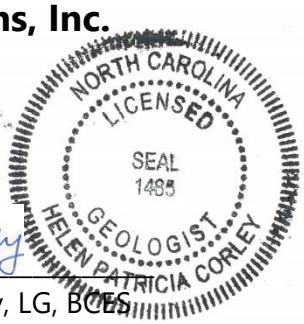
North Carolina Department of Transportation

Phase II Investigation
State Project: R-5709
WBS Element: 50205.1.1
Moore County

Parcel 79
Robert L. Schloegl Property
9820 NC 211 Hwy
Aberdeen, North Carolina
October 21, 2021

Wood Environment & Infrastructure Solutions, Inc.
Project: 20478R5709



Andrew Frantz, REM
Senior Scientist

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Principal Hydrogeologist

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1.0 INTRODUCTION

In response to the North Carolina Department of Transportation (NCDOT) Request for Proposal, dated June 2, 2021, Wood Environment & Infrastructure Solutions, Inc. (Wood) has performed a Phase II Investigation for Parcel 79 (Site). The investigation was conducted in accordance with Wood's Technical and Cost proposal dated June 18, 2021, and NCDOT's July 6, 2021, Notice to Proceed. NCDOT contracted Wood to perform the Phase II Investigation at the parcel, which will be affected by proposed widening of NC 211 Hwy from US 15-501 in Aberdeen, North Carolina to SR 1244 (West Palmer Street)/SR 1311 (Mockingbird Hill Road) in Raeford, North Carolina.

The Site is located in the eastern quadrant of the intersection of NC 211 Hwy and Pleasant Street, as shown on the Vicinity Map, **Figure 1**. The parcel, which is located at 9820 NC 211 Hwy, is currently occupied by a vacant dilapidated building. The Site is identified as Parcel 79, Robert L. Schloegl property, within the NCDOT MicroStation survey file and is in Aberdeen of Moore County, North Carolina. The area of investigation at Parcel 79 encompasses the entire 0.236-acre parcel as shown on **Figure 2**.

The Site was reported as a possible former gasoline station in the 2019 NCDOT Phase I Report. In addition, a concrete pad was observed along the northern exterior of the vacant building. Two metal pipes were observed protruding up from the concrete pad. Based on the location of the concrete pad and the presence of the metal pipes, it is suspected the pad is a former dispenser island. Wood reviewed the North Carolina Laserfiche online database and NCDEQ documentation for Parcel 79 was not present. In addition, Wood reviewed the NCDOT Historical Aerial Imagery Index and a photograph from 1990 was available for review. The current Site building was visible on the photograph. Due to the quality of the aerial photograph, other Site features were not discernable.

The following report describes a geophysical survey and subsurface field drilling and sampling investigation at the Site, with results from our ultraviolet fluorescence (UVF) soil analyses and evaluation for potential soil contamination within the Site.

2.0 GEOLOGY

2.1 Regional Geology

The Site is located within the Coastal Plain Physiographic Province of North Carolina. According to the 1985 State Geologic Map of North Carolina, the area is within the Middendorf Formation and is underlain by sand, sandstone, and mudstone.

2.2 Site Geology

Site geology was observed through the advancement of eight shallow soil borings (P79-B1 to P79-B8). The borings were advanced to an approximate depth of 10 feet below ground surface (bgs). Groundwater was not encountered during boring advancement. Figure 2 presents the boring locations and Site layout. Soils encountered in the borings consisted mostly of tan to brown medium-grained with some fine sand overlying tan and orange clayey sand. Staining and petroleum odors were not observed in the borings. Based on observations of topography of the Site vicinity, the groundwater flow direction is inferred to be generally toward the west. Boring logs are presented in **Appendix A**.

3.0 FIELD ACTIVITIES

3.1 Preliminary Activities

Prior to commencing field sampling activities at the Site, several tasks were accomplished in preparation for the subsurface investigation. A Health and Safety Plan (HASP) was created with the Site-specific health and safety information necessary for the field activities, including protocols for COVID-19. The North Carolina underground utility location service (North Carolina 811) was contacted on August 24, 2021, for the parcel.

Eastern Solutions, LLC of Charlotte, North Carolina (Eastern Solutions) was retained to perform vegetation clearing at the parcel to facilitate access for geophysical survey equipment and the direct-push drill rig. Pyramid Geophysical Services of Greensboro, North Carolina (Pyramid) was retained to conduct a geophysical investigation. Probe Utility Locating (PUL) was retained to perform utility locating activities at the Site. Innovative Environmental Technologies, Inc. (IET) of Concord, North Carolina was retained by Wood to

perform the direct push sampling for soil borings, and UVF instrumentation was rented from Red Lab, LLC (Red Lab) of Wilmington, North Carolina.

Boring locations were strategically placed within the parcel to maximize the opportunity to encounter potential contaminated soil and to evaluate soil where subsurface features were designed.

3.2 Site Reconnaissance and Vegetation Clearing

Wood personnel visited the parcel on June 8, 2021, and observed a dilapidated building with a suspected dispenser island located along the northern exterior of the building. At the time of the initial site reconnaissance, the parcel was observed to be overgrown with dense vegetation. A photographic log is included in **Appendix B**.

The vegetation clearing was conducted by Eastern Solutions personnel on August 4, 2021. Eastern Solutions used a forestry cutter to remove small diameter trees and brush from the front and sides of the dilapidated building. A brush hog was used to mow the tall grass on the northern portion of the parcel.

3.3 Geophysical Survey Results and Utility Locating

The geophysical survey was conducted by Pyramid personnel between August 10 and 12, 2021. Pyramid conducted a geophysical investigation using electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys along the front and sides of the dilapidated building as these areas were most likely to contain USTs. A total of four EM anomalies were identified, which were attributed to visible cultural features at the ground surface. The GPR survey confirmed the absence of buried structures in the areas of metallic interference. These areas were subsequently deemed to be associated with vehicles, a sign, reinforced concrete pipe, and the on-Site building. The geophysical survey did not identify USTs within the investigation area. The complete Pyramid geophysics report is included as **Appendix C**.

Utility locating was performed by PUL personnel on August 24, 2021. The utility locating effort identified a buried stormwater/drainage culvert on the western portion of the parcel and numerous buried telephone and communication lines located on the northern portion of the parcel between NC 211 Hwy and the suspected dispenser island. The stormwater

culvert traverses the western portion of the parcel from north to south, discharging to the west of the on-Site building. The telephone and communication lines are located parallel to NC 211 Hwy and traverse the northern portion of Parcel 79 from west to east.

3.4 Soil Sampling

On September 2, 2021, Wood and IET mobilized to the Site to advance eight shallow soil borings (P79-B1 to P79-B8). The borings were advanced via direct-push technology to an approximate depth of 10 feet bgs. Boring locations targeted potential environmental sources at the Site and future drainage features. Please note, due to the numerous buried telephone and communication lines between NC 211 Hwy and the suspected dispenser island, soil borings were not advanced in this area.

The purpose of soil sampling was to assess if a petroleum release had impacted the Site and if so, to estimate the volume of impacted soil that might require special handling during NCDOT construction activities. IET advanced a soil sampler to the target depth at each boring location using an AMS PowerProbe. To minimize the potential for cross-contamination between samples, a new polyvinyl chloride (PVC) sleeve (tube) was inserted into the sampler for each soil interval. Visual and olfactory observations relative to the soil cores were recorded by Wood personnel. The soil types encountered in the borings were recorded to prepare soil boring logs. Wood conducted field screening for volatile organic compounds (VOCs) of the soil borings with a photoionization detector (PID). The portion of each soil core with the highest PID reading was selected from the 0–5 foot interval and the 5-10 foot interval for analysis of total petroleum hydrocarbons (TPH), diesel range organics (DRO), gasoline range organics (GRO), benzene, toluene, ethylbenzene, and xylene (BTEX), total aromatics, and polycyclic aromatic hydrocarbons (PAH) by UVF. Neither groundwater nor bedrock were encountered in the borings. Sixteen soil samples were collected from the borings at the Site for on-Site UVF analysis.

4.0 SOIL SAMPLING RESULTS

Based on September 2, 2021, PID screening and UVF hydrocarbon analysis, evidence of petroleum hydrocarbon impacts was not identified. The NCDEQ Action Levels of 100

milligrams per kilogram (mg/kg) for DRO and 50 mg/kg for GRO were not exceeded in 16 samples collected from the eight borings advanced at the Site.

PID readings for the 16 soil samples ranged from not detected in boring P79-B2 to 0.5 parts per million (ppm) in sample P79-B1-0-2 collected from 0 to 2 feet bgs. The PID field screening results for samples selected for UVF analysis are summarized in **Table 1** and the full list of PID readings are provided on the boring logs in Appendix A.

Results from the on-Site UVF petroleum soil analyses are presented in **Table 2**, with instrument generated tables in **Appendix D**. Several categories of analyses were measured such as: DRO, GRO, TPH, PAHs, and total aromatics. **Figure 3** presents the GRO and DRO results for the September 2021 investigation.

No GRO or DRO detections in the 16 soil samples collected at the Site exceeded their respective NCDEQ Action Levels. The hydrocarbon results from the QED QROS Hydrocarbon Analyzer are provided in Appendix D.

5.0 CONCLUSIONS

Based on the Site observations and UVF analysis, petroleum-impacted soil contamination was not identified as defined by localized exceedances of the NCDEQ Action Levels of 50 mg/kg for GRO and 100 mg/kg for DRO.

The following bulleted summary is based upon Wood's evaluation of field observations and on-Site quantitative analyses of samples collected from the Site on September 2, 2021.

- The Site is occupied by a vacant dilapidated building and one suspected dispenser island based on visual evidence (i.e., metal pipe located in concrete pad). No USTs were identified during the geophysical survey or field activities.

- Eight soil borings were advanced to roughly 10 ft bgs within the investigation area to collect soil samples for on-Site UVF analysis. Sixteen soil samples were collected for on-Site UVF analysis.

- UVF analysis of the 16 soil samples collected did not identify petroleum-impacted soil.

6.0 RECOMMENDATIONS

Based on these Phase II Investigation results, Wood recommends no further action.

TABLES

Table 1: Summary of PID Screening Results
R-5709, Parcel 79 - Robert L. Schloegl Property
Aberdeen, North Carolina
Wood Project: 20478R5709

Boring ID	Depth of Sample Interval	PID Reading
P79-B1	0-2	0.5
	4-6	0.0
P79-B2	0-2	0.0
	6-8	0.0
P79-B3	4-6	0.4
	8-10	0.3
P79-B4	2-4	0.1
	8-10	0.2
P79-B5	0-2	0.1
	4-6	0.2
P79-B6	0-2	0.0
	4-6	0.1
P79-B7	2-4	0.0
	6-8	0.1
P79-B8	0-2	0.2
	6-8	0.3

Notes:

1. Samples collected on 9/2/21
2. Depths shown in feet below ground surface (bgs)
3. PID = Photoionization Detector
4. PID readings shown in parts per million (ppm)

Prepared By/Date: AJF 9/8/21

Checked By/Date: DRH 9/17/21

Table 2: UVF Hydrocarbon Soil Sampling Results
R-5709, Parcel 79 - Robert L. Schloegl Property
Aberdeen, North Carolina
Wood Project: 20478R5709

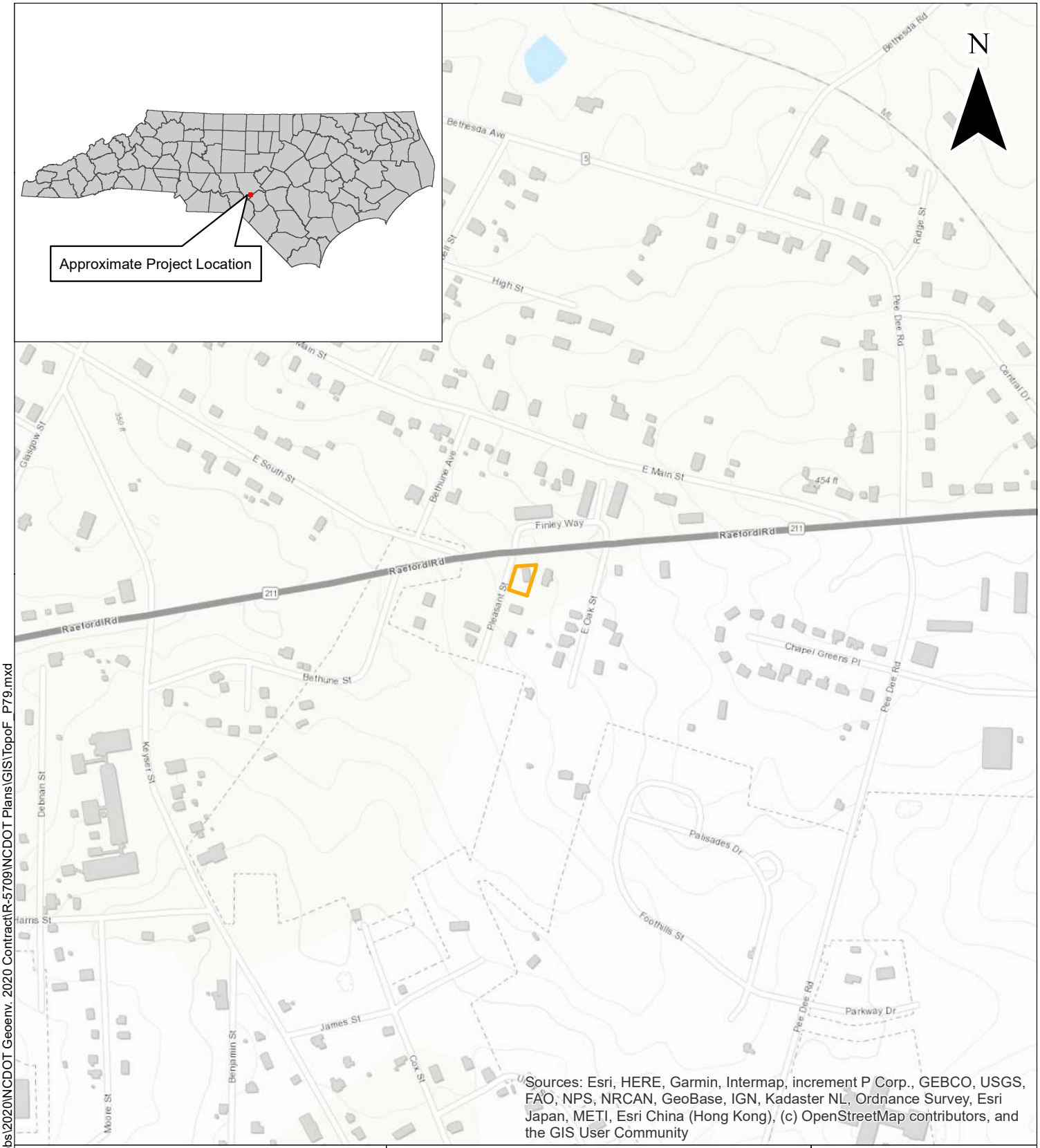
Sample ID Number	Sample Depth (ft. bgs)	BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	PAHs (mg/kg)
P79-B1-0-2	0-2	<0.22	<0.22	8.9	0.26
P79-B1-4-6	4-6	<0.25	<0.25	0.4	0.009
P79-B2-0-2	0-2	<0.5	<0.5	40.8	0.9
P79-B2-6-8	6-8	<0.4	<0.4	0.1	0.002
P79-B3-4-6	4-6	<0.3	<0.3	23.7	0.3
P79-B3-8-10	8-10	<0.4	<0.4	<0.18	<0.009
P79-B4-2-4	2-4	<0.3	<0.3	2.1	0.06
P79-B4-8-10	8-10	<0.3	<0.3	<0.15	<0.008
P79-B5-0-2	0-2	<0.5	<0.5	2.2	0.06
P79-B5-4-6	4-6	<0.17	<0.17	<0.07	<0.004
P79-B6-0-2	0-2	<0.22	29.4	4.2	0.11
P79-B6-4-6	4-6	<0.2	<0.2	8	0.027
P79-B7-2-4	2-4	<0.22	29.4	0.7	0.02
P79-B7-6-8	6-8	<0.22	<0.22	<0.09	0.001
P79-B8-0-2	0-2	<0.17	<0.17	4.2	0.11
P79-B8-6-8	6-8	<0.25	<0.25	0.1	0.001
NC State Action Level		**N/A**	**50**	**100**	**N/A**

Notes:

1. Samples collected on September 2, 2021
2. Depths shown in feet below ground surface (bgs)
3. Concentrations shown in milligrams per kilogram (mg/kg)
4. BTEX = Benzene, toluene, ethylbenzene, xylene
5. GRO = Gasoline Range Organics
6. DRO = Diesel Range Organics
7. PAHs = Polycyclic aromatic hydrocarbons
8. N/A = Not applicable
9. Bold values exceed respective NC State Action Level

Prepared By/Date: DRH 9/9/21
Checked By/Date: AJF 9/24/21

FIGURES



wood.
Wood Environment & Infrastructure Solutions, Inc.
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Charlotte, NC 28208
(704) 357-8600

VICINITY MAP
R-5709 - PARCEL 79
9820 NC 211 HWY
ABERDEEN, NORTH CAROLINA

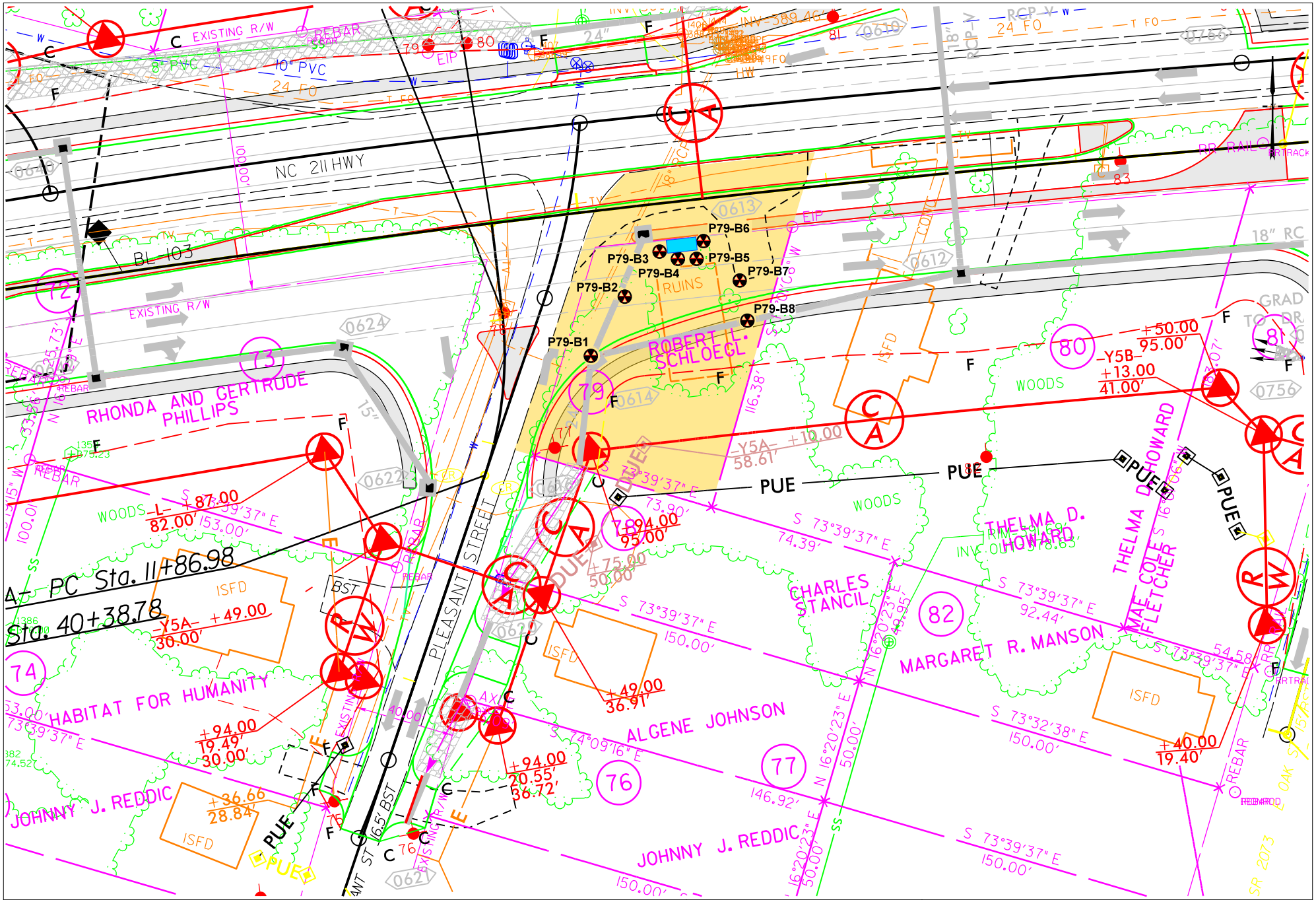
PREPARED BY:	LMM
DATE:	9/30/2021
CHECKED BY:	HPC
DATE:	9/30/2021
PROJECT NO:	20478R5709
FIGURE:	1

Legend

Site Boundary

0 500 1,000 Feet

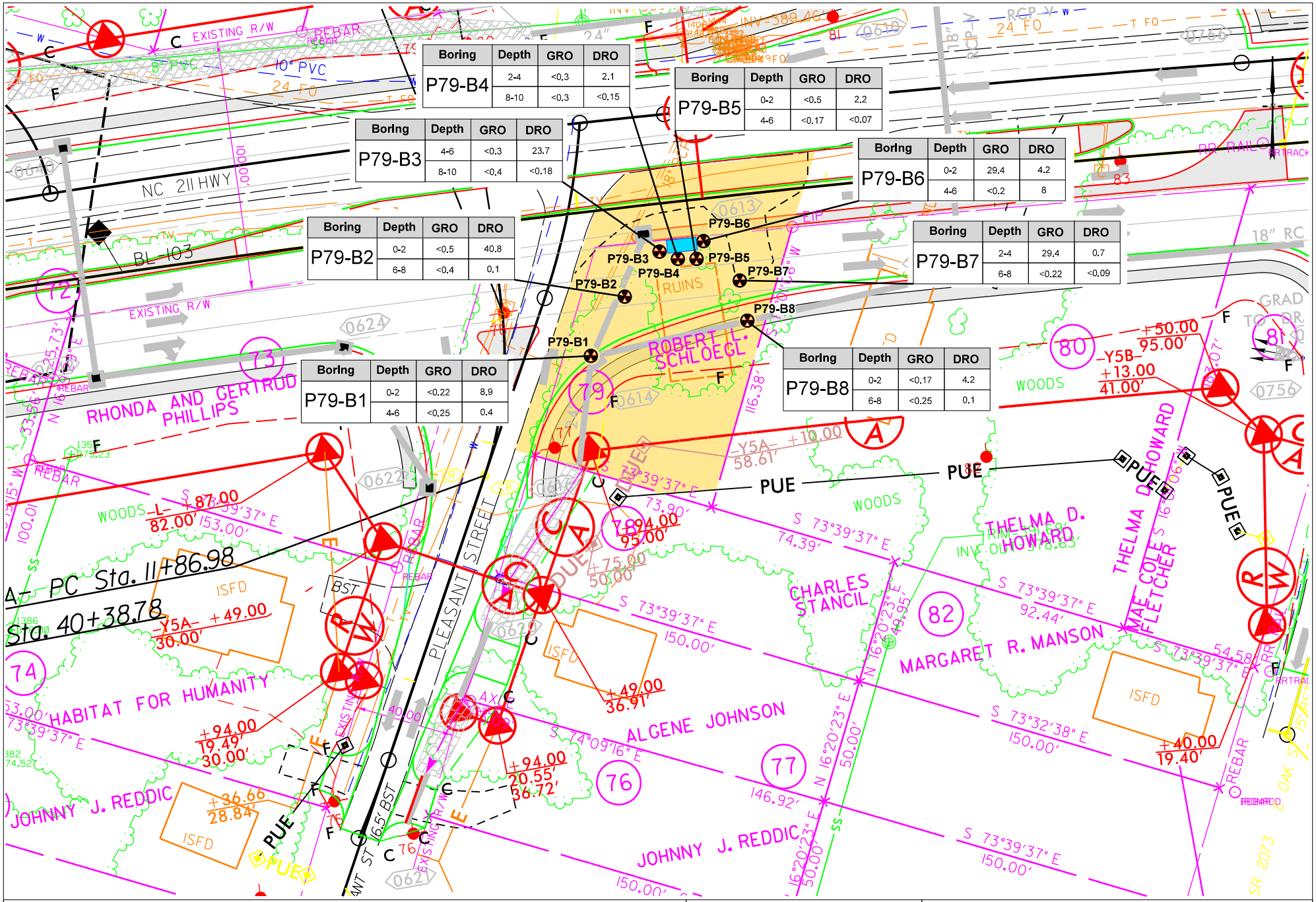
Document Path: P:\6228 Environmental\jobs\2020\NCDOT Geoenv. 2020 Contract\R-5709\NCDOT Plans\GIS\TopoF_P79.mxd



wood.

SITE MAP WITH BORING LOCATIONS
R-5709 - PARCEL 79
9820 NC 211 HWY
ABERDEEN, NORTH CAROLINA

PREPARED BY:	DATE:	CHECKED BY:	DATE:	JOB NUMBER	FIGURE
LMM	9/30/21	AJF	9/30/21	20478R5709	2


P79-B4
Boring | Depth | GRO | DRO
P79-B4 | 2-4 | <0.3 | 2.1
8-10 | <0.3 | <0.15
P79-B5
Boring | Depth | GRO | DRO
P79-B5 | 0-2 | <0.5 | 2.2
4-6 | <0.17 | <0.07
P79-B3
Boring | Depth | GRO | DRO
P79-B3 | 4-6 | <0.3 | 23.7
8-10 | <0.4 | <0.18
P79-B6
Boring | Depth | GRO | DRO
P79-B6 | 0-2 | 29.4 | 4.2
4-6 | <0.2 | 8
P79-B2
Boring | Depth | GRO | DRO
P79-B2 | 0-2 | <0.5 | 40.8
6-8 | <0.4 | 0.1
P79-B7
Boring | Depth | GRO | DRO
P79-B7 | 2-4 | 29.4 | 0.7
6-8 | <0.22 | <0.09
P79-B1
Boring | Depth | GRO | DRO
P79-B1 | 0-2 | <0.22 | 8.9
4-6 | <0.25 | 0.4
P79-B8
Boring | Depth | GRO | DRO
P79-B8 | 0-2 | <0.17 | 4.2
6-8 | <0.25 | 0.1
NC 211 HWY
EXISTING R/W
BL-103
RHONDA AND GERTRUD PHILLIPS
ROBERT L. SCHLOEGL
RUINS
PLEASANT STREET
PUE
WOODS
THELMA D. HOWARD
MAE COLE FLETCHER
CHARLES STANCIL
MARGARET R. MANSON
ALGENE JOHNSON
JOHNNY J. REDDIC
HABITAT FOR HUMANITY
PC Sta. 11+86.98
Sta. 40+38.78
BORING LOCATION
SUSPECTED DISPENSER ISLAND
AREA OF INVESTIGATION
DEPTHS SHOWN IN FEET BELOW GROUND SURFACE
CONCENTRATIONS SHOWN IN MILLIGRAMS PER KILOGRAM (mg/kg)
GRO=GASOLINE RANGE ORGANICS
DRO=DIESEL RANGE ORGANICS
GRO STATE ACTION LEVEL = 50 mg/kg
DRO STATE ACTION LEVEL = 100 mg/kg
BOLD CONCENTRATION EXCEEDS RESPECTIVE STATE ACTION LEVEL
40' 0' 20' 40'
10'
(ENGLISH)
wood.
ANALYTICAL RESULTS MAP
R-5709 - PARCEL 79
9820 NC 211 HWY
ABERDEEN, NORTH CAROLINA
PREPARED BY: LMM
DATE: 10/1/21
CHECKED BY: AJF
DATE: 10/1/21
JOB NUMBER 20478R5709
FIGURE 3

APPENDIX A

BORING LOGS

wood.

SOIL BORING FIELD WORKSHEET

BORING #	**P79-B1**	BORING DEPTH (ft)	**10**	NUMBER OF PAGES	**1**
PROJECT #	**20478R5709**			PROJECT NAME	**NCDOT R-5709**
DATE DRILLED	**9/2/2021**			WEATHER CONDITIONS	**Partly Cloudy, 84°F**
DRILLING SUB-CONTRACTOR	**IET**			DRILL RIG	**AMS PowerProbe**

DEPTH (ft bgs)	PID (ppm)	SOIL DESCRIPTION	SAMPLE INFO
1	0.5	Brown sand	P79-B1-0-2 selected for UVF analyses
2			
3	0.0		
4		Gravel Brown sand	
5	0.0		P79-B1-4-6 selected for UVF analyses
6			
7	0.0	Tan/brown clayey sand	
8			
9	0.0		
10		Tan clayey sand	
11		Boring terminated at 10 feet bgs	
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Log Completed By: **AJF**

SOIL BORING FIELD WORKSHEET

BORING #	**P79-B2**	BORING DEPTH (ft)	**10**	NUMBER OF PAGES	**1**
PROJECT #	**20478R5709**			PROJECT NAME	**NCDOT R-5709**
DATE DRILLED	**9/2/2021**			WEATHER CONDITIONS	**Partly Cloudy, 84°F**
DRILLING SUB-CONTRACTOR	**IET**			DRILL RIG	**AMS PowerProbe**

DEPTH (ft bgs)	PID (ppm)	SOIL DESCRIPTION	SAMPLE INFO
1	0.0	Brown sand	P79-B2-0-2 selected for UVF analyses
2		Tan/brown sand	
3	0.0		
4		Tan/gray sand	
5	0.0		
6			
7	0.0	Tan/brown clayey sand	P79-B2-6-8 selected for UVF analyses
8			
9	0.0		
10		Tan clayey sand	
11		Boring terminated at 10 feet bgs	
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Log Completed By: **AJF**

wood.

SOIL BORING FIELD WORKSHEET

BORING #	**P79-B3**	BORING DEPTH (ft)	**10**	NUMBER OF PAGES	**1**
PROJECT #	**20478R5709**			PROJECT NAME	**NCDOT R-5709**
DATE DRILLED	**9/2/2021**			WEATHER CONDITIONS	**Partly Cloudy, 84°F**
DRILLING SUB-CONTRACTOR	**IET**			DRILL RIG	**AMS PowerProbe**

DEPTH (ft bgs)	PID (ppm)	SOIL DESCRIPTION	SAMPLE INFO
1	0.0	Gravel/asphalt pieces Tan/brown sand	
2			
3	0.1		
4			
5	0.4	Brown clayey sand	P79-B3-4-6 selected for UVF analyses
6			
7	0.2	Tan/brown clayey sand	
8			
9	0.3	Tan/orange clayey sand	P79-B3-8-10 selected for UVF analyses
10			
11		Boring terminated at 10 feet bgs	
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Log Completed By: **AJF**

SOIL BORING FIELD WORKSHEET

BORING #	**P79-B4**	BORING DEPTH (ft)	**10**	NUMBER OF PAGES	**1**
PROJECT #	**20478R5709**			PROJECT NAME	**NCDOT R-5709**
DATE DRILLED	**9/2/2021**			WEATHER CONDITIONS	**Partly Cloudy, 84°F**
DRILLING SUB-CONTRACTOR	**IET**			DRILL RIG	**AMS PowerProbe**

DEPTH (ft bgs)	PID (ppm)	SOIL DESCRIPTION	SAMPLE INFO
1	0.0	Gravel/asphalt pieces	
2		Tan sand	
3	0.1		P79-B4-2-4 selected for UVF analyses
4			
5	0.0	Brown clayey sand	
6			
7	0.2		
8		Tan/orange clayey sand	
9	0.2		P79-B4-8-10 selected for UVF analyses
10			
11		Boring terminated at 10 feet bgs	
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Log Completed By: **AJF**

SOIL BORING FIELD WORKSHEET

BORING #	**P79-B5**	BORING DEPTH (ft)	**10**	NUMBER OF PAGES	**1**
PROJECT #	**20478R5709**			PROJECT NAME	**NCDOT R-5709**
DATE DRILLED	**9/2/2021**			WEATHER CONDITIONS	**Partly Cloudy, 84°F**
DRILLING SUB-CONTRACTOR	**IET**			DRILL RIG	**AMS PowerProbe**

DEPTH (ft bgs)	PID (ppm)	SOIL DESCRIPTION	SAMPLE INFO
1	0.1	Gravel/asphalt pieces Tan sand	P79-B5-0-2 selected for UVF analyses
2			
3	0.0		
4		Brown sand	
5	0.2	Brown clayey sand	P79-B5-4-6 selected for UVF analyses
6			
7	0.0	Tan clayey sand	
8			
9	0.0	Tan/orange clayey sand	
10			
11		Boring terminated at 10 feet bgs	
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Log Completed By: **AJF**

SOIL BORING FIELD WORKSHEET

BORING #	**P79-B6**	BORING DEPTH (ft)	**10**	NUMBER OF PAGES	**1**
PROJECT #	**20478R5709**			PROJECT NAME	**NCDOT R-5709**
DATE DRILLED	**9/2/2021**			WEATHER CONDITIONS	**Partly Cloudy, 84°F**
DRILLING SUB-CONTRACTOR	**IET**			DRILL RIG	**AMS PowerProbe**

DEPTH (ft bgs)	PID (ppm)	SOIL DESCRIPTION	SAMPLE INFO
1	0.0	Gravel/asphalt pieces Tan/brown sand	P79-B6-0-2 selected for UVF analyses
2			
3	0.0	Tan sand	
4		Brown sand	
5	0.1		P79-B6-4-6 selected for UVF analyses
6			
7	0.0	Tan clayey sand	
8			
9	0.0	Tan/orange clayey sand	
10			
11		Boring terminated at 10 feet bgs	
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Log Completed By: **AJF**

SOIL BORING FIELD WORKSHEET

BORING #	**P79-B7**	BORING DEPTH (ft)	**10**	NUMBER OF PAGES	**1**
PROJECT #	**20478R5709**			PROJECT NAME	**NCDOT R-5709**
DATE DRILLED	**9/2/2021**			WEATHER CONDITIONS	**Partly Cloudy, 84°F**
DRILLING SUB-CONTRACTOR	**IET**			DRILL RIG	**AMS PowerProbe**

DEPTH (ft bgs)	PID (ppm)	SOIL DESCRIPTION	SAMPLE INFO
1	0.0	Gravel	
2		Brown sand	
3	0.0		P79-B7-2-4 selected for UVF analyses
4		Brown/gray sand	
5	0.0		
6		Brown/tan clayey sand	
7	0.1		P79-B7-6-8 selected for UVF analyses
8		Tan clayey sand	
9	0.1		
10			
11		Boring terminated at 10 feet bgs	
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Log Completed By: **AJF**

SOIL BORING FIELD WORKSHEET

BORING #	**P79-B8**	BORING DEPTH (ft)	**10**	NUMBER OF PAGES	**1**
PROJECT #	**20478R5709**			PROJECT NAME	**NCDOT R-5709**
DATE DRILLED	**9/2/2021**			WEATHER CONDITIONS	**Partly Cloudy, 84°F**
DRILLING SUB-CONTRACTOR	**IET**			DRILL RIG	**AMS PowerProbe**

DEPTH (ft bgs)	PID (ppm)	SOIL DESCRIPTION	SAMPLE INFO
1	0.2	Gravel/asphalt pieces Tan/brown sand	P79-B8-0-2 selected for UVF analyses
2			
3	0.1	Tan sand	
4		Brown clayey sand	
5	0.1		
6			
7	0.3	Tan clayey sand	P79-B8-6-8 selected for UVF analyses
8			
9	0.2	Tan/orange clayey sand	
10			
11		Boring terminated at 10 feet bgs	
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			

Log Completed By: **AJF**

APPENDIX B

PHOTOGRAPHIC LOG

Photograph 1:
Parcel 79 prior to vegetation clearing, facing south.

Photograph 2:
Vegetation clearing around dilapidated building at the parcel, facing south.

Photograph 3:
Parcel 79 following the completion of vegetation clearing, facing south.

Photograph 4:
Parcel 79 following the completion of vegetation clearing, facing south.

Photograph 5:
View of numerous markings indicating underground utilities located between the suspected dispenser island (right side of photo) and NC 211 Hwy (left side of photo), facing east.

Photograph 6:
View of IET advancing direct push soil sampler, photograph taken on different parcel.

Photograph 7:
View of on-Site UVF analysis setup, photograph taken on different parcel.

APPENDIX C

GEOPHYSICAL REPORT

PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2021-201)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION:
PARCEL 79
NCDOT PROJECT R-5709 (50205.1.1)

9820 NC-211, ABERDEEN, NC

August 25, 2021

Report prepared for: **Helen P. Corley, LG, RSM, BCES**
Wood, PLC
2801 Yorkmont Road #100
Charlotte, NC 28208

Prepared by: _____
Eric C. Cross, P.G.
NC License #2181

Reviewed by: _____
Douglas A. Canavello, P.G.
NC License #1066

503 INDUSTRIAL AVENUE, GREENSBORO, NC 27406
P: 336.335.3174 F: 336.691.0648
C257: GEOLOGY C1251: ENGINEERING

GEOPHYSICAL INVESTIGATION REPORT
Parcel 79 - 9820 NC-211
Aberdeen, Moore County, North Carolina

Table of Contents

Figures

LIST OF ACRONYMS

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

EXECUTIVE SUMMARY

Project Description: Pyramid Environmental (Pyramid) conducted a geophysical investigation for Wood, PLC at Parcel 79, located at 9820 NC-211, in Aberdeen, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project R-5709). The survey included all accessible portions of the survey area indicated to Pyramid by Wood, PLC. Conducted from August 10-12, 2021, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

Geophysical Results: The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of four EM anomalies were identified. All of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR was performed around all sources of significant metallic interference to confirm that the interference did not obscure any significant structures such as USTs. Evidence of minor possible buried metallic debris was observed. No evidence of any significant buried structures such as USTs was observed. Collectively, the geophysical data did not record any evidence of metallic USTs at Parcel 79.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Wood, PLC at Parcel 79, located at 9820 NC-211, in Aberdeen, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project R-5709). The survey included all accessible portions of the survey area indicated to Pyramid by Wood, PLC. Conducted from August 10-12, 2021, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site consisted of a vacant lot with a deteriorated structure surrounded by grass, gravel, and dirt surfaces. An aerial photograph showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. Pyramid collected the EM data using a Geonics EM61-MK2 (EM61) metal detector integrated with a Geode External GPS/GLONASS receiver. The integrated GPS system allows the location of the instrument to be recorded in real-time during data collection, resulting in an EM data set that is geo-referenced and can be overlain on aerial photographs and CADD drawings. A boundary grid was established around the perimeter of the site with marks every 10 feet to maintain orientation of the instrument throughout the survey and assure complete coverage of the area.

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

computer and reviewed in the field and office using the Geonics NAV61 and Surfer for Windows Version 15.0 software programs.

GPR data were acquired across select EM anomalies on August 12, 2021, using a Geophysical Survey Systems, Inc. (GSSI) SIR 4000 control unit coupled to a 350 MHz HS antenna. Data were collected both in reconnaissance fashion as well as along formal transect lines across EM features. The GPR data were viewed in real-time using a vertical scan of 512 samples, at a rate of 48 scans per second. GPR data were viewed down to a maximum depth of approximately 6 feet, based on dielectric constants calculated by the SIR 4000 unit in the field during the reconnaissance scans. GPR transects across specific anomalies were saved to the hard drive of the DF unit for post-processing and figure generation.

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

Geophysical Surveys for Underground Storage Tanks
on NCDOT Projects

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

DISCUSSION OF RESULTS

Discussion of EM Results

A contour plot of the EM61 results obtained across the survey area at the property is presented in **Figure 2**. Each EM anomaly is numbered for reference in the figure. The

following table presents the list of EM anomalies and the cause of the metallic response, if known:

LIST OF METALLIC ANOMALIES IDENTIFIED BY EM SURVEY

Metallic Anomaly #	Cause of Anomaly	Investigated with GPR
1	Sign	
2	Reinforced Concrete Pipe	
3	Vehicles	✓
4	Building	✓

All of the EM anomalies were directly attributed to visible cultural features at the ground surface, including a sign, a reinforced concrete pipe, vehicles, and the building. GPR was performed around the vehicles and adjacent to the building to confirm that the metallic interference did not obscure any significant structures such as USTs.

Discussion of GPR Results

Figure 3 presents the locations of the formal GPR transects performed at the property as well as the transect images. A total of six formal GPR transects were performed at the site. GPR Transect 1 was performed adjacent to the vehicles and GPR Transects 2-6 were performed adjacent to the building. Evidence of possible minor buried metallic debris was observed in some of the GPR results. No evidence of significant buried structures such as USTs was observed.

Collectively, the geophysical data did not record any evidence of metallic USTs at Parcel 79. **Figure 4** provides an overlay of the metal detection results on the NCDOT engineering plans for reference.

SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 and GPR data collected at Parcel 79 in Aberdeen, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.

- All of the EM anomalies were directly attributed to visible cultural features at the ground surface.
- GPR was performed around all sources of significant metallic interference to confirm that the interference did not obscure any significant structures such as USTs.
- Evidence of minor possible buried metallic debris was observed. No evidence of any significant buried structures such as USTs was observed.
- Collectively, the geophysical data did not record any evidence of metallic USTs at Parcel 79.

LIMITATIONS

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

APPROXIMATE BOUNDARIES OF GEOPHYSICAL SURVEY AREA

View of Survey Area (Facing Approximately South)

View of Survey Area (Facing Approximately East)

N

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PROJECT	PARCEL 79 ABERDEEN, NORTH CAROLINA NCDOT PROJECT R-5709	TITLE	PARCEL 79 - GEOPHYSICAL SURVEY BOUNDARIES AND SITE PHOTOGRAPHS	DATE 8/16/2021 PYRAMID PROJECT #: 2021-201	CLIENT Wood, PLC **FIGURE 1**

EM61 METAL DETECTION RESULTS

NO EVIDENCE OF METALLIC USTs WAS OBSERVED.

The contour plot shows the differential results of the EM61 instrument in millivolts (mV). The differential results focus on larger metallic objects such as USTs and drums. The EM data were collected on August 10, 2021, using a Geonics EM61-MK2 instrument. Verification GPR data were collected using a GSSI SIR 4000 instrument with a 350 MHz HS antenna on August 12, 2021.

EM61 Metal Detection Response (millivolts)

N

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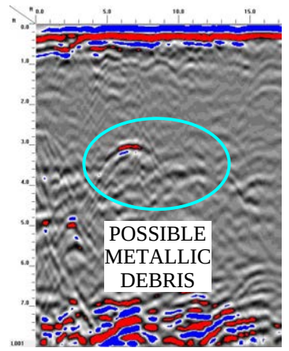
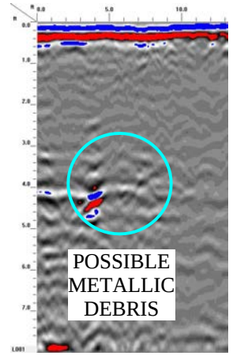
PROJECT	PARCEL 79 ABERDEEN, NORTH CAROLINA NCDOT PROJECT R-5709
TITLE	PARCEL 79 - EM61 METAL DETECTION CONTOUR MAP
DATE	8/16/2021
PYRAMID PROJECT #:	2021-201
CLIENT	Wood, PLC
	FIGURE 2

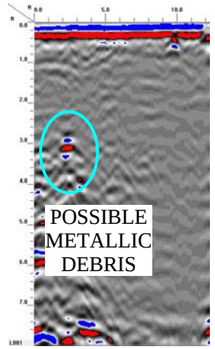
GPR TRANSECT LOCATIONS



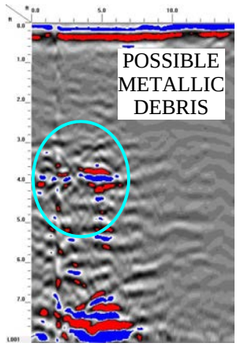
GPR TRANSECT 1 (T1)



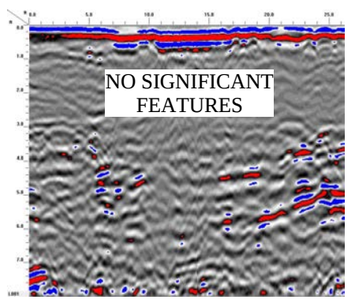
GPR TRANSECT 2 (T2)



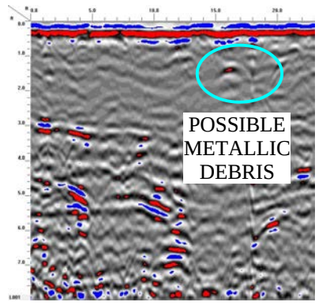
GPR TRANSECT 3 (T3)



GPR TRANSECT 4 (T4)



GPR TRANSECT 5 (T5)



GPR TRANSECT 6 (T6)

N

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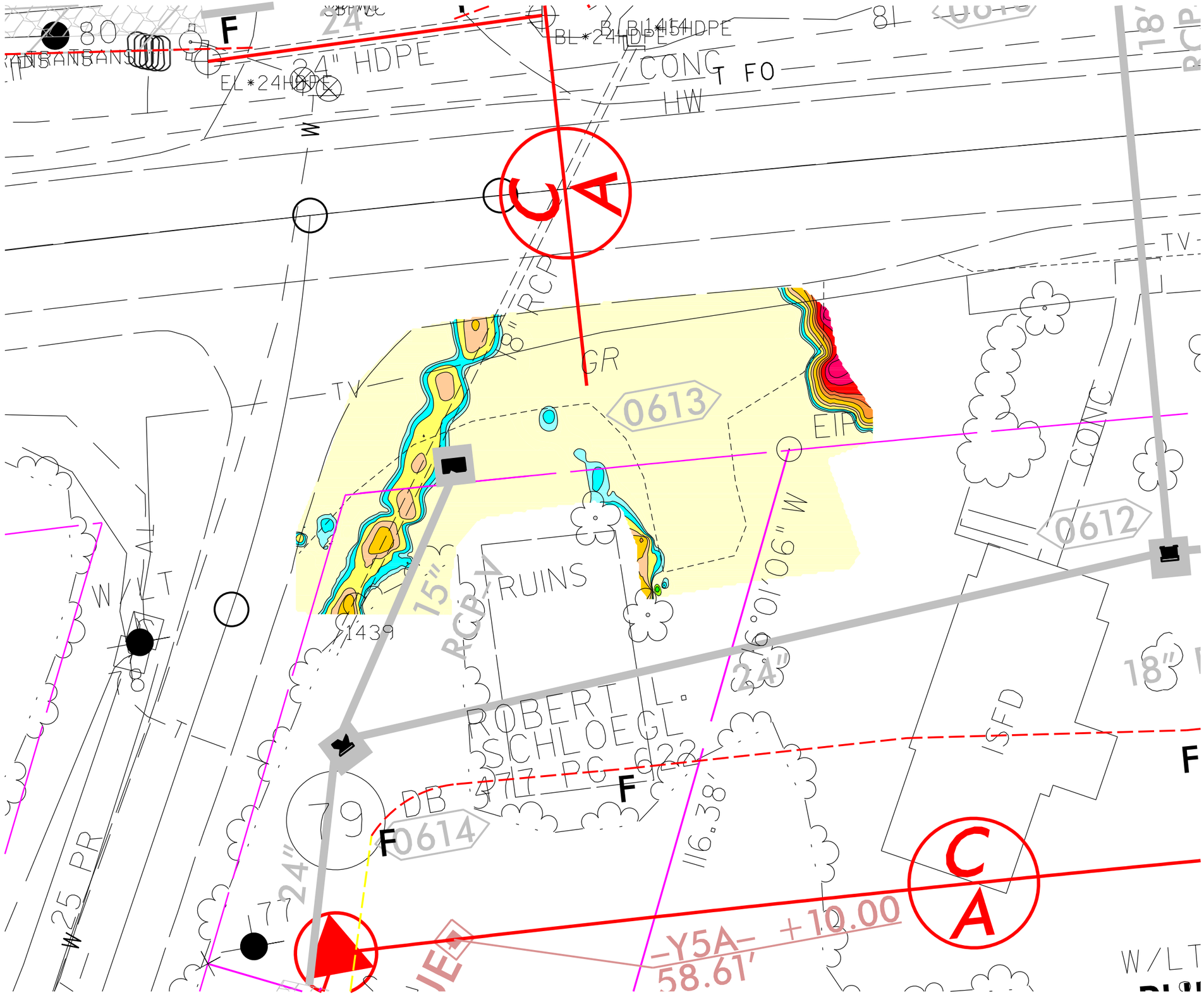
PROJECT: PARCEL 79 ABERDEEN, NORTH CAROLINA NCDOT PROJECT R-5709	TITLE: PARCEL 79 - GPR TRANSECT LOCATIONS AND IMAGES	DATE: 8/16/2021	CLIENT: Wood, PLC
		PYRAMID PROJECT #: 2021-201	**FIGURE 3**



LEGEND

- EXISTING ROW
- EXISTING PROPERTY BOUNDARY
- PROPOSED ROW LINE
- E — TEMPORARY CONSTRUCTION EASEMENT
- PDE — PROPOSED PERMANENT DRAINAGE
- PROPOSED SS CUT LINE
- PROPOSED SS FILL LINE

MILLIVOLTS (mV)

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

0 10 20
FEET

N

TITLE
OVERLAY OF METAL DETECTION RESULTS
ON NCDOT ENGINEERING PLANS

PROJECT
PARCEL 79
ABERDEEN, NORTH CAROLINA
NCDOT PROJECT R-5709

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DATE: 08-18-2021	REVISION NO. 0
PYRAMID PROJECT NO. 2021-201	FIGURE NO. 4

APPENDIX D

UVF HYDROCARBON ANALYTICAL RESULTS

Hydrocarbon Analysis Results

Client: Wood
Address 2801 Yorkmont Road
Charlotte NC, 28208

Contact: Helen Corley

Project: P79

Samples taken Thursday, September 2, 2021
Samples extracted Thursday, September 2, 2021
Samples analysed Thursday, September 2, 2021

Operator DRH

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 C5:10	% Ratios C10:C 18	% Ratios C18+	HC Fingerprint Match
Soil	P79-B1-0-2	9.0	<0.22	<0.22	8.9	8.9	4.9	0.26	0.005	0	66.4	33.6	V.Deg.PHC 60.8%,(FCM)
Soil	P79-B1-4-6	10.0	<0.25	<0.25	0.4	0.4	0.19	0.009	<0.003	0	77.4	22.6	V.Deg.PHC 76.4%,(FCM)
Soil	P79-B2-0-2	21.0	<0.5	<0.5	40.8	40.8	17.9	0.9	0.028	0	83.4	16.6	V.Deg.PHC 88.8%,(FCM)
Soil	P79-B2-6-8	16.0	<0.4	<0.4	0.1	0.1	0.05	0.002	<0.005	0	80.2	19.8	Residual HC
Soil	P79-B3-4-6	14.0	<0.3	<0.3	23.7	23.7	6	0.3	0.005	0	85.3	14.7	V.Deg.Light Fuel 93.9%,(FCM),(BO)
Soil	P79-B3-8-10	18.0	<0.4	<0.4	<0.18	<0.4	<0.009	<0.009	<0.005	0	0	100	Residual HC
Soil	P79-B4-2-4	15.0	<0.3	<0.3	2.1	2.1	1.3	0.06	0.001	0	87.3	12.7	V.Deg.Light Fuel 89.5%,(FCM),(BO)
Soil	P79-B4-8-10	15.0	<0.3	<0.3	<0.15	<0.3	<0.008	<0.008	<0.005	0	0	100	Residual HC
Soil	P79-B5-0-2	20.0	<0.5	<0.5	2.2	2.2	1.1	0.06	0.001	0	78.7	21.3	V.Deg.PHC 82.8%,(FCM)

Initial Calibrator QC check OK Final FCM QC Check OK 100.0%

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

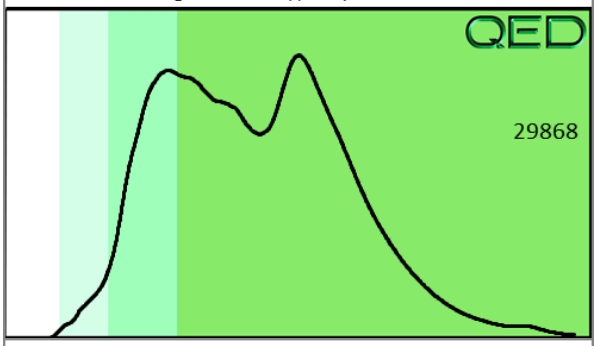
(B) = Blank Drift : (M) = Adjusted value : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : SB = sample selected as site background

(TD) = Calibration outside limit

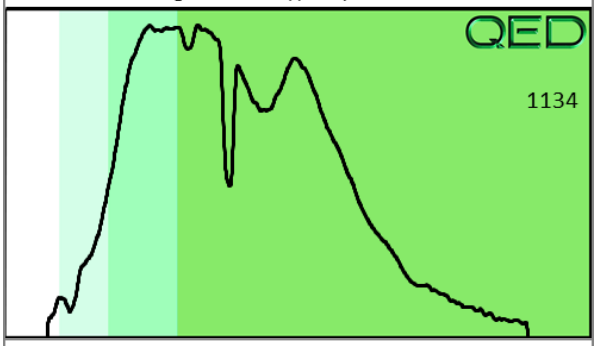
QED Hydrocarbon Fingerprints

Project: P79

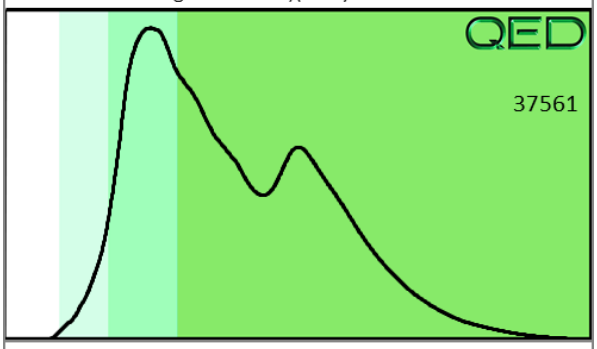
P79-B1-0-2 : V.Deg.PHC 60.8%,(FCM)



P79-B1-4-6 : V.Deg.PHC 76.4%,(FCM)

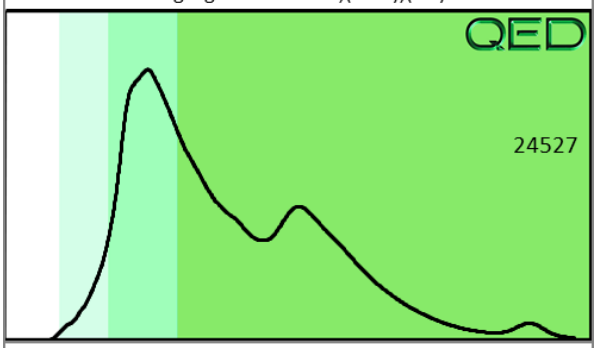


P79-B2-0-2 : V.Deg.PHC 88.8%,(FCM)

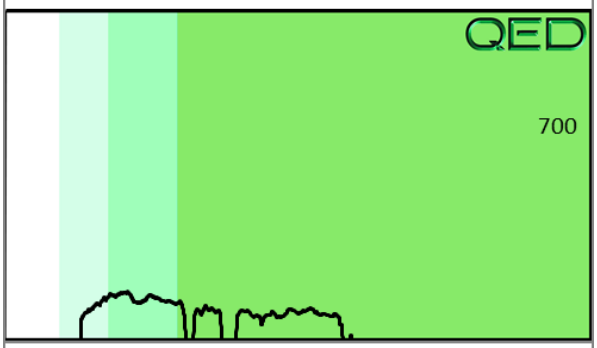


P79-B2-6-8 : Residual HC

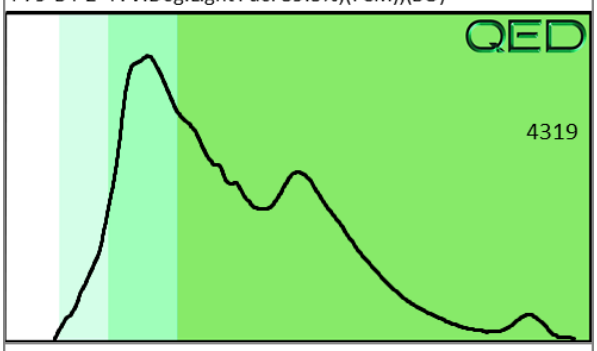
P79-B3-4-6 : V.Deg.Light Fuel 93.9%,(FCM),(BO)



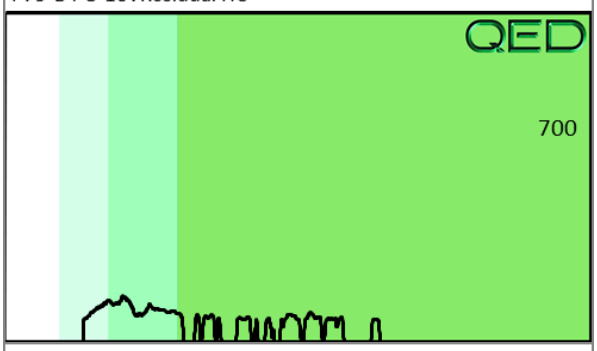
P79-B3-8-10 : Residual HC



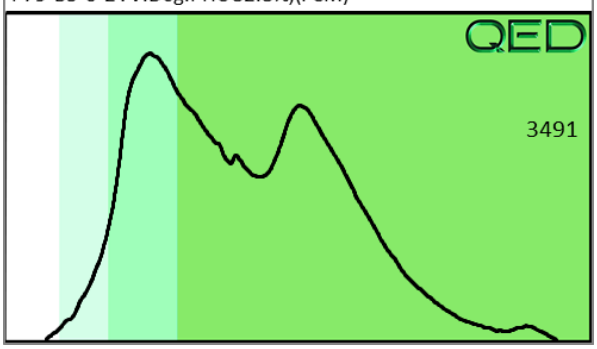
P79-B4-2-4 : V.Deg.Light Fuel 89.5%,(FCM),(BO)



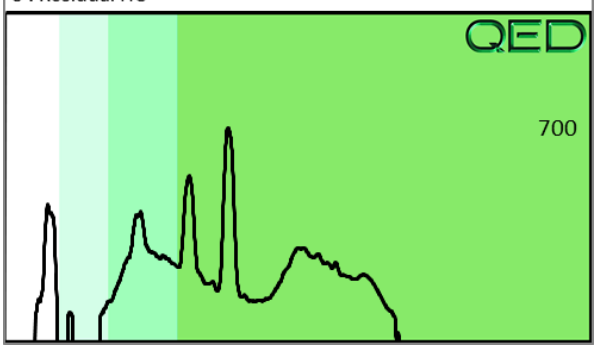
P79-B4-8-10 : Residual HC



P79-B5-0-2 : V.Deg.PHC 82.8%,(FCM)



0 : Residual HC



Hydrocarbon Analysis Results

Client: Wood
Address: 2801 Yorkmont Road
Charlotte NC, 28208

Contact: Helen Corley

Project: P79

Samples taken Thursday, September 2, 2021
Samples extracted Thursday, September 2, 2021
Samples analysed Thursday, September 2, 2021

Operator DRH

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 C5:10	% Ratios C10:C 18	% Ratios C18+	HC Fingerprint Match
Soil	P79-B5-4-6	7.0	<0.17	<0.17	<0.07	<0.17	<0.004	<0.004	<0.002	0	100	0	Residual HC
Soil	P79-B6-0-2	9.0	<0.22	29.4	4.2	33.6	2	0.11	0.003	94.5	4.4	1.1	No Match found
Soil	P79-B6-4-6	8.0	<0.2	<0.2	8	8	0.5	0.027	<0.001	0	80	20	V.Deg.Light Fuel 90.8%,(FCM)
Soil	P79-B7-2-4	9.0	<0.22	29.4	0.7	30.18	0.3	0.02	<0.001	98.9	0.8	0.3	No Match found
Soil	P79-B7-6-8	9.0	<0.22	<0.22	<0.09	0.013	0.013	0.001	<0.003	0	34	66	PHC ND,(FCM)
Soil	P79-B8-0-2	7.0	<0.17	<0.17	4.2	4.2	2.1	0.11	0.003	0	76.9	23.1	V.Deg.PHC 73.7%,(FCM)
Soil	P79-B8-6-8	10.0	<0.25	<0.25	0.1	0.1	0.022	0.001	<0.001	0	100	0	Residual HC

Initial Calibrator QC check OK

Final FCM QC Check OK 100.6%

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

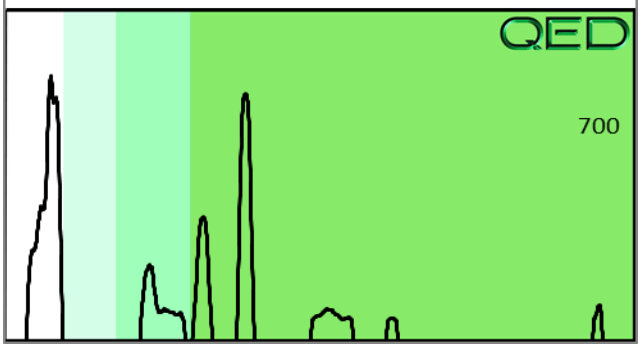
HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only : % Ratios estimated carbon number proportions : (OCR)/(Q) = Outside cal range, values and HC match estimates : ND = Not Detected

(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

QED Hydrocarbon Fingerprints

Project: P79

P79-B5-4-6 : Residual HC



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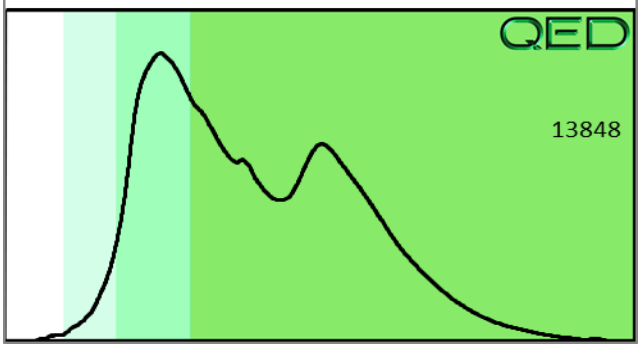
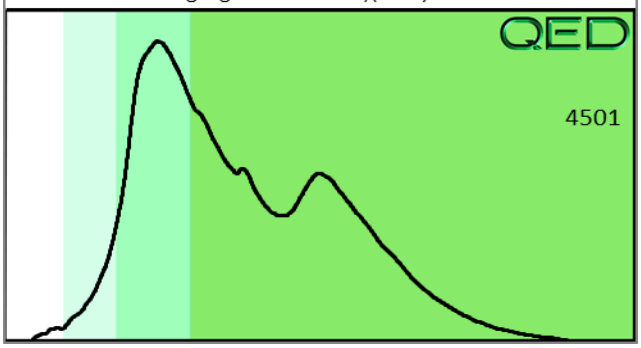
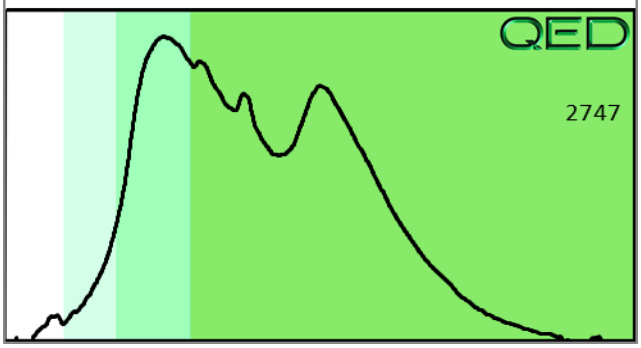


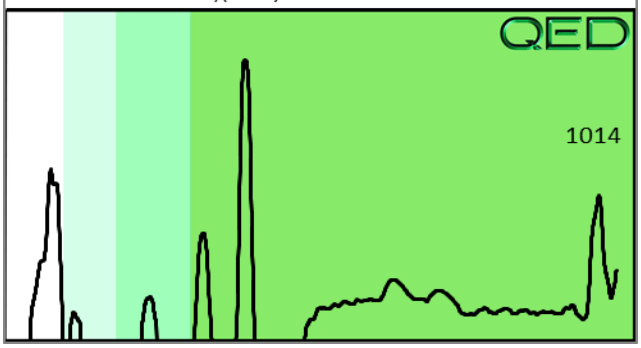
P79-B6-4-6 : V.Deg.Light Fuel 90.8%,(FCM)



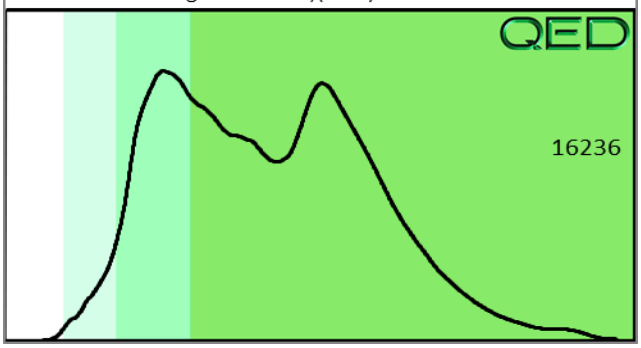
P79-B7-2-4 : No Match found



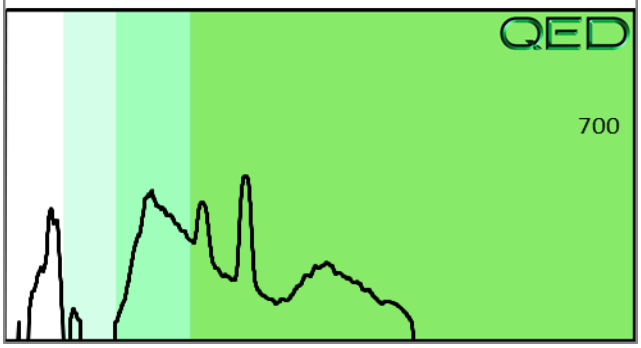
P79-B7-6-8 : PHC ND,(FCM)



P79-B8-0-2 : V.Deg.PHC 73.7%,(FCM)



P79-B8-6-8 : Residual HC



North Carolina Department of Transportation
Underground Storage Tank Closure Report
State Project: R-5709
WBS Element: 50205.1.1
Hoke County

Parcel 199
Woodrow Wilson Property
8850 NC 211 Hwy
Aberdeen, North Carolina
January 6, 2023

WSP USA Environment & Infrastructure Inc.
Project: 22R5709UST

DocuSigned by:
Derick Haydin, PG
E8E0CDF80FF049A...
Derick Haydin, LG
Staff Geologist

DocuSigned by:
Sheri Knox, PE, PMP, BCEE
38D60A8DEB7D4EF...
Sheri Knox, PE, PMP®, BCEE
Senior Associate Engineer

A. SITE INFORMATION

1. Site Identification

Date of Report: January 6, 2023
Facility I.D.: Unknown **UST Incident Number:** N/A **Site Risk:** Pending
Site Name: Parcel 199 – Woodrow Wilson Property
Street Address: 8850 NC 211 Hwy
City: Aberdeen **Zip Code:** 28315 **County:** Hoke
Description of Geographical Data Point: Center of UST Basin
Location Method: Google Earth
Latitude: 35.073588" N **Longitude:** -79.356813" W

2. Information about Contacts Associated with the UST System

UST Owner: Woodrow Wilson c/o Ronald Wilson
Address: 203 Pinecone Avenue, Raeford, North Carolina 28376
Telephone: Unknown

UST Operator: Unknown
Address: Unknown
Telephone: Unknown

Property Owner: Woodrow Wilson c/o Ronald Wilson
Address: 203 Pinecone Avenue, Raeford, North Carolina 28376
Telephone: Unknown

Property Occupant: Vacant
Address: N/A
Telephone: N/A

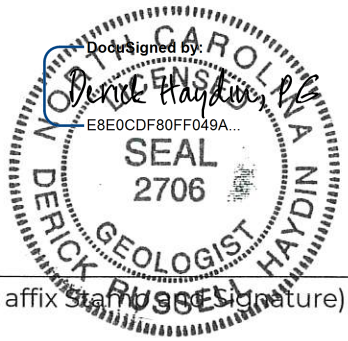
Consultant: WSP USA Environment & Infrastructure Inc.
Address: 2801 Yorkmont Road, Suite 100, Charlotte, North Carolina 28208
Telephone: 704-357-8600

3. Information about Release

Date Discovered: No release encountered
Estimated Quantity of Release: N/A
Cause of Release: N/A
Source of Release: N/A
Sizes and Contents of Tanks or Other Containment from which Release Occurred: N/A

4. Certification

I, Derick R. Haydin, a Licensed Professional Geologist for WSP USA Environment & Infrastructure Inc., do certify that the information contained in this report is correct and accurate to the best of my knowledge.



(Please affix Stamp and Signature)

WSP USA Environment & Infrastructure Inc. is licensed to practice geology (C-2478) and engineering (F-1253) in North Carolina.

B. EXECUTIVE SUMMARY

In response to the North Carolina Department of Transportation (NCDOT) Request for Proposal (RFP), dated July 14, 2022, WSP USA Environment & Infrastructure Inc. (WSP), formerly Wood Environment & Infrastructure Solutions, Inc., has performed underground storage tank (UST) closure activities for Parcel 199 (Site or subject property). The activities were conducted in accordance with WSP's Technical and Cost proposal dated July 25, 2022, and NCDOT's August 4, 2022, Notice to Proceed. NCDOT contracted WSP to perform the UST closure activities at the subject property, within areas that will be affected by the widening of NC 211 Hwy from US 15-501 in Aberdeen, North Carolina to SR 1244 (West Palmer Street)/SR 1311 (Mockingbird Hill Road) in Raeford, North Carolina.

The subject property is identified as Parcel 199, Woodrow Wilson property, within the NCDOT MicroStation survey file and encompasses approximately 0.5 acres (subject property). Three probable USTs located near the western corner of the subject property building were identified during WSP's August 2021 Preliminary Site Assessment (PSA). A suspected dispenser island was also identified along the southwestern exterior of the building during the PSA. In addition, during correspondence via email between the NCDOT and WSP, it was noted a possible heating oil tank may have been located near the "back corner" of the subject property building.

WSP personnel and our private utility locator, Taylor Wiseman & Taylor (TWT), mobilized to the subject property on October 24, 2022, to perform Ground-Penetrating Radar (GPR) and Electromagnetic (EM) surveys to attempt to detect metallic objects such as pipes, and underground utility lines buried in the vicinity of the three tanks and the dispenser island. A small anomaly was identified near the northern side of the subject property building. This area was investigated by excavating a test pit at the location of the anomaly. Buried debris and a metal vent pipe connected to one of the three USTs were encountered in the test pit. A heating oil tank was not encountered, and no other anomalies were identified which may have been related to a possible heating oil tank.

WSP personnel and our tank removal contractor EVO Corporation (EVO) mobilized to the Site on October 26, 2022, to remove three USTs (UST-1, UST-2, and UST-3). Prior to removal, the tops of the three USTs were uncovered by removing overburden material from above the tanks. After the USTs were uncovered, each of the three USTs was observed to be near empty. The remaining liquid was removed from each UST by a vacuum truck. An approximate total of 157-gallons of petroleum-contact water was pumped from the three USTs into a vacuum

truck for off-Site disposal. During UST excavation activities, EVO removed the former fuel dispenser island (which contained two dispensers) and three product lines. Closure soil samples were collected for quantitative analyses using UVF spectrometry from beneath the product lines and fuel dispenser on October 27, 2022.

On October 31, 2022, soils adjacent to the tanks were removed to free the USTs from the excavations. The interior of each UST was then purged of explosive vapors by adding dry ice pellets and the USTs were removed from the excavations. Following the removal of the USTs, closure soil samples were collected. WSP personnel collected UST closure soil samples from beneath the three USTs. UVF analytical results did not identify Total Petroleum Hydrocarbons (TPH)-Gasoline Range Organics (GRO) or TPH-Diesel Range Organics (DRO) concentrations which exceeded the State Action Levels in the closure samples collected beneath the centerline of the three USTs, product lines, or dispensers.

Since TPH concentrations above the State Action Levels were not identified in the UST closure samples, over-excavation was not performed. Petroleum impacted soil was not encountered, so EVO did not dispose of soil from the Site. Following the removal of the USTs, EVO backfilled the excavation using soil from the UST excavation and with imported clean backfill. The UST excavation backfill was compacted by EVO personnel to meet the criteria for the AASHTO-99 standard. EVO then capped the excavation with four inches of ABC stone.

No further action is recommended.

C. TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

D. SITE HISTORY AND CHARACTERIZATION

1. UST Owner/Operator Information

Ownership and operator information for the former USTs is provided in **Table 1**.

2. UST Information

Information regarding the UST details for the subject property is provided in **Table 2**.

3. Description of the Release

No release has been identified at the property.

4. Description of Site Characteristics

The subject property, encompassing approximately 0.5 acres, is in a mixed-use area of Aberdeen, North Carolina, and is identified as Parcel 199, Woodrow Wilson property, within the NCDOT MicroStation survey file. A Topographic Map is included as **Figure 1** and a Site Map depicting the locations of the former USTs are shown on **Figure 2**.

The subject property is located within the Coastal Plain Physiographic Province of North Carolina. According to the 1985 State Geologic Map of North Carolina, the area is within the Pinehurst Formation and is underlain by medium to coarse grained sand with cross-bedding and rhythmic bands of clayey sand.

At the time of this report, the subject property was occupied by a dilapidated former automotive service garage and gasoline station. Remaining portions of the subject property were occupied by asphalt-paved driveways and landscaped areas.

The 7.5-minute McCain, North Carolina, United States Geological Survey (USGS) quadrangle, published in 1983 and the Hoke County Geographic Information System (GIS) Data Viewer website were examined. Review of the available topographic data indicate that the subject property elevation is approximately 450 feet above mean sea level (msl). Topography of the area is generally sloping to the southwest.

The general direction of groundwater flow can be inferred from ground surface elevations and surficial expression of groundwater identified on the McCain, North Carolina USGS road topographic quadrangle. Surficial groundwater occurrences generally include permanent lakes, streams, and wetland areas. Based on WSP's review of topographic maps and observations of the subject property vicinity, the groundwater flow direction was inferred to

the southwest toward an unnamed tributary of Quewhiffle Creek, located approximately 850 feet from the subject property.

E. UST CLOSURE PROCEDURE

Prior to mobilization, WSP contacted the North Carolina underground utility location service (NC 811) for public utility location at the subject property. In addition, WSP personnel and our private utility locator, TWT, mobilized to the subject property on October 24, 2022, to perform GPR and EM surveys to attempt to detect metallic objects such as pipes, and underground utility lines buried in the vicinity of the three tanks and the dispenser island. The purpose of this effort was to minimize the potential for digging into underground utilities buried at the subject property. A small anomaly was identified near the northern side of the subject property building. This area was investigated by excavating a test pit at the location of the anomaly. Buried debris and a metal vent pipe connected to one of the three USTs were encountered in the test pit. A heating oil tank was not encountered, and no other anomalies were identified which may have been related to a possible heating oil tank.

WSP personnel and our tank removal contractor, EVO, mobilized to the subject property on October 26, 2022, to remove three USTs, (UST-1, UST-2, and UST-3). Prior to removal, the tops of the three USTs were uncovered by removing overburden material from above the tanks. Overburden soils were screened for volatile organic compounds (VOCs) in the field using a photoionization detector (PID). Depth to top of the USTs were approximately three feet below ground surface. After the USTs were uncovered, each of the three USTs was observed to contain a few inches of petroleum-contact water. The liquid was removed from each UST by a vacuum truck on October 28, 2022. An approximate total of 157-gallons of petroleum-contact water was pumped from the three USTs into a vacuum truck for off-Site disposal at EVO's facility in Winston-Salem, North Carolina.

During UST excavation, on October 27. 2022, the former fuel dispenser island (containing two dispensers) and product lines (three total, one per UST) were removed for off-Site disposal. The three product lines were piped into one product line heading toward the dispensers. The product lines measured approximately 10-feet in length and were located in a single trench, approximately 1.5 feet below ground surface, between the southeast corner of the excavation and the northwest side of the dispenser island. Rust was visible on the exterior of the product lines; however, holes or pitting were not observed on the product lines. Staining or petroleum odors were not observed during the removal of the dispenser island and product lines. Closure soil samples were collected from beneath each former fuel dispenser location and from beneath the product lines for quantitative analyses using ultraviolet fluorescence (UVF) spectrometry. Results are discussed in Part F.

On October 31, 2022, soils adjacent to the tanks were removed to free the USTs from the excavations. The interior of each UST was then purged of explosive vapors by adding dry ice pellets. Purging was considered complete when the vapor readings inside each UST were below 10% of the lower explosive limit (LEL), under the supervision of the Hoke County Fire Marshal. Once purging was complete, each UST was removed from the excavation and placed on a trailer for transport to Foss Recycling in Winston-Salem, North Carolina for off-Site disposal. Certificates of disposal for the petroleum-contact water and the three USTs are included in **Appendix A**.

The three USTs measured approximately 27 feet long by 8 feet in diameter (UST-1), 24 feet long by 6 feet in diameter (UST-2), and 24 feet long by 8 feet in diameter (UST-3), the estimated capacity of the USTs were 10,000-gallons, 4,000-gallons, and 8,000-gallons, respectively. Rust was visible on the exterior of the three USTs; however, holes or pitting were not observed on the tanks. Staining or petroleum odors were not observed during the removal of the tanks. Neither groundwater nor bedrock were encountered during the removal of the USTs.

Following the removal of the USTs, closure soil samples were collected for quantitative analyses using UVF spectrometry (Part F). Following the collection of closure samples, the excavation was backfilled by EVO personnel using the soil removed from the excavation and with clean imported backfill by using the excavator bucket and a remote-controlled trench compactor. Compaction testing was done by WSP personnel in approximately six-inch lifts and met the criteria of the AASHTO T-99 standard. Once the excavation was backfilled and compacted, EVO placed four inches of ABC stone to cap the excavation. The final dimensions of the UST excavation measured approximately 40 feet long by 36 feet wide and was extended to an approximate depth of 12 feet deep.

Photographs of the UST closure activities are included in **Appendix B**. The Site Investigation Report for Permanent Closure or Change-in-Service of Un-Registered UST (Form UST-2B) is included in **Appendix C**. An excavation log describing the soil types encountered is included as **Appendix D**. The locations of the closure soil samples are depicted on **Figure 3**.

F. SITE INVESTIGATION

During the removal of the USTs, product lines (one per tank located within a single trench), and two dispensers, the overburden soils were screened for VOCs in the field using a PID. The PID field screening did not identify VOC concentrations above background levels in the overburden soils and they were stockpiled on-site to be used as backfill following the removal of the tanks. PID readings are included on the excavation log included as **Appendix D**.

After the removal of the product lines and former dispenser island, on October 27, 2022, WSP personnel collected a closure soil sample from the native soil located approximately 1.0-foot beneath each former fuel dispenser and the product lines. The excavator bucket was used to collect the closure samples from the base of the excavation and WSP personnel collected each sample directly from the excavator bucket. To minimize the potential for cross-contamination, a new pair of nitrile gloves were donned for collection of each sample. The closure soil samples were analyzed on-Site for TPH-GRO and TPH-DRO by UVF analysis. The. UVF analysis was performed by Mr. Derick Haydin, a certified QED UVF technician with WSP, using a calibrated QED HC-1 UVF Hydrocarbon Analyzer. UVF analytical results of the fuel dispenser and product line closure samples did not identify TPH-GRO or TPH-DRO concentrations above the State Action Levels of 50 milligrams per kilogram (mg/kg) for TPH-GRO or 100 mg/kg for TPH-DRO.

Following removal of the USTs, on October 31, 2022, WSP personnel collected three UST closure soil samples from the native soil located approximately 1.0-foot beneath the bottom of each tank. The three closure samples were located beneath the centerline of each tank. The excavator bucket was used to collect the closure samples from the base of the excavation and WSP personnel collected each sample directly from the excavator bucket. To minimize the potential for cross-contamination, a new pair of nitrile gloves were donned for collection of each sample. The UVF closure soil samples were analyzed on-Site for TPH-GRO and TPH-DRO. UVF analytical results of the UST-1, UST-2, and UST-3 closure samples did not identify TPH-GRO or TPH-DRO concentrations above the State Action Levels. The closure soil sampling results are summarized on **Table 3**. UVF instrument generated tables are included in **Appendix E**.

G. CONCLUSIONS AND RECOMMENDATIONS

WSP has completed contracted activities for the closure of three USTs by removal at Parcel 199 located at 8850 NC 211 Hwy in Aberdeen, North Carolina. The following conclusions are based upon WSP's field observations and data evaluation from the field efforts performed in October 2022.

- One 10,000-gallon gasoline UST (UST-1), one 4,000-gallon gasoline UST (UST-2), and one 8,000-gallon gasoline UST (UST-3) were emptied, removed, and disposed during the October 2022 closure activities. The three USTs were observed to be in good condition with no holes observed in the tanks.

- The excavation for UST-1, UST-2, and UST-3 was backfilled using soil from the excavation and clean imported fill. The excavation was compacted by EVO personnel using an excavator bucket and remote-controlled trench compactor under the supervision of WSP personnel to meet the criteria for the AASHTO-99 standard. The excavation backfill was capped with four inches of ABC stone.

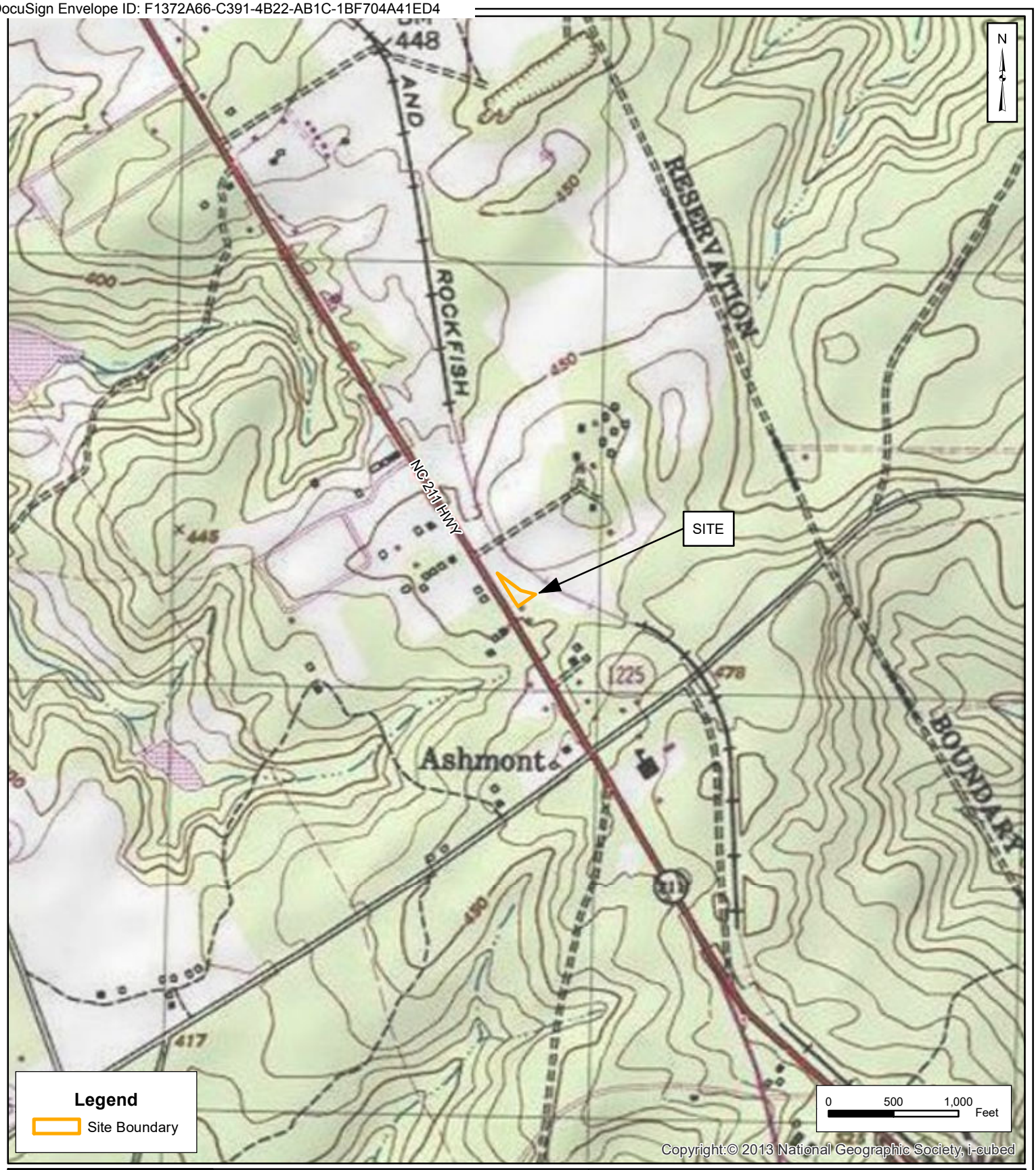
- Petroleum-impacted soil was not observed in the excavation for UST-1, UST-2, and UST-3. UVF analyses of UST closure samples did not identify TPH-GRO and TPH-DRO concentrations above their respective State Action Levels. No over-excavation was performed for the three USTs.

- Petroleum-impacted soil was not observed beneath the three product lines or two dispensers. UVF analyses of product line and dispenser closure samples did not identify TPH-GRO and TPH-DRO concentrations above their respective State Action Levels.

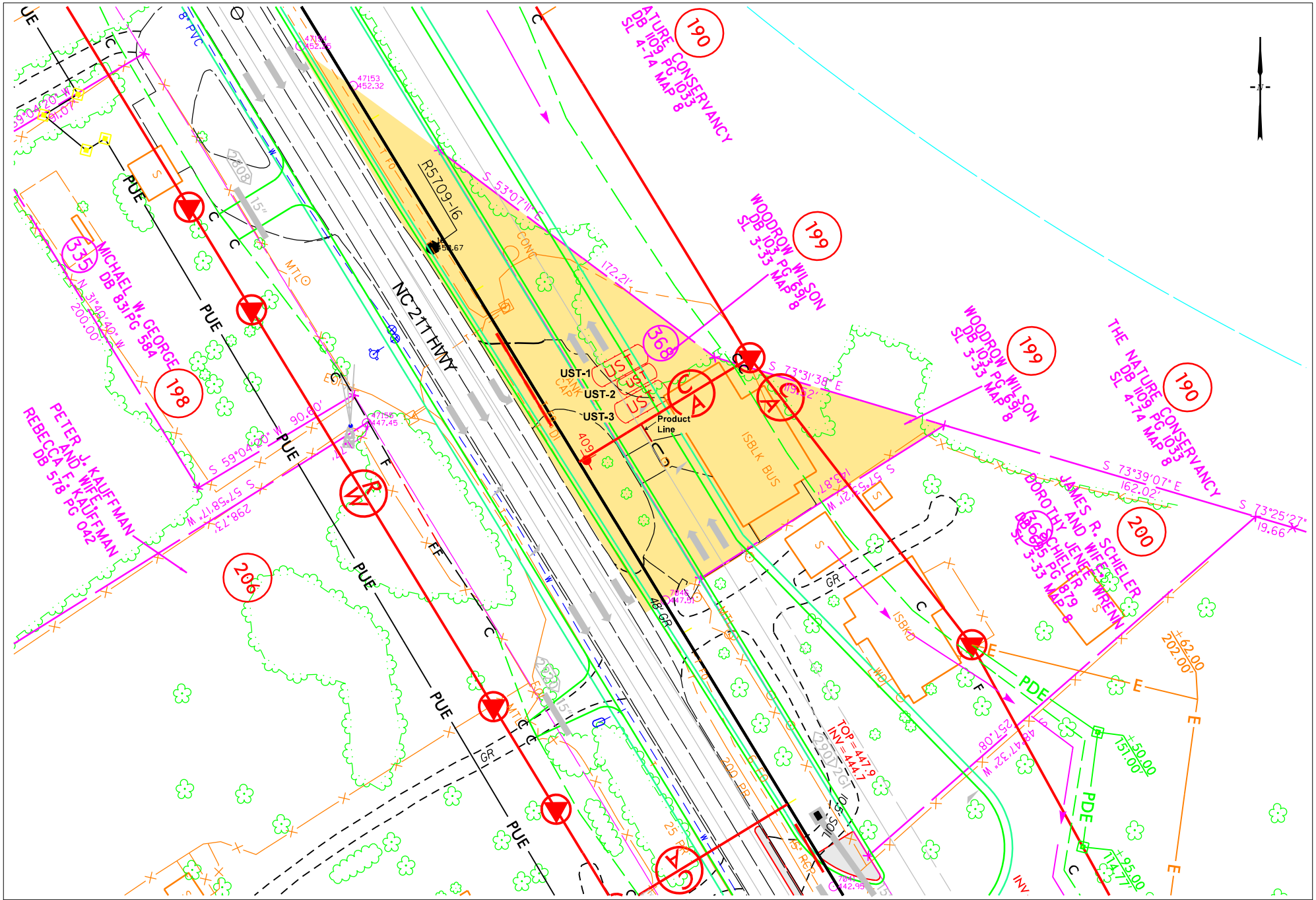
- TWT identified an anomaly by the north corner of the building. The anomaly was a vent pipe coming from the three gasoline USTs. A heating oil tank was not identified by TWT or during UST closure activities. No other anomalies were identified which may have been related to a possible heating oil tank.

- No further action is recommended for this parcel.

FIGURES



wsp	**SITE:** R5709-PARCEL 199 8850 NC 211 HWY ABERDEEN, NORTH CAROLINA	**TITLE:** VICINITY MAP	**Figure** 1
	CLIENT: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	**SCALE:** 1 " = 1,000 ' **DATE:** 01/05/2023 **PROJECT:** 22R5709UST	
	WSP USA Environment & Infrastructure Inc. 2801 Yorkmont Road, Suite 100 Charlotte, NC 28208 (704) 357-8600	**DRAWN BY:** D. Young **CHECKED BY:** S. Knox	
		LOCATION: \\clt1-fs1\projects\6228 Environmental\jobs\2020\ NCDOT Geoenv. 2020 Contract\R-5709 UST\13 GIS	



AREA OF INVESTIGATION

UST APPROXIMATE UST LOCATION

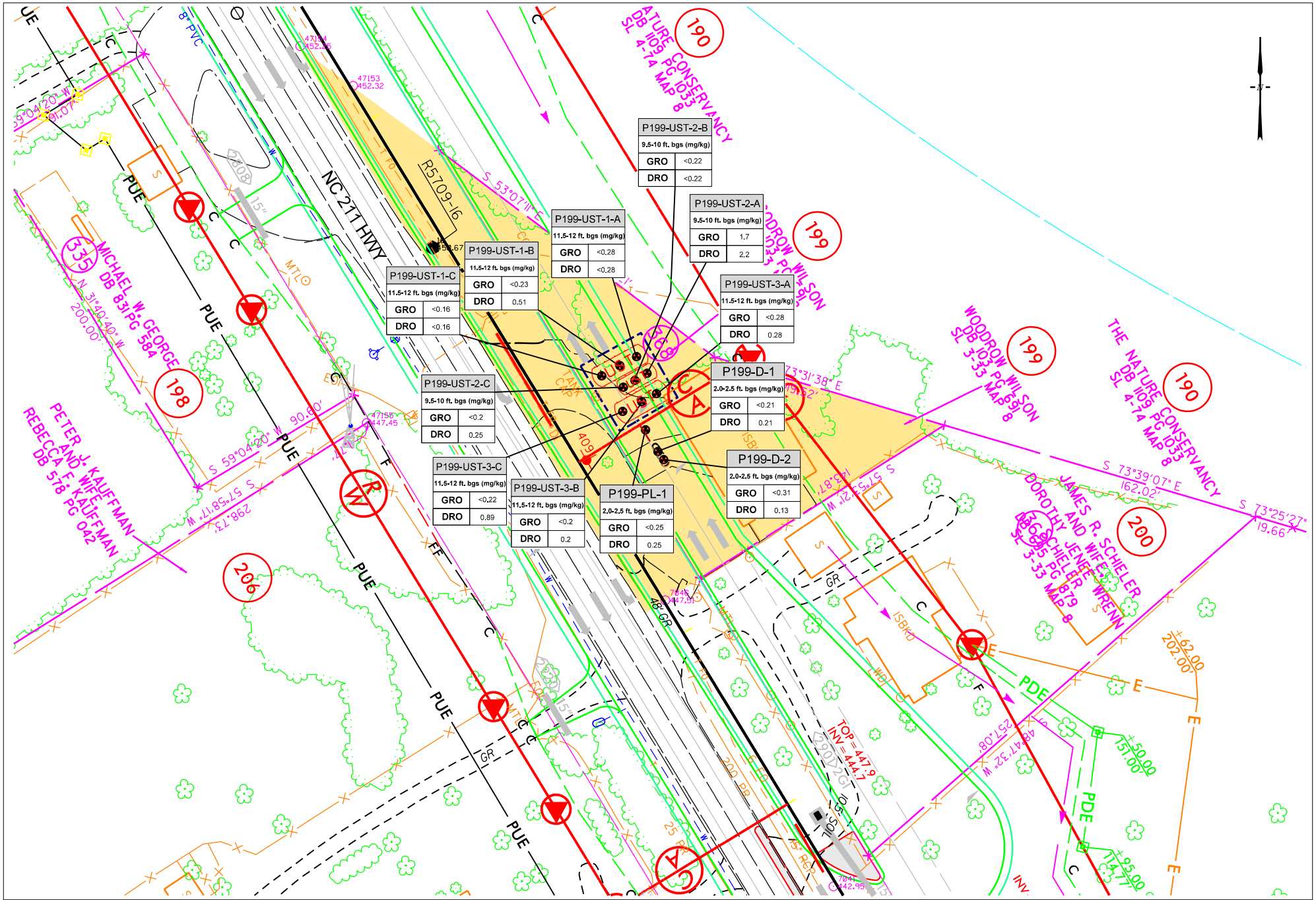
UST#1 - 10,000-gallon gasoline
UST#2 - 4,000-gallon gasoline
UST#3 - 8,000-gallon gasoline

25' 0' 25' 50'
12.5'
(ENGLISH)

wsp

SITE MAP
R-5709 - PARCEL 199
8850 NC 211 HWY
ABERDEEN, NORTH CAROLINA

PREPARED BY:	DATE:	CHECKED BY:	DATE:	JOB NUMBER	FIGURE
LMD	11/17/22	DRH	11/17/22	22R5709UST	2



ANALYTICAL RESULTS MAP
R-5709 - PARCEL 199
8850 NC 211 HWY
ABERDEEN, NORTH CAROLINA

PREPARED BY:	DATE:	CHECKED BY:	DATE:	JOB NUMBER	FIGURE
LMD	11/17/22	DRH	11/17/22	22R5709UST	3

TABLES

Table 1: Site History – UST System Owner/Operator and Other Responsible Party Information

R-5709, Parcel 199, Woodrow Wilson Property

Wood Project: 22R5709UST

UST ID Number	UST-1, 2, and 3	**Facility ID Number**	Unknown
Name of Landowner/UST Owner		**Dates of Ownership**	
Woodrow Wilson c/o Ronald Wilson		2003 to present	
Street Address			
203 Pinecone Avenue			
City	**State**	**Zip**	**Telephone Number**
Raeford	NC	28376	Unknown
Name of Operator		**Dates of Operation**	
Unknown		Unknown	
Street Address			
Unknown			
City	**State**	**Zip**	**Telephone Number**
Unknown	Unknown	Unknown	Unknown
Incident Number	Not Applicable		

Table 2: Site History – UST System and Release Information

R-5709, Parcel 199, Woodrow Wilson Property

Wood Project: 22R5709UST

Incident Number/Name: Not Applicable/Parcel 199 – Woodrow Wilson Property

UST ID Number	Current/Last Contents	Previous Contents	Capacity (gallons)	Construction Details	Tank Dimensions (feet)	Description of Associated Piping and Pumps	Date Tank Installed	Status of UST	Was release associated with the UST system?	NCDEQ Incident #
1	Gasoline	Gasoline	10,000	Steel	27′ x 8′	No pump, steel piping	Unknown	Removed	No	Not Applicable
2	Gasoline	Gasoline	4,000	Steel	24′ x 6′	No pump, steel piping	Unknown	Removed	No	Not Applicable
3	Gasoline	Gasoline	8,000	Steel	24′ x 8′	No pump, steel piping	Unknown	Removed	No	Not Applicable

Table 3: UST Closure Soil Sample Results
R-5709, Parcel 199, Woodrow Wilson
Wood Project: 22R5709UST

Incident Number/Name: Not Applicable/Parcel 199 – Woodrow Wilson

Analytical Method →					QED UVF Soil Analysis	
Contaminant of Concern →					TPH DRO	TPH GRO
Sample ID	**Date Collected**	**UST Area**	**Sample Depth (feet)**	**Incident Phase**		
P199-D-1	10/26/22	Dispenser	2.0-2.5	Closure	0.21	<0.21
P199-D-2	10/26/22	Dispenser	2.0-2.5	Closure	0.13	<0.13
P199-PL-1	10/26/22	Product line	2.0-2.5	Closure	0.25	<0.25
P199-UST-1-A	10/31/22	UST #1	11.5-12	Closure	<0.28	<0.28
P199-UST-1-B	10/31/22	UST #1	11.5-12	Closure	0.51	<0.23
P199-UST-1-C	10/31/22	UST#1	11.5-12	Closure	0.16	<0.16
P199-UST-2-A	10/31/22	UST #2	9.5-10	Closure	2.2	1.7
P199-UST-2-B	10/31/22	UST #2	9.5-10	Closure	0.22	<0.22
P199-UST-2-C	10/31/22	UST #2	9.5-10	Closure	0.25	<0.2
P199-UST-3-A	10/31/22	UST #3	11.5-12	Closure	0.28	<0.28
P199-UST-3-B	10/31/22	UST #3	11.5-12	Closure	0.2	<0.2
P199-UST-3-C	10/31/22	UST #3	11.5-12	Closure	0.89	<0.22
State Action Level (mg/kg)					100	50

Notes:

1. Sample depths shown in feet below ground surface (bgs)
2. Concentrations are shown in milligrams per kilogram (mg/kg)
3. TPH = Total Petroleum Hydrocarbons
4. DRO = Diesel Range Organics
5. GRO = Gasoline Range Organics

Prepared By/Date: DRH 11/11/22
Checked By/Date: RPD 11/22/22

APPENDIX A

TANK AND LIQUID CERTIFICATES AND LIQUID TRANSPORTATION MANIFESTS

EVO CORPORATION

1703 Vargrave Street
Winston-Salem, NC 27107
ph 336-725-5844
fax 336-725-6244

CERTIFICATE OF DISPOSAL

Evo Corporation. does hereby certify that 157 gallons of non-hazardous contaminated sludge received on 10/28/2022 from:

Generator: Woodrow Wilson Parcel #199

Originating at: 8850 NC Hwy. 211
Aberdeen, NC

EC Waste ID #: 102236

has been disposed of by Evo Corporation. in a manner approved by the North Carolina Department of Environmental Quality.

Signature

Thomas W. Hammett
CEO
Evo Corporation

EVO CORPORATION

1703 Vargrave Street
Winston-Salem, NC 27107
ph 336-725-5844
fax 336-725-6244

TANK DISPOSAL CERTIFICATE

Tank Owner: Woodrow Wilson Parcel #199

Site Address: 8850 NC Hwy. 211
Aberdeen, NC

Description of Tanks:

Tank Number	Size of Tank	Contents
1	10,000 Gallons	Gasoline
2	4,000 Gallons	Gasoline
3	8,000 Gallons	Gasoline

Transporter: Evo Corporation

EC Project #: 102236

Disposal Certification:

Evo Corporation does hereby certify that the above named storage tanks were transported to Foss Recycling, 3459 Thomasville Road, Winston-Salem, NC for proper disposal and recycling.

Signature

Thomas W. Hammett
CEO
Evo Corporation

EVO CORPORATION

1703 Vargrave Street, Winston-Salem, NC 27107
www.evocorp.net

NON-HAZARDOUS MATERIALS MANIFEST

Load # Manifest No. 15446

GENERATOR INFORMATION

Generator: Woodrow Wilson Phone: 919-707-6872
Site Address: 8850 NC Hwy 211
City/State: Aberdeen, NC Contact: Ashley Cox

MATERIAL DESCRIPTION / QUANTITY / WEIGHT

Gross Weight (lbs): Material: ~~Water~~ Sludge
Empty Weight (lbs): Contaminant: Gasoline & Diesel
Net Weight (lbs):

Quantity 157 Tons Drums Pails Sacs Yards Other: GALLONS

TRANSPORTER INFORMATION

Transporter: Evo Corporation Phone: 336-725-5844
Truck #: 402 Contact: Tony Disher

As the transporter, I certify that the materials described above being shipped under this non-hazardous materials manifest are properly classified, packaged, labeled, secured and are in proper condition for transport in commerce under the applicable regulations governing transportation, and I hereby receive this material for delivery to the facility designate.

Driver Signature: Danny Brum Date: 10/28/22

FACILITY INFORMATION

Evo Corporation
1703 Vargrave Street
Winston-Salem NC 27107

Evo Project #: 102236
Phone: 336-725-5844
Contact: Tony Disher

I certify that the carrier has delivered the materials described above to this facility, and I hereby accept this material for treatment and/or disposal in a manner that has been authorized by the State of North Carolina.

Facility Signature: Date: 10/28/22

White/Facility Canary/Invoice Pink/Carrier

APPENDIX B

PHOTOGRAPHS

Photograph 1: EVO vacuum truck preparing to extract remaining liquids in USTs.

Photograph 2: EVO uncovering UST#1.

Photograph 3: EVO personnel preparing to add dry ice to inert UST#1.

Photograph 4: TWT personnel identified an anomaly behind the existing structure.

Photograph 5:
EVO uncovered anomaly behind building, beneath was a metal pipe leading to the building.

Photograph 6:
EVO loading UST#1 on trailer. UST was in good condition, no holes or pitting.

Photograph 7:
EVO loading UST#2 on trailer. UST was in good condition, no holes or pitting.

Photograph 8:
Evo loading UST#3 on to trailer. UST in good condition, no pitting or holes.

Photograph 9: EVO compacting excavation with remote compactor.

Photograph 10: Open excavation, awaiting compaction testing.

Photograph 11:
Ken Thorpe performing compaction testing at four feet below ground surface.

Photograph 12:
Evo performing compaction on excavation.

Photograph 13:
Ken Thorpe performing compaction testing.

Photograph 14:
Photograph of excavation backfilled to the surface.

Photograph 15: EVO placing ABC stone at the top of the backfill.

Photograph 16: Photograph of final backfilled excavation.

APPENDIX C

FORM UST-2B

UST-2B

Site Investigation Report for Permanent Closure or Change-in-Service of UN-REGISTERED UST

Return completed form to:

NC DEQ / DWM / UST SECTION
1646 MAIL SERVICE CENTER
RALEIGH, NC 27699-1646
ATTN: REGISTRATION & PERMITTING

phone (919) 707-8171 fax (919) 715-1117 http://www.wastenotnc.org/

STATE USE ONLY:
Facility ID #

Date Received

INSTRUCTIONS (READ THIS FIRST)

1. UST permanent closure or change in service must be completed in accordance with the latest version of the Guidelines for Site Checks, Tank Closure and Initial Response and Abatement. The guidelines can be obtained at http://deq.nc.gov/about/divisions/waste-management/waste-management-permit-guidance/underground-storage-tanks-section.
2. Permanent closure: Complete all sections of this form.
3. Change-in-service: Where UST systems will be converted from storing a regulated substance to a non-regulated substance, complete sections I, II, III, IV, and VI.
4. For more than 5 un-registered UST systems, attach additional forms as needed.
5. **Un-Registered USTs may be subject to unpaid fees and late penalties**.
6. REGISTERED USTs use Form UST-2A.

I. OWNERSHIP OF TANKS

Owner Name (Corporation, Individual, Public Agency, or Other Entity)
Woodrow Wilson c/o Ronald Wilson

Street Address
203 Pinecone Avenue

City: Raeford
County: Hoke

State: NC
Zip Code: 28376

Phone Number
Unknown

II. LOCATION OF TANKS

Facility Name or Company
Parcel 199 - Woodrow Wilson Property

Facility ID # (If known)
Unknown

Street Address
8850 NC 211 Hwy

City: Aberdeen
County: Hoke
Zip Code: 28315

Phone Number
Unknown

III. CONTACT PERSONNEL

Contact for Facility:		Job Title:	Phone #:
Mr. Ashley Cox, NCDOT		GeoEnv. Project Engr.	919-707-6872
Closure Contractor Name:	**Closure Contractor Company:**	**Address:**	**Phone #**
Mr. Tony Disher	EVO Corporation	1703 Vargrave St., High Point, NC	336-725-5844
Primary Consultant Name:	**Primary Consultant Company:**	**Address:**	**Phone #**
Ms. Sheri Knox	WSP USA	2801 Yorkmont Road, Charlotte, NC	704-357-8600

IV. UST INFORMATION FOR UN-REGISTERED UST SYSTEMS

REGISTERED USTs use Form UST-2A.

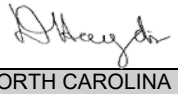
V. EXCAVATION CONDITION

Tank ID No.	Size in Gallons	Last Contents	Last Use Date	Permanent Close Date	Method of Permanent Closure: Indicate REMOVED or enter fill material, such as foam/ concrete/ sand	Change-in-Service Date	Water in excavation		Free product		Notable odor or visible soil contamination	
							Yes	No	Yes	No	Yes	No
1	10000	Gasoline, C	Unk	10/31/22	Removed	10/31/22	☐	☒	☐	☒	☐	☒
2	4000	Gasoline, C	Unk	10/31/22	Removed	10/31/22	☐	☒	☐	☒	☐	☒
3	8000	Gasoline, C	Unk	10/31/22	Removed	10/31/22	☐	☒	☐	☒	☐	☒
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐

VI. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true accurate and complete.

Print name and official title of owner or owner's authorized representative
Derick Haydin, Geologist, an agent of the NCDOT

Signature 

Date Signed
11/15/2022

APPENDIX D

EXCAVATION LOG

wsp	**EXCAVATION NO: 1**
EXCAVATION LOG: R-5709, Parcel 199 – UST #1, #2, and #3	**PAGE** 1 **OF** 1
LOCATION: 8850 NC 211 Hwy, Aberdeen, North Carolina	**DATE:** 10/31/22
CONTRACTOR: EVO Corporation	**START:** 10/27/22
WEATHER: Sunny, 65°F	**FINISH:** 10/31/22
EXCAVATION METHOD: Track Hoe	**LOGGED BY:** DRH

NOTES:
Groundwater was not encountered during the excavation

DEPTH TO ROCK: No bedrock was encountered

TOTAL DEPTH OF EXCAVATION: 12 feet

DEPTH IN FEET		MOISTURE	SOIL / BEDROCK DESCRIPTION	PID - Maximum (ppm)
FROM	TO			
0	0.5	Dry	Asphalt/Gravel	No reading
0.5	2.0	Dry	Brown/orange silty fine-grained sand	0.8
2.0	12	Dry	Tan/brown silty fine-grained sand	1.4

APPENDIX E

UVF INSTRUMENT GENERATED TABLES

QED

REDLAB™ RAPID ENVIRONMENTAL DIAGNOSTICS

AQROS

Hydrocarbon Analysis Results

Client: WSP
Address: 2801 YORKMONT RD
CHARLOTTE NC 28208

Samples taken Thursday, October 27, 2022
Samples extracted Thursday, October 27, 2022
Samples analysed Thursday, October 27, 2022

Contact: SHERI KNOX

Operator DRH

Project: P199 UST

F03640

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	P199-D-1	8.3	<0.21	<0.21	0.21	0.21	0.12	<0.07	<0.008	0	60.8	39.2	,(FCM),(BO)
s	P199-D-2	5.1	<0.13	<0.13	0.13	0.13	0.08	<0.04	<0.005	0	41.9	58.1	,(FCM),(BO)
s	P199-PL-1	10.1	<0.25	<0.25	0.25	0.25	0.16	<0.08	<0.01	0	52.1	47.9	,(FCM)

Initial Calibrator QC check OK Final FCM QC Check OK 94.3 %

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

Fingerprints provide a tentative hydrocarbon identification. The abbreviations are:- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for sample fingerprint match to library (SBS) or (LBS) = Site Specific or Library Background Subtraction applied to result : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate present

QED REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS AQROS

Hydrocarbon Analysis Results

Client: WSP
Address: 2801 YORKMONT RD
CHARLOTTE NC 28208

Contact: SHERI KNOX

Project: P199 UST

Samples taken Monday, October 31, 2022
Samples extracted Monday, October 31, 2022
Samples analysed Monday, October 31, 2022

Operator DRH

F03640

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	P199-UST-1-A	11.0	<0.28	<0.28	<0.28	<0.28	<0.06	<0.09	<0.011	0	0	0	PHC not detected
s	P199-UST-1-B	9.2	<0.23	<0.23	0.51	0.51	0.25	<0.07	<0.009	0	70.9	29.1	V.Deg.PHC 91.6%,(FCM)
s	P199-UST-1-C	6.4	<0.16	<0.16	0.16	0.16	0.09	<0.05	<0.006	0	47.7	52.3	,(FCM)

Initial Calibrator QC check OK Final FCM QC Check OK 102.5 %

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

Fingerprints provide a tentative hydrocarbon identification. The abbreviations are:- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for sample fingerprint match to library (SBS) or (LBS) = Site Specific or Library Background Subtraction applied to result : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate present

QED REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS QROS

Hydrocarbon Analysis Results

Client: WSP
Address: 2801 YORKMONT RD
CHARLOTTE NC 28208

Contact: SHERI KNOX

Project: P199 UST

Samples taken Monday, October 31, 2022
Samples extracted Monday, October 31, 2022
Samples analysed Monday, October 31, 2022

Operator DRH

F03640

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	P199-UST-2-A	12.7	<0.32	1.7	2.2	3.9	1.1	<0.1	<0.013	63.3	26.1	10.6	Deg.PHC 91.6%,(FCM)
s	P199-UST-2-B	8.9	<0.22	<0.22	0.22	0.22	0.14	<0.07	<0.009	0	58	42	,(FCM)
s	P199-UST-2-C	8.0	<0.2	<0.2	0.25	0.25	0.14	<0.06	<0.008	0	63.6	36.4	V.Deg.PHC 77.5%,(FCM)

Initial Calibrator QC check OK Final FCM QC Check OK 95.6 %

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

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

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

QED REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS AQROS

Hydrocarbon Analysis Results

Client: WSP
Address: 2801 YORKMONT RD
CHARLOTTE NC 28208

Contact: SHERI KNOX

Project: P199 UST

Samples taken Monday, October 31, 2022
Samples extracted Monday, October 31, 2022
Samples analysed Monday, October 31, 2022

Operator DRH

F03640

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	P199-UST-3-A	11.1	<0.28	<0.28	0.28	0.28	0.18	<0.09	<0.011	0	65.5	34.5	,(FCM)
s	P199-UST-3-B	8.0	<0.2	<0.2	0.2	0.2	0.12	<0.06	<0.008	0	67.4	32.6	,(FCM)
s	P199-UST-3-C	8.8	<0.22	<0.22	0.89	0.89	0.44	<0.07	<0.009	0	71.8	28.2	V.Deg.PHC 76.6%,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 102.3 %

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

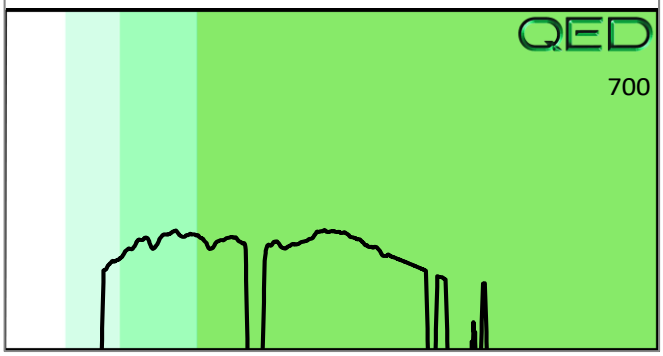
Fingerprints provide a tentative hydrocarbon identification. The abbreviations are:- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for sample fingerprint match to library

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

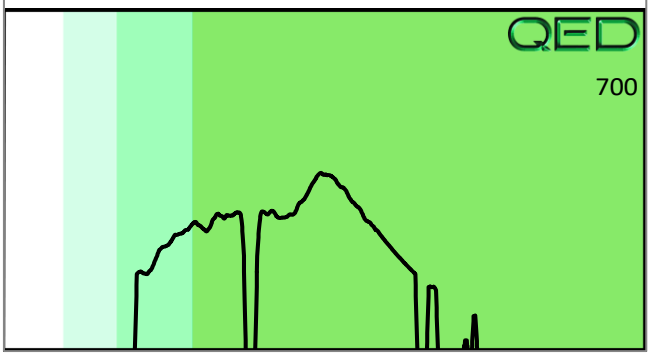
QED Hydrocarbon Fingerprints

Project:

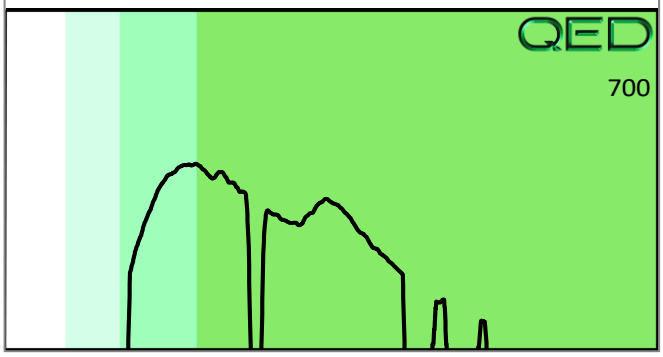
P199-D-1 : ,(FCM),(BO)



P199-D-2 : ,(FCM),(BO)



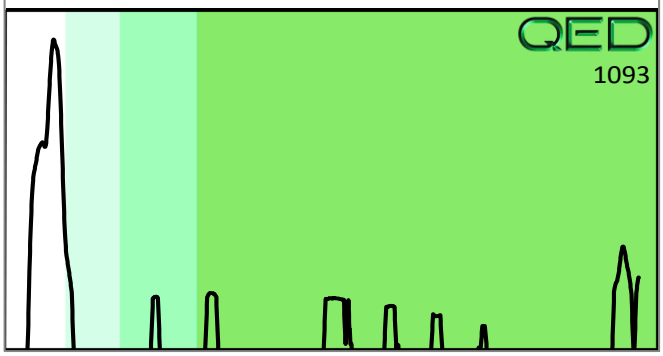
P199-PL-1 : ,(FCM)



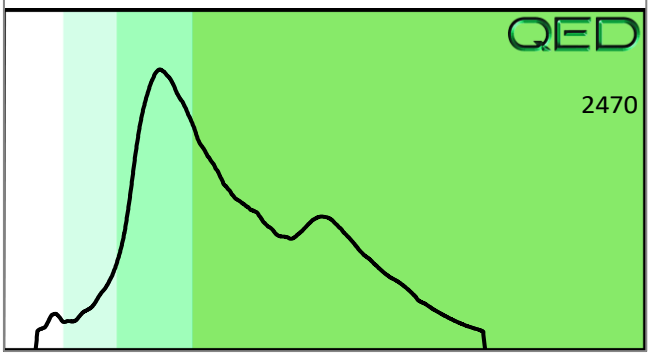
QED Hydrocarbon Fingerprints

Project:

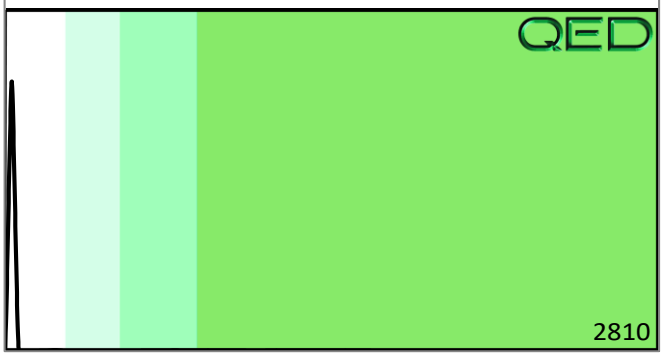
P199-UST-1-1 : PHC not detected



P199-UST-1-2 : V.Deg.PHC 91.6%,(FCM)



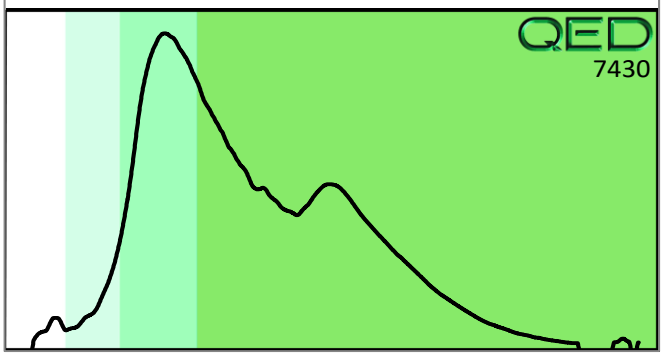
P199-UST-1-3 : ,(FCM)



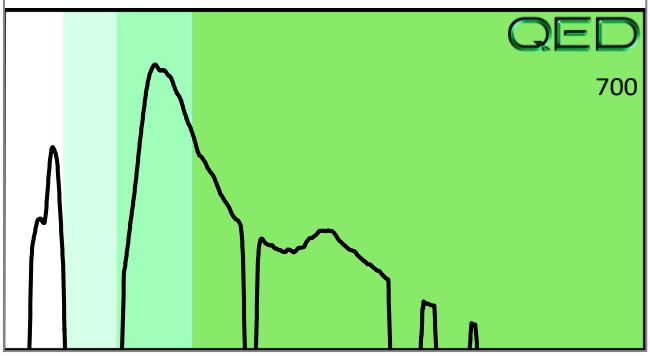
QED Hydrocarbon Fingerprints

Project:

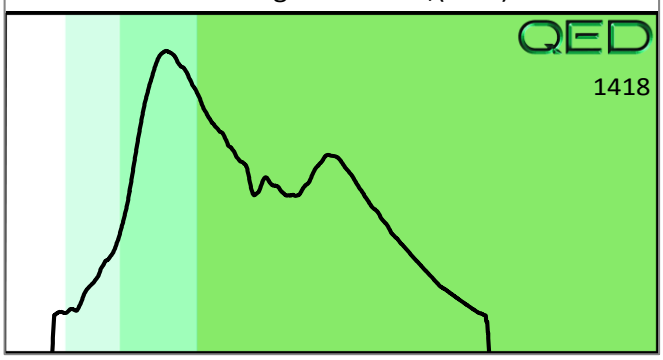
P199-UST-2-1 : Deg.PHC 91.6%,(FCM)



P199-UST-2-2 : ,(FCM)

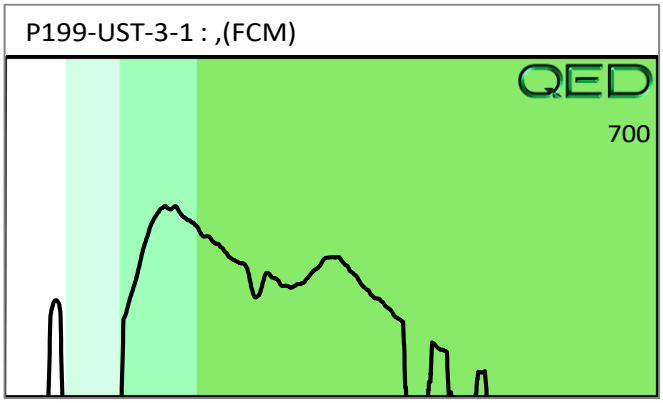


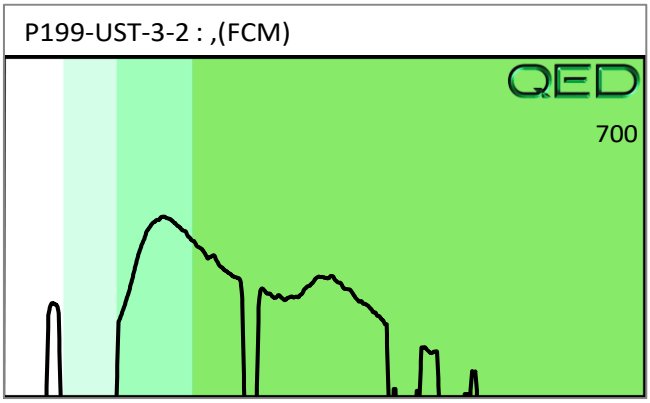
P199-UST-2-3 : V.Deg.PHC 77.5%,(FCM)

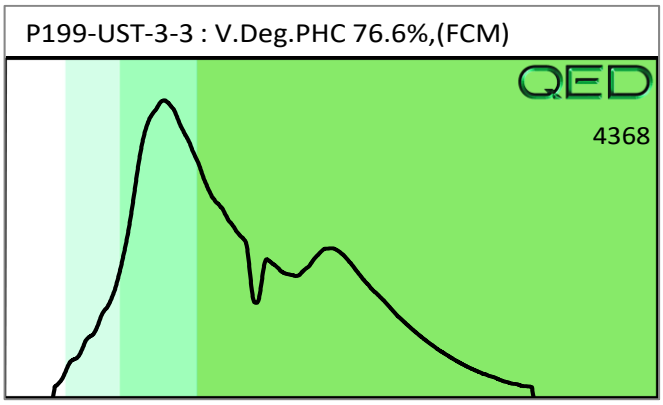


QED Hydrocarbon Fingerprints

Project:







North Carolina Department of Transportation
Underground Storage Tank Closure Report
State Project: R-5709
WBS Element: 50205.1.1
Moore County

Parcel 76G
John & Kay Bolin Property
10531 NC 211 Hwy
Aberdeen, North Carolina
January 23, 2023

WSP USA Environment & Infrastructure Inc.
Project: 22R5709UST

Andrew Frantz, REM
Senior Scientist

DocuSigned by:
Derick Haydin, PG
E8E0CDF80FF040A...

Derick Haydin, LG
Staff Geologist

A. SITE INFORMATION

1. Site Identification

Date of Report: January 23, 2023
Facility I.D.: Unknown **UST Incident Number:** Pending **Site Risk:** Pending
Site Name: Parcel 76G – John & Kay Bolin Property
Street Address: 10531 NC 211 Hwy
City: Aberdeen **Zip Code:** 28315 **County:** Moore
Description of Geographical Data Point: Center of tank pit
Location Method: Google Earth
Latitude: 35.123134" N **Longitude:** -79.394819" W

2. Information about Contacts Associated with the UST System

UST Owner: Kay Bolin
Address: 129 April Lane, Aberdeen, North Carolina 28315
Telephone: Unknown

UST Operator: Unknown
Address: Unknown
Telephone: Unknown

Property Owner: Kay Bolin
Address: 129 April Lane, Aberdeen, North Carolina 28315
Telephone: Unknown

Property Occupant: Vacant
Address: N/A
Telephone: N/A

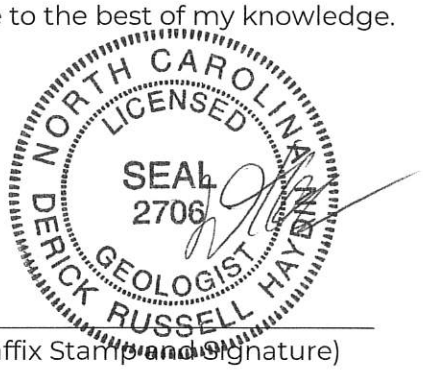
Consultant: WSP USA Environment & Infrastructure Inc.
Address: 2801 Yorkmont Road, Suite 100, Charlotte, North Carolina 28208
Telephone: 704-357-8600

3. Information about Release

Date Discovered: No release encountered
Estimated Quantity of Release: N/A
Cause of Release: N/A
Source of Release: N/A
Sizes and Contents of Tanks or Other Containment from which Release Occurred: N/A

4. Certification

I, Derick R. Haydin, a Licensed Professional Geologist for WSP USA Environment & Infrastructure Inc., do certify that the information contained in this report is correct and accurate to the best of my knowledge.



(Please affix Stamp and Signature)

WSP USA Environment & Infrastructure Inc. is licensed to practice geology (C-2478) and engineering (F-1253) in North Carolina.

B. EXECUTIVE SUMMARY

In response to the North Carolina Department of Transportation (NCDOT) Request for Proposal (RFP), dated July 14, 2022, WSP USA Environment & Infrastructure Inc. (WSP), formerly Wood Environment and Infrastructure Solutions, Inc. (Wood) has performed underground storage tank (UST) closure activities for Parcel 76G (subject property). The activities were conducted in accordance with WSP's Technical and Cost proposal dated July 25, 2022, and NCDOT's August 4, 2022, Notice to Proceed. NCDOT contracted WSP to perform the UST closure activities at the subject property, within areas that will be affected by the widening of NC 211 Hwy from US 15-501 in Aberdeen, North Carolina to SR 1244 (West Palmer Street)/SR 1311 (Mockingbird Hill Road) in Raeford, North Carolina.

The subject property is identified as Parcel 76G, John & Kay Bolin property, within the NCDOT MicroStation survey file and encompasses approximately 0.5 acres. Two probable USTs located along the northwestern exterior of the subject property building were identified during WSP's August 2021 Preliminary Site Assessment (PSA). A suspected dispenser island was also identified along the southwestern exterior of the building during the PSA.

WSP personnel and our tank removal contractor EVO Corporation (EVO) mobilized to the subject property in October 2022, to remove two USTs (UST #1 and UST #2). Prior to removal, the tops of the two USTs were uncovered by removing overburden material from above the tanks. After the USTs were uncovered, one of the two USTs was observed to be full of petroleum-contact water. The liquid was removed from each UST by a vacuum truck. An approximate total of 3,870-gallons of petroleum-contact water was pumped from the two USTs into a vacuum truck for off-Site disposal. Following removal of the liquid, soils adjacent to the tanks were removed to free the USTs from the excavations. The interior of each UST was then purged of explosive vapors by adding dry ice pellets and the USTs were removed from the excavations. After the USTs were removed, the former fuel dispenser island and product lines were removed.

Closure soil samples were collected for quantitative analyses using UVF spectrometry from beneath the USTs, the fuel dispenser island, and the product lines. UVF analytical results did not identify Total Petroleum Hydrocarbon (TPH)-Gasoline Range Organics (GRO) or TPH-Diesel Range Organics (DRO) concentrations which exceeded the State Action Levels in the closure samples during the closure activities. Based on the results of the closure activities, WSP does not recommend further action at this time.

C. TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

D. SITE HISTORY AND CHARACTERIZATION

1. UST Owner/Operator Information

Ownership and operator information for the former USTs is provided in **Table 1**.

2. UST Information

Information regarding the UST details for the subject property is provided in **Table 2**.

3. Description of the Release

No release encountered.

4. Description of Site Characteristics

The subject property, encompassing approximately 0.5 acres, is in a mixed-use area of Aberdeen, North Carolina, and is identified as Parcel 76G, John & Kay Bolin property, within the NCDOT MicroStation survey file. A Topographic Map is included as **Figure 1** and a Site Map depicting the locations of the former USTs is included as **Figure 2**.

The subject property is located within the Coastal Plain Physiographic Province of North Carolina. According to the 1985 State Geologic Map of North Carolina, the area is within the Pinehurst Formation and is underlain by medium to coarse grained sand with cross-bedding and rhythmic bands of clayey sand.

At the time of this report, the subject property was occupied by a vacant garage building which is suspected to have been formerly operated as a gasoline station. Remaining portions of the subject property were occupied by asphalt-paved and gravel-covered driveways and parking areas.

The 7.5-minute Pinebluff, North Carolina, United States Geological Survey (USGS) quadrangle, published in 2002 and the Moore County Geographic Information System (GIS) Data Viewer website were examined. Review of the available topographic data indicate that the subject property slopes from approximately 480 to 472 feet above mean sea level (msl), northwest to southeast. Topography of the area is generally sloping to the southeast.

The general direction of groundwater flow can be inferred from ground surface elevations and surficial expression of groundwater identified on the Pinebluff, North Carolina USGS topographic quadrangle. Surficial groundwater occurrences generally include permanent

lakes, streams, and wetland areas. Based on WSP's review of topographic maps and observations of the subject property vicinity, the groundwater flow direction was inferred to the southeast toward an unnamed tributary of Quewhiffle Creek, located approximately 1,700 feet from the subject property.

E. CLOSURE PROCEDURE

Prior to mobilization, WSP contacted the North Carolina underground utility location service (NC 811) for public utility location at the subject property. In addition, WSP personnel and our private utility locator, Taylor Wiseman & Taylor (TWT), mobilized to the subject property on October 24, 2022, to perform Ground-Penetrating Radar (GPR) and Electromagnetic (EM) surveys to attempt to detect metallic objects such as pipes, and underground utility lines buried in the vicinity of the two tanks and the dispenser island. The purpose of this effort was to minimize the potential for digging into underground utilities buried at the subject property.

Our tank removal contractor EVO Corporation (EVO) also mobilized to the subject property on October 24, 2022, to begin removal of the two USTs (UST #1 and UST #2). Prior to removal, the tops of the two USTs were uncovered by removing overburden material from above the tanks. Overburden soils were screened for volatile organic compounds (VOCs) in the field using a photoionization detector (PID).

After the USTs were uncovered, UST #2 was observed to be full of petroleum-contact water (PCW) and UST #1 was empty. On October 25, 2022, EVO mobilized a vacuum truck to remove the PCW. Approximately 3,870-gallons of PCW was pumped from UST #2 into the vacuum truck for off-Site disposal at EVO's facility in Winston-Salem, North Carolina. Following removal of the liquid, soils adjacent to the tanks were removed to free the USTs from the excavation. The interior of each UST was then purged of explosive vapors by adding dry ice pellets. Purging was considered complete when the vapor readings inside each UST were below 10% of the lower explosive limit (LEL). Once purging was complete, each UST was removed from the excavation and placed on a trailer for transport to MT Recycling in Aberdeen, North Carolina for off-Site disposal. Certificates of disposal for the PCW and the two USTs are included in **Appendix A**.

The two USTs measured approximately 24-feet long and 5.25-feet in diameter and have an estimated capacity of approximately 4,000-gallons. Rust was visible on the exterior of the two USTs; however, holes or pitting were not observed on either tank. Staining or petroleum odors were not observed during the removal of the tanks. Neither groundwater nor bedrock were encountered during the removal of the USTs. Following the removal of the USTs, closure soil samples were collected for quantitative analyses using UVF spectrometry. Following the collection of the closure samples, the excavation was backfilled to the existing grade using the overburden soils and clean imported fill. The backfill was compacted using

the excavator bucket. The final dimensions of the UST excavation measured approximately 14-feet wide and 27-feet long and was extended to an approximate depth of 8.5 feet deep.

After backfilling the UST excavation, the former fuel dispenser island and product lines were removed for off-Site disposal on October 26, 2022. Two dispensers were formerly located within the dispenser island. The product lines measured approximately 10-feet in length, approximately 2 feet below ground surface, and were located in a single trench between the northern side of the dispenser island and the southwestern corner of the UST excavation. Rust was visible on the exterior of the product lines; however, holes or pitting were not observed on product lines. Staining or petroleum odors were not observed during removal of the dispenser island or product lines. Closure soil samples were collected from beneath each former fuel dispenser location and from beneath the product lines. Following the collection of the closure samples, the excavation was backfilled to the existing grade using clean imported fill. The backfill was compacted using the excavator bucket. Photographs of the UST closure activities are included in **Appendix B**. The Site Investigation Report for Permanent Closure or Change-in-Service of Un-Registered UST (Form UST-2B) is included in **Appendix C**. An excavation log describing the soil types encountered is included as **Appendix D**. The locations of the closure soil samples are depicted on **Figure 3**.

F. SITE INVESTIGATION

During the removal of the USTs, the overburden soils were screened for VOCs in the field using a PID. The PID field screening did not identify VOC concentrations above background levels in the overburden soils and they were stockpiled on-site to be used as backfill following the removal of the tanks. PID readings are included on the excavation log included as **Appendix D**.

Following removal of the USTs, on October 25, 2022, WSP personnel collected three UST closure soil samples from the native soil located approximately 1.0-foot beneath the bottom of each tank. The three closure samples were located beneath the centerline of each tank. The excavator bucket was used to collect the closure samples from the base of the excavation and WSP personnel collected each sample directly from the excavator bucket. To minimize the potential for cross-contamination, a new pair of nitrile gloves were donned for collection of each sample. UVF analysis was performed by Mr. Derick Haydin, a certified QED UVF technician with WSP, using a calibrated QED HC-1 UVF Hydrocarbon Analyzer. The UVF closure soil samples were analyzed on-Site for TPH-DRO and TPH-GRO. UVF analytical results of the UST #1 and #2 closure samples did not identify TPH-GRO or TPH-DRO concentrations above the State Action Level of 50 milligrams per kilogram (mg/kg) for TPH-GRO or 100 mg/kg for TPH-DRO.

After the removal of the product lines and former dispenser island, on October 26, 2022, WSP personnel collected a closure soil sample from the native soil located approximately 1.0-foot beneath each former fuel dispenser and the product lines. The excavator bucket was used to collect the closure samples from the base of the excavation and WSP personnel collected each sample directly from the excavator bucket. To minimize the potential for cross-contamination, a new pair of nitrile gloves were donned for collection of each sample. The closure soil samples were analyzed on-Site for TPH-DRO and TPH-GRO. UVF analytical results of the fuel dispenser and product line closure samples did not identify TPH-GRO or TPH-DRO concentrations above the State Action Levels. The closure soil sampling results are summarized on **Table 3**. UVF instrument generated tables are included in **Appendix E**.

G. CONCLUSIONS AND RECOMMENDATIONS

WSP has completed contracted activities for the closure of two USTs by removal at Parcel 76G located at 10531 NC 211 Hwy in Aberdeen, North Carolina. The following conclusions are based upon WSP's field observations and data evaluation from the field efforts performed in October 2022.

- Two 4,000-gallon gasoline USTs (UST #1 and #2) were emptied, removed, and disposed during the October 2022 closure activities. The two USTs were observed to be in good condition with no holes observed in the tanks.

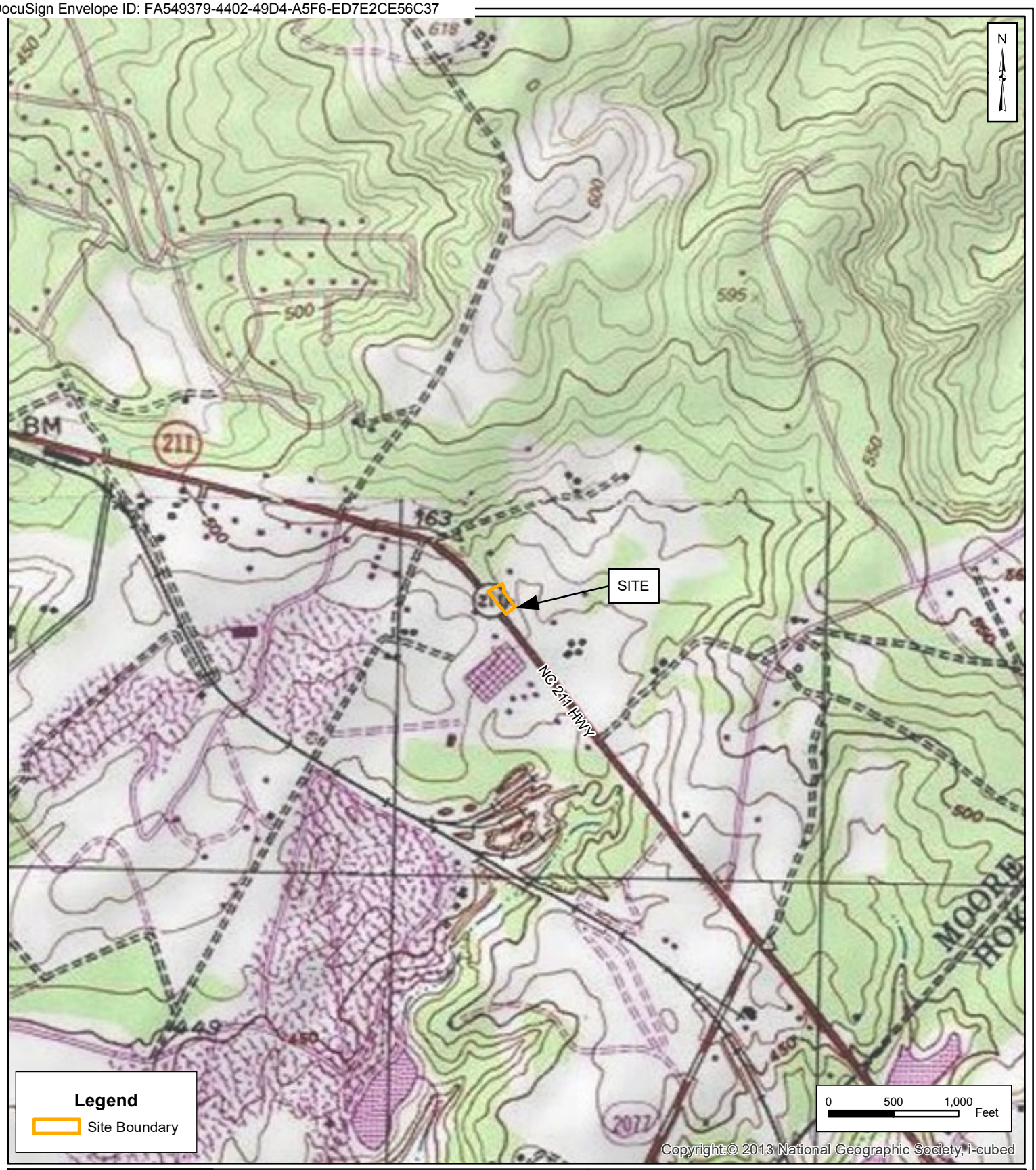
- The former fuel dispenser island and product lines associated with the two USTs were removed and disposed during the October 2022 closure activities. The product lines were observed to be in good condition with no holes observed in the lines.

- The excavation for the USTs, product lines, and dispenser island was backfilled using the overburden soils and clean imported fill. The backfill was compacted using the excavator bucket.

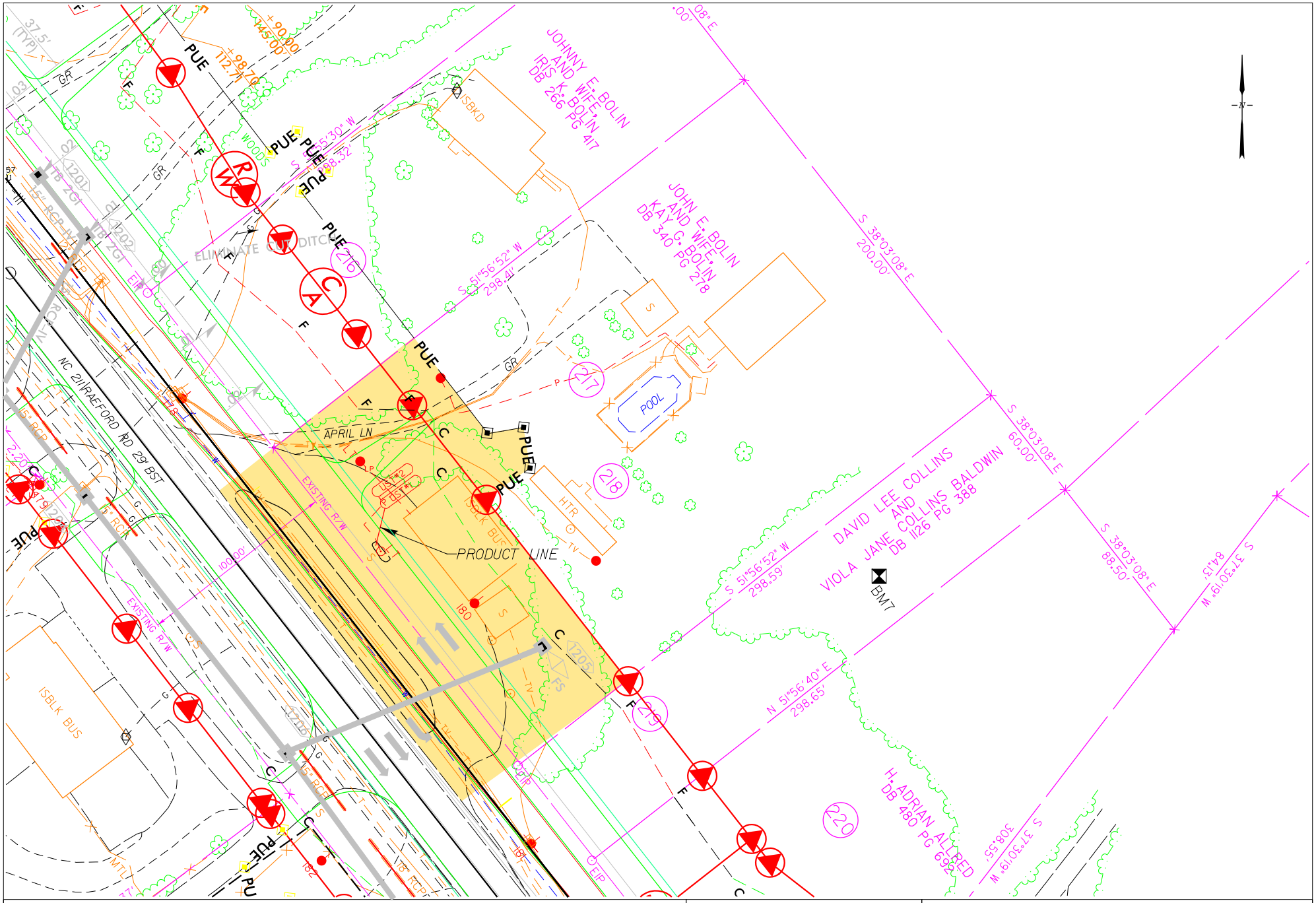
- Petroleum-impacted soil was not observed during the October 2022 closure activities. Nine closure soil samples were collected and the UVF analyses did not identify TPH-GRO and TPH-DRO concentrations above their respective State Action Levels.

- Based on the results of the October 2022 closure activities, no further action is recommended.

FIGURES



SITE: R5709-PARCEL 76G 10531 NC 211 HWY ABERDEEN, NORTH CAROLINA	**TITLE:** VICINITY MAP		**Figure** 1
CLIENT: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	**SCALE:** 1 " = 1,000 '	**DATE:** 01/17/2023	**PROJECT:** 22R5709UST
WSP USA Environment & Infrastructure Inc. 2801 Yorkmont Road, Suite 100 Charlotte, NC 28208 (704) 357-8600	**DRAWN BY:** D. Young	**CHECKED BY:** S. Knox	
	LOCATION: \\clt1-fs1\projects\6228 Environmental\jobs\2020\ NCDOT Geoenv. 2020 Contract\R-5709 UST\13 GIS		



AREA OF INVESTIGATION

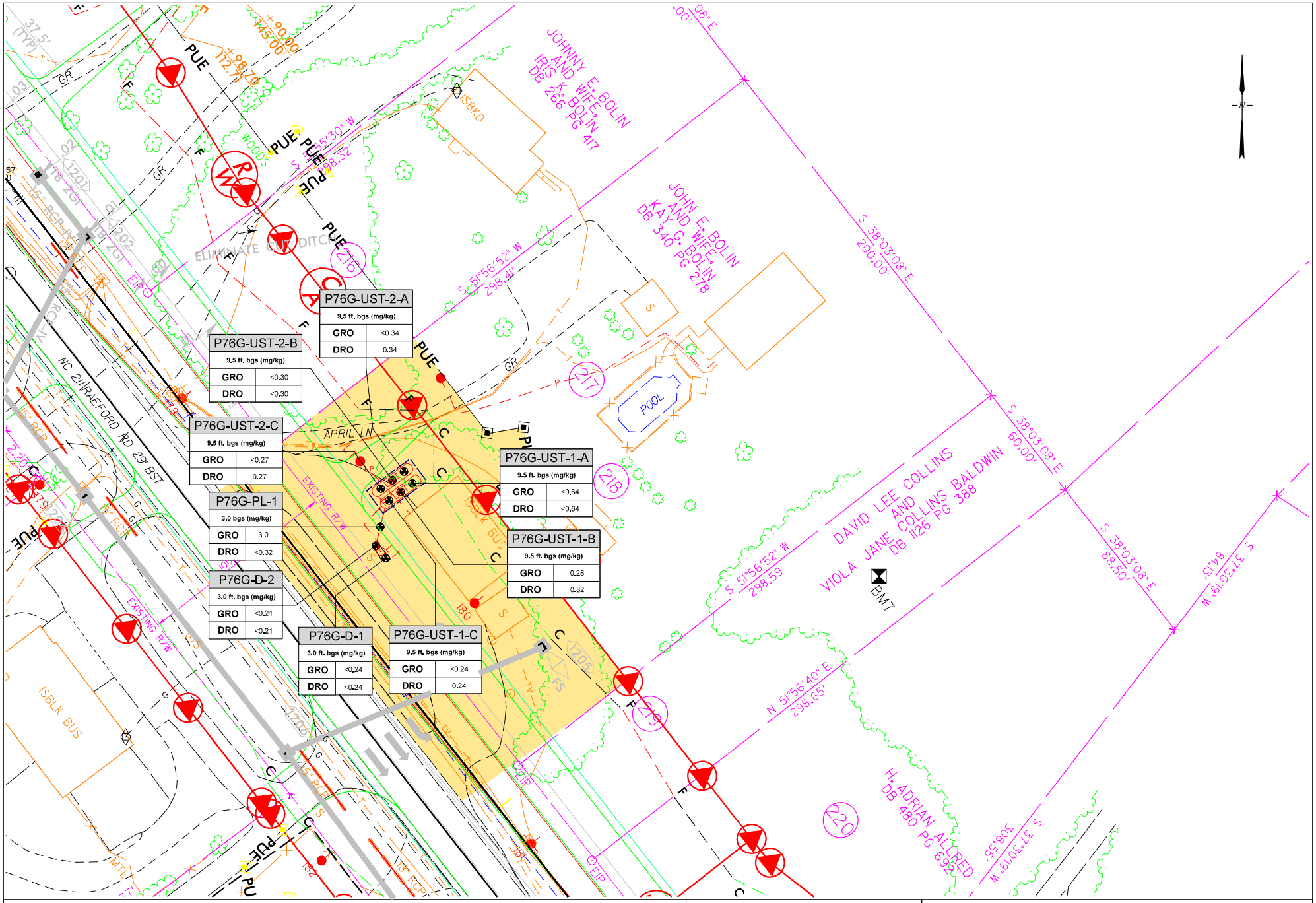
UST APPROX. UST LOCATION
UST #1 - 4,000-gallon gasoline
UST #2 - 4,000-gallon gasoline

40' 0' 20' 40'
10'
(ENGLISH)

wsp

SITE MAP
R-5709 - PARCEL 76G
10531 NC 211 HWY
ABERDEEN, NORTH CAROLINA

PREPARED BY:	DATE:	CHECKED BY:	DATE:	JOB NUMBER	FIGURE
BRP	1/13/23	xxx	xxx	20478R5709	2



wsp

ANALYTICAL RESULTS MAP
R-5709 - PARCEL 76G
10531 NC 211 HWY
ABERDEEN, NORTH CAROLINA

PREPARED BY:	DATE:	CHECKED BY:	DATE:	JOB NUMBER	FIGURE
BRP	1/13/23	AJF	1/13/23	22R5709UST	3

TABLES

Table 1: Site History – UST System Owner/Operator and Other Responsible Party Information

R-5709, Parcel 76G, John & Kay Bolin

WSP Project: 22R5709UST

UST ID Number	UST #1 and #2		**Facility ID Number**	Unknown	
Name of Landowner/UST Owner			**Dates of Ownership**		
Kay Bolin			2020 to present		
Street Address					
129 April Lane					
City	**State**	**Zip**	**Telephone Number**		
Aberdeen	NC	28315	Unknown		
Name of Operator			**Dates of Operation**		
Unknown			Unknown		
Street Address					
Unknown					
City	**State**	**Zip**	**Telephone Number**		
Unknown	Unknown	Unknown	Unknown		
Incident Number	N/A				

Table 2: Site History – UST System and Release Information
R-5709, Parcel 76G, John and Kay Bolin
WSP Project: 22R5709UST

Incident Number/Name: N/A/Parcel 76G – John and Kay Bolin

UST ID Number	Current/Last Contents	Previous Contents	Capacity (gallons)	Construction Details	Tank Dimensions (feet)	Description of Associated Piping and Pumps	Date Tank Installed	Status of UST	Was release associated with the UST system?	NCDEQ Incident #
1	Gasoline	Gasoline	4,000	Steel	24 x 5.25	Steel pipe leading to dispenser	Unknown	Removed, October 2022	No release	N/A
2	Gasoline	Gasoline	4,000	Steel	24 x 5.25	Steel pipe leading to dispenser	Unknown	Removed, October 2022	No release	N/A

Table 3: UST Closure Soil Sample Results
R-5709, Parcel 76G, John and Kay Bolin
WSP Project: 22R5709UST

Incident Number/Name: N/A/Parcel 76G – John and Kay Bolin

Analytical Method →					QED UVF Soil Analysis	
Contaminant of Concern →					TPH DRO	TPH GRO
Sample ID	Date Collected	UST Area	Sample Depth (feet)	Incident Phase		
P76G-UST-1-A	10/25/2022	Tank #1	9.5	Closure	<0.64	<0.64
P76G-UST-1-B	10/25/2022	Tank #1	9.5	Closure	0.82	<0.28
P76G-UST-1-C	10/25/2022	Tank #1	9.5	Closure	0.24	<0.24
P76G-UST-2-A	10/25/2022	Tank #2	9.5	Closure	0.34	<0.34
P76G-UST-2-B	10/25/2022	Tank #2	9.5	Closure	<0.30	<0.30
P76G-UST-2-C	10/25/2022	Tank #2	9.5	Closure	0.27	<0.27
P76G-PL-1	10/26/2022	Product Line	3.0	Closure	<0.32	3.0
P76G-D-1	10/26/2022	Dispenser #1	3.0	Closure	<0.24	<0.24
P76G-D-2	10/26/2022	Dispenser #2	3.0	Closure	<0.21	<0.21
State Action Level (mg/kg)					100	50

Notes:

1. Sample depths shown in feet below ground surface (bgs)
2. Concentrations are shown in milligrams per kilogram (mg/kg)
3. TPH = Total Petroleum Hydrocarbons
4. DRO = Diesel Range Organics
5. GRO = Gasoline Range Organics

Prepared By/Date: AJF 11/9/2022
Checked By/Date: DRH 11/14/2022

APPENDIX A

TANK AND LIQUID DISPOSAL CERTIFICATES AND LIQUID TRANSPORTATION MANIFEST

CORPORATION

1703 Vargrave Street
Winston-Salem, NC 27107
ph 336-725-5844
fax 336-725-6244

TANK DISPOSAL CERTIFICATE

Tank Owner: John & Kay Bolin Parcel #766

Site Address: 10531 NC Hwy. 211
Aberdeen, NC

Description of Tanks:

Tank Number	Size of Tank	Contents
1	4,000 Gallons	Gasoline
2	4,000 Gallons	Gasoline

Transporter: Evo Corporation

EC Project #: 102234

Disposal Certification:

Evo Corporation does hereby certify that the above named storage tanks were transported to MT Recycling, 280 Lockey Drive, Aberdeen, NC for proper disposal and recycling.

Thomas W. Hammett

Signature

Thomas W. Hammett
CEO
Evo Corporation

EVO CORPORATION

1703 Vargrave Street
Winston-Salem, NC 27107
ph 336-725-5844
fax 336-725-6244

CERTIFICATE OF DISPOSAL

Evo Corporation does hereby certify that 3,870 gallons of non-hazardous contaminated water received on 10/25/2022 from:

Generator: John & Kay Bolin Parcel #766

Originating at: 10531 NC Hwy. 211
Aberdeen, NC

EC Waste ID #: 102234

has been disposed of by Evo Corporation in a manner approved by the North Carolina Department of Environmental Quality.

Signature

Thomas W. Hammett
CEO
Evo Corporation

EVO CORPORATION

1703 Vargrave Street, Winston-Salem, NC 27107
www.evocorp.net

NON-HAZARDOUS MATERIALS MANIFEST

Load # Manifest No. 15445

GENERATOR INFORMATION

Generator: John & Kay Bolin Parcel #766 Phone: 919-707-6872

Site Address: 10531 NC Hwy 211

City/State: Aberdeen, NC Contact: Ashley Cox

MATERIAL DESCRIPTION / QUANTITY / WEIGHT

Gross Weight (lbs): Material: Water

Empty Weight (lbs): Contaminant: Gasoline & Diesel

Net Weight (lbs):

Quantity 3870 Tons Drums Pails Sacs Yards (Other) SV

TRANSPORTER INFORMATION

Transporter: Evo Corporation Phone: 336-725-5844

Truck #: 212 Contact: Tony Disher

As the transporter, I certify that the materials described above being shipped under this non-hazardous materials manifest are properly classified, packaged, labeled, secured and are in proper condition for transport in commerce under the applicable regulations governing transportation, and I hereby receive this material for delivery to the facility designate.

Driver Signature: Date: 10/25/22

FACILITY INFORMATION

Evo Corporation
1703 Vargrave Street
Winston-Salem NC 27107

Evo Project #: 102234

Phone: 336-725-5844

Contact: Tony Disher

I certify that the carrier has delivered the materials described above to this facility, and I hereby accept this material for treatment and/or disposal in a manner that has been authorized by the State of North Carolina.

Facility Signature: Date: 10/25/22

White/Facility Canary/Invoice Pink/Carrier

APPENDIX B

PHOTOGRAPHS

Photograph 1: Exposing top of USTs.

Photograph 2: Removing USTs from the excavation.

Photograph 3: Loading USTs on trailer.

Photograph 4: Excavation following removal of USTs, vent pipes visible in bottom of photo.

Photograph 5: Removing product lines and dispenser island.

Photograph 6: Backfilling UST excavation.

Photograph 7: Former dispenser island area after backfilling excavation.

Photograph 8: Former UST area after backfilling excavation.

APPENDIX C

FORM UST-2B

UST-2B

Site Investigation Report for Permanent Closure or Change-in-Service of UN-REGISTERED UST

Return completed form to:

NC DEQ / DWM / UST SECTION
1646 MAIL SERVICE CENTER
RALEIGH, NC 27699-1646
ATTN: REGISTRATION & PERMITTING

phone (919) 707-8171 fax (919) 715-1117 http://www.wastenotnc.org/

STATE USE ONLY:
Facility ID #

Date Received

INSTRUCTIONS (READ THIS FIRST)

1. UST permanent closure or change in service must be completed in accordance with the latest version of the Guidelines for Site Checks, Tank Closure and Initial Response and Abatement. The guidelines can be obtained at http://deq.nc.gov/about/divisions/waste-management/waste-management-permit-guidance/underground-storage-tanks-section.
2. Permanent closure: Complete all sections of this form.
3. Change-in-service: Where UST systems will be converted from storing a regulated substance to a non-regulated substance, complete sections I, II, III, IV, and VI.
4. For more than 5 un-registered UST systems, attach additional forms as needed.
5. **Un-Registered USTs may be subject to unpaid fees and late penalties**.
6. REGISTERED USTs use Form UST-2A.

I. OWNERSHIP OF TANKS

Owner Name (Corporation, Individual, Public Agency, or Other Entity)		
Kay Bolin		
Street Address		
129 April Lane		
City	County	
Aberdeen	Moore	
State	Zip Code	
NC	28315	
Phone Number		
Unknown		

II. LOCATION OF TANKS

Facility Name or Company		
Parcel 76G - John & Kay Bolin Property		
Facility ID # (If known)		
Unknown		
Street Address		
10531 NC 211 Hwy		
City	County	Zip Code
Aberdeen	Moore	28315
Phone Number		
Unknown		

III. CONTACT PERSONNEL

Contact for Facility: Mr. Ashley Cox, NCDOT		Job Title: GeoEnv. Project Engr.	Phone #: 919-707-6872
Closure Contractor Name: Mr. Tony Disher	Closure Contractor Company: EVO Corporation	Address: 1703 Vargrave St., High Point, NC	Phone # 336-725-5844
Primary Consultant Name: Ms. Sheri Knox	Primary Consultant Company: WSP USA	Address: 2801 Yorkmont Road, Charlotte, NC	Phone # 704-357-8600

IV. UST INFORMATION FOR UN-REGISTERED UST SYSTEMS

REGISTERED USTs use Form UST-2A.

V. EXCAVATION CONDITION

Tank ID No.	Size in Gallons	Last Contents	Last Use Date	Permanent Close Date	Method of Permanent Closure: Indicate REMOVED or enter fill material, such as foam/ concrete/ sand	Change-in-Service Date	Water in excavation		Free product		Notable odor or visible soil contamination	
							Yes	No	Yes	No	Yes	No
1	4000	Gasoline, C	Unk	10/25/22	Removed	10/25/22	☐	☒	☐	☒	☐	☒
2	4000	Gasoline, C	Unk	10/25/22	Removed	10/25/22	☐	☒	☐	☒	☐	☒
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐
							☐	☐	☐	☐	☐	☐

VI. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true accurate and complete.

Print name and official title of owner or owner's authorized representative
Andrew Frantz, WSP USA, as agent for NCDOT

Signature

Date Signed
11/9/2022

APPENDIX D

EXCAVATION LOG

	EXCAVATION NO: 1
EXCAVATION LOG: R-5709, Parcel 76G – UST #1 and #2	**PAGE** 1 **OF** 1
LOCATION: 10531 NC 211 Hwy, Aberdeen, North Carolina	**START DATE:** 10/24/22
CONTRACTOR: EVO Corporation	**FINISH DATE:** 10/26/22
WEATHER: Partly cloudy, 74°F	**LOGGED BY:** AJF
EXCAVATION METHOD: Track Hoe	

NOTES:
Excavation extent measured 14-feet wide and 27-feet long. Groundwater was not encountered during the excavation.

DEPTH TO ROCK: No bedrock was encountered.

TOTAL DEPTH OF EXCAVATION: 8.5 feet

DEPTH IN FEET		MOISTURE	SOIL / BEDROCK DESCRIPTION	PID - Maximum (ppm)
FROM	TO			
0	0.5	Dry	Asphalt/Gravel/Grass, GW	No reading
0.5	3.0	Dry	Tan sand, SP	8.1
3.0	8.5	Dry	Tan/white/orange clayey sand, SM	3.2

APPENDIX E

UVF INSTRUMENT GENERATED TABLES

QED REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS QROS

Hydrocarbon Analysis Results

Client: WSP
Address: 2801 YORKMONT RD
CHARLOTTE NC 28208

Contact: SHERI KNOX

Project: P76G UST

Samples taken Tuesday, October 25, 2022
Samples extracted Tuesday, October 25, 2022
Samples analysed Tuesday, October 25, 2022

Operator DRH

F03640

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	P76G-UST-1-A	25.5	<0.64	<0.64	<0.64	<0.64	<0.13	<0.2	<0.025	0	91.2	8.8	PHC not detected
s	P76G-UST-1-B	11.3	<0.28	<0.28	0.82	0.82	0.42	<0.09	<0.011	0	67.9	32.1	V.Deg.PHC 91.6%,(FCM)
s	P76G-UST-1-C	9.5	<0.24	<0.24	0.24	0.24	0.16	<0.08	<0.01	0	74	26	,(FCM)
s	P76G-UST-2-A	13.6	<0.34	<0.34	0.34	0.34	0.2	<0.11	<0.014	0	100	0	,(FCM)
s	P76G-UST-2B	11.9	<0.3	<0.3	<0.3	<0.3	<0.06	<0.09	<0.012	0	100	0	,(FCM)
s	P76G-UST-2-C	10.7	<0.27	<0.27	0.27	0.27	0.19	<0.09	<0.011	0	66.2	33.8	,(FCM)

Initial Calibrator QC check OK Final FCM QC Check OK 87 %

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

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

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

QED REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS QROS

Hydrocarbon Analysis Results

Client: WSP
Address: 2801 YORKMONT RD
CHARLOTTE NC 28208

Samples taken Wednesday, October 26, 2022
Samples extracted Wednesday, October 26, 2022
Samples analysed Wednesday, October 26, 2022

Contact: SHERI KNOX

Operator DRH

Project: P76G UST

F03640

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	P76G-PL-1	12.8	3	3	<0.32	3	<0.06	<0.1	<0.013	100	0	0	,(FCM)
s	P76G-D-1	9.4	<0.24	<0.24	<0.24	<0.24	<0.05	<0.08	<0.009	0	0	0	,(FCM),(BO)
s	P76G-D-2	8.4	<0.21	<0.21	<0.21	<0.21	<0.04	<0.07	<0.008	0	0	0	,(FCM),(BO)

Initial Calibrator QC check OK Final FCM QC Check OK 99 %

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

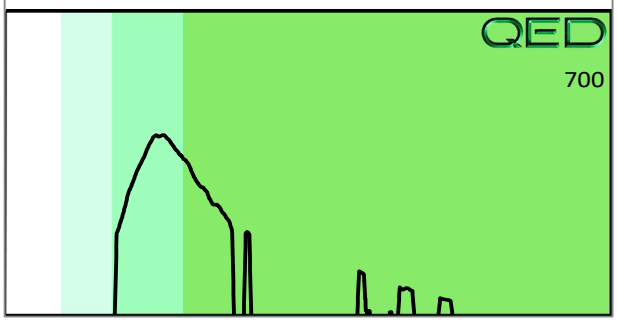
Fingerprints provide a tentative hydrocarbon identification. The abbreviations are:- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for sample fingerprint match to library

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

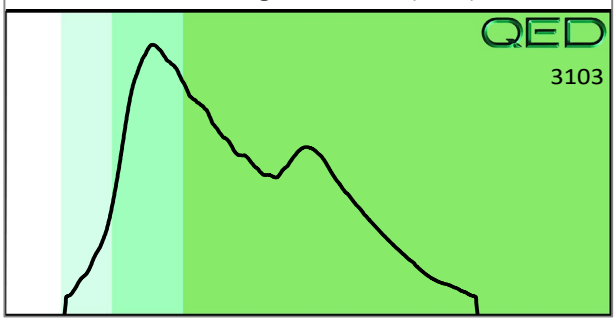
QED HydroCarbon Fingerprints

Project:

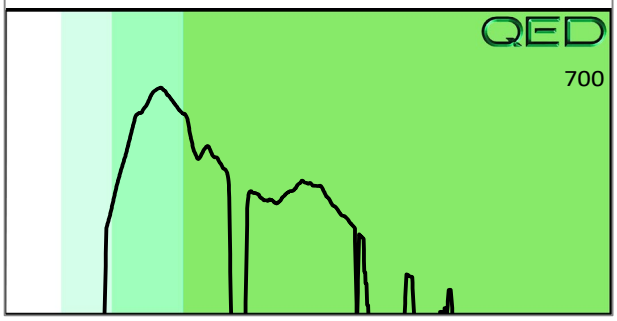
P76G-UST-1-A : PHC not detected



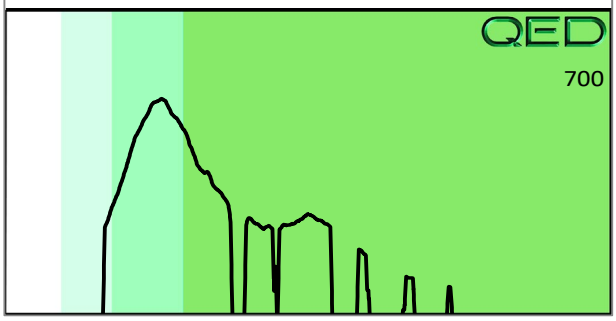
P76G-UST-1-B : V.Deg.PHC 91.6%,(FCM)



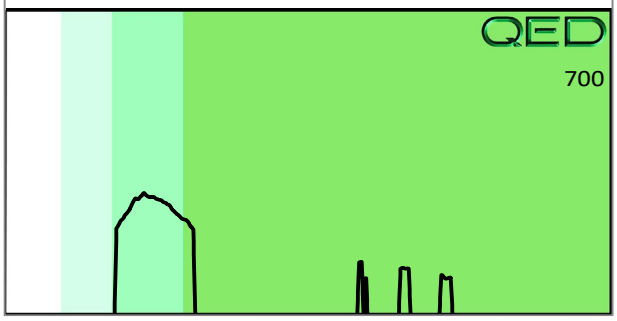
P76G-UST-1-C : ,(FCM)



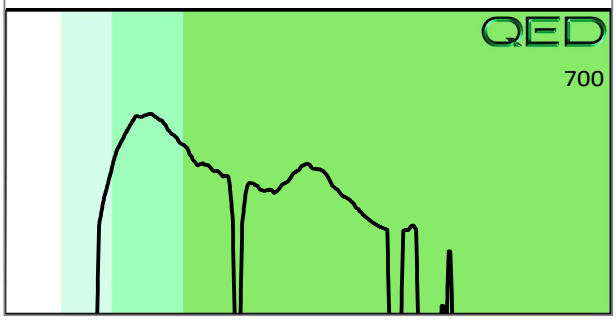
P76G-UST-2-A : ,(FCM)



P76G-UST-2B : ,(FCM)



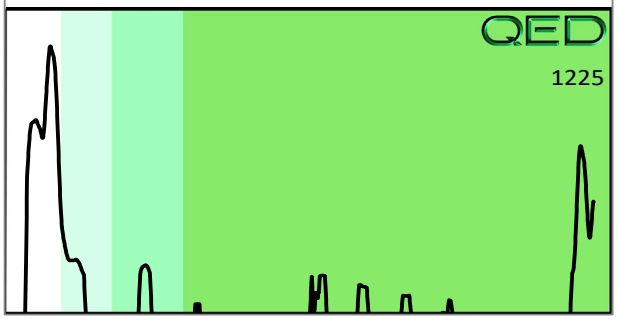
P76G-UST-2-C : ,(FCM)



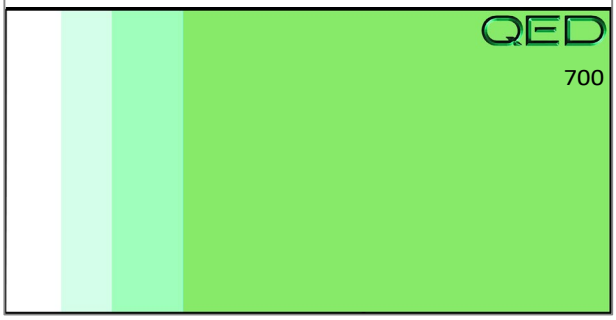
QED Hybridization Fingerprints

Project:

P76G-PL-1 : ,(FCM)



P76G-D-1 : ,(FCM),(BO)



P76G-D-2 : ,(FCM),(BO)

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

October 28, 2022

MEMORANDUM TO: Elmo Vance, Jr.
Project Manager
Project Management Team, Division 5 and 8
Project Management Unit

FROM: Ashley B Cox, Jr, LG
GeoEnvironmental Project Manager
GeoEnvironmental Section
Geotechnical Engineering Unit

DocuSigned by:
Ashley B Cox, Jr
3781983D4D7F429...

TIP NO: R-5709
WBS: 50205.1.1
COUNTY: HOKE
DIVISION 8
DESCRIPTION: Widen NC 211 from US 15-501 in Aberdeen to SR 1244 (W. Palmer St.)/SR 1311 (Mockingbird Hill Rd.) in Raeford, Moore & Hoke Counties.

SUBJECT: **GeoEnvironmental Phase I Report**

The GeoEnvironmental Section of the Geotechnical Engineering Unit performed a Phase I field investigation on October 7, 2019 for the above referenced project to identify geoenvironmental sites of concern. On October 5, 2022, an expanded study area encompassing Arthur Lane was provided to the Geotechnical Engineering Unit for further investigation. The purpose of this report is to document sites of concern within the project study area that are or may be contaminated. These sites of concern should be included in the environmental planning document in an effort to assist the project stakeholders in reducing or avoiding impacts to these sites. Sites of concern may include, but are not limited to, underground storage tank (UST) sites, dry cleaning facilities, hazardous waste sites, regulated landfills and unregulated dumpsites.

Findings

Twenty (24) sites of concern were identified within the proposed study area. We anticipate low to high monetary and scheduling impacts resulting from these sites. See the following table and figure for details. No additional sites of concern were identified within the Arthur Lane expanded study area.

Please note that discovery of additional sites not recorded by regulatory agencies and not reasonably discernible during the project reconnaissance may occur. The GeoEnvironmental

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
1589 MAIL SERVICE CENTER
RALEIGH, NC 27699-1589

Telephone: (919) 707-6850
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
1020 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

Section should be notified immediately after discovery of such sites so their potential impact(s) may be assessed.

Sites of concern identified in this report should be reviewed by the GeoEnvironmental Section once the Final Right of Way plans are complete to determine if Phase II Investigations and Right of Way Recommendations are necessary prior to right of way being acquired.

If there are questions regarding the geoenvironmental issues, please contact me, at (919) 707-6857.

cc:
John Pilipchuk, LG, PE, State Geotechnical Engineer
Brian Hanks, PE, State Structures Engineer
Brent Hall, Locations and Surveys
Byron Sanders, Jr, PE, State Utilities Engineer
Reuben Blakley, PE, Division 8 Construction Engineer
William B. Scholl, Division 8 Right of Way Agent
Eric Williams, PE, Geotechnical Regional Manager
Kevin B. Miller, PG, Regional Geological Engineer
Luis Pages, State Negotiator
row-notify@ncdot.gov
roadwaydesign@ncdot.gov
hydraulics_notify@ncdot.gov

(01) Property Name:
KANGAROO EXPRESS-BP (Former Pantry #3301)
11495 Hwy 15/501 and NC 211
Aberdeen, NC 28315

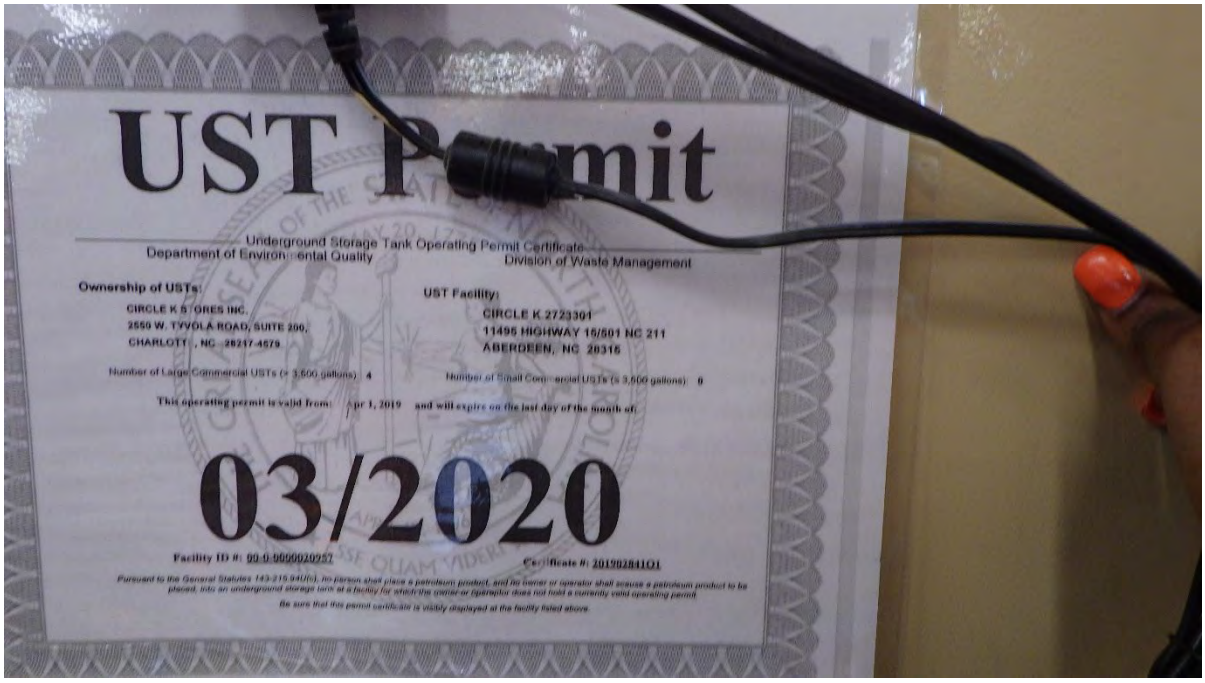
Facility ID: 00-0-0000020957
Incident Type/Number: 22728

Property Owner:
PRIME REALTY, INC
CIRCLE K STORES INC.
C/O CIRCLE K PROP TAX DC-17PHOENIX AZ

UST Owner:
CIRCLE K STORES INC.
2550 W TYVOLA ROAD, SUITE 200,
CHARLOTTE, NC 28217-4579

Anticipated Impacts: LOW

This is an active gas station with four USTs permitted in use at the site. Monitoring wells and remediation wells were observed on site and one groundwater incident is recorded in NCDEQ's UST incident database.



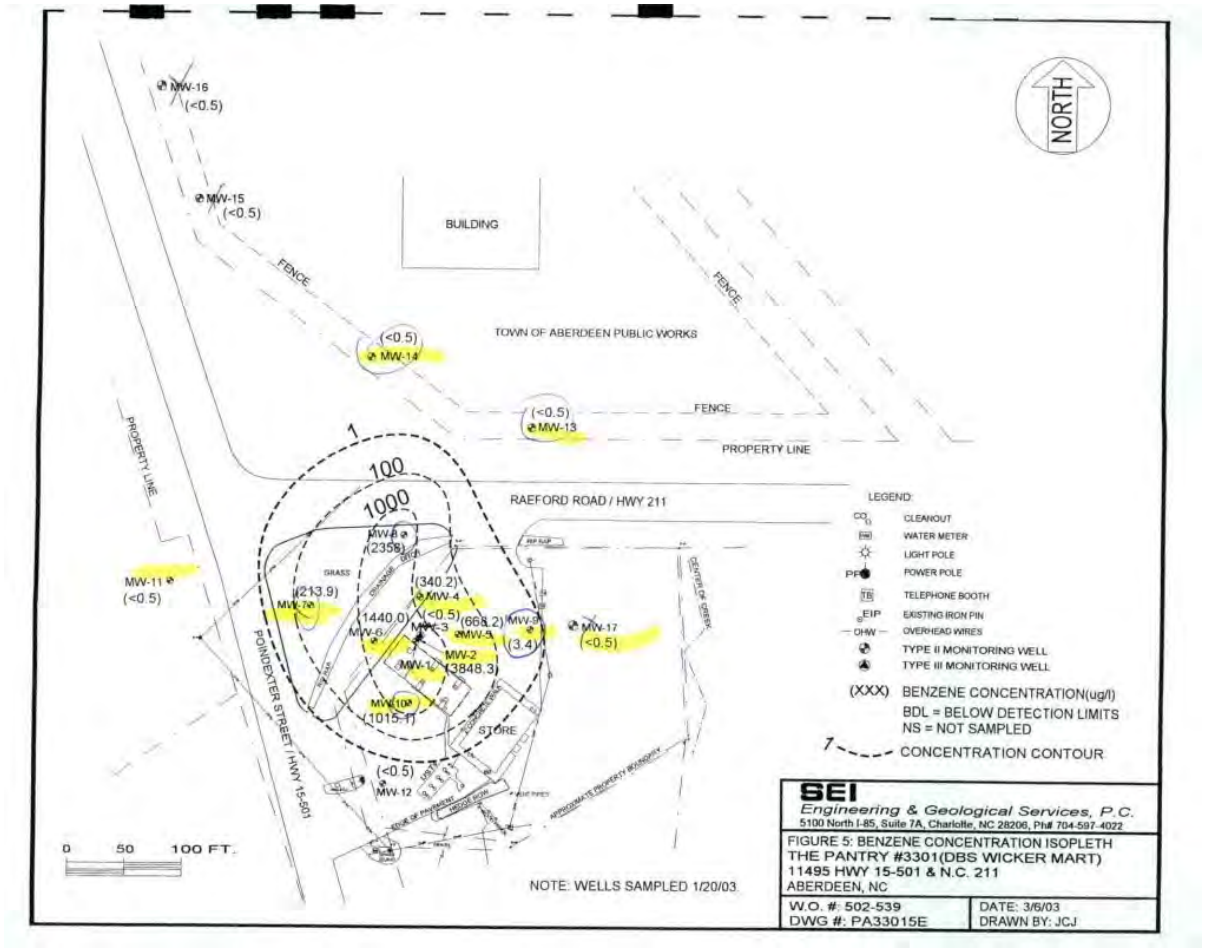
UST permit

UST Area

Remediation well

Monitoring well

Multiple monitoring wells



Groundwater plume- 2003

(02) Property Name:
VACANT STORE
200 GLASGOW ST
ABERDEEN, NC 28315

Property Owner:
JAMES, LARRY J
1250 RESERVATION RD
ABERDEEN, NC 28315

Facility ID: N/A
Incident Type/Number: N/A

UST Owner:
N/A

Anticipated Impacts: LOW

This is a former gas station with at least 2 small USTs observed on site. The store building was probably built in 1930s and is in fair condition. No monitoring wells were observed on site and no incident record can be located in NCDEQ's database.

UST fill port with cover

UST fill port uncovered.

(03) Property Name:
VACANT BUILDING
9820 NC 211 HWY
ABERDEEN, NC 28315

Property Owner:
SCHLOEGL, ROBERT L
200 BLUE ST
ABERDEEN, NC 28315

Facility ID: N/A
Incident Type/Number: N/A

UST Owner:
N/A

Anticipated Impacts: LOW

This is an old former gas station with former dispenser island remains on site (under the trees in front of the building). The store building was in poor condition and probably built in 1930s or earlier. Two small USTs probably still remain underneath the island and no monitoring wells were observed on site. No incident record can be located in NCDEQ's database.

UST features in the dispenser island area

UST features in the dispenser island area-product line

(04) Property Name:
VACANT LOT with foundations
9849 NC 211 HWY
ABERDEEN, NC 28315

Property Owner:
OATES, KARLTON
C/O LESLIE M GATES
NEW YORK, NY 10005

Facility ID: N/A
Incident Type/Number: N/A

UST Owner:
N/A

Anticipated Impacts: LOW

This is a vacant lot with building foundation remained on site. It was a possible former gas station with USTs removed. One monitoring well observed on site and no incident record can be located in NCDEQ's database.

UST removal area.

Recently installed monitoring well

(05) Property Name:
GEIGY CHEMICAL CORP. (ABERDEEN PLANT) former KAISER CHEMICAL BLDG
10192 NC 211 HWY
ABERDEEN, NC 28315

Facility ID: Superfund site ID-NCD981927502
Incident Type/Number: N/A

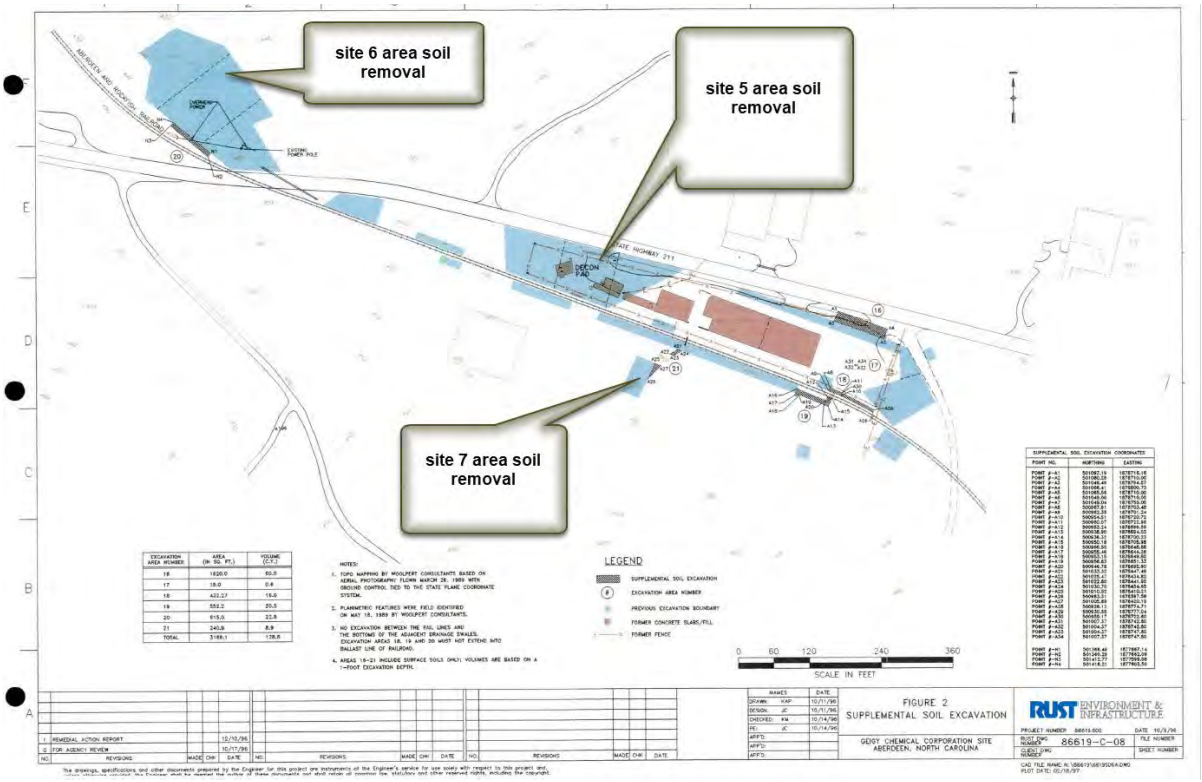
Property Owner:
ABERDEEN & ROCKFISH RAILROAD
101 EAST MAIN ST
ABERDEEN, NC 28315

UST Owner:
N/A

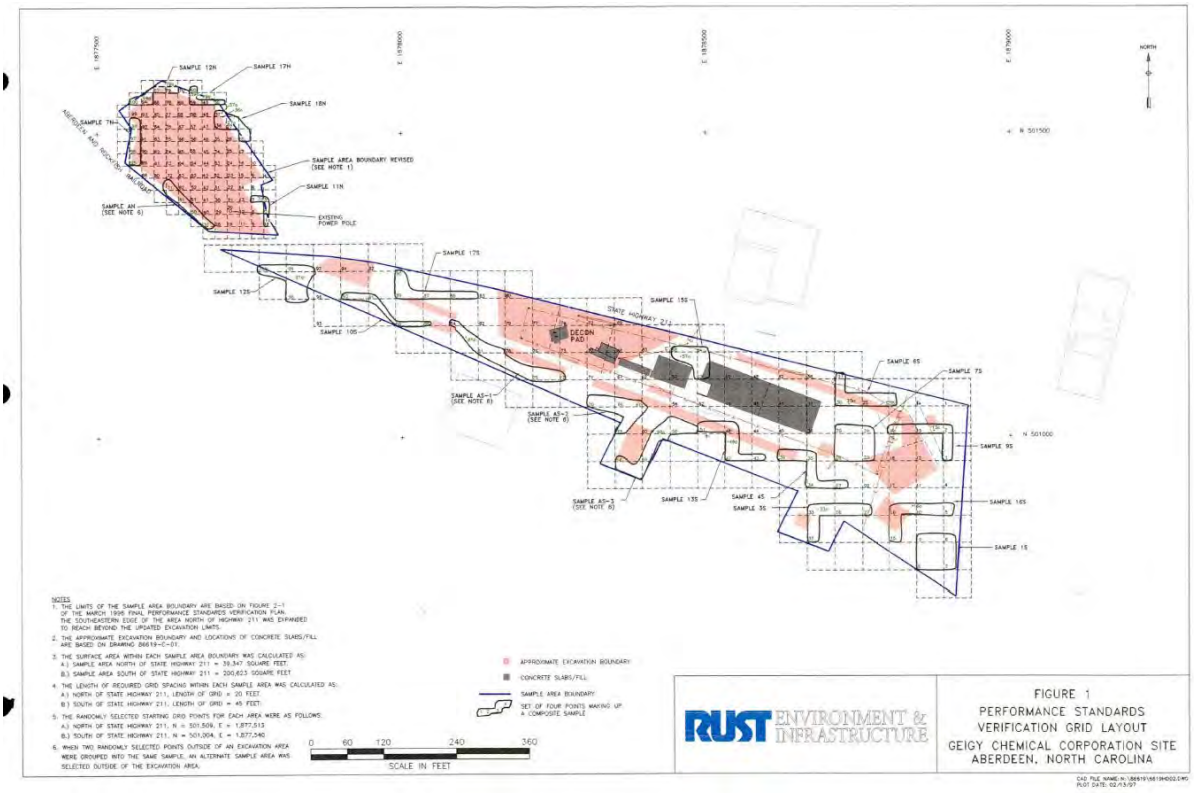
Anticipated Impacts: High

This is a vacant lot owned by a railroad company. There was a KAISER CHEMICAL building removed from the site years ago. Soils contaminated with pesticides were identified by EPA and soil excavation were completed in 1996 and 1997. One monitoring well was observed on site, and no USTs observed on site.

Monitoring well



Soil removal areas for this site (Site 5) and Site 6



Soil removal sample verification for this site (Site 5) and Site 6

(06) Property Name:
14 acres North of NC 211 of GEIGY Superfund site
10191 NC 211 HWY
ABERDEEN, NC 28315

Facility ID: Superfund site ID: NCD981927502
Incident Type/Number: N/A

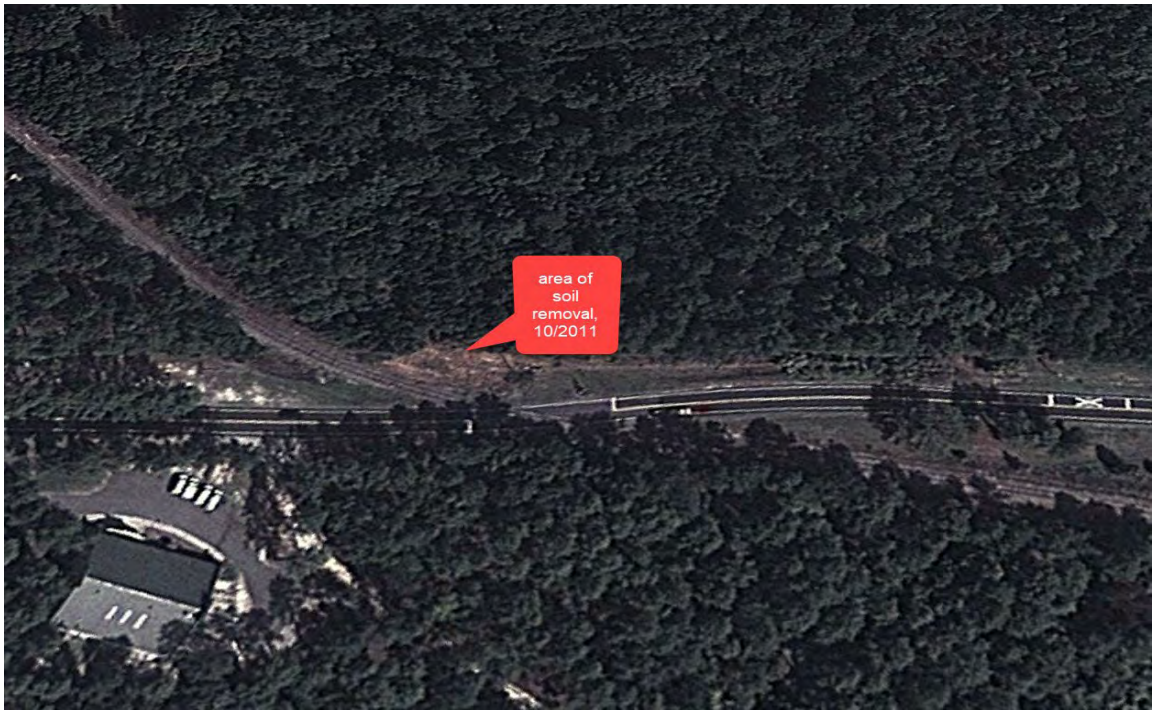
Property Owner:
BETHESDA CEMETERY ASSOCIATION
1002 N SANDHILLS BLVD
ABERDEEN, NC 28315

UST Owner:
N/A

Anticipated Impacts: LOW

This is a vacant wooded lot. There were superfund soil clean-up activities at this property in 1996/1997 and in 2011. Soils contaminated with pesticides were documented to be cleaned up to the satisfaction of EPA (also see Site 5 figures).

Soil removal area with young trees (see below)



Soil Removal area in 2011- North of NC 211 (also see site 5 figures)

(07) Property Name:
Vacant Land South of NC 211-GEIGY CHEMICAL CORP
10180 NC 211 HWY
ABERDEEN, NC 28315

Facility ID: Superfund site ID: NCD981927502
Incident Type/Number: N/A

Property Owner:
ANDERSONG MANAGEMENT, LLC
PO BOX 228
SOUTHERN PINES, NC 28388

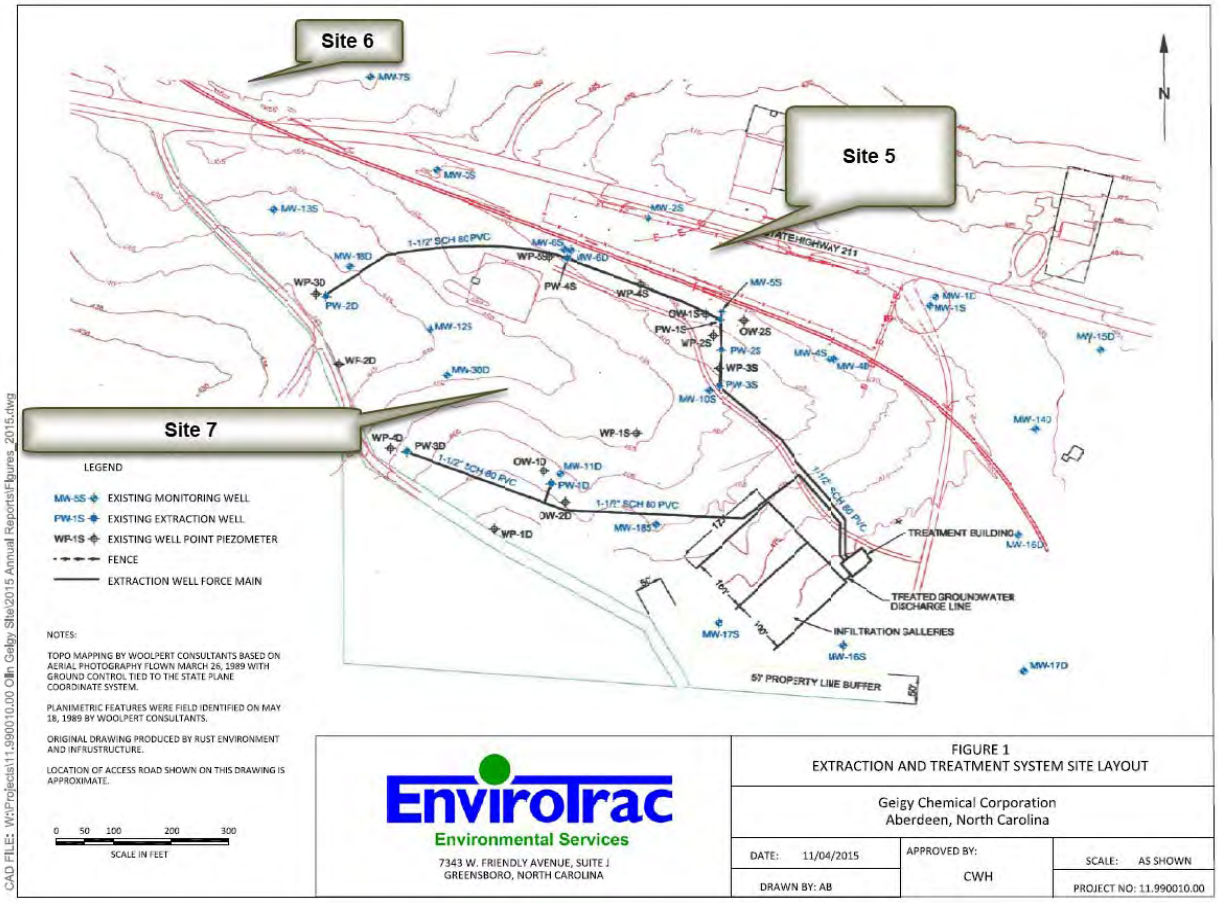
UST Owner:
N/A

Anticipated Impacts: High

This is a large track of wooded vacant lot. The contamination on this site is directly related to site 5 (GEIGY CHEMICAL) activities. Superfund soil removal (see site 5 figures) and groundwater clean-up action have occurred at this site. Multiple groundwater monitoring wells and remediation systems were observed over the site.

Remediation/monitoring wells

Monitoring well



Geigy Superfund groundwater remediation system layout.

Recently accessed off site monitoring well

(08) Property Name:
Former Powder Metals Products (PMP) site
215 CRESTLINE LN
ABERDEEN, NC 28315

Property Owner:
HUDSON, MATTHEW B
644 KIRK RD
ABERDEEN, NC 28315

Facility ID: Superfund site ID: NCD00407447
Incident Type/Number: N/A

UST Owner:
N/A

Anticipated Impacts: High

This is a large track of land with former Powder Metals Products (PMP) buildings on site. Minor soil and limited groundwater contamination were identified in 2000 with solvents. Groundwater contamination was assessed by EPA related to the incident. However, no soil and groundwater remediation activities were documented at this site.

(09) Property Name:
MT Recycling (Former Lee Paving Company)
280 LUCKEY DRIVE,
ABERDEEN, NC 28315

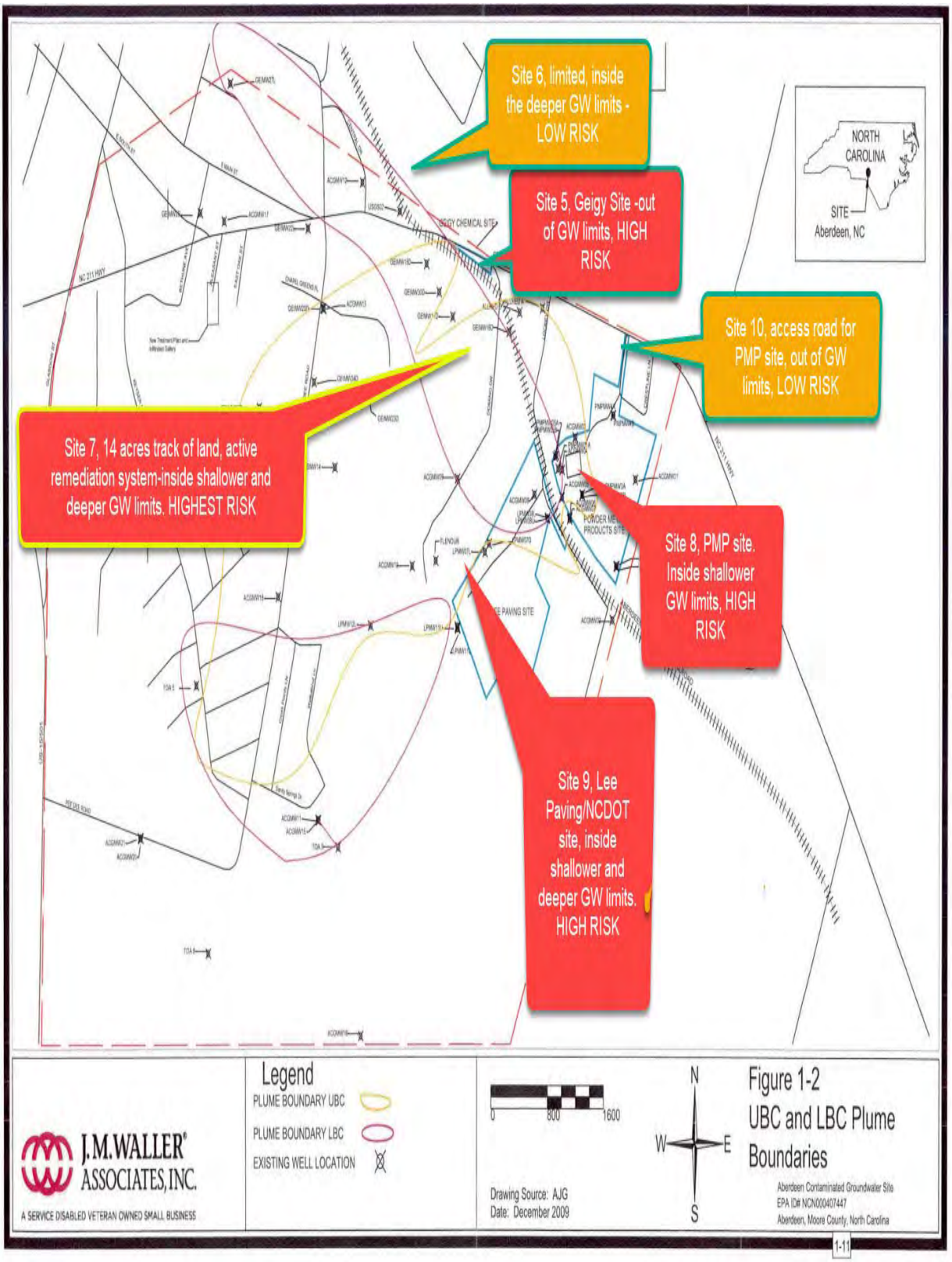
Property Owner:
HUDSON, MATTHEW B
644 KIRK RD
ABERDEEN, NC 28315

Facility ID: Superfund site ID: NCD00407447 (new, three sites)
Incident Type/Number: 85090

UST Owner:
N/A

Anticipated Impacts: High

This is currently a recycling facility. It was a part of the larger Lee Paving Company site. NCDOT started to investigate this site for its previous asphalt testing laboratory activities related to possible solvent release from 1964 to 1989. As a result of the investigation, TCE was detected in the groundwater. Numerous remediation/monitoring activities and reports have been completed since 1992 and the site was recently designated as a part of the newly assigned/listed Superfund site in combine with Site 5, 7 and 8. This site is located further south of the NC 211 project in a topographical and hydrogeologic down gradient location (also see Site 5, 6,8 and 10). Multiple monitoring wells were observed on site during this visit. Documents/reports can be located in NCDEQ's and EPA website:
https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand=%7b%5bWM%5d%3a%5bProgram_ID%5d%3d%22*NCN000407447*%22%7d



NCDOT site (9) in relation with Geigy Site (Site 5,6,7) and PMP site (8,10)- Groundwater plumes (2009 data) in upper (UBC-shallower) and lower black creek (LBC-deeper) formations (aquifers) in the area of Site 5,6,7,8,9, and 10 (also see Site 10)

NCDOT site- aerial photo

(10) Property Name:
Access Road to NC 211 (part of former PMP-site)
215 CRESTLINE LN
ABERDEEN, NC 28315

Property Owner:
HUDSON, MATTHEW B
644 KIRK RD
ABERDEEN, NC 28315

Facility ID: Superfund site ID: NCD00407447
Incident Type/Number: 85083

UST Owner:
N/A

Anticipated Impacts: LOW

This is the access road to a large track of land with the former Powder Metals Products (PMP) superfund site (Site 9) and the project design is likely to impact this area. Soil and water contamination related to the former PMP site (site 8) were identified in 2000 with solvents release but not to extend to this location (Site 10). Groundwater contamination were investigated by EPA related to the incident, however, there has been no active remediation of the groundwater on the former PMP site. No monitoring wells were documented or observed in the area. This access road is situated adjoint NC 211 and to be in a topographical and hydrogeological up gradient location to the groundwater contaminated area at this property and other sites (5,7,8 and 9) in the area.

Location of this site (site 10) and other superfund associated sites. Blue line is approximate groundwater plume (2009).

(11) Property Name:
VACANT GARAGE BUILDING
10531 NC 211 HWY
ABERDEEN, NC 28315

Property Owner:
BOLIN, JOHN & KAY
129 APRIL LN
ABERDEEN, NC 28315-9801

Facility ID: N/A
Incident Type/Number: N/A

UST Owner:
N/A

Anticipated Impacts: LOW

This is a vacant garage building and a possible former gas station with dispenser island remains on site. No monitoring wells or USTs were observed on site. No incident record can be located in NCDEQ's database.

Possible former disperser island

Possible abandoned UST product line/pipe

(12) Property Name:
GARAGE BUILDING (NO SIGN)
10528 NC 211 HWY
ABERDEEN, NC 28315

Property Owner:
YOW, RICHARD S &
4937 HWY 15/501
CARTHAGE, NC 28327

Facility ID: N/A
Incident Type/Number: N/A

UST Owner:
N/A

Anticipated Impacts: LOW

This former auto retailer is now a truck repair business. It may have operated once as a gas station. However, no monitoring wells or UST features were observed on site. No incident record can be located in NCDEQ's database.

(13) Property Name:
211 FAST MART (JAY'S FOOD MART)
10827 NC 211 HIGHWAY
Aberdeen, NC 28315

Property Owner:
GILLIS, DONALD EARL & KAREN &
P O BOX 535
Aberdeen, NC 28315

Facility ID: 00-0-0000031525
Incident Type/Number: N/A

UST Owner:
MCNEILL OIL CO INC
P O BOX 396
Aberdeen, NC 28315

Anticipated Impacts: LOW

This is an active gas station with four (4) USTs permitted in use at the site. No monitoring wells were observed on site and no groundwater incident is recorded in NCDEQ's UST incident database.

UST permit

UST area

(14) Property Name:
ALCO 28 (Shell Gas Station))
10870 NC 211 HIGHWAY
Aberdeen, NC 28315

Property Owner:
AOC INVESTMENTS, L.L.C.
P O BOX 1059
ALBEMARLE, NC 28001-1059

Facility ID: 00-0-0000036840
Incident Type/Number: N/A

UST Owner:
ALBEMARLE OIL COMPANY
P O BOX 1059
ALBEMARLE, NC 28001-1059

Anticipated Impacts: LOW

This is an active gas station with four USTs permitted in use at the site. No monitoring wells were observed on site and no groundwater incident is recorded in NCDEQ's UST incident database.

UST permit

UST area

(15) Property Name:
ABANDONED FORMER COUNTRY STORE/GAS STATION
10575 NC 211 HWY
ABERDEEN, NC 28315

Facility ID: N/A
Incident Type/Number: N/A

Property Owner:
LOWERY, GREGORY
767 ODUM ROAD
LUMBERTON, NC 28360

UST Owner:
N/A

Anticipated Impacts: LOW

This former gas station is a part of a large parcel with a multiple mobile home park development. No monitoring wells or USTs were observed on site. Former UST features remain on site. No incident record can be located in NCDEQ's database.

Side of the store building

Possible former disperser

(16) Property Name:
DISCOUNT FABRIC (RETAIL STORE)
10002 NC 211 HWY
ABERDEEN, NC 28315

Property Owner:
CLARK, PANAYOTA
P O BOX 271
ABERDEEN, NC 28315-9801

Facility ID: N/A
Incident Type/Number: N/A

UST Owner:
N/A

Anticipated Impacts: LOW

This is a fabric retail store and a possible former gas station with possible dispenser islands (removed). No monitoring wells or USTs were observed on site. No incident record can be located in NCDEQ's database.

Possible former disperser island location.

Possible testing boring location.

(17) Property Name:
ABANDONED RETAIL STORE
8850 NC 211 HWY
ABERDEEN, NC 28315

Property Owner:
WILSON, WOODROW
203 PINECONE AVENUE
RAEFORD, NC 28376

Facility ID: N/A
Incident Type/Number: N/A

UST Owner:
N/A

Anticipated Impacts: LOW

This is an abandoned retail store and a possible former gas station with possible dispenser island remains. No monitoring wells or USTs were observed on site. No incident record can be located in NCDEQ's database.

Possible UST disperser island.

Unknown feature on site.

(18) Property Name:
VACANT LOT WITH SMALL STRUCTURE
8692 NC 211 HWY
ABERDEEN, NC 28315

Property Owner:
GEORGE, MICHAEL WAYNE
3820 DOC BROWN RD
RAEFORD, NC 28376

Facility ID: N/A
Incident Type/Number: N/A

UST Owner:
N/A

Anticipated Impacts: LOW

This is a vacant lot and possible former gas station based on the historic photos reviewed. No monitoring wells or UST features were observed on site. No incident record can be located in NCDEQ's database.

Historic aerial photo-2003

(19) Property Name:
211 LUCKY STOP
6797 ABERDEEN RD
RAEFORD, NC 28376

Facility ID: 00-0-0000020957
Incident Type/Number: N/A

Property Owner:
211 SHOPPING CENTERS, LLC
PO BOX 2048RAEFORD NC

UST Owner:
LUCKY STOP 211 INC
6797 ABERDEEN RD
RAEFORD, NC 28376

Anticipated Impacts: LOW

This is an active gas station with three (3) USTs permitted in use at the site. No monitoring wells were observed on site and no groundwater incident is recorded in NCDEQ's UST incident database.

UST permit

UST area

(20) Property Name:
JUST THE COUNTRY (FORMER COUNTRY STORE/GAS STATION)
5735 ABERDEEN RD
RAEFORD, NC 28376-0000

Facility ID: N/A
Incident Type/Number: N/A

Property Owner:
JONES, HERBERT L
5735 ABERDEEN RD
RAEFORD, NC 28376-0000

UST Owner:
N/A

Anticipated Impacts: LOW

This is a vacant Bed and Breakfast and possible former gas station with UST features remaining on site. No monitoring wells or USTs were observed on site. No incident record can be located in NCDEQ's database.

Possible former disperser island location

Possible abandoned product line/pipe.

(21) Property Name:
LUCKY 7 EXPRESS
526 ABERDEEN RD
RAEFORD, NC 28376

Facility ID: 00-0-0000023511
Incident Type/Number: 18744

Property Owner:
SHAHBAIN PROPERTY, INC.
PO BOX 66RAEFORD NC

UST Owner:
LUCKY 7 EXPRESS INC.
526 ABERDEEN RD
RAEFORD, NC 28376

Anticipated Impacts: LOW

This is an active gas station with four (4) USTs permitted in use at the site. No monitoring wells were observed on site and one groundwater incident is recorded in NCDEQ's UST incident database.


UST Permit

Underground Storage Tank Operating Permit Certificate
Department of Environmental Quality — Division of Waste Management

Ownership of USTs:
LUCKY 7 EXPRESS INC.
526 ABERDEEN ROAD,
RAEFORD, NC 28376

UST Facility:
LUCKY 7 EXPRESS
526 ABERDEEN ROAD
RAEFORD, NC 28376-5886

Number of Large Commercial USTs (> 3,500 gallons): 3
Number of Small Commercial USTs (≤ 3,500 gallons): 1

This operating permit is valid from: Apr 1, 2019 and will expire on the last day of the month of:

03/2020

Facility ID #: 00-0-0000023511
Certificate #: 20190185201

Pursuant to the General Statutes 143-215.94U(C), no person shall place a petroleum product, and no owner or operator shall acause a petroleum product to be placed, into an underground storage tank at a facility for which the owner or [illegible]

UST permit

UST area 1

UST area 2

(22) Property Name:
SPEEDWAY #7903
HIGHWAY 211 AND TURNPIKE ROAD
(422 ABERDEEN ROAD)
RAEFORD, NC 28376

Facility ID: 00-0-0000036768
Incident Type/Number: N/A

Property Owner:
DOWNING, NANCY W.
1829 SHOREHAM DRCHARLOTTE NC

UST Owner:
SPEEDWAY (NORTH CAROLINA) LLC
500 SPEEDWAY DRIVE
ENON, OH 45323-1026

Anticipated Impacts: LOW

This is an active gas station with three (3) USTs permitted in use at the site. No monitoring wells were observed on site and no groundwater incident is recorded in NCDEQ's UST incident database.


UST Permit

Underground Storage Tank Operating Permit Certificate

Department of Environmental Quality — Division of Waste Management

Operator of USTs:
SPEEDWAY (NORTH CAROLINA) LLC
500 SPEEDWAY DRIVE,
ENON, OH 45323-1026

UST Facility:
SPEEDWAY #7903
HWY 211 AND TURNPIKE ROAD
RAEFORD, NC 28376

Number of Large Commercial USTs (> 3,500 gallons): 3

Number of Small Commercial USTs (≤ 3,500 gallons): 0

This operating permit is valid from: Jan 1, 2019 and will expire on the last day of the month of:

12/2019

Facility ID #: 00-0-0000036768

Certificate #: 20190095801

Pursuant to the General Statutes 143-215.94I(b), no person shall place a petroleum product, and no owner or operator shall cause a petroleum product to be placed, into an underground storage tank at a facility for which the owner or operator does not hold a currently valid operating permit.

Be sure that this permit certificate is visibly displayed at the facility listed above.

UST permit

UST area

(23) Property Name:
SAYONA INC/FAST SHOP FOOD MART
644 WEST PROSPECT AVE
RAEFORD, NC 28376

Facility ID: 00-0-0000026443
Incident Type/Number: N/A

Property Owner:
SAYONA INC
3104 COMMERCE DRRICHBURG NC

UST Owner:
SAYONA INC/FAST SHOP FOOD MART
644 WEST PROSPECT AVE
RAEFORD, NC 28376-2512

Anticipated Impacts: LOW

This is an active gas station with three (3) USTs permitted in use at the site. No monitoring wells were observed on site and no groundwater incident is recorded in NCDEQ's UST incident database.

UST permit

UST area

(24) Property Name:
McNeill Oil and Propane
641 WEST PROSPECT AVE
RAEFORD, NC 28376

Property Owner:
TEAL OIL COMPANY INC
113 E. DONALDSON AVERAEFORD NC

Facility ID: N/A
Incident Type/Number: N/A

Anticipated Impacts: LOW

This is an oil and propane retail facility. It was a former gas station. No monitoring wells were observed on site and no groundwater incident is recorded in NCDEQ's UST incident database.

Facility yard in the back of the store building

Possible former disperser island location in front of the store building

Figure 1
Location of GeoEnvironmental Sites of Concern

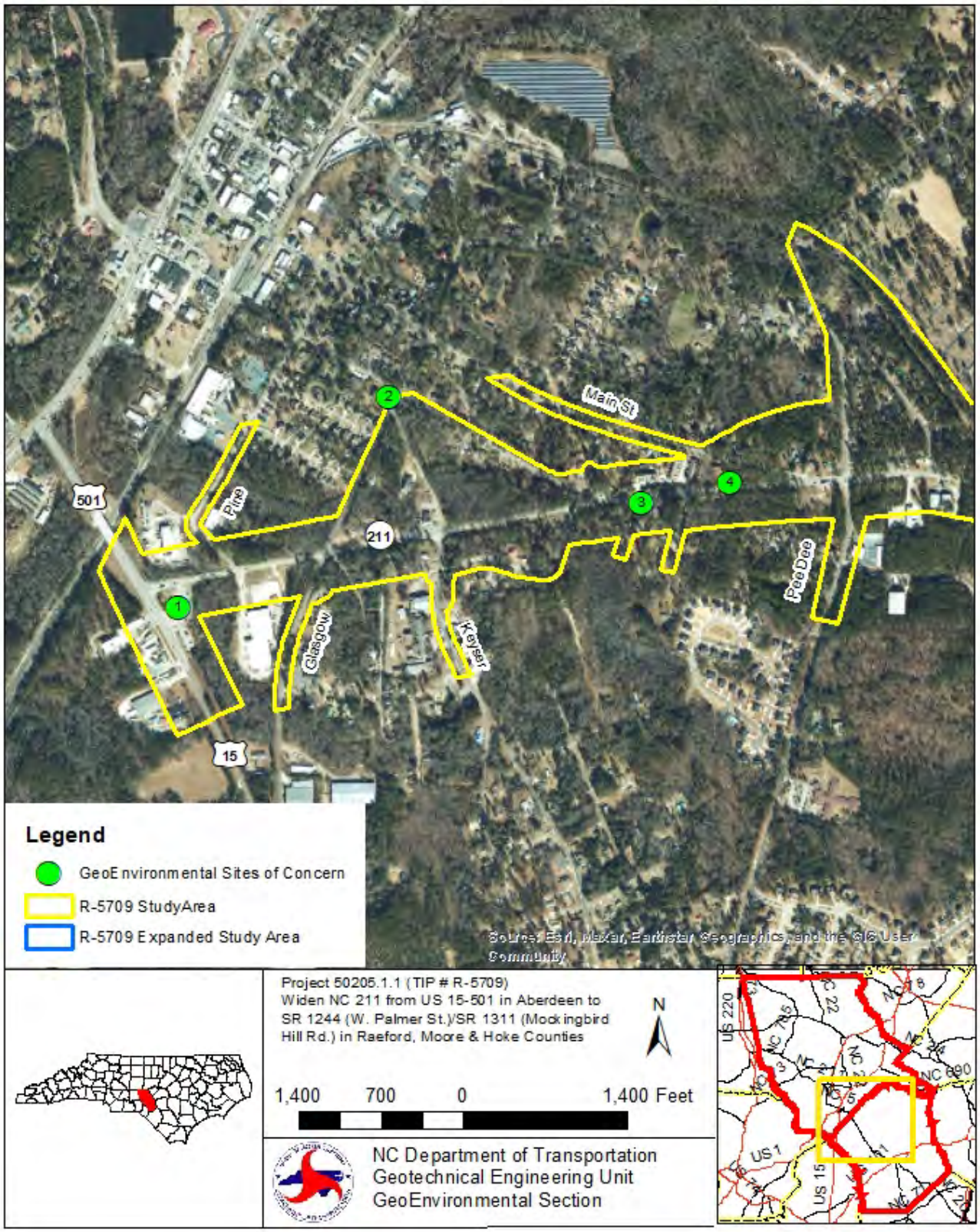


Figure 2
Location of GeoEnvironmental Sites of Concern

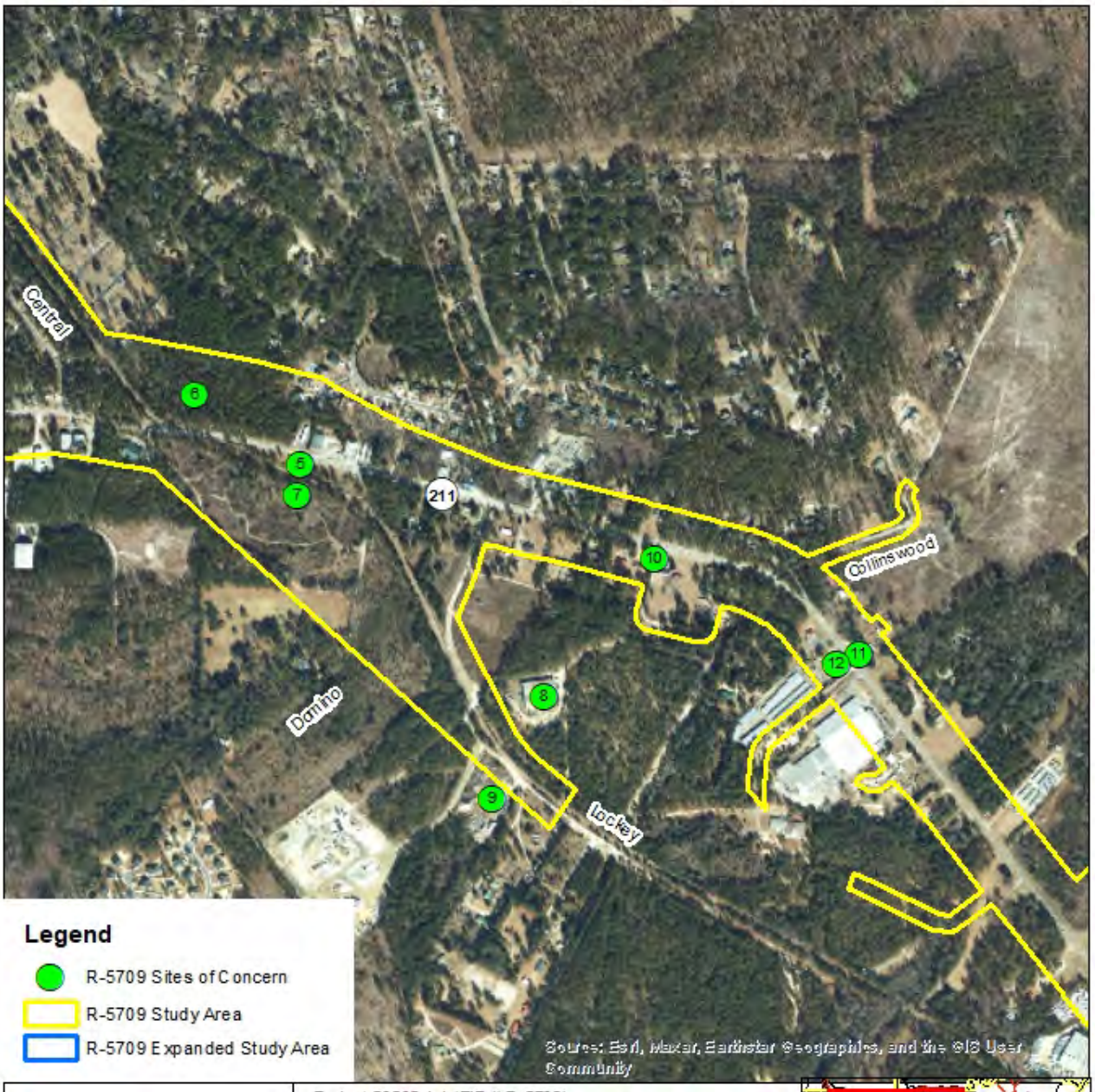


Figure 3
Location of GeoEnvironmental Sites of Concern

Figure 4
Location of GeoEnvironmental Sites of Concern

Project 50205.1.1 (TIP # R-5709)
Widen NC 211 from US 15-501 in Aberdeen to SR 1244 (W. Palmer St.)/SR 1311 (Mockingbird Hill Rd.) in Raeford, Moore & Hoke Counties

N

3,000 1,500 0 3,000 Feet

NC Department of Transportation
Geotechnical Engineering Unit
GeoEnvironmental Section

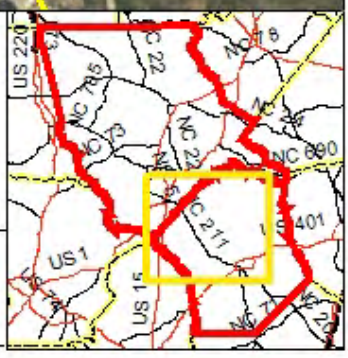


Figure 5
Location of GeoEnvironmental Sites of Concern

Figure 6
Location of GeoEnvironmental Sites of Concern

Figure 7
Location of GeoEnvironmental Sites of Concern