



Engineering of NC INC



an affiliate of **The GEL Group** INC

GEOENVIRONMENTAL PHASE II INVESTIGATION REPORT PARCEL #4

5611 NEW TOWN ROAD, WAXHAW, NC

January 16, 2020

WBS Number: 47884.1.1

TIP Number: W-5710Y

County: Union

Description: SR 1315 (New Town Road) and SR 1008 (Waxhaw Indian Trail) in Wesley Chapel Waxhaw, Union County, NC

Parcel No (PIN): Parcel #4; PIN # 06075010A

Address: 5611 New Town Road, Waxhaw, NC 28173

Submitted to:

North Carolina Department of Transportation

Geotechnical Engineering Unit

1589 Mail Service Center

Raleigh, North Carolina 27699-1589

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This document, entitled *GeoEnvironmental Phase II Investigation Report, Parcel #4, 5611 New Town Road, Waxhaw, NC*, has been prepared by GEL Engineering of NC, Inc., for the parcel identified above in accordance with the Notice to Proceed issued by the North Carolina Department of Transportation – Geotechnical Engineering Unit on August 13, 2019, and the final authorization to proceed issued on October 14, 2019. It has been prepared in accordance with accepted quality control practices for the exclusive use of the North Carolina Department of Transportation and has been reviewed by the undersigned.

GEL ENGINEERING OF NC, INC.
an Affiliate of The GEL Group, Inc.



E. Jorgen Bergstrom
Senior Geophysicist

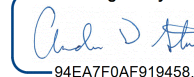


Andrew D. Stahl, L.G.
Senior Project Manager

January 16, 2020

Date

DocuSigned by:



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**GEOENVIRONMENTAL PHASE II INVESTIGATION REPORT
PARCEL #4
5611 NEW TOWN ROAD, WAXHAW, CORNELIUS, NC**

January 16, 2020

**SR 1315 (New Town Road) and SR 1008 (Waxhaw Indian Trail) in Wesley Chapel
Waxhaw, Union County, NC
Parcel #4; PIN # 06075010A
WBS Number: 47884.1.1; TIP Number: W-5710Y
Union County**

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1.0 INTRODUCTION

The North Carolina Department of Transportation (NCDOT) authorized GEL Engineering of NC, Inc. (GEL), to perform a Phase II GeoEnvironmental Investigation at the subject parcel in Union County. The objective of the investigation was to evaluate the presence of potential environmental hazards within the existing and proposed rights-of-way (ROWs) and/or easements, including objects such as underground storage tanks (USTs) and petroleum contaminated soil. The subject parcel location is shown on Figure 1 and listed below.

Parcel #	Owners	Address	Union County PIN #
4 (PS 4)	George H. Winchell, Sandra A. Fenn, Carol Sue Gates, and Margaret W. Thewes	5611 New Town Road, Waxhaw, NC 28173	06075010A

A portion of the parcel was designated as the investigation area from information included in NCDOT's W-5710Y CAD files and input the NCDOT GeoEnvironmental Project Manager provided to GEL. This area is shown on Figure 2 and extends from the edge-of-pavement to the innermost existing or proposed ROW or easement. Geophysical surveys were conducted across the investigation area using ground penetrating radar (GPR) and time-domain electromagnetic (TDEM) technologies. Twelve geoenvironmental soil borings were installed within the investigation area at the locations shown on Figure 3. The methodologies and results of these investigations are discussed in the following sections.

In addition to the electronic DocuSign copy of this report, GEL is submitting to NCDOT (a) an electronic MicroStation W-5710Y_env_geo.dgn file that provides the geoenvironmental soil boring locations, and (b) a Microsoft Excel file of the soil sample ultra-violet fluorescence (UVF) spectrometry analytical results prepared by RED Lab, LLC, of Wilmington, North Carolina (RED Lab).

2.0 HISTORY

The GeoEnvironmental Phase I Report prepared by the NCDOT GeoEnvironmental Section included the following comments regarding the subject parcel:

Parcel 006: Based on the architecture of this building, its location, and the “in and out” style driveway; it is believed to have once operated as a gas station. Based on a review of the Union County tax records, the building was constructed around the 1940's. There are no documented UST incidents associated with this property, nor are there any underground storage tanks in the regulatory database registered at this address.

GEL searched North Carolina Department of Environmental Quality (NCDEQ) electronic records and contacted the NCDEQ Mooresville Regional Office and NCDEQ Headquarters in Raleigh to obtain pertinent environmental records and regulatory history. NCDEQ responded they have no record of the facility in their various databases. This is consistent with the results of GEL’s online search of the NCDEQ registered USTs, UST incidences, and other data systems.

3.0 SITE OBSERVATIONS

In advance of the field investigation, the GEL Project Manager contacted and advised the property owner, Mr. George Winchell, of the planned investigation activities. Upon commencement of field activities, the GEL Project Manager conducted a site reconnaissance, and no features of potential environmental concern were observed within or adjacent to the investigation area. The only obstructions to the geophysical survey across the investigation area were minor surface utility structures, signposts, and landscaping. Representative photographs taken during the site reconnaissance are provided in Appendix A.

4.0 METHODS

This section describes the field methods followed to complete the geophysical surveys and the geoenvironmental soil boring and sampling program.

4.1 Geophysical Survey Methods

The geophysical evaluation included the deployment of GPR and TDEM technologies to the site. These technologies were used in concert with one another in order to identify the presence of potential USTs or other subsurface features of concern such as buried drums. A brief description of these technologies is presented in the following paragraphs.

The GPR and TDEM surveys were conducted by towing the geophysical equipment along a system of transect lines on an approximately 2.5-foot spaced grid established within the investigation area. In spatially restricted and surface obstructed areas, a modified pattern of transect lines was implemented to maximize data acquisition. Positioning for the investigation was provided using a Trimble real-time kinematic (RTK) global positioning system (GPS).

4.1.1 Ground Penetrating Radar Methodology

An ImpulseRadar Crossover dual-channel digital radar control system configured with a 400- and 800-Megahertz (MHz) antenna array was used in this investigation. GPR is an electromagnetic geophysical method that detects interfaces between subsurface materials with differing dielectric constants. The GPR system consists of an antenna which houses the transmitter and receiver, a digital control unit which both generates and digitally records the GPR data, and a color video monitor to view data as it is collected in the field.

The transmitter radiates repetitive short duration electromagnetic waves (at radar frequencies) into the earth from an antenna moving across the ground surface. These radar waves are reflected back to the receiver from the interface of materials with different dielectric constants. The intensity of the reflected signal is a function of the contrast in the dielectric constant between the materials, the conductivity of the material through which the wave is traveling, and the frequency of the signal.

Subsurface features that commonly cause such reflections are: 1) natural geologic conditions, such as changes in sediment composition, bedding, and cementation horizons and voids; or 2) unnatural changes to the subsurface such as disturbed soils, soil backfill, buried debris, tanks,

pipelines, and utilities. The digital control unit processes the signal from the receiver and produces a continuous cross-section of the subsurface interface reflection events.

GPR data profiles were collected along transects covering the entire investigation area. Depth of investigation of the GPR signal is highly site specific and is limited by signal attenuation (absorption) in 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 clays, brackish groundwater, or groundwater with a high dissolved solid content from natural or manmade sources. Signal attenuation is lowest in relatively low conductivity materials such as dry sand or rock. Depth of investigation is also dependent on the antenna's transmitting frequency. Depth of investigation generally increases as transmitting frequency decreases; however, the ability to resolve smaller subsurface features is diminished as frequency is decreased. The average depth of penetration at this site was approximately 3 to 5 feet below the surface.

The GPR antenna used at this site is internally shielded from aboveground interference sources. Accordingly, the GPR response is not affected by overhead power lines, metallic buildings, or nearby objects.

4.1.2 Time Domain Electromagnetic Methodology

TDEM methods measure the electrical conductivity of subsurface materials. The conductivity is determined by inducing (from a transmitter) a time or frequency-varying magnetic field and measuring (with a receiver) the amplitude and phase shift of an induced secondary magnetic field. The secondary magnetic field is created by subsurface conductive materials behaving as an inductor as the primary magnetic field is passed through them.

The Geonics EM-61 system used in this investigation operates within these principles. However, the EM-61 TDEM system can discriminate between moderately conductive earth materials and very conductive metallic targets. The EM-61 consists of a portable coincident loop time domain transmitter and receiver with a 1.0-meter by 0.5-meter coil system. The EM-61 generates 150 pulses per second and measures the response from the ground after transmission or between pulses. The secondary EM responses from metallic targets are of longer duration than those created by conductive earth materials. By recording the later time EM arrivals, only the response from metallic targets is measured, rather than the field generated by the earth material.

4.2 GeoEnvironmental Soil Borings and Soil Sampling

A direct push technology (DPT) drilling rig provided by our subcontracted driller, Regional Probing Services, Inc., was used to advance soil borings across the investigation area at the locations shown on Figure 3. A utility clearance was performed by North Carolina One-Call across the investigation area prior to the soil boring program. In addition to the GPR and TDEM geophysical investigations described in Section 4.1, GEL specifically cleared each planned drilling location for underground utilities utilizing radio frequency electromagnetics instrumentation.

GEL attempted to install each of the 12 soil borings to 10 feet below ground surface (bgs), but DPT refusal occurred in each hole, with boring depths ranging from 5 to 9 feet bgs. DPT soil sampling consists of pushing/hammering a stainless-steel, 4-foot long, Macro-Core soil sampler and PVC liner to the desired sampling depth. The liner is removed from the soil sampler and cut to expose a continuous soil core for characterization and sampling. Lithologic descriptions of soil samples were recorded on soil boring logs along with other field observations. The soil boring logs are provided as Appendix B. Downhole DPT equipment was decontaminated before and after each boring was constructed. Following sample collection, the borings were backfilled with bentonite chips, and the location of each boring (Figure 3) was measured using the Trimble RTK/GPS.

Subsurface soil was screened for organic vapors using a field photoionization detector (PID), and these measurements were recorded on the soil boring logs (Appendix B). The PID measures the concentration of organic compounds in the vapor space above a soil sample resulting from volatilization of organic compounds contained in the soil. To screen the soils, each sample was placed in a clean, resealable polyethylene bag. The bag was sealed, the sample was allowed to equilibrate, the probe of the PID was then inserted into the bag, and the airspace above the soil was screened for organic vapors.

After the soil core extracted from each boring was logged, the horizon with the highest field PID reading was selected for laboratory analysis. In the absence of discernable PID reading differences, the sample depths for laboratory analysis were selected as those indicated by the NCDOT W-5710Y plans and cross sections to be most representative soil horizons to be cut or otherwise handled by NCDOT at this parcel during the planned construction project. From borings placed in locations where soil will be cut to construct a planned drainage ditch (SB-7 through SB-11; see Figure 3), soil samples were collected from 2 to 3 feet bgs for laboratory

analysis. Elsewhere across the Site, soil samples from 1 to 2 feet bgs were collected for laboratory analysis (except soil boring SB-12, where the sample from 2 to 3 feet bgs was selected for laboratory analysis based on PID screening results).

To collect the sample, approximately 10 grams of soil from the selected horizon were extracted using a laboratory-provided Terra-Core sampler and transferred into a laboratory-provided VOA vial containing 20 milliliters of methanol preservative and handled according to RED Lab field sampling protocol. Laboratory-quality nitrile gloves were worn by sampling personnel throughout the sampling process and changed between each sample. Upon collection, sample bottles were placed on ice in a cooler and transported to the analytical laboratory under proper chain-of-custody procedures. The samples were submitted to RED Lab and analyzed by UVF Spectrometry for the following indicator parameters to evaluate the investigation area for the presence petroleum of contaminated soil:

- Total benzene, toluene, ethylbenzene, and xylenes (BTEX) (C6-C9 fraction)
- Diesel Range Organics (DRO) (C10-C35 fraction)
- Gasoline Range Organics (GRO) (C5-C10 fraction)
- Total Petroleum Hydrocarbons (TPH) (C5-C35 fraction)
- Total Aromatics (C10-C35 fraction)
- 16 EPA Polycyclic Aromatic Hydrocarbons (PAHs) (total PAH value)
- Benzo(a)Pyrene.

5.0 RESULTS

The results of the geophysical surveys and geoenvironmental soil boring and soil sampling program are presented below.

5.1 Geophysical Survey Results

The geophysical field investigation was successfully performed at the subject parcel. Interpretation of the GPR data was conducted in the field, with subsequent data processing including band pass filtering, background removal, horizontal smoothing, and gain adjustments. TDEM was also used to scan the project site. The TDEM survey results are displayed on Figure 4. No electromagnetic or GPR anomalies were detected that were indicative of buried metallic objects that warranted marking in the field. All high TDEM responses shown on Figure 4 are correlated to underground utilities, surface metallic debris, and/or above-ground metal structures as labeled on the figure and are not considered to be representative of “Potential USTs.”

5.2 Soil Sample Analytical Results

The field PID screening measurements are listed in Table 1. Organic vapors were not detected in any boring except for SB-12, with a highest PID measurement of 1.0 parts per million (ppm) at 2 to 3 feet bgs. In lieu of discernable PID-reading differences across soil horizons from soil borings SB-1 through SB-11, soil samples were collected from horizons for laboratory analysis based on the NCDOT W-5710Y plans and cross sections, as discussed in Section 4.2. The selected soil samples were submitted to RED Lab for indicator-parameter UVF Spectrometry analysis to evaluate for the presence petroleum contaminated soil. A summary of the soil sampling details is tabulated in Table 1, along with a listing of the northing and easting coordinates for the boring locations.

The UVF Spectrometry analytical results for GRO, DRO, and TPH are presented in Table 1. These results are also presented in Appendix B along with hydrocarbon fingerprint graphs prepared by RED Lab and the chain-of-custody form completed for the project. Consistent with the field PID measurement results, none of the samples contained notable concentrations of petroleum hydrocarbons. The highest reported TPH concentration (carbon range C5 through C35) was 6.2 mg/Kg in the sample from boring SB-4. These hydrocarbons all fell within the DRO range of C10 through C35, with 3.8 mg/Kg reported as aromatics (C10 to C35; see Appendix C). The reported

concentration of 6.2 mg/Kg is below the NCDEQ screening levels for DRO of 100 mg/Kg and for GRO of 50 mg/Kg. The only other sample that had detectable TPH was collected from soil boring SB-2, with a trace-level concentration of 0.16 mg/Kg, reported as aromatics (C10-C35). The distribution of the reported TPH concentrations are illustrated on Figure 5.

6.0 CONCLUSIONS

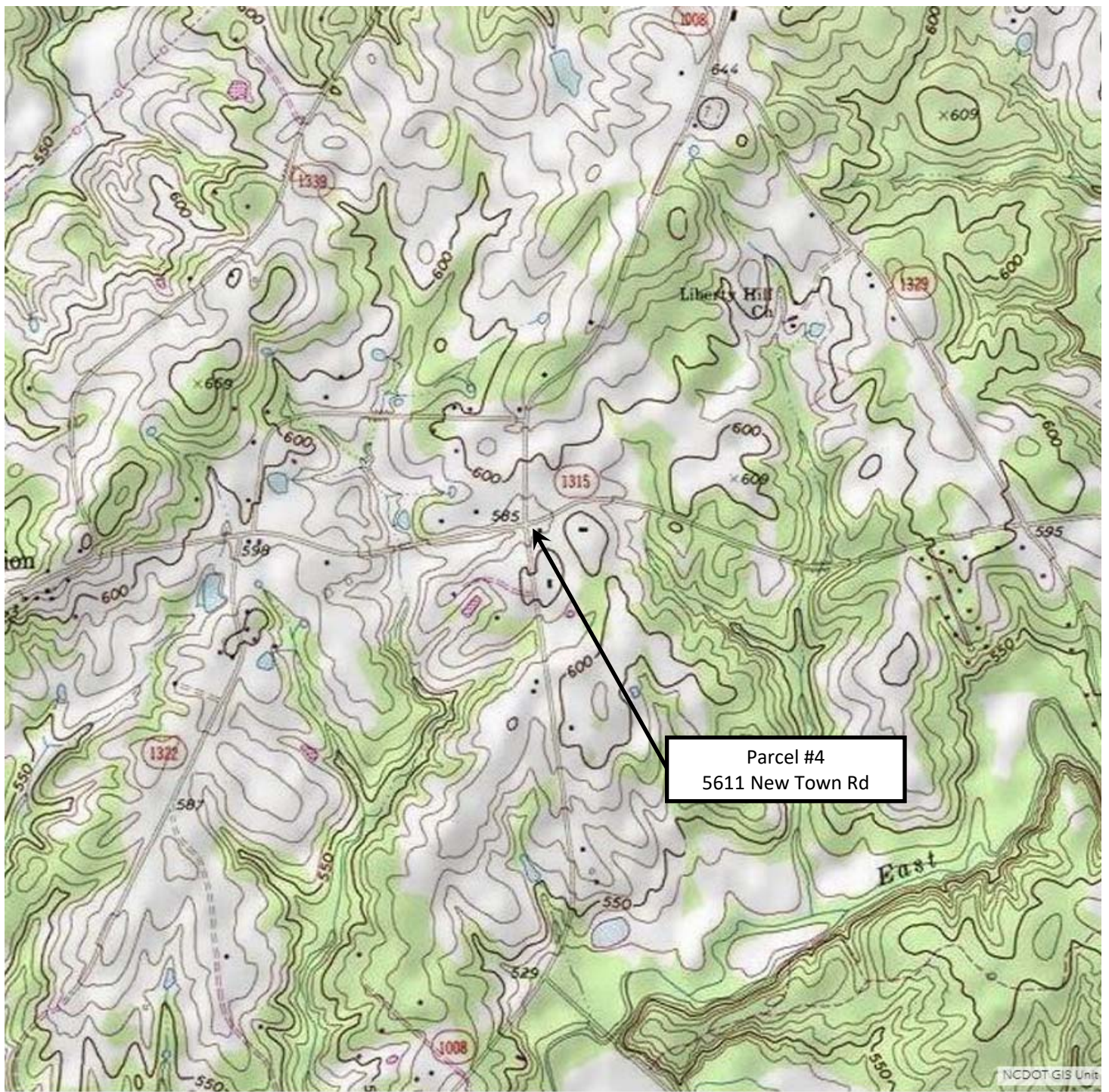
Field and office review of the geophysical field investigation data correlated all identified geophysical anomalies to underground utilities, surface or shallow-buried metallic debris, and/or above ground metal structures. No potential anomalies were marked in the field, and the geophysical survey results suggest there are no buried metallic objects indicative of “Potential USTs” within the investigation area.

Only minor concentrations of petroleum hydrocarbons were identified in soil samples. The highest concentration of 6.2 mg/Kg is well below NCDEQ screening levels.

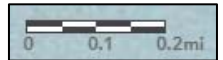
7.0 RECOMMENDATIONS

No additional environmental investigation of the soil at the site is recommended at this time. Although geophysical methods provide a high level of assurance for the location of subsurface objects, the possibility exists that not all features can or will be identified. Therefore, due caution should be used when performing subsurface excavation across the entire investigation area.

FIGURES



NCDOT | Copyright © 2013 National Geographic Society, i-cubed **POWERED BY esri**



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PROJECT: ncdt06119

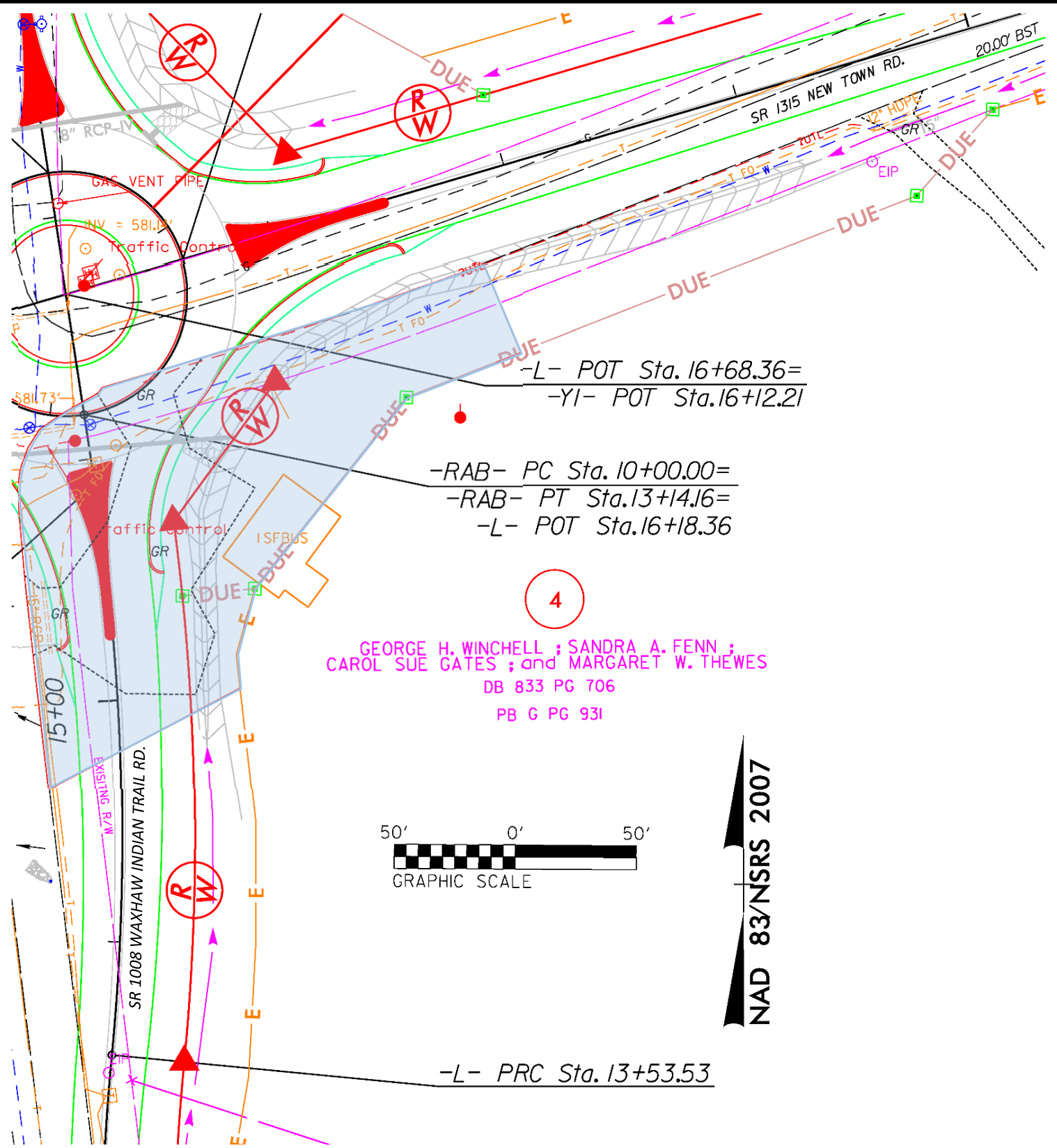
GEOENVIRONMENTAL PHASE II
 INVESTIGATION REPORT
 SR 1315 (NEW TOWN ROAD) AND SR 1008
 (WAXHAW INDIAN TRAIL) IN WESLEY
 CHAPEL, WAXHAW, UNION COUNTY, NC
 TIP No. W-5710Y, WBS No. 47884.1.1

DATE: January 16, 2020

SITE LOCATION
 MAP

DRAWN BY: ADS

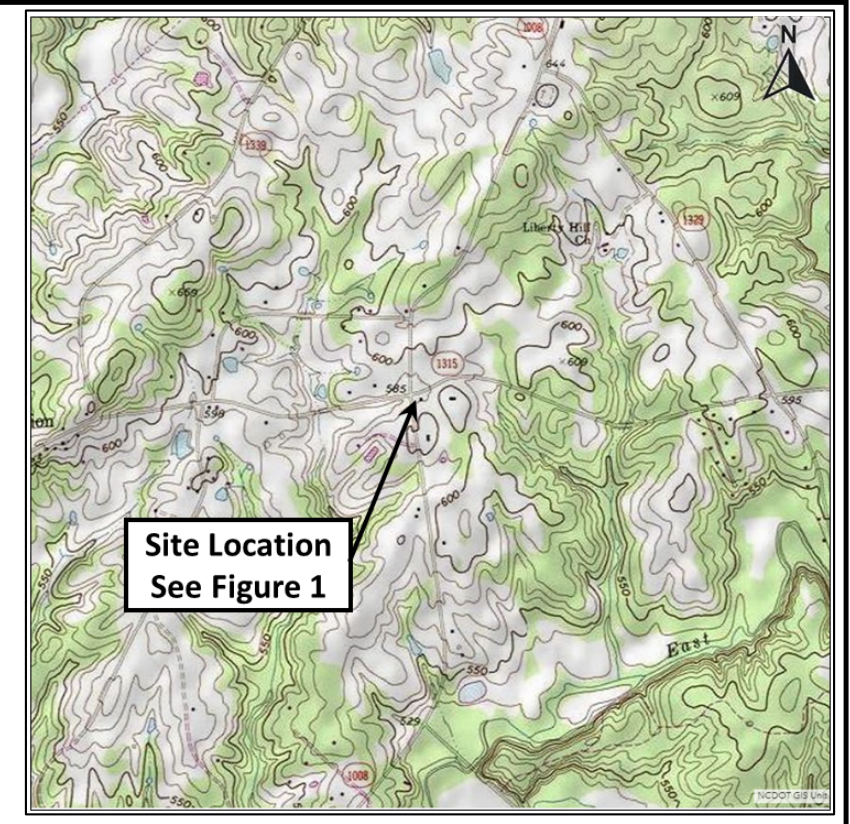
FIGURE
 1



4
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 CAROL SUE GATES ; and MARGARET W. THEWES
 DB 833 PG 706
 PB G PG 93I



NAD 83/NSRS 2007

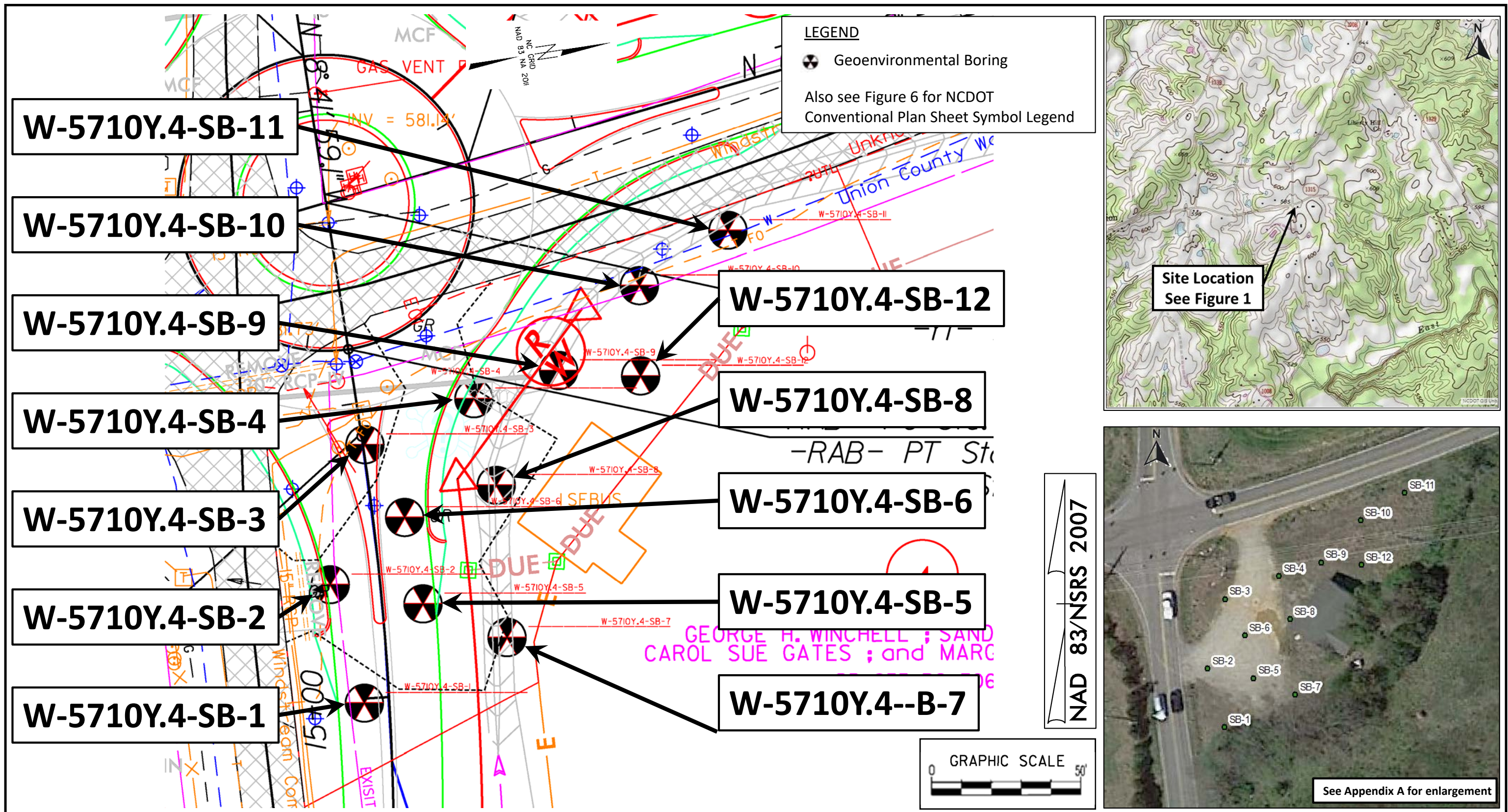


Site Location
 See Figure 1

LEGEND

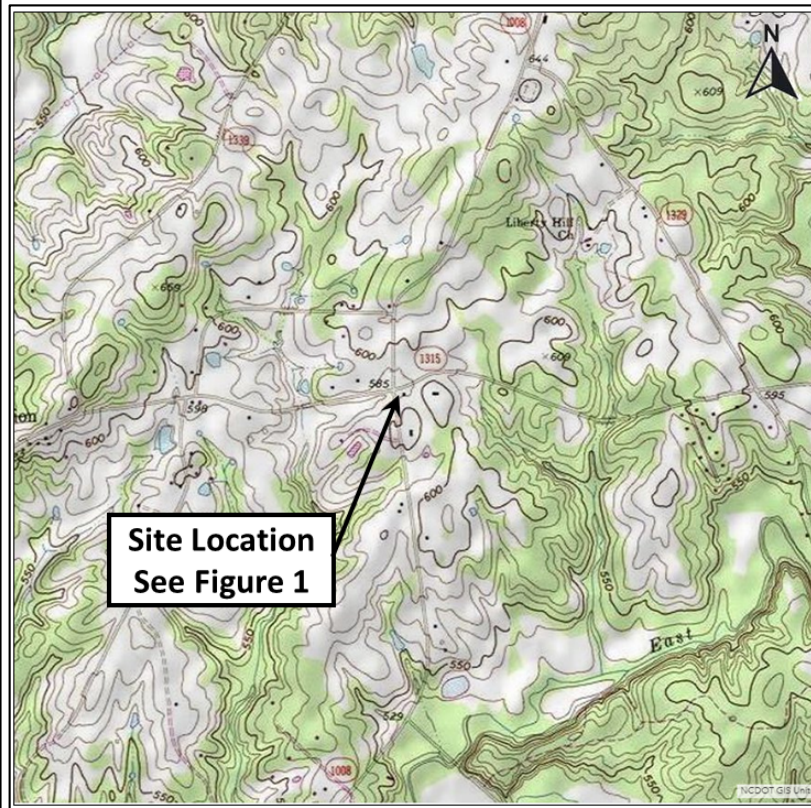
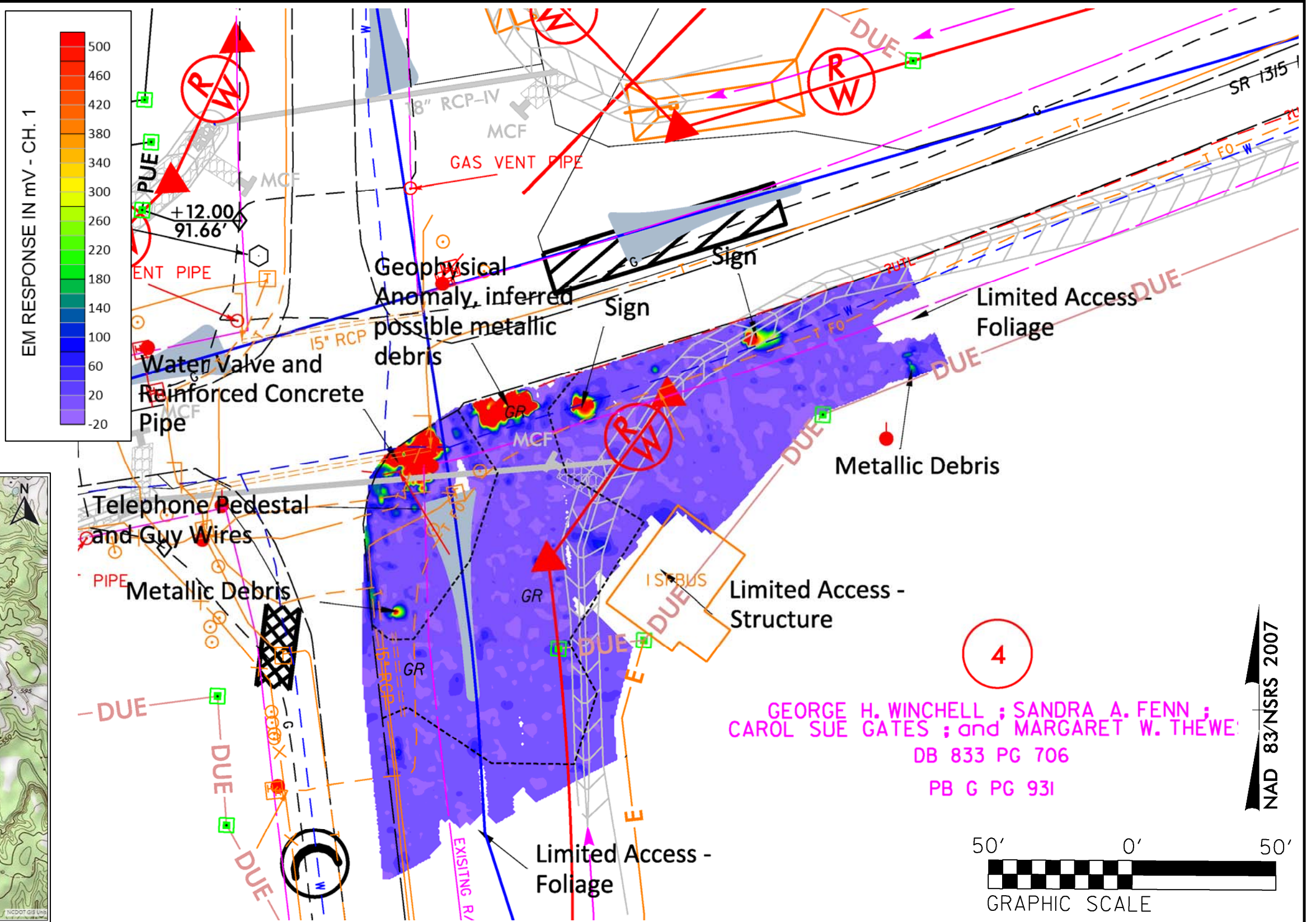
Investigation Area

Also see Figure 6 for NCDOT
 Conventional Plan Sheet Symbol Legend



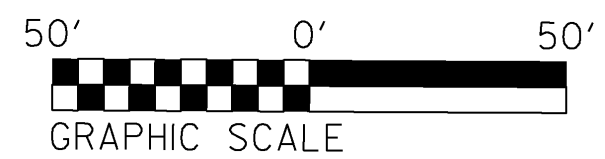
NOTES

- 1) The field survey was conducted November 14, 2019. Underground features were located using visual evidence, ground penetrating radar (GPR), and time domain electromagnetic (TDEM) methods.
- 2) Although geophysical methods provide a high level of assurance for the location of subsurface objects, the possibility exists that not all features can or will be identified due to limitations of the geophysical methods, site access, authorized scope-of-work, and/or high target congestion. Therefore, due caution should be used when performing any subsurface excavation, and GEL Engineering of NC, Inc., is not liable for any damages that may occur. Identifying the location of some structures may only be possible with vacuum or other excavation methods.
- 3) See Figure 6 for NCDOT Conventional Plan Sheet Symbol Legend. GEL Engineering of NC, Inc., is not liable for the accuracy of the base map provided by NCDOT.



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GEORGE H. WINCHELL ; SANDRA A. FENN ;
CAROL SUE GATES ; and MARGARET W. THEWE
DB 833 PG 706
PB 6 PG 931

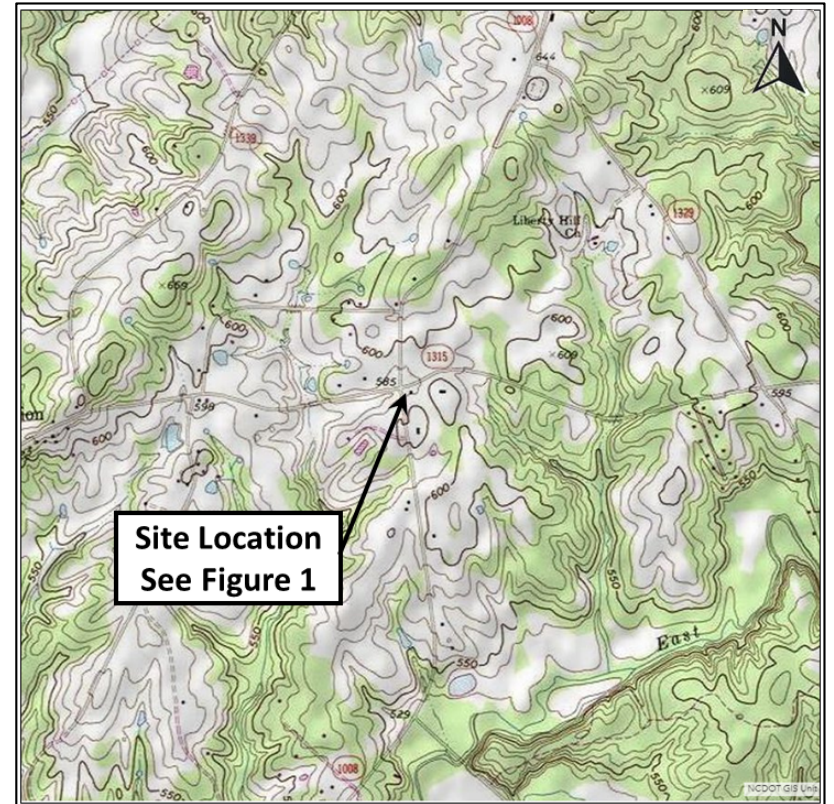
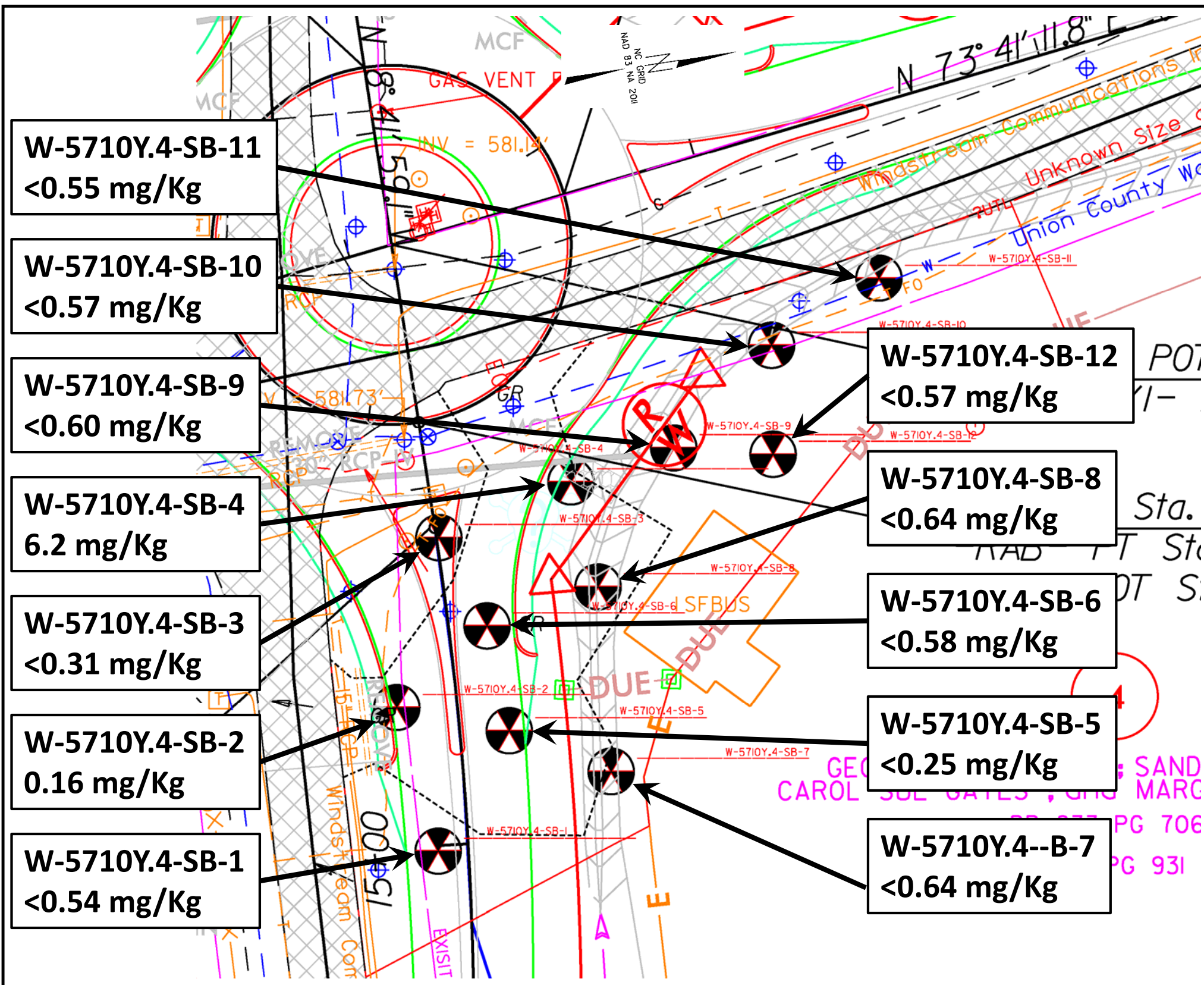


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GEOENVIRONMENTAL PHASE II INVESTIGATION REPORT
SR 1315 (NEW TOWN ROAD) AND SR 1008 (WAXHAW INDIAN TRAIL) IN WESLEY CHAPEL, WAXHAW, UNION COUNTY, NC
TIP NO. W-5710Y, WBS NO. 47884.1.1

TIME DOMAIN ELECTROMAGNETIC RESULTS		
PROJECT: ncdt06119	DATE: January 16, 2020	FIGURE 4



LEGEND

SB-# Geoenvironmental Boring with Total Petroleum Hydrocarbon (TPH; C5-C35) Analytical Result, in milligrams per kilogram (mg/Kg)

Also see Figure 6 for NCDOT Conventional Plan Sheet Symbol Legend

NAD 83/NSRS 2007

GRAPHIC SCALE
0 50'

04/06/15

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale *S.U.E. = Subsurface Utility Engineering

PROJECT REFERENCE NO. _____
SHEET NO. _____

NOTE:
Legend provided
by NCDOT

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	⊙
Property Corner	⊕
Property Monument	⊕
Parcel/Sequence Number	Ⓜ
Existing Fence Line	-----
Proposed Woven Wire Fence	-----
Proposed Chain Link Fence	-----
Proposed Barbed Wire Fence	-----
Existing Wetland Boundary	-----
Proposed Wetland Boundary	-----
Existing Endangered Animal Boundary	-----
Existing Endangered Plant Boundary	-----
Existing Historic Property Boundary	-----
Known Contamination Area: Soil	-----
Potential Contamination Area: Soil	-----
Known Contamination Area: Water	-----
Potential Contamination Area: Water	-----
Contaminated Site: Known or Potential	-----

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	⊙
Sign	Ⓜ
Well	⊕
Small Mine	⊕
Foundation	Ⓜ
Area Outline	Ⓜ
Cemetery	Ⓜ
Building	Ⓜ
School	Ⓜ
Church	Ⓜ
Dam	Ⓜ

HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
Jurisdictional Stream	-----
Buffer Zone 1	-----
Buffer Zone 2	-----
Flow Arrow	-----
Disappearing Stream	-----
Spring	-----
Wetland	-----
Proposed Lateral, Tail, Head Ditch	-----
False Sump	-----

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	-----
Switch	-----
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Proposed Right of Way Line with Iron Pin and Cap Marker	-----
Proposed Right of Way Line with Concrete or Granite RW Marker	-----
Proposed Control of Access Line with Concrete CA Marker	-----
Existing Control of Access	-----
Proposed Control of Access	-----
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage / Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----
Proposed Permanent Easement with Iron Pin and Cap Marker	◆

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Curb Ramp	-----
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	-----

VEGETATION:

Single Tree	⊕
Single Shrub	⊕
Hedge	-----
Woods Line	-----

Orchard	-----
Vineyard	-----

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	-----
Bridge Wing Wall, Head Wall and End Wall	-----
MINOR:	
Head and End Wall	-----
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	-----
Paved Ditch Gutter	-----
Storm Sewer Manhole	-----
Storm Sewer	-----

UTILITIES:

POWER:	
Existing Power Pole	-----
Proposed Power Pole	-----
Existing Joint Use Pole	-----
Proposed Joint Use Pole	-----
Power Manhole	-----
Power Line Tower	-----
Power Transformer	-----
U/G Power Cable Hand Hole	-----
H-Frame Pole	-----
U/G Power Line LOS B (S.U.E.*)	-----
U/G Power Line LOS C (S.U.E.*)	-----
U/G Power Line LOS D (S.U.E.*)	-----

TELEPHONE:

Existing Telephone Pole	-----
Proposed Telephone Pole	-----
Telephone Manhole	-----
Telephone Pedestal	-----
Telephone Cell Tower	-----
U/G Telephone Cable Hand Hole	-----
U/G Telephone Cable LOS B (S.U.E.*)	-----
U/G Telephone Cable LOS C (S.U.E.*)	-----
U/G Telephone Cable LOS D (S.U.E.*)	-----
U/G Telephone Conduit LOS B (S.U.E.*)	-----
U/G Telephone Conduit LOS C (S.U.E.*)	-----
U/G Telephone Conduit LOS D (S.U.E.*)	-----
U/G Fiber Optics Cable LOS B (S.U.E.*)	-----
U/G Fiber Optics Cable LOS C (S.U.E.*)	-----
U/G Fiber Optics Cable LOS D (S.U.E.*)	-----

WATER:

Water Manhole	-----
Water Meter	-----
Water Valve	-----
Water Hydrant	-----
U/G Water Line LOS B (S.U.E.*)	-----
U/G Water Line LOS C (S.U.E.*)	-----
U/G Water Line LOS D (S.U.E.*)	-----
Above Ground Water Line	-----

TV:

TV Pedestal	-----
TV Tower	-----
U/G TV Cable Hand Hole	-----
U/G TV Cable LOS B (S.U.E.*)	-----
U/G TV Cable LOS C (S.U.E.*)	-----
U/G TV Cable LOS D (S.U.E.*)	-----
U/G Fiber Optic Cable LOS B (S.U.E.*)	-----
U/G Fiber Optic Cable LOS C (S.U.E.*)	-----
U/G Fiber Optic Cable LOS D (S.U.E.*)	-----

GAS:

Gas Valve	-----
Gas Meter	-----
U/G Gas Line LOS B (S.U.E.*)	-----
U/G Gas Line LOS C (S.U.E.*)	-----
U/G Gas Line LOS D (S.U.E.*)	-----
Above Ground Gas Line	-----

SANITARY SEWER:

Sanitary Sewer Manhole	-----
Sanitary Sewer Cleanout	-----
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
SS Forced Main Line LOS B (S.U.E.*)	-----
SS Forced Main Line LOS C (S.U.E.*)	-----
SS Forced Main Line LOS D (S.U.E.*)	-----

MISCELLANEOUS:

Utility Pole	-----
Utility Pole with Base	-----
Utility Located Object	-----
Utility Traffic Signal Box	-----
Utility Unknown U/G Line LOS B (S.U.E.*)	-----
U/G Tank; Water, Gas, Oil	-----
Underground Storage Tank, Approx. Loc.	-----
A/G Tank; Water, Gas, Oil	-----
Geoenvironmental Boring	-----
U/G Test Hole LOS A (S.U.E.*)	-----
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

TABLE

TABLE 1. SOIL SAMPLE FIELD SCREENING AND LABORATORY ANALYTICAL RESULTS SUMMARY (Page 1 of 2)

Soil Boring ID (Northing/ Easting)	Date	Depth (feet bgs)	PID Reading (ppm)	QED UVF Results (mg/Kg)		
				GRO (C5-C10) (action level=50)	DRO (C10-C35) (action level=100)	TPH (C5-C35)
W-5710Y.4-SB-1 (453401.567 / 1489307.084)	11/14/2019	0-1	0.0			
		1-2	0.0	<0.54	<0.54	<0.54
		2-3	0.0			
		3-4	0.0			
		4-5	0.0			
		5-6	0.0			
W-5710Y.4-SB-2 (453441.501 / 1489295.539)	11/14/2019	0-1	0.0			
		1-2	0.0	<0.32	<0.32	0.16
		2-3	0.0			
		3-4	0.0			
		4-5	0.0			
W-5710Y.4-SB-3 (453488.899 / 1489307.231)	11/14/2019	0-1	0.0			
		1-2	0.0	<0.31	<0.31	<0.31
		2-3	0.0			
		3-4	0.0			
		4-5	0.0			
W-5710Y.4-SB-4 (453504.421 / 1489343.997)	11/14/2019	0-1	0.0			
		1-2	0.0	<0.63	6.2	6.2
		2-3	0.0			
		3-4	0.0			
		4-5	0.0			
		5-6	0.0			
W-5710Y.4-SB-5 (453434.988 / 1489326.82)	11/14/2019	0-1	0.0			
		1-2	0.0	<0.25	<0.25	<0.25
		2-3	0.0			
		3-4	0.0			
		4-5	0.0			
		5-6	0.0			
		6-7	0.0			
		7-8	0.0			
W-5710Y.4-SB-6 (453464.248 / 1489320.643)	11/14/2019	0-1	0.0			
		1-2	0.0	<0.58	<0.58	<0.58
		2-3	0.0			
		3-4	0.0			
		4-5	0.0			
		5-6	0.0			

**TABLE 1. SOIL SAMPLE FIELD SCREENING AND
 LABORATORY ANALYTICAL RESULTS SUMMARY (Page 2 of 2)**

Soil Boring ID	Date	Depth (feet bgs)	PID Reading (ppm)	QED UVF Results (mg/Kg)		
				GRO (C5-C10) (action level=50)	DRO (C10-C35) (action level=100)	TPH (C5-C35)
W-5710Y.4-SB-7 (453423.718 / 1489355.194)	11/14/2019	0-1	0.0			
		1-2	0.0			
		2-3	0.0	<0.64	<0.64	<0.64
		3-4	0.0			
		4-5	0.0			
W-5710Y.4-SB-8 (453475.146 / 1489351.541)	11/14/2019	0-1	0.0			
		1-2	0.0			
		2-3	0.0	<0.64	<0.64	<0.64
		3-4	0.0			
		4-5	0.0			
		5-6	0.0			
		6-7	0.0			
W-5710Y.4-SB-9 (453513.897 / 1489372.604)	11/14/2019	0-1	0.0			
		1-2	0.0			
		2-3	0.0	<0.60	<0.60	<0.60
		3-4	0.0			
		4-5	0.0			
		5-6	0.0			
W-5710Y.4-SB-10 (453542.503 / 1489399.827)	11/14/2019	0-1	0.0			
		1-2	0.0			
		2-3	0.0	<0.57	<0.57	<0.57
		3-4	0.0			
		4-5	0.0			
		5-6	0.0			
W-5710Y.4-SB-11 (453561.133 / 1489429.706)	11/14/2019	0-1	0.0			
		1-2	0.0			
		2-3	0.0	<0.55	<0.55	<0.55
		3-4	0.0			
		4-5	0.0			
		5-6	0.0			
		6-7	0.0			
W-5710Y.4-SB-12 (453512.099 / 1489400.245)	11/14/2019	0-1	0.9			
		1-2	0.9			
		2-3	1.0	<0.57	<0.57	<0.57
		3-4	0.1			
		4-5	0.8			
		5-6	0.4			
		6-7	0.3			
7-8	0.4					

DRO = Diesel range organics
 GRO = Gasoline range organics
 TPH = Total petroleum hydrocarbons
 N/A = not applicable
 GRO and DRO action levels per 7/26/16 NCDEQ UST Corrective Action Branch memorandum

mg/Kg = milligrams per kilogram
 ppm = parts per million
 feet bgs = feet below ground surface

APPENDIX A

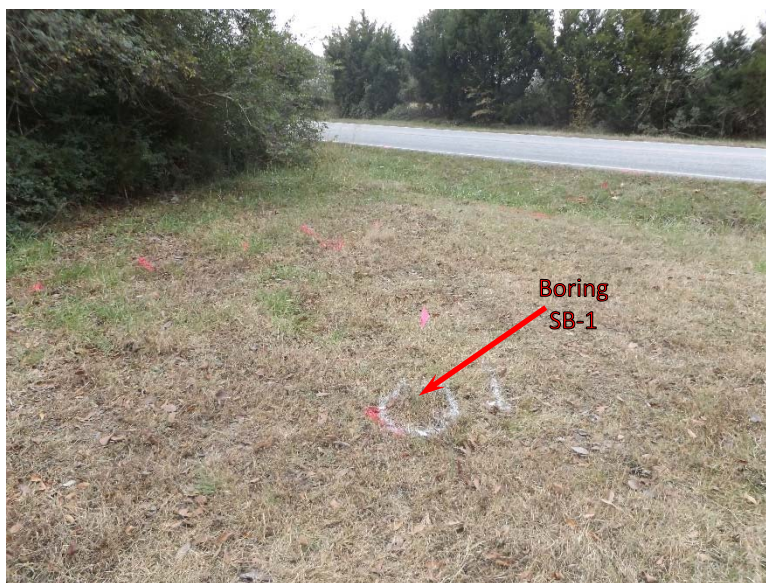
SITE PHOTOGRAPHS



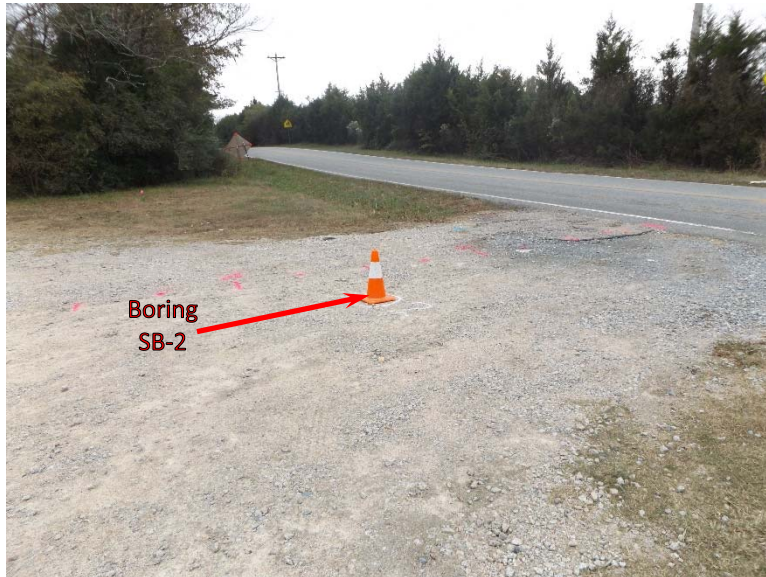
Photograph 1. Aerial photograph showing GeoEnvironmental soil boring locations.



Photograph 2. Eastern portion of investigation area showing GeoEnvironmental soil boring locations W-5710Y.4-SB-1 through W-5710Y.4-SB-8.



Photograph 3. GeoEnvironmental soil boring location W-5710Y.4-SB-1.



Photograph 4. GeoEnvironmental soil boring location W-5710Y.4-SB-2.



Photograph 5. GeoEnvironmental soil boring location W-5710Y.4-SB-3.



Photograph 6. GeoEnvironmental soil boring location W-5710Y.4-SB-4.



Photograph 7. GeoEnvironmental soil boring location W-5710Y.4-SB-5.



Photograph 8. GeoEnvironmental soil boring location W-5710Y.4-SB-6.



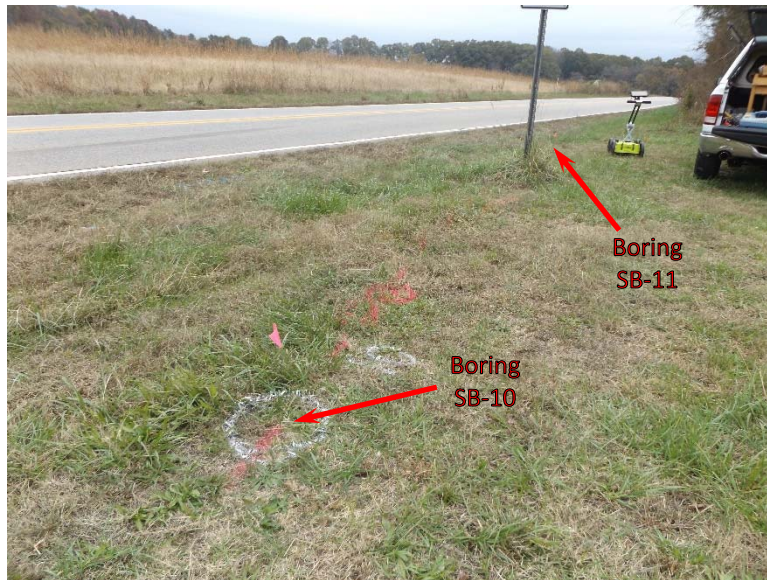
Photograph 9. GeoEnvironmental soil boring location W-5710Y.4-SB-7.



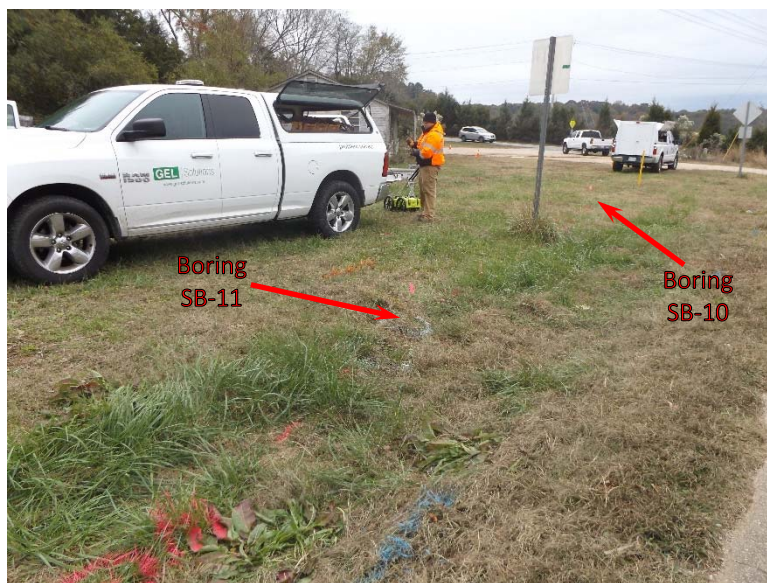
Photograph 10. GeoEnvironmental soil boring location W-5710Y.4-SB-8.



Photograph 11. GeoEnvironmental soil boring location W-5710Y.4-SB-9.



Photograph 12. GeoEnvironmental soil boring locations W-5710Y.4-SB-10 and - W-5710Y.4-SB-11.



Photograph 13. GeoEnvironmental soil boring location W-5710Y.4-SB-10 and - W-5710Y.4-SB-11.



Photograph 14. GeoEnvironmental soil boring location W-5710Y.4-SB-12.

APPENDIX B

SOIL BORING LOGS

SOIL BORING LOGS

GEL Engineering, of NC, Inc., Raleigh, North Carolina

Project Name: NCDOT SR 1315 (New Town Road) and SR 1008 (Waxhaw Indian Trail) in Wesley Chapel Waxhaw, Union County, NC, 28173

TIP No. W-5710Y, WBS No. 47884.1.1 GEL Project Code: NCDT06119

Parcel Address: Parcel 4 (PS 4), 5611 New Town Road, Waxhaw, NC 28173

Drilling Date: 11/14/19 Drilling Contractor: Regional Probing Services, Inc.; NC Cert No. 3322A

Drilling Method: Direct Push Technology (DPT) GEL Geologist: Andrew D. Stahl, L.G.

Depth (ft bgs)	PID (ppm)	Soil Description (depths are in feet below ground surface [ft bgs])	Laboratory Analysis
BORING ID: W-5710Y.4-SB-1			
0-1	0.0	Light tan SILT with weathered shale/siltstone fragments.	
1-2	0.0	Light tan SILT with weathered shale/siltstone fragments.	●
2-3	0.0	Light tan SILT with weathered shale/siltstone fragments.	
3-4	0.0	Light tan SILT with clay and weathered shale/siltstone fragments.	
4-5	0.0	Light tan SILT with weathered shale/siltstone fragments.	
5-6	0.0	Light tan clayey SILT with weathered shale/siltstone fragments. DPT refusal at 6 ft bgs.	
BORING ID: W-5710Y.4-SB-2			
0-1	0.0	Dark gray silty SAND with driveway base gravel.	
1-2	0.0	Light tan SILT with clay and weathered shale/siltstone fragments.	●
2-3	0.0	Light tan SILT with clay and weathered shale/siltstone fragments.	
3-4	0.0	Light tan SILT with weathered shale/siltstone fragments.	
4-5	0.0	DPT refusal at 5 ft bgs.	
BORING ID: W-5710Y.4-SB-3			
0-1	0.0	Dark gray silty CLAY with organic matter.	
1-2	0.0	Light tan clayey SILT with weathered shale/siltstone fragments.	●
2-3	0.0	Light tan SILT with weathered shale/siltstone fragments.	
3-4	0.0	Light tan SILT with weathered shale/siltstone fragments.	
4-5	0.0	Light tan SILT with weathered shale/siltstone fragments. DPT refusal at 5 ft bgs.	

SOIL BORING LOGS

GEL Engineering, of NC, Inc., Raleigh, North Carolina

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Drilling Date: 11/14/19 Drilling Contractor: Regional Probing Services, Inc.; NC Cert No. 3322A

Drilling Method: Direct Push Technology (DPT) GEL Geologist: Andrew D. Stahl, L.G.

Depth (ft bgs)	PID (ppm)	Soil Description (depths are in feet below ground surface [ft bgs])	Laboratory Analysis
BORING ID: W-5710Y.4-SB-4			
0-1	0.0	Dark gray silty CLAY.	
1-2	0.0	Light tan clayey SILT with weathered shale/siltstone fragments.	●
2-3	0.0	Light tan SILT with weathered shale/siltstone fragments.	
3-4	0.0	Light tan SILT with clay and weathered shale/siltstone fragments.	
4-5	0.0	Light tan SILT with weathered shale/siltstone fragments.	
5-6	0.0	Light tan SILT with weathered shale/siltstone fragments. DPT refusal at 6 ft bgs.	
BORING ID: W-5710Y.4-SB-5			
0-1	0.0	Dark gray silty SAND with driveway base gravel.	
1-2	0.0	Brown clayey SILT with weathered shale fragments.	●
2-3	0.0	Brown clayey SILT with weathered shale fragments.	
3-4	0.0	Brown SILT with clay.	
4-5	0.0	Brown clayey SILT with weathered shale fragments.	
5-6	0.0	Brown clayey SILT with weathered shale fragments.	
6-7	0.0	Brown clayey SILT with weathered shale fragments.	
7-8	0.0	Tan and brown highly weathered SHALE and SILTSTONE.	
8-9	0.0	Light tan SILT with weathered shale/siltstone fragments. Dry. DPT refusal at 9 ft bgs.	

SOIL BORING LOGS

GEL Engineering, of NC, Inc., Raleigh, North Carolina

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Waxhaw, Union County, NC, 28173

TIP No. W-5710Y, WBS No. 47884.1.1 GEL Project Code: NCDT06119

Parcel Address: Parcel 4 (PS 4), 5611 New Town Road, Waxhaw, NC 28173

Drilling Date: 11/14/19 Drilling Contractor: Regional Probing Services, Inc.; NC Cert No. 3322A

Drilling Method: Direct Push Technology (DPT) GEL Geologist: Andrew D. Stahl, L.G.

Depth (ft bgs)	PID (ppm)	Soil Description (depths are in feet below ground surface [ft bgs])	Laboratory Analysis
BORING ID: W-5710Y.4-SB-6			
0-1	0.0	Dark gray silty SAND with driveway base gravel.	
1-2	0.0	Tan, clayey SILT with highly weathered shale fragments.	●
2-3	0.0	Light tan SILT with weathered shale/siltstone fragments.	
3-4	0.0	Light tan SILT with weathered shale/siltstone fragments.	
4-5	0.0	Tan sandy SILT with weathered shale/siltstone fragments.	
5-6	0.0	Tan clayey SILT with weathered shale fragments. DPT refusal at 6 ft bgs.	
BORING ID: W-5710Y.4-SB-7			
0-1	0.0	Brown clayey SILT with weathered shale fragments.	
1-2	0.0	Tan clayey SILT with weathered shale fragments.	
2-3	0.0	Tan SILT with weathered shale/siltstone fragments.	●
3-4	0.0	Tan clayey SILT with weathered shale fragments.	
4-5	0.0	Tan clayey SILT with weathered shale fragments. DPT refusal at 5 ft bgs.	
BORING ID: W-5710Y.4-SB-8			
0-1	0.0	Reddish brown silty sandy CLAY with driveway base gravel.	
1-2	0.0	Light tan clayey SILT with weathered shale/siltstone fragments.	
2-3	0.0	Light tan SILT with weathered shale/siltstone fragments.	●
3-4	0.0	Tan SILT with weathered shale/siltstone fragments.	
4-5	0.0	Light tan SILT with weathered shale/siltstone fragments.	
5-6	0.0	Light tan SILT with clay.	
6-7	0.0	Light tan SILT with weathered shale/siltstone fragments. DPT refusal at 7 ft bgs.	

SOIL BORING LOGS

GEL Engineering, of NC, Inc., Raleigh, North Carolina

Project Name: NCDOT SR 1315 (New Town Road) and SR 1008 (Waxhaw Indian Trail) in Wesley Chapel Waxhaw, Union County, NC, 28173

TIP No. W-5710Y, WBS No. 47884.1.1 GEL Project Code: NCDT06119

Parcel Address: Parcel 4 (PS 4), 5611 New Town Road, Waxhaw, NC 28173

Drilling Date: 11/14/19 Drilling Contractor: Regional Probing Services, Inc.; NC Cert No. 3322A

Drilling Method: Direct Push Technology (DPT) GEL Geologist: Andrew D. Stahl, L.G.

Depth (ft bgs)	PID (ppm)	Soil Description (depths are in feet below ground surface [ft bgs])	Laboratory Analysis
BORING ID: W-5710Y.4-SB-9			
0-1	0.0	Brown clayey SILT with organic matter and weathered shale fragments.	
1-2	0.0	Light tan SILT with weathered shale/siltstone fragments.	
2-3	0.0	Light tan SILT with weathered shale/siltstone fragments.	●
3-4	0.0	Light tan SILT with weathered shale/siltstone fragments.	
4-5	0.0	Light tan clayey SILT.	
5-6	0.0	Light tan SILT with weathered shale/siltstone fragments. DPT refusal at 6 ft bgs.	
BORING ID: W-5710Y.4-SB-10			
0-1	0.0	Brown clayey SILT with organic matter.	
1-2	0.0	Brown clayey SILT with organic matter and weathered shale fragments.	
2-3	0.0	Light tan SILT with weathered shale/siltstone fragments.	●
3-4	0.0	Light tan SILT with weathered shale/siltstone fragments.	
4-5	0.0	Light tan SILT with weathered shale/siltstone fragments.	
5-6	0.0	Light tan SILT with clay.	
6-7	0.0	Light tan SILT with clay. DPT refusal at 7.5 ft bgs.	

SOIL BORING LOGS

GEL Engineering, of NC, Inc., Raleigh, North Carolina

Project Name: NCDOT SR 1315 (New Town Road) and SR 1008 (Waxhaw Indian Trail) in Wesley Chapel Waxhaw, Union County, NC, 28173

TIP No. W-5710Y, WBS No. 47884.1.1 GEL Project Code: NCDT06119

Parcel Address: Parcel 4 (PS 4), 5611 New Town Road, Waxhaw, NC 28173

Drilling Date: 11/14/19 Drilling Contractor: Regional Probing Services, Inc.; NC Cert No. 3322A

Drilling Method: Direct Push Technology (DPT) GEL Geologist: Andrew D. Stahl, L.G.

Depth (ft bgs)	PID (ppm)	Soil Description (depths are in feet below ground surface [ft bgs])	Laboratory Analysis
BORING ID: W-5710Y.4-SB-11			
0-1	0.0	Brown silty CLAY with organic matter and weathered shale fragments.	
1-2	0.0	Brown silty CLAY with weathered shale and siltstone fragments.	
2-3	0.0	Brown silty CLAY with weathered shale and siltstone fragments.	●
3-4	0.0	Brown clayey SILT with weathered shale and siltstone fragments.	
4-5	0.0	Brown silty CLAY with weathered shale and siltstone fragments.	
5-6	0.0	Brown silty CLAY with weathered shale and siltstone fragments.	
6-7	0.0	Light tan SILT with weathered shale/siltstone fragments	
7-8	0.0	Light tan SILT with weathered shale/siltstone fragments. DPT refusal at 8 ft bgs.	
BORING ID: W-5710Y.4-SB-12			
0-1	0.9	Light tan SILT with weathered shale/siltstone fragments.	
1-2	0.9	Light tan clayey SILT.	
2-3	1.0	Light tan clayey SILT.	●
3-4	0.1	Light tan clayey SILT with weathered shale/siltstone fragments.	
4-5	0.8	Light tan clayey SILT with weathered shale/siltstone fragments.	
5-6	0.4	Light tan clayey SILT with weathered shale/siltstone fragments.	
6-7	0.3	Light tan clayey SILT with weathered shale/siltstone fragments. DPT refusal at 7 ft bgs.	

APPENDIX C

LABORATORY ANALYTICAL REPORT AND CHAIN OF CUSTODY RECORD FOR SOIL SAMPLES



Hydrocarbon Analysis Results

Client: GEL ENGINEERING
Address: 2700 SUMNER BLVD SUITE 106
 RALEIGH NC 27616

Samples taken Thursday, November 14, 2019
Samples extracted Thursday, November 14, 2019
Samples analysed Tuesday, November 19, 2019

Contact: ANDREW STAHL

Operator JENN RYAN

Project: NCDOT 06119

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	W - 5710Y.4 - 1	21.7	<0.54	<0.54	<0.54	<0.54	<0.11	<0.17	<0.022	0	0	0	PHC not detected,(BO)
s	W - 5710Y.4 - 2	13.0	<0.32	<0.32	<0.32	0.16	0.16	<0.1	<0.013	0	56.2	43.8	Residual HC,(BO)
s	W - 5710Y.4 - 3	12.4	<0.31	<0.31	<0.31	<0.31	<0.06	<0.1	<0.012	0	21.6	78.4	Residual HC,(BO)
s	W - 5710Y.4 - 4	25.0	<0.63	<0.63	6.2	6.2	3.8	<0.2	<0.025	30.2	52.4	17.4	Deg Fuel 92.6%,(FCM),(BO)
s	W - 5710Y.4 - 5	10.1	<0.25	<0.25	<0.25	<0.25	<0.05	<0.08	<0.01	0	38.7	61.3	Residual HC,(BO)
s	W - 5710Y.4 - 6	23.0	<0.58	<0.58	<0.58	<0.58	<0.12	<0.18	<0.023	0	0	0	PHC not detected,(BO)
s	W - 5710Y.4 - 7	25.7	<0.64	<0.64	<0.64	<0.64	<0.13	<0.21	<0.026	0	0	0	PHC not detected,(BO)
s	W - 5710Y.4 - 8	25.5	<0.64	<0.64	<0.64	<0.64	<0.13	<0.2	<0.025	0	0	0	PHC not detected,(BO)
s	W - 5710Y.4 - 9	23.9	<0.6	<0.6	<0.6	<0.6	<0.12	<0.19	<0.024	0	0	0	PHC not detected,(BO)
s	W - 5710Y.4 - 10	22.8	<0.57	<0.57	<0.57	<0.57	<0.11	<0.18	<0.023	0	63.5	36.5	Residual HC,(BO)

Initial Calibrator QC check OK

Final FCM QC Check OK 104.8 %

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) = Modified Result.

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



Hydrocarbon Analysis Results

Client: GEL ENGINEERING
Address: 2700 SUMNER BLVD SUITE 106
 RALEIGH NC 27616

Samples taken Thursday, November 14, 2019
Samples extracted Thursday, November 14, 2019
Samples analysed Tuesday, November 19, 2019

Contact: ANDREW STAHL

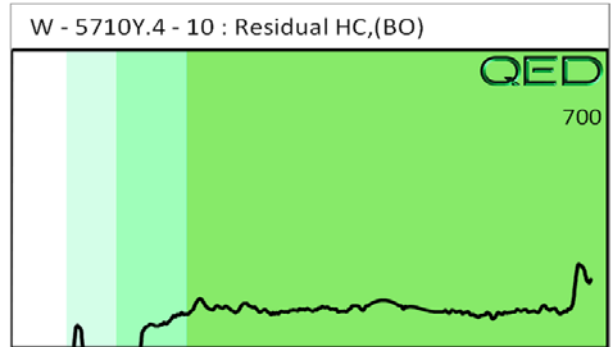
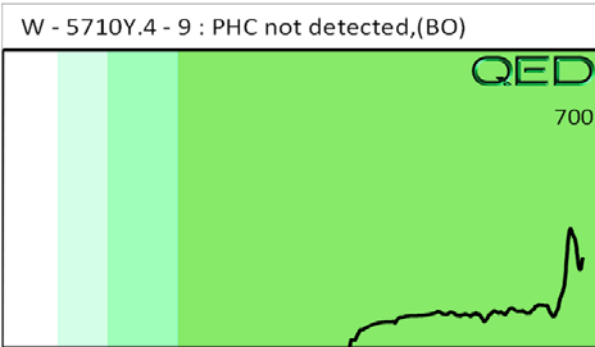
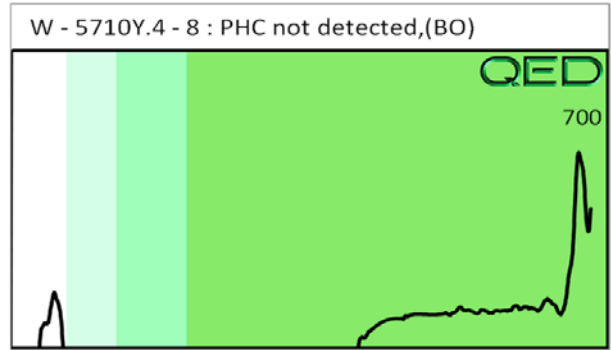
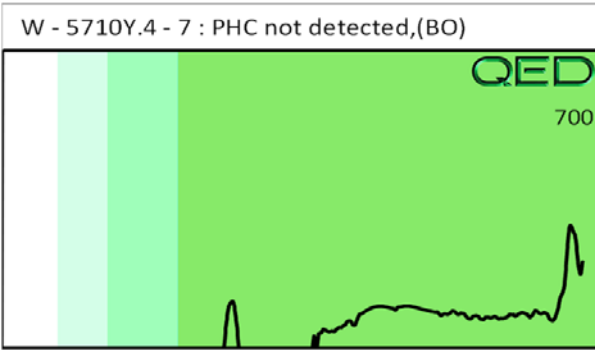
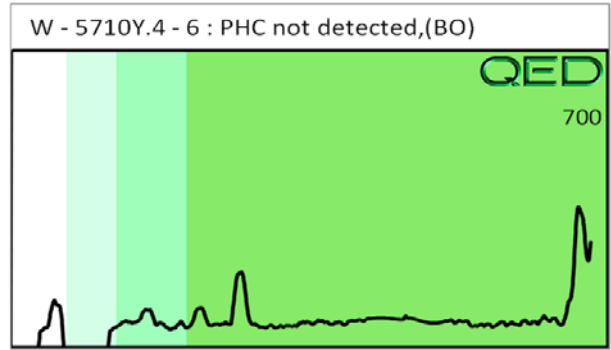
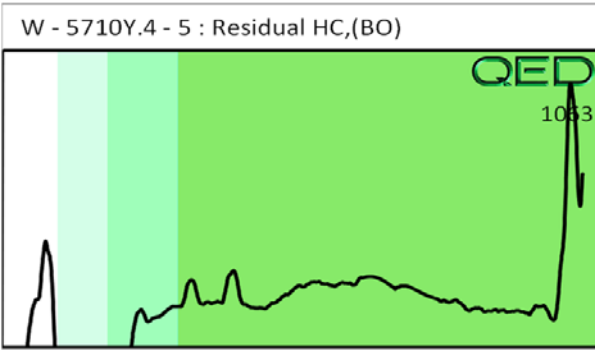
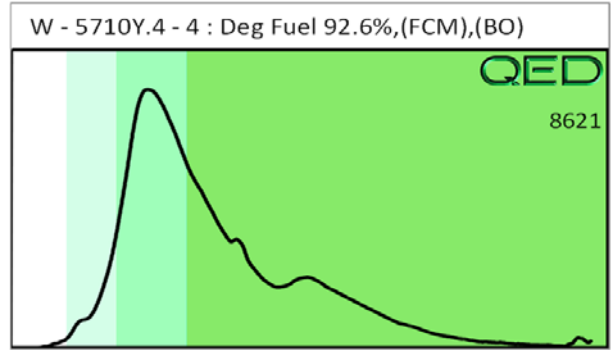
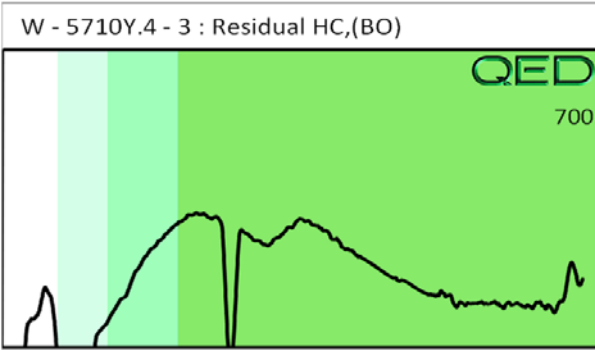
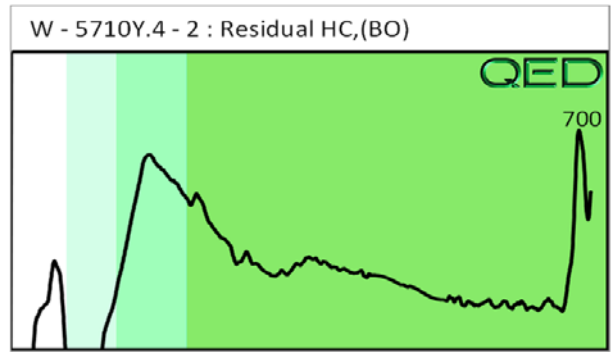
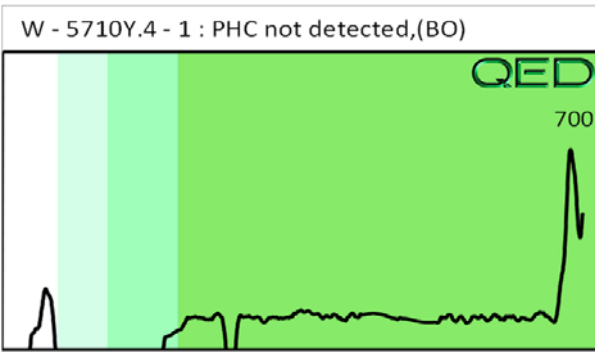
Operator JENN RYAN

Project: NCDOT 06119

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	W - 5710Y.4 - 11	22.0	<0.55	<0.55	<0.55	<0.55	<0.11	<0.18	<0.022	0	0	100	Residual HC,(BO),(P)
s	W - 5710Y.4 - 12	22.6	<0.57	<0.57	<0.57	<0.57	<0.11	<0.18	<0.023	0	0	0	PHC not detected,(BO)
Initial Calibrator QC check OK										Final FCM QC Check OK			99.3 %

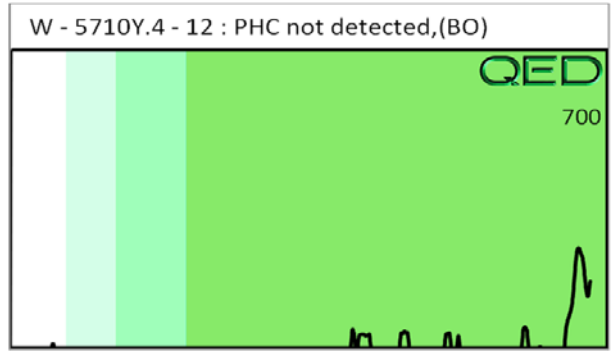
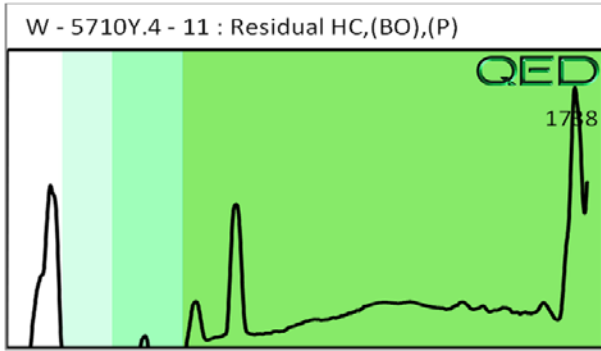
Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.
 Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon 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**



QED Hydrocarbon Fingerprints

Project: NCDOT 06119

Tuesday, November 19, 2019



13144

Client Name: GEL Engineering
 Address: 2700 Summer Blvd Suite 106 Raleigh, NC 27616
 Contact: Andrew Stahl
 Project Ref.: NCDT 06119
 Email: Andrew.Stahl@GEL.com
 Phone #: 919-907-7538
 Collected by: Andrew Stahl



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

Each UVF sample will be analyzed for total BTEX, GRO, DRO, TPH, PAH total aromatics and BaP. Standard GC Analyses are for BTEX and Chlorinated Solvents: VC, 1,1 DCE, 1,2 cis DCE, 1, trans DCE, TCE, and PCE. Specify target analytes in the space provided below

CHAIN OF CUSTODY AND ANALYTICAL REQUEST FORM

Sample Collection	TAT Requested		Analysis Type		Initials	Sample ID	Total Wt.	Tare Wt.	Sample Wt.
	Date/Time	24 Hour	48 Hour	UVF					
11/14/19 16:20		✓	✓		AS	W-5710Y.4-1	57.0	45.0	12.0
11/14/19 16:38		✓	✓		AS	W-5710Y.4-2	55.4	44.6	10.8
11/14/19 17:00		✓	✓		AS	W-5710Y.4-3	56.5	45.2	11.3
11/14/19 17:18		✓	✓		AS	W-5710Y.4-4	55.5	45.1	10.4
11/14/19 17:45		✓	✓		AS	W-5710Y.4-5	54.7	44.8	9.9
11/14/19 18:05		✓	✓		AS	W-5710Y.4-6	56.2	44.9	11.3
11/14/19 18:20		✓	✓		AS	W-5710Y.4-7	55.7	45.6	10.1
11/14/19 18:42		✓	✓		AS	W-5710Y.4-8	55.4	45.2	10.2
11/14/19 19:00		✓	✓		AS	W-5710Y.4-9	56.0	45.1	10.9
11/14/19 15:48		✓	✓		AS	W-5710Y.4-10	56.1	44.7	11.4
11/14/19 15:20		✓	✓		AS	W-5710Y.4-11	57.1	45.3	11.8
11/14/19 14:40		✓	✓		AS	W-5710Y.4-12	56.3	44.8	11.5

COMMENTS/REQUESTS: Returned 2 unused VOA

TARGET GC/UVF ANALYTES: BTEX, GRO, DRO, TPH, PAH total aromatics and BaP.

Relinquished by <u>Andrew Stahl</u>	Date/Time <u>11/18/19 17:00</u>	Accepted by <u>MM</u>	Date/Time <u>11/19/19</u>
Relinquished by		Accepted by	

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 12
 Ref. No