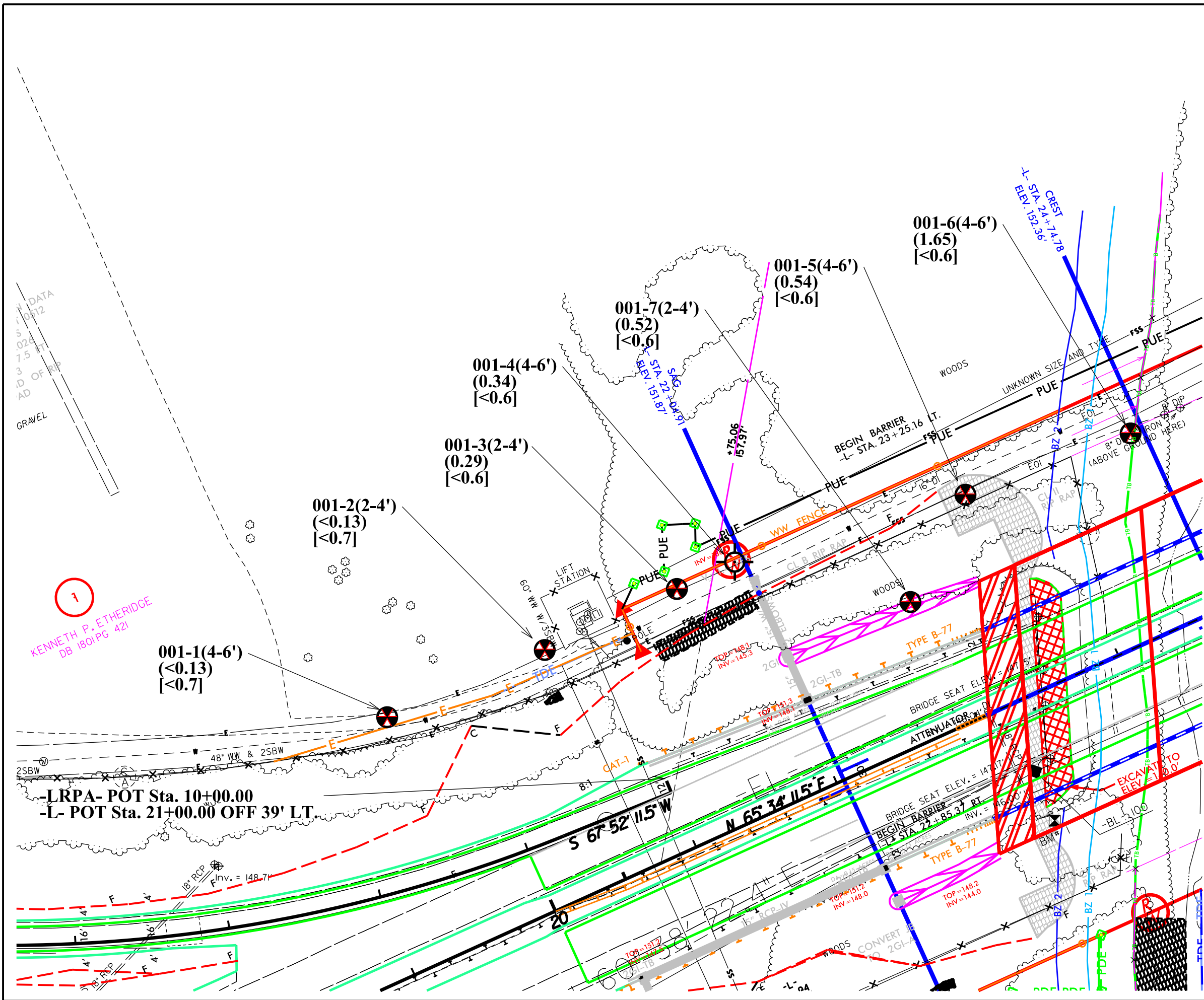
TYPE: PSA

FIGURE NUMBER:
 1

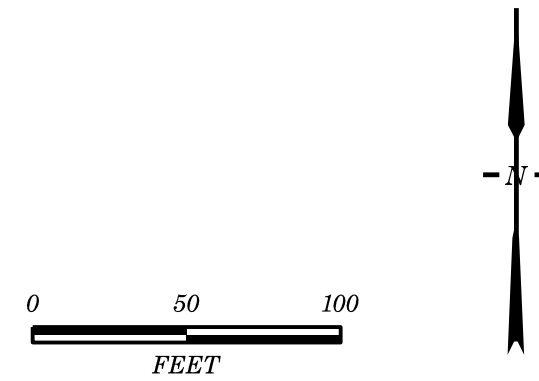
NOTES

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
- PUE 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
 - SOIL SAMPLE BORING LOCATION
 - BORING CONVERTED TO MONITORING WELL
 - AREA OF CONTAMINATION (>10 PPM)
- (<6.1] TPH-DRO concentration (mg/kg)
 [<6.1] TPH-GRO concentration (mg/kg)



TITLE	SOIL BORING LOCATIONS AND ESTIMATED AREA OF CONTAMINATION	
PROJECT	NCDOT ROW PROJECT I-33188B (34182.2.1) KENNETH ETHERIDGE - PARCEL 001 BAGLEY ROAD, JOHNSTON COUNTY, NC	
	503 INDUSTRIAL AVENUE GREENSBORO, NC 27406 336.335.3174 (p) 336.691.0648 (f) License # C1251 Eng. / #C257 Geology	
DATE: 6-11-14	REVISION NO. 0	
PYRAMID PROJECT NO. 2014-093	FIGURE NO. 2	

TABLES

TABLE 1
Summary of Soil Field Screening Results
NCDOT Project I-3318BB
375 Bagley Road - Parcel 001
Kenly, Johnston County, North Carolina

SOIL BORING	SAMPLE ID	DEPTH (feet bgs)	PID READINGS (PPM)
1-1	1-1(2-4)	2 to 4	10.0
	1-1(4-6)	4 to 6	16.0
	1-1(6-7)	6 to 7	12.0
1-2	1-2(0-2)	0 to 2	14.0
	1-2(2-4)	2 to 4	20.0
	1-2(4-6.5)	4 to 6.5	9.0
1-3	1-3(0-2)	0 to 2	15.0
	1-3(2-4)	2 to 4	20.0
	1-3(4-6)	4 to 6	18.0
	1-3(6-8)	6 to 8	13.0
	1-3(8-10)	8 to 10	7.0
1-4	1-4(2-4)	2 to 4	10.0
	1-4(4-6)	4 to 6	11.0
	1-4(6-8)	6 to 8	9.0
1-5	1-5(0-2)	0 to 2	10.0
	1-5(2-4)	2 to 4	9.0
	1-5(4-6)	4 to 6	15.0
	1-5(6-8)	6 to 8	10.0
	1-5(8-9.5)	8 to 9.5	9.0
1-6	1-6(0-2)	0 to 2	14.0
	1-6(2-4)	2 to 4	12.0
	1-6(4-6)	4 to 6	15.0
	1-6(6-8)	6 to 8	4.0
1-7	1-7(0-2)	0 to 2	7.7
	1-7(2-4)	2 to 4	10.0

bgs= below ground surface

PID= photo-ionization detector

PPM= parts-per-million

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

OVA= Organic Vapor Analyzer

TABLE 2
Summary of Soil Sample QED Analytical Results for GRO/DRO
 NCDOT State Project I-3318BB
 375 Bagley Road - Parcel 001
 Kenly, Johnston County, North Carolina

SAMPLE ID	DATE	DEPTH (feet)	PID (ppm)	QROS - QED Analysis		
				GRO (mg/kg) (C5-C10)	DRO (mg/kg) (C10-C35)	TPH (mg/kg) (C5-C35)
1-1(4-6)	6/3/2014	4 to 6	16.0	<0.7	<0.13	<0.7
1-2(2-4)	6/3/2014	2 to 4	20.0	<0.7	<0.13	<0.7
1-3(2-4)	6/3/2014	2 to 4	20.0	<0.6	0.29	0.29
1-4(4-6)	6/3/2014	4 to 6	11	<0.6	0.34	0.34
1-5(4-6)	6/3/2014	4 to 6	15	<0.6	0.54	0.54
1-6(4-6)	6/3/2014	4 to 6	15	<0.6	1.65	1.65
1-7(2-4)	6/4/2014	2 to 4	10	<0.6	0.52	0.52
NC Initial Action Level - UST Section for 5035/5030-GRO; 3550-DRO				10	10	NA

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

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

TPH= Total Petroleum
 Hydrocarbons (GRO + DRO)

NA= Not Applicable
 "-----" = No Laboratory Analysis

* **Bold values indicate concentrations above initial action levels**

TABLE 3
Summary of Groundwater Analytical Results
 NCDOT State Project I-3318BB
 375 Bagley Road - Parcel 001
 Kenly, Johnston County, North Carolina

PARAMETER	UNITS	SAMPLE ID	NCAC 2L GROUNDWATER STANDARD
		1-4(TW)	
EPA Method 6200B VOCs; Sample Collection Date: 6/3/14			
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
n-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 at or above adjusted reporting limit.

NA= Not Applicable

Bold values above 2L

APPENDIX A

1948 Aerial

P6

SC-A

Study Area

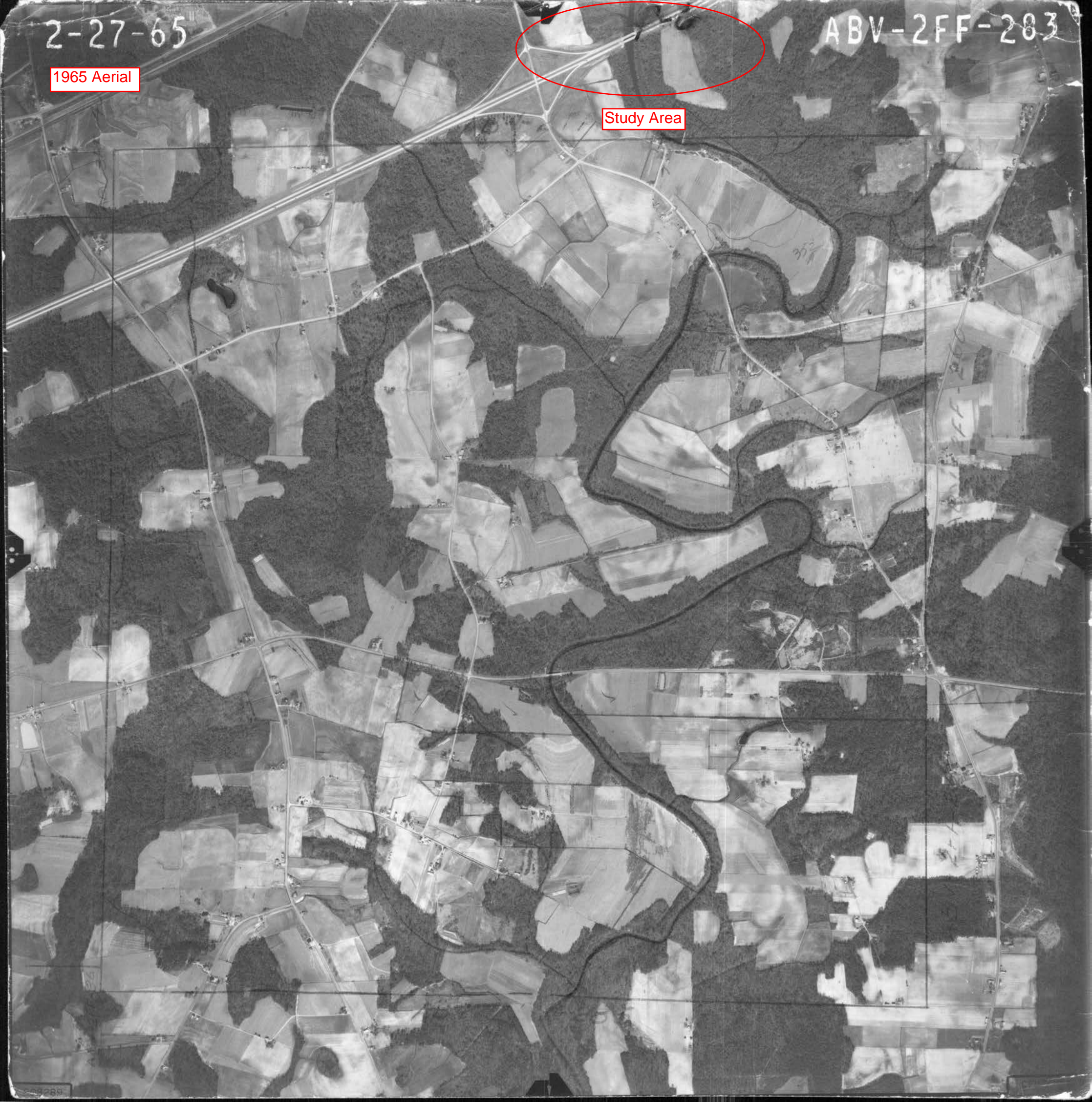


2-27-65

ABV-2FF-283

1965 Aerial

Study Area



2-24-71

1971 Aerial

P-6
ABV-4-MM-96

C-327
1600
C-243
R.V.
Weaver
120

C-329

C-215
C-212

MRI

Study Area



37101-2288

183L

1988 Aerial

Study Area





Parcel 001



1993 Aerial

Image U.S. Geological Survey

Google earth



Google earth

feet
meters





Parcel 001

95

1999 Aerial

Image U.S. Geological Survey

Google earth

Google earth



Parcel 001



2004 Aerial

Google earth

Image © 2014 DigitalGlobe



Google earth



Parcel 001



95

2006 Aerial

Google earth

Image U.S. Geological Survey

Google earth

feet
meters



Parcel 001



95

2008 Aerial

Google earth

Google earth



Parcel 001



95

2009 Aerial

Google earth

Image USDA Farm Service Agency



Google earth





Parcel 001

95

2012 Aerial

Google earth

© 2014 Google

Google earth

feet
meters



APPENDIX B

You are logged in to iBeam as Jeremy Poplawski.

2:04 PM EDT May 7, 2014

Waste Management UST Facilities



Facility Contact Financial Provider

Facility Identification UST Details UST 6A/6B Sump Details Contractor/Professional Engineer Documents

Facility Identification

Facility Name	Facility ID	Owner Name	Owner ID
WASTE MANAGEMENT	00-0-0000013316	ETHERIDGE OIL CO INC	19746

Facility Tank List [-]

ID#	Product	Size	Status	Install Date	Temporary Closed Date	Permanently Closed Date	Registration Received	Billable	Tank Upg	Comp Tank	Reg Tank	Root Tank
1	Diesel	20000	Current	04/23/1986			Yes	Yes	Yes	No	Yes	

Cancel

Find Facility

Select Id

Internet - Based Enterprise application management © 2000-2005 North Carolina Department of Environment and Natural Resources



APPENDIX C



PYRAMID ENVIRONMENTAL & ENGINEERING
(PROJECT 2014-093)

GEOPHYSICAL SURVEY

PARCEL 001 –
KENNETH ETHERIDGE
375 BAGLEY ROAD, KENLY, NC
NCDOT PROJECT I-3318BB (WBS 34182.2.1)

KENLY, JOHNSTON COUNTY, NC

JUNE 19, 2014

Report prepared for: Mr. Gordon Box
GeoEnvironmental Project Manager
Geotechnical Engineering Unit
1020 Birch Ridge Drive
Raleigh, NC 27610

Prepared by: _____

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

Reviewed by: _____

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

503 INDUSTRIAL AVENUE, GREENSBORO, NC 27406

P: 336.335.3174 F: 336.691.0648

C257: GEOLOGY C1251: ENGINEERING

GEOPHYSICAL INVESTIGATION REPORT
Parcel 001, 375 Bagley Road
Kenly, Johnston County, North Carolina

Table of Contents

Executive Summary	1
Introduction.....	2
Field Methodology.....	2
Discussion of Results.....	3
Summary and Conclusions	4
Limitations	4

Figures

- Figure 1 – Parcel 001 – Geophysical Survey Boundaries and Site Photographs
- Figure 2 – Parcel 001 – EM61 Differential Results Contour Map
- Figure 3 – Parcel 001 – Overlay of EM61 Contour Map On Engineering Plans

EXECUTIVE SUMMARY

Project Description: Pyramid Environmental conducted a geophysical investigation for the North Carolina Department of Transportation (NCDOT), at the Kenneth Etheridge property, Parcel 001, 375 Bagley Road, Kenly, Johnston County, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project I-3318BB). The geophysical survey boundaries at the project site were designed to include the portions of the property between the existing edge of pavement and the proposed ROW and easements, whichever distance was greater. The geophysical investigation consisted of an electromagnetic (EM) induction-metal detection survey.

Geophysical Results: The EM61 survey provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area. A large portion of the parcel was inaccessible due to dense/tall vegetation and forest. All of the EM61 anomalies detected could be attributed to visible objects at the ground surface such as fences, or marked underground utilities. The geophysical investigation did not record evidence of metallic USTs at the property.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for the North Carolina Department of Transportation (NCDOT), at the Kenneth Etheridge property, Parcel 001, 375 Bagley Road, Kenly, Johnston County, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project I-3318BB). The geophysical survey boundaries at the project site were designed to include the portions of the property between the existing edge of pavement and the proposed ROW and easements, whichever distance was greater. The survey grid spanned approximately 585 feet from west to east and a maximum of approximately 60 feet from north to south. Conducted on May 21 and 23, 2014, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The parcel operated as a Waste Management facility. The main structures associated with the facility were to the west of the geophysical survey area. The survey area itself contained a utility lift station and a dirt access road surrounded by grass and dense vegetation/forest. It should be noted that a large portion of the parcel that was within the proposed ROW and/or easements was not accessible by the geophysical equipment due to the vegetation. Surveys were performed in all accessible areas. Aerial photographs showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

The geophysical investigation consisted of an electromagnetic (EM) induction-metal detection survey. The EM survey was performed on May 21, 2014, using a Geonics EM61 metal detection instrument integrated with a Trimble AG-114 GPS antennae. The integrated GPS system allows the location of the instrument to be recorded in real-time during data collection, resulting in an EM data set that geo-referenced and can be overlain on aerial photographs and CADD drawings. A boundary grid was established around the perimeter of the site and at select interior locations with marks every 10 feet to maintain orientation of the instrument throughout the survey and assure complete coverage of the area.

According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. The EM61 data were digitally collected at approximately 0.8 foot intervals generally 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 NAV61 and Surfer for Windows Version 11.0 software programs.

All anomalies recorded by the EM61 survey were attributed to utilities and other cultural features (see discussion below), thus a ground penetrating radar (GPR) survey was not required.

DISCUSSION OF RESULTS

A contour plot of the EM61 differential results obtained across survey area at the property is presented in **Figure 2**. 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 surrounding the lift station area in the west-central portion of the survey area was the result of a chain link fence. EM features were also recorded at varying amplitudes throughout the majority of the survey area. These features are associated with large diameter (between 4-inch and 16-inch) utility lines running generally from east to west through the survey area. Visual observations combined with NCDOT engineering plans indicate that at least two sanitary sewer lines, one mater main, one power line and one communication line all pass through the survey area. Such extensive utilities resulted in the EM features observed. However, none of these features were at a high enough amplitude or orientation to be suggestive of a structure such as a UST. For this reason, a GPR survey was not required.

Figure 3 provides an overlay of the EM61 contour map on the NCDOT engineering plans for the site to provide a reference of proposed ROW and construction features with the geophysical data.

The geophysical investigation did not record any evidence of metallic USTs at the property within the survey area limits. It should be re-stated that a large portion of the parcel was inaccessible due to dense/tall vegetation.

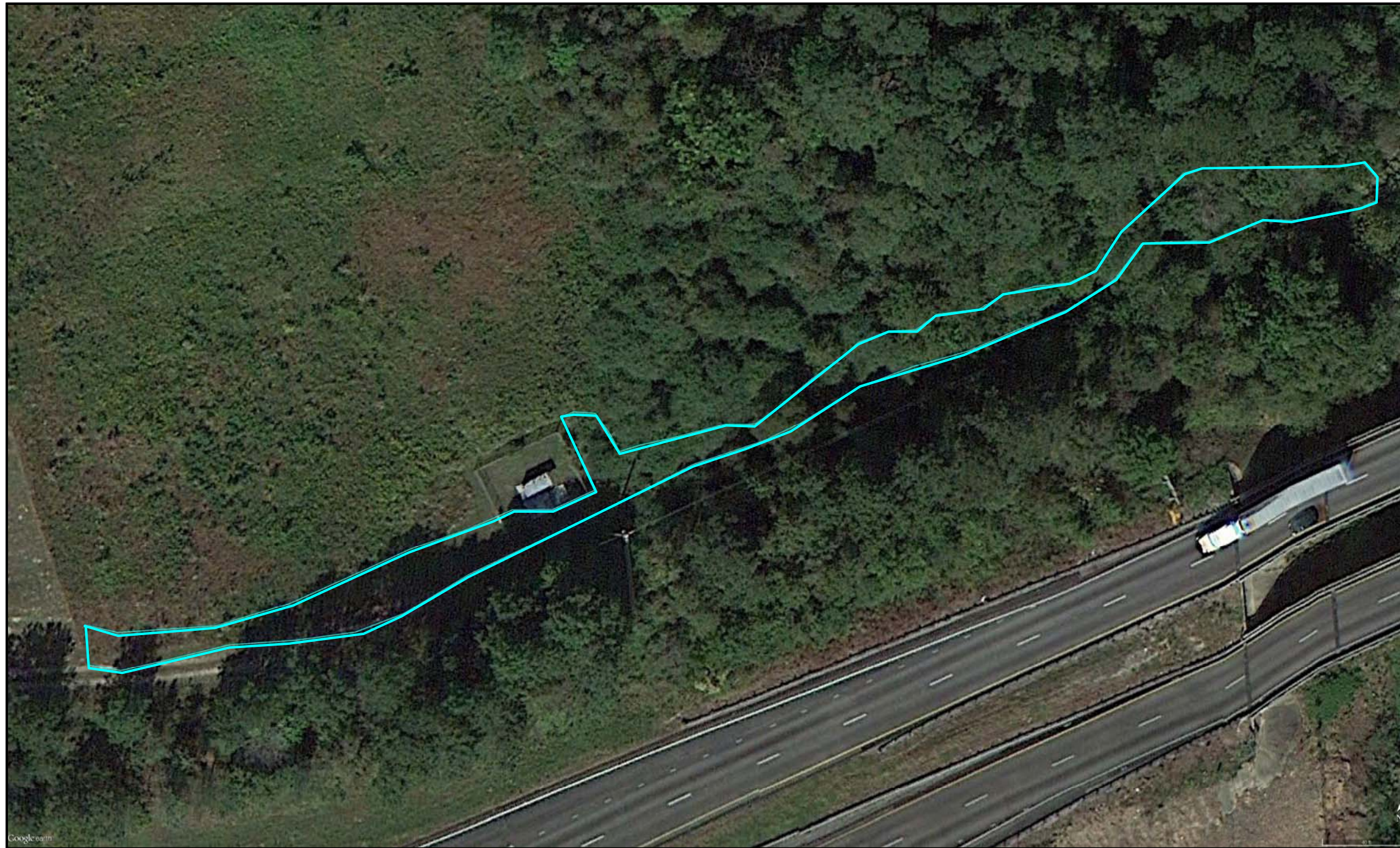
SUMMARY & CONCLUSIONS

Our evaluation of the EM61 data collected across Parcel 001 in Kenly, North Carolina, provides the following summary and conclusions:

- The EM61 survey provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- A large portion of the parcel was inaccessible due to dense/tall vegetation and forest.
- All of the EM61 anomalies detected could be attributed to visible objects at the ground surface such as fences, or marked underground utilities.
- The geophysical investigation did not record evidence of metallic USTs at the property.

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 the definitive presence or absence of metallic USTs, but that the evidence collected is sufficient to result in the conclusions made in this report. Additionally, it should be understood that areas containing extensive vegetation, reinforced concrete, or other restrictions to the accessibility of the geophysical instruments could not be fully investigated.




Approximate Boundaries of Geophysical Survey Area



View of West Portion of Survey Area
(Facing Approximately East)

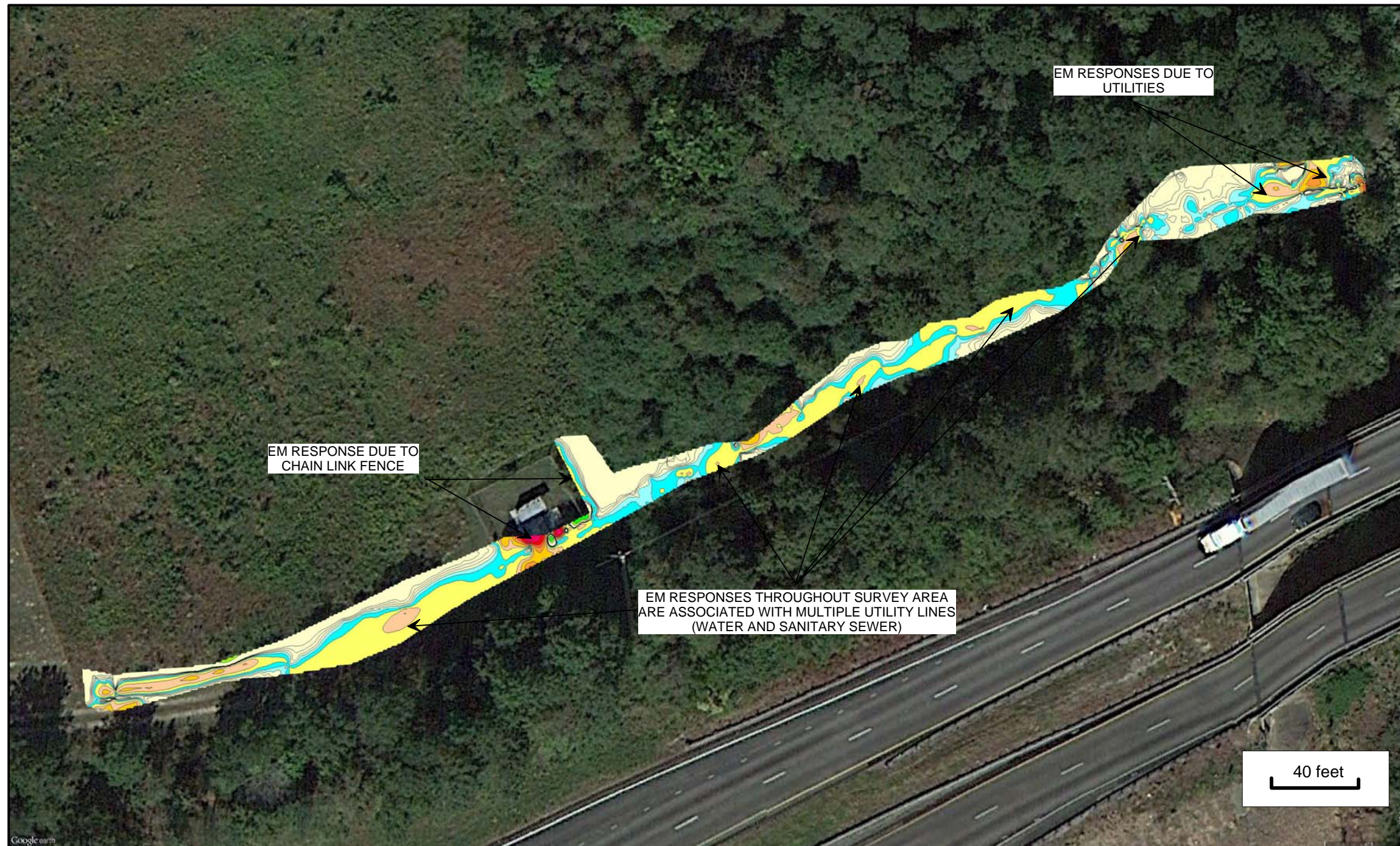


View of East Portion of Survey Area
(Facing Approximately East)

TITLE	PARCEL 001: EM61 GEOPHYSICAL SURVEY PATH AND SITE PHOTOGRAPHS	
PROJECT	NCDOT PROJECT I-3318BB (34182.2.1) KENLY, JOHNSTON COUNTY, NC	
	 503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	
DATE	6/17/2014	CLIENT NCDOT
PYRAMID PROJECT #:	2014-093	FIGURE 1



EM61 Differential Results




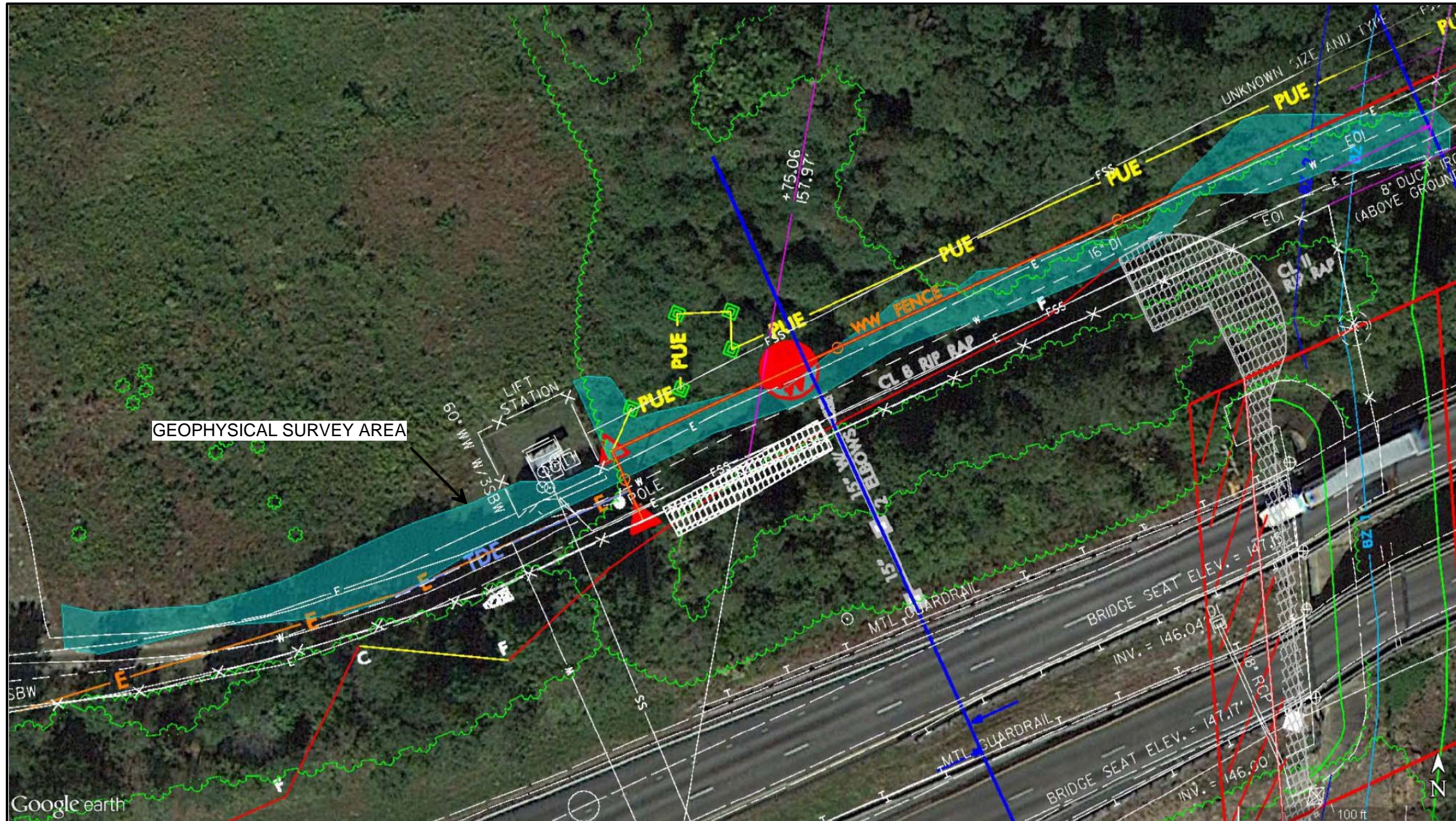
NO EVIDENCE OF METALLIC USTs OBSERVED

The contour plot shows the differential results of the EM61 instrument in millivolts (mV). 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 21, 2014, using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were not required due to all EM anomalies being directly attributed to cultural features.


EM61 Metal Detection Response (millivolts)



TITLE	PARCEL 001: EM61 DIFFERENTIAL RESULTS CONTOUR MAP	
PROJECT	NCDOT PROJECT I-3318BB (34182.2.1) KENLY, JOHNSTON COUNTY, NC	
		503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology
DATE	6/19/2014	CLIENT NCDOT
PYRAMID PROJECT #:	2014-093	FIGURE 2



Geophysical Survey Area Overlain on NCDOT Engineering Plans
 (areas not included in survey are the result of dense/tall vegetation)

TITLE		PARCEL 001: GEOPHYSICAL SURVEY AREA OVERLAIN ON NCDOT CADD	
PROJECT		NCDOT PROJECT I-3318BB (34182.2.1) KENLY, JOHNSTON COUNTY, NC	
		503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	
DATE	6/17/2014	CLIENT	NCDOT
PYRAMID PROJECT #:	2014-093	FIGURE 3	

APPENDIX D

APPENDIX E

June 11, 2014

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

RE: Project: JOHNSTON WBS#34182.1.2
Pace Project No.: 92204081

Dear Chemical Engineer:

Enclosed are the analytical results for sample(s) received by the laboratory on June 04, 2014. 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,



Jon D Bradley
jon.bradley@pacelabs.com
Project Manager

Enclosures

cc: Tim Leatherman, Pyramid



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: JOHNSTON WBS#34182.1.2

Pace Project No.: 92204081

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

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SAMPLE ANALYTE COUNT

Project: JOHNSTON WBS#34182.1.2

Pace Project No.: 92204081

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92204081001	1-4 (TW)	SM 6200B	CAH	63	PASI-C

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: JOHNSTON WBS#34182.1.2
Pace Project No.: 92204081

Method: SM 6200B
Description: 6200B MSV
Client: NCDOT East Central
Date: June 11, 2014

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, where applicable, 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/27102

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92204081001

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

- MSD (Lab ID: 1215547)
- Vinyl chloride

Additional Comments:

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

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: JOHNSTON WBS#34182.1.2

Pace Project No.: 92204081

Sample: 1-4 (TW)		Lab ID: 92204081001	Collected: 06/03/14 12:15	Received: 06/04/14 17:30	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		06/05/14 16:09	71-43-2	
Bromobenzene	ND ug/L		0.50	1		06/05/14 16:09	108-86-1	
Bromochloromethane	ND ug/L		0.50	1		06/05/14 16:09	74-97-5	
Bromodichloromethane	ND ug/L		0.50	1		06/05/14 16:09	75-27-4	
Bromoform	ND ug/L		0.50	1		06/05/14 16:09	75-25-2	
Bromomethane	ND ug/L		5.0	1		06/05/14 16:09	74-83-9	
n-Butylbenzene	ND ug/L		0.50	1		06/05/14 16:09	104-51-8	
sec-Butylbenzene	ND ug/L		0.50	1		06/05/14 16:09	135-98-8	
tert-Butylbenzene	ND ug/L		0.50	1		06/05/14 16:09	98-06-6	
Carbon tetrachloride	ND ug/L		0.50	1		06/05/14 16:09	56-23-5	
Chlorobenzene	ND ug/L		0.50	1		06/05/14 16:09	108-90-7	
Chloroethane	ND ug/L		1.0	1		06/05/14 16:09	75-00-3	
Chloroform	ND ug/L		0.50	1		06/05/14 16:09	67-66-3	
Chloromethane	ND ug/L		1.0	1		06/05/14 16:09	74-87-3	
2-Chlorotoluene	ND ug/L		0.50	1		06/05/14 16:09	95-49-8	
4-Chlorotoluene	ND ug/L		0.50	1		06/05/14 16:09	106-43-4	
1,2-Dibromo-3-chloropropane	ND ug/L		1.0	1		06/05/14 16:09	96-12-8	
Dibromochloromethane	ND ug/L		0.50	1		06/05/14 16:09	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		0.50	1		06/05/14 16:09	106-93-4	
Dibromomethane	ND ug/L		0.50	1		06/05/14 16:09	74-95-3	
1,2-Dichlorobenzene	ND ug/L		0.50	1		06/05/14 16:09	95-50-1	
1,3-Dichlorobenzene	ND ug/L		0.50	1		06/05/14 16:09	541-73-1	
1,4-Dichlorobenzene	ND ug/L		0.50	1		06/05/14 16:09	106-46-7	
Dichlorodifluoromethane	ND ug/L		0.50	1		06/05/14 16:09	75-71-8	
1,1-Dichloroethane	ND ug/L		0.50	1		06/05/14 16:09	75-34-3	
1,2-Dichloroethane	ND ug/L		0.50	1		06/05/14 16:09	107-06-2	
1,1-Dichloroethene	ND ug/L		0.50	1		06/05/14 16:09	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		0.50	1		06/05/14 16:09	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		0.50	1		06/05/14 16:09	156-60-5	
1,2-Dichloropropane	ND ug/L		0.50	1		06/05/14 16:09	78-87-5	
1,3-Dichloropropane	ND ug/L		0.50	1		06/05/14 16:09	142-28-9	
2,2-Dichloropropane	ND ug/L		0.50	1		06/05/14 16:09	594-20-7	
1,1-Dichloropropene	ND ug/L		0.50	1		06/05/14 16:09	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		0.50	1		06/05/14 16:09	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		0.50	1		06/05/14 16:09	10061-02-6	
Diisopropyl ether	ND ug/L		0.50	1		06/05/14 16:09	108-20-3	
Ethylbenzene	ND ug/L		0.50	1		06/05/14 16:09	100-41-4	
Hexachloro-1,3-butadiene	ND ug/L		2.0	1		06/05/14 16:09	87-68-3	
Isopropylbenzene (Cumene)	ND ug/L		0.50	1		06/05/14 16:09	98-82-8	
Methylene Chloride	ND ug/L		2.0	1		06/05/14 16:09	75-09-2	
Methyl-tert-butyl ether	ND ug/L		0.50	1		06/05/14 16:09	1634-04-4	
Naphthalene	ND ug/L		2.0	1		06/05/14 16:09	91-20-3	
n-Propylbenzene	ND ug/L		0.50	1		06/05/14 16:09	103-65-1	
Styrene	ND ug/L		0.50	1		06/05/14 16:09	100-42-5	
1,1,1,2-Tetrachloroethane	ND ug/L		0.50	1		06/05/14 16:09	630-20-6	
1,1,2,2-Tetrachloroethane	ND ug/L		0.50	1		06/05/14 16:09	79-34-5	
Tetrachloroethene	ND ug/L		0.50	1		06/05/14 16:09	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: JOHNSTON WBS#34182.1.2

Pace Project No.: 92204081

Sample: 1-4 (TW)		Lab ID: 92204081001	Collected: 06/03/14 12:15	Received: 06/04/14 17:30	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		06/05/14 16:09	108-88-3	
1,2,3-Trichlorobenzene	ND ug/L		2.0	1		06/05/14 16:09	87-61-6	
1,2,4-Trichlorobenzene	ND ug/L		2.0	1		06/05/14 16:09	120-82-1	
1,1,1-Trichloroethane	ND ug/L		0.50	1		06/05/14 16:09	71-55-6	
1,1,2-Trichloroethane	ND ug/L		0.50	1		06/05/14 16:09	79-00-5	
Trichloroethene	ND ug/L		0.50	1		06/05/14 16:09	79-01-6	
Trichlorofluoromethane	ND ug/L		1.0	1		06/05/14 16:09	75-69-4	
1,2,3-Trichloropropane	ND ug/L		0.50	1		06/05/14 16:09	96-18-4	
1,2,4-Trimethylbenzene	ND ug/L		0.50	1		06/05/14 16:09	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		0.50	1		06/05/14 16:09	108-67-8	
Vinyl chloride	ND ug/L		1.0	1		06/05/14 16:09	75-01-4	
m&p-Xylene	ND ug/L		1.0	1		06/05/14 16:09	179601-23-1	
o-Xylene	ND ug/L		0.50	1		06/05/14 16:09	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	96 %		70-130	1		06/05/14 16:09	17060-07-0	
4-Bromofluorobenzene (S)	96 %		70-130	1		06/05/14 16:09	460-00-4	
Toluene-d8 (S)	102 %		70-130	1		06/05/14 16:09	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JOHNSTON WBS#34182.1.2

Pace Project No.: 92204081

QC Batch:	MSV/27102	Analysis Method:	SM 6200B
QC Batch Method:	SM 6200B	Analysis Description:	6200B MSV
Associated Lab Samples:	92204081001		

METHOD BLANK: 1214892 Matrix: Water

Associated Lab Samples: 92204081001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	0.50	06/05/14 14:46	
1,1,1-Trichloroethane	ug/L	ND	0.50	06/05/14 14:46	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	06/05/14 14:46	
1,1,2-Trichloroethane	ug/L	ND	0.50	06/05/14 14:46	
1,1-Dichloroethane	ug/L	ND	0.50	06/05/14 14:46	
1,1-Dichloroethene	ug/L	ND	0.50	06/05/14 14:46	
1,1-Dichloropropene	ug/L	ND	0.50	06/05/14 14:46	
1,2,3-Trichlorobenzene	ug/L	ND	2.0	06/05/14 14:46	
1,2,3-Trichloropropane	ug/L	ND	0.50	06/05/14 14:46	
1,2,4-Trichlorobenzene	ug/L	ND	2.0	06/05/14 14:46	
1,2,4-Trimethylbenzene	ug/L	ND	0.50	06/05/14 14:46	
1,2-Dibromo-3-chloropropane	ug/L	ND	1.0	06/05/14 14:46	
1,2-Dibromoethane (EDB)	ug/L	ND	0.50	06/05/14 14:46	
1,2-Dichlorobenzene	ug/L	ND	0.50	06/05/14 14:46	
1,2-Dichloroethane	ug/L	ND	0.50	06/05/14 14:46	
1,2-Dichloropropane	ug/L	ND	0.50	06/05/14 14:46	
1,3,5-Trimethylbenzene	ug/L	ND	0.50	06/05/14 14:46	
1,3-Dichlorobenzene	ug/L	ND	0.50	06/05/14 14:46	
1,3-Dichloropropane	ug/L	ND	0.50	06/05/14 14:46	
1,4-Dichlorobenzene	ug/L	ND	0.50	06/05/14 14:46	
2,2-Dichloropropane	ug/L	ND	0.50	06/05/14 14:46	
2-Chlorotoluene	ug/L	ND	0.50	06/05/14 14:46	
4-Chlorotoluene	ug/L	ND	0.50	06/05/14 14:46	
Benzene	ug/L	ND	0.50	06/05/14 14:46	
Bromobenzene	ug/L	ND	0.50	06/05/14 14:46	
Bromochloromethane	ug/L	ND	0.50	06/05/14 14:46	
Bromodichloromethane	ug/L	ND	0.50	06/05/14 14:46	
Bromoform	ug/L	ND	0.50	06/05/14 14:46	
Bromomethane	ug/L	ND	5.0	06/05/14 14:46	
Carbon tetrachloride	ug/L	ND	0.50	06/05/14 14:46	
Chlorobenzene	ug/L	ND	0.50	06/05/14 14:46	
Chloroethane	ug/L	ND	1.0	06/05/14 14:46	
Chloroform	ug/L	ND	0.50	06/05/14 14:46	
Chloromethane	ug/L	ND	1.0	06/05/14 14:46	
cis-1,2-Dichloroethene	ug/L	ND	0.50	06/05/14 14:46	
cis-1,3-Dichloropropene	ug/L	ND	0.50	06/05/14 14:46	
Dibromochloromethane	ug/L	ND	0.50	06/05/14 14:46	
Dibromomethane	ug/L	ND	0.50	06/05/14 14:46	
Dichlorodifluoromethane	ug/L	ND	0.50	06/05/14 14:46	
Diisopropyl ether	ug/L	ND	0.50	06/05/14 14:46	
Ethylbenzene	ug/L	ND	0.50	06/05/14 14:46	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JOHNSTON WBS#34182.1.2

Pace Project No.: 92204081

METHOD BLANK: 1214892

Matrix: Water

Associated Lab Samples: 92204081001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Hexachloro-1,3-butadiene	ug/L	ND	2.0	06/05/14 14:46	
Isopropylbenzene (Cumene)	ug/L	ND	0.50	06/05/14 14:46	
m&p-Xylene	ug/L	ND	1.0	06/05/14 14:46	
Methyl-tert-butyl ether	ug/L	ND	0.50	06/05/14 14:46	
Methylene Chloride	ug/L	ND	2.0	06/05/14 14:46	
n-Butylbenzene	ug/L	ND	0.50	06/05/14 14:46	
n-Propylbenzene	ug/L	ND	0.50	06/05/14 14:46	
Naphthalene	ug/L	ND	2.0	06/05/14 14:46	
o-Xylene	ug/L	ND	0.50	06/05/14 14:46	
sec-Butylbenzene	ug/L	ND	0.50	06/05/14 14:46	
Styrene	ug/L	ND	0.50	06/05/14 14:46	
tert-Butylbenzene	ug/L	ND	0.50	06/05/14 14:46	
Tetrachloroethene	ug/L	ND	0.50	06/05/14 14:46	
Toluene	ug/L	ND	0.50	06/05/14 14:46	
trans-1,2-Dichloroethene	ug/L	ND	0.50	06/05/14 14:46	
trans-1,3-Dichloropropene	ug/L	ND	0.50	06/05/14 14:46	
Trichloroethene	ug/L	ND	0.50	06/05/14 14:46	
Trichlorofluoromethane	ug/L	ND	1.0	06/05/14 14:46	
Vinyl chloride	ug/L	ND	1.0	06/05/14 14:46	
1,2-Dichloroethane-d4 (S)	%	94	70-130	06/05/14 14:46	
4-Bromofluorobenzene (S)	%	97	70-130	06/05/14 14:46	
Toluene-d8 (S)	%	100	70-130	06/05/14 14:46	

LABORATORY CONTROL SAMPLE: 1214893

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	51.8	104	60-140	
1,1,1-Trichloroethane	ug/L	50	48.8	98	60-140	
1,1,2,2-Tetrachloroethane	ug/L	50	51.5	103	60-140	
1,1,2-Trichloroethane	ug/L	50	53.9	108	60-140	
1,1-Dichloroethane	ug/L	50	49.1	98	60-140	
1,1-Dichloroethene	ug/L	50	51.5	103	60-140	
1,1-Dichloropropene	ug/L	50	53.4	107	60-140	
1,2,3-Trichlorobenzene	ug/L	50	53.3	107	60-140	
1,2,3-Trichloropropane	ug/L	50	49.1	98	60-140	
1,2,4-Trichlorobenzene	ug/L	50	52.7	105	60-140	
1,2,4-Trimethylbenzene	ug/L	50	54.8	110	60-140	
1,2-Dibromo-3-chloropropane	ug/L	50	47.0	94	60-140	
1,2-Dibromoethane (EDB)	ug/L	50	53.0	106	60-140	
1,2-Dichlorobenzene	ug/L	50	52.1	104	60-140	
1,2-Dichloroethane	ug/L	50	46.0	92	60-140	
1,2-Dichloropropane	ug/L	50	51.0	102	60-140	
1,3,5-Trimethylbenzene	ug/L	50	53.9	108	60-140	
1,3-Dichlorobenzene	ug/L	50	52.4	105	60-140	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JOHNSTON WBS#34182.1.2

Pace Project No.: 92204081

LABORATORY CONTROL SAMPLE: 1214893

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,3-Dichloropropane	ug/L	50	52.7	105	60-140	
1,4-Dichlorobenzene	ug/L	50	51.2	102	60-140	
2,2-Dichloropropane	ug/L	50	51.4	103	60-140	
2-Chlorotoluene	ug/L	50	51.9	104	60-140	
4-Chlorotoluene	ug/L	50	50.0	100	60-140	
Benzene	ug/L	50	56.4	113	60-140	
Bromobenzene	ug/L	50	53.2	106	60-140	
Bromochloromethane	ug/L	50	53.0	106	60-140	
Bromodichloromethane	ug/L	50	51.0	102	60-140	
Bromoform	ug/L	50	45.5	91	60-140	
Bromomethane	ug/L	50	63.7	127	60-140	
Carbon tetrachloride	ug/L	50	52.8	106	60-140	
Chlorobenzene	ug/L	50	52.1	104	60-140	
Chloroethane	ug/L	50	54.8	110	60-140	
Chloroform	ug/L	50	51.8	104	60-140	
Chloromethane	ug/L	50	56.9	114	60-140	
cis-1,2-Dichloroethene	ug/L	50	51.2	102	60-140	
cis-1,3-Dichloropropene	ug/L	50	55.0	110	60-140	
Dibromochloromethane	ug/L	50	52.4	105	60-140	
Dibromomethane	ug/L	50	52.1	104	60-140	
Dichlorodifluoromethane	ug/L	50	52.9	106	60-140	
Diisopropyl ether	ug/L	50	52.7	105	60-140	
Ethylbenzene	ug/L	50	52.2	104	60-140	
Hexachloro-1,3-butadiene	ug/L	50	50.3	101	60-140	
Isopropylbenzene (Cumene)	ug/L	50	54.4	109	60-140	
m&p-Xylene	ug/L	100	108	108	60-140	
Methyl-tert-butyl ether	ug/L	50	51.6	103	60-140	
Methylene Chloride	ug/L	50	51.3	103	60-140	
n-Butylbenzene	ug/L	50	56.1	112	60-140	
n-Propylbenzene	ug/L	50	53.7	107	60-140	
Naphthalene	ug/L	50	53.6	107	60-140	
o-Xylene	ug/L	50	52.5	105	60-140	
sec-Butylbenzene	ug/L	50	53.6	107	60-140	
Styrene	ug/L	50	57.4	115	60-140	
tert-Butylbenzene	ug/L	50	52.7	105	60-140	
Tetrachloroethene	ug/L	50	52.6	105	60-140	
Toluene	ug/L	50	52.2	104	60-140	
trans-1,2-Dichloroethene	ug/L	50	51.7	103	60-140	
trans-1,3-Dichloropropene	ug/L	50	54.3	109	60-140	
Trichloroethene	ug/L	50	52.5	105	60-140	
Trichlorofluoromethane	ug/L	50	50.2	100	60-140	
Vinyl chloride	ug/L	50	64.0	128	60-140	
1,2-Dichloroethane-d4 (S)	%			91	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Toluene-d8 (S)	%			102	70-130	

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QUALITY CONTROL DATA

Project: JOHNSTON WBS#34182.1.2

Pace Project No.: 92204081

Parameter	92204081001		MS	MSD	1215546		1215547		% Rec	Limits	RPD	Qual
	Units	Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	21.0	21.4	105	107	60-140	2		
1,1,1-Trichloroethane	ug/L	ND	20	20	21.3	21.3	107	106	60-140	0		
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	20.6	20.8	103	104	60-140	1		
1,1,2-Trichloroethane	ug/L	ND	20	20	21.5	21.6	107	108	60-140	1		
1,1-Dichloroethane	ug/L	ND	20	20	20.4	20.9	102	104	60-140	2		
1,1-Dichloroethene	ug/L	ND	20	20	22.4	23.3	112	116	60-140	4		
1,1-Dichloropropene	ug/L	ND	20	20	23.2	23.6	116	118	60-140	1		
1,2,3-Trichlorobenzene	ug/L	ND	20	20	19.4	20.4	97	102	60-140	5		
1,2,3-Trichloropropane	ug/L	ND	20	20	20.2	20.2	101	101	60-140	0		
1,2,4-Trichlorobenzene	ug/L	ND	20	20	20.1	20.5	101	103	60-140	2		
1,2,4-Trimethylbenzene	ug/L	ND	20	20	22.5	22.8	113	114	60-140	1		
1,2-Dibromo-3-chloropropane	ug/L	ND	20	20	17.7	18.5	89	92	60-140	4		
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	20.9	21.7	104	108	60-140	4		
1,2-Dichlorobenzene	ug/L	ND	20	20	21.0	21.5	105	107	60-140	2		
1,2-Dichloroethane	ug/L	ND	20	20	19.0	19.5	95	98	60-140	3		
1,2-Dichloropropane	ug/L	ND	20	20	20.8	21.1	104	105	60-140	1		
1,3,5-Trimethylbenzene	ug/L	ND	20	20	22.2	22.8	111	114	60-140	3		
1,3-Dichlorobenzene	ug/L	ND	20	20	21.4	21.3	107	107	60-140	0		
1,3-Dichloropropane	ug/L	ND	20	20	21.1	21.3	105	106	60-140	1		
1,4-Dichlorobenzene	ug/L	ND	20	20	20.6	21.3	103	106	60-140	3		
2,2-Dichloropropane	ug/L	ND	20	20	21.9	22.3	109	111	60-140	2		
2-Chlorotoluene	ug/L	ND	20	20	21.2	21.9	106	109	60-140	3		
4-Chlorotoluene	ug/L	ND	20	20	20.4	21.1	102	106	60-140	3		
Benzene	ug/L	ND	20	20	23.1	23.3	115	117	60-140	1		
Bromobenzene	ug/L	ND	20	20	21.3	21.5	107	107	60-140	1		
Bromochloromethane	ug/L	ND	20	20	21.9	22.5	110	112	60-140	3		
Bromodichloromethane	ug/L	ND	20	20	20.4	20.1	102	101	60-140	1		
Bromoform	ug/L	ND	20	20	17.6	17.8	88	89	60-140	1		
Bromomethane	ug/L	ND	20	20	23.0	24.1	115	121	60-140	5		
Carbon tetrachloride	ug/L	ND	20	20	22.1	22.4	110	112	60-140	2		
Chlorobenzene	ug/L	ND	20	20	21.1	21.7	105	108	60-140	3		
Chloroethane	ug/L	ND	20	20	25.1	24.5	125	122	60-140	2		
Chloroform	ug/L	ND	20	20	21.4	22.1	107	110	60-140	3		
Chloromethane	ug/L	ND	20	20	21.6	25.9	108	130	60-140	18		
cis-1,2-Dichloroethene	ug/L	ND	20	20	21.9	21.7	109	108	60-140	1		
cis-1,3-Dichloropropene	ug/L	ND	20	20	20.8	21.4	104	107	60-140	3		
Dibromochloromethane	ug/L	ND	20	20	19.1	20.2	96	101	60-140	6		
Dibromomethane	ug/L	ND	20	20	20.3	20.9	101	105	60-140	3		
Dichlorodifluoromethane	ug/L	ND	20	20	24.0	24.5	120	122	60-140	2		
Diisopropyl ether	ug/L	ND	20	20	21.4	22.0	107	110	60-140	3		
Ethylbenzene	ug/L	ND	20	20	21.9	22.2	110	111	60-140	1		
Hexachloro-1,3-butadiene	ug/L	ND	20	20	20.2	21.0	101	105	60-140	4		
Isopropylbenzene (Cumene)	ug/L	ND	20	20	22.6	23.3	113	116	60-140	3		
m&p-Xylene	ug/L	ND	40	40	45.0	45.4	112	114	60-140	1		
Methyl-tert-butyl ether	ug/L	ND	20	20	20.5	21.7	102	108	60-140	6		
Methylene Chloride	ug/L	ND	20	20	18.9	19.4	94	97	60-140	3		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: JOHNSTON WBS#34182.1.2

Pace Project No.: 92204081

Parameter	92204081001		MS		MSD		MS		MSD		% Rec	Limits	RPD	Qual
	Units	Result	Spike Conc.	MSD Spike Conc.	Result	MSD Result	% Rec	MSD % Rec						
n-Butylbenzene	ug/L	ND	20	20	22.9	23.3	114	117	60-140	2				
n-Propylbenzene	ug/L	ND	20	20	22.4	22.9	112	114	60-140	2				
Naphthalene	ug/L	ND	20	20	20.0	20.7	100	103	60-140	3				
o-Xylene	ug/L	ND	20	20	21.5	21.9	108	109	60-140	2				
sec-Butylbenzene	ug/L	ND	20	20	22.5	22.8	113	114	60-140	1				
Styrene	ug/L	ND	20	20	22.9	23.7	115	118	60-140	3				
tert-Butylbenzene	ug/L	ND	20	20	22.5	22.8	112	114	60-140	1				
Tetrachloroethene	ug/L	ND	20	20	22.4	22.4	112	112	60-140	0				
Toluene	ug/L	ND	20	20	21.7	22.3	109	111	60-140	3				
trans-1,2-Dichloroethene	ug/L	ND	20	20	22.0	23.0	110	115	60-140	5				
trans-1,3-Dichloropropene	ug/L	ND	20	20	20.9	21.0	105	105	60-140	1				
Trichloroethene	ug/L	ND	20	20	22.4	22.3	112	111	60-140	1				
Trichlorofluoromethane	ug/L	ND	20	20	23.4	23.7	117	119	60-140	1				
Vinyl chloride	ug/L	ND	20	20	27.8	29.5	139	147	60-140	6 M0				
1,2-Dichloroethane-d4 (S)	%						91	92	70-130					
4-Bromofluorobenzene (S)	%						100	99	70-130					
Toluene-d8 (S)	%						100	100	70-130					

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QUALIFIERS

Project: JOHNSTON WBS#34182.1.2
Pace Project No.: 92204081

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

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: JOHNSTON WBS#34182.1.2

Pace Project No.: 92204081

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92204081001	1-4 (TW)	SM 6200B	MSV/27102		

REPORT OF LABORATORY ANALYSIS

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Document Name:
Sample Condition Upon Receipt (SCUR)
 Document Number:
F-CHR-CS-003-rev.14

Document Revised: April 07, 2014
 Page 1 of 2
 Issuing Authority:
 Pace Huntersville Quality Office

Client Name: Plyomid Environmental

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 T1401 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.: 1.7 °C Biological Tissue is Frozen: Yes No N/A

Date and Initials of person examining contents: 6/4/14

Temp should be above freezing to 6°C

Comments:

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

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

SCURF Review:	<u>JDB</u>	Date:	<u>6/4/14</u>
SRF Review:	<u>MNO</u>	Date:	<u>6/5/14</u>

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#: 92204081

92204081

CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information: Company: Pyramid Environmental Report To: Tim - Pyramid Invoice Information: Attention: NCDOT Company Name: NCDOT Address: NCDOT

Section B Required Project Information: Project Name: Greenshore, NC 27416 Copy To: NCDOT Purchase Order No.: WBS#34182.12 #4300233486 Project Name: NCDOT Johnston I-3318BB Project Number: 2014-093 Pace Quote Reference: PO#4300233486 Pace Project Manager: Jon Bradley Pace Profile #:

Section C Regulatory Agency: NC NPDES GROUND WATER DRINKING WATER UST RCRA OTHER Site Location STATE: NC

Page: 1 of 1
1667322

ITEM #	Section D Required Client Information Matrix Codes MATRIX / CODE D/W WT WW P SL OL WP AR TS OT	SAMPLE ID (A-Z, 0-9 / . -) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Analysis Test	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
					DATE	TIME			DATE	TIME	Unpreserved	H ₂ SO ₄	HNO ₃	HCl				
1		1-4 (TW)	WT	G	6/3/14	12:15		4							X	6200B		92204081
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

REINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
<u>Timothy D. Lee</u>	<u>6/4/14</u>	<u>8:30</u>	<u>Ryan Kanner/Pyramid</u>	<u>6/26/13</u>	<u>9:00</u>	
<u>Ryan Kanner/Pyramid</u>	<u>6/9/14</u>	<u>9:35</u>	<u>Chris Jones</u>	<u>6/9/14</u>	<u>09:35</u>	
<u>Chris Jones</u>	<u>6/9/14</u>	<u>9:35</u>	<u>Chris Jones</u>	<u>6/11/14</u>	<u>17:30</u>	

ADDITIONAL COMMENTS

REINQUISHED BY / AFFILIATION

DATE

TIME

ACCEPTED BY / AFFILIATION

DATE

TIME

SAMPLE CONDITIONS

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.

F-ALL-Q-020/rev.07, 15-May-2007

APPENDIX F



Hydrocarbon Analysis Results

Client: NCDOT - Johnston County I-3318BB
Address: 401 Bagley Road Kenly, NC, Parcel 1

Samples taken 1-1 thru 1-6
Samples extracted 1-1 thru 1-6
Samples analysed 1-1 thru 1-6

Contact: _____ **Operator** Ryan Kramer

Project: NCDOT - Johnston County I-3318BB, Parcel 1

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	1-1 (4-6)	13.0	<0.7	<0.7	<0.13	<0.7	<0.13	<0.01	<0.013	0	0	100	TPH not detected (P)	
s	1-2 (2-4)	13.0	<0.7	<0.7	<0.13	<0.13	<0.13	<0.01	<0.013	0	0	100	Background Organics	
s	1-3 (2-4)	13.0	<0.6	<0.6	0.29	0.29	<0.13	<0.01	<0.013	0	0	100	Deg.Fuel Residue (FCM) 23.5%	
s	1-4 (4-6)	12.0	<0.6	<0.6	0.34	0.34	<0.12	<0.01	<0.012	0	11.3	88.7	motor oil (FCM) 8.5%	
s	1-5 (4-6)	12.0	<0.6	<0.6	0.54	0.54	0.52	0.18	<0.012	58.6	26.4	15	PAH (PFM) (P)	
s	1-6 (4-6)	12.0	<0.6	<0.6	1.65	1.65	1.52	0.35	<0.012	32.5	50.7	16.8	V.Deg.PHC 82.1%	
Initial Calibrator QC check				OK		Final FCM QC Check				OK		96.2%		

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



Hydrocarbon Analysis Results

Client: NCDOT - Johnston County I-3318BB
Address: 401 Bagley Road Kenly, NC, Parcel 1

Samples taken
Samples extracted
Samples analysed

Boring 1-7

Contact:

Operator

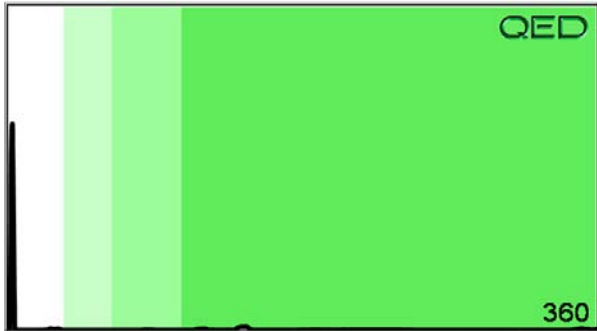
Ryan Kramer

Project: NCDOT - Johnston County I-3318BB, Parcel 1

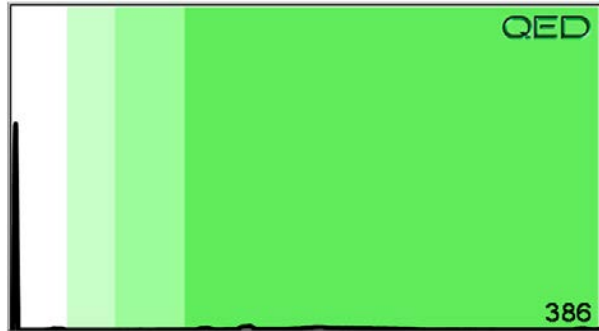
Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	1-7 (2-4)	12.0	<0.6	<0.6	0.52	0.52	<0.12	<0.01	<0.012	0	0	0	Deg.Fuel Residue (FCM) 48.5%
Initial Calibrator QC check			OK			Final FCM QC Check			OK			104.4%	

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

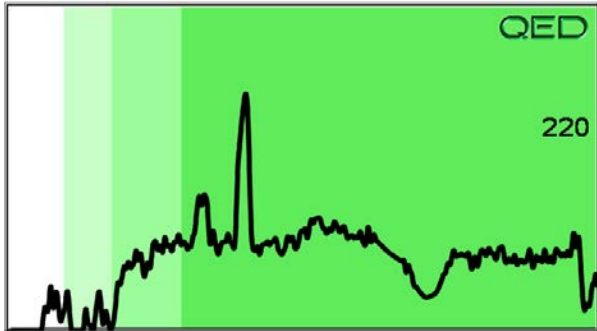
TPH not detected (P) 1-1 (4-6)



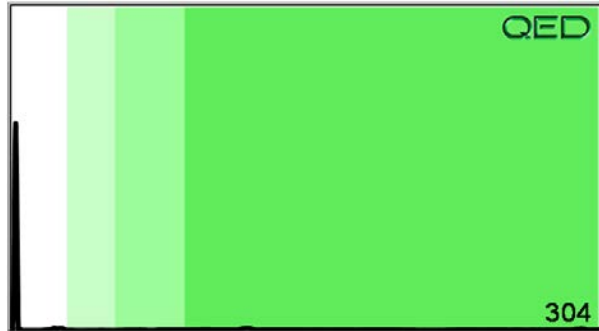
Background Organics 1-2 (2-4)



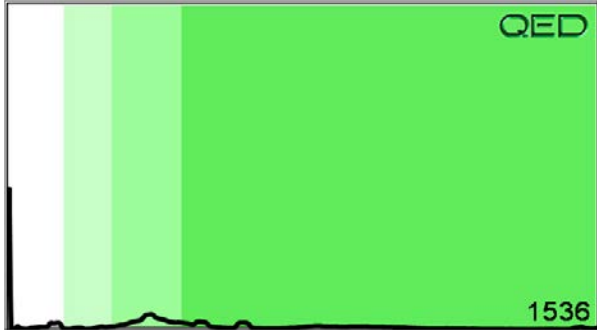
Deg.Fuel Residue (FCM) 23.5% 1-3 (2-4)



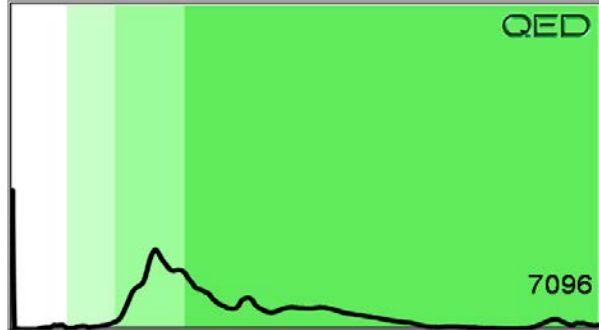
motor oil (FCM) 8.5% 1-4 (4-6)



PAH (PFM) (P) 1-5 (4-6)

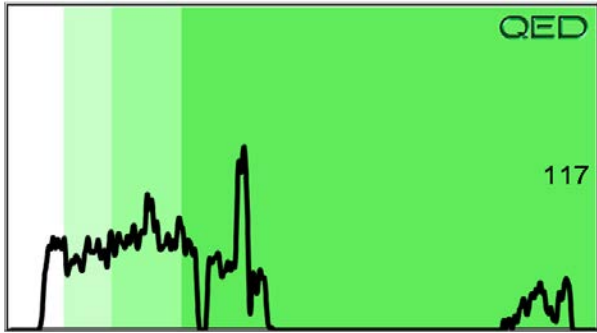


V.Deg.PHC 82.1% 1-6 (4-6)



Deg.Fuel Residue (FCM) 48.5%

1-7 (2-4)



APPENDIX G
