

Phase II Site Assessment Report

August 26, 2022

WBS Element: 44691.1.1

State Project: R-5759

Wilkes County

At

Robert E. and Janice G. Ashley Property

Parcel #025

NA Statesville Road, North Wilkesboro, NC 28659

PIN #: 3877-86-9530

Facility ID No.: N/A

Groundwater Incident No.: N/A

Prepared For:

Mr. Gordon Box

NCDOT, Geotechnical Engineering Unit

GeoEnvironmental Section

1589 Mail Service Center

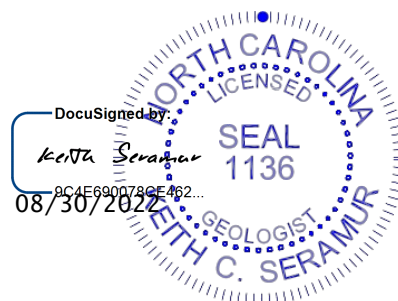
Raleigh, NC 27699-1589

Prepared By:

Seramur & Associates, PC

165 Knoll Drive

Boone, NC 28607



Keith C. Seramur, P.G.

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1.0 Introduction

1.1 General Site Background Information

Seramur & Associates, PC was contracted to complete a Phase II Site Assessment (PSA) at:

Robert E. and Janice G. Ashley Property
Parcel #025
PIN #: 3877-86-9530
NA Statesville Road, North Wilkesboro, NC 28659
Facility ID No.: N/A

This parcel is located along the eastern side of Statesville Road near the intersection with Hunter Road. The property is situated on the ridge crest approximately 600 feet west of Fishing Creek (Figure 1). Bedrock in the area is mapped as Henderson Gneiss, a biotitic augen gneiss (Rankin, D.W., Espenshade, G.H., Shaw, K.W., and Neumann, R.B.. Geologic map of the west half of the Winston-Salem quadrangle, North Carolina-Virginia, U.S. Geologic Survey Misc. Inv. Series Map I-709-B, 1975).

A Notice to Proceed was obtained from NCDOT on June 25, 2021. Our investigation included areas within the proposed easements and proposed and existing Right-of-Way (R/W) along the eastern side of Statesville Rd. (Figure 2). Our work was delayed because access to the southern portion of the property was blocked by abandoned vehicles. It is our understanding that the cars were placed on the property by the occupants of Parcel #018 and were only removed when the threat of a \$250-per-day fine was to be issued to the occupants. We were informed by the current property occupants that the cars were cleared at the end of July or the first of August, 2022.

The Phase II Site Assessment scope of work included completing a geophysical survey at the property to investigate the potential for unknown underground storage tanks and remnant infrastructure. Background research for this project included reviewing historic aerial photographs and NCDEQ databases.

2.0 Scope of Work

2.1 Background Research

According to Wilkes County Tax Administration records, the parcel is currently owned by Redmond Real Estate, LLC. Robert E. and Janice G. Ashley are listed as the owners of the property in NCDOT CAD and R/W Records. The property boundary also appears differently in the Wilkes County Tax Administration records. Available historic aerial photographs from the USGS EarthExplorer website and the ArcGIS Online website were reviewed.

The following NCDEQ databases were queried for incidents at Parcel #025:

- Dry Cleaners
- UST Incident Map
- Hazardous Waste Sites
- Active USTs
- UST Database

2.2 Geophysical Surveys

Seramur & Associates used the Pythagorean Theorem to establish three rectangular grids across the proposed Permanent Utility Easement (PUE), Temporary Construction Easement (E) and proposed and existing R/W for a geophysical survey at Parcel #025 (Figure 3). Grid 1 extends along the northwest side of the property and Grid 2 extends along the southwest side of the property, both bordering Statesville Road. Grid 3 covers the E east of Grids 1 and 2. Geophysical grid data was collected along transects at a two-foot spacing.

The magnetometer data was collected with a GEM Systems GSM-19W Walking Overhauser Magnetometer. This data was compiled in an Excel spreadsheet and hillshade maps of the magnetometer data were drafted using Golden Software's Surfer® modeling program (Figure 4). Ferrous objects in the subsurface are more magnetic than the surrounding soil and produce magnetic anomalies on the hillshade maps.

A Ground Penetrating Radar (GPR) survey was completed across the grids using a Geophysical Survey Systems, Inc. UtilityScan GPR System with a 350 MHz hyperstacking antenna. This GPR system is equipped with a calibrated survey wheel. The GPR data was downloaded and saved onto a computer. The GPR grid data has been processed and modeled using GPR Slice® software. The GPR data processing included adjusting time zero, completing a background removal and adjusting the time variable gain to enhance deep reflections. Three-dimensional models of the GPR grid data were produced with GPR Slice® software. Three time slices (or depth slices) were imaged in each grid at depths of 0.2 to 0.5 feet, 1.4 to 1.7 feet and 2.8 to 3.1 feet (Figures 5 through 7). Each depth slice is a horizontal slice or plan view of the reflections across a 0.3-foot thickness of the subsurface. For example, the deep GPR depth slices for the grids show reflections in the radar data between depths of 2.8 and 3.1 feet.

2.3 Plate 1 – Photographs of Parcel #025 - Photographs taken on August 16, 2022



Photo 1. Petroleum stains located on the southern edge of the property.



Photo 2. Collecting GPR data at Parcel #025.



Photo 3. Collecting magnetometer data at Parcel #025.

3.0 Results of Investigation

Parcel #025 is currently inactive but is being used to store tractor trailers along the east side of the property. Our government records search did not find any evidence that Parcel #25 had been used as a gas station in the past. This property is adjacent to an active gas station.

SAPC personnel made a pedestrian reconnaissance of the cleared property during a site visit on August 12, 2022. No evidence of a UST system was observed. On August 16, 2022 a local informant from the North Wilkesboro area stated that the property had not been used as a fuel station in the last 40 years.

3.1 Geophysical Surveys

The hillshade map of the magnetometer survey data (Figure 4) shows a series of small magnetic anomalies across the grid. Various small metal objects related to vehicles were strewn across the property at the time of our survey. There are no large anomalies that might indicate remnants of a former UST system.

The shallow GPR depth slice (0.2-0.5 feet) shows one area of medium to high amplitude reflections on the north side of Grid 1 (Figure 5). This is an area of landscaping and buried utilities. The GPR profile shows truncated shallow reflections and hyperbola between a depth of 1.0 and 2.5 feet (see Inset on Figure 5) that appear to be related to a covered storm drain. There are a few small, medium amplitude reflections dispersed across the grids that are not indicative of a UST system.

The intermediate GPR depth slice (1.4-1.7 feet) reflection patterns similar to the shallow depth slice (Figure 6). The sewer lines produced a linear, high amplitude reflection in the northeast corner of Grid 1. The deep GPR depth slice (2.8-3.1 feet) is relatively reflection-free except for the high amplitude reflection produced by the landscaped area/utilities in the northern edge of Grid 1 (Figure 7).

3.2 Conclusions

Parcel #025 is not currently active as a commercial business. It is being used to store tractor trailers along the east side of the property. Historical research has not shown that the property has ever operated as a gas station. The property is adjacent to an active gas station. Dozens of junk cars were recently removed from the property. A few areas of stained soil, likely from oil and fuel leaking from the cars, are present across the property. This petroleum impacted soil is likely limited to the surface.

4.0 Recommendations

Seramur & Associates does not recommend any further assessment work for Parcel #025.

Appendix A

Figures

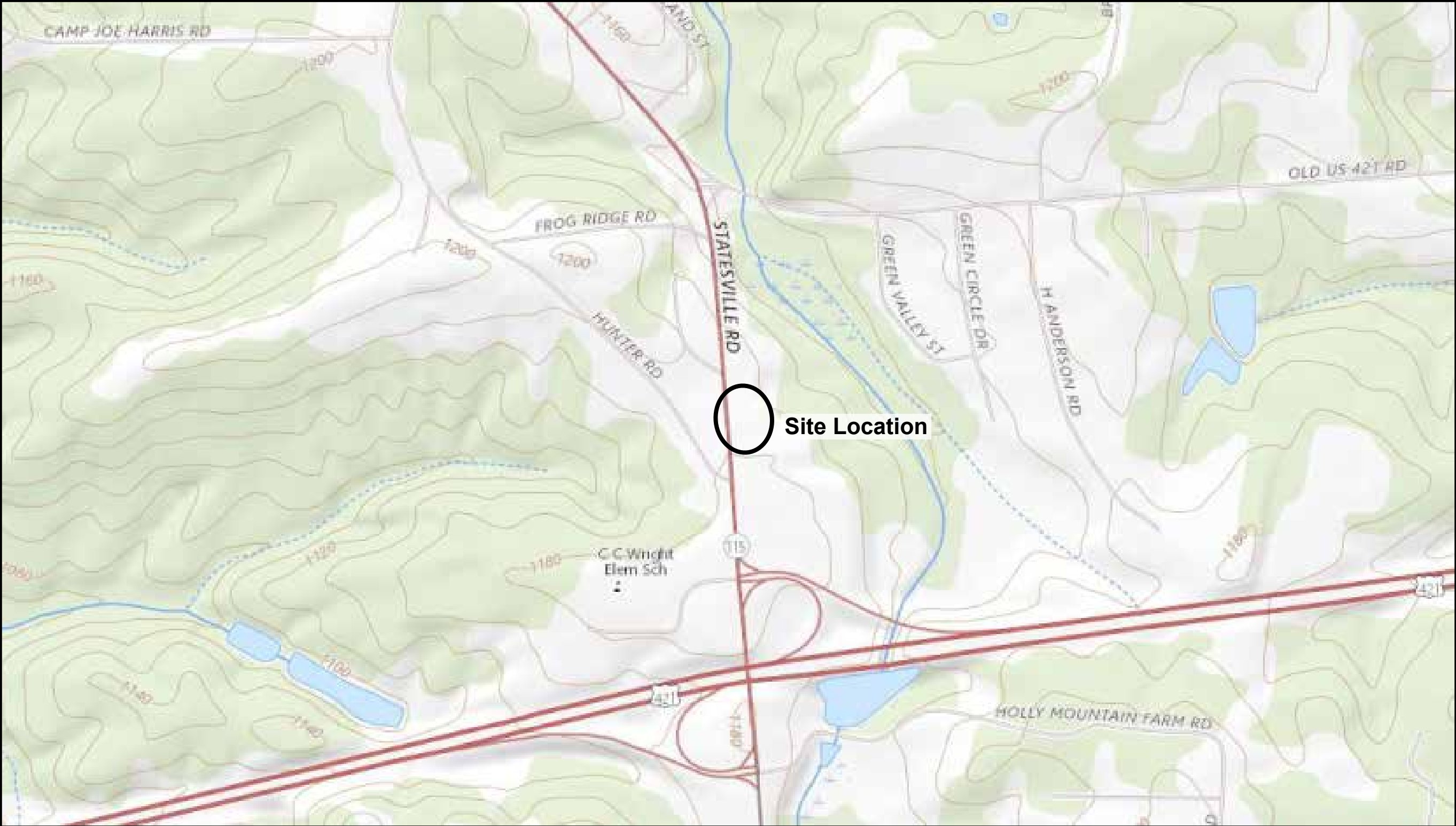
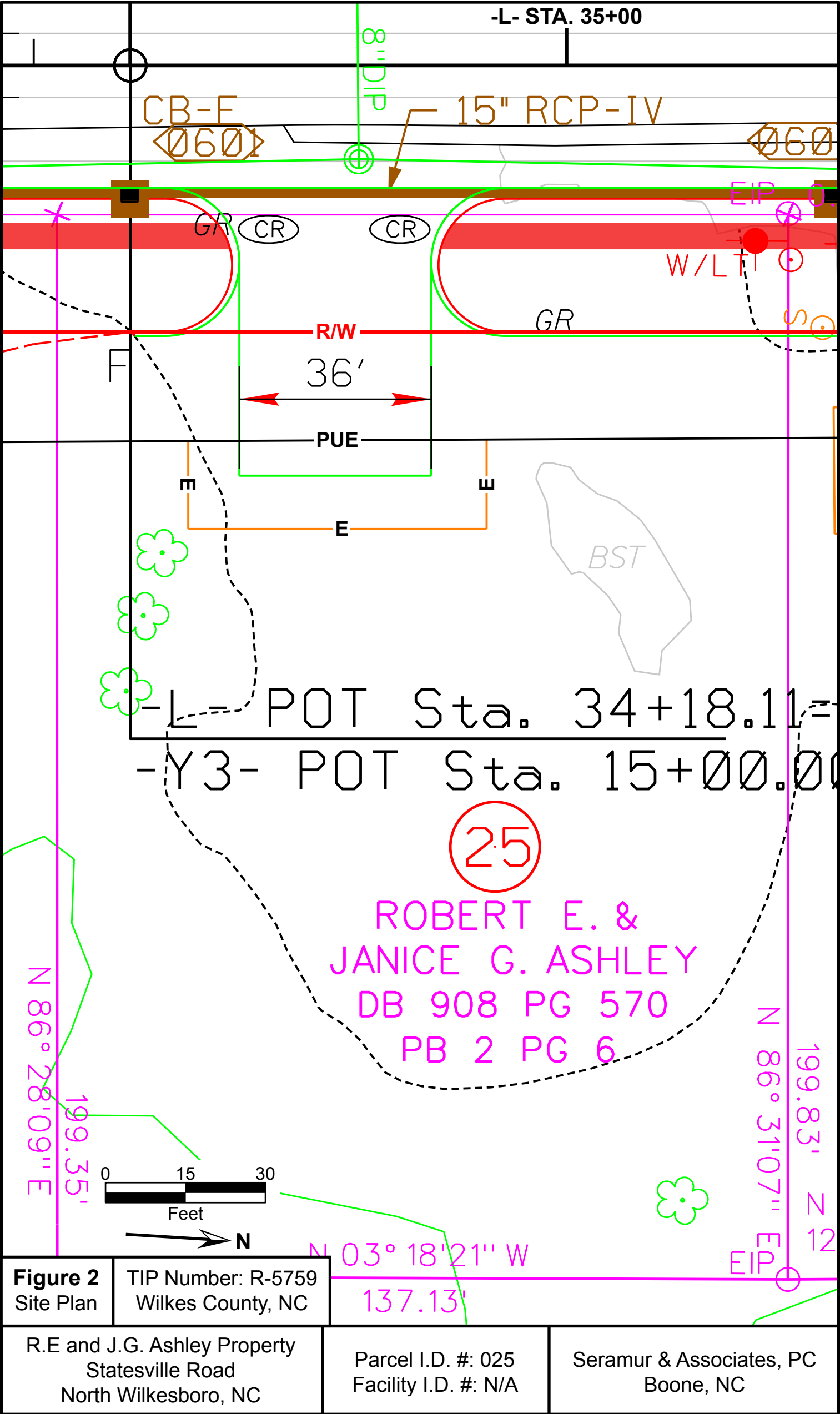


Figure 1 Site Location Map Source: U.S.G.S. The National Map	TIP Number: R-5759 Wilkes County, NC	R.E and J.G. Ashley Property Statesville Road North Wilkesboro, NC	Parcel I.D. #: 025 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC	0 400 800 Feet N
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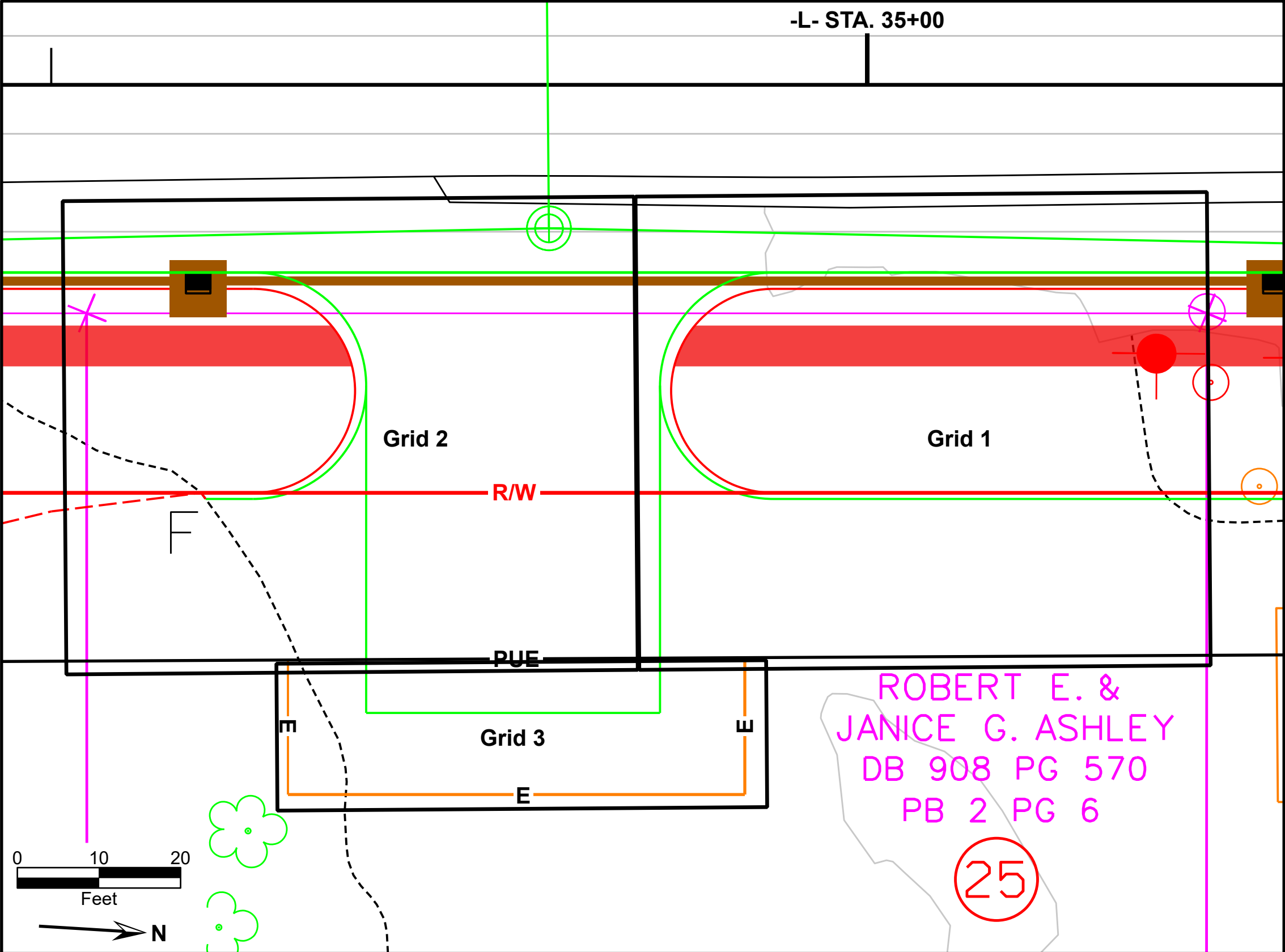


Figure 3 Site Plan with Geophysical Grid Locations	TIP Number: R-5759 Wilkes County, NC	R.E and J.G. Ashley Property Statesville Road North Wilkesboro, NC	Parcel I.D. #: 025 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC
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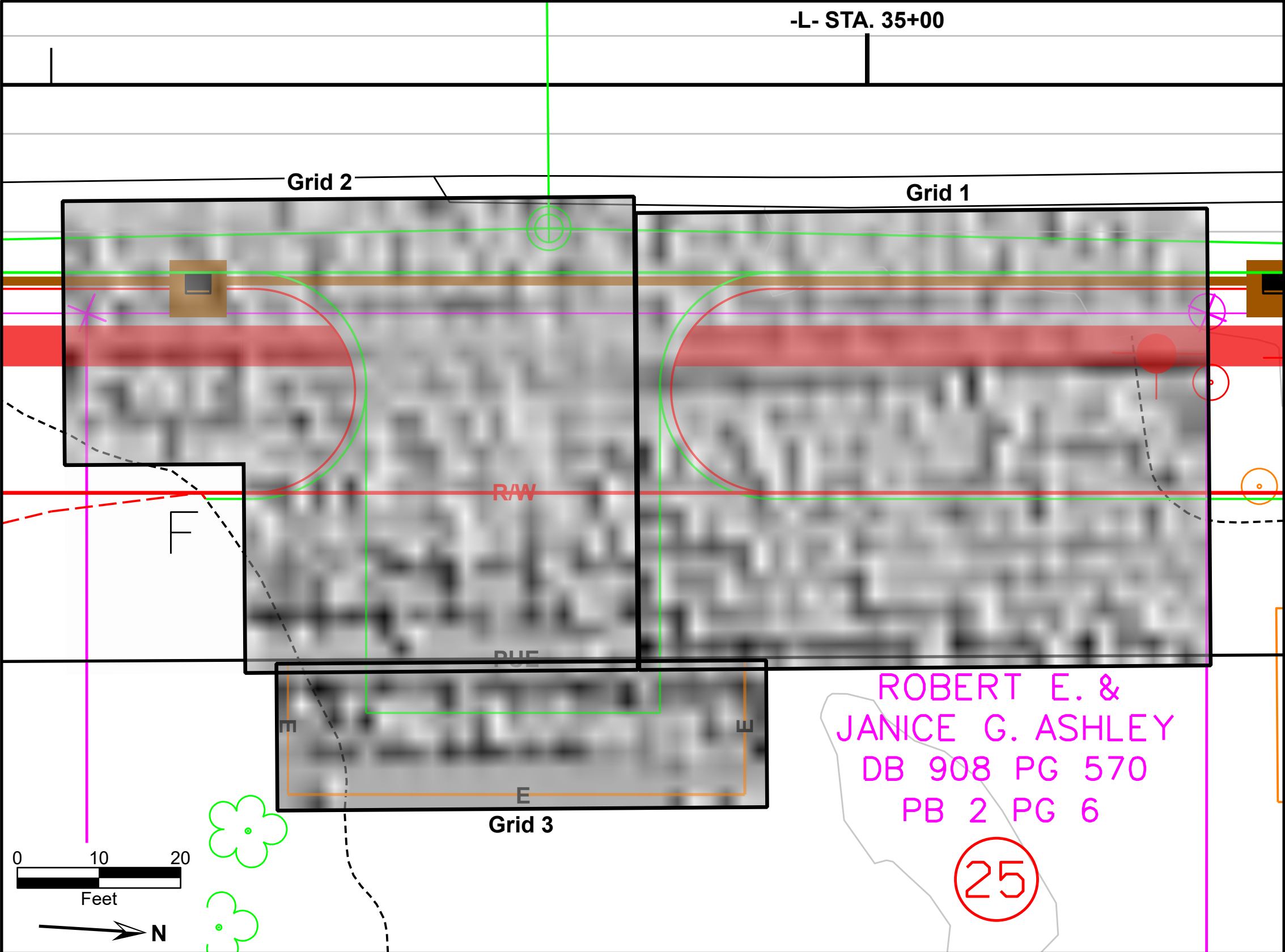


Figure 4 Magnetometer Survey Hillshade Map	TIP Number: R-5759 Wilkes County, NC	R.E and J.G. Ashley Property Statesville Road North Wilkesboro, NC	Parcel I.D. #: 025 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC
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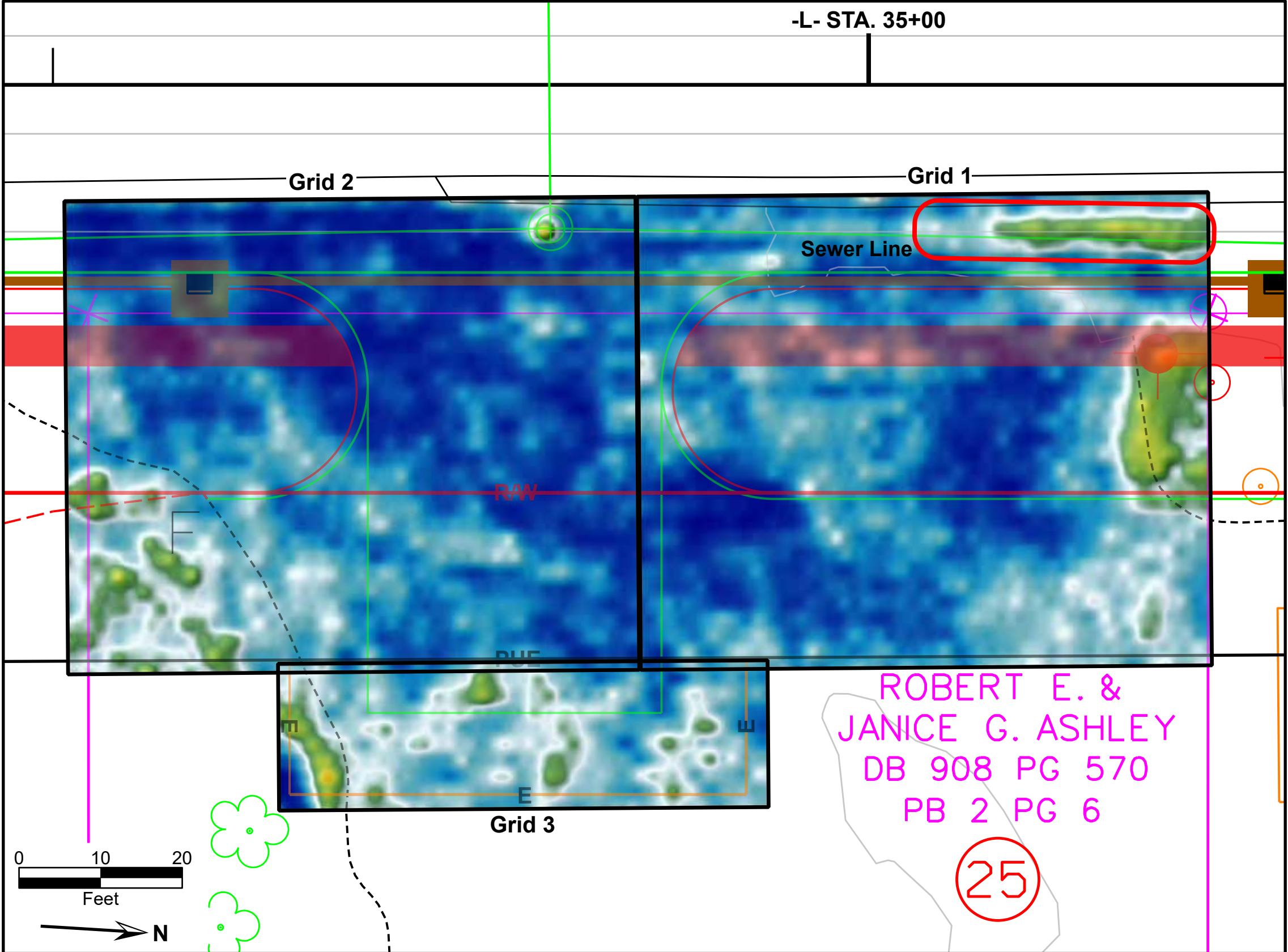
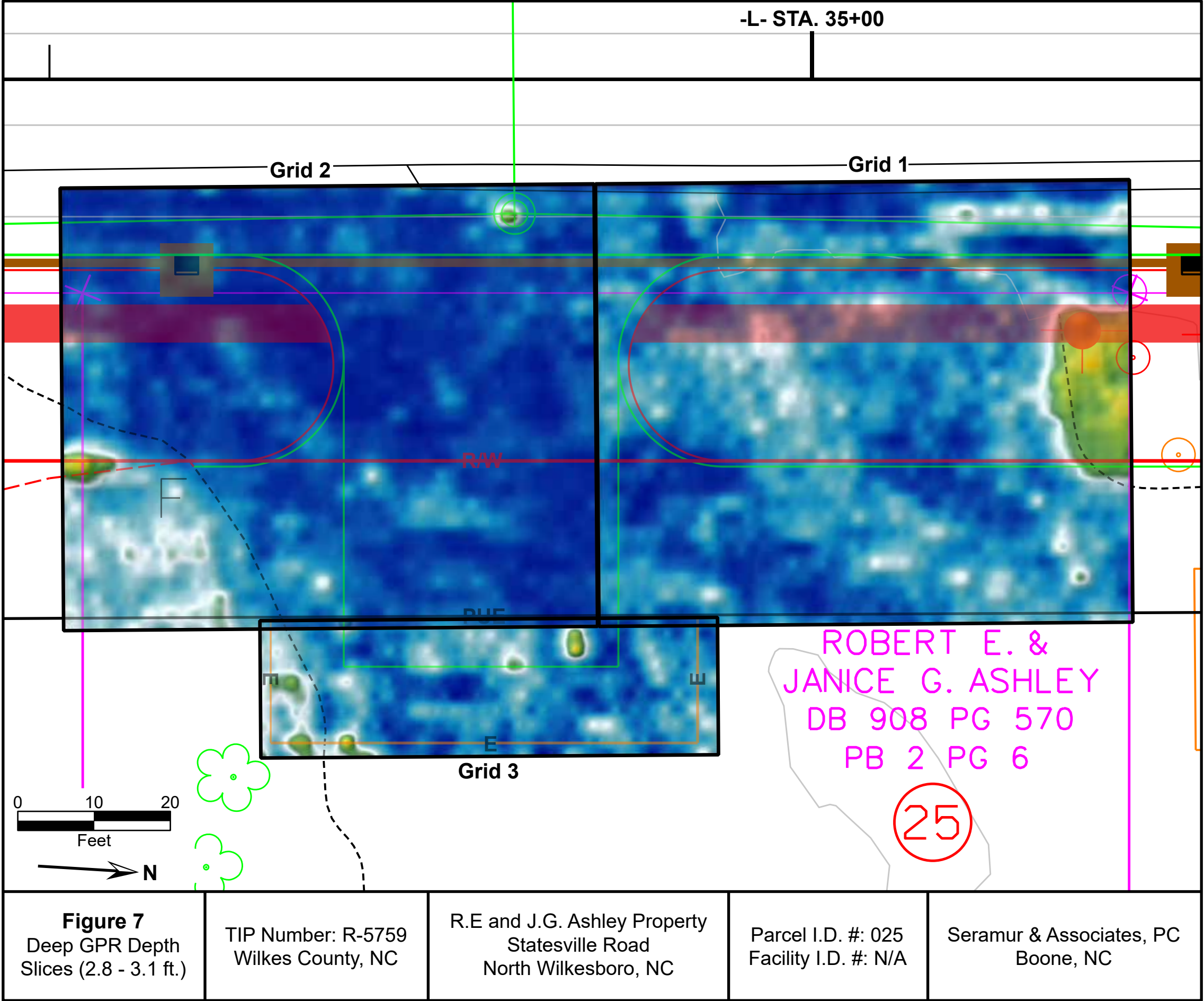


Figure 6 Intermediate GPR Depth Slices (1.4 - 1.7 ft.)	TIP Number: R-5759 Wilkes County, NC	R.E and J.G. Ashley Property Statesville Road North Wilkesboro, NC	Parcel I.D. #: 025 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC
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Phase II Site Assessment Report

August 16, 2021

WBS Element: 44691.1.1

State Project: R-5759

Wilkes County

at

Redmond Real Estate, LLC

Parcel #: 026

2633 Statesville Road; North Wilkesboro, NC, 28659

PIN #: 3877-86-9731

Facility ID No.: 00-0-0000006263

Groundwater Incident #: N/A

Prepared For:

Mr. Gordon Box

NCDOT, Geotechnical Engineering Unit

GeoEnvironmental Section

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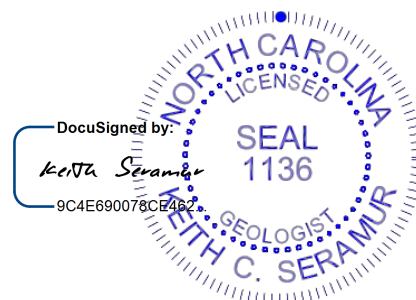
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1.0 Introduction

1.1 General Site Background Information

Seramur & Associates, PC was contracted to complete a Phase II Environmental Site Assessment at:

Parcel #: 026
Redmond Real Estate, LLC Property
2633 Statesville Road; North Wilkesboro, NC, 28659
PIN #: 3877-86-9731
Facility ID No.: 00-0-0000006263
Groundwater Incident #: N/A

Parcel #026 is located along the eastern side of Statesville Rd approximately 750 feet south of the intersection with Speedway Road. The property is situated at the top of the southwestern slope of the Fishing Creek stream valley, approximately 425 feet west of the stream. Bedrock in the area is mapped as Henderson Gneiss, a biotitic augen gneiss (Rankin, D.W., Espenshade, G.H., Shaw, K.W., and Neumann, R.B.. Geologic map of the west half of the Winston-Salem quadrangle, North Carolina-Virginia, U.S. Geologic Survey Misc. Inv. Series Map I-709-B, 1975).

A Notice to Proceed was obtained on June 25, 2021. Our area of investigation included the proposed Permanent Utility Easement (PUE) and proposed and existing Right-of-Way (R/W) along the eastern side of Statesville Rd. (Figure 2). The Phase II Site Assessment scope of work included completing a geophysical survey, soil sample collection and soil laboratory analysis. Geophysical investigations evaluate the potential for underground storage tanks and remnant UST system infrastructure. The purpose of soil analysis is to assess soil quality across the R/W and PUE (Figure 3). Background research for this project included reviewing historic aerial photographs and NCDEQ databases.

2.0 Scope of Work

2.1 Background Research

According to the Wilkes County Tax Administration records, this property is owned by Redmond Real Estate, LLC. Available historic aerial photographs from the USGS EarthExplorer website and Google Earth Pro were reviewed.

The following NCDEQ databases were queried for incidents at Parcel #026:

- Dry Cleaners
- Active USTs
- UST Incident Map
- UST Database
- Hazardous Waste Sites

2.2 Geophysical Surveys

Seramur & Associates collected eleven transects of geophysical data. All eleven of these were within the proposed R/W and Permanent Utility Easement (PUE) in the paved area parallel to Statesville Road (Figure 6). It was not possible to collect geophysical grid data because of the high traffic volume coming in and out of the station. There is a constant flow of automobile traffic with vehicles entering and leaving across the entire road frontage. Vehicles are usually parked along the R/W and PUE blocking access to the road frontage. GPR profiles were collected strategically across the R/W and PUE when an opening in the traffic allowed. It was not practical to collect magnetometer data at this property because of the high volume of traffic that would have skewed the magnetic readings. The Schonstedt magnetic detector was used to scan areas of interest.

A Ground Penetrating Radar (GPR) survey was completed across the transects using Geophysical Survey Systems, Inc. UtilityScan GPR System with a 350 MHz hyperstacking antenna. This GPR system is equipped with a calibrated survey wheel. The GPR data was downloaded and saved onto a computer. The GPR transect data has been processed and modeled using Radan® software. The GPR data processing included adjusting time zero, completing a background removal and adjusting the time variable gain to enhance deep reflections. The profiles of the GPR transects are shown in Figures 7a through 7e. Significant anomalies are notated on the profile images.

2.3 Soil Sampling and Analyses

On July 15, 2021 Carolina Soil Investigations, LLC mobilized to the site to drill Geoprobe borings and collect soil samples. Our project design typically calls for collecting a shallow and deep soil sample from each boring (Figure 3). The purpose of collecting samples at a depth of ~3.0 feet is to test for petroleum releases related to surface spills and releases from product lines. The purpose of collecting samples at a depth of ~8.0 feet is to test for petroleum releases related to underground storage tanks. Soil borings were drilled within the proposed R/W and PUE along Statesville Road.

A track mounted Geoprobe rig was used to drill fourteen soil borings. A new pair of Nitrile gloves was worn while collecting each soil sample. Twenty-nine soil samples in total were collected. A representative portion of each soil sample was placed in a zip lock bag and allowed to rest for a period of time to allow volatile vapors to accumulate in the headspace of the bag. A calibrated PhoCheck Tiger Photoionization Detector (PID) was used to screen the headspace in each bag and the concentration of volatile petroleum vapors was measured and recorded (Table 1). The texture and type of soil material in the Geoprobe cores was described and recorded. Table 1 lists the boring data including sample number, depth, PID reading, lithology, and type of soil material.

REDLab, LLC provided onsite laboratory analyses for the soil samples collected from the Geoprobe cores. REDLab analyzed the soil samples for petroleum constituents by Ultra-Violet Fluorescence using a QED HC-1 analyzer. The analytical results are reported as Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) and Total Petroleum Hydrocarbons

(TPH). REDLab provided a hydrocarbon spectrum with each of the sample results. This spectrum is used for a tentative identification of the type of hydrocarbon detected by the analytical method. A hydrocarbon fingerprint is interpreted by REDLab for each sample using a library search of spectra for known hydrocarbon types and concentrations. The laboratory reports and fingerprint spectra are included in Appendix B.

2.4 Plate 1– Photographs of Parcel #026 (taken on July 15, 2021)



Photos 1 & 2. Images of the current fuel pumps, both gasoline (left) and diesel (right).
Transect starting points (left) and Boring B-14 (right) are also visible.

Photo 3. Using the GPR to clear locations for potential borings



Photo 4. Location of probable product lines from former likely UST system
originating from Parcel #027.



Photo 5. Additional fuel oil UST on the south side
of the gas station. Tank is outside of the R/W and PUE.

3.0 Results of Investigation

Parcel #026 currently operates as a Valero Gas Station and convenience store. A 1963 aerial photograph shows that the east side of Statesville Road had been developed and Parcel #026 was a gas station at that time. The NCDEQ Registered Tanks Database details the UST system on the site (Table 2). The Underground Storage Tank Incident database does not show any

record of previous release incidents at this property. According to the Registered Tanks Database, the old tank system was supposedly installed in 1973 and removed in 1989. The new tanks are located off the southwest corner of the store and have been in the ground since 1989.

SAPC personnel made a pedestrian reconnaissance of the property during the initial site visit on June 29, 2021. The existing UST system was observed west of the store and the fill and vent pipes for an apparent heating oil UST were observed on the south side of the building (Photo 5 on Plate 1).

3.1 Geophysical Surveys

The only anomalies of interest imaged in Transects 1, 2 and 11 were utility lines (Figure 7a, 7b and 7e). The four existing USTs were imaged on Transect 4 and remnant product lines from the former UST system were imaged on Transects 3 and 5 (Figure 7c). The former product lines extend to the north onto Parcel 27 (Figure 6). The diesel dispenser is south of the existing USTs. The diesel product lines and a sewer line were imaged on Transects 7, 8 and 9 (Figure 7d). Utility lines and the sewer line were imaged on Transect 10 (Figure 7e). The Schonstedt magnetic locator did not produce readings indicative of an unknown UST within the PUE or R/W.

The geophysical survey did not find evidence of unknown USTs within the PUE or R/W.

3.2 Soil Borings, Sampling and Laboratory Analysis

The soil at Parcel #026 consists of fill material over residuum (saprolite) (Table 1). The fill material and the residuum are primarily sandy silt and silt loam. Some shallow samples had small amounts of gravel within sandy silt. Groundwater was not encountered at this site. A soil sample was collected from the shallow and deep portions of the Geoprobe cores at each boring. Fourteen borings were drilled, and twenty-nine soil samples were collected. Twenty seven of these soil samples were analyzed for TPH-GRO and DRO (Table B-3).

Borings B-1 through B-14 were drilled within the proposed R/W and existing PUE. The PUE stretches across the center of the parcel along the west side of the pumps. Soil borings were distributed in a manner that avoided the utility lines and UST system components (Figure 5). Although all the Geoprobe cores smelled strongly of petroleum, petroleum constituents were only detected above NCDEQ UST Action Levels in the 8 foot soil sample collected from boring B-12 (Table B-3 and Figure 4). Soil contamination defined as TPH-GRO over 50 ppm and TPH-DRO over 100 ppm is thought to extend around the existing pumps along the eastern side of Statesville Road. The area of contaminated soil is approximately 1,053.2 square feet (Figure 5). A thickness of five feet will be used to estimate the volume of contaminated soil in the PUE and R/W. The estimated volume of contaminated soil is calculated as follows:

$$\begin{aligned} 5.0 \text{ ft.} \times 1053.2 \text{ ft}^2 &= 5,266 \text{ ft}^3 \\ 5,266 \text{ ft}^3 / 27.0 \text{ ft}^3/\text{yd}^3 &= 195.0 \text{ yd}^3 \\ 195.0 \text{ yd}^3 \times 1.5 \text{ tons}/\text{yd}^3 &= 292.5 \text{ tons} \end{aligned}$$

The total volume of contaminated soil detected at Parcel #026 is estimated to be 195.0 yd³ or 292.5 tons.

3.3 Conclusions

Parcel #026 is currently a Valero Gas Station. The geophysical surveys did not image anomalies consistent with unknown USTs. Petroleum constituents were detected above the UST Action Levels in one of the soil samples analyzed at Parcel #026. There was no observed evidence of existing or previous UST systems at this property.

4.0 Recommendations

Contaminated soil is present in the PUE around the gasoline dispenser island. Seramur & Associates does not recommend any further assessment work for Parcel #026. Per a note on the CAD Files for Parcel #026, the UST system is not to be disturbed. It is our understanding that this would include the fuel dispensers as well. If soil disturbance occurs within the PUE where there is known contamination, Seramur & Associates recommends that a licensed geologist or engineer supervise the removal of any soil associated with excavation work in the vicinity of boring B-12 and the gasoline fuel dispensers. Contaminated soil removed from Parcel #026 should be transported to a remediation facility.

Appendix A

Tables and Figures

Table 1. Soil Boring Data - Parcel #026						
Boring No.	Depth (ft)	Lithology	Soil Type	Soil Sample	PID ppm	Comments
B-1	0.0 to 2.5	Sandy silt	Fill	N/A	N/A	
B-1	2.5 to 5.0	Silt loam	Residuum	S-1	1.8	Sample at 3.0 feet.
B-1	5.0 to 10.0	Silt loam	Residuum	S-2	3.4	Sample at 9.0 feet.
B-2	0.0 to 1.0	Sand w/ gravel	Fill	N/A	N/A	
B-2	1.0 to 5.0	Silt loam	Residuum	S-3	3.7	Sample at 3.0 feet.
B-2	5.0 to 10.0	Silt loam	Residuum	S-4	5.5	Sample at 9.0 feet.
B-3	0.0 to 1.0	Sandy silt w/ gravel	Fill	N/A	N/A	
B-3	1.0 to 5.0	Silt loam	Residuum	S-5	7.2	Sample at 3.0 feet.
B-3	5.0 to 10.0	Silt loam	Residuum	S-6	3.5	Sample at 8.0 feet.
B-4	0.0 to 1.0	Sandy silt w/ gravel	Fill	N/A	N/A	
B-4	1.0 to 5.0	Silt loam	Residuum	S-7	5.2	Sample at 3.0 feet.
B-4	5.0 to 10.0	Silt loam	Residuum	S-8	4.0	Sample at 8.0 feet.
B-5	0.0 to 5.0	Sandy silt	Fill	S-9	3.6	Sample at 3.0 feet.
B-5	5.0 to 7.5	Sandy silt	Fill	N/A	N/A	
B-5	7.5 to 10.0	Silt loam	Residuum	S-10	2.9	Sample at 8.0 feet.
B-6	0.0 to 5.0	Sandy silt	Fill	S-11 / S-12	1.5 / 1.5	Samples at 0.5 and 3.0 feet. Shallow stained soil.
B-6	5.0 to 10.0	Sandy silt	Fill	S-13	0.0	Sample at 8.0 feet.
B-7	0.0 to 5.0	Sandy silt	Fill	S-14	0.8	Sample at 3.0 feet.
B-7	5.0 to 10.0	Sandy silt	Fill	S-15	0.5	Sample at 8.0 feet.
B-8	0.0 to 5.0	Sandy silt	Fill	S-16	0.4	Sample at 3.0 feet.
B-8	5.0 to 10.0	Sandy silt	Fill	S-17	0.4	Sample at 8.0 feet.
B-9	0.0 to 5.0	Sandy silt	Fill	S-18	2.3	Sample at 3.5 feet.
B-9	5.0 to 7.0	Sandy silt	Fill	N/A	N/A	
B-9	7.0 to 10.0	Silt loam	Residuum	S-19	3.2	Sample at 8.5 feet.
B-10	0.0 to 3.0	Sandy silt	Fill	N/A	N/A	
B-10	3.0 to 5.0	Silt loam	Residuum	S-20	5.6	Sample at 3.5 feet.
B-10	5.0 to 10.0	Silt loam	Residuum	S-21	5.9	Sample at 9.0 feet.
B-11	0.0 to 3.0	Sandy silt	Fill	N/A	N/A	
B-11	3.0 to 5.0	Silt loam	Residuum	S-22	14.4	Sample at 3.5 feet.
B-11	5.0 to 10.0	Silt loam	Residuum	S-23	23.1	Sample at 7.5 feet.
B-12	0.0 to 1.5	Sandy silt	Fill	N/A	N/A	
B-12	1.5 to 5.0	Silt loam	Residuum	S-24	29.3	Sample at 2.5 feet.
B-12	5.0 to 10.0	Silt loam	Residuum	S-25	18.6	Sample at 8.0 feet.
B-13	0.0 to 1.5	Sandy silt	Fill	N/A	N/A	
B-13	1.5 to 5.0	Silt loam	Residuum	S-26	14.8	Sample at 2.5 feet.
B-13	5.0 to 10.0	Silt loam	Residuum	S-27	4.4	Sample at 8.0 feet.
B-14	0.0 to 5.0	Sandy silt	Fill	S-28	3.9	Sample at 1.0 feet. Shallow stained soil.
B-14	5.0 to 9.0	Sandy silt	Fill	S-29	0.2	Sample at 8.0 feet.
B-14	9.0 to 10.0	Silt loam	Residuum	N/A	N/A	

Table 2. UST Information						
Facility ID	Facility Name	Address1	City	Zip	Contact	Contact City
00-0-0000006263	RUN-IN 804	2633 STATESVILLE RD	N. WILKESBORO	28659	RAYMER OIL COMPANY	STATESVILLE
Tank ID	Installation Date	Perm Close Date	Capacity	Commercial	Product Name	Tank Status
1	4/25/1973	12/1/1989	3000	Y	Gasoline, Gas Mix	Removed
2	4/25/1973	12/1/1989	3000	Y	Gasoline, Gas Mix	Removed
3	4/25/1973	12/1/1989	2000	Y	Gasoline, Gas Mix	Removed
4	4/25/1973	12/1/1989	560	Y	Kerosene, Kero Mix	Removed
A1	12/1/1989	N/A	6000	Y	Gasoline, Gas Mix	Current
A2	12/1/1989	N/A	6000	Y	Gasoline, Gas Mix	Current
A3	12/1/1989	N/A	6000	Y	Gasoline, Gas Mix	Current
A4	12/1/1989	N/A	1000	Y	Diesel	Current
A5	12/1/1989	N/A	560	Y	Kerosene, Kero Mix	Current

Table B-3: Summary of Soil Sampling Results

Revision Date: 07/15/21

Incident Name: Parcel #026

Analytical Method (e.g., VOC by EPA 8260) →					UVF	UVF
Contaminant of Concern →					TPH GRO (mg/kg)	TPH DRO (mg/kg)
Sample ID	Date Collected (mm/dd/yy)	Source Area	Sample Depth (ft. BGS)	Incident Phase		
S-1	07/15/21	B-1	3.0	Phase II	<0.4	3.1
S-2	07/15/21	B-1	9.0	Phase II	14	8.2
S-3	07/15/21	B-2	3.0	Phase II	3.2	2.7
S-4	07/15/21	B-2	9.0	Phase II	<0.5	0.5
S-5	07/15/21	B-3	3.0	Phase II	<0.5	2.9
S-6	07/15/21	B-3	8.0	Phase II	7.7	4.0
S-7	07/15/21	B-4	3.0	Phase II	<0.6	1.6
S-8	07/15/21	B-4	8.0	Phase II	<0.4	<0.19
S-9	07/15/21	B-5	3.0	Phase II	<0.5	1.0
S-10	07/15/21	B-5	8.0	Phase II	<0.5	<0.21
S-11	07/15/21	B-6	0.5	Phase II	<0.5	3.5
S-12	07/15/21	B-6	3.0	Phase II	0.9	1.2
S-13	07/15/21	B-6	8.0	Phase II	<0.5	0.3
S-14	07/15/21	B-7	3.0	Phase II	<0.5	0.3
S-15	07/15/21	B-7	8.0	Phase II	<0.5	<0.23
S-16	07/15/21	B-8	3.0	Phase II	<0.5	0.3
S-17	07/15/21	B-8	8.0	Phase II	<0.5	1.2
S-18	07/15/21	B-9	3.5	Phase II	5.8	2.5
S-19	07/15/21	B-9	8.5	Phase II	<0.5	6.6
S-20	07/15/21	B-10	3.5	Phase II	<0.4	12.3
S-21	07/15/21	B-10	9.0	Phase II	2.2	2.5
S-22	07/15/21	B-11	3.5	Phase II	13.1	5.1
S-23	07/15/21	B-11	7.5	Phase II	25.2	3.7
S-24	07/15/21	B-12	2.5	Phase II	8.6	3.6
S-25	07/15/21	B-12	8.0	Phase II	1,339	104.5
S-27	07/15/21	B-13	8.0	Phase II	<0.5	0.22
S-28	07/15/21	B-14	1.0	Phase II	1.7	2.9
NC DEQ Action Level (mg/kg)					50	100

ft. BGS = feet below ground surface

mg/kg = milligrams per kilogram

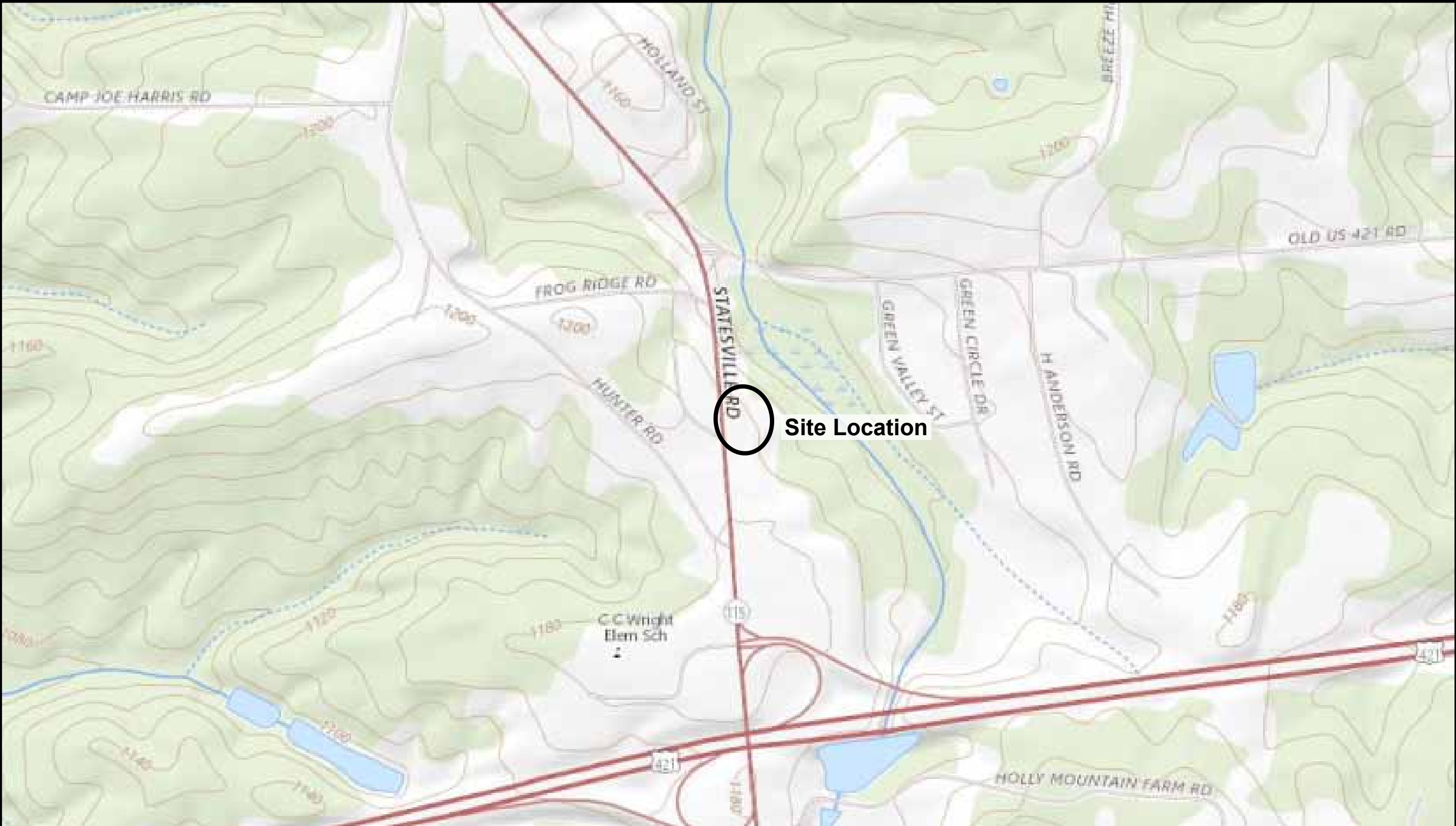
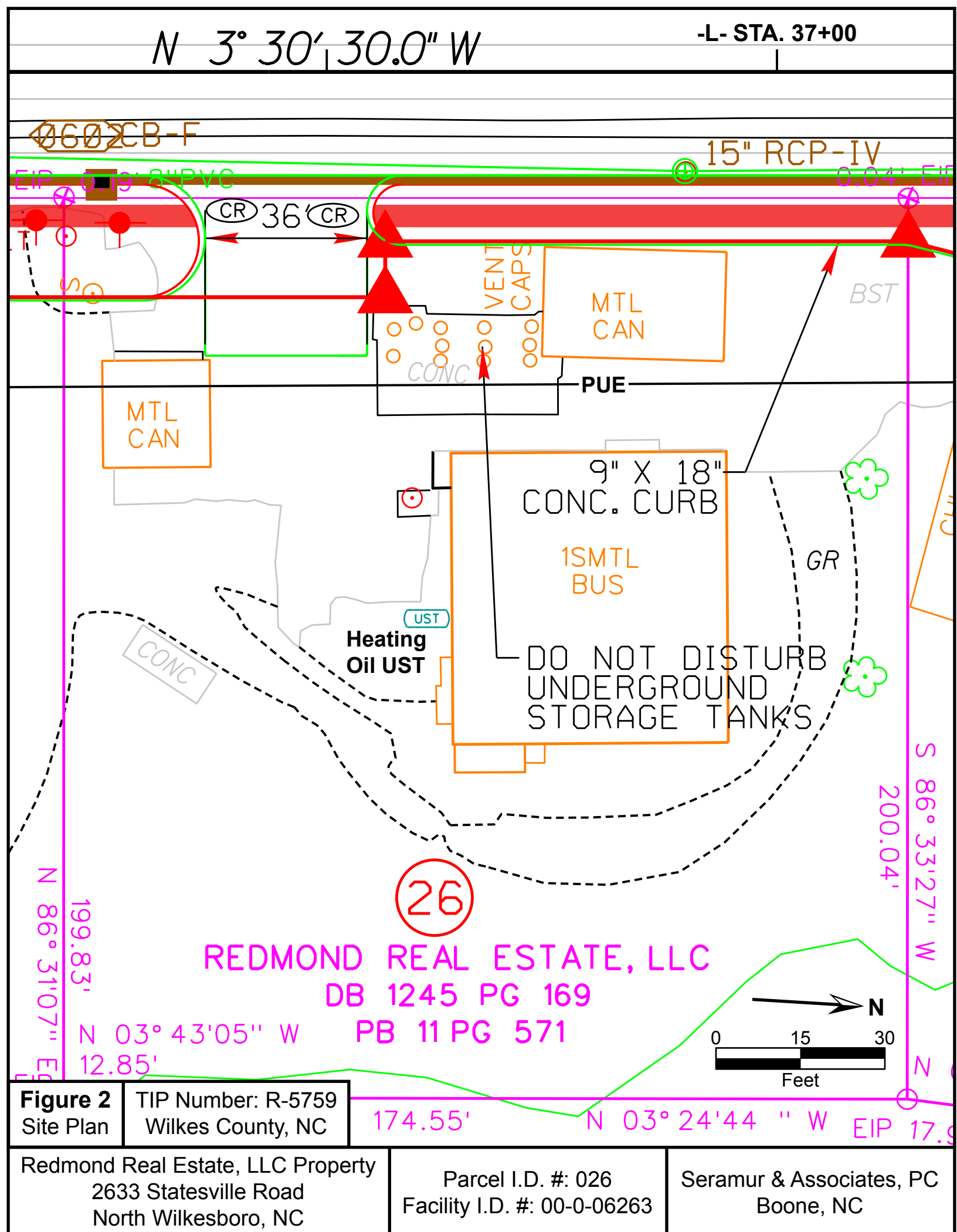


Figure 1 Site Location Map Source: U.S.G.S. The National Map	TIP Number: R-5759 Wilkes County, NC	Redmond Real Estate, LLC Property 2633 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 026 Facility I.D. #: 00-0-06263	Seramur & Associates, PC Boone, NC	0 400 800 Feet N
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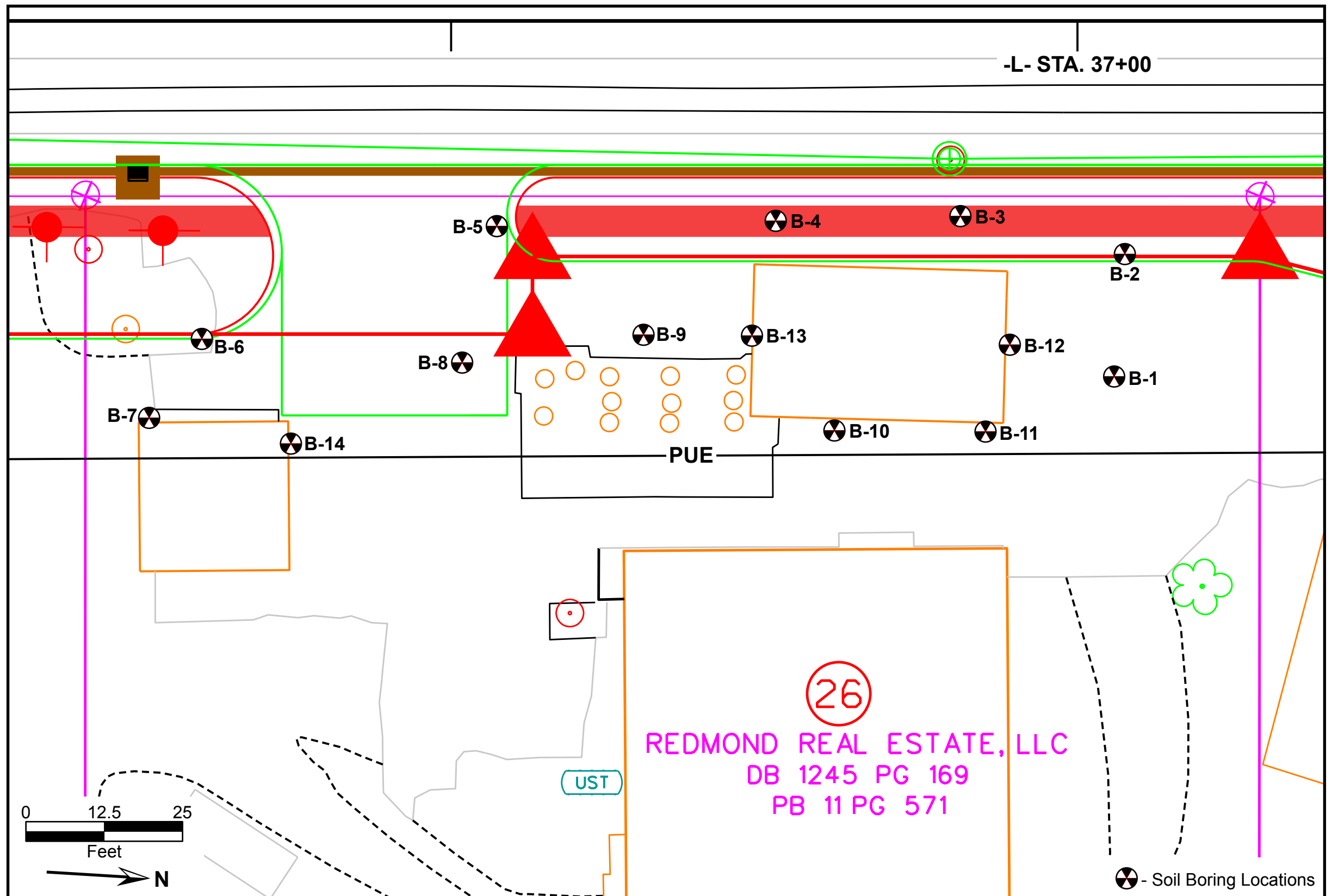


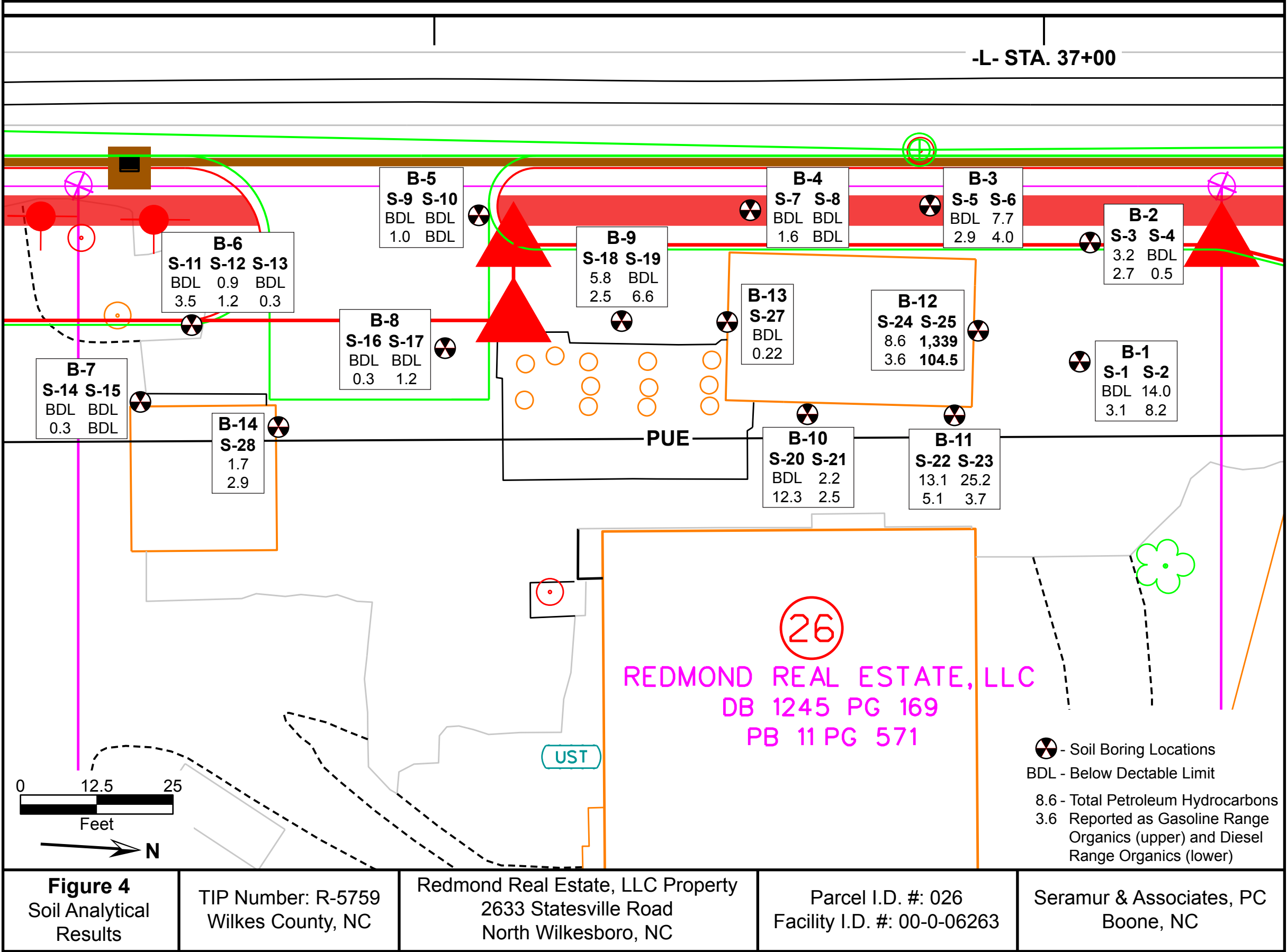
Figure 3
Site Plan with Soil
Boring Locations

TIP Number: R-5759
Wilkes County, NC

Redmond Real Estate, LLC Property
2633 Statesville Road
North Wilkesboro, NC

Parcel I.D. #: 026
Facility I.D. #: 00-0-06263

Seramur & Associates, PC
Boone, NC



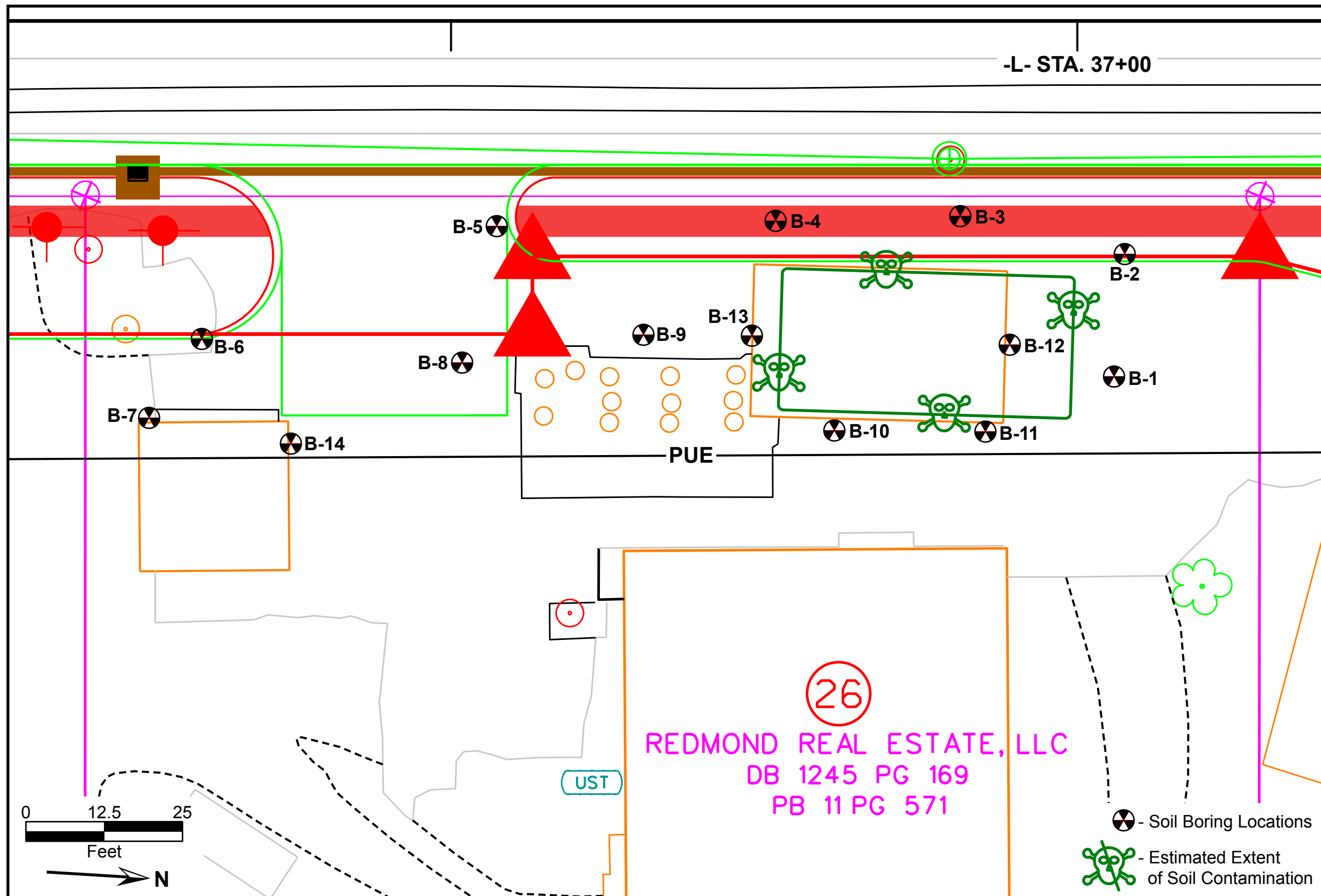
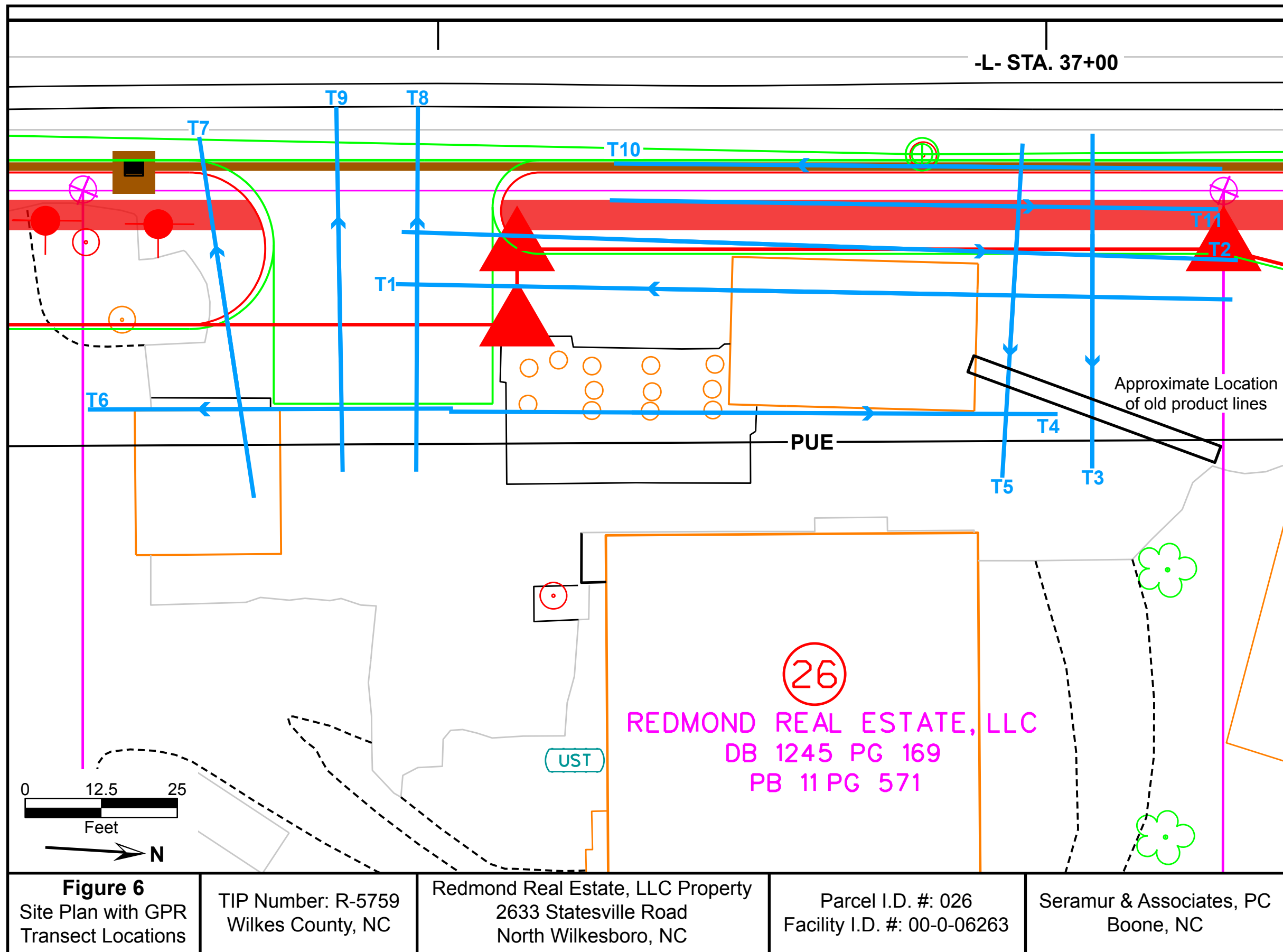


Figure 5 Estimated Extent of Contaminated Soil	TIP Number: R-5759 Wilkes County, NC	Redmond Real Estate, LLC Property 2633 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 026 Facility I.D. #: 00-0-06263	Seramur & Associates, PC Boone, NC
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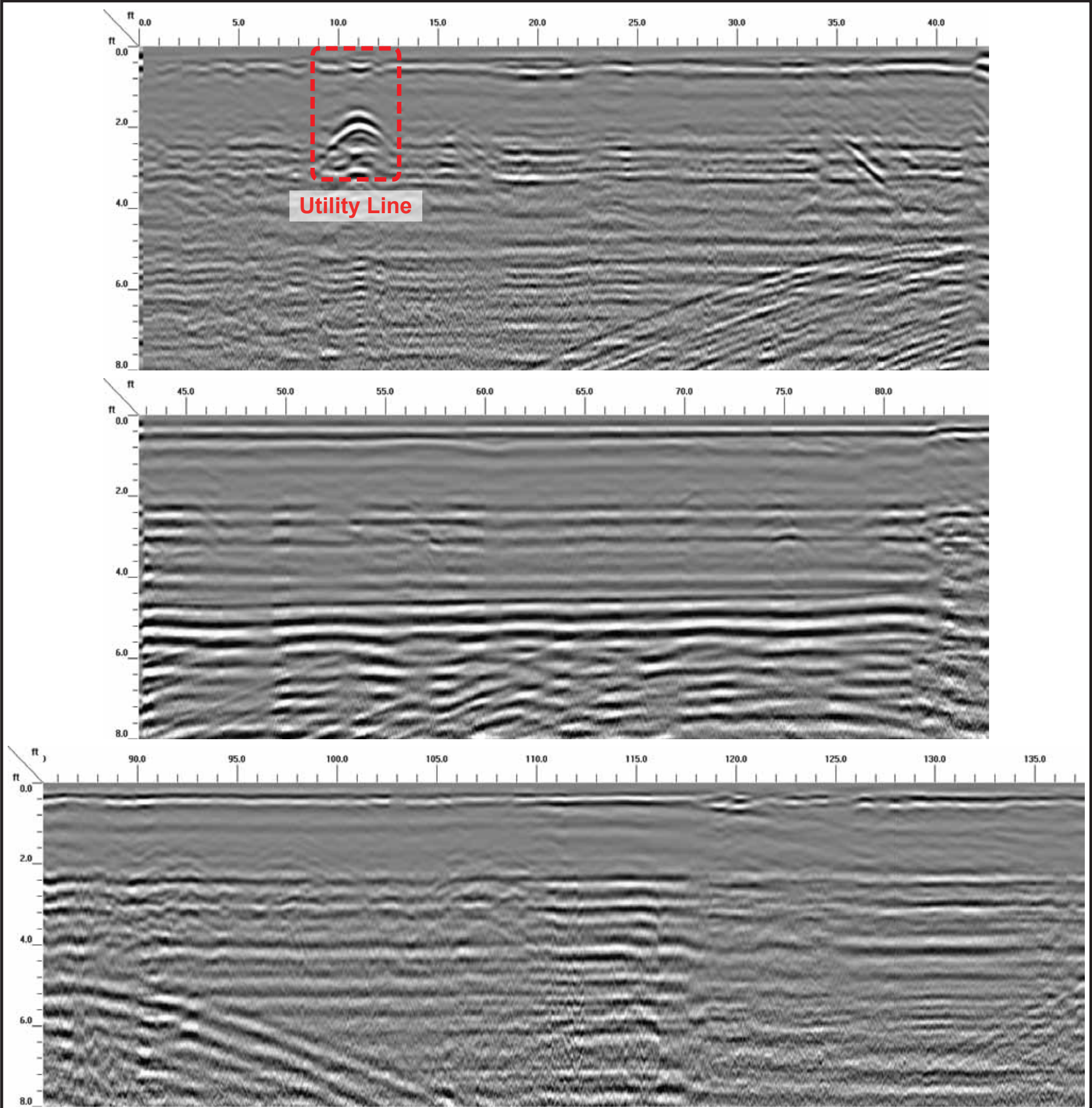


Figure 7a GPR Transect 1	TIP Number: R-5759 Wilkes County, NC	Redmond Real Estate, LLC Property 2633 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 026 Facility I.D. #: 00-0-06263	Seramur & Associates, PC Boone, NC
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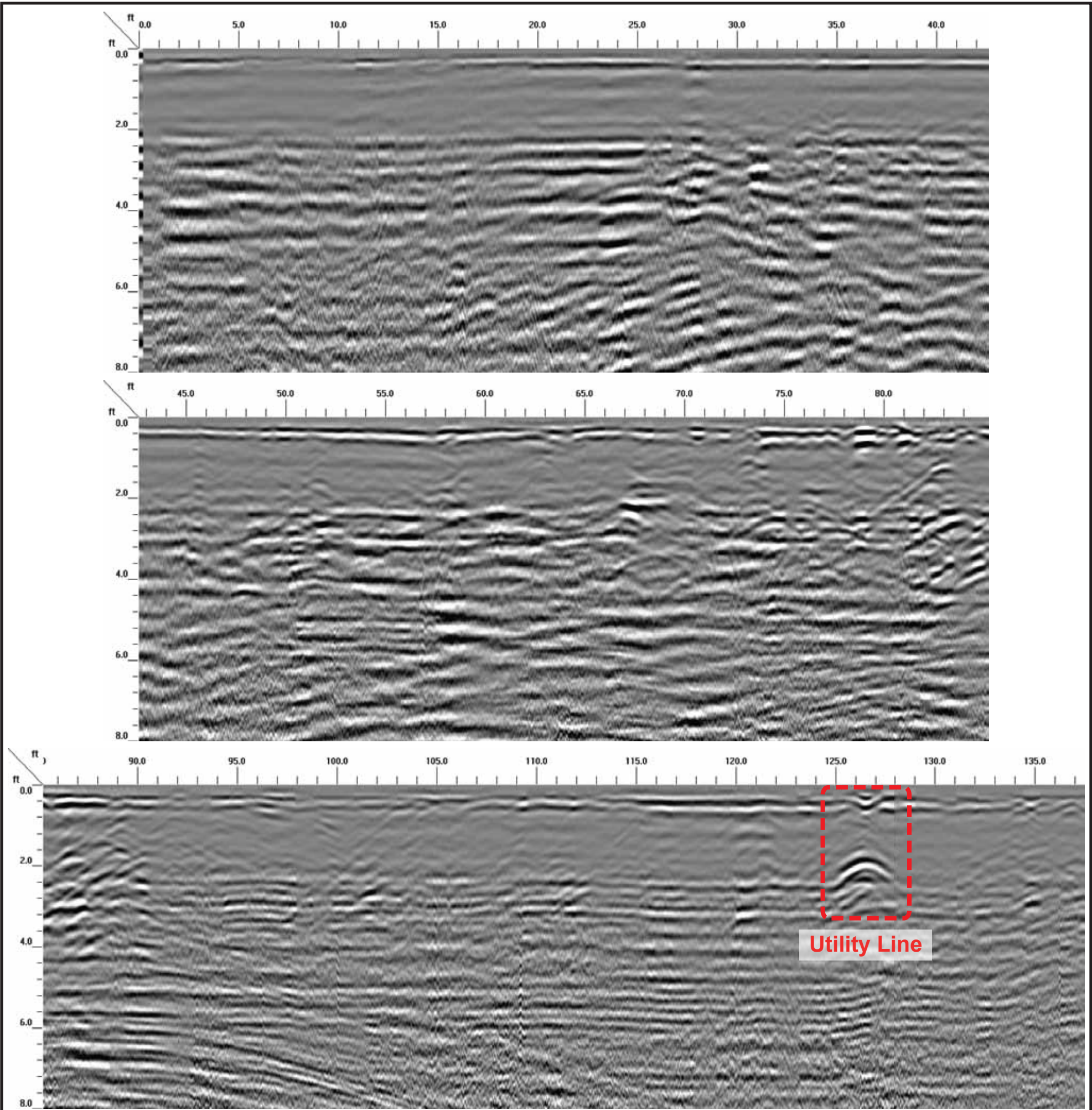
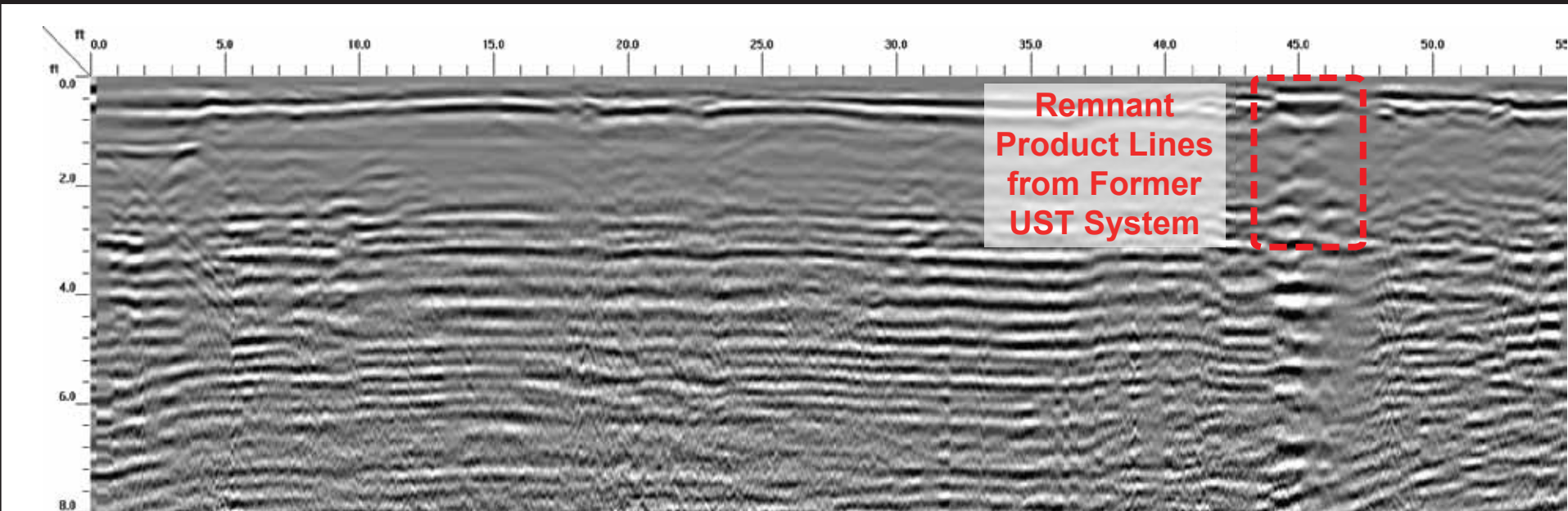
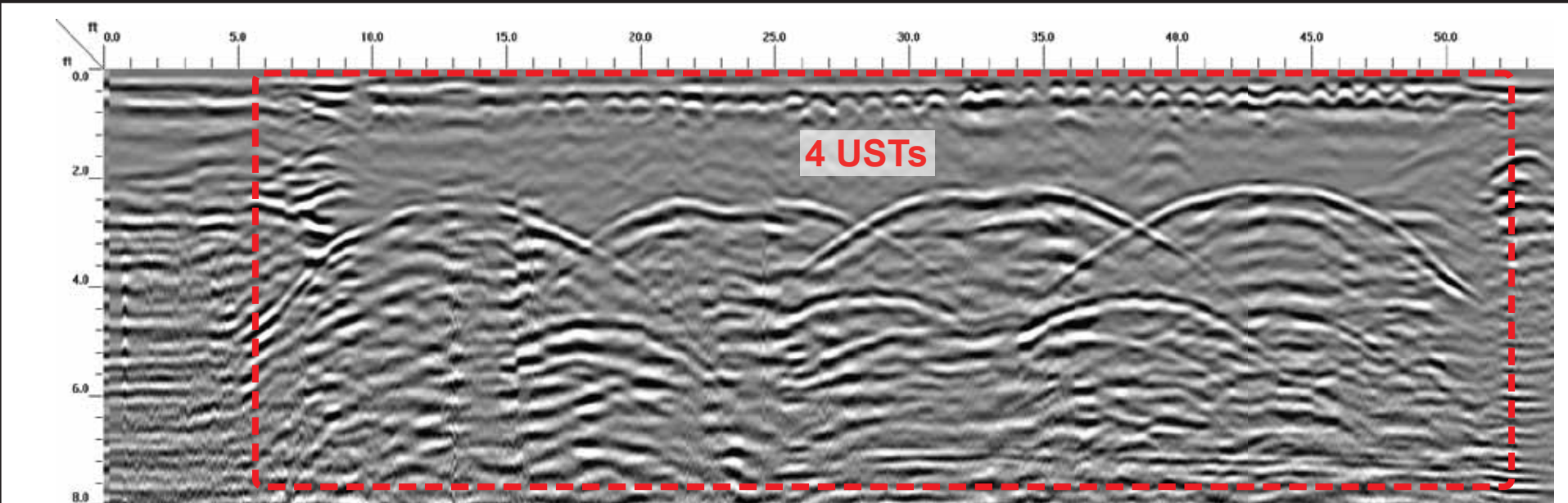


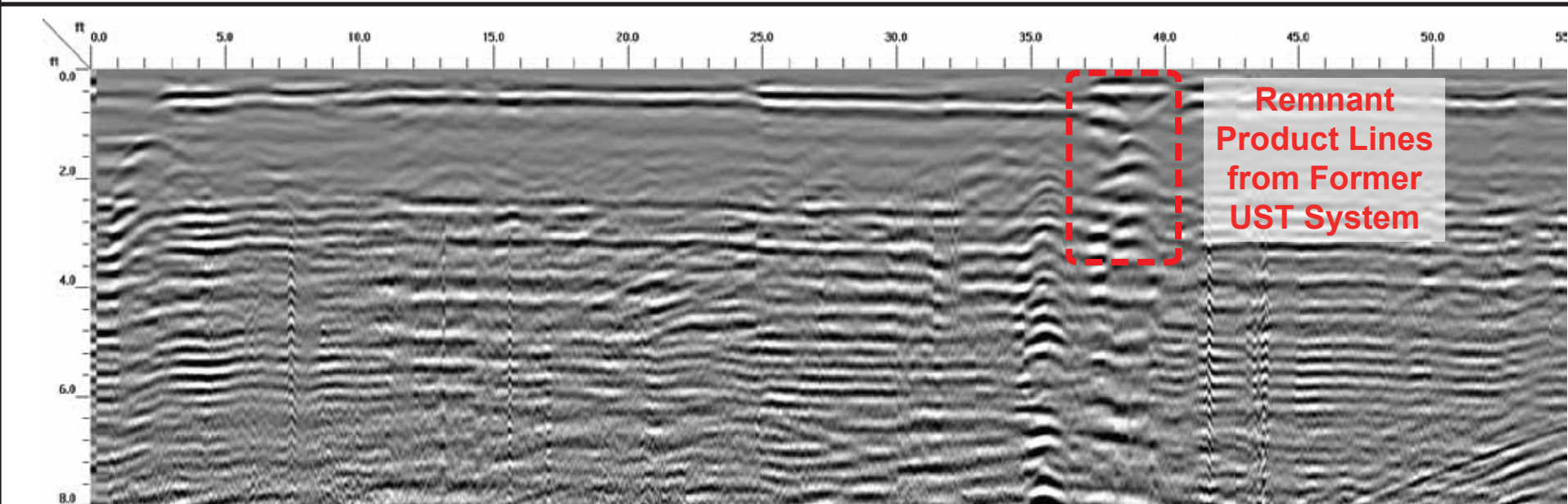
Figure 7b GPR Transect 2	TIP Number: R-5759 Wilkes County, NC	Redmond Real Estate, LLC Property 2633 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 026 Facility I.D. #: 00-0-06263	Seramur & Associates, PC Boone, NC
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Transect 3

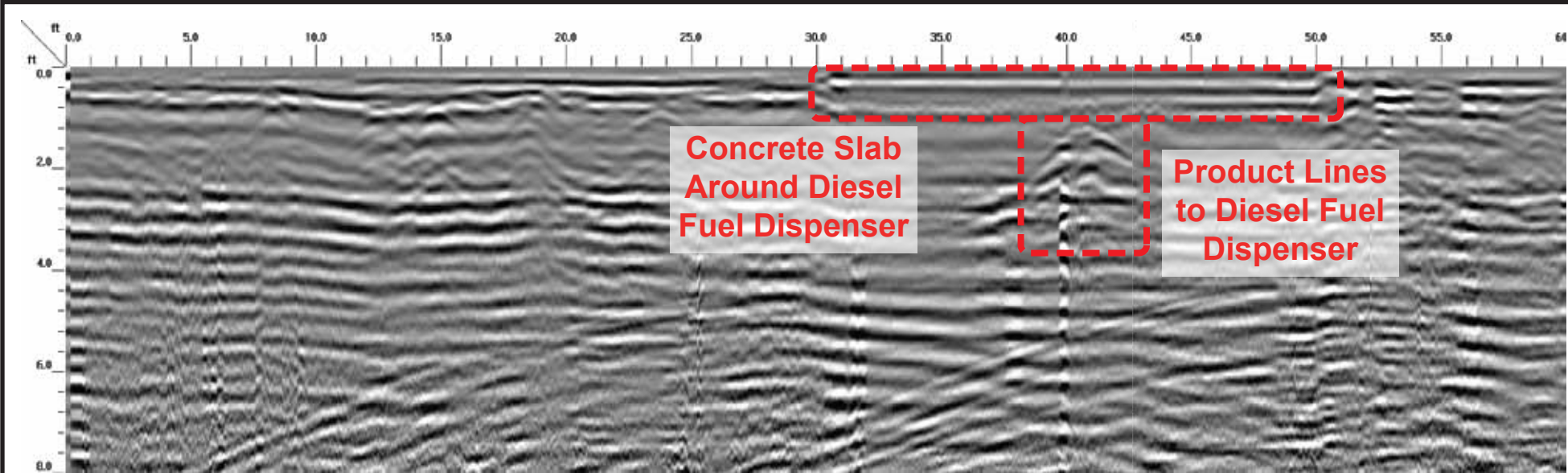


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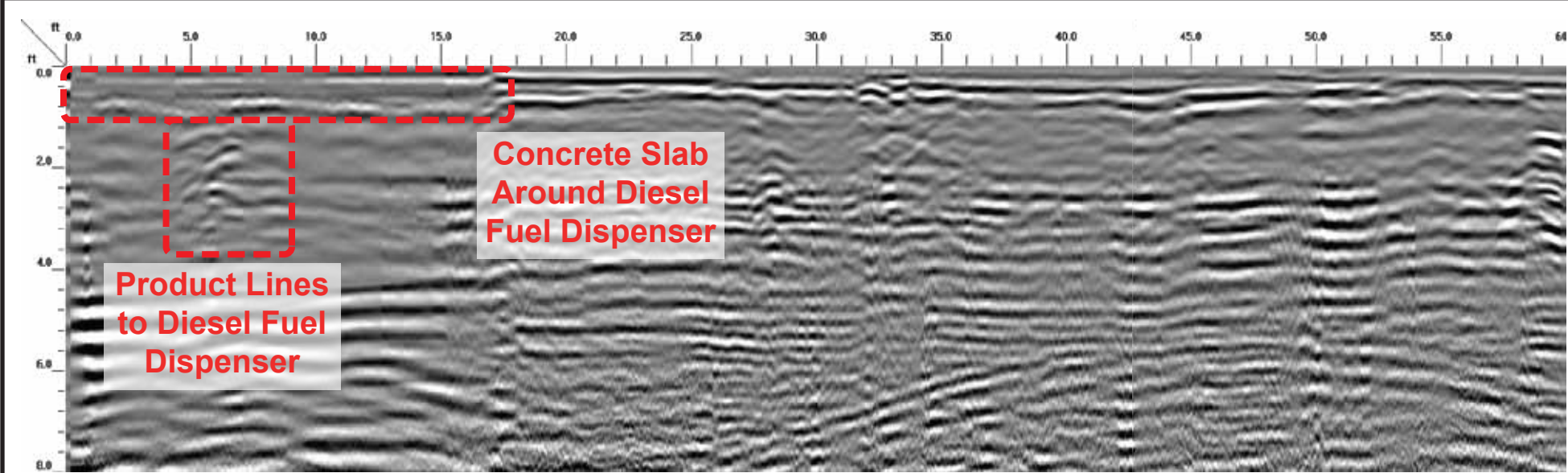


Transect 5

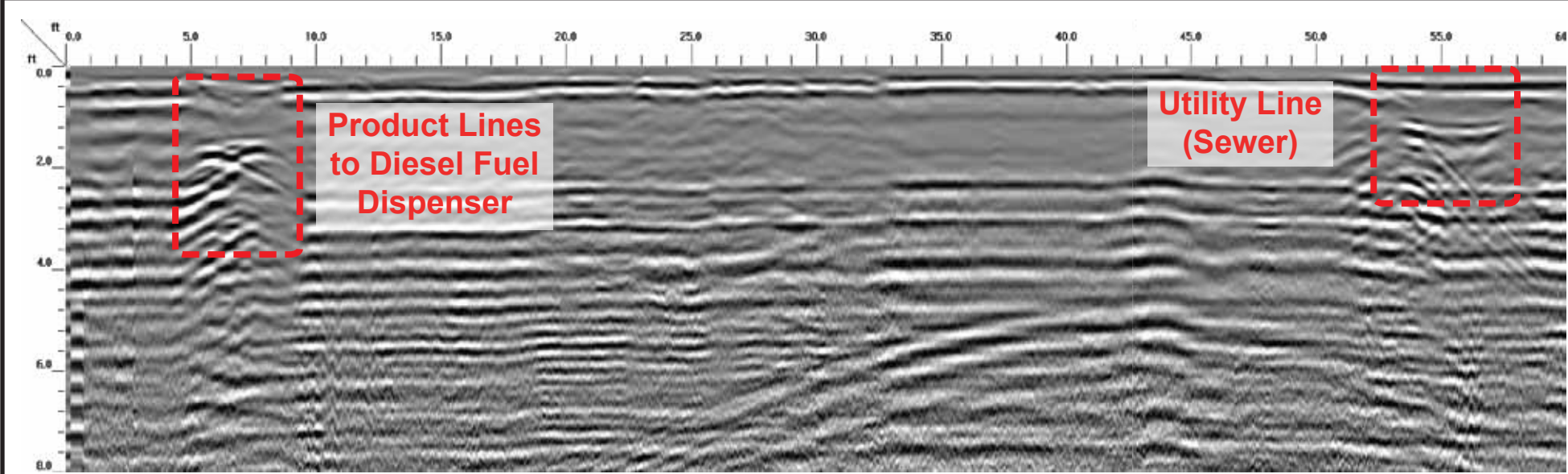
Figure 7c GPR Transects 3 through 5	TIP Number: R-5759 Wilkes County, NC	Redmond Real Estate, LLC Property 2633 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 026 Facility I.D. #: 00-0-06263	Seramur & Associates, PC Boone, NC
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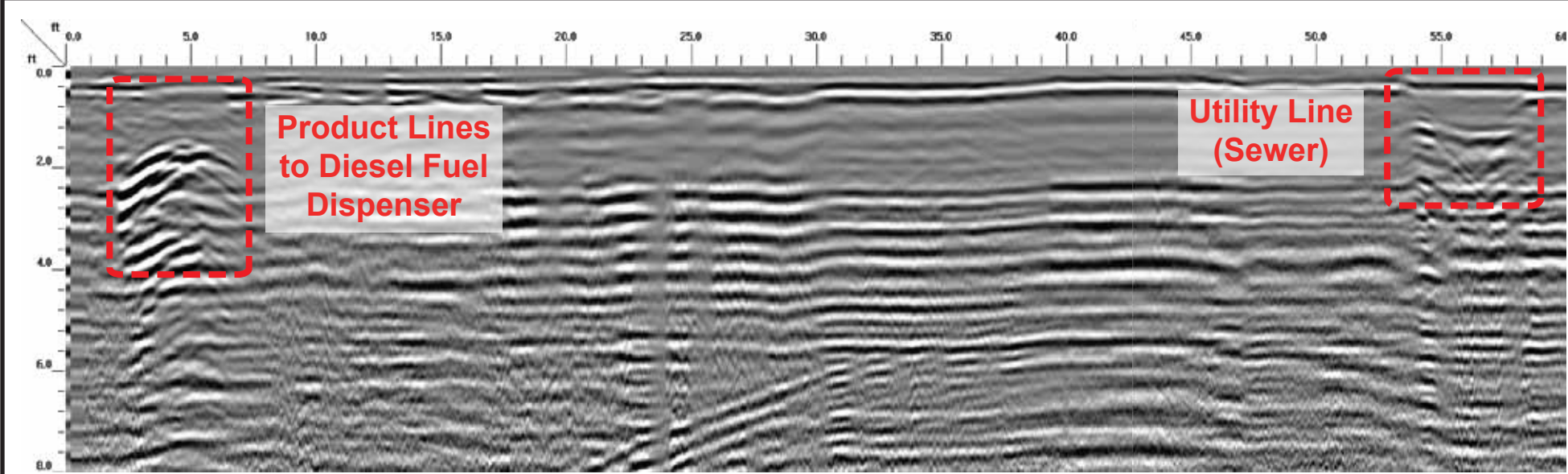
Transect 6



Transect 7

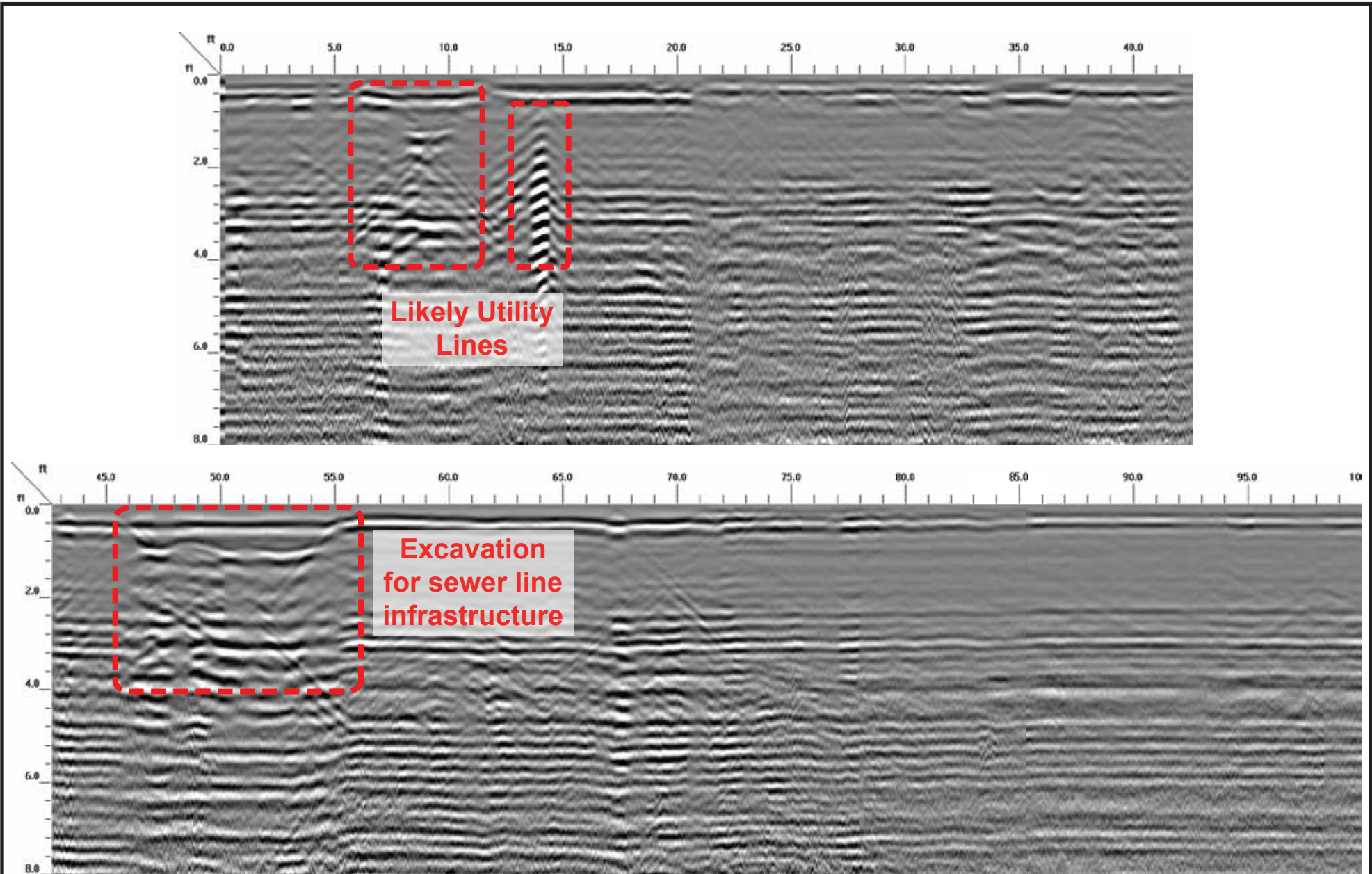


Transect 8

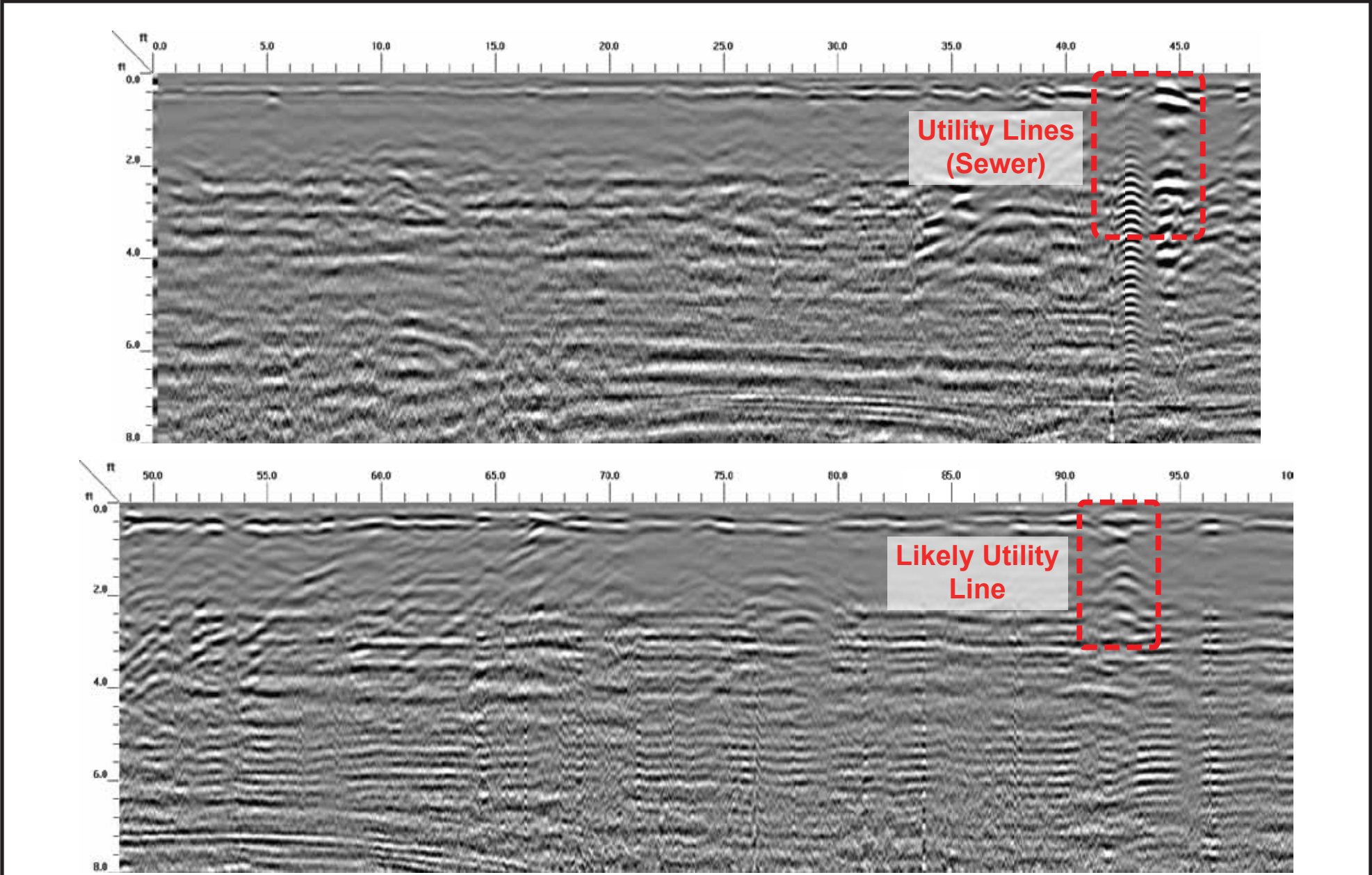


Transect 9

Figure 7d GPR Transects 6 through 9	TIP Number: R-5759 Wilkes County, NC	Redmond Real Estate, LLC Property 2633 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 026 Facility I.D. #: 00-0-06263	Seramur & Associates, PC Boone, NC
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Transect 10



Transect 11

Figure 7e GPR Transects 10 and 11	TIP Number: R-5759 Wilkes County, NC	Redmond Real Estate, LLC Property 2633 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 026 Facility I.D. #: 00-0-06263	Seramur & Associates, PC Boone, NC
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Appendix B

Laboratory Reports

Hydrocarbon Analysis Results



Client: SERAMUR & ASSOCIATES

Address:



REDLAB
RAPID ENVIRONMENTAL DIAGNOSTICS

Samples taken
Samples extracted
Samples analysed

Thursday, July 15, 2021
Thursday, July 15, 2021
Thursday, July 15, 2021

Contact: KEITH SERAMUR

Operator

MAX MOYER

Project: NCDOT R-5759 ; PARCEL 26

													T03308
Matrix	Sample ID	Dilution used	BTEX	GRO	DRO	TPH	Total Aromatics	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
			C6-C9	C5-C10	C10-C35	C5-C35	C10-C35				C5:10	C10:C18	
Soil	S-1	18.0	<0.4	<0.4	3.1	3.1	3.1	0.16	0.001	0	95.6	4.4	Deg.Light Fuel 93.7%,(FCM)
Soil	S-2	20.0	<0.5	14	8.2	22.2	1	0.06	<0.008	94.4	5.3	0.4	Deg.Light Fuel 95.3%,(FCM)
Soil	S-3	20.0	<0.5	3.2	2.7	5.91	1.3	0.04	<0.001	74.6	23	2.5	V.Deg.PHC 87.9%,(FCM)
Soil	S-4	21.0	<0.5	<0.5	0.5	0.5	0.26	0.007	<0.006	0	89.2	10.8	V.Deg.PHC 85.9%,(FCM)
Soil	S-5	23.0	<0.5	<0.5	2.9	2.9	2.7	0.16	0.001	0	94.3	5.7	Deg Fuel 98.8%,(FCM)
Soil	S-6	18.0	<0.4	7.7	4	11.7	1.2	0.04	<0.005	87.9	12	0.1	Deg.Diesel 64.6%,(FCM)
Soil	S-7	24.0	<0.6	<0.6	1.6	1.6	0.9	0.028	<0.001	0	88.9	11.1	V.Deg.PHC 91.1%,(FCM)
Soil	S-8	19.0	<0.4	<0.4	<0.19	<0.4	<0.01	<0.01	<0.006	0	0	0	PHC ND,(FCM)
Soil	S-9	21.0	<0.5	<0.5	1	1	0.4	0.013	<0.003	0	91.4	8.6	Bit.Road Binder 96.3%,(FCM)
Soil	S-10	21.0	<0.5	<0.5	<0.21	0.014	0.014	0.002	<0.006	0	0	100	Residual HC
	Initial Calibrator QC check			OK				Final FCM QC Check			OK		103.1%

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

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

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

% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only.

Data generated by HC-1 Analyser

Hydrocarbon Analysis Results



Client: SERAMUR & ASSOCIATES

Address:



Samples taken
Samples extracted
Samples analysed

Thursday, July 15, 2021
Thursday, July 15, 2021
Thursday, July 15, 2021

Contact: KEITH SERAMUR

Operator

MAX MOYER

Project: NCDOT R-5759 ; PARCEL 26

T03308

Matrix	Sample ID	Dilution used	BTEX	GRO	DRO	TPH	Total Aromatics	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
			C6-C9	C5-C10	C10-C35	C5-C35	C10-C35			C5:10	C10:C18	C18+	
Soil	S-11	21.0	<0.5	<0.5	3.5	3.5	1.6	0.09	0.001	0	87.6	12.4	V.Deg.Light Fuel 99%,(FCM)
Soil	S-12	19.0	<0.4	0.9	1.2	2.22	0.6	0.017	<0.001	66.2	29.6	4.2	V.Deg.PHC 82.6%,(FCM)
Soil	S-13	20.0	<0.5	<0.5	0.3	0.3	0.22	0.006	<0.006	0	87.9	12.1	V.Deg.PHC 90.5%,(FCM)
Soil	S-14	21.0	<0.5	<0.5	0.3	0.3	0.13	0.007	<0.006	0	82.4	17.6	V.Deg.PHC 89.3%,(FCM)
Soil	S-15	23.0	<0.5	<0.5	<0.23	<0.5	<0.012	<0.012	<0.007	0	100	0	Residual HC
Soil	S-16	21.0	<0.5	<0.5	0.3	0.3	0.19	0.011	0.001	0	88.3	11.7	V.Deg.PHC 69.2%,(FCM)
Soil	S-17	21.0	<0.5	<0.5	1.2	1.2	0.7	0.022	<0.001	0	89.4	10.6	V.Deg.PHC 90.3%,(FCM)
Soil	S-18	21.0	<0.5	5.8	2.5	8.36	1.1	0.03	<0.001	86.3	12.3	1.4	V.Deg.PHC 90.8%,(FCM)
Soil	S-19	21.0	<0.5	<0.5	6.6	6.6	1.5	0.09	<0.011	0	94.1	5.9	V.Deg.Diesel 92.5%,(FCM)
Soil	S-20	19.0	<0.4	<0.4	12.3	12.3	5.3	0.29	0.008	0	87.1	12.9	V.Deg.Light Fuel 98%,(FCM)

Initial Calibrator QC check **OK**

Final FCM QC Check **OK**

96.1%

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

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

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

% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only.

Data generated by HC-1 Analyser

Hydrocarbon Analysis Results



Client: SERAMUR & ASSOCIATES

Address:



Samples taken
Samples extracted
Samples analysed

Thursday, July 15, 2021
Thursday, July 15, 2021
Thursday, July 15, 2021

Contact: KEITH SERAMUR

Operator

MAX MOYER

Project: NCDOT R-5759 ; PARCEL 26

T03308

Matrix	Sample ID	Dilution used	BTEX	GRO	DRO	TPH	Total Aromatics	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
			C6-C9	C5-C10	C10-C35	C5-C35	C10-C35			C5:10	C10:C18	C18+	
Soil	S-21	18.0	<0.4	2.2	2.5	4.77	1.4	0.04	<0.001	64.6	32.3	3.1	V.Deg.PHC 83%,(FCM)
Soil	S-22	26.0	<0.6	13.1	5.1	18.2	2.6	0.12	0.001	85.6	13.8	0.6	No Match found
Soil	S-23	19.0	<0.4	25.2	3.7	28.9	1.1	0.07	<0.0	96.3	3.4	0.2	Deg.Light Fuel 94.8%,(FCM),(BO)
Soil	S-24	23.0	<0.5	8.6	3.6	12.2	1.4	0.05	0.001	87.8	11	1.2	No Match found
Soil	S-25	319.0	396	1339	104.5	1443.5	86.6	3.4	<0.09	94.9	5.1	0	Deg Gas 78.1%,(FCM)
Soil	S-27	23.0	<0.5	<0.5	0.22	0.22	0.11	0.006	<0.007	0	82	18	Residual HC
Soil	S-28	25.0	<0.6	1.7	2.9	4.62	1.1	0.06	0.001	63.5	31.1	5.4	V.Deg.PHC 88.4%,(FCM)
Initial Calibrator QC check			OK		Final FCM QC Check			OK		94.6%			

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

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

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

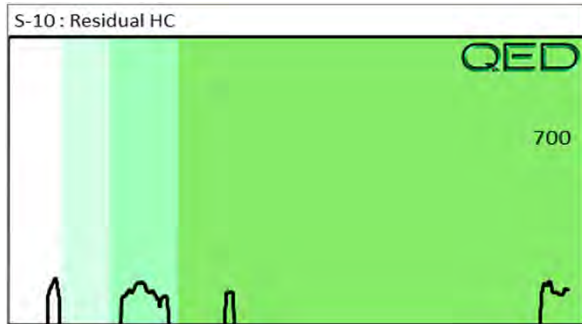
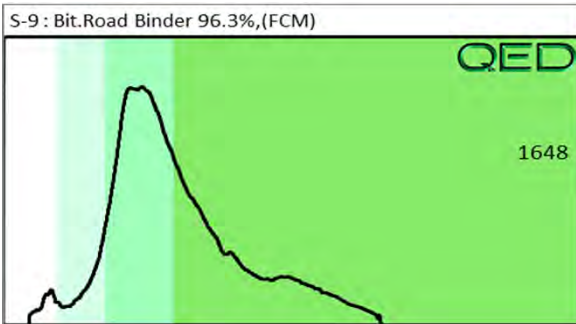
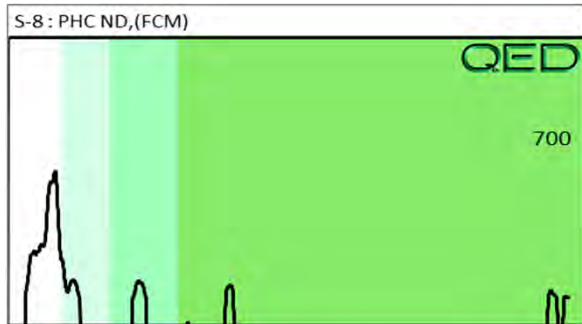
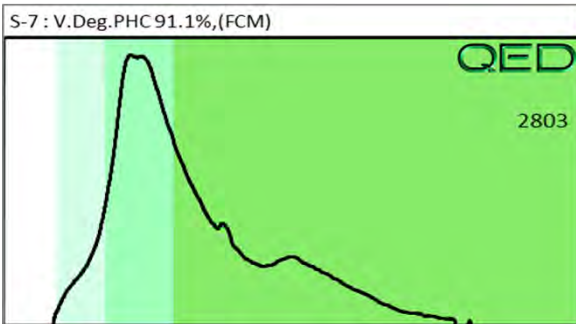
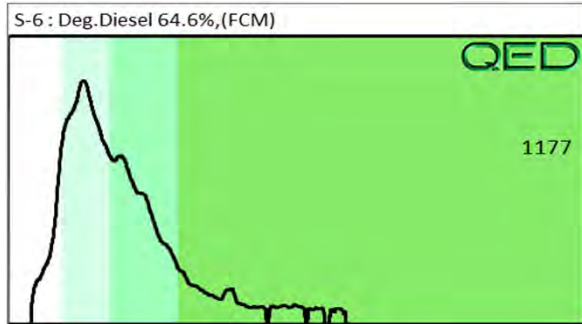
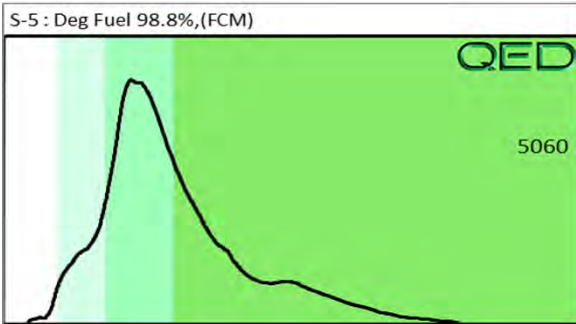
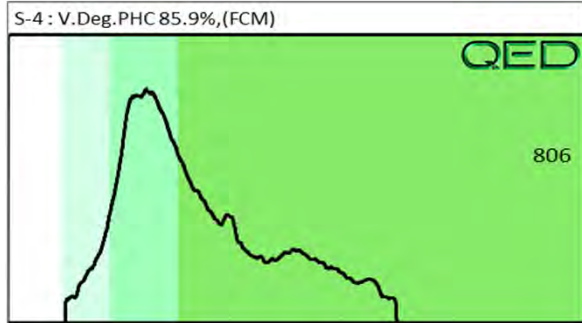
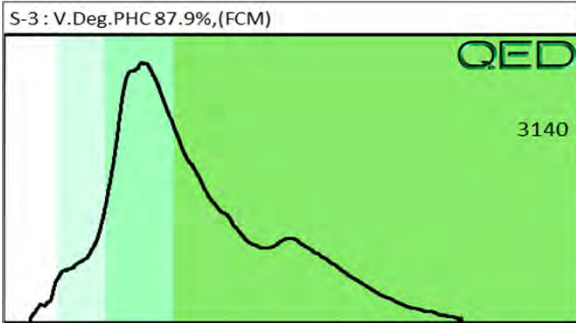
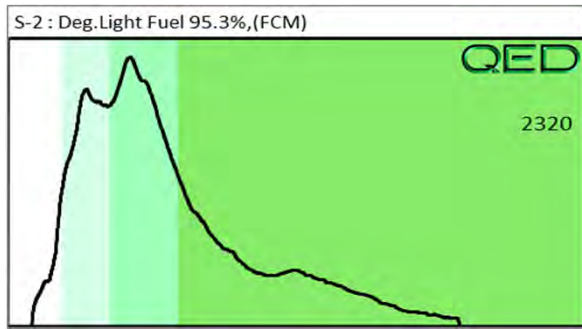
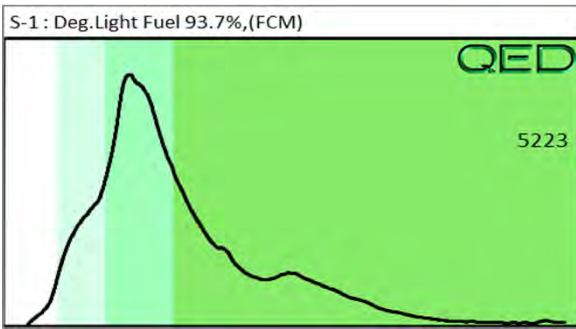
% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only.

Data generated by HC-1 Analyser

QED Hydrocarbon Fingerprints

Project: NCDOT R-5759 ; PARCEL 26

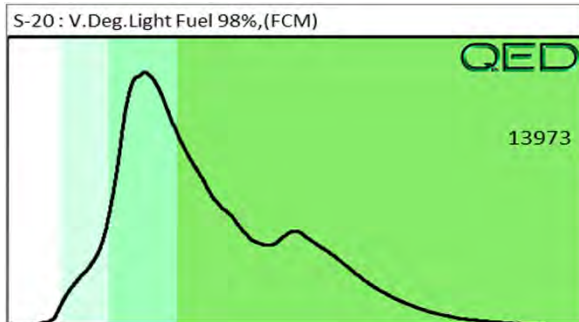
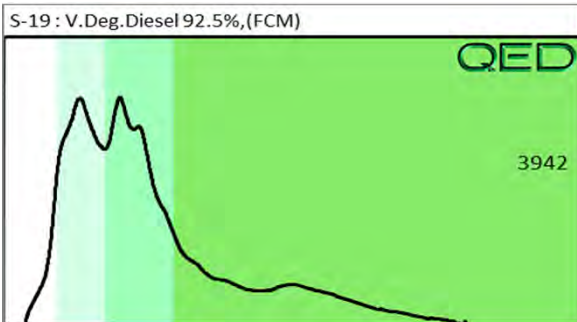
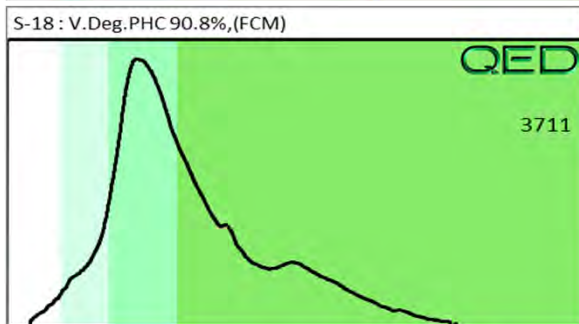
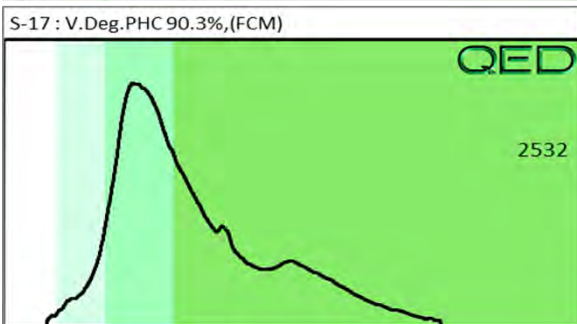
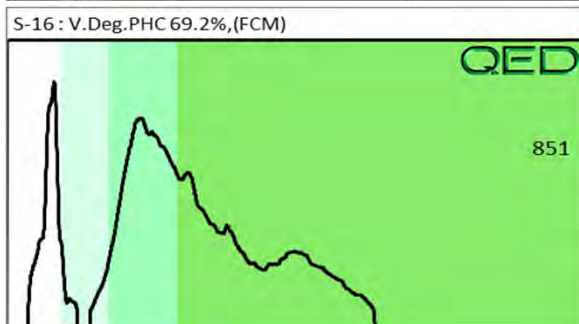
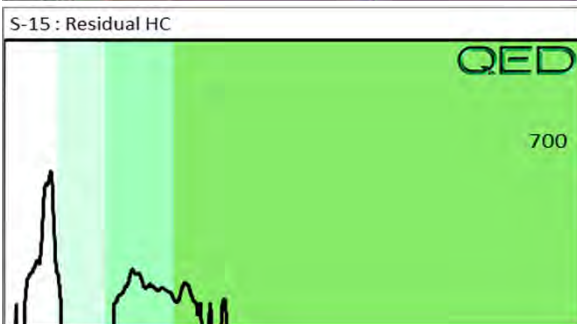
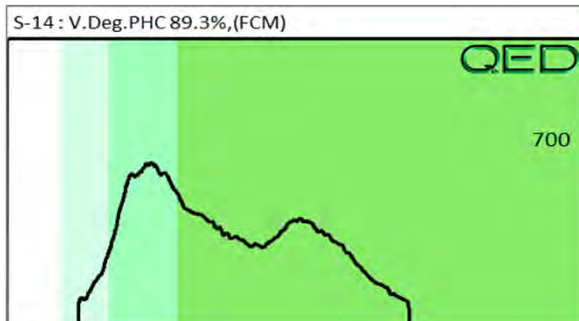
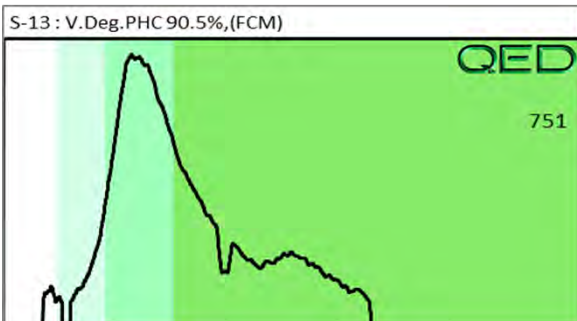
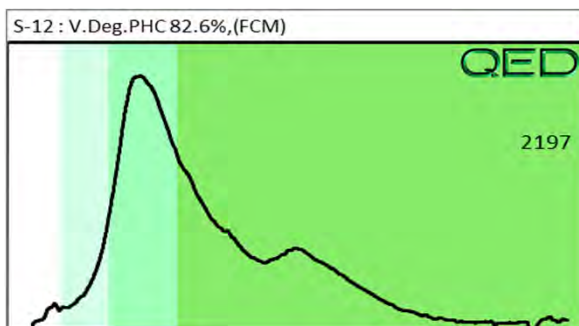
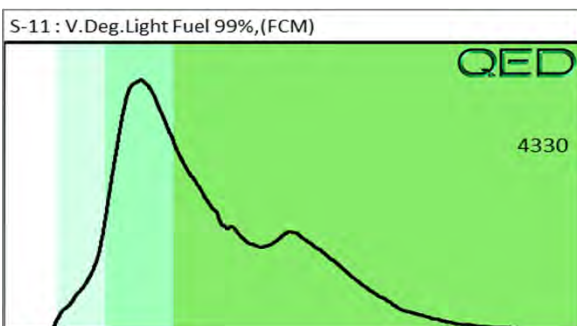
Thursday, July 15, 2021



QED Hydrocarbon Fingerprints

Project: NCDOT R-5759 ; PARCEL 26

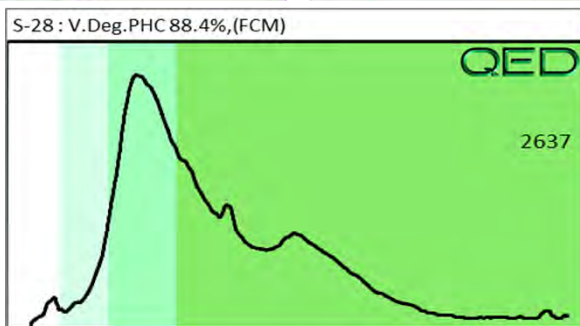
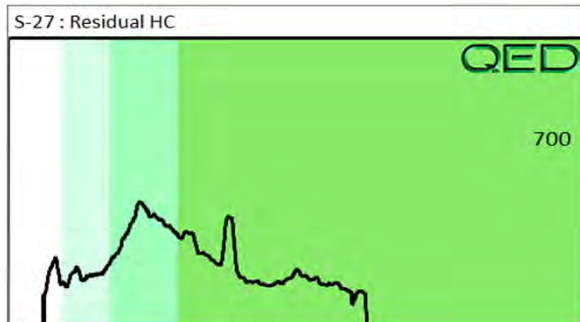
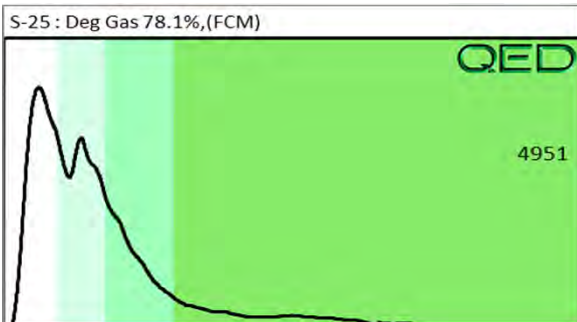
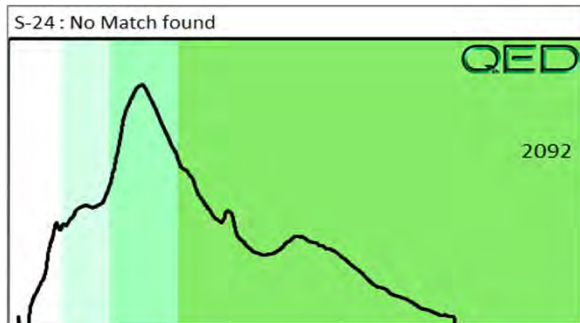
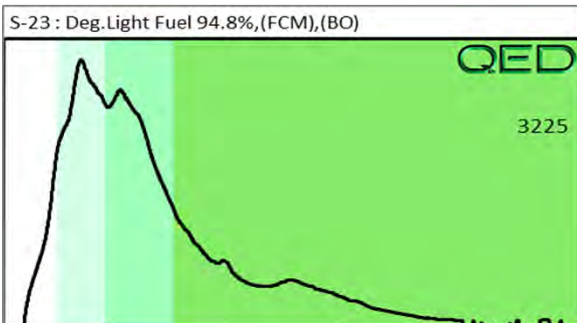
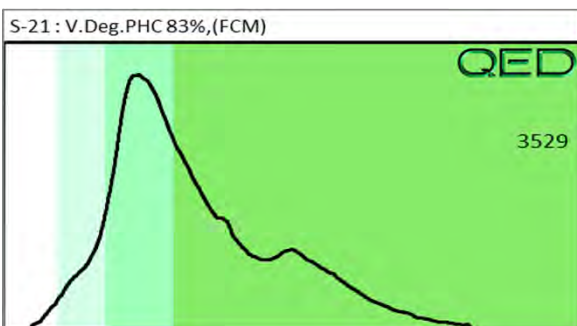
Thursday, July 15, 2021



QED Hydrocarbon Fingerprints

Project: NCDOT R-5759 ; PARCEL 26

Thursday, July 15, 2021



Phase II Site Assessment Report

August 15, 2021

WBS Element: 44691.1.1

State Project: R-5759

Wilkes County

At

Parcel #: 027

Robert E. & Janice G. Ashley Property

2609 Statesville Road; North Wilkesboro, NC, 28659

PIN #: 3877-86-9815

Facility ID No.: N/A

Groundwater Incident #: N/A

Prepared For:

Mr. Gordon Box

NCDOT, Geotechnical Engineering Unit

GeoEnvironmental Section

1589 Mail Service Center

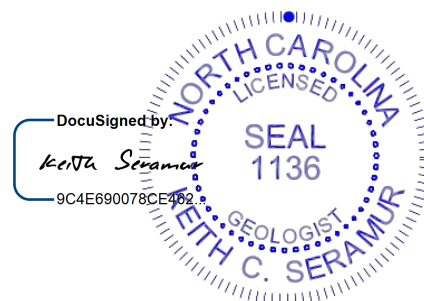
Raleigh, NC 27699-1589

Prepared By:

Seramur & Associates, PC

165 Knoll Drive

Boone, NC 28607



Keith C. Seramur, P.G.

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Appendix B – Laboratory Reports

1.0 Introduction

1.1 General Site Background Information

Seramur & Associates, PC was contracted to complete a Phase II Environmental Site Assessment at:

Robert E. & Janice G. Ashley Property
Parcel #: 027
2609 Statesville Road; North Wilkesboro, NC, 28659
PIN #: 3877-86-9815
Facility ID No.: N/A
Groundwater Incident #: N/A

Parcel #027 is located along the eastern side of Statesville Road approximately 600 feet south of the intersection with Speedway Road. The property is located at the top of the southwestern slope of the Fishing Creek stream valley approximately 300 feet west of the stream. Bedrock in the area is mapped as Henderson Gneiss, a biotitic augen gneiss (Rankin, D.W., Espenshade, G.H., Shaw, K.W., and Neumann, R.B.. Geologic map of the west half of the Winston-Salem quadrangle, North Carolina-Virginia, U.S. Geologic Survey Misc. Inv. Series Map I-709-B, 1975).

A Notice to Proceed was obtained on June 25, 2021. Our area of investigation included the proposed Permanent Utility Easement (PUE) and proposed and existing Right-of-Way (R/W) along the eastern side of Statesville Road (Figure 2). The Phase II Site Assessment scope of work included completing a geophysical survey, soil sample collection and laboratory analysis. Geophysical investigations evaluate the potential for underground storage tanks and remnant UST system infrastructure. The purpose of laboratory analysis is to assess soil quality across the easement (Figures 3 and 4). Background research for this project included reviewing historic aerial photographs and NCDEQ databases.

2.0 Scope of Work

2.1 Background Research

According to the Wilkes County Tax Administration records, the property owner is listed as Redmond Real Estate, LLC. Available historic aerial photographs from the USGS EarthExplorer website and Google Earth Pro were reviewed.

The following NCDEQ databases were queried for incidents at Parcel #027:

- Dry Cleaners
- Active USTs
- UST Incident Map
- UST Database
- Hazardous Waste Sites

2.2 Geophysical Surveys

Seramur & Associates used the Pythagorean Theorem to establish one grid within the proposed Right-of-Way (R/W) and Permanent Utility Easement (PUE) along Statesville Road (Figure 5). Geophysical grid data was collected along transects at a two-foot spacing. Many transects ran beyond the established rectangular grid corners in both the GPR and Magnetometer surveys.

The magnetometer data was collected with a GEM Systems GSM-19W Walking Overhauser magnetometer. The data was compiled in Excel spreadsheets and a grayscale contour map of the magnetic data was drafted using Golden Software's Surfer® modeling program. The lighter shades are lower magnetic readings and the darker colors are higher magnetic readings (Figure 6). Ferrous objects in the subsurface have a magnetic field distinct from the surrounding soil and produce magnetic anomalies on the contour maps.

A Ground Penetrating Radar (GPR) survey was completed across the grid and transects using Geophysical Survey Systems, Inc. UtilityScan GPR System with a 350 MHz hyperstacking antenna. This GPR system is equipped with a calibrated survey wheel. The GPR data was downloaded and saved onto a computer. The GPR grid and transect data has been processed and modeled using GPR Slice® software. The GPR data processing included adjusting time zero, completing a background removal and adjusting the time variable gain to enhance deep reflections. Three-dimensional models of the GPR grid and transect data were produced with GPR Slice® software. Three time slices (or depth slices) were imaged in each 3D model at depths of 0.0 to 0.3 feet, 1.4 to 1.7 feet and 2.7 to 3.0 feet (Figures 7 through 9). Each depth slice is a horizontal slice or plan view of the reflections across a 0.3-foot thickness of the subsurface. For example, the deep GPR depth slices show reflections in the radar data between depths of 2.7 and 3.0 feet.

2.3 Soil Sampling and Analyses

On July 15, 2021 Carolina Soil Investigations, LLC mobilized to the site to drill Geoprobe borings and collect soil samples. Our project design typically calls for collecting a shallow and deep soil sample from each boring (Figure 3). The purpose of collecting samples at a depth of ~3.0 feet is to test for petroleum releases related to surface spills and releases from product lines. The purpose of collecting samples at a depth of ~9.0 feet is to test for petroleum releases related to underground storage tanks. Soil borings were drilled within the proposed R/W and PUE along Statesville Road.

A track-mounted Geoprobe rig was used to drill six soil borings. Eleven soil samples in total were collected and six of these samples were analyzed. The texture and type of soil material in the Geoprobe cores was described and recorded. A new pair of Nitrile gloves was worn while collecting each soil sample. A representative portion of each soil sample was placed in a zip lock bag and allowed to rest for a period of time to allow volatile vapors to accumulate in the headspace of the bag. A calibrated PhoCheck Tiger Photoionization Detector (PID) was used to screen the headspace in each bag and the concentration of volatile petroleum vapors was measured and recorded (Table 1). Table 1 lists the boring data including sample number, depth, PID reading, lithology, and type of soil material.

REDLab, LLC provided onsite laboratory analyses for six of the eleven soil samples collected from the Geoprobe cores. REDLab analyzed the soil samples for petroleum constituents by Ultra-Violet Fluorescence using a QED HC-1 analyzer. The analytical results are reported as Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) and Total Petroleum Hydrocarbons (TPH). REDLab provided a hydrocarbon spectrum with each of the sample results. This spectrum is used for a tentative identification of the type of hydrocarbon detected by the analytical method. The hydrocarbon fingerprint is interpreted by REDLab using a library search of spectra for known hydrocarbon types and concentrations. The laboratory reports and fingerprint spectra are included in Appendix B.

2.4 Plate 1 – Photographs of Parcel #027



Photo 1. View of Parcel #027 looking north.



Photo 2. Remains of a post for possible sign or some sort of canopy on the south side of the property.



Photo 3. Possible location of former UST System on the south side of the property.



Photo 4. Vent pipes attached to the Pool & Spa building.

3.0 Results of Investigation

Parcel #027 currently operates as a hair salon. An additional commercial building previously operated as a swimming pool and spa supply store. A 1963 aerial photograph shows that limited development along Statesville Road had occurred and Parcel #027 was an undeveloped lot. The NCDEQ UST Registered Tanks and Underground Storage Tank Incidents databases do not list any records of USTs or previous release incidents at this property.

SAPC personnel made a pedestrian reconnaissance of the property during the initial site visit on June 29, 2021. No evidence of an active UST system was observed on the property. However, three vent pipes attached to the abandoned Pool and Spa building is evidence that there previously was a UST system in the southern portion of the property. A concrete slab appears to lead from the dispenser island on Parcel #026 to a depression in the southeast corner of the R/W and PUE. It appears that this concrete pad extends over product lines leading from a former UST system to Parcel #026.

A review of the Wilkes County Register of Deeds records found that Parcels #026 and #027 were once a single parcel. This parcel was divided in 1984. The NCDEQ Registered Tanks Database indicates that a former UST system at the fuel station at Parcel #026 was installed in 1973 and removed in 1989. This would indicate that the UST system that appears to have been on Parcel #027 would have at least been on the same property as the gas station when it was installed.

3.1 Geophysical Surveys

The contour map of the magnetometer survey data (Figure 6) shows a linear set of negative magnetometer readings near the eastern edge of the grid. These negative magnetometer readings appear to be related to metal bolts in the foundation of the former post. This could have been a sign post or a canopy support.

The shallow GPR depth slice (0.0-0.3 feet) for Grid 1 shows a linear reflection free area along the western edge of the grid. This is an excavation for the sewer line (Figure 7). A curved, linear, reflection-free anomaly originates at the telephone pole of the west side of the property and extends to the east side of the grid. This is most likely the excavation for an electric line. A quasi-rectangular area of low amplitude reflections and an oval-shaped reflection-free area in the southeast corner of the grid could outline the former UST excavation. The former product lines from Parcel #026 extend over to this area of Parcel #027. This is interpreted as the location of the former UST system.

Medium to high amplitude reflections are present in a few areas of the sewer trench along Statesville Road on the intermediate GPR depth slice (1.4-1.7 feet) (Figure 8). Most of the south side of the grid is reflection-free while the north side of the grid shows patterned medium amplitude reflections. This is attributed to different substrate on the north and south sides of the grid.

The deep GPR depth slice (2.7 to 3.0 feet) is very similar to the intermediate depth slice (Figure 9). The south side of the grid is mostly reflection free with medium to high amplitude reflections in the northern portion of the grid. There are two linear low amplitude patterns on this depth slice that are interpreted as utility trenches.

3.2 Soil Borings, Sampling and Laboratory Analysis

The soil at Parcel #027 consists of fill material over residuum (saprolite) (Table 1). The fill material and the residuum are primarily sandy silt and silt loam. Groundwater was not encountered at this site. A soil sample was collected from the shallow and deep portions of the Geoprobe cores at each boring except for boring B-3. There was no recovery in the shallow core at boring B-3. The Geoprobe operator reported that the soil in the upper part of the boring was very soft.

Six borings were drilled and eleven soil samples were collected. The deep soil sample from each boring was analyzed for TPH-GRO and DRO (Table B-3).

Soil borings B-1, B-2, and B-3 were drilled within the proposed R/W on the southwest side of the property. Boring B-5 was drilled in the northern portion of the R/W. Boring B-4 was drilled within the PUE closer to the buildings. Parked cars prevented drilling soil borings adjacent to the existing buildings. Boring B-6 was drilled inside the outline of what appears to be the former UST excavation (Figure 3). Petroleum constituents were not detected above NCDEQ UST Action Levels in any of the soil samples collected at Parcel #027 (Table B-3 and Figure 4).

3.3 Conclusions

Parcel #027 currently operates as a hair salon. The geophysical surveys did not image a UST system but do show reflection patterns indicative of an excavation for a former UST system. A set of vent pipes on the southern building and what appears to be a set of product lines heading towards the dispensers on Parcel #026 indicate a high probability that a UST system was once located in the southeast corner of the PUE. Petroleum constituents were not detected above the UST Action Levels in any soil samples collected at Parcel #027.

4.0 Recommendations

Seramur & Associates does not recommend any further assessment work for Parcel #027. If soil disturbance near the southeast edge of the PUE is required, the old set of product lines may be encountered.

Appendix A

Tables and Figures

Table 1. Soil Boring Data - Parcel #027						
Boring No.	Depth (ft)	Lithology	Soil type	Soil Sample	PID ppm	Comments
B-1	0.0 to 1.0	Sandy silt	Fill	N/A	N/A	
B-1	1.0 to 5.0	Silt loam	Residuum	S-1	0.0	Sample at 3.0 feet.
B-1	5.0 to 10.0	Silt loam	Residuum	S-2	0.0	Sample at 9.0 feet.
B-2	0.0 to 2.5	Sandy silt	Fill	N/A	N/A	
B-2	2.5 to 5.0	Silt loam	Residuum	S-3	0.0	Sample at 3.0 feet.
B-2	5.0 to 10.0	Silt loam	Residuum	S-4	0.0	Sample at 9.0 feet.
B-3	0.0 to 5.0	N/A	N/A	N/A	N/A	No recovery.
B-3	5.0 to 10.0	Silt loam	Residuum	S-5	0.0	Sample at 8.0 feet.
B-4	0.0 to 5.0	Sandy silt	Fill	S-6	0.0	Sample at 3.0 feet.
B-4	5.0 to 10.0	Silt loam	Fill	S-7	0.0	Sample at 8.0 feet.
B-5	0.0 to 5.0	Sandy silt	Fill	S-8	0.0	Sample at 3.0 feet.
B-5	5.0 to 10.0	Sandy silt	Fill	S-9	0.0	Sample at 8.0 feet.
B-6	0.0 to 5.0	Sandy silt	Fill	S-10	0.0	Sample at 3.0 feet.
B-6	5.0 to 10.0	Silt loam	Fill	S-11	0.0	Sample at 8.0 feet. Unconsolidated residuum. Appears to be backfill.

Table B-3: Summary of Soil Sampling Results

Revision Date: 07/15/21

Incident Name: Parcel #027

Analytical Method (e.g., VOC by EPA 8260) →					UVF	UVF
Contaminant of Concern →					TPH GRO (mg/kg)	TPH DRO (mg/kg)
Sample ID	Date Collected (mm/dd/yyyy)	Source Area	Sample Depth (ft BGS)	Incident Phase		
S-2	07/14/21	B-1	9.0	Phase II	<0.5	0.4
S-4	07/14/21	B-2	9.0	Phase II	<0.22	<0.09
S-5	07/14/21	B-3	8.0	Phase II	<0.5	1.0
S-7	07/14/21	B-4	8.0	Phase II	<0.5	1.0
S-9	07/14/21	B-5	8.0	Phase II	<0.5	<0.23
S-11	07/14/21	B-6	8.0	Phase II	<0.5	0.3
NC DEQ Action Level (mg/kg)					50	100

ft. BGS = feet below ground surface
mg/kg = milligrams per kilogram

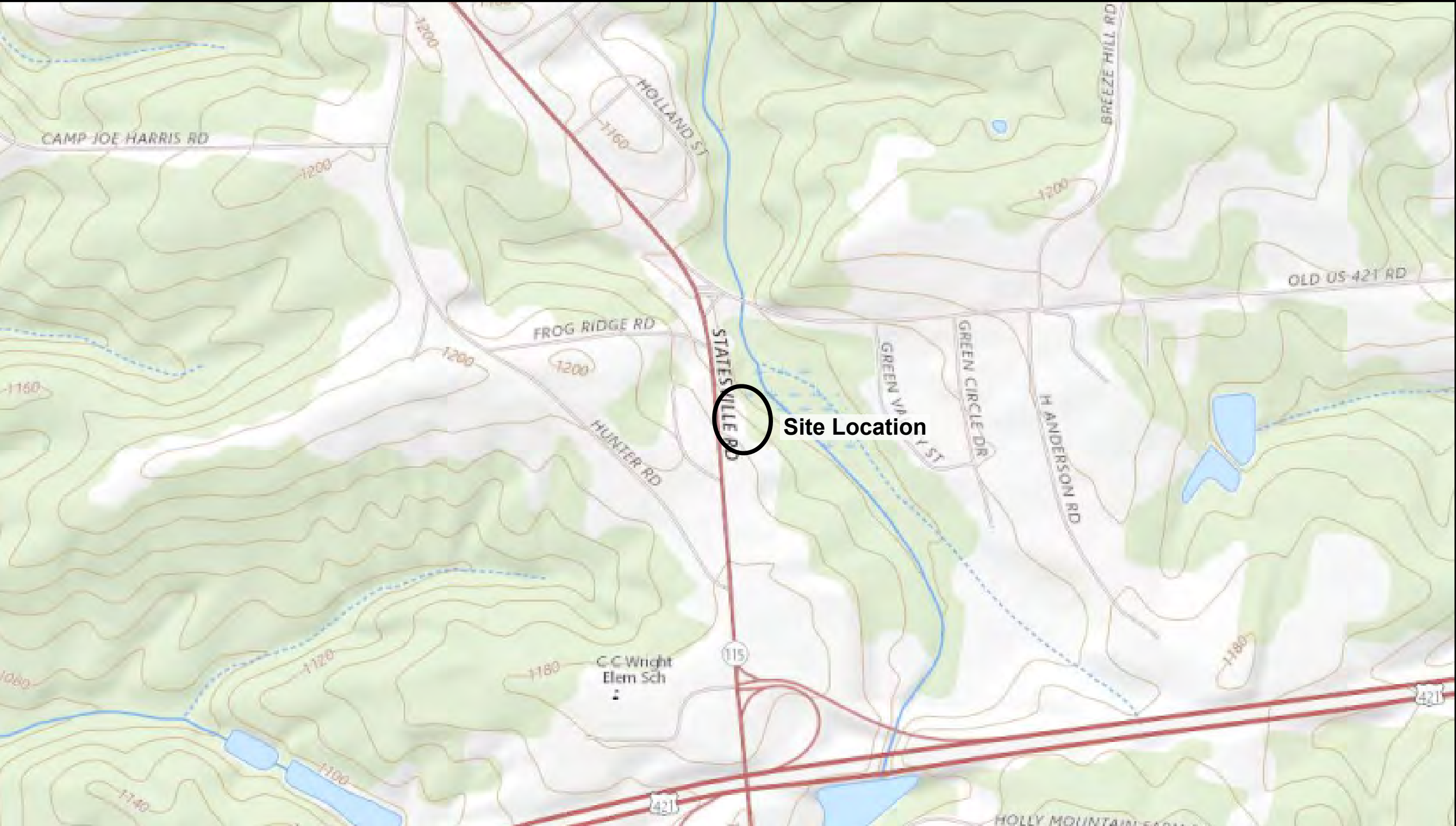
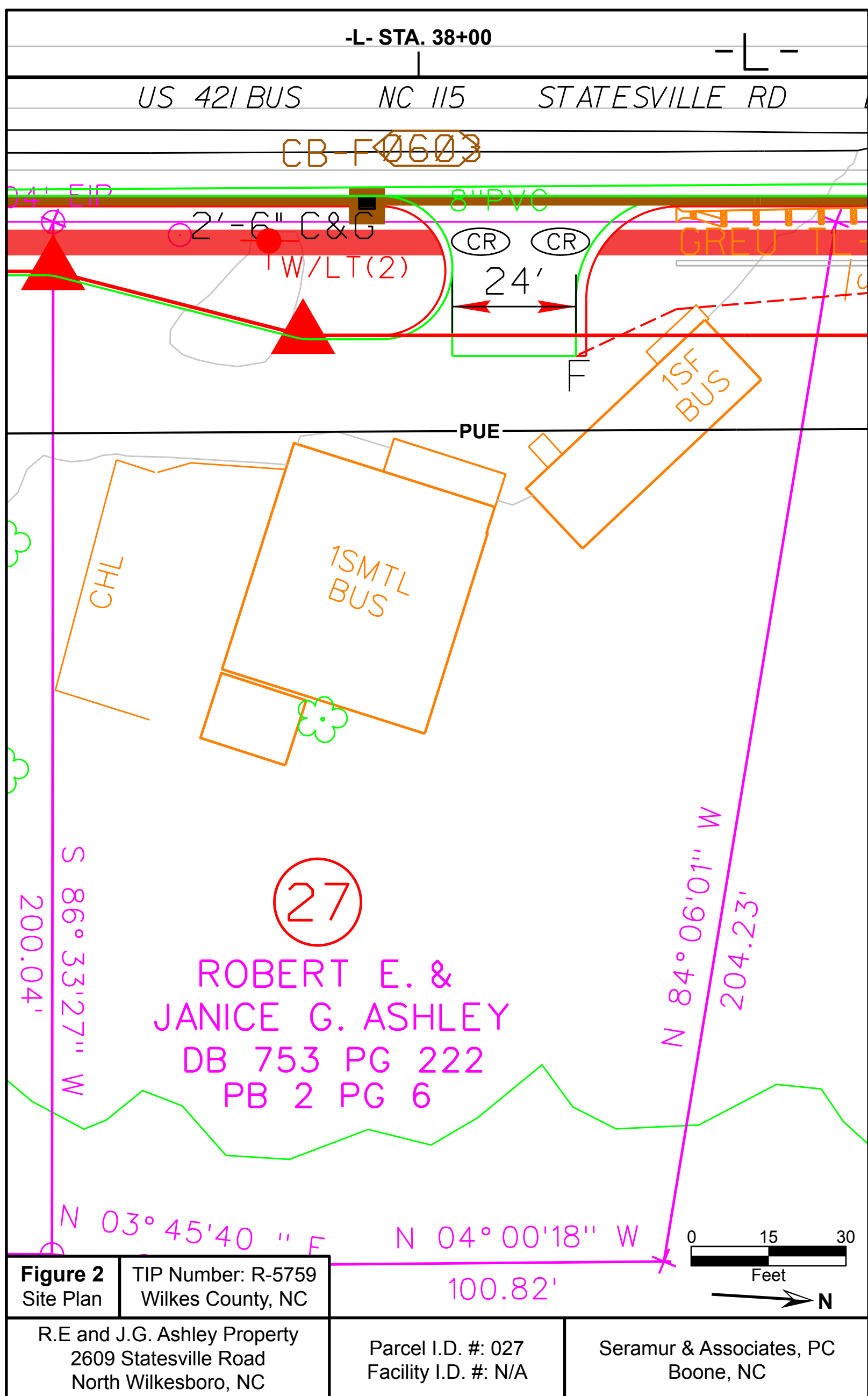


Figure 1 Site Location Map Source: U.S.G.S. The National Map	TIP Number: R-5759 Wilkes County, NC	R.E and J.G. Ashley Property 2609 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 027 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC	0 400 800 Feet N
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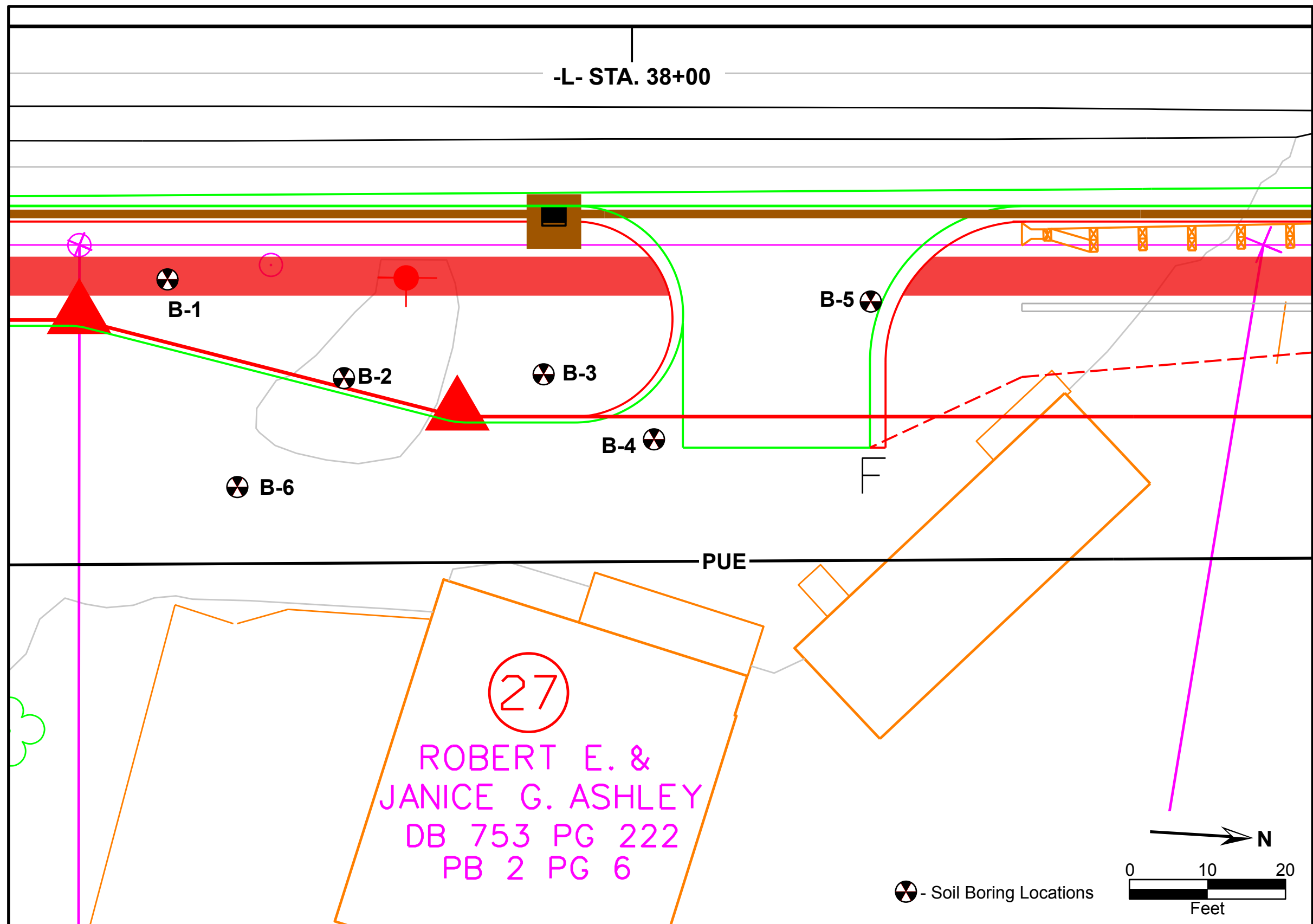


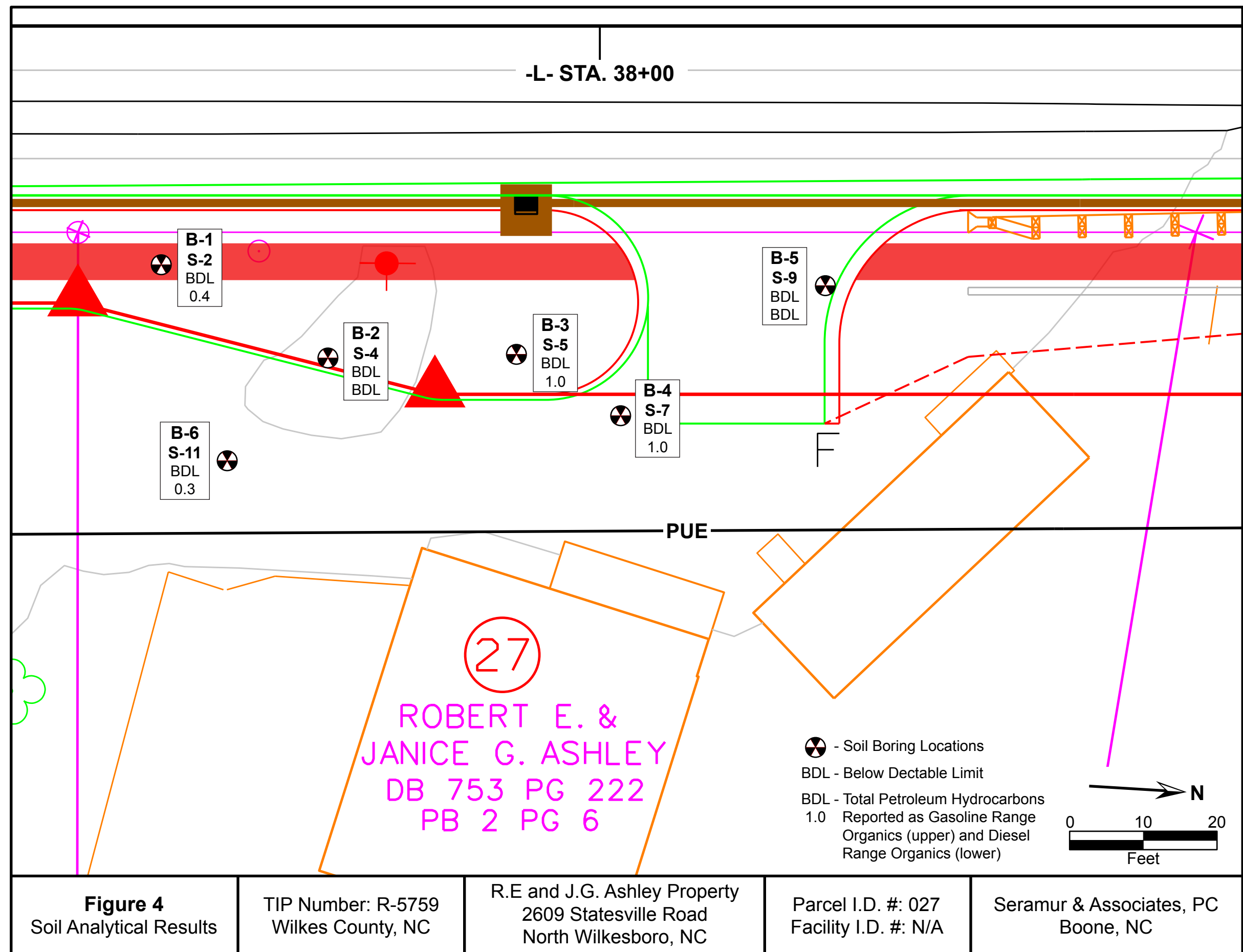
Figure 3
Site Plan with
Soil Boring Locations

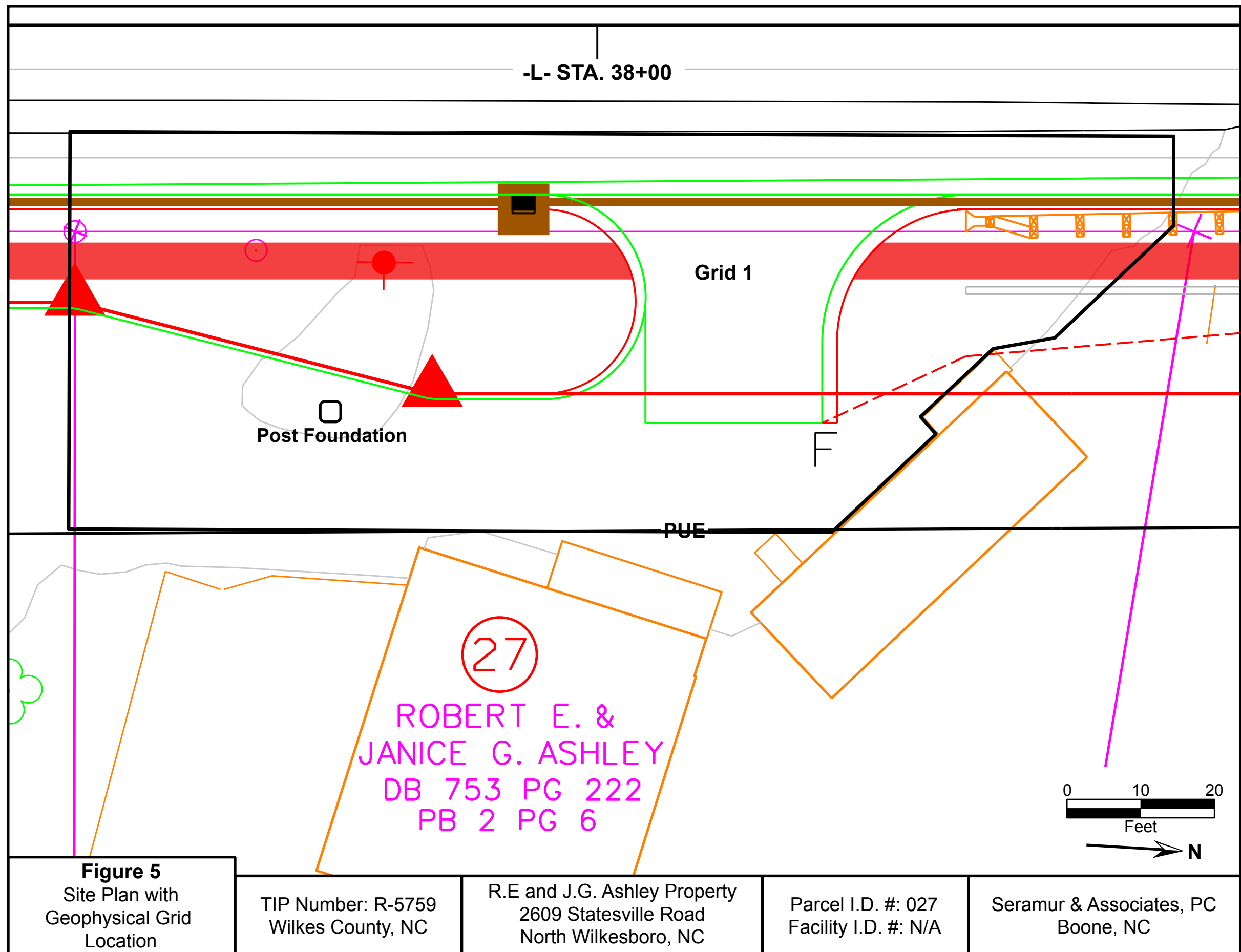
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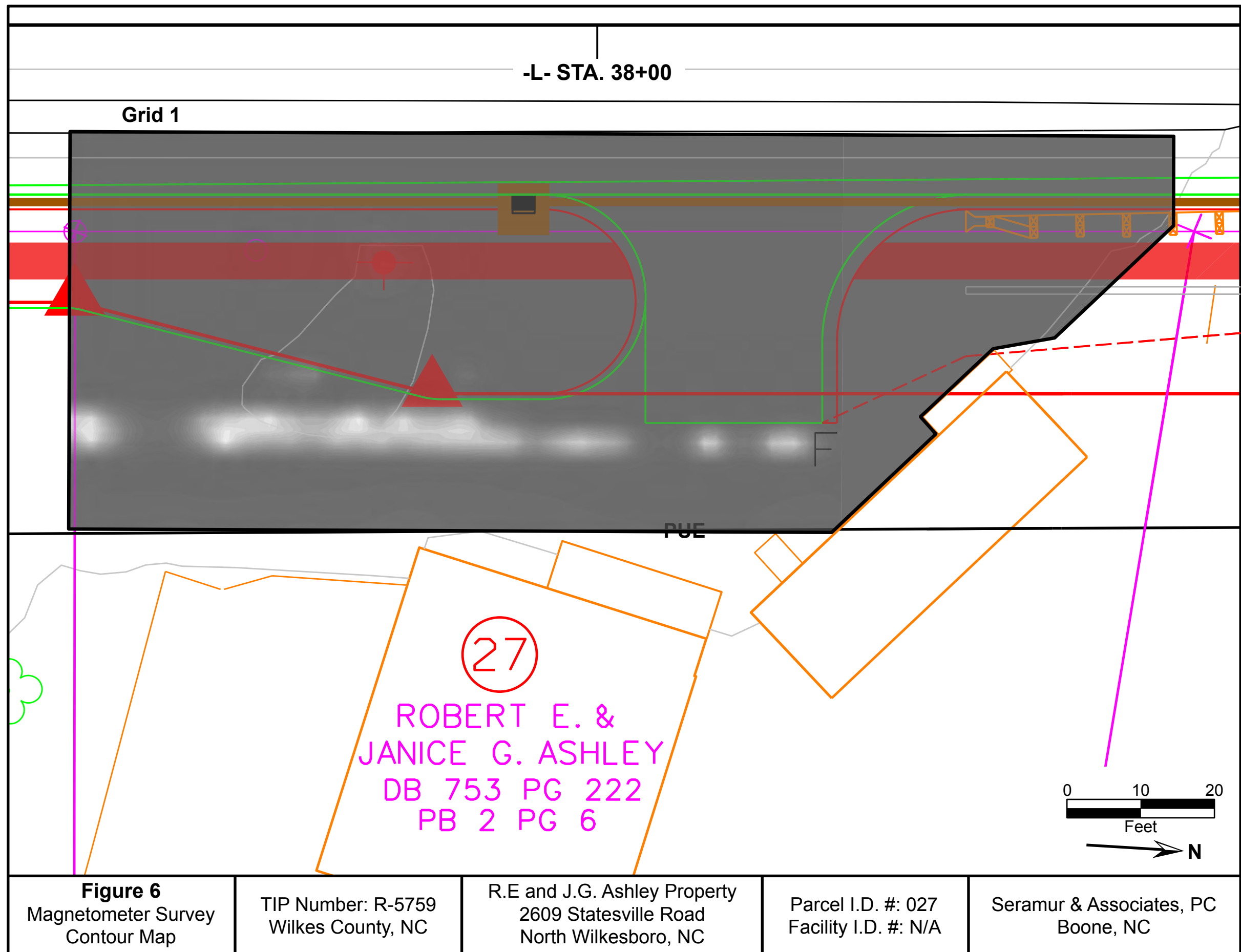
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2609 Statesville Road
North Wilkesboro, NC

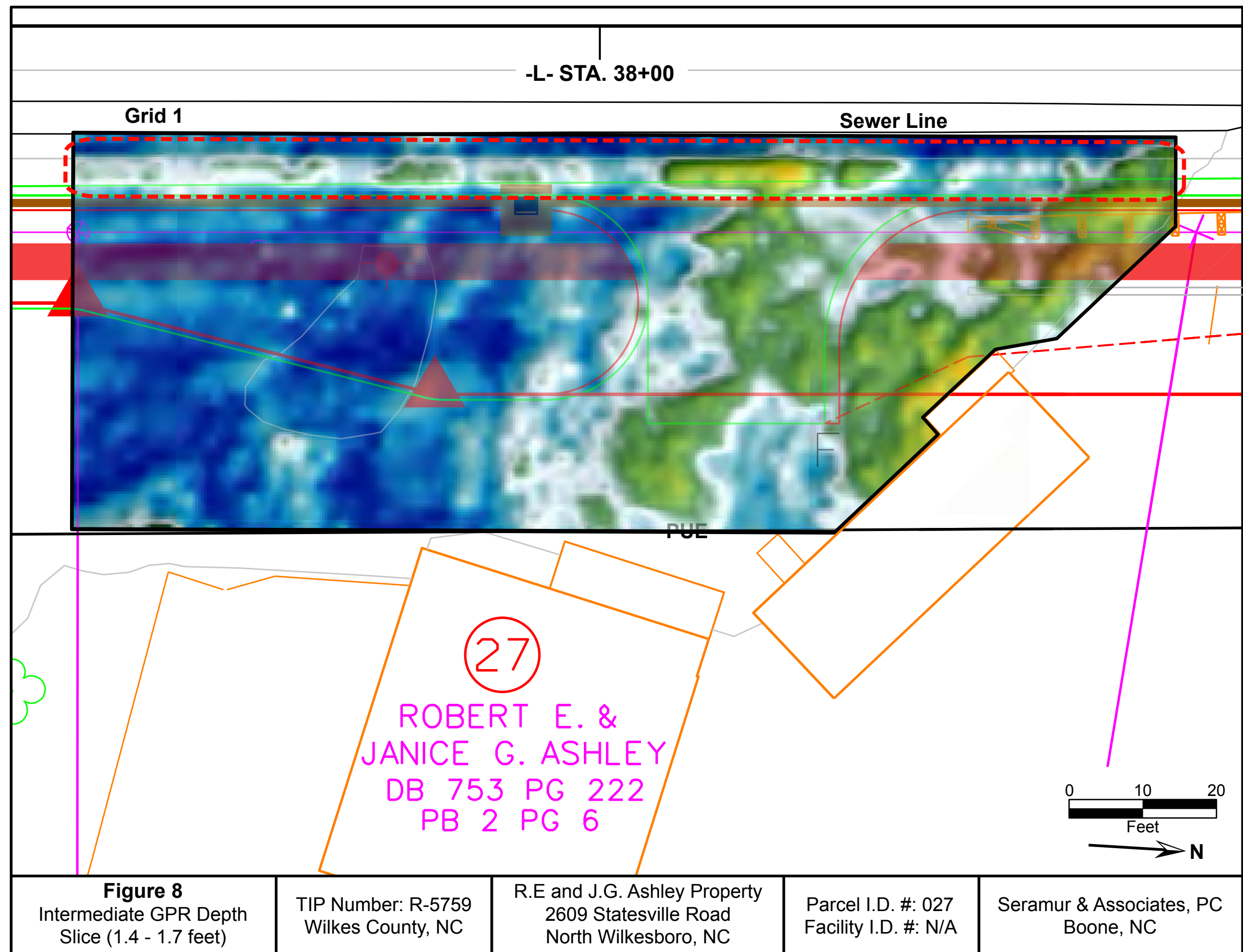
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Facility I.D. #: N/A

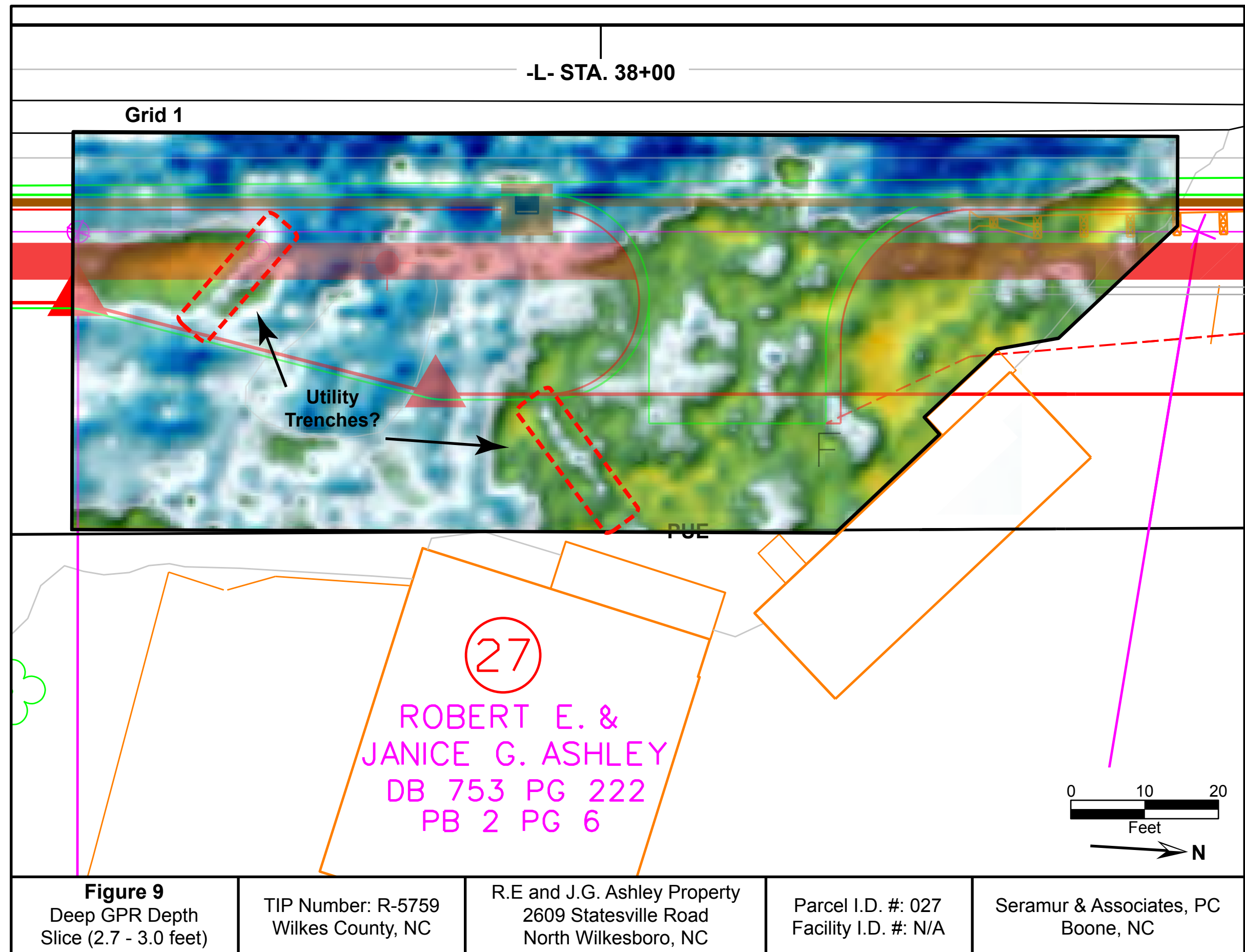
Seramur & Associates, PC
Boone, NC











Phase II Site Assessment Report

*Parcel #027, Robert E. & Janice G. Ashley Property, State Project: R-5759
2609 Statesville Road, North Wilkesboro, NC 28659*

August 15, 2021

Appendix B

Laboratory Reports

QED

Address:



Samples analysed



 Thursday, July 15, 2021

 Thursday, July 15, 2021

 Thursday, July 15, 2021

MAX MOYER

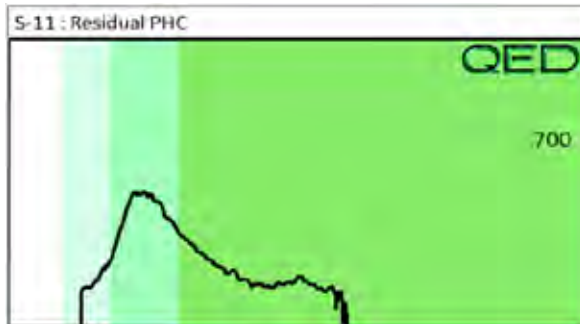
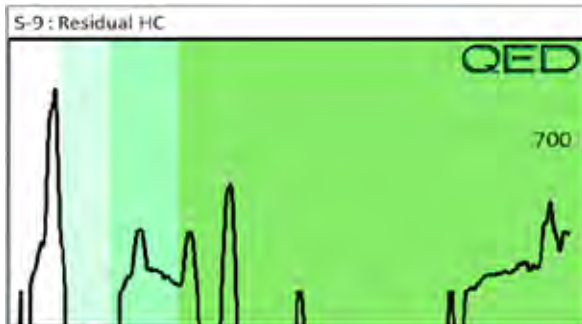
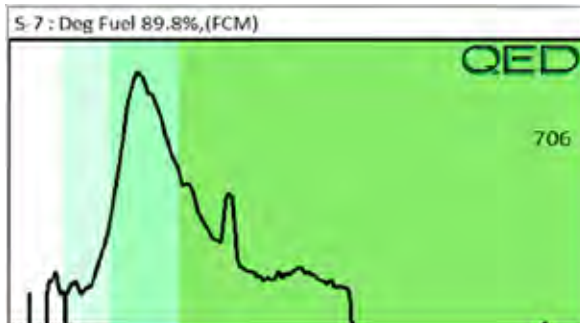
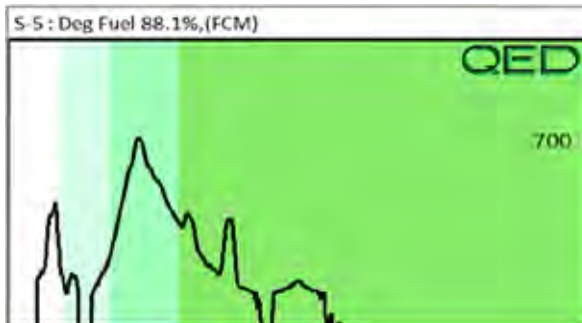
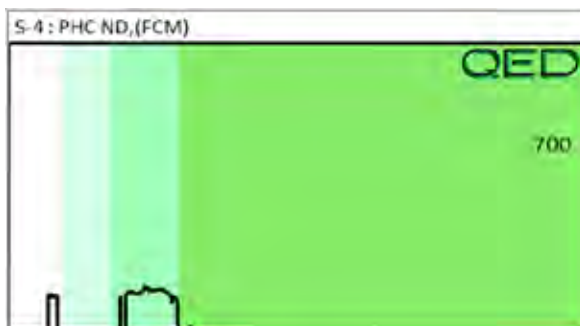
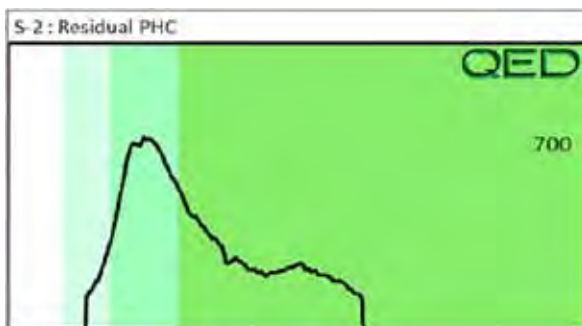
Project: NCDOT R-5759 ; PARCEL 27

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

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

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

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



Phase II Site Assessment Report

August 16, 2021

WBS Element: 44691.1.1

State Project: R-5759

Wilkes County

at

Parcel #: 030

**Scott A. Johnson, Katherine Leary, Angela Johnson, Carlene Jordan Property
180 Speedway Road, North Wilkesboro, NC, 28659**

PIN #: 3877-97-1320

Facility ID No.: N/A

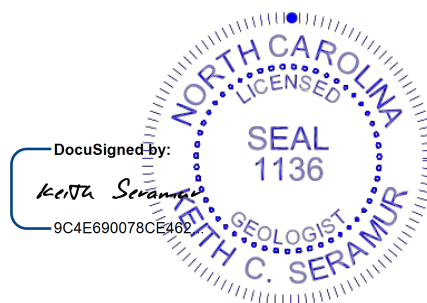
Groundwater Incident #: N/A

Prepared For:

**Mr. Gordon Box
NCDOT, Geotechnical Engineering Unit
GeoEnvironmental Section
1589 Mail Service Center
Raleigh, NC 27699-1589**

Prepared By:

**Seramur & Associates, PC
165 Knoll Drive
Boone, NC 28607**



Keith C. Seramur, P.G.

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1.0 Introduction

1.1 General Site Background Information

Seramur & Associates, PC was contracted to complete a Phase II Environmental Site Assessment at:

Parcel #: 030
Scott Anthony Johnson, Katherine Leary, Angela Johnson, Carlene Jordan Property
180 Speedway Road, North Wilkesboro, NC, 28659
PIN #: 3877-97-1320
Facility ID No.: N/A
Groundwater Incident #: N/A

Parcel #030 is located on the southern side of Speedway Road about 350 ft east of the intersection with Statesville Road. The property is on the T1 terrace of Fishing Creek. Bedrock in the area is mapped as Henderson Gneiss, a biotitic augen gneiss (Rankin, D.W., Espenshade, G.H., Shaw, K.W., and Neumann, R.B. Geologic map of the west half of the Winston-Salem quadrangle, North Carolina-Virginia, U.S. Geologic Survey Misc. Inv. Series Map I-709-B, 1975).

A Notice to Proceed was obtained on June 25, 2021. Our investigation included areas within the proposed easements and proposed and existing Right-of-Way (R/W) along the southern side of Speedway Road (Figure 2). The Phase II Site Assessment scope of work included completing a geophysical survey, Geoprobe drilling, soil sample collection and soil laboratory analysis. Geophysical investigations evaluate the potential for underground storage tanks and remnant UST system infrastructure. The purpose of soil analysis is to assess soil quality across the easements and R/W. Background research for this project included reviewing historic aerial photographs and NCDEQ databases.

2.0 Scope of Work

2.1 Background Research

According to the Wilkes County Tax Administration records, this property is currently owned by Nathan Sumpter. Available historic aerial photographs from the USGS EarthExplorer website and Google Earth Pro were reviewed.

The following NCDEQ databases were queried for incidents at Parcel #030:

- Dry Cleaners
- Active USTs
- UST Incident Map
- UST Database
- Hazardous Waste Sites

2.2 Geophysical Surveys

Seramur & Associates used the Pythagorean Theorem to establish one rectangular grid within the proposed Permanent Utility Easement (PUE) along Speedway Road. Nine additional transects of geophysical data were collected within the Temporary Construction Easement (E), PUE and existing R/W. The Permanent Drainage Utility Easement (DUE) and proposed R/W were inaccessible due to dense woods and a steep slope. Geophysical grid data were collected along transects at a two-foot spacing. Additional transects were collected along fiberglass tape measures laid out to follow straight lines.

The magnetometer data was collected with a GEM Systems GSM-19W Walking Overhauser magnetometer. The data was compiled in Excel spreadsheets and a color contour map of the magnetic data was drafted using Golden Software's Surfer® modeling program. The lighter shades are lower magnetic readings and the darker colors are higher magnetic readings (Figure 5). Ferrous objects in the subsurface have a magnetic field that differs from the surrounding soil and produces positive and negative magnetic anomalies in the magnetic data.

A Ground Penetrating Radar (GPR) survey was completed across the grid and along individual transects using Geophysical Survey Systems, Inc. UtilityScan GPR System with a 350 MHz hyperstacking antenna. This GPR system is equipped with a calibrated survey wheel. The GPR data was downloaded and saved onto a computer. The GPR grid data has been processed and modeled using GPR Slice® software. The GPR data processing included adjusting time zero, completing a background removal and adjusting the time variable gain to enhance deep reflections. Three-dimensional models of the GPR grid and transect data were produced with GPR Slice® software. Three time slices (or depth slices) were imaged in each 3D model at depths of 0.3 to 0.6 feet, 1.4 to 1.7 feet and 1.6 to 1.9 feet (Figures 6 through 8). Each depth slice is a horizontal slice or plan view of the reflections across a 0.3-foot thickness of the subsurface. For example, the deep GPR depth slice shows reflections in the radar data between depths of 1.6 to 1.9 feet.

The GPR transect data has been processed and modeled using Radan® software. The GPR data processing included adjusting time zero, completing a background removal and adjusting the time variable gain to enhance deep reflections. The profiles of the GPR transects are shown in Figures 9a through 9c. Significant anomalies are notated on the profile images.

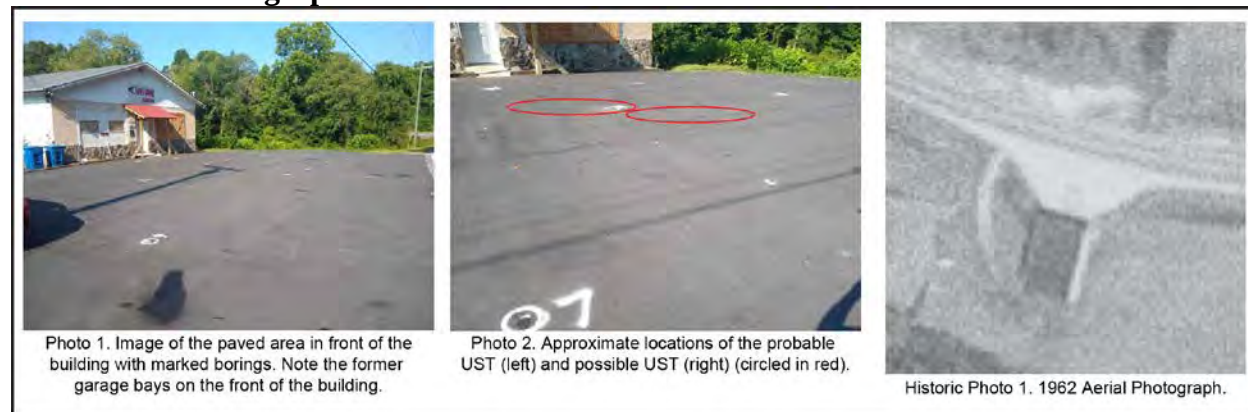
2.3 Soil Sampling and Analyses

On July 14, 2021 Carolina Soil Investigations, LLC mobilized to the site to drill Geoprobe borings and collect soil samples. Our project design typically calls for collecting a shallow and deep soil sample from each boring. The purpose of collecting samples at a depth of ~3.0 feet is to test for petroleum releases related to surface spills and releases from product lines. The purpose of collecting samples at a depth of ~9.0 feet is to test for petroleum releases related to underground storage tanks. Soil borings were drilled within the existing R/W and easements along Speedway Road (Figure 4).

A track-mounted Geoprobe rig was used to drill sixteen soil borings. A new pair of Nitrile gloves was worn while collecting each soil sample. A representative portion of each soil sample was placed in a zip lock bag and allowed to rest for a period of time to allow volatile vapors to accumulate in the headspace of the bag. A calibrated PhoCheck Tiger Photoionization Detector (PID) was used to screen the headspace in each bag and the concentration of volatile petroleum vapors was measured and recorded (Table 1). The texture and type of soil material in the Geoprobe cores was described and recorded. Table 1 lists the boring data including sample number, depth, PID reading, lithology, and type of soil material.

REDLab, LLC provided onsite laboratory analyses for the soil samples collected from the Geoprobe cores. REDLab analyzed the soil samples for petroleum constituents using a QED HC-1 analyzer and the Ultra-Violet Fluorescence method. The analytical results are reported as Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) and Total Petroleum Hydrocarbons (TPH). REDLab provided a hydrocarbon spectrum with each of the sample results. This spectrum is used for a tentative identification of the type of hydrocarbon detected by the analytical method. A hydrocarbon fingerprint is interpreted by REDLab for each sample using a library search of spectra for known hydrocarbon types and concentrations. The laboratory reports and fingerprint spectra are included in Appendix B.

2.4 Plate 1 – Photographs of Parcel #030



3.0 Results of Investigation

Parcel #030 currently operates as a Sweepstakes Parlor. A 1963 aerial photograph shows that East Speedway Road had been developed and the building and driveway at Parcel #030 are present (Plate 1). The next available photographs captured in the years proceeding starting in 1993 show that the property remained developed as it is today and was in 1963. The NCDEQ UST Registered Tanks and Underground Storage Tank Incidents databases do not show any record of existing tanks or previous release incidents at this property.

An employee of the Sweepstakes Parlor familiar with the history of the property recalled that a gas station was formerly operated on the property as recent as the 1960s. He also stated that

there were previously two garage bays in the building before it was remodeled. The former cut-outs for the garage bays can still be seen on the front of the building.

SAPC personnel made a pedestrian reconnaissance of the property during the initial site visit on July 4, 2021. Surficial evidence of a UST system (i.e. vent pipes, fuel dispensers, etc.) was not observed within the proposed easements.

3.1 Geophysical Surveys

A grid of magnetometer data was collected within the PUE north of the building (Figure 5). Scattered isolated negative magnetic anomalies were recorded along the north-central portion of the grid. A broad set of negative magnetic anomalies were recorded in the southern portion of the grid in front of the entrance to the building (Figure 5). This magnetic anomaly is about 20 feet in length and likely related to a UST.

The shallow GPR depth slice (0.3-0.6 feet) for Grid 1 shows a disorganized set of medium amplitude reflections in front of the building (Figure 6). Linear reflections are present along the edge of the pavement on the east and west ends of the grid.

The intermediate GPR depth slice (1.4-1.7 feet) for Grid 1 shows two linear sets of high amplitude reflections in front of the building (Figure 7). The southern set of reflections aligns with the location of the magnetic anomaly (Figures 5 and 7).

The deeper GPR depth slice (1.6 to 1.9 feet) shows the best image of the potential UST (Sufficient geophysical data from both magnetic and radar surveys that is characteristic of a tank) (Figure 8). The second anomaly is slightly north and west of the anomaly in front of the building. This anomaly did not show negative magnetic readings. These UST tend to show positive magnetic readings on one side of the UST and negative on the other end of the UST. The magnetic fields of the two USTs could have caused interference and the second anomaly could be a UST, or this second anomaly is not a UST but related infrastructure. This second GPR anomaly should probably be classified as a possible UST (Sufficient geophysical data from either magnetic or radar surveys that is characteristic of a tank).

Radar reflections characteristic of a UST were not imaged in GPR Profiles 1 through 7 (Figures 9a and 9b). A hyperbola characteristic of a UST was imaged on GPR Transects 8 and 9 collected across the probable UST (Figure 9c).

The magnetic and GPR data indicate the presence of one probable UST. The GPR data indicates a second possible UST.

3.2 Soil Borings, Sampling and Laboratory Analysis

The soil at Parcel #030 consists of fill material over residuum (saprolite) (Table 1). The fill material and the residuum are primarily sandy loam and silty sand. Some shallow samples had small amounts of gravel within sandy loam. Groundwater was encountered at this site in borings B-13 and B-15 in the grassy area near the creek. A soil sample was collected from the

shallow and deep portions of the Geoprobe cores at borings B-7 and B-9 through B-16. Sixteen borings were drilled, and twenty-five soil samples collected. Each soil sample was analyzed for TPH-GRO and DRO (Table B-3).

Soil boring B-10 was drilled in the grassy area on the east side of the parcel along the E. Borings B-11 through B-14 were drilled in the grassy area on the west side of the property along the R/W. There are two separate utility lines in the grassy area on the west side of the property. Therefore, soil borings were distributed in a manner that avoided these utility lines (Figure 3). The remaining nine borings were drilled in the paved parking lot in front of the building.

The laboratory analysis reported that petroleum constituents were not detected at or above NCDEQ UST Action Levels in any of the soil samples collected at Parcel #030 (Table B-3 and Figure 10).

3.3 Conclusions

Parcel #030 is currently operated as a Sweepstakes Parlor. The geophysical surveys imaged anomalies consistent with USTs or infrastructure related to a former UST system. The geophysical data suggests there is one probable and one possible UST located at the parcel. The laboratory analysis reported that petroleum constituents were not detected at or above NCDEQ UST Action Levels in any of the soil samples collected at Parcel #030.

4.0 Recommendations

Seramur & Associates recommends that the one probable UST be properly closed. The area around the one possible UST should be excavated to determine if a second UST is present. If a second UST is located, then it should be properly closed as well. If contaminated soil is encountered in the UST excavation, a licensed geologist or engineer should supervise the excavation and removal of contaminated soil. Contaminated soil removed from Parcel #030 should be sent to a remediation facility.

Appendix A

Tables and Figures

Table 1. Soil Boring Data - Parcel #030						
Boring No.	Depth (ft)	Lithology	Soil type	Soil Sample	PID ppm	Comments
B-1	0.0 to 5.0	Silt loam w/ gravel	Fill	N/A	N/A	
B-1	5.0 to 6.5	Silt loam w/ gravel	Fill	N/A	N/A	
B-1	6.5 to 10.0	Silt loam	Residuum	S-1	0.0	Sample at 7.5 feet.
B-2	0.0 to 2.5	Sandy loam	Fill	N/A	N/A	
B-2	2.5 to 5.0	N/A	N/A	N/A	N/A	No recovery.
B-2	5.0 to 6.0	Cave in	Cave In	N/A	N/A	
B-2	6.0 to 7.5	Silt loam	Fill	S-2	0.0	Sample at 7.0 feet.
B-2	7.5 to 10.0	N/A	N/A	N/A	N/A	No recovery.
B-3	0.0 to 3.0	Silt loam	Fill	N/A	N/A	
B-3	3.0 to 5.0	N/A	N/A	N/A	N/A	No recovery.
B-3	5.0 to 5.5	Silt loam	Fill	N/A	N/A	
B-3	5.5 to 7.0	Silty sand	Residuum	S-3	0.0	Sample at 7.0 feet. Refusal at 7.0 feet.
B-4	0.0 to 2.5	Sandy loam w/ gravel	Fill	N/A	N/A	
B-4	2.5 to 5.0	N/A	N/A	N/A	N/A	No recovery.
B-4	5.0 to 8.5	Sandy loam	Fill	N/A	N/A	
B-4	8.5 to 10.0	Sandy loam	Residuum	S-4	0.0	Sample at 8.5 feet.
B-5	0.0 to 3.5	Silt loam w/ gravel	Fill	N/A	N/A	
B-5	3.5 to 5.0	Silty sand	Residuum	N/A	N/A	
B-5	5.0 to 10.0	Silty sand	Residuum	S-5	0.0	Sample at 7.5 feet.
B-6	0.0 to 5.0	Sandy loam w/ gravel	Fill	N/A	N/A	
B-6	5.0 to 8.5	Sandy loam	Fill	S-6	0.0	Sample at 7.5 feet.
B-6	8.5 to 10.0	Sandy loam	Residuum	N/A	N/A	
B-7	0.0 to 5.0	Silty sand	Fill	S-7	0.0	Sample at 3.0 feet.
B-7	5.0 to 7.0	Sandy loam	Fill	N/A	N/A	
B-7	7.0 to 10.0	Sandy loam	Residuum	S-8	0.0	Sample at 7.5 feet.
B-8	0.0 to 2.0	Silty sand	Fill	N/A	N/A	
B-8	2.0 to 4.0	Sandy loam	Fill	N/A	N/A	
B-8	4.0 to 5.0	N/A	N/A	N/A	N/A	No recovery.
B-8	5.0 to 7.0	Sandy loam	Fill	N/A	N/A	
B-8	7.0 to 10.0	Sandy loam	Residuum	S-9	0.0	Sample at 7.0 feet.
B-9	0.0 to 2.0	Silt loam	Fill	N/A	N/A	
B-9	2.0 to 4.0	Sandy loam	Residuum	S-10	0.0	Sample at 3.5 feet.
B-9	4.0 to 5.0	N/A	N/A	N/A	N/A	No recovery.
B-9	5.0 to 7.5	Sandy loam w/ gravel	Residuum	S-11	0.1	Sample at 7.0 feet.
B-9	7.5 to 10.0	N/A	N/A	N/A	N/A	No recovery.
B-10	0.0 to 1.0	Sandy loam	Fill	N/A	N/A	
B-10	1.0 to 4.0	Silty sand	Residuum	S-12	0.0	Sample at 3.5 feet.
B-10	4.0 to 5.0	N/A	N/A	N/A	N/A	No recovery.
B-10	5.0 to 10.0	Silt loam w/ gravel	Residuum	S-13	0.0	Sample at 8.0 feet.
B-11	0.0 to 3.5	Sandy loam	Fill	S-14	0.1	Sample at 2.5 feet.
B-11	3.5 to 5.0	N/A	N/A	N/A	N/A	No recovery.
B-11	5.0 to 9.0	Silty sand w/ gravel	Residuum	S-15	0.1	Sample at 8.0 feet.
B-11	9.0 to 10.0	N/A	N/A	N/A	N/A	No recovery.
B-12	0.0 to 2.0	Sandy loam	Fill	S-16	0.0	Sample at 1.5 feet.
B-12	2.0 to 5.0	N/A	N/A	N/A	N/A	No recovery.
B-12	5.0 to 6.5	Silt loam	Residuum	S-17	0.0	Sample at 6.25 feet. Wet and stained soil 6.0 to 6.5
B-12	6.5 to 10.0	Sandy silt	Residuum	N/A	N/A	
B-13	0.0 to 2.0	Sandy loam	Fill	S-18	0.0	Sample at 1.0 feet.
B-13	2.0 to 5.0	N/A	N/A	N/A	N/A	No recovery.
B-13	5.0 to 7.5	Sandy silt	Residuum	S-19	0.0	Sample at 7.0 feet.
B-13	7.5 to 8.5	Sandy silt w/ gravel	Residuum	N/A	N/A	Stained soil.
B-13	8.5 to 10.0	Silt loam	Residuum	N/A	N/A	
B-14	0.0 to 1.5	Sandy loam	Fill	S-20	0.0	Sample at 1.0 feet.
B-14	1.5 to 5.0	N/A	N/A	N/A	N/A	No recovery.
B-14	5.0 to 6.5	N/A	N/A	N/A	N/A	No recovery.
B-14	6.5 to 8.5	Silt loam	Residuum	S-21	0.1	Sample at 7.5 feet. Wet and stained soil (sewage).
B-14	8.5 to 10.0	Sandy silt	Residuum	N/A	N/A	
B-15	0.0 to 5.0	Silt loam	Fill	S-22	0.2	Sample at 3.0 feet.
B-15	5.0 to 6.5	Silt loam	Fill	N/A	N/A	
B-15	6.5 to 10.0	Silty sand	Residuum	S-23	0.1	Sample at 9.0 feet.
B-16	0.0 to 4.0	Silt loam	Fill	S-24	0.0	Sample at 2.5 feet.
B-16	4.0 to 5.0	Silty sand	Residuum	N/A	N/A	
B-16	5.0 to 9.0	Silty sand	Residuum	S-25	0.0	Sample at 7.5 feet.
B-16	9.0 to 10.0	N/A	N/A	N/A	N/A	No recovery.

Table B-3: Summary of Soil Sampling Results

Revision Date: 07/14/21

Incident Name: Parcel #030

Analytical Method (e.g., VOC by EPA 8260) →					UVF	UVF
Contaminant of Concern →					TPH GRO (mg/kg)	TPH DRO (mg/kg)
Sample ID	Date Collected (mm/dd/yy)	Source Area	Sample Depth (ft. BGS)	Incident Phase		
S-1	07/14/21	B-1	7.5	Phase II	<0.5	<0.2
S-2	07/14/21	B-2	7.0	Phase II	<0.5	0.27
S-3	07/14/21	B-3	7.0	Phase II	<0.4	<0.19
S-4	07/14/21	B-4	8.5	Phase II	<0.5	<0.2
S-5	07/14/21	B-5	7.5	Phase II	<0.5	0.9
S-6	07/14/21	B-6	7.5	Phase II	<0.5	0.8
S-7	07/14/21	B-7	3.0	Phase II	<0.5	0.3
S-8	07/14/21	B-7	7.5	Phase II	<0.6	<0.24
S-9	07/14/21	B-8	7.0	Phase II	<0.5	0.09
S-11	07/14/21	B-9	7.0	Phase II	<0.5	0.2
S-13	07/14/21	B-10	8.0	Phase II	<0.17	<0.07
S-14	07/14/21	B-11	2.5	Phase II	<0.5	<0.23
S-17	07/14/21	B-12	6.25	Phase II	<0.3	0.1
S-19	07/14/21	B-13	7.0	Phase II	<0.4	1.6
S-21	07/14/21	B-14	7.5	Phase II	<0.6	3.4
S-22	07/15/21	B-15	3.0	Phase II	<0.5	<0.21
S-23	07/15/21	B-15	9.0	Phase II	<0.5	<0.23
S-24	07/15/21	B-16	2.5	Phase II	<0.6	<0.25
S-25	07/15/21	B-16	7.5	Phase II	<0.5	0.9
NC DEQ Action Level (mg/kg)					50	100

ft. BGS = feet below ground surface
mg/kg = milligrams per kilogram

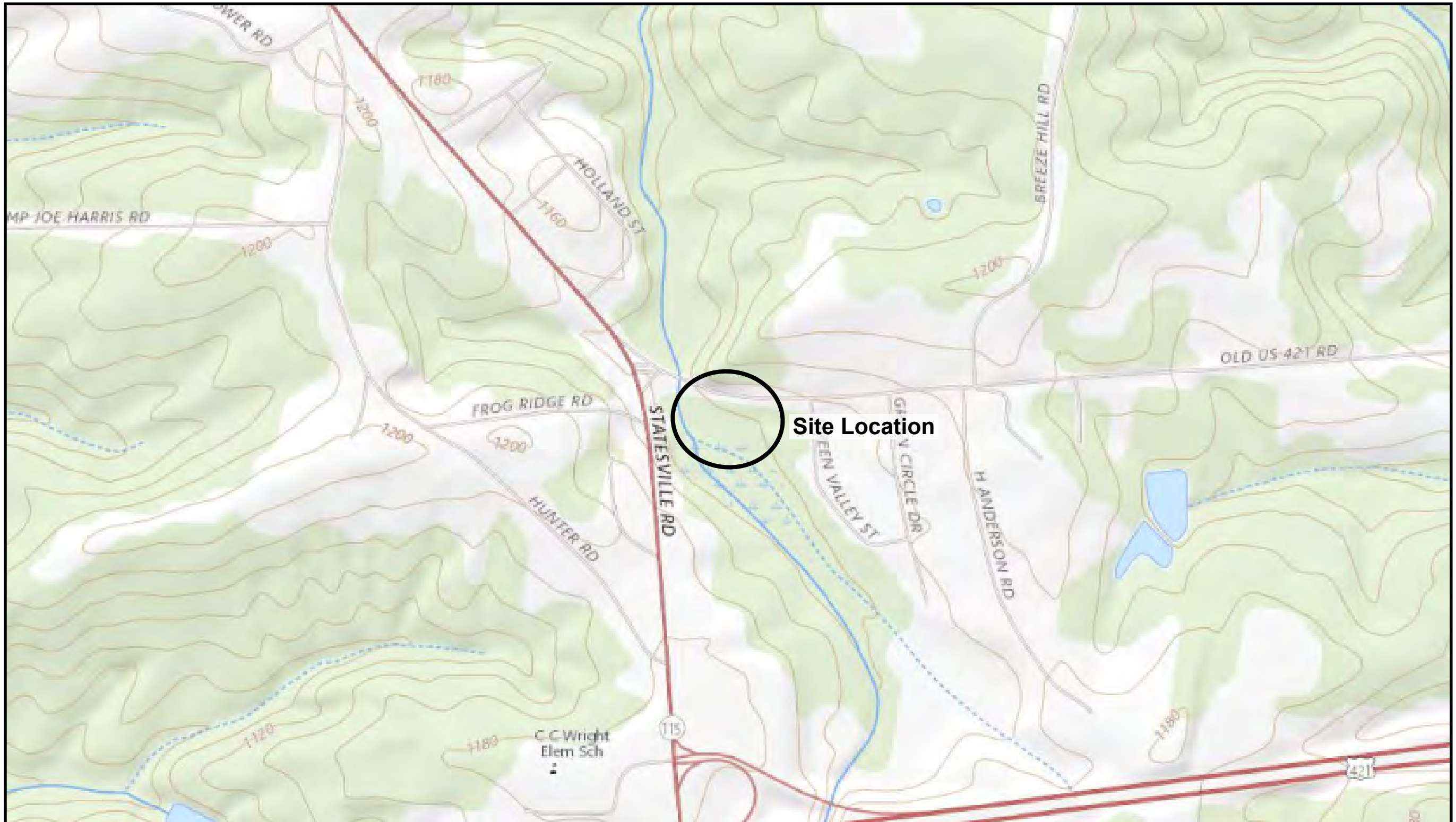


Figure 1 Site Location Map Source: U.S.G.S. The National Map	TIP Number: R-5759 Wilkes County, NC	S.A. Johnson et al. Property 180 Speedway Road North Wilkesboro, NC	Parcel I.D. #: 030 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC	0 400 800 Feet N
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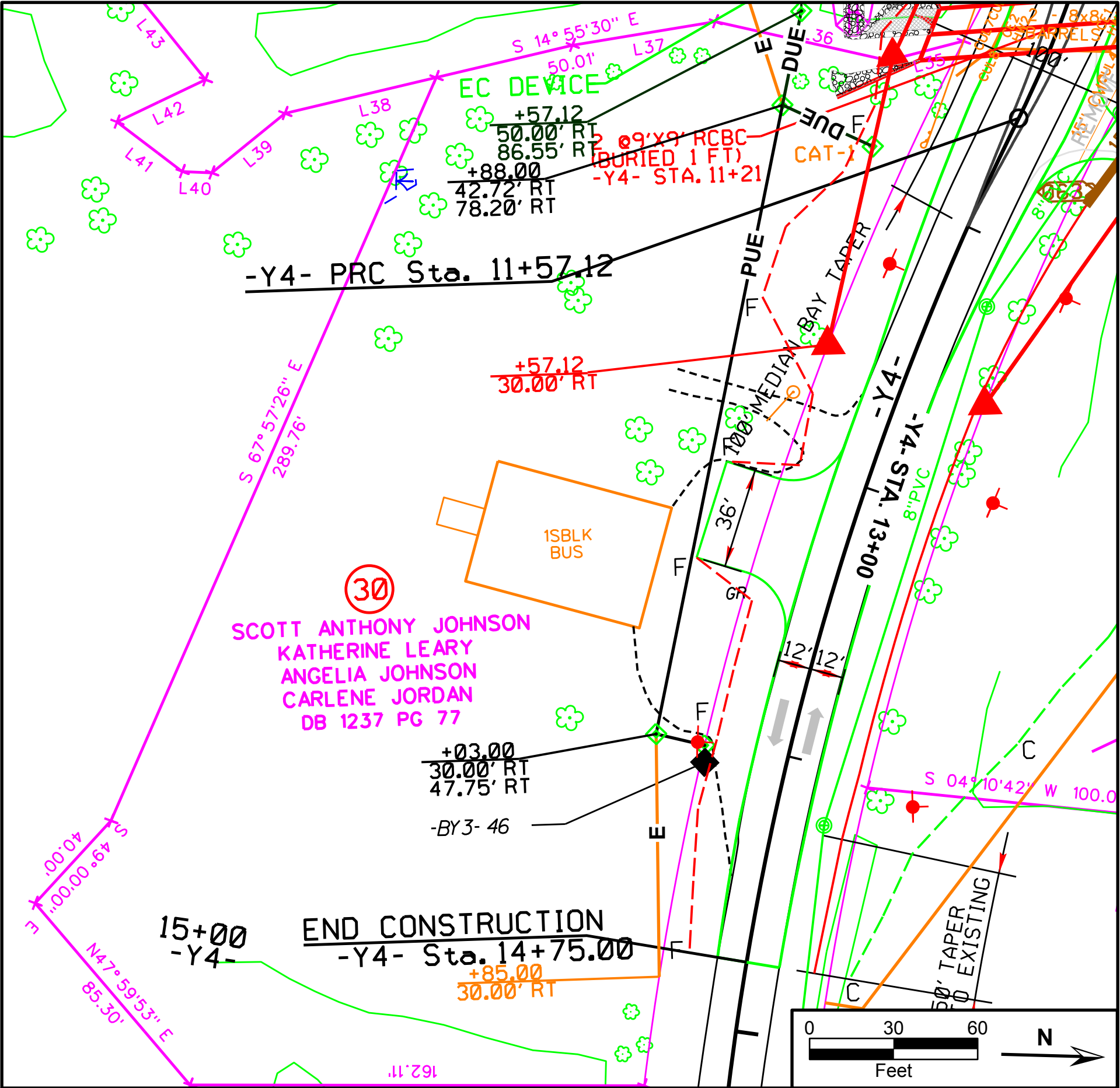


Figure 2 Site Plan	TIP Number: R-5759 Wilkes County, NC	S.A. Johnson et al. Property 180 Speedway Road North Wilkesboro, NC	Parcel I.D. #: 030 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC
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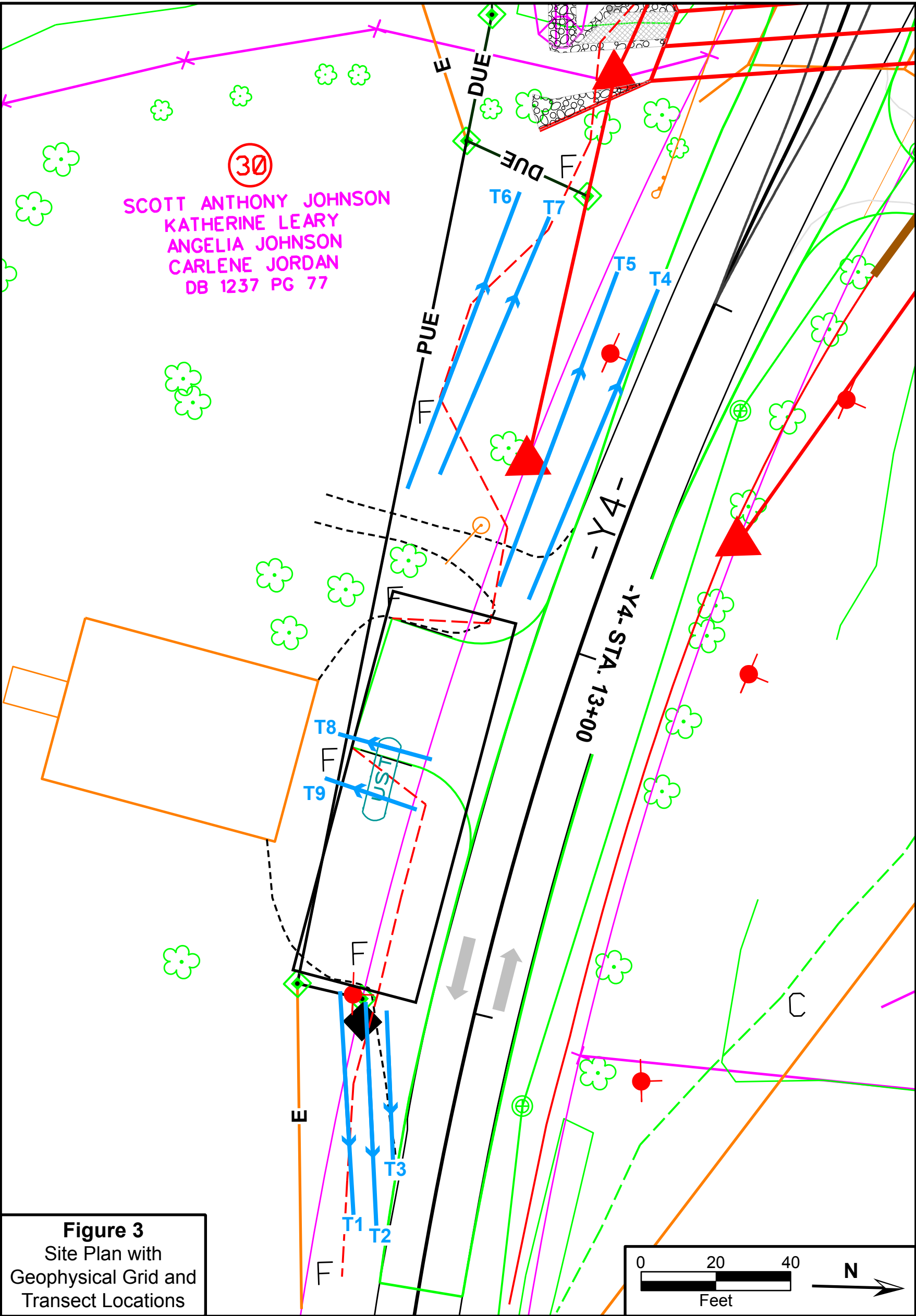


Figure 3
Site Plan with
Geophysical Grid and
Transect Locations

TIP Number: R-5759
Wilkes County, NC

S.A. Johnson et al. Property
180 Speedway Road
North Wilkesboro, NC

Parcel I.D. #: 030
Facility I.D. #: N/A

Seramur & Associates, PC
Boone, NC

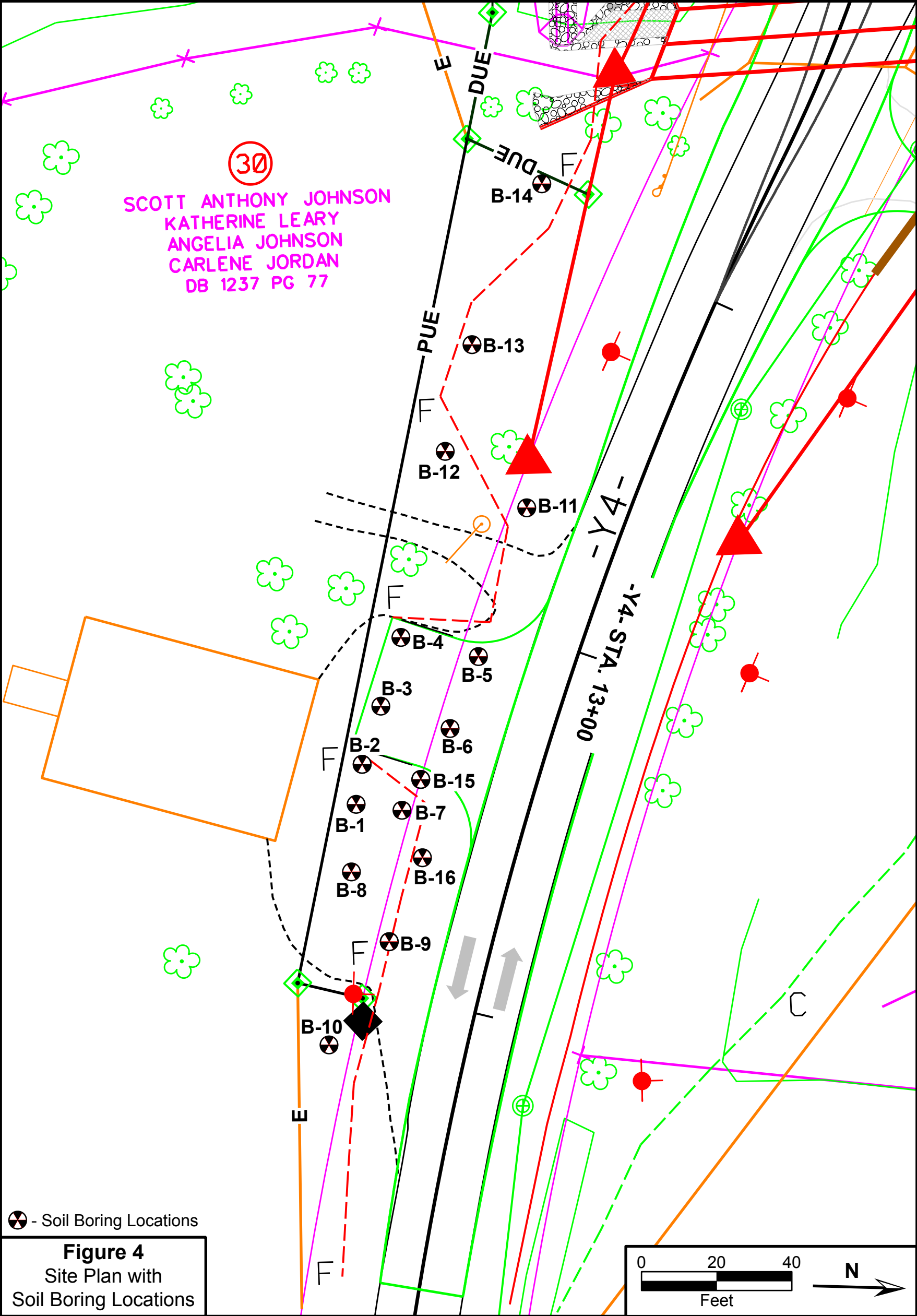


Figure 4
Site Plan with
Soil Boring Locations

TIP Number: R-5759
Wilkes County, NC

S.A. Johnson et al. Property
180 Speedway Road
North Wilkesboro, NC

Parcel I.D. #: 030
Facility I.D. #: N/A

Seramur & Associates, PC
Boone, NC

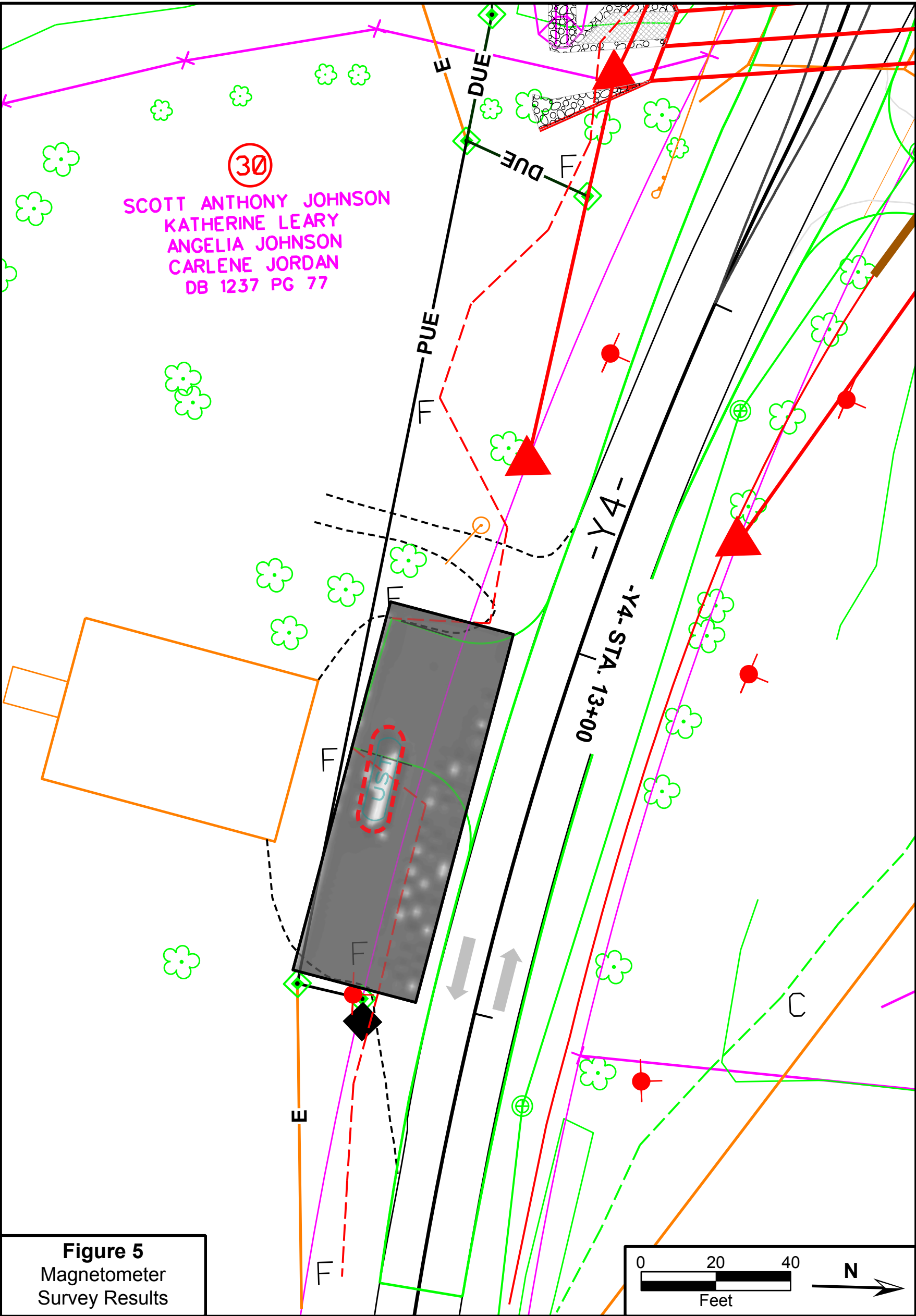
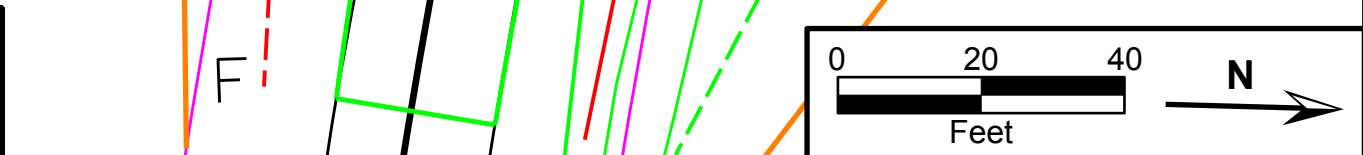


Figure 5 Magnetometer Survey Results			
TIP Number: R-5759 Wilkes County, NC	S.A. Johnson et al. Property 180 Speedway Road North Wilkesboro, NC	Parcel I.D. #: 030 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC

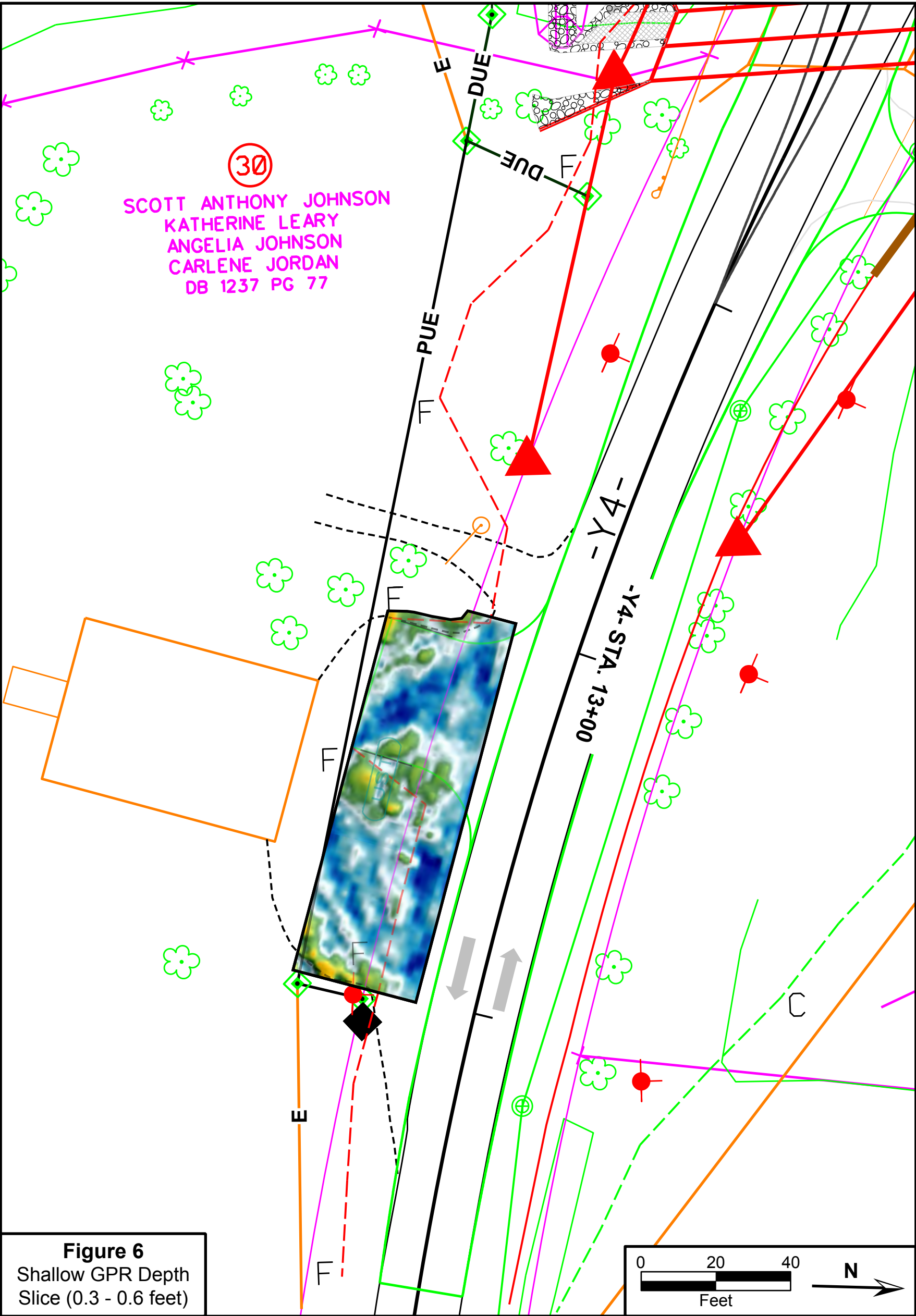


Figure 6
Shallow GPR Depth
Slice (0.3 - 0.6 feet)

TIP Number: R-5759
Wilkes County, NC

S.A. Johnson et al. Property
180 Speedway Road
North Wilkesboro, NC

Parcel I.D. #: 030
Facility I.D. #: N/A

Seramur & Associates, PC
Boone, NC

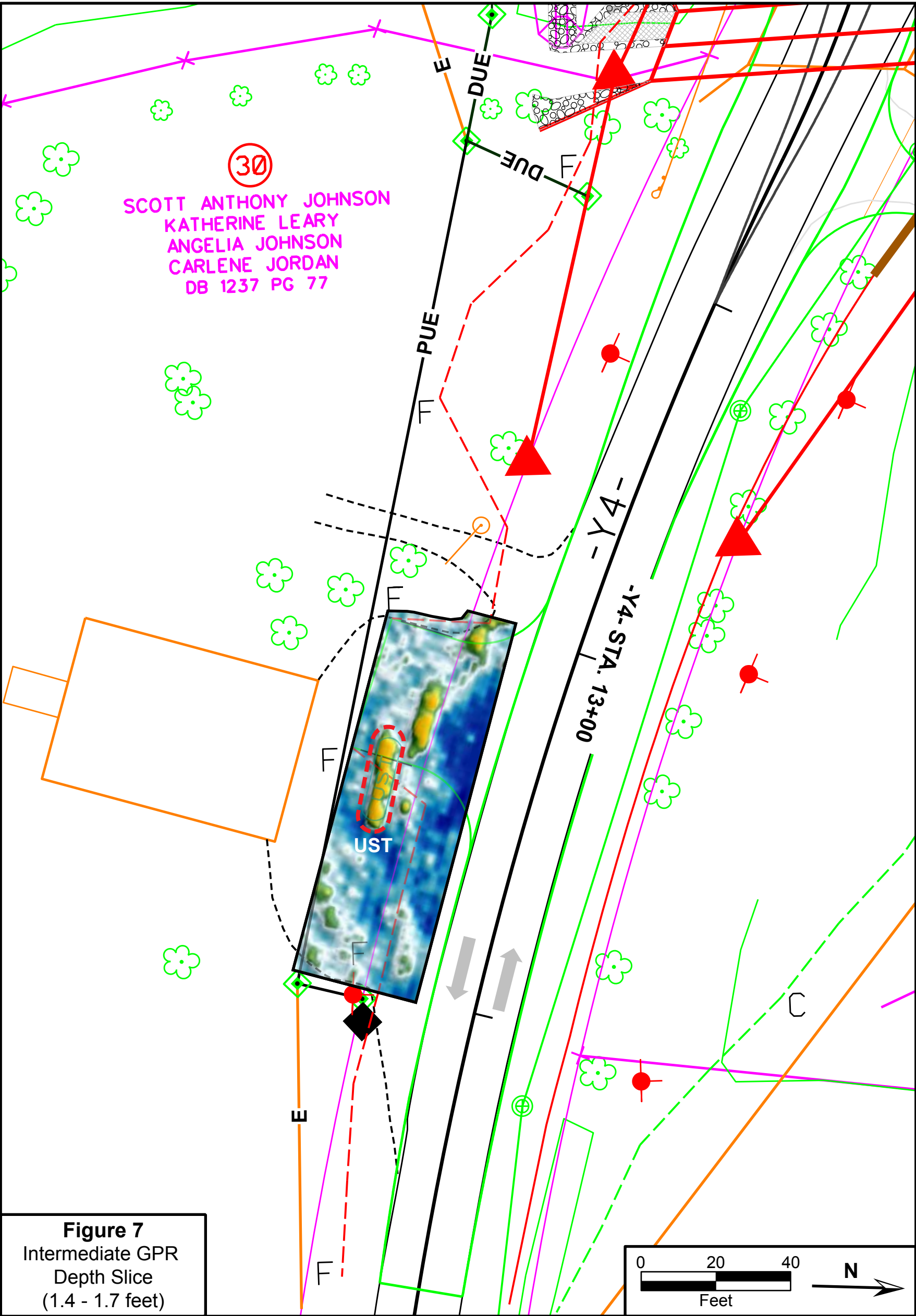


Figure 7
Intermediate GPR
Depth Slice
(1.4 - 1.7 feet)

TIP Number: R-5759
Wilkes County, NC

S.A. Johnson et al. Property
180 Speedway Road
North Wilkesboro, NC

Parcel I.D. #: 030
Facility I.D. #: N/A

Seramur & Associates, PC
Boone, NC

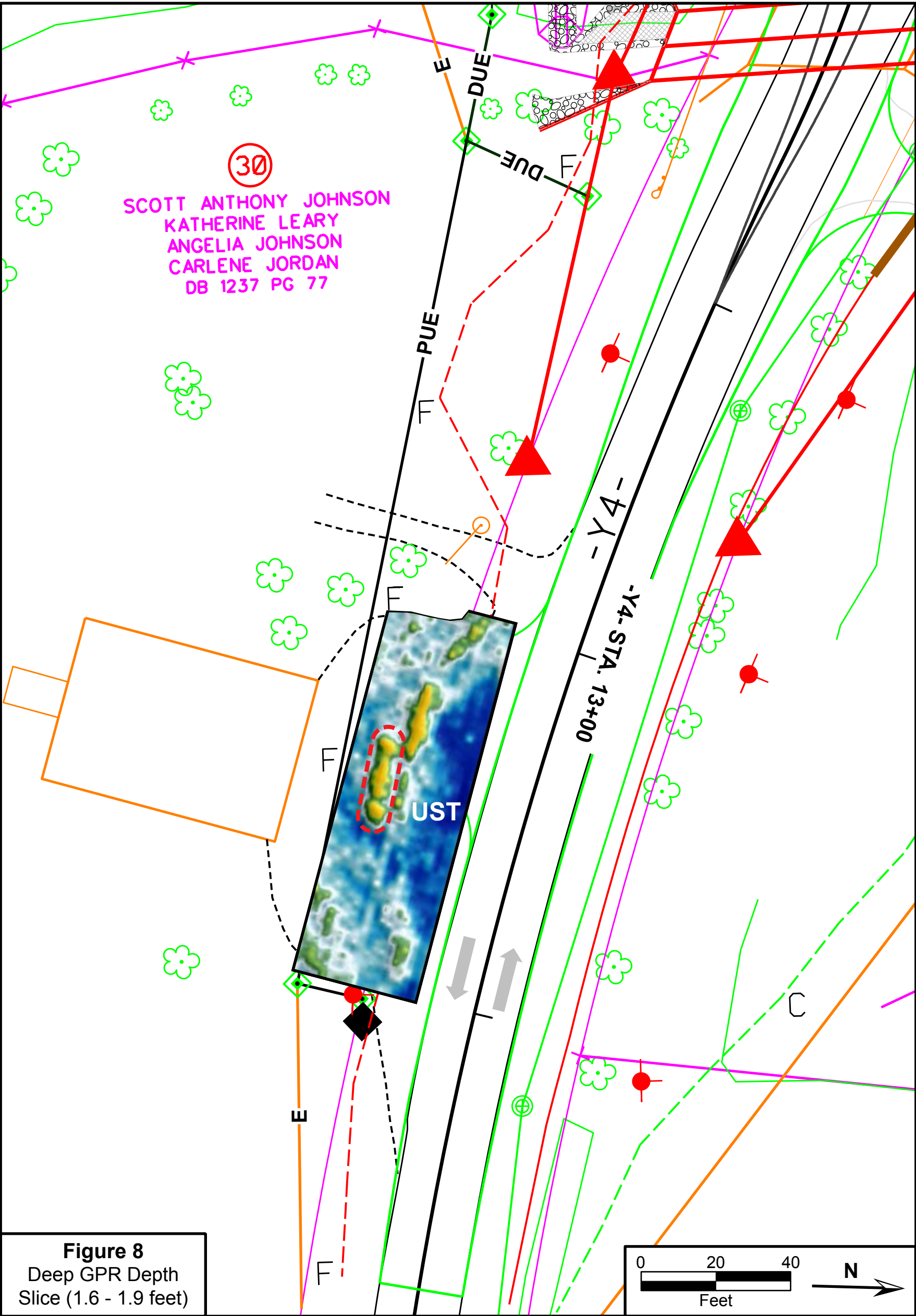


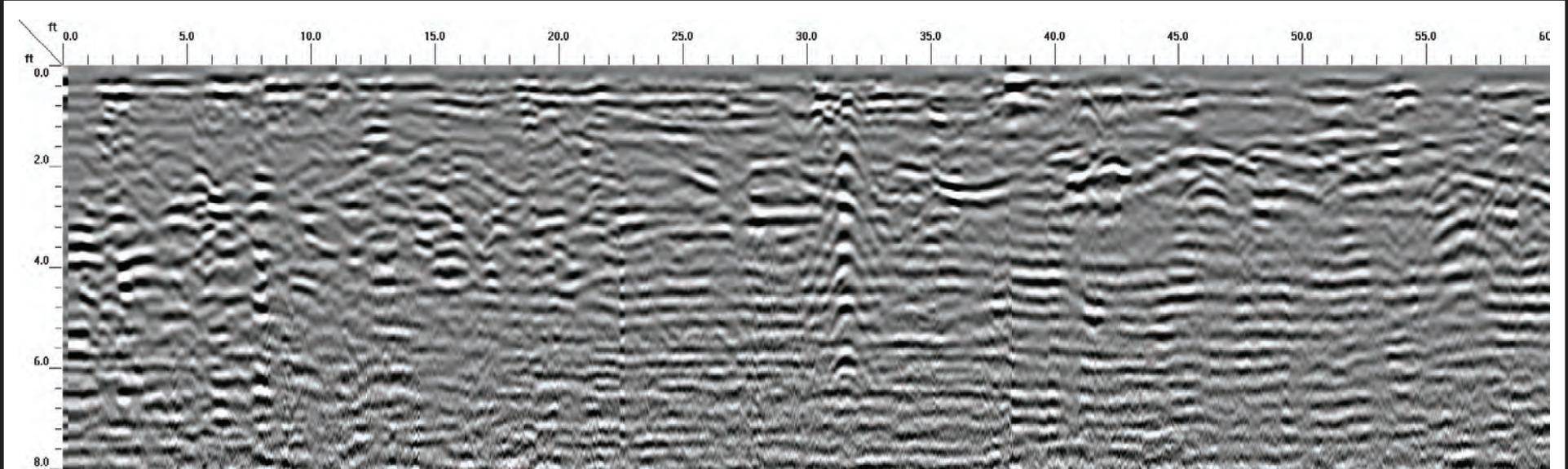
Figure 8
Deep GPR Depth
Slice (1.6 - 1.9 feet)

TIP Number: R-5759
Wilkes County, NC

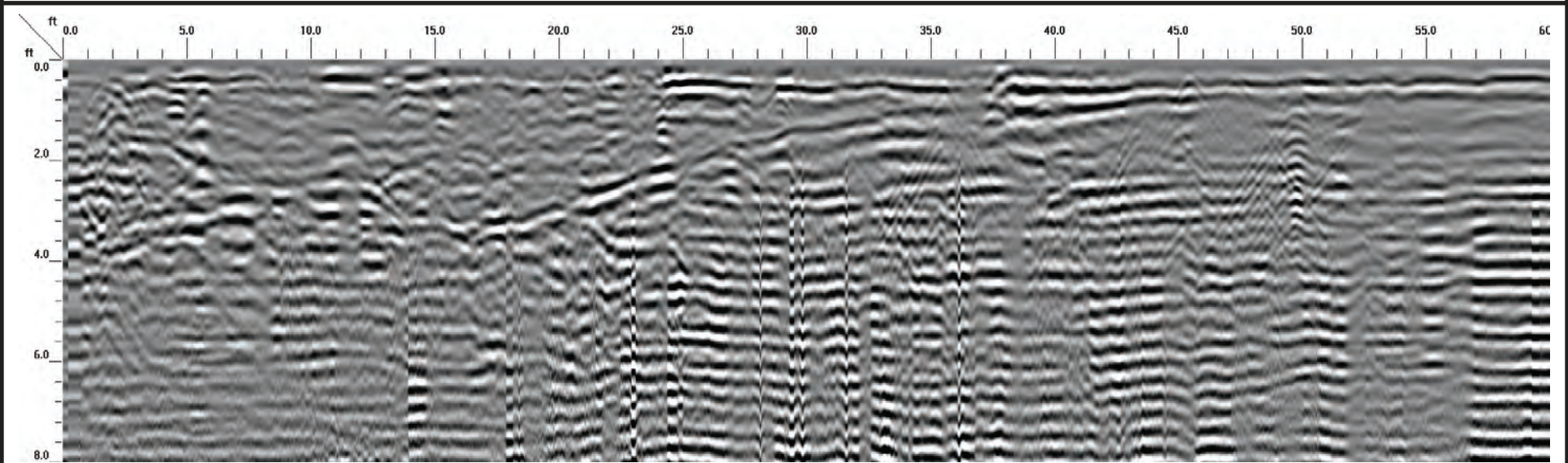
S.A. Johnson et al. Property
180 Speedway Road
North Wilkesboro, NC

Parcel I.D. #: 030
Facility I.D. #: N/A

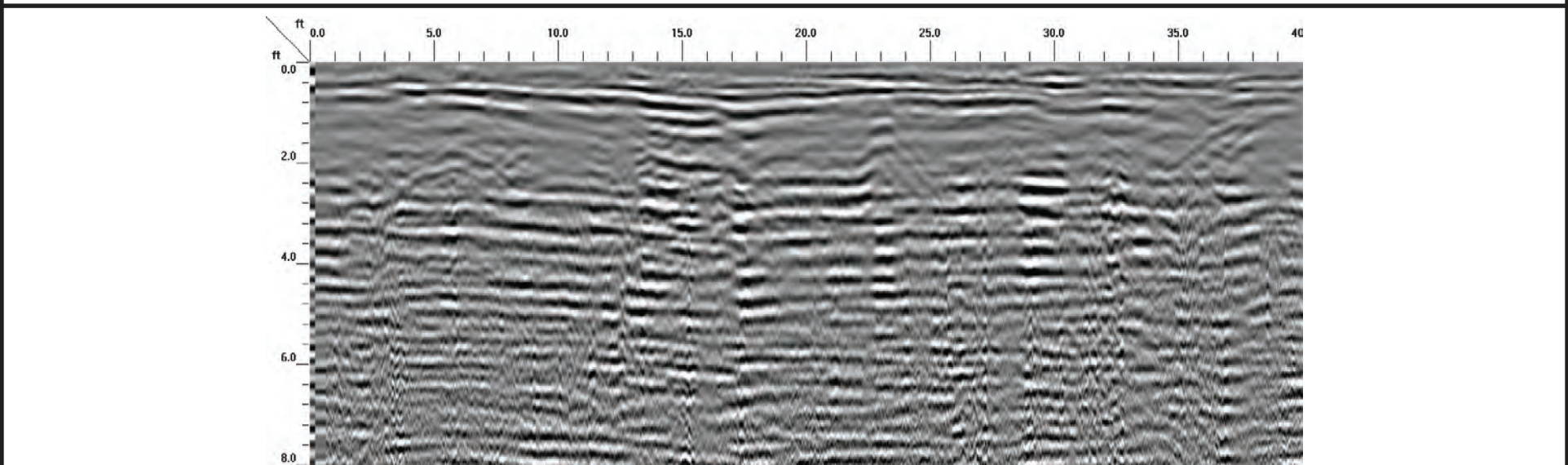
Seramur & Associates, PC
Boone, NC



Transect 1

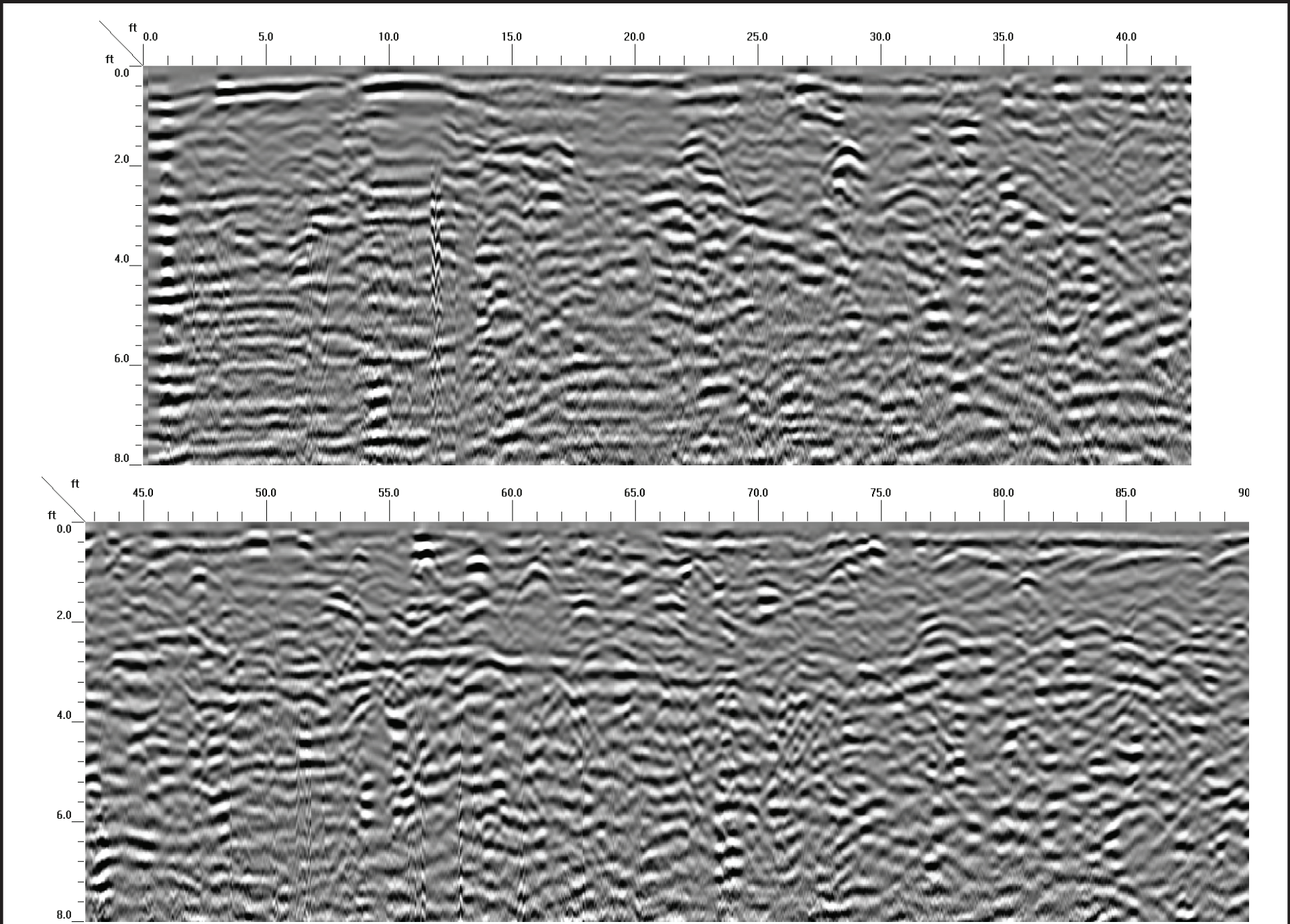


Transect 2

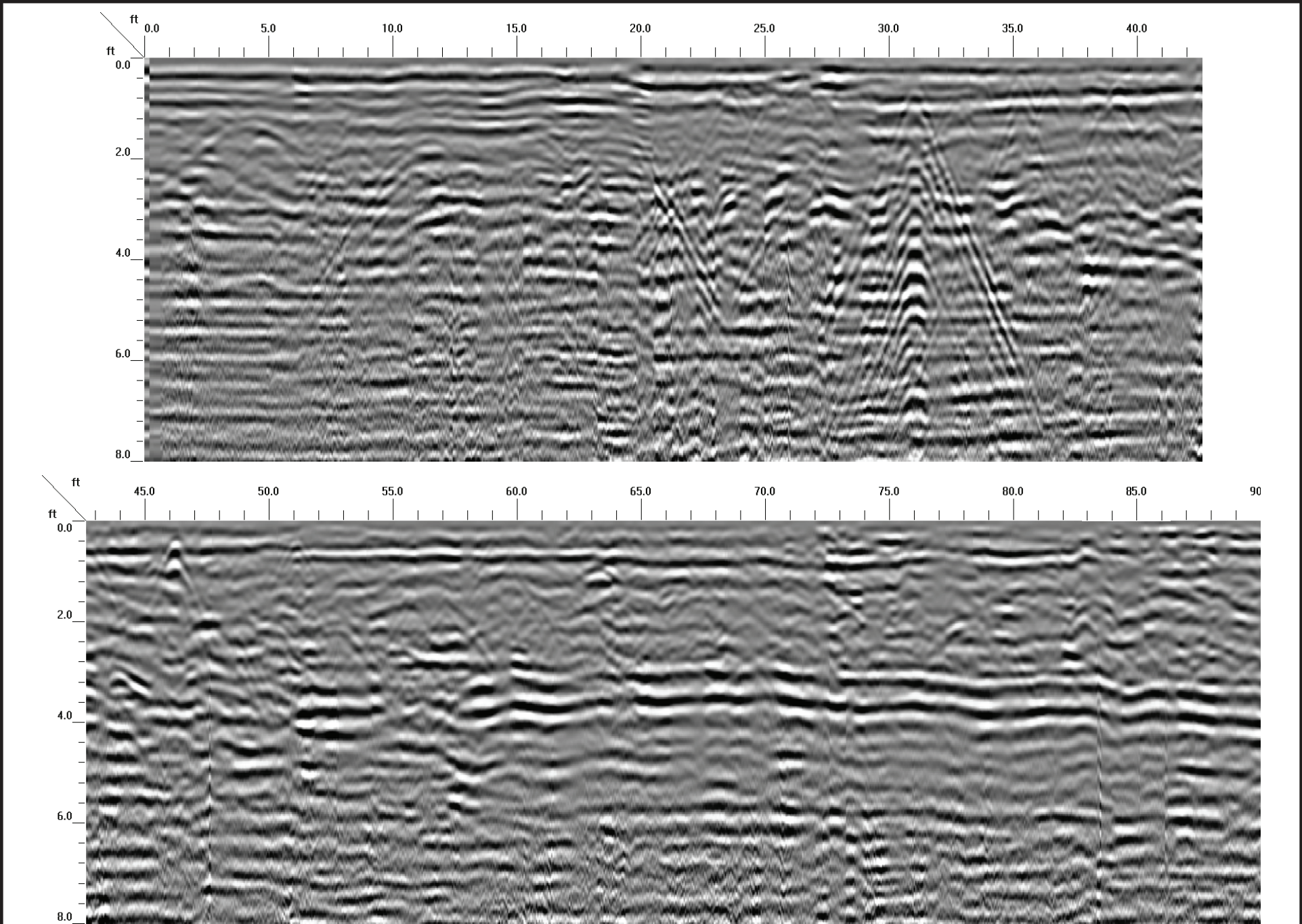


Transect 3

Figure 9a GPR Transects 1 through 3	TIP Number: R-5759 Wilkes County, NC	S.A. Johnson et al. Property 180 Speedway Road North Wilkesboro, NC	Parcel I.D. #: 030 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC
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Transect 4



Transect 5

Figure 9b GPR Transects 4 and 5	TIP Number: R-5759 Wilkes County, NC	S.A. Johnson et al. Property 180 Speedway Road North Wilkesboro, NC	Parcel I.D. #: 030 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC
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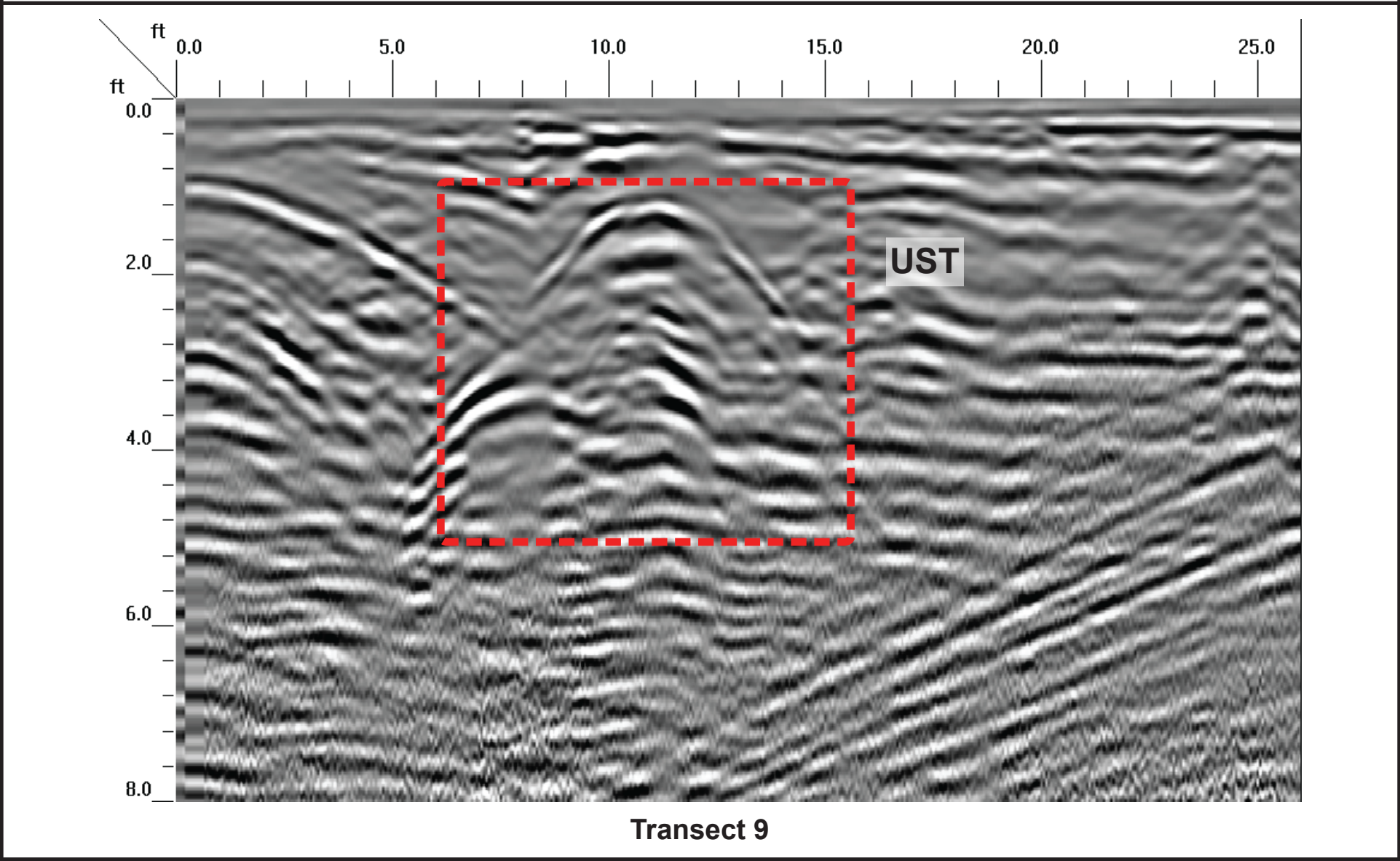
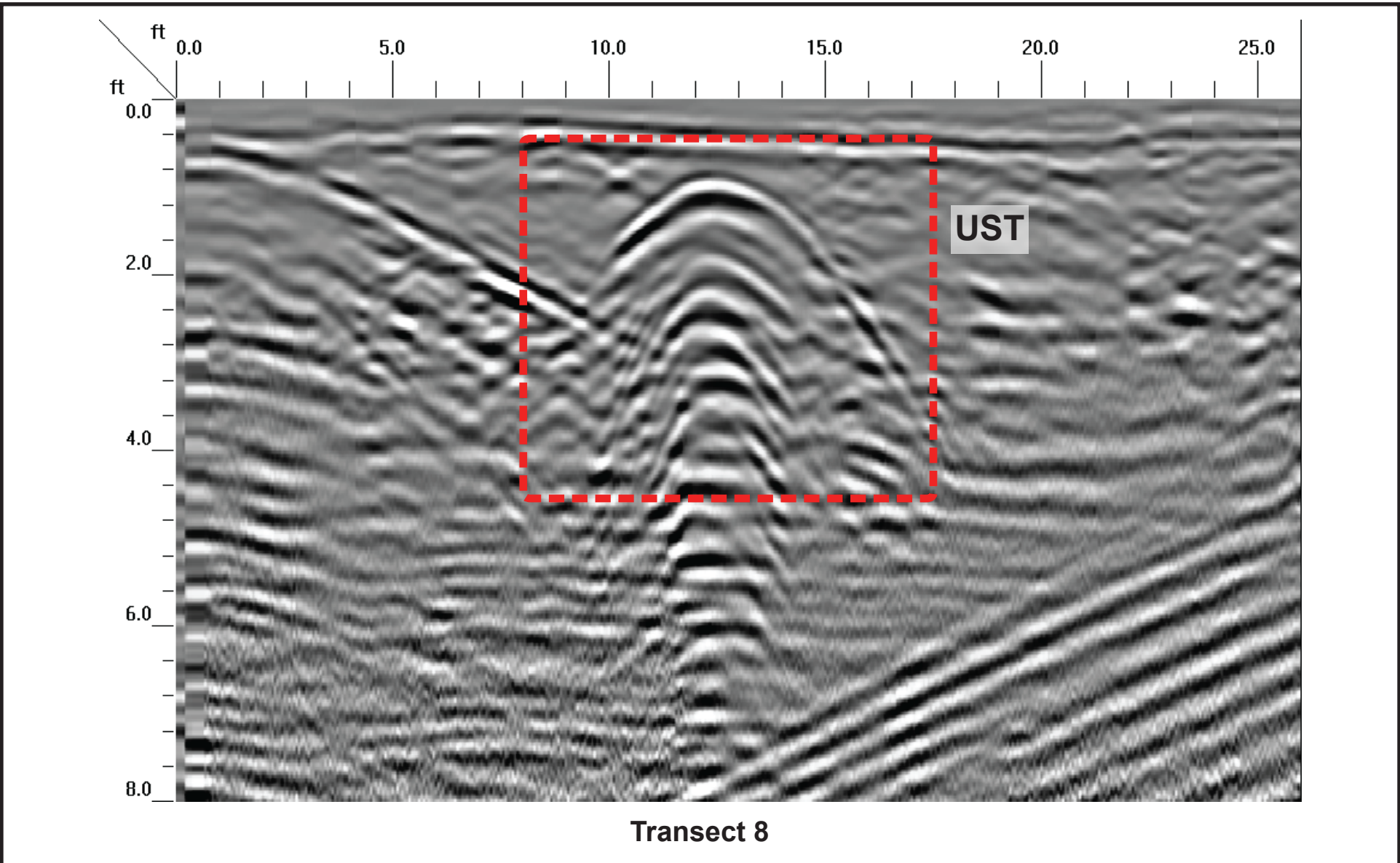
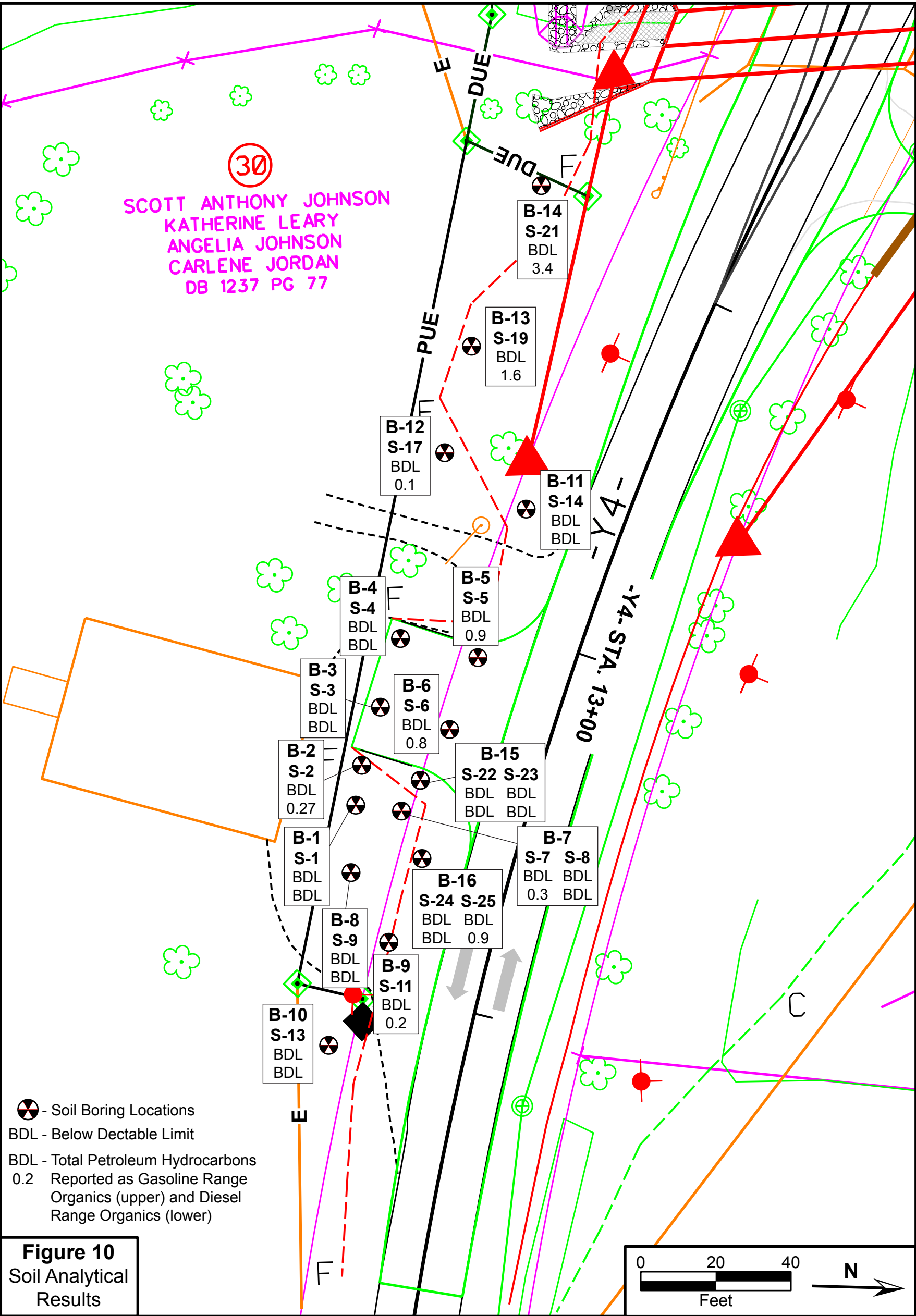


Figure 9c GPR Transects 8 and 9	TIP Number: R-5759 Wilkes County, NC	S.A. Johnson et al. Property 180 Speedway Road North Wilkesboro, NC	Parcel I.D. #: 030 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC
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TIP Number: R-5759 Wilkes County, NC	S.A. Johnson et al. Property 180 Speedway Road North Wilkesboro, NC	Parcel I.D. #: 030 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC
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Appendix B
Laboratory Reports

Hydrocarbon Analysis Results



Client: SERAMUR & ASSOCIATES

Address:



Samples taken

Samples extracted

Samples analysed



Wednesday, July 14, 2021

Wednesday, July 14, 2021

Wednesday, July 14, 2021

Contact: KEITH SERAMUR

Operator

MAX MOYER

Project: NCDOT R-5759 ; PARCEL 30

													T03308
Matrix	Sample ID	Dilution used	BTEX	GRO	DRO	TPH	Total Aromatics	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
			C6-C9	C5-C10	C10-C35	C5-C35	C10-C35			C5:10	C10:C18	C18+	
Soil	S-1	20.0	<0.5	<0.5	<0.2	<0.5	<0.01	<0.01	<0.006	0	100	0	Residual HC
Soil	S-2	21.0	<0.5	<0.5	0.27	0.27	0.26	0.01	<0.006	0	95.6	4.4	Residual PHC
Soil	S-3	19.0	<0.4	<0.4	<0.19	<0.4	<0.01	<0.01	<0.006	0	0	0	PHC ND,(FCM)
Soil	S-4	20.0	<0.5	<0.5	<0.2	<0.5	<0.01	<0.01	<0.006	0	100	0	Residual HC
Soil	S-5	20.0	<0.5	<0.5	0.9	0.9	0.4	0.024	0.001	0	76.3	23.7	V.Deg.PHC 77.4%,(FCM)
Soil	S-6	20.0	<0.5	<0.5	0.8	0.8	0.08	0.007	0.001	0	100	0	Deg Fuel 51.2%,(FCM)
Soil	S-7	23.0	<0.5	<0.5	0.3	0.3	0.16	0.009	<0.001	0	73.6	26.4	V.Deg.PHC 68.5%,(FCM)
Soil	S-8	24.0	<0.6	<0.6	<0.24	0.05	0.05	0.005	<0.007	0	100	0	Residual HC
Soil	S-9	23.0	<0.5	<0.5	0.09	0.09	0.08	0.008	<0.001	0	90.1	9.9	Residual HC
Soil	S-11	22.0	<0.5	<0.5	0.2	0.2	0.08	0.005	<0.007	0	81.9	18.1	Residual HC
Initial Calibrator QC check			OK			Final FCM QC Check			OK			93.4%	

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

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

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

% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only.

Data generated by HC-1 Analyser

Hydrocarbon Analysis Results



Client: SERAMUR & ASSOCIATES

Address:



Samples taken

Samples extracted

Samples analysed



Wednesday, July 14, 2021

Wednesday, July 14, 2021

Wednesday, July 14, 2021

Contact: KEITH SERAMUR

Operator

MAX MOYER

Project: NCDOT R-5759 ; PARCEL 30

													T03308
Matrix	Sample ID	Dilution used	BTEX	GRO	DRO	TPH	Total Aromatics	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
			C6-C9	C5-C10	C10-C35	C5-C35	C10-C35			C5:10	C10:C18	C18+	
Soil	S-13	7.0	<0.17	<0.17	<0.07	<0.17	<0.004	<0.004	<0.002	0	0	0	PHC ND,(FCM)
Soil	S-14	23.0	<0.5	<0.5	<0.23	0.03	0.03	0.004	<0.007	0	54.4	45.6	Residual HC
Soil	S-17	15.0	<0.3	<0.3	0.1	0.1	0.05	0.003	<0.005	0	82.5	17.5	Residual HC
Soil	S-19	18.0	<0.4	<0.4	1.6	1.6	0.8	0.04	0.001	0	72	28	V.Deg.PHC 49.9%,(FCM)
Soil	S-21	24.0	<0.6	<0.6	3.4	3.4	1.9	0.1	0.002	0	78.7	21.3	V.Deg.PHC 69.8%,(FCM)
Initial Calibrator QC check			OK			Final FCM QC Check			OK			96.9%	

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

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

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

% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only.

Data generated by HC-1 Analyser

Hydrocarbon Analysis Results



Client: SERAMUR & ASSOCIATES

Address:



Samples taken

Samples extracted

Samples analysed



Thursday, July 15, 2021

Thursday, July 15, 2021

Thursday, July 15, 2021

Contact: KEITH SERAMUR

Operator

MAX MOYER

Project: NCDOT R-5759 ; PARCEL 30

													T03308
Matrix	Sample ID	Dilution used	BTEX	GRO	DRO	TPH	Total Aromatics	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
			C6-C9	C5-C10	C10-C35	C5-C35	C10-C35			C5:10	C10:C18	C18+	
Soil	S-22	21.0	<0.5	<0.5	<0.21	0.016	0.016	<0.0	<0.006	0	100	0	Residual HC
Soil	S-23	23.0	<0.5	<0.5	<0.23	<0.5	<0.012	<0.012	<0.007	0	0	0	PHC ND,(FCM)
Soil	S-24	25.0	<0.6	<0.6	<0.25	<0.6	<0.013	<0.013	<0.008	0	0	100	Residual HC
Soil	S-25	23.0	<0.5	<0.5	0.9	0.9	0.5	0.013	<0.003	0	92.8	7.2	Deg.PHC 85.6%,(FCM)
Initial Calibrator QC check			OK		Final FCM QC Check					OK		91.2%	

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

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

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

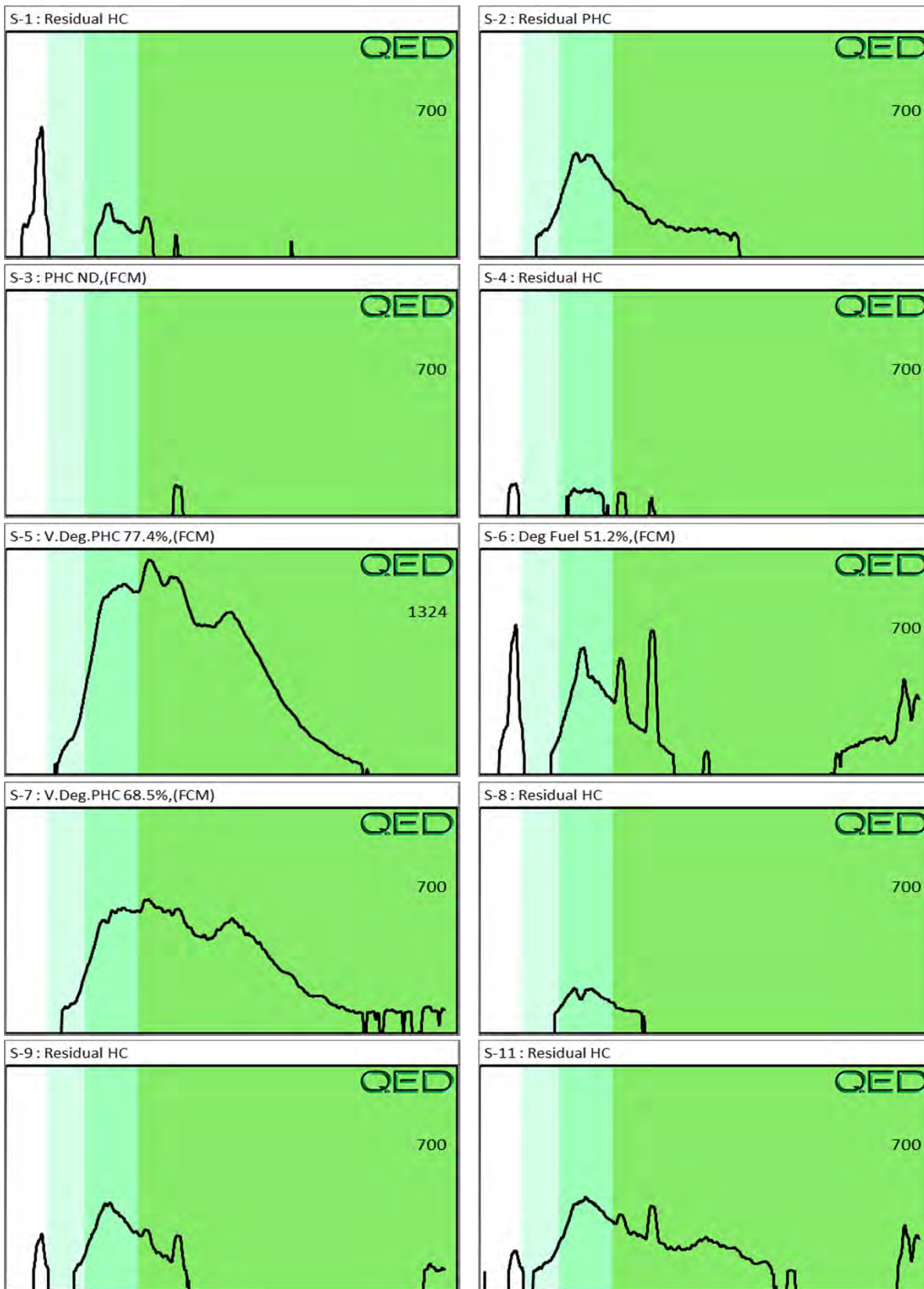
% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only.

Data generated by HC-1 Analyser

QED Hydrocarbon Fingerprints

Project: NCDOT R-5759

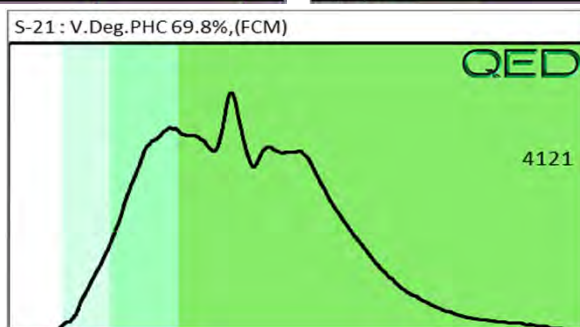
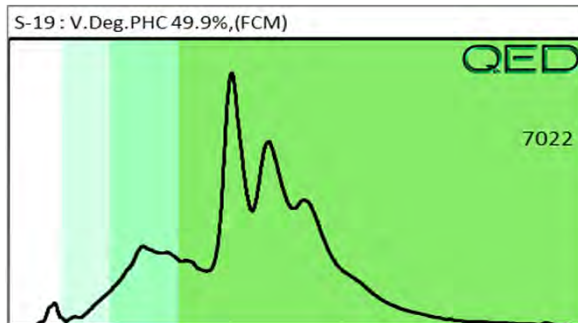
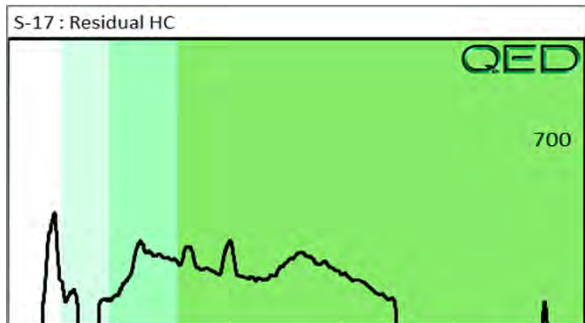
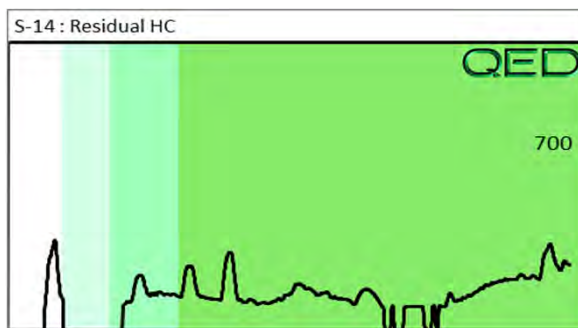
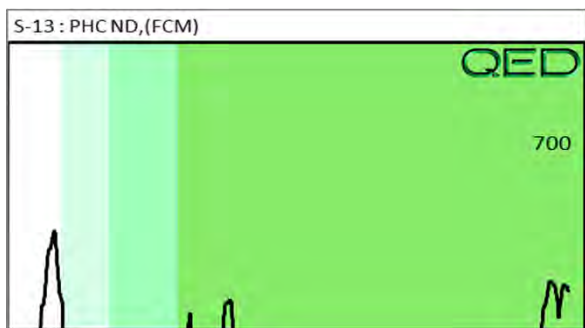
Wednesday, July 14, 2021



QED Hydrocarbon Fingerprints

Project: NCDOT R-5759 ; PARCEL 30

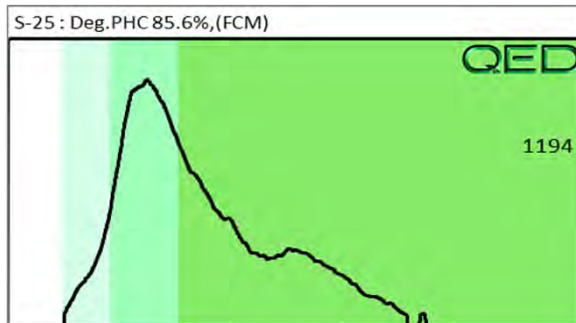
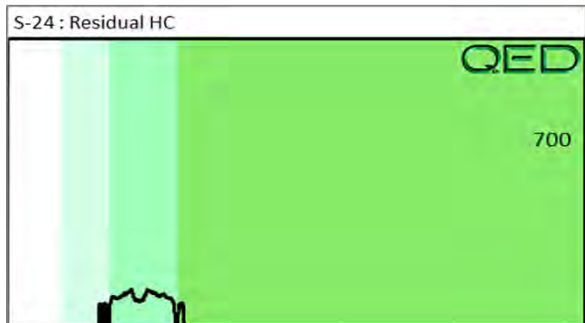
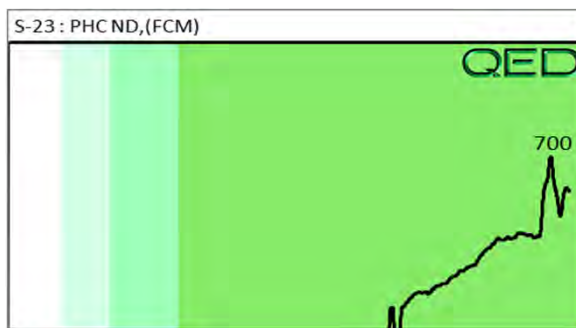
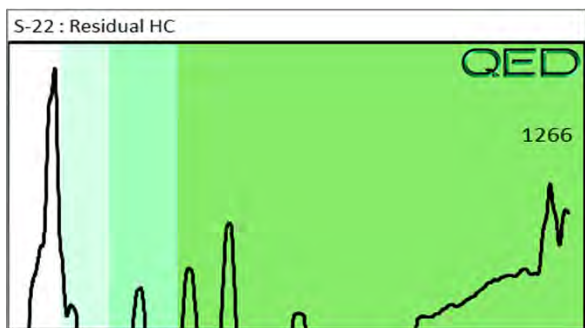
Wednesday, July 14, 2021



QED Hydrocarbon Fingerprints

Project: NCDOT R-5759 ; PARCEL 30

Thursday, July 15, 2021



Phase II Site Assessment Report

September 2, 2021

WBS Element: 44691.1.1

State Project: R-5759

Wilkes County

at

Parcel #: 053

Billy Joe Brown and Bobby Joe Brown Property

2032 Statesville Road, North Wilkesboro, NC, 28659

PIN #: 3877-79-0529

Facility ID No.: N/A

Groundwater Incident #: N/A

Prepared For:

Mr. Gordon Box

NCDOT, Geotechnical Engineering Unit

GeoEnvironmental Section

1589 Mail Service Center

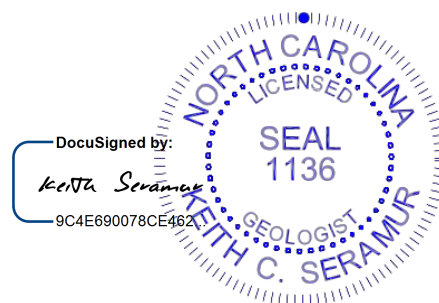
Raleigh, NC 27699-1589

Prepared By:

Seramur & Associates, PC

165 Knoll Drive

Boone, NC 28607



Keith C. Seramur, P.G.

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1.0 Introduction

1.1 General Site Background Information

Seramur & Associates, PC was contracted to complete a Phase II Environmental Site Assessment at:

Billy Joe Brown, Bobby Joe Brown

Parcel #: 053

2032 Statesville Road; North Wilkesboro, NC, 28659

PIN #: 3877-79-0529

Facility ID No.: N/A

Groundwater Incident #: N/A

Parcel #053 is located along the western side of Statesville Road approximately 450 feet south of the Statesville Road and the Old State Highway 60 intersection. The property is situated above the slope west of the Fishing Creek Stream valley approximately 1,750 feet west of the stream. Bedrock in the area is mapped as Henderson Gneiss, a biotitic augen gneiss (Rankin, D.W., Espenshade, G.H., Shaw, K.W., and Neumann, R.B.. Geologic map of the west half of the Winston-Salem quadrangle, North Carolina-Virginia, U.S. Geologic Survey Misc. Inv. Series Map I-709-B, 1975).

A Notice to Proceed was obtained on June 25, 2021. Our investigation included areas within the proposed Permanent Utility Easements (PUE), Construction Easement (E) and proposed and existing Right-of-Way (R/W) along the western side of Statesville Rd. (Figure 2). The Phase II Site Assessment scope of work included completing a geophysical survey followed by Geoprobe drilling with soil sample collection and laboratory analysis. Geophysical investigations evaluate the potential for underground storage tanks and remnant UST system infrastructure. The purpose of soil analysis is to assess soil quality across the easement (Figure 3). Background research for this project included reviewing historic aerial photographs and NCDEQ databases.

2.0 Scope of Work

2.1 Background Research

According to the Wilkes County Tax Administration records, this property is owned by Billy Joe Brown. Available historic aerial photographs from the USGS EarthExplorer website and Google Earth Pro were reviewed.

The following NCDEQ databases were queried for incidents at Parcel #053:

- Dry Cleaners
- Active USTs
- UST Incident Map
- UST Database
- Hazardous Waste Sites

2.2 Geophysical Surveys

Seramur & Associates collected thirteen transects of geophysical data within the proposed and existing R/W, construction easement, and permanent utility easement along Statesville Road.

Magnetometer transects were attempted across the central and eastern portion of the parcel. This area is underlain by re-enforced concrete which interfered with the magnetometer readings. The Schonstedt magnetic locator was used to screen areas north of the dispenser islands. This area was full of cars, but anomalous magnetic readings were not identified.

Ground Penetrating Radar (GPR) data was collected along the transects using a Geophysical Survey Systems, Inc. UtilityScan GPR System with a 350 MHz hyperstacking antenna. This GPR system is equipped with a calibrated survey wheel. The GPR data was downloaded and saved onto a computer. The GPR transect data has been processed and modeled using Radan® software. The GPR data processing included adjusting time zero, completing a background removal and adjusting the time variable gain to enhance deep reflections. The profiles of the GPR transects are shown in Figures 5a through 5e.

2.3 Soil Sampling and Analyses

On July 15, 2021 Carolina Soil Investigations, LLC mobilized to the site to drill Geoprobe borings and collect soil samples. Our project design typically calls for collecting a shallow and deep soil sample from each boring (Figure 3). The purpose of collecting samples at a depth of ~3.0 feet is to test for petroleum releases related to surface spills and releases from product lines. The purpose of collecting samples at a depth of ~9.0 feet is to test for petroleum releases related to underground storage tanks. Soil borings were drilled within the proposed R/W and easements along Statesville Road.

A track-mounted Geoprobe rig was used to drill five soil borings. A new pair of Nitrile gloves was worn while collecting each soil sample. A representative portion of each soil sample was placed in a zip lock bag and allowed to rest for a period of time to allow volatile vapors to accumulate in the headspace of the bag. A calibrated PhoCheck Tiger Photoionization Detector (PID) was used to screen the headspace in each bag and the concentration of volatile petroleum vapors was measured and recorded (Table 1). The texture and type of soil material in the Geoprobe cores was described and recorded. Table 1 lists the boring data including sample number, depth, PID reading, lithology, and type of soil material.

REDLab, LLC provided onsite laboratory analyses for the soil samples collected from the Geoprobe cores. REDLab analyzed the soil samples for petroleum constituents by Ultra-Violet Fluorescence using a QED HC-1 analyzer. The analytical results are reported as Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) and Total Petroleum Hydrocarbons (TPH). REDLab provided a hydrocarbon spectrum with each of the sample results. This spectrum is used for a tentative identification of the type of hydrocarbon detected by the analytical method. A hydrocarbon fingerprint is interpreted by REDLab for each sample using a library search of spectra for known hydrocarbon types and concentrations. The laboratory reports and fingerprint spectra are included in Appendix B.

3.0 Results of Investigation

Parcel #053 currently operates as an Automotive Repair Shop. In addition, the upper level of the building appears to function as a rental apartment. Aerial images from EarthExplorer indicate that this portion of Statesville Road has been developed since at least 1960 and Parcel #053 appears to be developed as it is today. The Wilkes County Tax Administration indicates that the structure was built in 1955.

The NCDEQ UST Registered Tanks database does not show any record of existing or previous UST Systems at the address of Parcel #053. However, one possible facility name for this parcel is Broadway Gulf. The address for Broadway Gulf is only listed as Highway 115 South in the UST Database. Parcel #053 is adjacent to the Broadway Water Association and about one-third of a mile southeast of the Broadway Volunteer Fire Department. The Wilkes County Tax Administration indicates that Parcel #053 is in the Broadway Tax District. The UST System information for Broadway Gulf is shown in Table 2. The Facility ID Number for Broadway Gulf was searched in the NCDET UST Incident Database, and no evidence of a documented release was found.

SAPC personnel made a pedestrian reconnaissance of the property during the initial site visit on June 25, 2021. No evidence of an active UST system was observed on the property.

3.1 Geophysical Surveys

The thirteen GPR transects were collected across the R/W and easements. This includes on the south side of the property across the front of the building and on the north side of the parcel where the former tank pit was located. The beginning and end of each line was marked on the pavement with white paint and labeled. The GPR profiles did not show evidence of USTs in the R/W or easements (Figures 5a through 5e).

Unfortunately, we were unable to survey in our transect locations. Typically, we will mark the locations of our geophysical grids and transects. Then we complete our Geoprobe drilling. At the end of our field work we survey in all the grid corners, transects and boring locations. Our field work was interrupted halfway through our Geoprobe drilling. We had talked to the property occupants, and they did not have any problems with us working at the property. The owner of the property decided that he no longer wanted us on his property, and he became combative. We quickly exited the property without completing our measurements.

3.2 Soil Borings, Sampling and Laboratory Analysis

The soil at Parcel #053 consists of fill material over residuum (saprolite) (Table 1). The fill material and the residuum are primarily silt loam and sandy silt. Groundwater was not encountered at this site. A soil sample was collected from the shallow and deep portions of the Geoprobe cores at each boring.

Five borings were drilled and ten soil samples collected. Each soil sample was analyzed for TPH-GRO and DRO (Table B-3).

Soil boring B-1 was drilled on the south side of the parcel, along the PUE. Borings B-2 through B-5 were drilled on the east side of the property along the proposed R/W parallel to Statesville Road. Petroleum constituents were not detected above NCDEQ UST Action Levels in any of the soil samples collected at Parcel #053 (Table B-3 and Figure 9).

3.3 Conclusions

Parcel #053 is currently an Automotive Repair Shop with the upper level functioning as a rental apartment. The geophysical surveys did not image anomalies consistent with USTs or infrastructure related to a former UST system. Petroleum constituents were not detected above the UST Action Levels in any soil samples collected at Parcel #053.

Parcel #053 was previously a gas station, but it appears that the USTs have been removed. This UST Closure was not properly documented. It was not possible to drill soil borings on the north side of the property in the vicinity of the former USTs because the owner became combative. It is possible that there is soil contamination in the vicinity of the former tank pit. The north side of the parcel in the vicinity of the former USTs is shown as an area that is going to be filled.

4.0 Recommendations

Seramur & Associates does not recommend any further assessment work for Parcel #053 unless NCDOT decides that a greater understanding of soil quality on the north side of the parcel is necessary.

Appendix A

Tables and Figures

Table 1. Soil Boring Data - Parcel #053

Boring No.	Depth (ft)	Lithology	Soil type	Soil Sample	PID ppm	Comments
B-1	0.0 to 4.0	Silt loam	Fill	S-1	0.0	Sample at 3.0 feet.
B-1	4.0 to 5.0	Sandy silt	Residuum	N/A	N/A	
B-1	5.0 to 10.0	Sandy silt	Residuum	S-2	0.0	Sample at 9.0 feet.
B-2	0.0 to 1.0	Silt loam	Fill	N/A	N/A	
B-2	1.0 to 5.0	Sandy silt	Residuum	S-3	0.0	Sample at 3.0 feet.
B-2	5.0 to 10.0	Sandy silt	Residuum	S-4	0.0	Sample at 8.0 feet.
B-3	0.0 to 1.0	Silt loam	Fill	N/A	N/A	
B-3	1.0 to 5.0	Sandy silt	Residuum	S-5	0.0	Sample at 3.0 feet.
B-3	5.0 to 10.0	Sandy silt	Residuum	S-6	0.0	Sample at 8.0 feet.
B-4	0.0 to 1.5	Silt loam	Fill	N/A	N/A	
B-4	1.5 to 5.0	Sandy silt	Residuum	S-7	0.0	Sample at 2.0 feet. Slight odor.
B-4	5.0 to 10.0	Sandy silt	Residuum	S-8	0.0	Sample at 8.0 feet.
B-5	0.0 to 2.5	Silt loam	Fill	S-7	0.0	Sample at 2.0 feet.
B-5	2.5 to 5.0	Sandy silt	Residuum	N/A	N/A	
B-5	5.0 to 10.0	Sandy silt	Residuum	S-8	0.0	Sample at 8.0 feet.

Table 2. UST System Information

Facility Id	Facility Name	Address1	City	State	Zip
00-0-0000003989	BROADWAY GULF	HIGHWAY 115 SOUTH	NORTH WILKESBORO	NC	28659
00-0-0000003989	BROADWAY GULF	HIGHWAY 115 SOUTH	NORTH WILKESBORO	NC	28659
00-0-0000003989	BROADWAY GULF	HIGHWAY 115 SOUTH	NORTH WILKESBORO	NC	28659
00-0-0000003989	BROADWAY GULF	HIGHWAY 115 SOUTH	NORTH WILKESBORO	NC	28659
00-0-0000003989	BROADWAY GULF	HIGHWAY 115 SOUTH	NORTH WILKESBORO	NC	28659
Tank Id	Installation Date	Perm Close Date	Capacity	Product Name	Tank Status
A	4/13/56 0:00	3/1/82 0:00	3000	Gasoline, Gas Mix	Removed
B	4/13/56 0:00	3/1/82 0:00	3000	Gasoline, Gas Mix	Removed
C	4/13/56 0:00	3/1/82 0:00	3000	Gasoline, Gas Mix	Removed
D	4/13/56 0:00	3/1/82 0:00	550	Oil, New/Used/Mix	Removed
E	4/13/56 0:00	3/1/82 0:00	550	Diesel	Removed

Table B-3: Summary of Soil Sampling Results

Revision Date: 07/16/21

Incident Name: Parcel #053

Analytical Method (e.g., VOC by EPA 8260) →					UVF	UVF
Contaminant of Concern →					TPH GRO (mg/kg)	TPH DRO (mg/kg)
Sample ID	Date Collected (mm/dd/yy)	Source Area	Sample Depth (ft. BGS)	Incident Phase		
S-1	07/16/21	B-1	3.0	Phase II	<0.5	1.0
S-2	07/16/21	B-1	9.0	Phase II	<0.4	0.28
S-3	07/16/21	B-2	3.0	Phase II	<0.5	<0.2
S-4	07/16/21	B-2	8.0	Phase II	<0.3	<0.12
S-5	07/16/21	B-3	3.0	Phase II	<0.22	<0.09
S-6	07/16/21	B-3	8.0	Phase II	<0.2	<0.08
S-7	07/16/21	B-4	2.0	Phase II	<0.3	<0.14
S-8	07/16/21	B-4	8.0	Phase II	<0.25	<0.1
S-9	07/16/21	B-5	2.0	Phase II	3.4	2.5
S-10	07/16/21	B-5	8.0	Phase II	<0.27	0.4
NC DEQ Action Level (mg/kg)					50	100

ft. BGS = feet below ground surface

mg/kg = milligrams per kilogram

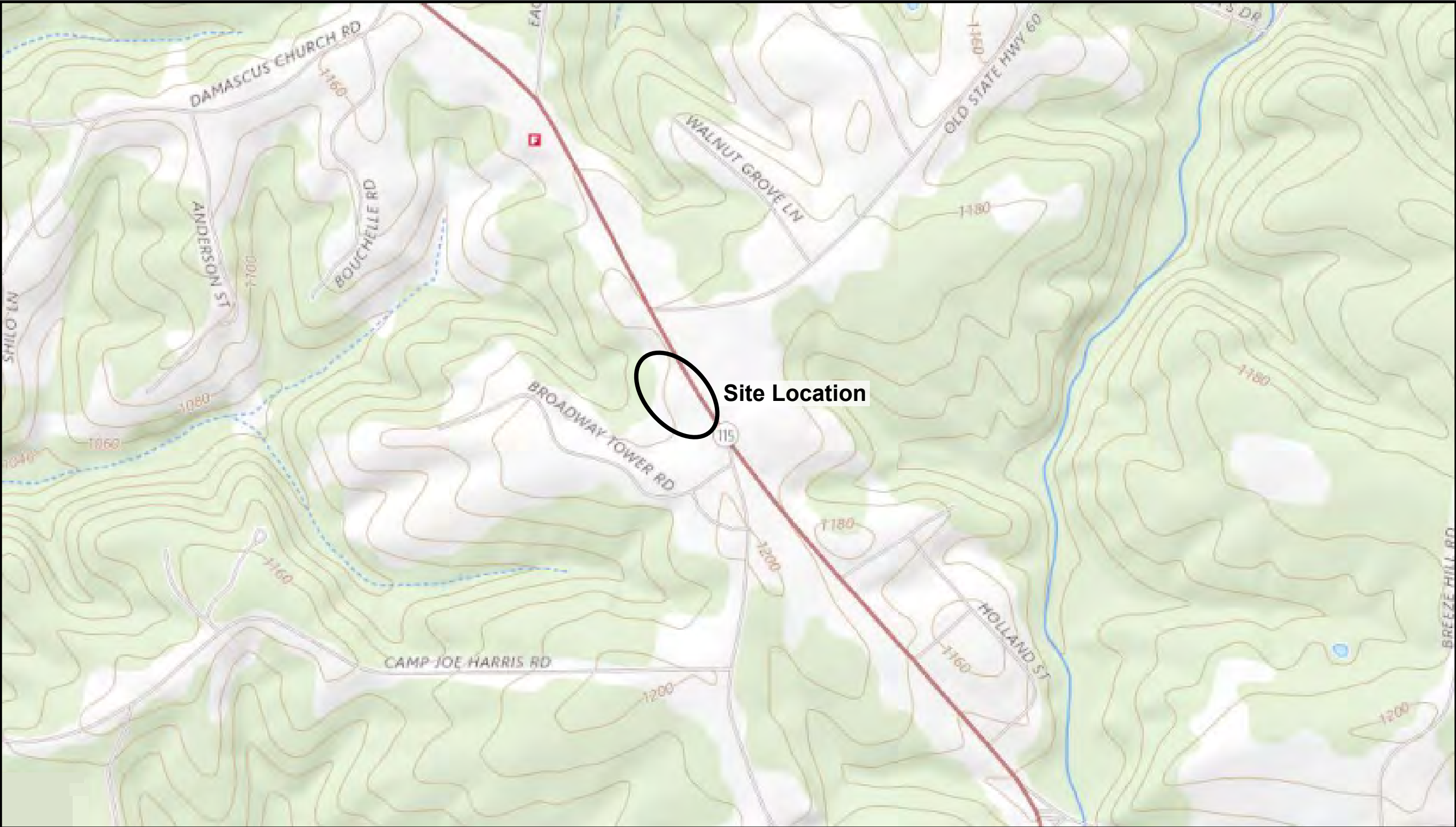


Figure 1 Site Location Map Source: U.S.G.S. The National Map	TIP Number: R-5759 Wilkes County, NC	Billy Joe and Bobby Joe Brown Property 2032 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 053 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC	0 400 800 Feet N
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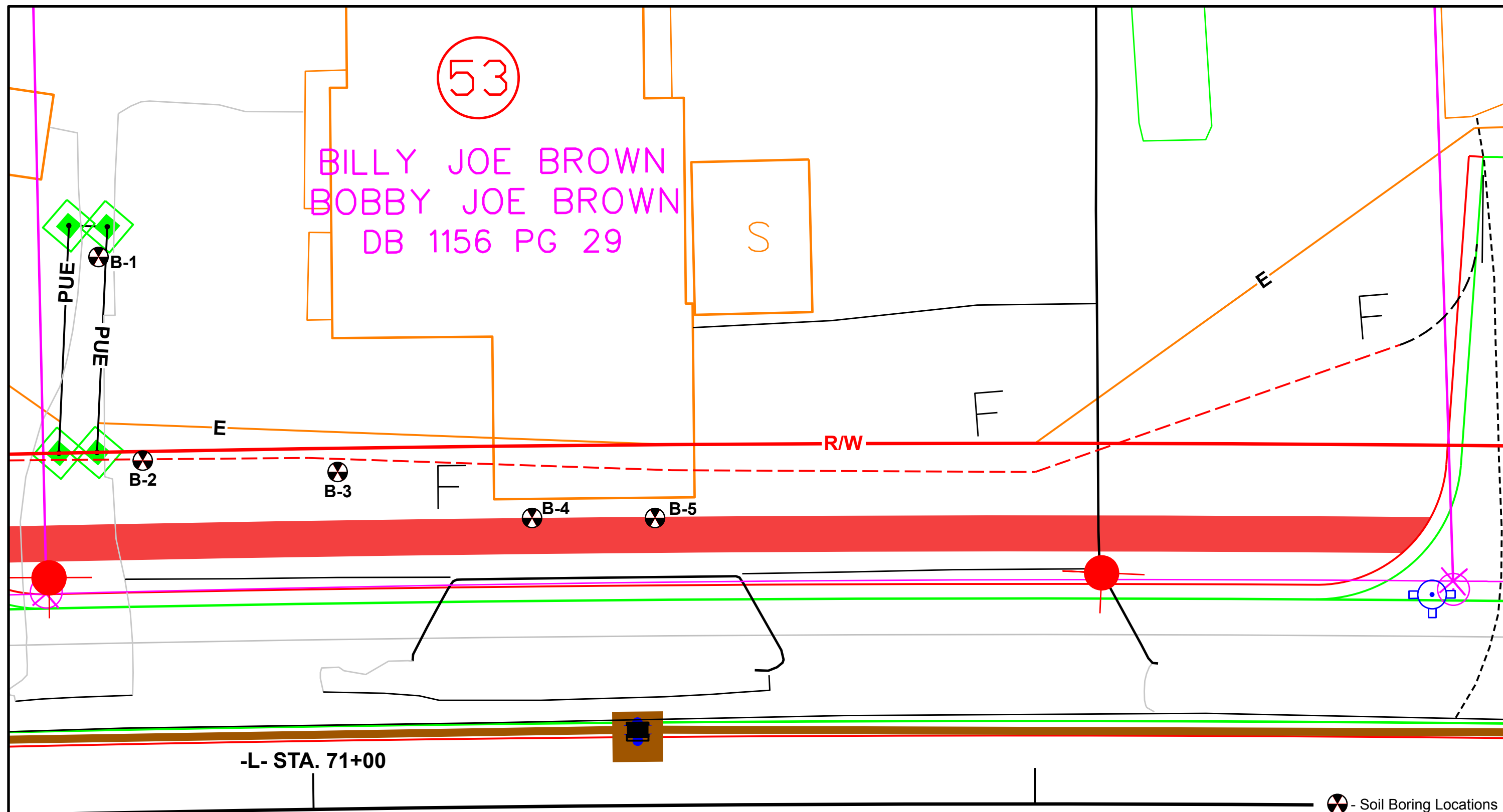


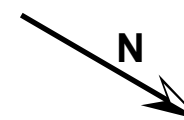
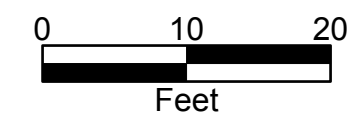
Figure 3
Site Plan with Approximate
Soil Boring Locations

TIP Number: R-5759
Wilkes County, NC

Billy Joe and Bobby Joe
Brown Property
2032 Statesville Road
North Wilkesboro, NC

Parcel I.D. #: 053
Facility I.D. #: N/A

Seramur & Associates, PC
Boone, NC



53

BILLY JOE BROWN
BOBBY JOE BROWN
DB 1156 PG 29

S

F

E

F

R/W

E

F

B-1
S-1 S-2
BDL BDL
1.0 0.28

B-2
S-3 S-4
BDL BDL
BDL BDL

B-3
S-5 S-6
BDL BDL
BDL BDL

B-4
S-7 S-8
BDL BDL
BDL BDL

B-5
S-9 S-10
3.4 BDL
2.5 0.4

-L- STA. 71+00

⊗ - Soil Boring Locations
BDL - Below Detectable Limit
3.4 - Total Petroleum Hydrocarbons
2.5 - Reported as Gasoline Range
Organics (upper) and Diesel
Range Organics (lower)

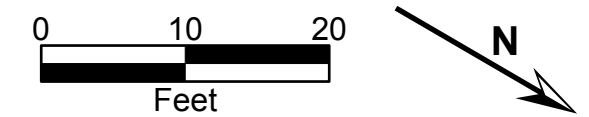
Figure 4
Soil Analytical Results

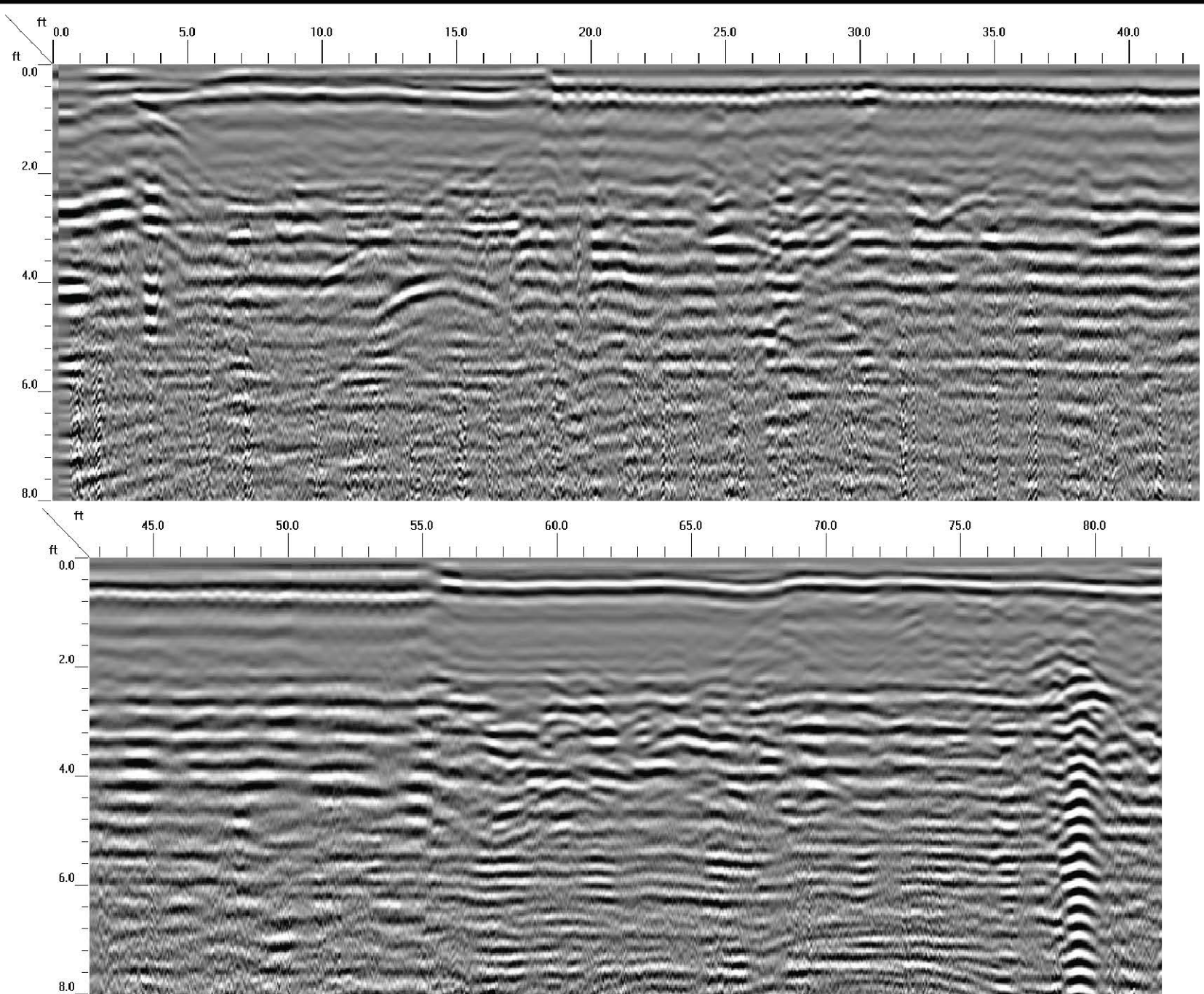
TIP Number: R-5759
Wilkes County, NC

Billy Joe and Bobby Joe
Brown Property
2032 Statesville Road
North Wilkesboro, NC

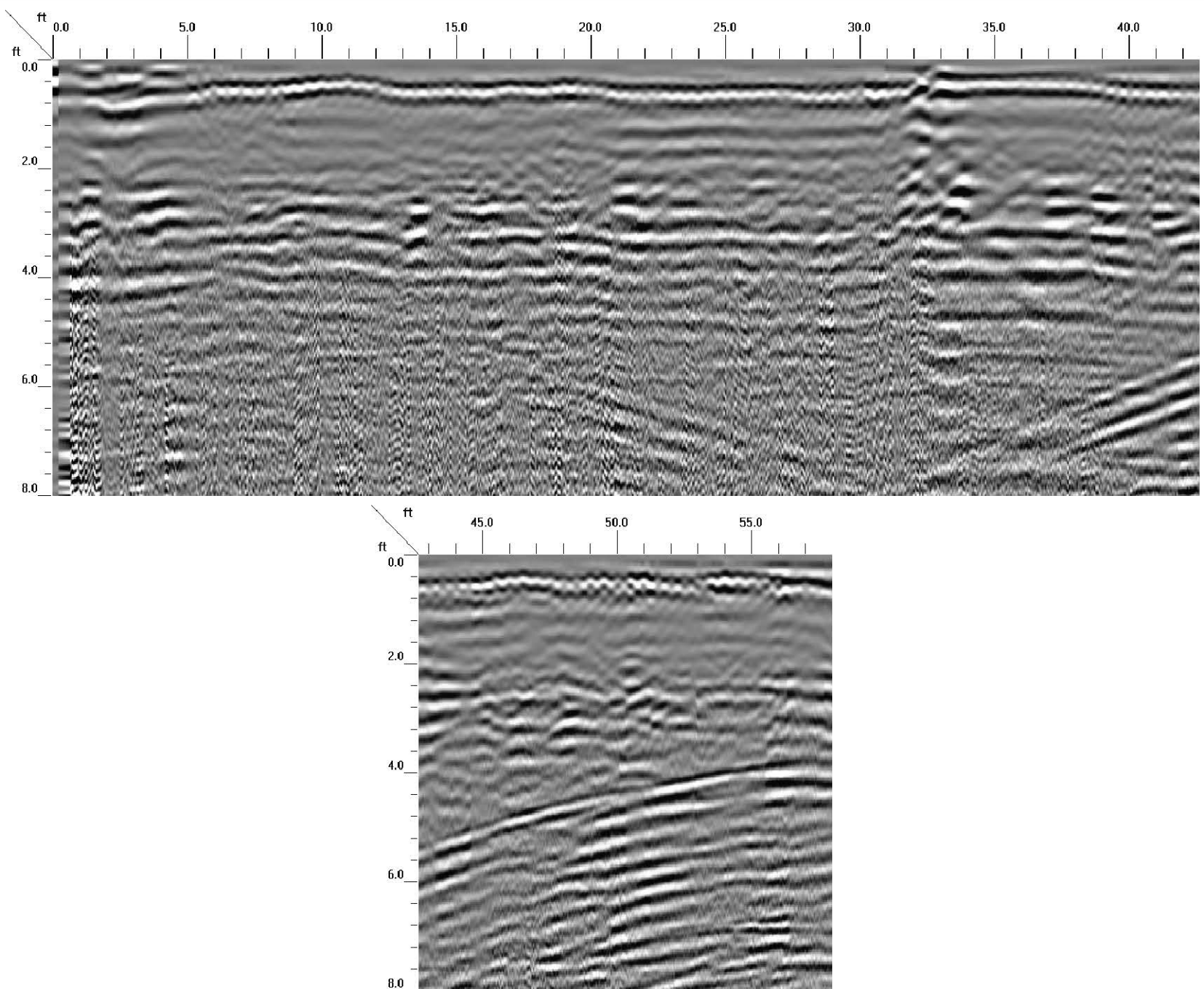
Parcel I.D. #: 053
Facility I.D. #: N/A

Seramur & Associates, PC
Boone, NC



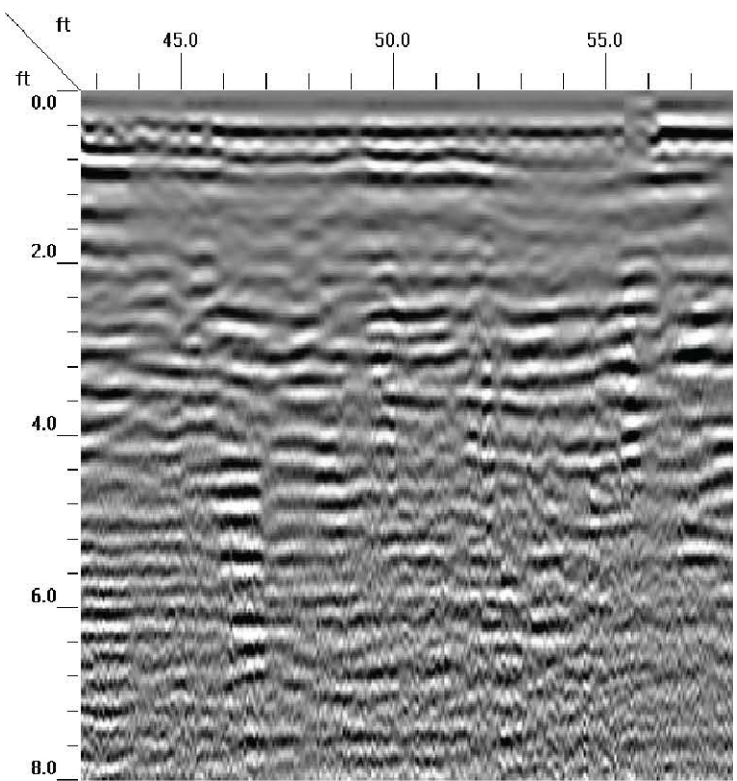
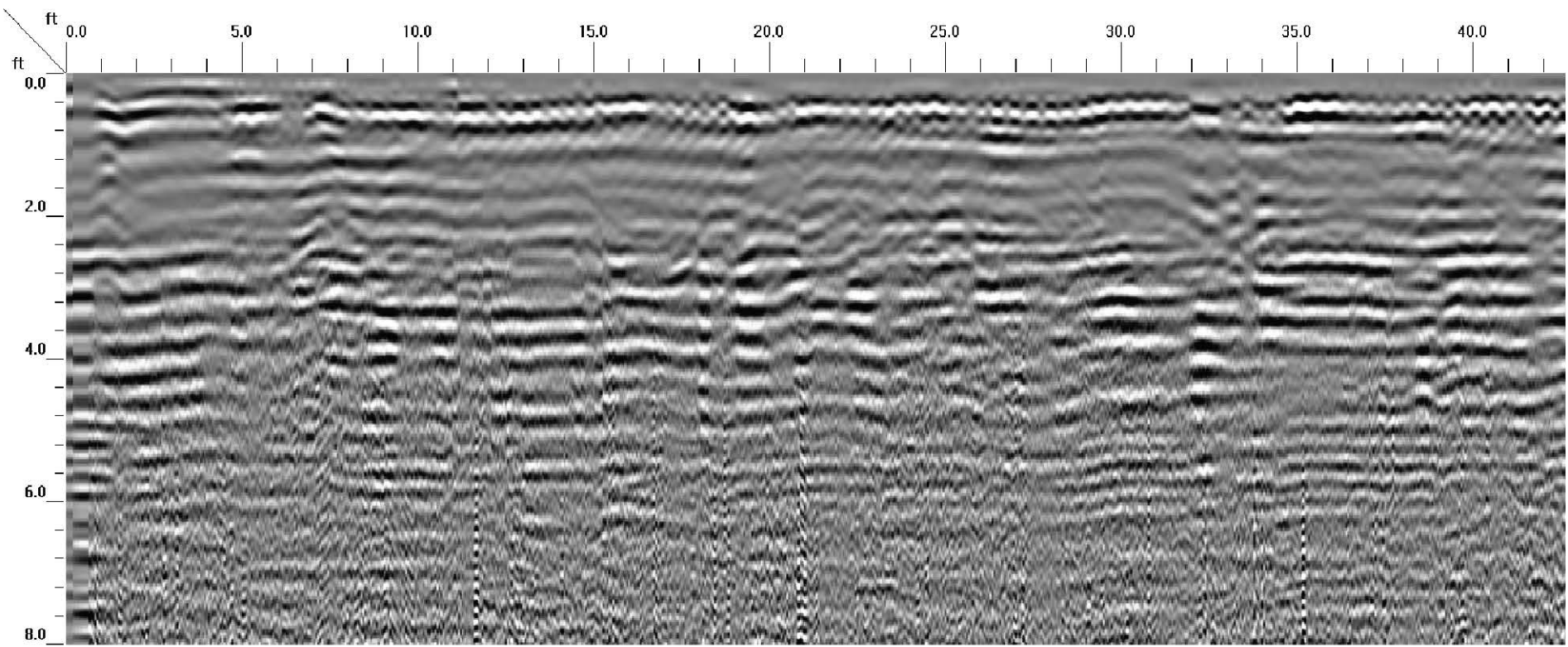


Transect 1

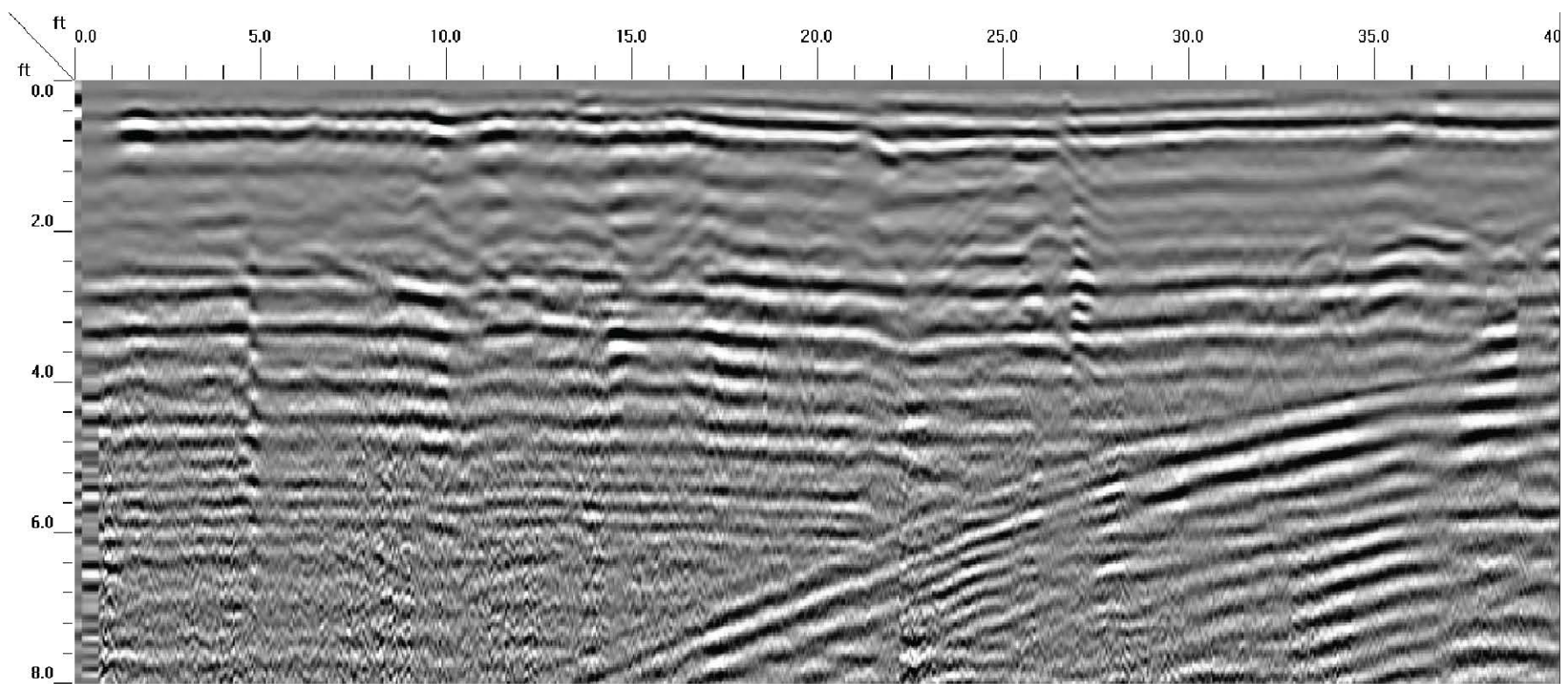


Transect 2

Figure 5a GPR Transects 1 and 2	TIP Number: R-5759 Wilkes County, NC	Billy Joe and Bobby Joe Brown Property 2032 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 053 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC
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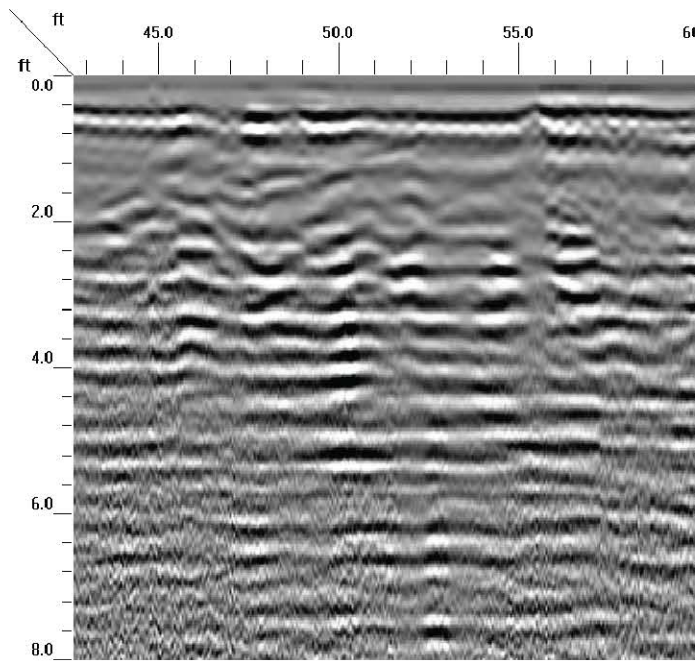
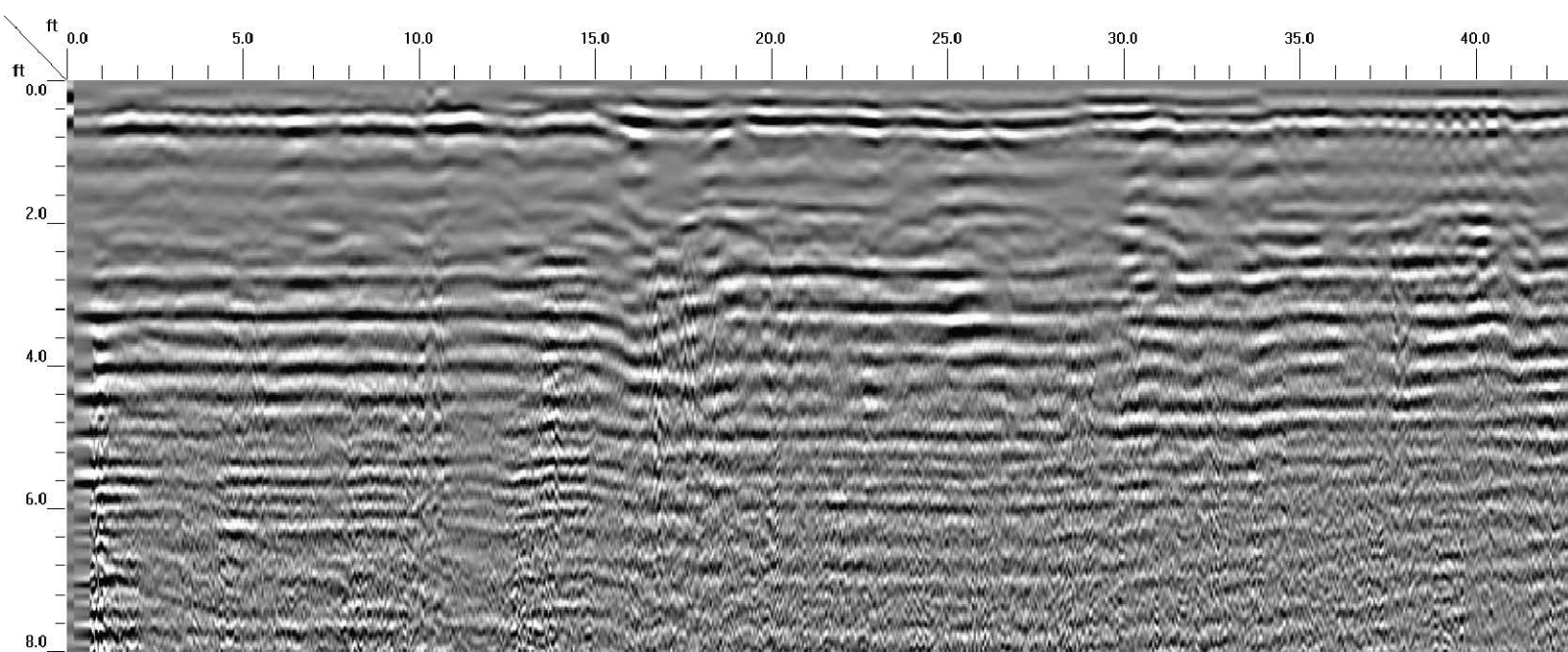


Transect 3

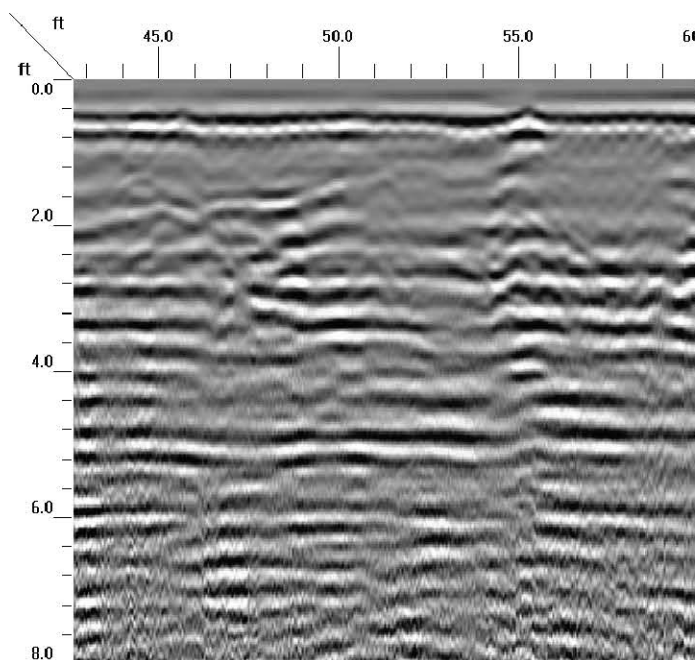
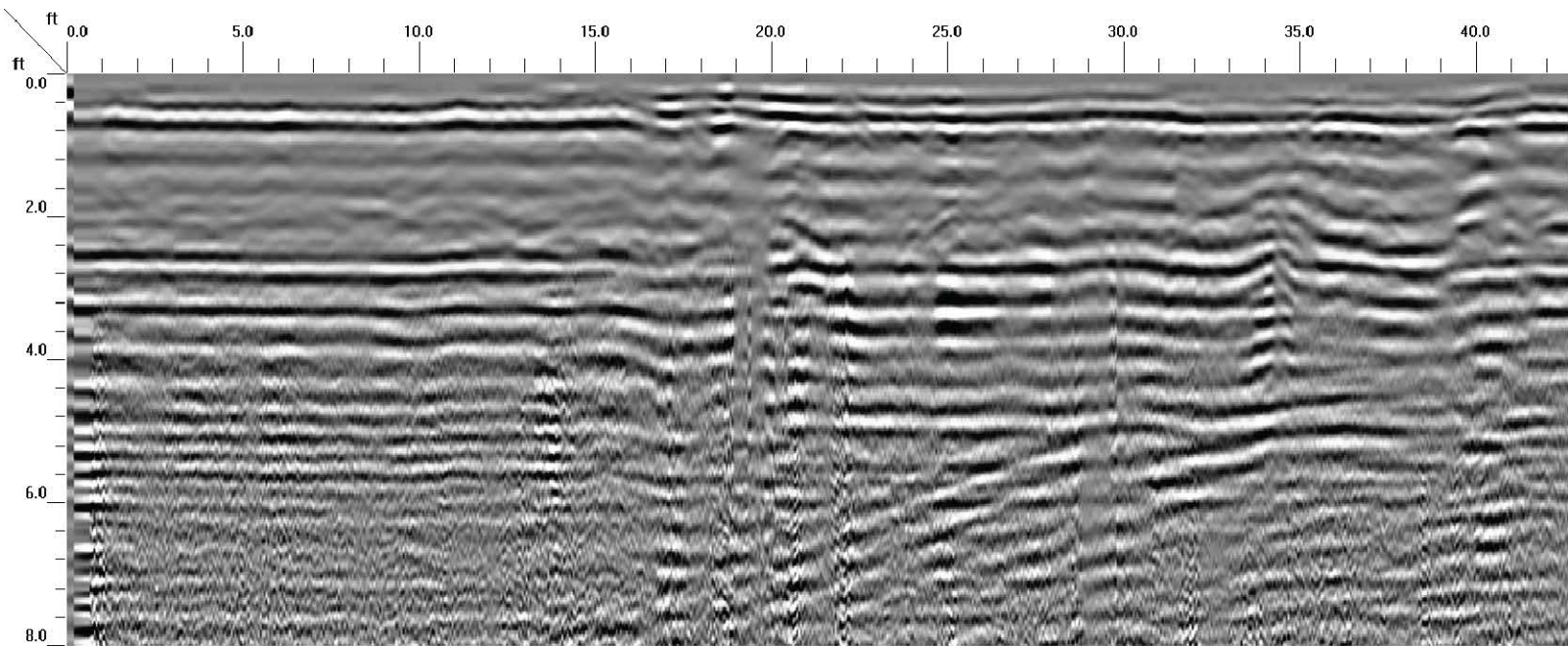


Transect 4

Figure 5b GPR Transects 3 and 4	TIP Number: R-5759 Wilkes County, NC	Billy Joe and Bobby Joe Brown Property 2032 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 053 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC
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Transect 5



Transect 6

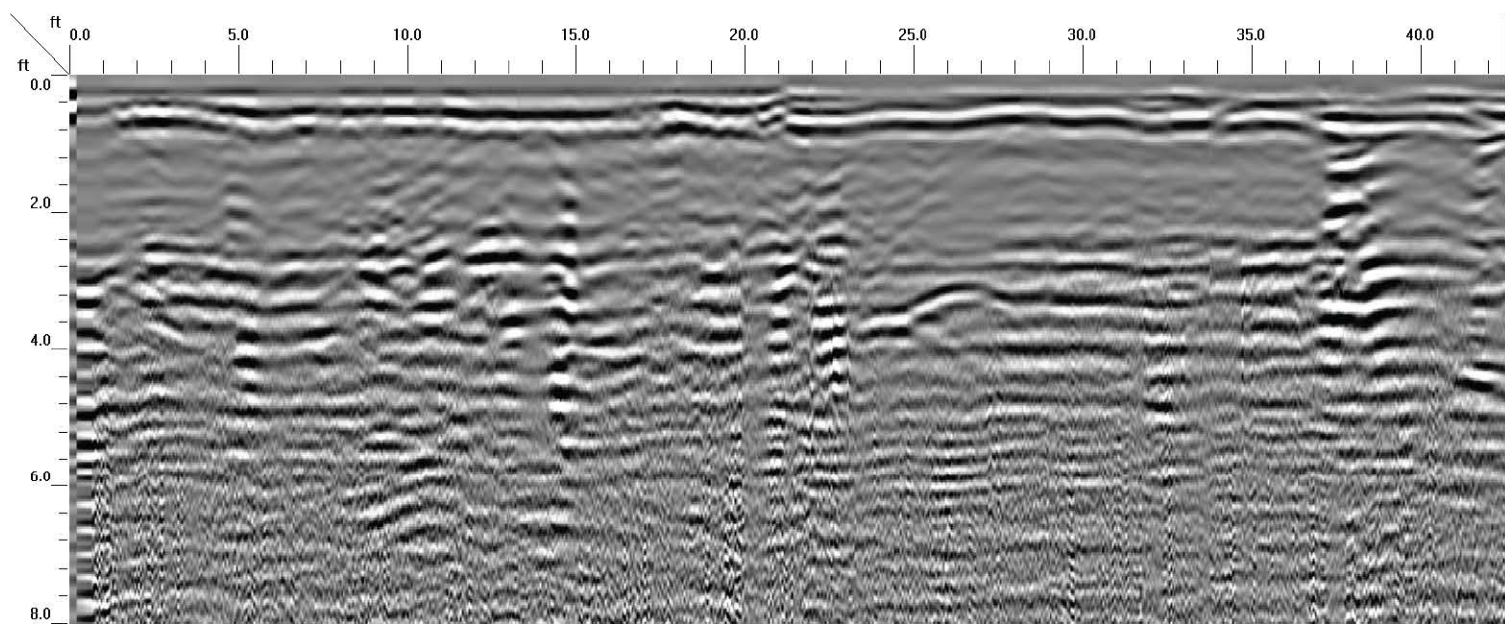
Figure 5c
GPR Transects
5 and 6

TIP Number: R-5759
Wilkes County, NC

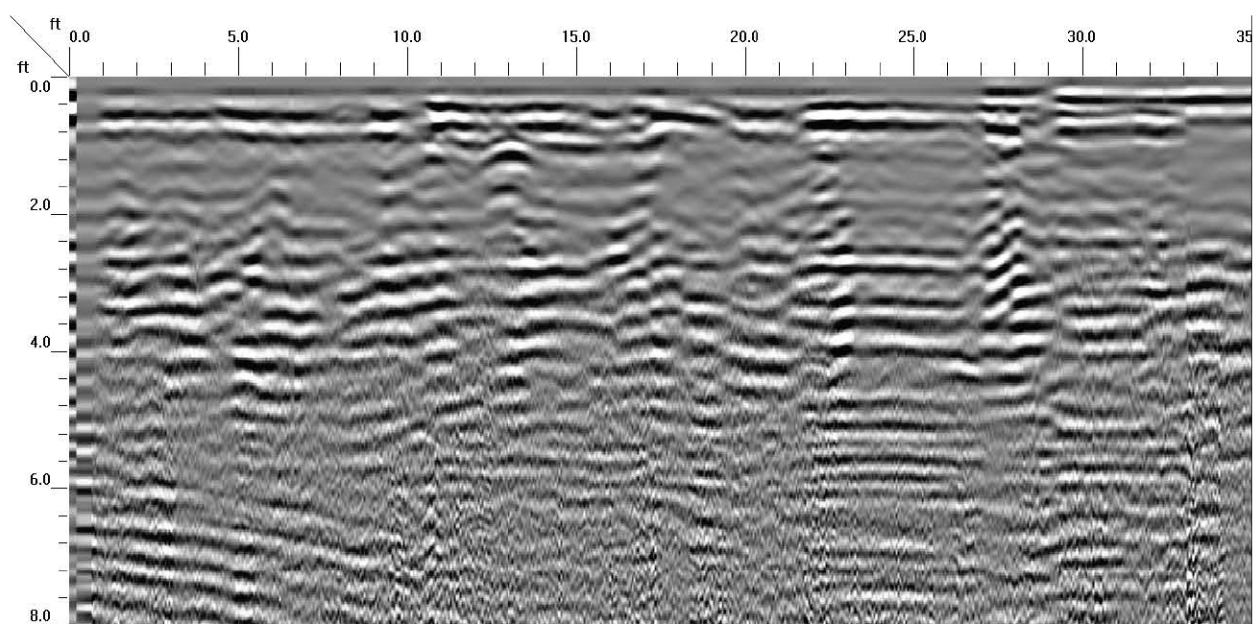
Billy Joe and Bobby Joe
Brown Property
2032 Statesville Road
North Wilkesboro, NC

Parcel I.D. #: 053
Facility I.D. #: N/A

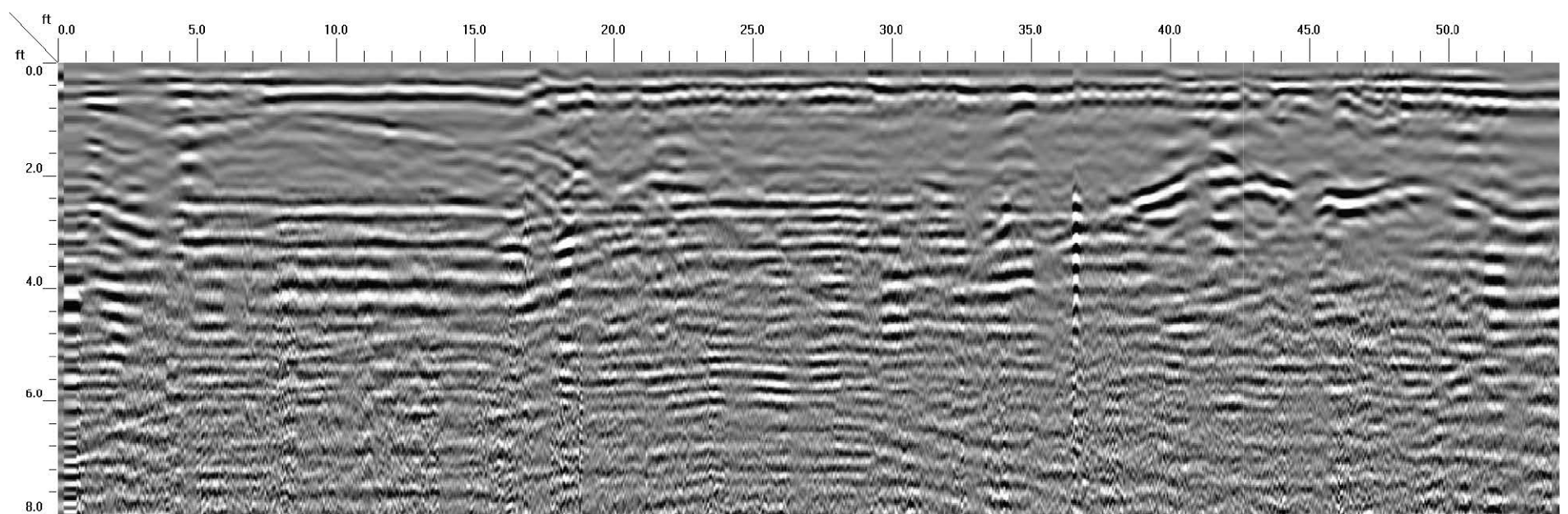
Seramur & Associates, PC
Boone, NC



Transect 7



Transect 8



Transect 9

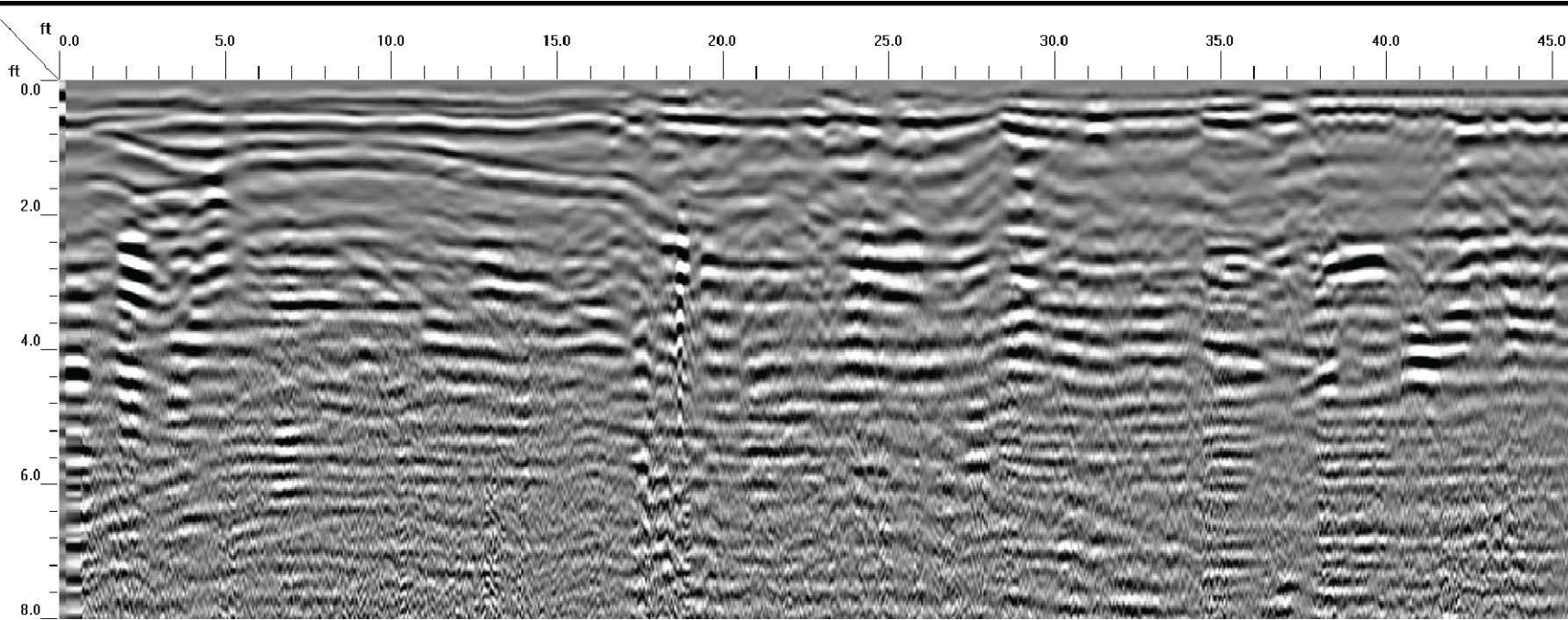
Figure 5d
GPR Transects
7 through 9

TIP Number: R-5759
Wilkes County, NC

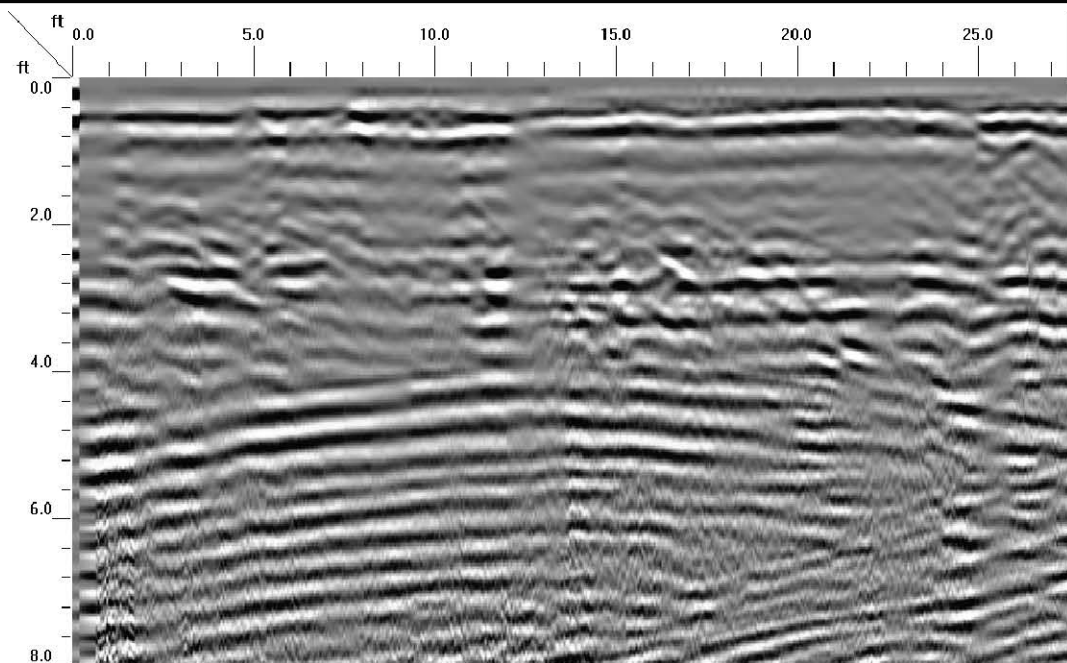
Billy Joe and Bobby Joe
Brown Property
2032 Statesville Road
North Wilkesboro, NC

Parcel I.D. #: 053
Facility I.D. #: N/A

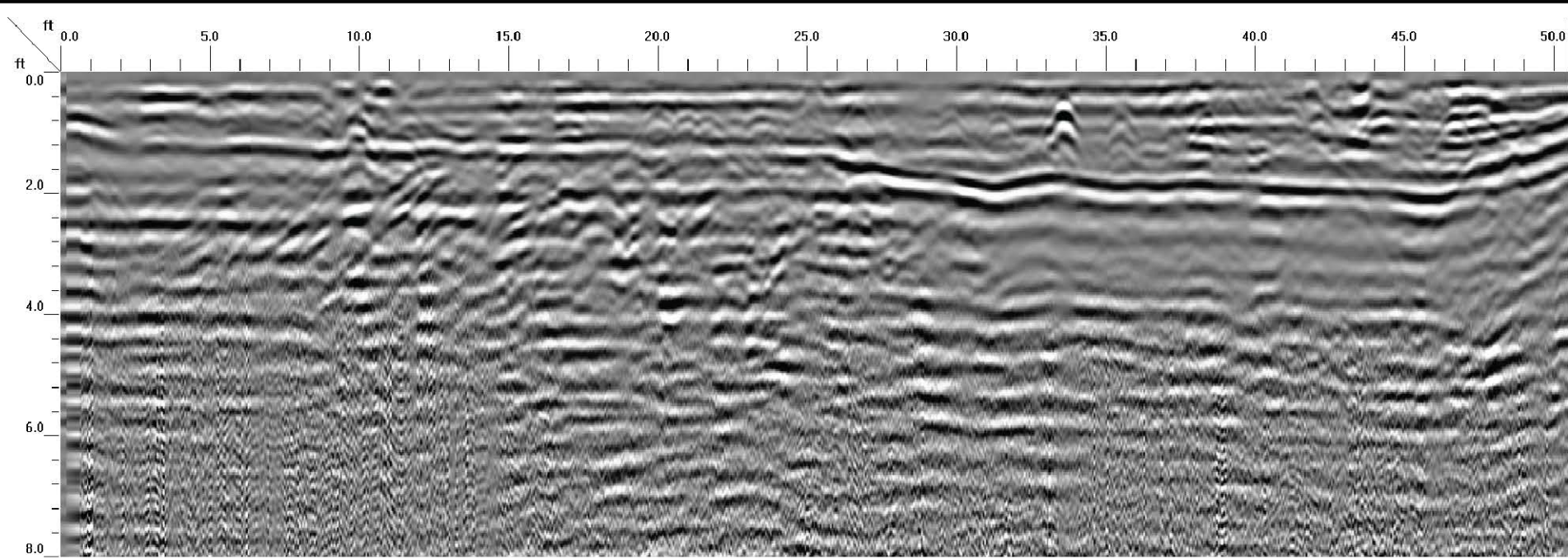
Seramur & Associates, PC
Boone, NC



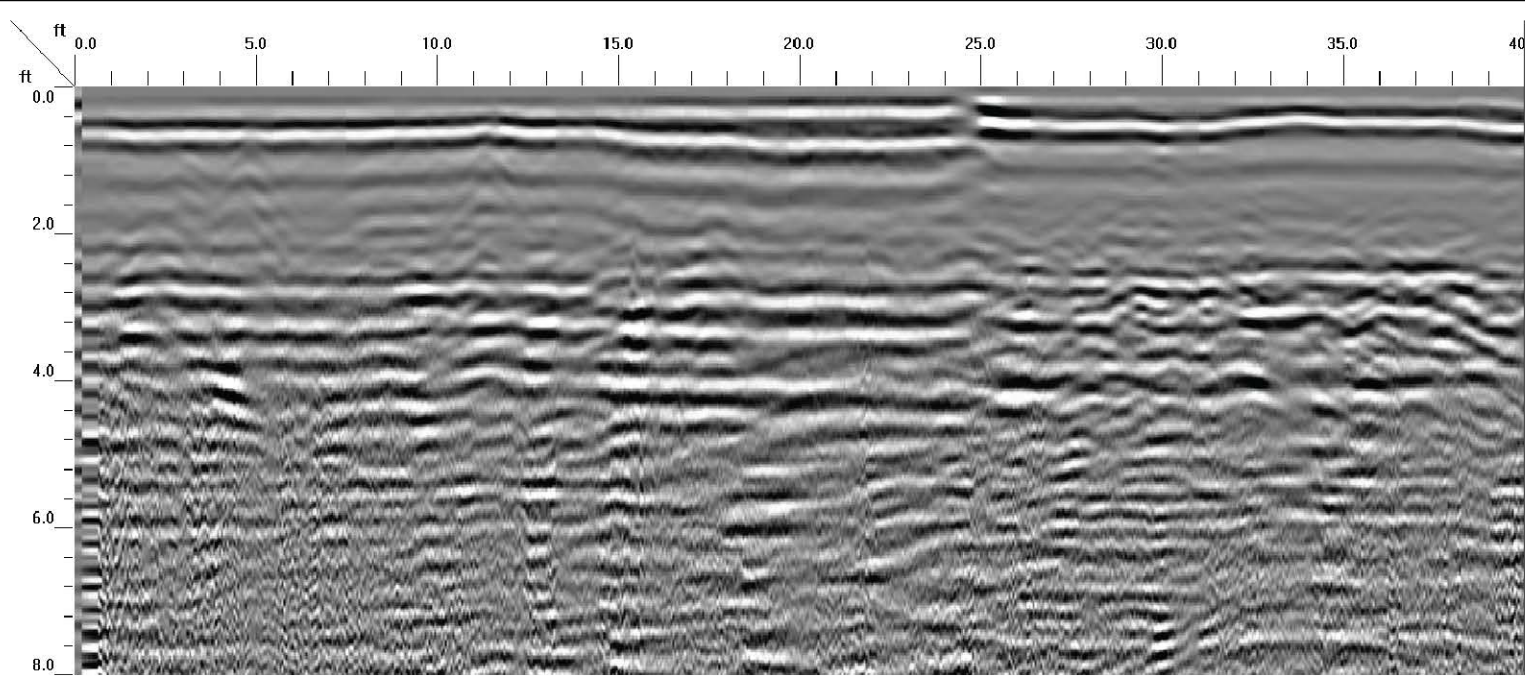
Transect 10



Transect 11



Transect 12



Transect 13

Figure 5e GPR Transects 10 through 13	TIP Number: R-5759 Wilkes County, NC	Billy Joe and Bobby Joe Brown Property 2032 Statesville Road North Wilkesboro, NC	Parcel I.D. #: 053 Facility I.D. #: N/A	Seramur & Associates, PC Boone, NC
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Appendix B

Laboratory Reports

Hydrocarbon Analysis Results



Client: SERAMUR & ASSOCIATES

Address:



Samples taken

Samples extracted

Samples analysed

Friday, July 16, 2021

Friday, July 16, 2021

Friday, July 16, 2021

Contact: KEITH SERAMUR

Operator

MAX MOYER

Project: NCDOT R-5759 ; P53

													T03308
Matrix	Sample ID	Dilution used	BTEX	GRO	DRO	TPH	Total Aromatics	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
			C6-C9	C5-C10	C10-C35	C5-C35	C10-C35			C5:10	C10:C18	C18+	
Soil	S-1	20.0	<0.5	<0.5	1	1	0.4	0.022	<0.0	0	79.2	20.8	V.Deg.PHC 81.4%,(FCM)
Soil	S-2	17.0	<0.4	<0.4	0.28	0.28	0.12	0.006	<0.005	0	74.9	25.1	V.Deg.PHC 82.7%,(FCM)
Soil	S-3	20.0	<0.5	<0.5	<0.2	<0.5	<0.01	<0.01	<0.006	0	0	0	PHC ND,(FCM)
Soil	S-4	12.0	<0.3	<0.3	<0.12	<0.3	<0.006	<0.006	<0.004	0	0	0	PHC ND,(FCM)
Soil	S-5	9.0	<0.22	<0.22	<0.09	<0.22	<0.005	<0.005	<0.003	0	0	0	PHC ND,(FCM)
Soil	S-6	8.0	<0.2	<0.2	<0.08	<0.2	<0.004	<0.004	<0.002	0	0	0	PHC ND,(FCM)
Soil	S-7	14.0	<0.3	<0.3	<0.14	<0.3	<0.007	<0.007	<0.004	0	0	0	PHC ND,(FCM)
Soil	S-8	10.0	<0.25	<0.25	<0.1	<0.25	<0.005	<0.005	<0.003	0	0	0	PHC ND,(FCM)
Soil	S-9	12.0	<0.3	3.4	2.5	5.93	0.7	0.04	0.001	85.1	12.2	2.7	V.Deg.PHC 88.6%,(FCM)
Soil	S-10	11.0	<0.27	<0.27	0.4	0.4	0.028	0.002	<0.001	0	100	0	Deg Fuel 29.4%,(FCM)
Initial Calibrator QC check			OK			Final FCM QC Check			OK			85.5%	

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

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

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

% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only.

Data generated by HC-1 Analyser

QED Hydrocarbon Fingerprints

Project: NCDOT R-5759 ; P 53

Friday, July 16, 2021

