

Preliminary Site Assessment Report

November 20, 2018
WBS Element: 44625.1.1
State Project: U-5888
Haywood County

at
Clifford Gould LLC Property
Parcel #008
783 N Main Street, Waynesville, NC 28786
PIN #: 8615-59-6508
Facility ID No.: N/A
Groundwater Incident No.: 41466

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1.0 Introduction

1.1 General Site Background Information

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

Clifford Gould LLC Property
Parcel #008
PIN #: 8615-59-6508
783 N. Main Street, Waynesville, NC 28786
Facility ID No.: N/A
Groundwater Incident No.: 41466

This property is a triangular parcel bounded to the north by Walnut Street, to the southeast by North Main Street and to the southwest by Marshall Street. It is located in downtown Waynesville (Figure 1). The property is currently developed with one commercial building (former restaurant) and one partially demolished former auto repair shop. It is our understanding that the entire property will be taken for a traffic circle being built to replace the current intersection (Figure 2).

2.0 Scope of Work

The PSA scope of work included completing a geophysical survey at the property to investigate the potential for underground storage tanks. Following the geophysical survey, soil sampling and analyses were performed to assess soil quality and estimate the volume of potentially contaminated soil at the site (Figure 3).

2.1 Background Research

According to Haywood County Tax Administration records, the property is currently owned by Clifford Gould LLC. A review of historic aerial photographs showed that the property was developed in the 1950's. Haywood County Tax Administration records indicate that the former restaurant building was built in 1948 and the former auto repair shop was built in 1940. There is no Facility I.D. Number associated with the property. There is an Incident Number (41466) associated with this property.

The former auto-repair shop had been partially demolished at the time of our assessment work. The garage bays had been demolished and the auto lifts and other auto repair equipment remained scattered around the building footprint. A fence had been erected around the building. Four one-inch monitoring well vaults were observed in the area surrounding this structure. A damaged, two-inch monitoring well was also observed on the property. The vault cover was missing, the PVC pipe was broken and the vault was filled with soil and debris. This well was east of the restaurant building along North Main Street (Figure 11).

Seramur and Associates personnel spoke with a few locals during our assessment work and they indicated that the restaurant building had many code violation issues and has been vacant for

many years. During our drilling work on October 24th, 2018, the property manager made a site visit and gave us a summary of the site history. He indicated that the restaurant building would be difficult to bring up to code due to the state that it was in at the time of its closure. Another local was aware that the basement had flooded with sewage in the past.

The property manager informed us that the auto-repair shop was partially demolished after a truck crashed into the building. In April, 2018, a man had a medical issue while driving through the intersection east of the building. He lost control of his vehicle and crashed into the south side of the building. After this incident, the property owner and occupants determined the property had become too much trouble to deal with and turned it over to an insurance company to handle.

The property manager also informed us during his visit that the auto-repair shop formerly operated as a Phillips 66 fuel station in the mid 1900's. The station operated prior to NCDEQ UST regulations and the tanks were never registered. The property manager was not aware of exactly when the tanks were removed.

Seramur and Associates personnel was able to obtain the latest sampling results from the groundwater incident associated with the property. This included some laboratory reports from soil sampling as well as groundwater analysis from monitoring well sampling. These analytical results indicated that groundwater at the site contains petroleum constituents above the NCDEQ Groundwater Standards. A Notice of Residual Petroleum was placed on the deed to the property and a Notice of No Further Action was also issued (Appendix C).

Two buckets of oil were observed on the property near the northeast parcel corner where the traffic signal box is located (Plate 2). These had overflowed in the recent rains and a puddle of oil formed on the pavement. Seramur & Associates personnel called the Town of Waynesville to inform them of the situation. The Town of Waynesville sent over a police officer who contacted the last occupants of the auto-repair shop. The occupants arrived on site and transferred the oil into the ASTs on the west side of the building. They did not clean up the puddle of oil that had spilled onto the asphalt.

Seramur and Associates personnel made a pedestrian reconnaissance of the property during the initial site visit on September 25, 2018. A storage shed is located at the northwest corner of the property. This shed appears to have been used to store materials for the restaurant. Several buckets of "Quick Dry Rinse Aid" were observed in the shed. The material safety data sheet on one of these buckets described the material as C10-C16 ethoxylated alcohol (Plate 3).

The proposed work area was marked with white paint for utility locating purposes. A utility locate request was initiated with the North Carolina 811 system on October 14, 2018, approximately one week before commencing with drilling.

2.2 Plates 1, 2 and 3 – Photos of Parcel #008

Plate 1 - Photos of Parcel #008 (10/10/18)



1. Tools and equipment left outside of the remnants of the auto-repair shop at Parcel #008.

2. Building footing and remaining half of building at Parcel #008. Former restaurant building visible in background.



3. View along north side of property from the northwest corner.

Plate 2 - Photos of Parcel #008 (10/10/18)



1. Buckets of oil at the northeast property corner near the traffic signal. Oil has spilled from both buckets after overflowing during rain event.



2. Magnetic anomaly A near reported location of former heating oil UST off west corner of building. Natural gas line runs into building to the north of this anomaly .



3. Magnetic anomaly C north of the auto-repair shop. Appears to be a utility under newer pavement.

Plate 3 - Photos of Parcel #008 (10/10/18)



1. View of west side of Parcel #008 showing the back of the restaurant building. Location of magnetic anomalies A & B are shown.



2. Storage shed along western property boundary. Inset A shows one of the buckets stored in the building. Inset B shows MSD sheet for buckets



3. Stream at bridge abutment showing storm water drain (lower right) and PVC utility line that extend onto the property. Bridge abutment forms the northwest footing of the storage shed.

2.3 Geophysical Surveys

Seramur & Associates set up seven grids for a geophysical survey at Parcel #008 (Figures 4 through 7). Grid 1 ran along the northeast side of the former restaurant building, perpendicular to North Main Street. Grid 2 extended from the northeast corner of Grid 1, west of the former auto-repair shop, perpendicular to Walnut Street. Grid 3 was located west of Grid 2 off of the northwest side of the former restaurant building. Grid 4 was located off the west corner of the former restaurant building, approximately parallel to Marshall Street. Grid 5 was located off of the southwest side of the former restaurant building continuing off of the south side of Grid 4. Grid 6 was located off of the southeast side of the building running parallel to North Main Street. Grid 7 was located in the northeast corner of the property near the light pole and utility boxes. The GPR and magnetometer were used to survey areas outside of the two grids that were areas of possible concern on the property. Geophysical data were collected along transects at a 2-foot spacing.

The Magnetometer survey was completed with a MF-1 Fluxgate magnetometer. The MF-1 Fluxgate magnetometer is designed to measure changes in the Earth's magnetic field associated with larger ferrous objects. It does not respond to smaller objects such as nails or wire, but responds well to variations in the Earth's magnetic field produced by manholes, steel pipe, buried drums and tanks. The sensitivity level is well suited for detecting buried USTs at commercial and industrial facilities. Magnetometer data was compiled in an Excel spreadsheet and a contour map with hill shade was drafted using Golden Software's Surfer® modeling program (Figure 4).

A Ground Penetrating Radar (GPR) survey was completed across the grids using Geophysical Survey Systems, Inc. 400 MHz antenna and a SIR-3000 Single Channel Data Acquisition System 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. Additional GPR transects (e.g. across magnetic anomalies) collected during our survey of the property were processed using Radan® software.

Three-dimensional models of the GPR grid data were produced with the GPR Slice® software. Three time slices (or depth slices) were imaged in each of the two grids at depths of 0.3 to 0.8 feet, 1.3 to 1.9 feet and 3.2 to 3.7 feet (Figures 6 through 8). Each depth slice is a horizontal slice or plan view of the reflections across a 0.5 to 0.6-foot thickness of the subsurface. For example, the shallow GPR depth slices for Grids 1 through 7 show reflections in the radar data between depths of 0.3 and 0.8 feet.

2.4 Soil Sampling and Analyses

Carolina Soil Investigations, LLC mobilized to the site on October 24th, 2018 to drill Geoprobe borings and collect soil samples. Our project design called 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 samples were collected at other depths within the Geoprobe cores if soil staining or petroleum vapors were observed or if limited core recovery occurred. Soil borings were drilled across the property with a particular focus on areas thought to be more likely to contain petroleum impacted soil (Figure 3).

A track-mounted Geoprobe rig was used to drill a total of twenty-seven (27) 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 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 soil boring data including sample number, depth, PID reading, lithology and type of soil material.

Samples were collected and shipped on ice to REDLab, LLC, in Wilmington, NC for laboratory analyses. 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 as Hydrocarbons (TPH). REDLab provides 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 #008 contains a former restaurant building near the center of the property and a former auto-repair shop near the northeast corner of the property. The former auto-repair shop building has been partially demolished after a truck crashed into the building. A groundwater incident (#41466) has been issued for this site. A Notice of Residual Petroleum has been placed on the deed to the property and a Notice of No Further Action has been issued (Appendix C).

3.1 Geophysical Surveys

Magnetometer Survey

Two small magnetic anomalies were detected in Grid 2 (Figure 5). These were localized anomalies and the GPR profiles did not show reflection characteristics typical of a UST. One small magnetic anomaly was detected in Grid 3 (Figure 5). This was also a localized anomaly. The GPR profiles show an area of soil disturbance at this location and the reflection characteristics are not typical of a UST.

Two magnetic anomalies were detected in Grid 4. Anomaly A was detected at the reported

location of a former heating oil UST. The property manager had stated that the UST was removed and we could identify the former location by the patched asphalt. This anomaly appeared smaller than what would be expected for a UST. Access to the GPR was limited as the anomaly was partially located under a sidewalk that ran along the building. Two perpendicular GPR profiles were collected across Anomaly A (Figure 5). These show a distinct set of reflections indicating some type of reflective material. It is possible that the GPR and magnetometer are picking up remnant piping and asphalt or concrete dumped into the heating oil UST excavation. It is also possible that a heating oil UST remains under the sidewalk. The 2.4-2.9 GPR depth slice shows a reflection at this location that could represent a UST (Figure 5).

Anomaly B was located in the northwestern portion of the parcel near the edge of the parking lot. This anomaly was larger, but the GPR profiles do not show reflection characteristics typical of a UST. This anomaly appears to be a point reflector on the GPR profiles and the 1.1-1.6 foot GPR depth slice (Figure 5).

Several small magnetic anomalies were detected in Grid 7 (Figure 5). These were localized anomalies and the GPR profiles did not show reflection characteristics typical of a UST. This area appears disturbed on the GPR profiles. This was also the location of some of the highest concentrations of petroleum constituents detected in soil samples. The magnetic anomalies detected in Grid 7 are interpreted to be remnant infrastructure from the former UST system on Parcel #008.

Two magnetic anomalies (C & D) were recorded outside of our grid locations (Figure 5). GPR Profiles 1 and 2 were collected across anomaly C (Figure 4). GPR Profile 1 shows a hyperbola that could be interpreted as a UST, but Profile 2 shows that this reflector is too small to be a UST (Figure 9). There is an irregular shaped asphalt patch at this location and the water line runs along this side of the road. This anomaly is interpreted to be related to a utility.

GPR Profiles 3 and 4 were collected across Anomaly D (Figure 4). These profiles show evidence of soil disturbance but no reflections characteristic of a UST (Figure 9).

Shallow GPR Depth Slice

The 0.3-0.8 GPR depth slices shows an electric line extending across Grid 6 between the restaurant building a sign (Figure 6). This is about the only buried infrastructure that can be seen in these depth slices.

Intermediate GPR Depth Slice

The 1.3-1.9 GPR depth slices show utility lines extending across Grids 2, 5 and 6 (Figure 7).

Deep GPR Depth Slice

The 3.2-3.7 GPR depth slices show a couple of high amplitude reflections in Grid 7, but these reflections are between the magnetic anomalies detected in this grid (Figure 7). The high

amplitude reflection at magnetic anomaly A in Grid 4 can be seen adjacent to the restaurant building in these depth slices.

Two GPR profiles (P5 and P6) were collected around the former auto repair shop (Figure 4). These profiles did not show any reflections characteristic of a UST (Figure 9).

3.2 Soil Borings, Sampling and Laboratory Results

The soil type at Parcel #008 consisted of a fill material, saprolite and alluvium. The lithologies were primarily sandy silt and silty sand. Some cores were gravelly (Table 1). Cross-sections A-A' through E-E' show interpretations of the lithology and locations of soil borings (Figures 12-14). Groundwater was not encountered in any of the soil borings, though some of the cores contained moist soil.

Borings B-31 through B-41 were drilled in a circular, counter-clockwise direction around the auto-repair building. The soil sample collected near the AST system was collected just east of Boring B-37 on the west side of the building. Borings B-42 through B-46 were drilled between the two buildings from the north side of the property to the south. Boring B-46 was drilled to the west of Boring B-45. Boring B-47 was drilled just off of the north corner of the restaurant building. Boring B-48 was drilled north of B-47 near the telephone pole and water meter along Walnut Street. Borings B-49 through B-51 were drilled in the parking area northwest of the restaurant building. Boring B-52 was drilled adjacent to the storage shed on the far west side of the property near the creek. B-53 was drilled in the reported location of a former heating oil UST and B-54 was drilled west of this to delineate the contamination discovered in B-53. Borings B-55 and B-56 were drilled southwest of the restaurant building. Finally, Boring B-57 was drilled east of the restaurant building to the north of the landscape area that holds the remnants of the restaurant business sign.

The PID detected elevated concentrations of petroleum vapors (>50 ppm) in seven of the 27 Geoprobe cores (Table 1). Petroleum constituents were detected in all but six of the 55 soil samples sent to the laboratory (Table B-3). Petroleum constituents were detected above the NCDEQ Action Levels for GRO and/or DRO constituents (50 ppm and 100 ppm, respectively) in soil samples S-61, S-64, S-65, S-67, S-69, S-71, S-74, S-78 and S-106 (Table B-3). Soil sample S-61 was collected from Boring B-31. Samples S-64 and S-65 were collected from Boring B-34. Sample S-67 was collected from Boring B-33. Sample S-69 was collected from Boring B-35 and Sample S-71 was collected from Boring B-36. Sample S-74 was the surficial sample collected under the AST system. Sample S-78 was collected from Boring B-39 and

These borings were drilled around the former gas station auto repair shop. The only area of shallow contamination detected was at boring B-34. This was probably drilled in the vicinity of the former dispenser islands. The former USTs were probably located on the east side of the former auto repair shop. We could not collect GPR grid data in this area because of fencing and equipment being stored there. We did survey the area with the magnetometer.

Sample S-106 was collected from Boring B-53 (Figure 3). This was collected in the vicinity of the former heating oil UST.

3.3 Volume and Extent of Soil Contamination

Contaminated soil defined as GRO concentrations above 50 ppm and DRO concentrations above 100 ppm was detected in soil samples collected at Parcel #008. The sources of this soil contamination are suspected to be the UST systems that previously operated at this facility as well as the AST system which is still in place.

An estimate of the volume of contaminated soil in the vicinity of borings B-31, B-33, B-34, B-35 B-36, B-39 and the surficial sample collected from under the ASTs can be calculated using an estimated average thickness of contaminated soil and the horizontal extent (Figure 9). Soil contamination was detected in both the shallow and deep soil samples only in boring B-34. Other borings had contamination in only the deep sample and the AST sample was collected between a depth of 0.0 feet and 0.2 feet. Therefore, an estimated average soil contamination thickness of five feet will be used in our calculations. The area of contaminated soil is approximately 6,050 square feet (Figure 11). The estimated volume of contaminated soil in this area is calculated as follows:

$$\begin{aligned} 5 \text{ ft.} \times 6,050 \text{ ft}^2 &= 30,250 \text{ ft}^3 \\ 30,250 \text{ ft}^3 / 27 \text{ ft}^3/\text{yd}^3 &= 1,120.4 \text{ yd}^3 \\ 1,120.4 \text{ yd}^3 \times 1.5 \text{ tons}/\text{yd}^3 &= 1,680.6 \text{ tons} \end{aligned}$$

An estimate of the volume of contaminated soil in the vicinity of boring B-53 can be calculated using an estimated average thickness of contaminated soil and the horizontal extent (Figure 9). Soil contamination was detected in only the deep soil sample from boring B-53. This boring was drilled in the location of a former heating oil UST and we estimate that the base of the tank was about five feet below the ground surface. Therefore, an estimated soil contamination thickness of five feet will be used in our calculation. The area of contaminated soil is approximately 500 square feet (Figure 11). The estimated volume of contaminated soil in the vicinity of boring B-53 is calculated as follows:

$$\begin{aligned} 5 \text{ ft.} \times 500 \text{ ft}^2 &= 2,500 \text{ ft}^3 \\ 2,500 \text{ ft}^3 / 27 \text{ ft}^3/\text{yd}^3 &= 92.6 \text{ yd}^3 \\ 92.6 \text{ yd}^3 \times 1.5 \text{ tons}/\text{yd}^3 &= 138.9 \text{ tons} \end{aligned}$$

In total, Seramur & Associates estimates that 1,213 cubic yards or approximately 1,819.5 tons of contaminated soil would be encountered at the property to a depth of 10 feet. Approximate extent of soil contamination is interpreted throughout cross-sections A-A' and E-E' (Figures 12-14)

3.4 Conclusions

The heating oil UST behind the restaurant was reportedly removed and the asphalt in this area has been patched. However, the geophysical survey did detect Magnetic anomaly A in Grid 4 adjacent to the reported UST location. GPR profiles show reflection characteristics that could be interpreted as a UST. The GPR depth slices show an anomaly of the size and shape of a buried UST. The magnetic anomaly and GPR reflections could be related to debris placed in the excavation or could be a UST. Based on the NCDOT UST Level of Confidence ranking, the evidence would indicate that this should be considered a “possible UST”.

The property manager informed us that the auto-repair shop formerly operated as a Phillips 66 gas station. Contaminated soil defined as GRO/DRO concentrations above NCDEQ Action Levels was detected in eight borings around the auto repair shop. Shallow soil contamination was detected under the existing ASTs and in the vicinity of Boring B-34. Contaminated soil was also detected in the vicinity of a former heating oil UST. The total volume of contaminated soil detected at Parcel #008 is estimated to be 422.2 yd³ or 633.3 tons. There is an estimated 1,213 cubic yards or 1,819.5 tons of contaminated soil below the pavement at Parcel #008.

Four 1-inch monitoring wells are located on Parcel #008. One damaged 2-inch monitoring well is located on the property. Groundwater was not encountered above 10 feet at the property. Groundwater should not be encountered during the proposed construction.

3.5 Recommendations

SAPC recommends that the possible UST adjacent to the restaurant building be investigated further. If a UST is confirmed at this location, then a licensed engineer or geologist should supervise the UST closure.

Contaminated soil was detected at a depth of 3.0 feet in boring B-34. A drop inlet and 15” RCP storm drain is shown on the CAD files adjacent to Boring B-34. Contaminated soil was detected in a surface sample below the existing ASTs. These areas of contaminated soil will be encountered during grading activities and installation of the storm drain.

Contaminated soil around the ASTs covers an area of 300 ft². The upper foot of soil should be removed from this location. Contaminated soil around the proposed storm drain extends across an area of about 180 ft². Contaminated soil will need to be excavated to a depth of about 3 feet in this area. The total volume of contaminated soil that needs to be removed in order to safely complete grading and install the storm drain is estimated to be about 30 yards.

SAPC recommends that a licensed geologist or engineer supervise the excavation and removal of contaminated soil in the vicinity of boring B-34 and the ASTs. This work could be completed at the same time that the possible UST is investigated. Contaminated soil removed from Parcel #008 should be sent to a remediation facility.

SAPC recommends that a licensed well driller properly abandon the four 1-inch monitoring wells and the damaged 2-inch monitoring well at Parcel #008.

Appendix A

Tables and Figures

Table 1. Soil Boring Data - Parcel #008 - Clifford Gould LLC Property						
Boring No.	Depth (ft)	Lithology	Soil type	Soil Sample	PID ppm	Comments
B-31	0.0 to 5.0	Sandy Silt	Saprolite	S-60	0.0	Sample at 3.0 feet.
B-31	5.0 to 10.0	Sandy Silt	Saprolite	S-61	633.0	Sample at 9.5 feet.
B-32	0.0 to 5.0	Sandy Silt	Saprolite	S-62	0.0	Sample at 3.0 feet.
B-32	5.0 to 10.0	Sandy Silt	Saprolite	S-63	0.2	Sample at 9.0 feet.
B-33	0.0 to 5.0	Silty Sand	Alluvium	S-66	3.3	Sample at 2.5 feet.
B-33	5.0 to 10.0	Silty Sand	Alluvium	S-67	149.0	Sample at 8.0 feet.
B-34	0.0 to 5.0	Silty Sand	Alluvium	S-64	832.4	Sample at 3.0 feet.
B-34	5.0 to 10.0	Silty Sand	Alluvium	S-65	864.0	Sample at 9.0 feet.
B-35	0.0 to 5.0	Sandy Silt	Alluvium	S-68	14.0	Sample at 2.5 feet.
B-35	5.0 to 10.0	Sandy Silt	Alluvium	S-69	128.6	Sample at 9.0 feet.
B-36	0.0 to 5.0	Sandy Silt	Alluvium	S-70	5.1	Sample at 2.0 feet.
B-36	5.0 to 10.0	Sandy Silt	Alluvium	S-71	490.1	Sample at 9.0 feet.
B-37	0.0 to 5.0	Sandy Silt with gravel	Fill	S-72	0.0	Sample at 2.0 feet.
B-37	5.0 to 10.0	Sandy Silt	Fill	S-73	16.4	Sample at 8.0 feet.
N/A	0.0 to 0.2	Silty Sand	Fill	S-74	0.0	Sample collected from under oil ASTs. No boring, collected by hand.
B-38	0.0 to 5.0	Sandy Silt	Fill	S-75	27.9	Sample at 2.0 feet.
B-38	5.0 to 10.0	Silty Sand	Alluvium	S-76	121.5	Sample at 8.0 feet.
B-39	0.0 to 5.0	Silty Sand with gravel	Fill	S-77	0.0	Sample at 2.5 feet.
B-39	5.0 to 10.0	Silty Sand	Alluvium	S-78	183.2	Sample at 8.0 feet.
B-40	0.0 to 5.0	Silty Sand	Saprolite	S-79	15.2	Sample at 3.0 feet.
B-40	5.0 to 10.0	Silty Sand	Saprolite	S-80	13.2	Sample at 9.0 feet.
B-41	0.0 to 5.0	Sandy Silt	Fill	S-81	3.6	Sample at 3.0 feet.
B-41	5.0 to 10.0	Sandy Silt	Fill	S-82	0.2	Sample at 8.0 feet.
B-42	0.0 to 5.0	Sandy Silt	Alluvium	S-83	0.1	Sample at 3.0 feet.
B-42	5.0 to 10.0	Sandy Silt	Alluvium	S-84	0.4	Sample at 8.0 feet.
B-43	0.0 to 5.0	Silty Sand with gravel	Fill	S-85	0.0	Sample at 1.5 feet.
B-43	5.0 to 10.0	Sandy Silt	Alluvium	S-86	0.2	Sample at 9.0 feet.
B-44	0.0 to 5.0	Silty Sand	Fill	S-87	0.0	Sample at 2.0 feet.
B-44	5.0 to 10.0	Sandy Silt	Alluvium	S-88	0.0	Sample at 7.0 feet.
B-45	0.0 to 5.0	Silty Sand	Fill	S-89	0.0	Sample at 3.0 feet.
B-45	5.0 to 10.0	Sandy Silt	Alluvium	S-90	0.3	Sample at 8.0 feet.
B-46	0.0 to 5.0	Sandy Silt	Fill	S-91	0.2	Sample at 2.0 feet.
B-46	5.0 to 10.0	Silty Sand	Alluvium	S-92	0.0	Sample at 9.0 feet.
B-47	0.0 to 5.0	Sandy Silt	Fill	S-93	0.0	Sample at 2.0 feet.
B-47	5.0 to 10.0	Silty Sand	Alluvium	S-94	0.0	Sample at 9.0 feet.
B-48	0.0 to 5.0	Silty Sand	Fill	S-95	0.3	Sample at 2.0 feet.
B-48	5.0 to 10.0	Sandy Silt with gravel	Fill	S-96	0.0	Sample at 9.0 feet.
B-49	0.0 to 5.0	Silty Sand	Fill	S-97	0.0	Sample at 2.5 feet.
B-49	5.0 to 10.0	Sandy Silt with gravel	Fill	S-98	0.1	Sample at 9.0 feet.
B-50	0.0 to 5.0	Silty Sand with gravel	Fill	S-99	0.0	Sample at 3.0 feet.
B-50	5.0 to 10.0	Silty Sand with gravel	Fill	S-100	0.0	Sample at 9.0 feet.
B-51	0.0 to 5.0	Silty Sand	Fill	S-101	0.0	Sample at 2.5 feet.
B-51	5.0 to 10.0	Silty Sand with gravel	Fill	S-102	0.0	Sample at 9.0 feet.
B-52	0.0 to 5.0	Silty Sand	Alluvium	S-103	0.0	Sample at 3.0 feet.
B-52	5.0 to 10.0	Sandy Silt	Alluvium	S-104	0.2	Sample at 8.5 feet.
B-53	0.0 to 5.0	Sandy Silt	Fill	S-105	0.0	Sample at 2.0 feet.
B-53	5.0 to 10.0	Sandy Silt	Fill	S-106	0.0	Sample at 9.0 feet.
B-54	0.0 to 5.0	Sandy Silt	Fill	S-107	0.4	Sample at 2.0 feet.
B-54	5.0 to 10.0	Silty Sand	Alluvium	S-108	0.0	Sample at 9.0 feet.
B-55	0.0 to 5.0	Silty Sand	Fill	S-109	0.1	Sample at 3.0 feet.
B-55	5.0 to 10.0	Sandy Silt	Alluvium	S-110	0.2	Sample at 7.0 feet.
B-56	0.0 to 5.0	Silty Sand	Fill	S-111	0.1	Sample at 1.5 feet.
B-56	5.0 to 10.0	Silty Sand	Fill	S-112	0.2	Sample at 8.0 feet.
B-57	0.0 to 5.0	Sandy Silt	Fill	S-113	0.0	Sample at 2.5 feet.
B-57	5.0 to 10.0	Silty Sand	Saprolite	S-114	0.2	Sample at 9.0 feet.

Table B-3: Summary of Soil Sampling Results

Revision Date: 10/26/18

Incident Number and Name: 41466, Clifford Gould LLC Property

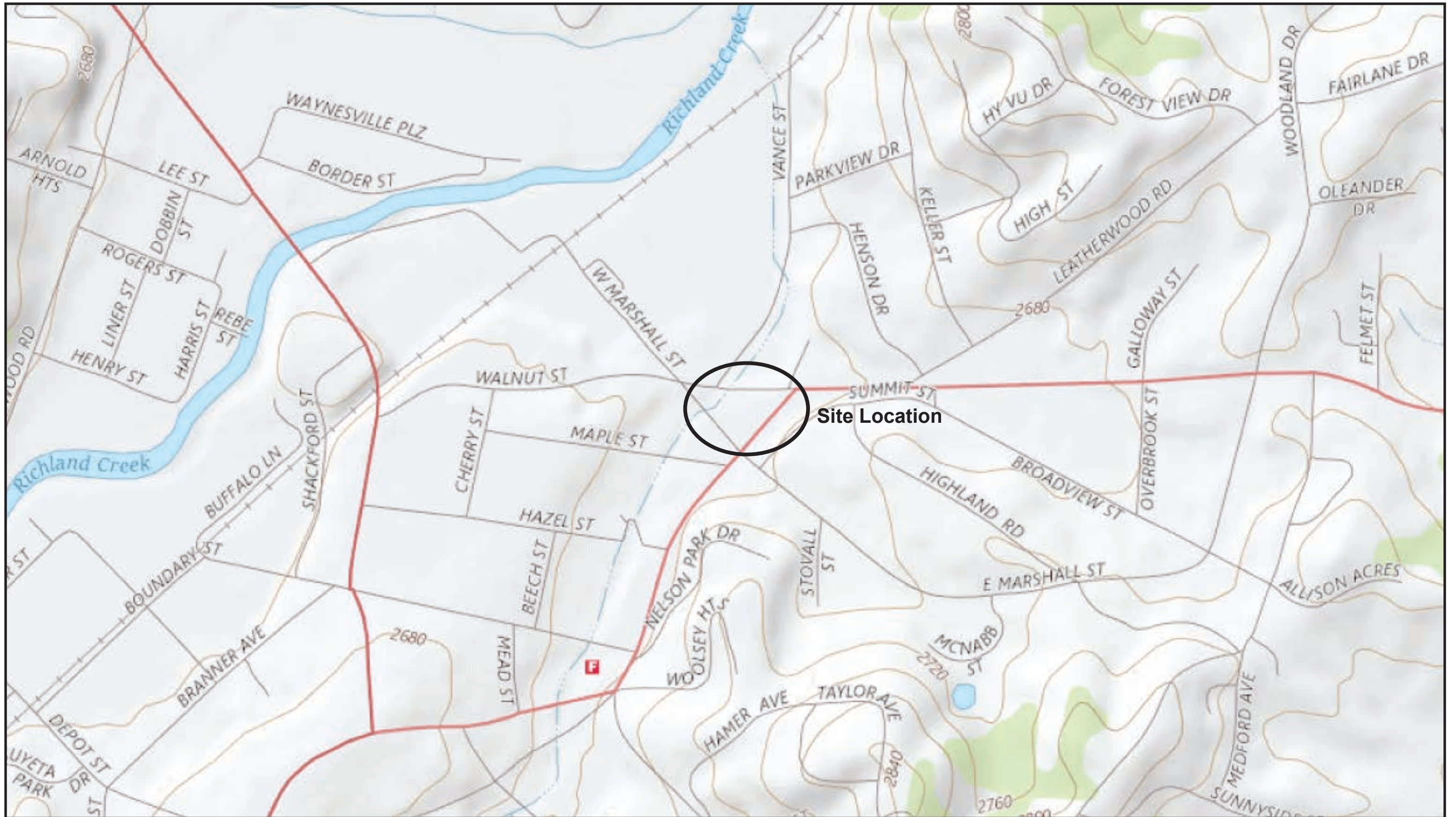
Parcel ID#: 008


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-60	10/24/18	B-31	3.0	PSA	<0.65	<0.26
S-61	10/24/18	B-31	9.5	PSA	714.2	1,215
S-62	10/24/18	B-32	3.0	PSA	<0.60	0.69
S-63	10/24/18	B-32	9.0	PSA	<0.57	2.7
S-64	10/24/18	B-34	3.0	PSA	582.1	490.2
S-65	10/24/18	B-34	9.0	PSA	500	1,095
S-66	10/24/18	B-33	2.5	PSA	<0.56	0.7
S-67	10/24/18	B-33	8.0	PSA	42.0	174.1
S-68	10/24/18	B-35	2.5	PSA	<0.64	6.5
S-69	10/24/18	B-35	9.0	PSA	77.9	248.6
S-70	10/24/18	B-36	2.0	PSA	<0.54	11.9
S-71	10/24/18	B-36	9.0	PSA	290.5	893.3
S-72	10/24/18	B-37	2.0	PSA	<0.58	11.1
S-73	10/24/18	B-37	8.0	PSA	<0.51	21.8
S-74	10/24/18	Oil ASTs	0.0 – 0.2	PSA	<87.6	258.8
S-75	10/24/18	B-38	2.0	PSA	<0.55	11.3
S-76	10/24/18	B-38	8.0	PSA	<0.55	23.9
S-77	10/24/18	B-39	2.5	PSA	<0.57	<0.23
S-78	10/24/18	B-39	8.0	PSA	492.3	9,181
S-79	10/24/18	B-40	3.0	PSA	<0.58	0.97
S-80	10/24/18	B-40	9.0	PSA	<0.53	<0.21
S-81	10/24/18	B-41	3.0	PSA	<0.56	4.7
S-82	10/24/18	B-41	8.0	PSA	<0.56	18.1
S-83	10/24/18	B-42	3.0	PSA	<0.52	1.3
S-84	10/24/18	B-42	8.0	PSA	<0.47	0.97
S-85	10/24/18	B-43	1.5	PSA	<0.60	17.0
S-86	10/24/18	B-43	9.0	PSA	<0.57	1.5
S-87	10/24/18	B-44	2.0	PSA	<0.59	33.6
S-88	10/24/18	B-44	7.0	PSA	<0.56	39.3
S-89	10/24/18	B-45	3.0	PSA	<0.55	<0.22
S-90	10/24/18	B-45	8.0	PSA	<0.58	3.1
S-91	10/24/18	B-46	2.0	PSA	<0.66	24.5
S-92	10/24/18	B-46	9.0	PSA	<0.21	<0.08
S-93	10/24/18	B-47	2.0	PSA	<1.8	92.0
S-94	10/24/18	B-47	9.0	PSA	<0.63	2.3
S-95	10/24/18	B-48	2.0	PSA	<0.56	2.9
S-96	10/24/18	B-48	9.0	PSA	<0.60	1.5
S-97	10/24/18	B-49	2.5	PSA	<0.77	1.1
S-98	10/24/18	B-49	9.0	PSA	<0.58	1.7
S-99	10/24/18	B-50	3.0	PSA	<0.69	0.33
S-100	10/24/18	B-50	9.0	PSA	<0.60	18.6
NC DEQ Action Level (mg/kg)					50	100

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

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-101	10/24/18	B-51	2.5	PSA	<0.56	21.8
S-102	10/24/18	B-51	9.0	PSA	<0.55	8.9
S-103	10/24/18	B-52	3.0	PSA	<0.66	<0.26
S-104	10/24/18	B-52	8.5	PSA	<0.61	3.5
S-105	10/24/18	B-53	2.0	PSA	<0.58	19.1
S-106	10/24/18	B-53	9.0	PSA	<61.8	10,102
S-107	10/24/18	B-54	2.0	PSA	<0.92	58.4
S-108	10/24/18	B-54	9.0	PSA	<0.54	1.2
S-109	10/24/18	B-55	3.0	PSA	<0.58	8.5
S-110	10/24/18	B-55	7.0	PSA	<0.58	2.6
S-111	10/24/18	B-56	1.5	PSA	<0.58	3.2
S-112	10/24/18	B-56	8.0	PSA	<0.62	7.7
S-113	10/24/18	B-57	2.5	PSA	<0.67	2.8
S-114	10/24/18	B-57	9.0	PSA	<0.59	4.5
NC DEQ Action Level (mg/kg)					50	100

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



<p>Figure 1 Site Location Map Source: U.S.G.S. The National Map</p>	<p>State Project: U-5888 Haywood County, NC</p>	<p>Clifford Gould LLC Property 783 N Main Street Waynesville, NC</p>	<p>Parcel #008 Facility I.D.: N/A</p>	<p>Seramur & Associates, PC Boone, NC</p>	<p>0 300 600 Feet</p> 
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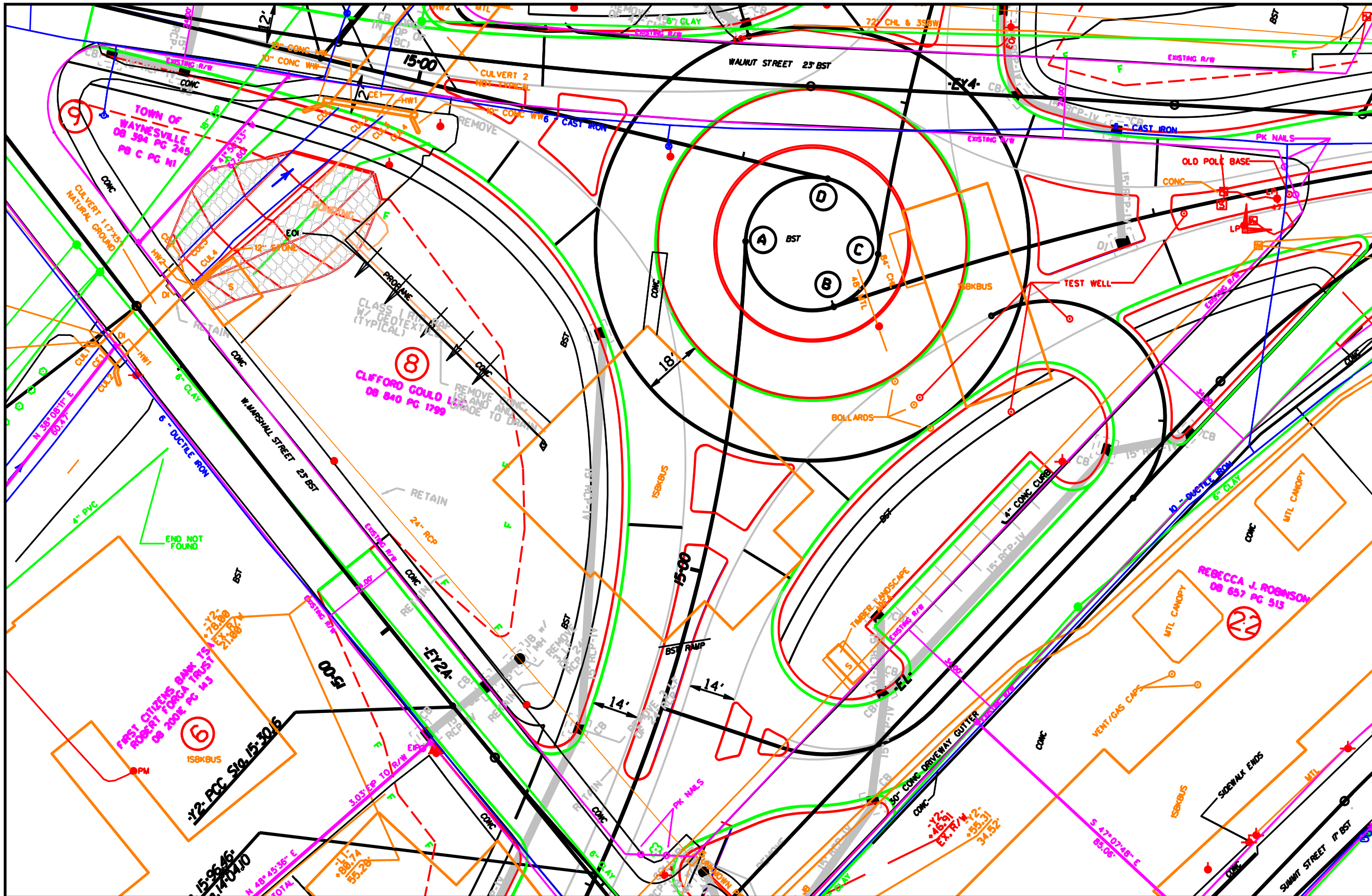


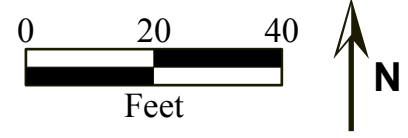
Figure 2
Site Plan

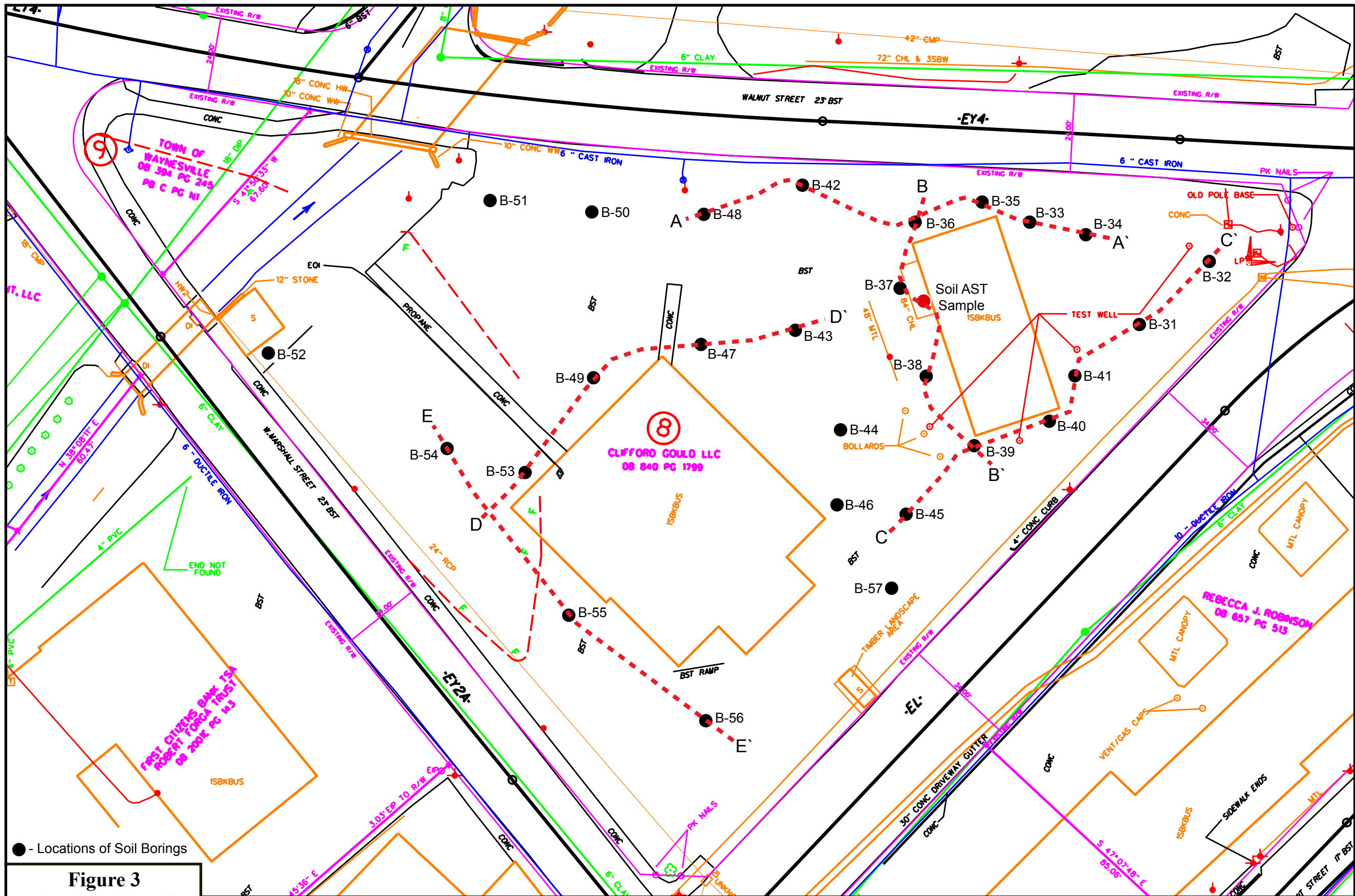
State Project: U-5888
Haywood County, NC

Clifford Gould LLC Property
783 N Main Street
Waynesville, NC

Parcel #008
Facility I.D.: N/A

Seramur & Associates, PC
Boone, NC





● - Locations of Soil Borings

Figure 3

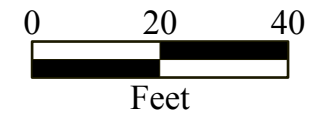
Site Plan with Soil Boring Locations and Approximate Cross-Section Locations

State Project: U-5888
Haywood County, NC

Clifford Gould LLC Property
783 N Main Street
Waynesville, NC

Parcel #008
Facility I.D.: N/A

Seramur & Associates, PC
Boone, NC



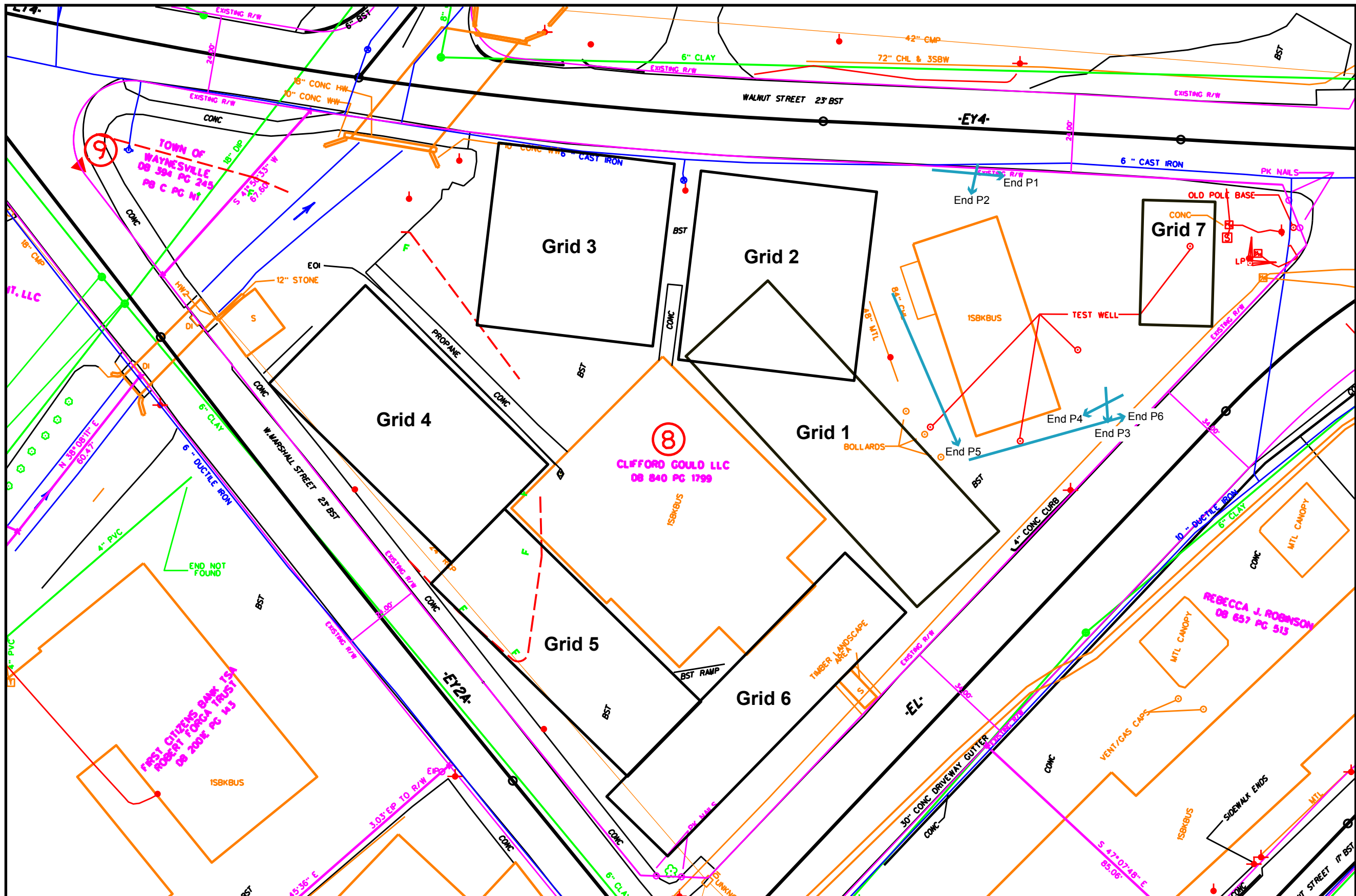


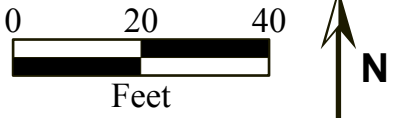
Figure 4
 Site Plan with
 Grid and GPR
 Profile Locations

State Project: U-5888
 Haywood County, NC

Clifford Gould LLC Property
 783 N Main Street
 Waynesville, NC

Parcel #008
 Facility I.D.: N/A

Seramur & Associates, PC
 Boone, NC



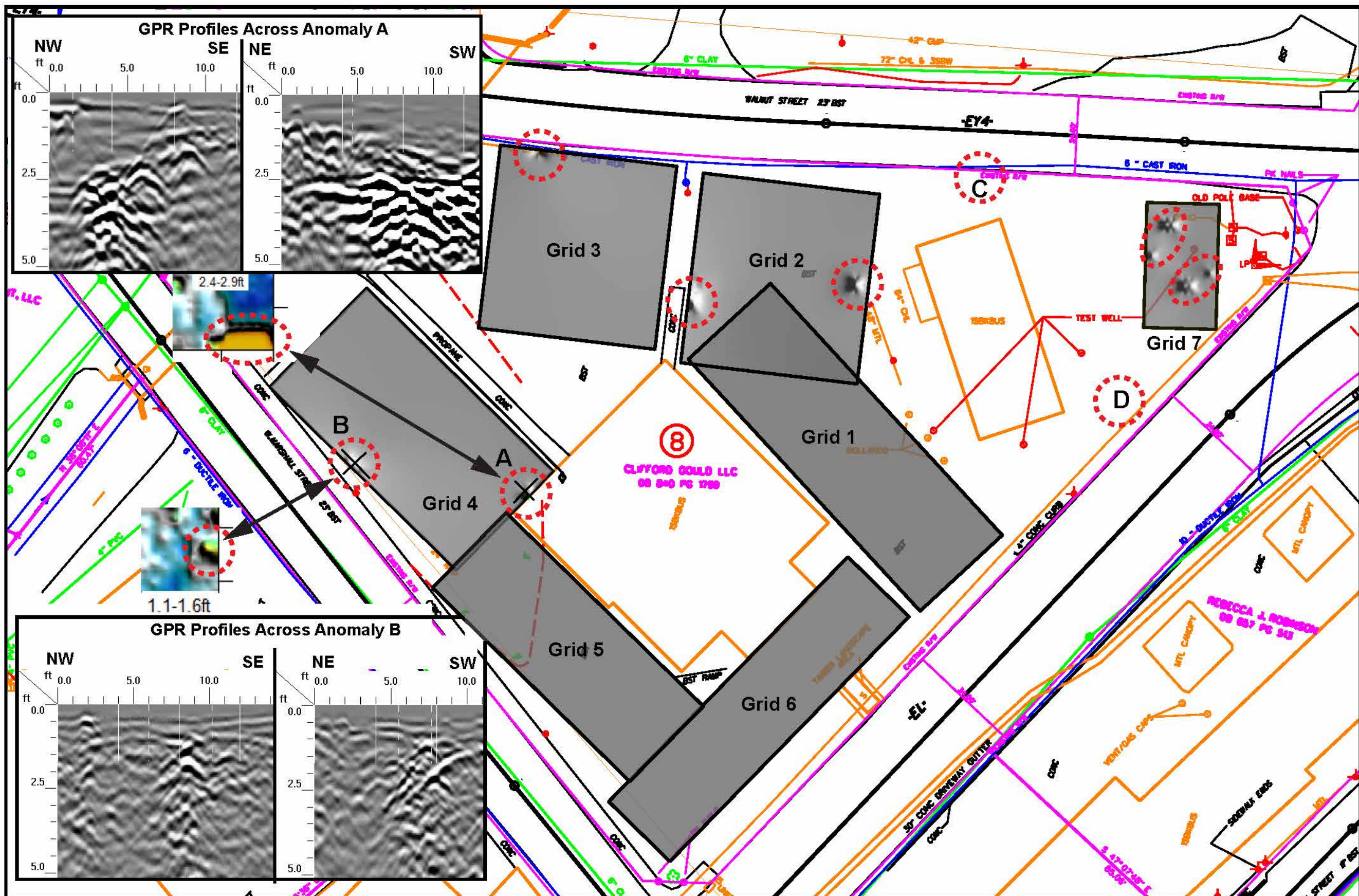


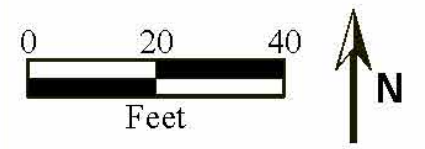
Figure 5
Magnetometer
Survey Results

State Project: U-5888
Haywood County, NC

Clifford Gould LLC Property
783 N Main Street
Waynesville, NC

Parcel #008
Facility I.D.: N/A

Seramur & Associates, PC
Boone, NC



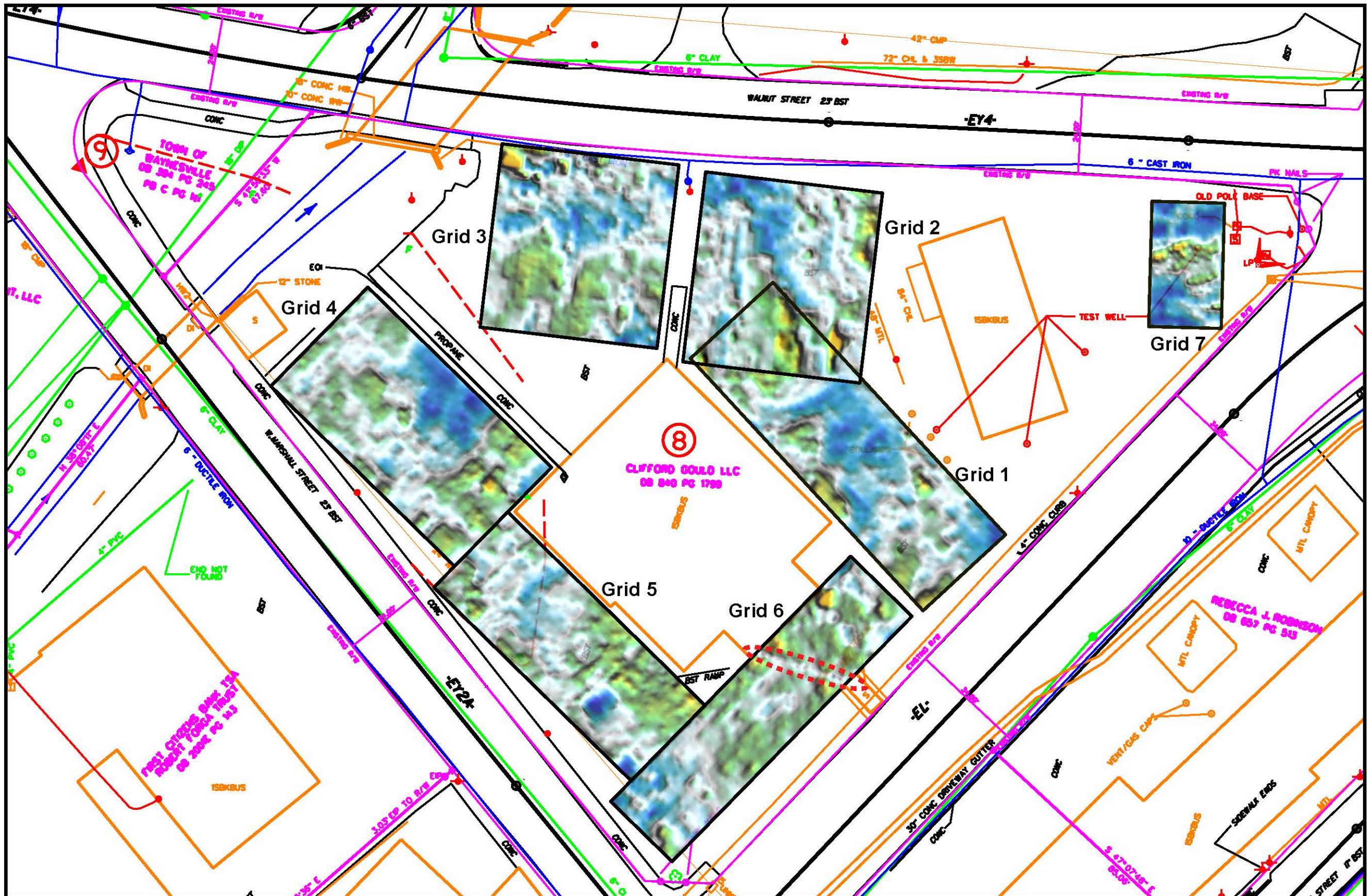


Figure 6

Shallow GPR
Depth Slices
(0.3 - 0.8 ft.)

State Project: U-5888
Haywood County, NC

Clifford Gould LLC Property
783 N Main Street
Waynesville, NC

Parcel #008
Facility I.D.: N/A

Seramur & Associates, PC
Boone, NC

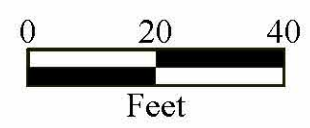




Figure 7

Intermediate GPR
Depth Slices
(1.3 - 1.9 ft.)

State Project: U-5888
Haywood County, NC

Clifford Gould LLC Property
783 N Main Street
Waynesville, NC

Parcel #008
Facility I.D.: N/A

Seramur & Associates, PC
Boone, NC

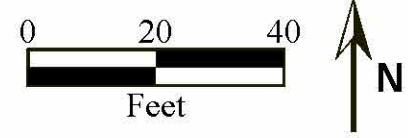




Figure 8

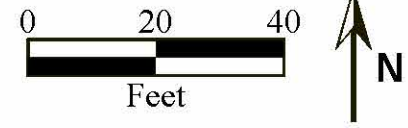
Deep GPR
Depth Slices
(3.2 - 3.7 ft.)

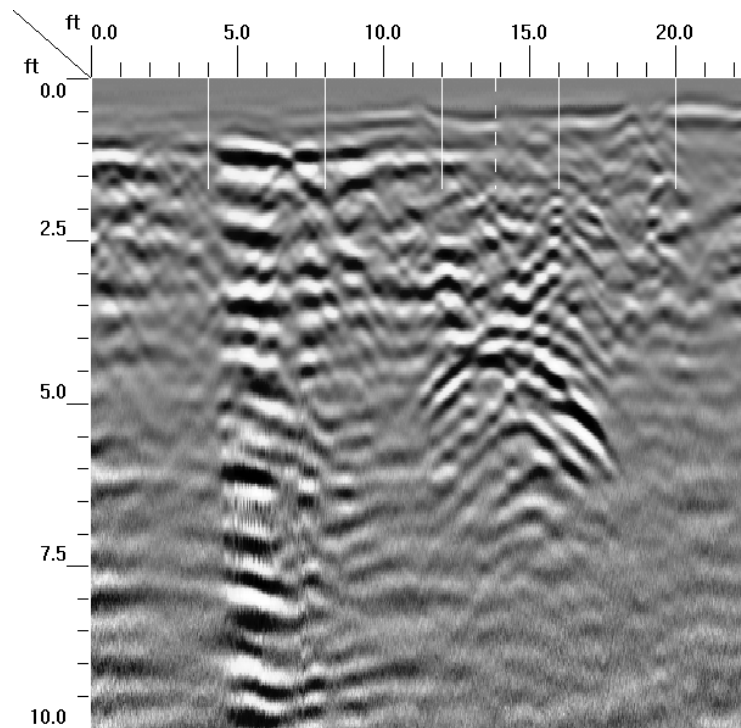
State Project: U-5888
Haywood County, NC

Clifford Gould LLC Property
783 N Main Street
Waynesville, NC

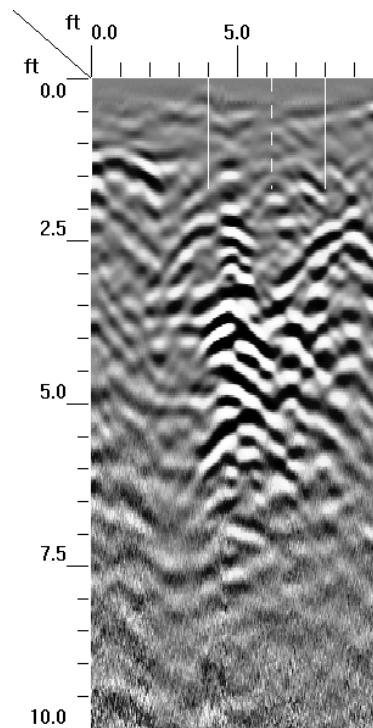
Parcel #008
Facility I.D.: N/A

Seramur & Associates, PC
Boone, NC

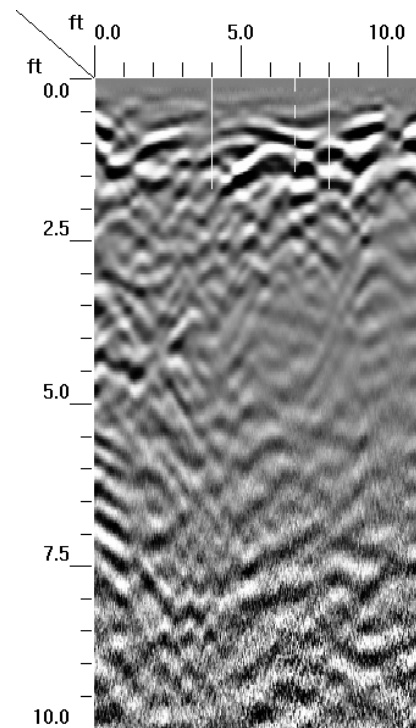




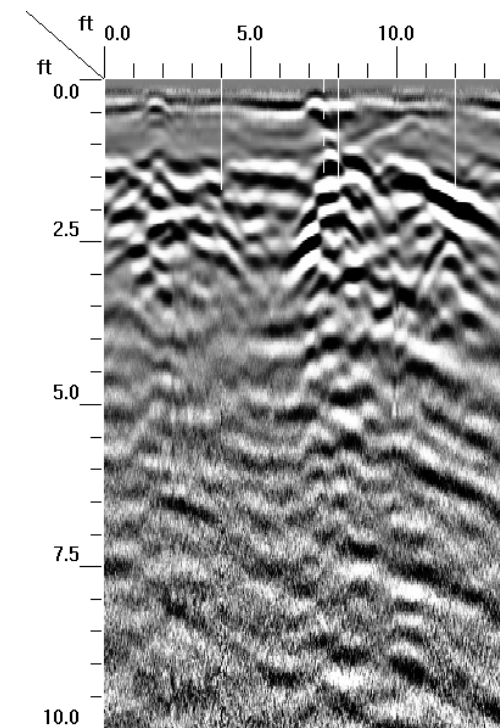
Profile 1



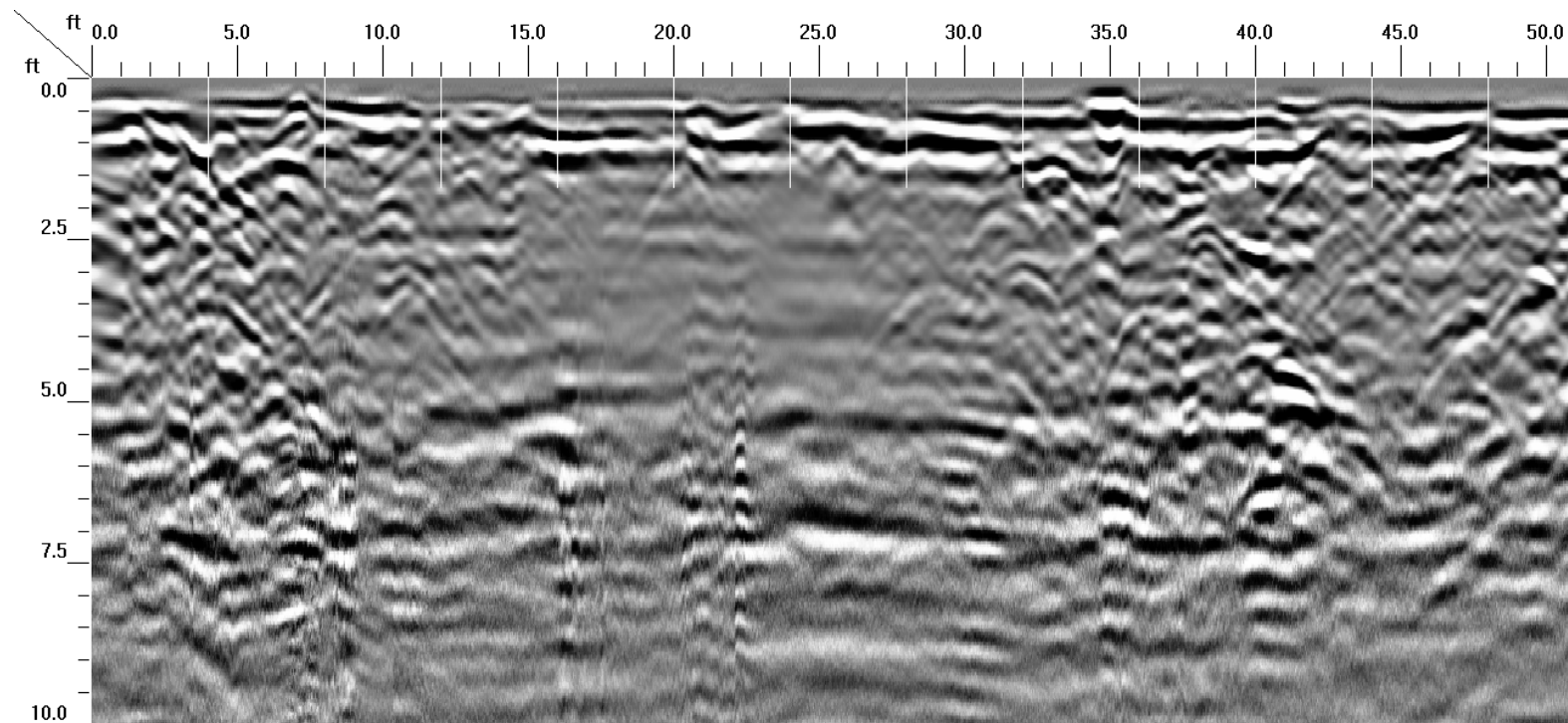
Profile 2



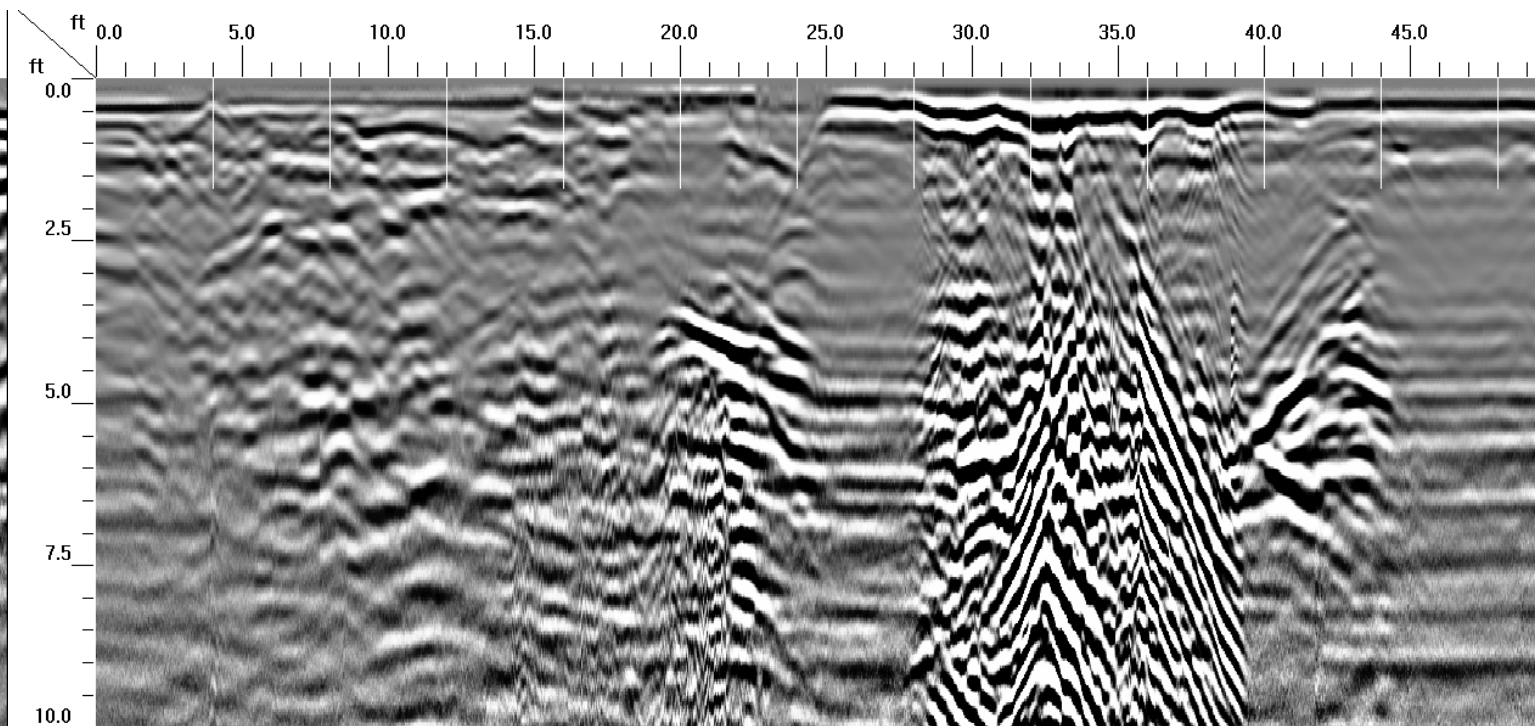
Profile 3



Profile 4



Profile 5



Profile 6

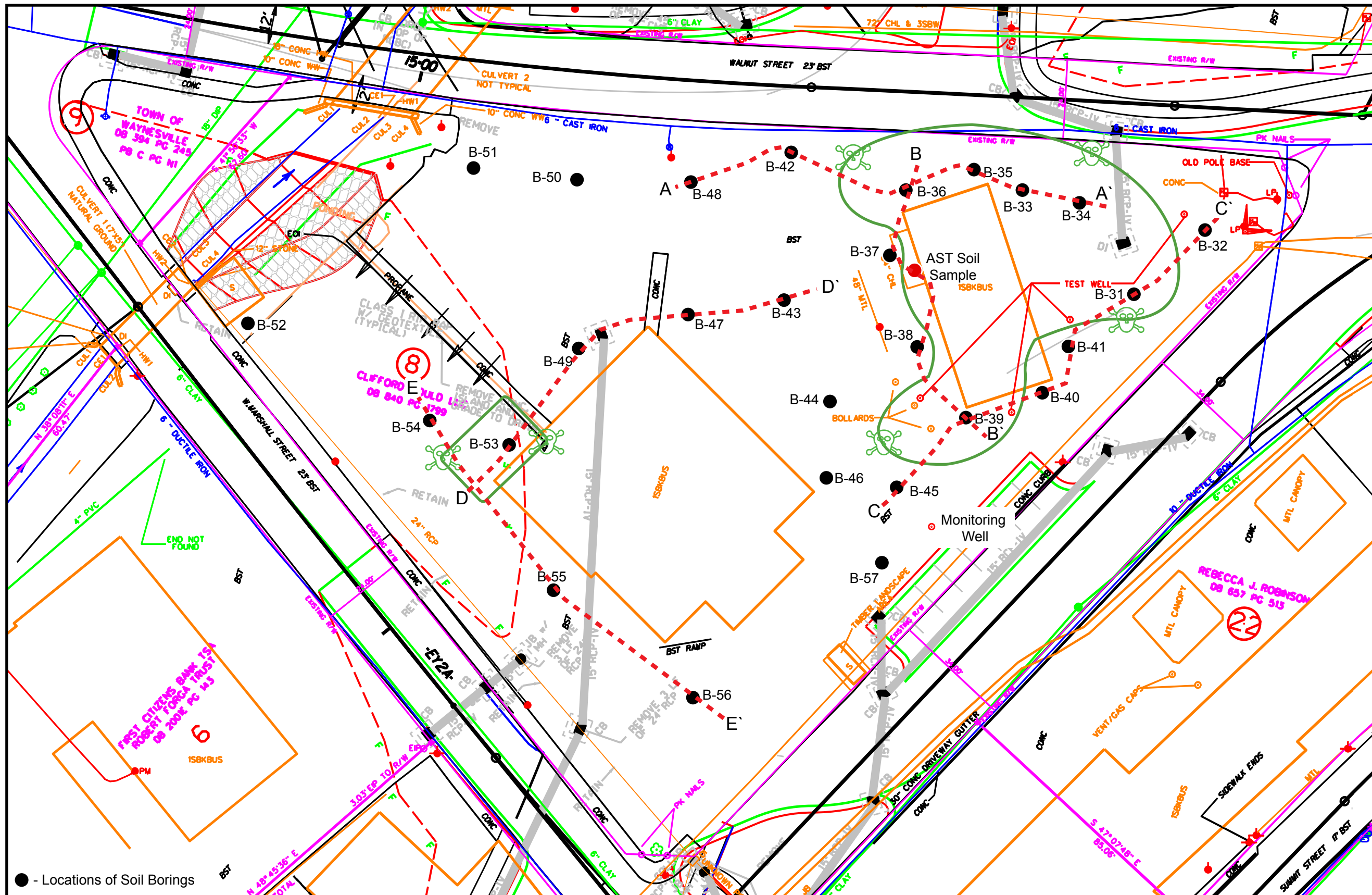
Figure 9
GPR Profiles 1-6

State Project: U-5888
Haywood County, NC

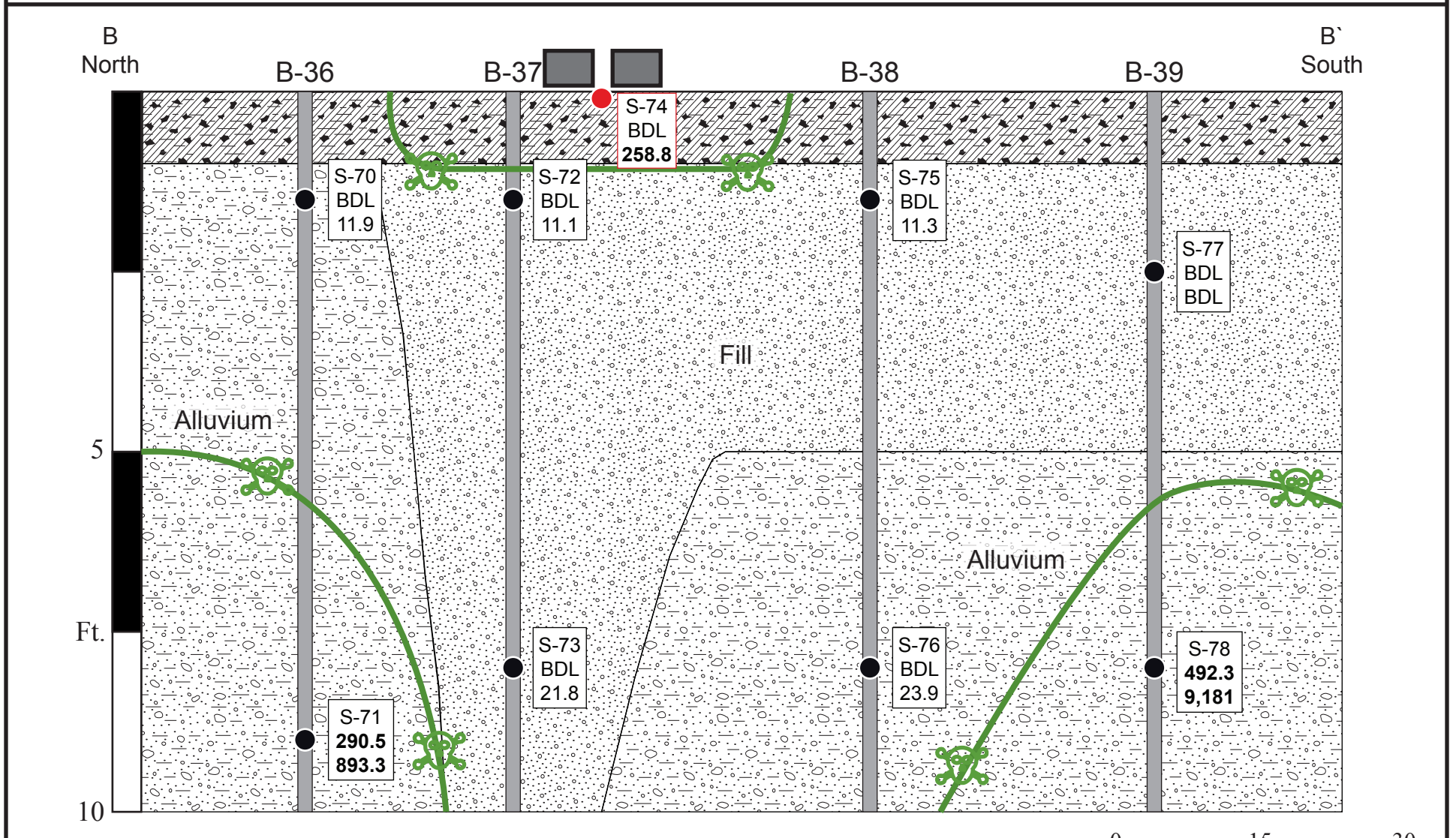
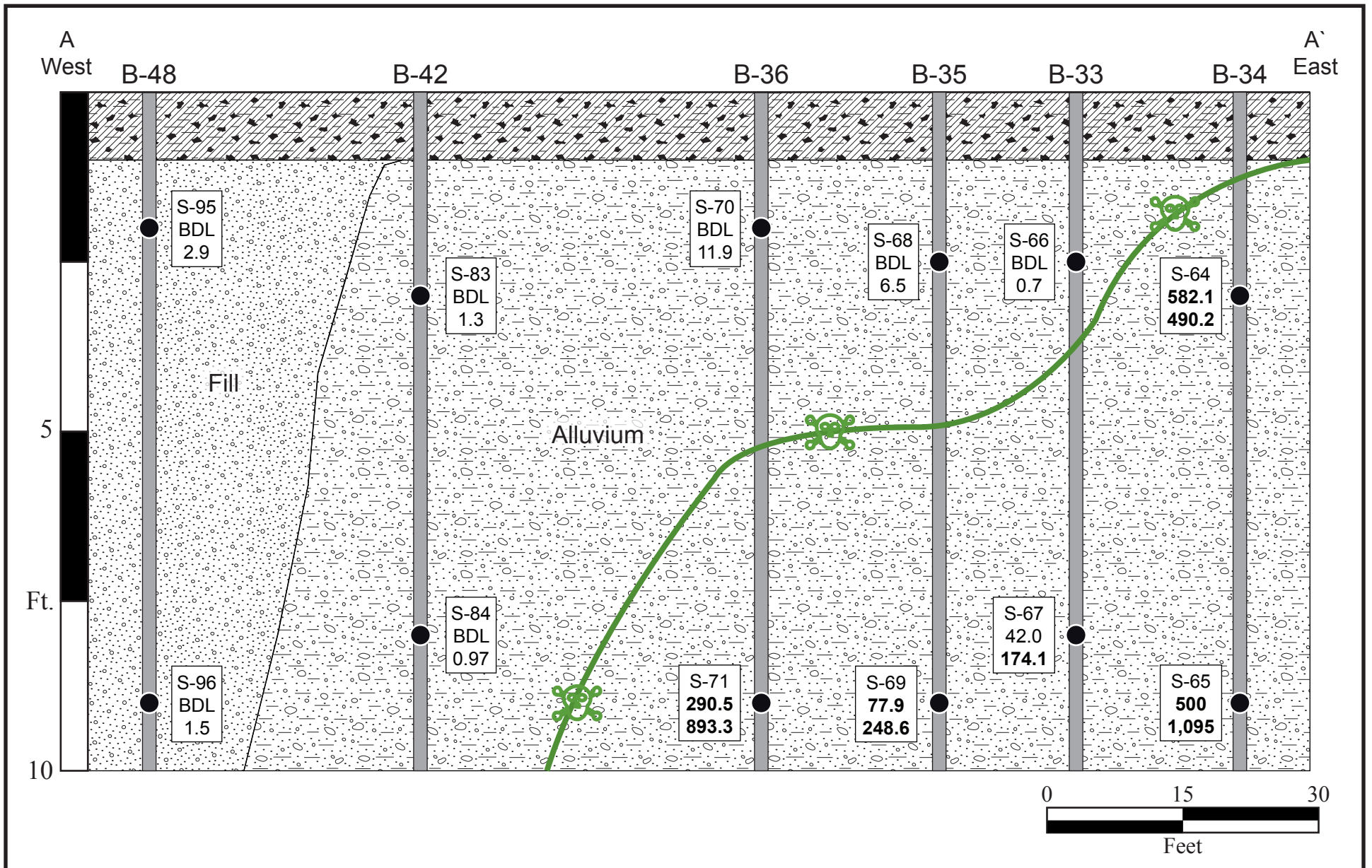
Clifford Gould LLC Property
783 N Main Street
Waynesville, NC

Parcel #008
Facility I.D.: N/A

Seramur & Associates, PC
Boone, NC



<p>Figure 11 Site Plan with Approx. Extent of Soil Contamination</p>	<p>State Project: U-5888 Haywood County, NC</p>	<p>Clifford Gould LLC Property 783 N Main Street Waynesville, NC</p>	<p>Parcel #008 Facility I.D.: N/A</p>	<p>Seramur & Associates, PC Boone, NC</p>	<p>0 20 40 Feet</p> <p>N</p>
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● - Locations of Soil Samples BDL - Below Detectable Limit 42.0 - Petroleum Constituent Concentrations
 174.1 Detected as GRO (upper) and DRO (lower)

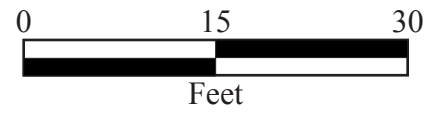
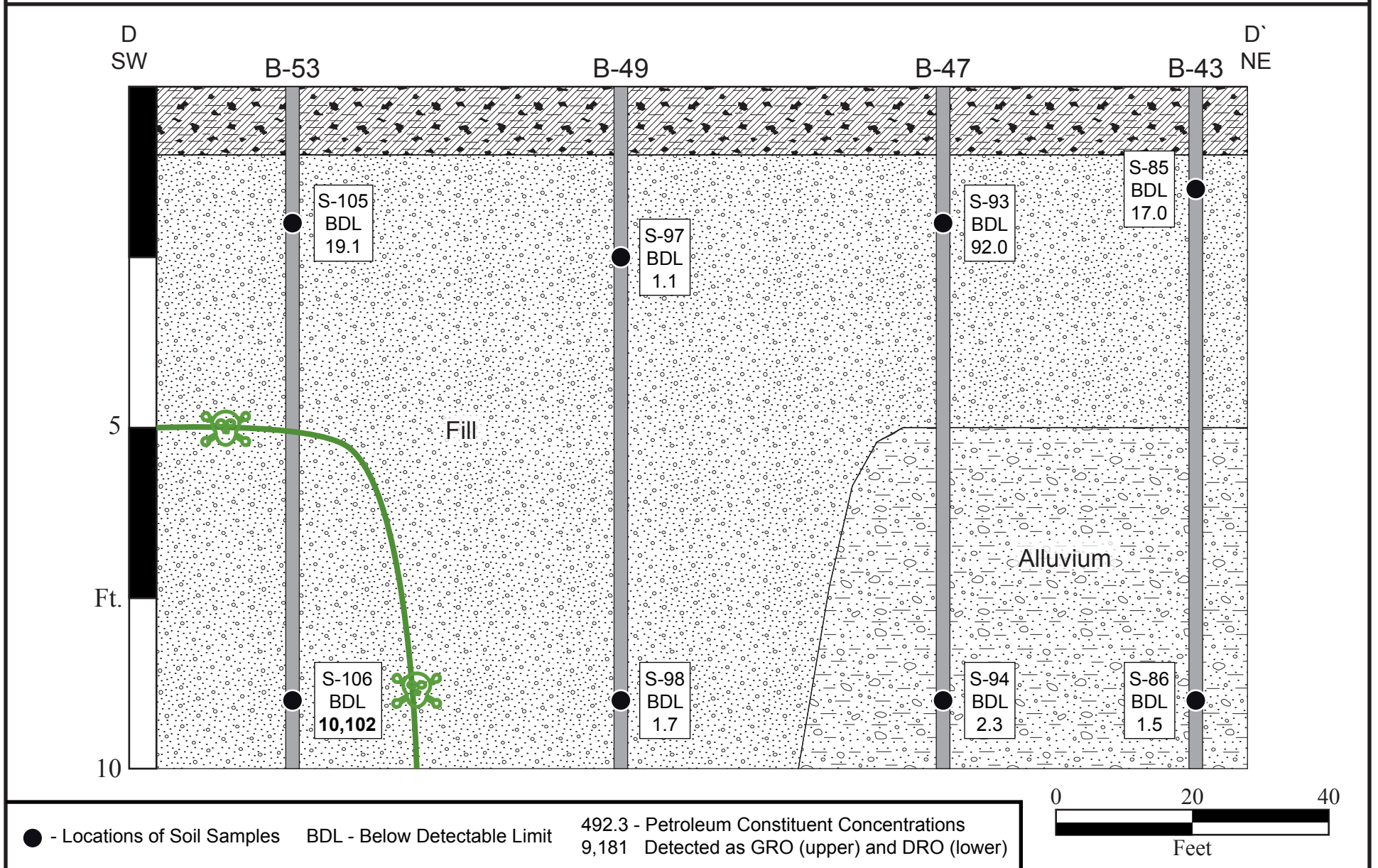
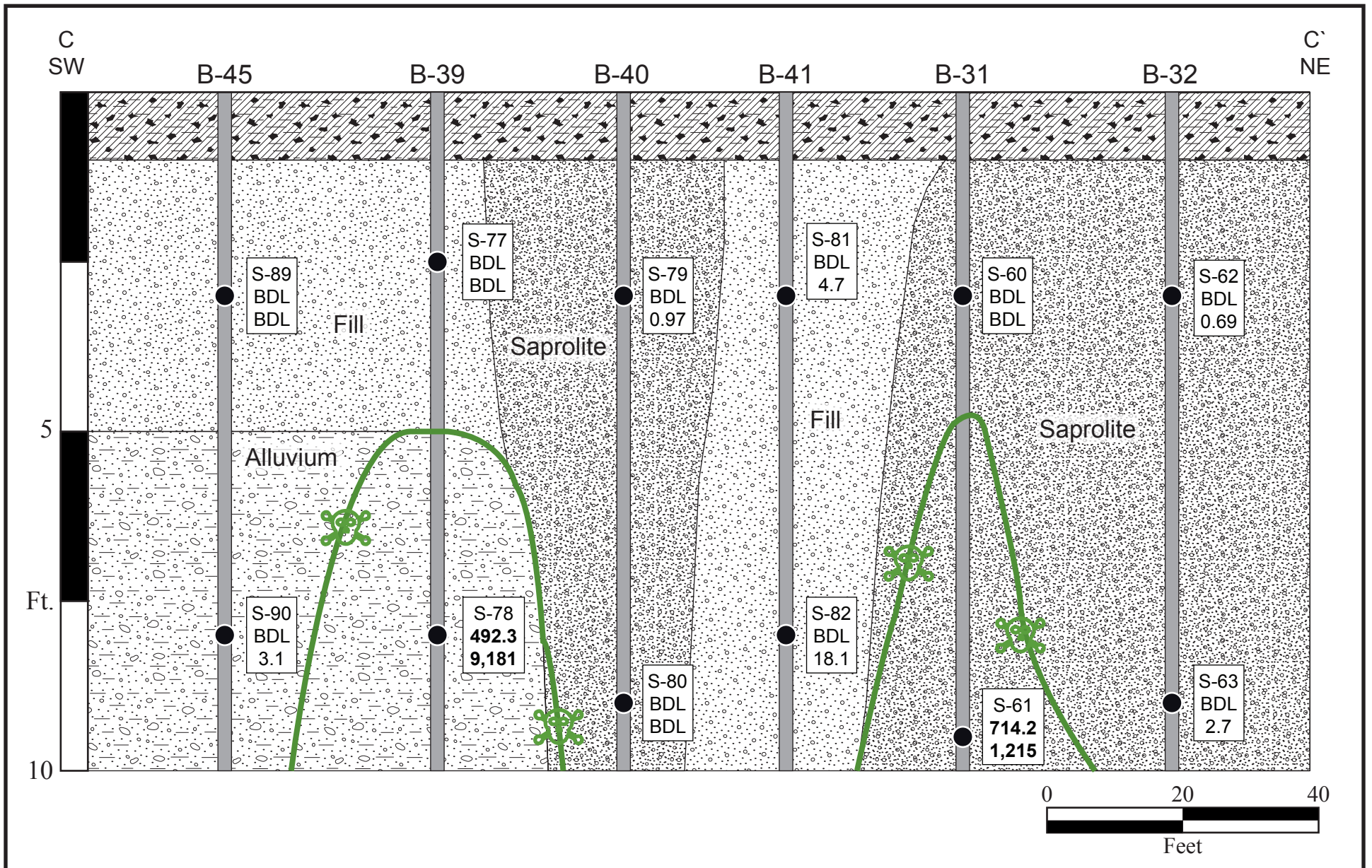
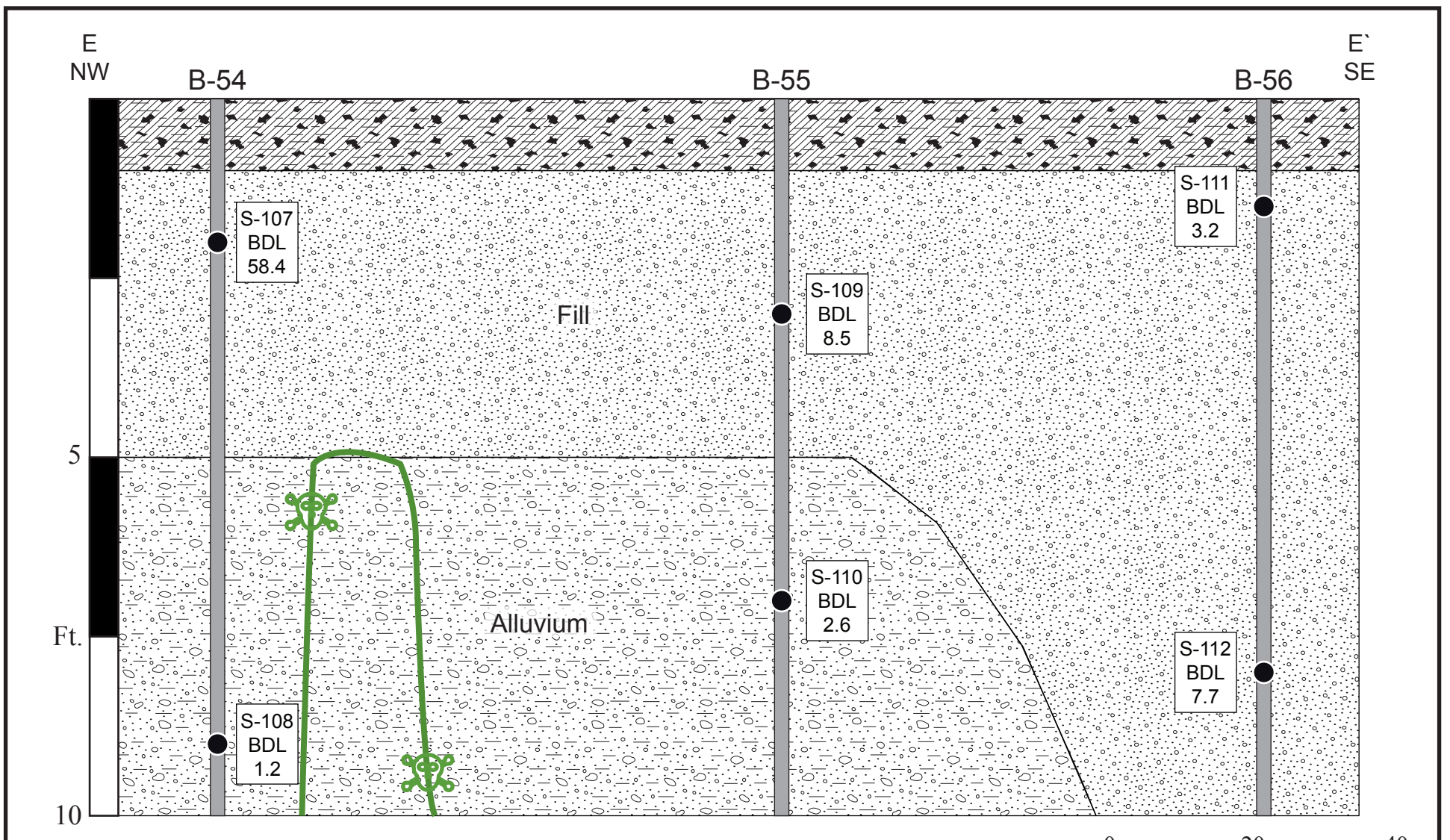


Figure 12 Cross-Sections A-A' and B-B'	State Project: U-5888 Haywood County, NC	Clifford Gould LLC Property 783 N Main Street Waynesville, NC	Parcel #008 Facility I.D.: N/A	Seramur & Associates, PC Boone, NC
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● - Locations of Soil Samples BDL - Below Detectable Limit 492.3 - Petroleum Constituent Concentrations
9,181 Detected as GRO (upper) and DRO (lower)

Figure 13 Cross-Sections C-C' and D-D'	State Project: U-5888 Haywood County, NC	Clifford Gould LLC Property 783 N Main Street Waynesville, NC	Parcel #008 Facility I.D.: N/A	Seramur & Associates, PC Boone, NC
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● - Locations of Soil Samples BDL - Below Detectable Limit BDL - Petroleum Constituent Concentrations
 8.5 Detected as GRO (upper) and DRO (lower)

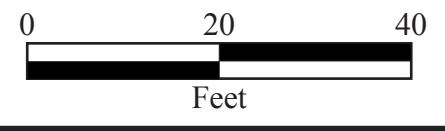


Figure 14 Cross-Section E-E'	State Project: U-5888 Haywood County, NC	Clifford Gould LLC Property 783 N Main Street Waynesville, NC	Parcel #008 Facility I.D.: N/A	Seramur & Associates, PC Boone, NC
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Appendix B

Laboratory Reports and Chain of Custody Records



Hydrocarbon Analysis Results

Client: SERAMUR & ASSOCIATES
Address: 165 KNOLL DRIVE
 BOONE, NC 28607

Samples taken Wednesday, October 24, 2018
Samples extracted Wednesday, October 24, 2018
Samples analysed Friday, October 26, 2018

Contact: KEITH SERAMUR
 JOEY ANDERSON
Project: NCDOT U-5888 P008

Operator MAX MOYER

F03640

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
Soil	S-60	26.0	<0.65	<0.65	<0.26	<0.65	<0.01	<0.01	<0.008	0	0	0	PHC ND,(FCM)
Soil	S-61	307.0	<7.7	714.2	1215	1929	105	4.1	<0.092	89.1	10.9	0	No Match found
Soil	S-62	24.1	<0.6	<0.6	0.69	0.69	0.3	0.02	<0.007	0	85.3	14.7	V.Deg.PHC 75.7%,(FCM)
Soil	S-63	22.6	<0.57	<0.57	2.7	2.7	1.4	0.06	<0.007	0	93.1	6.9	Deg.Fuel 75.2%,(FCM)
Soil	S-64	144.0	215.9	582.1	490.2	1072.3	47.1	1.8	<0.043	93.7	6.2	0	Deg.Gas 67.1%,(FCM)
Soil	S-65	149.0	<3.7	500	1095	1595	94.8	3.6	<0.045	86.4	13.6	0	Deg.Kerosene 81.3%,(FCM)
Soil	S-66	22.4	<0.56	<0.56	0.7	0.7	0.56	0.02	<0.007	0	94.5	5.5	Deg.Fuel 73.9%,(FCM)
Soil	S-67	21.8	<0.55	42	174.1	216.1	17.4	0.65	<0.007	74.4	25.5	0.1	Deg.Kerosene 73%,(FCM)
Soil	S-68	25.7	<0.64	<0.64	6.5	6.5	2.6	0.14	0.002	0	92.5	7.5	Deg.Fuel 77.2%,(FCM)
Soil	S-69	20.8	<0.52	77.9	248.6	326.5	20.2	0.77	<0.006	82.3	17.6	0.1	Deg.Kerosene 75.8%,(FCM)

Initial Calibrator QC check **OK**

Final FCM QC Check **OK**

99.6%

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

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

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



Hydrocarbon Analysis Results

Client: SERAMUR & ASSOCIATES
Address: 165 KNOLL DRIVE
 BOONE, NC 28607

Samples taken Wednesday, October 24, 2018
Samples extracted Wednesday, October 24, 2018
Samples analysed Friday, October 26, 2018

Contact: KEITH SERAMUR
 JOEY ANDERSON
Project: NCDOT U-5888 P008

Operator MAX MOYER

F03640

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
Soil	S-70	21.7	<0.54	<0.54	11.9	11.9	4.5	0.22	0.002	0	92.7	7.3	Deg Fuel 88.9%,(FCM)
Soil	S-71	61.2	<1.5	290.5	893.3	1183.8	72.3	2.8	<0.018	82.9	17.1	0	Deg.Kerosene 74.4%,(FCM)
Soil	S-72	23.0	<0.58	<0.58	11.1	11.1	4.9	0.15	0.001	0	91.7	8.3	Bit.Road Tar 94.5%,(FCM)
Soil	S-73	20.5	<0.51	<0.51	21.8	21.8	12.1	0.58	0.013	0	89.5	10.5	V.Deg.PHC 71.5%,(FCM)
Soil	S-74	3502.0	<87.6	<87.6	258.8	258.8	93.4	5.2	0.19	0	75.7	24.3	V.Deg.PHC 76.3%,(FCM)
Soil	S-75	21.8	<0.55	<0.55	11.3	11.3	6	0.29	0.008	0	88.6	11.4	V.Deg.PHC 70%,(FCM)
Soil	S-76	21.8	<0.55	<0.55	23.9	23.9	16.7	0.5	0.002	0	98.2	1.8	Deg.Fuel 78.9%,(FCM)
Soil	S-77	22.6	<0.57	<0.57	<0.23	0.04	0.04	0.004	<0.007	0	100	0	Residual HC
Soil	S-78	839.0	<42	492.3	9181	9673	780.2	29.8	<0.25	43.2	56.6	0.2	Deg.Kerosene 68.9%,(FCM)
Soil	S-79	23.2	<0.58	<0.58	0.97	0.97	0.46	0.02	<0.007	0	86.4	13.6	V.Deg.PHC 75.4%,(FCM)

Initial Calibrator QC check **OK**

Final FCM QC Check **OK**

101.3%

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

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

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



Hydrocarbon Analysis Results

Client: SERAMUR & ASSOCIATES
Address: 165 KNOLL DRIVE
 BOONE, NC 28607

Samples taken Wednesday, October 24, 2018
Samples extracted Wednesday, October 24, 2018
Samples analysed Friday, October 26, 2018

Contact: KEITH SERAMUR
 JOEY ANDERSON
Project: NCDOT U-5888 P008

Operator MAX MOYER

											F03640		
Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
Soil	S-80	21.1	<0.53	<0.53	<0.21	<0.53	<0.01	<0.01	<0.006	0	0	0	PHC ND,(FCM)
Soil	S-81	22.2	<0.56	<0.56	4.7	4.7	2.5	0.13	0.001	0	88.6	11.4	V.Deg.PHC 76.3%,(FCM)
Soil	S-82	22.2	<0.56	<0.56	18.1	18.1	8.5	0.41	0.004	0	93	7	Deg Fuel 75.7%,(FCM)
Soil	S-83	21.0	<0.52	<0.52	1.3	1.3	0.6	0.03	<0.006	0	92.5	7.5	Deg Fuel 70.3%,(FCM)
Soil	S-84	19.0	<0.47	<0.47	0.97	0.97	0.52	0.03	<0.006	0	94.1	5.9	Deg Fuel 71.1%,(FCM)
Soil	S-85	23.9	<0.6	<0.6	17	17	9	0.44	0.005	0	96	4	Deg Fuel 78.1%,(FCM)
Soil	S-86	22.6	<0.57	<0.57	1.5	1.5	0.79	0.04	<0.007	0	84.6	15.4	V.Deg.PHC 30.4%,(FCM)
Soil	S-87	23.6	<0.59	<0.59	33.6	33.6	20.2	0.93	0.007	0	95.8	4.2	Deg Fuel 90.9%,(FCM)
Soil	S-88	22.4	<0.56	<0.56	39.3	39.3	22.9	1.1	0.009	0	94.8	5.2	Deg Fuel 75.9%,(FCM)
Soil	S-89	22.0	<0.55	<0.55	<0.22	<0.55	<0.01	<0.01	<0.007	0	0	0	PHC ND,(FCM)
Initial Calibrator QC check			OK			Final FCM QC Check			OK			98.7%	

Results generated by a QED HC-1 analyser. Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values are not corrected for moisture or stone content
 Fingerprints provide a tentative hydrocarbon identification. The abbreviations are:- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for sample fingerprint match to library
 (SBS) or (LBS) = Site Specific or Library Background Subtraction applied to result : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate present



Hydrocarbon Analysis Results

Client: SERAMUR & ASSOCIATES
Address: 165 KNOLL DRIVE
 BOONE, NC 28607

Samples taken Wednesday, October 24, 2018
Samples extracted Wednesday, October 24, 2018
Samples analysed Friday, October 26, 2018

Contact: KEITH SERAMUR
 JOEY ANDERSON
Project: NCDOT U-5888 P008

Operator MAX MOYER

											F03640					
Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match			
										% light	% mid	% heavy				
Soil	S-90	23.0	<0.58	<0.58	3.1	3.1	1.4	0.07	0.001	0	85	15	V.Deg.PHC 71.7%,(FCM)			
Soil	S-91	26.5	<0.66	<0.66	24.5	24.5	11.7	0.58	0.007	0	93.7	6.3	Deg Fuel 93.2%,(FCM)			
Soil	S-92	8.4	<0.21	<0.21	<0.08	<0.21	<0.004	<0.004	<0.003	0	0	0	PHC ND,(FCM)			
Soil	S-93	71.9	<1.8	<1.8	92	92	44.4	1.4	0.007	0	92.3	7.7	Bit.Road Tar 96.1%,(FCM)			
Soil	S-94	25.0	<0.63	<0.63	2.3	2.3	1.2	0.05	0.001	0	92.5	7.5	Deg Fuel 87.2%,(FCM)			
Soil	S-95	22.4	<0.56	<0.56	2.9	2.9	1.1	0.06	0.001	0	89.3	10.7	Deg Fuel 76.3%,(FCM)			
Soil	S-96	23.9	<0.6	<0.6	1.5	1.5	0.49	0.03	<0.007	0	83.4	16.6	Deg Fuel 63.1%,(FCM)			
Soil	S-97	31.0	<0.77	<0.77	1.1	1.1	0.32	0.02	<0.009	0	75.5	24.5	Deg Fuel 69%,(FCM)			
Soil	S-98	23.2	<0.58	<0.58	1.7	1.7	0.78	0.04	0.001	0	82.1	17.9	V.Deg.PHC 71.9%,(FCM)			
Soil	S-99	27.7	<0.69	<0.69	0.33	0.33	0.29	0.03	<0.008	0	88.2	11.8	Residual HC			
Initial Calibrator QC check										OK			Final FCM QC Check		OK	101.3%

Results generated by a QED HC-1 analyser. Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values are not corrected for moisture or stone content
 Fingerprints provide a tentative hydrocarbon identification. The abbreviations are:- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for sample fingerprint match to library
 (SBS) or (LBS) = Site Specific or Library Background Subtraction applied to result : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate present



Hydrocarbon Analysis Results

Client: SERAMUR & ASSOCIATES, PC
Address: 165 KNOLL DRIVE
 BOONE NC 28607

Samples taken Wednesday, October 24, 2018
Samples extracted Wednesday, October 24, 2018
Samples analysed Friday, October 26, 2018

Contact: KEITH SERAMUR
 COLLECTED BY KS AND JA
Project: NCDOT U-5888 P008

Operator NICK HENDRIX

U04049

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
										C5 - C10	C10 - C18	C18	
Soil	S-100	24.1	<0.6	<0.6	18.6	18.6	10.8	0.25	0.001	0	93.9	6.1	Bit.Road Tar 97%,(FCM)
Soil	S-101	22.2	<0.56	<0.56	21.8	21.8	9.7	0.5	0.019	0	84.5	15.5	V.Deg.PHC 94.6%,(FCM)
Soil	S-102	22.0	<0.55	<0.55	8.9	8.9	5.7	0.27	0.003	0	92.7	7.3	V.Deg.PHC 30.9%,(FCM)
Soil	S-103	26.3	<0.66	<0.66	<0.26	<0.66	<0.01	<0.01	<0.008	0	0	0	PHC ND,(FCM)
Soil	S-104	24.5	<0.61	<0.61	3.5	3.5	1.9	0.1	0.001	0	92.8	7.2	V.Deg.PHC 41.9%,(FCM)
Soil	S-105	23.0	<0.58	<0.58	19.1	19.1	9.2	0.47	0.013	0	81.8	18.2	V.Deg.PHC 93.5%,(FCM)
Soil	S-106	2472.0	<61.8	<61.8	10102	10102	3924	136.8	0.071	0	99.3	0.7	Deg.Diesel 85.1%,(FCM)
Soil	S-107	36.8	<0.92	<0.92	58.4	58.4	32.5	1.7	0.042	0	93.6	6.4	Deg Fuel 91.1%,(FCM)
Soil	S-108	21.7	<0.54	<0.54	1.2	1.2	0.49	0.03	<0.007	0	89.4	10.6	Deg Fuel 69.1%,(FCM)
Soil	S-109	23.0	<0.58	<0.58	8.5	8.5	5	0.23	0.006	0	90	10	V.Deg.PHC 68.1%,(FCM)

Initial Calibrator QC check **OK**

Final FCM QC Check **OK**

100.0%

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: 165 KNOLL DRIVE
 BOONE, NC 28607

Samples taken Wednesday, October 24, 2018
Samples extracted Wednesday, October 24, 2018
Samples analysed Friday, October 26, 2018

Contact: KEITH SERAMUR
 JOEY ANDERSON
Project: NCDOT U-5888 P008

Operator MAX MOYER

F03640

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
Soil	S-110	23.2	<0.58	<0.58	2.6	2.6	1	0.06	<0.007	0	85.5	14.5	Deg Fuel 39.2%,(FCM)
Soil	S-111	23.2	<0.58	<0.58	3.2	3.2	1.2	0.06	0.001	0	89.7	10.3	Deg Fuel 74.3%,(FCM)
Soil	S-112	24.8	<0.62	<0.62	7.7	7.7	3.5	0.17	0.003	0	83.8	16.2	V.Deg.PHC 94.1%,(FCM)
Soil	S-113	26.8	<0.67	<0.67	2.8	2.8	1.5	0.06	0.001	0	86.6	13.4	V.Deg.PHC 91%,(FCM)
Soil	S-114	23.6	<0.59	<0.59	4.5	4.5	2.1	0.12	0.007	0	73.2	26.8	V.Deg.PHC 71.6%,(FCM)

Initial Calibrator QC check **OK**

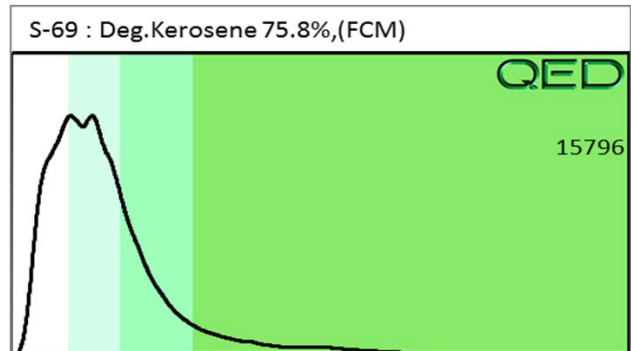
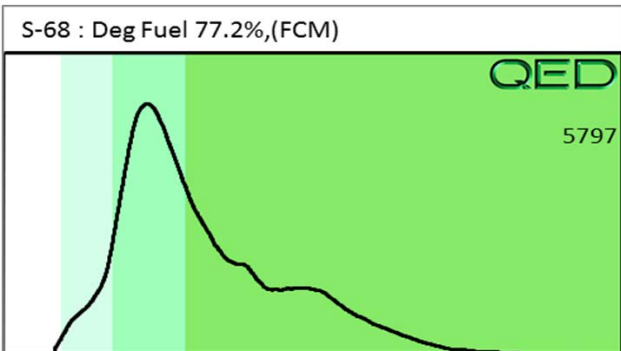
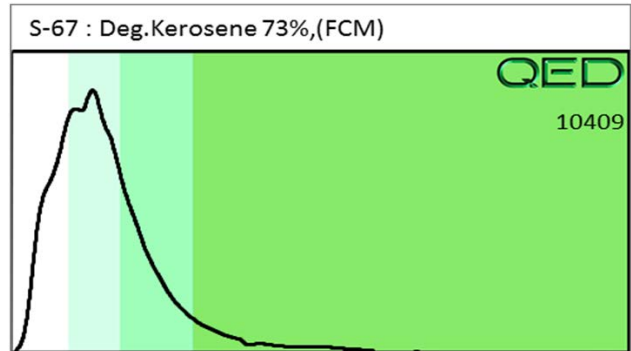
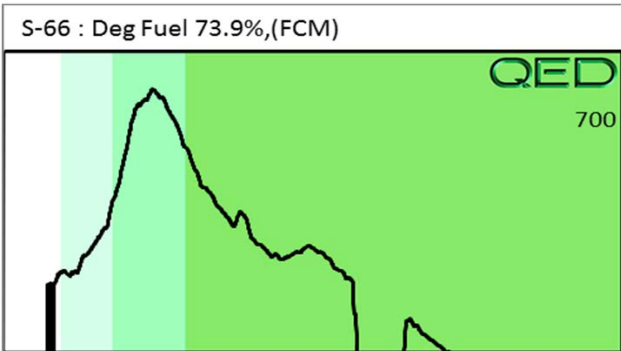
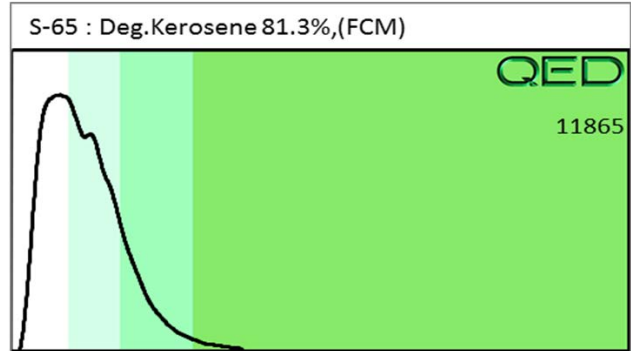
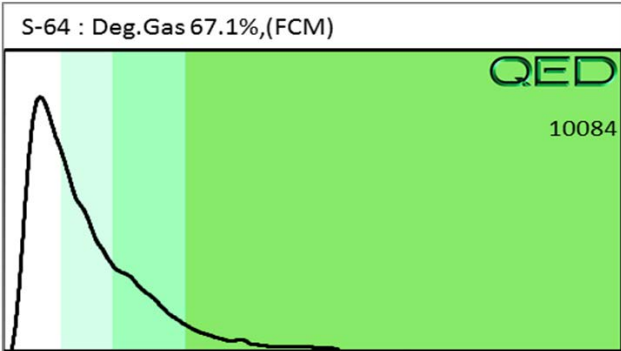
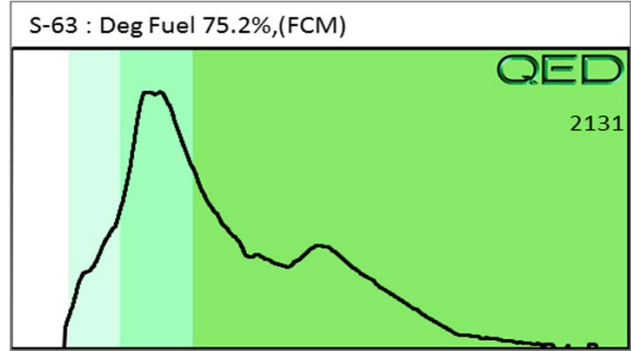
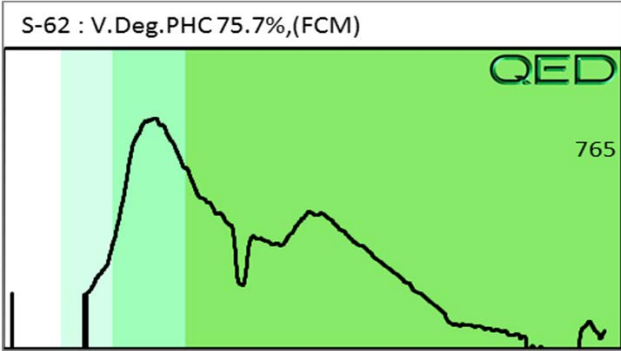
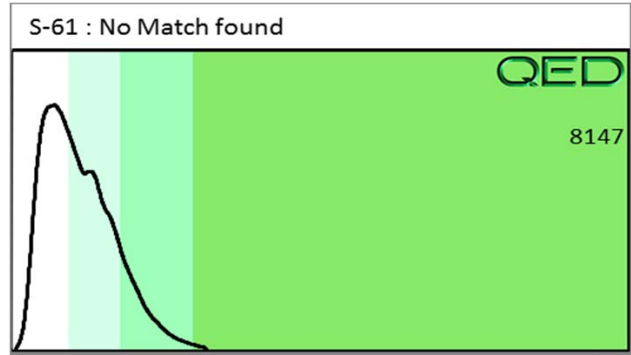
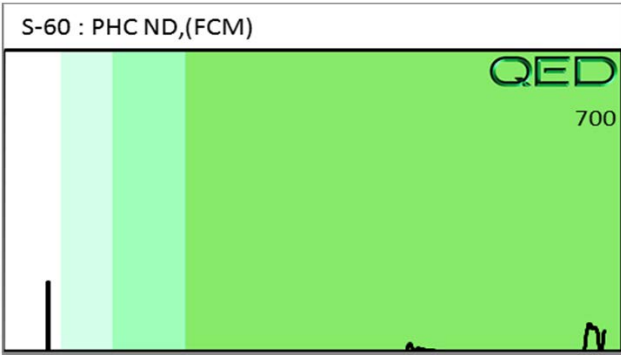
Final FCM QC Check **OK**

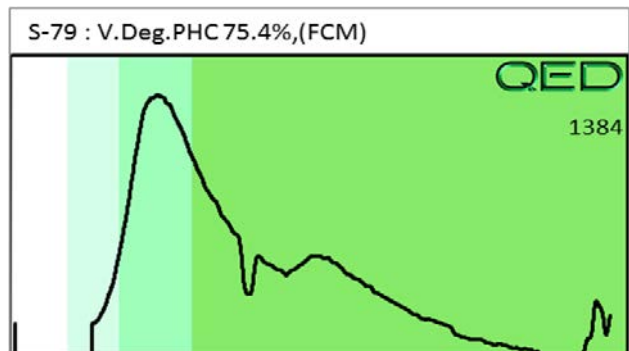
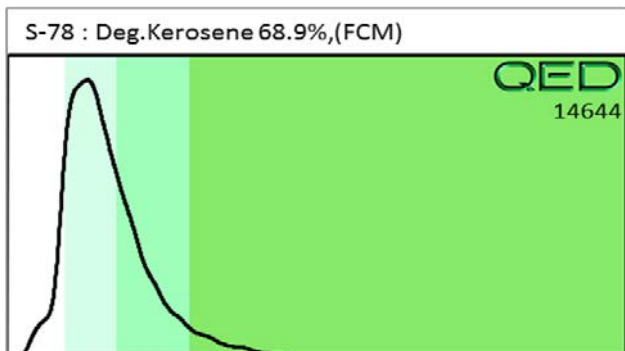
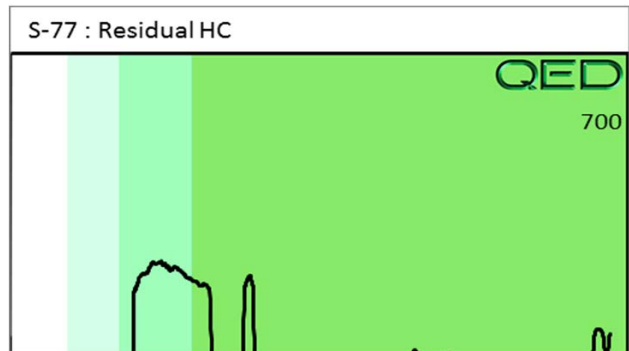
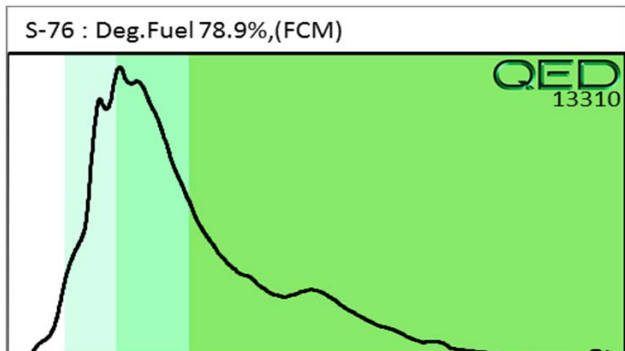
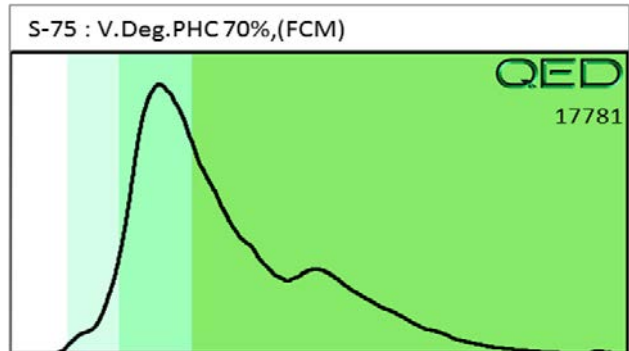
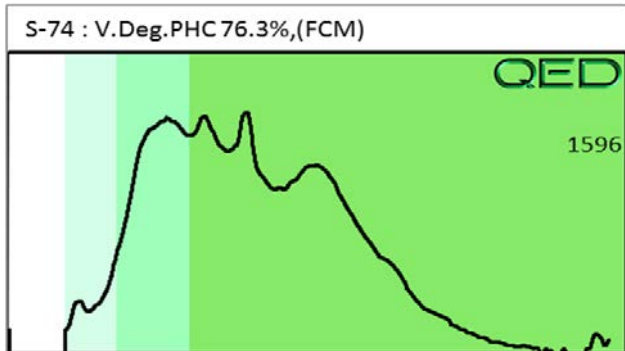
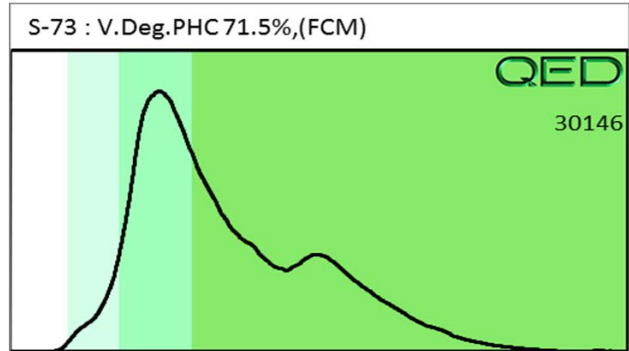
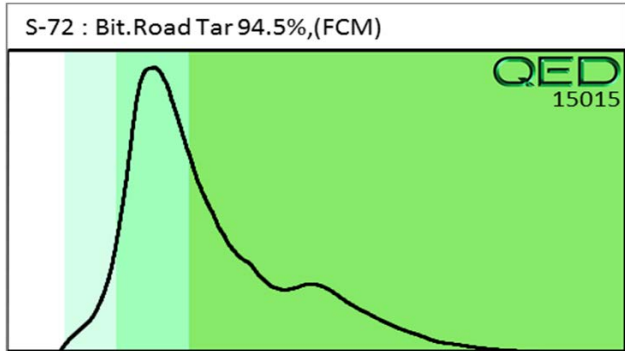
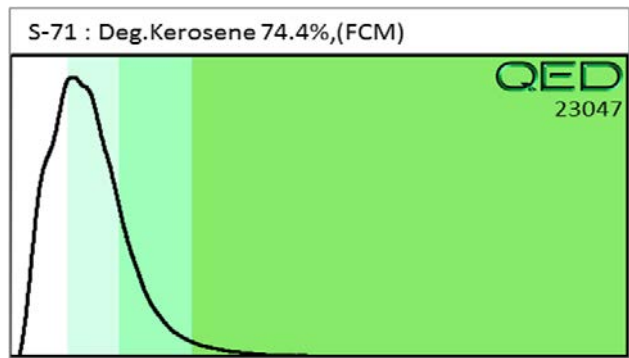
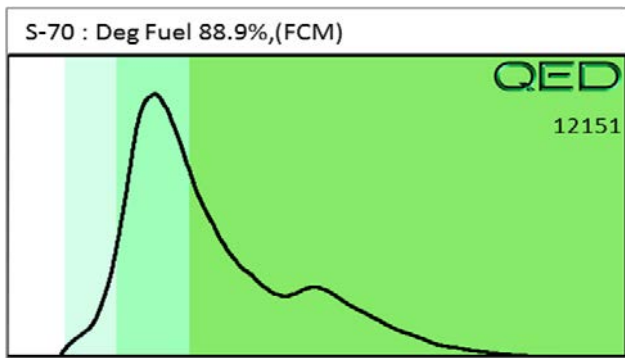
109.2%

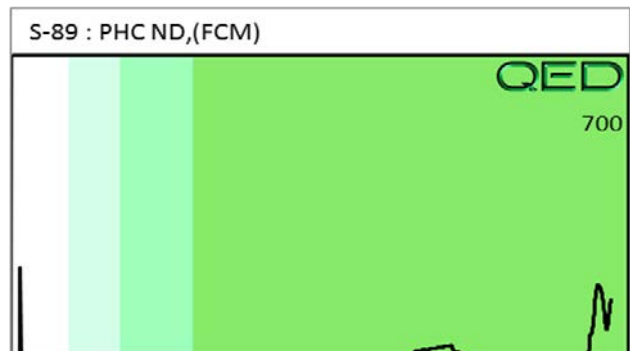
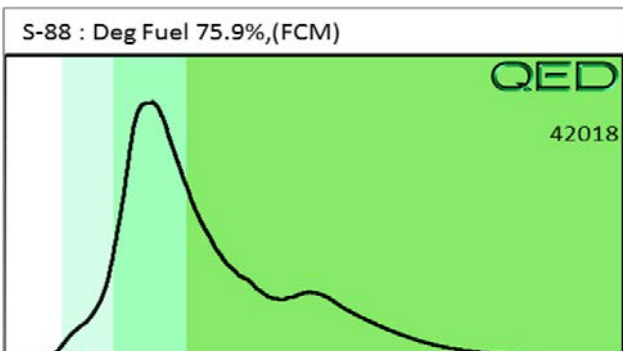
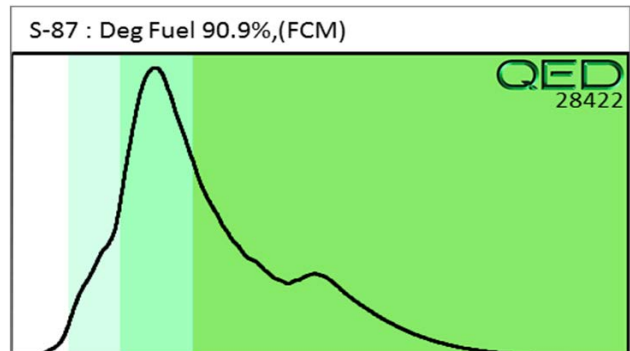
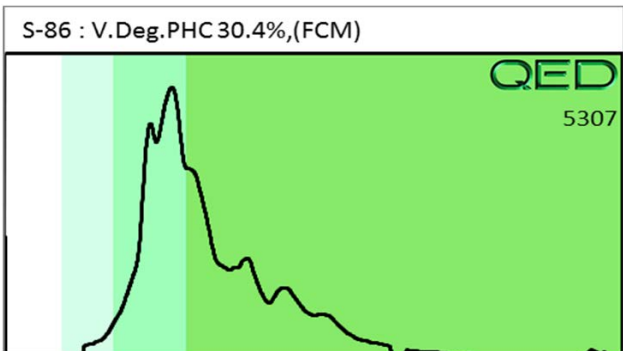
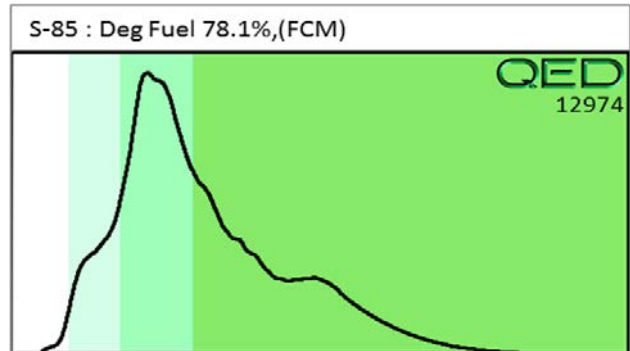
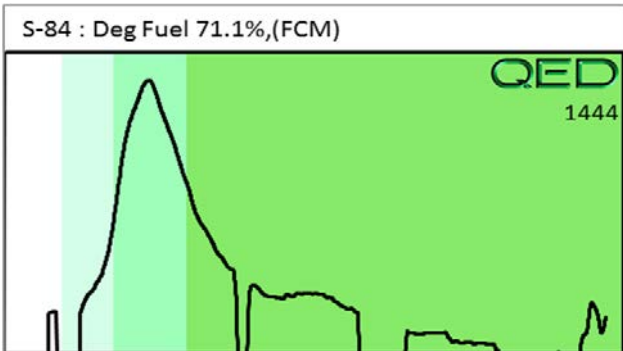
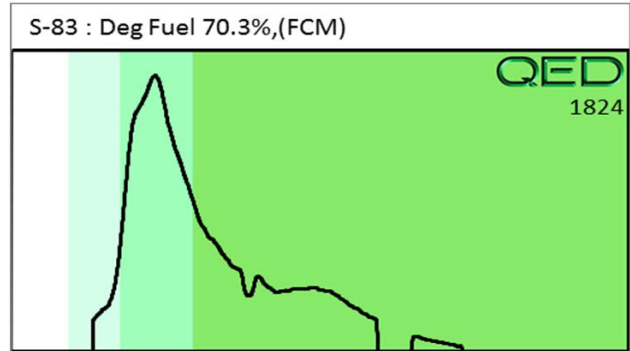
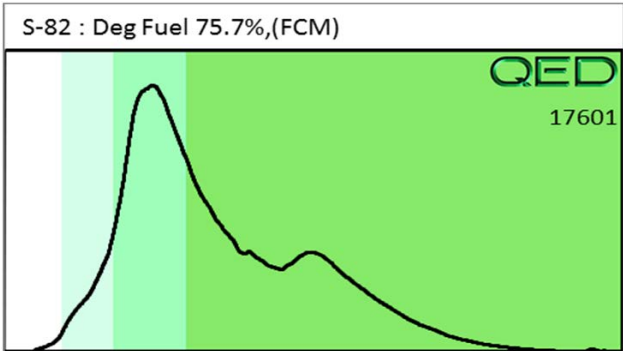
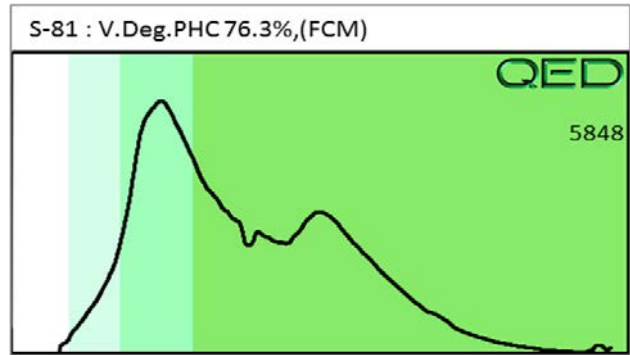
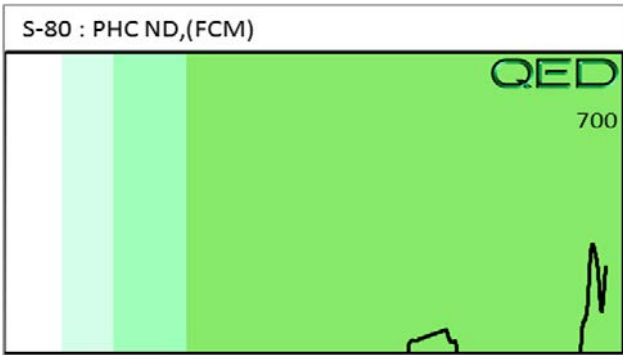
Results generated by a QED HC-1 analyser. Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values are not corrected for moisture or stone content

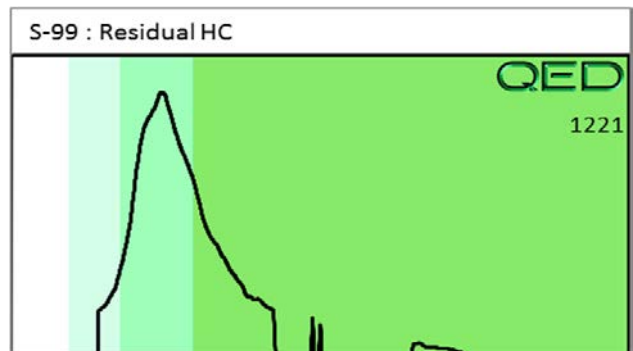
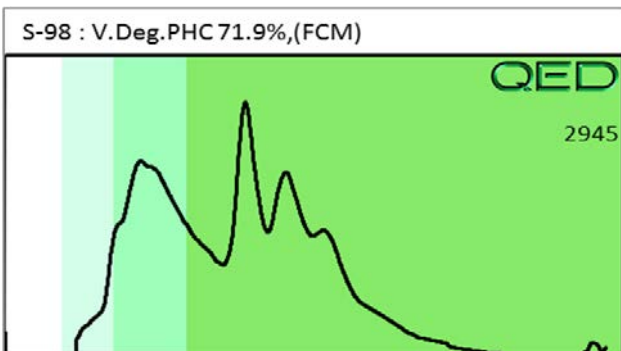
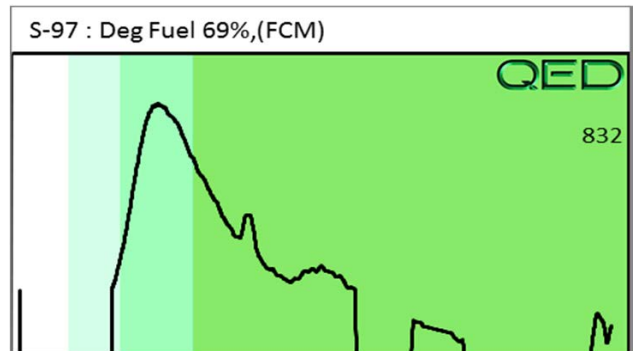
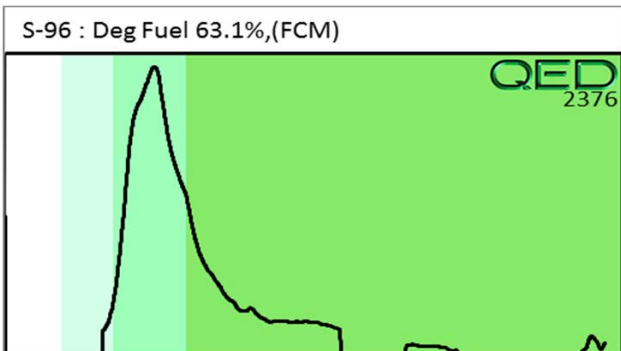
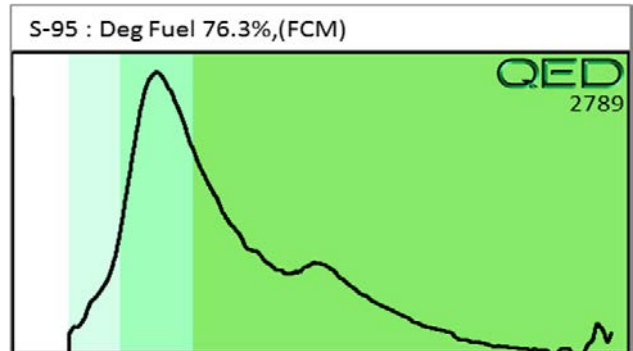
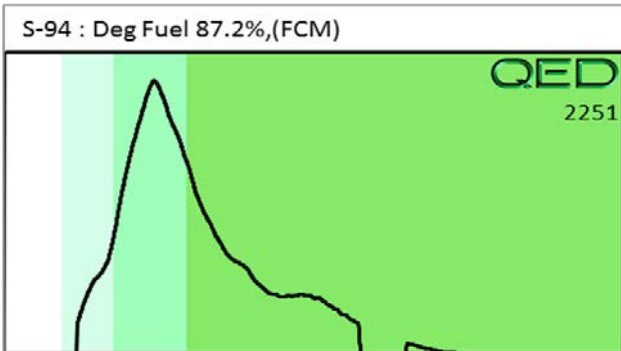
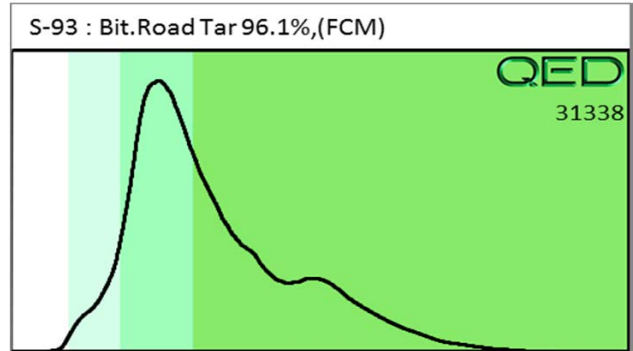
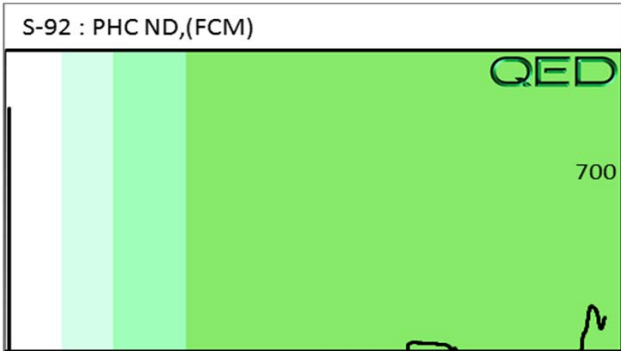
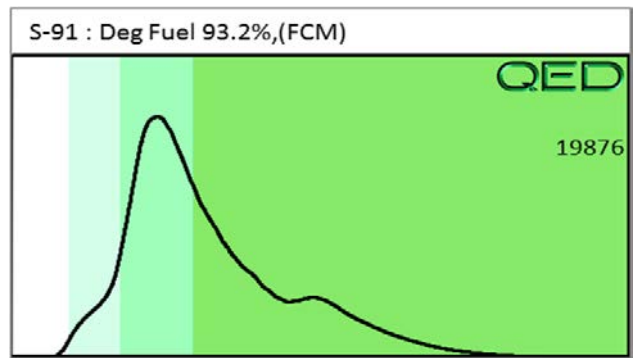
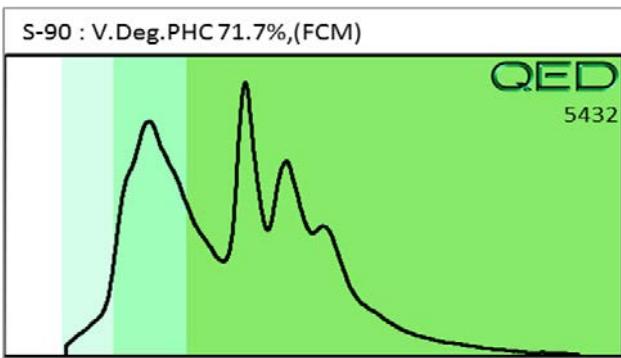
Fingerprints provide a tentative hydrocarbon identification. The abbreviations are:- FCM = Results calculated using Fundamental Calibration Mode : % = confidence for sample fingerprint match to library

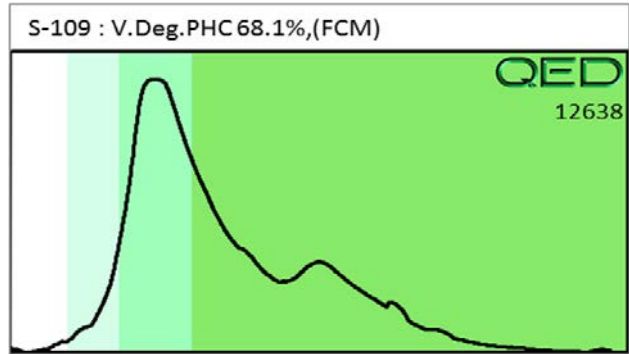
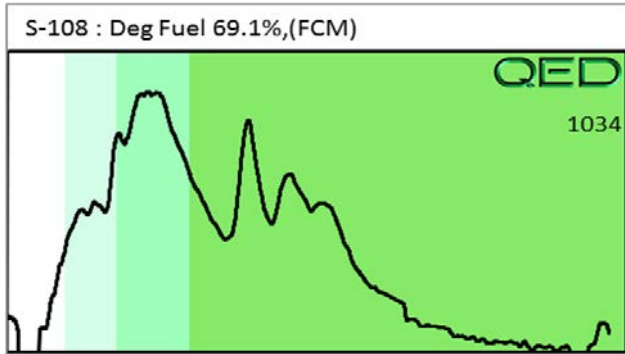
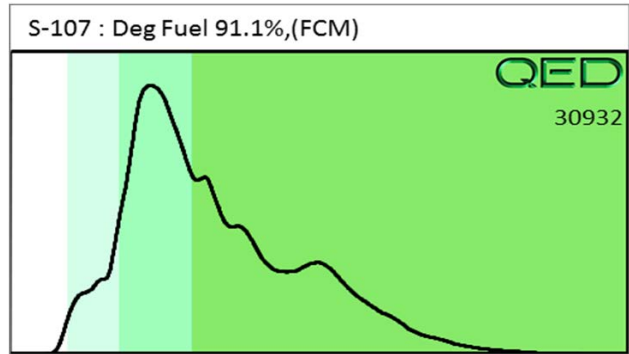
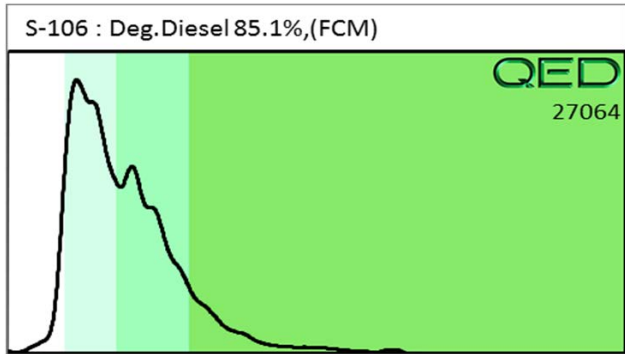
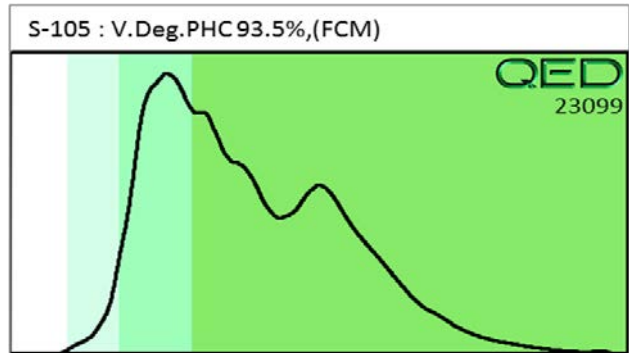
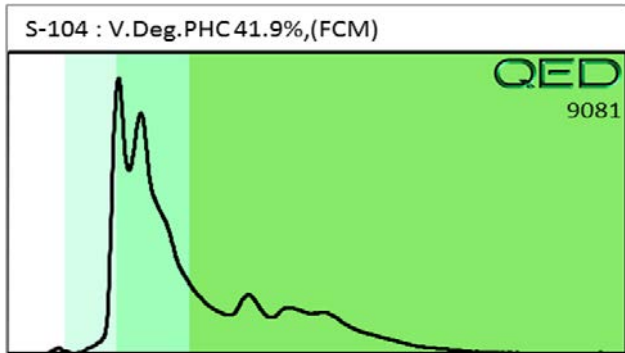
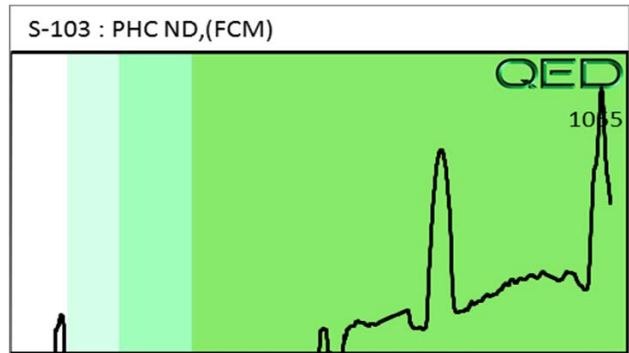
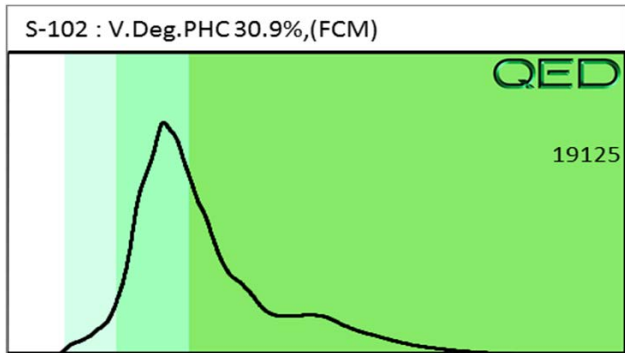
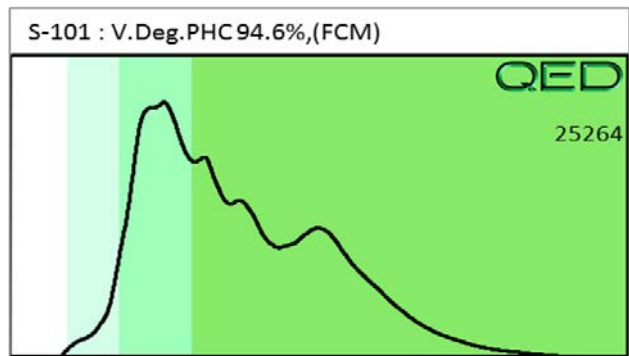
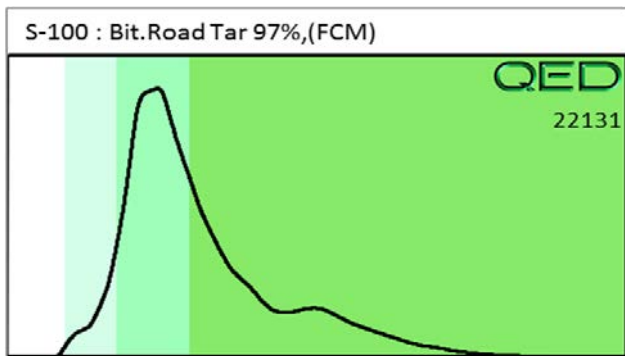
(SBS) or (LBS) = Site Specific or Library Background Subtraction applied to result : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate present

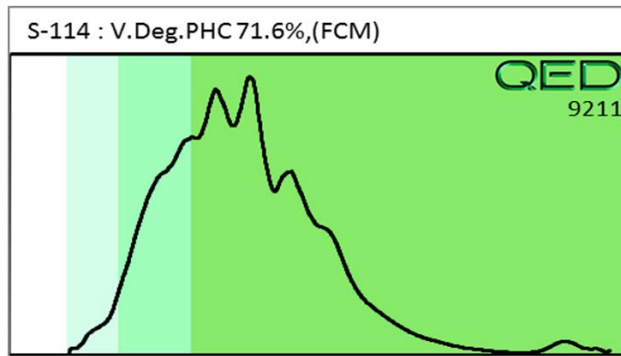
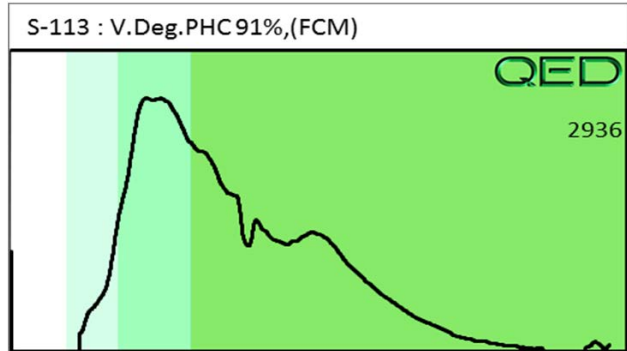
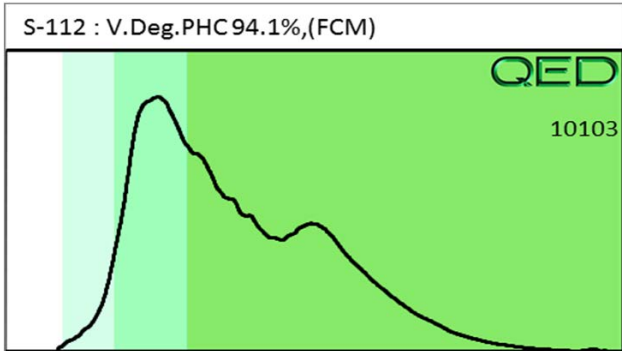
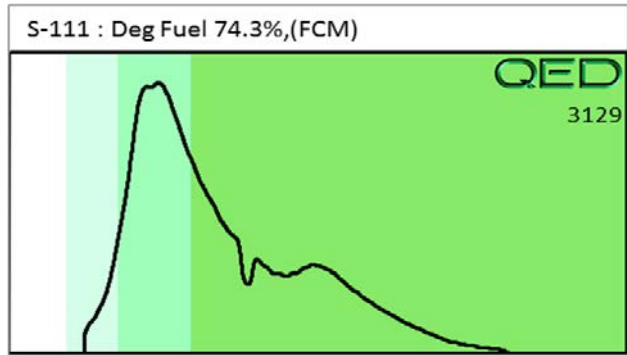
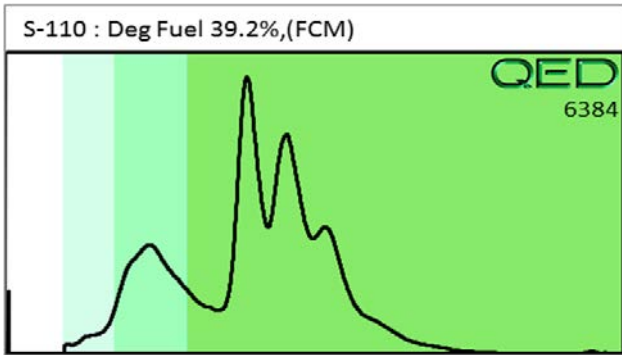












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Client Name: Seramur & Associates, PC
 Address: 165 Knoll Drive
Boone, NC 28607
 Contact: Keith Seramur
 Project Ref.: UCDOT 11-5888 P008
 Email: seramur@icbind.com
 Phone #: (828) 264-0289
 Collected by: Joey Anderson & Keith Seramur



RAPID ENVIRONMENTAL DIAGNOSTICS
CHAIN OF CUSTODY AND ANALYTICAL
REQUEST FORM

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

Each sample will be analyzed for
 BTEX, GRO, DRO, TPH, PAH total
 aromatics and BaP

Sample Collection Date/Time	TAT Requested		Initials	Sample ID	Total Wt.	Tare Wt.	Sample Wt.
	24 Hour	48 Hour					
10/24/18 11:16		X	JBA	S-60	53.7	43.7	10.0
10/24/18 11:54		X	JBA	S-61	54.7	43.7	11.0
10/24/18 12:09		X	JBA	S-62	54.4	43.6	10.8
10/24/18 12:14		X	JBA	S-63	55.2	43.7	11.5
10/24/18 12:24		X	JBA	S-64	56.7	44.1	12.6
10/24/18 12:26		X	JBA	S-65	56.2	44.0	12.2
10/24/18 13:24		X	JBA	S-66	55.7	44.1	11.6
10/24/18 13:27		X	JBA	S-67	55.7	43.8	11.9
10/24/18 13:33		X	JBA	S-68	54.0	43.9	10.1
10/24/18 13:36		X	JBA	S-69	56.5	44.0	12.5
10/24/18 13:42		X	JBA	S-70	55.9	43.9	12.0
10/24/18 13:45		X	JBA	S-71	57.5	44.1	13.4
10/24/18 13:53		X	JBA	S-72	54.7	43.4	11.3
10/24/18 13:55		X	JBA	S-73	56.9	44.2	12.7
10/24/18 14:00		X	JBA	S-74	53.4	43.8	9.6
10/24/18 14:03		X	JBA	S-75	55.4	43.5	11.9
10/24/18 14:05		X	JBA	S-76	55.9	44.0	11.9
10/24/18 14:10		X	JBA	S-77	54.9	43.4	11.5
10/24/18 14:12		X	JBA	S-78	56.3	43.6	12.7
10/24/18 14:17		X	JBA	S-79	55.1	43.9	11.2

Comments:

Relinquished by	Date/Time	Accepted by	Date/Time
	10/25/18 10:00	Fed Ex	
Relinquished by	Date/Time	Accepted by	Date/Time
		MM	10/26/18 1205

RED Lab USE ONLY

(20)

B96

Client Name: Seramur + Associates, PC
 Address: 165 Kroll Drive
 Boone, NC 28607
 Contact: Keith Seramur
 Project Ref.: NCDOT 4-5888 PA08
 Email: seramur@icland.com
 Phone #: (828) 264-0289
 Collected by: Joey Andersen + Keith Seramur



RAPID ENVIRONMENTAL DIAGNOSTICS
CHAIN OF CUSTODY AND ANALYTICAL
REQUEST FORM

RED Lab, LLC
 5598 Marvin K Moss Lane
 MARBIONC Bldg, Suite 2003
 Wilmington, NC 28409
 Each sample will be analyzed for
 BTEX, GRO, DRO, TPH, PAH total
 aromatics and BaP

Sample Collection Date/Time	TAT Requested		Initials	Sample ID	Total Wt.	Tare Wt.	Sample Wt.
	24 Hour	48 Hour					
10/24/18 14:14		X	JBA	S-80	55.9	43.6	12.3
10/24/18 14:40		X	JBA	S-81	55.2	43.5	11.7
10/24/18 14:42		X	JBA	S-82	54.9	43.2	11.7
10/24/18 14:48		X	JBA	S-83	56.4	44.0	12.4
10/24/18 14:57		X	JBA	S-84	57.8	44.1	13.7
10/24/18 14:58		X	JBA	S-85	54.7	43.8	10.9
10/24/18 15:00		X	JBA	S-86	55.6	44.1	11.5
10/24/18 15:03		X	JBA	S-87	54.7	43.7	11.0
10/24/18 15:06		X	JBA	S-88	55.5	43.9	11.6
10/24/18 15:56		X	JBA	S-89	55.4	43.6	11.8
10/24/18 15:58		X	JBA	S-90	55.0	43.7	11.3
10/24/18 16:09		X	JBA	S-91	54.0	44.2	9.8
10/24/18 16:12		X	JBA	S-92	55.6	43.7	11.9
10/24/18 16:16		X	JBA	S-93	54.8	43.4	11.4
10/24/18 16:18		X	JBA	S-94	54.1	43.7	10.4
10/24/18 16:32		X	JBA	S-95	55.0	43.4	11.6
10/24/18 16:34		X	JBA	S-96	54.6	43.7	10.9
10/24/18 16:39		X	JBA	S-97	52.4	44.0	8.4
10/24/18 16:40		X	JBA	S-98	54.9	43.7	11.2
10/24/18 16:50		X	JBA	S-99	52.7	43.3	9.4

Comments:

Relinquished by	Date/Time	Accepted by	Date/Time
	10/25/18 10:00	FedEx	
Relinquished by	Date/Time	Accepted by	Date/Time
		MW	10/26/18 12:05

RED Lab USE ONLY

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Appendix C

Documents From NCDEQ Incident Files



Waste Management
ENVIRONMENTAL QUALITY

PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

MICHAEL SCOTT
Director

October 18, 2016

Mr. Art Neergaard
393 Oregon Street
Cincinnati, OH 45202

Re: Notice of No Further Action
15A NCAC 2L .0407(d)
Risk-based Assessment and Corrective Action for
Petroleum Underground Storage Tanks

Main Street Automotive
817 N. Main Street, Waynesville
Haywood County
Incident Number: 41466
Risk Classification: Low/Industrial Commercial

Dear Mr. Neergaard,

On October 17, 2016, the Underground Storage Tank (UST) Section received proof that public notice requirements have been met. **As all required actions have been completed, the UST Section determines that no further action is warranted for this incident.**

This determination shall apply unless the UST Section later finds that the discharge or release poses an unacceptable risk or a potentially unacceptable risk to human health or the environment. Pursuant to Title 15A NCAC 2L .0407(a), the responsible party has a continuing obligation to notify the Department of any changes that might affect the risk or land use classifications that have been assigned.

Be advised that as groundwater contamination exceeds the groundwater quality standards established in Title 15A NCAC 2L .0202, groundwater within the area of contamination or within the area where groundwater contamination is expected to migrate is not suitable for use as a water supply.

If you have any questions regarding this notice, please contact me at the address or telephone number listed below.

Sincerely,

Michael Streeter, L.G.
Hydrogeologist
Asheville Regional Office
UST Section, Division of Waste Management, NCDEQ

cc: Michael McKenna, Partner Engineering North Carolina, PLLC



2016008154

HAYWOOD CO, NC FEE \$26.00

PRESENTED & RECORDED:

09-27-2016 01:40:38 PM

SHERRI C. ROGERS

REGISTER OF DEEDS

BY: TARA E. REINHOLD

DEPUTY

BK: RB 914

PG: 632-635

NOTICE OF RESIDUAL PETROLEUM

Main Street Automotive, 817 North Main Street, Waynesville, Haywood County, North Carolina

The property that is the subject of this Notice (hereinafter referred to as the "Site") contains residual petroleum and is an Underground Storage Tank (UST) incident under North Carolina's Statutes and Regulations, which consist of N.C.G.S. 143-215.94 and regulations adopted thereunder. This Notice is part of a remedial action for the Site that has been approved by the Secretary (or his/her delegate) of the North Carolina Department of Environment and Natural Resources (or its successor in function), as authorized by N.C.G.S. Section 143B-279.9 and 143B-279.11. The North Carolina Department of Environment and Natural Resources shall hereinafter be referred to as "DENR".

NOTICE

Petroleum product was released and/or discharged at the Site. Petroleum constituents remain on the site, but are not a danger to public health and the environment, provided that the restrictions described herein, and any other measures required by DENR pursuant to N.C.G.S. Sections 143B-279.9 and 143B-279.11, are strictly complied with. This "Notice of Residual Petroleum" is composed of a description of the property, the location of the residual petroleum and the land use restrictions on the Site. The Notice has been approved and notarized by DENR pursuant to N.C.G.S. Sections 143B-279.9 and 143B-279.11 and has/shall be recorded at the Haywood County Register of Deeds' office

Book ____, Page ____.

Source Property

Clifford Gould, LLC of Cincinnati, Ohio is the owner in fee simple of all or a portion of the Site, which is located in the County of Haywood, State of North Carolina, and is known and legally described as:

All that parcel of land lying in Waynesville Township, Haywood County, North Carolina, containing 0.910 Acres and being a portion of Deed Book 840, Page 1799 and having the following metes and bounds:

BEGINNING at a PK Nail set at the intersection of North Main Street and Marshall Road and being located North 53 degrees 33 minutes 03 seconds East 2574.37 feet from N.C.G.S. Monument "COURT HOUSE" having a North Coordinate of 657,973.33 and an East Coordinate of 813,596.46 based on NAD 83 (2001) datum and runs thence with the north margin of Marshall Road two (2) calls as follows: North 38 degrees 09 minutes 49 seconds West 169.29 feet to a PK Nail set; thence North 39 degrees 03 minutes 07 seconds West 51.38 feet to a 5/8" rebar set; thence North 47 degrees 03 minutes 53 seconds East 75.67 feet to a 5/8" rebar set at the south margin of Walnut Street; thence with the south margin of Walnut Street four (4) calls as follows: South 81 degrees 08 minutes 04 seconds East 8.20 feet to a point; with a curve to the left having a radius of 900.00 feet, an arc length of 99.49 feet and along a chord of South 84 degrees 18 minutes 06 seconds East 99.44 feet to a point; South 87 degrees 28 minutes 07 seconds East 167.71 feet to a PK Nail set; along a curve to the right having a radius of 5.00 feet, an arc length of 11.44 feet and along a chord of South 21 degrees 54 minutes 14 seconds East 9.10 feet to a PK Nail set at the west margin of North Main Street, thence with the west margin of North Main Street two (2) calls as follows: South 43 degrees 39 minutes 38 seconds West 273.57 feet to a PK Nail set; with a curve to the right having a radius of 5.00 feet, an arc length of 8.57 feet and along a chord of North 87 degrees 15 minutes 06 seconds West 7.56 feet to the POINT OF BEGINNING, containing 0.910 Acres and shown as per survey and plat prepared by Herron Associates P.A., dated September 24, 2015 and certified by J. Randy Herron, P.L.S.

For protection of public health and the environment, the following land use restrictions required by N.C.G.S. Section 143B-279.9(b) shall apply to all of the above-described real property. These restrictions shall continue in effect as long as residual petroleum remains on the site in excess of unrestricted use standards and cannot be amended or cancelled unless and until the Haywood County Register of Deed receives and records the written concurrence of the Secretary (or his/her delegate) of DENR (or its successor in function).

PERPETUAL LAND USE RESTRICTIONS

Soil: The Site shall be used for industrial/commercial use only. Industrial/commercial use means a use where exposure to soil contamination is limited in time and does not involve exposure to children or other sensitive populations such as the elderly or sick. The real property shall not be developed or utilized for residential purposes including but not limited to: primary or secondary residences (permanent or temporary), schools, daycare centers, nursing homes, playgrounds, parks, recreation areas and/or picnic areas.

Groundwater: Groundwater from the site is prohibited from use as a water supply. Water supply wells of any kind shall not be installed or operated on the site.

ENFORCEMENT

The above land use restriction(s) shall be enforced by any owner, operator, or other party responsible for the Site. The above land use restriction(s) may also be enforced by DENR through any of the remedies provided by law or by means of a civil action, and may also be enforced by any unit of local government having jurisdiction over any part of the Site. Any attempt to cancel this Notice without the approval of DENR (or its successor in function) shall be subject to enforcement by DENR to the full extent of the law. Failure by any party required or authorized to enforce any of the above restriction(s) shall in no event be deemed a waiver of the right to do so thereafter as to the same violation or as to one occurring prior or subsequent thereto.

IN WITNESS WHEREOF, Arthur Neergaard caused this Notice to be executed pursuant to N.C.G.S. Sections 143B-279.9 and 143B-279.11, this 19 day of AUGUST, 2008. 2016

Arthur Neergaard
(name of responsible party if agent is signing)
By: Arthur Neergaard
(signature of responsible party, attorney or other agent if there is one)
MEMBER, CLIFFORD GOULD LLC
(Title of agent for responsible party if there is one)

Signatory's name typed or printed: ARTHUR NEERGAARD

OHIO HAMILTON COUNTY
(Name of county in which acknowledgment was taken)

I certify that the following person personally appeared before me this day, acknowledging to me that he or she signed the foregoing document: Drivers License R2288813

Date: 08/19/16



KEVIN LUBWAMA
Notary Public, State of Ohio
My Comm. Expires 06/16/2020

[Signature]
(signature of Notary Public)
KEVIN LUBWAMA
(printed or typed name of Notary Public)

Notary Public

My commission expires: 06-16-20

Approved for the purposes of N.C.G.S. 143B-279.11

Jan Andersen
(signature of Regional Supervisor)

Jan Andersen, Regional Supervisor
(printed name of Regional Supervisor)

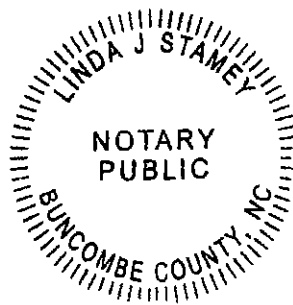
Asheville Regional Office
UST Section
Division of Waste Management
Department of Environment and Natural Resources

NORTH CAROLINA
Buncombe COUNTY
(Name of county in which acknowledgment was taken)

I certify that the following person(s) personally appeared before me this day, each acknowledging to me that he or she signed the foregoing document: Jan Andersen (full printed name of Regional Supervisor)

Date: August 29, 2016

(Official Seal)



Linda J. Stamey
(signature of Notary Public)

Linda J. Stamey
(printed or typed name of Notary Public)

Notary Public

My commission expires: January 8, 2020