Solutions-IES
Industrial & Environmental Services
a division of Draper Aden Associates

1101 Nowell Rd. ■ Raleigh, NC 27607
www.solutions-ies.com

March 31, 2017

Mr. Craig Haden
North Carolina Department of Transportation
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

Reference: **Preliminary Site Assessment**
Philip Smith Property (Parcel #23)
318 Smith Edwards Road
Kernersville, Forsyth County, North Carolina
State Project: U-4734
WBS Element 36600.1.2
SIES Project No. 2017.0015.NDOT

Dear Mr. Haden:

Solutions-IES, Inc., (SIES), a Division of Draper Aden Associates, has completed the Preliminary Site Assessment conducted at the above-referenced property. The work was performed in accordance with the Technical and Cost proposal dated February 8, 2017, and the North Carolina Department of Transportation's (NCDOT's) Notice to Proceed dated February 22, 2017. Activities associated with the assessment consisted of conducting a geophysical investigation and collecting soil samples for analysis. The purpose of this report is to document the field activities, present the laboratory analyses, and provide recommendations regarding the property.

Location and Description

The Philip Smith Property (Parcel #23) is located at 318 Smith Edwards Road in Kernersville, Forsyth County, North Carolina. The NCDOT originally designated the site as 330 Smith Edwards Road, but the landowner indicated the actual address as 318 Smith Edwards Road. The property is situated on the west side of Smith Edwards Road at the intersection of Smith Edwards Road and Cope Lane (**Figure 1**). The property is actively used by a grading contractor (E.L. Smith Grading) and has an automotive/heavy machinery repair shop. Two buildings with repair bays and adjacent concrete pads at the front are located at the site (**Figure 2**). According to the landowner, the northernmost building is used for machinery repair and the southernmost building is used for church services. Construction material, heavy machinery parts, and trucks were observed on the property. No visual evidence of underground storage tanks (USTs) or hydraulic lifts was noted during the site visit. The proposed easement was not marked at the site at the time of the field work, but NCDOT plan sheets show that the easement will affect both buildings.

The NCDOT requested a Preliminary Site Assessment for the right-of-way and proposed easement (study area) because the property contains an active grading company that may have a repair shop. The scope of work as defined in the Request for Technical and Cost Proposal was to evaluate the

site with respect to the presence of known and unknown USTs, and assess whether contamination exists on the study area. Because the property contains a mechanical repair facility, the NCDOT directed SIES to evaluate the study area for the presence of solvents in addition to petroleum. An estimate of the quantity of impacted soil is to be provided, should impacted soils be encountered.

SIES reviewed the on-line NCDEQ Incident Management database and no incident number was assigned to the site. SIES also examined the UST registration database and found no tanks registered to the property address.

Geophysical Survey

Prior to SIES' mobilization to the site, Pyramid Environmental & Engineering of Greensboro, NC (Pyramid) conducted a geophysical survey in the study area to determine if unknown USTs were present in that area. The geophysical survey consisted of an electromagnetic survey using a Geonics EM61 time-domain electromagnetic induction meter to locate buried metallic objects, and ground penetrating radar (GPR) using a Geophysical Survey Systems Inc. Utility Scan DF with a dual frequency 300/800 MHz antenna. The instruments were used specifically to locate USTs.

A survey grid was laid out along the study area with the X-axis oriented approximately parallel to Smith Edwards Road and the Y-axis oriented approximately perpendicular to Smith Edwards Road. The grid was positioned to cover the entire study area. The grid was positioned to cover the entire study area, as shown on **Figure 2** of the geophysical survey report in **Attachment A**.

The survey lines were spaced five feet apart and magnetic data were collected continuously along each survey line with a data logger. After collection, the data were reviewed in the field with graphical computer software. Following the electromagnetic survey, a GPR survey was conducted to further evaluate any significant metallic anomalies. GPR transects are shown n **Figure 3** of **Attachment A**.

Access was available to all areas of the property, and several anomalies were detected with the geophysical survey. The anomalies were attributed to visible cultural features, metallic debris, underground utilities, signage, or vehicles. Pyramid's detailed report of findings and interpretations is presented in **Attachment A**.

Site Assessment Activities

On March 21, 2017, SIES mobilized to the site to conduct a Geoprobe® direct-push investigation to evaluate subsurface soil conditions on the property to a depth of 10 feet below ground surface (ft bgs). Nine direct-push holes (SB-9 through SB-17; the numbering system was continued from another site not part of this report) were advanced throughout the right-of-way/proposed easement (**Figure 2)**. The soil boring logs are included as **Attachment B**. The borings were located to evaluate the subsurface conditions in the study area in front of the buildings and along Smith Edwards Road (see photos in **Attachment C**).

The lithology encountered by the direct-push samples was generally consistent throughout the site. The ground surface was covered with about six inches of gravel. Below this surface cover was a

yellowish brown to orange brown silt to fine-grained sand. Coase-grained sand lenses, and black and white mottling were observed in many of the borings, which may represent the parent rock fabric. No bedrock or groundwater was noted in any of the borings. Each boring was backfilled with bentonite and drill cuttings to the surface after completion.

According to the 1985 Geologic Map of North Carolina, the site is within the Piedmont Physiographic Province in North Carolina. The strata indicated for this area is a megacrystalline to equigranular granite common to the area. The soils observed at the site are consistent with granite as the parent material.

Continuous sampling using a Geoprobe® resulted in good recovery of soil samples from the direct-push holes. Soil samples were collected and contained in four-foot long acetate sleeves inside the direct-push Macro-Core® sampler. Each of the sleeves was divided into two-foot long sections for soil sample screening. Soil from each two-foot interval was placed in a resealable plastic bag and the bag was set aside for volatilization of organic compounds from the soil to the bag headspace. A photoionization detector (PID) probe was inserted into the bag and the reading was recorded (**Table 1**).

Two samples per boring were submitted for analysis; surface samples below the gravel and the depth interval with the highest PID reading (**Table 1**). Soil samples from the bottom interval were selected from three of the borings to verify that no diesel fuel contamination was present at that depth. The non-surface soil samples were submitted to REDLab in Wilmington, North Carolina, for analysis of total petroleum hydrocarbons (TPH) diesel range organics (DRO) and gasoline range organics (GRO) using ultraviolet fluorescence (UVF) methodology. The surface soil sample from each boring was submitted to Pace Analytical in Huntersville, North Carolina, for analysis of volatile organic compounds (VOCs) using Method 8260, to evaluate the property with respect to solvents.

Analytical Results

The laboratory data are summarized in **Table 1** and the complete report is presented in **Attachment D** (Note: The laboratory reports and chain-of-custody contain information from a second site and only those samples labeled as SB-9 through SB-17 should be considered applicable to this report). Twelve soil samples were submitted for TPH DRO/GRO analysis and nine soil samples were submitted for VOC analysis. Of the TPH samples, three contained detectable GRO compounds ranging from 0.91 to 2.1 milligrams per kilogram (mg/kg) and nine contained detectable DRO compounds ranging from 0.36 to 4 mg/kg. The action levels are 50 mg/kg for GRO and 100 mg/kg for DRO[1]. None of the soil samples analyzed for this site contained DRO or GRO concentrations above their respective action levels.

The surface soil sample from each boring was submitted for VOC analysis. As shown on **Table 1** and presented in **Attachment D**, no volatile compounds were detected above the method detection limit in any of the samples. Since no compounds were detected, no action levels were exceeded.

[1] NCDEQ, *Guidelines for North Carolina Action Limits for Total Petroleum Hydrocarbons (TPH)*, July 26, 2016,

Conclusions and Recommendations

A Preliminary Site Assessment was conducted to evaluate the Philip Smith Property (Parcel #23) located at 318 Smith Edwards Road in Kernersville, Forsyth County, North Carolina. A geophysical survey conducted at the site indicated that no metallic USTs were detected within the proposed right-of-way/proposed easement on the site. Nine soil borings were advanced to evaluate the subsurface soil conditions along the study area. None of the 12 soil samples analyzed for TPH contained a GRO or DRO concentration above the action level. Analysis of nine soil samples for VOCs indicated that no compounds were detected above the method detection limit. Since none of the soil samples contained contaminant concentrations above applicable action levels (**Table 1**), no estimate of the volume of soil requiring possible remediation was made.

SIES appreciates the opportunity to work with the NCDOT on this project. Because compounds were detected above the reporting limit in the soil samples, SIES recommends that a copy of this report be submitted to the Division of Waste Management, UST Section, in the Winston-Salem Regional Office. If you have any questions, please contact us at (919) 873-1060.

Sincerely,

Solutions-IES

DocuSigned by:
Michael Branson
942B7ACDE09841E...

Michael W. Branson, P.G.
Project Manager

DocuSigned by:
John Palmer
B33F2A9DD9BD4C4...

John Palmer, P.G.
Senior Hydrogeologist

Attachments

NORTH CAROLINA LICENSED SEAL 467 GEOLOGIST MICHAEL W. BRANSON

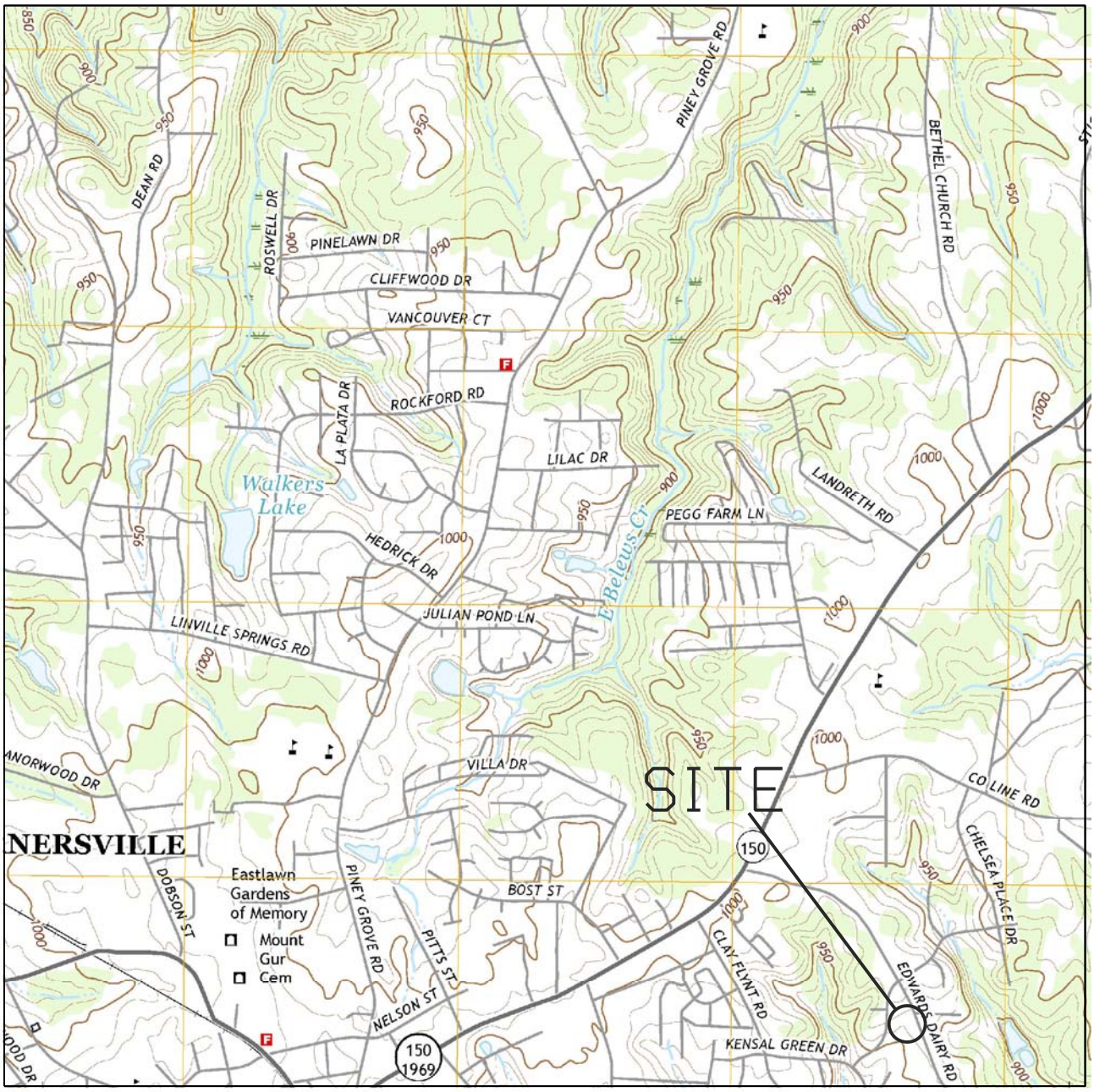
TABLE 1
SOIL FIELD SCREENING AND ANALYTICAL RESULTS
SMITH PROPERTY (PARCEL #23)
KERNERSVILLE, FORSYTH COUNTY, NORTH CAROLINA
STATE PROJECT: U-4734
WBS ELEMENT 36600.1.2
SIES PROJECT NO. 2017.0015.NDOT

SAMPLE ID	DEPTH (ft)	PID READING (ppm)	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)		
				UVF GRO	UVF DRO	Method 8260
	Action Level (mg/kg)			50	100	NA
SB-9	0 - 2	0.3	SB-9			ND
	2 - 4	1.2				
	4 - 6	0.4	SB-9-6	<0.61	**0.61**	
	6 - 8	0.1				
	8 - 10	0.1				
SB-10	0 - 2	0.5	SB-10			ND
	2 - 4	0.5				
	4 - 6	1.8	SB-10-6	<0.69	**4**	
	6 - 8	0.3				
	8 - 10	0.6				
SB-11	0 - 2	0.7	SB-11			ND
	2 - 4	0.8				
	4 - 6	1.2	SB-11-6	<0.62	**0.62**	
	6 - 8	0.5				
	8 - 10	0.6				
SB-12	0 - 2	0.8	SB-12			ND
	2 - 4	0.5				
	4 - 6	0.8				
	6 - 8	0.8				
	8 - 10	1.3	SB-12-10	<0.36	**0.36**	
SB-13	0 - 2	1.7	SB-13			ND
	2 - 4	1.0	SB-13-2	<0.24	**0.47**	
	4 - 6	0.9				
	6 - 8	1.0				
	8 - 10	0.3				
SB-14	0 - 2	1.7	SB-14			ND
	2 - 4	0.4				
	4 - 6	0.5	SB-14-6	<0.27	<0.27	
	6 - 8	0.0				
	8 - 10	0.0				
SB-15	0 - 2	0.1	SB-15			ND
	2 - 4	0.2				
	4 - 6	0.5	SB-15-6	**2.1**	**0.43**	
	6 - 8	0.1				
	8 - 10	0.0	SB-15-10	**0.91**	**2.1**	
SB-16	0 - 2	0.1	SB-16			ND
	2 - 4	0.2				
	4 - 6	0.5	SB-16-4	<0.23	<0.23	
	6 - 8	0.1				
	8 - 10	0.0	SB-16-10	**2.1**	**3.2**	
SB-17	0 - 2	0.0	SB-17			ND
	2 - 4	0.0				
	4 - 6	0.0	SB-17-6	<0.23	**2.5**	
	6 - 8	0.0				
	8 - 10	0.0	SB-17-10	<0.3	<0.3	

1) ft - feet
2) ppm - parts per million.
3) PID - photoionization ionization detector
4) mg/kg - milligrams per kilogram.
5) UVF DRO - Diesel range organics by UVF.
6) UVF GRO - Gasoline range organics by UVF.
7) Action level based upon NCDEQ memo *Guidelines for North Carolina Action Limits for Total Petroleum Hydrocarbons* - July 29, 2016.
8) Soil samples were collected on March 21, 2017.
9) **Bold** values are above the detection level.
10) NA - Not applicable
11) ND - No compounds detected above the method detection limit.

Solutions-IES
Industrial & Environmental Services
a division of Draper Aden Associates

FIGURES



SOURCE: U.S. GEOLOGICAL SURVEY 7.5 MIN QUADRANGLE: BELEWS CREEK, NC (2016)

FILE: NCDOT KERNERSVILLE PSA
DATE: MARCH 2017
PROJECT MANAGER: MWB
CHECKED BY: JEP
PROJECT NUMBER: 2017.0015.NDOT

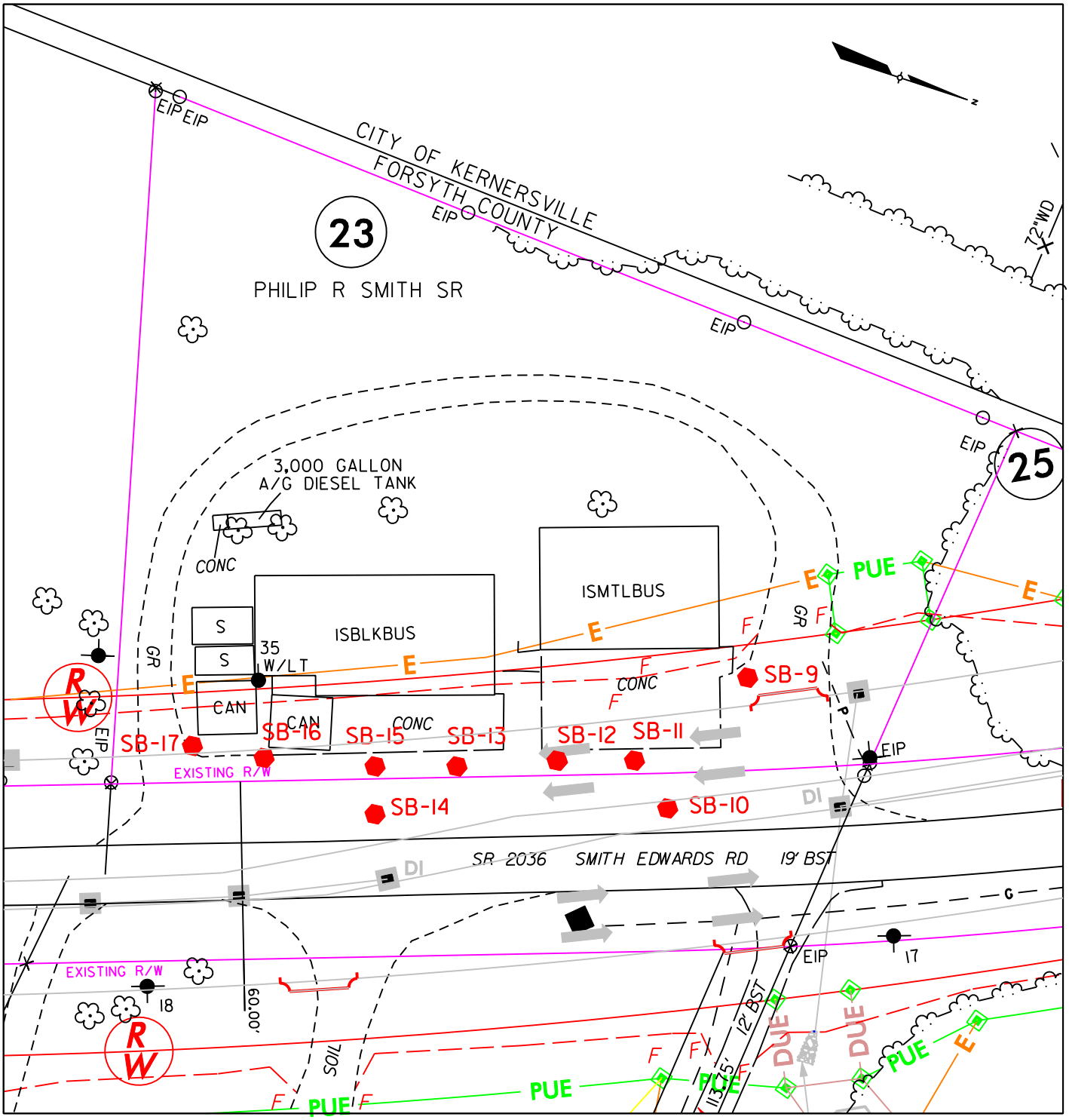
Solutions-IES
Industrial & Environmental Services
a division of Draper Aden Associates

1101 NOWELL ROAD
RALEIGH, NORTH CAROLINA 27607
TEL: (919) 873-1060 FAX: (919) 873-1074

VICINITY MAP

PHILIP SMITH PROPERTY (PARCEL #23)
KERNERSVILLE, FORSYTH COUNTY, NORTH CAROLINA

FIGURE
1



LEGEND

SB-1 SOIL SAMPLE LOCATION AND IDENTIFICATION

0 25 50
GRAPHIC SCALE (FEET)

PROJECT NUMBER 2017.0015.NDOT
DRAFTER MWB
CHECKED BY JEP
PROJECT MANAGER MWB
DATE MARCH 2107
FILE NCDOT KERNERSVILLE PSA

Solutions-IES
Industrial & Environmental Services
a division of Draper Aden Associates
1101 NOWELL ROAD
RALEIGH, NORTH CAROLINA 27607
TEL: (919) 873-1060 FAX: (919) 873-1074

SITE MAP
PHILIP SMITH PROPERTY (PARCEL #23)
KERNERSVILLE, FORSYTH COUNTY, NORTH CAROLINA

FIGURE
2

...\CAD\23 FIGURE 2.dgn 3/27/2017 1:37:25 PM

ATTACHMENT A

PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2017-060)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION:
PARCEL 023
NCDOT PROJECT U-4734

330 SMITH EDWARDS ROAD, KERNERSVILLE, NC

MARCH 21, 2017

Report prepared for: **Mike Branson**
Solutions, IES
1101 Nowell Road
Raleigh, North Carolina 27607

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 023 – 330 Smith Edwards Road
Kernersville, Forsyth County, North Carolina

Table of Contents

Figures

Appendices

LIST OF ACRONYMS

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

EXECUTIVE SUMMARY

Project Description: Pyramid Environmental conducted a geophysical investigation for Solutions, IES (Solutions) at Parcel 023, located at 330 Smith Edwards Road, Kernersville, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project U-4734). Solutions directed Pyramid as to the geophysical survey boundaries at the project site, which were designed to extend from the existing edge of pavement to the proposed ROW lines and/or easement lines within the property, whichever distance was greater. Conducted from March 9-11, 2017, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

Geophysical Results: The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR scans were performed across an EM anomaly suspected to be associated with debris or a utility, as well as areas containing reinforced concrete and beneath a shed canopy where EM data were not acquired. The GPR verified the presence of debris or a utility at the northeast portion of the survey area. The GPR also verified the presence of reinforced concrete at multiple locations across the central portion of the survey area. No evidence of larger structures was recorded. Collectively, the geophysical data did not show any evidence of unknown metallic USTs at Parcel 023.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Solutions, IES (Solutions) at Parcel 023, located at 330 Smith Edwards Road, Kernersville, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project U-4734). Solutions directed Pyramid as to the geophysical survey boundaries at the project site, which were designed to extend from the existing edge of pavement to the proposed ROW lines and/or easement lines within the property, whichever distance was greater. Conducted from March 9-11, 2017, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site included a commercial building and multiple shed structures surrounded by asphalt and gravel parking areas. Aerial photographs showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. Pyramid collected the EM data using a Geonics EM61 metal detector integrated with a Trimble AG-114 GPS antenna. The integrated GPS system allows the location of the instrument to be recorded in real-time during data collection, resulting in an EM data set that is geo-referenced and can be overlain on aerial photographs and CADD drawings. A boundary grid was established around the perimeter of the site with marks every 10 feet to maintain orientation of the instrument throughout the survey and assure complete coverage of the area.

According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. The EM61 data were digitally collected at approximately 0.8 foot intervals along north-south trending or east-west trending, generally

parallel survey lines spaced five feet apart. The data were downloaded to a computer and reviewed in the field and office using the Geonics NAV61 and Surfer for Windows Version 11.0 software programs.

GPR data were acquired across select EM anomalies on March 9, 2017, using a Geophysical Survey Systems, Inc. (GSSI) UtilityScan DF unit equipped with a dual frequency 300/800 MHz antenna. Data were collected both in reconnaissance fashion as well as along formal transect lines across EM features. The GPR data were viewed in real-time using a vertical scan of 512 samples, at a rate of 48 scans per second. GPR data were viewed down to a maximum depth of approximately 4 feet, based on dielectric constants calculated by the DF unit in the field during the reconnaissance scans. GPR transects across specific anomalies were saved to the hard drive of the DF unit for post-processing and figure generation.

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

Geophysical Surveys for Underground Storage Tanks
on NCDOT Projects

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

DISCUSSION OF RESULTS

Discussion of EM Results

A contour plot of the EM61 results obtained across the survey area at the property is presented in **Figure 2**. Each EM anomaly is numbered for reference in the figure. The following table presents the list of EM anomalies and the cause of the metallic response, if known:

LIST OF METALLIC ANOMALIES IDENTIFIED BY EM SURVEY

Metallic Anomaly #	Cause of Anomaly	Investigated with GPR
1	Vehicle	
2	Trailer	
3	Suspected debris/utility	☑
4	Metal siding	
5	Truck	
6	Reinforced concrete	☑

The majority of the EM anomalies observed were directly attributed to visible cultural features such as vehicles, a trailer, metal siding on the building, and suspected reinforced concrete. One small feature near the northeast corner of the survey (Anomaly #3) was suspected to be associated with buried metallic debris or a utility, and was investigated further by GPR. Additionally, areas suspected to contain metal-reinforced concrete as well as an area beneath a shed canopy where EM data were not obtained were also investigated further by GPR.

Discussion of GPR Results

Figure 3 presents the locations of the formal GPR transects performed at the property, as well as select transect images. A total of 9 GPR transects were performed at the site. GPR Transects 1 and 2 were performed across EM Anomaly #3, and recorded evidence of discreet, isolated reflectors that are characteristic of isolated debris or a utility. Transects

3 and 4 were performed across an area suspected to contain reinforced concrete, and verified the presence of intermittent metal reinforcement in the slab. Lastly, Transects 5-9 were performed beneath a shed canopy where EM data were not obtained. Evidence of additional reinforced concrete was observed in this area. No evidence of larger structures such as USTs was recorded.

Collectively, the geophysical data did not show any evidence of unknown metallic USTs at Parcel 023.

SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 and GPR data collected at Parcel 023 in Kernersville, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface.
- GPR scans were performed across an EM anomaly suspected to be associated with debris or a utility, as well as areas containing reinforced concrete and beneath a shed canopy where EM data were not acquired.
- The GPR verified the presence of debris or a utility at the northeast portion of the survey area.
- The GPR also verified the presence of reinforced concrete at multiple locations across the central portion of the survey area. No evidence of larger structures was recorded.
- Collectively, the geophysical data did not show any evidence of unknown metallic USTs at Parcel 023.

LIMITATIONS

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

N

APPROXIMATE BOUNDARIES OF GEOPHYSICAL SURVEY AREA

NC STATE PLANE, NORTHING (NAD83, FEET)

NC STATE PLANE, EASTING (NAD83, FEET)

View of Survey Area
(Facing Approximately South)

View of Survey Area
(Facing Approximately Southeast)

TITLE
PARCEL 023 - GEOPHYSICAL SURVEY
BOUNDARIES AND SITE PHOTOGRAPHS

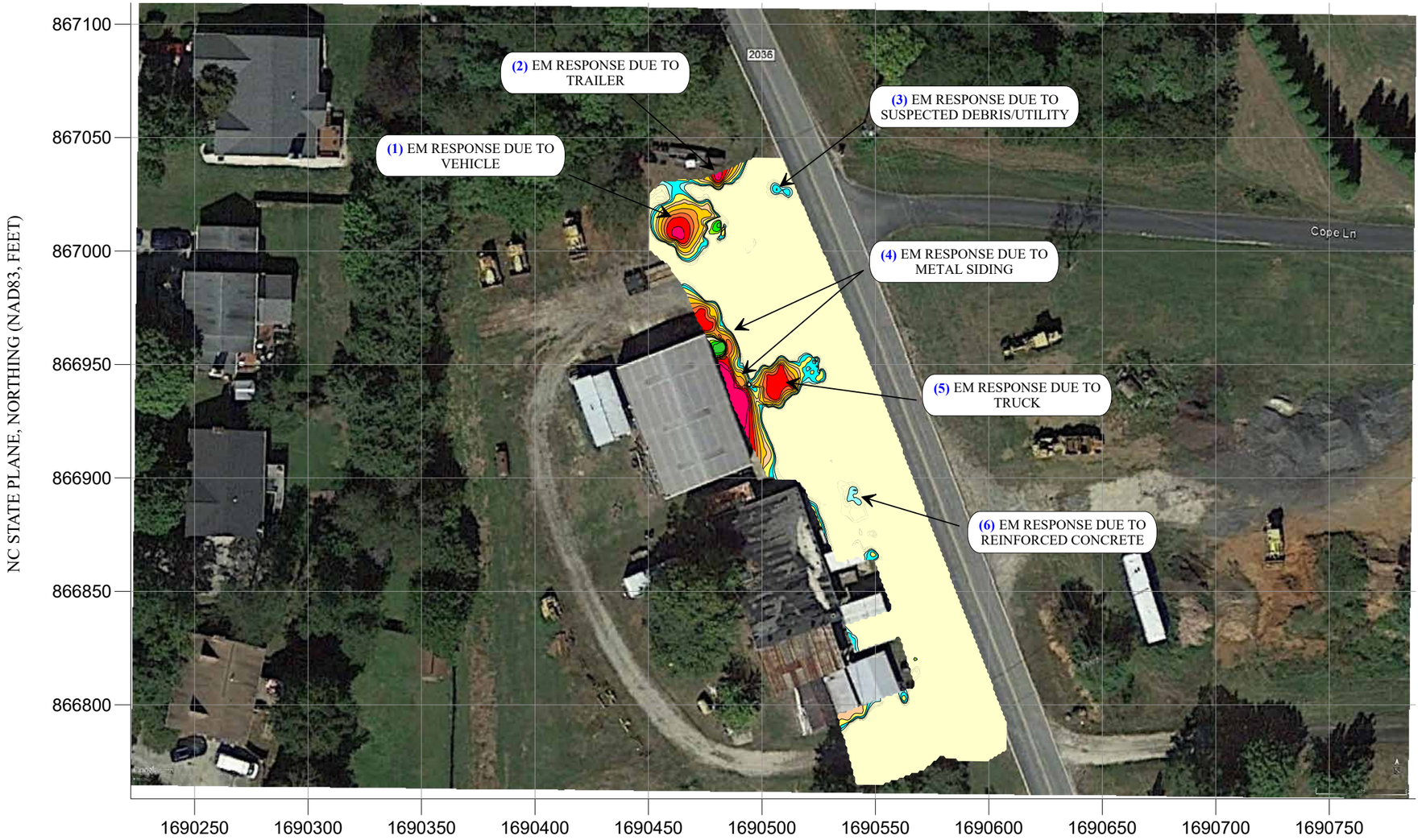
PROJECT
330 SMITH EDWARDS ROAD
KERNERSVILLE, NORTH CAROLINA
NCDOT PROJECT U-4734

Pyramid Geophysics
503 INDUSTRIAL AVENUE
GREENSBORO, NC 27460
(336) 335-3174 (p) (336) 691-0648 (f)
License # C1251 Eng. / License # C257 Geology

DATE 3/20/2017	CLIENT SOLUTIONS, IES
PYRAMID PROJECT #: 2017-060	**FIGURE 1**

N

EM61 METAL DETECTION RESULTS



NUMBERS IN BLUE (x) CORRESPOND TO ANOMALY TABLE INCLUDED IN THE REPORT

NO EVIDENCE OF UNKNOWN METALLIC USTs OBSERVED

The contour plot shows the differential results of the EM61 instrument in millivolts (mV). The differential results focus on larger metallic objects such as USTs and drums. The EM61 data were collected on March 9, 2017, using a Geonics EM61 instrument. Verification GPR data were collected using a GSSI UtilityScan DF instrument on March 9, 2017.

EM61 Metal Detection Response (millivolts)

1000 750 500 400 300 200 150 100 75 60 50 40 30 -90 -100 -200 -400 -5000

TITLE
PARCEL 023 - EM61 RESULTS
CONTOUR MAP

PROJECT
330 SMITH EDWARDS ROAD
KERNERSVILLE, NORTH CAROLINA
NCDOT PROJECT U-4734

Pyramid Geophysics
503 INDUSTRIAL AVENUE
GREENSBORO, NC 27460
(336) 335-3174 (p) (336) 691-0648 (f)
License # C1251 Eng. / License # C257 Geology

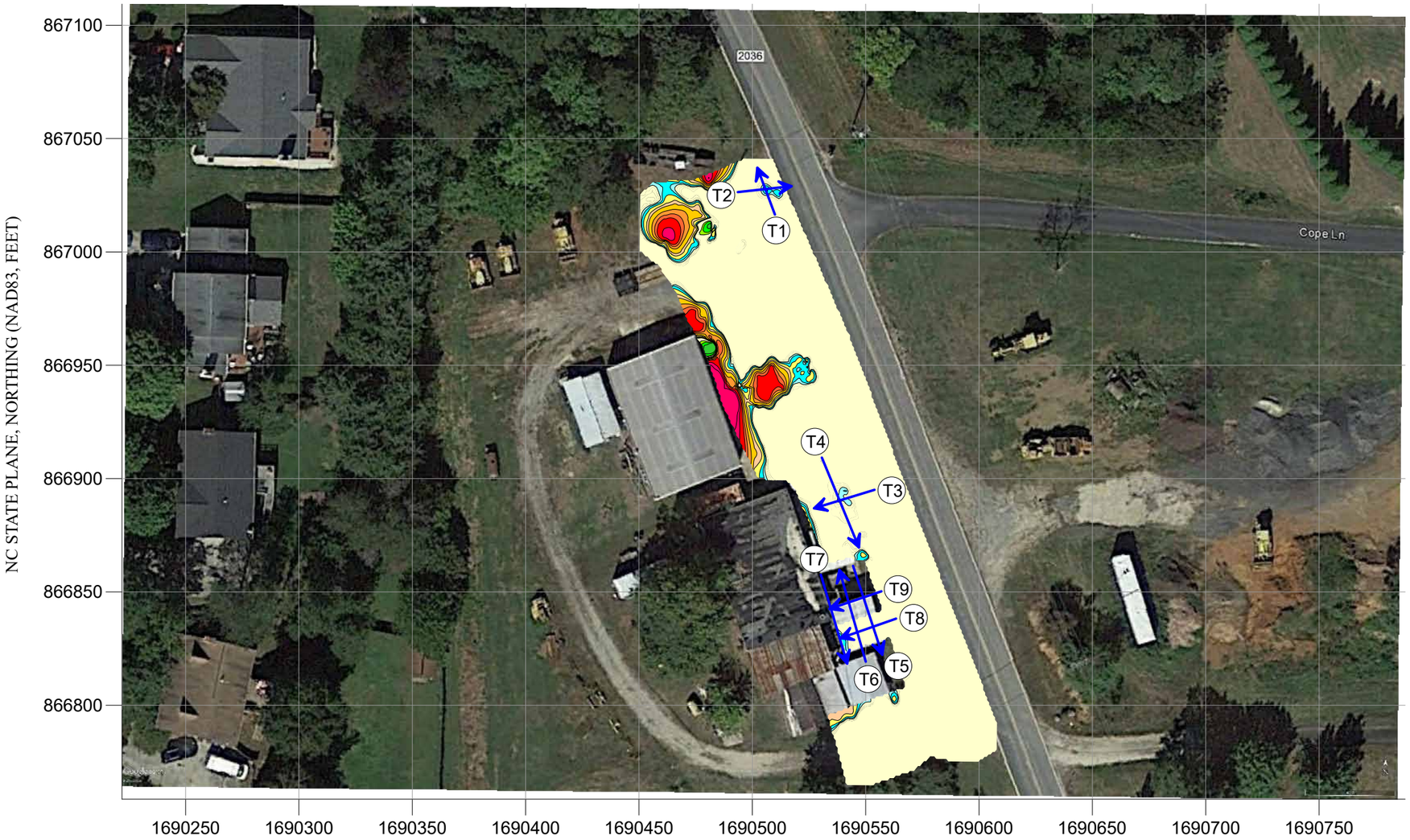
DATE 3/20/2017

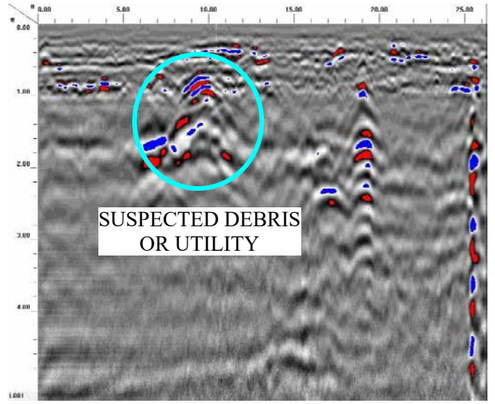
CLIENT SOLUTIONS, IES

PYRAMID PROJECT #: 2017-060

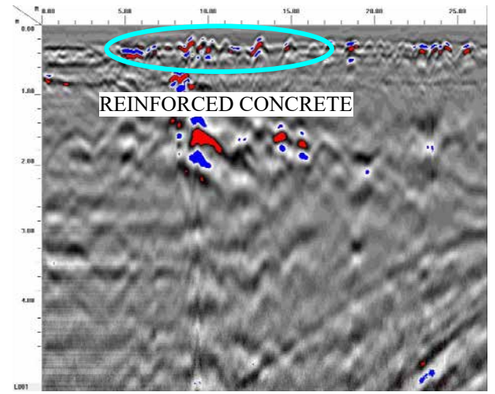
FIGURE 2

LOCATIONS OF GPR TRANSECTS



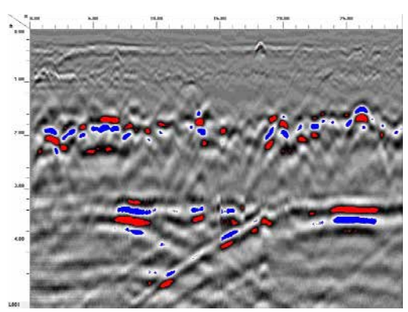


GPR TRANSECT 1 (T1)

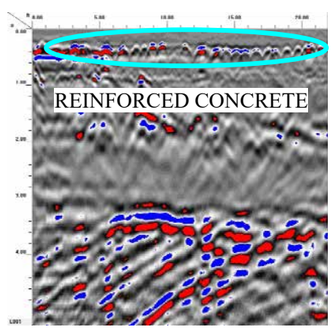


GPR TRANSECT 3 (T3)

N



GPR TRANSECT 7 (T7)



GPR TRANSECT 9 (T9)

TITLE

PARCEL 023 - GPR TRANSECT LOCATIONS AND SELECT IMAGES

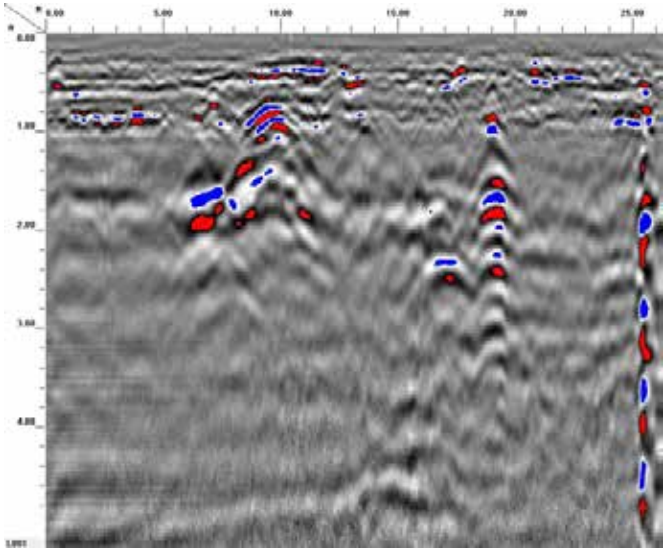
PROJECT

330 SMITH EDWARDS ROAD
KERNERSVILLE, NORTH CAROLINA
NCDOT PROJECT U-4734

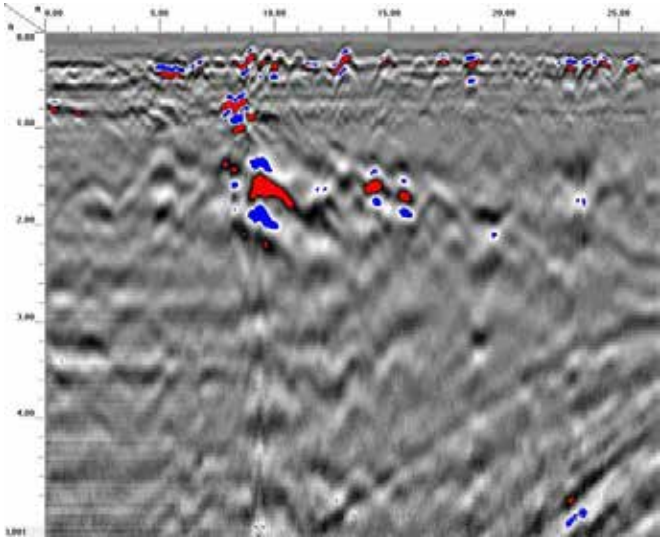
Pyramid Geophysics
503 INDUSTRIAL AVENUE
GREENSBORO, NC 27460
(336) 335-3174 (p) (336) 691-0648 (f)
License # C1251 Eng. / License # C257 Geology

DATE 3/20/2017	CLIENT SOLUTIONS, IES
PYRAMID PROJECT #: 2017-060	**FIGURE 3**

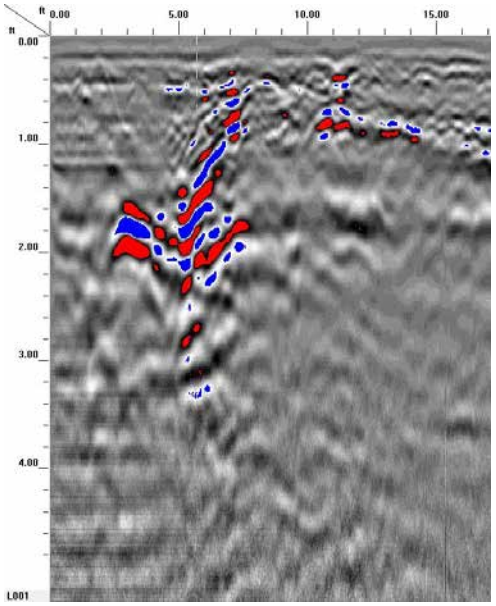
Appendix A – GPR Transect Images



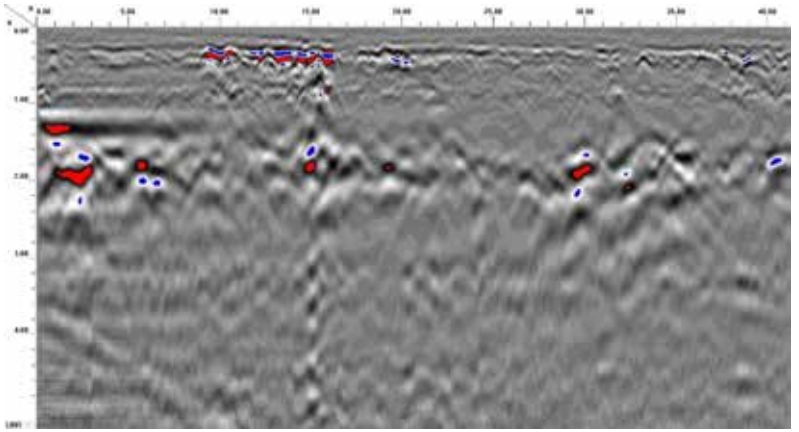
GPR TRANSECT 1



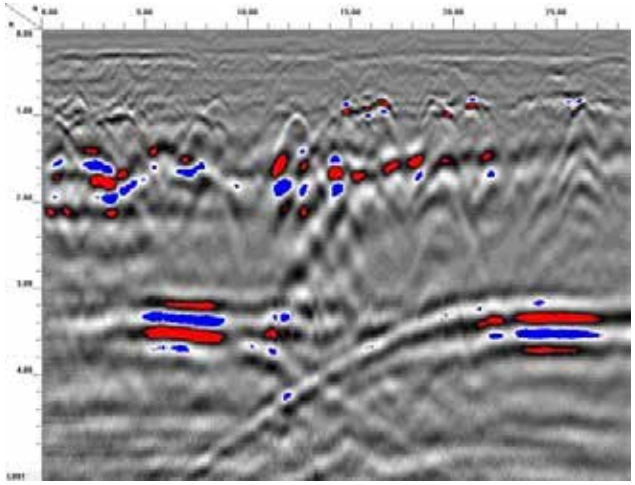
GPR TRANSECT 3



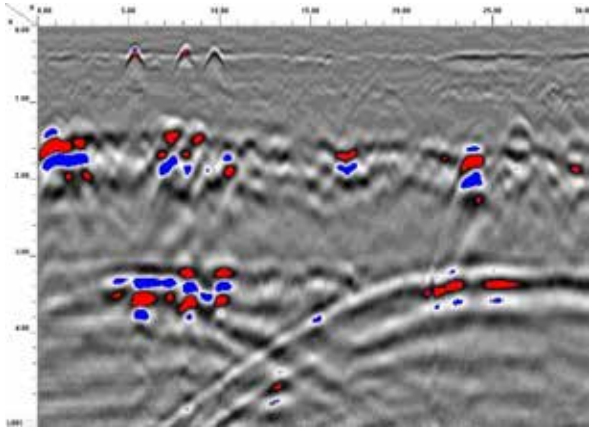
GPR TRANSECT 2



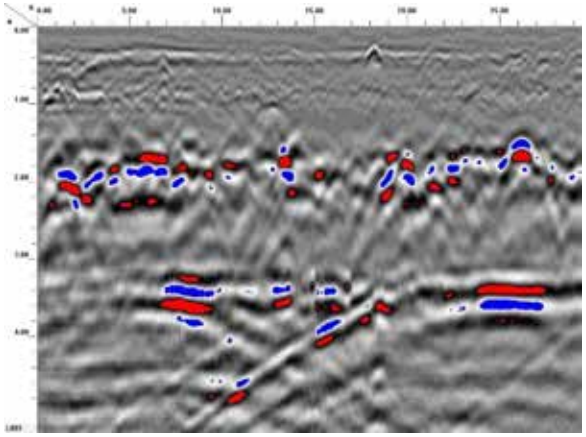
GPR TRANSECT 4



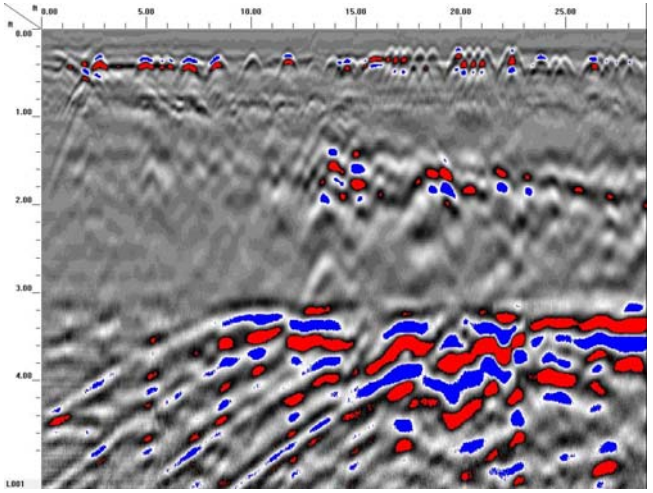
GPR TRANSECT 5



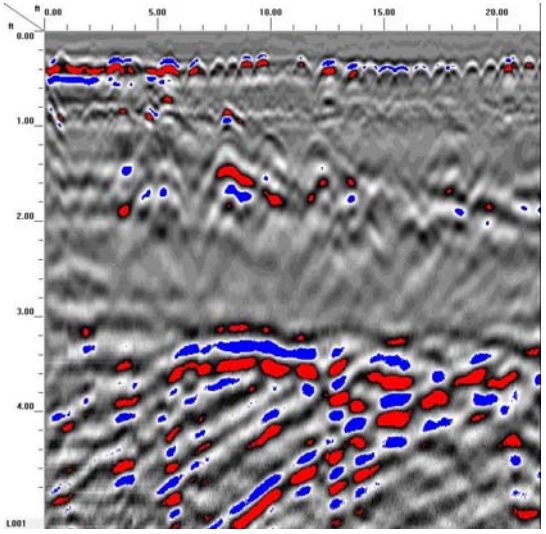
GPR TRANSECT 6



GPR TRANSECT 7



GPR TRANSECT 8



GPR TRANSECT 9

ATTACHMENT B

Log of Soil Boring:

Project: Philip Smith Property PSA (Parcel #23)
Client: NCDOT
Drilling Method: Geoprobe
Sampler Type: MacroCore
Logged By: CE

Solutions-IES
Industrial & Environmental Services
a division of Draper Aden Associates

Boring Number: SB-9
Boring Date: 3/21/2017
Total Depth of Boring: 10'
Initial Water Level:
Stabilized Water Level:
Cave In Depth:
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
		Ground Surface						
0	SM	6" gravel/fill over yellowish brown fine-grained sand and some gravel, moist, loose.				0.3	SB-9	
	ML	Light reddish brown silt, moist, hard with trace of fine gravel.				1.2		
5						0.4	SB-9-6	
	SM/ML	Dark yellowish brown fine-grained sand and silt, moist, firm.				0.1		
	SM	Orange-brown fine-grained sand with white mottling, moist, firm.						
		Light yellowish brown fine-grained sand, moist, soft.				0.1		
10		Boring terminated at 10 feet No groundwater encountered.						
15								
20								

Log of Soil Boring:

Project: Philip Smith Property PSA (Parcel #23)
Client: NCDOT
Drilling Method: Geoprobe
Sampler Type: MacroCore
Logged By: CE

Solutions-IES
Industrial & Environmental Services
a division of Draper Aden Associates

Boring Number: SB-10
Boring Date: 3/21/2017
Total Depth of Boring: 10'
Initial Water Level:
Stabilized Water Level:
Cave In Depth:
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
		Ground Surface						
0	SM/ML	6" gravel/fill over yellowish brown fine-grained sand/silt and some gravel, moist, loose.				0.5	SB-10	
						0.5		
5	ML	Orange-brown silt, moist, hard.				1.8	SB-10-6	
						0.3		
	SM	Yellowish brown fine-grained sand with some coarse-grained sand, moist, loose.				0.6		
10		Boring terminated at 10 feet No groundwater encountered.						
15								
20								

Log of Soil Boring:

Project: Philip Smith Property PSA (Parcel #23)
Client: NCDOT
Drilling Method: Geoprobe
Sampler Type: MacroCore
Logged By: CE

Solutions-IES
Industrial & Environmental Services
a division of Draper Aden Associates

Boring Number: SB-11
Boring Date: 3/21/2017
Total Depth of Boring: 10'
Initial Water Level:
Stabilized Water Level:
Cave In Depth:
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
		Ground Surface						
0	SM/ML	6" gravel/fill over yellowish brown fine-grained sand/silt and some gravel, moist, firm.				0.7	SB-11	
	ML	Orange-brown silt, moist, hard.				0.8		
5	SM	Orange brown fine-grained sand, moist, firm.				1.2	SB-11-6	
	ML	Orange brown silt with some coarse-grained sand, moist, hard.				0.5		
	SM	Yellowish brown fine-grained sand, moist, loose.				0.6		
10		Boring terminated at 10 feet No groundwater encountered.						
15								
20								

Log of Soil Boring:

Project: Philip Smith Property PSA (Parcel #23)
Client: NCDOT
Drilling Method: Geoprobe
Sampler Type: MacroCore
Logged By: CE

Solutions-IES
Industrial & Environmental Services
a division of Draper Aden Associates

Boring Number: SB-12
Boring Date: 3/21/2017
Total Depth of Boring: 10'
Initial Water Level:
Stabilized Water Level:
Cave In Depth:
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
		Ground Surface						
0	SM/ML	6" gravel/fill over yellowish brown fine-grained sand/silt, moist, firm.				0.8	SB-12	
	ML	Orange-brown silt, moist, hard.				0.5		
5						0.8		
	SM	Orange brown silt with some coarse-grained sand, moist, soft.				0.8		
	SM	Yellowish brown fine-grained sand, moist, soft.				1.3	SB-12-10	
10		Boring terminated at 10 feet No groundwater encountered.						
15								
20								

Log of Soil Boring:

Project: Philip Smith Property PSA (Parcel #23)
Client: NCDOT
Drilling Method: Geoprobe
Sampler Type: MacroCore
Logged By: CE

Solutions-IES
Industrial & Environmental Services
a division of Draper Aden Associates

Boring Number: SB-13
Boring Date: 3/21/2017
Total Depth of Boring: 10'
Initial Water Level:
Stabilized Water Level:
Cave In Depth:
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
		Ground Surface						
0	SM/ML	6" gravel/fill over yellowish brown fine-grained sand/silt, moist, firm.				1.7	SB-13	
	ML	Orange-brown silt, white mottling increases downward, moist, hard.				1.0	SB-13-2	
5						0.9		
	SM	Light yellowish brown fine-grained sand with some coarse-grained sand, moist, soft.				1.0		
10						0.3		
		Boring terminated at 10 feet No groundwater encountered.						
15								
20								

Log of Soil Boring:

Project: Philip Smith Property PSA (Parcel #23)
Client: NCDOT
Drilling Method: Geoprobe
Sampler Type: MacroCore
Logged By: CE

Solutions-IES
Industrial & Environmental Services
a division of Draper Aden Associates

Boring Number: SB-14
Boring Date: 3/21/2017
Total Depth of Boring: 10'
Initial Water Level:
Stabilized Water Level:
Cave In Depth:
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
		Ground Surface						
0	SM	6" concrete over yellowish brown fine-grained sand, moist, firm.				1.7	SB-14	
	ML	Orange-brown silt, moist, firm.				0.4		
5						0.5	SB-14-6	
	SM	Yellowish brown fine-grained sand withblack and white mottling, moist, soft.				0.0		
10		Boring terminated at 10 feet No groundwater encountered.				0.0		
15								
20								

Log of Soil Boring:

Project: Philip Smith Property PSA (Parcel #23)
Client: NCDOT
Drilling Method: Geoprobe
Sampler Type: MacroCore
Logged By: CE

Solutions-IES
Industrial & Environmental Services
a division of Draper Aden Associates

Boring Number: SB-15
Boring Date: 3/21/2017
Total Depth of Boring: 10'
Initial Water Level:
Stabilized Water Level:
Cave In Depth:
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
		Ground Surface						
0	ML/SM	6" gravel over yellowish brown silt and fine-grained sand with black and white mottling, moist, firm.				0.1	SB-15	
	ML	Orange-brown silt with black and white mottling, moist, firm.				0.2		
5						0.5	SB-15-6	
	SM	Yellowish brown fine-grained sand with black and white mottling, moist, soft.				0.1		
10						0.0	SB-15-10	
		Boring terminated at 10 feet No groundwater encountered.						
15								
20								

Log of Soil Boring:

Project: Philip Smith Property PSA (Parcel #23)
Client: NCDOT
Drilling Method: Geoprobe
Sampler Type: MacroCore
Logged By: CE

Solutions-IES
Industrial & Environmental Services
a division of Draper Aden Associates

Boring Number: SB-16
Boring Date: 3/21/2017
Total Depth of Boring: 10'
Initial Water Level:
Stabilized Water Level:
Cave In Depth:
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
		Ground Surface						
0	SM/ML	6" gravel over light yellowish brown silt and medium-grained sand with black and white mottling, moist, firm.				0.1	SB-16	
	ML	Orange-brown silt with black and white mottling, moist, firm to hard.				0.2		
5						0.5	SB-16-4	
	SM	Yellowish brown fine-grained sand with black and white mottling, moist, soft.				0.1		
10						0.0	SB-16-10	
		Boring terminated at 10 feet No groundwater encountered.						
15								
20								

Log of Soil Boring:

Project: Philip Smith Property PSA (Parcel #23)
Client: NCDOT
Drilling Method: Geoprobe
Sampler Type: MacroCore
Logged By: CE

Solutions-IES
Industrial & Environmental Services
a division of Draper Aden Associates

Boring Number: SB-17
Boring Date: 3/21/2017
Total Depth of Boring: 10'
Initial Water Level:
Stabilized Water Level:
Cave In Depth:
County: Forsyth

SUBSURFACE PROFILE			SAMPLE					
Depth ft. bgs	USCS Symbol	Description	Sample Interval	% Recovery	PID Field Screen ppm	FID Field Screen ppm	Lab Sample Depth	Well Data
		Ground Surface						
0	SM/ML	Orange brown fine-grained sand/silt, moist, firm.				0.0	SB-17	
	ML	Orange-brown silt with black streaks, moist, firm to hard.				0.0		
5						0.0	SB-17-6	
	SM	Light yellowish brown fine-grained sand with some medium-grained sand, moist, loose.				0.0		
10						0.0	SB-17-10	
		Boring terminated at 10 feet No groundwater encountered.						
15								
20								

ATTACHMENT C

PHOTO 1- VIEW OF SOIL BORING LOOKING WEST

PHOTO 2 - VIEW OF SOIL BORINGS LOOKING EAST

PHOTO 3 - VIEW OF SOIL BORING LOOKING SOUTH

PHOTO 4 - VIEW OF SOIL BORING LOOKING SOUTH

PHOTO 5 - VIEW OF SOIL BORINGS LOOKING SOUTH

PHOTO 6 - VIEW OF SOIL BORING LOOKING SOUTH

PHOTO 7 - VIEW OF SOIL BORING LOOKING SOUTH

PHOTO 8 - VIEW OF SOIL BORING LOOKING SOUTH

ATTACHMENT D

QED

REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Hydrocarbon Analysis Results

Client: SIES
Address: 1101 NOWELL ROAD
RALEIGH NC 27607

Samples taken Tuesday, March 21, 2017
Samples extracted Tuesday, March 21, 2017
Samples analysed Wednesday, March 22, 2017

Contact: M BRANSON
MBRANSON@DAA.COM 919-873-1060
Project: NCDOT 2017.0015

Operator NICK HENDRIX

U00902

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
										C5 - C10	C10 - C18	C18	
s	SB-6-4	31.3	<0.78	<0.78	9.5	9.5	4.6	0.5	<0.031	0	80.4	19.6	Road Tar 66.8%,(FCM)
s	SB-6-10	29.9	<0.75	<0.75	1.1	1.1	0.56	<0.24	<0.03	59.5	30.5	10	V.Deg.PHC 71.5%,(FCM)
s	SB-7-2	27.4	<0.68	<0.68	7.8	7.8	3.5	<0.22	<0.027	0	77	23	Deg Fuel 73.2%,(FCM)
s	SB-7-10	30.2	<0.76	<0.76	14.5	14.5	7	0.79	<0.03	0	79.8	20.2	Road Tar 77.7%,(FCM)
s	SB-8-6	44.8	<1.1	<1.1	3.7	3.7	1.7	<0.36	<0.045	0	75.6	24.4	Deg Fuel 71.7%,(FCM)
s	SB-8-10	28.6	<0.71	<0.71	4	4	1.8	<0.23	<0.029	0	82.2	17.8	Deg.Fuel 74.2%,(FCM)
s	SB-9-6	24.3	<0.61	<0.61	0.61	0.61	0.31	<0.19	<0.024	0	94.1	5.9	Residual HC
s	SB-10-6	27.7	<0.69	<0.69	4	4	2	<0.22	<0.028	0	80.7	19.3	Deg Fuel 77.8%,(FCM)
s	SB-11-6	24.8	<0.62	<0.62	0.62	0.62	0.33	<0.2	<0.025	0	75.8	24.2	V.Deg.PHC 89.3%,(FCM)
s	SB-12-10	14.4	<0.36	<0.36	0.36	0.36	<0.07	<0.12	<0.014	0	100	0	Deg Fuel 74.2%,(FCM)

Initial Calibrator QC check OK Final FCM QC Check OK 96.6 %

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

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

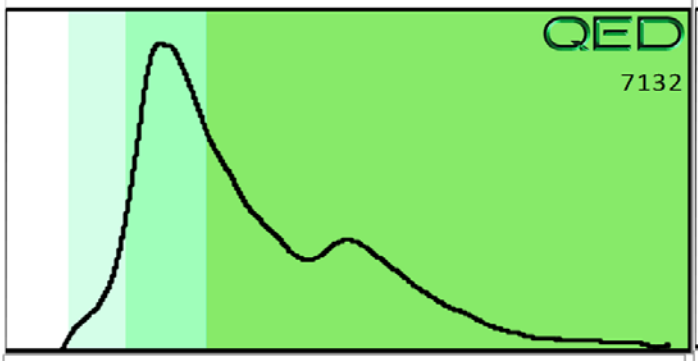
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

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

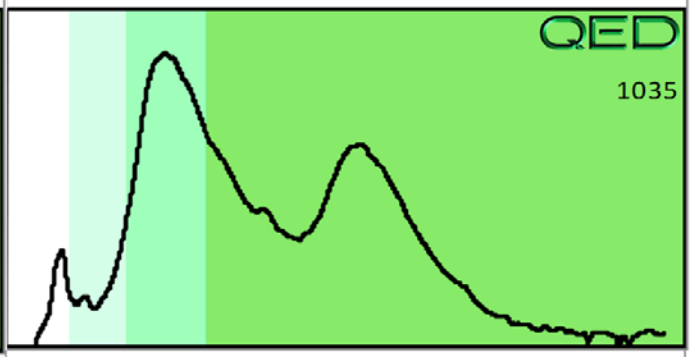
QED Hydrocarbon Fingerprints

Project: NCDOT 2017.0015 Wednesday, March 22, 2017

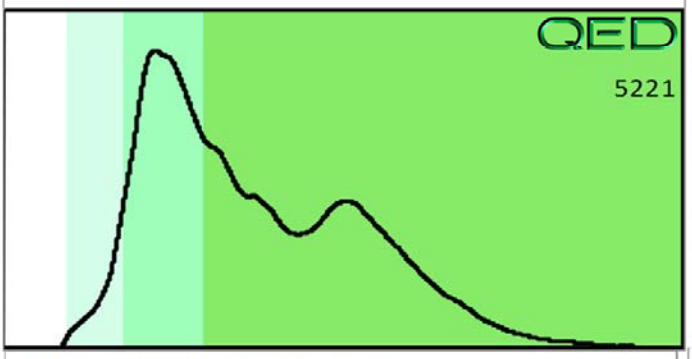
SB-6-4 : Road Tar 66.8%,(FCM)



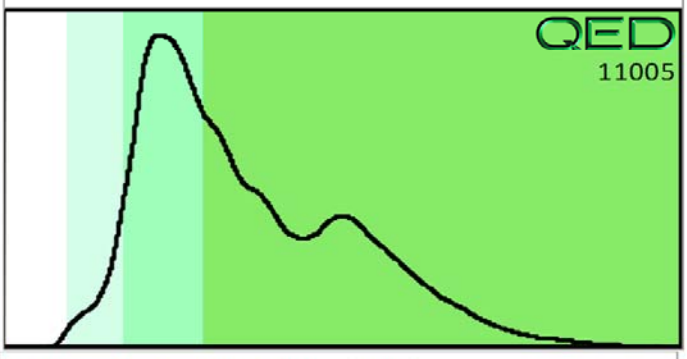
SB-6-10 : V.Deg.PHC 71.5%,(FCM)



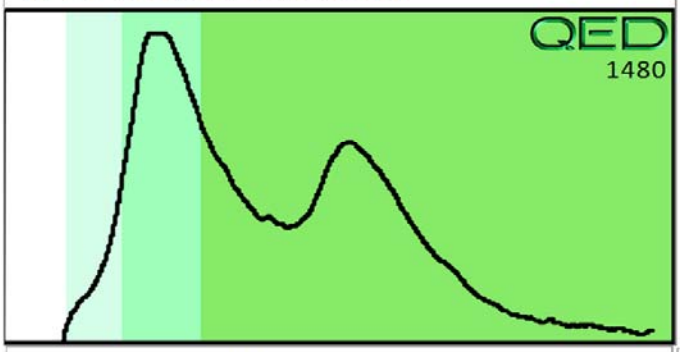
SB-7-2 : Deg Fuel 73.2%,(FCM)



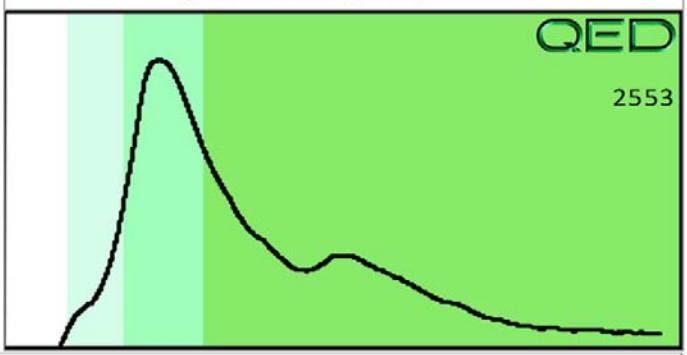
SB-7-10 : Road Tar 77.7%,(FCM)



SB-8-6 : Deg Fuel 71.7%,(FCM)

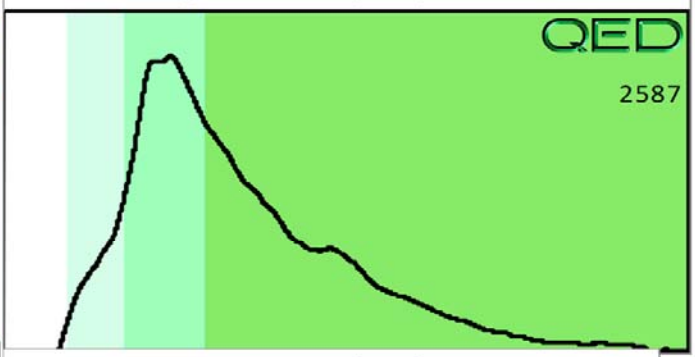


SB-8-10 : Deg.Fuel 74.2%,(FCM)



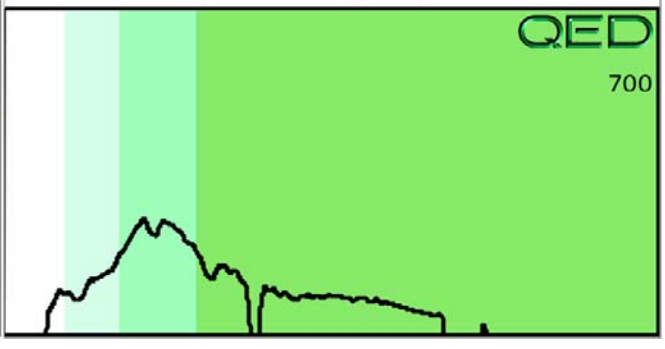
SB-9-6 : Residual HC

SB-10-6 : Deg Fuel 77.8%,(FCM)



SB-11-6 : V.Deg.PHC 89.3%,(FCM)

SB-12-10 : Deg Fuel 74.2%,(FCM)



QED

REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Hydrocarbon Analysis Results

Client: SIES
Address: 1101 NOWELL RD
RALEIGH, NC 27607

Samples taken Monday, March 20, 2017
Samples extracted Monday, March 20, 2017
Samples analysed Wednesday, March 22, 2017

Contact: M BRANSON

Operator BRUZDZINSKI

Project: NCDOT 2017.0015

H09382

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
										C5 - C10	C10 - C18	C18	
s	SB-13-2	9.5	<0.24	<0.24	0.47	0.47	0.29	<0.08	<0.01	0	69.5	30.5	V.Deg.PHC 75.4%,(FCM)
s	SB-14-6	10.8	<0.27	<0.27	<0.27	0.18	0.18	<0.09	<0.011	0	56.3	43.7	Residual HC,(BO),(P)
s	SB-15-6	10.4	<0.26	2.1	0.43	2.53	0.41	<0.08	<0.01	94.8	2.9	2.3	No Match found
s	SB-16-4	9.1	<0.23	<0.23	<0.23	0.12	0.12	<0.07	<0.009	0	100	0	Residual HC
s	SB-15-10	13.0	<0.32	0.91	2.1	3	2.1	<0.1	<0.013	55.9	33	11.1	Deg.Fuel 76.4%,(FCM)
s	SB-16-10	11.6	<0.29	2.1	3.2	5.3	3.2	0.16	<0.012	66	27.9	6.1	Deg.Fuel 79.6%,(FCM)
s	SB-17-6	9.3	<0.23	<0.23	2.5	2.5	1.4	<0.07	<0.009	0	73.9	26.1	Deg.PHC 76.4%,(FCM)
s	SB-17-10	12.0	<0.3	<0.3	<0.3	<0.3	<0.06	<0.1	<0.012	0	0	0	,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 87.1 %

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

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

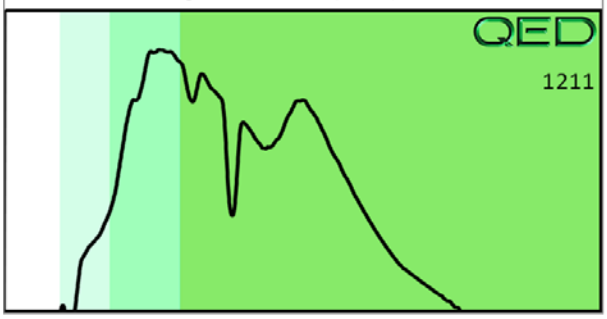
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

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

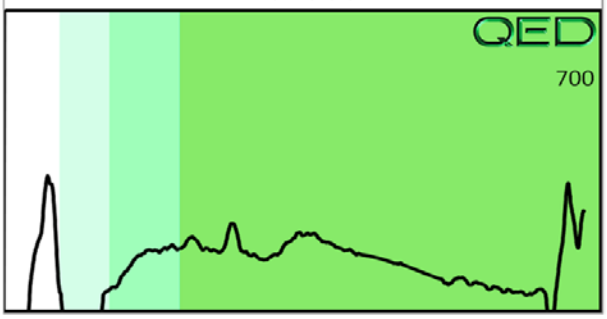
QED Hydrocarbon Fingerprints

Project: NCDOT 2017.0015 Wednesday, March 22, 2017

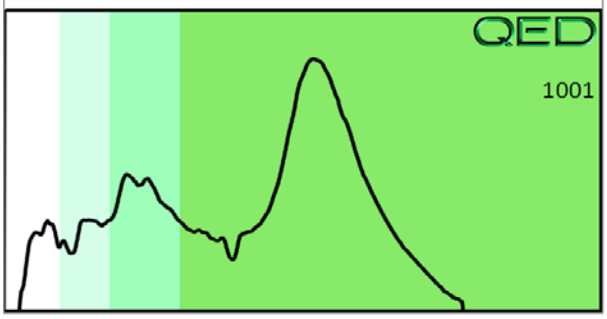
SB-13-2 : V.Deg.PHC 75.4%,(FCM)



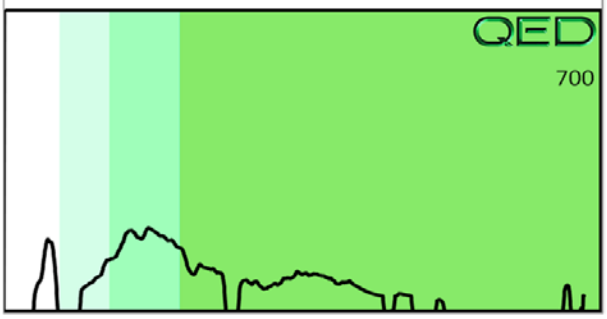
SB-14-6 : Residual HC,(BO),(P)



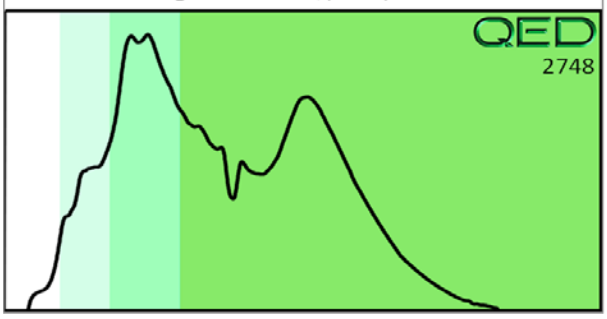
SB-15-6 : No Match found



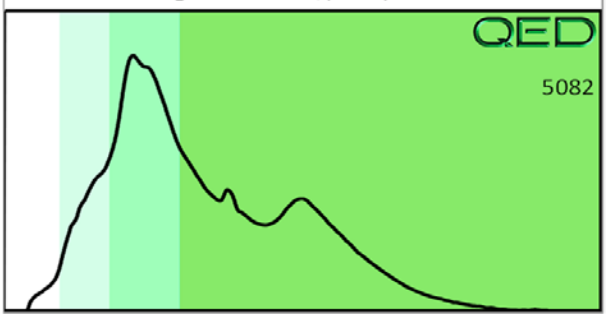
SB-16-4 : Residual HC



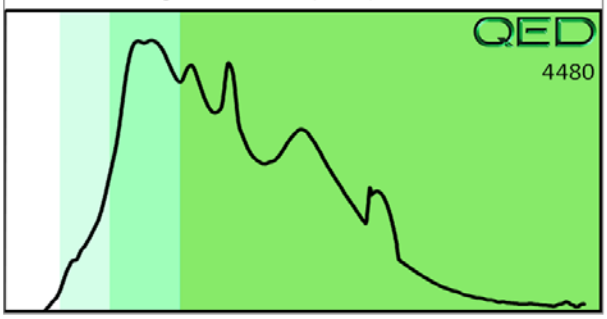
SB-15-10 : Deg.Fuel 76.4%,(FCM)



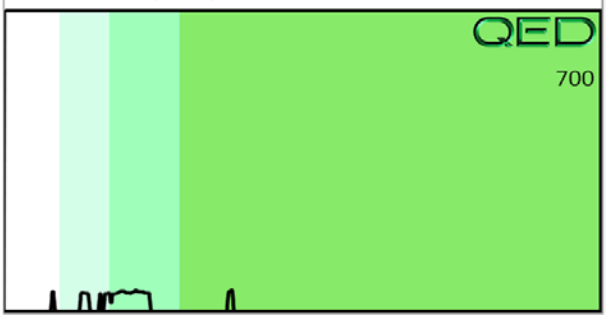
SB-16-10 : Deg.Fuel 79.6%,(FCM)



SB-17-6 : Deg.PHC 76.4%,(FCM)



SB-17-10 : ,(FCM)



Client Name:	SIES
Address:	1101 NOWELL RD RALIEGH, NC 27607
Contact:	MBRANSON
Project Ref.:	
Email:	mbranson@daa.com
Phone #:	919-873-1060
Collected by:	CANDY ELLIOTT

REDLAB™
RAPID ENVIRONMENTAL DIAGNOSTICS

CHAIN OF CUSTODY AND ANALYTICAL REQUEST FORM

RED Lab, LLC
5598 Marvin K Moss Lane
MARBIONC Bldg, Suite 2003
Wilmington, NC 28409

Each sample will be analyzed for BTEX, GRO, DRO, TPH, PAH total aromatics and BaP

Sample Collection Date/Time	TAT Requested 24 Hour	TAT Requested 48 Hour	Matrix (S/W)	Sample ID	UVF	GC BTEX	Total Wt.	Tare Wt.	Sample Wt.
3/20/17 1030			S	SB-1-10			54.9	45.2	9.7
1040				SB-1-12			55.7	45.1	10.6
1045				SB-2-10			54.5	45.1	9.4
1055				SB-2-12			53.3	44.3	9.0
1115				SB-3-10			55.6	45.5	10.1
1120				SB-3-12			54.7	44.9	12.8
1150				SB-4-6			53.8	45.1	8.7
1200				SB-4-10			55.0	45.2	9.8
1230				SB-5-8			56.1	45.5	10.6
1240				SB-5-10			54.8	45.4	9.4
1325				SB-6-4			534	45.1	8.3
1340				SB-6-10			53.9	45.2	8.7
1350				SB-7-2			54.9	45.4	9.5
1355				SB-7-10			53.3	44.7	8.6
1410				SB-8-6			51.1	45.3	5.8
1415				SB-8-10			53.6	44.5	9.1
3/21/17 0840				SB-9-6			55.6	44.9	10.7
0910				SB-10-6			54.2	44.8	9.4
0930				SB-11-6			55.5	45.0	10.5
1000				SB-12-10			55.0	45.3	9.7

Comments: STANDARD TAT

Relinquished by	Date/Time	Accepted by	Date/Time
	3/21/17		3.22.17 1355
Relinquished by	Date/Time	Accepted by	Date/Time

RED Lab USE ONLY
20

Client Name:	SIES
Address:	1101 Nowell Rd Raleigh NC 27607
Contact:	M Branson
Project Ref.:	NCDOT 2017.0015
Email:	mbranson@daa.com
Phone #:	919-873-1060
Collected by:	Candy Elliott

REDLAB™
RAPID ENVIRONMENTAL DIAGNOSTICS

CHAIN OF CUSTODY AND ANALYTICAL REQUEST FORM

RED Lab, LLC
5598 Marvin K Moss Lane
MARBIONC Bldg, Suite 2003
Wilmington, NC 28409

Each sample will be analyzed for BTEX, GRO, DRO, TPH, PAH total aromatics and BaP

Sample Collection Date/Time	TAT Requested 24 Hour	TAT Requested 48 Hour	Matrix (S/W)	Sample ID	UVF	GC BTEX	Total Wt.	Tare Wt.	Sample Wt.
3-21-17 1035				SB-13-2			55.4	44.9	~~55.1~~ 10.5
1100				SB-14-6			54.4	45.1	9.3
1150				SB-15-6			55.1	45.5	9.6
1205				SB-16-4			56.9	44.9	11.0
1155				SB-15-10			52.5	44.8	7.7
1215				SB-16-10			53.6	45.0	8.6
1225				SB-17-6			55.6	44.9	10.7
1230				SB-17-10			53.4	45.1	8.3

Comments: STANDARD TAT

Relinquished by	Date/Time	Accepted by	Date/Time
	3/21/17		3.22.17 1315
Relinquished by	Date/Time	Accepted by	Date/Time

RED Lab USE ONLY

8

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

March 27, 2017

Candy Elliott
Soutions-IES
1101 Nowell Rd
Raleigh, NC 27607

RE: Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Dear Candy Elliott:
Enclosed are the analytical results for sample(s) received by the laboratory on March 22, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Kevin Godwin
kevin.godwin@pacelabs.com
1(704)875-9092
Project Manager

Enclosures

cc: Mike Branson, Solutions-IES
Chemical Testing Engineer, NCDOT

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

CERTIFICATIONS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

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
Virginia/VELAP Certification #: 460221

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

SAMPLE ANALYTE COUNT

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92334213001	**SB-9**	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	CLW	1	PASI-C
92334213002	**SB-10**	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	CLW	1	PASI-C
92334213003	**SB-11**	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	CLW	1	PASI-C
92334213004	**SB-12**	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	CLW	1	PASI-C
92334213005	**SB-13**	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	CLW	1	PASI-C
92334213006	**SB-14**	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	CLW	1	PASI-C
92334213007	**SB-15**	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	CLW	1	PASI-C
92334213008	**SB-16**	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	CLW	1	PASI-C
92334213009	**SB-17**	EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	CLW	1	PASI-C

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Sample: SB-9 **Lab ID: 92334213001** Collected: 03/21/17 08:30 Received: 03/22/17 08:05 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	101	1		03/23/17 17:42	67-64-1	
Benzene	ND	ug/kg	5.0	1		03/23/17 17:42	71-43-2	
Bromobenzene	ND	ug/kg	5.0	1		03/23/17 17:42	108-86-1	
Bromochloromethane	ND	ug/kg	5.0	1		03/23/17 17:42	74-97-5	
Bromodichloromethane	ND	ug/kg	5.0	1		03/23/17 17:42	75-27-4	
Bromoform	ND	ug/kg	5.0	1		03/23/17 17:42	75-25-2	
Bromomethane	ND	ug/kg	10.1	1		03/23/17 17:42	74-83-9	
2-Butanone (MEK)	ND	ug/kg	101	1		03/23/17 17:42	78-93-3	
n-Butylbenzene	ND	ug/kg	5.0	1		03/23/17 17:42	104-51-8	
sec-Butylbenzene	ND	ug/kg	5.0	1		03/23/17 17:42	135-98-8	
tert-Butylbenzene	ND	ug/kg	5.0	1		03/23/17 17:42	98-06-6	
Carbon tetrachloride	ND	ug/kg	5.0	1		03/23/17 17:42	56-23-5	
Chlorobenzene	ND	ug/kg	5.0	1		03/23/17 17:42	108-90-7	
Chloroethane	ND	ug/kg	10.1	1		03/23/17 17:42	75-00-3	
Chloroform	ND	ug/kg	5.0	1		03/23/17 17:42	67-66-3	
Chloromethane	ND	ug/kg	10.1	1		03/23/17 17:42	74-87-3	
2-Chlorotoluene	ND	ug/kg	5.0	1		03/23/17 17:42	95-49-8	
4-Chlorotoluene	ND	ug/kg	5.0	1		03/23/17 17:42	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.0	1		03/23/17 17:42	96-12-8	
Dibromochloromethane	ND	ug/kg	5.0	1		03/23/17 17:42	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.0	1		03/23/17 17:42	106-93-4	
Dibromomethane	ND	ug/kg	5.0	1		03/23/17 17:42	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	5.0	1		03/23/17 17:42	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.0	1		03/23/17 17:42	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.0	1		03/23/17 17:42	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	10.1	1		03/23/17 17:42	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.0	1		03/23/17 17:42	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.0	1		03/23/17 17:42	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.0	1		03/23/17 17:42	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.0	1		03/23/17 17:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.0	1		03/23/17 17:42	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.0	1		03/23/17 17:42	78-87-5	
1,3-Dichloropropane	ND	ug/kg	5.0	1		03/23/17 17:42	142-28-9	
2,2-Dichloropropane	ND	ug/kg	5.0	1		03/23/17 17:42	594-20-7	
1,1-Dichloropropene	ND	ug/kg	5.0	1		03/23/17 17:42	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	5.0	1		03/23/17 17:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.0	1		03/23/17 17:42	10061-02-6	
Diisopropyl ether	ND	ug/kg	5.0	1		03/23/17 17:42	108-20-3	
Ethylbenzene	ND	ug/kg	5.0	1		03/23/17 17:42	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	5.0	1		03/23/17 17:42	87-68-3	
2-Hexanone	ND	ug/kg	50.3	1		03/23/17 17:42	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.0	1		03/23/17 17:42	98-82-8	
p-Isopropyltoluene	ND	ug/kg	5.0	1		03/23/17 17:42	99-87-6	
Methylene Chloride	ND	ug/kg	20.1	1		03/23/17 17:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	50.3	1		03/23/17 17:42	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.0	1		03/23/17 17:42	1634-04-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Sample: SB-9 **Lab ID: 92334213001** Collected: 03/21/17 08:30 Received: 03/22/17 08:05 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Naphthalene	ND	ug/kg	5.0	1		03/23/17 17:42	91-20-3	
n-Propylbenzene	ND	ug/kg	5.0	1		03/23/17 17:42	103-65-1	
Styrene	ND	ug/kg	5.0	1		03/23/17 17:42	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	5.0	1		03/23/17 17:42	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.0	1		03/23/17 17:42	79-34-5	
Tetrachloroethene	ND	ug/kg	5.0	1		03/23/17 17:42	127-18-4	
Toluene	ND	ug/kg	5.0	1		03/23/17 17:42	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	5.0	1		03/23/17 17:42	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	5.0	1		03/23/17 17:42	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.0	1		03/23/17 17:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.0	1		03/23/17 17:42	79-00-5	
Trichloroethene	ND	ug/kg	5.0	1		03/23/17 17:42	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.0	1		03/23/17 17:42	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	5.0	1		03/23/17 17:42	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	5.0	1		03/23/17 17:42	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	5.0	1		03/23/17 17:42	108-67-8	
Vinyl acetate	ND	ug/kg	50.3	1		03/23/17 17:42	108-05-4	
Vinyl chloride	ND	ug/kg	10.1	1		03/23/17 17:42	75-01-4	
Xylene (Total)	ND	ug/kg	10.1	1		03/23/17 17:42	1330-20-7	
m&p-Xylene	ND	ug/kg	10.1	1		03/23/17 17:42	179601-23-1	
o-Xylene	ND	ug/kg	5.0	1		03/23/17 17:42	95-47-6	
Surrogates								
Toluene-d8 (S)	100	%	70-130	1		03/23/17 17:42	2037-26-5	
4-Bromofluorobenzene (S)	97	%	70-130	1		03/23/17 17:42	460-00-4	
1,2-Dichloroethane-d4 (S)	113	%	70-132	1		03/23/17 17:42	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**6.9**	%	0.10	1		03/23/17 08:36		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Sample: SB-10 **Lab ID: 92334213002** Collected: 03/21/17 09:00 Received: 03/22/17 08:05 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	118	1		03/23/17 18:02	67-64-1	
Benzene	ND	ug/kg	5.9	1		03/23/17 18:02	71-43-2	
Bromobenzene	ND	ug/kg	5.9	1		03/23/17 18:02	108-86-1	M1
Bromochloromethane	ND	ug/kg	5.9	1		03/23/17 18:02	74-97-5	
Bromodichloromethane	ND	ug/kg	5.9	1		03/23/17 18:02	75-27-4	
Bromoform	ND	ug/kg	5.9	1		03/23/17 18:02	75-25-2	M1
Bromomethane	ND	ug/kg	11.8	1		03/23/17 18:02	74-83-9	M1
2-Butanone (MEK)	ND	ug/kg	118	1		03/23/17 18:02	78-93-3	
n-Butylbenzene	ND	ug/kg	5.9	1		03/23/17 18:02	104-51-8	M1
sec-Butylbenzene	ND	ug/kg	5.9	1		03/23/17 18:02	135-98-8	M1
tert-Butylbenzene	ND	ug/kg	5.9	1		03/23/17 18:02	98-06-6	M1
Carbon tetrachloride	ND	ug/kg	5.9	1		03/23/17 18:02	56-23-5	
Chlorobenzene	ND	ug/kg	5.9	1		03/23/17 18:02	108-90-7	
Chloroethane	ND	ug/kg	11.8	1		03/23/17 18:02	75-00-3	
Chloroform	ND	ug/kg	5.9	1		03/23/17 18:02	67-66-3	
Chloromethane	ND	ug/kg	11.8	1		03/23/17 18:02	74-87-3	M1
2-Chlorotoluene	ND	ug/kg	5.9	1		03/23/17 18:02	95-49-8	M1
4-Chlorotoluene	ND	ug/kg	5.9	1		03/23/17 18:02	106-43-4	M1
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.9	1		03/23/17 18:02	96-12-8	M1
Dibromochloromethane	ND	ug/kg	5.9	1		03/23/17 18:02	124-48-1	M1
1,2-Dibromoethane (EDB)	ND	ug/kg	5.9	1		03/23/17 18:02	106-93-4	M1
Dibromomethane	ND	ug/kg	5.9	1		03/23/17 18:02	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	5.9	1		03/23/17 18:02	95-50-1	M1
1,3-Dichlorobenzene	ND	ug/kg	5.9	1		03/23/17 18:02	541-73-1	M1
1,4-Dichlorobenzene	ND	ug/kg	5.9	1		03/23/17 18:02	106-46-7	M1
Dichlorodifluoromethane	ND	ug/kg	11.8	1		03/23/17 18:02	75-71-8	M1
1,1-Dichloroethane	ND	ug/kg	5.9	1		03/23/17 18:02	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.9	1		03/23/17 18:02	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.9	1		03/23/17 18:02	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.9	1		03/23/17 18:02	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.9	1		03/23/17 18:02	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.9	1		03/23/17 18:02	78-87-5	
1,3-Dichloropropane	ND	ug/kg	5.9	1		03/23/17 18:02	142-28-9	
2,2-Dichloropropane	ND	ug/kg	5.9	1		03/23/17 18:02	594-20-7	
1,1-Dichloropropene	ND	ug/kg	5.9	1		03/23/17 18:02	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	5.9	1		03/23/17 18:02	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.9	1		03/23/17 18:02	10061-02-6	M1
Diisopropyl ether	ND	ug/kg	5.9	1		03/23/17 18:02	108-20-3	
Ethylbenzene	ND	ug/kg	5.9	1		03/23/17 18:02	100-41-4	M1
Hexachloro-1,3-butadiene	ND	ug/kg	5.9	1		03/23/17 18:02	87-68-3	M1
2-Hexanone	ND	ug/kg	59.0	1		03/23/17 18:02	591-78-6	M1
Isopropylbenzene (Cumene)	ND	ug/kg	5.9	1		03/23/17 18:02	98-82-8	M1
p-Isopropyltoluene	ND	ug/kg	5.9	1		03/23/17 18:02	99-87-6	M1
Methylene Chloride	ND	ug/kg	23.6	1		03/23/17 18:02	75-09-2	M1
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	59.0	1		03/23/17 18:02	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.9	1		03/23/17 18:02	1634-04-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Sample: SB-10 **Lab ID: 92334213002** Collected: 03/21/17 09:00 Received: 03/22/17 08:05 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Naphthalene	ND	ug/kg	5.9	1		03/23/17 18:02	91-20-3	M1
n-Propylbenzene	ND	ug/kg	5.9	1		03/23/17 18:02	103-65-1	M1
Styrene	ND	ug/kg	5.9	1		03/23/17 18:02	100-42-5	M1
1,1,1,2-Tetrachloroethane	ND	ug/kg	5.9	1		03/23/17 18:02	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.9	1		03/23/17 18:02	79-34-5	M1
Tetrachloroethene	ND	ug/kg	5.9	1		03/23/17 18:02	127-18-4	M1
Toluene	ND	ug/kg	5.9	1		03/23/17 18:02	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	5.9	1		03/23/17 18:02	87-61-6	M1
1,2,4-Trichlorobenzene	ND	ug/kg	5.9	1		03/23/17 18:02	120-82-1	M1
1,1,1-Trichloroethane	ND	ug/kg	5.9	1		03/23/17 18:02	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.9	1		03/23/17 18:02	79-00-5	
Trichloroethene	ND	ug/kg	5.9	1		03/23/17 18:02	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.9	1		03/23/17 18:02	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	5.9	1		03/23/17 18:02	96-18-4	M1
1,2,4-Trimethylbenzene	ND	ug/kg	5.9	1		03/23/17 18:02	95-63-6	M1
1,3,5-Trimethylbenzene	ND	ug/kg	5.9	1		03/23/17 18:02	108-67-8	M1
Vinyl acetate	ND	ug/kg	59.0	1		03/23/17 18:02	108-05-4	M1
Vinyl chloride	ND	ug/kg	11.8	1		03/23/17 18:02	75-01-4	M1
Xylene (Total)	ND	ug/kg	11.8	1		03/23/17 18:02	1330-20-7	MS
m&p-Xylene	ND	ug/kg	11.8	1		03/23/17 18:02	179601-23-1	M1
o-Xylene	ND	ug/kg	5.9	1		03/23/17 18:02	95-47-6	M1
Surrogates								
Toluene-d8 (S)	101	%	70-130	1		03/23/17 18:02	2037-26-5	
4-Bromofluorobenzene (S)	101	%	70-130	1		03/23/17 18:02	460-00-4	
1,2-Dichloroethane-d4 (S)	116	%	70-132	1		03/23/17 18:02	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**14.1**	%	0.10	1		03/23/17 08:36		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Sample: SB-11 **Lab ID: 92334213003** Collected: 03/21/17 09:20 Received: 03/22/17 08:05 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	123	1		03/23/17 18:22	67-64-1	
Benzene	ND	ug/kg	6.1	1		03/23/17 18:22	71-43-2	
Bromobenzene	ND	ug/kg	6.1	1		03/23/17 18:22	108-86-1	
Bromochloromethane	ND	ug/kg	6.1	1		03/23/17 18:22	74-97-5	
Bromodichloromethane	ND	ug/kg	6.1	1		03/23/17 18:22	75-27-4	
Bromoform	ND	ug/kg	6.1	1		03/23/17 18:22	75-25-2	
Bromomethane	ND	ug/kg	12.3	1		03/23/17 18:22	74-83-9	
2-Butanone (MEK)	ND	ug/kg	123	1		03/23/17 18:22	78-93-3	
n-Butylbenzene	ND	ug/kg	6.1	1		03/23/17 18:22	104-51-8	
sec-Butylbenzene	ND	ug/kg	6.1	1		03/23/17 18:22	135-98-8	
tert-Butylbenzene	ND	ug/kg	6.1	1		03/23/17 18:22	98-06-6	
Carbon tetrachloride	ND	ug/kg	6.1	1		03/23/17 18:22	56-23-5	
Chlorobenzene	ND	ug/kg	6.1	1		03/23/17 18:22	108-90-7	
Chloroethane	ND	ug/kg	12.3	1		03/23/17 18:22	75-00-3	
Chloroform	ND	ug/kg	6.1	1		03/23/17 18:22	67-66-3	
Chloromethane	ND	ug/kg	12.3	1		03/23/17 18:22	74-87-3	
2-Chlorotoluene	ND	ug/kg	6.1	1		03/23/17 18:22	95-49-8	
4-Chlorotoluene	ND	ug/kg	6.1	1		03/23/17 18:22	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	6.1	1		03/23/17 18:22	96-12-8	
Dibromochloromethane	ND	ug/kg	6.1	1		03/23/17 18:22	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	6.1	1		03/23/17 18:22	106-93-4	
Dibromomethane	ND	ug/kg	6.1	1		03/23/17 18:22	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	6.1	1		03/23/17 18:22	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	6.1	1		03/23/17 18:22	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	6.1	1		03/23/17 18:22	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	12.3	1		03/23/17 18:22	75-71-8	
1,1-Dichloroethane	ND	ug/kg	6.1	1		03/23/17 18:22	75-34-3	
1,2-Dichloroethane	ND	ug/kg	6.1	1		03/23/17 18:22	107-06-2	
1,1-Dichloroethene	ND	ug/kg	6.1	1		03/23/17 18:22	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	6.1	1		03/23/17 18:22	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	6.1	1		03/23/17 18:22	156-60-5	
1,2-Dichloropropane	ND	ug/kg	6.1	1		03/23/17 18:22	78-87-5	
1,3-Dichloropropane	ND	ug/kg	6.1	1		03/23/17 18:22	142-28-9	
2,2-Dichloropropane	ND	ug/kg	6.1	1		03/23/17 18:22	594-20-7	
1,1-Dichloropropene	ND	ug/kg	6.1	1		03/23/17 18:22	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	6.1	1		03/23/17 18:22	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	6.1	1		03/23/17 18:22	10061-02-6	
Diisopropyl ether	ND	ug/kg	6.1	1		03/23/17 18:22	108-20-3	
Ethylbenzene	ND	ug/kg	6.1	1		03/23/17 18:22	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	6.1	1		03/23/17 18:22	87-68-3	
2-Hexanone	ND	ug/kg	61.3	1		03/23/17 18:22	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	6.1	1		03/23/17 18:22	98-82-8	
p-Isopropyltoluene	ND	ug/kg	6.1	1		03/23/17 18:22	99-87-6	
Methylene Chloride	ND	ug/kg	24.5	1		03/23/17 18:22	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	61.3	1		03/23/17 18:22	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	6.1	1		03/23/17 18:22	1634-04-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Sample: SB-11 **Lab ID: 92334213003** Collected: 03/21/17 09:20 Received: 03/22/17 08:05 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Naphthalene	ND	ug/kg	6.1	1		03/23/17 18:22	91-20-3	
n-Propylbenzene	ND	ug/kg	6.1	1		03/23/17 18:22	103-65-1	
Styrene	ND	ug/kg	6.1	1		03/23/17 18:22	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	6.1	1		03/23/17 18:22	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	6.1	1		03/23/17 18:22	79-34-5	
Tetrachloroethene	ND	ug/kg	6.1	1		03/23/17 18:22	127-18-4	
Toluene	ND	ug/kg	6.1	1		03/23/17 18:22	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	6.1	1		03/23/17 18:22	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	6.1	1		03/23/17 18:22	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	6.1	1		03/23/17 18:22	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	6.1	1		03/23/17 18:22	79-00-5	
Trichloroethene	ND	ug/kg	6.1	1		03/23/17 18:22	79-01-6	
Trichlorofluoromethane	ND	ug/kg	6.1	1		03/23/17 18:22	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	6.1	1		03/23/17 18:22	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	6.1	1		03/23/17 18:22	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	6.1	1		03/23/17 18:22	108-67-8	
Vinyl acetate	ND	ug/kg	61.3	1		03/23/17 18:22	108-05-4	
Vinyl chloride	ND	ug/kg	12.3	1		03/23/17 18:22	75-01-4	
Xylene (Total)	ND	ug/kg	12.3	1		03/23/17 18:22	1330-20-7	
m&p-Xylene	ND	ug/kg	12.3	1		03/23/17 18:22	179601-23-1	
o-Xylene	ND	ug/kg	6.1	1		03/23/17 18:22	95-47-6	
Surrogates								
Toluene-d8 (S)	101	%	70-130	1		03/23/17 18:22	2037-26-5	
4-Bromofluorobenzene (S)	96	%	70-130	1		03/23/17 18:22	460-00-4	
1,2-Dichloroethane-d4 (S)	111	%	70-132	1		03/23/17 18:22	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**9.9**	%	0.10	1		03/23/17 08:37		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Sample: SB-12 **Lab ID: 92334213004** Collected: 03/21/17 09:40 Received: 03/22/17 08:05 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	96.0	1		03/23/17 18:42	67-64-1	
Benzene	ND	ug/kg	4.8	1		03/23/17 18:42	71-43-2	
Bromobenzene	ND	ug/kg	4.8	1		03/23/17 18:42	108-86-1	
Bromochloromethane	ND	ug/kg	4.8	1		03/23/17 18:42	74-97-5	
Bromodichloromethane	ND	ug/kg	4.8	1		03/23/17 18:42	75-27-4	
Bromoform	ND	ug/kg	4.8	1		03/23/17 18:42	75-25-2	
Bromomethane	ND	ug/kg	9.6	1		03/23/17 18:42	74-83-9	
2-Butanone (MEK)	ND	ug/kg	96.0	1		03/23/17 18:42	78-93-3	
n-Butylbenzene	ND	ug/kg	4.8	1		03/23/17 18:42	104-51-8	
sec-Butylbenzene	ND	ug/kg	4.8	1		03/23/17 18:42	135-98-8	
tert-Butylbenzene	ND	ug/kg	4.8	1		03/23/17 18:42	98-06-6	
Carbon tetrachloride	ND	ug/kg	4.8	1		03/23/17 18:42	56-23-5	
Chlorobenzene	ND	ug/kg	4.8	1		03/23/17 18:42	108-90-7	
Chloroethane	ND	ug/kg	9.6	1		03/23/17 18:42	75-00-3	
Chloroform	ND	ug/kg	4.8	1		03/23/17 18:42	67-66-3	
Chloromethane	ND	ug/kg	9.6	1		03/23/17 18:42	74-87-3	
2-Chlorotoluene	ND	ug/kg	4.8	1		03/23/17 18:42	95-49-8	
4-Chlorotoluene	ND	ug/kg	4.8	1		03/23/17 18:42	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	4.8	1		03/23/17 18:42	96-12-8	
Dibromochloromethane	ND	ug/kg	4.8	1		03/23/17 18:42	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.8	1		03/23/17 18:42	106-93-4	
Dibromomethane	ND	ug/kg	4.8	1		03/23/17 18:42	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	4.8	1		03/23/17 18:42	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.8	1		03/23/17 18:42	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.8	1		03/23/17 18:42	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	9.6	1		03/23/17 18:42	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.8	1		03/23/17 18:42	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.8	1		03/23/17 18:42	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.8	1		03/23/17 18:42	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.8	1		03/23/17 18:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.8	1		03/23/17 18:42	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.8	1		03/23/17 18:42	78-87-5	
1,3-Dichloropropane	ND	ug/kg	4.8	1		03/23/17 18:42	142-28-9	
2,2-Dichloropropane	ND	ug/kg	4.8	1		03/23/17 18:42	594-20-7	
1,1-Dichloropropene	ND	ug/kg	4.8	1		03/23/17 18:42	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	4.8	1		03/23/17 18:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.8	1		03/23/17 18:42	10061-02-6	
Diisopropyl ether	ND	ug/kg	4.8	1		03/23/17 18:42	108-20-3	
Ethylbenzene	ND	ug/kg	4.8	1		03/23/17 18:42	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	4.8	1		03/23/17 18:42	87-68-3	
2-Hexanone	ND	ug/kg	48.0	1		03/23/17 18:42	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.8	1		03/23/17 18:42	98-82-8	
p-Isopropyltoluene	ND	ug/kg	4.8	1		03/23/17 18:42	99-87-6	
Methylene Chloride	ND	ug/kg	19.2	1		03/23/17 18:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	48.0	1		03/23/17 18:42	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.8	1		03/23/17 18:42	1634-04-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Sample: SB-12 **Lab ID: 92334213004** Collected: 03/21/17 09:40 Received: 03/22/17 08:05 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Naphthalene	ND	ug/kg	4.8	1		03/23/17 18:42	91-20-3	
n-Propylbenzene	ND	ug/kg	4.8	1		03/23/17 18:42	103-65-1	
Styrene	ND	ug/kg	4.8	1		03/23/17 18:42	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	4.8	1		03/23/17 18:42	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.8	1		03/23/17 18:42	79-34-5	
Tetrachloroethene	ND	ug/kg	4.8	1		03/23/17 18:42	127-18-4	
Toluene	ND	ug/kg	4.8	1		03/23/17 18:42	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	4.8	1		03/23/17 18:42	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	4.8	1		03/23/17 18:42	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.8	1		03/23/17 18:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.8	1		03/23/17 18:42	79-00-5	
Trichloroethene	ND	ug/kg	4.8	1		03/23/17 18:42	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.8	1		03/23/17 18:42	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	4.8	1		03/23/17 18:42	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	4.8	1		03/23/17 18:42	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	4.8	1		03/23/17 18:42	108-67-8	
Vinyl acetate	ND	ug/kg	48.0	1		03/23/17 18:42	108-05-4	
Vinyl chloride	ND	ug/kg	9.6	1		03/23/17 18:42	75-01-4	
Xylene (Total)	ND	ug/kg	9.6	1		03/23/17 18:42	1330-20-7	
m&p-Xylene	ND	ug/kg	9.6	1		03/23/17 18:42	179601-23-1	
o-Xylene	ND	ug/kg	4.8	1		03/23/17 18:42	95-47-6	
Surrogates								
Toluene-d8 (S)	100	%	70-130	1		03/23/17 18:42	2037-26-5	
4-Bromofluorobenzene (S)	97	%	70-130	1		03/23/17 18:42	460-00-4	
1,2-Dichloroethane-d4 (S)	115	%	70-132	1		03/23/17 18:42	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**12.0**	%	0.10	1		03/23/17 08:37		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Sample: SB-13 **Lab ID: 92334213005** Collected: 03/21/17 10:30 Received: 03/22/17 08:05 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	118	1		03/23/17 19:02	67-64-1	
Benzene	ND	ug/kg	5.9	1		03/23/17 19:02	71-43-2	
Bromobenzene	ND	ug/kg	5.9	1		03/23/17 19:02	108-86-1	
Bromochloromethane	ND	ug/kg	5.9	1		03/23/17 19:02	74-97-5	
Bromodichloromethane	ND	ug/kg	5.9	1		03/23/17 19:02	75-27-4	
Bromoform	ND	ug/kg	5.9	1		03/23/17 19:02	75-25-2	
Bromomethane	ND	ug/kg	11.8	1		03/23/17 19:02	74-83-9	
2-Butanone (MEK)	ND	ug/kg	118	1		03/23/17 19:02	78-93-3	
n-Butylbenzene	ND	ug/kg	5.9	1		03/23/17 19:02	104-51-8	
sec-Butylbenzene	ND	ug/kg	5.9	1		03/23/17 19:02	135-98-8	
tert-Butylbenzene	ND	ug/kg	5.9	1		03/23/17 19:02	98-06-6	
Carbon tetrachloride	ND	ug/kg	5.9	1		03/23/17 19:02	56-23-5	
Chlorobenzene	ND	ug/kg	5.9	1		03/23/17 19:02	108-90-7	
Chloroethane	ND	ug/kg	11.8	1		03/23/17 19:02	75-00-3	
Chloroform	ND	ug/kg	5.9	1		03/23/17 19:02	67-66-3	
Chloromethane	ND	ug/kg	11.8	1		03/23/17 19:02	74-87-3	
2-Chlorotoluene	ND	ug/kg	5.9	1		03/23/17 19:02	95-49-8	
4-Chlorotoluene	ND	ug/kg	5.9	1		03/23/17 19:02	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.9	1		03/23/17 19:02	96-12-8	
Dibromochloromethane	ND	ug/kg	5.9	1		03/23/17 19:02	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.9	1		03/23/17 19:02	106-93-4	
Dibromomethane	ND	ug/kg	5.9	1		03/23/17 19:02	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	5.9	1		03/23/17 19:02	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.9	1		03/23/17 19:02	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.9	1		03/23/17 19:02	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	11.8	1		03/23/17 19:02	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.9	1		03/23/17 19:02	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.9	1		03/23/17 19:02	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.9	1		03/23/17 19:02	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.9	1		03/23/17 19:02	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.9	1		03/23/17 19:02	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.9	1		03/23/17 19:02	78-87-5	
1,3-Dichloropropane	ND	ug/kg	5.9	1		03/23/17 19:02	142-28-9	
2,2-Dichloropropane	ND	ug/kg	5.9	1		03/23/17 19:02	594-20-7	
1,1-Dichloropropene	ND	ug/kg	5.9	1		03/23/17 19:02	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	5.9	1		03/23/17 19:02	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.9	1		03/23/17 19:02	10061-02-6	
Diisopropyl ether	ND	ug/kg	5.9	1		03/23/17 19:02	108-20-3	
Ethylbenzene	ND	ug/kg	5.9	1		03/23/17 19:02	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	5.9	1		03/23/17 19:02	87-68-3	
2-Hexanone	ND	ug/kg	59.1	1		03/23/17 19:02	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.9	1		03/23/17 19:02	98-82-8	
p-Isopropyltoluene	ND	ug/kg	5.9	1		03/23/17 19:02	99-87-6	
Methylene Chloride	ND	ug/kg	23.6	1		03/23/17 19:02	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	59.1	1		03/23/17 19:02	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.9	1		03/23/17 19:02	1634-04-4	

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

ANALYTICAL RESULTS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Sample: SB-13 **Lab ID: 92334213005** Collected: 03/21/17 10:30 Received: 03/22/17 08:05 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Naphthalene	ND	ug/kg	5.9	1		03/23/17 19:02	91-20-3	
n-Propylbenzene	ND	ug/kg	5.9	1		03/23/17 19:02	103-65-1	
Styrene	ND	ug/kg	5.9	1		03/23/17 19:02	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	5.9	1		03/23/17 19:02	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.9	1		03/23/17 19:02	79-34-5	
Tetrachloroethene	ND	ug/kg	5.9	1		03/23/17 19:02	127-18-4	
Toluene	ND	ug/kg	5.9	1		03/23/17 19:02	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	5.9	1		03/23/17 19:02	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	5.9	1		03/23/17 19:02	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.9	1		03/23/17 19:02	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.9	1		03/23/17 19:02	79-00-5	
Trichloroethene	ND	ug/kg	5.9	1		03/23/17 19:02	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.9	1		03/23/17 19:02	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	5.9	1		03/23/17 19:02	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	5.9	1		03/23/17 19:02	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	5.9	1		03/23/17 19:02	108-67-8	
Vinyl acetate	ND	ug/kg	59.1	1		03/23/17 19:02	108-05-4	
Vinyl chloride	ND	ug/kg	11.8	1		03/23/17 19:02	75-01-4	
Xylene (Total)	ND	ug/kg	11.8	1		03/23/17 19:02	1330-20-7	
m&p-Xylene	ND	ug/kg	11.8	1		03/23/17 19:02	179601-23-1	
o-Xylene	ND	ug/kg	5.9	1		03/23/17 19:02	95-47-6	
Surrogates								
Toluene-d8 (S)	101	%	70-130	1		03/23/17 19:02	2037-26-5	
4-Bromofluorobenzene (S)	99	%	70-130	1		03/23/17 19:02	460-00-4	
1,2-Dichloroethane-d4 (S)	114	%	70-132	1		03/23/17 19:02	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**9.6**	%	0.10	1		03/23/17 08:37		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Sample: SB-14 **Lab ID: 92334213006** Collected: 03/21/17 10:45 Received: 03/22/17 08:05 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	108	1		03/23/17 19:21	67-64-1	
Benzene	ND	ug/kg	5.4	1		03/23/17 19:21	71-43-2	
Bromobenzene	ND	ug/kg	5.4	1		03/23/17 19:21	108-86-1	
Bromochloromethane	ND	ug/kg	5.4	1		03/23/17 19:21	74-97-5	
Bromodichloromethane	ND	ug/kg	5.4	1		03/23/17 19:21	75-27-4	
Bromoform	ND	ug/kg	5.4	1		03/23/17 19:21	75-25-2	
Bromomethane	ND	ug/kg	10.8	1		03/23/17 19:21	74-83-9	
2-Butanone (MEK)	ND	ug/kg	108	1		03/23/17 19:21	78-93-3	
n-Butylbenzene	ND	ug/kg	5.4	1		03/23/17 19:21	104-51-8	
sec-Butylbenzene	ND	ug/kg	5.4	1		03/23/17 19:21	135-98-8	
tert-Butylbenzene	ND	ug/kg	5.4	1		03/23/17 19:21	98-06-6	
Carbon tetrachloride	ND	ug/kg	5.4	1		03/23/17 19:21	56-23-5	
Chlorobenzene	ND	ug/kg	5.4	1		03/23/17 19:21	108-90-7	
Chloroethane	ND	ug/kg	10.8	1		03/23/17 19:21	75-00-3	
Chloroform	ND	ug/kg	5.4	1		03/23/17 19:21	67-66-3	
Chloromethane	ND	ug/kg	10.8	1		03/23/17 19:21	74-87-3	
2-Chlorotoluene	ND	ug/kg	5.4	1		03/23/17 19:21	95-49-8	
4-Chlorotoluene	ND	ug/kg	5.4	1		03/23/17 19:21	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	5.4	1		03/23/17 19:21	96-12-8	
Dibromochloromethane	ND	ug/kg	5.4	1		03/23/17 19:21	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.4	1		03/23/17 19:21	106-93-4	
Dibromomethane	ND	ug/kg	5.4	1		03/23/17 19:21	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	5.4	1		03/23/17 19:21	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.4	1		03/23/17 19:21	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.4	1		03/23/17 19:21	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	10.8	1		03/23/17 19:21	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.4	1		03/23/17 19:21	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.4	1		03/23/17 19:21	107-06-2	
1,1-Dichloroethene	ND	ug/kg	5.4	1		03/23/17 19:21	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.4	1		03/23/17 19:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.4	1		03/23/17 19:21	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.4	1		03/23/17 19:21	78-87-5	
1,3-Dichloropropane	ND	ug/kg	5.4	1		03/23/17 19:21	142-28-9	
2,2-Dichloropropane	ND	ug/kg	5.4	1		03/23/17 19:21	594-20-7	
1,1-Dichloropropene	ND	ug/kg	5.4	1		03/23/17 19:21	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	5.4	1		03/23/17 19:21	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.4	1		03/23/17 19:21	10061-02-6	
Diisopropyl ether	ND	ug/kg	5.4	1		03/23/17 19:21	108-20-3	
Ethylbenzene	ND	ug/kg	5.4	1		03/23/17 19:21	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	5.4	1		03/23/17 19:21	87-68-3	
2-Hexanone	ND	ug/kg	53.8	1		03/23/17 19:21	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.4	1		03/23/17 19:21	98-82-8	
p-Isopropyltoluene	ND	ug/kg	5.4	1		03/23/17 19:21	99-87-6	
Methylene Chloride	ND	ug/kg	21.5	1		03/23/17 19:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	53.8	1		03/23/17 19:21	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	5.4	1		03/23/17 19:21	1634-04-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Sample: SB-14 **Lab ID: 92334213006** Collected: 03/21/17 10:45 Received: 03/22/17 08:05 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Naphthalene	ND	ug/kg	5.4	1		03/23/17 19:21	91-20-3	
n-Propylbenzene	ND	ug/kg	5.4	1		03/23/17 19:21	103-65-1	
Styrene	ND	ug/kg	5.4	1		03/23/17 19:21	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	5.4	1		03/23/17 19:21	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.4	1		03/23/17 19:21	79-34-5	
Tetrachloroethene	ND	ug/kg	5.4	1		03/23/17 19:21	127-18-4	
Toluene	ND	ug/kg	5.4	1		03/23/17 19:21	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	5.4	1		03/23/17 19:21	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	5.4	1		03/23/17 19:21	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.4	1		03/23/17 19:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.4	1		03/23/17 19:21	79-00-5	
Trichloroethene	ND	ug/kg	5.4	1		03/23/17 19:21	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.4	1		03/23/17 19:21	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	5.4	1		03/23/17 19:21	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	5.4	1		03/23/17 19:21	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	5.4	1		03/23/17 19:21	108-67-8	
Vinyl acetate	ND	ug/kg	53.8	1		03/23/17 19:21	108-05-4	
Vinyl chloride	ND	ug/kg	10.8	1		03/23/17 19:21	75-01-4	
Xylene (Total)	ND	ug/kg	10.8	1		03/23/17 19:21	1330-20-7	
m&p-Xylene	ND	ug/kg	10.8	1		03/23/17 19:21	179601-23-1	
o-Xylene	ND	ug/kg	5.4	1		03/23/17 19:21	95-47-6	
Surrogates								
Toluene-d8 (S)	99	%	70-130	1		03/23/17 19:21	2037-26-5	
4-Bromofluorobenzene (S)	96	%	70-130	1		03/23/17 19:21	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	70-132	1		03/23/17 19:21	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**11.2**	%	0.10	1		03/23/17 08:37		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Sample: SB-15 **Lab ID: 92334213007** Collected: 03/21/17 11:45 Received: 03/22/17 08:05 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	91.9	1		03/23/17 19:41	67-64-1	
Benzene	ND	ug/kg	4.6	1		03/23/17 19:41	71-43-2	
Bromobenzene	ND	ug/kg	4.6	1		03/23/17 19:41	108-86-1	
Bromochloromethane	ND	ug/kg	4.6	1		03/23/17 19:41	74-97-5	
Bromodichloromethane	ND	ug/kg	4.6	1		03/23/17 19:41	75-27-4	
Bromoform	ND	ug/kg	4.6	1		03/23/17 19:41	75-25-2	
Bromomethane	ND	ug/kg	9.2	1		03/23/17 19:41	74-83-9	
2-Butanone (MEK)	ND	ug/kg	91.9	1		03/23/17 19:41	78-93-3	
n-Butylbenzene	ND	ug/kg	4.6	1		03/23/17 19:41	104-51-8	
sec-Butylbenzene	ND	ug/kg	4.6	1		03/23/17 19:41	135-98-8	
tert-Butylbenzene	ND	ug/kg	4.6	1		03/23/17 19:41	98-06-6	
Carbon tetrachloride	ND	ug/kg	4.6	1		03/23/17 19:41	56-23-5	
Chlorobenzene	ND	ug/kg	4.6	1		03/23/17 19:41	108-90-7	
Chloroethane	ND	ug/kg	9.2	1		03/23/17 19:41	75-00-3	
Chloroform	ND	ug/kg	4.6	1		03/23/17 19:41	67-66-3	
Chloromethane	ND	ug/kg	9.2	1		03/23/17 19:41	74-87-3	
2-Chlorotoluene	ND	ug/kg	4.6	1		03/23/17 19:41	95-49-8	
4-Chlorotoluene	ND	ug/kg	4.6	1		03/23/17 19:41	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	4.6	1		03/23/17 19:41	96-12-8	
Dibromochloromethane	ND	ug/kg	4.6	1		03/23/17 19:41	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	4.6	1		03/23/17 19:41	106-93-4	
Dibromomethane	ND	ug/kg	4.6	1		03/23/17 19:41	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	4.6	1		03/23/17 19:41	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	4.6	1		03/23/17 19:41	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	4.6	1		03/23/17 19:41	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	9.2	1		03/23/17 19:41	75-71-8	
1,1-Dichloroethane	ND	ug/kg	4.6	1		03/23/17 19:41	75-34-3	
1,2-Dichloroethane	ND	ug/kg	4.6	1		03/23/17 19:41	107-06-2	
1,1-Dichloroethene	ND	ug/kg	4.6	1		03/23/17 19:41	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	4.6	1		03/23/17 19:41	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.6	1		03/23/17 19:41	156-60-5	
1,2-Dichloropropane	ND	ug/kg	4.6	1		03/23/17 19:41	78-87-5	
1,3-Dichloropropane	ND	ug/kg	4.6	1		03/23/17 19:41	142-28-9	
2,2-Dichloropropane	ND	ug/kg	4.6	1		03/23/17 19:41	594-20-7	
1,1-Dichloropropene	ND	ug/kg	4.6	1		03/23/17 19:41	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	4.6	1		03/23/17 19:41	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	4.6	1		03/23/17 19:41	10061-02-6	
Diisopropyl ether	ND	ug/kg	4.6	1		03/23/17 19:41	108-20-3	
Ethylbenzene	ND	ug/kg	4.6	1		03/23/17 19:41	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	4.6	1		03/23/17 19:41	87-68-3	
2-Hexanone	ND	ug/kg	46.0	1		03/23/17 19:41	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	4.6	1		03/23/17 19:41	98-82-8	
p-Isopropyltoluene	ND	ug/kg	4.6	1		03/23/17 19:41	99-87-6	
Methylene Chloride	ND	ug/kg	18.4	1		03/23/17 19:41	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	46.0	1		03/23/17 19:41	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	4.6	1		03/23/17 19:41	1634-04-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Sample: SB-15 **Lab ID: 92334213007** Collected: 03/21/17 11:45 Received: 03/22/17 08:05 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Naphthalene	ND	ug/kg	4.6	1		03/23/17 19:41	91-20-3	
n-Propylbenzene	ND	ug/kg	4.6	1		03/23/17 19:41	103-65-1	
Styrene	ND	ug/kg	4.6	1		03/23/17 19:41	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	4.6	1		03/23/17 19:41	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	4.6	1		03/23/17 19:41	79-34-5	
Tetrachloroethene	ND	ug/kg	4.6	1		03/23/17 19:41	127-18-4	
Toluene	ND	ug/kg	4.6	1		03/23/17 19:41	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	4.6	1		03/23/17 19:41	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	4.6	1		03/23/17 19:41	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	4.6	1		03/23/17 19:41	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	4.6	1		03/23/17 19:41	79-00-5	
Trichloroethene	ND	ug/kg	4.6	1		03/23/17 19:41	79-01-6	
Trichlorofluoromethane	ND	ug/kg	4.6	1		03/23/17 19:41	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	4.6	1		03/23/17 19:41	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	4.6	1		03/23/17 19:41	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	4.6	1		03/23/17 19:41	108-67-8	
Vinyl acetate	ND	ug/kg	46.0	1		03/23/17 19:41	108-05-4	
Vinyl chloride	ND	ug/kg	9.2	1		03/23/17 19:41	75-01-4	
Xylene (Total)	ND	ug/kg	9.2	1		03/23/17 19:41	1330-20-7	
m&p-Xylene	ND	ug/kg	9.2	1		03/23/17 19:41	179601-23-1	
o-Xylene	ND	ug/kg	4.6	1		03/23/17 19:41	95-47-6	
Surrogates								
Toluene-d8 (S)	99	%	70-130	1		03/23/17 19:41	2037-26-5	
4-Bromofluorobenzene (S)	99	%	70-130	1		03/23/17 19:41	460-00-4	
1,2-Dichloroethane-d4 (S)	112	%	70-132	1		03/23/17 19:41	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**10.4**	%	0.10	1		03/23/17 08:37		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Sample: SB-16 **Lab ID: 92334213008** Collected: 03/21/17 12:00 Received: 03/22/17 08:05 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	119	1		03/23/17 20:01	67-64-1	
Benzene	ND	ug/kg	6.0	1		03/23/17 20:01	71-43-2	
Bromobenzene	ND	ug/kg	6.0	1		03/23/17 20:01	108-86-1	
Bromochloromethane	ND	ug/kg	6.0	1		03/23/17 20:01	74-97-5	
Bromodichloromethane	ND	ug/kg	6.0	1		03/23/17 20:01	75-27-4	
Bromoform	ND	ug/kg	6.0	1		03/23/17 20:01	75-25-2	
Bromomethane	ND	ug/kg	11.9	1		03/23/17 20:01	74-83-9	
2-Butanone (MEK)	ND	ug/kg	119	1		03/23/17 20:01	78-93-3	
n-Butylbenzene	ND	ug/kg	6.0	1		03/23/17 20:01	104-51-8	
sec-Butylbenzene	ND	ug/kg	6.0	1		03/23/17 20:01	135-98-8	
tert-Butylbenzene	ND	ug/kg	6.0	1		03/23/17 20:01	98-06-6	
Carbon tetrachloride	ND	ug/kg	6.0	1		03/23/17 20:01	56-23-5	
Chlorobenzene	ND	ug/kg	6.0	1		03/23/17 20:01	108-90-7	
Chloroethane	ND	ug/kg	11.9	1		03/23/17 20:01	75-00-3	
Chloroform	ND	ug/kg	6.0	1		03/23/17 20:01	67-66-3	
Chloromethane	ND	ug/kg	11.9	1		03/23/17 20:01	74-87-3	
2-Chlorotoluene	ND	ug/kg	6.0	1		03/23/17 20:01	95-49-8	
4-Chlorotoluene	ND	ug/kg	6.0	1		03/23/17 20:01	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	6.0	1		03/23/17 20:01	96-12-8	
Dibromochloromethane	ND	ug/kg	6.0	1		03/23/17 20:01	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	6.0	1		03/23/17 20:01	106-93-4	
Dibromomethane	ND	ug/kg	6.0	1		03/23/17 20:01	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	6.0	1		03/23/17 20:01	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	6.0	1		03/23/17 20:01	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	6.0	1		03/23/17 20:01	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	11.9	1		03/23/17 20:01	75-71-8	
1,1-Dichloroethane	ND	ug/kg	6.0	1		03/23/17 20:01	75-34-3	
1,2-Dichloroethane	ND	ug/kg	6.0	1		03/23/17 20:01	107-06-2	
1,1-Dichloroethene	ND	ug/kg	6.0	1		03/23/17 20:01	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	6.0	1		03/23/17 20:01	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	6.0	1		03/23/17 20:01	156-60-5	
1,2-Dichloropropane	ND	ug/kg	6.0	1		03/23/17 20:01	78-87-5	
1,3-Dichloropropane	ND	ug/kg	6.0	1		03/23/17 20:01	142-28-9	
2,2-Dichloropropane	ND	ug/kg	6.0	1		03/23/17 20:01	594-20-7	
1,1-Dichloropropene	ND	ug/kg	6.0	1		03/23/17 20:01	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	6.0	1		03/23/17 20:01	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	6.0	1		03/23/17 20:01	10061-02-6	
Diisopropyl ether	ND	ug/kg	6.0	1		03/23/17 20:01	108-20-3	
Ethylbenzene	ND	ug/kg	6.0	1		03/23/17 20:01	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	6.0	1		03/23/17 20:01	87-68-3	
2-Hexanone	ND	ug/kg	59.7	1		03/23/17 20:01	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	6.0	1		03/23/17 20:01	98-82-8	
p-Isopropyltoluene	ND	ug/kg	6.0	1		03/23/17 20:01	99-87-6	
Methylene Chloride	ND	ug/kg	23.9	1		03/23/17 20:01	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	59.7	1		03/23/17 20:01	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	6.0	1		03/23/17 20:01	1634-04-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Sample: SB-16 **Lab ID: 92334213008** Collected: 03/21/17 12:00 Received: 03/22/17 08:05 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Naphthalene	ND	ug/kg	6.0	1		03/23/17 20:01	91-20-3	
n-Propylbenzene	ND	ug/kg	6.0	1		03/23/17 20:01	103-65-1	
Styrene	ND	ug/kg	6.0	1		03/23/17 20:01	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	6.0	1		03/23/17 20:01	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	6.0	1		03/23/17 20:01	79-34-5	
Tetrachloroethene	ND	ug/kg	6.0	1		03/23/17 20:01	127-18-4	
Toluene	ND	ug/kg	6.0	1		03/23/17 20:01	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	6.0	1		03/23/17 20:01	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	6.0	1		03/23/17 20:01	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	6.0	1		03/23/17 20:01	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	6.0	1		03/23/17 20:01	79-00-5	
Trichloroethene	ND	ug/kg	6.0	1		03/23/17 20:01	79-01-6	
Trichlorofluoromethane	ND	ug/kg	6.0	1		03/23/17 20:01	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	6.0	1		03/23/17 20:01	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	6.0	1		03/23/17 20:01	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	6.0	1		03/23/17 20:01	108-67-8	
Vinyl acetate	ND	ug/kg	59.7	1		03/23/17 20:01	108-05-4	
Vinyl chloride	ND	ug/kg	11.9	1		03/23/17 20:01	75-01-4	
Xylene (Total)	ND	ug/kg	11.9	1		03/23/17 20:01	1330-20-7	
m&p-Xylene	ND	ug/kg	11.9	1		03/23/17 20:01	179601-23-1	
o-Xylene	ND	ug/kg	6.0	1		03/23/17 20:01	95-47-6	
Surrogates								
Toluene-d8 (S)	100	%	70-130	1		03/23/17 20:01	2037-26-5	
4-Bromofluorobenzene (S)	98	%	70-130	1		03/23/17 20:01	460-00-4	
1,2-Dichloroethane-d4 (S)	115	%	70-132	1		03/23/17 20:01	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**18.6**	%	0.10	1		03/23/17 08:37		

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Sample: SB-17 **Lab ID: 92334213009** Collected: 03/21/17 12:20 Received: 03/22/17 08:05 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	122	1		03/23/17 20:21	67-64-1	
Benzene	ND	ug/kg	6.1	1		03/23/17 20:21	71-43-2	
Bromobenzene	ND	ug/kg	6.1	1		03/23/17 20:21	108-86-1	
Bromochloromethane	ND	ug/kg	6.1	1		03/23/17 20:21	74-97-5	
Bromodichloromethane	ND	ug/kg	6.1	1		03/23/17 20:21	75-27-4	
Bromoform	ND	ug/kg	6.1	1		03/23/17 20:21	75-25-2	
Bromomethane	ND	ug/kg	12.2	1		03/23/17 20:21	74-83-9	
2-Butanone (MEK)	ND	ug/kg	122	1		03/23/17 20:21	78-93-3	
n-Butylbenzene	ND	ug/kg	6.1	1		03/23/17 20:21	104-51-8	
sec-Butylbenzene	ND	ug/kg	6.1	1		03/23/17 20:21	135-98-8	
tert-Butylbenzene	ND	ug/kg	6.1	1		03/23/17 20:21	98-06-6	
Carbon tetrachloride	ND	ug/kg	6.1	1		03/23/17 20:21	56-23-5	
Chlorobenzene	ND	ug/kg	6.1	1		03/23/17 20:21	108-90-7	
Chloroethane	ND	ug/kg	12.2	1		03/23/17 20:21	75-00-3	
Chloroform	ND	ug/kg	6.1	1		03/23/17 20:21	67-66-3	
Chloromethane	ND	ug/kg	12.2	1		03/23/17 20:21	74-87-3	
2-Chlorotoluene	ND	ug/kg	6.1	1		03/23/17 20:21	95-49-8	
4-Chlorotoluene	ND	ug/kg	6.1	1		03/23/17 20:21	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	6.1	1		03/23/17 20:21	96-12-8	
Dibromochloromethane	ND	ug/kg	6.1	1		03/23/17 20:21	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	6.1	1		03/23/17 20:21	106-93-4	
Dibromomethane	ND	ug/kg	6.1	1		03/23/17 20:21	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	6.1	1		03/23/17 20:21	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	6.1	1		03/23/17 20:21	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	6.1	1		03/23/17 20:21	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	12.2	1		03/23/17 20:21	75-71-8	
1,1-Dichloroethane	ND	ug/kg	6.1	1		03/23/17 20:21	75-34-3	
1,2-Dichloroethane	ND	ug/kg	6.1	1		03/23/17 20:21	107-06-2	
1,1-Dichloroethene	ND	ug/kg	6.1	1		03/23/17 20:21	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	6.1	1		03/23/17 20:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	6.1	1		03/23/17 20:21	156-60-5	
1,2-Dichloropropane	ND	ug/kg	6.1	1		03/23/17 20:21	78-87-5	
1,3-Dichloropropane	ND	ug/kg	6.1	1		03/23/17 20:21	142-28-9	
2,2-Dichloropropane	ND	ug/kg	6.1	1		03/23/17 20:21	594-20-7	
1,1-Dichloropropene	ND	ug/kg	6.1	1		03/23/17 20:21	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	6.1	1		03/23/17 20:21	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	6.1	1		03/23/17 20:21	10061-02-6	
Diisopropyl ether	ND	ug/kg	6.1	1		03/23/17 20:21	108-20-3	
Ethylbenzene	ND	ug/kg	6.1	1		03/23/17 20:21	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	6.1	1		03/23/17 20:21	87-68-3	
2-Hexanone	ND	ug/kg	61.0	1		03/23/17 20:21	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	6.1	1		03/23/17 20:21	98-82-8	
p-Isopropyltoluene	ND	ug/kg	6.1	1		03/23/17 20:21	99-87-6	
Methylene Chloride	ND	ug/kg	24.4	1		03/23/17 20:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	61.0	1		03/23/17 20:21	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	6.1	1		03/23/17 20:21	1634-04-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Sample: SB-17 **Lab ID: 92334213009** Collected: 03/21/17 12:20 Received: 03/22/17 08:05 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260							
Naphthalene	ND	ug/kg	6.1	1		03/23/17 20:21	91-20-3	
n-Propylbenzene	ND	ug/kg	6.1	1		03/23/17 20:21	103-65-1	
Styrene	ND	ug/kg	6.1	1		03/23/17 20:21	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	6.1	1		03/23/17 20:21	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	6.1	1		03/23/17 20:21	79-34-5	
Tetrachloroethene	ND	ug/kg	6.1	1		03/23/17 20:21	127-18-4	
Toluene	ND	ug/kg	6.1	1		03/23/17 20:21	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	6.1	1		03/23/17 20:21	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	6.1	1		03/23/17 20:21	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	6.1	1		03/23/17 20:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	6.1	1		03/23/17 20:21	79-00-5	
Trichloroethene	ND	ug/kg	6.1	1		03/23/17 20:21	79-01-6	
Trichlorofluoromethane	ND	ug/kg	6.1	1		03/23/17 20:21	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	6.1	1		03/23/17 20:21	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	6.1	1		03/23/17 20:21	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	6.1	1		03/23/17 20:21	108-67-8	
Vinyl acetate	ND	ug/kg	61.0	1		03/23/17 20:21	108-05-4	
Vinyl chloride	ND	ug/kg	12.2	1		03/23/17 20:21	75-01-4	
Xylene (Total)	ND	ug/kg	12.2	1		03/23/17 20:21	1330-20-7	
m&p-Xylene	ND	ug/kg	12.2	1		03/23/17 20:21	179601-23-1	
o-Xylene	ND	ug/kg	6.1	1		03/23/17 20:21	95-47-6	
Surrogates								
Toluene-d8 (S)	101	%	70-130	1		03/23/17 20:21	2037-26-5	
4-Bromofluorobenzene (S)	99	%	70-130	1		03/23/17 20:21	460-00-4	
1,2-Dichloroethane-d4 (S)	116	%	70-132	1		03/23/17 20:21	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**16.7**	%	0.10	1		03/23/17 08:38		

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

QC Batch: 353462 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 92334213001, 92334213002, 92334213003, 92334213004, 92334213005, 92334213006, 92334213007, 92334213008, 92334213009

METHOD BLANK: 1960479 Matrix: Solid
Associated Lab Samples: 92334213001, 92334213002, 92334213003, 92334213004, 92334213005, 92334213006, 92334213007, 92334213008, 92334213009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	6.2	03/23/17 11:44	
1,1,1-Trichloroethane	ug/kg	ND	6.2	03/23/17 11:44	
1,1,2,2-Tetrachloroethane	ug/kg	ND	6.2	03/23/17 11:44	
1,1,2-Trichloroethane	ug/kg	ND	6.2	03/23/17 11:44	
1,1-Dichloroethane	ug/kg	ND	6.2	03/23/17 11:44	
1,1-Dichloroethene	ug/kg	ND	6.2	03/23/17 11:44	
1,1-Dichloropropene	ug/kg	ND	6.2	03/23/17 11:44	
1,2,3-Trichlorobenzene	ug/kg	ND	6.2	03/23/17 11:44	
1,2,3-Trichloropropane	ug/kg	ND	6.2	03/23/17 11:44	
1,2,4-Trichlorobenzene	ug/kg	ND	6.2	03/23/17 11:44	
1,2,4-Trimethylbenzene	ug/kg	ND	6.2	03/23/17 11:44	
1,2-Dibromo-3-chloropropane	ug/kg	ND	6.2	03/23/17 11:44	
1,2-Dibromoethane (EDB)	ug/kg	ND	6.2	03/23/17 11:44	
1,2-Dichlorobenzene	ug/kg	ND	6.2	03/23/17 11:44	
1,2-Dichloroethane	ug/kg	ND	6.2	03/23/17 11:44	
1,2-Dichloropropane	ug/kg	ND	6.2	03/23/17 11:44	
1,3,5-Trimethylbenzene	ug/kg	ND	6.2	03/23/17 11:44	
1,3-Dichlorobenzene	ug/kg	ND	6.2	03/23/17 11:44	
1,3-Dichloropropane	ug/kg	ND	6.2	03/23/17 11:44	
1,4-Dichlorobenzene	ug/kg	ND	6.2	03/23/17 11:44	
2,2-Dichloropropane	ug/kg	ND	6.2	03/23/17 11:44	
2-Butanone (MEK)	ug/kg	ND	124	03/23/17 11:44	
2-Chlorotoluene	ug/kg	ND	6.2	03/23/17 11:44	
2-Hexanone	ug/kg	ND	62.2	03/23/17 11:44	
4-Chlorotoluene	ug/kg	ND	6.2	03/23/17 11:44	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	62.2	03/23/17 11:44	
Acetone	ug/kg	ND	124	03/23/17 11:44	
Benzene	ug/kg	ND	6.2	03/23/17 11:44	
Bromobenzene	ug/kg	ND	6.2	03/23/17 11:44	
Bromochloromethane	ug/kg	ND	6.2	03/23/17 11:44	
Bromodichloromethane	ug/kg	ND	6.2	03/23/17 11:44	
Bromoform	ug/kg	ND	6.2	03/23/17 11:44	
Bromomethane	ug/kg	ND	12.4	03/23/17 11:44	
Carbon tetrachloride	ug/kg	ND	6.2	03/23/17 11:44	
Chlorobenzene	ug/kg	ND	6.2	03/23/17 11:44	
Chloroethane	ug/kg	ND	12.4	03/23/17 11:44	
Chloroform	ug/kg	ND	6.2	03/23/17 11:44	
Chloromethane	ug/kg	ND	12.4	03/23/17 11:44	
cis-1,2-Dichloroethene	ug/kg	ND	6.2	03/23/17 11:44	
cis-1,3-Dichloropropene	ug/kg	ND	6.2	03/23/17 11:44	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

METHOD BLANK: 1960479 Matrix: Solid
Associated Lab Samples: 92334213001, 92334213002, 92334213003, 92334213004, 92334213005, 92334213006, 92334213007, 92334213008, 92334213009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/kg	ND	6.2	03/23/17 11:44	
Dibromomethane	ug/kg	ND	6.2	03/23/17 11:44	
Dichlorodifluoromethane	ug/kg	ND	12.4	03/23/17 11:44	
Diisopropyl ether	ug/kg	ND	6.2	03/23/17 11:44	
Ethylbenzene	ug/kg	ND	6.2	03/23/17 11:44	
Hexachloro-1,3-butadiene	ug/kg	ND	6.2	03/23/17 11:44	
Isopropylbenzene (Cumene)	ug/kg	ND	6.2	03/23/17 11:44	
m&p-Xylene	ug/kg	ND	12.4	03/23/17 11:44	
Methyl-tert-butyl ether	ug/kg	ND	6.2	03/23/17 11:44	
Methylene Chloride	ug/kg	ND	24.9	03/23/17 11:44	
n-Butylbenzene	ug/kg	ND	6.2	03/23/17 11:44	
n-Propylbenzene	ug/kg	ND	6.2	03/23/17 11:44	
Naphthalene	ug/kg	ND	6.2	03/23/17 11:44	
o-Xylene	ug/kg	ND	6.2	03/23/17 11:44	
p-Isopropyltoluene	ug/kg	ND	6.2	03/23/17 11:44	
sec-Butylbenzene	ug/kg	ND	6.2	03/23/17 11:44	
Styrene	ug/kg	ND	6.2	03/23/17 11:44	
tert-Butylbenzene	ug/kg	ND	6.2	03/23/17 11:44	
Tetrachloroethene	ug/kg	ND	6.2	03/23/17 11:44	
Toluene	ug/kg	ND	6.2	03/23/17 11:44	
trans-1,2-Dichloroethene	ug/kg	ND	6.2	03/23/17 11:44	
trans-1,3-Dichloropropene	ug/kg	ND	6.2	03/23/17 11:44	
Trichloroethene	ug/kg	ND	6.2	03/23/17 11:44	
Trichlorofluoromethane	ug/kg	ND	6.2	03/23/17 11:44	
Vinyl acetate	ug/kg	ND	62.2	03/23/17 11:44	
Vinyl chloride	ug/kg	ND	12.4	03/23/17 11:44	
Xylene (Total)	ug/kg	ND	12.4	03/23/17 11:44	
1,2-Dichloroethane-d4 (S)	%	110	70-132	03/23/17 11:44	
4-Bromofluorobenzene (S)	%	100	70-130	03/23/17 11:44	
Toluene-d8 (S)	%	100	70-130	03/23/17 11:44	

LABORATORY CONTROL SAMPLE: 1960480

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	55.2	54.7	99	74-137	
1,1,1-Trichloroethane	ug/kg	55.2	56.1	102	67-140	
1,1,2,2-Tetrachloroethane	ug/kg	55.2	47.8	87	72-141	
1,1,2-Trichloroethane	ug/kg	55.2	56.6	103	78-138	
1,1-Dichloroethane	ug/kg	55.2	58.9	107	69-134	
1,1-Dichloroethene	ug/kg	55.2	58.0	105	67-138	
1,1-Dichloropropene	ug/kg	55.2	57.4	104	69-139	
1,2,3-Trichlorobenzene	ug/kg	55.2	56.8	103	70-146	
1,2,3-Trichloropropane	ug/kg	55.2	53.1	96	69-144	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

LABORATORY CONTROL SAMPLE: 1960480

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	55.2	55.3	100	68-148	
1,2,4-Trimethylbenzene	ug/kg	55.2	54.5	99	74-137	
1,2-Dibromo-3-chloropropane	ug/kg	55.2	49.9	90	65-140	
1,2-Dibromoethane (EDB)	ug/kg	55.2	52.8	96	77-135	
1,2-Dichlorobenzene	ug/kg	55.2	56.5	102	77-141	
1,2-Dichloroethane	ug/kg	55.2	58.3	106	65-137	
1,2-Dichloropropane	ug/kg	55.2	57.2	104	72-136	
1,3,5-Trimethylbenzene	ug/kg	55.2	53.0	96	76-133	
1,3-Dichlorobenzene	ug/kg	55.2	53.6	97	74-138	
1,3-Dichloropropane	ug/kg	55.2	55.5	101	71-139	
1,4-Dichlorobenzene	ug/kg	55.2	54.4	99	76-138	
2,2-Dichloropropane	ug/kg	55.2	56.5	102	68-137	
2-Butanone (MEK)	ug/kg	110	103J	93	58-147	
2-Chlorotoluene	ug/kg	55.2	54.4	99	73-139	
2-Hexanone	ug/kg	110	106	96	62-145	
4-Chlorotoluene	ug/kg	55.2	53.8	97	76-141	
4-Methyl-2-pentanone (MIBK)	ug/kg	110	112	101	64-149	
Acetone	ug/kg	110	93.3J	85	53-153	
Benzene	ug/kg	55.2	58.1	105	73-135	
Bromobenzene	ug/kg	55.2	55.9	101	75-133	
Bromochloromethane	ug/kg	55.2	59.6	108	73-134	
Bromodichloromethane	ug/kg	55.2	59.8	108	71-135	
Bromoform	ug/kg	55.2	53.6	97	66-141	
Bromomethane	ug/kg	55.2	58.9	107	53-160	
Carbon tetrachloride	ug/kg	55.2	55.1	100	60-145	
Chlorobenzene	ug/kg	55.2	55.2	100	78-130	
Chloroethane	ug/kg	55.2	62.4	113	64-149	
Chloroform	ug/kg	55.2	55.6	101	70-134	
Chloromethane	ug/kg	55.2	53.5	97	52-150	
cis-1,2-Dichloroethene	ug/kg	55.2	57.8	105	70-133	
cis-1,3-Dichloropropene	ug/kg	55.2	57.4	104	68-134	
Dibromochloromethane	ug/kg	55.2	55.1	100	71-138	
Dibromomethane	ug/kg	55.2	56.7	103	74-130	
Dichlorodifluoromethane	ug/kg	55.2	46.3	84	40-160	
Diisopropyl ether	ug/kg	55.2	58.4	106	69-141	
Ethylbenzene	ug/kg	55.2	53.9	98	75-133	
Hexachloro-1,3-butadiene	ug/kg	55.2	51.5	93	68-143	
Isopropylbenzene (Cumene)	ug/kg	55.2	52.6	95	76-143	
m&p-Xylene	ug/kg	110	106	96	75-136	
Methyl-tert-butyl ether	ug/kg	55.2	59.3	107	68-144	
Methylene Chloride	ug/kg	55.2	54.7	99	45-154	
n-Butylbenzene	ug/kg	55.2	51.9	94	72-137	
n-Propylbenzene	ug/kg	55.2	53.5	97	76-136	
Naphthalene	ug/kg	55.2	56.9	103	68-151	
o-Xylene	ug/kg	55.2	54.4	99	76-141	
p-Isopropyltoluene	ug/kg	55.2	50.2	91	76-140	
sec-Butylbenzene	ug/kg	55.2	52.7	96	79-139	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

LABORATORY CONTROL SAMPLE: 1960480

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Styrene	ug/kg	55.2	55.8	101	79-137	
tert-Butylbenzene	ug/kg	55.2	46.7	85	74-143	
Tetrachloroethene	ug/kg	55.2	50.7	92	71-138	
Toluene	ug/kg	55.2	56.7	103	74-131	
trans-1,2-Dichloroethene	ug/kg	55.2	60.3	109	67-135	
trans-1,3-Dichloropropene	ug/kg	55.2	58.2	105	65-146	
Trichloroethene	ug/kg	55.2	58.4	106	67-135	
Trichlorofluoromethane	ug/kg	55.2	59.9	109	59-144	
Vinyl acetate	ug/kg	110	66.2	60	40-160	
Vinyl chloride	ug/kg	55.2	47.1	85	56-141	
Xylene (Total)	ug/kg	166	161	97	76-137	
1,2-Dichloroethane-d4 (S)	%			106	70-132	
4-Bromofluorobenzene (S)	%			98	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE SAMPLE: 1961560

Parameter	Units	92334213002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	23.9	16.8	70	70-130	
1,1,1-Trichloroethane	ug/kg	ND	23.9	18.1	76	70-130	
1,1,2,2-Tetrachloroethane	ug/kg	ND	23.9	16.4	69	70-130	M1
1,1,2-Trichloroethane	ug/kg	ND	23.9	18.3	76	70-130	
1,1-Dichloroethane	ug/kg	ND	23.9	19.4	81	70-130	
1,1-Dichloroethene	ug/kg	ND	23.9	20.2	84	49-180	
1,1-Dichloropropene	ug/kg	ND	23.9	17.2	72	70-130	
1,2,3-Trichlorobenzene	ug/kg	ND	23.9	8.0	34	70-130	M1
1,2,3-Trichloropropane	ug/kg	ND	23.9	16.4	69	70-130	M1
1,2,4-Trichlorobenzene	ug/kg	ND	23.9	8.2	34	70-130	M1
1,2,4-Trimethylbenzene	ug/kg	ND	23.9	12.8	54	70-130	M1
1,2-Dibromo-3-chloropropane	ug/kg	ND	23.9	14.0	59	70-130	M1
1,2-Dibromoethane (EDB)	ug/kg	ND	23.9	16.4	69	70-130	M1
1,2-Dichlorobenzene	ug/kg	ND	23.9	12.3	52	70-130	M1
1,2-Dichloroethane	ug/kg	ND	23.9	19.7	82	70-130	
1,2-Dichloropropane	ug/kg	ND	23.9	18.2	76	70-130	
1,3,5-Trimethylbenzene	ug/kg	ND	23.9	12.3	52	70-130	M1
1,3-Dichlorobenzene	ug/kg	ND	23.9	11.6	48	70-130	M1
1,3-Dichloropropane	ug/kg	ND	23.9	17.2	72	70-130	
1,4-Dichlorobenzene	ug/kg	ND	23.9	11.7	49	70-130	M1
2,2-Dichloropropane	ug/kg	ND	23.9	18.2	76	70-130	
2-Butanone (MEK)	ug/kg	ND	47.8	35.6J	75	70-130	
2-Chlorotoluene	ug/kg	ND	23.9	12.6	53	70-130	M1
2-Hexanone	ug/kg	ND	47.8	33J	69	70-130	M1
4-Chlorotoluene	ug/kg	ND	23.9	12.6	53	70-130	M1
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	47.8	36.6J	77	70-130	
Acetone	ug/kg	ND	47.8	40.5J	75	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

MATRIX SPIKE SAMPLE: 1961560

Parameter	Units	92334213002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Benzene	ug/kg	ND	23.9	18.5	77	50-166	
Bromobenzene	ug/kg	ND	23.9	14.2	60	70-130	M1
Bromochloromethane	ug/kg	ND	23.9	19.2	80	70-130	
Bromodichloromethane	ug/kg	ND	23.9	18.8	79	70-130	
Bromoform	ug/kg	ND	23.9	16.0	67	70-130	M1
Bromomethane	ug/kg	ND	23.9	15.6	65	70-130	M1
Carbon tetrachloride	ug/kg	ND	23.9	16.9	71	70-130	
Chlorobenzene	ug/kg	ND	23.9	15.9	67	43-169	
Chloroethane	ug/kg	ND	23.9	19.5	82	70-130	
Chloroform	ug/kg	ND	23.9	18.6	78	70-130	
Chloromethane	ug/kg	ND	23.9	14.2	59	70-130	M1
cis-1,2-Dichloroethene	ug/kg	ND	23.9	18.3	76	70-130	
cis-1,3-Dichloropropene	ug/kg	ND	23.9	17.7	74	70-130	
Dibromochloromethane	ug/kg	ND	23.9	16.5	69	70-130	M1
Dibromomethane	ug/kg	ND	23.9	17.0	71	70-130	
Dichlorodifluoromethane	ug/kg	ND	23.9	9.1J	38	70-130	M1
Diisopropyl ether	ug/kg	ND	23.9	19.3	81	70-130	
Ethylbenzene	ug/kg	ND	23.9	15.2	64	70-130	M1
Hexachloro-1,3-butadiene	ug/kg	ND	23.9	7.5	31	70-130	M1
Isopropylbenzene (Cumene)	ug/kg	ND	23.9	13.6	57	70-130	M1
m&p-Xylene	ug/kg	ND	47.8	29.5	62	70-130	M1
Methyl-tert-butyl ether	ug/kg	ND	23.9	20.0	84	70-130	
Methylene Chloride	ug/kg	ND	23.9	19.5J	64	70-130	M1
n-Butylbenzene	ug/kg	ND	23.9	9.8	41	70-130	M1
n-Propylbenzene	ug/kg	ND	23.9	12.6	53	70-130	M1
Naphthalene	ug/kg	ND	23.9	10.4	44	70-130	M1
o-Xylene	ug/kg	ND	23.9	15.1	63	70-130	M1
p-Isopropyltoluene	ug/kg	ND	23.9	10.5	44	70-130	M1
sec-Butylbenzene	ug/kg	ND	23.9	11.2	47	70-130	M1
Styrene	ug/kg	ND	23.9	14.4	60	70-130	M1
tert-Butylbenzene	ug/kg	ND	23.9	10.7	45	70-130	M1
Tetrachloroethene	ug/kg	ND	23.9	14.0	59	70-130	M1
Toluene	ug/kg	ND	23.9	17.4	72	52-163	
trans-1,2-Dichloroethene	ug/kg	ND	23.9	18.7	78	70-130	
trans-1,3-Dichloropropene	ug/kg	ND	23.9	16.5	69	70-130	M1
Trichloroethene	ug/kg	ND	23.9	16.4	69	49-167	
Trichlorofluoromethane	ug/kg	ND	23.9	18.4	77	70-130	
Vinyl acetate	ug/kg	ND	47.8	15.1J	32	70-130	M1
Vinyl chloride	ug/kg	ND	23.9	12.7	53	70-130	M1
1,2-Dichloroethane-d4 (S)	%				114	70-132	
4-Bromofluorobenzene (S)	%				100	70-130	
Toluene-d8 (S)	%				100	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

SAMPLE DUPLICATE: 1961559

Parameter	Units	92334213001 Result	Dup Result	RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	ND		
1,1,1-Trichloroethane	ug/kg	ND	ND		
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND		
1,1,2-Trichloroethane	ug/kg	ND	ND		
1,1-Dichloroethane	ug/kg	ND	ND		
1,1-Dichloroethene	ug/kg	ND	ND		
1,1-Dichloropropene	ug/kg	ND	ND		
1,2,3-Trichlorobenzene	ug/kg	ND	ND		
1,2,3-Trichloropropane	ug/kg	ND	ND		
1,2,4-Trichlorobenzene	ug/kg	ND	ND		
1,2,4-Trimethylbenzene	ug/kg	ND	ND		
1,2-Dibromo-3-chloropropane	ug/kg	ND	ND		
1,2-Dibromoethane (EDB)	ug/kg	ND	ND		
1,2-Dichlorobenzene	ug/kg	ND	ND		
1,2-Dichloroethane	ug/kg	ND	ND		
1,2-Dichloropropane	ug/kg	ND	ND		
1,3,5-Trimethylbenzene	ug/kg	ND	ND		
1,3-Dichlorobenzene	ug/kg	ND	ND		
1,3-Dichloropropane	ug/kg	ND	ND		
1,4-Dichlorobenzene	ug/kg	ND	ND		
2,2-Dichloropropane	ug/kg	ND	ND		
2-Butanone (MEK)	ug/kg	ND	ND		
2-Chlorotoluene	ug/kg	ND	ND		
2-Hexanone	ug/kg	ND	ND		
4-Chlorotoluene	ug/kg	ND	ND		
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND		
Acetone	ug/kg	ND	ND		
Benzene	ug/kg	ND	ND		
Bromobenzene	ug/kg	ND	ND		
Bromochloromethane	ug/kg	ND	ND		
Bromodichloromethane	ug/kg	ND	ND		
Bromoform	ug/kg	ND	ND		
Bromomethane	ug/kg	ND	ND		
Carbon tetrachloride	ug/kg	ND	ND		
Chlorobenzene	ug/kg	ND	ND		
Chloroethane	ug/kg	ND	ND		
Chloroform	ug/kg	ND	ND		
Chloromethane	ug/kg	ND	ND		
cis-1,2-Dichloroethene	ug/kg	ND	ND		
cis-1,3-Dichloropropene	ug/kg	ND	ND		
Dibromochloromethane	ug/kg	ND	ND		
Dibromomethane	ug/kg	ND	ND		
Dichlorodifluoromethane	ug/kg	ND	ND		
Diisopropyl ether	ug/kg	ND	ND		
Ethylbenzene	ug/kg	ND	ND		
Hexachloro-1,3-butadiene	ug/kg	ND	ND		
Isopropylbenzene (Cumene)	ug/kg	ND	ND		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

SAMPLE DUPLICATE: 1961559

Parameter	Units	92334213001 Result	Dup Result	RPD	Qualifiers
m&p-Xylene	ug/kg	ND	ND		
Methyl-tert-butyl ether	ug/kg	ND	ND		
Methylene Chloride	ug/kg	ND	ND		
n-Butylbenzene	ug/kg	ND	ND		
n-Propylbenzene	ug/kg	ND	ND		
Naphthalene	ug/kg	ND	1.7J		
o-Xylene	ug/kg	ND	ND		
p-Isopropyltoluene	ug/kg	ND	ND		
sec-Butylbenzene	ug/kg	ND	ND		
Styrene	ug/kg	ND	ND		
tert-Butylbenzene	ug/kg	ND	ND		
Tetrachloroethene	ug/kg	ND	ND		
Toluene	ug/kg	ND	ND		
trans-1,2-Dichloroethene	ug/kg	ND	ND		
trans-1,3-Dichloropropene	ug/kg	ND	ND		
Trichloroethene	ug/kg	ND	ND		
Trichlorofluoromethane	ug/kg	ND	ND		
Vinyl acetate	ug/kg	ND	ND		
Vinyl chloride	ug/kg	ND	ND		
Xylene (Total)	ug/kg	ND	ND		
1,2-Dichloroethane-d4 (S)	%	113	111	12	
4-Bromofluorobenzene (S)	%	97	97	14	
Toluene-d8 (S)	%	100	99	14	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

QC Batch: 353269 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92334213001, 92334213002, 92334213003, 92334213004, 92334213005, 92334213006, 92334213007, 92334213008, 92334213009

SAMPLE DUPLICATE: 1959626

Parameter	Units	92329060111 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	29.8	27.9	6	

SAMPLE DUPLICATE: 1959627

Parameter	Units	92334092001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	95.0	95.1	0	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

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.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

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.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

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

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

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
MS	Analyte recovery in the matrix spike was outside QC limits for one or more of the constituent analytes used in the calculated result.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 2017.0015.NDOT 36600.1.2
Pace Project No.: 92334213

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92334213001	**SB-9**	EPA 8260	353462		
92334213002	**SB-10**	EPA 8260	353462		
92334213003	**SB-11**	EPA 8260	353462		
92334213004	**SB-12**	EPA 8260	353462		
92334213005	**SB-13**	EPA 8260	353462		
92334213006	**SB-14**	EPA 8260	353462		
92334213007	**SB-15**	EPA 8260	353462		
92334213008	**SB-16**	EPA 8260	353462		
92334213009	**SB-17**	EPA 8260	353462		
92334213001	**SB-9**	ASTM D2974-87	353269		
92334213002	**SB-10**	ASTM D2974-87	353269		
92334213003	**SB-11**	ASTM D2974-87	353269		
92334213004	**SB-12**	ASTM D2974-87	353269		
92334213005	**SB-13**	ASTM D2974-87	353269		
92334213006	**SB-14**	ASTM D2974-87	353269		
92334213007	**SB-15**	ASTM D2974-87	353269		
92334213008	**SB-16**	ASTM D2974-87	353269		
92334213009	**SB-17**	ASTM D2974-87	353269		

Pace Analytical®	Document Name: **Sample Condition Upon Receipt(SCUR)**	Document Revised: Sept. 21, 2016 Page 1 of 2
	Document No.: **F-CAR-CS-033-Rev.01**	Issuing Authority: Pace Quality Office

Laboratory receiving samples:

Asheville ☐ **Eden** ☐ **Greenwood** ☐ **Huntersville** ☒ **Raleigh** ☐ **Mechanicsville** ☐

Sample Condition Upon Receipt **Client Name:** Solution IES **Project #:** WO# : 92334213

92334213

Courier: ☐ Commercial ☐ Fed Ex ☒ Pace ☐ UPS ☐ USPS ☐ Other:____ ☐ Client

Custody Seal Present? ☐ Yes ☒ No **Seals Intact?** ☐ Yes ☒ No **Date/Initials Person Examining Contents:** RP 3.22.17.

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☒ None ☐ Other:____

Thermometer: ☐ IR Gun ID: T1603 **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Correction Factor: **Cooler Temp Corrected (°C):** 4.2°C **Biological Tissue Frozen?** ☐ Yes ☒ No ☐ N/A

Temp should be above freezing to 6°C

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☒ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☒ No

				Comments/Discrepancy:
Chain of Custody Present?	☒ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☒ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☒ Yes	☐ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☒ No	☐ N/A	4.
Sufficient Volume?	☒ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☒ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☒ Yes	☐ No	☐ N/A	
Containers Intact?	☒ Yes	☐ No	☐ N/A	7.
Samples Field Filtered?	☐ Yes	☒ No	☐ N/A	8. Note if sediment is visible in the dissolved container
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: Soil	☒ Yes	☐ No	☐ N/A	9.
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☒ No	☐ N/A	10.
Trip Blank Present?	☐ Yes	☒ No	☐ N/A	11.
Trip Blank Custody Seals Present?	☐ Yes	☒ No	☐ N/A	

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Sample Discrepancy: _____

Project Manager SCURF Review: [signature] **Date:** 4/82/17 KG 3/22/17

Project Manager SRF Review: [signature] **Date:** 3/22/17

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)

11.4 SHR

Pace Analytical®	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: Sept. 21, 2016 Page 2 of 2
	Document No.: F-CAR-CS-033-Rev.01	Issuing Authority: Pace Quality Office

***Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.**

****Bottom half of box is to list number of bottles**

Project # **WO# : 92334213**

PM: PTE Due Date: 03/31/17

CLIENT: 92-SOLUTIONS

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP3S-250 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP3Z-250 mL Plastic ZN Acetate & NaOH (>9)	BP3C-250 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	Cubitainer	VSGU-20 mL Scintillation vials (N/A)	GN
1	\				\	\	\	\			\		\	\	\					6					\	\			
2	\				\	\	\	\			\		\	\	\					6					\	\			
3	\				\	\	\	\			\		\	\	\					6					\	\			
4	\				\	\	\	\			\		\	\	\					6					\	\			
5	\				\	\	\	\			\		\	\	\					6					\	\			
6	\				\	\	\	\			\		\	\	\					6					\	\			
7	\				\	\	\	\			\		\	\	\					6					\	\			
8	\				\	\	\	\			\		\	\	\					6					\	\			
9	\				\	\	\	\			\		\	\	\					6					\	\			
10	\				\	\	\	\			\		\	\	\										\	\			
11	\				\	\	\	\			\		\	\	\										\	\			
12	\				\	\	\	\			\		\	\	\										\	\			

pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page: 1 of 1

Section A
Required Client Information:

Company: Solutions-IES
Address: 1101 Nowell Road
Raleigh NC 27607
Email To: mbranson@daa.com
Phone: 919-873-1660 Fax:
Requested Due Date/TAT: STANDARD

Section B
Required Project Information:

Report To: Mike Branson
Copy To: Candy Elliott
Purchase Order No.:
Project Name:
Project Number: 2017.0015.NDOT

Section C
Invoice Information:

Attention:
Company Name: NCDOT (PROJECT U-4737)
Address: WBS Element# 36600.1.2
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☑ OTHER NCDOT

Site Location STATE: NC

Section D
Required Client Information

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

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Analysis Test: VOCs by 8260	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	SB-9			3-21-17	0830				6	X					X	X					001
2	SB-10				0900																002
3	SB-11				0920																003
4	SB-12				0940																004
5	SB-13				1030																005
6	SB-14				1045																006
7	SB-15				1145																007
8	SB-16				1200																008
9	SB-17			↓	1220				↓	↓					↓	↓			↓		009
10																					
11																					
12																					

92334213

ADDITIONAL COMMENTS	RELINQUISHED 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)
	SIES	3-22-17	0805		3-22-17	0805				
		3-22-17	1122	RP PACE FUL	3-22-17	1122	4.2	Y	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: CANDY ELLIOTT
SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 03/21/2017

*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.