

## **Preliminary Site Assessment Report**

**November 16, 2018**  
**WBS Element: 44625.1.1**  
**State Project: U-5888**  
**Haywood County**

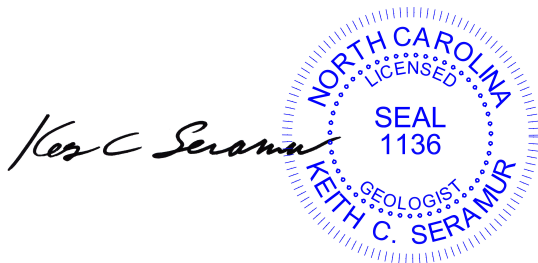
**at**  
**Gerald Egelus Property**  
**Parcel #007**  
**751 N Main Street, Waynesville, NC 28786**  
**PIN #: 8615-59-5487**  
**Facility ID No.: N/A**  
**Groundwater Incident No.: N/A**

**Prepared For:**

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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:

Gerald Egelus Property  
Parcel #007  
PIN #: 8615-59-5487  
751 N Main Street, Waynesville, NC 28786  
Facility ID No.: N/A  
Groundwater Incident No.: N/A

This property is located in Downtown Waynesville and is bounded to the south by Maple Street, to the north by Marshall Street and to the east by North Main Street (Figure 1). The property is currently developed with one building. It operates as an auto-body shop out of the west half of the building. The eastern half appears to be used as storage. There are old vehicles stored on the southwest portion of the property that could not be moved during our survey work. There are no proposed easements or Right-of-Way (R/W) on the property (Figure 2). It is our understanding that the entire property is being obtained as part of a traffic circle being built to replace the current intersection.

## **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).

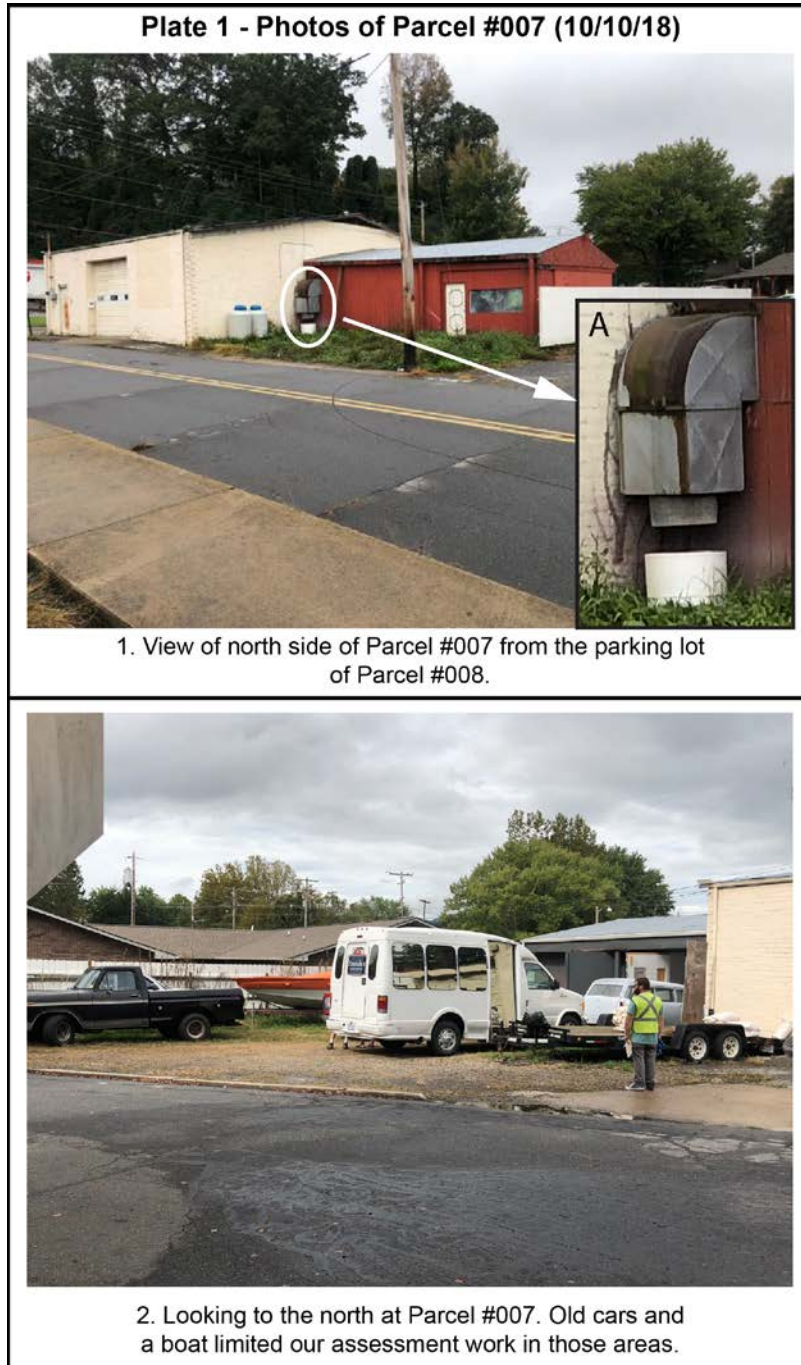
### **2.1 Background Research**

According to Haywood County Tax Administration records, the property is currently owned by Gerald Egelus. A review of historic aerial photographs showed that the property was developed in the 1950's. Haywood County Tax Administration records indicate that the building was built in 1945. There is no incident number or facility number associated with this property in any of the NCDEQ Databases.

During the initial site visit and the geophysical survey work, Seramur & Associates personnel spoke with the current property occupant about his knowledge of the property. He currently operates an auto-body shop and works on old cars. He stated that most of the vehicles and the boat stored on the property belong to the owner. He has spoken with many locals over the years who have indicated that the building was used as a carwash when it was built in the 1940's. The occupant was not aware that the property had ever been used as a gas station and said he would be surprised to find out that a UST is, or had ever been on the property.

Seramur and Associates personnel made a pedestrian reconnaissance of the property during the initial site visit on September 25, 2018. At that time, 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 Plate 1 – Photos of Parcel #007



## **2.3 Geophysical Surveys**

Seramur & Associates set up one grid for a geophysical survey at Parcel #007 (Figures 4 through 7). Grid 1 extended from the southwest side of the building towards Maple Street. Geophysical data was collected along transects with a 2-foot line spacing. The magnetometer was used to survey areas outside of Grid 1 (Figure 4). The area north of the building was surveyed along transects that were spaced approximately 2 feet apart. There was tall and thick vegetation in this area that prevented running a grid with the GPR. The southeast portion of the parcel was surveyed with the magnetometer at an approximate 2 foot transect spacing. The narrow strip of land between the west side of the building and the fence along the property boundary was also surveyed with the magnetometer in tight transects. GPR data was not collected outside of Grid 1 as magnetic anomalies were not detected and these areas were impractical to run GPR.

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.

Three-dimensional models of the GPR grid data were produced with the GPR Slice® software. Three time slices (or depth slices) were imaged in the grid at depths of 0.3 to 0.8 feet, 1.6 to 2.1 feet and 2.9 to 3.5 feet (Figures 5 through 7). Each depth slice is a horizontal slice or plan view of the reflections across an approximate 0.5-foot thickness of the subsurface. For example, the shallow GPR depth slices for Grid 1 shows 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 October 23<sup>rd</sup>, 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 in accessible areas of the property (Figure 3).

A track-mounted Geoprobe rig was used to drill a total of eight 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.

The vapors from a paint booth discharges through a vent on the north side of the building (see Inset A on Photo 1 of Plate 1). The property occupant reported that the vent has been used for many years and discharged fumes from the paint booth into this area long before there were any regulations requiring proper filters. Boring B-25 was drilled at an angle towards this vent in order to access the tight corner and test soil quality in this area. Soil sample S-49 was collected from Boring B-25 at a depth of 2.0 feet. Sample S-49 was shipped on ice to Prism Labs in Charlotte, NC for laboratory analyses. Prism analyzed this sample for volatiles (8260B) and lead (6010D). The laboratory reports are included in Appendix B.

### **3.0 Results of Investigation**

Parcel #007 contains one building that is currently used as storage and as an auto-body shop. The property previously operated as a carwash many years ago. There are no NCDEQ incidents associated with this property.

#### **3.1 Geophysical Surveys**

##### **Magnetometer Survey**

Magnetic anomalies were not detected on the property during the geophysical surveys (Figure 4).

##### **GPR Depth Slices**

The GPR depth slices are used to look for evidence of remnant infrastructure and features associated with UST systems (e.g. product lines, tanks and excavations). The shallow GPR

depth slice shows an area of lower amplitude reflections on the north end of the grid near the building (Figure 5). The intermediate depth slice shows some high amplitude reflections along the southeast edge of the grid (Figure 6). These appear linear but they are too close to the edge of the grid to interpret them as a buried utility. The deep GPR depth slice shows an interesting rectangular area of lower amplitude reflections, but its origin is uncertain (Figure 7). The south side of the property has fill material to a depth of 5-7 feet.

No evidence of USTs or a UST system was recorded at Parcel #007 by the geophysical surveys.

### **3.2 Soil Borings, Sampling and Laboratory Results**

The soil type at Parcel #007 consisted of a sandy silt fill material and a silty sand and gravel alluvium (Table 1). Some of the borings were moist, but groundwater was not encountered in any of the soil borings.

Borings B-18 through B-22 were drilled on the southwest side of the building where the vehicles are currently parked. Borings B-23 through B-25 were drilled on the north side of the building in the area of thick vegetation. Boring B-25 was drilled at a slight angle to sample soil beneath the paint booth vent.

Petroleum constituents were detected at low concentrations in many of the soil samples collected from Parcel #007. None of the soil samples contained DRO concentrations above 5.7 ppm. The sites history of having many vehicles park on the property since the 1940's indicates that the low petroleum constituent concentrations in soil is likely a result of leaks from vehicles over the years.

Soil sample S-49 from Boring B-25 was analyzed for Total Lead by Method 6010D and for volatiles by Method 8260B. Lead was detected by Method 6010D and Acetone was detected by Method 8260B. Acetone was detected at 0.11 mg/kg which is well below the Soil-to-Groundwater MSCC of 24 mg/kg. Lead was detected at a concentration of 1,100 mg/kg. This is well above all three MSCCs (Soil-to-Groundwater-270 mg/kg, Residential-400 mg/kg and Industrial/Commercial-400 mg/kg). The high concentration of lead in the soil around the paint fume hood could be attributed to lead paint being discharged from the paint booth vent for many years.

### **3.3 Volume and Extent of Soil Contamination**

Contaminated soil defined as GRO concentrations above 50 ppm and DRO concentrations above 100 ppm was not detected in soil samples collected at Parcel #007.

Lead was detected in a soil sample below the paint booth vent at concentration of 1,100 ppm, which is well above all three of the NCDEQ MSCCs. If the lead is from paint fumes, then this soil contamination is likely limited to the vicinity of the paint booth vent. We estimated this area to be about 100 feet<sup>2</sup> and the depth of soil contamination to be 5 feet. The estimated volume of contaminated soil in the vicinity of the paint booth vent is calculated as follows:

$$\begin{aligned}5 \text{ ft.} \times 10 \text{ ft}^2 &= 500 \text{ ft}^3 \\500 \text{ ft}^3 / 27 \text{ ft}^3/\text{yd}^3 &= 18.5 \text{ yd}^3 \\18.5 \text{ yd}^3 \times 1.5 \text{ tons}/\text{yd}^3 &= 27.8 \text{ tons}\end{aligned}$$

### **3.4 Conclusions**

No evidence of a UST system was found at Parcel #007 during this PSA.

Laboratory analyses of soil samples collected at Parcel #007 did not detect concentrations of GRO and DRO constituents above their respective action levels.

Laboratory analysis of soil sample S-49 detected lead at a concentration of 1,100 mg/kg, which is well above the NCDEQ MSCCs.

### **3.5 Recommendations**

A licensed geologist or engineer should supervise the excavation and removal of contaminated soil in the vicinity of the paint booth vent. Confirmation soil samples should be collected and analyzed for lead. Contaminated soil removed from Parcel #007 should be sent to a suitable remediation facility.



## Appendix A

### Tables and Figures

| Boring No. | Depth (ft)  | Lithology             | Soil type | Soil Sample | PID ppm | Comments   |
|------------|-------------|-----------------------|-----------|-------------|---------|--|
| B-18       | 0.0 to 5.0  | Sandy Silt            | Fill      | S-35        | 0.1     | Sample at 2.0 feet.  |
| B-18       | 5.0 to 10.0 | Silty Sand            | Alluvium  | S-36        | 0.1     | Sample at 9.0 feet.  |
| B-19       | 0.0 to 5.0  | Sandy Silt            | Fill      | S-37        | 0.3     | Sample at 1.5 feet.  |
| B-19       | 5.0 to 10.0 | Sand and Gravel       | Alluvium  | S-38        | 0.1     | Sample at 9.0 feet.  |
| B-20       | 0.0 to 5.0  | Sandy Silt            | Fill      | S-39        | 0.1     | Sample at 3.0 feet.  |
| B-20       | 5.0 to 10.0 | Sand                  | Alluvium  | S-40        | 0.1     | Sample at 8.0 feet.  |
| B-21       | 0.0 to 5.0  | Sandy Silt            | Fill      | S-41        | 0.1     | Sample at 2.5 feet.  |
| B-21       | 5.0 to 7.5  | Sandy Silt            | Fill      | S-42        | 0.0     | Sample at 8.5 feet.  |
|            | 7.5 to 10.0 | Sand and Gravel       | Alluvium  |             |         |  |
| B-22       | 0.0 to 5.0  | Sandy Silt            | Fill      | S-43        | 0.1     | Sample at 3.0 feet.  |
| B-22       | 5.0 to 10.0 | Sand and Gravel       | Alluvium  | S-44        | 0.0     | Sample at 7.5 feet.  |
| B-23       | 0.0 to 5.0  | Sandy Silt            | Fill      | S-45        | 0.0     | Sample at 2.5 feet.  |
| B-23       | 5.0 to 10.0 | Silty Sand            | Alluvium  | S-46        | 0.1     | Sample at 9.0 feet.  |
| B-24       | 0.0 to 5.0  | Sandy Silt            | Fill      | S-47        | 0.0     | Sample at 2.5 feet.  |
| B-24       | 5.0 to 10.0 | Silty Sand and Gravel | Alluvium  | S-48        | 0.0     | Sample at 8.0 feet.  |
| B-25       | 0.0 to 5.0  | Sandy Silt            | Fill      | S-49        | 0.0     | Sample at 2.0 feet. Drilled under paint hood vent. Terminated at 5.0 feet. |

**Table B-3a: Summary of Soil Sampling Results**

Revision Date: 10/25/18

Incident Number and Name: Gerald Egelus Property

Parcel ID#: 007

| Analytical Method (e.g., VOC by EPA 8260) → |                              |             |                           |                | UVF                | UVF                |
|---|------------------------------|-------------|---------------------------|----------------|--------------------|--------------------|
| Contaminant of Concern →                    |                              |             |                           |                | TPH GRO<br>(mg/kg) | TPH DRO<br>(mg/kg) |
| Sample ID                                   | Date Collected<br>(mm/dd/yy) | Source Area | Sample Depth<br>(ft. BGS) | Incident Phase |                    |                    |
| S-35  | 10/23/18                     | B-18        | 3.0                       | PSA            | <0.56              | 5.7                |
| S-36  | 10/23/18                     | B-18        | 9.0                       | PSA            | <0.56              | 2.6                |
| S-37  | 10/23/18                     | B-19        | 3.0                       | PSA            | <0.52              | 0.49               |
| S-38  | 10/23/18                     | B-19        | 9.0                       | PSA            | <0.61              | <0.24              |
| S-39  | 10/23/18                     | B-20        | 3.0                       | PSA            | <0.58              | 2.3                |
| S-40  | 10/23/18                     | B-20        | 9.0                       | PSA            | <0.27              | 0.03               |
| S-41  | 10/23/18                     | B-21        | 3.0                       | PSA            | <0.55              | 5.0                |
| S-42  | 10/23/18                     | B-21        | 9.0                       | PSA            | <0.58              | <0.23              |
| S-43  | 10/23/18                     | B-22        | 3.0                       | PSA            | <0.54              | 1.4                |
| S-44  | 10/23/18                     | B-22        | 9.0                       | PSA            | <0.54              | <0.21              |
| S-45  | 10/23/18                     | B-23        | 3.0                       | PSA            | <0.52              | 0.31               |
| S-46  | 10/23/18                     | B-23        | 9.0                       | PSA            | <0.53              | <0.21              |
| S-47  | 10/23/18                     | B-24        | 3.0                       | PSA            | <0.29              | 4.5                |
| S-48  | 10/23/18                     | B-24        | 9.0                       | PSA            | <0.59              | <0.23              |
| <b>NC DEQ Action Level (mg/kg)</b>          |                              |             |                           |                | 50                 | 100                |

ft. BGS = feet below ground surface

mg/kg = milligrams per kilogram

**Table B-3b: Summary of Soil Sampling Results**

Revision Date: 11/5/18

Incident Name: Gerald Egelus Property

Parcel ID#: 007

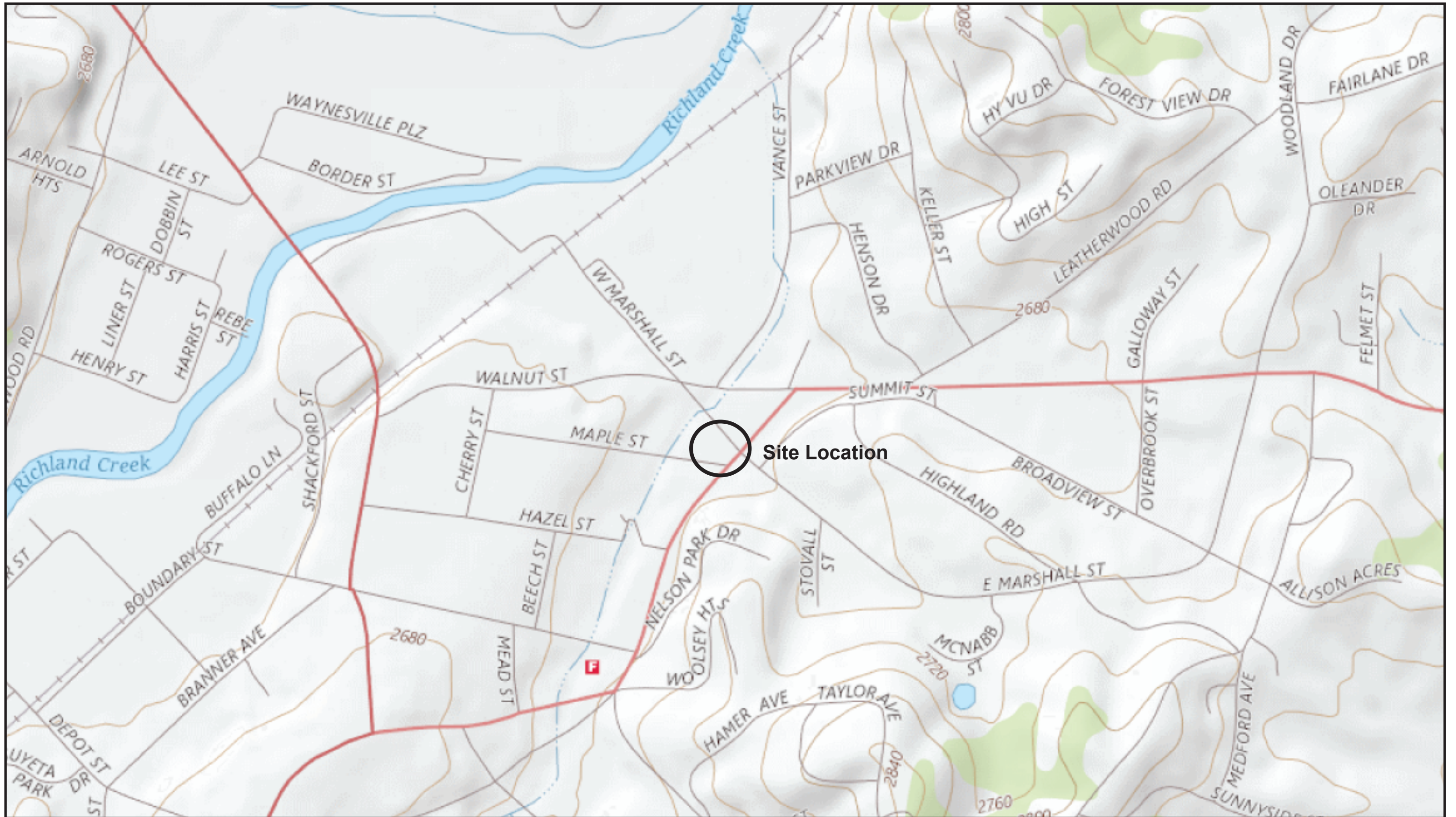
| Analytical Method (e.g., VOC by EPA 8260) → |                              |             |                           |                | 6010D           | 8260B              |
|---|------------------------------|-------------|---------------------------|----------------|-----------------|--------------------|
| Contaminant of Concern →                    |                              |             |                           |                | Lead<br>(mg/kg) | Acetone<br>(mg/kg) |
| Sample ID                                   | Date Collected<br>(mm/dd/yy) | Source Area | Sample Depth<br>(ft. BGS) | Incident Phase |                 |                    |
| S-49  | 10/23/18                     | B-25        | 2.0                       | PSA            | <b>1,100</b>    | 0.11               |
| <b>Minimum Reporting Limit (mg/kg)</b>      |                              |             |                           |                | 1.4             | 0.0023             |
| <b>Soil to Groundwater MSCC (mg/kg)</b>     |                              |             |                           |                | 270             | 24                 |
| <b>Residential MSCC (mg/kg)</b>             |                              |             |                           |                | 400             | 14,000             |
| <b>Industrial/Commercial MSCC (mg/kg)</b>   |                              |             |                           |                | 400             | 360,000            |

MSCC = maximum soil contaminant concentration

ft. BGS = feet below ground surface

Results must be reported in mg/kg.

mg/kg =milligrams per kilogram



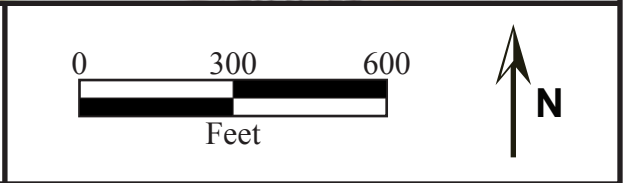
**Figure 1**  
 Site Location Map  
 Source: U.S.G.S.  
 The National Map

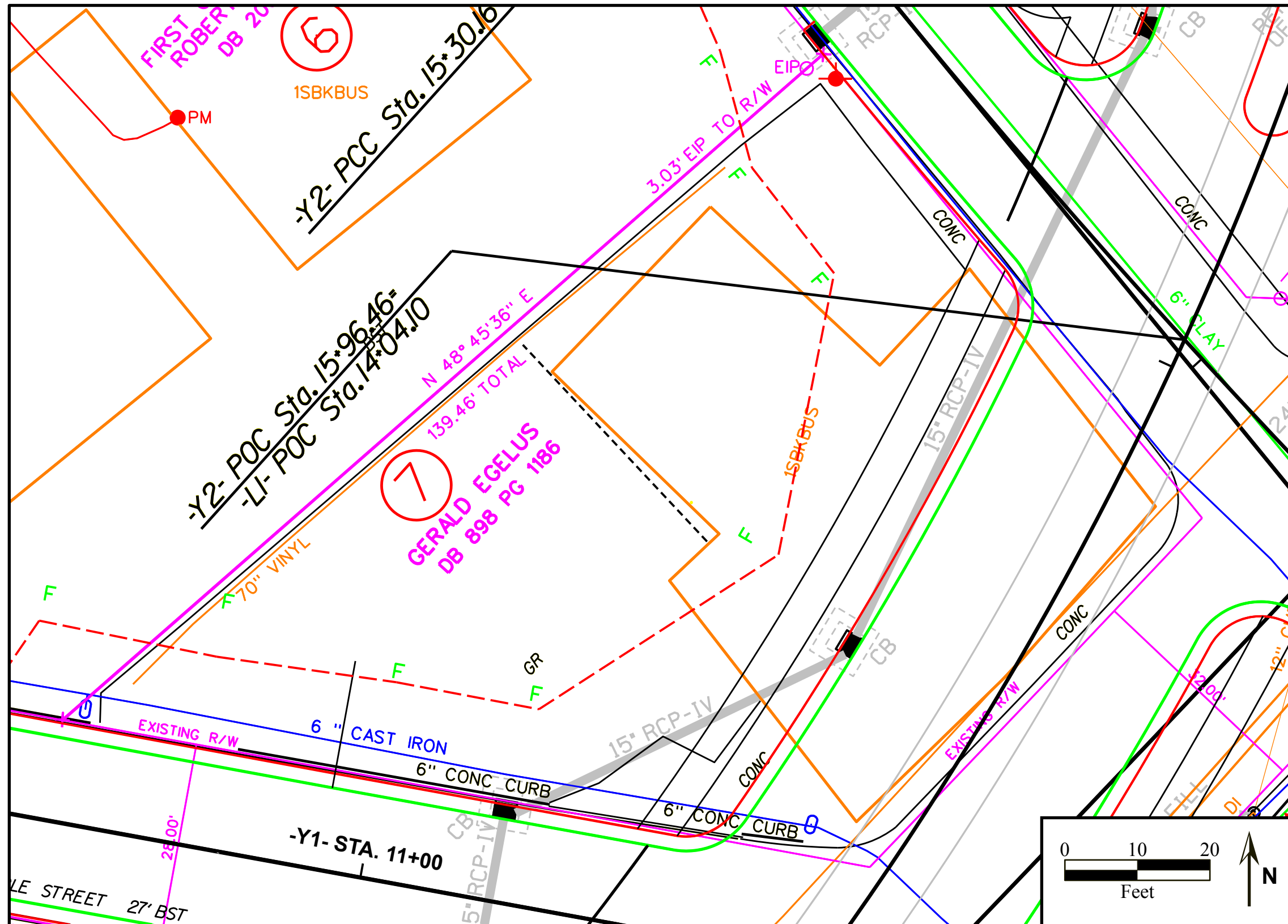
State Project: U-5888  
 Haywood County, NC

Gerald Egulus Property  
 751 N Main Street  
 Waynesville, NC

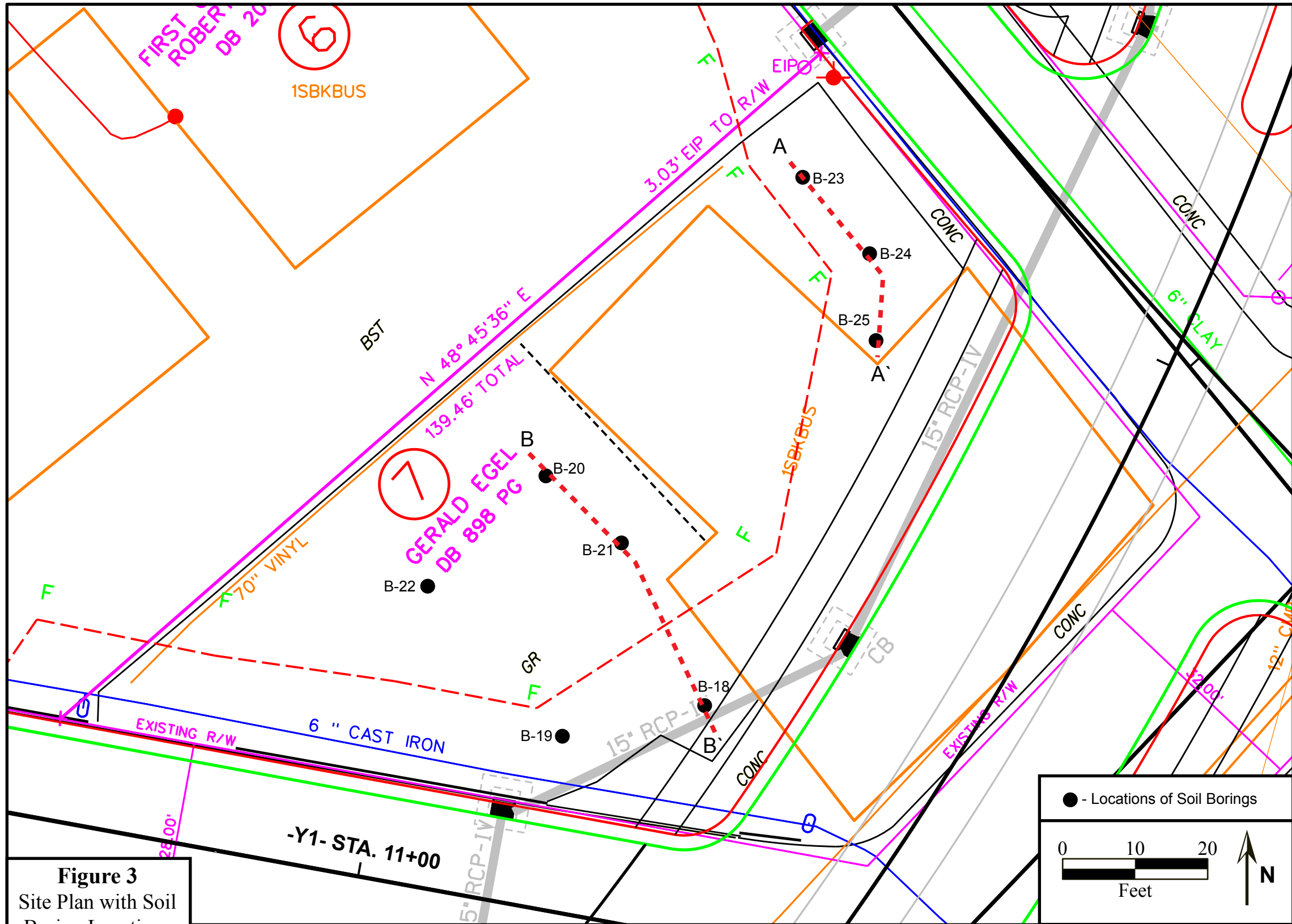
Parcel #007  
 Facility I.D.: N/A

Seramur & Associates, PC  
 Boone, NC





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| <p><b>Figure 2</b><br/>Site Plan</p> | <p>State Project: U-5888<br/>Haywood County, NC</p> | <p>Gerald Egulus Property<br/>751 N Main Street<br/>Waynesville, NC</p> | <p>Parcel #007<br/>Facility I.D.: N/A</p> | <p>Seramur &amp; Associates, PC<br/>Boone, NC</p> |
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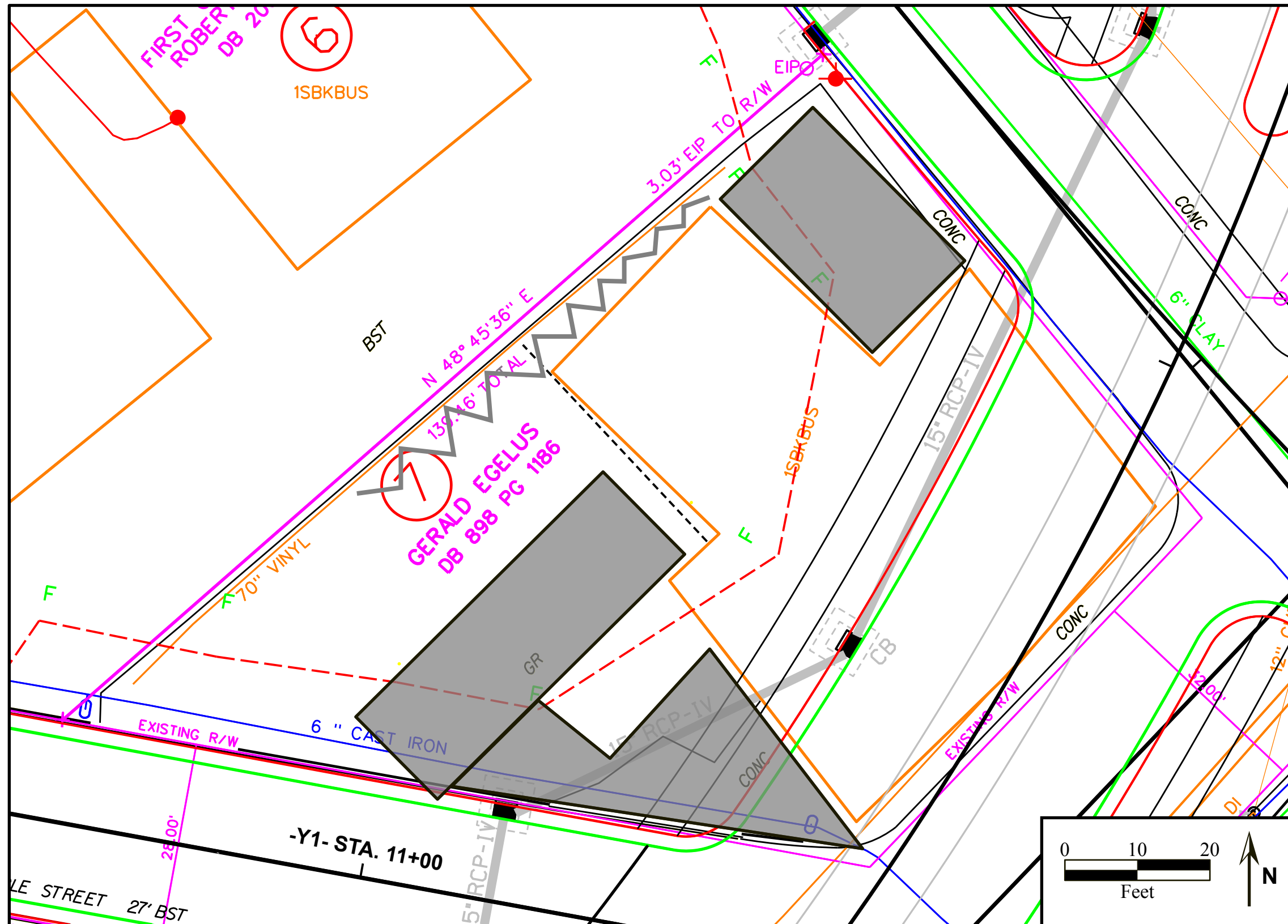
**Figure 3**  
 Site Plan with Soil Boring Locations and Approximate Cross-Section Locations

State Project: U-5888  
 Haywood County, NC

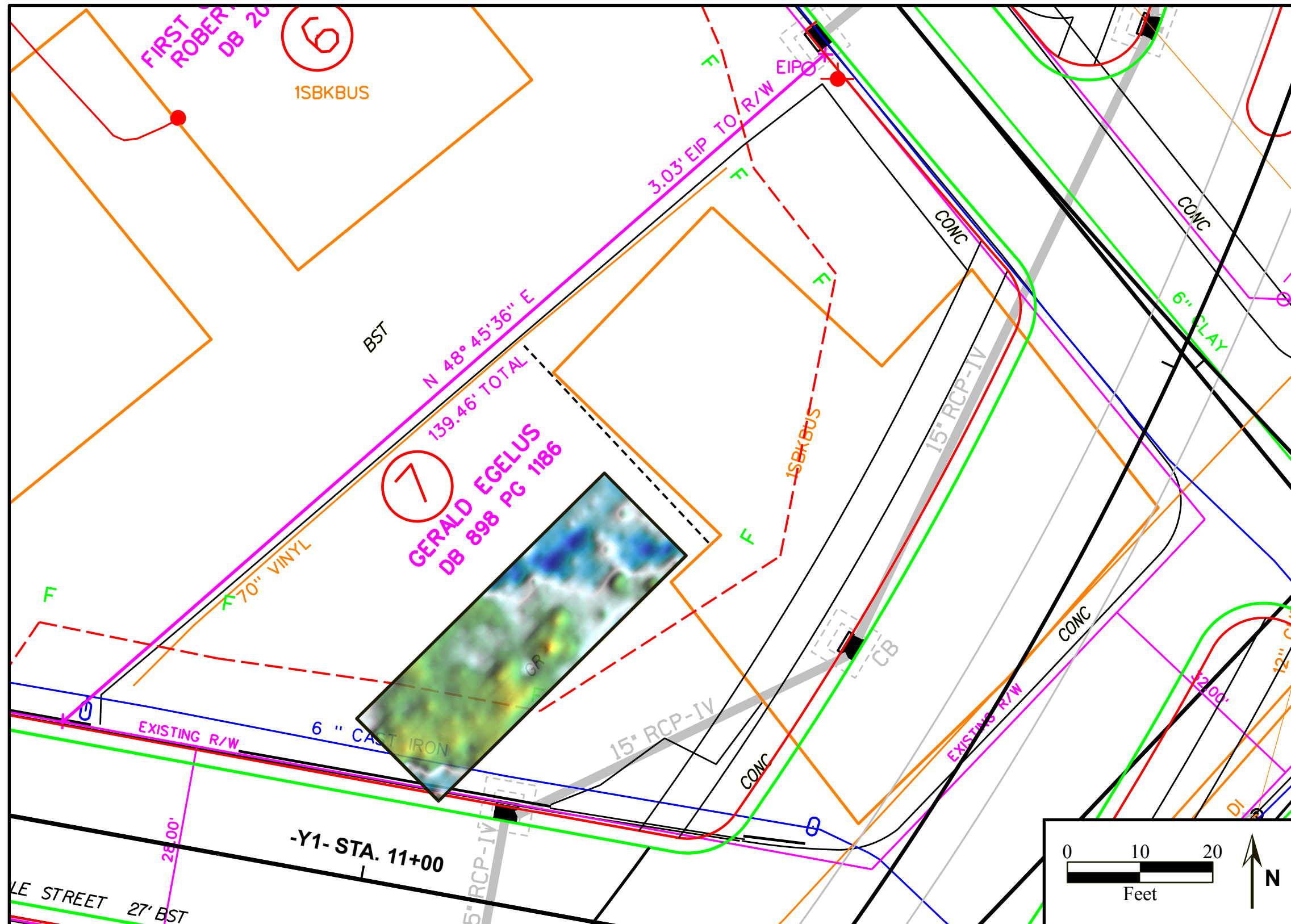
Gerald Egulus Property  
 751 N Main Street  
 Waynesville, NC

Parcel #007  
 Facility I.D.: N/A

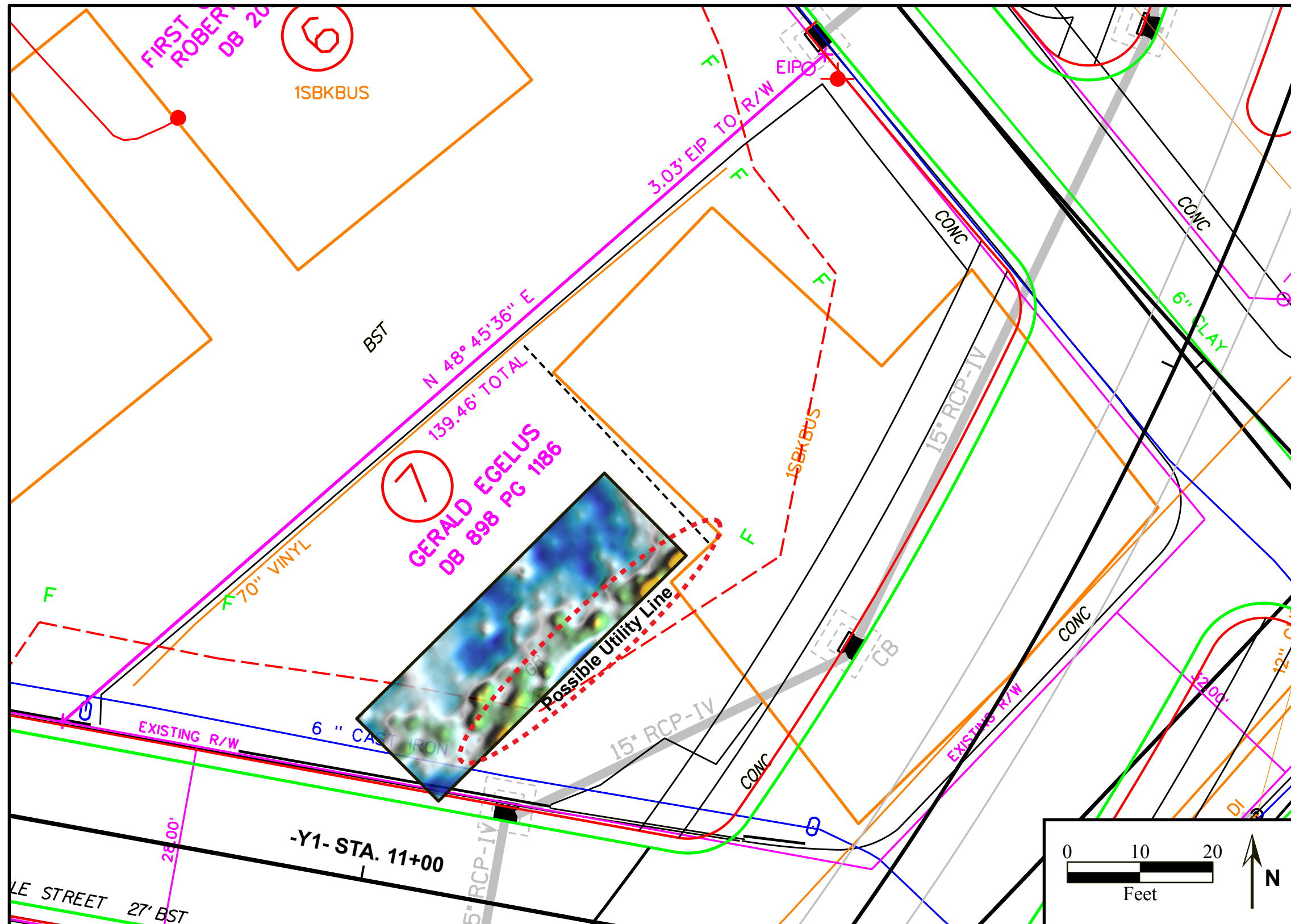
Seramur & Associates, PC  
 Boone, NC



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| <p><b>Figure 4</b><br/>Magnetometer<br/>Survey Results</p> | <p>State Project: U-5888<br/>Haywood County, NC</p> | <p>Gerald Egulus Property<br/>751 N Main Street<br/>Waynesville, NC</p> | <p>Parcel #007<br/>Facility I.D.: N/A</p> | <p>Seramur &amp; Associates, PC<br/>Boone, NC</p> |
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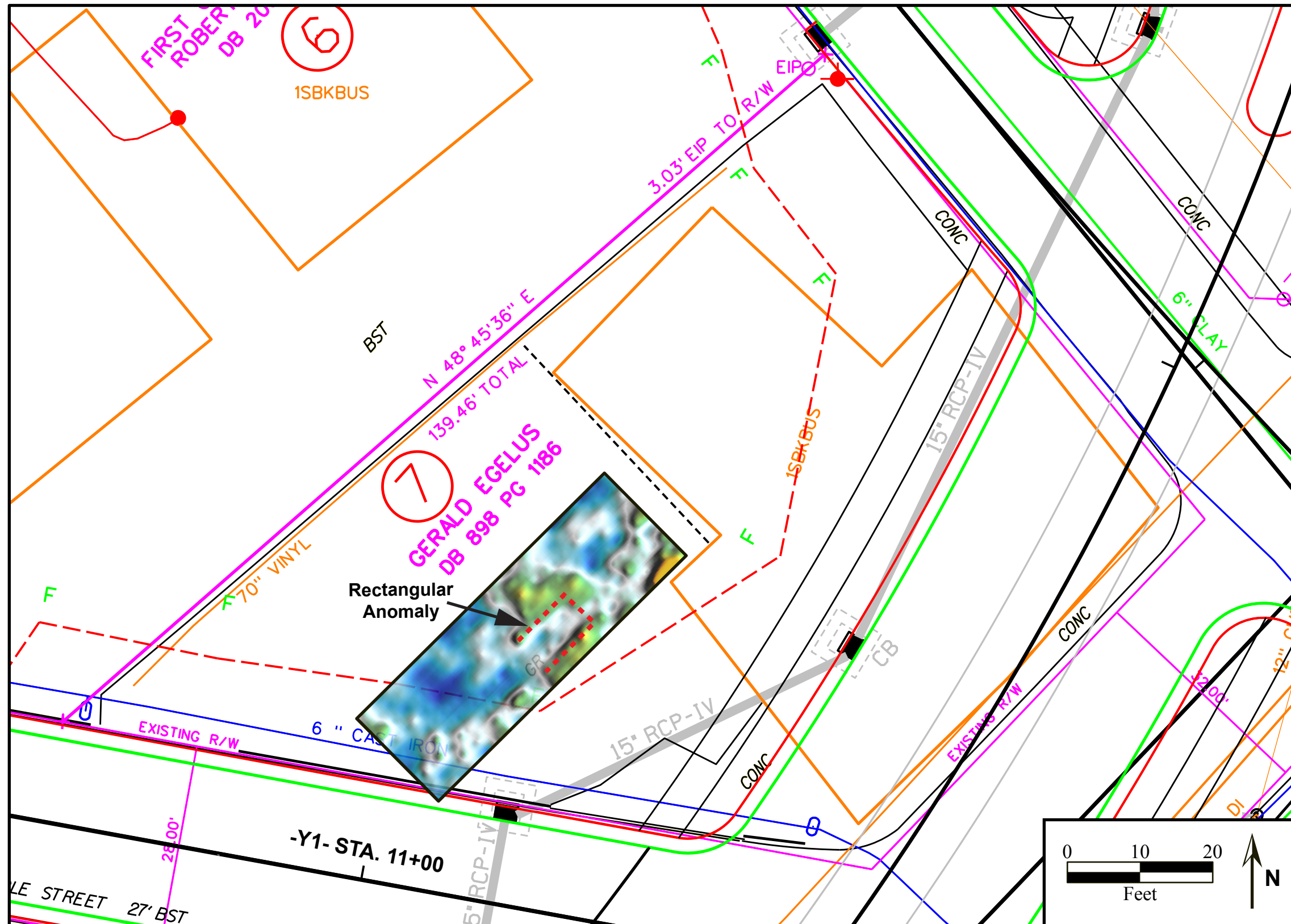


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| <p><b>Figure 5</b><br/>Shallow GPR Depth<br/>Slice (0.3 - 0.8 ft.)</p> | <p>State Project: U-5888<br/>Haywood County, NC</p> | <p>Gerald Egulus Property<br/>751 N Main Street<br/>Waynesville, NC</p> | <p>Parcel #007<br/>Facility I.D.: N/A</p> | <p>Seramur &amp; Associates, PC<br/>Boone, NC</p> |
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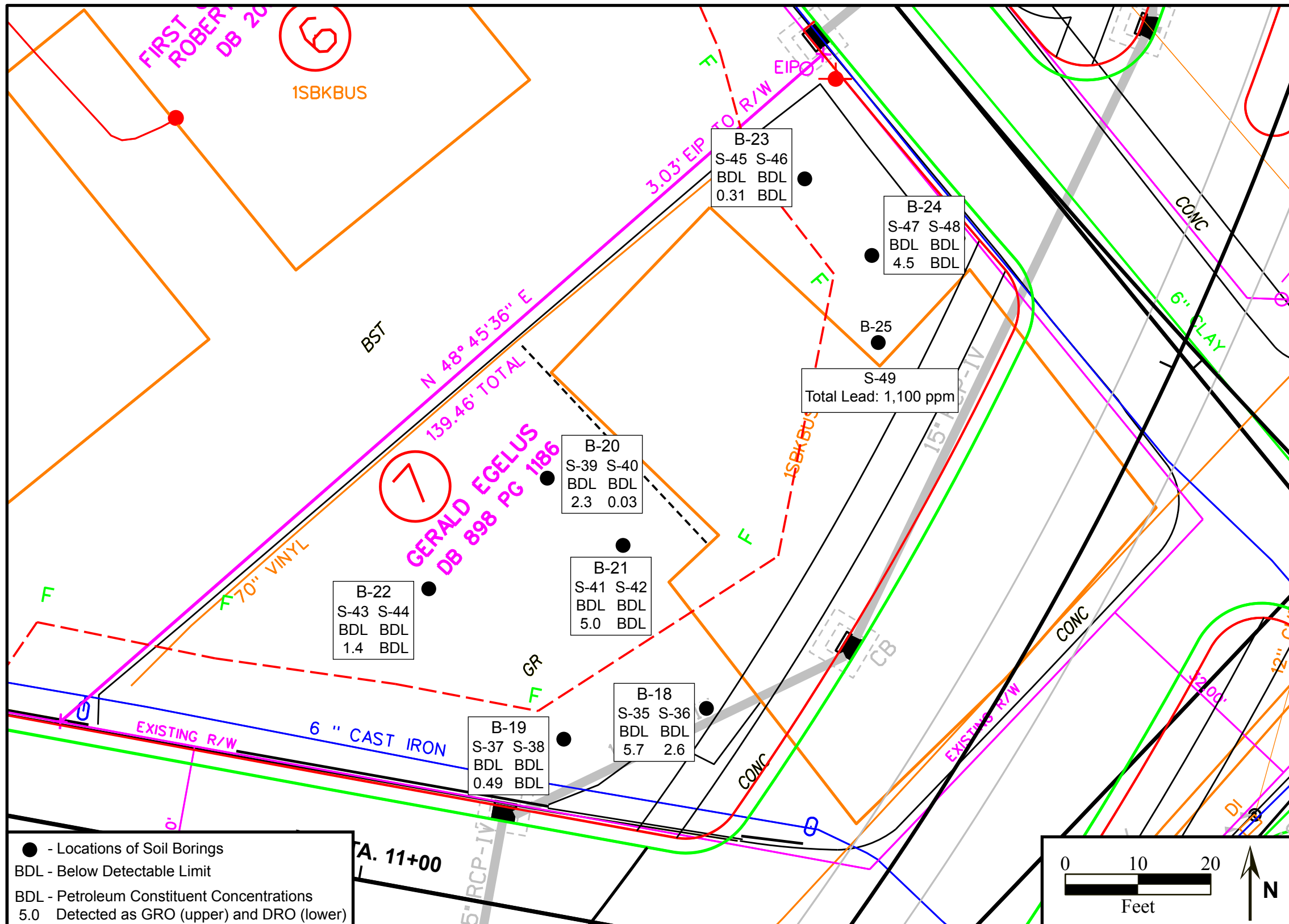


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| <p><b>Figure 6</b><br/>Intermediate GPR Depth<br/>Slice (1.6 - 2.1 ft.)</p> | <p>State Project: U-5888<br/>Haywood County, NC</p> | <p>Gerald Egulus Property<br/>751 N Main Street<br/>Waynesville, NC</p> | <p>Parcel #007<br/>Facility I.D.: N/A</p> | <p>Seramur &amp; Associates, PC<br/>Boone, NC</p> |
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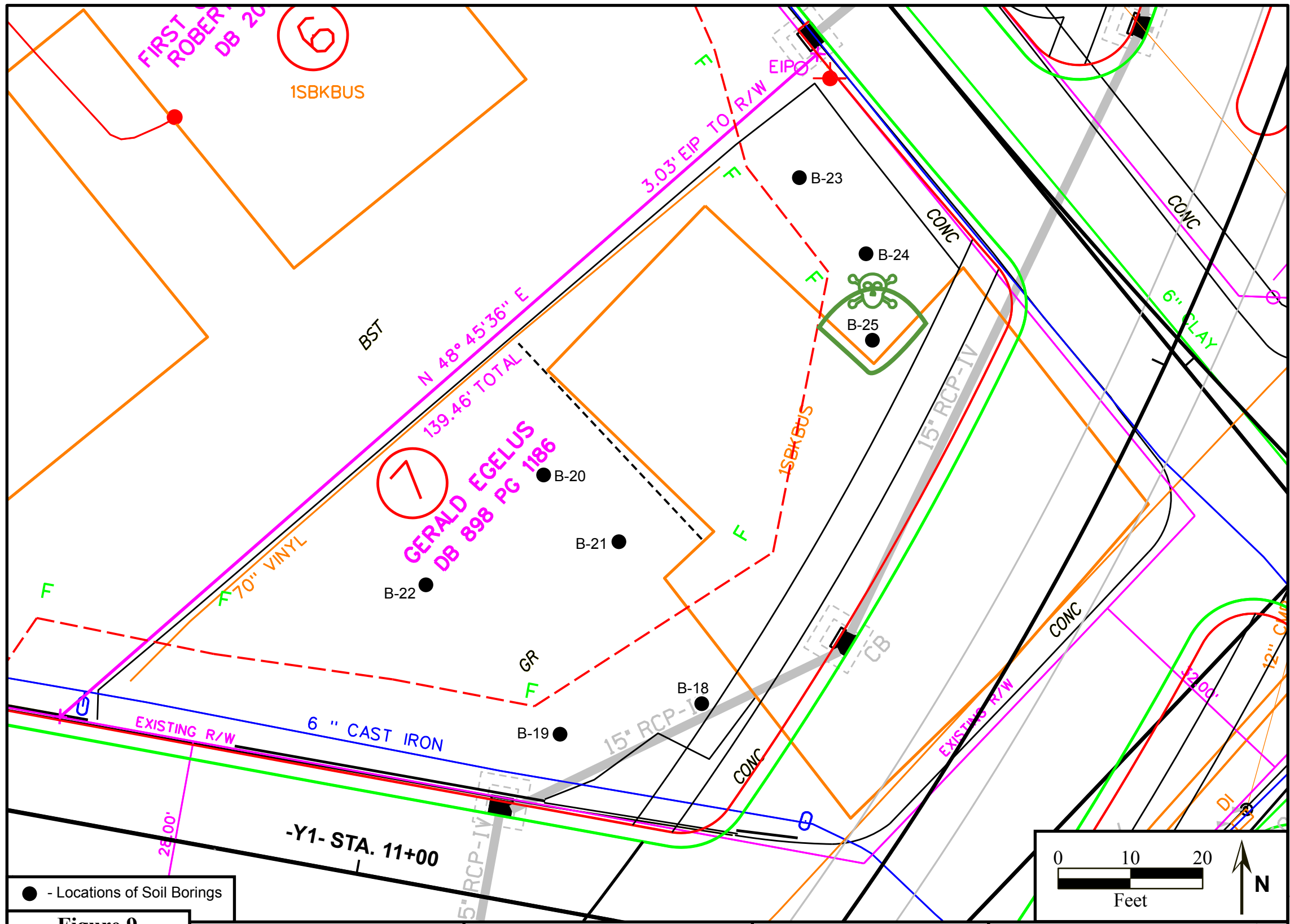




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| <p><b>Figure 7</b><br/>Deep GPR Depth<br/>Slice (2.9 - 3.5 ft.)</p> | <p>State Project: U-5888<br/>Haywood County, NC</p> | <p>Gerald Egulus Property<br/>751 N Main Street<br/>Waynesville, NC</p> | <p>Parcel #007<br/>Facility I.D.: N/A</p> | <p>Seramur &amp; Associates, PC<br/>Boone, NC</p> |
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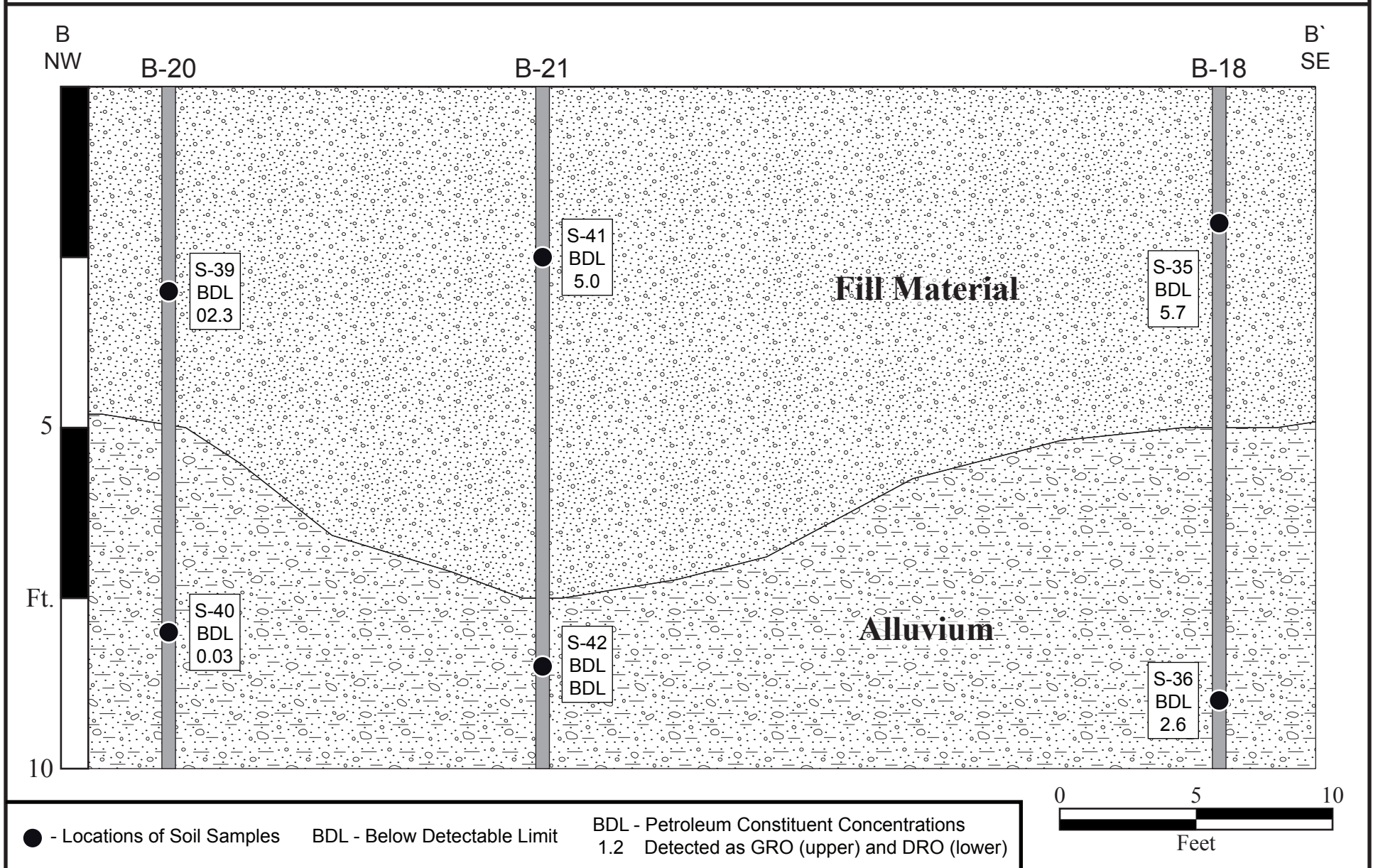
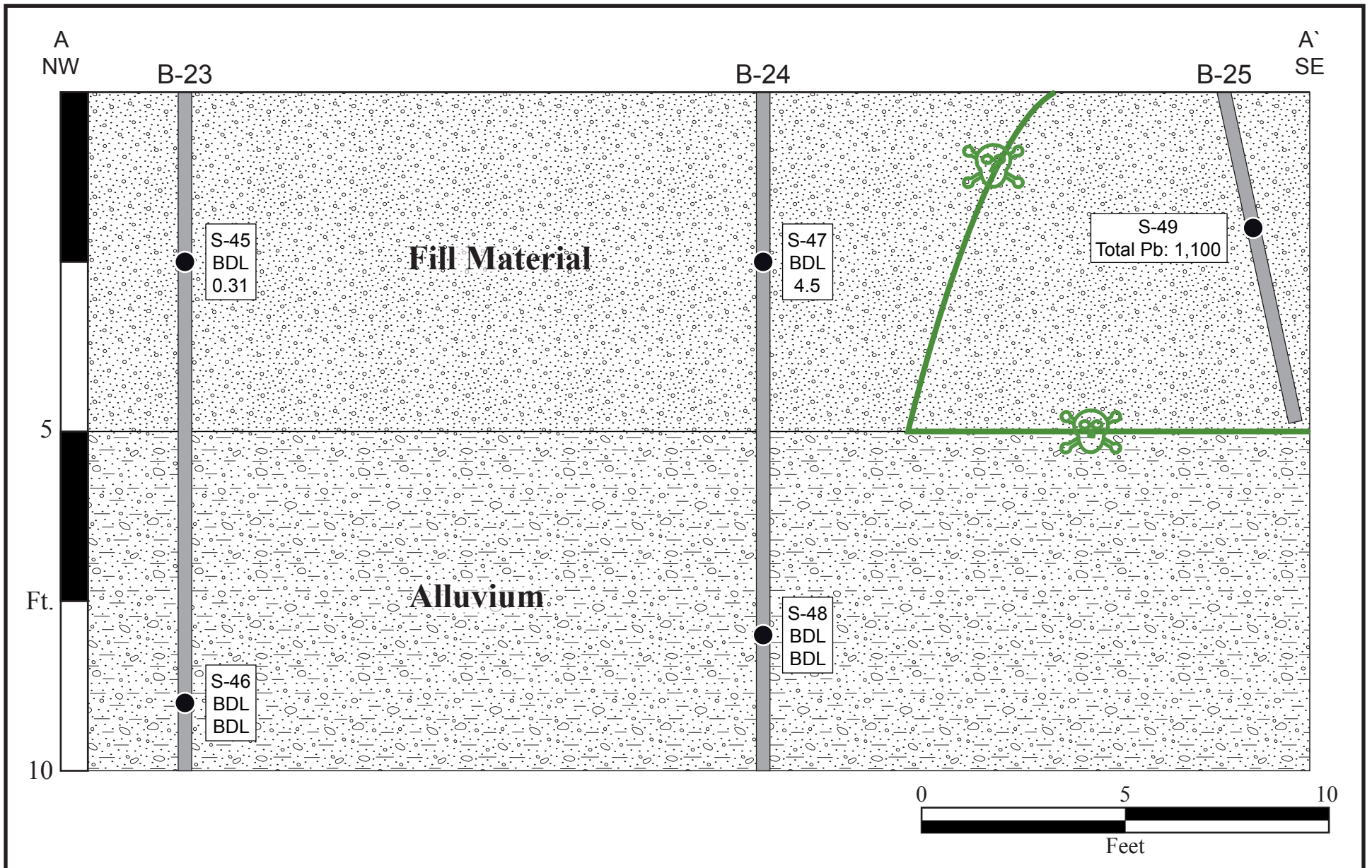


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| <p><b>Figure 8</b><br/>Soil Analytical Results</p> | <p>State Project: U-5888<br/>Haywood County, NC</p> | <p>Gerald Egulus Property<br/>751 N Main Street<br/>Waynesville, NC</p> | <p>Parcel #007<br/>Facility I.D.: N/A</p> | <p>Seramur &amp; Associates, PC<br/>Boone, NC</p> |
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● - Locations of Soil Borings

|   |   |   |   |   |
|---|---|---|---|---|
| <p><b>Figure 9</b><br/>Approximate<br/>Extent of Soil<br/>Contamination</p> | <p>State Project: U-5888<br/>Haywood County, NC</p> | <p>Gerald Egulus Property<br/>751 N Main Street<br/>Waynesville, NC</p> | <p>Parcel #007<br/>Facility I.D.: N/A</p> | <p>Seramur &amp; Associates, PC<br/>Boone, NC</p> |
|---|---|---|---|---|



● - Locations of Soil Samples    BDL - Below Detectable Limit    BDL - Petroleum Constituent Concentrations  
 1.2 Detected as GRO (upper) and DRO (lower)

|   |   |  |                                   |                                       |
|---|---|--|-----------------------------------|---------------------------------------|
| <b>Figure 10</b><br>Cross-Sections<br>A-A' and B-B' | State Project: U-5888<br>Haywood County, NC | Gerald Egulus Property<br>751 N Main Street<br>Waynesville, NC | Parcel #007<br>Facility I.D.: N/A | Seramur & Associates, PC<br>Boone, NC |
|---|---|--|-----------------------------------|---------------------------------------|

## **Appendix B**

### **Laboratory Reports and Chain of Custody Records**



### Hydrocarbon Analysis Results

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

**Samples taken** Tuesday, October 23, 2018  
**Samples extracted** Tuesday, October 23, 2018  
**Samples analysed** Thursday, October 25, 2018

**Contact:** KEITH SERAMUR  
 COLLECTED BY JA  
**Project:** NCDOT U-5888 P007

**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-35      | 22.4          | <0.56          | <0.56          | 5.7             | 5.7            | 2.3                       | 0.12        | 0.003  | 0        | 90.8      | 9.2  | Deg Fuel 75.2%,(FCM)  |
| Soil   | S-36      | 22.2          | <0.56          | <0.56          | 2.6             | 2.6            | 1.4                       | 0.08        | 0.004  | 0        | 65.1      | 34.9 | V.Deg.PHC 50.9%,(FCM) |
| Soil   | S-37      | 21.0          | <0.52          | <0.52          | 0.49            | 0.49           | 0.49                      | 0.008       | <0.006 | 0        | 81        | 19   | V.Deg.PHC 90.1%,(FCM) |
| Soil   | S-38      | 24.3          | <0.61          | <0.61          | <0.24           | <0.61          | <0.01                     | <0.01       | <0.007 | 0        | 0         | 0    | PHC ND,(FCM)          |
| Soil   | S-39      | 23.2          | <0.58          | <0.58          | 2.3             | 2.3            | 1.2                       | 0.05        | 0.001  | 0        | 86.6      | 13.4 | V.Deg.PHC 92.5%,(FCM) |
| Soil   | S-40      | 10.8          | <0.27          | <0.27          | 0.03            | 0.03           | 0.03                      | 0.003       | <0.003 | 0        | 63.8      | 36.2 | Residual HC           |
| Soil   | S-41      | 21.8          | <0.55          | <0.55          | 5               | 5              | 2.6                       | 0.11        | 0.001  | 0        | 90.1      | 9.9  | Deg.PHC 71.8%,(FCM)   |
| Soil   | S-42      | 23.2          | <0.58          | <0.58          | <0.23           | 0.02           | 0.02                      | <0.0        | <0.007 | 0        | 34        | 66   | Residual HC,(P)       |
| Soil   | S-43      | 21.7          | <0.54          | <0.54          | 1.4             | 1.4            | 0.55                      | 0.03        | 0.001  | 0        | 79.3      | 20.7 | V.Deg.PHC 76.4%,(FCM) |
| Soil   | S-44      | 21.5          | <0.54          | <0.54          | <0.21           | <0.54          | <0.01                     | <0.01       | <0.006 | 0        | 0         | 0    | PHC ND,(FCM)          |

Initial Calibrator QC check **OK**

Final FCM QC Check **OK**

**90.9%**

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 PC  
**Address:** 165 KNOLL DRIVE  
 BOONE NC 28607

**Samples taken** Tuesday, October 23, 2018  
**Samples extracted** Tuesday, October 23, 2018  
**Samples analysed** Thursday, October 25, 2018

**Contact:** KEITH SERAMUR  
 COLLECTED BY JA  
**Project:** NCDOT U-5888 P007

**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-45      | 21.0          | <0.52          | <0.52          | 0.31            | 0.31           | 0.37                      | 0.006       | <0.006 | 0        | 81.6      | 18.4 | V.Deg.PHC 92.6%,(FCM) |
| Soil   | S-46      | 21.3          | <0.53          | <0.53          | <0.21           | <0.53          | <0.01                     | <0.01       | <0.006 | 0        | 0         | 0    | PHC ND,(FCM)          |
| Soil   | S-47      | 11.8          | <0.29          | <0.29          | 4.5             | 4.5            | 2.2                       | 0.1         | 0.002  | 0        | 87.6      | 12.4 | Deg.PHC 76.3%,(FCM)   |
| Soil   | S-48      | 23.4          | <0.59          | <0.59          | <0.23           | <0.59          | <0.01                     | <0.01       | <0.007 | 0        | 0         | 0    | PHC ND,(FCM)          |
|        |           |               |                |                |                 |                |                           |             |        |          |           |      |                       |
|        |           |               |                |                |                 |                |                           |             |        |          |           |      |                       |
|        |           |               |                |                |                 |                |                           |             |        |          |           |      |                       |
|        |           |               |                |                |                 |                |                           |             |        |          |           |      |                       |

Initial Calibrator QC check **OK**

Final FCM QC Check **OK**

108.5%

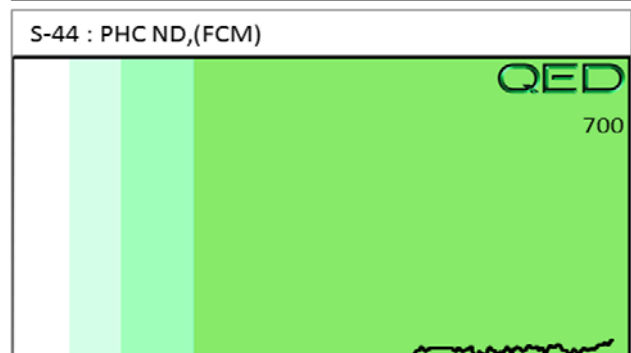
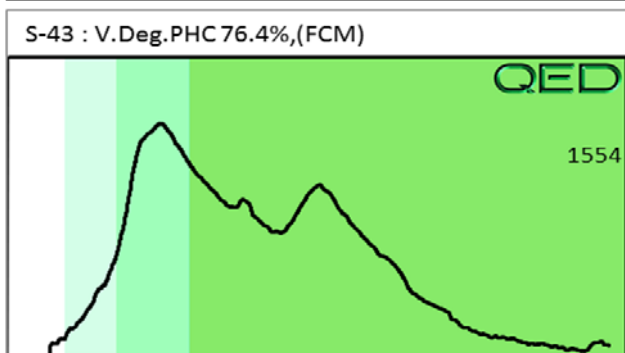
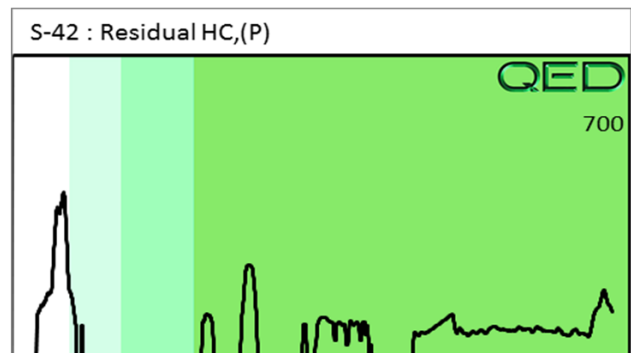
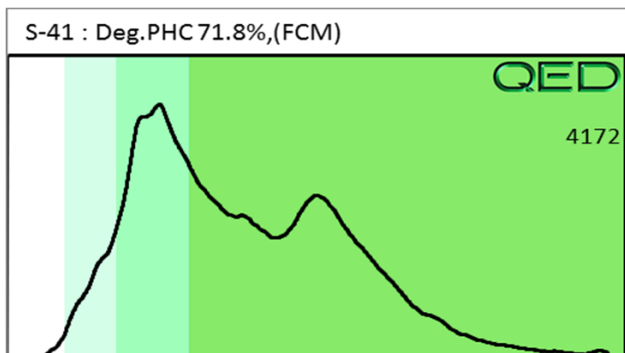
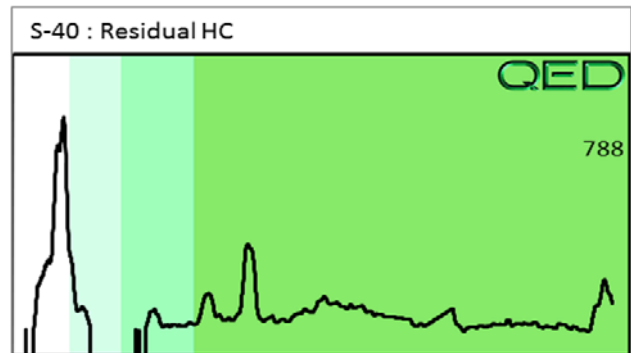
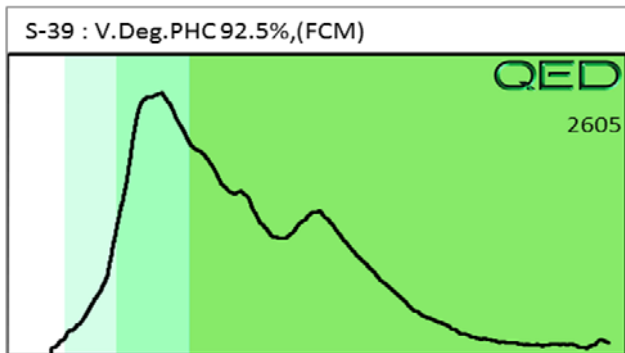
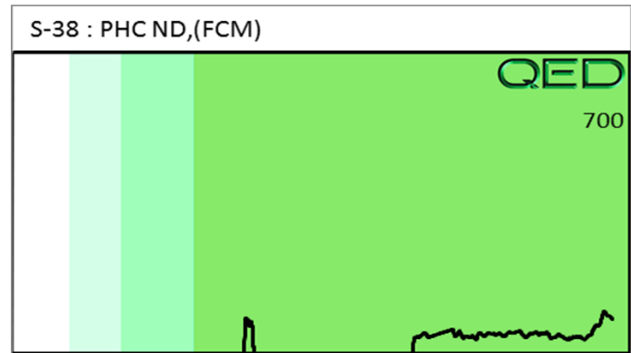
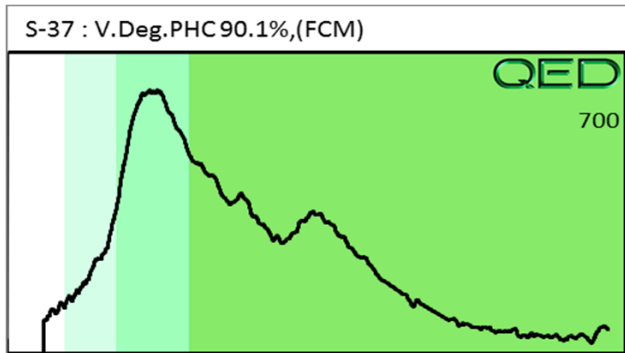
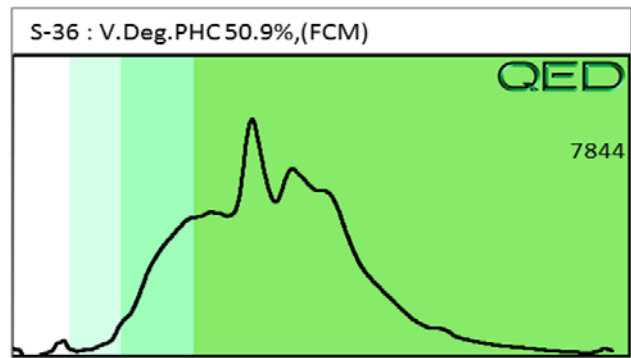
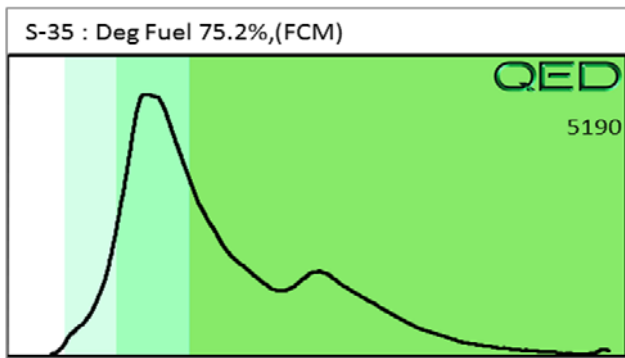
Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

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

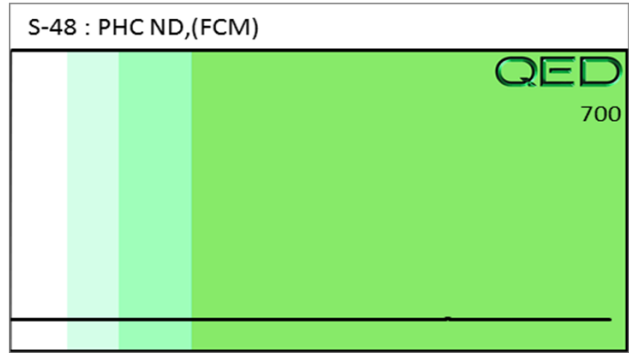
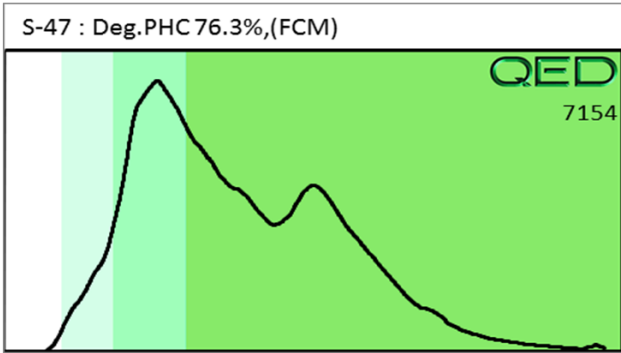
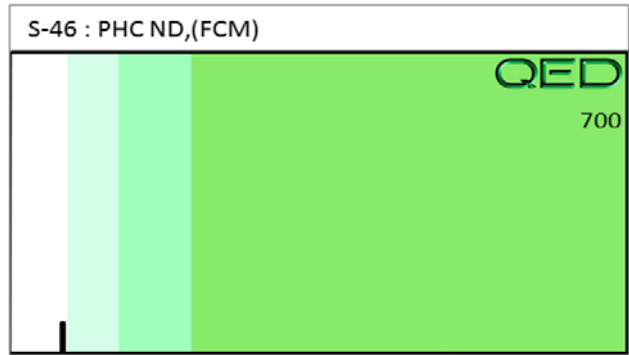
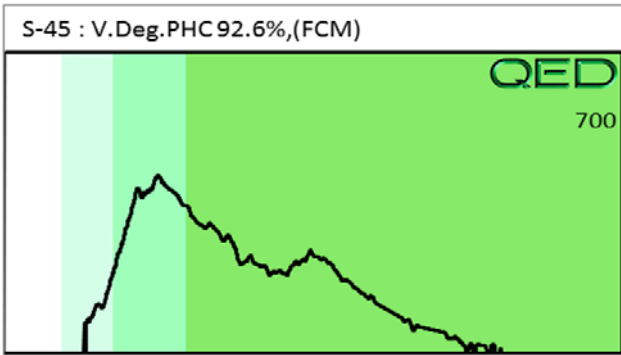
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modified Result.

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

**Data generated by HC-1 Analyser**











Keith C. Seramur PGPC  
Keith Seramur  
165 Knoll Dr.  
Boone, NC 28607

Project: NCDOT U-5888

Lab Submittal Date: 10/27/2018  
Prism Work Order: 8100467

This data package contains the analytical results for the project identified above and includes a Case Narrative, Sample Results and Chain of Custody. Unless otherwise noted, all samples were received in acceptable condition and processed according to the referenced methods.

Data qualifiers are flagged individually on each sample. A key reference for the data qualifiers appears at the end of this case narrative.

Please call if you have any questions relating to this analytical report.

Respectfully,

**PRISM LABORATORIES, INC.**

Angela D. Overcash  
VP Laboratory Services

Reviewed By Terri W. Cole For Angela D. Overcash  
Project Manager

**Data Qualifiers Key Reference:**

- BH MB greater than one half of the RL, but the sample concentrations are greater than 10x the MB.
- D RPD value outside of the control limits.
- J Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).
- M Matrix spike outside of the control limits.
- MI Matrix spike outside of the control limits. Matrix interference suspected.
- PS Post Spike recovery is outside of the control limits.
- BRL Below Reporting Limit
- MDL Method Detection Limit
- RPD Relative Percent Difference
- \* Results reported to the reporting limit. All other results are reported to the MDL with values between MDL and reporting limit indicated with a J.

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| Client Sample ID | Lab Sample ID | Matrix | Date/Time Sampled | Date/Time Received |
|------------------|---------------|--------|-------------------|--------------------|
| S-49             | 8100467-01    | Solid  | 10/23/18 15:50    | 10/27/18 13:25     |

Samples were received in good condition at 2.0 degrees C unless otherwise noted.

| Prism ID   | Client ID | Parameter | Method | Result | Units     |
|------------|-----------|-----------|--------|--------|-----------|
| 8100467-01 | S-49      | Lead      | *6010D | 1100   | mg/kg dry |
| 8100467-01 | S-49      | Acetone   | 8260B  | 0.11   | mg/kg dry |

Keith C. Seramur PGPC  
 Attn: Keith Seramur  
 165 Knoll Dr.  
 Boone, NC 28607

Project: NCDOT U-5888

Sample Matrix: Solid

Client Sample ID: S-49  
 Prism Sample ID: 8100467-01  
 Prism Work Order: 8100467  
 Time Collected: 10/23/18 15:50  
 Time Submitted: 10/27/18 13:25

| Parameter                                  | Result      | Units            | Report Limit | MDL           | Dilution Factor | Method       | Analysis Date/Time    | Analyst    | Batch ID       |
|--|-------------|------------------|--------------|---------------|-----------------|--------------|-----------------------|------------|----------------|
| <b>General Chemistry Parameters</b>        |             |                  |              |               |                 |              |                       |            |                |
| % Solids                                   | 68.0        | % by Weight      | 0.100        | 0.100         | 1               | *SM2540 G    | 11/2/18 13:05         | TJY        | P8K0052        |
| <b>Total Metals</b>                        |             |                  |              |               |                 |              |                       |            |                |
| Lead                                       | 1100        | mg/kg dry        | 7.4          | 1.4           | 20              | *6010D       | 11/2/18 12:13         | JAB        | P8J0607        |
| <b>Volatile Organic Compounds by GC/MS</b> |             |                  |              |               |                 |              |                       |            |                |
| 1,1,1,2-Tetrachloroethane                  | BRL         | mg/kg dry        | 0.0093       | 0.00077       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 1,1,1-Trichloroethane                      | BRL         | mg/kg dry        | 0.0093       | 0.00045       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 1,1,2,2-Tetrachloroethane                  | BRL         | mg/kg dry        | 0.0093       | 0.00063       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 1,1,2-Trichloroethane                      | BRL         | mg/kg dry        | 0.0093       | 0.00082       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 1,1-Dichloroethane                         | BRL         | mg/kg dry        | 0.0093       | 0.00026       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 1,1-Dichloroethylene                       | BRL         | mg/kg dry        | 0.0093       | 0.00041       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 1,1-Dichloropropylene                      | BRL         | mg/kg dry        | 0.0093       | 0.00051       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 1,2,3-Trichlorobenzene                     | BRL         | mg/kg dry        | 0.0093       | 0.00053       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 1,2,3-Trichloropropane                     | BRL         | mg/kg dry        | 0.0093       | 0.0012        | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 1,2,4-Trichlorobenzene                     | BRL         | mg/kg dry        | 0.0093       | 0.00069       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 1,2,4-Trimethylbenzene                     | BRL         | mg/kg dry        | 0.0093       | 0.00071       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 1,2-Dibromoethane                          | BRL         | mg/kg dry        | 0.0093       | 0.00037       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 1,2-Dichlorobenzene                        | BRL         | mg/kg dry        | 0.0093       | 0.00044       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 1,2-Dichloroethane                         | BRL         | mg/kg dry        | 0.0093       | 0.00055       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 1,2-Dichloropropane                        | BRL         | mg/kg dry        | 0.0093       | 0.00058       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 1,3,5-Trimethylbenzene                     | BRL         | mg/kg dry        | 0.0093       | 0.00070       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 1,3-Dichlorobenzene                        | BRL         | mg/kg dry        | 0.0093       | 0.00062       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 1,3-Dichloropropane                        | BRL         | mg/kg dry        | 0.0093       | 0.00047       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 1,4-Dichlorobenzene                        | BRL         | mg/kg dry        | 0.0093       | 0.00037       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 2,2-Dichloropropane                        | BRL         | mg/kg dry        | 0.0093       | 0.00044       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 2-Chlorotoluene                            | BRL         | mg/kg dry        | 0.0093       | 0.00048       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 4-Chlorotoluene                            | BRL         | mg/kg dry        | 0.0093       | 0.00055       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| 4-Isopropyltoluene                         | BRL         | mg/kg dry        | 0.0093       | 0.00045       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| <b>Acetone</b>                             | <b>0.11</b> | <b>mg/kg dry</b> | <b>0.093</b> | <b>0.0023</b> | <b>1</b>        | <b>8260B</b> | <b>10/29/18 22:31</b> | <b>JLB</b> | <b>P8J0573</b> |
| Benzene                                    | BRL         | mg/kg dry        | 0.0056       | 0.00054       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| Bromobenzene                               | BRL         | mg/kg dry        | 0.0093       | 0.00078       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| Bromochloromethane                         | BRL         | mg/kg dry        | 0.0093       | 0.00051       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| Bromodichloromethane                       | BRL         | mg/kg dry        | 0.0093       | 0.00052       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| Bromoform                                  | BRL         | mg/kg dry        | 0.0093       | 0.0011        | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| Bromomethane                               | BRL         | mg/kg dry        | 0.019        | 0.0011        | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| Carbon Tetrachloride                       | BRL         | mg/kg dry        | 0.0093       | 0.00046       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| Chlorobenzene                              | BRL         | mg/kg dry        | 0.0093       | 0.00049       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| Chloroethane                               | BRL         | mg/kg dry        | 0.019        | 0.00078       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| Chloroform                                 | BRL         | mg/kg dry        | 0.0093       | 0.00067       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| Chloromethane                              | BRL         | mg/kg dry        | 0.0093       | 0.00063       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| cis-1,2-Dichloroethylene                   | BRL         | mg/kg dry        | 0.0093       | 0.00040       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |
| cis-1,3-Dichloropropylene                  | BRL         | mg/kg dry        | 0.0093       | 0.00031       | 1               | 8260B        | 10/29/18 22:31        | JLB        | P8J0573        |

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Keith C. Seramur PGPC  
Attn: Keith Seramur  
165 Knoll Dr.  
Boone, NC 28607

Project: NCDOT U-5888

Sample Matrix: Solid

Client Sample ID: S-49  
Prism Sample ID: 8100467-01  
Prism Work Order: 8100467  
Time Collected: 10/23/18 15:50  
Time Submitted: 10/27/18 13:25

| Parameter                        | Result | Units     | Report Limit | MDL     | Dilution Factor | Method | Analysis Date/Time | Analyst | Batch ID |
|----------------------------------|--------|-----------|--------------|---------|-----------------|--------|--------------------|---------|----------|
| Dibromochloromethane             | BRL    | mg/kg dry | 0.0093       | 0.00038 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| Dichlorodifluoromethane          | BRL    | mg/kg dry | 0.0093       | 0.00042 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| Ethylbenzene                     | BRL    | mg/kg dry | 0.0093       | 0.00036 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| Isopropyl Ether                  | BRL    | mg/kg dry | 0.0093       | 0.00038 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| Isopropylbenzene (Cumene)        | BRL    | mg/kg dry | 0.0093       | 0.00055 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| m,p-Xylenes                      | BRL    | mg/kg dry | 0.019        | 0.00086 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| Methyl Butyl Ketone (2-Hexanone) | BRL    | mg/kg dry | 0.093        | 0.00084 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| Methyl Ethyl Ketone (2-Butanone) | BRL    | mg/kg dry | 0.19         | 0.00084 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| Methyl Isobutyl Ketone           | BRL    | mg/kg dry | 0.093        | 0.00079 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| Methylene Chloride               | BRL    | mg/kg dry | 0.019        | 0.00052 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| Methyl-tert-Butyl Ether          | BRL    | mg/kg dry | 0.019        | 0.00030 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| Naphthalene                      | BRL    | mg/kg dry | 0.019        | 0.00029 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| n-Butylbenzene                   | BRL    | mg/kg dry | 0.0093       | 0.00047 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| n-Propylbenzene                  | BRL    | mg/kg dry | 0.0093       | 0.00055 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| o-Xylene                         | BRL    | mg/kg dry | 0.0093       | 0.00038 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| sec-Butylbenzene                 | BRL    | mg/kg dry | 0.0093       | 0.00045 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| Styrene                          | BRL    | mg/kg dry | 0.0093       | 0.00056 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| tert-Butylbenzene                | BRL    | mg/kg dry | 0.0093       | 0.00031 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| Tetrachloroethylene              | BRL    | mg/kg dry | 0.0093       | 0.00044 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| Toluene                          | BRL    | mg/kg dry | 0.0093       | 0.00053 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| trans-1,2-Dichloroethylene       | BRL    | mg/kg dry | 0.0093       | 0.00056 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| trans-1,3-Dichloropropylene      | BRL    | mg/kg dry | 0.0093       | 0.00049 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| Trichloroethylene                | BRL    | mg/kg dry | 0.0093       | 0.00060 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| Trichlorofluoromethane           | BRL    | mg/kg dry | 0.0093       | 0.00060 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| Vinyl acetate                    | BRL    | mg/kg dry | 0.047        | 0.0013  | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| Vinyl chloride                   | BRL    | mg/kg dry | 0.0093       | 0.00045 | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |
| Xylenes, total                   | BRL    | mg/kg dry | 0.028        | 0.0017  | 1               | 8260B  | 10/29/18 22:31     | JLB     | P8J0573  |

| Surrogate            | Recovery | Control Limits |
|----------------------|----------|----------------|
| 4-Bromofluorobenzene | 106 %    | 70-130         |
| Dibromofluoromethane | 106 %    | 84-123         |
| Toluene-d8           | 107 %    | 76-129         |



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Project: NCDOT U-5888

Prism Work Order: 8100467  
Time Submitted: 10/27/2018 1:25:00PM

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte                          | Result | Reporting Limit | Units     | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|----------------------------------|--------|-----------------|-----------|-------------|---------------|------|-------------|-----|-----------|-------|
| <b>Batch P8J0573 - 5035</b>      |        |                 |           |             |               |      |             |     |           |       |
| <b>Blank (P8J0573-BLK1)</b>      |        |                 |           |             |               |      |             |     |           |       |
| Prepared & Analyzed: 10/29/18    |        |                 |           |             |               |      |             |     |           |       |
| 1,1,1,2-Tetrachloroethane        | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 1,1,1-Trichloroethane            | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 1,1,1,2-Tetrachloroethane        | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 1,1,2-Trichloroethane            | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 1,1-Dichloroethane               | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 1,1-Dichloroethylene             | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 1,1-Dichloropropylene            | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 1,2,3-Trichlorobenzene           | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 1,2,3-Trichloropropane           | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 1,2,4-Trichlorobenzene           | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 1,2,4-Trimethylbenzene           | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 1,2-Dibromoethane                | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 1,2-Dichlorobenzene              | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 1,2-Dichloroethane               | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 1,2-Dichloropropane              | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 1,3,5-Trimethylbenzene           | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 1,3-Dichlorobenzene              | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 1,3-Dichloropropane              | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 1,4-Dichlorobenzene              | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 2,2-Dichloropropane              | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 2-Chlorotoluene                  | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 4-Chlorotoluene                  | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| 4-Isopropyltoluene               | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Acetone                          | BRL    | 0.050           | mg/kg wet |             |               |      |             |     |           |       |
| Benzene                          | BRL    | 0.0030          | mg/kg wet |             |               |      |             |     |           |       |
| Bromobenzene                     | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Bromochloromethane               | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Bromodichloromethane             | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Bromoform                        | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Bromomethane                     | BRL    | 0.010           | mg/kg wet |             |               |      |             |     |           |       |
| Carbon Tetrachloride             | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Chlorobenzene                    | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Chloroethane                     | BRL    | 0.010           | mg/kg wet |             |               |      |             |     |           |       |
| Chloroform                       | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Chloromethane                    | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| cis-1,2-Dichloroethylene         | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| cis-1,3-Dichloropropylene        | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Dibromochloromethane             | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Dichlorodifluoromethane          | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Ethylbenzene                     | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Isopropyl Ether                  | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Isopropylbenzene (Cumene)        | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| m,p-Xylenes                      | BRL    | 0.010           | mg/kg wet |             |               |      |             |     |           |       |
| Methyl Butyl Ketone (2-Hexanone) | BRL    | 0.050           | mg/kg wet |             |               |      |             |     |           |       |
| Methyl Ethyl Ketone (2-Butanone) | BRL    | 0.10            | mg/kg wet |             |               |      |             |     |           |       |
| Methyl Isobutyl Ketone           | BRL    | 0.050           | mg/kg wet |             |               |      |             |     |           |       |

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Project: NCDOT U-5888

Prism Work Order: 8100467  
 Time Submitted: 10/27/2018 1:25:00PM

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte                         | Result | Reporting Limit | Units     | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------------------------------|--------|-----------------|-----------|-------------|---------------|------|-------------|-----|-----------|-------|
| <b>Batch P8J0573 - 5035</b>     |        |                 |           |             |               |      |             |     |           |       |
| <b>Blank (P8J0573-BLK1)</b>     |        |                 |           |             |               |      |             |     |           |       |
| Prepared & Analyzed: 10/29/18   |        |                 |           |             |               |      |             |     |           |       |
| Methylene Chloride              | BRL    | 0.010           | mg/kg wet |             |               |      |             |     |           |       |
| Methyl-tert-Butyl Ether         | BRL    | 0.010           | mg/kg wet |             |               |      |             |     |           |       |
| Naphthalene                     | BRL    | 0.010           | mg/kg wet |             |               |      |             |     |           |       |
| n-Butylbenzene                  | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| n-Propylbenzene                 | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| o-Xylene                        | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| sec-Butylbenzene                | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Styrene                         | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| tert-Butylbenzene               | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Tetrachloroethylene             | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Toluene                         | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| trans-1,2-Dichloroethylene      | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| trans-1,3-Dichloropropylene     | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Trichloroethylene               | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Trichlorofluoromethane          | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Vinyl acetate                   | BRL    | 0.025           | mg/kg wet |             |               |      |             |     |           |       |
| Vinyl chloride                  | BRL    | 0.0050          | mg/kg wet |             |               |      |             |     |           |       |
| Xylenes, total                  | BRL    | 0.015           | mg/kg wet |             |               |      |             |     |           |       |
| Surrogate: 4-Bromofluorobenzene | 52.1   |                 | ug/L      | 50.00       |               | 104  | 70-130      |     |           |       |
| Surrogate: Dibromofluoromethane | 51.3   |                 | ug/L      | 50.00       |               | 103  | 84-123      |     |           |       |
| Surrogate: Toluene-d8           | 53.3   |                 | ug/L      | 50.00       |               | 107  | 76-129      |     |           |       |
| <b>LCS (P8J0573-BS1)</b>        |        |                 |           |             |               |      |             |     |           |       |
| Prepared & Analyzed: 10/29/18   |        |                 |           |             |               |      |             |     |           |       |
| 1,1,1,2-Tetrachloroethane       | 0.0458 | 0.0050          | mg/kg wet | 0.05000     |               | 92   | 72-115      |     |           |       |
| 1,1,1-Trichloroethane           | 0.0406 | 0.0050          | mg/kg wet | 0.05000     |               | 81   | 67-131      |     |           |       |
| 1,1,2,2-Tetrachloroethane       | 0.0515 | 0.0050          | mg/kg wet | 0.05000     |               | 103  | 56-126      |     |           |       |
| 1,1,2-Trichloroethane           | 0.0460 | 0.0050          | mg/kg wet | 0.05000     |               | 92   | 70-133      |     |           |       |
| 1,1-Dichloroethane              | 0.0389 | 0.0050          | mg/kg wet | 0.05000     |               | 78   | 74-127      |     |           |       |
| 1,1-Dichloroethylene            | 0.0406 | 0.0050          | mg/kg wet | 0.05000     |               | 81   | 67-149      |     |           |       |
| 1,1-Dichloropropylene           | 0.0438 | 0.0050          | mg/kg wet | 0.05000     |               | 88   | 71-130      |     |           |       |
| 1,2,3-Trichlorobenzene          | 0.0509 | 0.0050          | mg/kg wet | 0.05000     |               | 102  | 68-130      |     |           |       |
| 1,2,3-Trichloropropane          | 0.0500 | 0.0050          | mg/kg wet | 0.05000     |               | 100  | 60-137      |     |           |       |
| 1,2,4-Trichlorobenzene          | 0.0515 | 0.0050          | mg/kg wet | 0.05000     |               | 103  | 66-125      |     |           |       |
| 1,2,4-Trimethylbenzene          | 0.0510 | 0.0050          | mg/kg wet | 0.05000     |               | 102  | 69-129      |     |           |       |
| 1,2-Dibromoethane               | 0.0457 | 0.0050          | mg/kg wet | 0.05000     |               | 91   | 70-132      |     |           |       |
| 1,2-Dichlorobenzene             | 0.0488 | 0.0050          | mg/kg wet | 0.05000     |               | 98   | 72-123      |     |           |       |
| 1,2-Dichloroethane              | 0.0424 | 0.0050          | mg/kg wet | 0.05000     |               | 85   | 68-128      |     |           |       |
| 1,2-Dichloropropane             | 0.0431 | 0.0050          | mg/kg wet | 0.05000     |               | 86   | 73-130      |     |           |       |
| 1,3,5-Trimethylbenzene          | 0.0500 | 0.0050          | mg/kg wet | 0.05000     |               | 100  | 69-128      |     |           |       |
| 1,3-Dichlorobenzene             | 0.0484 | 0.0050          | mg/kg wet | 0.05000     |               | 97   | 71-120      |     |           |       |
| 1,3-Dichloropropane             | 0.0463 | 0.0050          | mg/kg wet | 0.05000     |               | 93   | 75-124      |     |           |       |
| 1,4-Dichlorobenzene             | 0.0477 | 0.0050          | mg/kg wet | 0.05000     |               | 95   | 71-123      |     |           |       |
| 2,2-Dichloropropane             | 0.0420 | 0.0050          | mg/kg wet | 0.05000     |               | 84   | 50-142      |     |           |       |
| 2-Chlorotoluene                 | 0.0486 | 0.0050          | mg/kg wet | 0.05000     |               | 97   | 67-124      |     |           |       |
| 4-Chlorotoluene                 | 0.0502 | 0.0050          | mg/kg wet | 0.05000     |               | 100  | 71-126      |     |           |       |
| 4-Isopropyltoluene              | 0.0503 | 0.0050          | mg/kg wet | 0.05000     |               | 101  | 68-129      |     |           |       |
| Acetone                         | 0.0813 | 0.050           | mg/kg wet | 0.1000      |               | 81   | 29-198      |     |           |       |

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Prism Work Order: 8100467  
Time Submitted: 10/27/2018 1:25:00PM

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte                          | Result | Reporting Limit | Units     | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|----------------------------------|--------|-----------------|-----------|-------------|---------------|------|-------------|-----|-----------|-------|
| <b>Batch P8J0573 - 5035</b>      |        |                 |           |             |               |      |             |     |           |       |
| <b>LCS (P8J0573-BS1)</b>         |        |                 |           |             |               |      |             |     |           |       |
| Prepared & Analyzed: 10/29/18    |        |                 |           |             |               |      |             |     |           |       |
| Benzene                          | 0.0431 | 0.0030          | mg/kg wet | 0.05000     |               | 86   | 74-127      |     |           |       |
| Bromobenzene                     | 0.0482 | 0.0050          | mg/kg wet | 0.05000     |               | 96   | 73-125      |     |           |       |
| Bromochloromethane               | 0.0435 | 0.0050          | mg/kg wet | 0.05000     |               | 87   | 72-134      |     |           |       |
| Bromodichloromethane             | 0.0441 | 0.0050          | mg/kg wet | 0.05000     |               | 88   | 75-122      |     |           |       |
| Bromoform                        | 0.0465 | 0.0050          | mg/kg wet | 0.05000     |               | 93   | 66-135      |     |           |       |
| Bromomethane                     | 0.0368 | 0.010           | mg/kg wet | 0.05000     |               | 74   | 20-180      |     |           |       |
| Carbon Tetrachloride             | 0.0427 | 0.0050          | mg/kg wet | 0.05000     |               | 85   | 64-143      |     |           |       |
| Chlorobenzene                    | 0.0447 | 0.0050          | mg/kg wet | 0.05000     |               | 89   | 74-118      |     |           |       |
| Chloroethane                     | 0.0354 | 0.010           | mg/kg wet | 0.05000     |               | 71   | 33-149      |     |           |       |
| Chloroform                       | 0.0421 | 0.0050          | mg/kg wet | 0.05000     |               | 84   | 73-127      |     |           |       |
| Chloromethane                    | 0.0359 | 0.0050          | mg/kg wet | 0.05000     |               | 72   | 45-143      |     |           |       |
| cis-1,2-Dichloroethylene         | 0.0410 | 0.0050          | mg/kg wet | 0.05000     |               | 82   | 76-134      |     |           |       |
| cis-1,3-Dichloropropylene        | 0.0446 | 0.0050          | mg/kg wet | 0.05000     |               | 89   | 71-125      |     |           |       |
| Dibromochloromethane             | 0.0471 | 0.0050          | mg/kg wet | 0.05000     |               | 94   | 73-122      |     |           |       |
| Dichlorodifluoromethane          | 0.0315 | 0.0050          | mg/kg wet | 0.05000     |               | 63   | 26-146      |     |           |       |
| Ethylbenzene                     | 0.0461 | 0.0050          | mg/kg wet | 0.05000     |               | 92   | 74-128      |     |           |       |
| Isopropyl Ether                  | 0.0425 | 0.0050          | mg/kg wet | 0.05000     |               | 85   | 59-159      |     |           |       |
| Isopropylbenzene (Cumene)        | 0.0512 | 0.0050          | mg/kg wet | 0.05000     |               | 102  | 68-126      |     |           |       |
| m,p-Xylenes                      | 0.0947 | 0.010           | mg/kg wet | 0.1000      |               | 95   | 75-124      |     |           |       |
| Methyl Butyl Ketone (2-Hexanone) | 0.0497 | 0.050           | mg/kg wet | 0.05000     |               | 99   | 61-157      |     |           | J     |
| Methyl Ethyl Ketone (2-Butanone) | 0.0424 | 0.10            | mg/kg wet | 0.05000     |               | 85   | 63-149      |     |           | J     |
| Methyl Isobutyl Ketone           | 0.0454 | 0.050           | mg/kg wet | 0.05000     |               | 91   | 57-162      |     |           | J     |
| Methylene Chloride               | 0.0412 | 0.010           | mg/kg wet | 0.05000     |               | 82   | 74-129      |     |           |       |
| Methyl-tert-Butyl Ether          | 0.0443 | 0.010           | mg/kg wet | 0.05000     |               | 89   | 70-130      |     |           |       |
| Naphthalene                      | 0.0535 | 0.010           | mg/kg wet | 0.05000     |               | 107  | 57-157      |     |           |       |
| n-Butylbenzene                   | 0.0520 | 0.0050          | mg/kg wet | 0.05000     |               | 104  | 65-135      |     |           |       |
| n-Propylbenzene                  | 0.0514 | 0.0050          | mg/kg wet | 0.05000     |               | 103  | 67-130      |     |           |       |
| o-Xylene                         | 0.0467 | 0.0050          | mg/kg wet | 0.05000     |               | 93   | 74-126      |     |           |       |
| sec-Butylbenzene                 | 0.0515 | 0.0050          | mg/kg wet | 0.05000     |               | 103  | 66-131      |     |           |       |
| Styrene                          | 0.0466 | 0.0050          | mg/kg wet | 0.05000     |               | 93   | 77-121      |     |           |       |
| tert-Butylbenzene                | 0.0507 | 0.0050          | mg/kg wet | 0.05000     |               | 101  | 67-132      |     |           |       |
| Tetrachloroethylene              | 0.0403 | 0.0050          | mg/kg wet | 0.05000     |               | 81   | 68-130      |     |           |       |
| Toluene                          | 0.0423 | 0.0050          | mg/kg wet | 0.05000     |               | 85   | 71-129      |     |           |       |
| trans-1,2-Dichloroethylene       | 0.0418 | 0.0050          | mg/kg wet | 0.05000     |               | 84   | 73-132      |     |           |       |
| trans-1,3-Dichloropropylene      | 0.0441 | 0.0050          | mg/kg wet | 0.05000     |               | 88   | 68-123      |     |           |       |
| Trichloroethylene                | 0.0431 | 0.0050          | mg/kg wet | 0.05000     |               | 86   | 75-133      |     |           |       |
| Trichlorofluoromethane           | 0.0387 | 0.0050          | mg/kg wet | 0.05000     |               | 77   | 44-146      |     |           |       |
| Vinyl acetate                    | 0.0477 | 0.025           | mg/kg wet | 0.05000     |               | 95   | 85-161      |     |           |       |
| Vinyl chloride                   | 0.0405 | 0.0050          | mg/kg wet | 0.05000     |               | 81   | 48-147      |     |           |       |
| Xylenes, total                   | 0.141  | 0.015           | mg/kg wet | 0.1500      |               | 94   | 74-126      |     |           |       |
| Surrogate: 4-Bromofluorobenzene  | 50.8   |                 | ug/L      | 50.00       |               | 102  | 70-130      |     |           |       |
| Surrogate: Dibromofluoromethane  | 50.6   |                 | ug/L      | 50.00       |               | 101  | 84-123      |     |           |       |
| Surrogate: Toluene-d8            | 52.4   |                 | ug/L      | 50.00       |               | 105  | 76-129      |     |           |       |

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Prism Work Order: 8100467  
Time Submitted: 10/27/2018 1:25:00PM

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte                          | Result | Reporting Limit | Units     | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|----------------------------------|--------|-----------------|-----------|-------------|---------------|------|-------------|-----|-----------|-------|
| <b>Batch P8J0573 - 5035</b>      |        |                 |           |             |               |      |             |     |           |       |
| <b>LCS Dup (P8J0573-BSD1)</b>    |        |                 |           |             |               |      |             |     |           |       |
| Prepared & Analyzed: 10/29/18    |        |                 |           |             |               |      |             |     |           |       |
| 1,1,1,2-Tetrachloroethane        | 0.0481 | 0.0050          | mg/kg wet | 0.05000     |               | 96   | 72-115      | 5   | 20        |       |
| 1,1,1-Trichloroethane            | 0.0410 | 0.0050          | mg/kg wet | 0.05000     |               | 82   | 67-131      | 1   | 20        |       |
| 1,1,2,2-Tetrachloroethane        | 0.0546 | 0.0050          | mg/kg wet | 0.05000     |               | 109  | 56-126      | 6   | 20        |       |
| 1,1,2-Trichloroethane            | 0.0493 | 0.0050          | mg/kg wet | 0.05000     |               | 99   | 70-133      | 7   | 20        |       |
| 1,1-Dichloroethane               | 0.0392 | 0.0050          | mg/kg wet | 0.05000     |               | 78   | 74-127      | 0.6 | 20        |       |
| 1,1-Dichloroethylene             | 0.0400 | 0.0050          | mg/kg wet | 0.05000     |               | 80   | 67-149      | 1   | 20        |       |
| 1,1-Dichloropropylene            | 0.0440 | 0.0050          | mg/kg wet | 0.05000     |               | 88   | 71-130      | 0.5 | 20        |       |
| 1,2,3-Trichlorobenzene           | 0.0534 | 0.0050          | mg/kg wet | 0.05000     |               | 107  | 68-130      | 5   | 20        |       |
| 1,2,3-Trichloropropane           | 0.0536 | 0.0050          | mg/kg wet | 0.05000     |               | 107  | 60-137      | 7   | 20        |       |
| 1,2,4-Trichlorobenzene           | 0.0534 | 0.0050          | mg/kg wet | 0.05000     |               | 107  | 66-125      | 4   | 20        |       |
| 1,2,4-Trimethylbenzene           | 0.0514 | 0.0050          | mg/kg wet | 0.05000     |               | 103  | 69-129      | 0.8 | 20        |       |
| 1,2-Dibromoethane                | 0.0497 | 0.0050          | mg/kg wet | 0.05000     |               | 99   | 70-132      | 8   | 20        |       |
| 1,2-Dichlorobenzene              | 0.0502 | 0.0050          | mg/kg wet | 0.05000     |               | 100  | 72-123      | 3   | 20        |       |
| 1,2-Dichloroethane               | 0.0439 | 0.0050          | mg/kg wet | 0.05000     |               | 88   | 68-128      | 4   | 20        |       |
| 1,2-Dichloropropane              | 0.0446 | 0.0050          | mg/kg wet | 0.05000     |               | 89   | 73-130      | 3   | 20        |       |
| 1,3,5-Trimethylbenzene           | 0.0505 | 0.0050          | mg/kg wet | 0.05000     |               | 101  | 69-128      | 0.9 | 20        |       |
| 1,3-Dichlorobenzene              | 0.0495 | 0.0050          | mg/kg wet | 0.05000     |               | 99   | 71-120      | 2   | 20        |       |
| 1,3-Dichloropropane              | 0.0494 | 0.0050          | mg/kg wet | 0.05000     |               | 99   | 75-124      | 6   | 20        |       |
| 1,4-Dichlorobenzene              | 0.0489 | 0.0050          | mg/kg wet | 0.05000     |               | 98   | 71-123      | 2   | 20        |       |
| 2,2-Dichloropropane              | 0.0422 | 0.0050          | mg/kg wet | 0.05000     |               | 84   | 50-142      | 0.5 | 20        |       |
| 2-Chlorotoluene                  | 0.0495 | 0.0050          | mg/kg wet | 0.05000     |               | 99   | 67-124      | 2   | 20        |       |
| 4-Chlorotoluene                  | 0.0512 | 0.0050          | mg/kg wet | 0.05000     |               | 102  | 71-126      | 2   | 20        |       |
| 4-Isopropyltoluene               | 0.0504 | 0.0050          | mg/kg wet | 0.05000     |               | 101  | 68-129      | 0.1 | 20        |       |
| Acetone                          | 0.0872 | 0.050           | mg/kg wet | 0.1000      |               | 87   | 29-198      | 7   | 20        |       |
| Benzene                          | 0.0438 | 0.0030          | mg/kg wet | 0.05000     |               | 88   | 74-127      | 2   | 20        |       |
| Bromobenzene                     | 0.0493 | 0.0050          | mg/kg wet | 0.05000     |               | 99   | 73-125      | 2   | 20        |       |
| Bromochloromethane               | 0.0442 | 0.0050          | mg/kg wet | 0.05000     |               | 88   | 72-134      | 2   | 20        |       |
| Bromodichloromethane             | 0.0454 | 0.0050          | mg/kg wet | 0.05000     |               | 91   | 75-122      | 3   | 20        |       |
| Bromoform                        | 0.0502 | 0.0050          | mg/kg wet | 0.05000     |               | 100  | 66-135      | 8   | 20        |       |
| Bromomethane                     | 0.0356 | 0.010           | mg/kg wet | 0.05000     |               | 71   | 20-180      | 3   | 20        |       |
| Carbon Tetrachloride             | 0.0434 | 0.0050          | mg/kg wet | 0.05000     |               | 87   | 64-143      | 1   | 20        |       |
| Chlorobenzene                    | 0.0459 | 0.0050          | mg/kg wet | 0.05000     |               | 92   | 74-118      | 3   | 20        |       |
| Chloroethane                     | 0.0379 | 0.010           | mg/kg wet | 0.05000     |               | 76   | 33-149      | 7   | 20        |       |
| Chloroform                       | 0.0429 | 0.0050          | mg/kg wet | 0.05000     |               | 86   | 73-127      | 2   | 20        |       |
| Chloromethane                    | 0.0353 | 0.0050          | mg/kg wet | 0.05000     |               | 71   | 45-143      | 2   | 20        |       |
| cis-1,2-Dichloroethylene         | 0.0422 | 0.0050          | mg/kg wet | 0.05000     |               | 84   | 76-134      | 3   | 20        |       |
| cis-1,3-Dichloropropylene        | 0.0462 | 0.0050          | mg/kg wet | 0.05000     |               | 92   | 71-125      | 3   | 20        |       |
| Dibromochloromethane             | 0.0495 | 0.0050          | mg/kg wet | 0.05000     |               | 99   | 73-122      | 5   | 20        |       |
| Dichlorodifluoromethane          | 0.0309 | 0.0050          | mg/kg wet | 0.05000     |               | 62   | 26-146      | 2   | 20        |       |
| Ethylbenzene                     | 0.0469 | 0.0050          | mg/kg wet | 0.05000     |               | 94   | 74-128      | 2   | 20        |       |
| Isopropyl Ether                  | 0.0439 | 0.0050          | mg/kg wet | 0.05000     |               | 88   | 59-159      | 3   | 20        |       |
| Isopropylbenzene (Cumene)        | 0.0512 | 0.0050          | mg/kg wet | 0.05000     |               | 102  | 68-126      | 0.1 | 20        |       |
| m,p-Xylenes                      | 0.0965 | 0.010           | mg/kg wet | 0.1000      |               | 96   | 75-124      | 2   | 20        |       |
| Methyl Butyl Ketone (2-Hexanone) | 0.0556 | 0.050           | mg/kg wet | 0.05000     |               | 111  | 61-157      | 11  | 20        |       |
| Methyl Ethyl Ketone (2-Butanone) | 0.0459 | 0.10            | mg/kg wet | 0.05000     |               | 92   | 63-149      | 8   | 20        | J     |
| Methyl Isobutyl Ketone           | 0.0505 | 0.050           | mg/kg wet | 0.05000     |               | 101  | 57-162      | 11  | 20        |       |

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Project: NCDOT U-5888

Prism Work Order: 8100467  
Time Submitted: 10/27/2018 1:25:00PM

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte  | Result | Reporting Limit | Units     | Spike Level | Source Result | %REC | %REC Limits | RPD  | RPD Limit | Notes |
|--|--------|-----------------|-----------|-------------|---------------|------|-------------|------|-----------|-------|
| <b>Batch P8J0573 - 5035</b>                              |        |                 |           |             |               |      |             |      |           |       |
| <b>LCS Dup (P8J0573-BSD1)</b>                            |        |                 |           |             |               |      |             |      |           |       |
| Prepared & Analyzed: 10/29/18                            |        |                 |           |             |               |      |             |      |           |       |
| Methylene Chloride                                       | 0.0428 | 0.010           | mg/kg wet | 0.05000     |               | 86   | 74-129      | 4    | 20        |       |
| Methyl-tert-Butyl Ether                                  | 0.0469 | 0.010           | mg/kg wet | 0.05000     |               | 94   | 70-130      | 6    | 20        |       |
| Naphthalene  | 0.0572 | 0.010           | mg/kg wet | 0.05000     |               | 114  | 57-157      | 7    | 20        |       |
| n-Butylbenzene   | 0.0519 | 0.0050          | mg/kg wet | 0.05000     |               | 104  | 65-135      | 0.3  | 20        |       |
| n-Propylbenzene  | 0.0517 | 0.0050          | mg/kg wet | 0.05000     |               | 103  | 67-130      | 0.5  | 20        |       |
| o-Xylene   | 0.0481 | 0.0050          | mg/kg wet | 0.05000     |               | 96   | 74-126      | 3    | 20        |       |
| sec-Butylbenzene   | 0.0515 | 0.0050          | mg/kg wet | 0.05000     |               | 103  | 66-131      | 0.06 | 20        |       |
| Styrene  | 0.0482 | 0.0050          | mg/kg wet | 0.05000     |               | 96   | 77-121      | 3    | 20        |       |
| tert-Butylbenzene  | 0.0508 | 0.0050          | mg/kg wet | 0.05000     |               | 102  | 67-132      | 0.3  | 20        |       |
| Tetrachloroethylene                                      | 0.0408 | 0.0050          | mg/kg wet | 0.05000     |               | 82   | 68-130      | 1    | 20        |       |
| Toluene  | 0.0428 | 0.0050          | mg/kg wet | 0.05000     |               | 86   | 71-129      | 1    | 20        |       |
| trans-1,2-Dichloroethylene                               | 0.0423 | 0.0050          | mg/kg wet | 0.05000     |               | 85   | 73-132      | 1    | 20        |       |
| trans-1,3-Dichloropropylene                              | 0.0465 | 0.0050          | mg/kg wet | 0.05000     |               | 93   | 68-123      | 5    | 20        |       |
| Trichloroethylene  | 0.0431 | 0.0050          | mg/kg wet | 0.05000     |               | 86   | 75-133      | 0.02 | 20        |       |
| Trichlorofluoromethane                                   | 0.0385 | 0.0050          | mg/kg wet | 0.05000     |               | 77   | 44-146      | 0.5  | 20        |       |
| Vinyl acetate  | 0.0514 | 0.025           | mg/kg wet | 0.05000     |               | 103  | 85-161      | 7    | 20        |       |
| Vinyl chloride   | 0.0403 | 0.0050          | mg/kg wet | 0.05000     |               | 81   | 48-147      | 0.5  | 20        |       |
| Xylenes, total   | 0.145  | 0.015           | mg/kg wet | 0.1500      |               | 96   | 74-126      | 2    | 20        |       |
| Surrogate: 4-Bromofluorobenzene                          | 51.0   |                 | ug/L      | 50.00       |               | 102  | 70-130      |      |           |       |
| Surrogate: Dibromofluoromethane                          | 50.8   |                 | ug/L      | 50.00       |               | 102  | 84-123      |      |           |       |
| Surrogate: Toluene-d8                                    | 53.2   |                 | ug/L      | 50.00       |               | 106  | 76-129      |      |           |       |
| <b>Matrix Spike (P8J0573-MS1)</b>                        |        |                 |           |             |               |      |             |      |           |       |
| Source: 8100467-01 Prepared: 10/29/18 Analyzed: 10/30/18 |        |                 |           |             |               |      |             |      |           |       |
| 1,1,1,2-Tetrachloroethane                                | 0.0362 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 50   | 60-120      |      |           | M     |
| 1,1,1-Trichloroethane                                    | 0.0381 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 52   | 52-139      |      |           |       |
| 1,1,2,2-Tetrachloroethane                                | 0.0346 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 47   | 39-135      |      |           |       |
| 1,1,2-Trichloroethane                                    | 0.0364 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 50   | 44-140      |      |           |       |
| 1,1-Dichloroethane                                       | 0.0359 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 49   | 59-137      |      |           | M     |
| 1,1-Dichloroethylene                                     | 0.0389 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 53   | 54-162      |      |           | M     |
| 1,1-Dichloropropylene                                    | 0.0371 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 51   | 55-137      |      |           | M     |
| 1,2,3-Trichlorobenzene                                   | 0.0130 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 18   | 34-120      |      |           | M     |
| 1,2,3-Trichloropropane                                   | 0.0354 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 48   | 45-139      |      |           |       |
| 1,2,4-Trichlorobenzene                                   | 0.0136 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 19   | 35-116      |      |           | M     |
| 1,2,4-Trimethylbenzene                                   | 0.0289 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 40   | 38-142      |      |           |       |
| 1,2-Dibromoethane  | 0.0338 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 46   | 49-132      |      |           | M     |
| 1,2-Dichlorobenzene                                      | 0.0215 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 29   | 42-130      |      |           | M     |
| 1,2-Dichloroethane                                       | 0.0367 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 50   | 51-131      |      |           | M     |
| 1,2-Dichloropropane                                      | 0.0371 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 51   | 55-138      |      |           | M     |
| 1,3,5-Trimethylbenzene                                   | 0.0302 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 41   | 44-140      |      |           | M     |
| 1,3-Dichlorobenzene                                      | 0.0217 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 30   | 41-129      |      |           | M     |
| 1,3-Dichloropropane                                      | 0.0363 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 50   | 53-129      |      |           | M     |
| 1,4-Dichlorobenzene                                      | 0.0204 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 28   | 44-134      |      |           | M     |
| 2,2-Dichloropropane                                      | 0.0381 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 52   | 30-147      |      |           |       |
| 2-Chlorotoluene  | 0.0282 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 39   | 46-132      |      |           | M     |
| 4-Chlorotoluene  | 0.0262 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 36   | 44-135      |      |           | M     |
| 4-Isopropyltoluene                                       | 0.0275 | 0.0073          | mg/kg dry | 0.07309     | BRL           | 38   | 32-144      |      |           |       |
| Acetone  | 0.0679 | 0.073           | mg/kg dry | 0.1462      | 0.114         | NR   | 34-143      |      |           | M, J  |

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Project: NCDOT U-5888

Prism Work Order: 8100467  
Time Submitted: 10/27/2018 1:25:00PM

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte                           | Result                    | Reporting Limit | Units     | Spike Level               | Source Result | %REC                      | %REC Limits | RPD | RPD Limit | Notes |
|-----------------------------------|---------------------------|-----------------|-----------|---------------------------|---------------|---------------------------|-------------|-----|-----------|-------|
| <b>Batch P8J0573 - 5035</b>       |                           |                 |           |                           |               |                           |             |     |           |       |
| <b>Matrix Spike (P8J0573-MS1)</b> | <b>Source: 8100467-01</b> |                 |           | <b>Prepared: 10/29/18</b> |               | <b>Analyzed: 10/30/18</b> |             |     |           |       |
| Benzene                           | 0.0369                    | 0.0044          | mg/kg dry | 0.07309                   | BRL           | 51                        | 60-135      |     |           | M     |
| Bromobenzene                      | 0.0263                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 36                        | 45-135      |     |           | M     |
| Bromochloromethane                | 0.0373                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 51                        | 55-136      |     |           | M     |
| Bromodichloromethane              | 0.0368                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 50                        | 55-127      |     |           | M     |
| Bromoform                         | 0.0319                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 44                        | 40-136      |     |           |       |
| Bromomethane                      | 0.00699                   | 0.015           | mg/kg dry | 0.07309                   | BRL           | 10                        | 30-137      |     |           | M, J  |
| Carbon Tetrachloride              | 0.0388                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 53                        | 48-153      |     |           |       |
| Chlorobenzene                     | 0.0288                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 39                        | 57-125      |     |           | M     |
| Chloroethane                      | 0.0414                    | 0.015           | mg/kg dry | 0.07309                   | BRL           | 57                        | 16-177      |     |           |       |
| Chloroform                        | 0.0375                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 51                        | 56-137      |     |           | M     |
| Chloromethane                     | 0.0217                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 30                        | 40-145      |     |           | M     |
| cis-1,2-Dichloroethylene          | 0.0350                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 48                        | 58-140      |     |           | M     |
| cis-1,3-Dichloropropylene         | 0.0333                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 46                        | 42-135      |     |           |       |
| Dibromochloromethane              | 0.0365                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 50                        | 49-127      |     |           |       |
| Dichlorodifluoromethane           | 0.0312                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 43                        | 25-151      |     |           |       |
| Ethylbenzene                      | 0.0335                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 46                        | 44-144      |     |           |       |
| Isopropyl Ether                   | 0.0370                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 51                        | 51-155      |     |           |       |
| Isopropylbenzene (Cumene)         | 0.0341                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 47                        | 41-140      |     |           |       |
| m,p-Xylenes                       | 0.0660                    | 0.015           | mg/kg dry | 0.1462                    | BRL           | 45                        | 36-148      |     |           |       |
| Methyl Butyl Ketone (2-Hexanone)  | 0.0318                    | 0.073           | mg/kg dry | 0.07309                   | BRL           | 44                        | 30-147      |     |           | J     |
| Methyl Ethyl Ketone (2-Butanone)  | 0.0339                    | 0.15            | mg/kg dry | 0.07309                   | BRL           | 46                        | 24-160      |     |           | J     |
| Methyl Isobutyl Ketone            | 0.0348                    | 0.073           | mg/kg dry | 0.07309                   | BRL           | 48                        | 25-163      |     |           | J     |
| Methylene Chloride                | 0.0379                    | 0.015           | mg/kg dry | 0.07309                   | BRL           | 52                        | 53-144      |     |           | M     |
| Methyl-tert-Butyl Ether           | 0.0369                    | 0.015           | mg/kg dry | 0.07309                   | BRL           | 50                        | 49-135      |     |           |       |
| Naphthalene                       | 0.0119                    | 0.015           | mg/kg dry | 0.07309                   | BRL           | 16                        | 32-127      |     |           | M, J  |
| n-Butylbenzene                    | 0.0240                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 33                        | 23-148      |     |           |       |
| n-Propylbenzene                   | 0.0312                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 43                        | 35-144      |     |           |       |
| o-Xylene                          | 0.0322                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 44                        | 43-143      |     |           |       |
| sec-Butylbenzene                  | 0.0291                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 40                        | 34-144      |     |           |       |
| Styrene                           | 0.0250                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 34                        | 42-132      |     |           | M     |
| tert-Butylbenzene                 | 0.0313                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 43                        | 36-150      |     |           |       |
| Tetrachloroethylene               | 0.0305                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 42                        | 47-142      |     |           | M     |
| Toluene                           | 0.0330                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 45                        | 57-135      |     |           | M     |
| trans-1,2-Dichloroethylene        | 0.0362                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 49                        | 58-141      |     |           | M     |
| trans-1,3-Dichloropropylene       | 0.0305                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 42                        | 41-124      |     |           |       |
| Trichloroethylene                 | 0.0349                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 48                        | 38-164      |     |           |       |
| Trichlorofluoromethane            | 0.0398                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 54                        | 30-157      |     |           |       |
| Vinyl acetate                     | BRL                       | 0.037           | mg/kg dry | 0.07309                   | BRL           |                           | 61-154      |     |           | M     |
| Vinyl chloride                    | 0.0352                    | 0.0073          | mg/kg dry | 0.07309                   | BRL           | 48                        | 40-156      |     |           |       |
| Xylenes, total                    | 0.0982                    | 0.022           | mg/kg dry | 0.2193                    | BRL           | 45                        | 36-148      |     |           |       |
| Surrogate: 4-Bromofluorobenzene   | 51.2                      |                 | ug/L      | 50.00                     |               | 102                       | 70-130      |     |           |       |
| Surrogate: Dibromofluoromethane   | 52.4                      |                 | ug/L      | 50.00                     |               | 105                       | 84-123      |     |           |       |
| Surrogate: Toluene-d8             | 53.3                      |                 | ug/L      | 50.00                     |               | 107                       | 76-129      |     |           |       |

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**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte                                | Result | Reporting Limit           | Units     | Spike Level | Source Result             | %REC | %REC Limits               | RPD | RPD Limit | Notes |
|--|--------|---------------------------|-----------|-------------|---------------------------|------|---------------------------|-----|-----------|-------|
| <b>Batch P8J0573 - 5035</b>            |        |                           |           |             |                           |      |                           |     |           |       |
| <b>Matrix Spike Dup (P8J0573-MSD1)</b> |        |                           |           |             |                           |      |                           |     |           |       |
|  |        | <b>Source: 8100467-01</b> |           |             | <b>Prepared: 10/29/18</b> |      | <b>Analyzed: 10/30/18</b> |     |           |       |
| 1,1,1,2-Tetrachloroethane              | 0.0481 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 65   | 60-120                    | 28  | 15        | D     |
| 1,1,1-Trichloroethane                  | 0.0601 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 81   | 52-139                    | 45  | 21        | D     |
| 1,1,2,2-Tetrachloroethane              | 0.0433 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 59   | 39-135                    | 22  | 22        |       |
| 1,1,2-Trichloroethane                  | 0.0433 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 59   | 44-140                    | 17  | 21        |       |
| 1,1-Dichloroethane                     | 0.0500 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 68   | 59-137                    | 33  | 21        | D     |
| 1,1-Dichloroethylene                   | 0.0620 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 84   | 54-162                    | 46  | 22        | D     |
| 1,1-Dichloropropylene                  | 0.0621 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 84   | 55-137                    | 50  | 19        | D     |
| 1,2,3-Trichlorobenzene                 | 0.0192 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 26   | 34-120                    | 39  | 41        | M     |
| 1,2,3-Trichloropropane                 | 0.0436 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 59   | 45-139                    | 21  | 25        |       |
| 1,2,4-Trichlorobenzene                 | 0.0213 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 29   | 35-116                    | 44  | 62        | M     |
| 1,2,4-Trimethylbenzene                 | 0.0474 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 64   | 38-142                    | 49  | 24        | D     |
| 1,2-Dibromoethane                      | 0.0399 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 54   | 49-132                    | 17  | 15        | D     |
| 1,2-Dichlorobenzene                    | 0.0297 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 40   | 42-130                    | 32  | 21        | D, M  |
| 1,2-Dichloroethane                     | 0.0427 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 58   | 51-131                    | 15  | 13        | D     |
| 1,2-Dichloropropane                    | 0.0478 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 65   | 55-138                    | 25  | 16        | D     |
| 1,3,5-Trimethylbenzene                 | 0.0520 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 70   | 44-140                    | 53  | 29        | D     |
| 1,3-Dichlorobenzene                    | 0.0319 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 43   | 41-129                    | 38  | 24        | D     |
| 1,3-Dichloropropane                    | 0.0433 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 58   | 53-129                    | 17  | 15        | D     |
| 1,4-Dichlorobenzene                    | 0.0292 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 40   | 44-134                    | 36  | 21        | D, M  |
| 2,2-Dichloropropane                    | 0.0614 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 83   | 30-147                    | 47  | 20        | D     |
| 2-Chlorotoluene                        | 0.0448 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 61   | 46-132                    | 45  | 29        | D     |
| 4-Chlorotoluene                        | 0.0401 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 54   | 44-135                    | 42  | 23        | D     |
| 4-Isopropyltoluene                     | 0.0529 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 71   | 32-144                    | 63  | 22        | D     |
| Acetone                                | 0.0864 | 0.074                     | mg/kg dry | 0.1479      | 0.114                     | NR   | 34-143                    | 24  | 49        | M     |
| Benzene                                | 0.0516 | 0.0044                    | mg/kg dry | 0.07397     | BRL                       | 70   | 60-135                    | 33  | 20        | D     |
| Bromobenzene                           | 0.0372 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 50   | 45-135                    | 34  | 25        | D     |
| Bromochloromethane                     | 0.0440 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 60   | 55-136                    | 16  | 18        |       |
| Bromodichloromethane                   | 0.0453 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 61   | 55-127                    | 21  | 17        | D     |
| Bromoform                              | 0.0375 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 51   | 40-136                    | 16  | 35        |       |
| Bromomethane                           | 0.0217 | 0.015                     | mg/kg dry | 0.07397     | BRL                       | 29   | 30-137                    | 103 | 30        | D, M  |
| Carbon Tetrachloride                   | 0.0645 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 87   | 48-153                    | 50  | 23        | D     |
| Chlorobenzene                          | 0.0393 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 53   | 57-125                    | 31  | 14        | D, M  |
| Chloroethane                           | 0.0676 | 0.015                     | mg/kg dry | 0.07397     | BRL                       | 91   | 16-177                    | 48  | 47        | D     |
| Chloroform                             | 0.0508 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 69   | 56-137                    | 30  | 18        | D     |
| Chloromethane                          | 0.0329 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 45   | 40-145                    | 41  | 26        | D     |
| cis-1,2-Dichloroethylene               | 0.0473 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 64   | 58-140                    | 30  | 28        | D     |
| cis-1,3-Dichloropropylene              | 0.0418 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 56   | 42-135                    | 23  | 32        |       |
| Dibromochloromethane                   | 0.0433 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 59   | 49-127                    | 17  | 24        |       |
| Dichlorodifluoromethane                | 0.0515 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 70   | 25-151                    | 49  | 37        | D     |
| Ethylbenzene                           | 0.0527 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 71   | 44-144                    | 44  | 19        | D     |
| Isopropyl Ether                        | 0.0456 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 62   | 51-155                    | 21  | 13        | D     |
| Isopropylbenzene (Cumene)              | 0.0626 | 0.0074                    | mg/kg dry | 0.07397     | BRL                       | 85   | 41-140                    | 59  | 27        | D     |
| m,p-Xylenes                            | 0.104  | 0.015                     | mg/kg dry | 0.1479      | BRL                       | 70   | 36-148                    | 45  | 20        | D     |
| Methyl Butyl Ketone (2-Hexanone)       | 0.0403 | 0.074                     | mg/kg dry | 0.07397     | BRL                       | 55   | 30-147                    | 24  | 42        | J     |
| Methyl Ethyl Ketone (2-Butanone)       | 0.0391 | 0.15                      | mg/kg dry | 0.07397     | BRL                       | 53   | 24-160                    | 14  | 42        | J     |
| Methyl Isobutyl Ketone                 | 0.0387 | 0.074                     | mg/kg dry | 0.07397     | BRL                       | 52   | 25-163                    | 11  | 44        | J     |

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Keith C. Seramur PGPC  
Attn: Keith Seramur  
165 Knoll Dr.  
Boone, NC 28607

Project: NCDOT U-5888

Prism Work Order: 8100467  
Time Submitted: 10/27/2018 1:25:00PM

**Volatile Organic Compounds by GC/MS - Quality Control**

| Analyte                                | Result | Reporting Limit           | Units     | Spike Level | Source Result      | %REC | %REC Limits        | RPD | RPD Limit | Notes |
|--|--------|---------------------------|-----------|-------------|--------------------|------|--------------------|-----|-----------|-------|
| <b>Batch P8J0573 - 5035</b>            |        |                           |           |             |                    |      |                    |     |           |       |
| <b>Matrix Spike Dup (P8J0573-MSD1)</b> |        |                           |           |             |                    |      |                    |     |           |       |
|  |        | <b>Source: 8100467-01</b> |           |             | Prepared: 10/29/18 |      | Analyzed: 10/30/18 |     |           |       |
| Methylene Chloride                     | 0.0470 | 0.015                     | mg/kg dry | 0.07397     | BRL                | 64   | 53-144             | 21  | 14        | D     |
| Methyl-tert-Butyl Ether                | 0.0416 | 0.015                     | mg/kg dry | 0.07397     | BRL                | 56   | 49-135             | 12  | 22        |       |
| Naphthalene                            | 0.0144 | 0.015                     | mg/kg dry | 0.07397     | BRL                | 20   | 32-127             | 20  | 44        | M, J  |
| n-Butylbenzene                         | 0.0487 | 0.0074                    | mg/kg dry | 0.07397     | BRL                | 66   | 23-148             | 68  | 39        | D     |
| n-Propylbenzene                        | 0.0573 | 0.0074                    | mg/kg dry | 0.07397     | BRL                | 77   | 35-144             | 59  | 27        | D     |
| o-Xylene                               | 0.0470 | 0.0074                    | mg/kg dry | 0.07397     | BRL                | 64   | 43-143             | 37  | 17        | D     |
| sec-Butylbenzene                       | 0.0576 | 0.0074                    | mg/kg dry | 0.07397     | BRL                | 78   | 34-144             | 66  | 28        | D     |
| Styrene                                | 0.0331 | 0.0074                    | mg/kg dry | 0.07397     | BRL                | 45   | 42-132             | 28  | 28        |       |
| tert-Butylbenzene                      | 0.0590 | 0.0074                    | mg/kg dry | 0.07397     | BRL                | 80   | 36-150             | 61  | 29        | D     |
| Tetrachloroethylene                    | 0.0506 | 0.0074                    | mg/kg dry | 0.07397     | BRL                | 68   | 47-142             | 50  | 26        | D     |
| Toluene                                | 0.0476 | 0.0074                    | mg/kg dry | 0.07397     | BRL                | 64   | 57-135             | 36  | 22        | D     |
| trans-1,2-Dichloroethylene             | 0.0555 | 0.0074                    | mg/kg dry | 0.07397     | BRL                | 75   | 58-141             | 42  | 18        | D     |
| trans-1,3-Dichloropropylene            | 0.0369 | 0.0074                    | mg/kg dry | 0.07397     | BRL                | 50   | 41-124             | 19  | 20        |       |
| Trichloroethylene                      | 0.0535 | 0.0074                    | mg/kg dry | 0.07397     | BRL                | 72   | 38-164             | 42  | 18        | D     |
| Trichlorofluoromethane                 | 0.0669 | 0.0074                    | mg/kg dry | 0.07397     | BRL                | 90   | 30-157             | 51  | 27        | D     |
| Vinyl acetate                          | BRL    | 0.037                     | mg/kg dry | 0.07397     | BRL                |      | 61-154             |     | 35        | M     |
| Vinyl chloride                         | 0.0572 | 0.0074                    | mg/kg dry | 0.07397     | BRL                | 77   | 40-156             | 48  | 35        | D     |
| Xylenes, total                         | 0.151  | 0.022                     | mg/kg dry | 0.2219      | BRL                | 68   | 36-148             | 42  | 20        | D     |
| Surrogate: 4-Bromofluorobenzene        | 53.6   |                           | ug/L      | 50.00       |                    | 107  | 70-130             |     |           |       |
| Surrogate: Dibromofluoromethane        | 54.0   |                           | ug/L      | 50.00       |                    | 108  | 84-123             |     |           |       |
| Surrogate: Toluene-d8                  | 53.0   |                           | ug/L      | 50.00       |                    | 106  | 76-129             |     |           |       |



Keith C. Seramur PGPC  
Attn: Keith Seramur  
165 Knoll Dr.  
Boone, NC 28607

Project: NCDOT U-5888

Prism Work Order: 8100467  
Time Submitted: 10/27/2018 1:25:00PM

**Total Metals - Quality Control**

| Analyte                                | Result | Reporting Limit | Units     | Spike Level                   | Source Result | %REC                                  | %REC Limits | RPD | RPD Limit | Notes |
|--|--------|-----------------|-----------|-------------------------------|---------------|---------------------------------------|-------------|-----|-----------|-------|
| <b>Batch P8J0607 - 3050B</b>           |        |                 |           |                               |               |                                       |             |     |           |       |
| <b>Blank (P8J0607-BLK1)</b>            |        |                 |           | Prepared & Analyzed: 10/31/18 |               |                                       |             |     |           |       |
| Lead                                   | BRL    | 0.25            | mg/kg wet |                               |               |                                       |             |     |           | BH    |
| <b>LCS (P8J0607-BS1)</b>               |        |                 |           | Prepared & Analyzed: 10/31/18 |               |                                       |             |     |           |       |
| Lead                                   | 11.1   | 0.25            | mg/kg wet | 12.50                         |               | 89                                    | 80-120      |     |           |       |
| <b>Matrix Spike (P8J0607-MS1)</b>      |        |                 |           | Source: 8100467-01            |               | Prepared: 10/31/18 Analyzed: 11/02/18 |             |     |           |       |
| Lead                                   | 658    | 0.37            | mg/kg dry | 18.29                         | 1090          | NR                                    | 75-125      |     |           | MI    |
| <b>Matrix Spike Dup (P8J0607-MSD1)</b> |        |                 |           | Source: 8100467-01            |               | Prepared: 10/31/18 Analyzed: 11/02/18 |             |     |           |       |
| Lead                                   | 607    | 0.37            | mg/kg dry | 18.38                         | 1090          | NR                                    | 75-125      | 8   | 20        | MI    |
| <b>Post Spike (P8J0607-PS1)</b>        |        |                 |           | Source: 8100467-01            |               | Prepared & Analyzed: 10/31/18         |             |     |           |       |
| Lead                                   | 17.6   |                 | mg/L      | 0.5000                        | 29.7          | NR                                    | 80-120      |     |           | PS    |

**Sample Extraction Data**

**Prep Method: Solids, Dry Weight**

| Lab Number | Batch   | Initial | Final | Date/Time      |
|------------|---------|---------|-------|----------------|
| 8100467-01 | P8K0052 | 30 g    | 30 g  | 11/02/18 13:05 |

**Prep Method: 3050B**

| Lab Number | Batch   | Initial | Final | Date/Time     |
|------------|---------|---------|-------|---------------|
| 8100467-01 | P8J0607 | 2 g     | 50 mL | 10/31/18 8:20 |

**Prep Method: 5035**

| Lab Number | Batch   | Initial | Final | Date/Time      |
|------------|---------|---------|-------|----------------|
| 8100467-01 | P8J0573 | 3.95 g  | 5 mL  | 10/29/18 10:23 |





Full-Service Analytical & Environmental Solutions

449 Springbrook Road • Charlotte, NC 28217  
Phone 704/529-6364 • Fax: 704/525-0409

Client Company Name: Serramar & Associates AC  
Report To/Contact Name: Keith Serramar  
Reporting Address: 165 Knoll Drive  
Roane, NC 28607  
Phone: (828)264-0281 Fax (Yes)/(No): (828)264-0487  
Email Address: Serramar@icloud.com  
EDD Type: PDF  Excel  Other  
Site Location Name: NC DOT 4-5888 A007  
Site Location Physical Address: 251 N Main St.  
Wannecville, NC

# CHAIN OF CUSTODY RECORD

PAGE 1 OF 1 QUOTE # TO ENSURE PROPER BILLING: \_\_\_\_\_

Project Name: NC DOT 4-5888  
Short Hold Analysis: (Yes)  (No)  UST Project: (Yes)  (No)   
\*Please ATTACH any project specific reporting (QC LEVEL I II III IV) provisions and/or QC Requirements  
Invoice To: Keith Serramar  
Address: 165 Knoll Drive  
Roane, NC 28607

Purchase Order No./Billing Reference \_\_\_\_\_  
Requested Due Date  1 Day  2 Days  3 Days  4 Days  5 Days  
"Working Days"  6-9 Days  Standard 10 days  Rush Work Must Be Pre-Approved  
Samples received after 14:00 will be processed next business day.  
Turnaround time is based on business days, excluding weekends and holidays.  
(SEE REVERSE FOR TERMS & CONDITIONS REGARDING SERVICES RENDERED BY PRISM LABORATORIES, INC. TO CLIENT)

| LAB USE ONLY                     |                                     |                          |                                     |
|----------------------------------|-------------------------------------|--------------------------|-------------------------------------|
|                                  | YES                                 | NO                       | N/A                                 |
| Samples INTACT upon arrival?     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| Received ON WET ICE?             | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| PROPER PRESERVATIVES indicated?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| Received WITHIN HOLDING TIMES?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| CUSTODY SEALS INTACT?            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| VOLATILES rec'd W/OUT HEADSPACE? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| PROPER CONTAINERS used?          | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| TEMP: Therm ID: <u>127-9</u>     | Observed: <u>72.1°C</u>             | Corr: <u>72.0°C</u>      |                                     |

Page 15 of 15

TO BE FILLED IN BY CLIENT/SAMPLING PERSONNEL  
Certification: NELAC \_\_\_ DoD \_\_\_ FL \_\_\_ NC   
SC \_\_\_ OTHER \_\_\_ N/A \_\_\_  
Water Chlorinated: YES \_\_\_ NO   
Sample Iced Upon Collection: YES  NO \_\_\_

| CLIENT SAMPLE DESCRIPTION | DATE COLLECTED | TIME COLLECTED MILITARY HOURS | MATRIX (SOIL, WATER OR SLUDGE) | SAMPLE CONTAINER |     |      | PRESERVATIVES            | ANALYSIS REQUESTED                  |                                     |  |  | REMARKS | PRISM LAB ID NO. |              |   |    |
|---------------------------|----------------|-------------------------------|--------------------------------|------------------|-----|------|--------------------------|-------------------------------------|-------------------------------------|--|--|---------|------------------|--------------|---|----|
|                           |                |                               |                                | *TYPE SEE BELOW  | NO. | SIZE |                          |                                     |                                     |  |  |         |                  |              |   |    |
| S-49                      | 10/23/18       | 15:50                         | soil                           | CGTL             | 4   | 40ml | Na Bisulfate<br>Methanol | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |  |  |         |                  | 8260<br>Lead | Please let us know if not enough soil for Ab sample. Contact Keith if there are issues. | 01 |

Sampler's Signature: [Signature] Sampled By (Print Name) Joey Anderson Affiliation SAPC

PRESS DOWN FIRMLY - 3 COPIES

Upon relinquishing, this Chain of Custody is your authorization for Prism to proceed with the analyses as requested above. Any changes must be submitted in writing to the Prism Project Manager. There will be charges for any changes after analyses have been initialized.

|   |  |      |                |
|---|--|------|----------------|
| Relinquished By: (Signature) <u>[Signature]</u> | Received By: (Signature) <u>[Signature]</u>            | Date | Military/Hours |
| Relinquished By: (Signature)                    | Received By: (Signature)                               | Date |                |
| Relinquished By: (Signature)                    | Received For Prism Laboratories By: <u>[Signature]</u> | Date | 10-27-18 13:25 |

Method of Shipment:  Fed Ex  UPS  Hand-delivered  Prism Field Service  Other  
NOTE: ALL SAMPLE COOLERS SHOULD BE TAPED SHUT WITH CUSTODY SEALS FOR TRANSPORTATION TO THE LABORATORY. SAMPLES ARE NOT ACCEPTED AND VERIFIED AGAINST COC UNTIL RECEIVED AT THE LABORATORY.  
COC Group No. 8100467

Additional Comments:

| PRISM USE ONLY       |
|----------------------|
| Site Arrival Time:   |
| Site Departure Time: |
| Field Tech Fee:      |
| Mileage:             |

NPDES:  NC  SC  GROUNDWATER:  NC  SC  DRINKING WATER:  NC  SC  SOLID WASTE:  NC  SC  RCRA:  NC  SC  CERCLA:  NC  SC  LANDFILL:  NC  SC  OTHER:  NC  SC

SEE REVERSE FOR TERMS & CONDITIONS

\*CONTAINER TYPE CODES: A = Amber C = Clear G = Glass P = Plastic; TL = Teflon-Lined Cap VOA = Volatile Organics Analysis (Zero Head Space)

ORIGINAL