



March 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 160-PJ's Truck Storage Lot
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
160	Benton and Sons Dunn Properties, LLC	(PJ's Truck Storage Lot) George Perry Lee Road, Dunn, NC

The property is a vacant lot used for the storage of trucks by the adjoining PJ's Truck Bodies 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, 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 160. 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 (7) 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 anomalous feature (Anomaly A; **Figures 5 through 7**) was identified in the geophysical data sets. 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. The identified anomaly 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 160. 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 four ft.-bgs to greater than 10 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. Two soil samples were selected from boring B-1 and one soil sample was selected from borings B-2 and B-3. The soil sample from the two to four foot depth interval was selected from borings B-1, B-2 and B-3 and the soil sample from the eight to ten foot depth interval was selected from boring B-1. The soil samples were provided to RED Lab, LLC (Red Lab) for on-site analysis. A total of four 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.



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-2 and B-3 at the two to four foot depth intervals at concentrations of 0.07 milligrams per kilograms (mg/kg) and 0.06 mg/kg, respectively, which are 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 at 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**.

◆ 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, soil boring B-2 was selected for the collection of a groundwater sample. A temporary monitor well (TW-1) was installed at soil boring B-2 to a depth of approximately eight ft.-bgs using a ten 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-2 was measured at four 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-2/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 A) which is likely related to an isolated buried metallic 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 was reported in the two to four foot depth interval at two soil borings 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 approximately four ft.-bgs to greater than ten ft.-bgs. One temporary well (TW-1) was installed at soil boring B-2. Groundwater at TW-1 was measured at four 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.

DocuSigned by:

4C890EAEC25F488...
Jamie T Honeycutt
Environmental Professional
jhoneycutt@smeinc.com

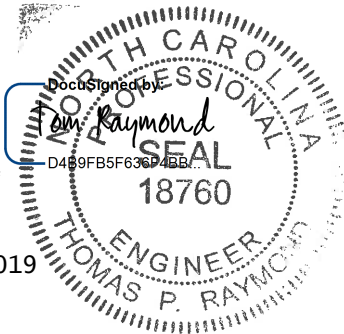
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Thomas P. Raymond, P.E., P.M.P.
Senior Consultant
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5/6/2019



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



Preliminary Site Assessment Report
NCDOT Project I-5986B, WBS Element 47532.1.3
Parcel 160-PJ's Truck Storage Lot
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-18-175A

Figure 7: Geophysical Anomaly Location Plan

Figure 8: Example GPR Data – Lines 4 and 5

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 160 - (PJ's Truck Storage Lot)
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→	TPH-GRO	TPH-DRO
		Sample Depth (ft.-bgs)		
B-1	2/25/2019	2 to 4	<0.6	<0.24
		8 to 10	<0.57	<0.23
B-2	2/25/2019	2 to 4	<0.63	0.07
B-3	2/25/2019	2 to 4	<0.5	0.06
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 160 - (PJ's Truck Storage Lot)
 George Perry Lee Road
 Dunn, Harnett County, North Carolina
 S&ME Project No. 4305-18-175A

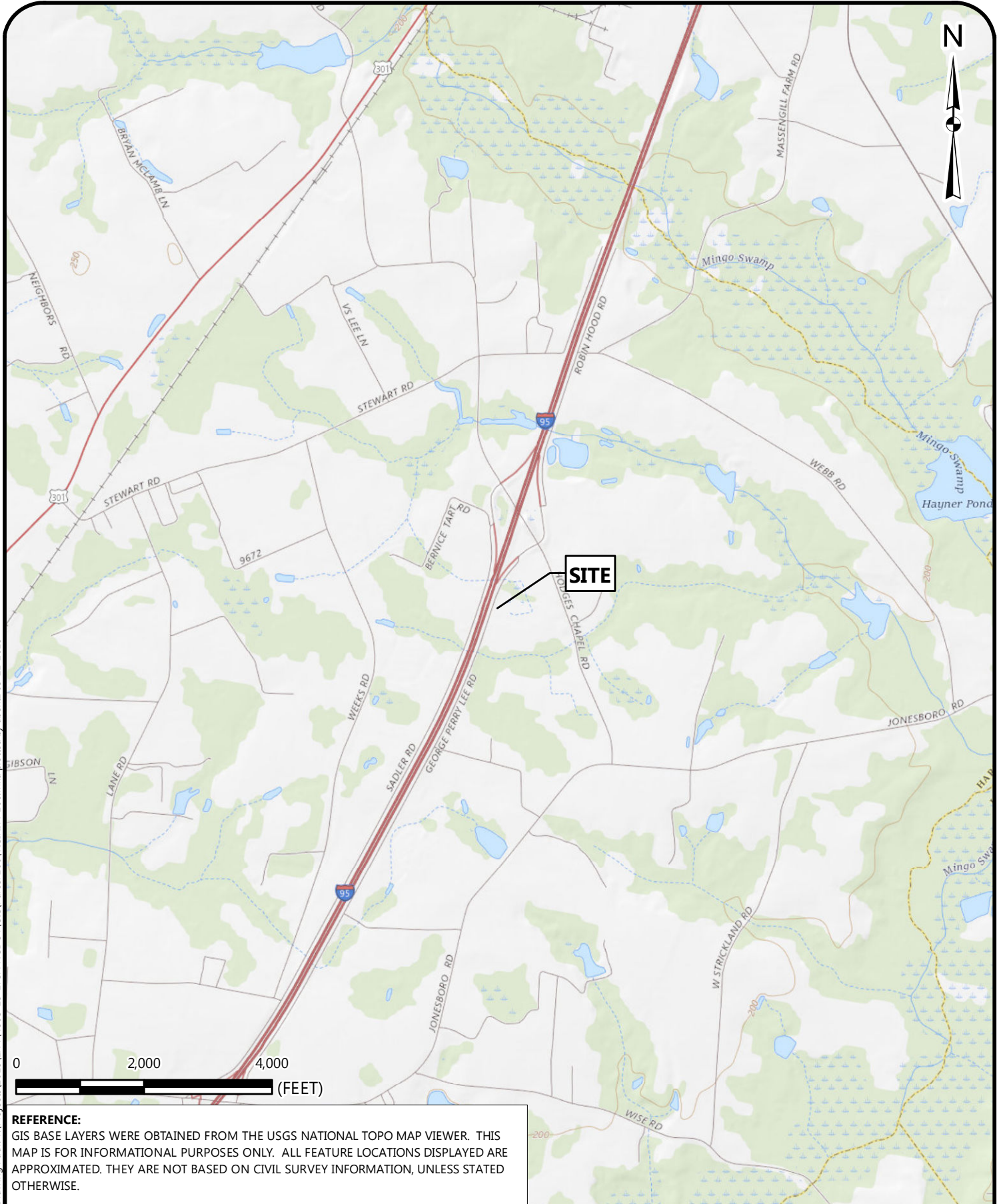
Analytical Method→		Volatile Organic Compounds by EPA Method 8260	Polycyclic Aromatic Compounds (PAHs) by EPA Method 8270
Sample ID	Contaminant of Concern→	Constituent Specific	Constituent Specific
	Date		
B-2/TW-1	2/25/2019	Below laboratory method reporting limits	Below laboratory method reporting limits
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

Drawing Path: T:\Projects\2018\ENV\4305-18-175A_NCDOT\GIS\Parcel160\VICINITY160.mxd plotted by abentz 03-21-2019



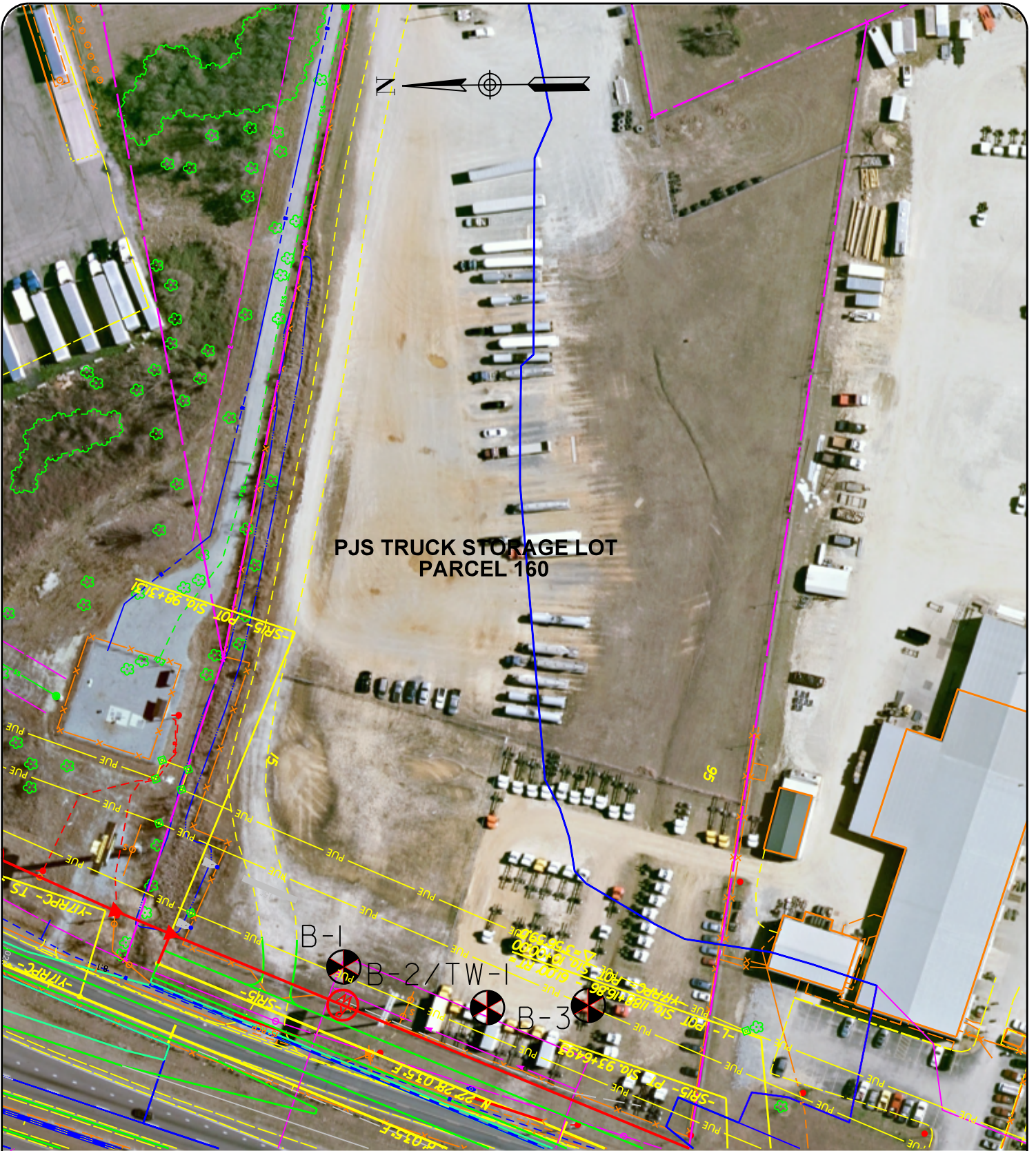
VICINITY MAP

NCDOT I-5986B
 PARCEL NO. 160 (PJ'S TRUCK STORAGE LOT)
 GEORGE PERRY LEE RD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
 1" = 2,000'
 DATE:
 3-21-19
 PROJECT NUMBER
 4305-18-175A

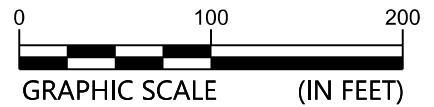
FIGURE NO.

1



LEGEND

- Geoenvironmental Boring:
- Underground Storage Tank (UST):
- Map Source: NCDOT Project I-5986B
- Image Source: NC ONEMAP, Dated 2016
- Known Soil Contamination:
- Possible Soil Contamination:
- Existing Contamination Known - Water:



SITE MAP

NCDOT Project: I-5986B
 PARCEL 160 - (PJ'S TRUCK STORAGE LOT)
 George Perry Lee Road, Dunn, Harnett County, North Carolina

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



SOIL AND GROUNDWATER CONSTITUENT MAP

NC DOT I-5986B
PARCEL NO. 160 (PJ'S TRUCK STORAGE LOT)
GEORGE PERRY LEE RD, DUNN, HARNETT COUNTY, NORTH CAROLINA

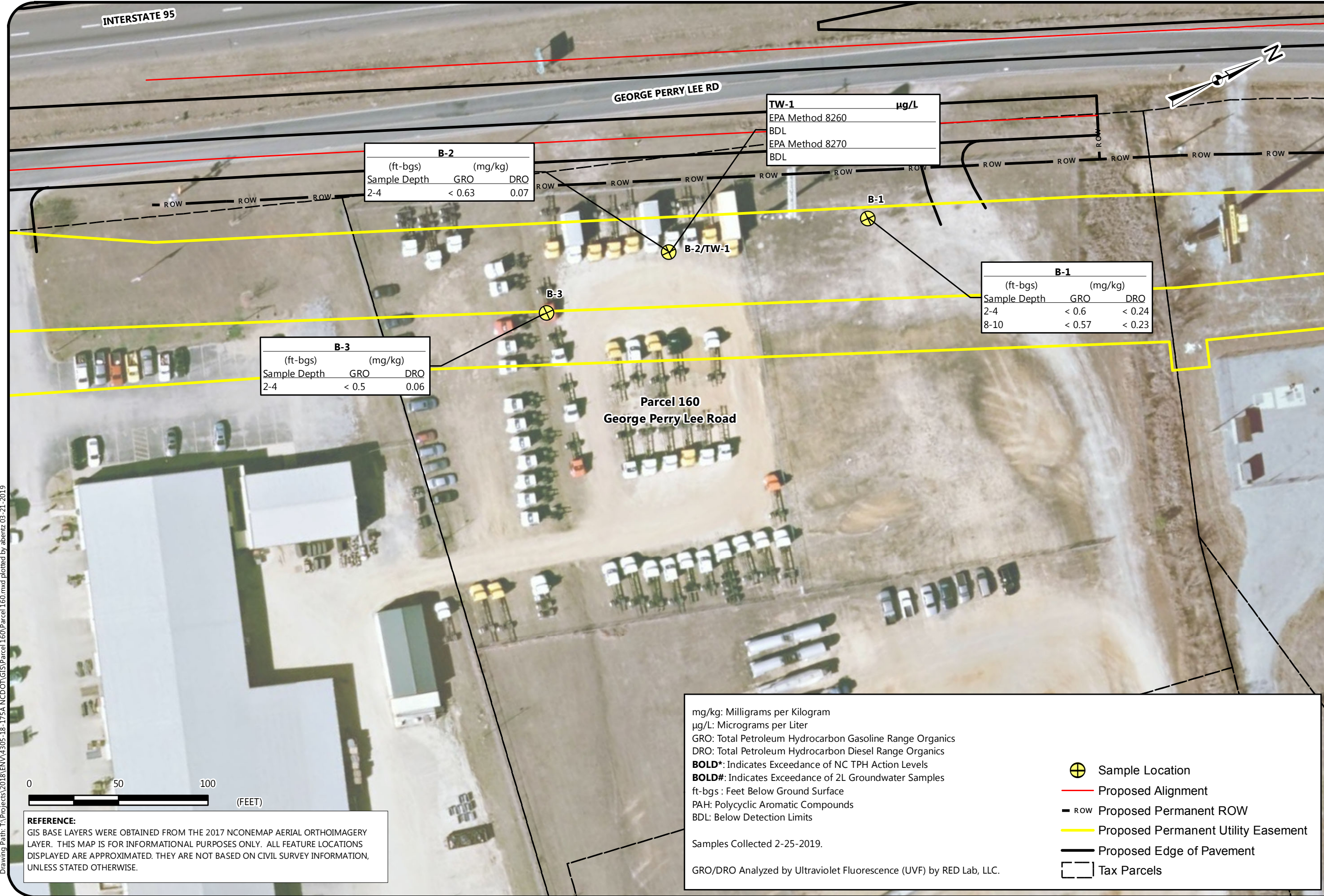
SCALE:
1" = 50'

DATE:
3-21-19

PROJECT NUMBER
4305-18-175

FIGURE NO.

3



B-2		
(ft-bgs)	(mg/kg)	
Sample Depth	GRO	DRO
2-4	< 0.63	0.07

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

B-1		
(ft-bgs)	(mg/kg)	
Sample Depth	GRO	DRO
2-4	< 0.6	< 0.24
8-10	< 0.57	< 0.23

B-3		
(ft-bgs)	(mg/kg)	
Sample Depth	GRO	DRO
2-4	< 0.5	0.06

Parcel 160
George Perry Lee Road

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
- Proposed Permanent ROW
- Proposed Permanent Utility Easement
- Proposed Edge of Pavement
- Tax Parcels

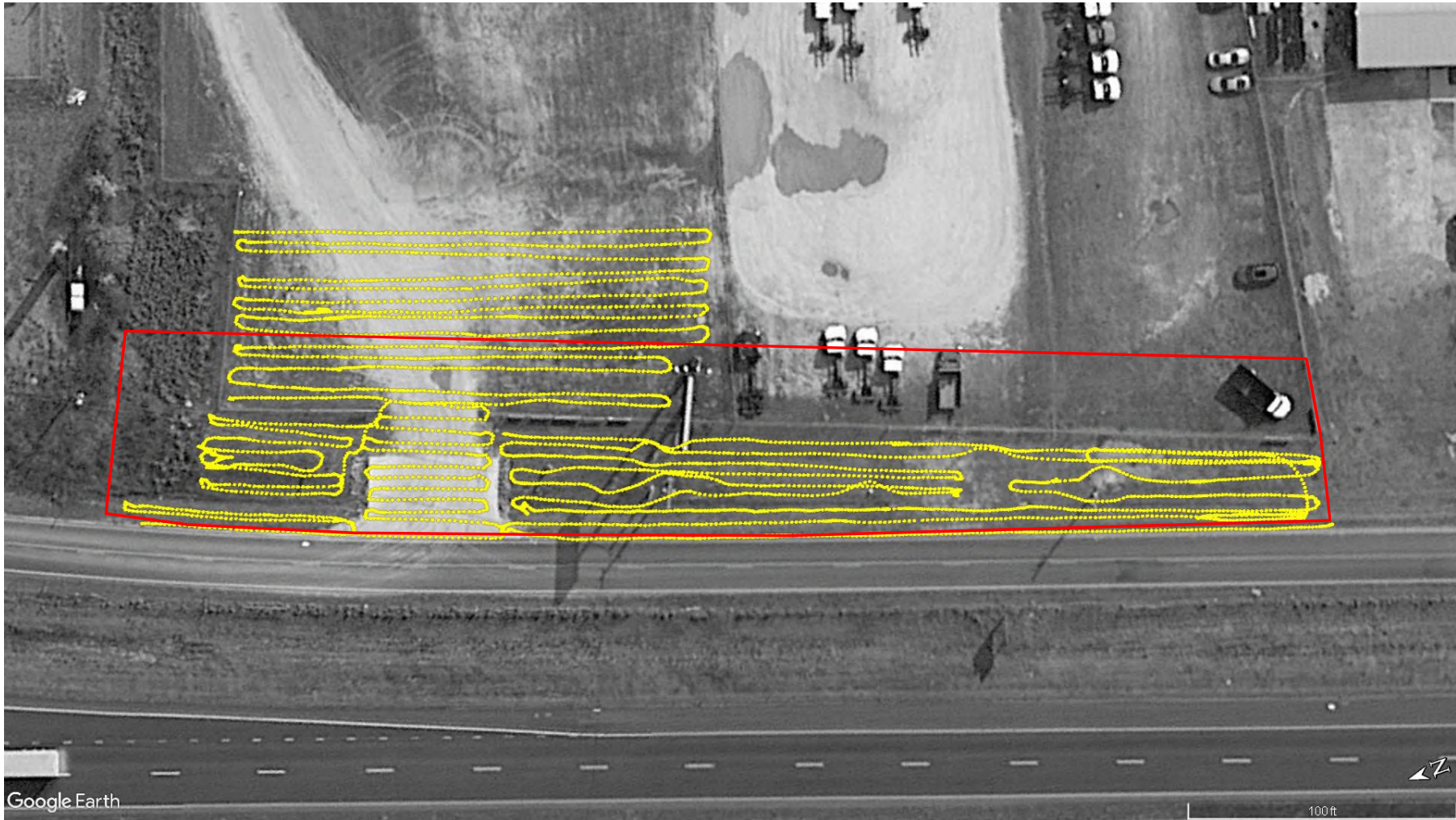


REFERENCE:
 GIS BASE LAYERS WERE OBTAINED FROM THE 2017 NCONEMAP AERIAL ORTHOIMAGERY LAYER. THIS MAP IS FOR INFORMATIONAL PURPOSES ONLY. ALL FEATURE LOCATIONS DISPLAYED ARE APPROXIMATED. THEY ARE NOT BASED ON CIVIL SURVEY INFORMATION, UNLESS STATED OTHERWISE.

Drawing Path: T:\Projects\2018\ENV\4305-18-175A NCDOT\GIS\Parcel 160.mxd plotted by abentz 03-21-2019



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



Google Earth

100 ft

LEGEND

- Approximate TDEM Path
- Approximate Requested Survey Area

TDEM PATH LOCATION PLAN

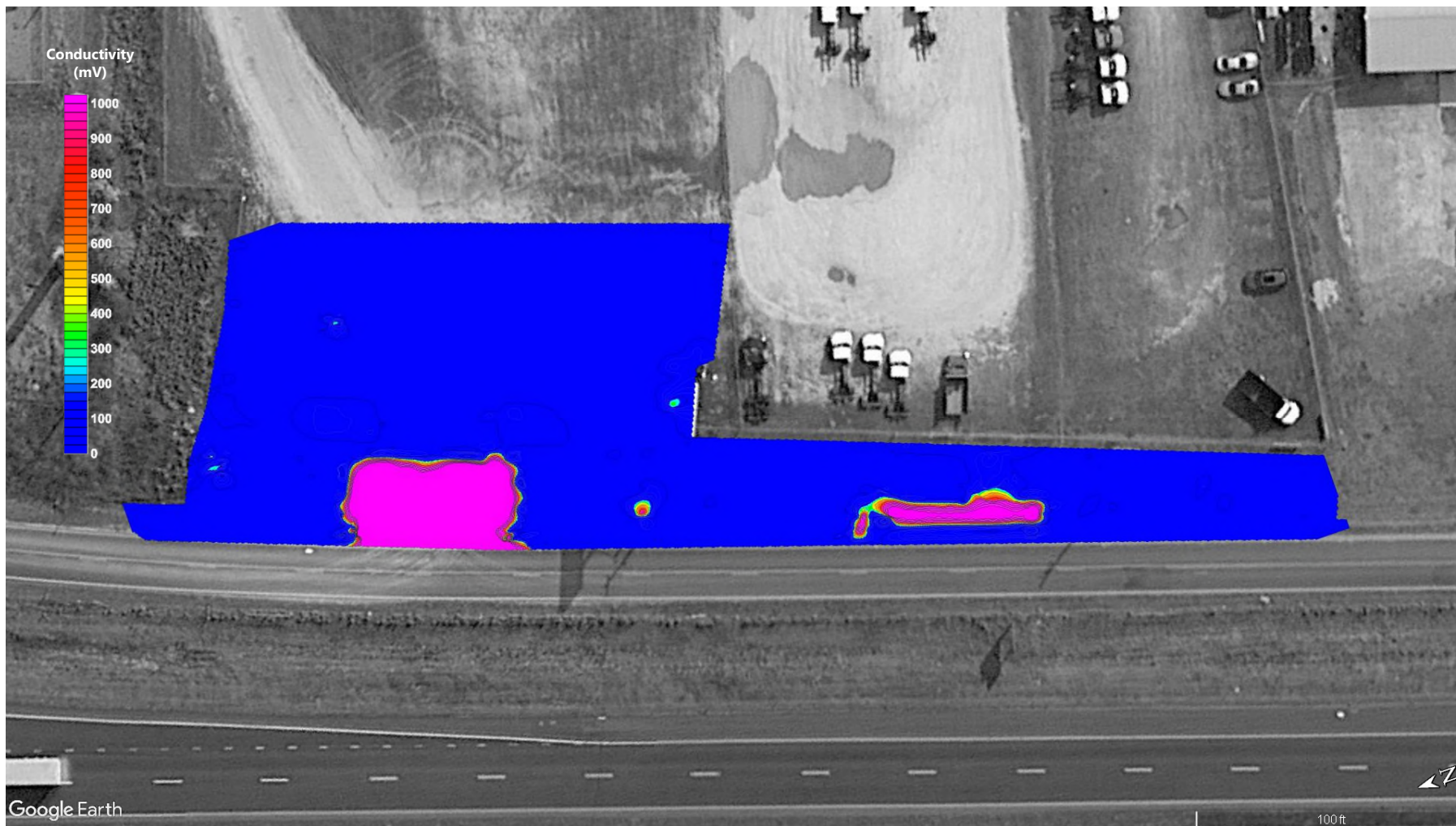
NC DOT PROJECT: I-59868
 PARCEL 160 – P/I'S TRUCK STORAGE LOT
 GEORGE PERRY LEE ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

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

NC DOT PROJECT: I-59868
 PARCEL 160 - (P)'S TRUCK STORAGE LOT
 GEORGE PERRY LEE ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
AS SHOWN

DATE:
3/22/2019

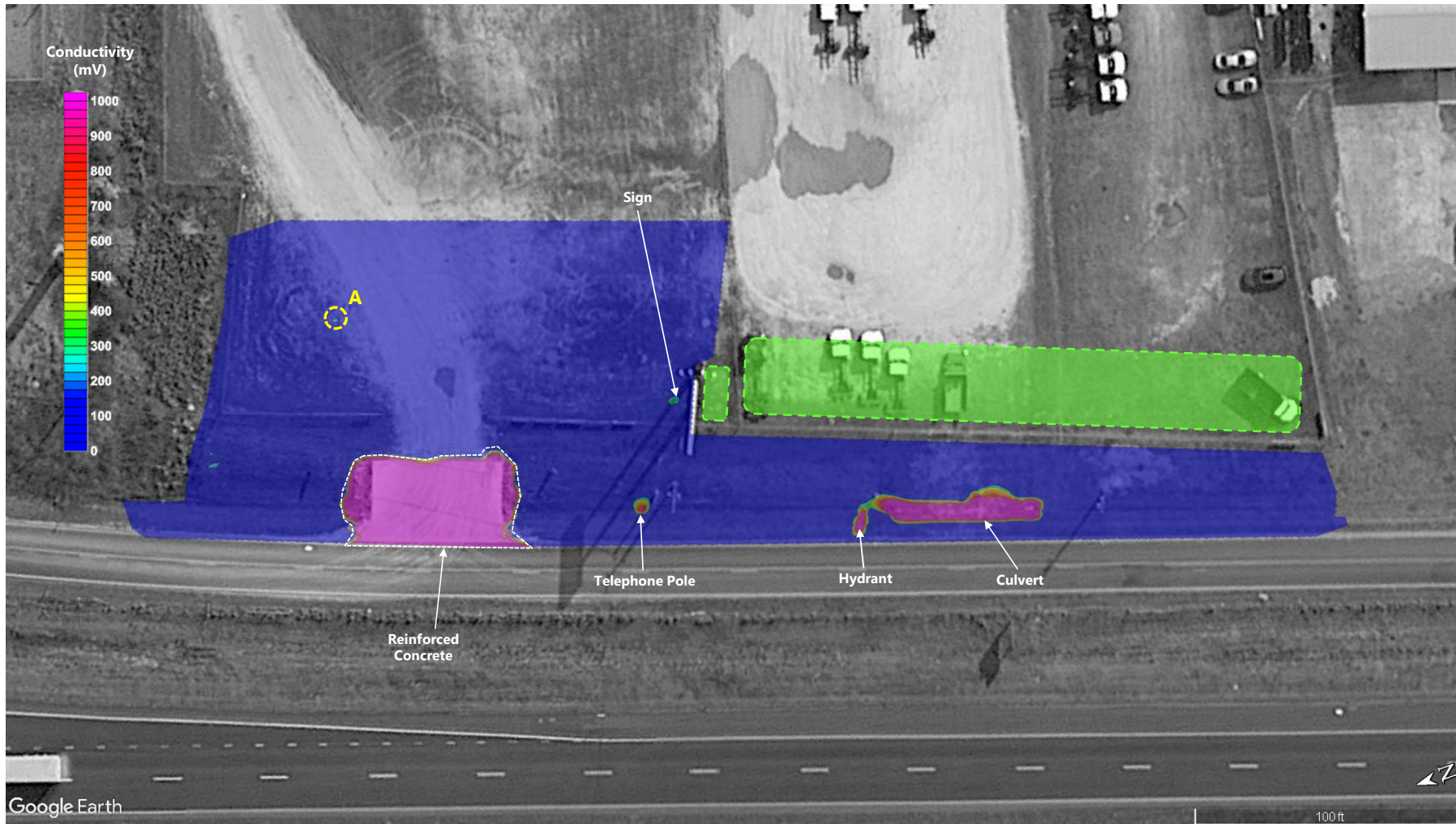
PROJECT NUMBER
4305-18-175A

FIGURE NO.

5



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



LEGEND



Approximate Location of TDEM Anomaly



Approximate Location of Vehicles

TDEM DATA PLOT B

NC DOT PROJECT: I-59868
 PARCEL 160 – (P)'S TRUCK STORAGE LOT
 GEORGE PERRY LEE ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
 AS SHOWN

DATE:
 3/22/2019

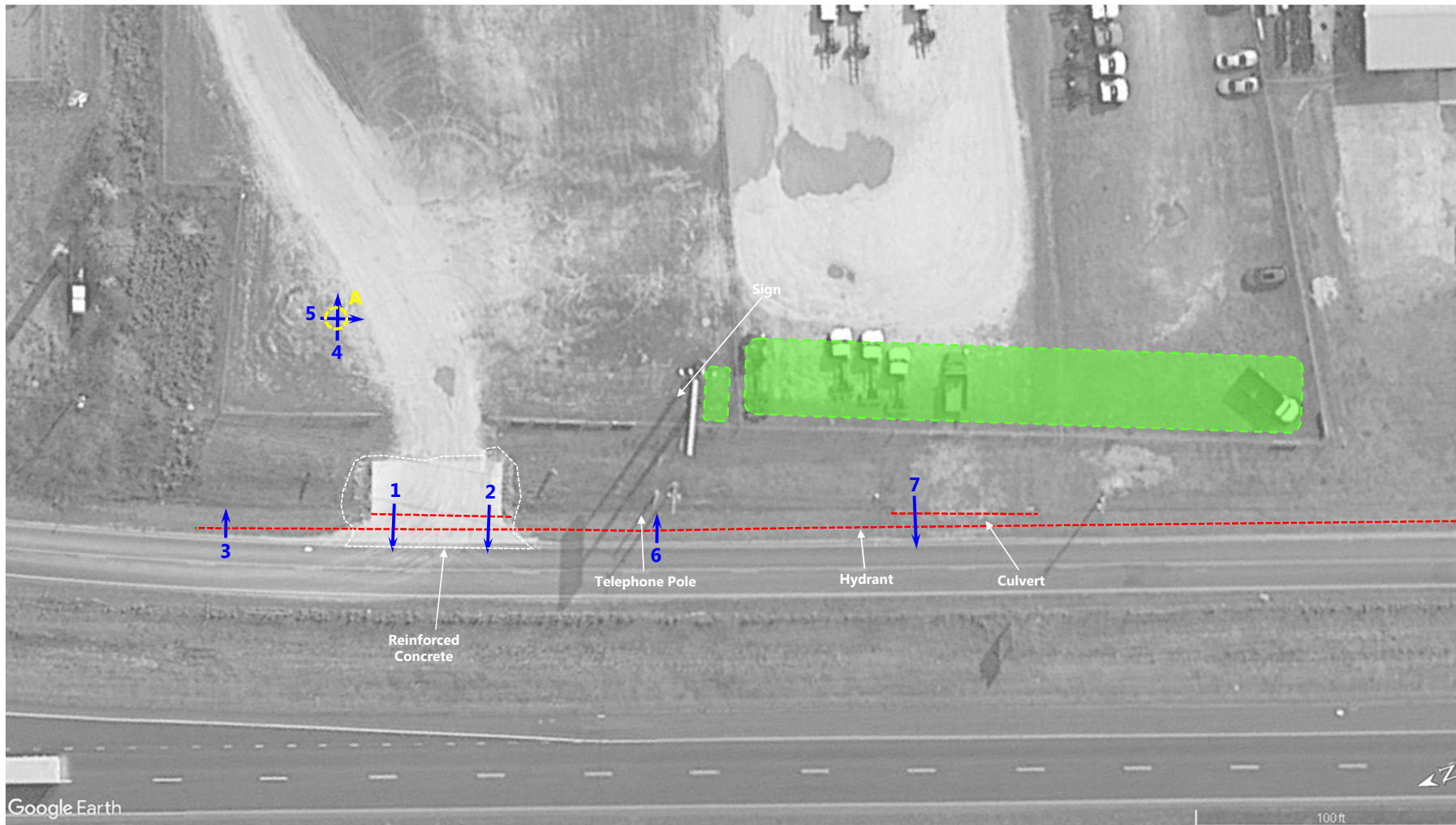
PROJECT NUMBER
 4305-18-175A

FIGURE NO.

6



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



LEGEND

- Approximate Location of TDEM Anomaly
- Approximate Location of Vehicles
- Approximate Location of Possible Utility
- Approximate Location of GPR Profile

GEOPHYSICAL ANOMALY LOCATION PLAN

NC DOT PROJECT: I-59868
 PARCEL 160 – P/J'S TRUCK STORAGE LOT
 GEORGE PERRY LEE ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

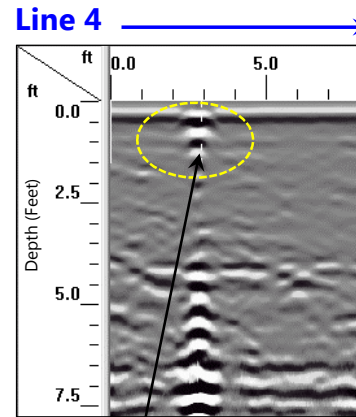
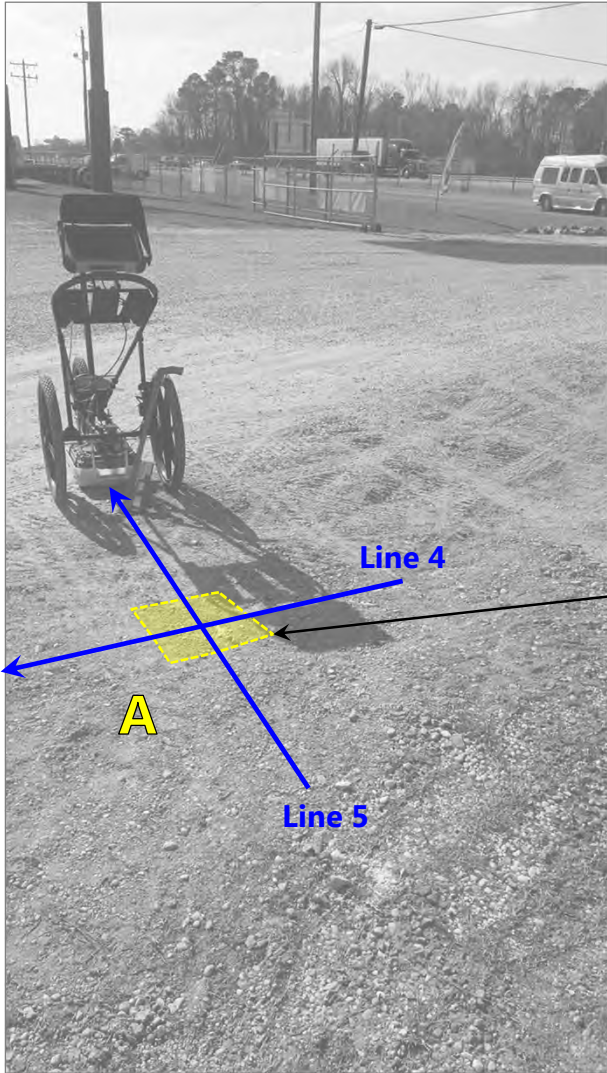
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 3/22/2019

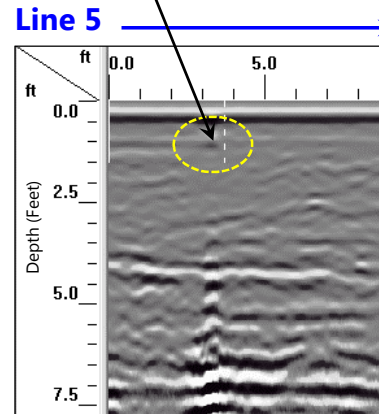
PROJECT NUMBER
 4305-18-175A

FIGURE NO.

7



TDEM
Anomaly A



EXAMPLE GPR DATA – LINES 4 AND 5

NC DOT PROJECT: I-59868
 PARCEL 160 – (P/S TRUCK STORAGE LOT)
 GEORGE PERRY LEE ROAD, DUNN, HARNETT COUNTY, NORTH CAROLINA

SCALE:
AS SHOWN

DATE:
3/22/2019

PROJECT NUMBER
4305-18-175A

FIGURE NO.

8

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

Appendix I – Photographs



Preliminary Site Assessment Report
NCDOT Project I-5986B, WBS Element 47532.1.3
Parcel 160-PJ's Truck Storage Lot
Dunn, Harnett County, North Carolina
S&ME Project No. 4305-18-175A

		Date: 2/25/2019				
		Photographer: JTH				
1	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Location / Orientation</td> <td>View looking North at soil boring B-2.</td> </tr> <tr> <td>Remarks</td> <td>Also location of TW-1.</td> </tr> </table>	Location / Orientation	View looking North at soil boring B-2.	Remarks	Also location of TW-1.	
Location / Orientation	View looking North at soil boring B-2.					
Remarks	Also location of TW-1.					

		Date: 2/25/2019				
		Photographer: JTH				
2	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Location / Orientation</td> <td>View of TW-1 installed at soil boring B-2.</td> </tr> <tr> <td>Remarks</td> <td>None</td> </tr> </table>	Location / Orientation	View of TW-1 installed at soil boring B-2.	Remarks	None	
Location / Orientation	View of TW-1 installed at soil boring B-2.					
Remarks	None					

Appendix II – Boring Logs

Appendix III – Laboratory Analytical Reports and Chain of Custody

Hydrocarbon Analysis Results

Client: S&ME	Samples taken	Monday, February 25, 2019
Address:	Samples extracted	Monday, February 25, 2019
	Samples analysed	Monday, February 25, 2019
Contact: JAMIE HONEYCUTT	Operator	JENN RYAN
Project: 4305-18-175A; PARCEL 160		

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')	23.9	<0.6	<0.6	<0.24	<0.6	<0.01	<0.01	<0.007	0	0	0	PHC ND,(FCM)
Soil	B - 1 (8-10')	22.6	<0.57	<0.57	<0.23	<0.57	<0.01	<0.01	<0.007	0	0	0	PHC ND,(FCM)

Initial Calibrator QC check	OK	Final FCM QC Check	OK	0.996
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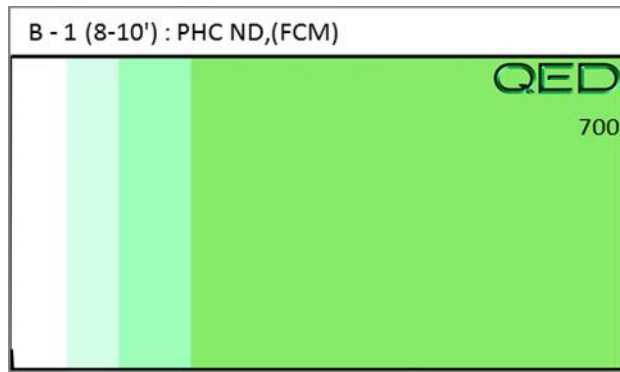
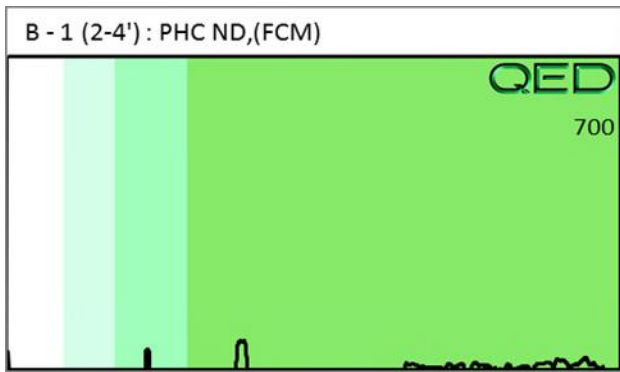
Analysis by QED HC-1 Analyser

Concentration values in mg/kg for soil 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 for hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only : % Ratios estimated carbon number proportions : (OCR)/(Q) = Outside cal range, values and HC match estimates : ND = Not Detected

(B) = Blank Drift : (M) = Adjusted value : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : SB = sample selected as site background





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

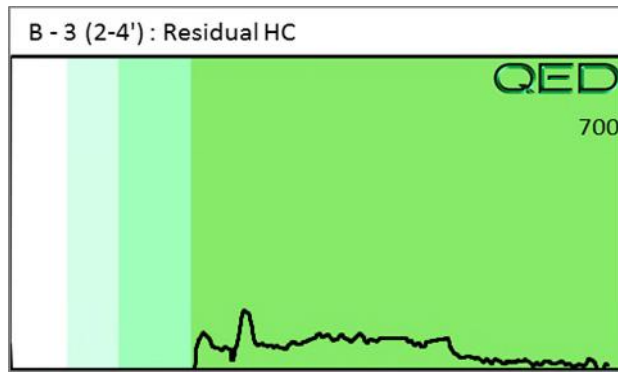
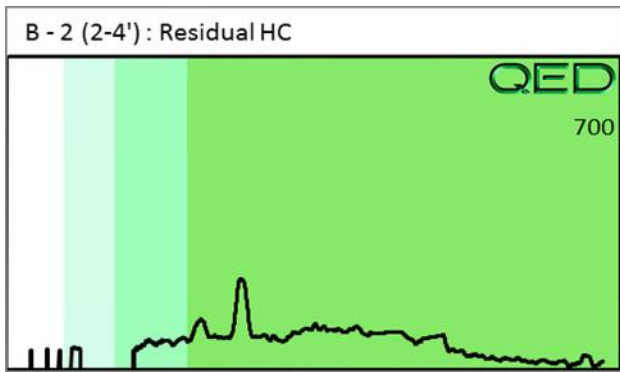
Project: 4305-18-175A; PARCEL 160

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 - 2 (2-4')	25.2	<0.63	<0.63	0.07	0.07	0.07	0.007	<0.008	0	52.4	47.6	Residual HC
Soil	B - 3 (2-4')	19.8	<0.5	<0.5	0.06	0.06	0.05	0.02	0.012	0	20.3	79.7	Residual HC

Initial Calibrator QC check: OK Final FCM QC Check: OK 99.9%

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



March 6, 2019

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

Project Location: Parcel 160 DOT-Dunn
Client Job Number:
Project Number: 4305-18-175A
Laboratory Work Order Number: 19B1123

Enclosed are results of analyses for samples received by the laboratory on February 25, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Kerry K. McGee". The signature is written in a cursive, flowing style.

Kerry K. McGee
Project Manager

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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: 3/6/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 4305-18-175A

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19B1123

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

PROJECT LOCATION: Parcel 160 DOT-Dunn

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
B-2/ TW-1	19B1123-01	Ground Water		SW-846 8260D SW-846 8270D	

EXECUTIVE SUMMARY

Client ID: **B-2/TW-1**

Lab ID: **19B1123-01**

No Results Detected

Con-Test does not accept liability for the consequences of any actions taken solely on the basis of the information provided in the Executive Summary section of this report. Users must review this report in its entirety to determine data usability and assessment.

CASE NARRATIVE SUMMARY

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

For method 8270, only PAHs were requested and reported.

SW-846 8260D**Qualifications:****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:**1,4-Dioxane**

19B1123-01[B-2/ TW-1], B224742-BLK1, B224742-BS1, B224742-BSD1, S033138-CCV1

2-Butanone (MEK)

19B1123-01[B-2/ TW-1], B224742-BLK1, B224742-BS1, B224742-BSD1, S033138-CCV1

Acetone

19B1123-01[B-2/ TW-1], B224742-BLK1, B224742-BS1, B224742-BSD1, S033138-CCV1

Bromomethane

19B1123-01[B-2/ TW-1], B224742-BLK1, B224742-BS1, B224742-BSD1, S033138-CCV1

Chloromethane

19B1123-01[B-2/ TW-1], B224742-BLK1, B224742-BS1, B224742-BSD1, S033138-CCV1

Methylene Chloride

19B1123-01[B-2/ TW-1], B224742-BLK1, B224742-BS1, B224742-BSD1, S033138-CCV1

tert-Butyl Alcohol (TBA)

19B1123-01[B-2/ TW-1], B224742-BLK1, B224742-BS1, B224742-BSD1, S033138-CCV1

Tetrahydrofuran

19B1123-01[B-2/ TW-1], B224742-BLK1, B224742-BS1, B224742-BSD1, S033138-CCV1

V-36

Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:**Carbon Disulfide**

B224742-BS1, B224742-BSD1, S033138-CCV1

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

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

Project Location: Parcel 160 DOT-Dunn

Sample Description:

Work Order: 19B1123

Date Received: 2/25/2019

Field Sample #: B-2/ TW-1

Sampled: 2/25/2019 14:45

Sample ID: 19B1123-01

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	ND	50	9.7	µg/L	1	V-05	SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Acrylonitrile	ND	5.0	0.58	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
tert-Amyl Methyl Ether (TAME)	ND	0.50	0.11	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Benzene	ND	1.0	0.12	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Bromobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Bromochloromethane	ND	1.0	0.22	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Bromodichloromethane	ND	0.50	0.30	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Bromoform	ND	1.0	0.21	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Bromomethane	ND	2.0	0.94	µg/L	1	V-05	SW-846 8260D	3/1/19	3/4/19 12:58	LBD
2-Butanone (MEK)	ND	20	2.4	µg/L	1	V-05	SW-846 8260D	3/1/19	3/4/19 12:58	LBD
tert-Butyl Alcohol (TBA)	ND	20	2.2	µg/L	1	V-05	SW-846 8260D	3/1/19	3/4/19 12:58	LBD
n-Butylbenzene	ND	1.0	0.15	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
sec-Butylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
tert-Butylbenzene	ND	1.0	0.12	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	0.095	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Carbon Disulfide	ND	4.0	1.0	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Carbon Tetrachloride	ND	5.0	0.25	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Chlorobenzene	ND	1.0	0.16	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Chlorodibromomethane	ND	0.50	0.10	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Chloroethane	ND	2.0	0.28	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Chloroform	ND	2.0	0.22	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Chloromethane	ND	2.0	0.55	µg/L	1	V-05	SW-846 8260D	3/1/19	3/4/19 12:58	LBD
2-Chlorotoluene	ND	1.0	0.12	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
4-Chlorotoluene	ND	1.0	0.14	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	0.37	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,2-Dibromoethane (EDB)	ND	0.50	0.15	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Dibromomethane	ND	1.0	0.16	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,2-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,3-Dichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,4-Dichlorobenzene	ND	1.0	0.15	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
trans-1,4-Dichloro-2-butene	ND	2.0	0.31	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Dichlorodifluoromethane (Freon 12)	ND	2.0	0.28	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,1-Dichloroethane	ND	1.0	0.16	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,2-Dichloroethane	ND	1.0	0.19	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,1-Dichloroethylene	ND	1.0	0.21	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
cis-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
trans-1,2-Dichloroethylene	ND	1.0	0.15	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,2-Dichloropropane	ND	1.0	0.13	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,3-Dichloropropane	ND	0.50	0.13	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
2,2-Dichloropropane	ND	1.0	0.21	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,1-Dichloropropene	ND	2.0	0.13	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
cis-1,3-Dichloropropene	ND	0.50	0.12	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
trans-1,3-Dichloropropene	ND	0.50	0.11	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Diethyl Ether	ND	2.0	0.22	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD

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

Project Location: Parcel 160 DOT-Dunn

Sample Description:

Work Order: 19B1123

Date Received: 2/25/2019

Field Sample #: B-2/ TW-1

Sampled: 2/25/2019 14:45

Sample ID: 19B1123-01

Sample Matrix: Ground Water

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	0.50	0.18	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,4-Dioxane	ND	50	26	µg/L	1	V-05	SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Ethylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Hexachlorobutadiene	ND	1.0	0.59	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
2-Hexanone (MBK)	ND	10	1.5	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Isopropylbenzene (Cumene)	ND	1.0	0.12	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
p-Isopropyltoluene (p-Cymene)	ND	1.0	0.15	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Methyl tert-Butyl Ether (MTBE)	ND	1.0	0.090	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Methylene Chloride	ND	5.0	3.2	µg/L	1	V-05	SW-846 8260D	3/1/19	3/4/19 12:58	LBD
4-Methyl-2-pentanone (MIBK)	ND	10	1.5	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Naphthalene	ND	5.0	0.12	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
n-Propylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Styrene	ND	1.0	0.15	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,1,1,2-Tetrachloroethane	ND	1.0	0.12	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,1,2,2-Tetrachloroethane	ND	0.50	0.16	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Tetrachloroethylene	ND	1.0	0.27	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Tetrahydrofuran	ND	10	1.1	µg/L	1	V-05	SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Toluene	ND	1.0	0.17	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,2,3-Trichlorobenzene	ND	5.0	0.14	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,2,4-Trichlorobenzene	ND	1.0	0.19	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,3,5-Trichlorobenzene	ND	1.0	0.17	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,1,1-Trichloroethane	ND	1.0	0.13	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,1,2-Trichloroethane	ND	1.0	0.24	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Trichloroethylene	ND	1.0	0.20	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Trichlorofluoromethane (Freon 11)	ND	2.0	0.15	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,2,3-Trichloropropane	ND	2.0	0.22	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	1.0	0.20	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,2,4-Trimethylbenzene	ND	1.0	0.18	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
1,3,5-Trimethylbenzene	ND	1.0	0.13	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
Vinyl Chloride	ND	2.0	0.13	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
m+p Xylene	ND	2.0	0.26	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD
o-Xylene	ND	1.0	0.13	µg/L	1		SW-846 8260D	3/1/19	3/4/19 12:58	LBD

Surrogates	% Recovery	Recovery Limits	Flag/Qual
1,2-Dichloroethane-d4	92.8	70-130	3/4/19 12:58
Toluene-d8	97.0	70-130	3/4/19 12:58
4-Bromofluorobenzene	102	70-130	3/4/19 12:58

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

Project Location: Parcel 160 DOT-Dunn

Sample Description:

Work Order: 19B1123

Date Received: 2/25/2019

Field Sample #: B-2/ TW-1

Sampled: 2/25/2019 14:45

Sample ID: 19B1123-01

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	3/5/19 11:25	CLA
Acenaphthylene (SIM)	ND	0.20	0.035	µg/L	1		SW-846 8270D	3/4/19	3/5/19 11:25	CLA
Anthracene (SIM)	ND	0.20	0.032	µg/L	1		SW-846 8270D	3/4/19	3/5/19 11:25	CLA
Benzo(a)anthracene (SIM)	ND	0.050	0.016	µg/L	1		SW-846 8270D	3/4/19	3/5/19 11:25	CLA
Benzo(a)pyrene (SIM)	ND	0.10	0.012	µg/L	1		SW-846 8270D	3/4/19	3/5/19 11:25	CLA
Benzo(b)fluoranthene (SIM)	ND	0.050	0.015	µg/L	1		SW-846 8270D	3/4/19	3/5/19 11:25	CLA
Benzo(g,h,i)perylene (SIM)	ND	0.50	0.018	µg/L	1		SW-846 8270D	3/4/19	3/5/19 11:25	CLA
Benzo(k)fluoranthene (SIM)	ND	0.20	0.012	µg/L	1		SW-846 8270D	3/4/19	3/5/19 11:25	CLA
Chrysene (SIM)	ND	0.20	0.015	µg/L	1		SW-846 8270D	3/4/19	3/5/19 11:25	CLA
Dibenz(a,h)anthracene (SIM)	ND	0.10	0.017	µg/L	1		SW-846 8270D	3/4/19	3/5/19 11:25	CLA
Fluoranthene (SIM)	ND	0.50	0.025	µg/L	1		SW-846 8270D	3/4/19	3/5/19 11:25	CLA
Fluorene (SIM)	ND	1.0	0.034	µg/L	1		SW-846 8270D	3/4/19	3/5/19 11:25	CLA
Indeno(1,2,3-cd)pyrene (SIM)	ND	0.10	0.018	µg/L	1		SW-846 8270D	3/4/19	3/5/19 11:25	CLA
2-Methylnaphthalene (SIM)	ND	1.0	0.062	µg/L	1		SW-846 8270D	3/4/19	3/5/19 11:25	CLA
Naphthalene (SIM)	ND	1.0	0.26	µg/L	1		SW-846 8270D	3/4/19	3/5/19 11:25	CLA
Phenanthrene (SIM)	ND	0.050	0.030	µg/L	1		SW-846 8270D	3/4/19	3/5/19 11:25	CLA
Pyrene (SIM)	ND	1.0	0.023	µg/L	1		SW-846 8270D	3/4/19	3/5/19 11:25	CLA
Surrogates		% Recovery	Recovery Limits			Flag/Qual				
Nitrobenzene-d5 (SIM)		75.6	30-130						3/5/19 11:25	
2-Fluorobiphenyl		51.6	30-130						3/5/19 11:25	
p-Terphenyl-d14		54.4	30-130						3/5/19 11:25	

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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
19B1123-01 [B-2/ TW-1]	B224742	5	5.00	03/01/19

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

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19B1123-01 [B-2/ TW-1]	B224945	1000	1.00	03/04/19

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

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
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Batch B224742 - SW-846 5030B

Blank (B224742-BLK1)

Prepared: 03/01/19 Analyzed: 03/04/19

Acetone	ND	50	µg/L							V-05
Acrylonitrile	ND	5.0	µg/L							
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							V-05
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							V-05
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 B224742 - SW-846 5030B										
Blank (B224742-BLK1)										
Prepared: 03/01/19 Analyzed: 03/04/19										
Methylene Chloride	ND	5.0	µg/L							V-05
4-Methyl-2-pentanone (MIBK)	ND	10	µg/L							
Naphthalene	0.22	2.0	µg/L							J
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	0.18	5.0	µg/L							J
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 Acetate	ND	20	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	22.9		µg/L	25.0		91.4	70-130			
Surrogate: Toluene-d8	24.1		µg/L	25.0		96.5	70-130			
Surrogate: 4-Bromofluorobenzene	25.2		µg/L	25.0		101	70-130			
LCS (B224742-BS1)										
Prepared: 03/01/19 Analyzed: 03/04/19										
Acetone	144	50	µg/L	100		144	70-160			V-05 †
Acrylonitrile	8.22	5.0	µg/L	10.0		82.2	70-130			
tert-Amyl Methyl Ether (TAME)	9.45	0.50	µg/L	10.0		94.5	70-130			
Benzene	8.77	1.0	µg/L	10.0		87.7	70-130			
Bromobenzene	9.76	1.0	µg/L	10.0		97.6	70-130			
Bromochloromethane	10.1	1.0	µg/L	10.0		101	70-130			
Bromodichloromethane	9.78	0.50	µg/L	10.0		97.8	70-130			
Bromoform	10.0	1.0	µg/L	10.0		100	70-130			
Bromomethane	4.60	2.0	µg/L	10.0		46.0	40-160			V-05 †
2-Butanone (MEK)	95.9	20	µg/L	100		95.9	40-160			V-05 †
tert-Butyl Alcohol (TBA)	74.8	20	µg/L	100		74.8	40-160			V-05 †
n-Butylbenzene	8.94	1.0	µg/L	10.0		89.4	70-130			
sec-Butylbenzene	9.27	1.0	µg/L	10.0		92.7	70-130			
tert-Butylbenzene	9.12	1.0	µg/L	10.0		91.2	70-130			
tert-Butyl Ethyl Ether (TBEE)	8.64	0.50	µg/L	10.0		86.4	70-130			
Carbon Disulfide	9.02	4.0	µg/L	10.0		90.2	70-130			V-36
Carbon Tetrachloride	9.73	5.0	µg/L	10.0		97.3	70-130			
Chlorobenzene	9.87	1.0	µg/L	10.0		98.7	70-130			
Chlorodibromomethane	10.2	0.50	µg/L	10.0		102	70-130			
Chloroethane	8.42	2.0	µg/L	10.0		84.2	70-130			
Chloroform	8.84	2.0	µg/L	10.0		88.4	70-130			
Chloromethane	6.58	2.0	µg/L	10.0		65.8	40-160			V-05 †

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 B224742 - SW-846 5030B										
LCS (B224742-BS1)										
					Prepared: 03/01/19 Analyzed: 03/04/19					
2-Chlorotoluene	10.1	1.0	µg/L	10.0		101	70-130			
4-Chlorotoluene	10.1	1.0	µg/L	10.0		101	70-130			
1,2-Dibromo-3-chloropropane (DBCP)	9.23	5.0	µg/L	10.0		92.3	70-130			
1,2-Dibromoethane (EDB)	9.95	0.50	µg/L	10.0		99.5	70-130			
Dibromomethane	9.97	1.0	µg/L	10.0		99.7	70-130			
1,2-Dichlorobenzene	9.82	1.0	µg/L	10.0		98.2	70-130			
1,3-Dichlorobenzene	9.78	1.0	µg/L	10.0		97.8	70-130			
1,4-Dichlorobenzene	9.82	1.0	µg/L	10.0		98.2	70-130			
trans-1,4-Dichloro-2-butene	9.99	2.0	µg/L	10.0		99.9	70-130			
Dichlorodifluoromethane (Freon 12)	8.62	2.0	µg/L	10.0		86.2	40-160			†
1,1-Dichloroethane	8.96	1.0	µg/L	10.0		89.6	70-130			
1,2-Dichloroethane	8.93	1.0	µg/L	10.0		89.3	70-130			
1,1-Dichloroethylene	9.27	1.0	µg/L	10.0		92.7	70-130			
cis-1,2-Dichloroethylene	9.02	1.0	µg/L	10.0		90.2	70-130			
trans-1,2-Dichloroethylene	9.44	1.0	µg/L	10.0		94.4	70-130			
1,2-Dichloropropane	9.03	1.0	µg/L	10.0		90.3	70-130			
1,3-Dichloropropane	9.16	0.50	µg/L	10.0		91.6	70-130			
2,2-Dichloropropane	11.3	1.0	µg/L	10.0		113	40-130			†
1,1-Dichloropropene	9.26	2.0	µg/L	10.0		92.6	70-130			
cis-1,3-Dichloropropene	9.53	0.50	µg/L	10.0		95.3	70-130			
trans-1,3-Dichloropropene	9.61	0.50	µg/L	10.0		96.1	70-130			
Diethyl Ether	8.93	2.0	µg/L	10.0		89.3	70-130			
Diisopropyl Ether (DIPE)	8.03	0.50	µg/L	10.0		80.3	70-130			
1,4-Dioxane	75.4	50	µg/L	100		75.4	40-130			V-05 †
Ethylbenzene	9.70	1.0	µg/L	10.0		97.0	70-130			
Hexachlorobutadiene	9.96	0.60	µg/L	10.0		99.6	70-130			
2-Hexanone (MBK)	96.8	10	µg/L	100		96.8	70-160			†
Isopropylbenzene (Cumene)	10.1	1.0	µg/L	10.0		101	70-130			
p-Isopropyltoluene (p-Cymene)	9.19	1.0	µg/L	10.0		91.9	70-130			
Methyl tert-Butyl Ether (MTBE)	9.32	1.0	µg/L	10.0		93.2	70-130			
Methylene Chloride	7.95	5.0	µg/L	10.0		79.5	70-130			V-05
4-Methyl-2-pentanone (MIBK)	83.0	10	µg/L	100		83.0	70-160			†
Naphthalene	10.8	2.0	µg/L	10.0		108	40-130			†
n-Propylbenzene	10.1	1.0	µg/L	10.0		101	70-130			
Styrene	9.96	1.0	µg/L	10.0		99.6	70-130			
1,1,1,2-Tetrachloroethane	10.2	1.0	µg/L	10.0		102	70-130			
1,1,2,2-Tetrachloroethane	10.6	0.50	µg/L	10.0		106	70-130			
Tetrachloroethylene	10.8	1.0	µg/L	10.0		108	70-130			
Tetrahydrofuran	7.74	10	µg/L	10.0		77.4	70-130			V-05, J
Toluene	9.49	1.0	µg/L	10.0		94.9	70-130			
1,2,3-Trichlorobenzene	11.1	5.0	µg/L	10.0		111	70-130			
1,2,4-Trichlorobenzene	10.7	1.0	µg/L	10.0		107	70-130			
1,3,5-Trichlorobenzene	10.2	1.0	µg/L	10.0		102	70-130			
1,1,1-Trichloroethane	9.32	1.0	µg/L	10.0		93.2	70-130			
1,1,2-Trichloroethane	9.87	1.0	µg/L	10.0		98.7	70-130			
Trichloroethylene	9.58	1.0	µg/L	10.0		95.8	70-130			
Trichlorofluoromethane (Freon 11)	8.82	2.0	µg/L	10.0		88.2	70-130			
1,2,3-Trichloropropane	9.91	2.0	µg/L	10.0		99.1	70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	9.73	1.0	µg/L	10.0		97.3	70-130			
1,2,4-Trimethylbenzene	8.78	1.0	µg/L	10.0		87.8	70-130			
1,3,5-Trimethylbenzene	9.92	1.0	µg/L	10.0		99.2	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
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Batch B224742 - SW-846 5030B

LCS (B224742-BS1)

Prepared: 03/01/19 Analyzed: 03/04/19

Vinyl Acetate	81.5	20	µg/L	100		81.5	70-130			
Vinyl Chloride	7.95	2.0	µg/L	10.0		79.5	40-160			†
m+p Xylene	19.7	2.0	µg/L	20.0		98.5	70-130			
o-Xylene	9.90	1.0	µg/L	10.0		99.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	23.0		µg/L	25.0		92.1	70-130			
Surrogate: Toluene-d8	24.4		µg/L	25.0		97.6	70-130			
Surrogate: 4-Bromofluorobenzene	25.2		µg/L	25.0		101	70-130			

LCS Dup (B224742-BSD1)

Prepared: 03/01/19 Analyzed: 03/04/19

Acetone	139	50	µg/L	100		139	70-160	3.31	25	V-05	†
Acrylonitrile	8.08	5.0	µg/L	10.0		80.8	70-130	1.72	25		
tert-Amyl Methyl Ether (TAME)	9.17	0.50	µg/L	10.0		91.7	70-130	3.01	25		
Benzene	8.52	1.0	µg/L	10.0		85.2	70-130	2.89	25		
Bromobenzene	9.73	1.0	µg/L	10.0		97.3	70-130	0.308	25		
Bromochloromethane	10.3	1.0	µg/L	10.0		103	70-130	2.75	25		
Bromodichloromethane	9.70	0.50	µg/L	10.0		97.0	70-130	0.821	25		
Bromoform	9.99	1.0	µg/L	10.0		99.9	70-130	0.200	25		
Bromomethane	5.67	2.0	µg/L	10.0		56.7	40-160	20.8	25	V-05	†
2-Butanone (MEK)	93.3	20	µg/L	100		93.3	40-160	2.75	25	V-05	†
tert-Butyl Alcohol (TBA)	75.6	20	µg/L	100		75.6	40-160	1.06	25	V-05	†
n-Butylbenzene	9.00	1.0	µg/L	10.0		90.0	70-130	0.669	25		
sec-Butylbenzene	9.00	1.0	µg/L	10.0		90.0	70-130	2.96	25		
tert-Butylbenzene	8.99	1.0	µg/L	10.0		89.9	70-130	1.44	25		
tert-Butyl Ethyl Ether (TBEE)	8.29	0.50	µg/L	10.0		82.9	70-130	4.13	25		
Carbon Disulfide	8.50	4.0	µg/L	10.0		85.0	70-130	5.94	25	V-36	
Carbon Tetrachloride	9.16	5.0	µg/L	10.0		91.6	70-130	6.03	25		
Chlorobenzene	9.88	1.0	µg/L	10.0		98.8	70-130	0.101	25		
Chlorodibromomethane	9.88	0.50	µg/L	10.0		98.8	70-130	3.48	25		
Chloroethane	8.09	2.0	µg/L	10.0		80.9	70-130	4.00	25		
Chloroform	8.75	2.0	µg/L	10.0		87.5	70-130	1.02	25		
Chloromethane	6.52	2.0	µg/L	10.0		65.2	40-160	0.916	25	V-05	†
2-Chlorotoluene	9.92	1.0	µg/L	10.0		99.2	70-130	2.00	25		
4-Chlorotoluene	9.85	1.0	µg/L	10.0		98.5	70-130	2.90	25		
1,2-Dibromo-3-chloropropane (DBCP)	9.54	5.0	µg/L	10.0		95.4	70-130	3.30	25		
1,2-Dibromoethane (EDB)	9.88	0.50	µg/L	10.0		98.8	70-130	0.706	25		
Dibromomethane	9.64	1.0	µg/L	10.0		96.4	70-130	3.37	25		
1,2-Dichlorobenzene	9.68	1.0	µg/L	10.0		96.8	70-130	1.44	25		
1,3-Dichlorobenzene	9.82	1.0	µg/L	10.0		98.2	70-130	0.408	25		
1,4-Dichlorobenzene	9.71	1.0	µg/L	10.0		97.1	70-130	1.13	25		
trans-1,4-Dichloro-2-butene	10.1	2.0	µg/L	10.0		101	70-130	1.29	25		
Dichlorodifluoromethane (Freon 12)	8.18	2.0	µg/L	10.0		81.8	40-160	5.24	25		†
1,1-Dichloroethane	8.70	1.0	µg/L	10.0		87.0	70-130	2.94	25		
1,2-Dichloroethane	8.83	1.0	µg/L	10.0		88.3	70-130	1.13	25		
1,1-Dichloroethylene	9.08	1.0	µg/L	10.0		90.8	70-130	2.07	25		
cis-1,2-Dichloroethylene	8.62	1.0	µg/L	10.0		86.2	70-130	4.54	25		
trans-1,2-Dichloroethylene	8.88	1.0	µg/L	10.0		88.8	70-130	6.11	25		
1,2-Dichloropropane	8.78	1.0	µg/L	10.0		87.8	70-130	2.81	25		
1,3-Dichloropropane	9.21	0.50	µg/L	10.0		92.1	70-130	0.544	25		
2,2-Dichloropropane	10.7	1.0	µg/L	10.0		107	40-130	5.44	25		†
1,1-Dichloropropene	8.98	2.0	µg/L	10.0		89.8	70-130	3.07	25		
cis-1,3-Dichloropropene	9.29	0.50	µg/L	10.0		92.9	70-130	2.55	25		
trans-1,3-Dichloropropene	9.51	0.50	µg/L	10.0		95.1	70-130	1.05	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 B224742 - SW-846 5030B										
LCS Dup (B224742-BSD1)										
					Prepared: 03/01/19 Analyzed: 03/04/19					
Diethyl Ether	8.81	2.0	µg/L	10.0		88.1	70-130	1.35	25	
Diisopropyl Ether (DIPE)	7.86	0.50	µg/L	10.0		78.6	70-130	2.14	25	
1,4-Dioxane	76.5	50	µg/L	100		76.5	40-130	1.47	50	V-05 † ‡
Ethylbenzene	9.39	1.0	µg/L	10.0		93.9	70-130	3.25	25	
Hexachlorobutadiene	9.96	0.60	µg/L	10.0		99.6	70-130	0.00	25	
2-Hexanone (MBK)	94.9	10	µg/L	100		94.9	70-160	1.98	25	†
Isopropylbenzene (Cumene)	9.75	1.0	µg/L	10.0		97.5	70-130	3.53	25	
p-Isopropyltoluene (p-Cymene)	9.17	1.0	µg/L	10.0		91.7	70-130	0.218	25	
Methyl tert-Butyl Ether (MTBE)	9.09	1.0	µg/L	10.0		90.9	70-130	2.50	25	
Methylene Chloride	7.70	5.0	µg/L	10.0		77.0	70-130	3.19	25	V-05
4-Methyl-2-pentanone (MIBK)	81.8	10	µg/L	100		81.8	70-160	1.49	25	†
Naphthalene	11.0	2.0	µg/L	10.0		110	40-130	1.10	25	†
n-Propylbenzene	9.73	1.0	µg/L	10.0		97.3	70-130	4.13	25	
Styrene	9.86	1.0	µg/L	10.0		98.6	70-130	1.01	25	
1,1,1,2-Tetrachloroethane	10.3	1.0	µg/L	10.0		103	70-130	1.27	25	
1,1,2,2-Tetrachloroethane	10.7	0.50	µg/L	10.0		107	70-130	0.564	25	
Tetrachloroethylene	10.3	1.0	µg/L	10.0		103	70-130	5.41	25	
Tetrahydrofuran	7.30	10	µg/L	10.0		73.0	70-130	5.85	25	V-05, J
Toluene	9.20	1.0	µg/L	10.0		92.0	70-130	3.10	25	
1,2,3-Trichlorobenzene	11.0	5.0	µg/L	10.0		110	70-130	1.36	25	
1,2,4-Trichlorobenzene	10.6	1.0	µg/L	10.0		106	70-130	0.376	25	
1,3,5-Trichlorobenzene	10.1	1.0	µg/L	10.0		101	70-130	1.08	25	
1,1,1-Trichloroethane	9.32	1.0	µg/L	10.0		93.2	70-130	0.00	25	
1,1,2-Trichloroethane	9.61	1.0	µg/L	10.0		96.1	70-130	2.67	25	
Trichloroethylene	9.24	1.0	µg/L	10.0		92.4	70-130	3.61	25	
Trichlorofluoromethane (Freon 11)	8.42	2.0	µg/L	10.0		84.2	70-130	4.64	25	
1,2,3-Trichloropropane	10.0	2.0	µg/L	10.0		100	70-130	1.10	25	
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	9.25	1.0	µg/L	10.0		92.5	70-130	5.06	25	
1,2,4-Trimethylbenzene	8.72	1.0	µg/L	10.0		87.2	70-130	0.686	25	
1,3,5-Trimethylbenzene	9.65	1.0	µg/L	10.0		96.5	70-130	2.76	25	
Vinyl Acetate	80.4	20	µg/L	100		80.4	70-130	1.33	25	
Vinyl Chloride	7.55	2.0	µg/L	10.0		75.5	40-160	5.16	25	†
m+p Xylene	19.3	2.0	µg/L	20.0		96.3	70-130	2.26	25	
o-Xylene	9.64	1.0	µg/L	10.0		96.4	70-130	2.66	25	
Surrogate: 1,2-Dichloroethane-d4	22.8		µg/L	25.0		91.4	70-130			
Surrogate: Toluene-d8	24.2		µg/L	25.0		96.8	70-130			
Surrogate: 4-Bromofluorobenzene	25.0		µg/L	25.0		99.9	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.
- 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-36 Initial calibration verification (ICV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8260D in Water</i>	
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

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
<i>SW-846 8260D in Water</i>	
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

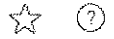
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The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

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 Public 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



785691220555



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



DELIVERED

Signed for by: B.BECCA

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM
RALEIGH, NC US

TO
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 _____



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 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:

[Empty box for comments]