April 29, 2019

North Carolina Department of Transportation
Geotechnical Unit
Mail Service Center 1592
Raleigh, North Carolina 27699-1592

Attention: Mr. Craig Haden email: cehaden@ncdot.gov

Reference: **Preliminary Site Assessment Report**
NCDOT Project I-5986B, WBS Element 47532.1.3
Parcel 148-PJ's Truck Bodies
1560 George Perry Lee Road
Dunn, Harnett County, North Carolina
S&ME Project 4305-18-175A

Dear Mr. Haden:

S&ME, Inc. (S&ME) is submitting this Preliminary Site Assessment (PSA) Report to the North Carolina Department of Transportation (NCDOT). This report presents the background/project information, field activities, findings, conclusions, and recommendations. These services were performed in general accordance with S&ME Proposal No. 4305-18-175 CO-01 REV-01 dated January 2, 2019, and Contract Number 7000018853 dated April 12, 2018 between NCDOT and S&ME, Inc., authorized by NCDOT in its January 8, 2019 Notice to Proceed Letter.

♦ Background/Project Information

Based on NCDOT's November 2, 2018, Request for Technical and Cost Proposal, the PSA was conducted within the NCDOT right-of-way (ROW) and/or easement as indicated on the preliminary plan sheets provided by NCDOT at the following property:

NCDOT Parcel No.	Property Owner	Site Address
148	JFP Properties, LLC	(PJ's Truck Bodies) 1560 George Perry Lee Road, Dunn, NC

The property is developed with a truck body manufacturing facility identified as PJ's Truck Bodies. The property is not listed with registered petroleum underground storage tanks (USTs) (active or closed). The property is also not listed with North Carolina Department of Environmental Quality (NCDEQ) Incidents associated with petroleum releases from USTs or aboveground storage tanks.

The PSA included a geophysical survey, subsequent limited soil sampling (three soil borings up to 10 feet below ground surface (ft.-bgs.) and limited groundwater sampling (one groundwater sample), within accessible areas of the proposed ROW/easement in preparation for construction activities. **Figure 1** shows the vicinity and site

location, and **Figure 2** shows the site and boring locations. Soil and groundwater sampling results are shown on **Figure 3.**

♦ Field Services

Prior to field activities, a site specific Health and Safety Plan was prepared as required by the Occupational Health and Safety Act (OSHA). Underground utilities were located and marked by the North Carolina One-Call Service. A private utility locator (Troxler Geologic, Inc.) was also used to locate and mark underground utilities.

♦ Geophysical Survey

On February 6, 2019, S&ME personnel performed a geophysical survey within accessible areas of the proposed ROW/easement at Parcel 148. S&ME used a combination of the Time Domain Electromagnetic (TDEM) and Ground Penetrating Radar (GPR) methods to explore for buried subsurface features at the site such as underground storage tanks (USTs) and other possible buried obstructions. Brief descriptions of these complementary geophysical techniques are presented in the following paragraphs.

Time Domain Electromagnetics (TDEM)

TDEM measures the electrical conductivity of subsurface materials and discriminates between moderately conductive earth materials and very conductive metallic targets within the shallow subsurface. The conductivity is determined by transmitting a time-varying magnetic pulse into the subsurface and measuring the amplitude and phase shift of the secondary magnetic field. The secondary magnetic field is created when the conductive materials become an inductor as the primary magnetic field is passed through them. TDEM data are acquired continuously at a walking pace typically along a series of parallel or perpendicular lines. The system generates audible and visual indications when metallic targets are encountered. These measurements can also be supported with a global positioning system (GPS) which is output directly into the TDEM data file.

We used a Geonics Limited EM-61 MK2 TDEM system in general accordance with ASTM D6820-02 (2007) "*Standard Guide for Use of the Time Domain Electromagnetic Method for Subsurface Investigation.*" Data was collected along lines spaced at approximately five feet using a Juniper® Systems Geode™ sub-meter GPS as positioning support. The presence of vehicles, thick vegetation and other surficial obstructions within the requested survey area however prevented TDEM data collection in several locations. The approximate TDEM data collection paths are presented in **Figure 4**. Golden Software's Surfer® program was used to grid and plot the data (**Figures 5 and 6**). The TDEM data has been presented as Plots A and B in order to provide both opaque and transparent views, respectively.

Ground Penetrating Radar (GPR)

GPR transmits electromagnetic waves into the subsurface from an antenna at a specific frequency and measures the time for wave reflections to be received by interfaces between materials with differing material properties (e.g. soil/metal, etc.). The intensity of the reflected GPR wave is a function of the contrast in the material properties (i.e. dielectric permittivity) at the interface, the conductivity of the material that the wave is traveling through, and the frequency of the signal.

We used a Geophysical Survey Systems, Inc. (GSSI) SIR® 3000 GPR system equipped with a 400 MHz antenna in general accordance with ASTM D6432-11 "*Standard Guide for Using the Surface Ground Penetrating Radar Method for Subsurface Investigation*" to further characterize anomalies/features identified during the TDEM survey.

A total of seven GPR profiles (Lines 1 through 7) were collected for documentation (**Figure 7**). The data was post-processed using the GSSI Radan® 7 GPR software program for additional analysis.

Geophysical Findings

Responses indicative of a potential UST were not identified in the geophysical data sets collected at the site. However, one anomaly was identified by the GPR survey (Anomaly I; **Figure 7**). Anomaly I is characterized by high amplitude GPR responses within the upper one ft.-bgs and likely related to an isolated buried target/debris. Anomaly A was also marked in the field using white spray paint. Example GPR profiles are presented in **Figure 8**.

♦ Soil Sampling

On February 25, 2019, Troxler Geologic, Inc. (Troxler's) drill crew utilized a track mounted Geoprobe® rig to advance three soil borings (B-1 through B-3) and to collect soil samples within accessible areas of the proposed ROW/easement at Parcel 148. The approximate location of the soil borings are shown in **Figure 2**. A photographic log is included in **Appendix I.** Troxler's drill crew advanced the Geoprobe® borings up to a depth of approximately 10 ft.-bgs. During the advancement of the soil borings, groundwater was encountered at depths ranging from approximately 2.5 to four ft.-bgs. Soil samples were continuously collected in four-foot long disposable acetate-plastic sleeves that line the hollow stainless-steel sample probes. Soil recovered from the sleeves was classified on-site by S&ME personnel and screened with a Photoionization Detector (PID) at approximately two foot depth intervals to measure relative headspace concentrations of volatile organic compounds (VOCs).

VOC headspace readings were obtained from an aliquot of each soil sample that was placed in a re-sealable bag. Another portion of the sample was placed in a separate re-sealable bag and stored in an insulated container with ice for possible laboratory analyses. After waiting approximately 15 minutes to allow the sample to reach ambient temperature and headspace equilibrium, the PID probe was inserted into the bag to obtain a headspace reading. A summary of the PID readings and logs of the soil borings are included in **Appendix II.**

No petroleum odors, staining or elevated PID readings were noted within the collected soil samples. Therefore, one soil sample was selected from each boring. The soil sample from the two to four foot depth interval was selected from boring B-1 and the soil sample from the zero to two foot depth interval was selected from borings B-2 and B-3. The soil samples were provided to RED Lab, LLC (Red Lab) for on-site analysis. A total of three soil samples (one per boring) were analyzed by RED Lab for Total Petroleum Hydrocarbons (TPH)-Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) using ultra-violet fluorescence (UVF) spectroscopy with product (fuel) identification.

Soil Analytical Results

TPH-GRO and TPH-DRO were not reported at concentrations exceeding the North Carolina TPH Action Levels. TPH-DRO was reported at borings B-1, B-2 and B-3 at concentrations ranging from 0.05 milligrams per kilograms

(mg/kg) to 9.2 mg/kg, which are below its North Carolina TPH Action Level of 100 mg/kg. TPH-GRO was not reported at concentrations exceeding the laboratory method reporting limits. A summary of the soil analytical results is presented in **Table 1** and shown on **Figure 3.** A copy of the laboratory analytical report provided by RED Lab is presented in **Appendix III.**

♦ Groundwater Sampling

During the advancement of the soil borings, groundwater was encountered within approximately 10 ft.-bgs. Therefore, the Geoprobe® was used to advance one of the soil borings into the groundwater table for the collection of a groundwater sample. Based on analytical results of soil samples and apparent downgradient location from the PJ's Truck Bodies facility, soil boring B-3 was selected for the collection of a groundwater sample. A temporary monitor well (TW-1) was installed at soil boring B-3 to a depth of approximately five ft.-bgs using a five foot section of one-inch diameter, Schedule 40 PVC 0.01-inch slotted screen that intersected the groundwater table. Groundwater within the temporary monitor well at soil boring B-3 was measured at 2.5 ft.-bgs. Groundwater from the temporary well was purged until relatively clear using disposable tubing attached to a peristaltic pump. The flow rate was reduced and laboratory supplied containers were filled directly from the tubing, labeled as B-3/TW-1 and placed in an insulated cooler with ice for transport to Con-Test Laboratories for analysis of VOCs by EPA Method 8260 and polycyclic aromatic compounds (PAHs) by EPA Method 8270.

Upon completion of the soil and groundwater sampling, the well materials were removed and the soil borings backfilled with bentonite pellets and soil cuttings. Investigative derived wastes (IDW), such as additional soil cuttings generated during the soil boring advancement, purge water and decontamination water, were spread on the ground in accordance with the procedures specified by North Carolina Department of Environmental Quality (NCDEQ). Used gloves, tubing, re-sealable bags and acetate sleeves were bagged and disposed off-site.

Groundwater Analytical Results

Based upon analytical results of groundwater samples analyzed by Con-Test Laboratories, no target constituents were reported at concentrations exceeding the laboratory method reporting limits. A summary of the groundwater analytical results is presented in **Table 2** and shown on **Figure 3.** A copy of the laboratory analytical report provided by Con-Test Laboratories is presented in **Appendix III.**

♦ Conclusion and Recommendations

The geophysical survey identified one anomaly (Anomaly I) which is likely related to an isolated buried target/debris. Responses indicative of a potential UST were not identified in the geophysical data sets collected at the site.

S&ME advanced three soil borings (B-1 through B-3) to a depth of up to approximately 10 ft.-bgs at the site. No petroleum odors, staining or elevated PID readings were noted within soil samples collected from the soil borings. Selected soil samples from the soil borings were analyzed onsite for TPH-GRO and TPH-DRO using UVF spectroscopy. TPH-DRO were reported in the zero to two foot depth interval at two soil borings and the two to four foot depth interval at one soil boring at concentrations slightly above the laboratory method reporting limits, but well below the North Carolina TPH Action Level. During the soil boring advancement, groundwater was encountered at depths ranging from 2.5 ft-bgs to four ft.-bgs. One temporary well (TW-1) was installed at soil

boring B-3. Groundwater at TW-1 was measured at 2.5 ft.-bgs and analyzed by Con-Test Laboratories for VOCs by EPA Method 8260 and PAHs by EPA Method 8270. No target constituents were reported in the groundwater sample at concentrations exceeding the laboratory method reporting limits.

S&ME recommends maintaining an awareness level for the presence of marginally impacted petroleum in soil (below TPH Action Levels) at the site for the safety of workers and the public. If petroleum stained or odorous soils are encountered during construction, these soils should be properly handled and disposed at a licensed facility.

♦ Limitations

The results of this preliminary investigation are limited to the boring locations presented herein. The results of this Preliminary Site Assessment are not all inclusive and may not represent existing conditions across the entire property. These results only reflect the current conditions at the locations sampled on the date this Preliminary Site Assessment was performed. This report has been prepared in accordance with generally accepted environmental engineering and geophysical practice for specific application to this project. The conclusions and recommendations contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other warranty, expressed or implied, is made.

The geophysical methods used for this survey have inherent limitations. Site metallic features (e.g., buildings, reinforced concrete, vehicles, etc.) and overhead transmission lines can produce a false electromagnetic response and may mask subsurface features. The depth of exploration of the GPR signal is highly site specific, and is greatly limited by signal attenuation (absorption) of the subsurface materials. Signal attenuation is dependent upon the electrical conductivity of the subsurface materials. Signal attenuation is greatest in materials with relatively high electrical conductivities such as clay soils, and lowest in relatively low conductivity materials such as unsaturated sand. For this project location, the GPR data sets appear to have a maximum depth of penetration of approximately about five ft.-bgs.

Regardless of the thoroughness of a geophysical study, there is always a possibility that actual conditions may not match the interpretations. The results should be considered accurate only to the degree implied by the methods used and the method's limitations and data coverage. Accordingly, the possibility exists that not all features at a project site will be located due to either subsurface soil conditions or the occurrence of features outside the lateral limits and below the depth of penetration of the methods used. As with most surface geophysical methods, resolution of the subsurface will also decrease with depth. As such, the size and/or contrast of features compared to the imaged subsurface media must be significant enough to produce the anticipated response. The location and/or determination (or the lack thereof) of potential buried features is based on our review of the provided information and of the geophysical survey. Under no circumstances does S&ME assume any responsibility for damages resulting from the presence of subsurface features that may exist but were not identified by our survey.

This Preliminary Site Assessment was performed solely for NCDOT regarding the above-referenced site and assessment area. This report is provided for the sole use of NCDOT. Use of this report by any other parties will be at such party's sole risk. S&ME disclaims liability for any such use or reliance by third parties. The observations presented in this report are indicative of conditions during the time of the assessment and of the specific areas referenced.

Closing

S&ME appreciates the opportunity to provide these services to you. If you have any questions or comments regarding this report, please contact us at your convenience.

Sincerely,

S&ME, Inc.

Jamie T Honeycutt
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Michael W. Pfeifer
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DocuSigned by: Jamie Honeycutt 4C890EAEC25F488...

DocuSigned by: Michael Pfeifer 861E52DDEFAF4C7...

DocuSigned by: Tom Raymond D4B9FB5F636F4BB...

NORTH CAROLINA PROFESSIONAL SEAL 18760 ENGINEER THOMAS P. RAYMOND

5/6/2019

Attachments:

Table 1: Summary of Soil Sampling Results
Table 2: Summary of Groundwater Sampling Results

Figure 1: Vicinity Map
Figure 2: Site Map
Figure 3: Soil and Groundwater Constituent Map
Figure 4: TDEM Path Location Plan
Figure 5: TDEM Data Plot A
Figure 6: TDEM Data Plot B
Figure 7: Geophysical Anomaly Location Plan
Figure 8: Example GPR Data – Lines 1 and 2

Appendix I: Photographs
Appendix II: Boring Logs
Appendix III: Laboratory Analytical Reports and Chain of Custody

Tables

TABLE 1
SUMMARY OF SOIL SAMPLING RESULTS
NCDOT Project I-5986B
Parcel 148 - (PJ's Truck Bodies)
1560 George Perry Lee Road
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-18-175A

Analytical Method→			Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) by Ultraviolet Fluorescence (UVF) Spectrometry	
Sample ID	Date	Contaminant of Concern→ / Sample Depth (ft.-bgs)	TPH-GRO	TPH-DRO
B-1	2/25/2019	2 to 4	<0.44	**0.05**
B-2	2/25/2019	0 to 2	<0.28	**0.38**
B-3	2/25/2019	0 to 2	<0.47	**9.2**
North Carolina TPH Action Levels			**50**	**100**

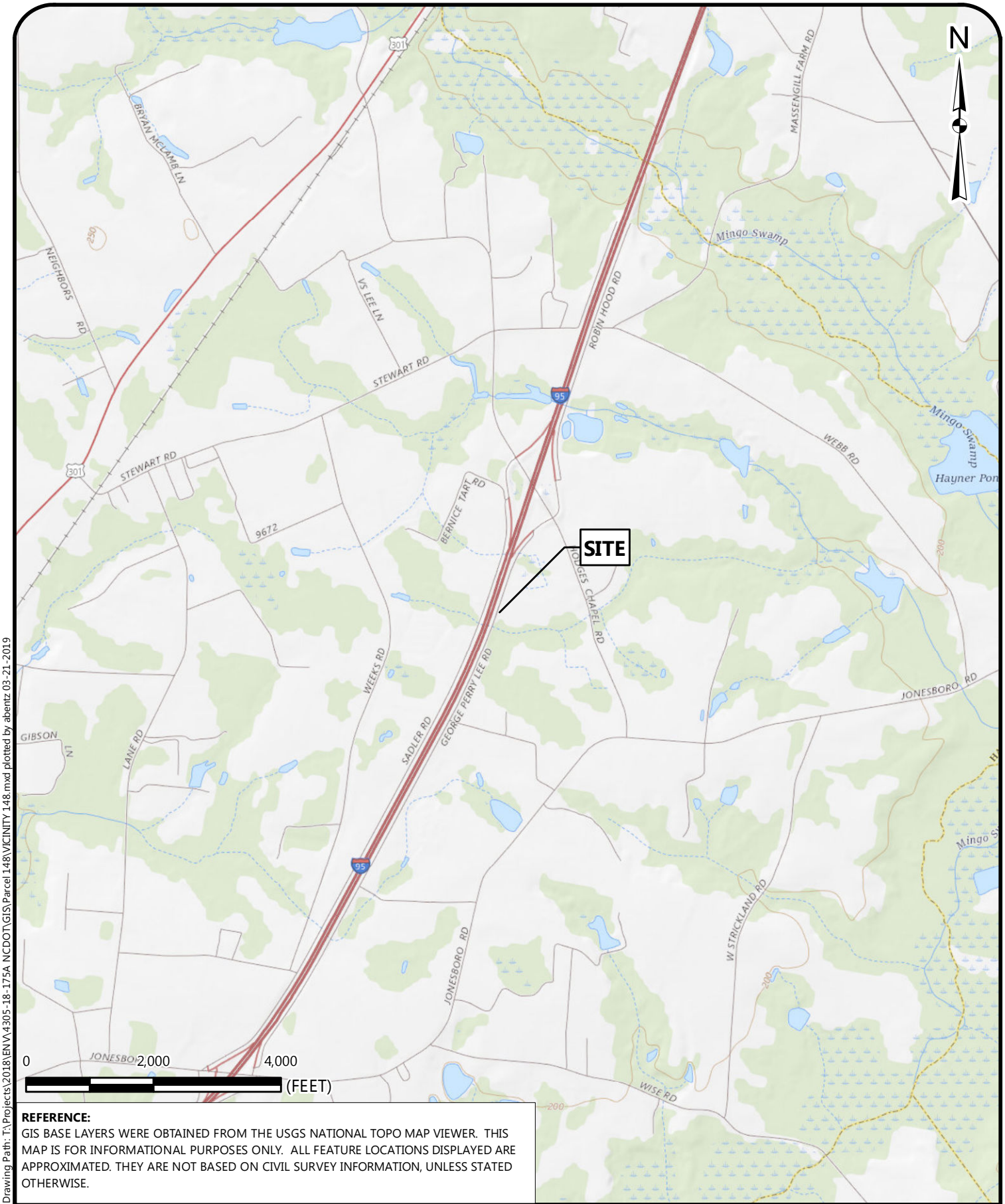
Notes:
1. UVF analysis performed by RED Lab, LLC
2. Concentrations are reported in milligrams per kilogram (mg/Kg).
3. ft.-bgs:- feet below ground surface.
4. Concentrations exceeding the laboratory's reporting limits are shown in **BOLD** fields.
5. Concentrations exceeding the North Carolina TPH Action Levels are shown in Shaded and **BOLD** fields.

TABLE 2
SUMMARY OF GROUNDWATER SAMPLING RESULTS
NCDOT Project I-5986B
Parcel 148 - (PJ's Truck Bodies)
1560 George Perry Lee Road
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-18-175A

Analytical Method→		Volatile Organic Compounds by EPA Method 8260	Polycyclic Aromatic Compounds (PAHs) by EPA Method 8270
Sample ID	Contaminant of Concern→	Constituent Specific	Constituent Specific
	Date		
B-3/TW-1	2/25/2019	Below laboratory method reporting limits	Below laboratory method reporting limits
2L Standard (µg/L)		**Not Applicable**	**Not Applicable**

Notes:
1. Analytes that are not shown for the method were not detected.
2. Concentrations are reported in micrograms per liter (µg/L).
3. 2L Standard: North Carolina Groundwater Quality Standards: 15A NCAC 2L.0202
4. Concentrations exceeding the laboratory's reporting limits are shown in **BOLD** fields.
5. Concentrations exceeding the 2L Standards are shown in Shaded and **BOLD** fields.

Figures



REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM THE USGS NATIONAL TOPO MAP VIEWER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

Drawing Path: T:\Projects\2018\ENV\4305-18-175A NCDOT\GIS\Parcel 148\VICINITY 148.mxd plotted by abentz 03-21-2019

VICINITY MAP

NCDOT I-5986B
PARCEL NO. 148 (PJ'S TRUCK BODIES)
1560 GEORGE PERRY LEE RD, DUNN, HARNETT CO., NORTH CAROLINA

SCALE:	1 " = 2,000 '
DATE:	3-21-19
PROJECT NUMBER	4305-18-175A
FIGURE NO.	1

LEGEND

Geoenvironmental Boring:

Underground Storage Tank (UST): UST

Map Source: NCDOT Project I-5986B
Image Source: NC ONEMAP, Dated 2016

Known Soil Contamination:

Possible Soil Contamination: — s —

Existing Contamination Known - Water: — w —

0 150 300

GRAPHIC SCALE (IN FEET)

SITE MAP

NCDOT Project: I-5986B
PARCEL 148 - (PJ'S TRUCK BODIES)
1560 George Perry Lee Road, Dunn, Harnett County, North Carolina

SCALE:	FIGURE NO.
1" = 150'	2
DATE:	
MARCH 2019	
PROJECT NUMBER	
4305-18-175A	

SOIL AND GROUNDWATER CONSTITUENT MAP

NCDOT I-5986B
PARCEL NO. 148 (PJ'S TRUCK BODIES)
1560 GEORGE PERRY LEE RD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SADLER RD

INTERSTATE 95

INTERSTATE 95

GEORGE PERRY LEE RD

B-3

(ft-bgs)	(mg/kg)	
Sample Depth	GRO	DRO
0-2	< 0.47	9.2

B-1

(ft-bgs)	(mg/kg)	
Sample Depth	GRO	DRO
2-4	< 0.44	0.05

B-2

(ft-bgs)	(mg/kg)	
Sample Depth	GRO	DRO
0-2	< 0.28	0.38

B-1

B-2

B-3/TW-1

TW-1	µg/L
EPA Method 8260	
BDL	
EPA Method 8270	
BDL	

Parcel 148
1560 GEORGE PERRY LEE ROAD

0 100 200 (FEET)

REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM THE 2017 NCONEMAP AERIAL ORTHOIMAGERY LAYER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

mg/kg: Milligrams per Kilogram
µg/L: Micrograms per Liter
GRO: Total Petroleum Hydrocarbon Gasoline Range Organics
DRO: Total Petroleum Hydrocarbon Diesel Range Organics
BOLD*: Indicates Exceedance of NC TPH Action Levels
BOLD#: Indicates Exceedance of 2L Groundwater Samples
ft-bgs : Feet Below Ground Surface
PAH: Polycyclic Aromatic Compounds
BDL: Below Detection Limits

Samples Collected 2-25-2019.

GRO/DRO Analyzed by Ultraviolet Fluorescence (UVF) by RED Lab, LLC.

- Sample Location
- Proposed Alignment
- ROW Proposed Permanent ROW
- Proposed Permanent Utility Easement
- Proposed Edge of Pavement
- Tax Parcels

SCALE: 1 " = 75 '

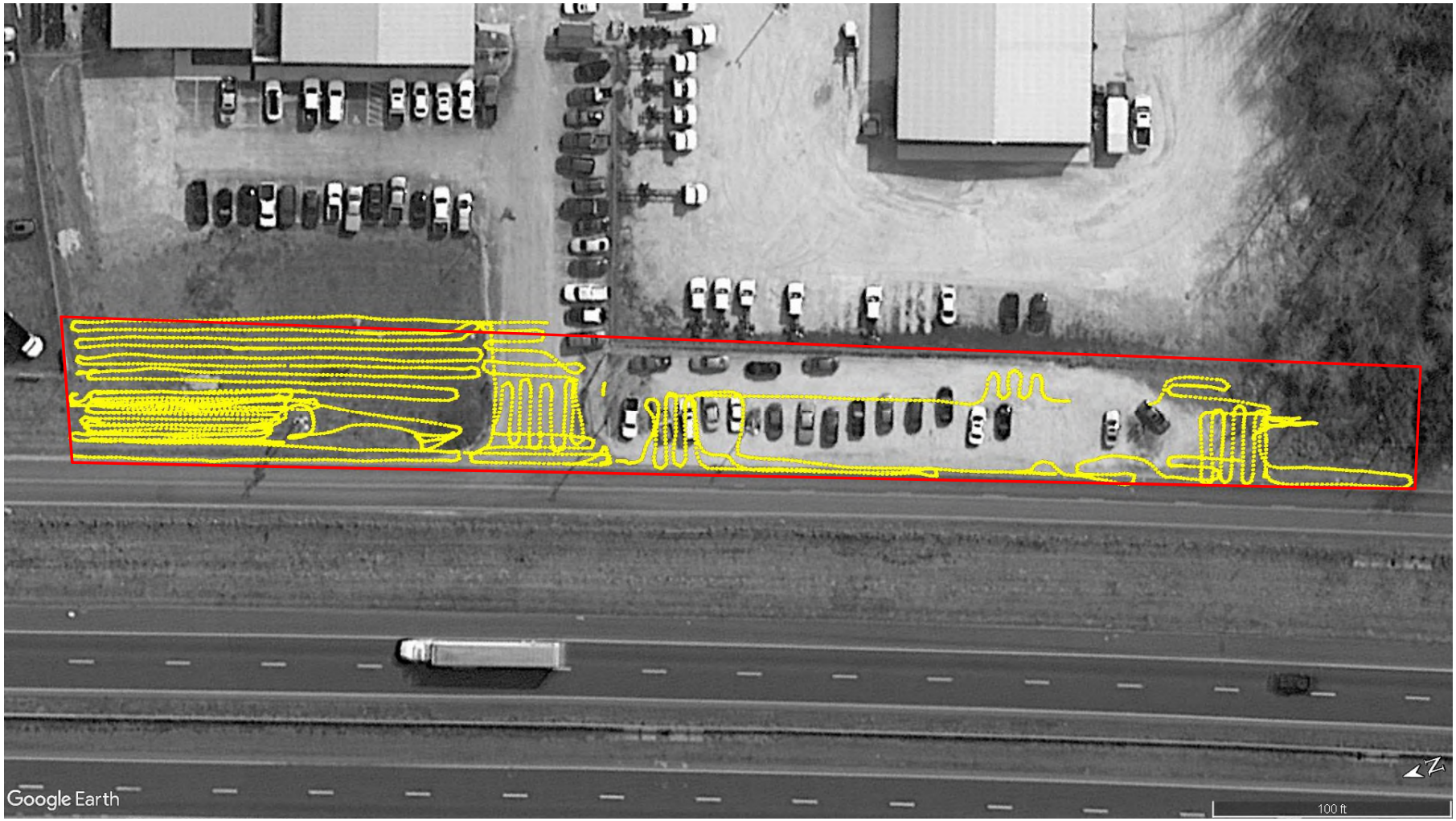
DATE: 3-21-19

PROJECT NUMBER 4305-18-175

FIGURE NO. 3

Drawing Path: T:\Projects\2018\ENV\4305-18-175A NCDOT\GIS\Parcel 148\Parcel 148.mxd plotted by Abentz 03-21-2019

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



LEGEND

Approximate TDEM Path

Approximate Requested Survey Area

TDEM PATH LOCATION PLAN

NCDOT PROJECT: I-5986B
PARCEL 148 – (PJ'S TRUCK BODIES)
1560 GEORGE PERRY LEE ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

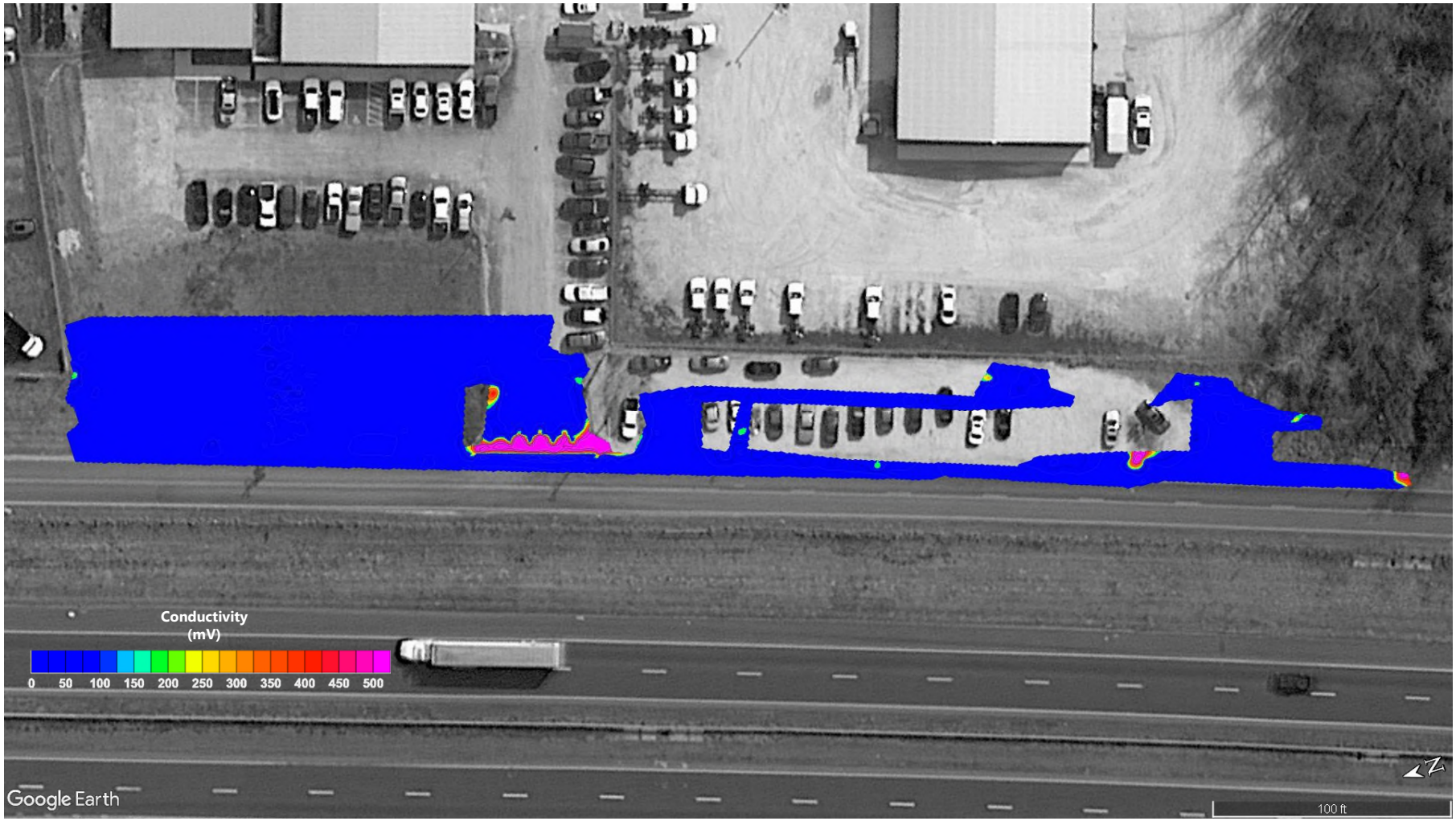
SCALE:
AS SHOWN

DATE:
3/22/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
4

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



TDEM DATA PLOT A

NCDOT PROJECT: I-5986B
PARCEL 148 – (PJ'S TRUCK BODIES)
1560 GEORGE PERRY LEE ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

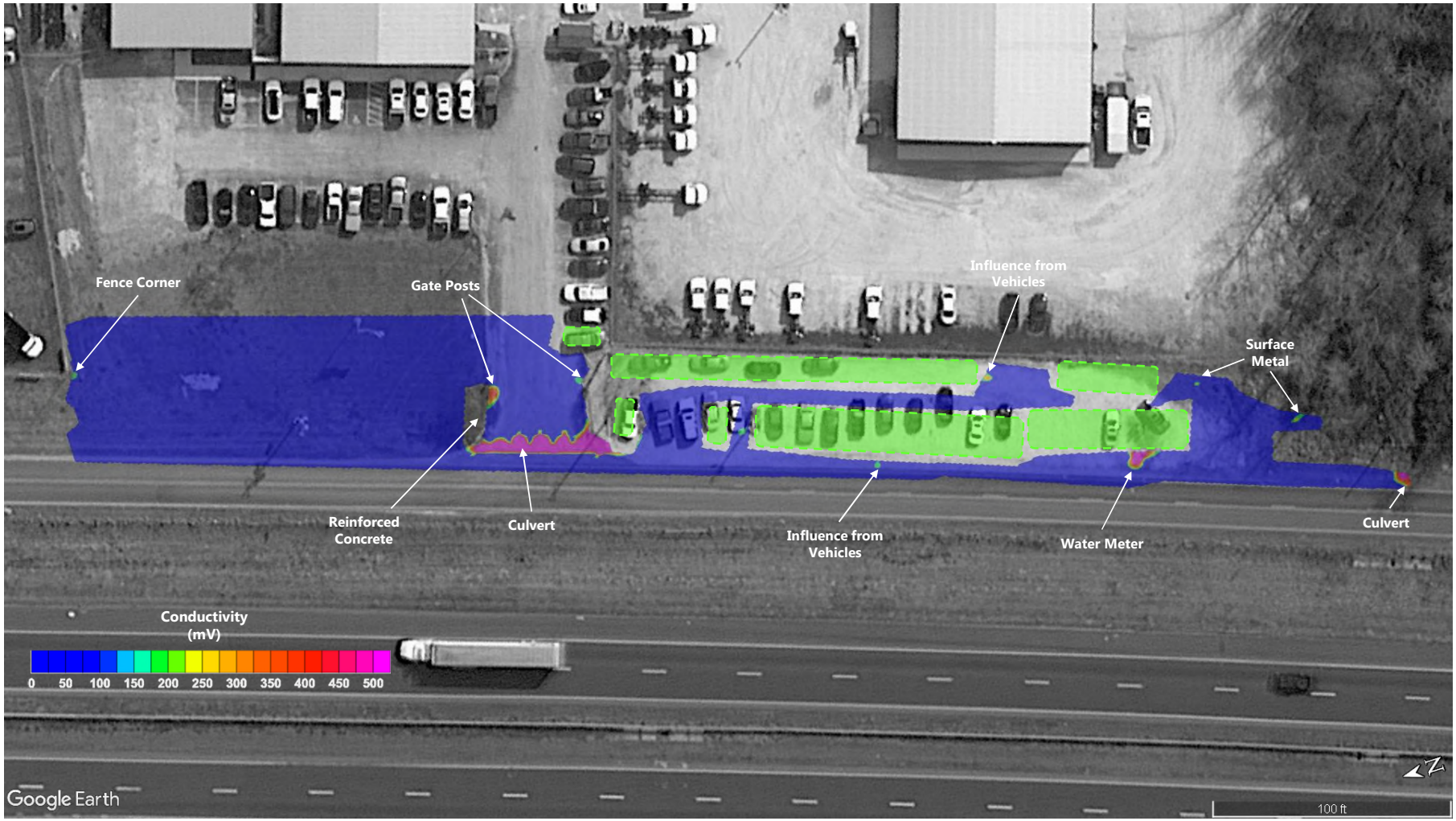
SCALE:
AS SHOWN

DATE:
3/22/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
5

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



LEGEND

Approximate Location of Vehicles

TDEM DATA PLOT B

NCDOT PROJECT: I-5986B
PARCEL 148 – (PJ'S TRUCK BODIES)
1560 GEORGE PERRY LEE ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

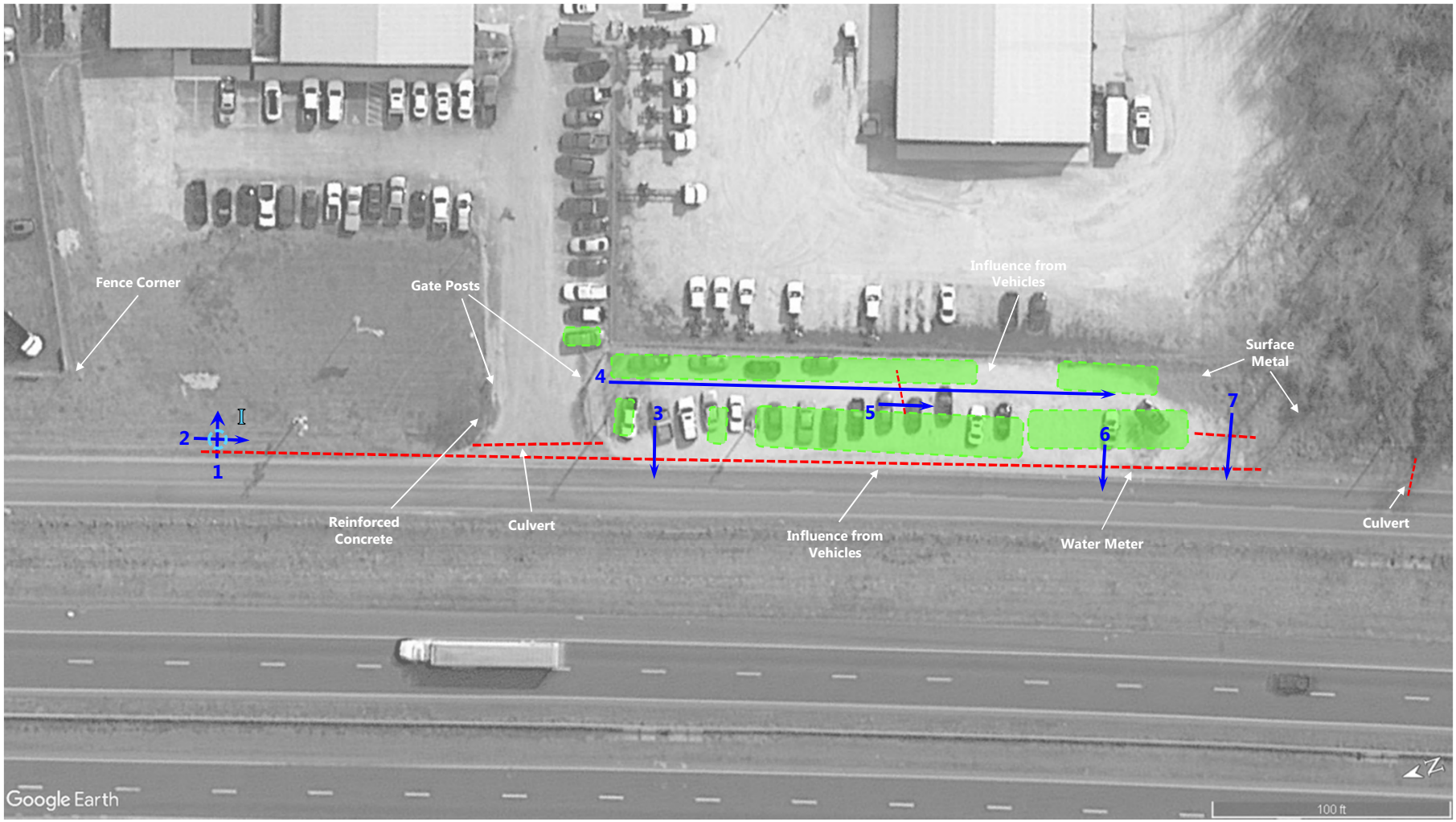
SCALE: AS SHOWN

DATE: 3/22/2019

PROJECT NUMBER 4305-18-175A

FIGURE NO. **6**

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



LEGEND

Approximate Location of GPR Anomaly

Approximate Location of GPR Profile

Approximate Location of Vehicles

Approximate Location of Possible Utility

GEOPHYSICAL ANOMALY LOCATION PLAN

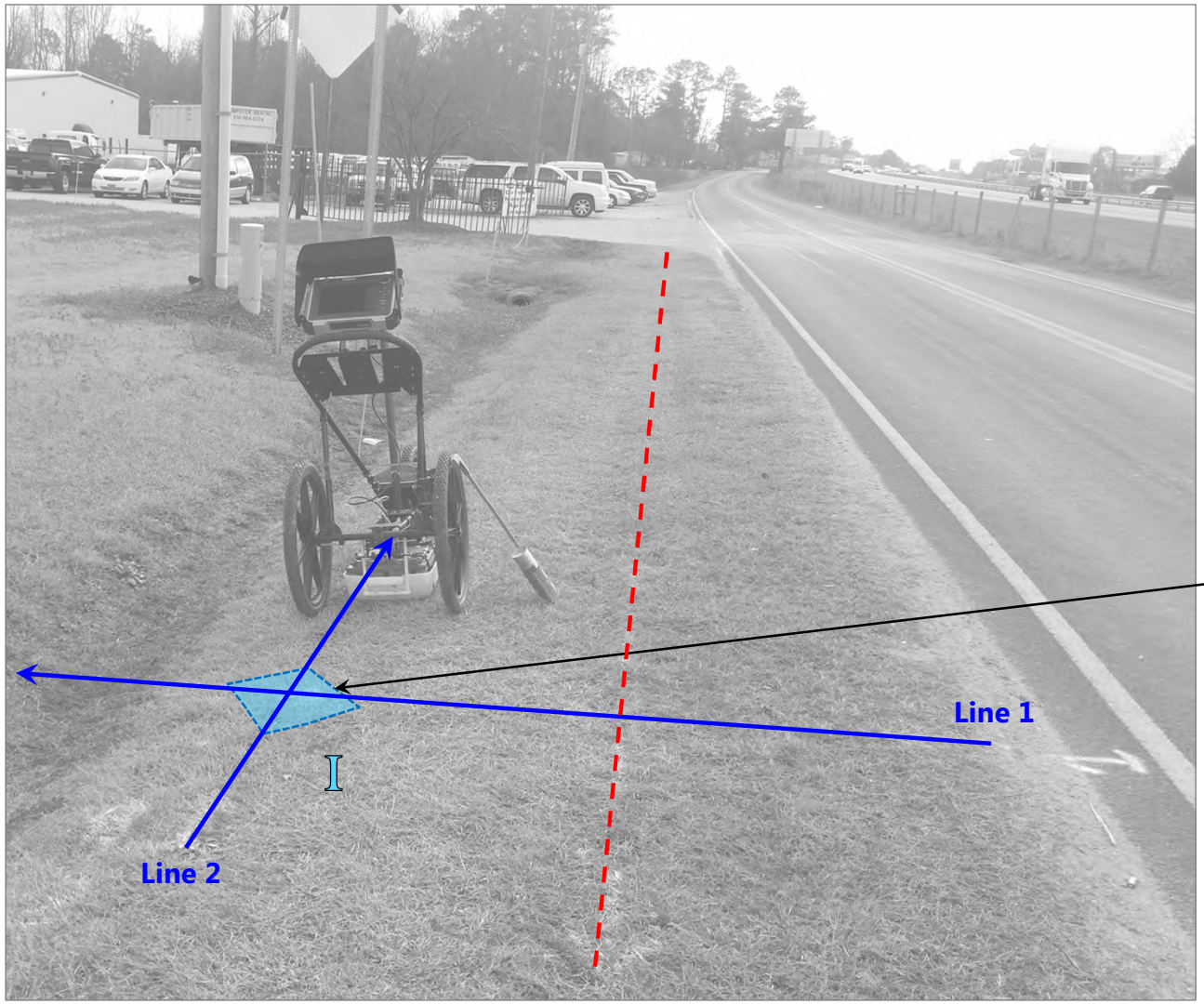
NCDOT PROJECT: I-5986B
PARCEL 148 – (PJ'S TRUCK BODIES)
1560 GEORGE PERRY LEE ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

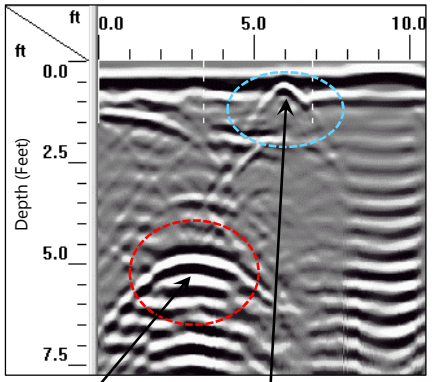
SCALE:
AS SHOWN

DATE:
3/22/2019

PROJECT NUMBER
4305-18-175A

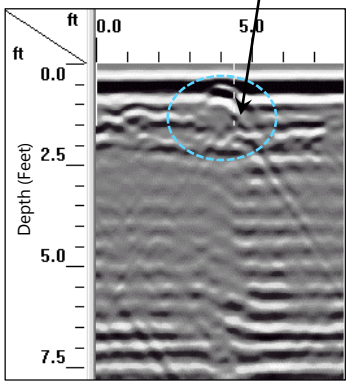
FIGURE NO.
7





Possible Utility

GPR Anomaly I



Note: Presented GPR profile depths are based on an assumed average dielectric and should be considered approximate

EXAMPLE GPR DATA – LINES 1 AND 2

NCDOT PROJECT: I-5986B
PARCEL 148 – (PJ'S TRUCK BODIES)
1560 GEORGE PERRY LEE ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE: AS SHOWN

DATE: 3/22/2019

PROJECT NUMBER 4305-18-175A

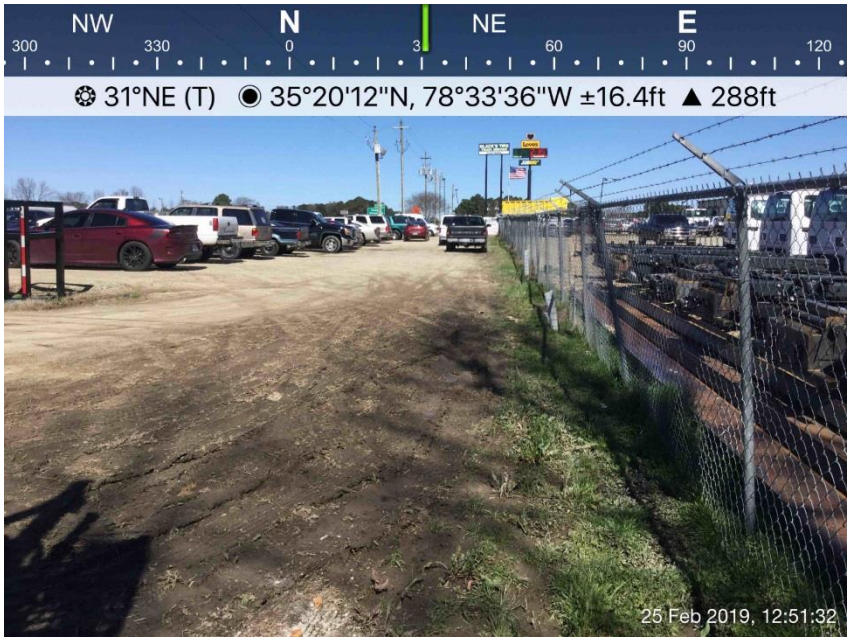
FIGURE NO. **8**

Appendix I – Photographs

Date: 2/25/2019

Photographer: JTH

1	**Location / Orientation**	Front view of northern portion of site looking NE.
	Remarks	Note soil boring B-1.



Date: 2/25/2019

Photographer: JTH

2	**Location / Orientation**	Front view of southern portion of site looking NE.
	Remarks	None

Date: 2/25/2019

Photographer: JTH

3	**Location / Orientation**	View of B-3/TW-1 located on southern portion of site.
	Remarks	None

Appendix II – Boring Logs

PROJECT:	NCDOT I-5986B Parcel 148-1560 George Perry Lee Road, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-1**
DATE DRILLED:	Monday, February 25, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	4
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Silty Sand, Brown,			0.1	No				
		Clayey Sand, Red, Orange,	▼		0.1	Yes				
5					0.2	No				
		Silty Sand, Red, Orange,			0.3	No				
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 148-1560 George Perry Lee Road, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-2**
DATE DRILLED:	Monday, February 25, 2019	BORING DEPTH (FT):	8
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	3
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Gravel,								
		Silty Sand, Black, Brown,	▼		0.2	Yes				
5		Clayey Sand, Red, Orange,								
		Clayey Sand, Orange, Tan,								
		Boring Terminated at 8 Ft-BGS								
10										
15										
20										
25										
30										

PROJECT:	NCDOT I-5986B Parcel 148-1560 George Perry Lee Road, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-3/TW-1**
DATE DRILLED:	Monday, February 25, 2019	BORING DEPTH (FT):	8
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	2.5
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Silty Sand, Black,	▼		0.2	Yes				
		Sand, Gray,								
5		Clayey Sand, Red, Orange,								
		Boring Terminated at 8 Ft-BGS								
10										
15										
20										
25										
30										

Appendix III – Laboratory Analytical Reports and Chain of Custody

QED

REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Hydrocarbon Analysis Results

Client: S&ME
Address:

Samples taken Monday, February 25, 2019
Samples extracted Monday, February 25, 2019
Samples analysed Monday, February 25, 2019

Contact: JAMIE HONEYCUTT

Operator JENN RYAN

Project: 4305-18-175A; PARCEL 148

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	
Soil	B - 1 (2-4')	17.7	<0.44	<0.44	0.05	0.05	0.05	0.004	<0.005	0	44.8	55.2	Residual HC
Soil	B - 2 (0-2')	11.4	<0.28	<0.28	0.38	0.38	0.16	0.008	<0.003	0	88.4	11.6	Pyrogenic HC 57.7%,(FCM)
Soil	B - 3 (0-2')	19.0	<0.47	<0.47	9.2	9.2	4.2	0.23	0.002	0	93.8	6.2	V.Deg.PHC 73.6%,(FCM),(P)

Initial Calibrator QC check OK

Final FCM QC Check OK 95.4%

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.

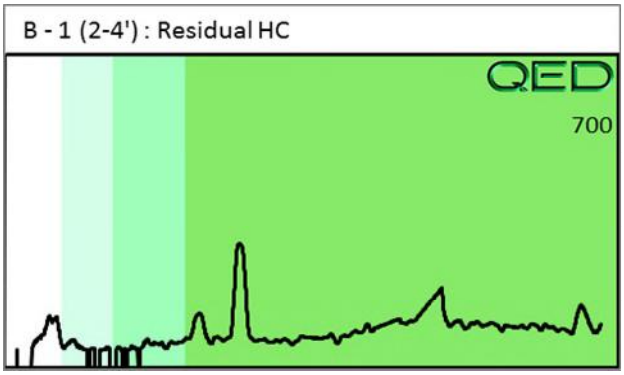
Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

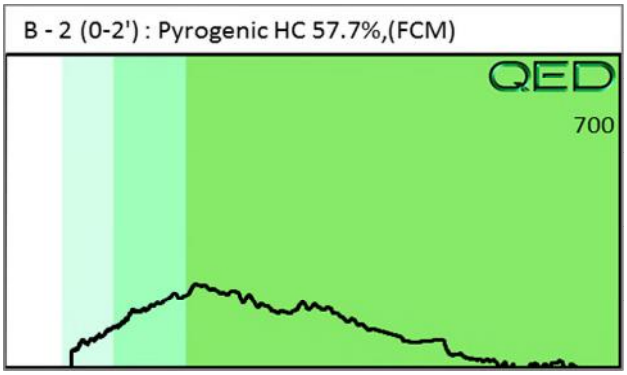
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

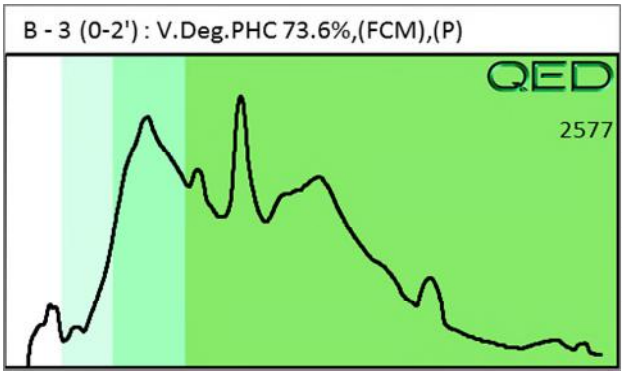
% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**

QED Hydrocarbon Fingerprints

Project: 4305-18-175A; PARCEL 148 ##################







con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

March 7, 2019

Jamie Honeycutt
S&ME, Inc - Raleigh, NC
3201 Spring Forest Rd.
Raleigh, NC 27616

Project Location: 1560 George Perry Lee Road
Client Job Number:
Project Number: 4305-18-175A
Laboratory Work Order Number: 19B1125

Enclosed are results of analyses for samples received by the laboratory on February 26, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

Table of Contents

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

S&ME, Inc - Raleigh, NC
3201 Spring Forest Rd.
Raleigh, NC 27616
ATTN: Jamie Honeycutt

REPORT DATE: 3/7/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 4305-18-175A

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19B1125

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: 1560 George Perry Lee Road

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
B-3/ TW-1	19B1125-01	Ground Water		SW-846 8260D SW-846 8270D	

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

EXECUTIVE SUMMARY

Client ID: **B-3/ TW-1**

Lab ID: **19B1125-01**

No Results Detected

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

For method 8260D, elevated reporting limits for sample(s) 19B1125-01 due to a foaming sample matrix.

For method 8270, only PAHs were requested and reported.

SW-846 8260D

Qualifications:

DL-01

Elevated reporting limits for all volatile compounds due to foaming sample matrix.

Analyte & Samples(s) Qualified:

19B1125-01[B-3/ TW-1]

V-05

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

2-Butanone (MEK)
19B1125-01[B-3/ TW-1], B224607-BLK1, B224607-BS1, B224607-BSD1, S033110-CCV1

Acetone
19B1125-01[B-3/ TW-1], B224607-BLK1, B224607-BS1, B224607-BSD1, S033110-CCV1

Acrylonitrile
19B1125-01[B-3/ TW-1], B224607-BLK1, B224607-BS1, B224607-BSD1, S033110-CCV1

Chloromethane
19B1125-01[B-3/ TW-1], B224607-BLK1, B224607-BS1, B224607-BSD1, S033110-CCV1

Methylene Chloride
19B1125-01[B-3/ TW-1], B224607-BLK1, B224607-BS1, B224607-BSD1, S033110-CCV1

tert-Butyl Alcohol (TBA)
19B1125-01[B-3/ TW-1], B224607-BLK1, B224607-BS1, B224607-BSD1, S033110-CCV1

Tetrahydrofuran
19B1125-01[B-3/ TW-1], B224607-BLK1, B224607-BS1, B224607-BSD1, S033110-CCV1

V-16

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:

1,4-Dioxane
19B1125-01[B-3/ TW-1]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 1560 George Perry Lee Road | Sample Description: | Work Order: 19B1125

Date Received: 2/26/2019

Field Sample #: B-3/ TW-1 | Sampled: 2/25/2019 12:45

Sample ID: 19B1125-01

Sample Matrix: Ground Water

Sample Flags: DL-01

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	500	97	µg/L	10	V-05	SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Acrylonitrile	ND	50	5.8	µg/L	10	V-05	SW-846 8260D	2/28/19	3/1/19 18:04	LBD
tert-Amyl Methyl Ether (TAME)	ND	5.0	1.1	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Benzene	ND	10	1.2	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Bromobenzene	ND	10	1.5	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Bromochloromethane	ND	10	2.2	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Bromodichloromethane	ND	5.0	3.0	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Bromoform	ND	10	2.1	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Bromomethane	ND	20	9.4	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
2-Butanone (MEK)	ND	200	24	µg/L	10	V-05	SW-846 8260D	2/28/19	3/1/19 18:04	LBD
tert-Butyl Alcohol (TBA)	ND	200	22	µg/L	10	V-05	SW-846 8260D	2/28/19	3/1/19 18:04	LBD
n-Butylbenzene	ND	10	1.5	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
sec-Butylbenzene	ND	10	1.3	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
tert-Butylbenzene	ND	10	1.2	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
tert-Butyl Ethyl Ether (TBEE)	ND	5.0	0.95	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Carbon Disulfide	ND	40	10	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Carbon Tetrachloride	ND	50	2.5	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Chlorobenzene	ND	10	1.6	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Chlorodibromomethane	ND	5.0	1.0	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Chloroethane	ND	20	2.8	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Chloroform	ND	20	2.2	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Chloromethane	ND	20	5.5	µg/L	10	V-05	SW-846 8260D	2/28/19	3/1/19 18:04	LBD
2-Chlorotoluene	ND	10	1.2	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
4-Chlorotoluene	ND	10	1.4	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,2-Dibromo-3-chloropropane (DBCP)	ND	50	3.7	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,2-Dibromoethane (EDB)	ND	5.0	1.5	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Dibromomethane	ND	10	1.6	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,2-Dichlorobenzene	ND	10	1.7	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,3-Dichlorobenzene	ND	10	1.7	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,4-Dichlorobenzene	ND	10	1.5	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
trans-1,4-Dichloro-2-butene	ND	20	3.1	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Dichlorodifluoromethane (Freon 12)	ND	20	2.8	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,1-Dichloroethane	ND	10	1.6	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,2-Dichloroethane	ND	10	1.9	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,1-Dichloroethylene	ND	10	2.1	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
cis-1,2-Dichloroethylene	ND	10	1.5	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
trans-1,2-Dichloroethylene	ND	10	1.5	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,2-Dichloropropane	ND	10	1.3	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,3-Dichloropropane	ND	5.0	1.3	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
2,2-Dichloropropane	ND	10	2.1	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,1-Dichloropropene	ND	20	1.3	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
cis-1,3-Dichloropropene	ND	5.0	1.2	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
trans-1,3-Dichloropropene	ND	5.0	1.1	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Diethyl Ether	ND	20	2.2	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 1560 George Perry Lee Road | Sample Description: | Work Order: 19B1125

Date Received: 2/26/2019

Field Sample #: B-3/ TW-1 | Sampled: 2/25/2019 12:45

Sample ID: 19B1125-01

Sample Matrix: Ground Water

Sample Flags: DL-01

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Diisopropyl Ether (DIPE)	ND	5.0	1.8	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,4-Dioxane	ND	500	260	µg/L	10	V-16	SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Ethylbenzene	ND	10	1.3	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Hexachlorobutadiene	ND	10	5.9	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
2-Hexanone (MBK)	ND	100	15	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Isopropylbenzene (Cumene)	ND	10	1.2	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
p-Isopropyltoluene (p-Cymene)	ND	10	1.5	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Methyl tert-Butyl Ether (MTBE)	ND	10	0.90	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Methylene Chloride	ND	50	32	µg/L	10	V-05	SW-846 8260D	2/28/19	3/1/19 18:04	LBD
4-Methyl-2-pentanone (MIBK)	ND	100	15	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Naphthalene	ND	50	1.2	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
n-Propylbenzene	ND	10	1.3	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Styrene	ND	10	1.5	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,1,1,2-Tetrachloroethane	ND	10	1.2	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,1,2,2-Tetrachloroethane	ND	5.0	1.6	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Tetrachloroethylene	ND	10	2.7	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Tetrahydrofuran	ND	100	11	µg/L	10	V-05	SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Toluene	ND	10	1.7	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,2,3-Trichlorobenzene	ND	50	1.4	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,2,4-Trichlorobenzene	ND	10	1.9	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,3,5-Trichlorobenzene	ND	10	1.7	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,1,1-Trichloroethane	ND	10	1.3	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,1,2-Trichloroethane	ND	10	2.4	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Trichloroethylene	ND	10	2.0	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Trichlorofluoromethane (Freon 11)	ND	20	1.5	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,2,3-Trichloropropane	ND	20	2.2	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	10	2.0	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,2,4-Trimethylbenzene	ND	10	1.8	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
1,3,5-Trimethylbenzene	ND	10	1.3	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
Vinyl Chloride	ND	20	1.3	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
m+p Xylene	ND	20	2.6	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD
o-Xylene	ND	10	1.3	µg/L	10		SW-846 8260D	2/28/19	3/1/19 18:04	LBD

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,2-Dichloroethane-d4	91.0	70-130		3/1/19 18:04
Toluene-d8	97.0	70-130		3/1/19 18:04
4-Bromofluorobenzene	99.6	70-130		3/1/19 18:04

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: 1560 George Perry Lee Road | Sample Description: | Work Order: 19B1125

Date Received: 2/26/2019

Field Sample #: B-3/ TW-1 | Sampled: 2/25/2019 12:45

Sample ID: 19B1125-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acenaphthene (SIM)	ND	0.30	0.033	µg/L	1		SW-846 8270D	3/4/19	3/6/19 16:45	CLA
Acenaphthylene (SIM)	ND	0.20	0.035	µg/L	1		SW-846 8270D	3/4/19	3/6/19 16:45	CLA
Anthracene (SIM)	ND	0.20	0.032	µg/L	1		SW-846 8270D	3/4/19	3/6/19 16:45	CLA
Benzo(a)anthracene (SIM)	ND	0.050	0.016	µg/L	1		SW-846 8270D	3/4/19	3/6/19 16:45	CLA
Benzo(a)pyrene (SIM)	ND	0.10	0.012	µg/L	1		SW-846 8270D	3/4/19	3/6/19 16:45	CLA
Benzo(b)fluoranthene (SIM)	ND	0.050	0.015	µg/L	1		SW-846 8270D	3/4/19	3/6/19 16:45	CLA
Benzo(g,h,i)perylene (SIM)	ND	0.50	0.018	µg/L	1		SW-846 8270D	3/4/19	3/6/19 16:45	CLA
Benzo(k)fluoranthene (SIM)	ND	0.20	0.012	µg/L	1		SW-846 8270D	3/4/19	3/6/19 16:45	CLA
Chrysene (SIM)	ND	0.20	0.015	µg/L	1		SW-846 8270D	3/4/19	3/6/19 16:45	CLA
Dibenz(a,h)anthracene (SIM)	ND	0.10	0.017	µg/L	1		SW-846 8270D	3/4/19	3/6/19 16:45	CLA
Fluoranthene (SIM)	ND	0.50	0.025	µg/L	1		SW-846 8270D	3/4/19	3/6/19 16:45	CLA
Fluorene (SIM)	ND	1.0	0.034	µg/L	1		SW-846 8270D	3/4/19	3/6/19 16:45	CLA
Indeno(1,2,3-cd)pyrene (SIM)	ND	0.10	0.018	µg/L	1		SW-846 8270D	3/4/19	3/6/19 16:45	CLA
2-Methylnaphthalene (SIM)	ND	1.0	0.062	µg/L	1		SW-846 8270D	3/4/19	3/6/19 16:45	CLA
Naphthalene (SIM)	ND	1.0	0.26	µg/L	1		SW-846 8270D	3/4/19	3/6/19 16:45	CLA
Phenanthrene (SIM)	ND	0.050	0.030	µg/L	1		SW-846 8270D	3/4/19	3/6/19 16:45	CLA
Pyrene (SIM)	ND	1.0	0.023	µg/L	1		SW-846 8270D	3/4/19	3/6/19 16:45	CLA

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
Nitrobenzene-d5 (SIM)	72.4	30-130		3/6/19 16:45
2-Fluorobiphenyl	51.4	30-130		3/6/19 16:45
p-Terphenyl-d14	62.0	30-130		3/6/19 16:45

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Sample Extraction Data

Prep Method: SW-846 5030B-SW-846 8260D

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19B1125-01 [B-3/ TW-1]	B224607	0.5	5.00	02/28/19

Prep Method: SW-846 3510C-SW-846 8270D

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19B1125-01 [B-3/ TW-1]	B224945	1000	1.00	03/04/19

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B224607 - SW-846 5030B										
Blank (B224607-BLK1)				Prepared: 02/28/19 Analyzed: 03/01/19						
Acetone	ND	50	µg/L							V-05
Acrylonitrile	ND	5.0	µg/L							V-05
tert-Amyl Methyl Ether (TAME)	ND	0.50	µg/L							
Benzene	ND	1.0	µg/L							
Bromobenzene	ND	1.0	µg/L							
Bromochloromethane	ND	1.0	µg/L							
Bromodichloromethane	ND	0.50	µg/L							
Bromoform	ND	1.0	µg/L							
Bromomethane	ND	2.0	µg/L							
2-Butanone (MEK)	ND	20	µg/L							V-05
tert-Butyl Alcohol (TBA)	ND	20	µg/L							V-05
n-Butylbenzene	ND	1.0	µg/L							
sec-Butylbenzene	ND	1.0	µg/L							
tert-Butylbenzene	ND	1.0	µg/L							
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	µg/L							
Carbon Disulfide	ND	4.0	µg/L							
Carbon Tetrachloride	ND	5.0	µg/L							
Chlorobenzene	ND	1.0	µg/L							
Chlorodibromomethane	ND	0.50	µg/L							
Chloroethane	ND	2.0	µg/L							
Chloroform	ND	2.0	µg/L							
Chloromethane	ND	2.0	µg/L							V-05
2-Chlorotoluene	ND	1.0	µg/L							
4-Chlorotoluene	ND	1.0	µg/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	µg/L							
1,2-Dibromoethane (EDB)	ND	0.50	µg/L							
Dibromomethane	ND	1.0	µg/L							
1,2-Dichlorobenzene	ND	1.0	µg/L							
1,3-Dichlorobenzene	ND	1.0	µg/L							
1,4-Dichlorobenzene	ND	1.0	µg/L							
trans-1,4-Dichloro-2-butene	ND	2.0	µg/L							
Dichlorodifluoromethane (Freon 12)	ND	2.0	µg/L							
1,1-Dichloroethane	ND	1.0	µg/L							
1,2-Dichloroethane	ND	1.0	µg/L							
1,1-Dichloroethylene	ND	1.0	µg/L							
cis-1,2-Dichloroethylene	ND	1.0	µg/L							
trans-1,2-Dichloroethylene	ND	1.0	µg/L							
1,2-Dichloropropane	ND	1.0	µg/L							
1,3-Dichloropropane	ND	0.50	µg/L							
2,2-Dichloropropane	ND	1.0	µg/L							
1,1-Dichloropropene	ND	2.0	µg/L							
cis-1,3-Dichloropropene	ND	0.50	µg/L							
trans-1,3-Dichloropropene	ND	0.50	µg/L							
Diethyl Ether	ND	2.0	µg/L							
Diisopropyl Ether (DIPE)	ND	0.50	µg/L							
1,4-Dioxane	ND	50	µg/L							
Ethylbenzene	ND	1.0	µg/L							
Hexachlorobutadiene	ND	0.60	µg/L							
2-Hexanone (MBK)	ND	10	µg/L							
Isopropylbenzene (Cumene)	ND	1.0	µg/L							
p-Isopropyltoluene (p-Cymene)	ND	1.0	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L							

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B224607 - SW-846 5030B											
Blank (B224607-BLK1)				Prepared: 02/28/19 Analyzed: 03/01/19							
Methylene Chloride	ND	5.0	µg/L							V-05	
4-Methyl-2-pentanone (MIBK)	ND	10	µg/L								
Naphthalene	ND	2.0	µg/L								
n-Propylbenzene	ND	1.0	µg/L								
Styrene	ND	1.0	µg/L								
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L								
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L								
Tetrachloroethylene	ND	1.0	µg/L								
Tetrahydrofuran	ND	10	µg/L							V-05	
Toluene	ND	1.0	µg/L								
1,2,3-Trichlorobenzene	ND	5.0	µg/L								
1,2,4-Trichlorobenzene	ND	1.0	µg/L								
1,3,5-Trichlorobenzene	ND	1.0	µg/L								
1,1,1-Trichloroethane	ND	1.0	µg/L								
1,1,2-Trichloroethane	ND	1.0	µg/L								
Trichloroethylene	ND	1.0	µg/L								
Trichlorofluoromethane (Freon 11)	ND	2.0	µg/L								
1,2,3-Trichloropropane	ND	2.0	µg/L								
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	µg/L								
1,2,4-Trimethylbenzene	ND	1.0	µg/L								
1,3,5-Trimethylbenzene	ND	1.0	µg/L								
Vinyl Chloride	ND	2.0	µg/L								
m+p Xylene	ND	2.0	µg/L								
o-Xylene	ND	1.0	µg/L								
Surrogate: 1,2-Dichloroethane-d4	*22.7*		µg/L	25.0		90.7	70-130				
Surrogate: Toluene-d8	*24.2*		µg/L	25.0		97.0	70-130				
Surrogate: 4-Bromofluorobenzene	*25.0*		µg/L	25.0		99.9	70-130				
LCS (B224607-BS1)				Prepared: 02/28/19 Analyzed: 03/01/19							
Acetone	80.7	50	µg/L	100		80.7	70-160			V-05	†
Acrylonitrile	8.08	5.0	µg/L	10.0		80.8	70-130			V-05	
tert-Amyl Methyl Ether (TAME)	9.02	0.50	µg/L	10.0		90.2	70-130				
Benzene	8.84	1.0	µg/L	10.0		88.4	70-130				
Bromobenzene	10.2	1.0	µg/L	10.0		102	70-130				
Bromochloromethane	10.0	1.0	µg/L	10.0		100	70-130				
Bromodichloromethane	9.96	0.50	µg/L	10.0		99.6	70-130				
Bromoform	10.3	1.0	µg/L	10.0		103	70-130				
Bromomethane	4.30	2.0	µg/L	10.0		43.0	40-160				†
2-Butanone (MEK)	75.3	20	µg/L	100		75.3	40-160			V-05	†
tert-Butyl Alcohol (TBA)	75.6	20	µg/L	100		75.6	40-160			V-05	†
n-Butylbenzene	9.08	1.0	µg/L	10.0		90.8	70-130				
sec-Butylbenzene	9.69	1.0	µg/L	10.0		96.9	70-130				
tert-Butylbenzene	9.61	1.0	µg/L	10.0		96.1	70-130				
tert-Butyl Ethyl Ether (TBEE)	8.31	0.50	µg/L	10.0		83.1	70-130				
Carbon Disulfide	9.39	4.0	µg/L	10.0		93.9	70-130				
Carbon Tetrachloride	9.38	5.0	µg/L	10.0		93.8	70-130				
Chlorobenzene	10.3	1.0	µg/L	10.0		103	70-130				
Chlorodibromomethane	10.4	0.50	µg/L	10.0		104	70-130				
Chloroethane	7.99	2.0	µg/L	10.0		79.9	70-130				
Chloroform	8.94	2.0	µg/L	10.0		89.4	70-130				
Chloromethane	6.00	2.0	µg/L	10.0		60.0	40-160			V-05	†
2-Chlorotoluene	10.4	1.0	µg/L	10.0		104	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B224607 - SW-846 5030B										
LCS (B224607-BS1)				Prepared: 02/28/19 Analyzed: 03/01/19						
4-Chlorotoluene	10.2	1.0	µg/L	10.0		102	70-130			
1,2-Dibromo-3-chloropropane (DBCP)	8.40	5.0	µg/L	10.0		84.0	70-130			
1,2-Dibromoethane (EDB)	10.0	0.50	µg/L	10.0		100	70-130			
Dibromomethane	10.4	1.0	µg/L	10.0		104	70-130			
1,2-Dichlorobenzene	10.1	1.0	µg/L	10.0		101	70-130			
1,3-Dichlorobenzene	10.2	1.0	µg/L	10.0		102	70-130			
1,4-Dichlorobenzene	9.94	1.0	µg/L	10.0		99.4	70-130			
trans-1,4-Dichloro-2-butene	9.29	2.0	µg/L	10.0		92.9	70-130			
Dichlorodifluoromethane (Freon 12)	6.39	2.0	µg/L	10.0		63.9	40-160			†
1,1-Dichloroethane	8.86	1.0	µg/L	10.0		88.6	70-130			
1,2-Dichloroethane	9.33	1.0	µg/L	10.0		93.3	70-130			
1,1-Dichloroethylene	8.72	1.0	µg/L	10.0		87.2	70-130			
cis-1,2-Dichloroethylene	9.06	1.0	µg/L	10.0		90.6	70-130			
trans-1,2-Dichloroethylene	9.25	1.0	µg/L	10.0		92.5	70-130			
1,2-Dichloropropane	9.03	1.0	µg/L	10.0		90.3	70-130			
1,3-Dichloropropane	9.41	0.50	µg/L	10.0		94.1	70-130			
2,2-Dichloropropane	9.26	1.0	µg/L	10.0		92.6	40-130			†
1,1-Dichloropropene	9.26	2.0	µg/L	10.0		92.6	70-130			
cis-1,3-Dichloropropene	9.48	0.50	µg/L	10.0		94.8	70-130			
trans-1,3-Dichloropropene	9.14	0.50	µg/L	10.0		91.4	70-130			
Diethyl Ether	8.59	2.0	µg/L	10.0		85.9	70-130			
Diisopropyl Ether (DIPE)	7.87	0.50	µg/L	10.0		78.7	70-130			
1,4-Dioxane	79.6	50	µg/L	100		79.6	40-130			†
Ethylbenzene	10.1	1.0	µg/L	10.0		101	70-130			
Hexachlorobutadiene	9.52	0.60	µg/L	10.0		95.2	70-130			
2-Hexanone (MBK)	81.6	10	µg/L	100		81.6	70-160			†
Isopropylbenzene (Cumene)	10.4	1.0	µg/L	10.0		104	70-130			
p-Isopropyltoluene (p-Cymene)	9.57	1.0	µg/L	10.0		95.7	70-130			
Methyl tert-Butyl Ether (MTBE)	9.12	1.0	µg/L	10.0		91.2	70-130			
Methylene Chloride	7.84	5.0	µg/L	10.0		78.4	70-130			V-05
4-Methyl-2-pentanone (MIBK)	80.4	10	µg/L	100		80.4	70-160			†
Naphthalene	9.64	2.0	µg/L	10.0		96.4	40-130			†
n-Propylbenzene	10.4	1.0	µg/L	10.0		104	70-130			
Styrene	10.5	1.0	µg/L	10.0		105	70-130			
1,1,1,2-Tetrachloroethane	10.7	1.0	µg/L	10.0		107	70-130			
1,1,2,2-Tetrachloroethane	10.5	0.50	µg/L	10.0		105	70-130			
Tetrachloroethylene	10.7	1.0	µg/L	10.0		107	70-130			
Tetrahydrofuran	7.01	10	µg/L	10.0		70.1	70-130			V-05, J
Toluene	9.76	1.0	µg/L	10.0		97.6	70-130			
1,2,3-Trichlorobenzene	10.4	5.0	µg/L	10.0		104	70-130			
1,2,4-Trichlorobenzene	10.3	1.0	µg/L	10.0		103	70-130			
1,3,5-Trichlorobenzene	10.2	1.0	µg/L	10.0		102	70-130			
1,1,1-Trichloroethane	9.55	1.0	µg/L	10.0		95.5	70-130			
1,1,2-Trichloroethane	10.3	1.0	µg/L	10.0		103	70-130			
Trichloroethylene	9.56	1.0	µg/L	10.0		95.6	70-130			
Trichlorofluoromethane (Freon 11)	7.86	2.0	µg/L	10.0		78.6	70-130			
1,2,3-Trichloropropane	10.2	2.0	µg/L	10.0		102	70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	8.80	1.0	µg/L	10.0		88.0	70-130			
1,2,4-Trimethylbenzene	9.24	1.0	µg/L	10.0		92.4	70-130			
1,3,5-Trimethylbenzene	10.2	1.0	µg/L	10.0		102	70-130			
Vinyl Chloride	7.24	2.0	µg/L	10.0		72.4	40-160			†

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B224607 - SW-846 5030B											
LCS (B224607-BS1)				Prepared: 02/28/19 Analyzed: 03/01/19							
m+p Xylene	20.5	2.0	µg/L	20.0		102	70-130				
o-Xylene	10.4	1.0	µg/L	10.0		104	70-130				
Surrogate: 1,2-Dichloroethane-d4	*22.2*		µg/L	25.0		88.7	70-130				
Surrogate: Toluene-d8	*24.3*		µg/L	25.0		97.3	70-130				
Surrogate: 4-Bromofluorobenzene	*25.0*		µg/L	25.0		100	70-130				
LCS Dup (B224607-BSD1)				Prepared: 02/28/19 Analyzed: 03/01/19							
Acetone	88.3	50	µg/L	100		88.3	70-160	8.92	25	V-05	†
Acrylonitrile	8.01	5.0	µg/L	10.0		80.1	70-130	0.870	25	V-05	
tert-Amyl Methyl Ether (TAME)	9.06	0.50	µg/L	10.0		90.6	70-130	0.442	25		
Benzene	8.85	1.0	µg/L	10.0		88.5	70-130	0.113	25		
Bromobenzene	10.1	1.0	µg/L	10.0		101	70-130	1.08	25		
Bromochloromethane	10.5	1.0	µg/L	10.0		105	70-130	4.20	25		
Bromodichloromethane	9.69	0.50	µg/L	10.0		96.9	70-130	2.75	25		
Bromoform	10.0	1.0	µg/L	10.0		100	70-130	2.76	25		
Bromomethane	5.33	2.0	µg/L	10.0		53.3	40-160	21.4	25		†
2-Butanone (MEK)	77.0	20	µg/L	100		77.0	40-160	2.34	25	V-05	†
tert-Butyl Alcohol (TBA)	76.4	20	µg/L	100		76.4	40-160	1.05	25	V-05	†
n-Butylbenzene	9.01	1.0	µg/L	10.0		90.1	70-130	0.774	25		
sec-Butylbenzene	9.51	1.0	µg/L	10.0		95.1	70-130	1.87	25		
tert-Butylbenzene	9.39	1.0	µg/L	10.0		93.9	70-130	2.32	25		
tert-Butyl Ethyl Ether (TBEE)	8.31	0.50	µg/L	10.0		83.1	70-130	0.00	25		
Carbon Disulfide	9.11	4.0	µg/L	10.0		91.1	70-130	3.03	25		
Carbon Tetrachloride	9.12	5.0	µg/L	10.0		91.2	70-130	2.81	25		
Chlorobenzene	10.2	1.0	µg/L	10.0		102	70-130	1.07	25		
Chlorodibromomethane	10.3	0.50	µg/L	10.0		103	70-130	1.06	25		
Chloroethane	8.33	2.0	µg/L	10.0		83.3	70-130	4.17	25		
Chloroform	9.00	2.0	µg/L	10.0		90.0	70-130	0.669	25		
Chloromethane	6.10	2.0	µg/L	10.0		61.0	40-160	1.65	25	V-05	†
2-Chlorotoluene	10.3	1.0	µg/L	10.0		103	70-130	1.16	25		
4-Chlorotoluene	10.2	1.0	µg/L	10.0		102	70-130	0.00	25		
1,2-Dibromo-3-chloropropane (DBCP)	8.73	5.0	µg/L	10.0		87.3	70-130	3.85	25		
1,2-Dibromoethane (EDB)	9.90	0.50	µg/L	10.0		99.0	70-130	1.50	25		
Dibromomethane	10.1	1.0	µg/L	10.0		101	70-130	2.44	25		
1,2-Dichlorobenzene	10.2	1.0	µg/L	10.0		102	70-130	0.493	25		
1,3-Dichlorobenzene	10.2	1.0	µg/L	10.0		102	70-130	0.295	25		
1,4-Dichlorobenzene	9.86	1.0	µg/L	10.0		98.6	70-130	0.808	25		
trans-1,4-Dichloro-2-butene	9.01	2.0	µg/L	10.0		90.1	70-130	3.06	25		
Dichlorodifluoromethane (Freon 12)	6.35	2.0	µg/L	10.0		63.5	40-160	0.628	25		†
1,1-Dichloroethane	8.90	1.0	µg/L	10.0		89.0	70-130	0.450	25		
1,2-Dichloroethane	9.09	1.0	µg/L	10.0		90.9	70-130	2.61	25		
1,1-Dichloroethylene	8.58	1.0	µg/L	10.0		85.8	70-130	1.62	25		
cis-1,2-Dichloroethylene	8.85	1.0	µg/L	10.0		88.5	70-130	2.35	25		
trans-1,2-Dichloroethylene	8.90	1.0	µg/L	10.0		89.0	70-130	3.86	25		
1,2-Dichloropropane	8.88	1.0	µg/L	10.0		88.8	70-130	1.68	25		
1,3-Dichloropropane	9.30	0.50	µg/L	10.0		93.0	70-130	1.18	25		
2,2-Dichloropropane	9.10	1.0	µg/L	10.0		91.0	40-130	1.74	25		†
1,1-Dichloropropene	9.09	2.0	µg/L	10.0		90.9	70-130	1.85	25		
cis-1,3-Dichloropropene	9.39	0.50	µg/L	10.0		93.9	70-130	0.954	25		
trans-1,3-Dichloropropene	9.27	0.50	µg/L	10.0		92.7	70-130	1.41	25		
Diethyl Ether	8.58	2.0	µg/L	10.0		85.8	70-130	0.116	25		
Diisopropyl Ether (DIPE)	7.87	0.50	µg/L	10.0		78.7	70-130	0.00	25		

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B224607 - SW-846 5030B											
LCS Dup (B224607-BSD1)				Prepared: 02/28/19 Analyzed: 03/01/19							
1,4-Dioxane	68.0	50	µg/L	100		68.0	40-130	15.7	50		† ‡
Ethylbenzene	9.73	1.0	µg/L	10.0		97.3	70-130	4.03	25		
Hexachlorobutadiene	9.55	0.60	µg/L	10.0		95.5	70-130	0.315	25		
2-Hexanone (MBK)	80.8	10	µg/L	100		80.8	70-160	1.03	25		†
Isopropylbenzene (Cumene)	10.2	1.0	µg/L	10.0		102	70-130	2.14	25		
p-Isopropyltoluene (p-Cymene)	9.48	1.0	µg/L	10.0		94.8	70-130	0.945	25		
Methyl tert-Butyl Ether (MTBE)	9.03	1.0	µg/L	10.0		90.3	70-130	0.992	25		
Methylene Chloride	7.76	5.0	µg/L	10.0		77.6	70-130	1.03	25	V-05	
4-Methyl-2-pentanone (MIBK)	79.3	10	µg/L	100		79.3	70-160	1.40	25		†
Naphthalene	9.17	2.0	µg/L	10.0		91.7	40-130	5.00	25		†
n-Propylbenzene	10.1	1.0	µg/L	10.0		101	70-130	2.73	25		
Styrene	10.3	1.0	µg/L	10.0		103	70-130	2.30	25		
1,1,1,2-Tetrachloroethane	10.5	1.0	µg/L	10.0		105	70-130	2.36	25		
1,1,2,2-Tetrachloroethane	10.4	0.50	µg/L	10.0		104	70-130	0.764	25		
Tetrachloroethylene	10.8	1.0	µg/L	10.0		108	70-130	1.02	25		
Tetrahydrofuran	7.47	10	µg/L	10.0		74.7	70-130	6.35	25	V-05, J	
Toluene	9.46	1.0	µg/L	10.0		94.6	70-130	3.12	25		
1,2,3-Trichlorobenzene	10.3	5.0	µg/L	10.0		103	70-130	1.74	25		
1,2,4-Trichlorobenzene	10.1	1.0	µg/L	10.0		101	70-130	2.75	25		
1,3,5-Trichlorobenzene	10.3	1.0	µg/L	10.0		103	70-130	1.08	25		
1,1,1-Trichloroethane	9.32	1.0	µg/L	10.0		93.2	70-130	2.44	25		
1,1,2-Trichloroethane	10.0	1.0	µg/L	10.0		100	70-130	2.36	25		
Trichloroethylene	9.69	1.0	µg/L	10.0		96.9	70-130	1.35	25		
Trichlorofluoromethane (Freon 11)	8.20	2.0	µg/L	10.0		82.0	70-130	4.23	25		
1,2,3-Trichloropropane	10.0	2.0	µg/L	10.0		100	70-130	1.09	25		
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	8.76	1.0	µg/L	10.0		87.6	70-130	0.456	25		
1,2,4-Trimethylbenzene	9.12	1.0	µg/L	10.0		91.2	70-130	1.31	25		
1,3,5-Trimethylbenzene	9.95	1.0	µg/L	10.0		99.5	70-130	2.09	25		
Vinyl Chloride	7.35	2.0	µg/L	10.0		73.5	40-160	1.51	25		†
m+p Xylene	20.1	2.0	µg/L	20.0		100	70-130	2.12	25		
o-Xylene	10.1	1.0	µg/L	10.0		101	70-130	3.12	25		
Surrogate: 1,2-Dichloroethane-d4	*22.7*		µg/L	25.0		90.8	70-130				
Surrogate: Toluene-d8	*24.2*		µg/L	25.0		96.6	70-130				
Surrogate: 4-Bromofluorobenzene	*24.8*		µg/L	25.0		99.2	70-130				

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B224945 - SW-846 3510C										
Blank (B224945-BLK1)				Prepared: 03/04/19 Analyzed: 03/05/19						
Acenaphthene (SIM)	ND	0.30	µg/L							
Acenaphthylene (SIM)	ND	0.20	µg/L							
Anthracene (SIM)	ND	0.20	µg/L							
Benzo(a)anthracene (SIM)	ND	0.050	µg/L							
Benzo(a)pyrene (SIM)	ND	0.10	µg/L							
Benzo(b)fluoranthene (SIM)	ND	0.050	µg/L							
Benzo(g,h,i)perylene (SIM)	ND	0.50	µg/L							
Benzo(k)fluoranthene (SIM)	ND	0.20	µg/L							
Chrysene (SIM)	ND	0.20	µg/L							
Dibenz(a,h)anthracene (SIM)	ND	0.10	µg/L							
Fluoranthene (SIM)	ND	0.50	µg/L							
Fluorene (SIM)	ND	1.0	µg/L							
Indeno(1,2,3-cd)pyrene (SIM)	ND	0.10	µg/L							
2-Methylnaphthalene (SIM)	ND	1.0	µg/L							
Naphthalene (SIM)	ND	1.0	µg/L							
Phenanthrene (SIM)	ND	0.050	µg/L							
Pyrene (SIM)	0.023	1.0	µg/L							J
Surrogate: Nitrobenzene-d5 (SIM)	*76.7*		µg/L	100		76.7	30-130			
Surrogate: 2-Fluorobiphenyl	*55.4*		µg/L	100		55.4	30-130			
Surrogate: p-Terphenyl-d14	*72.2*		µg/L	100		72.2	30-130			
LCS (B224945-BS1)				Prepared: 03/04/19 Analyzed: 03/05/19						
Acenaphthene (SIM)	35.8	7.5	µg/L	50.0		71.6	40-140			
Acenaphthylene (SIM)	35.1	5.0	µg/L	50.0		70.2	40-140			
Anthracene (SIM)	38.6	5.0	µg/L	50.0		77.1	40-140			
Benzo(a)anthracene (SIM)	35.0	1.2	µg/L	50.0		70.0	40-140			
Benzo(a)pyrene (SIM)	39.5	2.5	µg/L	50.0		79.0	40-140			
Benzo(b)fluoranthene (SIM)	40.0	1.2	µg/L	50.0		80.1	40-140			
Benzo(g,h,i)perylene (SIM)	37.3	12	µg/L	50.0		74.6	40-140			
Benzo(k)fluoranthene (SIM)	38.7	5.0	µg/L	50.0		77.4	40-140			
Chrysene (SIM)	34.9	5.0	µg/L	50.0		69.8	40-140			
Dibenz(a,h)anthracene (SIM)	38.6	2.5	µg/L	50.0		77.3	40-140			
Fluoranthene (SIM)	37.4	12	µg/L	50.0		74.8	40-140			
Fluorene (SIM)	36.2	25	µg/L	50.0		72.4	40-140			
Indeno(1,2,3-cd)pyrene (SIM)	39.6	2.5	µg/L	50.0		79.1	40-140			
2-Methylnaphthalene (SIM)	37.7	25	µg/L	50.0		75.4	40-140			
Naphthalene (SIM)	34.6	25	µg/L	50.0		69.2	40-140			
Phenanthrene (SIM)	37.5	1.2	µg/L	50.0		75.0	40-140			
Pyrene (SIM)	33.6	25	µg/L	50.0		67.2	40-140			
Surrogate: Nitrobenzene-d5 (SIM)	*72.2*		µg/L	100		72.2	30-130			
Surrogate: 2-Fluorobiphenyl	*54.2*		µg/L	100		54.2	30-130			
Surrogate: p-Terphenyl-d14	*49.0*		µg/L	100		49.0	30-130			

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QUALITY CONTROL

Semivolatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B224945 - SW-846 3510C										
LCS Dup (B224945-BSD1)				Prepared: 03/04/19 Analyzed: 03/05/19						
Acenaphthene (SIM)	31.9	7.5	µg/L	50.0		63.8	40-140	11.5	20	
Acenaphthylene (SIM)	31.9	5.0	µg/L	50.0		63.8	40-140	9.55	20	
Anthracene (SIM)	34.1	5.0	µg/L	50.0		68.2	40-140	12.3	20	
Benzo(a)anthracene (SIM)	31.8	1.2	µg/L	50.0		63.6	40-140	9.65	20	
Benzo(a)pyrene (SIM)	35.8	2.5	µg/L	50.0		71.5	40-140	9.97	20	
Benzo(b)fluoranthene (SIM)	36.3	1.2	µg/L	50.0		72.6	40-140	9.89	20	
Benzo(g,h,i)perylene (SIM)	34.0	12	µg/L	50.0		68.0	40-140	9.33	20	
Benzo(k)fluoranthene (SIM)	35.4	5.0	µg/L	50.0		70.8	40-140	8.77	20	
Chrysene (SIM)	31.6	5.0	µg/L	50.0		63.3	40-140	9.70	20	
Dibenz(a,h)anthracene (SIM)	36.1	2.5	µg/L	50.0		72.2	40-140	6.82	20	
Fluoranthene (SIM)	31.9	12	µg/L	50.0		63.8	40-140	16.0	20	
Fluorene (SIM)	30.6	25	µg/L	50.0		61.3	40-140	16.6	20	
Indeno(1,2,3-cd)pyrene (SIM)	36.5	2.5	µg/L	50.0		73.0	40-140	8.09	20	‡
2-Methylnaphthalene (SIM)	33.4	25	µg/L	50.0		66.8	40-140	12.1	20	
Naphthalene (SIM)	31.3	25	µg/L	50.0		62.6	40-140	10.0	20	
Phenanthrene (SIM)	33.9	1.2	µg/L	50.0		67.8	40-140	10.2	20	
Pyrene (SIM)	31.0	25	µg/L	50.0		62.0	40-140	8.13	20	
Surrogate: Nitrobenzene-d5 (SIM)	*64.2*		µg/L	100		64.2	30-130			
Surrogate: 2-Fluorobiphenyl	*50.4*		µg/L	100		50.4	30-130			
Surrogate: p-Terphenyl-d14	*44.0*		µg/L	100		44.0	30-130			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
DL-01	Elevated reporting limits for all volatile compounds due to foaming sample matrix.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260D in Water	
Acetone	NC
Acrylonitrile	NC
tert-Amyl Methyl Ether (TAME)	NC
Benzene	NC
Bromobenzene	NC
Bromochloromethane	NC
Bromodichloromethane	NC
Bromoform	NC
Bromomethane	NC
2-Butanone (MEK)	NC
tert-Butyl Alcohol (TBA)	NC
n-Butylbenzene	NC
sec-Butylbenzene	NC
tert-Butylbenzene	NC
tert-Butyl Ethyl Ether (TBEE)	NC
Carbon Disulfide	NC
Carbon Tetrachloride	NC
Chlorobenzene	NC
Chlorodibromomethane	NC
Chloroethane	NC
Chloroform	NC
Chloromethane	NC
2-Chlorotoluene	NC
4-Chlorotoluene	NC
1,2-Dibromo-3-chloropropane (DBCP)	NC
1,2-Dibromoethane (EDB)	NC
Dibromomethane	NC
1,2-Dichlorobenzene	NC
1,3-Dichlorobenzene	NC
1,4-Dichlorobenzene	NC
trans-1,4-Dichloro-2-butene	NC
Dichlorodifluoromethane (Freon 12)	NC
1,1-Dichloroethane	NC
1,2-Dichloroethane	NC
1,1-Dichloroethylene	NC
cis-1,2-Dichloroethylene	NC
trans-1,2-Dichloroethylene	NC
1,2-Dichloropropane	NC
1,3-Dichloropropane	NC
2,2-Dichloropropane	NC
1,1-Dichloropropene	NC
cis-1,3-Dichloropropene	NC
trans-1,3-Dichloropropene	NC
Diethyl Ether	NC
Diisopropyl Ether (DIPE)	NC
1,4-Dioxane	NC
Ethylbenzene	NC

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260D in Water	
Hexachlorobutadiene	NC
2-Hexanone (MBK)	NC
Isopropylbenzene (Cumene)	NC
p-Isopropyltoluene (p-Cymene)	NC
Methyl tert-Butyl Ether (MTBE)	NC
Methylene Chloride	NC
4-Methyl-2-pentanone (MIBK)	NC
Naphthalene	NC
n-Propylbenzene	NC
Styrene	NC
1,1,1,2-Tetrachloroethane	NC
1,1,2,2-Tetrachloroethane	NC
Tetrachloroethylene	NC
Tetrahydrofuran	NC
Toluene	NC
1,2,3-Trichlorobenzene	NC
1,2,4-Trichlorobenzene	NC
1,3,5-Trichlorobenzene	NC
1,1,1-Trichloroethane	NC
1,1,2-Trichloroethane	NC
Trichloroethylene	NC
Trichlorofluoromethane (Freon 11)	NC
1,2,3-Trichloropropane	NC
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	NC
1,2,4-Trimethylbenzene	NC
1,3,5-Trimethylbenzene	NC
Vinyl Chloride	NC
m+p Xylene	NC
o-Xylene	NC

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

19B1125

con-test ANALYTICAL LABORATORY

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com Doc # 379 Rev 1 03242017

CHAIN OF CUSTODY RECORD (North Carolina)

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name: S&ME
Address: 3201 Spring Forest Rd Raleigh, NC
Phone:
Project Name: Parcel 148 DOT-Dunn
Project Location: 1560 George Perry Lee Rd.
Project Number: 4305-18-175A
Project Manager: Jamie Honeycutt
Con-Test Quote Name/Number:
Invoice Recipient: Jamie Honeycutt
Sampled By: Jamie Honeycutt

Requested Turnaround Time
7-Day ☐ 10-Day ☐
Due Date:

Rush-Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☑ EXCEL ☑
Other:
CLP Like Data Pkg Required: ☐
Email To: jhoneycutt@smeinc.com
Fax To #:

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	[1]Matrix Code	Conc Code	8260	8270 (PAHs)	# of Containers	[2] Preservation Code	[3] Container Code
1	B3 / TW-1	2-25-19	1245		✓	GW	L	✓	✓			

Dissolved Metals Samples
☐ Field Filtered
☐ Lab to Filter

Orthophosphate Samples
☐ Field Filtered
☐ Lab to Filter

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

[3] **Container Codes:**
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Comments:

Please use the following codes to indicate possible sample concentration within the **Conc Code** column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

	Relinquished by: (signature)	Date/Time:
	Jamie Honeycutt	2/25/19 5:00pm
	Received by: (signature)	Date/Time:
	[illegible]	2/26/19 1002
	Relinquished by: (signature)	Date/Time:
	Received by: (signature)	Date/Time:
	Relinquished by: (signature)	Date/Time:
	Received by: (signature)	Date/Time:

North Carolina Detection Limit Requirements
☑ 2L
☐ GWPC
☐ SWSL
☐ IHSB
☐ MSCC
Other:

Program Information
☐ DSCA ☐ UST/Trust Fund
☐ SWS Landfill ☐ REC
☐ IHSB Orphaned Landfill
☐ State Lead
☑ Other DOT

NELAC and AIHA-LAP, LLC Accredited

Project Entity
☑ Government ☐ Municipality
☐ Federal ☐ Brownfield
☐ City ☐ School

Other
☐ Chromatogram
☐ *AIHA-LAP, LLC*

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Table of Contents

FedEx

785691220555

Delivered
Tuesday 2/26/2019 at 10:02 am

DELIVERED

Signed for by: B.BECCA

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM	TO
RALEIGH, NC US	EAST LONGMEADOW, MA US

Shipment Facts

TRACKING NUMBER
785691220555

SERVICE
FedEx Priority Overnight

WEIGHT
51 lbs / 23.13 kgs

DIMENSIONS
24x14x14 in.

DELIVERED TO
Shipping/Receiving

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
51 lbs / 23.13 kgs

TERMS
Third Party

PACKAGING
Your Packaging

SPECIAL HANDLING SECTION
Deliver Weekday

STANDARD TRANSIT
2/26/2019 by 10:30 am

SHIP DATE
Mon 2/25/2019

ACTUAL DELIVERY
Tue 2/26/2019 10:02 am

Travel History

Local Scan Time

Tuesday , 2/26/2019

10:02 am	EAST LONGMEADOW, MA	Delivered
7:56 am	WINDSOR LOCKS, CT	On FedEx vehicle for delivery
7:46 am	WINDSOR LOCKS, CT	At local FedEx facility
6:16 am	EAST GRANBY, CT	At destination sort facility

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

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Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client STME

Received By RAP Date 2/26/19 Time 10:02

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____

Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 5 Actual Temp - 4.0

By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T

Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? F Who was notified? _____

Is there enough Volume? T

Is there Headspace where applicable? F MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? NA Acid _____ Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.	2	1 Liter Plastic		16 oz Amb.	
HCL-	3	500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria		2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

April 29, 2019

North Carolina Department of Transportation
Geotechnical Unit
Mail Service Center 1592
Raleigh, North Carolina 27699-1592

Attention: Mr. Craig Haden email: cehaden@ncdot.gov

Reference: **Preliminary Site Assessment Report**
NCDOT Project I-5986B, WBS Element 47532.1.3
Parcel 216-Lucky's Storage Lot
Sadler Drive
Dunn, Harnett County, North Carolina
S&ME Project 4305-18-175A

Dear Mr. Haden:

S&ME, Inc. (S&ME) is submitting this Preliminary Site Assessment (PSA) Report to the North Carolina Department of Transportation (NCDOT). This report presents the background/project information, field activities, findings, conclusions, and recommendations. These services were performed in general accordance with S&ME Proposal No. 4305-18-175 CO-01 REV-01 dated January 2, 2019, and Contract Number 7000018853 dated April 12, 2018 between NCDOT and S&ME, Inc., authorized by NCDOT in its January 8, 2019 Notice to Proceed Letter.

♦ Background/Project Information

Based on NCDOT's November 2, 2018, Request for Technical and Cost Proposal, the PSA was conducted within the NCDOT right-of-way (ROW) and/or easement as indicated on the preliminary plan sheets provided by NCDOT at the following property:

NCDOT Parcel No.	Property Owner	Site Address
216	RSL, LLC	(Lucky's Storage Lot) Sadler Drive, Dunn, NC

The property is a vacant lot used for the storage of trailers, metal bleachers and chairs by the nearby Lucky's Truck and Trailer Sales facility. The property is not listed with registered petroleum underground storage tanks (USTs) (active or closed). The property is also not listed with North Carolina Department of Environmental Quality (NCDEQ) Incidents associated with petroleum releases from USTs or aboveground storage tanks.

The PSA included a geophysical survey and subsequent limited soil sampling (two soil borings up to 10 feet below ground surface (ft.-bgs.), within accessible areas of the proposed ROW/easement in preparation for construction activities. Groundwater was not encountered during the advancement of soil borings at the site. Therefore,

groundwater sampling was not performed. **Figure 1** shows the vicinity and site location, and **Figure 2** shows the site and boring locations. Soil sampling results are shown on **Figure 3.**

♦ Field Services

Prior to field activities, a site specific Health and Safety Plan was prepared as required by the Occupational Health and Safety Act (OSHA). Underground utilities were located and marked by the North Carolina One-Call Service. A private utility locator (Troxler Geologic, Inc.) was also used to locate and mark underground utilities.

♦ Geophysical Survey

On February 7, 2019, S&ME personnel performed a geophysical survey within accessible areas of the proposed ROW/easement at Parcel 216. S&ME used a combination of the Time Domain Electromagnetic (TDEM) and Ground Penetrating Radar (GPR) methods to explore for buried subsurface features at the site such as underground storage tanks (USTs) and other possible buried obstructions. Brief descriptions of these complementary geophysical techniques are presented in the following paragraphs.

Time Domain Electromagnetics (TDEM)

TDEM measures the electrical conductivity of subsurface materials and discriminates between moderately conductive earth materials and very conductive metallic targets within the shallow subsurface. The conductivity is determined by transmitting a time-varying magnetic pulse into the subsurface and measuring the amplitude and phase shift of the secondary magnetic field. The secondary magnetic field is created when the conductive materials become an inductor as the primary magnetic field is passed through them. TDEM data are acquired continuously at a walking pace typically along a series of parallel or perpendicular lines. The system generates audible and visual indications when metallic targets are encountered. These measurements can also be supported with a global positioning system (GPS) which is output directly into the TDEM data file.

We used a Geonics Limited EM-61 MK2 TDEM system in general accordance with ASTM D6820-02 (2007) "*Standard Guide for Use of the Time Domain Electromagnetic Method for Subsurface Investigation.*" Data was collected along lines spaced at approximately five feet using a Juniper® Systems Geode™ sub-meter GPS as positioning support. The presence of storage equipment, fences, and other surficial obstructions within the requested survey area however prevented TDEM data collection in several locations. The approximate TDEM data collection paths are presented in **Figure 4**. Golden Software's Surfer® program was used to grid and plot the data (**Figures 5 and 6**). The TDEM data has been presented as Plots A and B in order to provide both opaque and transparent views, respectively.

Ground Penetrating Radar (GPR)

GPR transmits electromagnetic waves into the subsurface from an antenna at a specific frequency and measures the time for wave reflections to be received by interfaces between materials with differing material properties (e.g. soil/metal, etc.). The intensity of the reflected GPR wave is a function of the contrast in the material properties (i.e. dielectric permittivity) at the interface, the conductivity of the material that the wave is traveling through, and the frequency of the signal.

We used a Geophysical Survey Systems, Inc. (GSSI) SIR® 3000 GPR system equipped with a 400 MHz antenna in general accordance with ASTM D6432-11 "*Standard Guide for Using the Surface Ground Penetrating Radar Method for Subsurface Investigation*" to further characterize anomalies/features identified during the TDEM survey.

A total of eight GPR profiles (Lines 1 through 8) were collected for documentation (**Figure 7**). The data was post-processed using the GSSI Radan® 7 GPR software program for additional analysis.

Geophysical Findings

Responses indicative of a potential UST were not identified in the geophysical data sets collected at the site. Anomalous features unrelated to known surficial targets were not identified in the geophysical data sets collected at the site. However, a culvert was identified under the paved entrance (**Figures 5 through 7**).

♦ Soil Sampling

On February 19, 2019, Troxler Geologic, Inc. (Troxler's) drill crew utilized a track mounted Geoprobe® rig to advance two soil borings (B-1 and B-2) and to collect soil samples within accessible areas of the proposed ROW/easement at Parcel 216. The approximate location of the soil borings are shown in **Figure 2**. A photographic log is included in **Appendix I.** Troxler's drill crew advanced the Geoprobe® borings to a depth of approximately 10 ft.-bgs. During the advancement of the soil borings, groundwater was not encountered. Soil samples were continuously collected in four-foot long disposable acetate-plastic sleeves that line the hollow stainless-steel sample probes. Soil recovered from the sleeves was classified on-site by S&ME personnel and screened with a Photoionization Detector (PID) at approximately two foot depth intervals to measure relative headspace concentrations of volatile organic compounds (VOCs).

VOC headspace readings were obtained from an aliquot of each soil sample that was placed in a re-sealable bag. Another portion of the sample was placed in a separate re-sealable bag and stored in an insulated container with ice for possible laboratory analyses. After waiting approximately 15 minutes to allow the sample to reach ambient temperature and headspace equilibrium, the PID probe was inserted into the bag to obtain a headspace reading. A summary of the PID readings and logs of the soil borings are included in **Appendix II.**

No petroleum odors, staining or elevated PID readings were noted within the collected soil samples. Therefore, two soil samples (two to four foot depth interval and eight to ten foot depth interval) were selected from each boring and provided to RED Lab, LLC (Red Lab) for on-site analysis. A total of four soil samples (two per boring) were analyzed by RED Lab for Total Petroleum Hydrocarbons (TPH)-Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) using ultra-violet fluorescence (UVF) spectroscopy with product (fuel) identification.

Upon completion of the soil sampling, the soil borings were backfilled with bentonite pellets and soil cuttings. Investigative derived wastes (IDW), such as additional soil cuttings generated during the soil boring advancement and decontamination water, were spread on the ground in accordance with the procedures specified by North Carolina Department of Environmental Quality (NCDEQ). Used gloves, re-sealable bags and acetate sleeves were bagged and disposed off-site.

Soil Analytical Results

Based upon analytical results of soil samples analyzed by RED Lab using UVP spectroscopy, TPH-GRO and TPH-DRO were not reported at concentrations exceeding the laboratory method reporting limits. A summary of the soil analytical results is presented in **Table 1** and shown on **Figure 3.** A copy of the laboratory analytical report provided by RED Lab is presented in **Appendix III.**

♦ Conclusion and Recommendations

Anomalous features unrelated to known surficial targets were not identified in the geophysical data sets collected at the site. However, a culvert was identified under the paved entrance. Responses indicative of a potential UST were not identified in the geophysical data sets collected at the site.

S&ME advanced two soil borings (B-1 and B-2) to a depth of approximately 10 ft.-bgs at the site. No petroleum odors, staining or elevated PID readings were noted within soil samples collected from the soil borings. Selected soil samples from the soil borings were analyzed onsite for TPH-GRO and TPH-DRO using UVF spectroscopy. TPH-GRO and TPH-DRO were not reported at concentrations exceeding the laboratory method reporting limits. During the soil boring advancement, groundwater was not encountered. Therefore, groundwater sampling was not performed.

Based on the findings of the geophysical survey and analytical results of soil samples, no recommendations are provided.

♦ Limitations

The results of this preliminary investigation are limited to the boring locations presented herein. The results of this Preliminary Site Assessment are not all inclusive and may not represent existing conditions across the entire property. These results only reflect the current conditions at the locations sampled on the date this Preliminary Site Assessment was performed. This report has been prepared in accordance with generally accepted environmental engineering and geophysical practice for specific application to this project. The conclusions and recommendations contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other warranty, expressed or implied, is made.

The geophysical methods used for this survey have inherent limitations. Site metallic features (e.g., buildings, reinforced concrete, vehicles, etc.) and overhead transmission lines can produce a false electromagnetic response and may mask subsurface features. The depth of exploration of the GPR signal is highly site specific, and is greatly limited by signal attenuation (absorption) of the subsurface materials. Signal attenuation is dependent upon the electrical conductivity of the subsurface materials. Signal attenuation is greatest in materials with relatively high electrical conductivities such as clay soils, and lowest in relatively low conductivity materials such as unsaturated sand. For this project location, the GPR data sets appear to have a maximum depth of penetration of approximately about five ft.-bgs.

Regardless of the thoroughness of a geophysical study, there is always a possibility that actual conditions may not match the interpretations. The results should be considered accurate only to the degree implied by the methods used and the method's limitations and data coverage. Accordingly, the possibility exists that not all features at a

project site will be located due to either subsurface soil conditions or the occurrence of features outside the lateral limits and below the depth of penetration of the methods used. As with most surface geophysical methods, resolution of the subsurface will also decrease with depth. As such, the size and/or contrast of features compared to the imaged subsurface media must be significant enough to produce the anticipated response. The location and/or determination (or the lack thereof) of potential buried features is based on our review of the provided information and of the geophysical survey. Under no circumstances does S&ME assume any responsibility for damages resulting from the presence of subsurface features that may exist but were not identified by our survey.

This Preliminary Site Assessment was performed solely for NCDOT regarding the above-referenced site and assessment area. This report is provided for the sole use of NCDOT. Use of this report by any other parties will be at such party's sole risk. S&ME disclaims liability for any such use or reliance by third parties. The observations presented in this report are indicative of conditions during the time of the assessment and of the specific areas referenced.

Closing

S&ME appreciates the opportunity to provide these services to you. If you have any questions or comments regarding this report, please contact us at your convenience.

Sincerely,

S&ME, Inc.

DocuSigned by:
Jamie Honeycutt
4C890EAEC25F488...

Jamie T Honeycutt
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Tom Raymond
D4B9FB5F636F4BB...

Thomas P. Raymond, P.E., P.M.P.
Senior Consultant
traymond@smeinc.com

NORTH CAROLINA PROFESSIONAL SEAL 18760 ENGINEER THOMAS P. RAYMOND

5/6/2019

Attachments:

Table 1: Summary of Soil Sampling Results

Figure 1: Vicinity Map
Figure 2: Site Map
Figure 3: Soil Constituent Map
Figure 4: TDEM Path Location Plan
Figure 5: TDEM Data Plot A

Figure 6: TDEM Data Plot B
Figure 7: Geophysical Anomaly Location Plan

Appendix I: Photographs
Appendix II: Boring Logs
Appendix III: Laboratory Analytical Reports and Chain of Custody

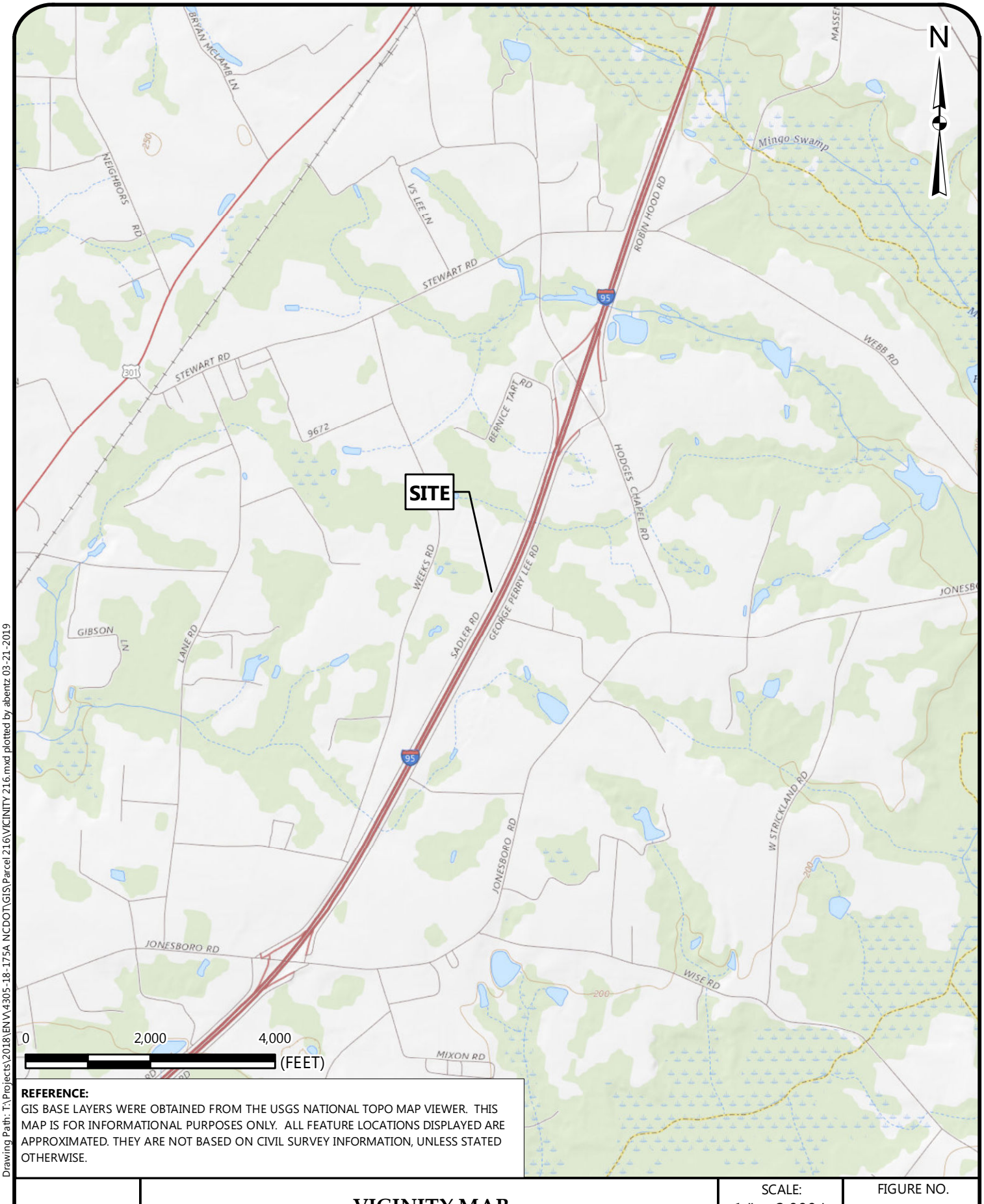
Tables

TABLE 1
SUMMARY OF SOIL SAMPLING RESULTS
NCDOT Project I-5986B
Parcel 216 - (Lucky's Storage Lot)
Sadler Drive
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-18-175A

Analytical Method→			Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) by Ultraviolet Fluorescence (UVF) Spectrometry	
Sample ID	Date	Contaminant of Concern→ / Sample Depth (ft.-bgs)	TPH-GRO	TPH-DRO
B-1	2/19/2019	2 to 4	<0.58	<0.23
		8 to 10	<0.44	<0.17
B-2	2/19/2019	2 to 4	<0.66	<0.27
		8 to 10	<0.6	<0.24
North Carolina TPH Action Levels			**50**	**100**

Notes:
1. UVF analysis performed by RED Lab, LLC
2. Concentrations are reported in milligrams per kilogram (mg/Kg).
3. ft.-bgs:- feet below ground surface.
4. Concentrations exceeding the laboratory's reporting limits are shown in **BOLD** fields.
5. Concentrations exceeding the North Carolina TPH Action Levels are shown in Shaded and **BOLD** fields.

Figures



Drawing Path: T:\Projects\2018\ENV\4305-18-175A NCDOT\GIS\Parcel 216\VICINITY 216.mxd plotted by abentz 03-21-2019

REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM THE USGS NATIONAL TOPO MAP VIEWER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

VICINITY MAP

NCDOT I-5986B
PARCEL NO. 216 (LUCKY'S STORAGE LOT)
SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:	FIGURE NO.
1 " = 2,000 '	1
DATE: 3-21-19	
PROJECT NUMBER 4305-18-175A	

LEGEND

Geoenvironmental Boring:

Underground Storage Tank (UST): UST

Map Source: NCDOT Project I-5986B
Image Source: NC ONEMAP, Dated 2016

Known Soil Contamination:

Possible Soil Contamination: — S —

Existing Contamination Known - Water: — W —

0 150 300

GRAPHIC SCALE (IN FEET)

SITE MAP

NCDOT Project: I-5986B
PARCEL 216 - (LUCKY'S STORAGE LOT)
Sadler Drive, Dunn, Harnett County, North Carolina

SCALE:	FIGURE NO.
1" = 150'	2
DATE:	
MARCH 2019	
PROJECT NUMBER	
4305-18-175A	

SOIL CONSTITUENT MAP

NCDOT I-5986B
PARCEL NO. 216 (LUCKY'S STORAGE LOT)
SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

Parcel 216
Sadler Drive

B-2		
(ft-bgs)	(mg/kg)	
Sample Depth	GRO	DRO
2-4	< 0.66	< 0.27
8-10	< 0.6	< 0.24

B-1		
(ft-bgs)	(mg/kg)	
Sample Depth	GRO	DRO
2-4	< 0.58	< 0.23
8-10	< 0.44	< 0.17

mg/kg: Milligrams per Kilogram
GRO: Total Petroleum Hydrocarbon Gasoline Range Organics
DRO: Total Petroleum Hydrocarbon Diesel Range Organics
BOLD*: Indicates Exceedance of NC TPH Action Levels
ft-bgs : Feet Below Ground Surface

Samples Collected 2-19-2019.

GRO/DRO Analyzed by Ultraviolet Fluorescence (UVF) by RED Lab, LLC.

Sample Locations
Proposed Alignment
ROW Proposed Permanent ROW
Proposed Permanent Utility Easement
Proposed Edge of Pavement
Tax Parcels

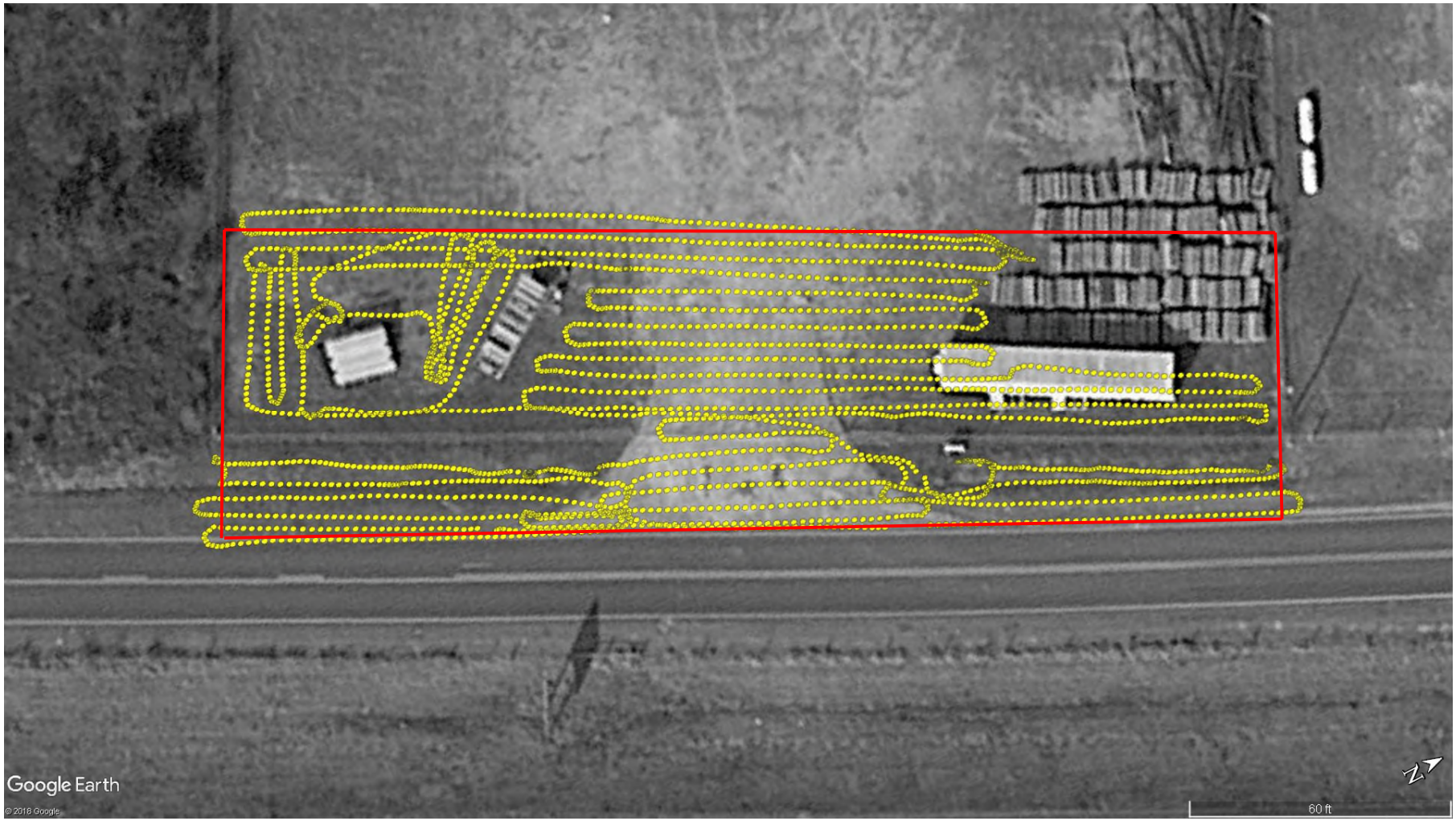
0 75 150 (FEET)

REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM THE 2017 NCONEMAP AERIAL ORTHOIMAGERY LAYER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

SCALE: 1 " = 75 '
DATE: 3-21-19
PROJECT NUMBER: 4305-18-175
FIGURE NO. 3

Drawing Path: T:\Projects\2018\ENV\4305-18-175A NCDOT\GIS\Parcel 216\Parcel 216.mxd plotted by abentz 03-21-2019

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



LEGEND

Approximate TDEM Path

Approximate Requested Survey Area

TDEM PATH LOCATION PLAN

NCDOT PROJECT: I-5986B
PARCEL 216 – (LUCKY'S STORAGE LOT)
SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
AS SHOWN

DATE:
3/22/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
4

REFERENCE:
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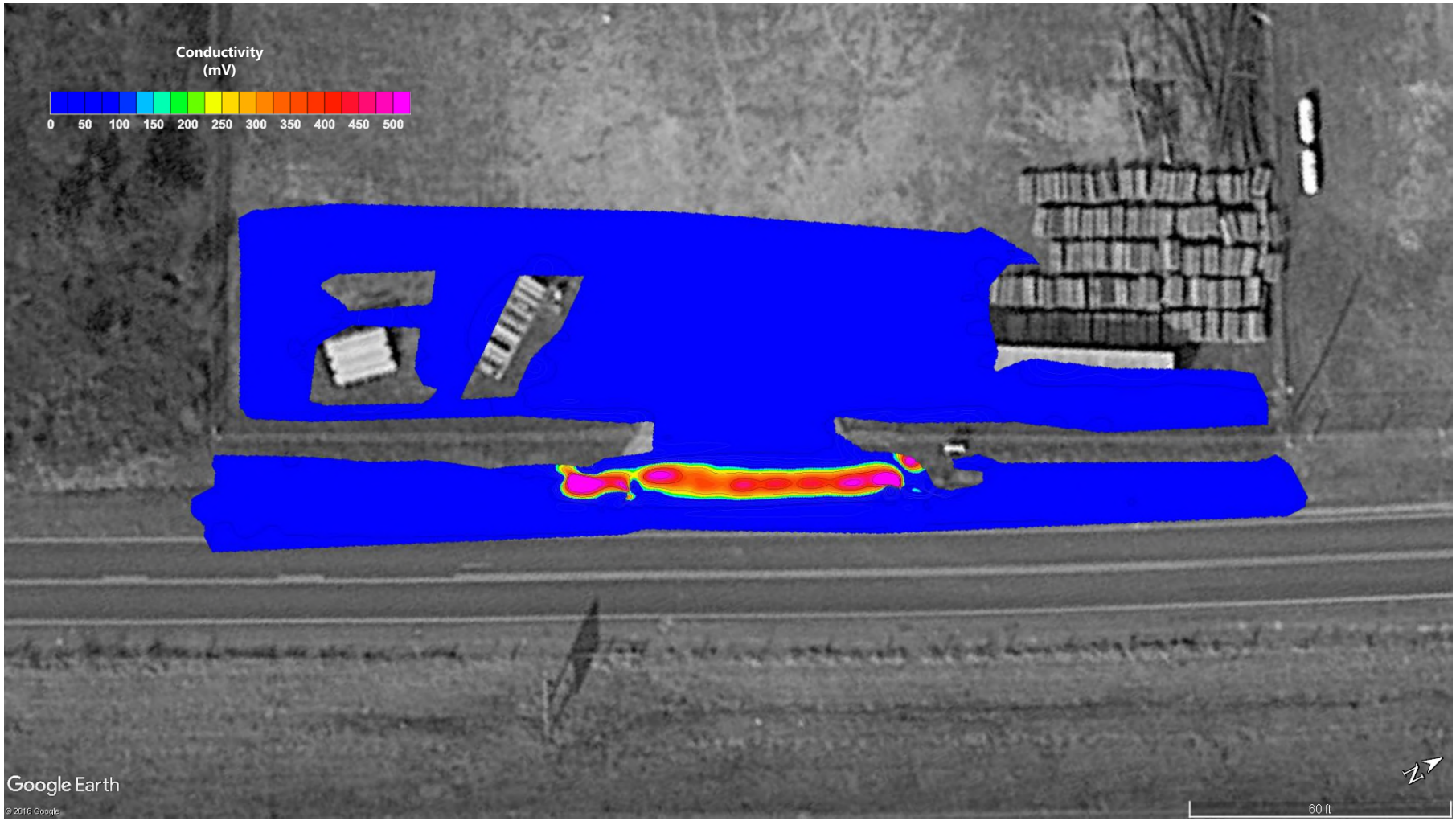
(DATED, MARCH, 04 2018)



TDEM DATA PLOT A

NCDOT PROJECT: I-5986B
PARCEL 216 – (LUCKY'S STORAGE LOT)
SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

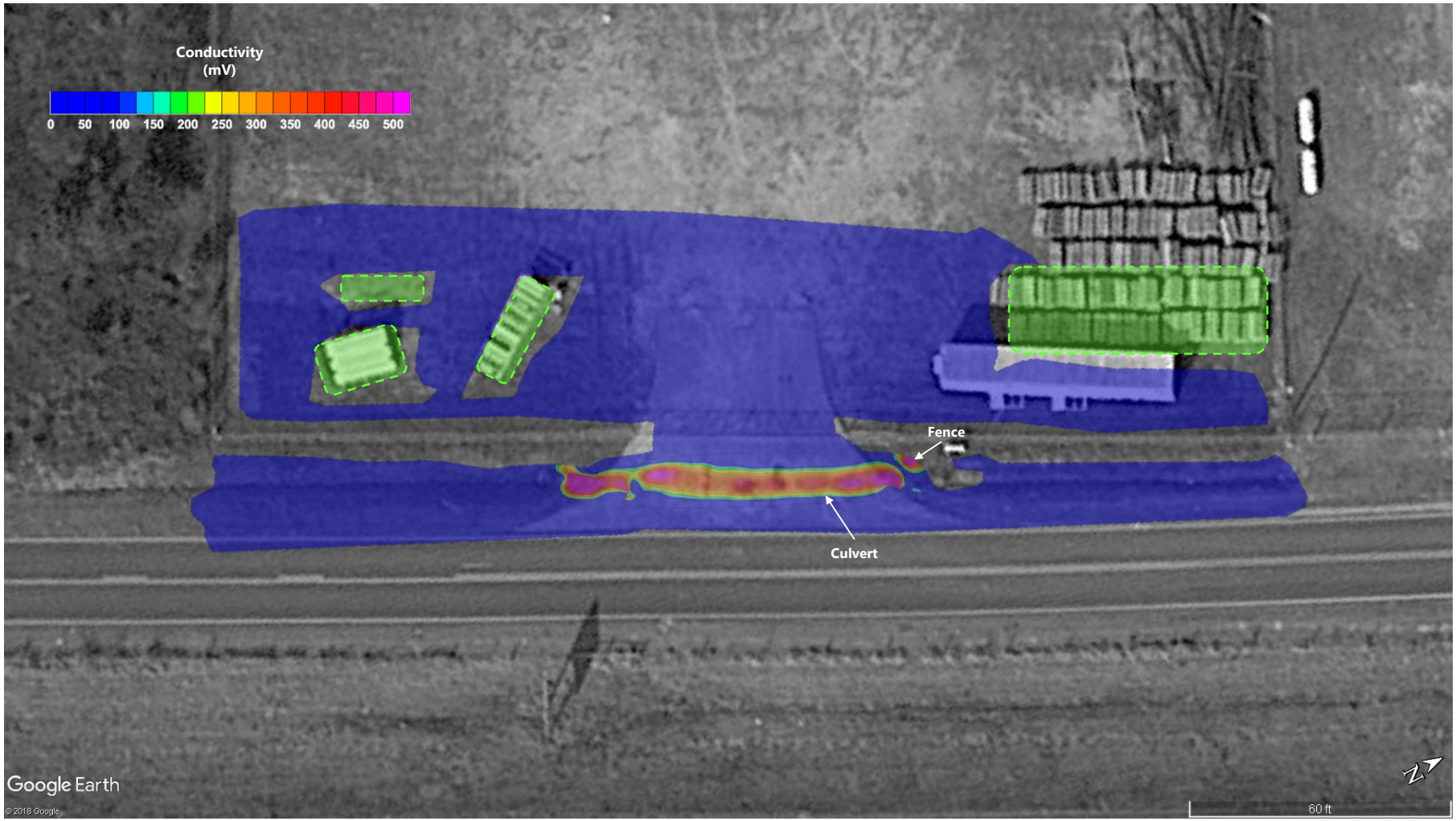
SCALE:
AS SHOWN

DATE:
3/22/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
5

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



LEGEND

Approximate Location of Stored Equipment

TDEM DATA PLOT B

NCDOT PROJECT: I-5986B
PARCEL 216 – (LUCKY'S STORAGE LOT)
SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

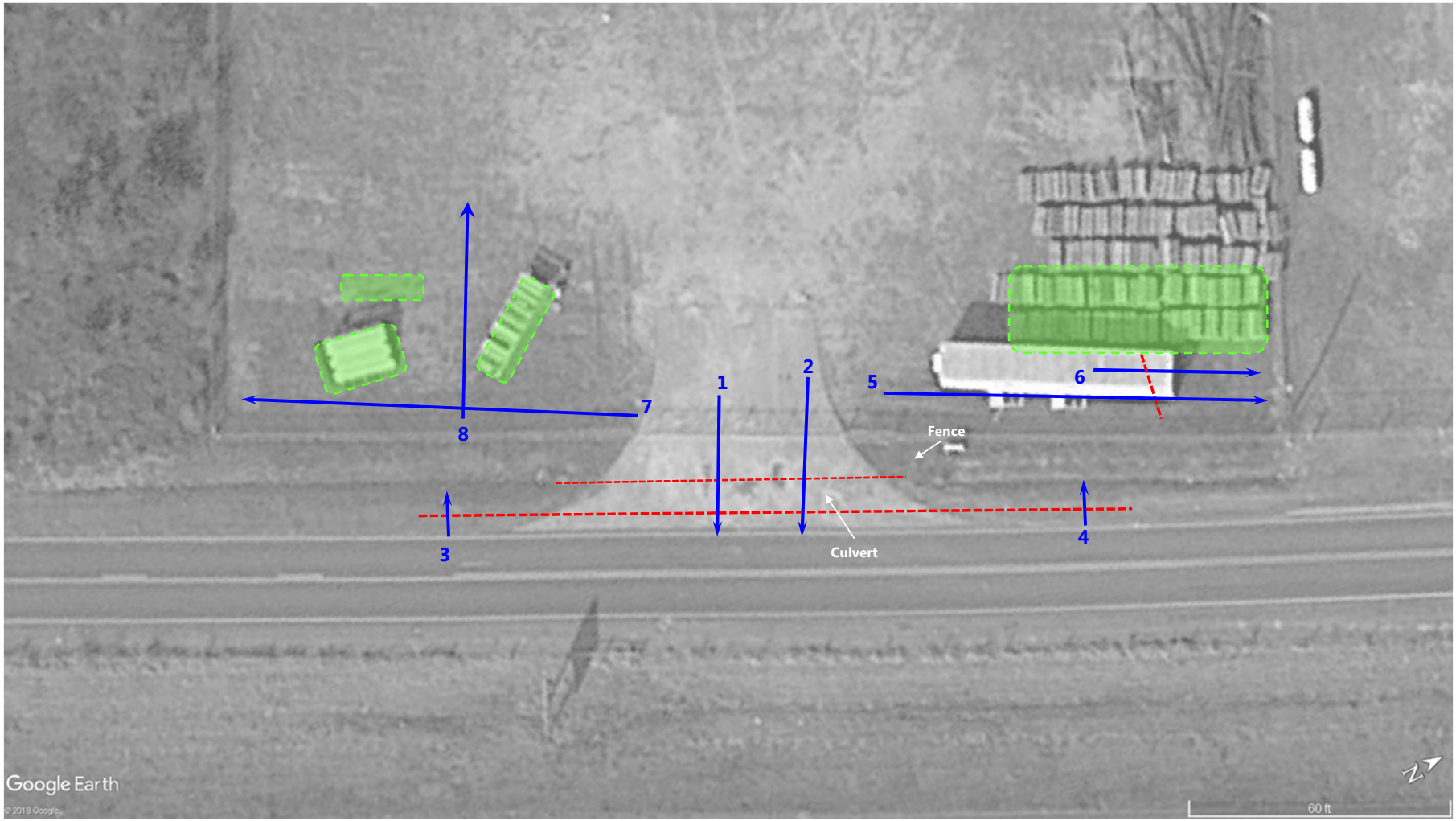
SCALE:
AS SHOWN

DATE:
3/22/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
6

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



LEGEND

Approximate Location of GPR Profile

Approximate Location of Stored Equipment

Approximate Location of Possible Utility

GEOPHYSICAL ANOMALY LOCATION PLAN

NCDOT PROJECT: I-5986B
PARCEL 216 – (LUCKY'S STORAGE LOT)
SADLER DRIVE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
AS SHOWN

DATE:
3/22/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
7

Appendix I – Photographs

Date: 2/19/2019

Photographer: JTH

1	**Location / Orientation**	Front view of site looking north-northeast.
	Remarks	Note soil boring B-1

Appendix II – Boring Logs

PROJECT:	**NCDOT I-5986B** Parcel 216-Lot Near 1185 Sadler Drive, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-1**
DATE DRILLED:	Tuesday, February 19, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Gravel,								
		Sand, Brown,								
		Clayey Sand, Red, Orange, Tan,			0.6	No				
					0.8	Yes				
5					0.7	No				
					0.9	No				
					1.4	Yes				
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 216-Lot Near 1185 Sadler Drive, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-2**
DATE DRILLED:	Tuesday, February 19, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Gravel,								
		Sand, Brown,								
		Clayey Sand, Red, Orange, Tan,			1.0	No				
					1.0	Yes				
5					0.9	No				
					0.8	No				
					1.0	Yes				
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

Appendix III – Laboratory Analytical Reports and Chain of Custody

QED

REDLAB
RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Hydrocarbon Analysis Results

Client: S&ME
Address:

Samples taken Tuesday, February 19, 2019
Samples extracted Tuesday, February 19, 2019
Samples analysed Tuesday, February 19, 2019

Contact: JAMIE HONEYCUTT

Operator MAX MOYER

Project: 4305-18-175A ; PARCEL 216

F03640

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
Soil	B-1 (2-4')	23.2	<0.58	<0.58	<0.23	<0.58	<0.01	<0.01	<0.007	0	0	0	PHC ND,(FCM)
Soil	B-1 (8-10')	17.4	<0.44	<0.44	<0.17	<0.44	<0.009	<0.009	<0.005	0	0	0	PHC ND,(FCM)
Soil	B-2 (2-4')	26.5	<0.66	<0.66	<0.27	<0.66	<0.01	<0.01	<0.008	0	0	0	PHC ND,(FCM)
Soil	B-2 (8-10')	24.1	<0.6	<0.6	<0.24	<0.6	<0.01	<0.01	<0.007	0	0	0	PHC ND,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 97.9%

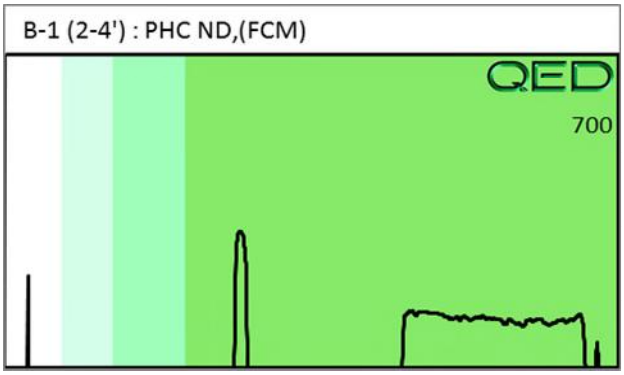
Results generated by a QED HC-1 analyser. Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values are not corrected for moisture or stone content

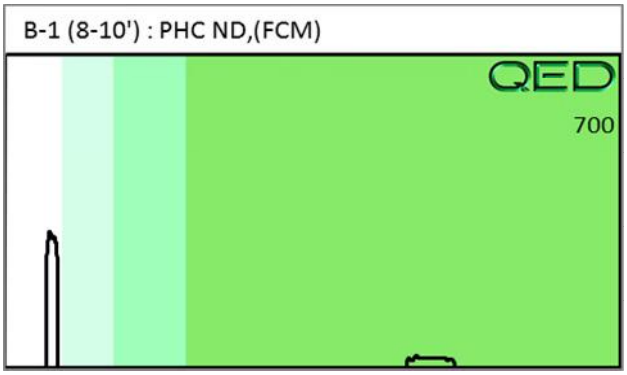
Fingerprints provide a tentative hydrocarbon identification. The abbreviations are:- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for sample fingerprint match to library

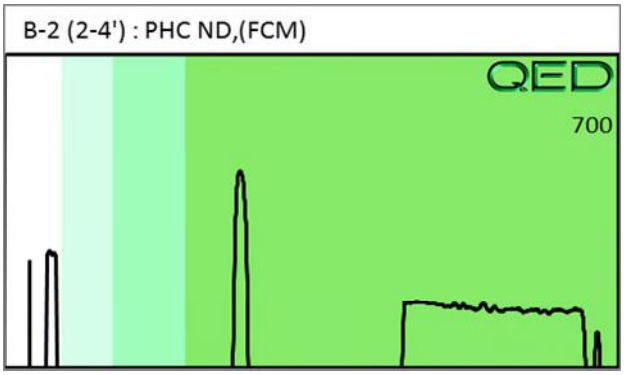
(SBS) or (LBS) = Site Specific or Library Background Subtraction applied to result : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate present

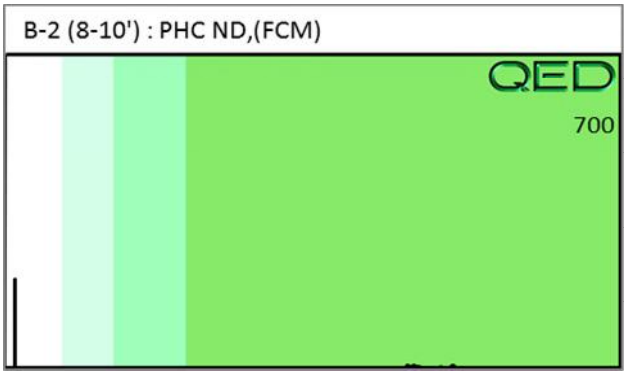
QED Hydrocarbon Fingerprints

Project: 4305-18-175A ; PARCEL 216 ##################









April 29, 2019

North Carolina Department of Transportation
Geotechnical Unit
Mail Service Center 1592
Raleigh, North Carolina 27699-1592

Attention: Mr. Craig Haden email: cehaden@ncdot.gov

Reference: **Preliminary Site Assessment Report**
NCDOT Project I-5986B, WBS Element 47532.1.3
Parcel 230-Exxon Slip In
427 Jonesboro Road
Dunn, Harnett County, North Carolina
S&ME Project 4305-18-175A

Dear Mr. Haden:

S&ME, Inc. (S&ME) is submitting this Preliminary Site Assessment (PSA) Report to the North Carolina Department of Transportation (NCDOT). This report presents the background/project information, field activities, findings, conclusions, and recommendations. These services were performed in general accordance with S&ME Proposal No. 4305-18-175 CO-01 REV-01 dated January 2, 2019, and Contract Number 7000018853 dated April 12, 2018 between NCDOT and S&ME, Inc., authorized by NCDOT in its January 8, 2019 Notice to Proceed Letter.

♦ Background/Project Information

Based on NCDOT's November 2, 2018, Request for Technical and Cost Proposal, the PSA was conducted within the NCDOT right-of-way (ROW) and/or easement as indicated on the preliminary plan sheets provided by NCDOT at the following property:

NCDOT Parcel No.	Property Owner	Site Address
230	Marion Sadler	(Exxon Slip In) 427 Jonesboro Road, Dunn, NC

The property is developed with an active gasoline/convenience store and restaurant identified as Exxon Slip In, which utilizes one petroleum underground storage tank (UST) with two compartments. Information regarding the UST system listed for this site is provided in the following table:

UST Facility ID No. 0-00-000034851

Number of Tanks	Contents	Capacity (gallons)	Date Installed	Date Removed
1	Gasoline	12,000	1994	Active
1	Gasoline	8,000	1994	Active

The property is not listed with North Carolina Department of Environmental Quality (NCDEQ) Incidents associated with petroleum releases from underground or aboveground storage tanks.

The PSA included a geophysical survey and subsequent limited soil sampling (three soil borings up to 10 feet below ground surface (ft.-bgs.), within accessible areas of the proposed ROW/easement in preparation for construction activities. Groundwater was not encountered during the advancement of soil borings at the site. Therefore, groundwater sampling was not performed. **Figure 1** shows the vicinity and site location, and **Figure 2** shows the site and boring locations. Soil sampling results are shown on **Figure 3.**

♦ Field Services

Prior to field activities, a site specific Health and Safety Plan was prepared as required by the Occupational Health and Safety Act (OSHA). Underground utilities were located and marked by the North Carolina One-Call Service. A private utility locator (Troxler Geologic, Inc.) was also used to locate and mark underground utilities.

♦ Geophysical Survey

On February 7, 2019, S&ME personnel performed a geophysical survey within accessible areas of the proposed ROW/easement at Parcel 230. S&ME used a combination of the Time Domain Electromagnetic (TDEM) and Ground Penetrating Radar (GPR) methods to explore for buried subsurface features at the site such as underground storage tanks (USTs) and other possible buried obstructions. Brief descriptions of these complementary geophysical techniques are presented in the following paragraphs.

Time Domain Electromagnetics (TDEM)

TDEM measures the electrical conductivity of subsurface materials and discriminates between moderately conductive earth materials and very conductive metallic targets within the shallow subsurface. The conductivity is determined by transmitting a time-varying magnetic pulse into the subsurface and measuring the amplitude and phase shift of the secondary magnetic field. The secondary magnetic field is created when the conductive materials become an inductor as the primary magnetic field is passed through them. TDEM data are acquired continuously at a walking pace typically along a series of parallel or perpendicular lines. The system generates audible and visual indications when metallic targets are encountered. These measurements can also be supported with a global positioning system (GPS) which is output directly into the TDEM data file.

We used a Geonics Limited EM-61 MK2 TDEM system in general accordance with ASTM D6820-02 (2007) "*Standard Guide for Use of the Time Domain Electromagnetic Method for Subsurface Investigation.*" Data was collected along lines spaced at approximately five feet using a Juniper® Systems Geode™ sub-meter GPS as positioning support. The presence of existing pumps and other surficial obstructions, and other surficial obstructions within the requested survey area however prevented TDEM data collection in several locations. The approximate TDEM data collection paths are presented in **Figure 4**. Golden Software's Surfer® program was used to grid and plot the data (**Figures 5 and 6**). The TDEM data has been presented as Plots A and B in order to provide both opaque and transparent views, respectively.

Ground Penetrating Radar (GPR)

GPR transmits electromagnetic waves into the subsurface from an antenna at a specific frequency and measures the time for wave reflections to be received by interfaces between materials with differing material properties (e.g. soil/metal, etc.). The intensity of the reflected GPR wave is a function of the contrast in the material properties (i.e. dielectric permittivity) at the interface, the conductivity of the material that the wave is traveling through, and the frequency of the signal.

We used a Geophysical Survey Systems, Inc. (GSSI) SIR® 3000 GPR system equipped with a 400 MHz antenna in general accordance with ASTM D6432-11 "*Standard Guide for Using the Surface Ground Penetrating Radar Method for Subsurface Investigation*" to further characterize anomalies/features identified during the TDEM survey.

A total of nine GPR profiles (Lines 1 through 9) were collected for documentation (**Figure 7**). The data was post-processed using the GSSI Radan® 7 GPR software program for additional analysis.

Geophysical Findings

The site is an operating gasoline/convenience store. Based on preliminary plan sheets provided by NCDOT, it appears that the proposed Right-of-Way extends near but not across an existing UST and pump island located on the site. The existing UST was identified during the geophysical survey, north of boring B-3 and is shown in **Figure 2** and **Figure 7**.

Two anomalous features unrelated to known surficial targets were identified in the geophysical data sets (Anomalies A and B; **Figures 5 through 7**). Anomaly A is characterized by high amplitude GPR responses located in the upper one ft.-bgs and likely related to an isolated buried metallic target/debris. Anomaly B is characterized by an isolated TDEM response located within the eastern portion of the site adjacent to existing bollards. This feature was only identified in the TDEM data during post-processing and not in the field, and as such, GPR data was not collected over this feature so interpretations regarding possible size and depth cannot not be determined. Possible influence from the nearby bollards may have masked our ability to identify it while in the field. Anomaly A was also marked in the field using white spray paint. Example GPR profiles are presented in **Figures 8 and 9**.

♦ Soil Sampling

On February 22, 2019, Troxler Geologic, Inc. (Troxler's) drill crew utilized a track mounted Geoprobe® rig to advance three soil borings (B-1 through B-3) and to collect soil samples within accessible areas of the proposed ROW/easement at Parcel 230. The approximate location of the soil borings are shown in **Figure 2**. A photographic log is included in **Appendix I.** Troxler's drill crew advanced the Geoprobe® borings to a depth of approximately 10 ft.-bgs. During the advancement of the soil borings, groundwater was not encountered. Soil samples were continuously collected in four-foot long disposable acetate-plastic sleeves that line the hollow stainless-steel sample probes. Soil recovered from the sleeves was classified on-site by S&ME personnel and screened with a Photoionization Detector (PID) at approximately two foot depth intervals to measure relative headspace concentrations of volatile organic compounds (VOCs).

VOC headspace readings were obtained from an aliquot of each soil sample that was placed in a re-sealable bag. Another portion of the sample was placed in a separate re-sealable bag and stored in an insulated container with

ice for possible laboratory analyses. After waiting approximately 15 minutes to allow the sample to reach ambient temperature and headspace equilibrium, the PID probe was inserted into the bag to obtain a headspace reading. A summary of the PID readings and logs of the soil borings are included in **Appendix II.**

No petroleum odors, staining or elevated PID readings were noted within the collected soil samples. Therefore, two soil samples (two to four foot depth interval and eight to ten foot depth interval) were selected from each boring and provided to RED Lab, LLC (Red Lab) for on-site analysis. A total of six soil samples (two per boring) were analyzed by RED Lab for Total Petroleum Hydrocarbons (TPH)-Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) using ultra-violet fluorescence (UVF) spectroscopy with product (fuel) identification.

Upon completion of the soil sampling, the soil borings were backfilled with bentonite pellets and soil cuttings. Investigative derived wastes (IDW), such as additional soil cuttings generated during the soil boring advancement and decontamination water, were spread on the ground in accordance with the procedures specified by North Carolina Department of Environmental Quality (NCDEQ). Used gloves, re-sealable bags and acetate sleeves were bagged and disposed off-site.

Soil Analytical Results

Based upon analytical results of soil samples analyzed by RED Lab using UVP spectroscopy, TPH-GRO and TPH-DRO were not reported at concentrations exceeding the North Carolina TPH Action Levels. TPH-DRO was reported at borings B-1 and B-2 at the two to four foot depth intervals at concentrations of 4.2 milligrams per kilograms (mg/kg) and 3.4 mg/kg, respectively, which are below its North Carolina TPH Action Level of 100 mg/kg. TPH DRO was also reported at borings B-1 through B-3 at the eight to ten foot depth interval at concentrations ranging from 0.09 mg/kg to 3.6 mg/kg. TPH-GRO and TPH-DRO were not reported at concentrations exceeding the laboratory method reporting limits for the remaining soil samples. A summary of the soil analytical results is presented in **Table 1** and shown on **Figure 3.** A copy of the laboratory analytical report provided by RED Lab is presented in **Appendix III.**

♦ Conclusion and Recommendations

The site is an operating gasoline/convenience store. The geophysical survey identified an existing known UST, which appears to be located near but not across the proposed Right-of-Way along with an existing pump island. The UST and pump island are located east of soil boring B-3.

The geophysical survey also identified two anomalous features unrelated to known surficial targets in the geophysical data sets (Anomalies A and B). Anomaly A is likely related to an isolated buried metallic target/debris. However, Anomaly B is characterized by an isolated TDEM response located within the eastern portion of the site adjacent to existing bollards. This feature was only identified in the TDEM data during post-processing and not in the field, and as such, GPR data was not collected over this feature so interpretations regarding possible size and depth cannot not be determined. Possible influence from the nearby bollards may have masked our ability to identify it while in the field. Although its TDEM response is relatively smaller and weaker than a typical response from a UST, it is uncertain if Anomaly B is associated with a potential UST, due to the lack of GPR data. Workers in the area of Anomaly B should be aware of the possibility of a UST or buried metallic objects or debris.

S&ME advanced three soil borings (B-1 through B-3) to a depth of approximately 10 ft.-bgs at the site. No petroleum odors, staining or elevated PID readings were noted within soil samples collected from the soil borings. Selected soil samples from the soil borings were analyzed onsite for TPH-GRO and TPH-DRO using UVF spectroscopy. TPH-DRO was reported in the two to four foot and eight to ten foot depth intervals at borings B-1 and B-2 and the eight to ten foot depth interval at boring B-3 at concentrations slightly above the laboratory method reporting limits, but well below the North Carolina TPH Action Levels. During the soil boring advancement, groundwater was not encountered. Therefore, groundwater sampling was not performed.

S&ME recommends maintaining an awareness level for the presence of marginally impacted petroleum in soil (below TPH Action Levels) at the site for the safety of workers and the public. If petroleum stained or odorous soils are encountered during construction, these soils should be properly handled and disposed at a licensed facility.

♦ Limitations

The results of this preliminary investigation are limited to the boring locations presented herein. The results of this Preliminary Site Assessment are not all inclusive and may not represent existing conditions across the entire property. These results only reflect the current conditions at the locations sampled on the date this Preliminary Site Assessment was performed. This report has been prepared in accordance with generally accepted environmental engineering and geophysical practice for specific application to this project. The conclusions and recommendations contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other warranty, expressed or implied, is made.

The geophysical methods used for this survey have inherent limitations. Site metallic features (e.g., buildings, reinforced concrete, vehicles, etc.) and overhead transmission lines can produce a false electromagnetic response and may mask subsurface features. The depth of exploration of the GPR signal is highly site specific, and is greatly limited by signal attenuation (absorption) of the subsurface materials. Signal attenuation is dependent upon the electrical conductivity of the subsurface materials. Signal attenuation is greatest in materials with relatively high electrical conductivities such as clay soils, and lowest in relatively low conductivity materials such as unsaturated sand. For this project location, the GPR data sets appear to have a maximum depth of penetration of approximately about five ft.-bgs.

Regardless of the thoroughness of a geophysical study, there is always a possibility that actual conditions may not match the interpretations. The results should be considered accurate only to the degree implied by the methods used and the method's limitations and data coverage. Accordingly, the possibility exists that not all features at a project site will be located due to either subsurface soil conditions or the occurrence of features outside the lateral limits and below the depth of penetration of the methods used. As with most surface geophysical methods, resolution of the subsurface will also decrease with depth. As such, the size and/or contrast of features compared to the imaged subsurface media must be significant enough to produce the anticipated response. The location and/or determination (or the lack thereof) of potential buried features is based on our review of the provided information and of the geophysical survey. Under no circumstances does S&ME assume any responsibility for damages resulting from the presence of subsurface features that may exist but were not identified by our survey.

This Preliminary Site Assessment was performed solely for NCDOT regarding the above-referenced site and assessment area. This report is provided for the sole use of NCDOT. Use of this report by any other parties will be at such party's sole risk. S&ME disclaims liability for any such use or reliance by third parties. The observations

presented in this report are indicative of conditions during the time of the assessment and of the specific areas referenced.

Closing

S&ME appreciates the opportunity to provide these services to you. If you have any questions or comments regarding this report, please contact us at your convenience.

Sincerely,

S&ME, Inc.

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NORTH CAROLINA PROFESSIONAL SEAL 18760 ENGINEER THOMAS P. RAYMOND

5/6/2019

Attachments:

Table 1: Summary of Soil Sampling Results

Figure 1: Vicinity Map
Figure 2: Site Map
Figure 3: Soil Constituent Map
Figure 4: TDEM Path Location Plan
Figure 5: TDEM Data Plot A
Figure 6: TDEM Data Plot B
Figure 7: Geophysical Anomaly Location Plan
Figure 8: Example GPR Data – Lines 1 and 2
Figure 9: Example GPR Data-Lines 5 and 7

Appendix I: Photographs
Appendix II: Boring Logs
Appendix III: Laboratory Analytical Reports and Chain of Custody

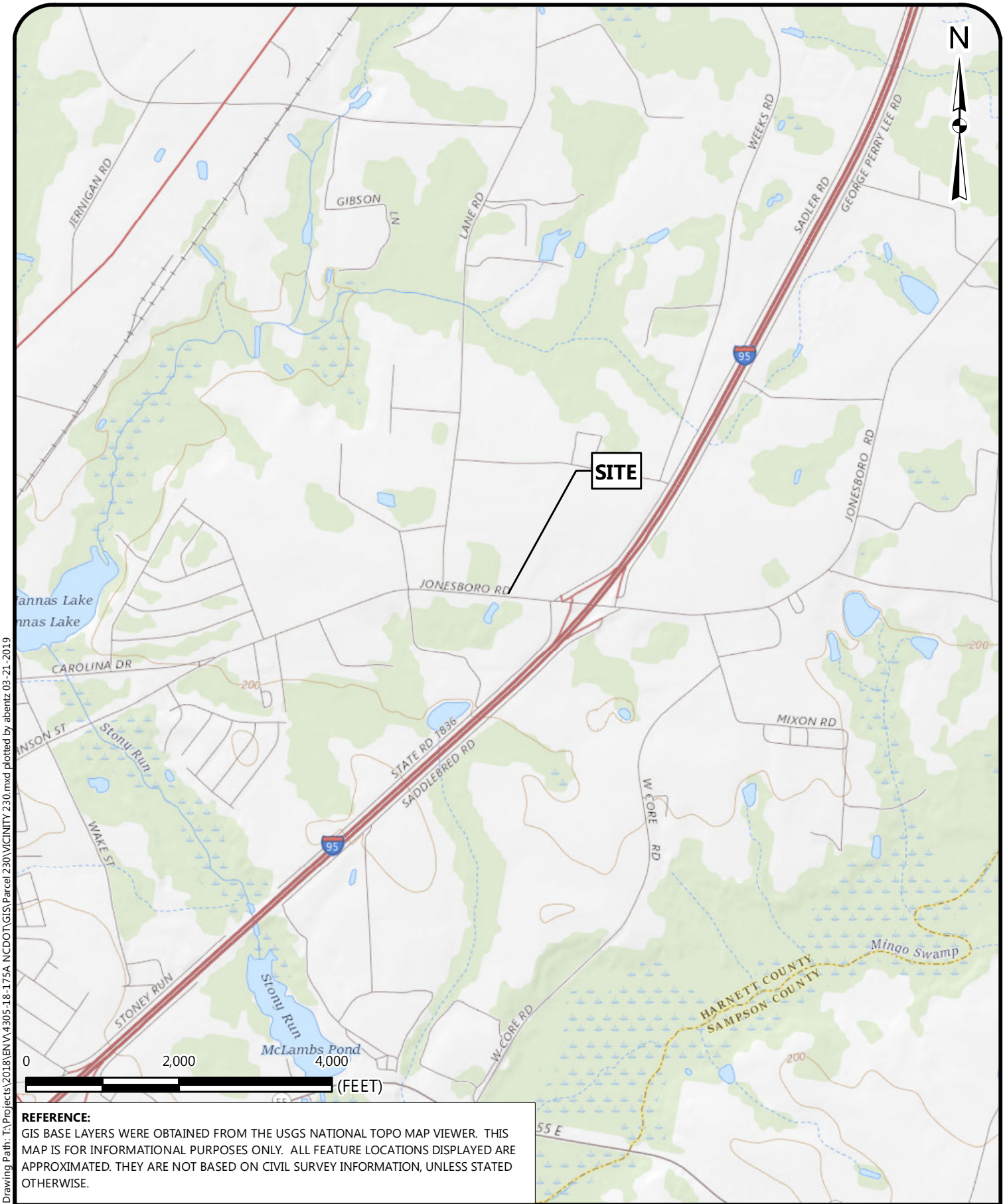
Tables

TABLE 1
SUMMARY OF SOIL SAMPLING RESULTS
NCDOT Project I-5986B
Parcel 230 - (Exxon Slip In)
427 Jonesboro Road
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-18-175A

Analytical Method→			Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) by Ultraviolet Fluorescence (UVF) Spectrometry	
Sample ID	Date	Contaminant of Concern→ / Sample Depth (ft.-bgs)	TPH-GRO	TPH-DRO
B-1	2/22/2019	2 to 4	<0.53	**4.2**
		8 to 10	<0.75	**0.35**
B-2	2/22/2019	2 to 4	<0.64	**3.4**
		8 to 10	<0.62	**3.6**
B-3	2/22/2019	2 to 4	<0.45	<0.18
		8 to 10	<0.43	**0.09**
North Carolina TPH Action Levels			**50**	**100**

Notes:
1. UVF analysis performed by RED Lab, LLC
2. Concentrations are reported in milligrams per kilogram (mg/Kg).
3. ft.-bgs:- feet below ground surface.
4. Concentrations exceeding the laboratory's reporting limits are shown in **BOLD** fields.
5. Concentrations exceeding the North Carolina TPH Action Levels are shown in Shaded and **BOLD** fields.

Figures



REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM THE USGS NATIONAL TOPO MAP VIEWER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

Drawing Path: T:\Projects\2018\ENV\4305-18-175A NCDOT\GIS\Parcel 230\VICINITY 230.mxd plotted by abentz 03-21-2019

VICINITY MAP

NCDOT I-5986B
PARCEL NO. 230 (EXXON SLIP IN)
427 JONESBORO ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:	FIGURE NO.
1 " = 1,000 '	1
DATE: 3-21-19	
PROJECT NUMBER 4305-18-175A	

LEGEND

Geoenvironmental Boring:

Underground Storage Tank (UST): UST

Map Source: NCDOT Project I-5986B

Image Source: NC ONEMAP, Dated 2016

Known Soil Contamination:

Possible Soil Contamination: — s —

Existing Contamination Known - Water: — w —

0 100 200

GRAPHIC SCALE (IN FEET)

SITE MAP

NCDOT Project: I-5986B
PARCEL 230 - (EXXON SLIP IN)
427 Jonesboro Road, Dunn, Harnett County, North Carolina

SCALE:	FIGURE NO.
1" = 100'	2
DATE:	
MARCH 2019	
PROJECT NUMBER	
4305-18-175A	

SOIL CONSTITUENT MAP

NCDOT I-5986B
PARCEL NO. 230 (EXXON SLIP IN)
427 JONESBORO ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

Parcel No. 230
427 Jonesboro Road

Existing Known UST

Pump Islands

B-3

(ft-bgs) Sample Depth	(mg/kg) GRO	DRO
2-4	< 0.45	< 0.18
8-10	< 0.43	0.09

B-1

(ft-bgs) Sample Depth	(mg/kg) GRO	DRO
2-4	< 0.53	4.2
8-10	< 0.75	0.35

B-2

(ft-bgs) Sample Depth	(mg/kg) GRO	DRO
2-4	< 0.64	3.4
8-10	< 0.62	3.6

JONESBORO RD

SADLER RD

JERRY CA

ROW

0 100 200 (FEET)

REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM THE 2017 NCONEMAP AERIAL ORTHOIMAGERY LAYER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

mg/kg: Milligrams per Kilogram
GRO: Total Petroleum Hydrocarbon Gasoline Range Organics
DRO: Total Petroleum Hydrocarbon Diesel Range Organics
BOLD*: Indicates Exceedance of NC TPH Action Levels
ft-bgs : Feet Below Ground Surface

Samples Collected 2-22-2019.

GRO/DRO Analyzed by Ultraviolet Fluorescence (UVF) by RED Lab, LLC.

- Sample Location
- Proposed Alignment
- ROW Proposed Permanent ROW
- Proposed Permanent Utility Easement
- Proposed Edge of Pavement
- Tax Parcels

SCALE: 1 " = 75 '

DATE: 3-22-19

PROJECT NUMBER: 4305-18-175

FIGURE NO.: 3

Drawing Path: T:\Projects\2018\ENV\4305-18-175A NCDOT\GIS\Parcel 230\Parcel 230.mxd plotted by mverbanic 03-22-2019

REFERENCE:
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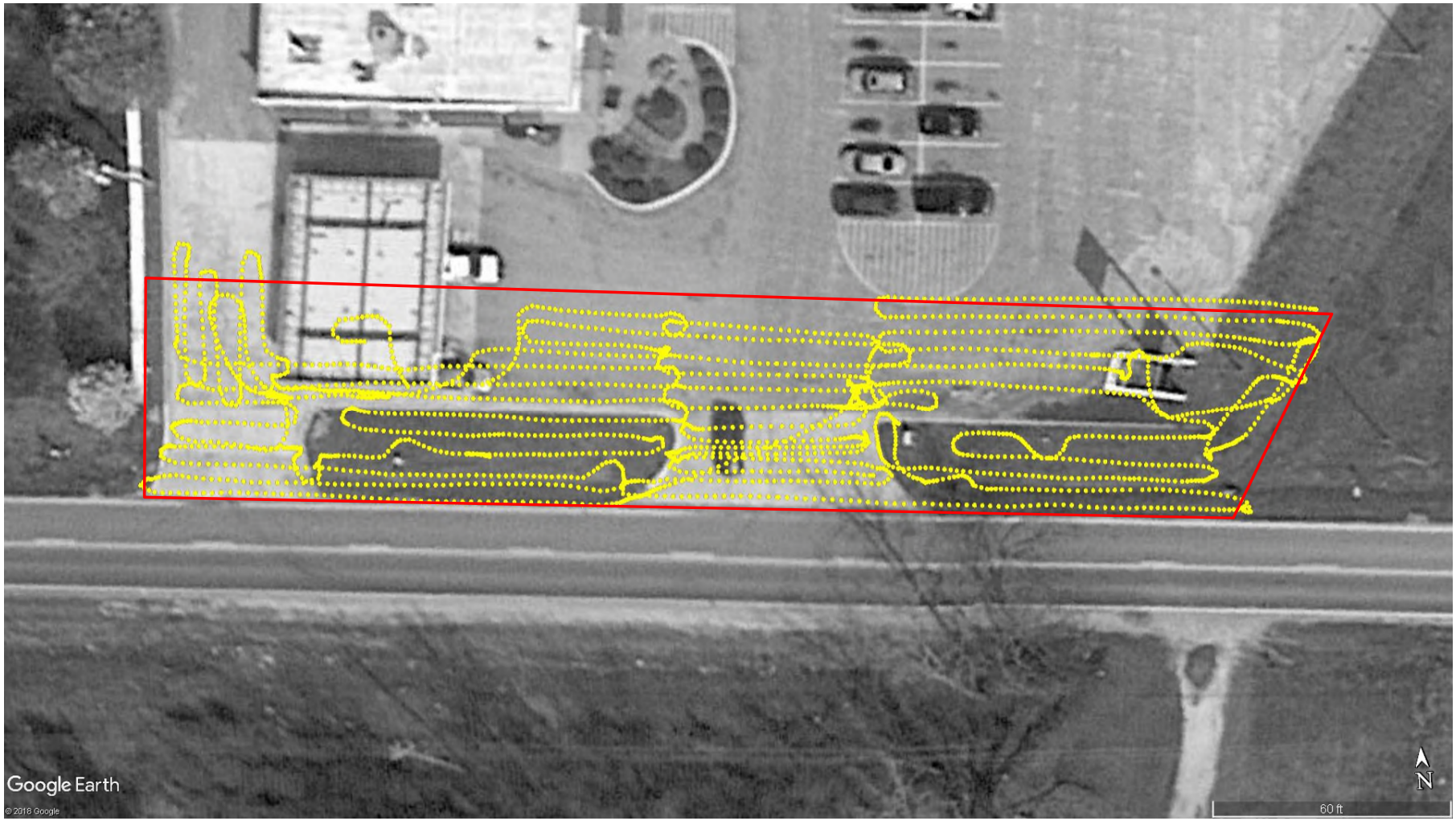
(DATED, MARCH, 04 2018)



LEGEND

Approximate TDEM Path

Approximate Requested Survey Area

TDEM PATH LOCATION PLAN

NCDOT PROJECT: I-5986B
PARCEL 230 – (EXXON SLIP IN)
427 JONESBORO ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
AS SHOWN

DATE:
3/22/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
4

REFERENCE:
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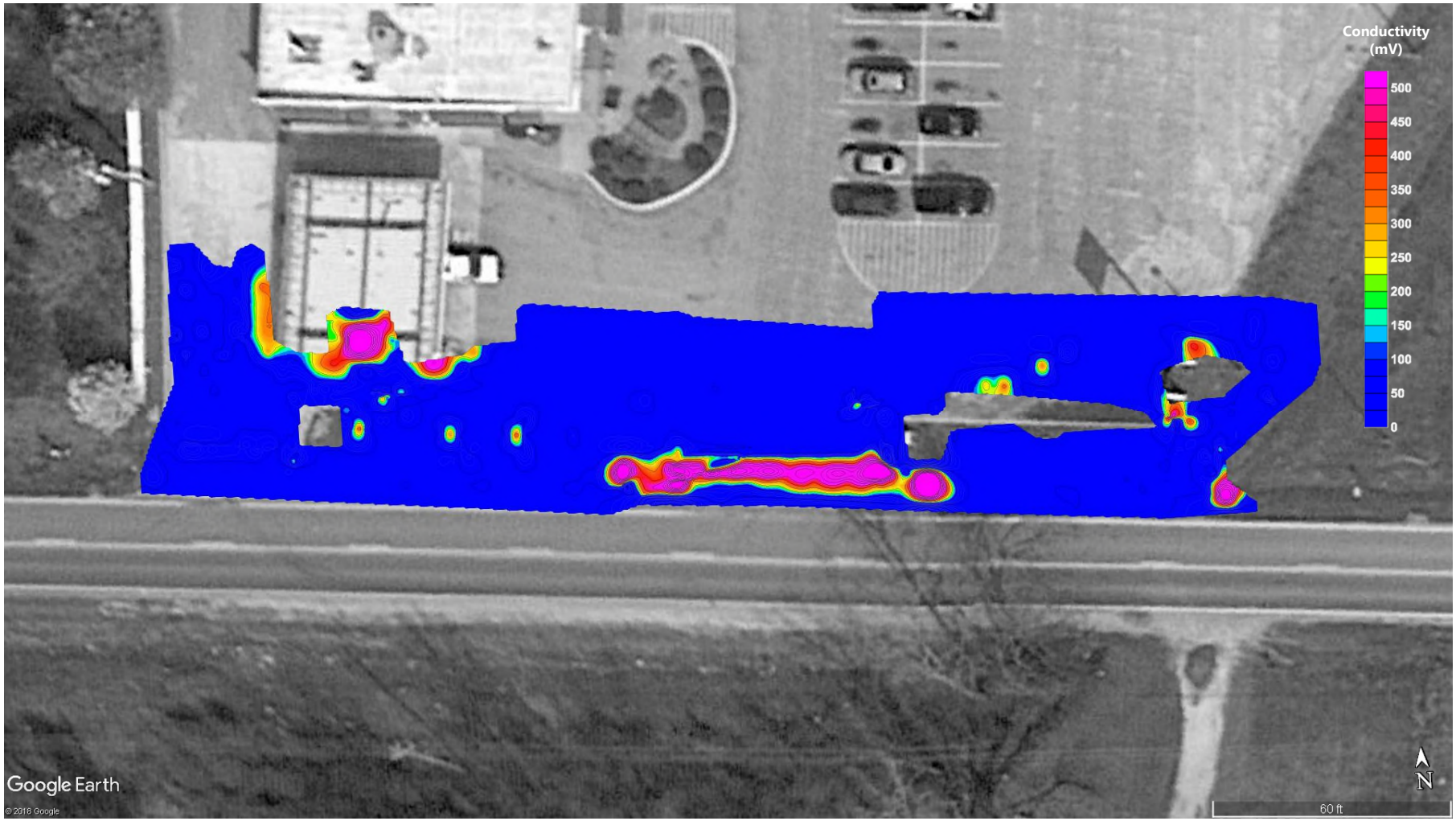

TDEM DATA PLOT A

NCDOT PROJECT: I-5986B
PARCEL 230 – (EXXON SLIP IN)
427 JONESBORO ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
AS SHOWN

DATE:
3/22/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
5

REFERENCE:
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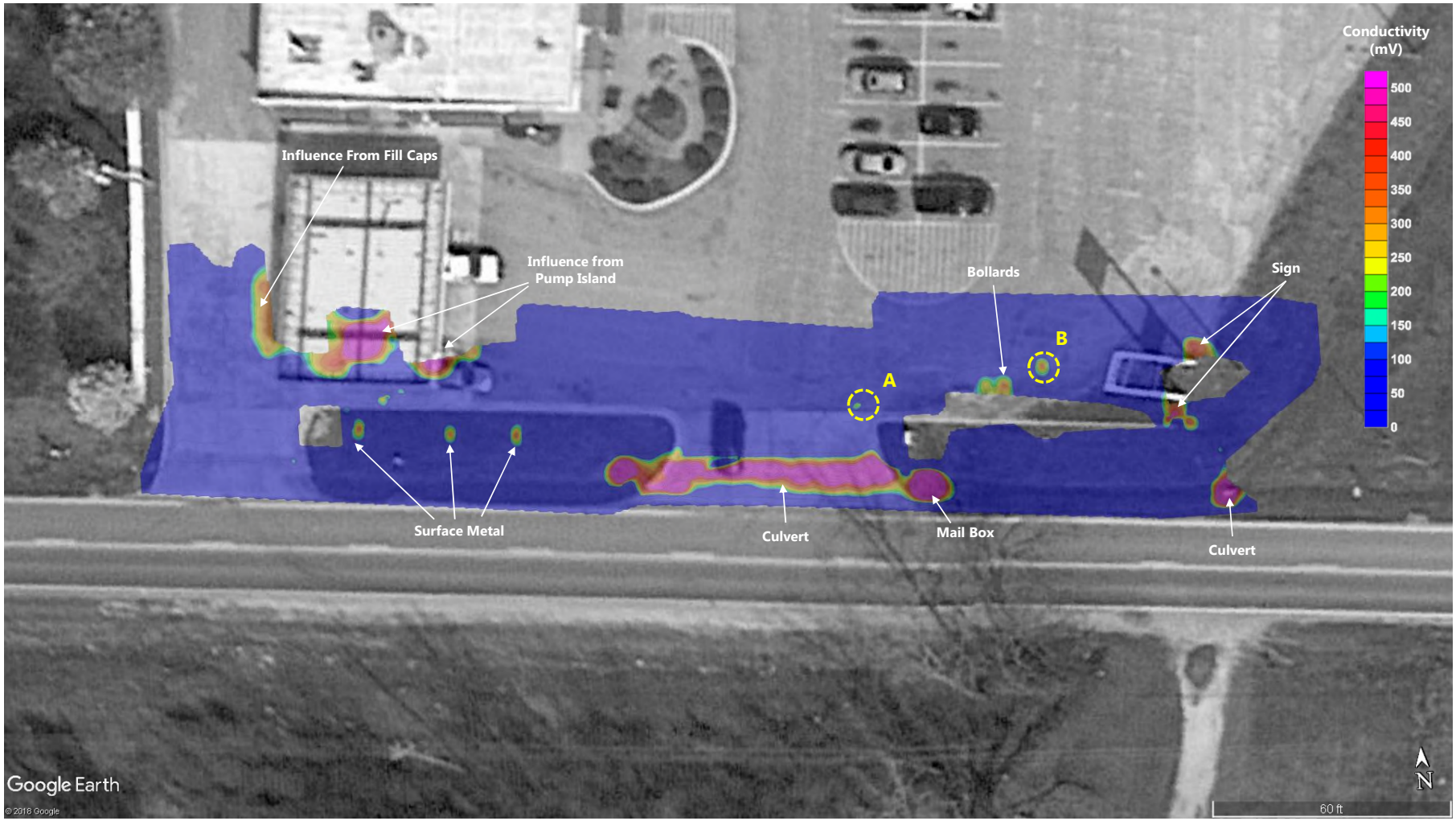
(DATED, MARCH, 04 2018)



LEGEND

Approximate Location of TDEM Anomaly

TDEM DATA PLOT B

NCDOT PROJECT: I-5986B
PARCEL 230 – (EXXON SLIP IN)
427 JONESBORO ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

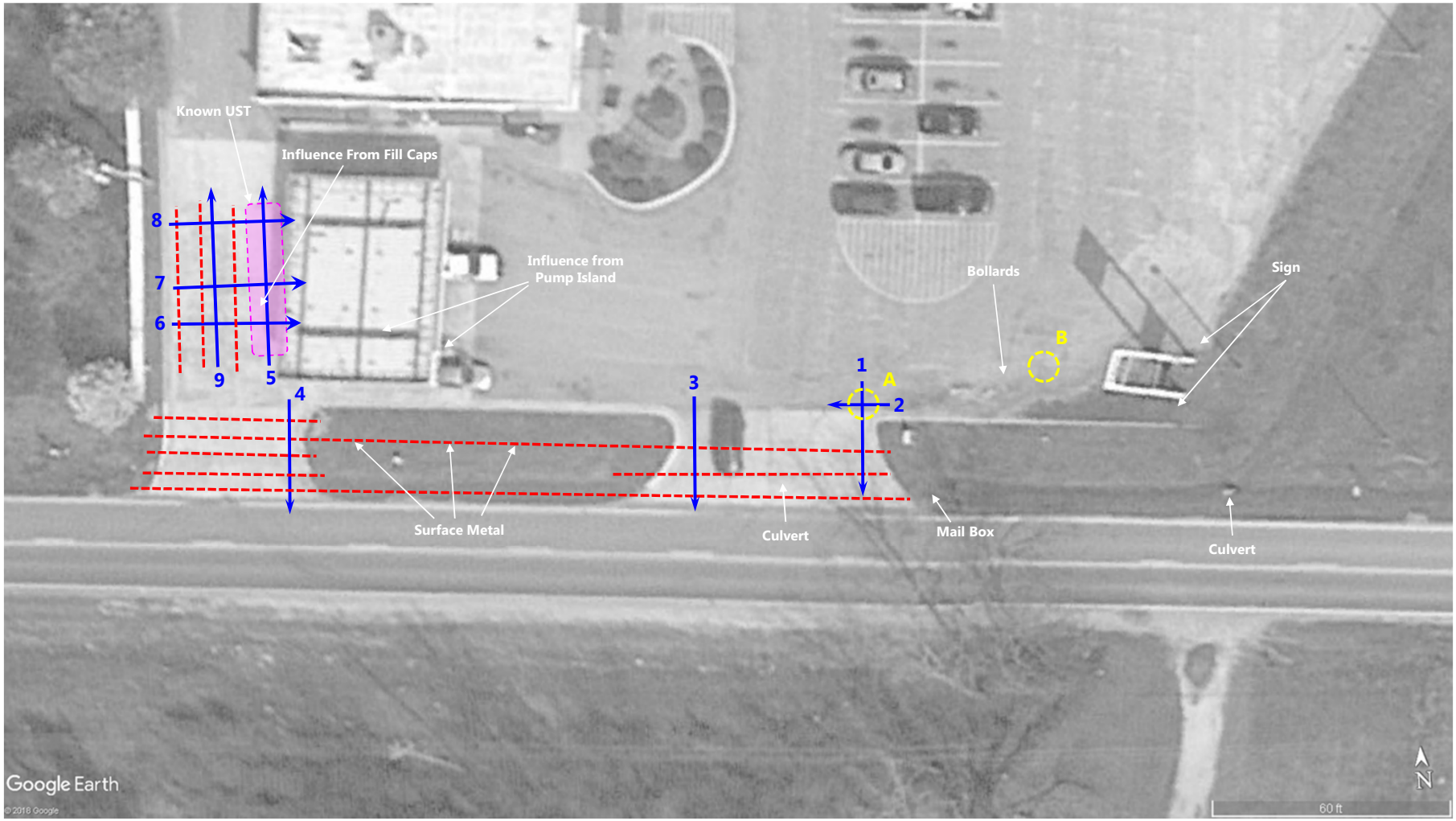
SCALE: AS SHOWN

DATE: 3/22/2019

PROJECT NUMBER 4305-18-175A

FIGURE NO. 6

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



LEGEND

Approximate Location of TDEM Anomaly

Approximate Location of GPR Profile

Approximate Location of Possible Utility

GEOPHYSICAL ANOMALY LOCATION PLAN

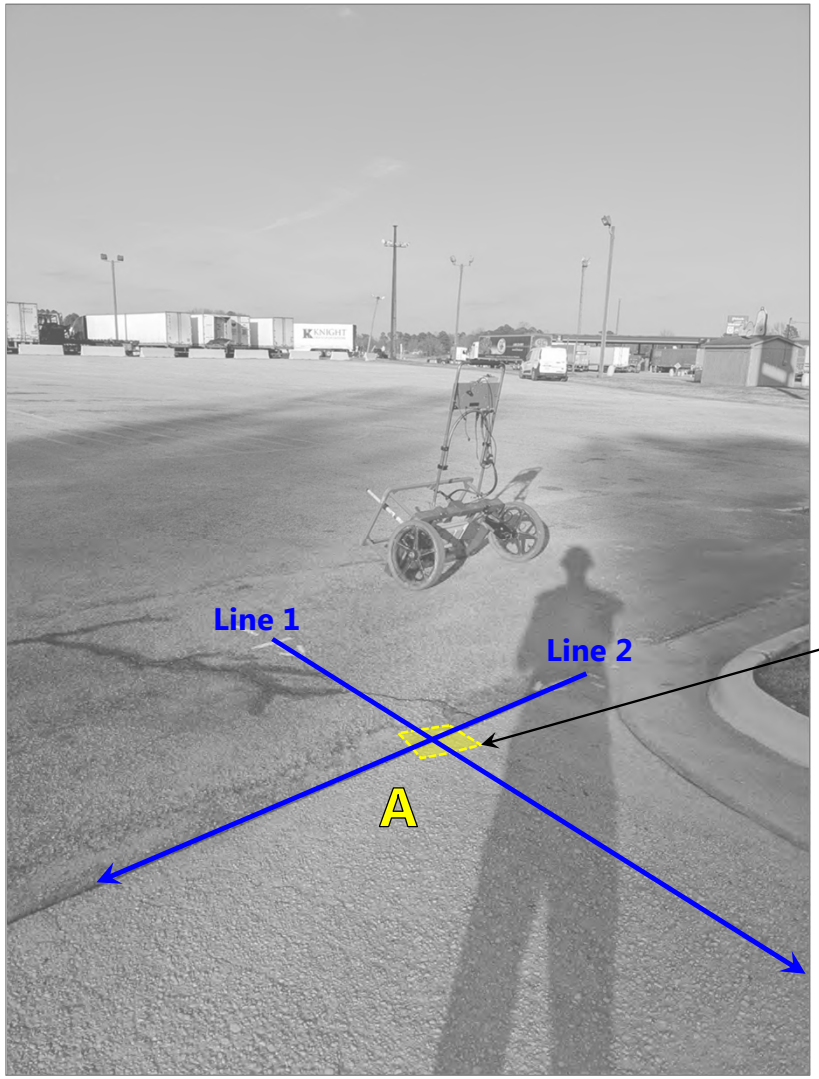
NCDOT PROJECT: I-5986B
PARCEL 230 – (EXXON SLIP IN)
427 JONESBORO ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

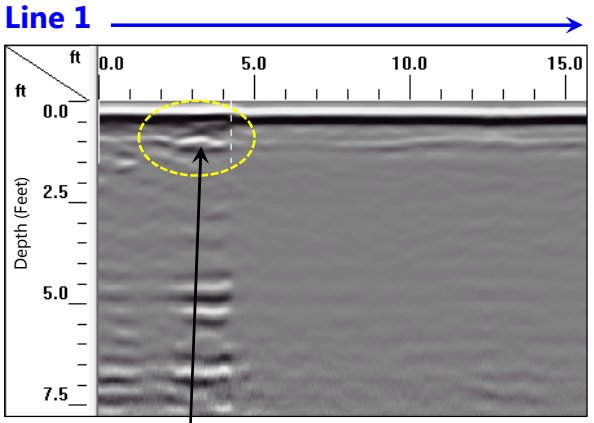
SCALE:
AS SHOWN

DATE:
3/22/2019

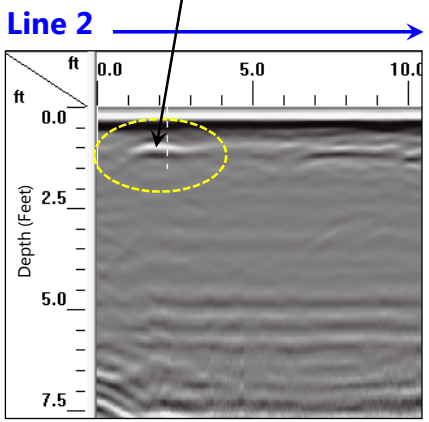
PROJECT NUMBER
4305-18-175A

FIGURE NO.
7





TDEM
Anomaly A



Note: Presented GPR profile depths are based on an assumed average dielectric and should be considered approximate

EXAMPLE GPR DATA – LINES 1 AND 2

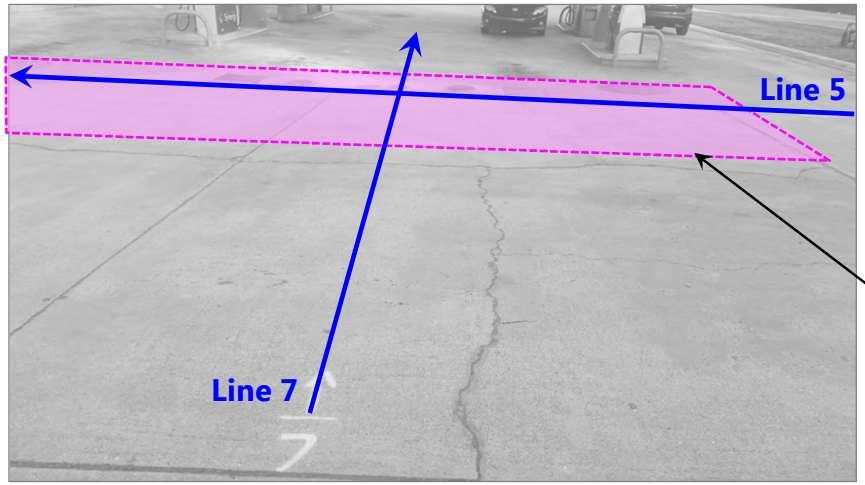
NCDOT PROJECT: I-5986B
PARCEL 230 – (EXON SLIP IN)
427 JONESBORO ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

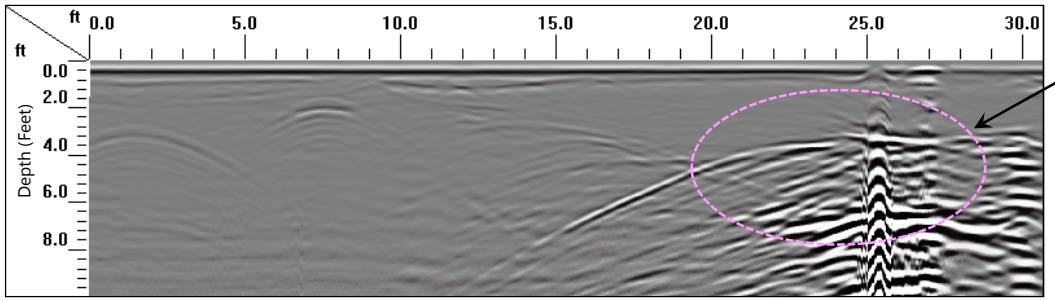
SCALE:
AS SHOWN

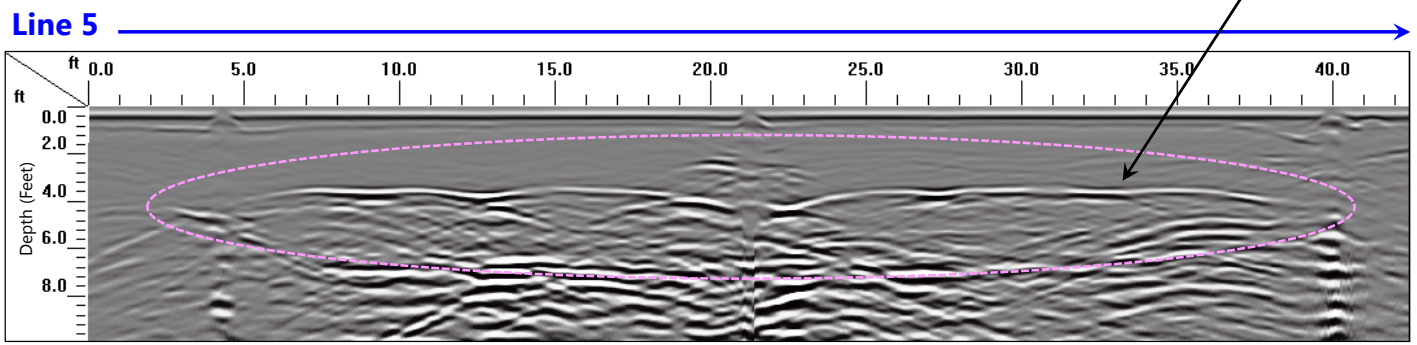
DATE:
3/22/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.
8







Known UST

Note: Presented GPR profile depths are based on an assumed average dielectric and should be considered approximate

EXAMPLE GPR DATA – LINES 5 AND 7

NCDOT PROJECT: I-5986B
PARCEL 230 – (EXON SLIP IN)
427 JONESBORO ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

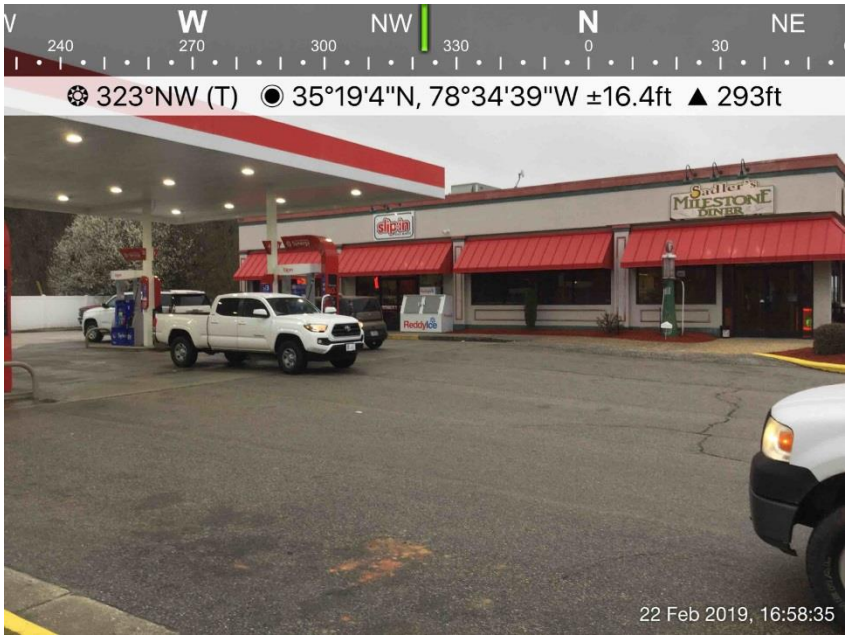
SCALE: AS SHOWN

DATE: 3/22/2019

PROJECT NUMBER 4305-18-175A

FIGURE NO. **9**

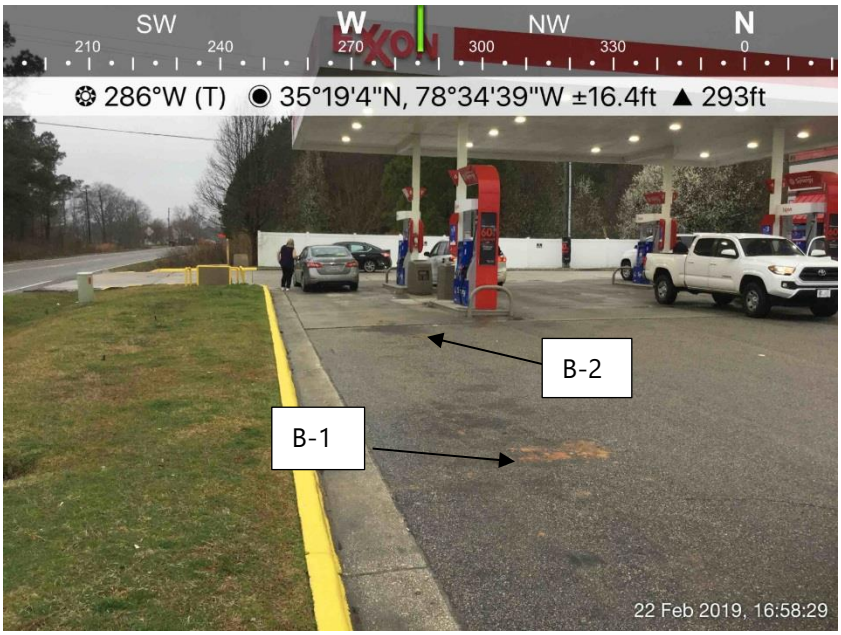
Appendix I – Photographs



Date: 2/22/2019

Photographer: JTH

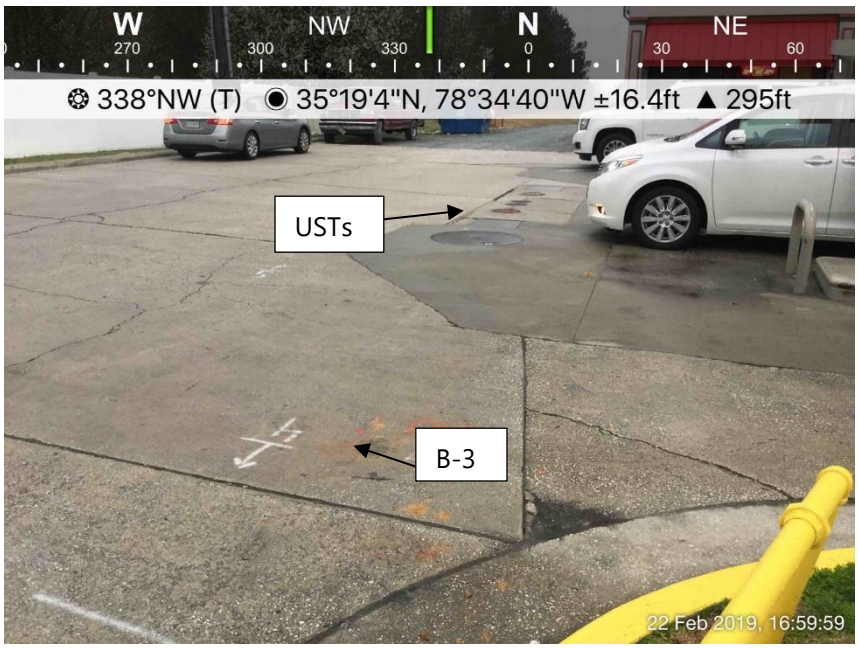
1	**Location / Orientation**	Front view of site looking northwest.
	Remarks	None



Date: 2/22/2019

Photographer: JTH

2	**Location / Orientation**	Front view of site looking west.
	Remarks	Note borings B-1 and B-2



Date: 2/22/2019

Photographer: JTH

3	**Location / Orientation**	Front view of site looking southeast.
	Remarks	Note soil boring B-3, near existing USTs

Appendix II – Boring Logs

PROJECT:	**NCDOT I-5986B** Parcel 230-427 Jonesboro Road, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-1**
DATE DRILLED:	Friday, February 22, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Asphalt, Gravel,								
		Silty Sand, Brown,			0.7	No				
		Clayey Sand, Orange, Red, Gray,			1.5	Yes				
5					1.6	No				
					0.9	No				
10		Boring Terminated at 10 Ft-BGS			0.3	Yes				
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 230-427 Jonesboro Road, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-2**
DATE DRILLED:	Friday, February 22, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Asphalt, Gravel,								
		Silty Sand, Brown,			0.0	No				
		Clayey Sand, Orange, Red, Gray,			6.4	Yes				
5					1.2	No				
					1.2	No				
10					1.8	Yes				
		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 230-427 Jonesboro Road, Dunn, NC S&ME Project No. 4305-18-175A		**BORING LOG: B-3**
DATE DRILLED:	Friday, February 22, 2019	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 6620 DT	WATER LEVEL:	
DRILLER:	Troxler Geologic, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Concrete, Gravel,								
		Silty Sand, Brown,			1.5	No				
		Clayey Sand, Orange, Red, Gray,			1.2	Yes				
5					1.3	No				
					1.2	No				
10		Boring Terminated at 10 Ft-BGS			1.3	Yes				
15										
20										
25										
30										

Appendix III – Laboratory Analytical Reports and Chain of Custody

QED

REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Hydrocarbon Analysis Results

Client: S&ME
Address:

Samples taken Friday, February 22, 2019
Samples extracted Friday, February 22, 2019
Samples analysed Friday, February 22, 2019

Contact: JAMIE HONEYCUTT

Operator JENN RYAN

Project: 4305-18-175A; PARCEL 230

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	
Soil	B - 1 (2-4')	21.3	<0.53	<0.53	4.2	4.2	2.1	0.15	0.001	0	96.5	3.5	Deg Fuel 74.4%,(FCM),(P)
Soil	B - 1 (8-10')	29.9	<0.75	<0.75	0.35	0.35	0.16	0.01	0.001	0	100	0	Residual HC
Soil	B - 2 (2-4')	25.5	<0.64	<0.64	3.4	3.4	1.7	0.12	0.001	0	96.3	3.7	Deg Fuel 90.1%,(FCM),(P)
Soil	B - 2 (8-10')	24.8	<0.62	<0.62	3.6	3.6	1	0.18	<0.007	0	98.2	1.8	Deg.PHC 65.6%,(FCM)
Soil	B - 3 (2-4')	18.1	<0.45	<0.45	<0.18	<0.45	<0.009	<0.009	<0.005	0	0	0	PHC ND,(FCM)
Soil	B - 3 (8-10')	17.3	<0.43	<0.43	0.09	0.09	0.09	0.009	<0.005	0	100	0	Residual HC

Initial Calibrator QC check OK

Final FCM QC Check OK 97.8%

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.

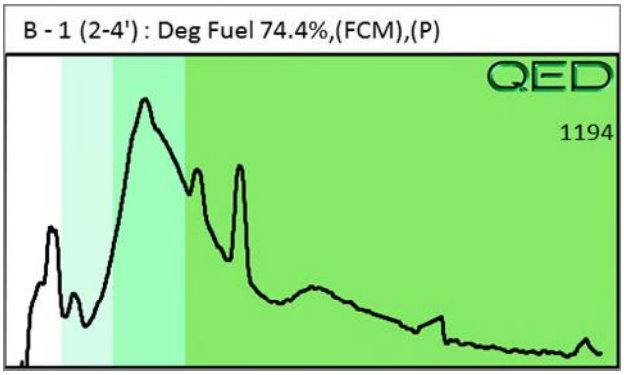
Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

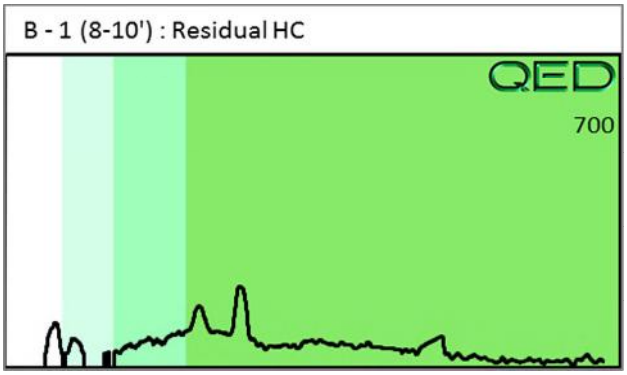
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

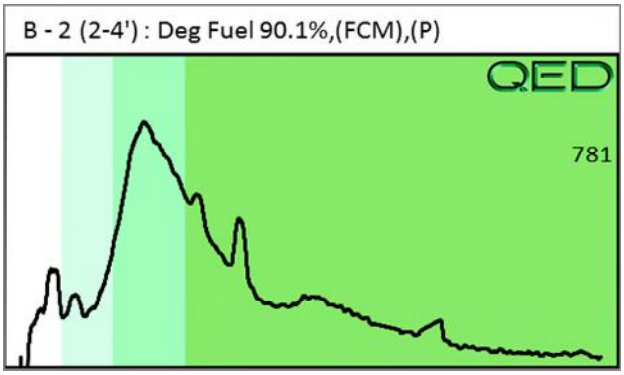
% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**

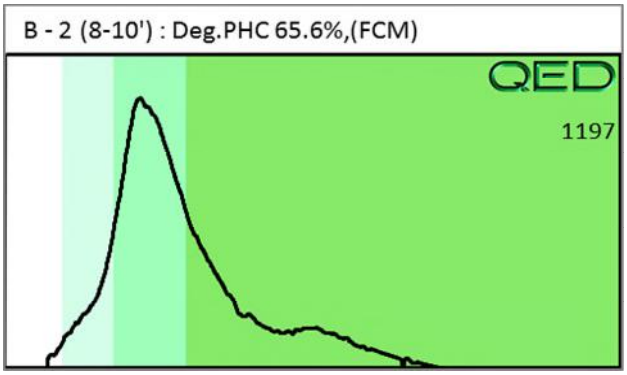
QED Hydrocarbon Fingerprints

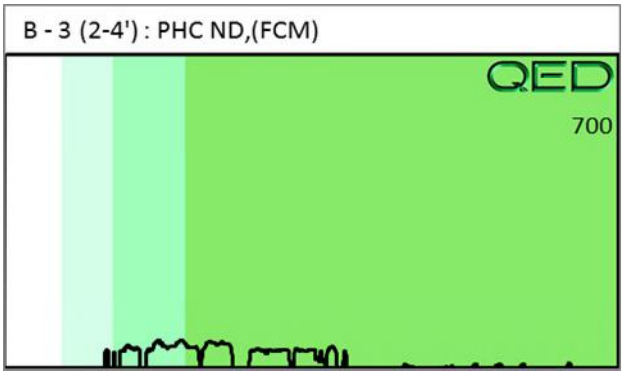
Project: 4305-18-175A; PARCEL 230 ##################

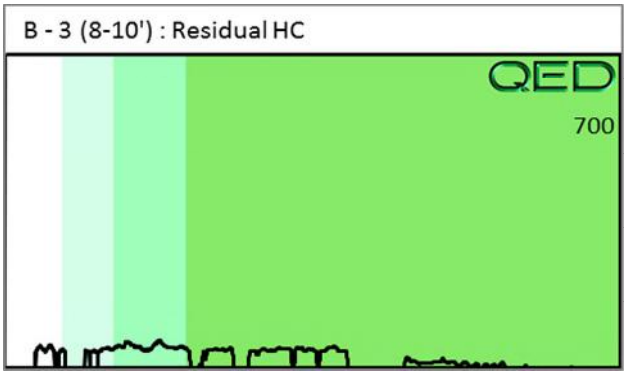












December 14, 2018

North Carolina Department of Transportation
Geotechnical Unit
Mail Service Center 1592
Raleigh, North Carolina 27699-1592

Attention: Mr. Craig Haden email: cehaden@ncdot.gov

Reference: **Preliminary Site Assessment Report**
NCDOT Project I-5986B, WBS Element 47532.1.3
Parcel 10-Copart
310 Copart Lane
Dunn, Harnett County, North Carolina
S&ME Project 4305-18-175

Dear Mr. Haden:

S&ME, Inc. (S&ME) is submitting this Preliminary Site Assessment (PSA) Report to the North Carolina Department of Transportation (NCDOT). This report presents the background/project information, field activities, findings, conclusions, and recommendations. These services were performed in general accordance with S&ME Proposal No. 43-1800583 REV-02 dated August 16, 2018, and Contract Number 7000018853 dated April 12, 2018 between NCDOT and S&ME, Inc., authorized by NCDOT in its August 20, 2018 Notice to Proceed Letter.

♦ Background/Project Information

Based on NCDOT's July 30, 2018, Request for Technical and Cost Proposal, the PSA was conducted within the NCDOT right-of-way (ROW) and/or easement as indicated on the preliminary plan sheets provided by NCDOT at the following property:

NCDOT Parcel No.	Property Owner	Site Address
10	Larry and Billy Stripling,Trustee	(Copart) 310 Copart Lane, Dunn, NC

The PSA included a geophysical survey, subsequent limited soil sampling (six soil borings up to 10 feet below ground surface (ft.-bgs.) and attempted groundwater sampling (one groundwater sample), within accessible areas of the proposed ROW/easement in preparation for construction activities. **Figure 1** shows the vicinity and site location, and **Figure 2** shows the site and boring locations. Soil sampling results are shown on **Figure 3.**

♦ Field Services

Prior to field activities, a site specific Health and Safety Plan was prepared as required by the Occupational Health and Safety Act (OSHA). Underground utilities were located and marked by the North Carolina One-Call Service. A private utility locator (East Coast Underground, LLC.) was also used to locate and mark underground utilities.

♦ Geophysical Survey

On October 15, 2018, S&ME personnel performed a geophysical survey within accessible areas of the proposed ROW/easement at Parcel 10. S&ME used a combination of the Time Domain Electromagnetic (TDEM) and Ground Penetrating Radar (GPR) methods to explore for buried subsurface features at the site such as underground storage tanks (USTs) and other possible buried obstructions. Brief descriptions of the proposed complementary geophysical techniques are presented in the following paragraphs.

Time Domain Electromagnetics (TDEM)

TDEM measures the electrical conductivity of subsurface materials and discriminates between moderately conductive earth materials and very conductive metallic targets within the shallow subsurface. The conductivity is determined by transmitting a time-varying magnetic pulse into the subsurface and measuring the amplitude and phase shift of the secondary magnetic field. The secondary magnetic field is created when the conductive materials become an inductor as the primary magnetic field is passed through them. TDEM data are acquired continuously at a walking pace typically along a series of parallel or perpendicular lines. The system generates audible and visual indications when metallic targets are encountered. These measurements can also be supported with a global positioning system (GPS) which is output directly into the TDEM data file.

We used a Geonics Limited EM-61 MK2 TDEM system in general accordance with ASTM D6820-02 (2007) "*Standard Guide for Use of the Time Domain Electromagnetic Method for Subsurface Investigation.*" Data was collected along lines spaced at approximately five feet using a Juniper® Systems Geode™ sub-meter GPS as positioning support. The presence of vehicles, metal equipment, thickly wooded areas, ditches, and other surficial obstructions within the requested survey area however prevented TDEM data collection in several locations. The approximate TDEM data collection paths are presented in **Figure 4**. Golden Software's Surfer® program was used to grid and plot the data (**Figures 5 and 6**). The TDEM data has been presented as Plots A and B in order to provide both opaque and transparent views, respectively.

Ground Penetrating Radar (GPR)

GPR transmits electromagnetic waves into the subsurface from an antenna at a specific frequency and measures the time for wave reflections to be received by interfaces between materials with differing material properties (e.g. soil/metal, etc.). The intensity of the reflected GPR wave is a function of the contrast in the material properties (i.e. dielectric permittivity) at the interface, the conductivity of the material that the wave is traveling through, and the frequency of the signal.

We used a Geophysical Survey Systems, Inc. (GSSI) SIR® 3000 GPR system equipped with a 400 MHz antenna in general accordance with ASTM D6432-11 "*Standard Guide for Using the Surface Ground Penetrating Radar Method for Subsurface Investigation*" to further characterize anomalies/features identified during the TDEM survey.

A total of nine GPR profiles (Lines 1 through 9) were collected for documentation (**Figures 8 and 9**). The data were post-processed using the GSSI Radan® 7 GPR software program for additional analysis.

Geophysical Findings

Responses indicative of a potential UST were not identified in the geophysical data sets collected at the site. However, two anomalous features were identified in the geophysical data sets (Anomalies A and B; **Figures 6 through 9**). Anomaly A is an approximate 25 foot linear feature characterized by high amplitude GPR responses at about four ft.-bgs that terminates at a steel water valve to the south. TDEM responses were not identified over Anomaly A which indicates it may be related to a non-metallic feature such as a utility likely associated with the nearby water valve. Anomaly B is characterized by relatively high TDEM values (greater than about 200 mV) and high amplitude GPR responses located within the upper one foot. Anomaly B is about 10 feet by 10 feet in size and likely related to buried isolated metallic targets/debris. Anomalies were also marked in the field using white spray paint. Example GPR profiles are presented in **Figures 10.**

♦ Soil Sampling

On October 22, 2018, S&ME's drill crew utilized a track mounted Geoprobe® rig to advance six soil borings (B-1 through B-6) and to collect soil samples within accessible areas of the proposed ROW/easement at Parcel 10. The approximate location of the soil borings are shown in **Figure 2**. A photographic log is included in **Appendix I.** S&ME's drill crew advanced the Geoprobe® borings to a depth of approximately 10 ft.-bgs. During the advancement of the soil borings, groundwater was encountered at depths ranging from approximately two to six ft.-bgs. Soil samples were continuously collected in four-foot long disposable acetate-plastic sleeves that line the hollow stainless-steel sample probes. Soil recovered from the sleeves was classified on-site by S&ME personnel and screened with a Photoionization Detector (PID) at approximately two foot depth intervals to measure relative headspace concentrations of volatile organic compounds (VOCs).

VOC headspace readings were obtained from an aliquot of each soil sample that was placed in a re-sealable bag. Another portion of the sample was placed in a separate re-sealable bag and stored in an insulated container with ice for possible laboratory analyses. After waiting approximately 15 minutes to allow the sample to reach ambient temperature and headspace equilibrium, the PID probe was inserted into the bag to obtain a headspace reading. A summary of the PID readings and logs of the soil borings are included in **Appendix II.**

No petroleum odors, staining or elevated PID readings were noted within the collected soil samples. Therefore, soil samples from varying depth intervals were selected from each boring and provided to RED Lab, LLC (Red Lab) for on-site analysis. A total of nine soil samples were analyzed by RED Lab for Total Petroleum Hydrocarbons (TPH)-Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) using ultra-violet fluorescence (UVF) spectroscopy with product (fuel) identification. Due to the site's use as an automotive salvage yard, one soil sample was also selected from each boring, placed in an insulated cooler with ice for transport to Con-Test Analytical for analysis of total lead, arsenic and chromium by EPA Method 6020.

Soil Analytical Results

TPH-GRO and TPH-DRO were not reported at concentrations exceeding the North Carolina TPH Action Levels. TPH-DRO was reported at borings B-3 (two to four foot depth interval and four to six foot depth interval), B-4

(one to two foot depth interval and two to four foot depth interval) and B-5 and B-6 (zero to two foot depth interval) at concentrations ranging from 1.1 milligrams per kilograms (mg/kg) to 22.3 mg/kg, which are below its North Carolina TPH Action Level of 100 mg/kg. Boring B-3 contained the highest concentration of TPH-DRO. TPH-GRO was reported at boring B-3 at the four to six foot depth interval at a concentration of 1.6 mg/kg, which is below its North Carolina TPH Action Level of 50 mg/kg. TPH-GRO and TPH-DRO were not reported at concentrations exceeding the laboratory method reporting limits for the remaining soil samples.

Total chromium was reported in each of the soil samples at concentrations ranging from 5.6 mg/kg to 10 mg/kg.

For chromium, there are screening levels for three different valent states of chromium. Total chromium, chromium III, and chromium VI. North Carolina conservatively considers laboratory results for total chromium, which is a combination of chromium III (most common isotopic state) and chromium VI, only as chromium VI. The NCDEQ, Inactive Hazardous Sites Branch (IHSB) has established Preliminary Soil Remediation Goals (PRSG) of Residential Health Based (0.31 milligrams per kilograms (mg/kg)), Industrial/Commercial Health Based (6.5 mg/kg) and Protection of Groundwater (3.8 mg/kg) for total chromium and chromium VI. Chromium III has a Residential Health Based PSRG of 23,000 mg/kg, an Industrial/Commercial Health Based PSRG of 350,000 mg/kg and Protection of Groundwater PSRG of 360,000 mg/kg. Chromium concentrations in the six soil samples are comparable, suggesting that chromium is naturally occurring and not indicative of a release of chromium. S&ME assumes that total chromium as reported by the laboratory is in the trivalent state (chromium III). Therefore, the total chromium results are considered to be well below the PSRGs. If required, speciated laboratory analysis and calculations will confirm whether the total chromium is comprised of trivalent and/or hexavalent chromium.

Total arsenic and total lead were also reported in each of the soil samples at concentrations below the PSRGs and at comparable concentrations suggesting that they are naturally occurring and not indicative of a release. Total arsenic was reported at concentrations ranging from 0.43 mg/kg to 0.67 mg/kg. Total lead was reported at concentrations ranging from 3.9 mg/kg to 17 mg/kg.

A summary of the soil analytical results is presented in **Table 1** and shown on **Figure 3.** A copy of the laboratory analytical report provided by RED Lab is presented in **Appendix III.**

♦ Groundwater Sampling

During the advancement of the soil borings, groundwater was encountered at depths ranging from two to six ft.-bgs. Therefore, the Geoprobe® was used to advance one of the soil borings into the groundwater table for the collection of a groundwater sample. Due to the concentration of TPH-DRO in the soil, boring B-3 was selected for the collection of a groundwater sample. A temporary monitor well (TW-1) was installed at soil boring B-3 using a five foot section of one-inch diameter, Schedule 40 PVC well riser attached to a ten foot section of 0.01-inch slotted screen. Due to the sandy soil condition, the temporary well was unable to be installed deeper than 10 ft.-bgs. Groundwater within the temporary monitor well at soil boring B-3 was measured at five ft.-bgs. The temporary well was purged until dry and did not recover. Therefore, a groundwater sample was not obtained.

Upon completion of the soil and attempted groundwater sampling, the well materials were removed and the soil borings backfilled with bentonite pellets and soil cuttings. Investigative derived wastes (IDW), such as soil cuttings generated during the soil boring advancement and decontamination water, were spread on the ground in

accordance with the procedures specified by North Carolina Department of Environmental Quality (NCDEQ). Used gloves and tubing were bagged and disposed off-site.

♦ Conclusion and Recommendations

The geophysical survey identified two anomalous features (Anomalies A and B). Anomaly A is likely related to a non-metallic feature such as a utility likely associated with the nearby water valve. Anomaly B is likely related to buried isolated metallic targets/debris. Responses indicative of a potential UST were not identified in the geophysical data sets collected at the site.

S&ME advanced six soil borings (B-1 through B-6) to a depth of approximately 10 ft.-bgs at the site. No petroleum odors, staining or elevated PID readings were noted within soil samples collected from the soil borings. Selected soil samples from the soil borings were analyzed onsite for TPH-GRO and TPH-DRO using UVF spectroscopy. One soil sample from each boring was also analyzed for total chromium, total lead and total arsenic by Con-Test Laboratories.

TPH-GRO was reported at one soil boring at the four to six foot depth interval. TPH-DRO was reported at four soil borings at depths ranging from zero to six ft.-bgs. However, TPH-GRO and TPH-DRO were not reported at concentrations exceeding the North Carolina TPH Action Levels.

Total chromium, lead and arsenic detections in soil were reported at levels below the PSRGs and are likely naturally occurring. The chromium detections in soil are likely naturally occurring and in the trivalent state. The reported chromium detections in soil are well below the PSRGs for trivalent chromium. If required, speciated laboratory analysis and calculations will confirm whether the total chromium is comprised of trivalent and/or hexavalent chromium.

During the soil boring advancement, groundwater was encountered at depths ranging from approximately two to six ft.-bgs. One temporary well (TW-1) was installed at soil boring B-3. Groundwater at TW-1 was measured at 5.0 ft.-bgs. However, the well purged dry and did not recover. Therefore, a groundwater sample was not collected.

S&ME recommends maintaining an awareness level for the presence of marginally impacted petroleum in soil (below TPH Action Levels) at the site for the safety of workers and the public. If petroleum stained or odorous soils are encountered during construction, these soils should be properly handled and disposed at a licensed facility.

♦ Limitations

The results of this preliminary investigation are limited to the boring locations presented herein. The results of this Preliminary Site Assessment are not all inclusive and may not represent existing conditions across the entire property. These results only reflect the current conditions at the locations sampled on the date this Preliminary Site Assessment was performed. This report has been prepared in accordance with generally accepted environmental engineering and geophysical practice for specific application to this project. The conclusions and recommendations contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other warranty, expressed or implied, is made.

The geophysical methods used for this survey have inherent limitations. Site metallic features (e.g., buildings, reinforced concrete, vehicles, etc.) and overhead transmission lines can produce a false electromagnetic response and may mask subsurface features. The depth of exploration of the GPR signal is highly site specific, and is greatly limited by signal attenuation (absorption) of the subsurface materials. Signal attenuation is dependent upon the electrical conductivity of the subsurface materials. Signal attenuation is greatest in materials with relatively high electrical conductivities such as clay soils, and lowest in relatively low conductivity materials such as unsaturated sand. For this project location, the GPR data sets appear to have a maximum depth of penetration of approximately about five feet below ground surface.

Regardless of the thoroughness of a geophysical study, there is always a possibility that actual conditions may not match the interpretations. The results should be considered accurate only to the degree implied by the methods used and the method's limitations and data coverage. Accordingly, the possibility exists that not all features at a project site will be located due to either subsurface soil conditions or the occurrence of features outside the lateral limits and below the depth of penetration of the methods used. As with most surface geophysical methods, resolution of the subsurface will also decrease with depth. As such, the size and/or contrast of features compared to the imaged subsurface media must be significant enough to produce the anticipated response. The location and/or determination (or the lack thereof) of potential buried features is based on our review of the provided information and of the geophysical survey. Under no circumstances does S&ME assume any responsibility for damages resulting from the presence of subsurface features that may exist but were not identified by our survey.

This Preliminary Site Assessment was performed solely for NCDOT regarding the above-referenced site and assessment area. This report is provided for the sole use of NCDOT. Use of this report by any other parties will be at such party's sole risk. S&ME disclaims liability for any such use or reliance by third parties. The observations presented in this report are indicative of conditions during the time of the assessment and of the specific areas referenced.

Closing

S&ME appreciates the opportunity to provide these services to you. If you have any questions or comments regarding this report, please contact us at your convenience.

Sincerely,

S&ME, Inc.

Jamie T Honeycutt
Environmental Professional
jhoneycutt@smeinc.com

DocuSigned by: Jamie Honeycutt 4C890EAEC25F488...

Michael W. Pfeifer
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Thomas P. Raymond, P.E., P.M.P.
Senior Consultant
traymond@smeinc.com

DocuSigned by: Tom Raymond D4B9FB5F636F4BB...

1/22/2019

Attachments:

Table 1: Summary of Soil Sampling Results

Figure 1: Vicinity Map
Figure 2: Site Map
Figure 3: Soil Constituent Map
Figure 4: TDEM Path Location Plan
Figure 5: TDEM Data Plot A
Figure 6: TDEM Data Plot B
Figure 7: TDEM Data Plot B-Detail
Figure 8: Geophysical Anomaly Location Plan
Figure 9: Geophysical Anomaly Location Plan-Detail
Figure 10: Example GPR Data – Lines 7, 8 and 9

Appendix I: Photographs
Appendix II: Boring Logs
Appendix III: Laboratory Analytical Reports and Chain of Custody

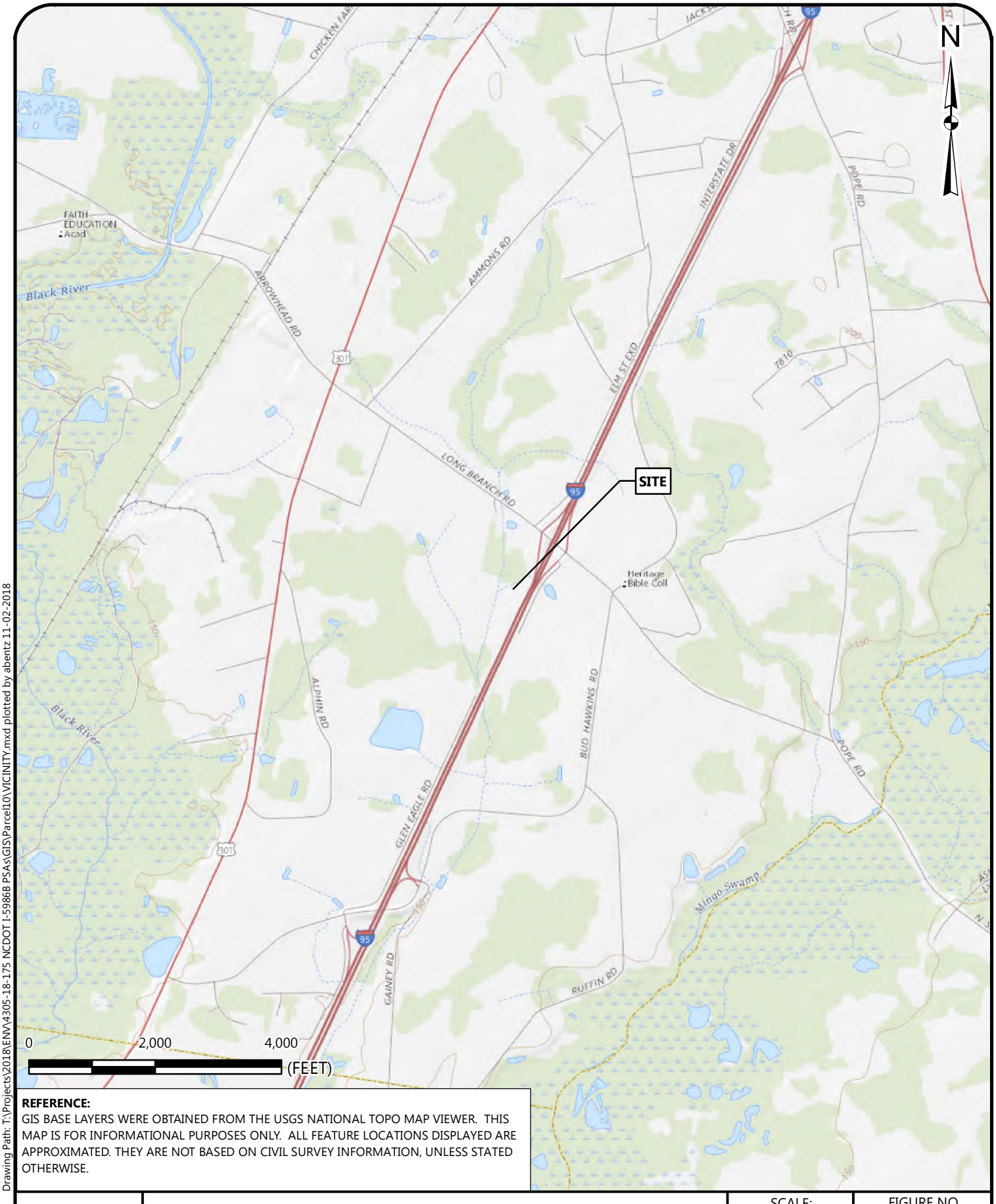
Tables

TABLE 1
SUMMARY OF SOIL SAMPLING RESULTS
NCDOT Project I-5986B
Parcel 10 - (Copart)
310 Copart Lane
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-18-175

Analytical Method→			Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) by Ultraviolet Fluorescence (UVF) Spectrometry		Total Metals by EPA Method 6020		
Sample ID	Date	Contaminant of Concern→ / Sample Depth (ft.-bgs)	TPH-GRO	TPH-DRO	Lead	Chromium*	Arsenic
Parcel 10 B-1	10/22/2018	2 to 4	<0.37	<0.37	**3.9**	**8.1**	**0.43**
Parcel 10 B-2	10/22/2018	2 to 4	<0.5	<0.5	**4.5**	**10**	**0.53**
		4 to 6	<0.41	<0.41	NA	NA	NA
Parcel 10 B-3	10/22/2018	2 to 4	<0.53	**1.9**	**11**	**7.5**	**0.67**
		4 to 6	**1.6**	**22.3**	NA	NA	NA
Parcel 10 B-4	10/22/2018	1 to 2	<0.6	**2.7**	NA	NA	NA
		2 to 4	<0.6	**4.3**	**17**	**6.1**	**0.43**
Parcel 10 B-5	10/22/2018	0 to 2	<1.1	**1.1**	**5.3**	**5.6**	**0.11J**
Parcel 10 B-6	10/22/2018	0 to 2	<0.65	**5.1**	**12**	**5.7**	**0.57**
North Carolina TPH Action Levels			**50**	**100**	**Not Applicable**		
IHSB Residential Health Based PSRG			**Not Applicable**		**400**	**23,000**	**0.68**
IHSB Industrial/Commercial Health Based PSRG			**Not Applicable**		**800**	**350,000**	**3.0**
IHSB Protection of Groundwater PSRG			**Not Applicable**		**270**	**360,000**	**5.8**

Notes:
1. UVF analysis performed by RED Lab, LLC
2. Concentrations are reported in milligrams per kilogram (mg/Kg).
3. ft.-bgs:- feet below ground surface.
4. Concentrations exceeding the laboratory's reporting limits are shown in **BOLD** fields.
5. NA: Not Analyzed
6. Total Metals analyzed by Con-Test Laboratories.
7. J: Estimated concentration detected below the laboratory method reporting limit.
8. IHSB: North Carolina Department of Environmental Quality, Inactive Hazardous Sites Branch
9. PSRG: Preliminary Soil Remediation Goals (Feb. 2018)
10. Concentrations exceeding the North Carolina TPH Action Levels or IHSB PSRGs are shown in Shaded and **BOLD** fields.
11. * : Assumes chromium in the trivalent state (chromium III):

Figures



REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM THE USGS NATIONAL TOPO MAP VIEWER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

Drawing Path: T:\Projects\2018\ENV\4305-18-175 NCDOT I-5986B PSAs\GIS\Parcel10\VICINITY.mxd plotted by abentz 11-02-2018

VICINITY MAP

NCDOT PROJECT I-5986B
PARCEL 10 (COPART)
310 COPART LANE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE: 1 " = 2,000 '
DATE: 11-2-18
PROJECT NUMBER 4305-18-175

FIGURE NO. 1

Map Source: NCDOT Project I-5986B
Image Source: NC ONEMAP, Dated 2016

LEGEND

Geoenvironmental Boring:
Underground Storage Tank (UST): UST
TW-1: Temporary Monitor Well Location

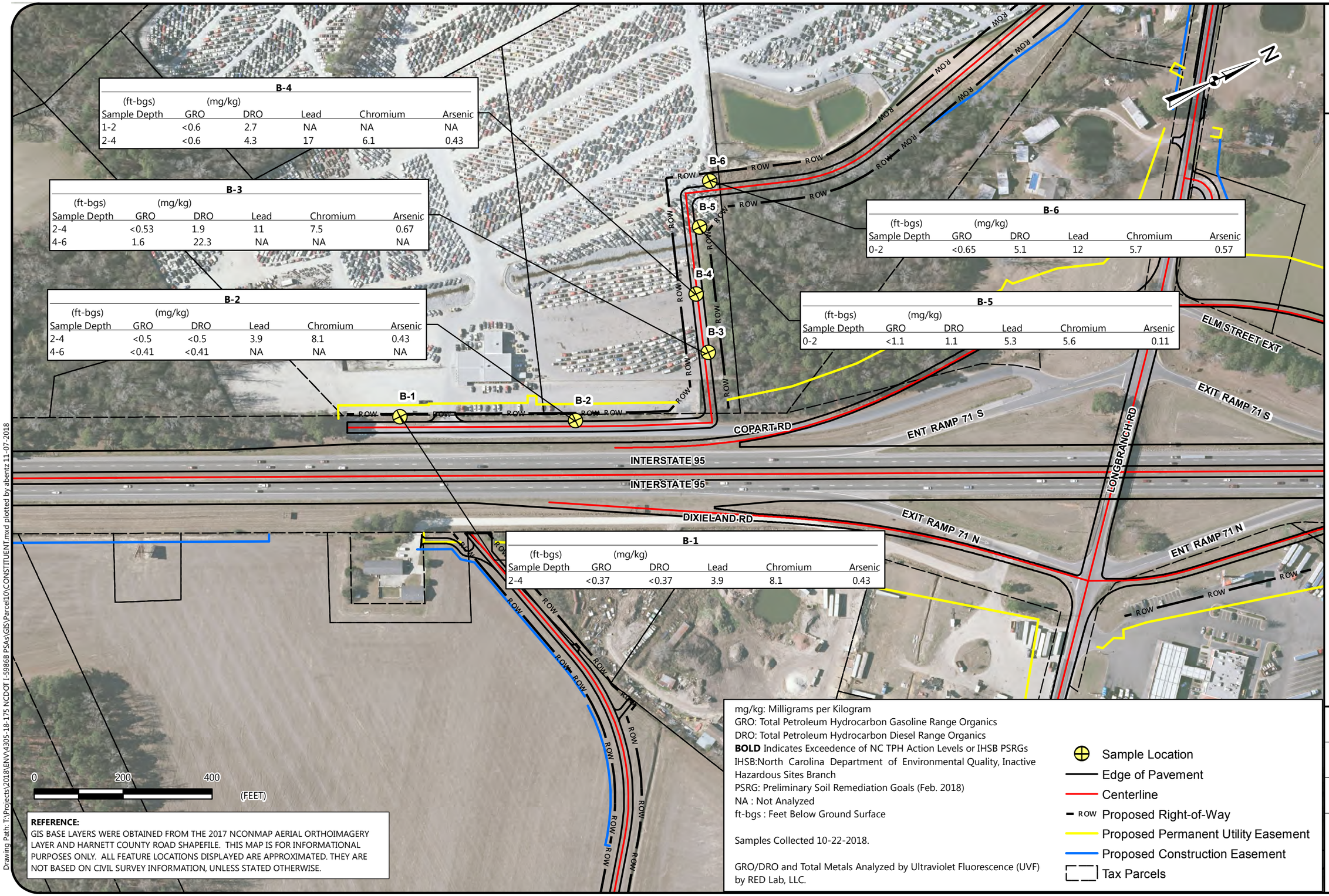
Known Soil Contamination:
Possible Soil Contamination:

0 120 240
GRAPHIC SCALE (IN FEET)

SITE MAP

NCDOT PROJECT: I-5986B
PARCEL 10 - (COPART)
310 Copart Lane, Dunn, Harnett County, North Carolina

SCALE:	1"=120'
DATE:	DEC. 2018
PROJECT NUMBER	4305-18-175
FIGURE NO.	2



B-4

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO	Lead	Chromium	Arsenic
1-2	<0.6	2.7	NA	NA	NA
2-4	<0.6	4.3	17	6.1	0.43

B-3

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO	Lead	Chromium	Arsenic
2-4	<0.53	1.9	11	7.5	0.67
4-6	1.6	22.3	NA	NA	NA

B-2

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO	Lead	Chromium	Arsenic
2-4	<0.5	<0.5	3.9	8.1	0.43
4-6	<0.41	<0.41	NA	NA	NA

B-6

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO	Lead	Chromium	Arsenic
0-2	<0.65	5.1	12	5.7	0.57

B-5

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO	Lead	Chromium	Arsenic
0-2	<1.1	1.1	5.3	5.6	0.11

B-1

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO	Lead	Chromium	Arsenic
2-4	<0.37	<0.37	3.9	8.1	0.43

REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM THE 2017 NCONMAP AERIAL ORTHOIMAGERY LAYER AND HARNETT COUNTY ROAD SHAPEFILE. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

mg/kg: Milligrams per Kilogram
GRO: Total Petroleum Hydrocarbon Gasoline Range Organics
DRO: Total Petroleum Hydrocarbon Diesel Range Organics
BOLD Indicates Exceedence of NC TPH Action Levels or IHSB PSRGs
IHSB:North Carolina Department of Environmental Quality, Inactive Hazardous Sites Branch
PSRG: Preliminary Soil Remediation Goals (Feb. 2018)
NA : Not Analyzed
ft-bgs : Feet Below Ground Surface

Samples Collected 10-22-2018.

GRO/DRO and Total Metals Analyzed by Ultraviolet Fluorescence (UVF) by RED Lab, LLC.

- Sample Location
- Edge of Pavement
- Centerline
- ROW Proposed Right-of-Way
- Proposed Permanent Utility Easement
- Proposed Construction Easement
- Tax Parcels

SOIL CONSTITUENT MAP

NCDOT PROJECT I-5986B
PARCEL 10 (COPART)
310 COPART LANE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE: 1 " = 200 '
DATE: 11-7-18
PROJECT NUMBER: 4305-18-175
FIGURE NO.: 3

Drawing Path: T:\Projects\2018\ENVV4305-18-175 NCDOT I-5986B PSAs\GIS\Parcel10\CONSTITUENT.mxd plotted by abentz 11-07-2018

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)

LEGEND

▪▪▪▪▪ Approximate TDEM Path

▭ Approximate Requested Survey Area

TDEM PATH LOCATION PLAN

NCDOT PROJECT: I-5986B
PARCEL 10 – (COPART)
310 COPART LANE, DUNN, HARNETT COUNTY, NORTH CAROLINA

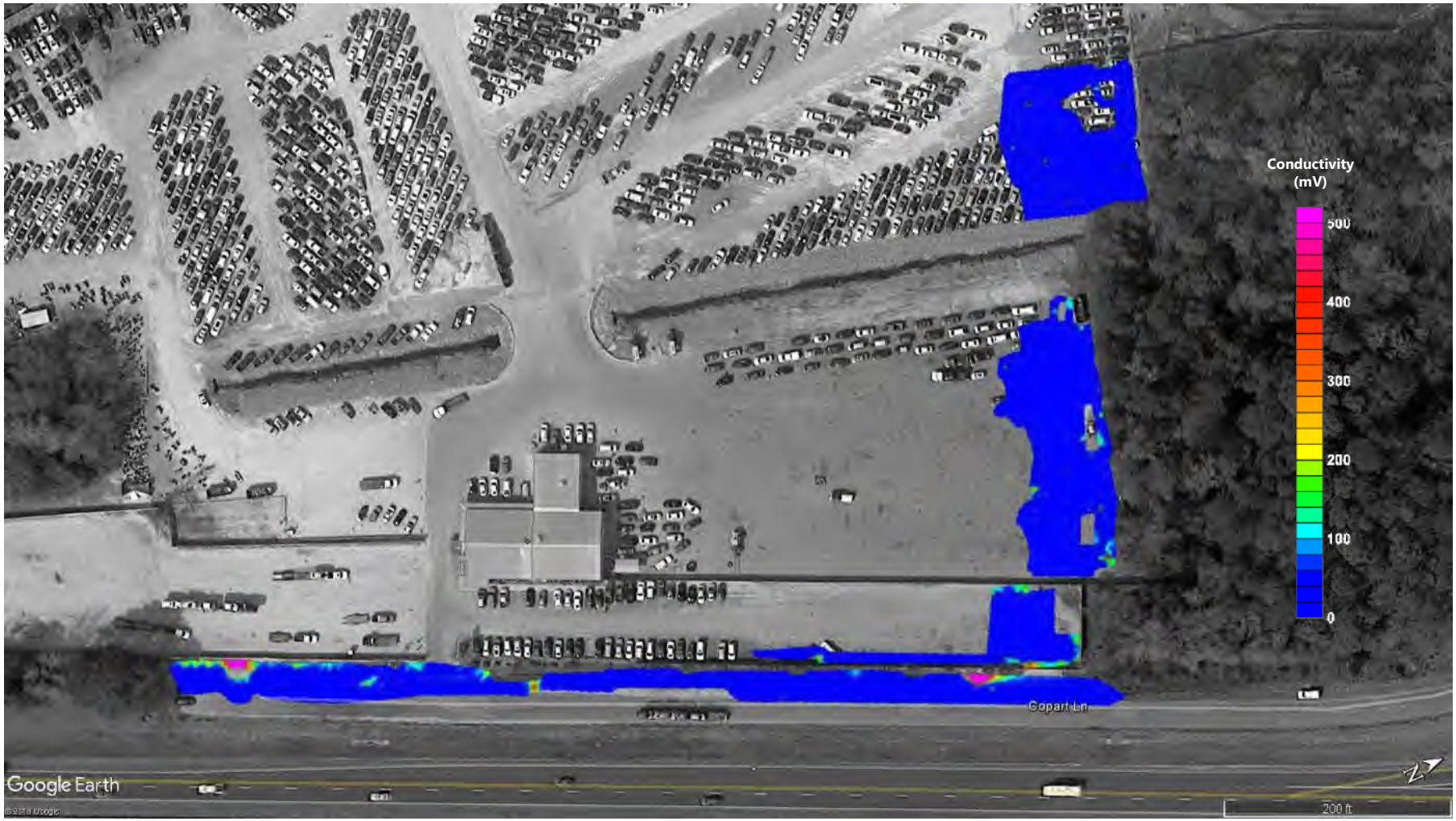
SCALE:
AS SHOWN

DATE:
11/1/2018

PROJECT NUMBER
4305-18-175

FIGURE NO.
4

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



TDEM DATA PLOT A

NCDOT PROJECT: I-5986B
PARCEL 10 – (COPART)
310 COPART LANE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
AS SHOWN

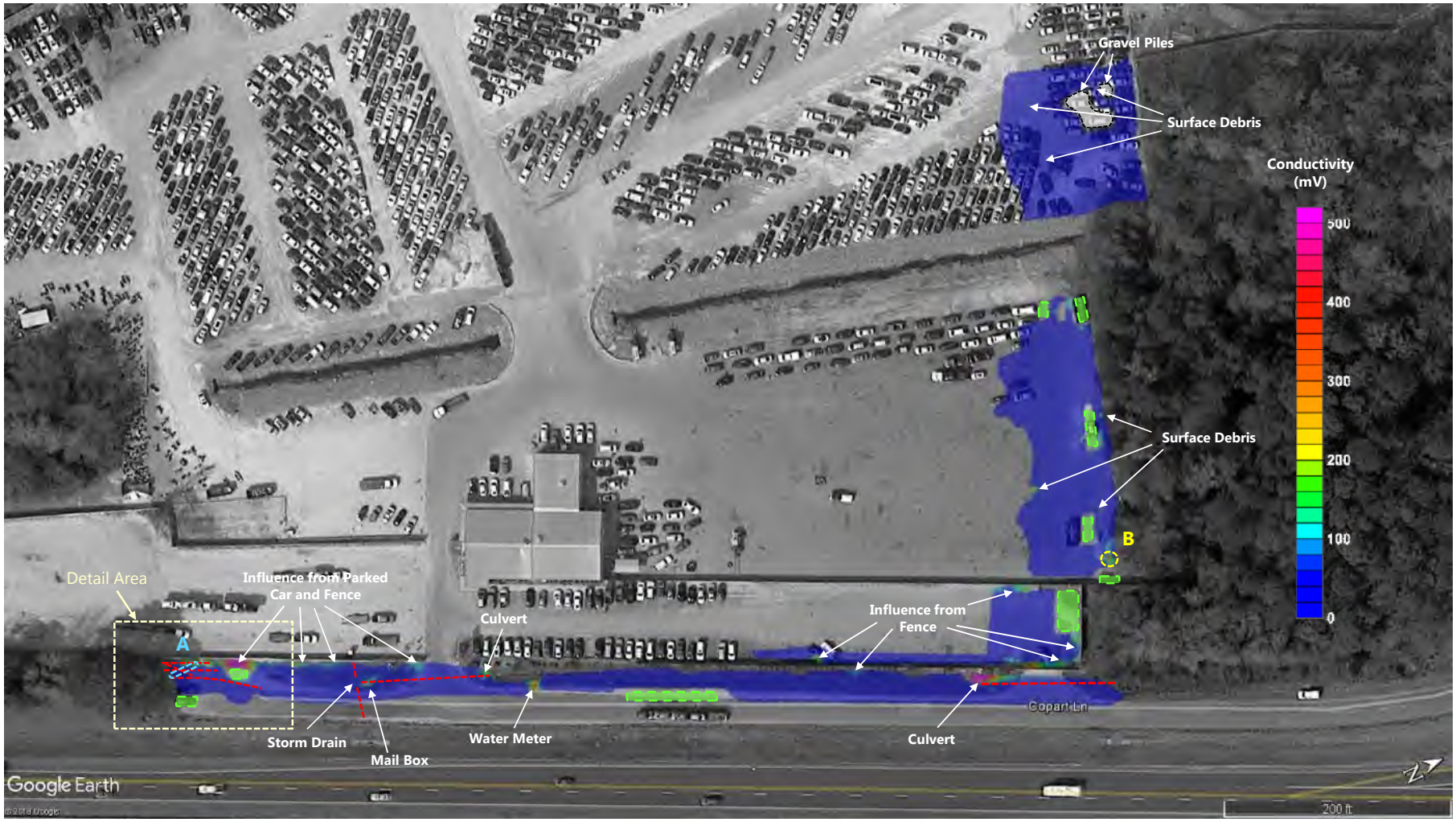
DATE:
11/1/2018

PROJECT NUMBER
4305-18-175

FIGURE NO.

5

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



LEGEND

Approximate Location of TDEM Anomaly

Approximate Location of GPR Anomaly

Approximate Location of Vehicle/Equipment

Approximate Location of Possible Utility

TDEM DATA PLOT B

NCDOT PROJECT: I-5986B
PARCEL 10 – (COPART)
310 COPART LANE, DUNN, HARNETT COUNTY, NORTH CAROLINA

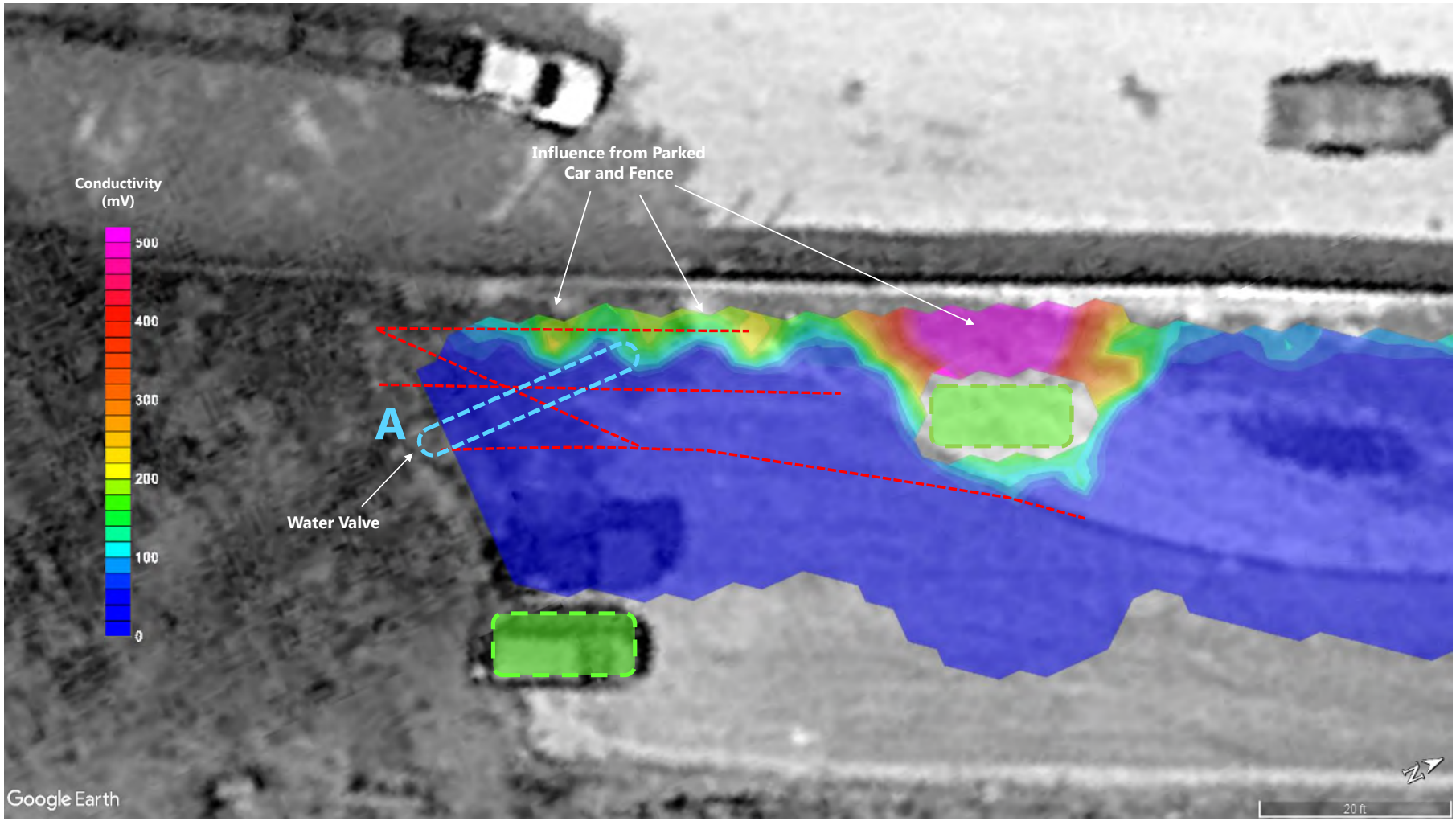
SCALE: AS SHOWN

DATE: 11/1/2018

PROJECT NUMBER 4305-18-175

FIGURE NO. **6**

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



LEGEND

- Approximate Location of TDEM Anomaly
- Approximate Location of GPR Anomaly
- Approximate Location of Vehicle/Equipment
- Approximate Location of Possible Utility

TDEM DATA PLOT B - DETAIL

NCDOT PROJECT: I-5986B
PARCEL 10 – (COPART)
310 COPART LANE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:	AS SHOWN
DATE:	11/1/2018
PROJECT NUMBER	4305-18-175
FIGURE NO.	7

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)

LEGEND

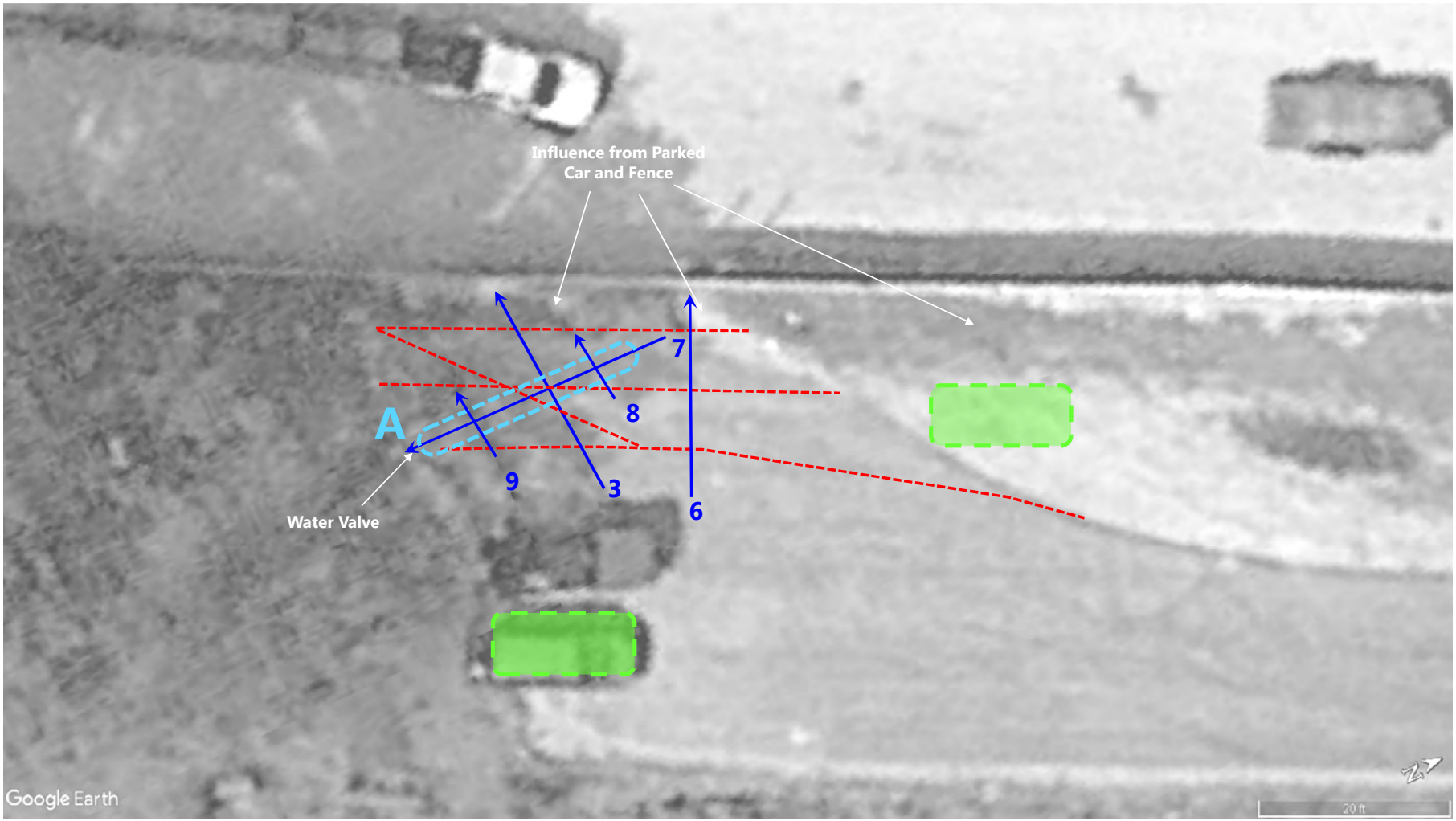
- Approximate Location of TDEM Anomaly
- Approximate Location of Possible Utility
- Approximate Location of GPR Anomaly
- Approximate Location of GPR Profile
- Approximate Location of Vehicle/Equipment

GEOPHYSICAL ANOMALY LOCATION PLAN

NCDOT PROJECT: I-5986B
PARCEL 10 – (COPART)
310 COPART LANE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE: AS SHOWN
DATE: 11/1/2018
PROJECT NUMBER: 4305-18-175
FIGURE NO.: **8**

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



LEGEND

- Approximate Location of TDEM Anomaly
- Approximate Location of Possible Utility
- Approximate Location of GPR Anomaly
- Approximate Location of GPR Profile
- Approximate Location of Vehicle/Equipment

GEOPHYSICAL ANOMALY LOCATION PLAN - DETAIL

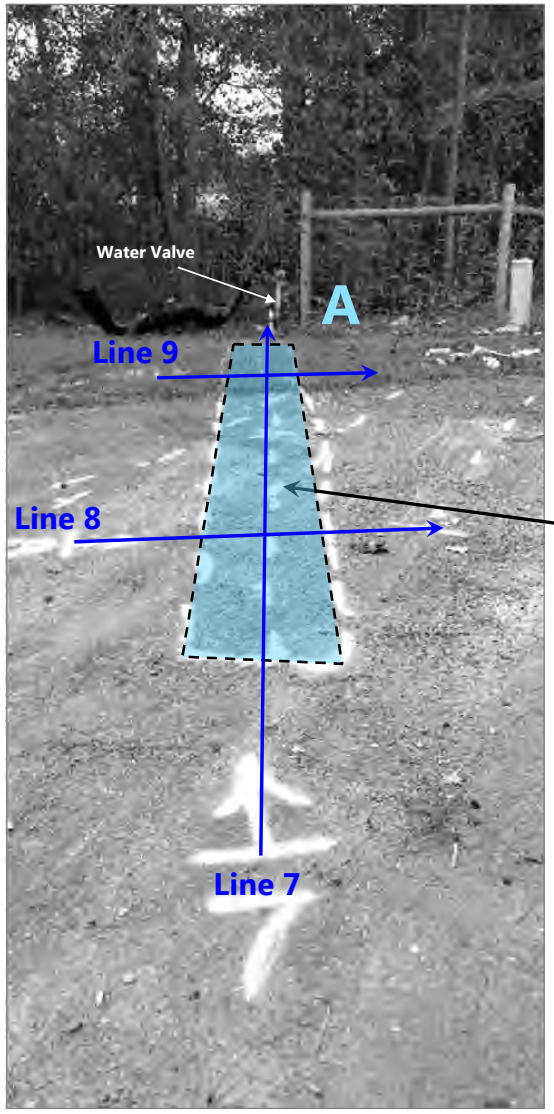
NCDOT PROJECT: I-5986B
PARCEL 10 – (COPART)
310 COPART LANE, DUNN, HARNETT COUNTY, NORTH CAROLINA

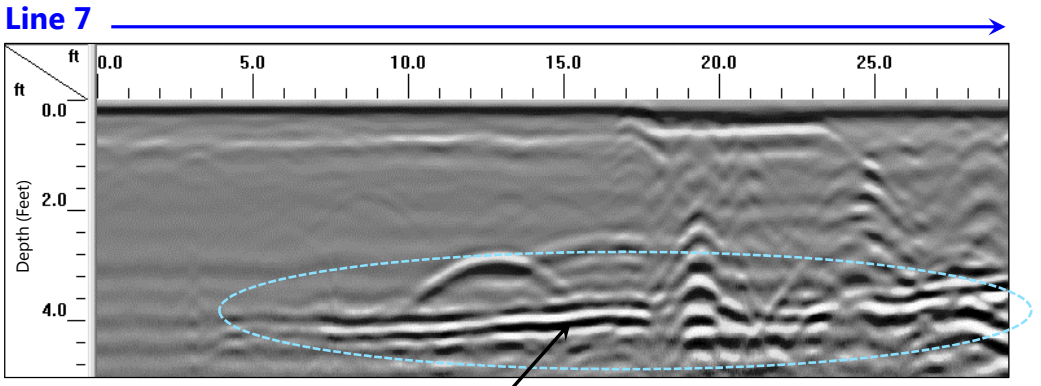
SCALE:
AS SHOWN

DATE:
11/1/2018

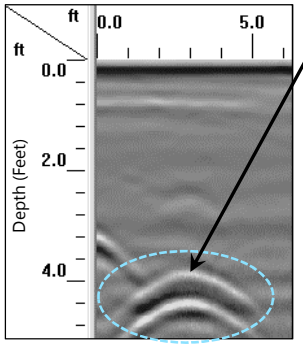
PROJECT NUMBER
4305-18-175

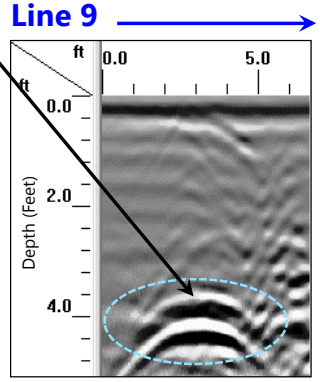
FIGURE NO.
9





Anomaly C





Note: Presented GPR profile depths are based on an assumed average dielectric and should be considered approximate

EXAMPLE GPR DATA – LINES 7, 8, AND 9

NCDOT PROJECT: I-5986B
PARCEL 10 – (COPART)
310 COPART LANE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE: AS SHOWN

DATE: 11/1/2018

PROJECT NUMBER 4305-18-175

FIGURE NO. **10**

Appendix I – Photographs

Date: 10/22/2018

Photographer: JTH

1	**Location / Orientation**	Front view of site looking south
	Remarks	None

Date: 10/22/2018

Photographer: JTH

2	**Location / Orientation**	Interior view of site looking west.
	Remarks	Note salvage vehicles

Date: 10/22/2018

Photographer: JTH

3	**Location / Orientation**	View of B-3/TW-1 looking northeast.
	Remarks	None

Appendix II – Boring Logs

PROJECT:	**NCDOT I-5986B** Parcel 10-310 Copart Lane, Dunn, NC S&ME Project No. 4305-18-175		**BORING LOG: B-1**
DATE DRILLED:	Monday, October 22, 2018	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 7730 DT	WATER LEVEL:	5
DRILLER:	S&ME, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Topsoil, Black,								
		Silty Sand, Brown, Tan,			0.0	NO				
					0.3	Yes				
5		Clayey Sand, Tan, Orange,	▼							
		Sand, Tan, Orange,								
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 10-310 Copart Lane, Dunn, NC S&ME Project No. 4305-18-175		**BORING LOG: B-2**
DATE DRILLED:	Monday, October 22, 2018	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 7730 DT	WATER LEVEL:	6
DRILLER:	S&ME, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Topsoil, Black,								
		Silty Sand, Brown, Tan,			0.0	NO				
					0.0	Yes				
5		Clayey Sand, Tan, Orange,	▼		0.0	Yes				
		Sand, Tan, Orange,								
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 10-310 Copart Lane, Dunn, NC S&ME Project No. 4305-18-175		**BORING LOG: B-3/TW-1**
DATE DRILLED:	Monday, October 22, 2018	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 7730 DT	WATER LEVEL:	5
DRILLER:	S&ME, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Asphalt, Gravel,								
		Sand, Tan,			0.1	No				
		Silty Sand, Black,			0.9	Yes				
5			▼		1.6	Yes				
		Clayey Sand, Gray,								
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 10-310 Copart Lane, Dunn, NC S&ME Project No. 4305-18-175		**BORING LOG: B-4**
DATE DRILLED:	Monday, October 22, 2018	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 7730 DT	WATER LEVEL:	4.5
DRILLER:	S&ME, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Asphalt, Gravel,								
		Silty Sand, Black,			0.4	Yes				
					2.8	Yes				
5		Sand, Gray,	▼							
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 10-310 Copart Lane, Dunn, NC S&ME Project No. 4305-18-175		**BORING LOG: B-5**
DATE DRILLED:	Monday, October 22, 2018	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 7730 DT	WATER LEVEL:	2
DRILLER:	S&ME, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Gravel,								
		Silty Sand, Black,	▼		0.2	YES				
5		Sand, Black,								
		Sand, Tan, Orange,								
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 10-310 Copart Lane, Dunn, NC S&ME Project No. 4305-18-175		**BORING LOG: B-6**
DATE DRILLED:	Monday, October 22, 2018	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 7730 DT	WATER LEVEL:	3
DRILLER:	S&ME, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Gravel,								
		Sand, Black,			0.5	YES				
		Silty Sand, Black,	▼							
5										
		Sand, Tan, Orange, Gray,								
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

Appendix III – Laboratory Analytical Reports and Chain of Custody

QED

AQROS

Hydrocarbon Analysis Results

Client: S&ME
Address: 310 COPART RD
DUNN NC 28334

Samples taken Monday, October 22, 2018
Samples extracted Monday, October 22, 2018
Samples analysed Monday, October 22, 2018

Contact: JAMIE HONEYCUTT

Operator JENN RYAN

Project: 4305-18-175

U00904

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	PARCEL 10 B - 2 (2-4')	20.2	<0.5	<0.5	<0.5	<0.5	<0.1	<0.16	<0.02	0	0	0	PHC not detected
s	PARCEL 10 B - 2 (4 - 6')	16.5	<0.41	<0.41	<0.41	<0.41	<0.08	<0.13	<0.016	0	0	0	PHC not detected
s	PARCEL 10 B - 1 (2 - 4')	14.9	<0.37	<0.37	<0.37	<0.37	<0.07	<0.12	<0.015	0	100	0	,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 95.6 %

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.

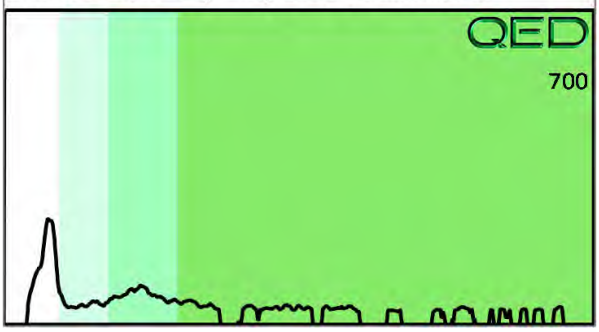
% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**

QED Hydrocarbon Fingerprints

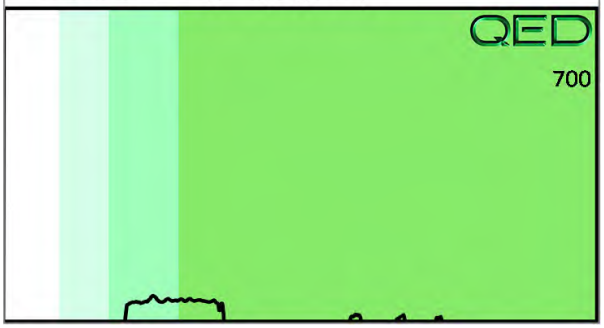
Project: 4305-18-175 ##################

PARCEL 10 B - 2 (2-4') : PHC not detected

PARCEL 10 B - 2 (4 - 6') : PHC not detected



PARCEL 10 B - 1 (2 - 4') : ,(FCM)



QED

AQROS

Hydrocarbon Analysis Results

Client: S&ME
Address: 310 COPART RD
DUNN NC 28334

Contact: JAMIE HONEYCUTT

Project: 4305-18-175

Samples taken Monday, October 22, 2018
Samples extracted Monday, October 22, 2018
Samples analysed Monday, October 22, 2018

Operator JENN RYAN

U00904

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	PARCEL 10 B - 3 (2 - 4')	21.3	<0.53	<0.53	1.9	1.9	1.3	<0.17	<0.021	0	82.4	17.6	Deg Fuel 73.6%,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 102.9 %

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.

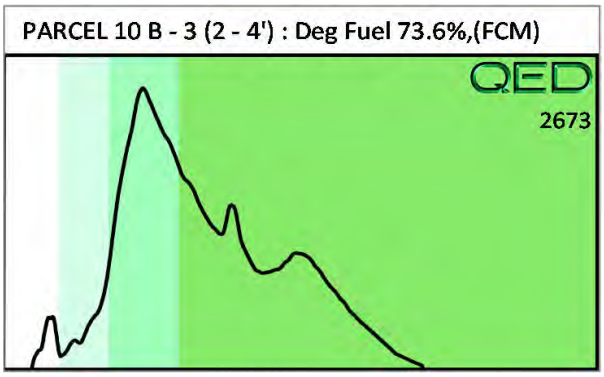
Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

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: 4305-18-175 ##################



QED

AQROS

Hydrocarbon Analysis Results

Client: S&ME
Address: 310 COPART ROAD
DUNN NC 28334

Samples taken Monday, October 22, 2018
Samples extracted Monday, October 22, 2018
Samples analysed Monday, October 22, 2018

Contact: JAMIE HONEYCUTT

Operator JENN RYAN

Project: 4305-18-175

U00904

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	PARCEL 10 B - 3 (4 - 6')	20.8	<0.52	1.6	22.3	23.9	10.7	1.2	0.029	15.2	73.2	11.6	Road Tar 95.1%,(FCM),(BO)
s	PARCEL 10 B - 4 (1 - 2')	23.9	<0.6	<0.6	2.7	2.7	1.8	<0.19	<0.024	0	84.5	15.5	Deg Fuel 76.6%,(FCM)
s	PARCEL 10 B - 4 (2 - 4')	23.9	<0.6	<0.6	4.3	4.3	2.7	<0.19	<0.024	0	72.1	27.9	V.Deg.PHC 75.6%,(FCM)
s	PARCEL 10 B - 5 (0 - 2')	45.6	<1.1	<1.1	1.1	1.1	1	<0.36	<0.046	0	71.3	28.7	V.Deg.PHC 72.5%,(FCM)
s	PARCEL 10 B - 6 (0 - 2')	26.0	<0.65	<0.65	5.1	5.1	2.5	<0.21	<0.026	0	80.2	19.8	Deg.PHC 82.9%,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 101.8 %

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

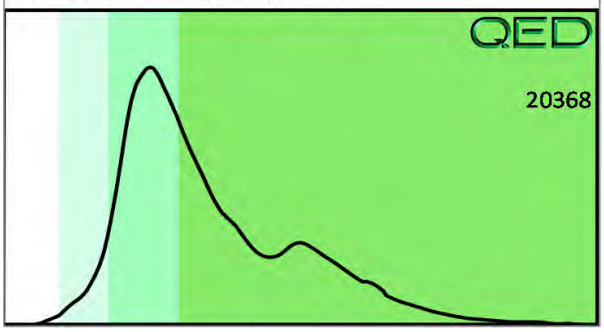
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

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

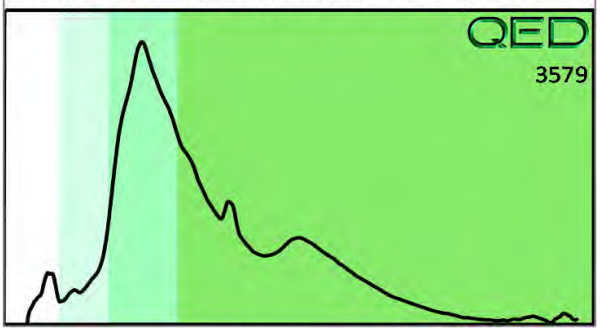
QED Hydrocarbon Fingerprints

Project: 4305-18-175 ##################

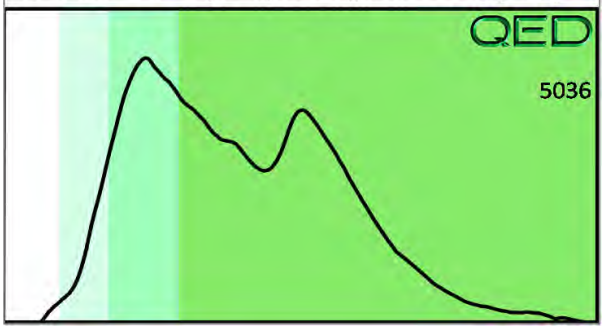
PARCEL 10 B - 3 (4 - 6') : Road Tar



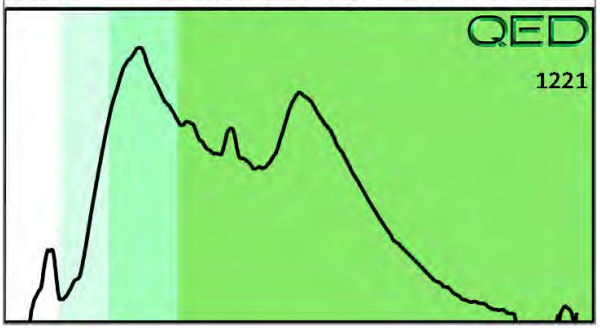
PARCEL 10 B - 4 (1 - 2') : Deg Fuel 76.6%,(FCM)



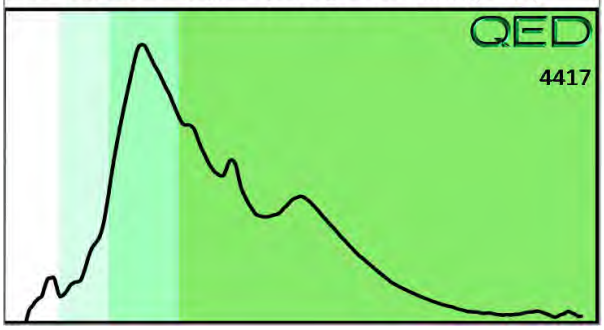
PARCEL 10 B - 4 (2 - 4') : V.Deg.PHC 75.6%,(FCM)



PARCEL 10 B - 5 (0 - 2') : V.Deg.PHC 72.5%,(FCM)



PARCEL 10 B - 6 (0 - 2') : Deg.PHC 82.9%,(FCM)



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November 1, 2018

Michael Pfeifer
S&ME, Inc - Raleigh, NC
3201 Spring Forest Rd.
Raleigh, NC 27616

Project Location: Parcel 10
Client Job Number:
Project Number: 4305-18-175
Laboratory Work Order Number: 18J1179

Enclosed are results of analyses for samples received by the laboratory on October 23, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

Table of Contents

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

S&ME, Inc - Raleigh, NC
3201 Spring Forest Rd.
Raleigh, NC 27616
ATTN: Michael Pfeifer

REPORT DATE: 11/1/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 4305-18-175

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18J1179

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Parcel 10

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
Parcel 10-B-2 2-4'	18J1179-01	Soil		SM 2540G	
				SW-846 6020B	
Parcel 10 B-1 2-4'	18J1179-02	Soil		SM 2540G	
				SW-846 6020B	
Parcel 10 B-3 2-4'	18J1179-03	Soil		SM 2540G	
				SW-846 6020B	
Parcel 10 B-4 2-4'	18J1179-04	Soil		SM 2540G	
				SW-846 6020B	
Parcel 10 B-5 0-2'	18J1179-05	Soil		SM 2540G	
				SW-846 6020B	
Parcel 10 B-6 0-2'	18J1179-06	Soil		SM 2540G	
				SW-846 6020B	

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EXECUTIVE SUMMARY

Client ID: **Parcel 10-B-2 2-4'** Lab ID: **18J1179-01**

Analyte	Results/Qual		DL	RL	Units	Method
Arsenic	0.53		0.033	0.20	mg/Kg dry	SW-846 6020B
Chromium	10		0.18	5.0	mg/Kg dry	SW-846 6020B
Lead	4.5		0.066	2.0	mg/Kg dry	SW-846 6020B
% Solids	83.2				% Wt	SM 2540G

Client ID: **Parcel 10 B-1 2-4'** Lab ID: **18J1179-02**

Analyte	Results/Qual		DL	RL	Units	Method
Arsenic	0.43		0.032	0.19	mg/Kg dry	SW-846 6020B
Chromium	8.1		0.17	4.9	mg/Kg dry	SW-846 6020B
Lead	3.9		0.064	1.9	mg/Kg dry	SW-846 6020B
% Solids	86.5				% Wt	SM 2540G

Client ID: **Parcel 10 B-3 2-4'** Lab ID: **18J1179-03**

Analyte	Results/Qual		DL	RL	Units	Method
Arsenic	0.67		0.032	0.20	mg/Kg dry	SW-846 6020B
Chromium	7.5		0.17	4.9	mg/Kg dry	SW-846 6020B
Lead	11		0.064	2.0	mg/Kg dry	SW-846 6020B
% Solids	84.9				% Wt	SM 2540G

Client ID: **Parcel 10 B-4 2-4'** Lab ID: **18J1179-04**

Analyte	Results/Qual		DL	RL	Units	Method
Arsenic	0.43		0.035	0.21	mg/Kg dry	SW-846 6020B
Chromium	6.1		0.19	5.3	mg/Kg dry	SW-846 6020B
Lead	17		0.069	2.1	mg/Kg dry	SW-846 6020B
% Solids	77.9				% Wt	SM 2540G

Client ID: **Parcel 10 B-5 0-2'** Lab ID: **18J1179-05**

Analyte	Results/Qual		DL	RL	Units	Method
Arsenic	0.11	J	0.033	0.20	mg/Kg dry	SW-846 6020B
Chromium	5.6		0.18	5.0	mg/Kg dry	SW-846 6020B
Lead	5.3		0.065	2.0	mg/Kg dry	SW-846 6020B
% Solids	82.2				% Wt	SM 2540G

Client ID: **Parcel 10 B-6 0-2'** Lab ID: **18J1179-06**

Analyte	Results/Qual		DL	RL	Units	Method
Arsenic	0.57		0.031	0.19	mg/Kg dry	SW-846 6020B
Chromium	5.7		0.17	4.7	mg/Kg dry	SW-846 6020B
Lead	12		0.061	1.9	mg/Kg dry	SW-846 6020B
% Solids	88.8				% Wt	SM 2540G

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

For method 6020, all dilutions were performed as per standard operating procedure.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Parcel 10 Sample Description: Work Order: 18J1179

Date Received: 10/23/2018

Field Sample #: Parcel 10-B-2 2-4' Sampled: 10/22/2018 11:00

Sample ID: 18J1179-01

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	0.53	0.20	0.033	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 12:55	MJH
Chromium	10	5.0	0.18	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 12:55	MJH
Lead	4.5	2.0	0.066	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 12:55	MJH

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Parcel 10 Sample Description: Work Order: 18J1179

Date Received: 10/23/2018

Field Sample #: Parcel 10-B-2 2-4' Sampled: 10/22/2018 11:00

Sample ID: 18J1179-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	83.2		% Wt	1		SM 2540G	10/29/18	10/30/18 10:42	JFC

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Parcel 10 Sample Description: Work Order: 18J1179

Date Received: 10/23/2018

Field Sample #: Parcel 10 B-1 2-4' Sampled: 10/22/2018 11:30

Sample ID: 18J1179-02

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	0.43	0.19	0.032	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 11:52	MJH
Chromium	8.1	4.9	0.17	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 11:52	MJH
Lead	3.9	1.9	0.064	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 11:52	MJH

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Project Location: Parcel 10 | Sample Description: | Work Order: 18J1179

Date Received: 10/23/2018

Field Sample #: Parcel 10 B-1 2-4' | Sampled: 10/22/2018 11:30

Sample ID: 18J1179-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	86.5		% Wt	1		SM 2540G	10/29/18	10/30/18 10:42	JFC

con-test® ANALYTICAL LABORATORY
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Project Location: Parcel 10 | Sample Description: | Work Order: 18J1179

Date Received: 10/23/2018

Field Sample #: Parcel 10 B-3 2-4' | Sampled: 10/22/2018 13:30

Sample ID: 18J1179-03

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	0.67	0.20	0.032	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 12:58	MJH
Chromium	7.5	4.9	0.17	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 12:58	MJH
Lead	11	2.0	0.064	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 12:58	MJH

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Project Location: Parcel 10 Sample Description: Work Order: 18J1179

Date Received: 10/23/2018

Field Sample #: Parcel 10 B-3 2-4' Sampled: 10/22/2018 13:30

Sample ID: 18J1179-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	84.9		% Wt	1		SM 2540G	10/29/18	10/30/18 10:42	JFC

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Project Location: Parcel 10 | Sample Description: | Work Order: 18J1179

Date Received: 10/23/2018

Field Sample #: Parcel 10 B-4 2-4' | Sampled: 10/22/2018 14:00

Sample ID: 18J1179-04

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	0.43	0.21	0.035	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 13:02	MJH
Chromium	6.1	5.3	0.19	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 13:02	MJH
Lead	17	2.1	0.069	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 13:02	MJH

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Project Location: Parcel 10 | Sample Description: | Work Order: 18J1179

Date Received: 10/23/2018

Field Sample #: Parcel 10 B-4 2-4' | Sampled: 10/22/2018 14:00

Sample ID: 18J1179-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	77.9		% Wt	1		SM 2540G	10/29/18	10/30/18 10:42	JFC

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Project Location: Parcel 10 Sample Description: Work Order: 18J1179

Date Received: 10/23/2018

Field Sample #: Parcel 10 B-5 0-2' Sampled: 10/22/2018 15:00

Sample ID: 18J1179-05

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	0.11	0.20	0.033	mg/Kg dry	5	J	SW-846 6020B	10/30/18	10/31/18 13:05	MJH
Chromium	5.6	5.0	0.18	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 13:05	MJH
Lead	5.3	2.0	0.065	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 13:05	MJH

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Parcel 10 | Sample Description: | Work Order: 18J1179

Date Received: 10/23/2018

Field Sample #: Parcel 10 B-5 0-2' | Sampled: 10/22/2018 15:00

Sample ID: 18J1179-05

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	82.2		% Wt	1		SM 2540G	10/29/18	10/30/18 10:42	JFC

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Project Location: Parcel 10 | Sample Description: | Work Order: 18J1179

Date Received: 10/23/2018

Field Sample #: Parcel 10 B-6 0-2' | Sampled: 10/22/2018 15:15

Sample ID: 18J1179-06

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	0.57	0.19	0.031	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 13:09	MJH
Chromium	5.7	4.7	0.17	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 13:09	MJH
Lead	12	1.9	0.061	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 13:09	MJH

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Project Location: Parcel 10 | Sample Description: | Work Order: 18J1179

Date Received: 10/23/2018

Field Sample #: Parcel 10 B-6 0-2' | Sampled: 10/22/2018 15:15

Sample ID: 18J1179-06

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	88.8		% Wt	1		SM 2540G	10/29/18	10/30/18 10:42	JFC

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Sample Extraction Data

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
18J1179-01 [Parcel 10-B-2 2-4']	B215886	10/29/18
18J1179-02 [Parcel 10 B-1 2-4']	B215886	10/29/18
18J1179-03 [Parcel 10 B-3 2-4']	B215886	10/29/18
18J1179-04 [Parcel 10 B-4 2-4']	B215886	10/29/18
18J1179-05 [Parcel 10 B-5 0-2']	B215886	10/29/18
18J1179-06 [Parcel 10 B-6 0-2']	B215886	10/29/18

Prep Method: SW-846 3050B-SW-846 6020B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J1179-01 [Parcel 10-B-2 2-4']	B216002	1.49	50.0	10/30/18
18J1179-02 [Parcel 10 B-1 2-4']	B216002	1.49	50.0	10/30/18
18J1179-03 [Parcel 10 B-3 2-4']	B216002	1.51	50.0	10/30/18
18J1179-04 [Parcel 10 B-4 2-4']	B216002	1.52	50.0	10/30/18
18J1179-05 [Parcel 10 B-5 0-2']	B216002	1.53	50.0	10/30/18
18J1179-06 [Parcel 10 B-6 0-2']	B216002	1.51	50.0	10/30/18

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216002 - SW-846 3050B										
Blank (B216002-BLK1)				Prepared: 10/30/18 Analyzed: 10/31/18						
Arsenic	ND	0.17	mg/Kg wet							
Chromium	ND	4.2	mg/Kg wet							
Lead	ND	1.7	mg/Kg wet							
LCS (B216002-BS1)				Prepared: 10/30/18 Analyzed: 10/31/18						
Arsenic	166	2.0	mg/Kg wet	161		103	83.2-116.8			
Chromium	146	50	mg/Kg wet	136		107	82.4-117.6			
Lead	110	20	mg/Kg wet	111		99.1	83-117.1			
LCS Dup (B216002-BSD1)				Prepared: 10/30/18 Analyzed: 10/31/18						
Arsenic	177	2.0	mg/Kg wet	161		110	83.2-116.8	6.55	30	
Chromium	152	49	mg/Kg wet	136		111	82.4-117.6	3.76	30	
Lead	119	20	mg/Kg wet	111		108	83-117.1	8.23	30	
Duplicate (B216002-DUP1)	**Source: 18J1179-02**			Prepared: 10/30/18 Analyzed: 10/31/18						
Arsenic	0.396	0.19	mg/Kg dry		0.426			7.28	35	
Chromium	7.88	4.8	mg/Kg dry		8.11			2.84	35	
Lead	3.87	1.9	mg/Kg dry		3.87			0.0646	35	
Matrix Spike (B216002-MS1)	**Source: 18J1179-02**			Prepared: 10/30/18 Analyzed: 10/31/18						
Arsenic	15.1	0.77	mg/Kg dry	19.3	0.426	75.9	75-125			
Chromium	31.7	19	mg/Kg dry	19.3	8.11	122	75-125			
Lead	25.9	7.7	mg/Kg dry	19.3	3.87	114	75-125			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 6020B in Soil	
Arsenic	NY,VA,NH,NC,ME
Chromium	NY,NC,ME
Lead	NY,NC,ME

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2019
RI	Rhode Island Department of Health	LAO00112	12/30/2018
NC	North Carolina Div. of Water Quality	652	12/31/2018
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2018
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

con-test ANALYTICAL LABORATORY
Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

18J1179

http://www.contestlabs.com Doc # 379 Rev 1_03242017

CHAIN OF CUSTODY RECORD (North Carolina)

39 Spruce Street
East Longmeadow, MA 01028

Company Name: S&ME
Address: 3201 Spring Forest Rd Raleigh NC
Phone: 919 872-2660
Project Name: NCDOT
Project Location: Parcel 10
Project Number: 4305-18-175
Project Manager: Mike Pfeifer
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: Jamie Honeycutt

Requested Turnaround Time
7-Day ☐ 10-Day ☐
Due Date:

Rush Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☑ EXCEL ☑
Other:
CLP Like Data Pkg Required: ☐
Email To: jhoneycutt@smeinc.com
Fax To #:

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code	Arsenic, Lead +	Chromium											# of Containers	Preservation Code	Container Code
1	Parcel 10-B-2 2-4'	10-22	1100		✓	S	G	✓	✓													
2	Parcel 10 B-1 2-4'		1130		✓			✓	✓													
3	Parcel 10 B-3 2-4'		1330		✓			✓	✓													
4	Parcel 10 B-4 2-4'		1400		✓			✓	✓													
5	Parcel 10 B-5 0-2'		1500		✓			✓	✓													
6	Parcel 10 B-6 0-2'		1515		✓			✓	✓													
	[redacted]		[redacted]		✓			✓														

ANALYSIS REQUESTED

Dissolved Metals Samples
☐ Field Filtered
☐ Lab to Filter

Orthophosphate Samples
☐ Field Filtered
☐ Lab to Filter

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

[3] **Container Codes:**
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Comments:

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

	Date/Time:
Relinquished by: (signature) Jamie Honeycutt	10-22-18/1900
Received by: (signature) Brent Faddy	10/23/18 1335
Relinquished by: (signature) Brent Faddy	10/23/18 1630
Received by: (signature)	10/24/18 924
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

North Carolina Detection Limit Requirements
☐ 2L
☐ GWPC
☐ SWSL
☐ IHSB
☐ MSCC
Other:

Program Information
☐ DSCA ☐ UST/Trust Fund
☐ SWS Landfill ☐ REC
☐ IHSB Orphaned Landfill
☐ State Lead
☐ Other:

NELAC and AIHA-LAP, LLC Accredited

Project Entity
☐ Government ☐ Municipality
☐ Federal ☐ Brownfield
☐ City ☐ School

Other
☐ Chromatogram
☐ *AIHA-LAP, LLC*

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Table of Contents

FedEx

773547745711

Delivered
Wednesday 10/24/2018 at 9:24 am

DELIVERED

Signed for by: P.BLAKE

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM
Raleigh, NC US

TO
EAST LONGMEADOW, MA US

Shipment Facts

TRACKING NUMBER
773547745711

SERVICE
FedEx Priority Overnight

WEIGHT
45.3 lbs / 20.55 kgs

DIMENSIONS
24x14x13 in.

DELIVERED TO
Shipping/Receiving

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
45.3 lbs / 20.55 kgs

TERMS
Third Party

SHIPPER REFERENCE
80

PACKAGING
Your Packaging

SPECIAL HANDLING SECTION
Deliver Weekday, Additional Handling Surcharge

STANDARD TRANSIT
10/24/2018 by 10:30 am

SHIP DATE
Tue 10/23/2018

ACTUAL DELIVERY
Wed 10/24/2018 9:24 am

Travel History

Local Scan Time

Wednesday , 10/24/2018

9:24 am	EAST LONGMEADOW, MA	Delivered
8:03 am	WINDSOR LOCKS, CT	On FedEx vehicle for delivery
7:52 am	WINDSOR LOCKS, CT	At local FedEx facility
6:58 am	EAST GRANBY, CT	At destination sort facility
5:13 am	INDIANAPOLIS, IN	Departed FedEx location
12:19 am	INDIANAPOLIS, IN	Arrived at FedEx location

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client S+ME

Received By RAP Date 10/24/18 Time 924

How were the samples received? In Cooler T No Cooler ____ On Ice T No Ice ____ Direct from Sampling ____ Ambient ____ Melted Ice ____

Were samples within Temperature? 2-6°C T By Gun # 537 Actual Temp - 7.2 By Blank # ____ Actual Temp - ____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? f

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Project T Analysis T ID's T Sampler Name T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? f Who was notified? ____

Are there Rushes? f Who was notified? ____

Are there Short Holds? f Who was notified? ____

Is there enough Volume? PMP T T

Is there Headspace where applicable? f MS/MSD? f

Proper Media/Containers Used? T Is splitting samples required? f

Were trip blanks received? f On COC? f

Do all samples have the proper pH? NA Acid ____ Base ____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	6
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

December 14, 2018

North Carolina Department of Transportation
Geotechnical Unit
Mail Service Center 1592
Raleigh, North Carolina 27699-1592

Attention: Mr. Craig Haden email: cehaden@ncdot.gov

Reference: **Preliminary Site Assessment Report**
NCDOT Project I-5986B, WBS Element 47532.1.3
Parcel 11-Copart
Copart Lane
Dunn, Harnett County, North Carolina
S&ME Project 4305-18-175

Dear Mr. Haden:

S&ME, Inc. (S&ME) is submitting this Preliminary Site Assessment (PSA) Report to the North Carolina Department of Transportation (NCDOT). This report presents the background/project information, field activities, findings, conclusions, and recommendations. These services were performed in general accordance with S&ME Proposal No. 43-1800583 REV-02 dated August 16, 2018, and Contract Number 7000018853 dated April 12, 2018 between NCDOT and S&ME, Inc., authorized by NCDOT in its August 20, 2018 Notice to Proceed Letter.

♦ Background/Project Information

Based on NCDOT's July 30, 2018, Request for Technical and Cost Proposal, the PSA was conducted within the NCDOT right-of-way (ROW) and/or easement as indicated on the preliminary plan sheets provided by NCDOT at the following property:

NCDOT Parcel No.	Property Owner	Site Address
11	Copart of Connecticut	(Copart) Copart Lane, Dunn, NC

The PSA included a geophysical survey, subsequent limited soil sampling (three soil borings up to 10 feet below ground surface (ft.-bgs.) and attempted groundwater sampling (one groundwater sample), within accessible areas of the proposed ROW/easement in preparation for construction activities. **Figure 1** shows the vicinity and site location, and **Figure 2** shows the site and boring locations. Soil sampling results are shown on **Figure 3.**

♦ Field Services

Prior to field activities, a site specific Health and Safety Plan was prepared as required by the Occupational Health and Safety Act (OSHA). Underground utilities were located and marked by the North Carolina One-Call Service. A private utility locator (East Coast Underground, LLC.) was also used to locate and mark underground utilities.

♦ Geophysical Survey

On October 16, 2018, S&ME personnel performed a geophysical survey within accessible areas of the proposed ROW/easement at Parcel 11. S&ME used a combination of the Time Domain Electromagnetic (TDEM) and Ground Penetrating Radar (GPR) methods to explore for buried subsurface features at the site such as underground storage tanks (USTs) and other possible buried obstructions. Brief descriptions of the proposed complementary geophysical techniques are presented in the following paragraphs.

Time Domain Electromagnetics (TDEM)

TDEM measures the electrical conductivity of subsurface materials and discriminates between moderately conductive earth materials and very conductive metallic targets within the shallow subsurface. The conductivity is determined by transmitting a time-varying magnetic pulse into the subsurface and measuring the amplitude and phase shift of the secondary magnetic field. The secondary magnetic field is created when the conductive materials become an inductor as the primary magnetic field is passed through them. TDEM data are acquired continuously at a walking pace typically along a series of parallel or perpendicular lines. The system generates audible and visual indications when metallic targets are encountered. These measurements can also be supported with a global positioning system (GPS) which is output directly into the TDEM data file.

We used a Geonics Limited EM-61 MK2 TDEM system in general accordance with ASTM D6820-02 (2007) "*Standard Guide for Use of the Time Domain Electromagnetic Method for Subsurface Investigation.*" Data was collected along lines spaced at approximately five feet using a Juniper® Systems Geode™ sub-meter GPS as positioning support. The presence of vehicles, metal equipment, thickly wooded areas, ditches, and other surficial obstructions within the requested survey area however prevented TDEM data collection in several locations. The approximate TDEM data collection paths are presented in **Figure 4**. Golden Software's Surfer® program was used to grid and plot the data (**Figures 5 and 6**). The TDEM data has been presented as Plots A and B in order to provide both opaque and transparent views, respectively.

Ground Penetrating Radar (GPR)

GPR transmits electromagnetic waves into the subsurface from an antenna at a specific frequency and measures the time for wave reflections to be received by interfaces between materials with differing material properties (e.g. soil/metal, etc.). The intensity of the reflected GPR wave is a function of the contrast in the material properties (i.e. dielectric permittivity) at the interface, the conductivity of the material that the wave is traveling through, and the frequency of the signal.

We used a Geophysical Survey Systems, Inc. (GSSI) SIR® 3000 GPR system equipped with a 400 MHz antenna in general accordance with ASTM D6432-11 "*Standard Guide for Using the Surface Ground Penetrating Radar Method for Subsurface Investigation*" to further characterize anomalies/features identified during the TDEM survey.

A total of six (6) GPR profiles (Lines 1 through 6) were collected for documentation (**Figure 7**). The data was post-processed using the GSSI Radan® 7 GPR software program for additional analysis.

Geophysical Findings

Responses indicative of a potential UST were not identified in the geophysical data sets collected at the site. However, one anomalous feature (Anomaly A) was identified in both the TDEM and GPR data sets (**Figures 5 through 7**). Anomaly A is characterized by relatively high TDEM values (greater than about 200 mV) and an isolated high amplitude GPR response located within the upper one foot. As such, Anomaly A is likely related to a small buried isolated metallic target. The identified anomaly was also marked in the field using white spray paint. Example GPR profiles are presented in **Figure 8.**

♦ Soil Sampling

On October 22, 2018, S&ME's drill crew utilized a track mounted Geoprobe® rig to advance three soil borings (B-1 through B-3) and to collect soil samples within accessible areas of the proposed ROW/easement at Parcel 11. Soil boring B-1 was located on top of a soil berm outside the automotive salvage yard, east of two existing onsite stormwater ponds. Soil borings B-2 and B-3 were located within the northeastern portion of the automotive salvage yard. An attempt was made to advance an additional soil boring (B-4) located east of the stormwater ponds. However, due to existing fencing, thick wooded area and a steep slope, S&ME was unable to access the area of soil boring B-4. The approximate location of the soil borings are shown in **Figure 2**. A photographic log is included in **Appendix I.** S&ME's drill crew advanced the Geoprobe® borings to a depth of approximately 10 ft.-bgs. During the advancement of the soil borings, groundwater was encountered at soil boring B-3 at a depth of 6.5 ft.-bgs. Groundwater was not encountered within ten feet at soil borings B-1 or B-2. Soil samples were continuously collected in four-foot long disposable acetate-plastic sleeves that line the hollow stainless-steel sample probes. Soil recovered from the sleeves was classified on-site by S&ME personnel and screened with a Photoionization Detector (PID) at approximately two foot depth intervals to measure relative headspace concentrations of volatile organic compounds (VOCs).

VOC headspace readings were obtained from an aliquot of each soil sample that was placed in a re-sealable bag. Another portion of the sample was placed in a separate re-sealable bag and stored in an insulated container with ice for possible laboratory analyses. After waiting approximately 15 minutes to allow the sample to reach ambient temperature and headspace equilibrium, the PID probe was inserted into the bag to obtain a headspace reading. A summary of the PID readings and logs of the soil borings are included in **Appendix II.**

No petroleum odors, staining or elevated PID readings were noted within the collected soil samples. Therefore, soil samples from varying depth intervals were selected from each boring and provided to RED Lab, LLC (Red Lab) for on-site analysis. A total of five soil samples were analyzed by RED Lab for Total Petroleum Hydrocarbons (TPH)-Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) using ultra-violet fluorescence (UVF) spectroscopy with product (fuel) identification. Due to the site's use as an automotive salvage yard, one soil sample was also selected from each boring, placed in an insulated cooler with ice for transport to Con-Test Analytical for analysis of total lead, arsenic and chromium by EPA Method 6020.

Soil Analytical Results

TPH-GRO and TPH-DRO were not reported at concentrations exceeding the North Carolina TPH Action Levels. TPH-DRO was reported at borings B-3 (two to four foot depth interval) at a concentration of 0.24 milligrams per kilograms (mg/kg), which is below its North Carolina TPH Action Level of 100 mg/kg. TPH-GRO and TPH-DRO were not reported at concentrations exceeding the laboratory method reporting limits for the remaining soil samples.

Total chromium was reported in each of the soil samples at concentrations ranging from 7.2 mg/kg to 21 mg/kg.

For chromium, there are screening levels for three different valent states of chromium. Total chromium, chromium III, and chromium VI. North Carolina conservatively considers laboratory results for total chromium, which is a combination of chromium III (most common isotopic state) and chromium VI, only as chromium VI. The NCDEQ, Inactive Hazardous Sites Branch (IHSB) has established Preliminary Soil Remediation Goals (PSRG) of Residential Health Based (0.31 milligrams per kilograms (mg/kg)), Industrial/Commercial Health Based (6.5 mg/kg) and Protection of Groundwater (3.8 mg/kg) for total chromium and chromium VI. Chromium III has a Residential Health Based PSRG of 23,000 mg/kg, an Industrial/Commercial Health Based PSRG of 350,000 mg/kg and Protection of Groundwater PSRG of 360,000 mg/kg. Chromium concentrations in the three soil samples are comparable, suggesting that chromium is naturally occurring and not indicative of a release of chromium. S&ME assumes that total chromium as reported by the laboratory is in the trivalent state (chromium III). Therefore, the total chromium results are considered to be well below the PSRGs. If required, speciated laboratory analysis and calculations will confirm whether the total chromium is comprised of trivalent and/or hexavalent chromium.

Total lead was reported in each of the soil samples at concentrations below the PSRGs and at comparable concentrations suggesting that they are naturally occurring and not indicative of a release. Total lead was reported at concentrations ranging from 3.2 mg/kg to 7.7 mg/kg.

Total arsenic was reported at boring B-2 (zero to two foot depth interval) at a concentration of 0.95 mg/kg, which marginally exceeds its Residential PSRG of 0.68 mg/kg but not its Industrial/Commercial or Protection of Groundwater PSRGs. Total arsenic was also reported in the soil samples from borings B-1 and B-3 at concentrations of 0.19 mg/kg and 0.4 mg/kg, respectively, which are below the PSRGs. The arsenic concentrations are comparable and most likely naturally occurring and not indicative of a release.

A summary of the soil analytical results is presented in **Table 1** and shown on **Figure 3.** A copy of the laboratory analytical report provided by RED Lab is presented in **Appendix III.**

♦ Groundwater Sampling

During the advancement of the soil borings, groundwater was encountered at boring B-3 at a depth of approximately 6.5 ft.-bgs. Groundwater was not encountered at borings B-1 or B-2 within 10 ft.bgs. Therefore, the Geoprobe® was used to advance boring B-3 into the groundwater table for the collection of a groundwater sample. A temporary monitor well (TW-1) was installed at soil boring B-3 using a five foot section of one-inch diameter, Schedule 40 PVC well riser attached to a ten foot section of 0.01-inch slotted screen. Due to the sandy soil condition, the temporary well was unable to be installed deeper than 10 ft.-bgs. Groundwater within the

temporary monitor well at soil boring B-3 was measured at 6.5 ft.-bgs. The temporary well was purged until dry and did not recover. Therefore, a groundwater sample was not obtained.

Upon completion of the soil and attempted groundwater sampling, the well materials were removed and the soil borings backfilled with bentonite pellets and soil cuttings. Investigative derived wastes (IDW), such as soil cuttings generated during the soil boring advancement and decontamination water, were spread on the ground in accordance with the procedures specified by North Carolina Department of Environmental Quality (NCDEQ). Used gloves and tubing were bagged and disposed off-site.

♦ Conclusion and Recommendations

The geophysical survey identified one anomalous feature (Anomaly A). Anomaly A is likely related to a small buried isolated metallic target Responses indicative of a potential UST were not identified in the geophysical data sets collected at the site.

S&ME advanced three soil borings (B-1 through B-3) to a depth of approximately 10 ft.-bgs at the site. An attempt was made to advance an additional soil boring (B-4). However, due to existing fencing, thick wooded area and a steep slope, S&ME was unable to access the area of soil boring B-4. No petroleum odors, staining or elevated PID readings were noted within soil samples collected from the soil borings. Selected soil samples from the soil borings were analyzed onsite for TPH-GRO and TPH-DRO using UVF spectroscopy. One soil sample from each boring was also analyzed for total chromium, total lead and total arsenic by Con-Test Laboratories.

TPH-DRO was reported at one soil boring at a depth of approximately two to four ft.-bgs at a concentration below its North Carolina TPH Action Level.

The chromium detections in soil are likely naturally occurring and in the trivalent state. The reported chromium detections in soil are well below the PSRGs for trivalent chromium. If required, speciated laboratory analysis and calculations will confirm whether the total chromium is comprised of trivalent and/or hexavalent chromium. Total lead detections in the soil were reported at levels below the PSRGs and are likely naturally occurring. Total arsenic was detected in one soil sample at a concentration marginally above the Residential PSRG. However, the total arsenic detections in soil are likely naturally occurring.

During the soil boring advancement, groundwater was encountered at one soil boring (B-3) at a depth of approximately 6.5 ft.-bgs. Groundwater was not encountered at borings B-1 or B-2. One temporary well (TW-1) was installed at soil boring B-3. However, the well purged dry and did not recover. Therefore, a groundwater sample was not collected.

S&ME recommends maintaining an awareness level for the presence of marginally impacted petroleum in soil (below TPH Action Levels) at the site for the safety of workers and the public. If petroleum stained or odorous soils are encountered during construction, these soils should be properly handled and disposed at a licensed facility.

♦ Limitations

The results of this preliminary investigation are limited to the boring locations presented herein. The results of this Preliminary Site Assessment are not all inclusive and may not represent existing conditions across the entire

property. These results only reflect the current conditions at the locations sampled on the date this Preliminary Site Assessment was performed. This report has been prepared in accordance with generally accepted environmental engineering and geophysical practice for specific application to this project. The conclusions and recommendations contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other warranty, expressed or implied, is made.

The geophysical methods used for this survey have inherent limitations. Site metallic features (e.g., buildings, reinforced concrete, vehicles, etc.) and overhead transmission lines can produce a false electromagnetic response and may mask subsurface features. The depth of exploration of the GPR signal is highly site specific, and is greatly limited by signal attenuation (absorption) of the subsurface materials. Signal attenuation is dependent upon the electrical conductivity of the subsurface materials. Signal attenuation is greatest in materials with relatively high electrical conductivities such as clay soils, and lowest in relatively low conductivity materials such as unsaturated sand. For this project location, the GPR data sets appear to have a maximum depth of penetration of approximately about five feet below ground surface.

Regardless of the thoroughness of a geophysical study, there is always a possibility that actual conditions may not match the interpretations. The results should be considered accurate only to the degree implied by the methods used and the method's limitations and data coverage. Accordingly, the possibility exists that not all features at a project site will be located due to either subsurface soil conditions or the occurrence of features outside the lateral limits and below the depth of penetration of the methods used. As with most surface geophysical methods, resolution of the subsurface will also decrease with depth. As such, the size and/or contrast of features compared to the imaged subsurface media must be significant enough to produce the anticipated response. The location and/or determination (or the lack thereof) of potential buried features is based on our review of the provided information and of the geophysical survey. Under no circumstances does S&ME assume any responsibility for damages resulting from the presence of subsurface features that may exist but were not identified by our survey.

This Preliminary Site Assessment was performed solely for NCDOT regarding the above-referenced site and assessment area. This report is provided for the sole use of NCDOT. Use of this report by any other parties will be at such party's sole risk. S&ME disclaims liability for any such use or reliance by third parties. The observations presented in this report are indicative of conditions during the time of the assessment and of the specific areas referenced.

Closing

S&ME appreciates the opportunity to provide these services to you. If you have any questions or comments regarding this report, please contact us at your convenience.

Sincerely,

S&ME, Inc.

Jamie T Honeycutt
Environmental Professional
jhoneycutt@smeinc.com

Michael W. Pfeifer
Senior Project Manager
mpfeifer@smeinc.com

Thomas P. Raymond, P.E., P.M.P.
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DocuSigned by: Jamie Honeycutt 4C890EAEC25F488...
DocuSigned by: Michael Pfeifer 861E52DDEFAF4C7...
DocuSigned by: Tom Raymond D4B9FB5F636F4BB...

NORTH CAROLINA PROFESSIONAL SEAL 18760 ENGINEER THOMAS P. RAYMOND

1/22/2019

Attachments:

Table 1: Summary of Soil Sampling Results

Figure 1: Vicinity Map
Figure 2: Site Map
Figure 3: Soil Constituent Map
Figure 4: TDEM Path Location Plan
Figure 5: TDEM Data Plot A
Figure 6: TDEM Data Plot B
Figure 7: TDEM Data Plot B-Detail
Figure 8: Geophysical Anomaly Location Plan
Figure 9: Geophysical Anomaly Location Plan-Detail
Figure 10: Example GPR Data – Lines 7, 8 and 9

Appendix I: Photographs
Appendix II: Boring Logs
Appendix III: Laboratory Analytical Reports and Chain of Custody

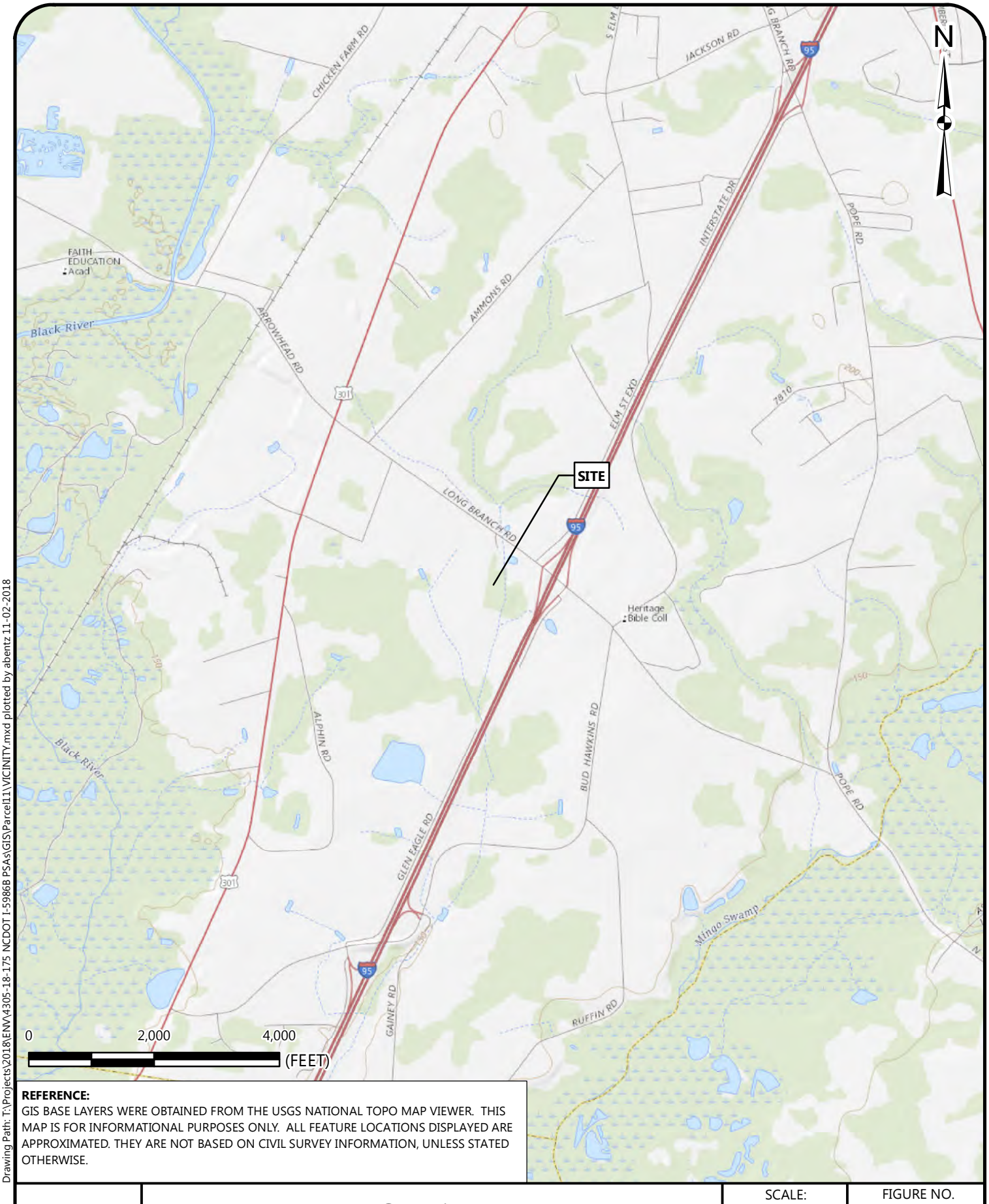
Tables

TABLE 1
SUMMARY OF SOIL SAMPLING RESULTS
NCDOT Project I-5986B
Parcel 11 - (Copart)
Copart Lane
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-18-175

Analytical Method→			Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) by Ultraviolet Fluorescence (UVF) Spectrometry		Total Metals by EPA Method 6020		
Sample ID	Date	Contaminant of Concern→ / Sample Depth (ft.-bgs)	TPH-GRO	TPH-DRO	Lead	Chromium*	Arsenic
Parcel 11 B-1	10/22/2018	8 to 10	<0.58	<0.58	**6.1**	**7.2**	**0.19 J**
Parcel 11 B-2	10/22/2018	0 to 2	<0.45	<0.45	**7.7**	**21**	**0.95****
		2 to 4	<0.57	<0.57	NA	NA	NA
Parcel 11 B-3	10/22/2018	2 to 4	<0.24	**0.24**	**3.2**	**7.2**	**0.4**
		6 to 8	<0.4	<0.4	NA	NA	NA
North Carolina TPH Action Levels			**50**	**100**	**Not Applicable**		
IHSB Residential Health Based PSRG			**Not Applicable**		**400**	**23,000**	**0.68**
IHSB Industrial/Commercial Health Based PSRG			**Not Applicable**		**800**	**350,000**	**3.0**
IHSB Protection of Groundwater PSRG			**Not Applicable**		**270**	**360,000**	**5.8**

Notes:
1. UVF analysis performed by RED Lab, LLC
2. Concentrations are reported in milligrams per kilogram (mg/Kg).
3. ft.-bgs:- feet below ground surface.
4. Concentrations exceeding the laboratory's reporting limits are shown in **BOLD** fields.
5. NA: Not Analyzed
6. Total Metals analyzed by Con-Test Laboratories.
7. J: Estimated concentration detected below the laboratory method reporting limit.
8. IHSB: North Carolina Department of Environmental Quality, Inactive Hazardous Sites Branch
9. PSRG: Preliminary Soil Remediation Goals (Feb. 2018)
10. Concentrations exceeding the North Carolina TPH Action Levels or IHSB PSRGs are shown in Shaded and **BOLD** fields.
11. * : Assumes chromium in the trivalent state (chromium III)
12. **: Arsenic was reported at a concentration exceeding the PSRG. However, arsenic appears to be naturally occurring.

Figures



REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM THE USGS NATIONAL TOPO MAP VIEWER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

Drawing Path: T:\Projects\2018\ENV\4305-18-175 NCDOT I-5986B PSAs\GIS\Parcel11\VICINITY.mxd plotted by abentz 11-02-2018

VICINITY MAP

NCDOT PROJECT I-5986B
PARCEL 11 (COPART)
COPART LANE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:	FIGURE NO.
1 " = 2,000 '	1
DATE: 11-2-18	
PROJECT NUMBER 4305-18-175	

Map Source: NCDOT Project I-5986B
Image Source: NC ONEMAP, Dated 2016

LEGEND

Geoenvironmental Boring:
Underground Storage Tank (UST): UST
TW-1: Temporary Monitor Well Location

Known Soil Contamination:
Possible Soil Contamination:

0 150 300
GRAPHIC SCALE (IN FEET)

SITE MAP

NCDOT PROJECT: I-5986B
PARCEL 11 - (COPART)
Copart Lane, Dunn, Harnett County, North Carolina

SCALE:	1"=100'
DATE:	DEC. 2018
PROJECT NUMBER	4305-18-175
FIGURE NO.	2

B-3

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO	Lead	Chromium	Arsenic
2-4	<0.24	0.24	3.2	7.2	0.4
6-8	<0.4	<0.4	NA	NA	NA

B-2

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO	Lead	Chromium	Arsenic
0-2	<0.45	<0.45	7.7	7.2	0.95
2-4	<0.57	<0.45	NA	NA	NA

B-1

Sample Depth (ft-bgs)	GRO (mg/kg)	DRO	Lead	Chromium	Arsenic
8-10	<0.58	<0.58	6.1	7.2	0.19

B-4
No Access - Not Sampled

B-3/TW-1
B-2
B-1
B-4

ALLSPICE LN
LONGBRANCH RD
COPART RD
ENT RAMP 71 S
EXIT RAMP 71 N
INTE
ENT R

ROW

0 200 400 (FEET)

REFERENCE:
GIS BASE LAYERS WERE OBTAINED FROM THE 2017 NCONMAP AERIAL ORTHOIMAGERY LAYER AND HARNETT COUNTY ROAD SHAPEFILE. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

mg/kg: Milligrams per Kilogram
GRO: Total Petroleum Hydrocarbon Gasoline Range Organics
DRO: Total Petroleum Hydrocarbon Diesel Range Organics
BOLD Indicates Exceedence of NC TPH Action Levels or IHSB PSRGs
IHSB:North Carolina Department of Environmental Quality, Inactive Hazardous Sites Branch
PSRG: Preliminary Soil Remediation Goals (Feb. 2018)
NA : Not Analyzed
ft-bgs : Feet Below Ground Surface

Samples Collected 10-22-2018.

GRO/DRO and Total Metals Analyzed by Ultraviolet Fluorescence (UVF) by RED Lab, LLC.

- Sample Location
- Edge of Pavement
- Centerline
- ROW Proposed Right-of-Way
- Proposed Permanent Utility Easement
- Proposed Construction Easement
- Tax Parcels

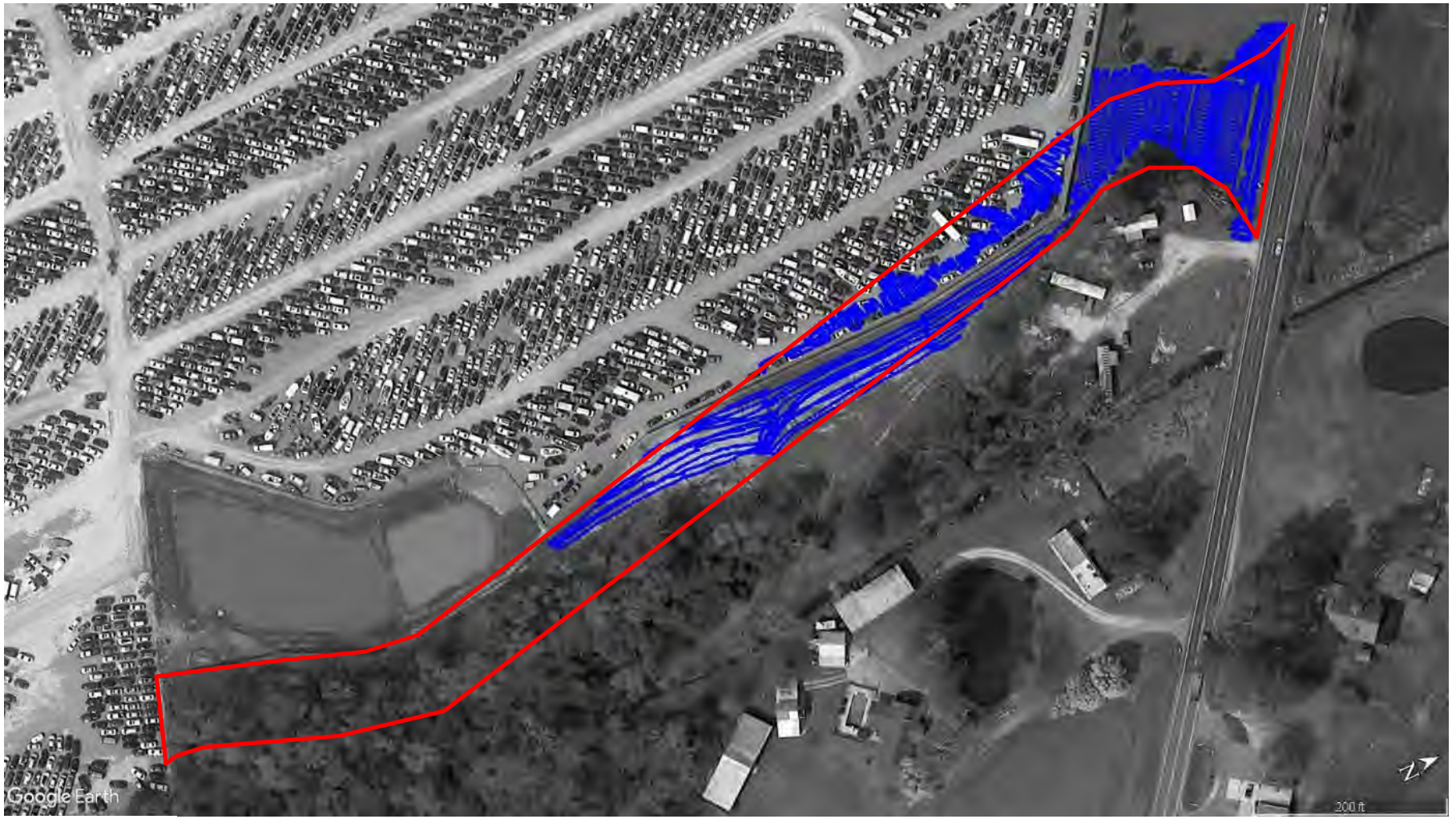
SOIL CONSTITUENT MAP

NCDOT PROJECT I-5986B
PARCEL 11 (COPART)
COPART LANE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE: 1 " = 200 '
DATE: 11-7-18
PROJECT NUMBER 4305-18-175
FIGURE NO. 3

Drawing Path: T:\Projects\2018\ENV\4305-18-175 NCDOT I-5986B PSAs\GIS\Parcel11\CONSTITUENT.mxd plotted by abentz 11-07-2018

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)



LEGEND

Approximate TDEM Path

Approximate Requested Survey Area

TDEM PATH LOCATION PLAN

NCDOT PROJECT: I-5986B
PARCEL 11 – (COPART)
COPART LANE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
AS SHOWN

DATE:
11/1/2018

PROJECT NUMBER
4305-18-175

FIGURE NO.
4

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)

LEGEND

Approximate Location of Fence

TDEM DATA PLOT A

NCDOT PROJECT: I-5986B
PARCEL 11 – (COPART)
COPART LANE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
AS SHOWN

DATE:
11/1/2018

PROJECT NUMBER
4305-18-175

FIGURE NO.
5

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)

LEGEND

Approximate Location of Fence

Approximate Location of TDEM Anomaly

TDEM DATA PLOT B

NCDOT PROJECT: I-5986B
PARCEL 11 – (COPART)
COPART LANE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE: AS SHOWN

DATE: 11/1/2018

PROJECT NUMBER 4305-18-175

FIGURE NO. **6**

REFERENCE:
(*GOOGLE EARTH PRO)* AERIAL PHOTOGRAPH
(DATED, MARCH, 04 2018)

LEGEND

Approximate Location of Fence

Approximate Location of TDEM Anomaly

Approximate Location of GPR Profile

GEOPHYSICAL ANOMALY LOCATION PLAN

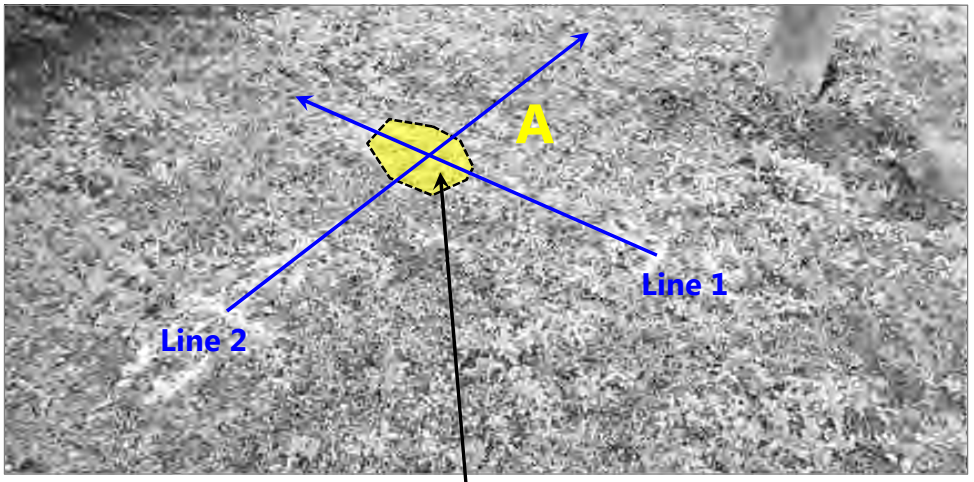
NCDOT PROJECT: I-5986B
PARCEL 11 – (COPART)
COPART LANE, DUNN, HARNETT COUNTY, NORTH CAROLINA

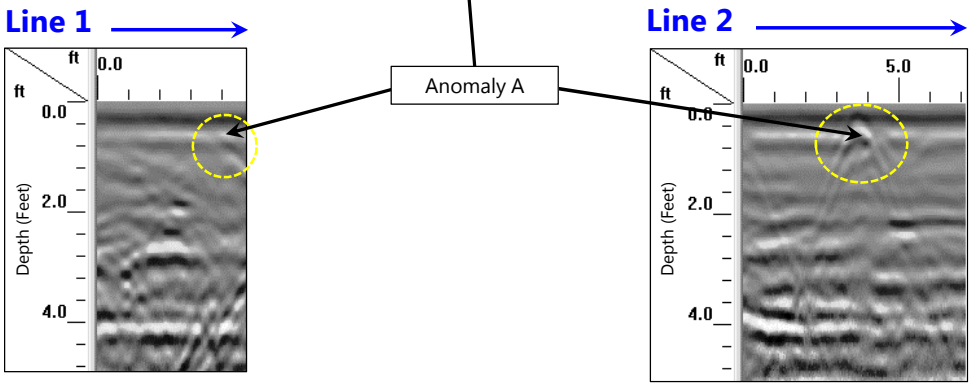
SCALE:
AS SHOWN

DATE:
11/1/2018

PROJECT NUMBER
4305-18-175

FIGURE NO.
7





Note: Presented GPR profile depths are based on an assumed average dielectric and should be considered approximate

EXAMPLE GPR DATA – LINES 1 AND 2

NCDOT PROJECT: I-5986B
PARCEL 11 – (COPART)
COPART LANE, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE: AS SHOWN

DATE: 11/1/2018

PROJECT NUMBER 4305-18-175

FIGURE NO. **8**

Appendix I – Photographs

Date: 10/22/2018

Photographer: JTH

1	**Location / Orientation**	Looking west into Copart facility from near B-2.
	Remarks	None

Date: 10/22/2018

Photographer: JTH

2	**Location / Orientation**	View looking south toward attempted B-4 location.
	Remarks	B-4 is farther south.

Appendix II – Boring Logs

PROJECT:	**NCDOT I-5986B** Parcel 11-Copart Lane, Dunn, NC S&ME Project No. 4305-18-175		**BORING LOG: B-1**
DATE DRILLED:	Monday, October 22, 2018	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 7730 DT	WATER LEVEL:	
DRILLER:	S&ME, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Sand, Tan, Brown,			0.8	No				
		Clayey Sand, Tan, Orange,			0.5	No				
5					0.6	No				
		Silty Sand, Brown,			1.1	No				
10		Boring Terminated at 10 Ft-BGS			2.0	Yes				
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 11-Copart Lane, Dunn, NC S&ME Project No. 4305-18-175		**BORING LOG: B-2**
DATE DRILLED:	Monday, October 22, 2018	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 7730 DT	WATER LEVEL:	
DRILLER:	S&ME, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Gravel,								
		Sandy Clay, Tan,								
		Sandy Clay, Red, Tan,			0.8	Yes				
					1.2	Yes				
5					1.8	No				
					1.4	No				
10					2.0	No				
		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

PROJECT:	**NCDOT I-5986B** Parcel 11-Copart Lane, Dunn, NC S&ME Project No. 4305-18-175		**BORING LOG: B-3/TW-1**
DATE DRILLED:	Monday, October 22, 2018	BORING DEPTH (FT):	10
DRILL RIG:	Geoprobe 7730 DT	WATER LEVEL:	6.5
DRILLER:	S&ME, Inc.	CAVE-IN DEPTH:	Not Applicable
HAMMER TYPE:	Not Applicable	LOGGED BY:	J. Honeycutt
SAMPLING METHOD:	Macro-Core Sampler	NORTHING:	
DRILLING METHOD:	Macro-Core Sampler (3-in. OD)	EASTING:	

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	WATER LEVEL	SAMPLE	PID READING (PPM)	LABORATORY ANALYSES	Sample Time / 1st 6in	2nd 6in	3rd 6in	N VALUE
		Gravel,								
		Silty Sand, Tan,			0.4	Yes				
					0.5	Yes				
5		Sand, Tan,			0.3	No				
			▼		0.8	No				
10		Boring Terminated at 10 Ft-BGS								
15										
20										
25										
30										

Appendix III – Laboratory Analytical Reports and Chain of Custody

QED

AQROS

Hydrocarbon Analysis Results

Client: S&ME
Address: 310 COPART ROAD
DUNN NC 28334

Samples taken Monday, October 22, 2018
Samples extracted Monday, October 22, 2018
Samples analysed Monday, October 22, 2018

Contact: JAMIE HONEYCUTT

Operator JENN RYAN

Project: 4305-18-175

U00904

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	PARCEL 11 B - 3 (2 - 4')	9.8	<0.24	<0.24	0.24	0.24	<0.05	<0.08	<0.01	0	95.3	4.7	Deg Fuel 89.5%,(FCM)
s	PARCEL 11 B - 3 (6 - 8')	16.0	<0.4	<0.4	<0.4	<0.4	<0.08	<0.13	<0.016	0	0	0	PHC not detected,(BO)
s	PARCEL 11 B - 2 (0 - 2')	17.9	<0.45	<0.45	<0.45	<0.45	<0.09	<0.14	<0.018	0	100	0	Residual HC,(BO)
s	PARCEL 11 B - 2 (2 - 4')	22.6	<0.57	<0.57	<0.57	<0.57	<0.11	<0.18	<0.023	0	0	0	PHC not detected,(P)

Initial Calibrator QC check OK

Final FCM QC Check OK 96 %

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

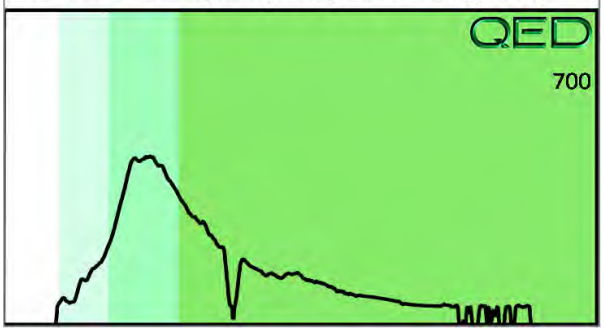
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

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

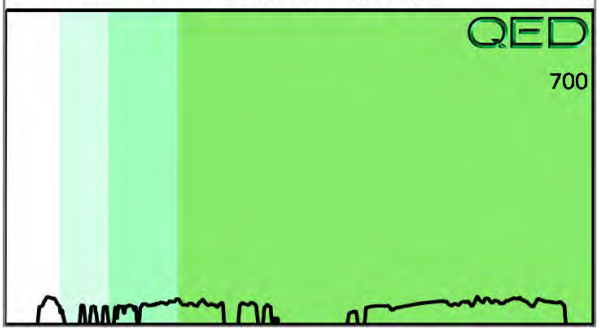
QED Hydrocarbon Fingerprints

Project: 4305-18-175 ##################

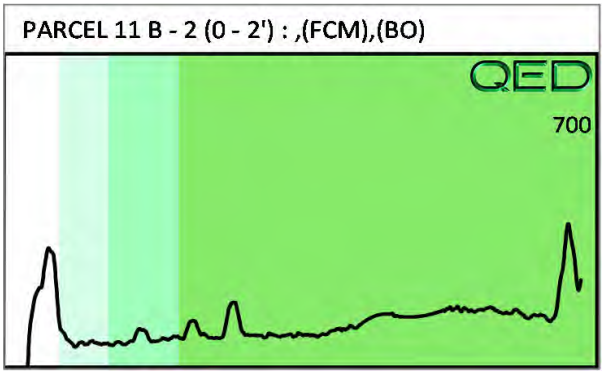
PARCEL 11 B - 3 (2 - 4') : Deg Fuel 89.5%,(FCM)



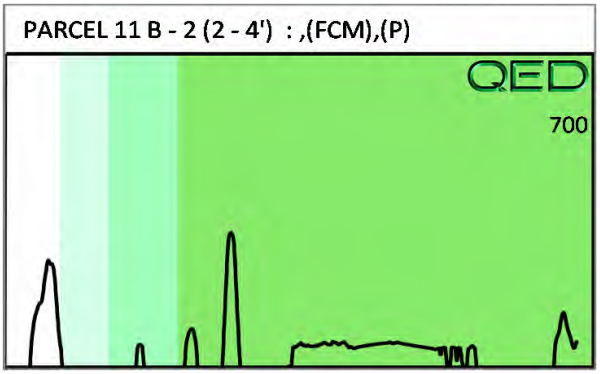
PARCEL 11 B - 3 (6 - 8') : ,(FCM),(BO)



PARCEL 11 B - 2 (0 - 2') : ,(FCM),(BO)



PARCEL 11 B - 2 (2 - 4') : ,(FCM),(P)



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November 1, 2018

Michael Pfeifer
S&ME, Inc - Raleigh, NC
3201 Spring Forest Rd.
Raleigh, NC 27616

Project Location: Parcel 11
Client Job Number:
Project Number: 4305-18-175
Laboratory Work Order Number: 18J1181

Enclosed are results of analyses for samples received by the laboratory on October 23, 2018. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kerry K. McGee
Project Manager

Table of Contents

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

S&ME, Inc - Raleigh, NC
3201 Spring Forest Rd.
Raleigh, NC 27616
ATTN: Michael Pfeifer

REPORT DATE: 11/1/2018

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 4305-18-175

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 18J1181

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Parcel 11

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
Parcel 11 B-3 2-4'	18J1181-01	Soil		SM 2540G	
				SW-846 6020B	
Parcel 11 B-2 0-2'	18J1181-02	Soil		SM 2540G	
				SW-846 6020B	
Parcel 11 B-1 8-10'	18J1181-03	Soil		SM 2540G	
				SW-846 6020B	

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EXECUTIVE SUMMARY

Client ID: **Parcel 11 B-3 2-4'** Lab ID: **18J1181-01**

Analyte	Results/Qual		DL	RL	Units	Method
Arsenic	0.40		0.030	0.18	mg/Kg dry	SW-846 6020B
Chromium	7.2		0.16	4.6	mg/Kg dry	SW-846 6020B
Lead	3.2		0.060	1.8	mg/Kg dry	SW-846 6020B
% Solids	88.5				% Wt	SM 2540G

Client ID: **Parcel 11 B-2 0-2'** Lab ID: **18J1181-02**

Analyte	Results/Qual		DL	RL	Units	Method
Arsenic	0.95		0.035	0.21	mg/Kg dry	SW-846 6020B
Chromium	21		0.19	5.3	mg/Kg dry	SW-846 6020B
Lead	7.7		0.069	2.1	mg/Kg dry	SW-846 6020B
% Solids	78.1				% Wt	SM 2540G

Client ID: **Parcel 11 B-1 8-10'** Lab ID: **18J1181-03**

Analyte	Results/Qual		DL	RL	Units	Method
Arsenic	0.19	J	0.032	0.19	mg/Kg dry	SW-846 6020B
Chromium	7.2		0.17	4.8	mg/Kg dry	SW-846 6020B
Lead	6.1		0.064	1.9	mg/Kg dry	SW-846 6020B
% Solids	83.5				% Wt	SM 2540G

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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

For method 6020, all dilutions were performed as per standard operating procedure.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Parcel 11 Sample Description: Work Order: 18J1181

Date Received: 10/23/2018

Field Sample #: Parcel 11 B-3 2-4' Sampled: 10/22/2018 16:30

Sample ID: 18J1181-01

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	0.40	0.18	0.030	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 13:12	MJH
Chromium	7.2	4.6	0.16	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 13:12	MJH
Lead	3.2	1.8	0.060	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 13:12	MJH

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Project Location: Parcel 11 Sample Description: Work Order: 18J1181

Date Received: 10/23/2018

Field Sample #: Parcel 11 B-3 2-4' Sampled: 10/22/2018 16:30

Sample ID: 18J1181-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	88.5		% Wt	1		SM 2540G	10/29/18	10/30/18 10:43	JFC

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Project Location: Parcel 11 Sample Description: Work Order: 18J1181

Date Received: 10/23/2018

Field Sample #: Parcel 11 B-2 0-2' Sampled: 10/22/2018 17:00

Sample ID: 18J1181-02

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	0.95	0.21	0.035	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 13:16	MJH
Chromium	21	5.3	0.19	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 13:16	MJH
Lead	7.7	2.1	0.069	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 13:16	MJH

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Project Location: Parcel 11 Sample Description: Work Order: 18J1181

Date Received: 10/23/2018

Field Sample #: Parcel 11 B-2 0-2' Sampled: 10/22/2018 17:00

Sample ID: 18J1181-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	78.1		% Wt	1		SM 2540G	10/29/18	10/30/18 10:43	JFC

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Project Location: Parcel 11 Sample Description: Work Order: 18J1181

Date Received: 10/23/2018

Field Sample #: Parcel 11 B-1 8-10' Sampled: 10/22/2018 18:45

Sample ID: 18J1181-03

Sample Matrix: Soil

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	0.19	0.19	0.032	mg/Kg dry	5	J	SW-846 6020B	10/30/18	10/31/18 13:26	MJH
Chromium	7.2	4.8	0.17	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 13:26	MJH
Lead	6.1	1.9	0.064	mg/Kg dry	5		SW-846 6020B	10/30/18	10/31/18 13:26	MJH

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Project Location: Parcel 11 Sample Description: Work Order: 18J1181

Date Received: 10/23/2018

Field Sample #: Parcel 11 B-1 8-10' Sampled: 10/22/2018 18:45

Sample ID: 18J1181-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
% Solids	83.5		% Wt	1		SM 2540G	10/29/18	10/30/18 10:43	JFC

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Sample Extraction Data

Prep Method: % Solids-SM 2540G

Lab Number [Field ID]	Batch	Date
18J1181-01 [Parcel 11 B-3 2-4']	B215886	10/29/18
18J1181-02 [Parcel 11 B-2 0-2']	B215886	10/29/18
18J1181-03 [Parcel 11 B-1 8-10']	B215886	10/29/18

Prep Method: SW-846 3050B-SW-846 6020B

Lab Number [Field ID]	Batch	Initial [g]	Final [mL]	Date
18J1181-01 [Parcel 11 B-3 2-4']	B216002	1.54	50.0	10/30/18
18J1181-02 [Parcel 11 B-2 0-2']	B216002	1.52	50.0	10/30/18
18J1181-03 [Parcel 11 B-1 8-10']	B216002	1.54	50.0	10/30/18

con-test® ANALYTICAL LABORATORY
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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B216002 - SW-846 3050B										
Blank (B216002-BLK1)				Prepared: 10/30/18 Analyzed: 10/31/18						
Arsenic	ND	0.17	mg/Kg wet							
Chromium	ND	4.2	mg/Kg wet							
Lead	ND	1.7	mg/Kg wet							
LCS (B216002-BS1)				Prepared: 10/30/18 Analyzed: 10/31/18						
Arsenic	166	2.0	mg/Kg wet	161		103	83.2-116.8			
Chromium	146	50	mg/Kg wet	136		107	82.4-117.6			
Lead	110	20	mg/Kg wet	111		99.1	83-117.1			
LCS Dup (B216002-BSD1)				Prepared: 10/30/18 Analyzed: 10/31/18						
Arsenic	177	2.0	mg/Kg wet	161		110	83.2-116.8	6.55	30	
Chromium	152	49	mg/Kg wet	136		111	82.4-117.6	3.76	30	
Lead	119	20	mg/Kg wet	111		108	83-117.1	8.23	30	

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 6020B in Soil	
Arsenic	NY,VA,NH,NC,ME
Chromium	NY,NC,ME
Lead	NY,NC,ME

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2019
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2019
RI	Rhode Island Department of Health	LAO00112	12/30/2018
NC	North Carolina Div. of Water Quality	652	12/31/2018
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2018
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

con-test ANALYTICAL LABORATORY

18J1181

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com Doc # 379 Rev 1_03242017

CHAIN OF CUSTODY RECORD (North Carolina)

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name: STME
Address: 3201 Spring Forest Rd Raleigh NC
Phone: [redacted] 919 872-2660
Project Name: NCDOT
Project Location: Parcel 11
Project Number: 4305-18-175
Project Manager: Mike Pfeifer
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: Jamie T Honeycutt

Requested Turnaround Time
7-Day ☐ 10-Day ☐
Due Date:

Rush Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☑ EXCEL ☑
Other:
CLP Like Data Pkg Required: ☐
Email To: jhoneycutt@stmeinc.com
Fax To #:

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	[1] Matrix Code	Conc Code	Lead Chromium + Arsenic	JH	[redacted]	# of Containers	[2] Preservation Code	[3] Container Code
1	Parcel 11 B-3 2-4' [redacted]	10-22	1630		/	S	U	✓	✓				
2	Parcel 11 B-2 0-2'		1700		/	S	U	✓	✓				
	[redacted]	↓	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]					
3	Parcel 11 B-1 8-10'	↓	1845		✓	S	U	✓	✓				

Comments:

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Dissolved Metals Samples
☐ Field Filtered
☐ Lab to Filter

Orthophosphate Samples
☐ Field Filtered
☐ Lab to Filter

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

[3] **Container Codes:**
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Relinquished by: (signature)	Date/Time: 10-22-18/1900	
Received by: (signature)	Date/Time: 10/23/18 1336	
Relinquished by: (signature)	Date/Time: 10/23/18 1630	
Received by: (signature)	Date/Time: 10/24/18 921	
Relinquished by: (signature)	Date/Time:	
Received by: (signature)	Date/Time:	

North Carolina Detection Limit Requirements
☐ 2L ☐ GWPC ☐ SWSL ☐ IHSB ☐ MSCC
Other:

Program Information
☐ DSCA ☐ UST/Trust Fund
☐ SWS Landfill ☐ REC
☐ IHSB Orphaned Landfill
☐ State Lead
☐ Other:

NELAC and AIHA-LAP, LLC Accredited

Project Entity
☐ Government ☐ Municipality
☐ Federal ☐ Brownfield
☐ City ☐ School

Other
☐ Chromatogram
☐ AIHA-LAP,LLC

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Table of Contents

773547745711

Delivered
Wednesday 10/24/2018 at 9:24 am

DELIVERED

Signed for by: P.BLAKE

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM	TO
Raleigh, NC US	EAST LONGMEADOW, MA US

Shipment Facts

TRACKING NUMBER
773547745711

SERVICE
FedEx Priority Overnight

WEIGHT
45.3 lbs / 20.55 kgs

DIMENSIONS
24x14x13 in.

DELIVERED TO
Shipping/Receiving

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
45.3 lbs / 20.55 kgs

TERMS
Third Party

SHIPPER REFERENCE
80

PACKAGING
Your Packaging

SPECIAL HANDLING SECTION
Deliver Weekday, Additional Handling Surcharge

STANDARD TRANSIT
10/24/2018 by 10:30 am

SHIP DATE
Tue 10/23/2018

ACTUAL DELIVERY
Wed 10/24/2018 9:24 am

Travel History

Local Scan Time

Wednesday , 10/24/2018

9:24 am	EAST LONGMEADOW, MA	Delivered
8:03 am	WINDSOR LOCKS, CT	On FedEx vehicle for delivery
7:52 am	WINDSOR LOCKS, CT	At local FedEx facility
6:58 am	EAST GRANBY, CT	At destination sort facility
5:13 am	INDIANAPOLIS, IN	Departed FedEx location
12:19 am	INDIANAPOLIS, IN	Arrived at FedEx location

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client S+ ME

Received By RAP Date 10/24/18 Time 924

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____ Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 557 Actual Temp - 2.2 By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Project T Analysis T ID's T Sampler Name T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? F Who was notified? _____

Is there enough Volume? T

Is there Headspace where applicable? F MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? NA Acid _____ Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	3
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments: