

Pyramid Environmental & Engineering, P.C. Project # 2014-008
Preliminary Site Assessment (PSA) – Parcel 038, Council & Williford Properties

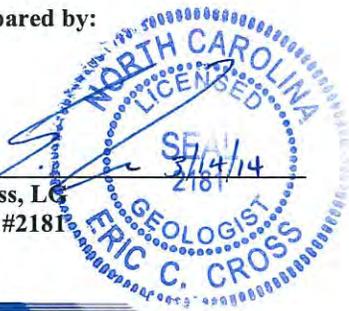
PRELIMINARY SITE ASSESSMENT
PARCEL 038, COUNCIL & WILLIFORD PROPERTIES
501 MURCHISON RD.
FAYETTEVILLE, CUMBERLAND COUNTY, NORTH CAROLINA
STATE PROJECT: B-4490
WBS ELEMENT: 33727.1.1
MARCH 14, 2014

Report prepared for:

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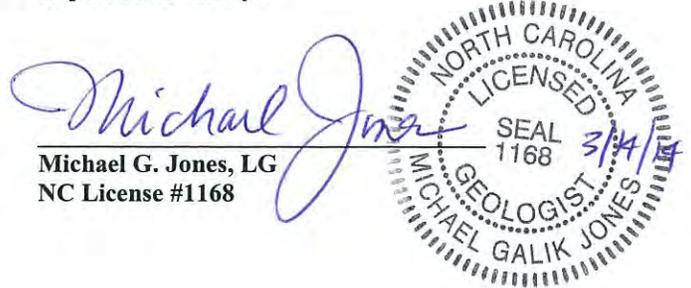
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C-257 –Geology
C-1251 - Engineering

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**PRELIMINARY SITE ASSESSMENT
PARCEL 038, COUNCIL & WILLIFORD PROPERTIES
501 MURCHISON RD.
FAYETTEVILLE, CUMBERLAND 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 038, Council & Williford Properties. 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 right-of-way (ROW) and/or easement and edge of pavement (State Project B-4490). 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 December 20, 2013, technical proposal.

The following statements summarize the results of the PSA:

- **Site History:** A review of the North Carolina Department of Environment and Natural Resources (DENR) registered UST database and incident database indicated no environmental incidents were on file for the Council & Williford Properties property (Parcel 038). On January 23, 2014, Pyramid emailed the Cumberland County B-4490 parcel addresses to Mr. James Brown, the Fayetteville Region Incident Manager for the DENR UST Section, with a request to investigate any environmental incidents associated with the parcels. On January 24, 2014, Mr. Brown responded to the email and stated that site address 501 Murchison Rd. (Parcel 038) does not have any environmental incidents in the DENR database.

On January 20, 2014, Pyramid Project Manager Eric Cross performed a site visit at the property. The property contained a vacant grocery store building that was undergoing interior remodeling. A creek was observed on the west side of the property. Mr. Cross interviewed the owner of the property during a subsequent site visit. The owner indicated that the building had always operated as a grocery store since its construction, and he was not aware of any USTs at the site. No evidence of USTs was observed during the site visit.

- **Geophysical Survey:** The geophysical investigation provided no evidence of metallic USTs within the existing and proposed ROW and/or easement.
- **Limited Soil Assessment:** A total of four borings were performed across the property. The DENR action levels for both TPH-GRO and TPH-DRO are 10 milligrams per kilogram (mg/kg). The QED results for the soil samples at the location of boring 38-1 did not detect TPH-GRO or TPH-DRO concentrations above 10 mg/kg. However, the QED results for the soil samples at the remaining three boring locations (38-2, 38-3, and 38-4) all recorded DRO concentrations above 10 mg/kg. DRO concentrations ranging from 12.1 mg/kg to 64.9 mg/kg were recorded at these locations. No obvious source of contamination was observed at the site in connection with these borings.
- **Limited Groundwater Assessment:** Soil boring 38-3 was converted into a 1-inch diameter temporary monitoring well to a total depth of 14 feet below land surface (BLS). The depth-to-groundwater was measured at 5.1 feet BLS. The laboratory analysis did not detect concentrations of any compounds above detection limits.

Review of the NCDOT engineering plans indicates that the NCDOT may encounter groundwater at the property during construction activities. However, no evidence of contamination was observed in the water samples collected during this investigation.

- **Contaminated Soil Volumes:** Pyramid's PSA investigation resulted in an estimated area of **8,906 square feet of impacted soil in the vicinity of borings 38-2, 38-3, and 38-4**. The deepest soil samples exhibiting contamination were between 4 and 6 feet in all three borings. For this reason, a maximum depth of 6 feet will be used to approximate total volumes of contaminated soil. It should be noted that this is a gross estimate based on the data available. Using a total thickness of 6 feet of contaminated soil, Pyramid estimates approximately 53,436 cubic feet, or **1,979 cubic yards of impacted soils between 0 and 6 feet BLS** at the location of borings 38-2, 38-3, and 38-4. The south and west boundaries of this area of contamination are approximate due to limited soil data.

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

1.0 Introduction

Pyramid Environmental & Engineering P.C. (Pyramid) has prepared this Preliminary Site Assessment (PSA) report documenting background information, field activities, assessment activities, findings, conclusions, and recommendations for Parcel 038, Council & Williford Properties. The Council & Williford property currently contains a vacant grocery store building. The property is located at 501 Murchison Rd., Fayetteville, NC. This preliminary site assessment was conducted on behalf of the North Carolina Department of Transportation (NCDOT) in accordance with Pyramid's December 20, 2013, technical proposal.

The purpose of this assessment was to determine the presence or absence of underground storage tanks (USTs) and the potential for impacted soils at the subject properties within the proposed right-of-way (ROW) and/or easement and edge of pavement (State Project B-4490). The location of the subject site is shown on **Figure 1**.

1.1 Background Information

Based on the NCDOT's December 13, 2013, *Request for Technical and Cost Proposal*, the PSA was conducted in the proposed easement/proposed right of way (ROW) and the area between the existing NCDOT right of way and the edge of pavement, 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 in the proposed easement/proposed right of way (ROW) and the area between the existing NCDOT right of way and the edge of pavement 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.
- Should groundwater be encountered at a depth that might impact the NCDOT construction activities, report the depth to groundwater for that site and attempt to obtain one groundwater sample for laboratory analysis by installing a temporary monitoring well.

1.2 Project Information

Prior to field activities, a Health and Safety Plan was prepared. Prior to drilling activities, the public underground utilities were located and marked by the North Carolina One-Call Service. A private utility locator, Northstate Utility Locating Incorporated of Colfax, North Carolina was used to mark the on-site private, buried utilities.

2.0 Site History

The NCDOT description of the parcel in the RFP provided to Pyramid on December 13, 2013, provided the following background information related to the site:

“Currently this site is vacant. The site is located on the west side of Murchison Rd. at the intersection with Durham St. The architectural style of the building suggests it may have operated as a gas station. No known NCDENR’s UST Section Facility Identification Numbers or Groundwater Incidents Identification Numbers associated with this property. No evidence of USTs was observed during a site visit on April 30, 2009.”

Pyramid completed a records review of the parcel, interviewed DENR personnel, interviewed property tenants, and reviewed aerial photographs to assess past uses of the property. Pyramid reviewed historical aerial photographs dating back to 1960 available from the Cumberland County Soil and Water Conservation office in Fayetteville and on Google Earth for past uses. The 1960, 1966, 1972, 1993, 2003, 2009, 2010, and 2011 aerial photographs are included in **Appendix A**. The aerial photographs indicate the current grocery building was constructed between 1960 and 1966. The 1960 aerial photograph shows two smaller structures present on the property prior to the construction of the main grocery building. An addition to the north side of the building was constructed sometime between 1972 and 1993.

City directories dated 1937, 1951, 1957, 1963, 1968, 1973, 1980, 1985, 1990, 1995, to 2000 were reviewed at the Cumberland County Public Library in Fayetteville, North Carolina. The table below includes a list of the building or subject property occupants from 1937 to 2000 based on the city directory review.

Year	Occupant
1937	No Listing
1951	V-Point Snack Shop/V-Point Grocery
1957	V-Point Supermarket/V-Point Grill/Esquire Barber Shop-Beauty Parlor
1963	Garris V-Point Grill/Esquire Barber Shop-Beauty Parlor
1968	V-Point Coin Laundry-Washerette/Esquire Barber Shop-Beauty Salon
1973	V-Point Supermarket/V-Point Washerette/Esquire Barber Shop
1980	V-Point Supermarket/V-Point Washerette/Esquire Barber Shop
1985	V-Point Supermarket/V-Point Washerette/Esquire Hair & Skin Clinic
1990	V-Point Supermarket/Esquire Hair & Skin Clinic
1995	V-Point Supermarket/Fayette Taxi/Esquire Hair & Hair Replacement Clinic
2000	V-Point Supermarket/One Thousand & One Thrift Shop/Esquire Hair Care

It should be noted that the above listings include addresses 447, 500, and 501 Murchison Road. The directories indicate that the buildings that have occupied Parcel 038 in the past have included all three of these street addresses. The above listings verify that the

site has operated as a grocery/supermarket since its commercial development sometime between 1937 and 1951. In addition to the grocery, the buildings on-site have also housed a beauty shop/barber shop with various business names. Lastly, the listings indicate that a portion of the buildings operated as a coin laundry/washerette between 1968 and 1985. These listings indicate that this facility was not a dry cleaner, but rather just a coin laundry business.

On January 23, 2014, Pyramid emailed the Cumberland County B-4490 parcel addresses to Mr. James Brown, the Fayetteville Region Incident Manager for the DENR UST Section, with a request to investigate any environmental incidents associated with the parcels. On January 24, 2014, Mr. Brown responded to the email and stated that site address 501 Murchison Rd. (Parcel 038) does not have any environmental incidents in the DENR database.

On January 20, 2014, Pyramid Project Manager Eric Cross performed a site visit at the property. The property contained a vacant grocery store building that was undergoing interior remodeling. A creek was observed on the west side of the property. Mr. Cross interviewed the owner of the property during a subsequent site visit. The owner indicated that the building had always operated as a grocery store since its construction, and he was not aware of any USTs at the site. No evidence of USTs was observed during the site visit.

3.0 Geophysical Investigation

Pyramid performed electromagnetic induction (EM61) and ground penetrating radar (GPR) surveys across the accessible portions of the Parcel. The majority of the EM features at the property were suspected to be associated with reinforced concrete, utilities, or the bus stop and sign. The GPR verified the presence of reinforced concrete on the west and south sides of the survey area, and a storm sewer pipe on the south survey boundary.

The geophysical investigation did not record evidence of any metallic USTs at the property.

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 February 17, 2014, Pyramid mobilized to the site and drilled soil borings, installed one temporary monitoring well, and collected some of the proposed soil samples for the PSA. The soil borings and temporary well (TW) were completed using a track mounted Geoprobe® Direct-Push rig. Three (3) soil borings (38-1, 38-2, and 38-3) were advanced on the subject property. 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 adjacent to proposed drainage piping, as indicated by the NCDOT engineering plans, or within the proposed ROW and/or easement to obtain additional information. Subsequent to the initial contaminant analysis (see below), and additional boring (38-4) was performed on February 18, 2014, to further delineate potential soil contamination at the parcel. The locations of the borings are shown on **Figure 2**.

Soil samples were continuously collected in four-foot long disposable sleeves from each boring for geologic description, and visual examination for signs of contamination. Soil recovered from each sleeve was screened in the field using 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 C**. 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 odors were detected in 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. The QED results for the soil samples at the location of boring 38-1 did not detect TPH-GRO or

TPH-DRO concentrations above 10 mg/kg. However, the QED results for the soil samples at the remaining three boring locations (38-2, 38-3, and 38-4) all recorded DRO concentrations above 10 mg/kg. DRO concentrations ranging from 12.1 mg/kg to 64.9 mg/kg were recorded at these locations. 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 February 17, 2014, Pyramid converted soil boring 38-3 into a 1-inch diameter temporary monitoring well (TW). Soil boring 38-3(TW) was completed to a total depth of 14 feet below land surface (BLS). The temporary well was constructed with 4 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 February 17, 2014, the temporary monitoring well 38-3(TW) was gauged using a properly decontaminated electric water level probe. The depth-to-groundwater was measured at 5.1 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 removing the casing, and filling the borehole with bentonite chips and portland cement.

4.4 Groundwater Analytical Results

The groundwater sample 38-3(TW) was placed in laboratory prepared containers for analysis of volatile organic compounds (VOCs) using EPA Method 6200B and semi-volatile organic compounds (SVOCs) using EPA Method 625. The samples were shipped to Pace Analytical in Huntersville, NC. The laboratory analysis did not detect concentrations of any compounds above laboratory detection limits. The groundwater results for sample 38-3(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 Council & Williford Properties property located 501 Murchison Rd., Fayetteville, NC (Parcel 038). The following is a summary of the assessment activities and results. Personnel logs for all field work are included in **Appendix F**.

5.1 Geophysical Investigation

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

5.2 Limited Soil Assessment

The DENR action levels for both TPH-GRO and TPH-DRO are 10 mg/kg. The QED results for the soil samples at the location of boring 38-1 did not detect TPH-GRO or TPH-DRO concentrations above 10 mg/kg. However, the QED results for the soil samples at the remaining three boring locations (38-2, 38-3, and 38-4) all recorded DRO concentrations above 10 mg/kg. DRO concentrations ranging from 12.1 mg/kg to 64.9 mg/kg were recorded at these locations. No obvious source of contamination was observed at the site in connection with these borings.

5.3 Limited Groundwater Assessment

Soil boring 38-3 was converted into a 1-inch diameter temporary monitoring well to a total depth of 14 feet BLS. The depth-to-groundwater was measured at 5.1 feet BLS. The laboratory analysis did not detect concentrations of any compounds above detection limits.

Review of the NCDOT engineering plans indicates that the NCDOT may encounter groundwater at the property during construction activities. However, no evidence of contamination was observed in the water samples collected during this investigation.

5.4 Recommendations

Petroleum-Impacted Soils

During road construction activities, it is possible the NCDOT may encounter petroleum impacted soil near soil borings 38-2, 38-3, and 38-4. The direct source of this petroleum was not evident in the field. Additionally, the NCDOT may also encounter shallow groundwater during construction.

Soils with DRO above 10mg/kg were observed at the location of borings 38-2, 38-3, and 38-4. The NCDOT Microstation slope stake information does not indicate any cuts to be made in this area, however, there are potentially drainage features proposed to be constructed adjacent to the parcel that may require soil excavation.

Estimating the Area of Contamination

The estimated area of contamination is depicted on **Figure 2**. The boundaries of the area of contamination are generally estimated by applying a circular area of contamination around a boring exhibiting DRO/GRO levels above 10 mg/kg with a radius equal to half the distance between that boring and the nearest “clean” boring. In cases where this approach is not feasible, such as near property boundaries or where data does not exist to provide a definitive boundary, the area of contamination is terminated using the distance to the property boundary as a radius, or an educated approximation is applied. For this particular parcel, the distance between boring 38-4 and 38-1 was used as the diameter of contamination surrounding the three contaminated borings.

Pyramid’s PSA investigation resulted in an estimated area of **8,906 square feet of impacted soil in the vicinity of borings 38-2, 38-3, and 38-4**. The deepest soil samples exhibiting contamination were between 4 and 6 feet in all three borings. For this reason, a maximum depth of 6 feet will be used to approximate total volumes of contaminated soil. It should be noted that this is a gross estimate based on the data available. Using a total thickness of 6 feet of contaminated soil, Pyramid estimates approximately 53,436 cubic feet, or **1,979 cubic yards of impacted soils between 0 and 6 feet BLS** at the location of borings 38-2, 38-3, and 38-4. The south and west boundaries of this area of contamination are approximate due to limited soil data.

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

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

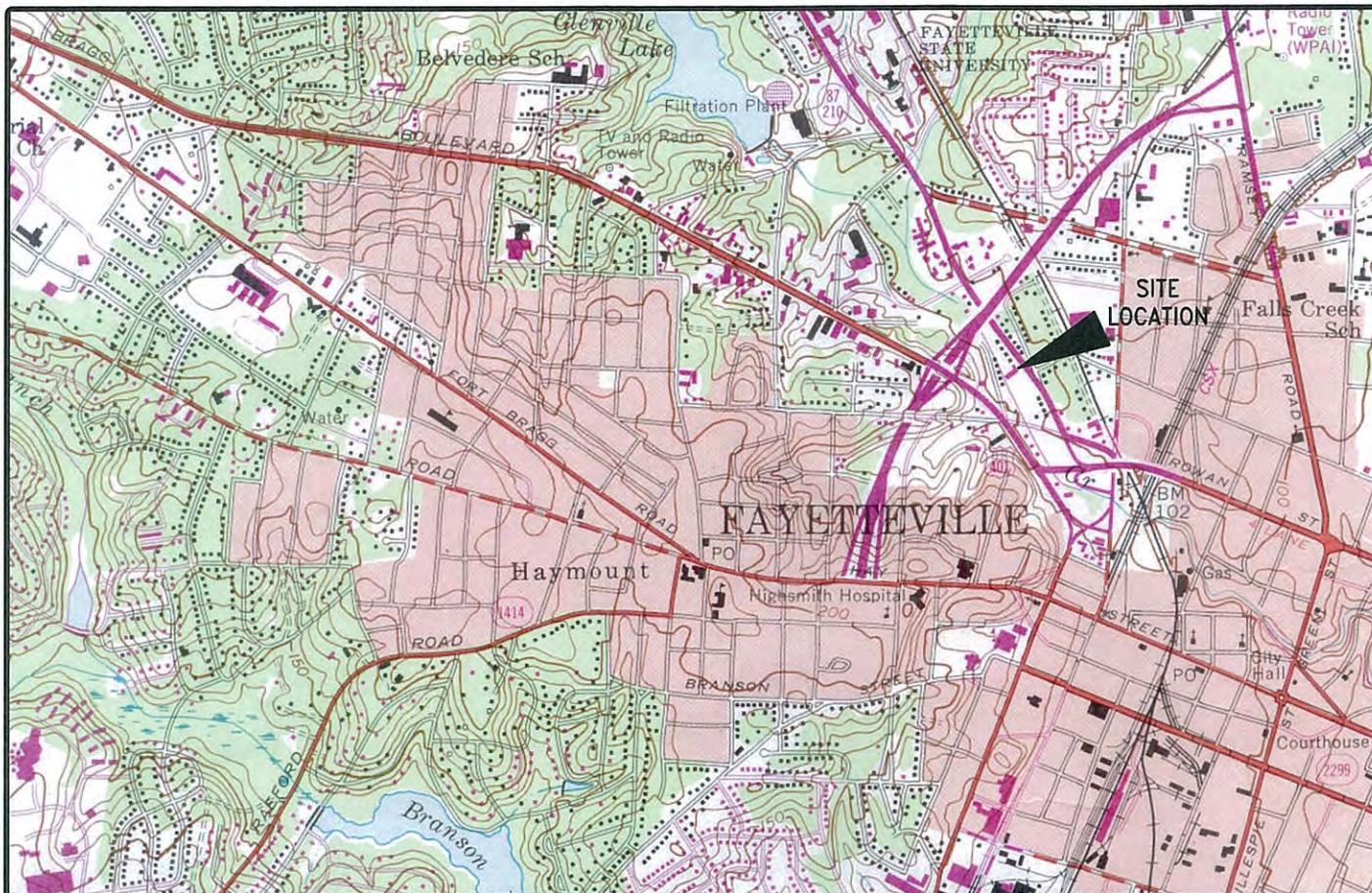
USGS TOPOGRAPHIC MAP

SITE:

501 MURCHISON RD.

LOCATION:

FAYETTEVILLE, NORTH CAROLINA



USGS IDENTIFICATION

SCALES

USGS 7.5 MINUTE MAP

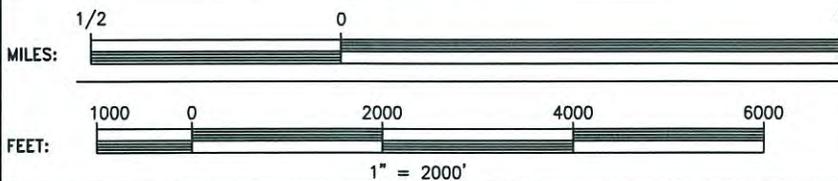
FAYETTEVILLE, N.C.

ORIGINAL DATE:

1957

PHOTOREVISION DATE:

1987



	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: **CUMBERLAND**

APPROXIMATE SITE LOCATION



CLIENT: NC DOT B-4490

PROPERTY NAME: PARCEL 038, COUNCIL & WILLIFORD PROP. LLC

CITY: FAYETTEVILLE

STATE: NORTH CAROLINA

TITLE: TOPOGRAPHIC MAP

SCALE:
 1"=2000'

DATE:
 2/5/14

DRAWING NAME:
 USGSTOPO

DRAWN BY: KAM

CHECK BY: TDJ

JOB NO.: 2014-008

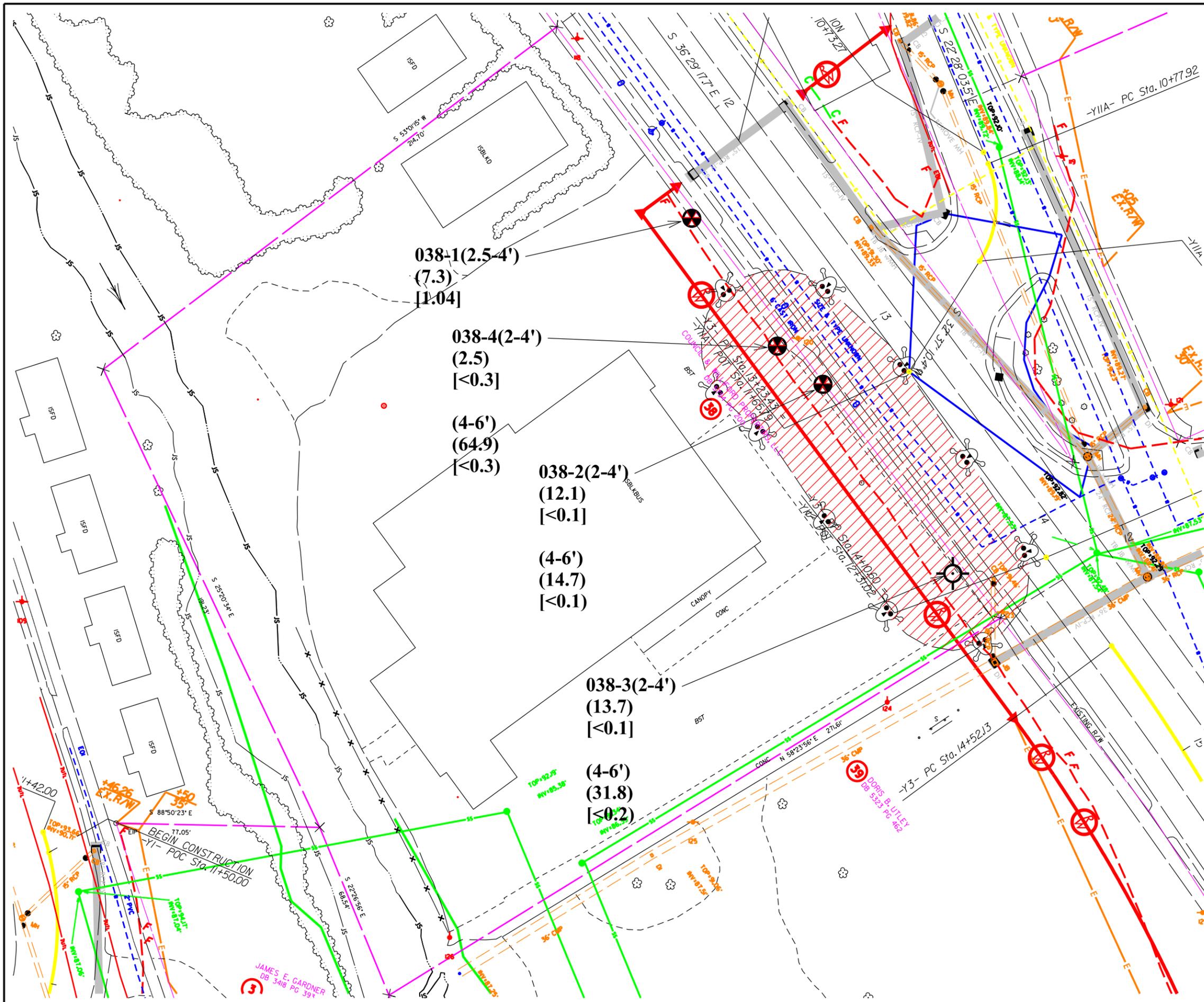
TYPE: PSA

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 COMPLES WITH NATIONAL MAP ACCURACY STANDARDS.



038-1(2.5-4')
(7.3)
[1.04]

038-4(2-4')
(2.5)
[<0.3]

(4-6')
(64.9)
[<0.3]

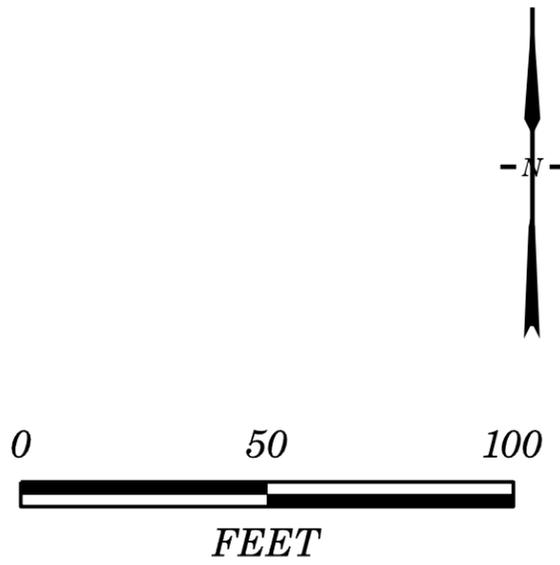
038-2(2-4')
(12.1)
[<0.1]

(4-6')
(14.7)
[<0.1]

038-3(2-4')
(13.7)
[<0.1]

(4-6')
(31.8)
[<0.2]

- ### 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
 - PROPOSED DRAINAGE EASEMENT
 - SOIL SAMPLE BORING LOCATION
 - BORING CONVERTED TO MW (LAB RESULTS IN TABLE 4 OF REPORT)
 - AREA OF CONTAMINATION (>10 PPM)
- (<6.1) TPH-DRO concentration (mg/kg)
[<6.1] TPH-GRO concentration (mg/kg)
* DRO/GRO Analytical data collected by the method of QROS, QED Analyzer



TITLE SOIL BORING LOCATIONS AND ESTIMATED AREA OF CONTAMINATION	
PROJECT NCDOT ROW PROJECT B-4490 (33727.1.1) COUNCIL & WILLIFORD PROPERTIES LLC - PARCEL 038 FAYETTEVILLE, CUMBERLAND COUNTY, NC	
503 INDUSTRIAL AVENUE GREENSBORO, NC 27406 336.335.3174 (p) 336.691.0648 (f) License # C1251 Eng. / #C257 Geology	
DATE: 2-21-14	REVISION NO. 0
PYRAMID PROJECT NO. 2014-008	FIGURE NO. 2

JAMES E. GARDNER
DB 3418 PG 394

TABLES

TABLE 1
Summary of Soil Field Screening Results
NCDOT Project B-4490
501 Murchison Rd. - Parcel 038
Fayetteville, Cumberland County, North Carolina

SOIL BORING	SAMPLE ID	DEPTH (feet bgs)	PID READINGS (PPM)
38-1	38-1(1.5-2.5)	1.5 to 2.5	20
	38-1(2.5-4)	2.5 to 4	700.0
	38-1(4-6)	4 to 6	450.0
	38-1(6-8)	6 to 8	150.0
38-2	38-2(1-2)	1 to 2	20.0
	38-2(2-4)	2 to 4	140.0
	38-2(4-6)	4 to 6	340.0
	38-2(6-8)	6 to 8	25.0
38-3	38-3(1-2)	1 to 2	50.0
	38-3(2-4)	2 to 4	120.0
	38-3(4-6)	4 to 6	400.0
	38-3(6-8)	6 to 8	210.0
38-4	38-4(1-2)	1 to 2	10.0
	38-4(2-4)	2 to 4	300.0
	38-4(4-6)	4 to 6	260.0
	38-4(6-8)	6 to 8	420.0

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 B-4490
 501 Murchison Rd. - Parcel 038
 Fayetteville, Cumberland County, North Carolina

SAMPLE ID	DATE	DEPTH (feet)	PID (ppm)	QROS - QED Analysis			Laboratory Analysis (Pace)	
				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)
38-1(2.5-4)	2/17/2014	2.5 to 4	700.0	1.04	7.3	8.34	-----	-----
38-2(2-4)	2/17/2014	2 to 4	140.0	<0.1	12.1	12.1	-----	-----
38-2(4-6)	2/17/2014	4 to 6	340.0	<0.1	14.7	14.7	-----	-----
38-3(2-4)	2/17/2014	2 to 4	120.0	<0.1	13.7	13.7	-----	-----
38-3(4-6)	2/17/2014	4 to 6	400	<0.2	31.8	31.8	-----	-----
38-4(2-4)	2/18/2014	2 to 4	300	<0.3	2.5	2.5	-----	-----
38-4(4-6)	2/18/2014	4 to 6	260	<0.3	64.9	64.9	-----	-----
NC Initial Action Level - UST Section for 5035/5030-GRO; 3550-DRO				10	10	NA	10	10

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 B-4490
 501 Murchison Rd. - Parcel 038
 Fayetteville, Cumberland County, North Carolina

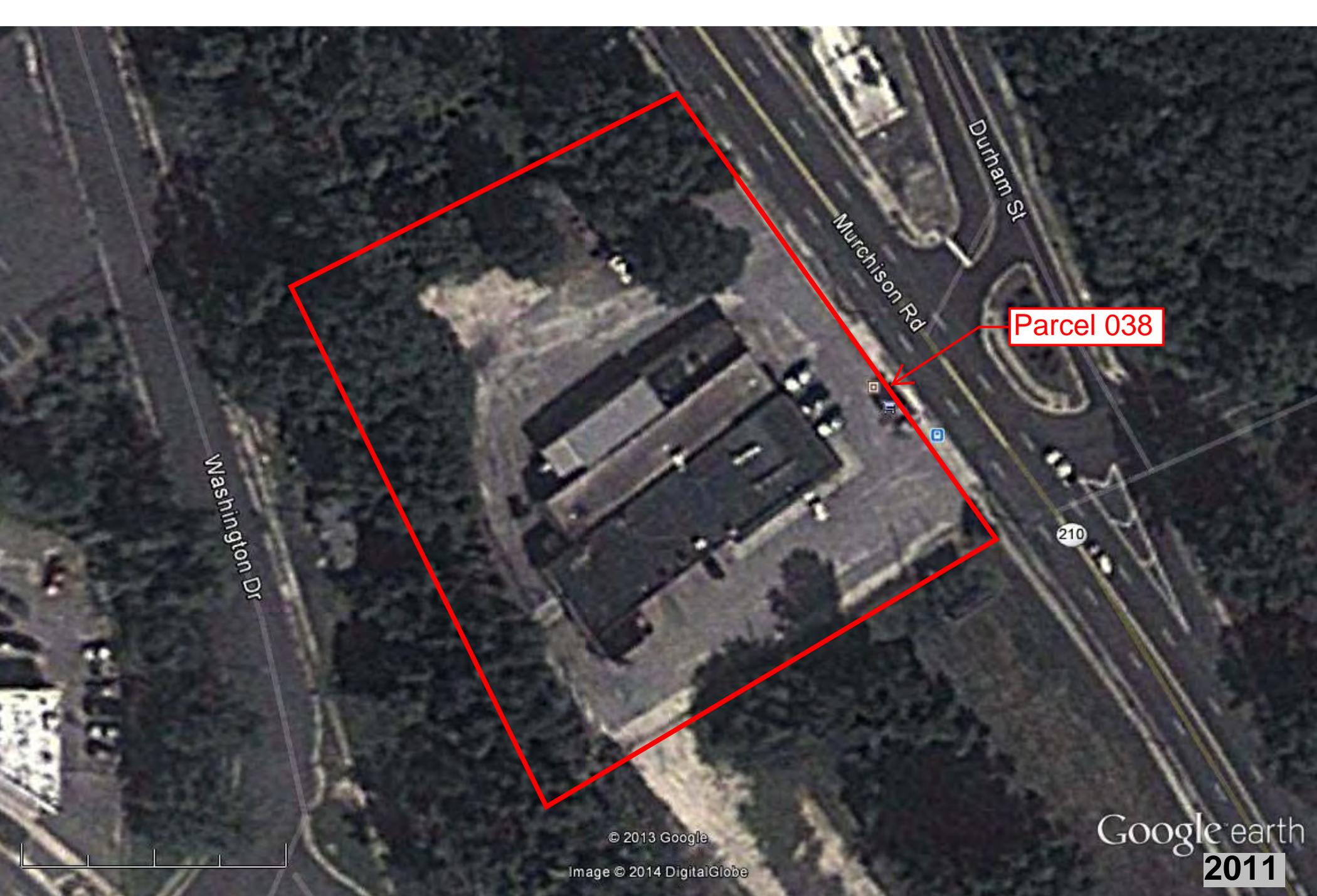
PARAMETER	UNITS	SAMPLE ID	NCAC 2L
		38-3(TW)	GROUNDWATER STANDARD
EPA Method 6200B VOCs; Sample Collection Date: 2/17/14			
Benzene	ug/L	ND	1
Chloroform	ug/L	ND	70
Diisopropyl Ether (IPE)	ug/L	ND	70
Ethyl Benzene	ug/L	ND	600
Isopropylbenzene (Cumene)	ug/L	ND	70
Naphthalene	ug/L	ND	6
Styrene	ug/L	ND	70
Toluene	ug/L	ND	600
Total Xylenes	ug/L	ND	500
n-Propylbenzene	ug/L	ND	70
sec-Butylbenzene	ug/L	ND	70
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
EPA Method 625 Semi-Volatile Organic Compounds			
Acenaphthene	ug/L	ND	80
Diethylphthalate	ug/L	ND	6000
bis(2-Ethylhexyl)phthalate	ug/L	ND	3
Naphthalene	ug/L	ND	6
Phenanthrene	ug/L	ND	200
Phenol	ug/L	ND	30
Pyrene	ug/L	ND	200
All Other Parameters	ug/L	ND	NA

ug/L= micrograms-per-liter

ND= Not Detected at or above adjusted reporting limit.

NA= Not Applicable

APPENDIX A



Washington Dr

Durham St
Murchison Rd

Parcel 038

210

© 2013 Google

Image © 2014 DigitalGlobe

Google earth
2011

Google earth





Parcel 038

Washington Dr

Murchison Rd

Durham St

210

Image © 2014 DigitalGlobe

Google earth
2010

Google earth





Parcel 038

Washington Dr

Murchison Rd

Durham St

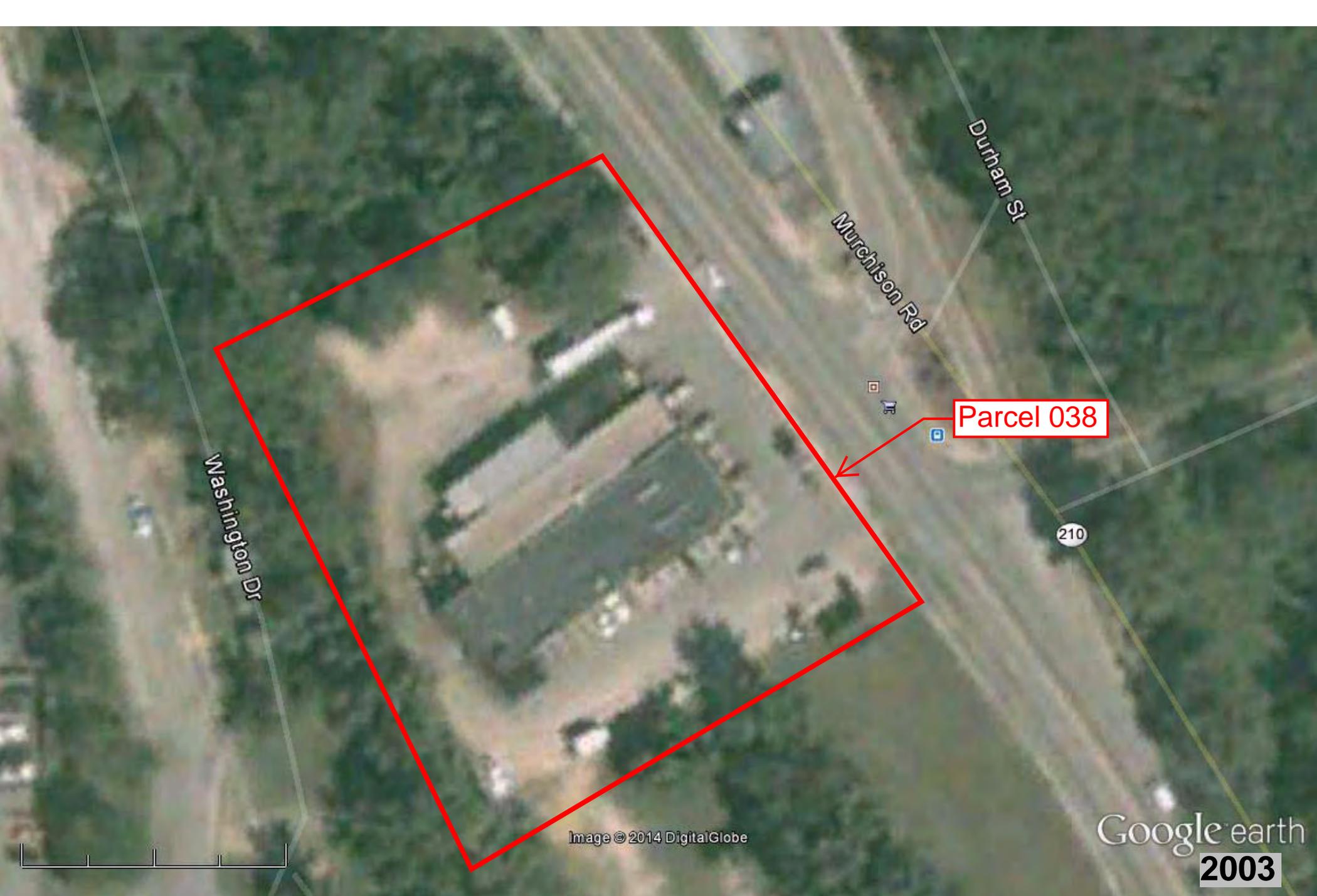
210

Image © 2014 DigitalGlobe

Google earth
2009

Google earth





Washington Dr

Murchison Rd

Durham St

Parcel 038

210

Image © 2014 DigitalGlobe

Google earth
2003

Google earth





Washington Dr

Durham St

Murchison Rd

Parcel 038

210

Image U.S. Geological Survey

Google earth
1993

Google earth





Parcel 038

1972



Parcel 038

1966



Parcel 038

1960

APPENDIX B



PYRAMID ENVIRONMENTAL & ENGINEERING
(PROJECT 2014-008)

GEOPHYSICAL SURVEY

PARCEL 038 –
COUNCIL & WILLIFORD PROPERTIES, LLC
501 MURCHISON RD.
NCDOT PROJECT B-4490 (33727.1.1)

FAYETTEVILL, CUMBERLAND COUNTY, NC

FEBRUARY 12, 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

GEOPHYSICAL INVESTIGATION REPORT
Parcel 038, 501 Murchison Rd.
Fayetteville, Cumberland County, North Carolina

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Summary and Conclusions	4
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- Figure 2 – Parcel 038 – EM61 Bottom Coil & Differential Results Contour Maps
- Figure 3 – Parcel 038 – Overlay of EM61 Contour Map On Engineering Plans
- Figure 4 – Parcel 038 – GPR Transect Locations and Images

EXECUTIVE SUMMARY

Project Description: Pyramid Environmental conducted a geophysical investigation for the North Carolina Department of Transportation (NCDOT), at the Council & Williford Properties, LLC property, Parcel 038, 501 Murchison Rd., Fayetteville, Cumberland County, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project B-4490). 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 electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys.

Geophysical Results: The majority of the EM features at the property were suspected to be associated with reinforced concrete, utilities, or the bus stop and sign. The GPR verified the presence of reinforced concrete on the west and south sides of the survey area, and a storm sewer pipe on the south survey boundary. The geophysical investigation did not record evidence of any metallic USTs at the property.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for the North Carolina Department of Transportation (NCDOT), at the Council & Williford Properties, LLC property, Parcel 038, 501 Murchison Rd., Fayetteville, Cumberland County, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project B-4490). 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 extended 40 feet from east to west and 230 feet from north to south. Conducted on January 28 and February 4, 2014, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site was a vacant grocery store building that otherwise consisted of asphalt parking space and concrete sidewalks. 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 January 28, 2014, 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 acquired across select EM differential anomalies on February 4, 2014, using a Geophysical Survey Systems, Inc. (GSSI) SIR-2000 unit equipped with a 400 MHz antenna. Data were collected generally from east to west and north to south across the property. The GPR data were viewed in real time using a vertical scan of 512 samples, at a rate of 48 scans per second. GPR data were viewed down to a maximum depth of approximately 8 feet, based on an estimated two-way travel time of 8 nanoseconds per foot. GPR transects across specific anomalies were saved to the hard drive of the SIR unit for post-processing and figure generation.

DISCUSSION OF RESULTS

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

Discussion of EM Anomalies: The EM feature extending from south to north from Y=80 to Y=150 centered at X=25 is the result of reinforcement within the concrete observed in this area. The EM feature extending from west to east across the entire survey area at its southern boundary is the combined result of reinforced concrete underlain by an apparent storm sewer pipe. The large EM feature centered at X=50, Y=100 is the result of a sign, poles, and bus stop at this location. The EM feature centered at X=50, Y=150 is suspected to be the result of isolated debris or a utility. Lastly, the remaining east/west oriented features to the north are associated with utilities (gas and water) that were marked in the field. GPR transects were performed across the areas of reinforced concrete to verify the presence of reinforcement and determine if any structures underlay the reinforcement.

Discussion of GPR Survey: **Figure 4** presents the locations of the formal GPR transects performed at the property, as well as images of the transects. GPR Transects 1 and 2 were performed across the west and south areas of reinforced concrete, respectively. Transect 1 verified the reinforcement and did not detect any structures underneath. Transect 2 indicated partial reinforcement as well as the presence of a storm sewer pipe in the subsurface. Reconnaissance transects were performed across the minor feature centered at X=50, Y=150, and no distinct reflectors or objects were observed. No evidence of any large structures such as USTs was recorded.

The geophysical investigation did not record any evidence of metallic USTs at the property within the survey area limits.

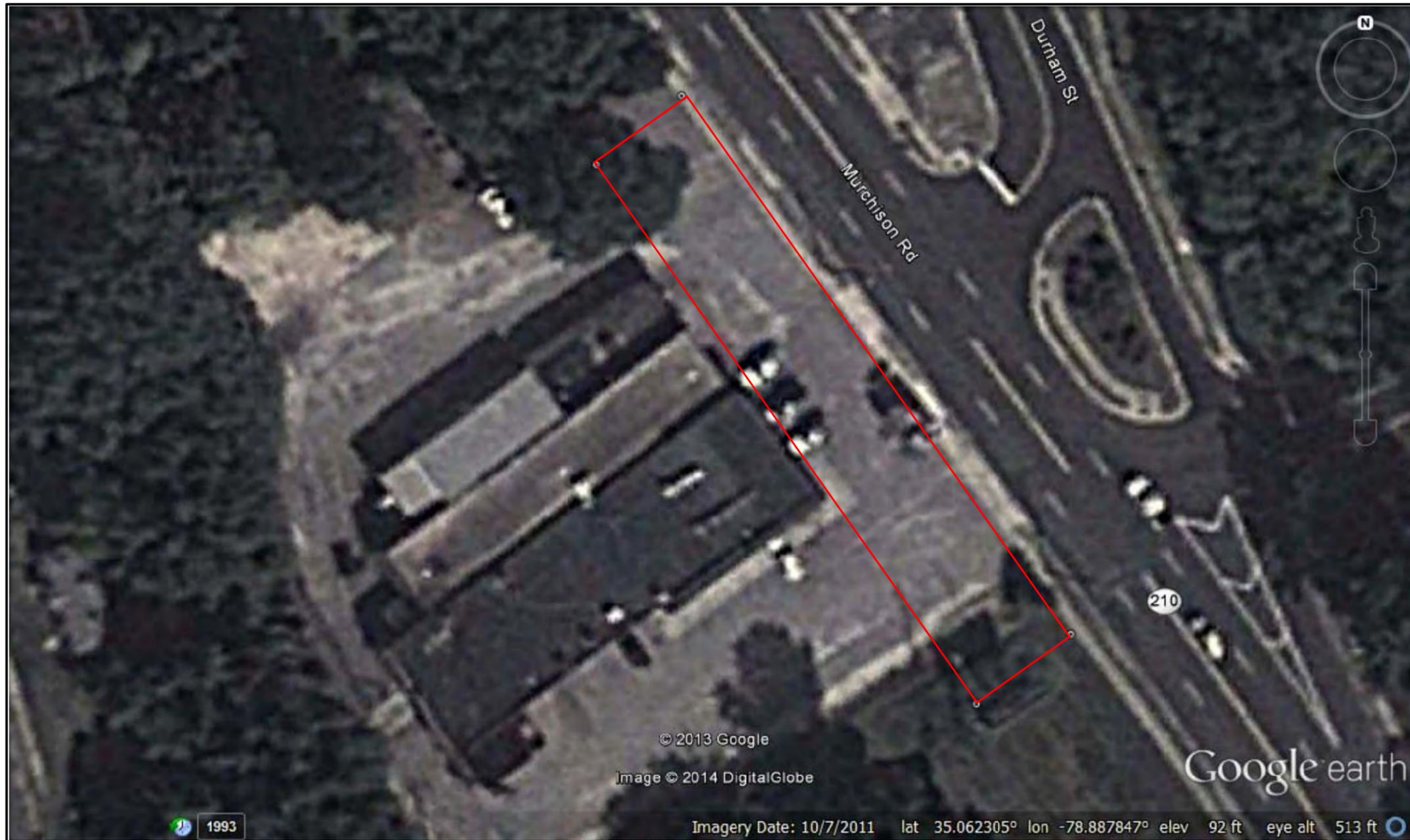
SUMMARY & CONCLUSIONS

Our evaluation of the EM61 and GPR data collected across Parcel 038 in Fayetteville, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- The majority of the EM features at the property were suspected to be associated with reinforced concrete, utilities, or the bus stop and sign.
- The GPR verified the presence of reinforced concrete on the west and south sides of the survey area, and a storm sewer pipe on the south survey boundary.
- The geophysical investigation did not record evidence of any 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 the Geophysical Survey Area



View of Survey Area
(Facing Approximately North)

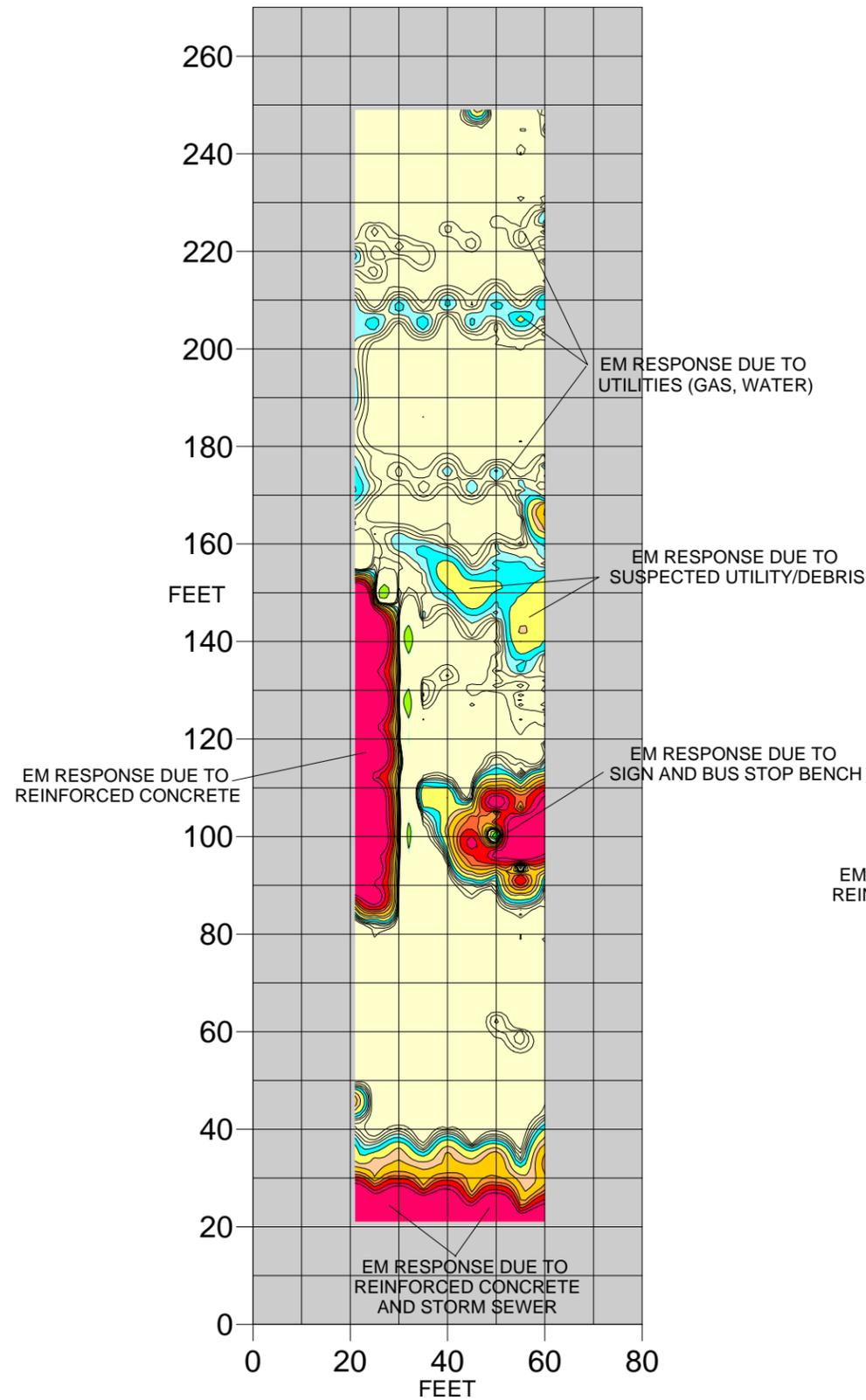


View of Survey Area
(Facing Approximately South)

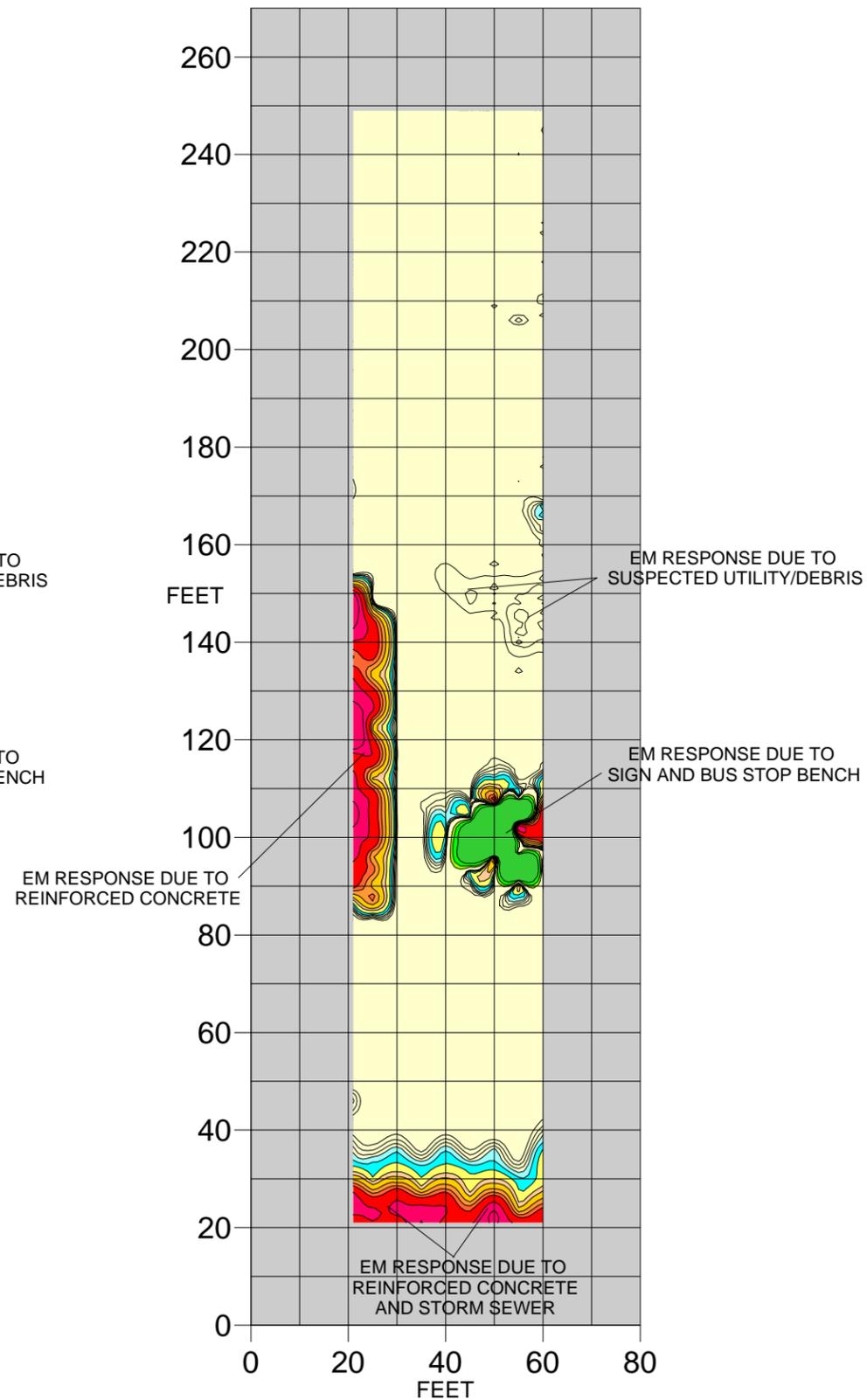
TITLE		PARCEL 038: GEOPHYSICAL SURVEY BOUNDARIES AND SITE PHOTOGRAPHS	
PROJECT		NCDOT PROJECT B-4490 (33727.1.1) FAYETTEVILLE, CUMBERLAND COUNTY, NC	
		503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	
DATE	2/7/2014	CLIENT	NCDOT
PYRAMID PROJECT #:	2014-008	FIGURE 1	



EM61 Bottom Coil Results



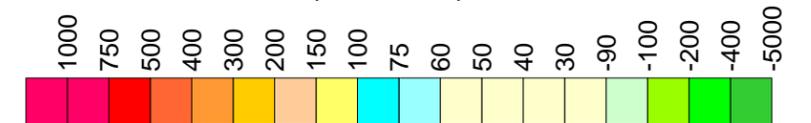
EM61 Differential Results



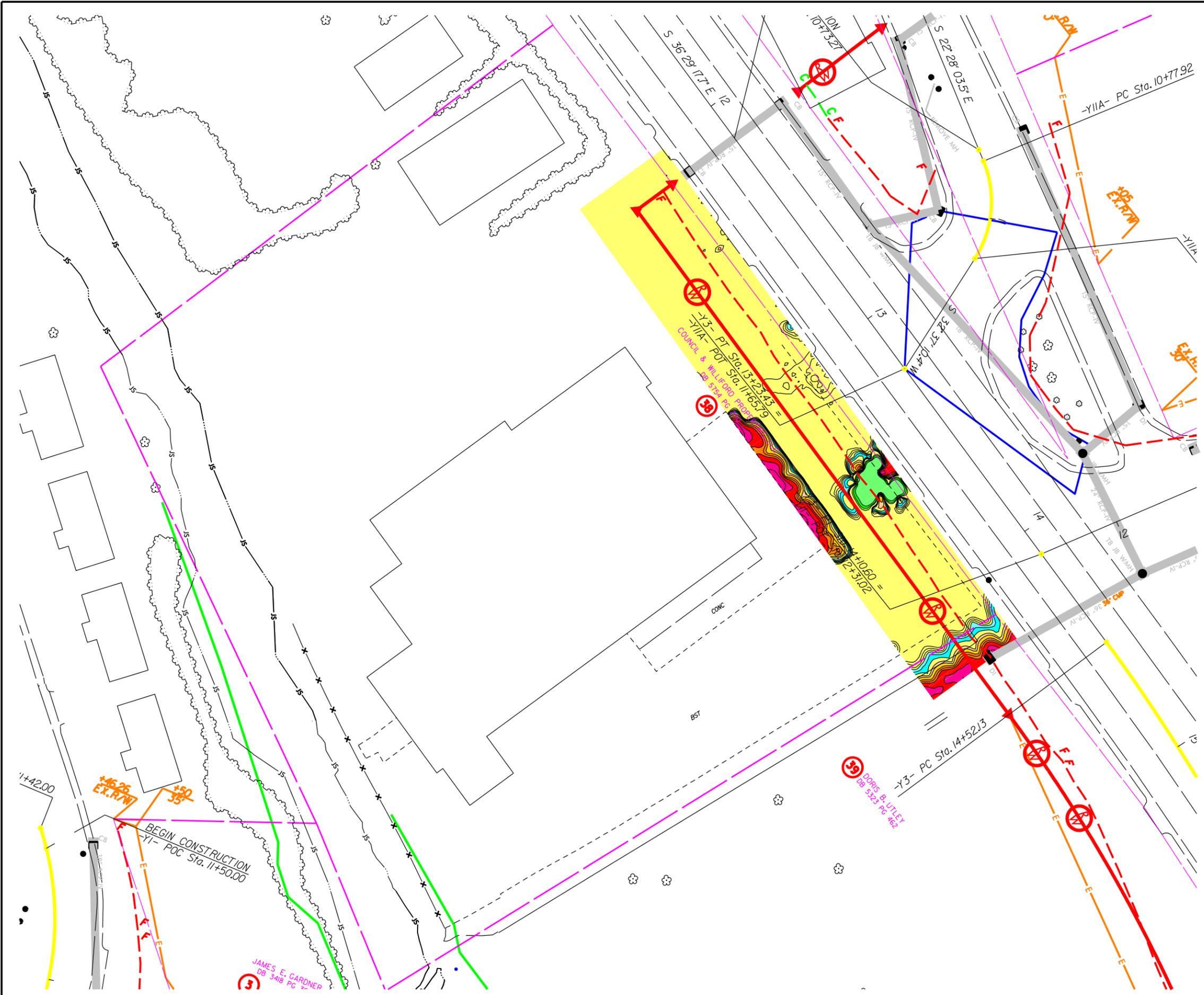
NO EVIDENCE OF METALLIC USTs OBSERVED

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 January 28, 2013 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were collected on February 4, 2013, using a GSSI SIR 2000 unit coupled to a 400 MHz antennae.

EM61 Metal Detection Response (millivolts)

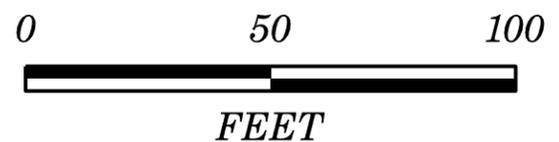
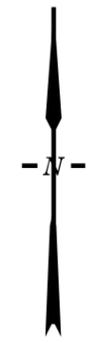


TITLE		PARCEL 038: EM61 BOTTOM COIL & DIFFERENTIAL RESULTS CONTOUR MAPS	
PROJECT		NCDOT PROJECT B-4490 (34437.1.1) FAYETTEVILLE, CUMBERLAND COUNTY, NC	
		503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	
DATE	2/7/2014	CLIENT	NCDOT
PYRAMID PROJECT #:	2014-008	FIGURE 2	



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
- PROPOSED DRAINAGE EASEMENT
- YELLOW ZONE REPRESENTS GEOPHYSICAL SURVEY AREA, CONTOURS ARE EM61 RESULTS (METALLIC RESPONSES)



TITLE OVERLAY OF EM61 CONTOUR MAP ON ENGINEERING PLANS	
PROJECT NCDOT ROW PROJECT B-4490 (33727.1.1) COUNCIL & WILLIFORD PROPERTIES LLC - PARCEL 038 FAYETTEVILLE, CUMBERLAND COUNTY, NC	
503 INDUSTRIAL AVENUE GREENSBORO, NC 27406 336.335.3174 (p) 336.691.0648 (f) License # C1251 Eng. / #C257 Geology	
DATE: 2-21-14	REVISION NO. 0
PYRAMID PROJECT NO. 2014-008	FIGURE NO. 3

JAMES E. GARDNER
DB 3418 PG 3

BEGIN CONSTRUCTION
-YI- POC Sta. 11+50.00

-Y3- PT Sta. 13+22.43
-Y11A- POF Sta. 11+65.79
COUNCIL & WILLIFORD PROPERTIES
DB 3418 PG 3

39 DORIS B. UTLEY
DB 3323 PG 462

-Y3- PC Sta. 14+52.13

-Y11A- PC Sta. 10+77.92

11+42.00

+46.26
EX. R.W.

+50.35

CONC

BST

+10.60
27+31.02

36 CAP

DI

24 RICHY

14

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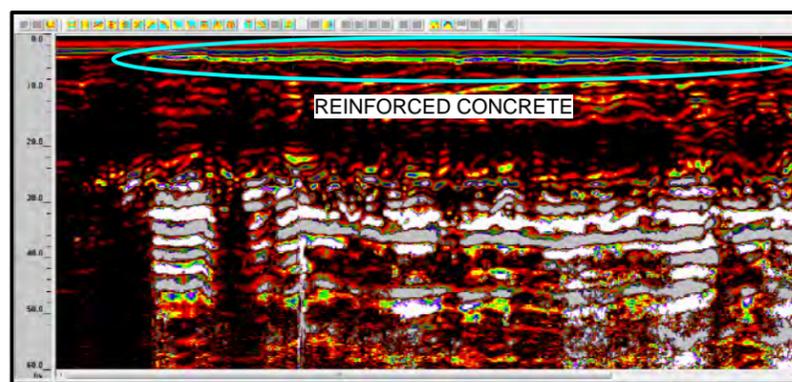
98

99

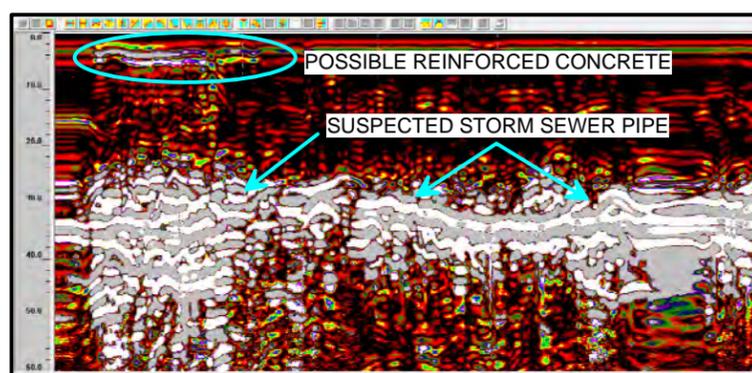
100



Approximate Locations of GPR Transects



GPR Transect 1



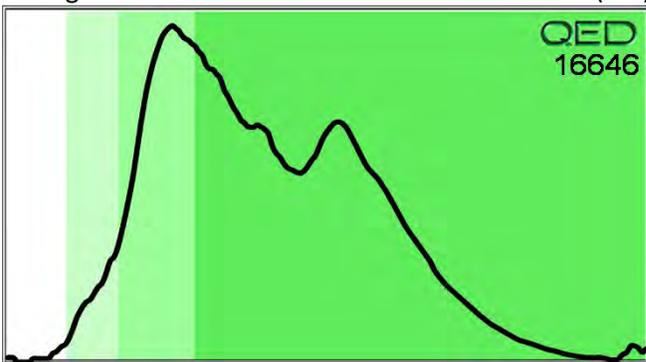
GPR Transect 2

TITLE		PARCEL 038: GPR TRANSECT LOCATIONS AND SELECT IMAGES	
PROJECT		NCDOT PROJECT B-4490 (33727.1.1) FAYETTEVILLE, CUMBERLAND COUNTY, NC	
		503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	
DATE	2/7/2014	CLIENT	NCDOT
PYRAMID PROJECT #:	2014-008	FIGURE 4	

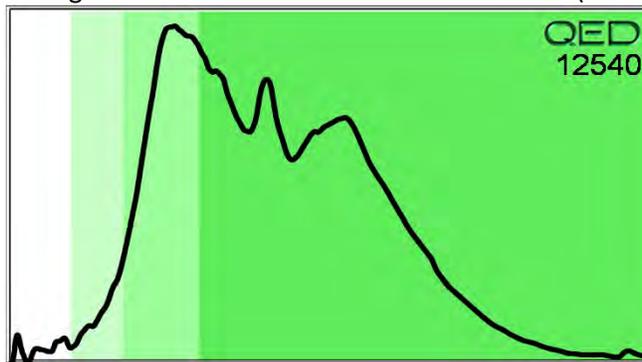
APPENDIX C

APPENDIX D

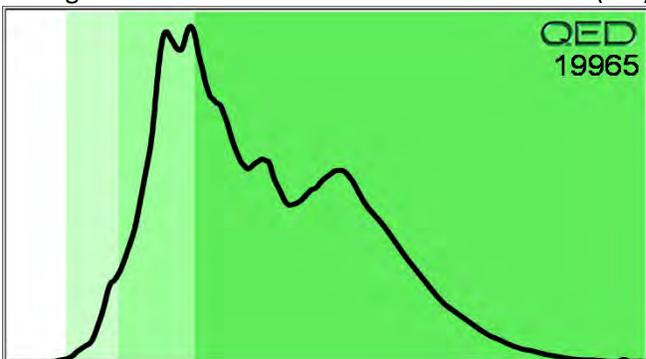
V.Deg.PHC 71.4% 38-2(2-4)



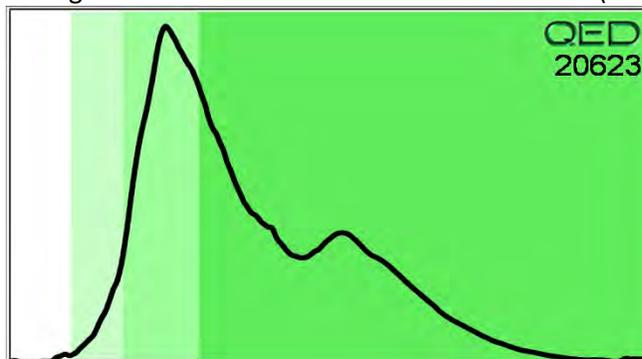
V.Deg.PHC 71.7% 38-1(2.5-4)



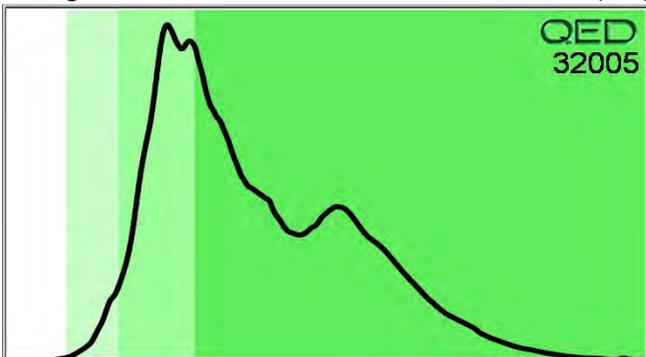
V.Deg.PHC 79.4% 38-2(4-6)



V.Deg.PHC 93.7% 38-3(2-4)

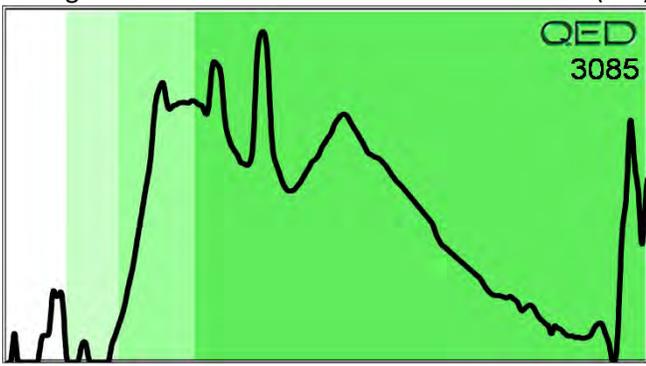


V.Deg.PHC 90.5% 38-3(4-6)



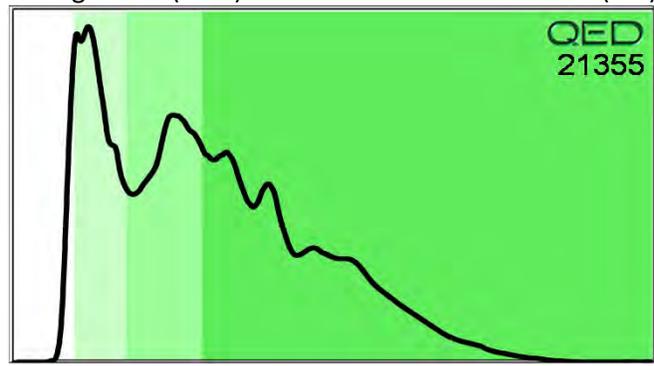
V.Deg.PHC 48.1%

38-4(2-4)



V.Deg Diesel (FCM) 68.8%

38-4(4-6)



Parcel 038

CHAIN-OF-CUSTODY / Analytical Request Document - QROS / QED

Pyramid Environmental & Engineering, P.C.
 Company:
 Pyramid Environmental & Engineering, P.C.
 Address: 503 Industrial Ave.
 Greensboro, NC 27406

Purchase Order No.:
 Project Name: NC DOT Cumberland City Parcel 038
 Project Number:

ITEM	SAMPLE ID	Matrix	C=Comp. G=Grab	COLLECTED		Containers	Un-preserved	Methanol	Requested Analysis		
				Date	Time				GRO	DRO	TPH
1- ✓	38-1(2.5-4)	Soil	G	2-17-14	9:15	1	10.5g	20ml	7.04	7.3	8.34
✓	38-2(2-4)	Soil	G	2-17-14	9:30	1	10.3g	20ml	<0.1	12.1	12.1
✓	38-2(4-6)	Soil	G	2-17-14	9:35	1	10.6g	20ml	METHANOL	14.7	14.7
✓	38-3(2-4)	Soil	G	2-17-14	9:45	1	9.4g	20ml	<0.1	13.7	13.7
✓	38-3(4-6)	Soil	G	2-17-14	10:10	1	9.3g	20ml	<0.2	31.8	31.8
	38-4(2-4)	Soil	G	2-18-14	1545	1	9.5g	20ml	<0.3	2.5	2.5
	38-4(4-6)	Soil	G	2-18-14	1550	1	10g	20ml	<0.3	64.9	64.9
Relinquished By / Affiliation			Date	Time	Accepted By / Affiliation			Date	Time		

SAMPLER NAME AND SIGNATURE
 Print Name of Sampler: Ryan Krum
 Signature of Sampler: [Signature]
 Date Signed: 2/18/14

14
 23.8
 25.8
 9.3g

APPENDIX E

February 28, 2014

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

RE: Project: WBS33727.1.1/B-4490 Cumberland
Pace Project No.: 92190303

Dear Chemical Engineer:

Enclosed are the analytical results for sample(s) received by the laboratory on February 19, 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 Environmental



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

CERTIFICATIONS

Project: WBS33727.1.1/B-4490 Cumberland

Pace Project No.: 92190303

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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without the written consent of Pace Analytical Services, Inc..

ANALYTICAL RESULTS

Project: WBS33727.1.1/B-4490 Cumberland
Pace Project No.: 92190303

Sample: 38-3 (TW)		Lab ID: 92190303001	Collected: 02/17/14 16:00	Received: 02/19/14 17:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV		Analytical Method: EPA 625 Preparation Method: EPA 625						
Acenaphthene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	83-32-9	
Acenaphthylene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	208-96-8	
Anthracene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	120-12-7	
Benzo(a)anthracene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	56-55-3	
Benzo(a)pyrene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	207-08-9	
4-Bromophenylphenyl ether	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	101-55-3	
Butylbenzylphthalate	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	85-68-7	
4-Chloro-3-methylphenol	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	59-50-7	
bis(2-Chloroethoxy)methane	ND	ug/L	16.7	1	02/20/14 13:00	02/27/14 23:50	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	108-60-1	
2-Chloronaphthalene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	91-58-7	
2-Chlorophenol	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	7005-72-3	
Chrysene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	53-70-3	
3,3'-Dichlorobenzidine	ND	ug/L	41.7	1	02/20/14 13:00	02/27/14 23:50	91-94-1	
2,4-Dichlorophenol	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	120-83-2	
Diethylphthalate	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	84-66-2	
2,4-Dimethylphenol	ND	ug/L	16.7	1	02/20/14 13:00	02/27/14 23:50	105-67-9	
Dimethylphthalate	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	131-11-3	
Di-n-butylphthalate	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/L	33.3	1	02/20/14 13:00	02/27/14 23:50	534-52-1	
2,4-Dinitrophenol	ND	ug/L	83.3	1	02/20/14 13:00	02/27/14 23:50	51-28-5	
2,4-Dinitrotoluene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	606-20-2	
Di-n-octylphthalate	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	117-81-7	
Fluoranthene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	206-44-0	
Fluorene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	87-68-3	
Hexachlorobenzene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	118-74-1	
Hexachlorocyclopentadiene	ND	ug/L	16.7	1	02/20/14 13:00	02/27/14 23:50	77-47-4	
Hexachloroethane	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	193-39-5	
Isophorone	ND	ug/L	16.7	1	02/20/14 13:00	02/27/14 23:50	78-59-1	
Naphthalene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	91-20-3	
Nitrobenzene	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	98-95-3	
2-Nitrophenol	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	88-75-5	
4-Nitrophenol	ND	ug/L	83.3	1	02/20/14 13:00	02/27/14 23:50	100-02-7	
N-Nitrosodimethylamine	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/L	8.3	1	02/20/14 13:00	02/27/14 23:50	621-64-7	
N-Nitrosodiphenylamine	ND	ug/L	16.7	1	02/20/14 13:00	02/27/14 23:50	86-30-6	
Pentachlorophenol	ND	ug/L	16.7	1	02/20/14 13:00	02/27/14 23:50	87-86-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WBS33727.1.1/B-4490 Cumberland

Pace Project No.: 92190303

Sample: 38-3 (TW)		Lab ID: 92190303001	Collected: 02/17/14 16:00	Received: 02/19/14 17:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
625 MSSV		Analytical Method: EPA 625 Preparation Method: EPA 625						
Phenanthrene	ND ug/L		8.3	1	02/20/14 13:00	02/27/14 23:50	85-01-8	
Phenol	ND ug/L		8.3	1	02/20/14 13:00	02/27/14 23:50	108-95-2	
Pyrene	ND ug/L		8.3	1	02/20/14 13:00	02/27/14 23:50	129-00-0	
1,2,4-Trichlorobenzene	ND ug/L		8.3	1	02/20/14 13:00	02/27/14 23:50	120-82-1	
2,4,6-Trichlorophenol	ND ug/L		16.7	1	02/20/14 13:00	02/27/14 23:50	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	33 %		10-120	1	02/20/14 13:00	02/27/14 23:50	4165-60-0	
2-Fluorobiphenyl (S)	34 %		15-120	1	02/20/14 13:00	02/27/14 23:50	321-60-8	
Terphenyl-d14 (S)	53 %		11-131	1	02/20/14 13:00	02/27/14 23:50	1718-51-0	
Phenol-d6 (S)	20 %		10-120	1	02/20/14 13:00	02/27/14 23:50	13127-88-3	
2-Fluorophenol (S)	26 %		10-120	1	02/20/14 13:00	02/27/14 23:50	367-12-4	
2,4,6-Tribromophenol (S)	60 %		10-137	1	02/20/14 13:00	02/27/14 23:50	118-79-6	
6200B MSV		Analytical Method: SM 6200B						
Benzene	ND ug/L		0.50	1		02/26/14 20:26	71-43-2	
Bromobenzene	ND ug/L		0.50	1		02/26/14 20:26	108-86-1	
Bromochloromethane	ND ug/L		0.50	1		02/26/14 20:26	74-97-5	
Bromodichloromethane	ND ug/L		0.50	1		02/26/14 20:26	75-27-4	
Bromoform	ND ug/L		0.50	1		02/26/14 20:26	75-25-2	
Bromomethane	ND ug/L		5.0	1		02/26/14 20:26	74-83-9	
n-Butylbenzene	ND ug/L		0.50	1		02/26/14 20:26	104-51-8	
sec-Butylbenzene	ND ug/L		0.50	1		02/26/14 20:26	135-98-8	
tert-Butylbenzene	ND ug/L		0.50	1		02/26/14 20:26	98-06-6	
Carbon tetrachloride	ND ug/L		0.50	1		02/26/14 20:26	56-23-5	
Chlorobenzene	ND ug/L		0.50	1		02/26/14 20:26	108-90-7	
Chloroethane	ND ug/L		1.0	1		02/26/14 20:26	75-00-3	
Chloroform	ND ug/L		0.50	1		02/26/14 20:26	67-66-3	
Chloromethane	ND ug/L		1.0	1		02/26/14 20:26	74-87-3	
2-Chlorotoluene	ND ug/L		0.50	1		02/26/14 20:26	95-49-8	
4-Chlorotoluene	ND ug/L		0.50	1		02/26/14 20:26	106-43-4	
1,2-Dibromo-3-chloropropane	ND ug/L		1.0	1		02/26/14 20:26	96-12-8	
Dibromochloromethane	ND ug/L		0.50	1		02/26/14 20:26	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		0.50	1		02/26/14 20:26	106-93-4	
Dibromomethane	ND ug/L		0.50	1		02/26/14 20:26	74-95-3	
1,2-Dichlorobenzene	ND ug/L		0.50	1		02/26/14 20:26	95-50-1	
1,3-Dichlorobenzene	ND ug/L		0.50	1		02/26/14 20:26	541-73-1	
1,4-Dichlorobenzene	ND ug/L		0.50	1		02/26/14 20:26	106-46-7	
Dichlorodifluoromethane	ND ug/L		0.50	1		02/26/14 20:26	75-71-8	
1,1-Dichloroethane	ND ug/L		0.50	1		02/26/14 20:26	75-34-3	
1,2-Dichloroethane	ND ug/L		0.50	1		02/26/14 20:26	107-06-2	
1,1-Dichloroethene	ND ug/L		0.50	1		02/26/14 20:26	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		0.50	1		02/26/14 20:26	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		0.50	1		02/26/14 20:26	156-60-5	
1,2-Dichloropropane	ND ug/L		0.50	1		02/26/14 20:26	78-87-5	
1,3-Dichloropropane	ND ug/L		0.50	1		02/26/14 20:26	142-28-9	
2,2-Dichloropropane	ND ug/L		0.50	1		02/26/14 20:26	594-20-7	
1,1-Dichloropropene	ND ug/L		0.50	1		02/26/14 20:26	563-58-6	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: WBS33727.1.1/B-4490 Cumberland

Pace Project No.: 92190303

Sample: 38-3 (TW)	Lab ID: 92190303001	Collected: 02/17/14 16:00	Received: 02/19/14 17:45	Matrix: Water				
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6200B MSV		Analytical Method: SM 6200B						
cis-1,3-Dichloropropene	ND ug/L		0.50	1		02/26/14 20:26	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		0.50	1		02/26/14 20:26	10061-02-6	
Diisopropyl ether	ND ug/L		0.50	1		02/26/14 20:26	108-20-3	
Ethylbenzene	ND ug/L		0.50	1		02/26/14 20:26	100-41-4	
Hexachloro-1,3-butadiene	ND ug/L		2.0	1		02/26/14 20:26	87-68-3	
Isopropylbenzene (Cumene)	ND ug/L		0.50	1		02/26/14 20:26	98-82-8	
Methylene Chloride	ND ug/L		2.0	1		02/26/14 20:26	75-09-2	
Methyl-tert-butyl ether	ND ug/L		0.50	1		02/26/14 20:26	1634-04-4	
Naphthalene	ND ug/L		2.0	1		02/26/14 20:26	91-20-3	
n-Propylbenzene	ND ug/L		0.50	1		02/26/14 20:26	103-65-1	
Styrene	ND ug/L		0.50	1		02/26/14 20:26	100-42-5	
1,1,1,2-Tetrachloroethane	ND ug/L		0.50	1		02/26/14 20:26	630-20-6	
1,1,2,2-Tetrachloroethane	ND ug/L		0.50	1		02/26/14 20:26	79-34-5	
Tetrachloroethene	ND ug/L		0.50	1		02/26/14 20:26	127-18-4	
Toluene	ND ug/L		0.50	1		02/26/14 20:26	108-88-3	
1,2,3-Trichlorobenzene	ND ug/L		2.0	1		02/26/14 20:26	87-61-6	
1,2,4-Trichlorobenzene	ND ug/L		2.0	1		02/26/14 20:26	120-82-1	
1,1,1-Trichloroethane	ND ug/L		0.50	1		02/26/14 20:26	71-55-6	
1,1,2-Trichloroethane	ND ug/L		0.50	1		02/26/14 20:26	79-00-5	
Trichloroethene	ND ug/L		0.50	1		02/26/14 20:26	79-01-6	
Trichlorofluoromethane	ND ug/L		1.0	1		02/26/14 20:26	75-69-4	
1,2,3-Trichloropropane	ND ug/L		0.50	1		02/26/14 20:26	96-18-4	
1,2,4-Trimethylbenzene	ND ug/L		0.50	1		02/26/14 20:26	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		0.50	1		02/26/14 20:26	108-67-8	
Vinyl chloride	ND ug/L		1.0	1		02/26/14 20:26	75-01-4	
m&p-Xylene	ND ug/L		1.0	1		02/26/14 20:26	179601-23-1	
o-Xylene	ND ug/L		0.50	1		02/26/14 20:26	95-47-6	
Surrogates								
1,2-Dichloroethane-d4 (S)	102 %		70-130	1		02/26/14 20:26	17060-07-0	
4-Bromofluorobenzene (S)	96 %		70-130	1		02/26/14 20:26	460-00-4	
Toluene-d8 (S)	102 %		70-130	1		02/26/14 20:26	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B-4490 Cumberland

Pace Project No.: 92190303

QC Batch:	MSV/25905	Analysis Method:	SM 6200B
QC Batch Method:	SM 6200B	Analysis Description:	6200B MSV
Associated Lab Samples:	92190303001		

METHOD BLANK: 1145841 Matrix: Water

Associated Lab Samples: 92190303001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	0.50	02/26/14 18:47	
1,1,1-Trichloroethane	ug/L	ND	0.50	02/26/14 18:47	
1,1,2,2-Tetrachloroethane	ug/L	ND	0.50	02/26/14 18:47	
1,1,2-Trichloroethane	ug/L	ND	0.50	02/26/14 18:47	
1,1-Dichloroethane	ug/L	ND	0.50	02/26/14 18:47	
1,1-Dichloroethene	ug/L	ND	0.50	02/26/14 18:47	
1,1-Dichloropropene	ug/L	ND	0.50	02/26/14 18:47	
1,2,3-Trichlorobenzene	ug/L	ND	2.0	02/26/14 18:47	
1,2,3-Trichloropropane	ug/L	ND	0.50	02/26/14 18:47	
1,2,4-Trichlorobenzene	ug/L	ND	2.0	02/26/14 18:47	
1,2,4-Trimethylbenzene	ug/L	ND	0.50	02/26/14 18:47	
1,2-Dibromo-3-chloropropane	ug/L	ND	1.0	02/26/14 18:47	
1,2-Dibromoethane (EDB)	ug/L	ND	0.50	02/26/14 18:47	
1,2-Dichlorobenzene	ug/L	ND	0.50	02/26/14 18:47	
1,2-Dichloroethane	ug/L	ND	0.50	02/26/14 18:47	
1,2-Dichloropropane	ug/L	ND	0.50	02/26/14 18:47	
1,3,5-Trimethylbenzene	ug/L	ND	0.50	02/26/14 18:47	
1,3-Dichlorobenzene	ug/L	ND	0.50	02/26/14 18:47	
1,3-Dichloropropane	ug/L	ND	0.50	02/26/14 18:47	
1,4-Dichlorobenzene	ug/L	ND	0.50	02/26/14 18:47	
2,2-Dichloropropane	ug/L	ND	0.50	02/26/14 18:47	
2-Chlorotoluene	ug/L	ND	0.50	02/26/14 18:47	
4-Chlorotoluene	ug/L	ND	0.50	02/26/14 18:47	
Benzene	ug/L	ND	0.50	02/26/14 18:47	
Bromobenzene	ug/L	ND	0.50	02/26/14 18:47	
Bromochloromethane	ug/L	ND	0.50	02/26/14 18:47	
Bromodichloromethane	ug/L	ND	0.50	02/26/14 18:47	
Bromoform	ug/L	ND	0.50	02/26/14 18:47	
Bromomethane	ug/L	ND	5.0	02/26/14 18:47	
Carbon tetrachloride	ug/L	ND	0.50	02/26/14 18:47	
Chlorobenzene	ug/L	ND	0.50	02/26/14 18:47	
Chloroethane	ug/L	ND	1.0	02/26/14 18:47	
Chloroform	ug/L	ND	0.50	02/26/14 18:47	
Chloromethane	ug/L	ND	1.0	02/26/14 18:47	
cis-1,2-Dichloroethene	ug/L	ND	0.50	02/26/14 18:47	
cis-1,3-Dichloropropene	ug/L	ND	0.50	02/26/14 18:47	
Dibromochloromethane	ug/L	ND	0.50	02/26/14 18:47	
Dibromomethane	ug/L	ND	0.50	02/26/14 18:47	
Dichlorodifluoromethane	ug/L	ND	0.50	02/26/14 18:47	
Diisopropyl ether	ug/L	ND	0.50	02/26/14 18:47	
Ethylbenzene	ug/L	ND	0.50	02/26/14 18:47	
Hexachloro-1,3-butadiene	ug/L	ND	2.0	02/26/14 18:47	
Isopropylbenzene (Cumene)	ug/L	ND	0.50	02/26/14 18:47	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B-4490 Cumberland

Pace Project No.: 92190303

METHOD BLANK: 1145841

Matrix: Water

Associated Lab Samples: 92190303001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
m&p-Xylene	ug/L	ND	1.0	02/26/14 18:47	
Methyl-tert-butyl ether	ug/L	ND	0.50	02/26/14 18:47	
Methylene Chloride	ug/L	ND	2.0	02/26/14 18:47	
n-Butylbenzene	ug/L	ND	0.50	02/26/14 18:47	
n-Propylbenzene	ug/L	ND	0.50	02/26/14 18:47	
Naphthalene	ug/L	ND	2.0	02/26/14 18:47	
o-Xylene	ug/L	ND	0.50	02/26/14 18:47	
sec-Butylbenzene	ug/L	ND	0.50	02/26/14 18:47	
Styrene	ug/L	ND	0.50	02/26/14 18:47	
tert-Butylbenzene	ug/L	ND	0.50	02/26/14 18:47	
Tetrachloroethene	ug/L	ND	0.50	02/26/14 18:47	
Toluene	ug/L	ND	0.50	02/26/14 18:47	
trans-1,2-Dichloroethene	ug/L	ND	0.50	02/26/14 18:47	
trans-1,3-Dichloropropene	ug/L	ND	0.50	02/26/14 18:47	
Trichloroethene	ug/L	ND	0.50	02/26/14 18:47	
Trichlorofluoromethane	ug/L	ND	1.0	02/26/14 18:47	
Vinyl chloride	ug/L	ND	1.0	02/26/14 18:47	
1,2-Dichloroethane-d4 (S)	%	101	70-130	02/26/14 18:47	
4-Bromofluorobenzene (S)	%	98	70-130	02/26/14 18:47	
Toluene-d8 (S)	%	101	70-130	02/26/14 18:47	

LABORATORY CONTROL SAMPLE: 1145842

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	49.0	98	60-140	
1,1,1-Trichloroethane	ug/L	50	53.7	107	60-140	
1,1,2,2-Tetrachloroethane	ug/L	50	50.2	100	60-140	
1,1,2-Trichloroethane	ug/L	50	52.9	106	60-140	
1,1-Dichloroethane	ug/L	50	49.2	98	60-140	
1,1-Dichloroethene	ug/L	50	48.0	96	60-140	
1,1-Dichloropropene	ug/L	50	51.3	103	60-140	
1,2,3-Trichlorobenzene	ug/L	50	49.1	98	60-140	
1,2,3-Trichloropropane	ug/L	50	49.8	100	60-140	
1,2,4-Trichlorobenzene	ug/L	50	49.1	98	60-140	
1,2,4-Trimethylbenzene	ug/L	50	51.4	103	60-140	
1,2-Dibromo-3-chloropropane	ug/L	50	64.7	129	60-140	
1,2-Dibromoethane (EDB)	ug/L	50	52.8	106	60-140	
1,2-Dichlorobenzene	ug/L	50	48.3	97	60-140	
1,2-Dichloroethane	ug/L	50	47.9	96	60-140	
1,2-Dichloropropane	ug/L	50	50.1	100	60-140	
1,3,5-Trimethylbenzene	ug/L	50	52.4	105	60-140	
1,3-Dichlorobenzene	ug/L	50	47.3	95	60-140	
1,3-Dichloropropane	ug/L	50	51.3	103	60-140	
1,4-Dichlorobenzene	ug/L	50	47.7	95	60-140	
2,2-Dichloropropane	ug/L	50	55.4	111	60-140	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B-4490 Cumberland

Pace Project No.: 92190303

LABORATORY CONTROL SAMPLE: 1145842

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2-Chlorotoluene	ug/L	50	48.4	97	60-140	
4-Chlorotoluene	ug/L	50	49.8	100	60-140	
Benzene	ug/L	50	52.3	105	60-140	
Bromobenzene	ug/L	50	49.8	100	60-140	
Bromochloromethane	ug/L	50	52.0	104	60-140	
Bromodichloromethane	ug/L	50	55.3	111	60-140	
Bromoform	ug/L	50	44.8	90	60-140	
Bromomethane	ug/L	50	36.3	73	60-140	
Carbon tetrachloride	ug/L	50	46.6	93	60-140	
Chlorobenzene	ug/L	50	50.6	101	60-140	
Chloroethane	ug/L	50	48.7	97	60-140	
Chloroform	ug/L	50	51.2	102	60-140	
Chloromethane	ug/L	50	45.3	91	60-140	
cis-1,2-Dichloroethene	ug/L	50	48.1	96	60-140	
cis-1,3-Dichloropropene	ug/L	50	48.3	97	60-140	
Dibromochloromethane	ug/L	50	48.0	96	60-140	
Dibromomethane	ug/L	50	50.6	101	60-140	
Dichlorodifluoromethane	ug/L	50	38.5	77	60-140	
Diisopropyl ether	ug/L	50	50.4	101	60-140	
Ethylbenzene	ug/L	50	50.8	102	60-140	
Hexachloro-1,3-butadiene	ug/L	50	50.4	101	60-140	
Isopropylbenzene (Cumene)	ug/L	50	54.0	108	60-140	
m&p-Xylene	ug/L	100	105	105	60-140	
Methyl-tert-butyl ether	ug/L	50	50.5	101	60-140	
Methylene Chloride	ug/L	50	53.9	108	60-140	
n-Butylbenzene	ug/L	50	50.8	102	60-140	
n-Propylbenzene	ug/L	50	52.7	105	60-140	
Naphthalene	ug/L	50	49.0	98	60-140	
o-Xylene	ug/L	50	52.2	104	60-140	
sec-Butylbenzene	ug/L	50	52.1	104	60-140	
Styrene	ug/L	50	55.3	111	60-140	
tert-Butylbenzene	ug/L	50	51.8	104	60-140	
Tetrachloroethene	ug/L	50	51.2	102	60-140	
Toluene	ug/L	50	50.5	101	60-140	
trans-1,2-Dichloroethene	ug/L	50	46.7	93	60-140	
trans-1,3-Dichloropropene	ug/L	50	47.5	95	60-140	
Trichloroethene	ug/L	50	49.9	100	60-140	
Trichlorofluoromethane	ug/L	50	50.3	101	60-140	
Vinyl chloride	ug/L	50	48.4	97	60-140	
1,2-Dichloroethane-d4 (S)	%			99	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Toluene-d8 (S)	%			99	70-130	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B-4490 Cumberland

Pace Project No.: 92190303

Parameter	92190689006		MS		MSD		MS		MSD		% Rec	Limits	RPD	Qual
	Units	Result	Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	% Rec	% Rec						
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	17.9	14.3	89	72	60-140	22				
1,1,1-Trichloroethane	ug/L	ND	20	20	21.3	17.1	106	85	60-140	22				
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	20.6	15.3	103	76	60-140	30				
1,1,2-Trichloroethane	ug/L	ND	20	20	21.3	16.5	107	83	60-140	25				
1,1-Dichloroethane	ug/L	ND	20	20	21.0	16.8	105	84	60-140	22				
1,1-Dichloroethene	ug/L	ND	20	20	20.2	16.8	101	84	60-140	19				
1,1-Dichloropropene	ug/L	ND	20	20	21.4	17.2	107	86	60-140	22				
1,2,3-Trichlorobenzene	ug/L	ND	20	20	17.4	14.0	87	70	60-140	22				
1,2,3-Trichloropropane	ug/L	ND	20	20	20.3	14.8	101	74	60-140	31	R1			
1,2,4-Trichlorobenzene	ug/L	ND	20	20	17.4	14.0	87	70	60-140	22				
1,2,4-Trimethylbenzene	ug/L	ND	20	20	19.3	15.1	96	76	60-140	24				
1,2-Dibromo-3-chloropropane	ug/L	ND	20	20	22.5	16.2	113	81	60-140	32	R1			
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	21.5	16.4	108	82	60-140	27				
1,2-Dichlorobenzene	ug/L	ND	20	20	18.2	14.2	91	71	60-140	24				
1,2-Dichloroethane	ug/L	2.4	20	20	23.0	18.1	103	79	60-140	24				
1,2-Dichloropropane	ug/L	ND	20	20	20.6	16.0	103	80	60-140	25				
1,3,5-Trimethylbenzene	ug/L	ND	20	20	19.5	15.5	97	77	60-140	23				
1,3-Dichlorobenzene	ug/L	ND	20	20	17.7	13.9	89	70	60-140	24				
1,3-Dichloropropane	ug/L	ND	20	20	21.2	16.2	106	81	60-140	26				
1,4-Dichlorobenzene	ug/L	ND	20	20	17.6	14.1	88	70	60-140	23				
2,2-Dichloropropane	ug/L	ND	20	20	18.8	15.5	94	78	60-140	19				
2-Chlorotoluene	ug/L	ND	20	20	18.7	14.9	94	74	60-140	23				
4-Chlorotoluene	ug/L	ND	20	20	19.0	14.9	95	74	60-140	24				
Benzene	ug/L	ND	20	20	20.7	16.6	104	83	60-140	22				
Bromobenzene	ug/L	ND	20	20	19.0	14.8	95	74	60-140	25				
Bromochloromethane	ug/L	ND	20	20	22.3	17.5	112	88	60-140	24				
Bromodichloromethane	ug/L	ND	20	20	19.5	15.6	98	78	60-140	22				
Bromoform	ug/L	ND	20	20	15.7	13.0	78	65	60-140	19				
Bromomethane	ug/L	ND	20	20	14.7	15.1	74	76	60-140	3				
Carbon tetrachloride	ug/L	ND	20	20	17.5	15.6	88	78	60-140	11				
Chlorobenzene	ug/L	ND	20	20	19.8	15.6	99	78	60-140	24				
Chloroethane	ug/L	ND	20	20	22.3	19.5	111	97	60-140	13				
Chloroform	ug/L	ND	20	20	21.3	16.7	106	83	60-140	24				
Chloromethane	ug/L	ND	20	20	18.5	17.8	93	89	60-140	4				
cis-1,2-Dichloroethene	ug/L	ND	20	20	20.4	16.2	102	81	60-140	23				
cis-1,3-Dichloropropene	ug/L	ND	20	20	16.9	13.6	85	68	60-140	21				
Dibromochloromethane	ug/L	ND	20	20	17.2	13.8	86	69	60-140	22				
Dibromomethane	ug/L	ND	20	20	20.0	15.2	100	76	60-140	27				
Dichlorodifluoromethane	ug/L	ND	20	20	15.3	17.9	77	90	60-140	16				
Diisopropyl ether	ug/L	0.55	20	20	22.1	17.1	108	83	60-140	26				
Ethylbenzene	ug/L	ND	20	20	19.7	15.7	99	78	60-140	23				
Hexachloro-1,3-butadiene	ug/L	ND	20	20	17.6	14.2	88	71	60-140	21				
Isopropylbenzene (Cumene)	ug/L	ND	20	20	20.5	16.2	102	81	60-140	23				
m&p-Xylene	ug/L	ND	40	40	39.0	31.5	97	79	60-140	21				
Methyl-tert-butyl ether	ug/L	6.6	20	20	28.2	22.8	108	81	60-140	21				
Methylene Chloride	ug/L	ND	20	20	21.6	16.0	108	80	60-140	30				
n-Butylbenzene	ug/L	ND	20	20	17.8	14.6	89	73	60-140	20				

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B-4490 Cumberland

Pace Project No.: 92190303

Parameter	92190689006		MS		MSD		MS		MSD		% Rec	Limits	RPD	Qual
	Units	Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec						
n-Propylbenzene	ug/L	ND	20	20	19.8	15.8	99	79	60-140	23				
Naphthalene	ug/L	ND	20	20	18.6	14.2	93	71	60-140	27				
o-Xylene	ug/L	ND	20	20	20.0	15.8	100	79	60-140	24				
sec-Butylbenzene	ug/L	ND	20	20	19.4	15.7	97	78	60-140	21				
Styrene	ug/L	ND	20	20	20.8	16.2	104	81	60-140	25				
tert-Butylbenzene	ug/L	ND	20	20	19.4	15.6	97	78	60-140	22				
Tetrachloroethene	ug/L	ND	20	20	19.9	16.1	99	81	60-140	21				
Toluene	ug/L	ND	20	20	19.7	15.8	99	79	60-140	22				
trans-1,2-Dichloroethene	ug/L	ND	20	20	19.3	15.6	97	78	60-140	21				
trans-1,3-Dichloropropene	ug/L	ND	20	20	16.9	13.6	85	68	60-140	21				
Trichloroethene	ug/L	ND	20	20	19.3	15.3	96	77	60-140	23				
Trichlorofluoromethane	ug/L	ND	20	20	21.3	18.2	106	91	60-140	15				
Vinyl chloride	ug/L	ND	20	20	20.1	18.6	101	93	60-140	8				
1,2-Dichloroethane-d4 (S)	%						101	100	70-130					
4-Bromofluorobenzene (S)	%						100	100	70-130					
Toluene-d8 (S)	%						100	100	70-130					

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B-4490 Cumberland

Pace Project No.: 92190303

QC Batch:	OEXT/26010	Analysis Method:	EPA 625
QC Batch Method:	EPA 625	Analysis Description:	625 MSS
Associated Lab Samples:	92190303001		

METHOD BLANK: 1141550 Matrix: Water

Associated Lab Samples: 92190303001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/L	ND	5.0	02/28/14 07:26	
2,4,6-Trichlorophenol	ug/L	ND	10.0	02/28/14 07:26	
2,4-Dichlorophenol	ug/L	ND	5.0	02/28/14 07:26	
2,4-Dimethylphenol	ug/L	ND	10.0	02/28/14 07:26	
2,4-Dinitrophenol	ug/L	ND	50.0	02/28/14 07:26	
2,4-Dinitrotoluene	ug/L	ND	5.0	02/28/14 07:26	
2,6-Dinitrotoluene	ug/L	ND	5.0	02/28/14 07:26	
2-Chloronaphthalene	ug/L	ND	5.0	02/28/14 07:26	
2-Chlorophenol	ug/L	ND	5.0	02/28/14 07:26	
2-Nitrophenol	ug/L	ND	5.0	02/28/14 07:26	
3,3'-Dichlorobenzidine	ug/L	ND	25.0	02/28/14 07:26	
4,6-Dinitro-2-methylphenol	ug/L	ND	20.0	02/28/14 07:26	
4-Bromophenylphenyl ether	ug/L	ND	5.0	02/28/14 07:26	
4-Chloro-3-methylphenol	ug/L	ND	5.0	02/28/14 07:26	
4-Chlorophenylphenyl ether	ug/L	ND	5.0	02/28/14 07:26	
4-Nitrophenol	ug/L	ND	50.0	02/28/14 07:26	
Acenaphthene	ug/L	ND	5.0	02/28/14 07:26	
Acenaphthylene	ug/L	ND	5.0	02/28/14 07:26	
Anthracene	ug/L	ND	5.0	02/28/14 07:26	
Benzo(a)anthracene	ug/L	ND	5.0	02/28/14 07:26	
Benzo(a)pyrene	ug/L	ND	5.0	02/28/14 07:26	
Benzo(b)fluoranthene	ug/L	ND	5.0	02/28/14 07:26	
Benzo(g,h,i)perylene	ug/L	ND	5.0	02/28/14 07:26	
Benzo(k)fluoranthene	ug/L	ND	5.0	02/28/14 07:26	
bis(2-Chloroethoxy)methane	ug/L	ND	10.0	02/28/14 07:26	
bis(2-Chloroethyl) ether	ug/L	ND	5.0	02/28/14 07:26	
bis(2-Chloroisopropyl) ether	ug/L	ND	5.0	02/28/14 07:26	
bis(2-Ethylhexyl)phthalate	ug/L	ND	5.0	02/28/14 07:26	
Butylbenzylphthalate	ug/L	ND	5.0	02/28/14 07:26	
Chrysene	ug/L	ND	5.0	02/28/14 07:26	
Di-n-butylphthalate	ug/L	ND	5.0	02/28/14 07:26	
Di-n-octylphthalate	ug/L	ND	5.0	02/28/14 07:26	
Dibenz(a,h)anthracene	ug/L	ND	5.0	02/28/14 07:26	
Diethylphthalate	ug/L	ND	5.0	02/28/14 07:26	
Dimethylphthalate	ug/L	ND	5.0	02/28/14 07:26	
Fluoranthene	ug/L	ND	5.0	02/28/14 07:26	
Fluorene	ug/L	ND	5.0	02/28/14 07:26	
Hexachloro-1,3-butadiene	ug/L	ND	5.0	02/28/14 07:26	
Hexachlorobenzene	ug/L	ND	5.0	02/28/14 07:26	
Hexachlorocyclopentadiene	ug/L	ND	10.0	02/28/14 07:26	
Hexachloroethane	ug/L	ND	5.0	02/28/14 07:26	
Indeno(1,2,3-cd)pyrene	ug/L	ND	5.0	02/28/14 07:26	
Isophorone	ug/L	ND	10.0	02/28/14 07:26	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B-4490 Cumberland

Pace Project No.: 92190303

METHOD BLANK: 1141550

Matrix: Water

Associated Lab Samples: 92190303001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
N-Nitroso-di-n-propylamine	ug/L	ND	5.0	02/28/14 07:26	
N-Nitrosodimethylamine	ug/L	ND	5.0	02/28/14 07:26	
N-Nitrosodiphenylamine	ug/L	ND	10.0	02/28/14 07:26	
Naphthalene	ug/L	ND	5.0	02/28/14 07:26	
Nitrobenzene	ug/L	ND	5.0	02/28/14 07:26	
Pentachlorophenol	ug/L	ND	10.0	02/28/14 07:26	
Phenanthrene	ug/L	ND	5.0	02/28/14 07:26	
Phenol	ug/L	ND	5.0	02/28/14 07:26	
Pyrene	ug/L	ND	5.0	02/28/14 07:26	
2,4,6-Tribromophenol (S)	%	88	10-137	02/28/14 07:26	
2-Fluorobiphenyl (S)	%	74	15-120	02/28/14 07:26	
2-Fluorophenol (S)	%	46	10-120	02/28/14 07:26	
Nitrobenzene-d5 (S)	%	73	10-120	02/28/14 07:26	
Phenol-d6 (S)	%	33	10-120	02/28/14 07:26	
Terphenyl-d14 (S)	%	99	11-131	02/28/14 07:26	

LABORATORY CONTROL SAMPLE: 1141551

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/L	50	36.0	72	44-142	
2,4,6-Trichlorophenol	ug/L	50	19.6	39	37-144	
2,4-Dichlorophenol	ug/L	50	23.9	48	1-191	
2,4-Dimethylphenol	ug/L	50	31.7	63	32-119	
2,4-Dinitrophenol	ug/L	250	49.5J	20	1-181	
2,4-Dinitrotoluene	ug/L	50	54.3	109	39-139	
2,6-Dinitrotoluene	ug/L	50	51.3	103	50-158	
2-Chloronaphthalene	ug/L	50	34.2	68	60-118	
2-Chlorophenol	ug/L	50	23.6	47	23-134	
2-Nitrophenol	ug/L	50	20.8	42	29-182	
3,3'-Dichlorobenzidine	ug/L	100	107	107	1-262	
4,6-Dinitro-2-methylphenol	ug/L	100	34.2	34	1-181	
4-Bromophenylphenyl ether	ug/L	50	44.3	89	53-127	
4-Chloro-3-methylphenol	ug/L	100	59.7	60	22-147	
4-Chlorophenylphenyl ether	ug/L	50	48.4	97	25-158	
4-Nitrophenol	ug/L	250	48.6J	19	1-132	
Acenaphthene	ug/L	50	40.8	82	47-145	
Acenaphthylene	ug/L	50	42.0	84	33-145	
Anthracene	ug/L	50	46.2	92	1-166	
Benzo(a)anthracene	ug/L	50	45.7	91	33-143	
Benzo(a)pyrene	ug/L	50	49.2	98	17-163	
Benzo(b)fluoranthene	ug/L	50	44.9	90	24-159	
Benzo(g,h,i)perylene	ug/L	50	45.0	90	1-219	
Benzo(k)fluoranthene	ug/L	50	41.4	83	11-162	
bis(2-Chloroethoxy)methane	ug/L	50	41.6	83	33-184	
bis(2-Chloroethyl) ether	ug/L	50	44.4	89	12-158	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B-4490 Cumberland

Pace Project No.: 92190303

LABORATORY CONTROL SAMPLE: 1141551

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
bis(2-Chloroisopropyl) ether	ug/L	50	44.1	88	36-166	
bis(2-Ethylhexyl)phthalate	ug/L	50	47.1	94	8-158	
Butylbenzylphthalate	ug/L	50	45.3	91	1-152	
Chrysene	ug/L	50	47.2	94	17-168	
Di-n-butylphthalate	ug/L	50	45.1	90	1-118	
Di-n-octylphthalate	ug/L	50	54.2	108	4-146	
Dibenz(a,h)anthracene	ug/L	50	49.3	99	1-227	
Diethylphthalate	ug/L	50	45.5	91	1-114	
Dimethylphthalate	ug/L	50	41.6	83	1-112	
Fluoranthene	ug/L	50	50.5	101	26-137	
Fluorene	ug/L	50	47.8	96	59-121	
Hexachloro-1,3-butadiene	ug/L	50	32.1	64	24-116	
Hexachlorobenzene	ug/L	50	40.0	80	1-152	
Hexachlorocyclopentadiene	ug/L	50	25.9	52	25-150	
Hexachloroethane	ug/L	50	33.9	68	40-113	
Indeno(1,2,3-cd)pyrene	ug/L	50	48.5	97	1-171	
Isophorone	ug/L	50	48.3	97	21-196	
N-Nitroso-di-n-propylamine	ug/L	50	51.2	102	1-230	
N-Nitrosodimethylamine	ug/L	50	18.9	38	25-150	
N-Nitrosodiphenylamine	ug/L	50	34.8	70	25-150	
Naphthalene	ug/L	50	41.5	83	21-133	
Nitrobenzene	ug/L	50	39.1	78	35-180	
Pentachlorophenol	ug/L	100	39.6	40	14-176	
Phenanthrene	ug/L	50	44.9	90	54-120	
Phenol	ug/L	50	15.0	30	5-112	
Pyrene	ug/L	50	47.2	94	52-115	
2,4,6-Tribromophenol (S)	%			58	10-137	
2-Fluorobiphenyl (S)	%			75	15-120	
2-Fluorophenol (S)	%			25	10-120	
Nitrobenzene-d5 (S)	%			73	10-120	
Phenol-d6 (S)	%			22	10-120	
Terphenyl-d14 (S)	%			94	11-131	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1141552 1141553

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
		92190065001 Result	Spike Conc.	Spike Conc.	MS Result					
1,2,4-Trichlorobenzene	ug/L	ND	100	100	78.9	64.5	79	65	44-142	20
2,4,6-Trichlorophenol	ug/L	ND	100	100	87.6	77.0	88	77	37-144	13
2,4-Dichlorophenol	ug/L	ND	100	100	106	84.4	106	84	1-191	23
2,4-Dimethylphenol	ug/L	ND	100	100	73.8	48.8	74	49	32-119	41 R1
2,4-Dinitrophenol	ug/L	ND	500	500	263	286	53	57	1-181	9
2,4-Dinitrotoluene	ug/L	ND	100	100	105	95.2	105	95	39-139	10
2,6-Dinitrotoluene	ug/L	ND	100	100	105	97.3	105	97	50-158	7
2-Chloronaphthalene	ug/L	ND	100	100	76.9	64.0	77	64	60-118	18
2-Chlorophenol	ug/L	ND	100	100	114	78.3	114	78	23-134	37 R1
2-Nitrophenol	ug/L	ND	100	100	94.9	74.9	95	75	29-182	24

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B-4490 Cumberland

Pace Project No.: 92190303

Parameter	92190065001		MS		MSD		MS		MSD		% Rec	Limits	RPD	Qual
	Units	Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec						
3,3'-Dichlorobenzidine	ug/L	ND	200	200	115	124	58	62	1-262	7				
4,6-Dinitro-2-methylphenol	ug/L	ND	200	200	156	152	78	76	1-181	3				
4-Bromophenylphenyl ether	ug/L	ND	100	100	95.3	87.4	95	87	53-127	9				
4-Chloro-3-methylphenol	ug/L	ND	200	200	218	191	109	96	22-147	13				
4-Chlorophenylphenyl ether	ug/L	ND	100	100	98.1	89.0	98	89	25-158	10				
4-Nitrophenol	ug/L	ND	500	500	272	225	54	45	1-132	19				
Acenaphthene	ug/L	ND	100	100	88.4	75.5	88	76	47-145	16				
Acenaphthylene	ug/L	ND	100	100	91.1	77.9	91	78	33-145	16				
Anthracene	ug/L	ND	100	100	93.0	81.8	93	82	1-166	13				
Benzo(a)anthracene	ug/L	ND	100	100	90.0	83.6	90	84	33-143	7				
Benzo(a)pyrene	ug/L	ND	100	100	96.2	87.6	96	88	17-163	9				
Benzo(b)fluoranthene	ug/L	ND	100	100	94.0	86.8	94	87	24-159	8				
Benzo(g,h,i)perylene	ug/L	ND	100	100	89.4	78.4	89	78	1-219	13				
Benzo(k)fluoranthene	ug/L	ND	100	100	84.7	79.4	85	79	11-162	6				
bis(2-Chloroethoxy)methane	ug/L	ND	100	100	92.3	74.8	92	75	33-184	21				
bis(2-Chloroethyl) ether	ug/L	ND	100	100	97.6	78.5	98	78	12-158	22				
bis(2-Chloroisopropyl) ether	ug/L	ND	100	100	97.2	70.9	97	71	36-166	31	R1			
bis(2-Ethylhexyl)phthalate	ug/L	ND	100	100	90.9	86.0	91	86	8-158	5				
Butylbenzylphthalate	ug/L	ND	100	100	89.1	86.1	89	86	1-152	3				
Chrysene	ug/L	ND	100	100	93.5	88.6	94	89	17-168	5				
Di-n-butylphthalate	ug/L	ND	100	100	87.5	79.7	88	80	1-118	9				
Di-n-octylphthalate	ug/L	ND	100	100	101	91.7	101	92	4-146	10				
Dibenz(a,h)anthracene	ug/L	ND	100	100	96.1	85.8	96	86	1-227	11				
Diethylphthalate	ug/L	ND	100	100	86.6	80.4	87	80	1-114	7				
Dimethylphthalate	ug/L	ND	100	100	84.2	79.0	84	79	1-112	6				
Fluoranthene	ug/L	ND	100	100	97.9	82.5	98	82	26-137	17				
Fluorene	ug/L	ND	100	100	95.9	86.7	96	87	59-121	10				
Hexachloro-1,3-butadiene	ug/L	ND	100	100	67.7	57.7	68	58	24-116	16				
Hexachlorobenzene	ug/L	ND	100	100	83.7	76.0	84	76	1-152	10				
Hexachlorocyclopentadiene	ug/L	ND	100	100	67.6	53.4	68	53	25-150	24				
Hexachloroethane	ug/L	ND	100	100	69.9	54.7	70	55	40-113	24				
Indeno(1,2,3-cd)pyrene	ug/L	ND	100	100	95.7	84.4	96	84	1-171	13				
Isophorone	ug/L	ND	100	100	104	84.1	104	84	21-196	21				
N-Nitroso-di-n-propylamine	ug/L	ND	100	100	124	74.2	124	74	1-230	50	R1			
N-Nitrosodimethylamine	ug/L	ND	100	100	55.1	44.2	55	44	25-150	22				
N-Nitrosodiphenylamine	ug/L	ND	100	100	76.3	70.5	76	70	25-150	8				
Naphthalene	ug/L	ND	100	100	91.5	73.2	92	73	21-133	22				
Nitrobenzene	ug/L	ND	100	100	96.7	75.6	97	76	35-180	24				
Pentachlorophenol	ug/L	ND	200	200	168	139	84	70	14-176	19				
Phenanthrene	ug/L	ND	100	100	92.6	82.6	93	83	54-120	11				
Phenol	ug/L	ND	100	100	91.8	53.4	92	53	5-112	53	R1			
Pyrene	ug/L	ND	100	100	97.9	93.6	98	94	52-115	4				
2,4,6-Tribromophenol (S)	%						107	95	10-137					
2-Fluorobiphenyl (S)	%						84	74	15-120					
2-Fluorophenol (S)	%						71	55	10-120					
Nitrobenzene-d5 (S)	%						82	68	10-120					
Phenol-d6 (S)	%						84	50	10-120					

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WBS33727.1.1/B-4490 Cumberland
Pace Project No.: 92190303

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1141552		1141553							
Parameter	Units	92190065001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Terphenyl-d14 (S)	%						98	99	11-131		

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: WBS33727.1.1/B-4490 Cumberland
Pace Project No.: 92190303

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.

ANALYTE QUALIFIERS

R1 RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WBS33727.1.1/B-4490 Cumberland

Pace Project No.: 92190303

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92190303001	38-3 (TW)	EPA 625	OEXT/26010	EPA 625	MSSV/8797
92190303001	38-3 (TW)	SM 6200B	MSV/25905		

REPORT OF LABORATORY ANALYSIS

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Client Name: Pyromet

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

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

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.: 4.5 °C Biological Tissue is Frozen: Yes No N/A

Date and Initials of person examining contents: MLP 2/15/14

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 type="checkbox"/> Yes <input checked="" 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input 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:

JDB

Date:

2/19/14

SRF Review:

JDB

Date:

2/20/14

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)

Place label here

WO# : 92190303



92190303

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: <u>Pyramid Environmental</u> Address: <u>P.O. Box 16265</u> <u>Cromwell, NC 27416</u> Email To: <u>Jim</u> Phone: <u>336.335.3174</u> Fax: Requested Due Date/TAT: <u>Normal</u>		Section B Required Project Information: Report To: <u>Jim Leatherman</u> Copy To: <u>Pyramid</u> Project Name: <u>WBS# 33727.1.1 / B-4490</u> <u>NC DOT Cumberland County Parcel 038</u> Project Number: <u>2014-008</u>		Section C Invoice Information: Attention: <u>NC DOT</u> Company Name: <u>NC DOT</u> Address: Pace Quote Reference: <u>WBS# 33727.1.1</u> Pace Project Manager: <u>Jan Bradley</u> Pace Profile #: <u>6527-2</u>	
REGULATORY AGENCY <input checked="" type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER		Site Location STATE: <u>NC</u>		Page: <u>1</u> of <u>1</u> 1450003	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX J CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
					COMPOSITE START	COMPOSITE END/GRAB						
	Section E Required Client Information	Matrix Codes MATRIX J CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	DATE	TIME	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
1	SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE <u>38-3(TW)</u>	DW WT WW P SL OL WP AR TS OT	<u>WT G</u>	<u>G</u>	<u>2/17/14</u>	<u>16:00</u>		<u>6</u>	<input checked="" type="checkbox"/> Unpreserved <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> HNO ₃ <input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> Na ₂ S ₂ O ₃ <input type="checkbox"/> Methanol <input type="checkbox"/> Other	<u>Y</u>		<u>021910303</u>
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
ADDITIONAL COMMENTS <u>Jim Leatherman</u> <u>2/19/14 1330</u> <u>2/18/14 1745</u> <u>2/19/14 1330</u> <u>2/18/14 1745</u> <u>2/19/14 1330</u> <u>2/18/14 1745</u>												
Temp in °C Received on Custody Sealed Cooler (Y/N) Samples Intact (Y/N)												

ORIGINAL

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Jim Leatherman
 SIGNATURE of SAMPLER: [Signature]
 DATE SIGNED (MM/DD/YYYY): 2/18/14

*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
