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**STIP Project No. R-5768
US 311/NC 65/SR 1928 (Stokesburg Rd.)
Walnut Cove, Stokes County, North Carolina**

GEOENVIRONMENTAL PLANNING REPORT

on behalf of

**North Carolina Department of Transportation
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, NC 27699-1589**

October 2017



Rummel, Klepper & Kahl, LLP

GeoEnvironmental Planning Report

In coordination with the geo-environmental investigation for R-5828, RK&K has investigated the above referenced project based on additional information from EDR that was not included in the previous geo-environmental assessment to identify potential hazardous material sites for inclusion in the environmental document.

HAZARDOUS MATERIALS EVALUATION

Purpose

This section presents the results of a hazardous material evaluation conducted in the vicinity of the project study area designated for construction of proposed roadway improvements associated with the US-311/NC-65/SR-1928 (Stokesburg Rd.) project in Walnut Cove, Stokes County, North Carolina. The main purpose of this investigation is to identify properties within the project study area that are or may be contaminated, and therefore, result in increased project costs and future liability if acquired by the Department. Hazardous material impacts may include, but are not limited to, active and abandoned underground storage tank (UST) sites, hazardous waste sites, regulated landfills and unregulated dumpsites.

Techniques/Methodologies

Environmental Data Resources, Inc. (EDR) regulatory database information and Geographical Information System (GIS) mapping were evaluated to identify known sites of concern in relation to the US-311/NC-65/SR-1928 project as a preliminary screening of the corridor. A search of environmental agency site documentation was requested on July 21, 2017 and the material reviewed to identify potential environmental concerns. RK&K personnel conducted a field reconnaissance along the preliminary corridor from public rights-of-way to verify conditions at the identified sites on September 28, 2017.

Findings

UST Facilities

Based on our study, six (6) current or former UST facilities were identified within the vicinity of the project, four (4) of which were located within the project limits.

Hazardous Waste Sites

No current Hazardous Waste Sites were identified within the project limits.

Landfills

No apparent former landfills were identified within the project limits.

Other Geo-Environmental Concerns

One (1) cement plant and a new car wash with a potential oil/water separator were identified within the project limits.

Anticipated Impacts

Four (4) former UST facilities are located within the project limits of disturbance. One (1) current and one former UST facilities are located adjacent to the project limits. In addition, one (1) cement plant and one (1) car wash were identified within the project limits of disturbance. We anticipate moderate to high monetary and scheduling impacts resulting from these sites, if property acquisition or soil excavation/grading activities reach the groundwater table. (See the following table and appendices for details)

Sites of Concern

| | | |
|----|---|---|
| 1) | <p>Property Name Cemex Walnut Cove RMC Carolina Materials 211 Main Street</p> | <p>Property Owner: Boyd Hole DBA Boyd Hole Concrete; Betty D Hole DBA Boyd Hole Concrete</p> |
| | <p>Facility ID #: Unidentified</p> | <p>UST Owner: N/A</p> |

Looking east from S. Main Street at the building front and entrance.



This facility currently is a cement vehicle maintenance area. The facility is not listed in the reviewed public records. This site was not previously identified as a potential project concern.

The site inspection of September 28, 2017, showed that the site is used for truck maintenance and parking for tractor trailers and construction vehicles. Two small sheds serve as an office and supply building, and a larger building with two bays is a maintenance garage. The exterior of the buildings show no evidence of USTs, AST or discharges out of the buildings into the soil. All maintenance activities occur within the building.

This site, which is within the study area, is anticipated to present low geo-environmental impacts to the project.

| | | |
|----|---|---|
| 2) | Property Name Joe Grindstaff residence 207 S Main Street (301 Main St) | Property Owner: Jimmy L. Knight Jr; Debbie R. Knight PO Box 531 Walnut Cove, NC 27052 |
| | Facility ID #: Unidentified | UST Owner: N/A |

Building front and entrance, facing south.



This facility currently is unoccupied and appears abandoned. The site is listed in the reviewed public records in the historical auto database, for records as an automotive supply and parts facility listed to, Grindstaff Joe, between 1992 to 1999.

The site inspection of September 28, 2017, showed that the property contains a single structure that has been abandoned and is in a state of disuse. The remainder of the property is covered in grass or gravel, with a single tree adjacent to the building. The vegetation is sparse and stressed, but no visible signs of areas of affected growth is present. No ASTs or surface signs of USTs are present.

This site is anticipated to present moderate geo-environmental impacts to the project.

| | | |
|----|---|--|
| 3) | Property Name Former Friendly Food Mart 6 Route 2 (403Stokesburg Rd) | Property Owner: Dr. VL Dehart PO Box 398 Walnut Cove, NC 27052 |
| | Facility ID #: 00-0-0000008364 Incident #: 19490 | UST Owner: Dan River Oil Co. |

Looking SE at the front of facility, with groundwater monitoring well in foreground



This facility currently is abandoned. The facility is listed in the reviewed public records in the UST database, for three 4,000-gallon gasoline tanks, all removed – and LUST and LUST TRUST databases for an open case of petroleum release with gross benzene contamination of groundwater in February 2000, with clean-up completed in September 2001.

Public records reviewed on October 5, 2017, designate the site as a former gasoline facility containing three 4,000-gallon gasoline USTs with unknown installation dates. The tanks were excavated on June 2, 1998, and removed for off-site disposal. Analytical laboratory results of soils excavated from beneath the USTs indicated the presence of petroleum concentrations below NC standards. Contaminated soils were identified near the dispenser island and the product lines with limited excavation removing impacted soils. High BTEX concentrations were detected in groundwater adjacent to NC 65.

The site inspection on September 28, 2017, identified an abandoned building and small parking lot. No indication of USTs were identified, but a cover plate indicating the presence of four groundwater monitoring wells were noted. **This site is anticipated to present moderate geo-environmental impacts to the project.**

| | | |
|----|---|--|
| 4) | Property Name Ray Neal residence 511 McAlster Street | Property Owner: Gloria Hairston |
| | Incident #: 87080, 87036 | UST Owner: Unidentified |

Front of residence



This facility currently operates as a private residence. The facility is listed in the reviewed public records in the LAST and the IMD databases, for a case of 200 gallons of petroleum release from an AST in March 2004, with soil contamination. Closure and cleanup were not reported, but contaminated soil was noted as being removed. This site was not previously identified as a potential project concern.

The site inspection of September 28, 2017, showed that the property is a private residence. No signs of a UST or AST were present. The ground surface is lawn, with a bare-earth driveway. No business or commercial activity was apparent.

This site is anticipated to present moderate geo-environmental impacts to the project.

| | | |
|----|---|---|
| 5) | Property Name NC Country Ham 304 Main Street | Property Owner: Town Fork Produce, Inc. |
| | Facility ID #: Unidentified | UST Owner: N/A |

Looking SE from S. Main St. (US 311) at the front of facility



This facility is a small strip mall of small businesses. The facility is not listed in the reviewed public records.

The site inspection of September 28, 2017, showed that the site is used as a fresh produce and meat market on designated days. The market was not open at the time of assessment. A hair salon is also present in the strip mall. There are no signs of discharges, spills or hazardous material use on-site. There were no indications of USTs or ASTs, or other hazardous material storage on-site.

This site may have been misidentified as the Pork Produce Mart/former Gene Miller residence in the previous geo-environmental assessment and is therefore not anticipated to present a geo-environmental impact to the project.

| | | |
|----|--|--|
| 6) | Property Name The Cove Grill/Former Fulps Exxon 407 S Main Street | Property Owner: Duane Sutphin 1015 Beaver Island Trail Walnut Cove, NC 27052 |
| | Facility ID #: Unidentified | UST Owner: N/A |

Front of facility



Disused wash bays



Concrete pad, former location of fuel USTs



The September 28, 2017, inspection of this property that fronts S. Main Street (US 311) observed the facility operating as restaurant and storage site. The facility is not listed in the reviewed public records. On the west side of the facility is a concrete patch in the asphalt paving pad. The owner of this property stated that a UST was removed between 1975 to 1980. The owner also operates a fuel delivery business with tanker trucks, but there is no infrastructure at this site. The wash bays located in the western portion of the property are not currently used. The ground surface is mostly asphalt pavement, with patches of gravel.

This site is anticipated to present moderate geo-environmental impacts to the project.

| | | |
|----|---|---|
| 7) | Property Name Car Wash 415 Stokesburg Road | Property Owner: Walkertown Lube-N-Wash, LLC |
| | Facility ID #: | UST Owner: |



This facility currently operates as an automated self-serve car wash. The facility is not listed in the reviewed public records.

The site inspection of September 28, 2017 showed that the site is an automatic car wash with 5 bays – one that moves the vehicle through the bay, and four that are stationary with central floor drains for hand washing. Minimal wash water appears to flow out of the bays. There are no indications that there are USTs to receive/recycle the used water. There were no personnel on site. Vacuums are also present in separate setups and an oil/water separator may be in place onsite.

This site is not anticipated to present geo-environmental impacts to the project. This site is also not a geo-environmental concern for the R-5768, NC-65 at US-311/1928 Intersection project.

| | | |
|-----------|--|---|
| 8) | Property Name Mobil 634 S Main Street | Property Owner: AS&S Inc; Muhammad Ramzan Nasir; Robina Kausar |
| | Facility ID #: Unidentified | UST Owner: Unknown |

Dispenser area & convenience store



Fuel USTs, with car wash



This facility currently operates as a gas station and convenience store. The facility is not listed in the reviewed public records.

The site inspection of September 28, 2017, showed that the site has six dispenser islands, a car wash building, and a convenience store. There are three fuel USTs – premium gasoline, regular gasoline, and diesel fuel. The car wash was not in operation at the time of inspection. Significant sediment from the north side of the property had washed alongside the car wash and north edge of the paved asphalt surface. There was no indication of tanks in use for the car wash. No ASTs were present. No vehicle maintenance or repair is performed.

This site is not anticipated to present geo-environmental impacts to the project. This site is also identified as a low geo-environmental concern in the R-5768, NC-65 at US-311/1928 Intersection geo-environmental report.

| | | |
|----|---|--|
| 9) | Property Name Pork Produce Mart/former Gene Miller residence 711 S Main Street | Property Owner: McLamb Holdings, LLC |
| | Facility ID #: 00-0-0000024859 | UST Owner: Barrow Oil Company |

Front of building



This facility currently is abandoned. NCDEQ’s database identified four tanks on the property, with a 3,000-gallon gasoline UST installed in 1986 and a 4,000-gallon and two 3,000-gallon gasoline USTs installed in 1964. Reportedly, one 3,000 gallon UST associated with the former operations was removed and replaced with the same sized UST in 1986. All USTs were removed in 2005 and no groundwater incident number was assigned. A cleanup was reported in 1986 and closed out to residential standards in 2016

The site inspection of September 28, 2017 showed that the site is a single residential building, with no activity. It appeared to be abandoned. The ground surface is a mix of gravel cover and short grass. A single monitoring well is in place in the gravel area, possibly indicating the former location of commercial tanks.

This site is anticipated to present low geo-environmental impacts to the project. This site may have been misidentified as the NC Country Ham site in previous geo-environmental assessments that identified the site as a moderate concern.

Please note that discovery of additional sites not recorded by regulatory agencies and not reasonably discernible during the project reconnaissance may occur. RK&K should be notified immediately upon the identification of additional sites so any potential impact(s) may be assessed. If the project area changes or property acquisitions occur, the estimation of potential risk relative to the contaminants of concern may also change.

If there are questions regarding the identified geo-environmental issues, please contact Mark Pierce, PE at 919-653-7480.

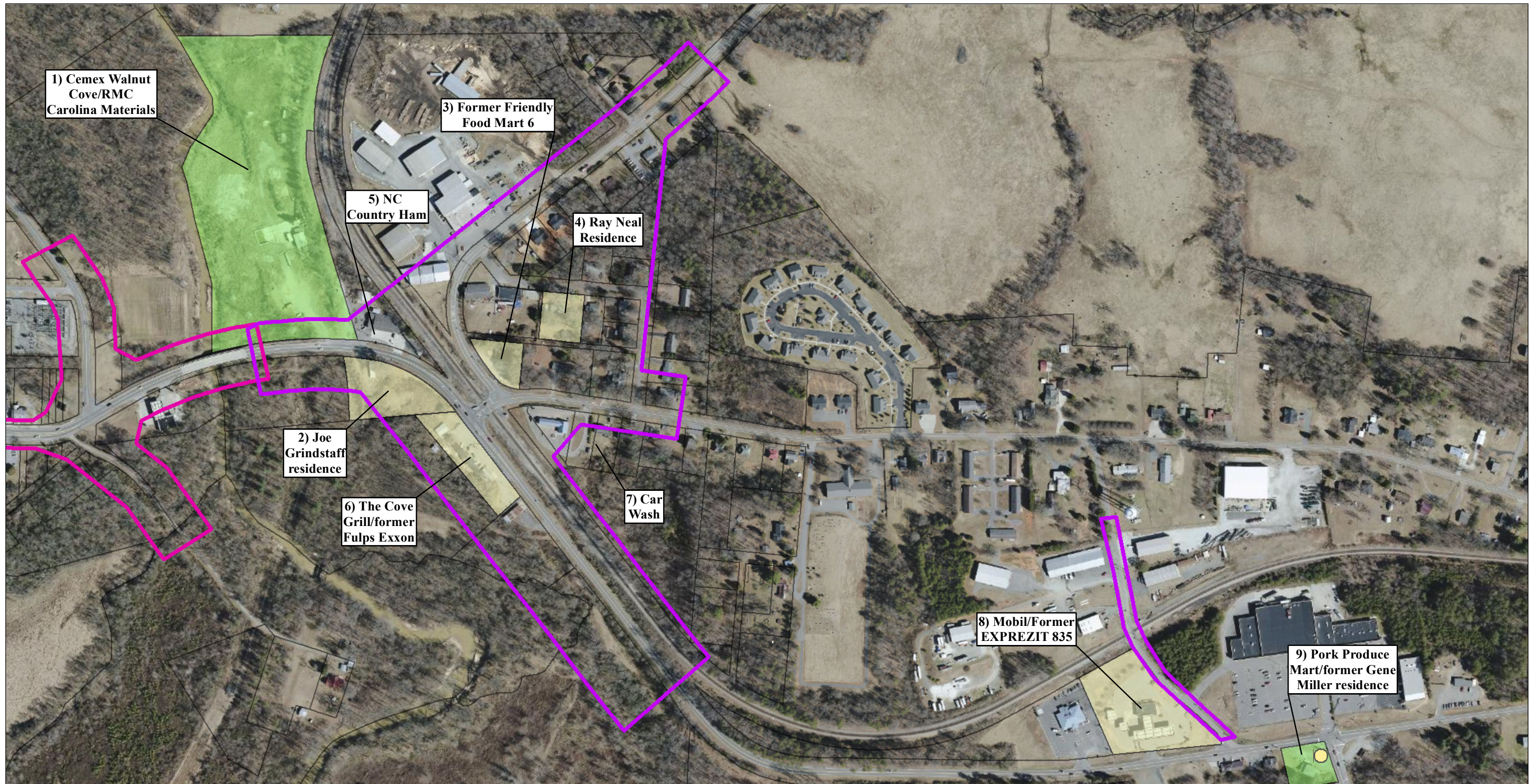
Mark Pierce
Project Manager

cc:
Scott Blevins, PE, RK&K

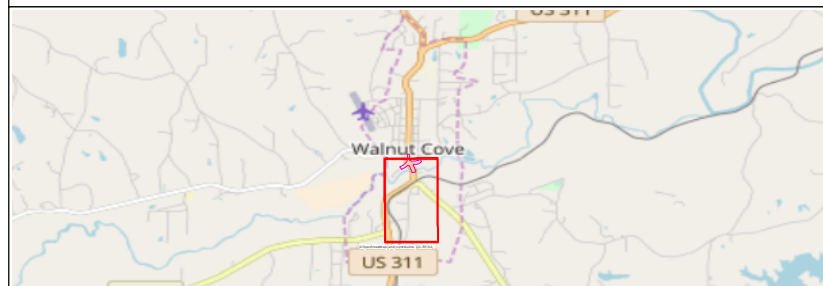
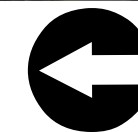
APPENDIX A

FIGURES





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LEGEND:

- R-5768 Study Area
- R-5828 Study Area
- Parcel Boundary
- Sites of Concern Priority
- Low
- Moderate
- Regional Underground Storage Tanks

- Parcel Boundary
- Sites of Concern Priority
- Low
- Moderate



R-5768 - US 311/NC 65/SR 1928 (STOKESBURG RD)
WALNUT COVE, NORTH CAROLINA

Map Title:
Appendix B - Figure 1 :
Site Location Map

Data Source:
NCDOT, EDR

Date: October 2017

Scale: 1" = 344'

APPENDIX B

SUMMARY TABLE



Table 1: USTs, Landfills & Other Potentially Contaminated Sites

| Site # | Type | Address | UST Facility ID# | Property Name | UST Owner/ Property Owner | Anticipated Impact | Anticipated Risk | Comments |
|--------|-------------|----------------------|---------------------------------|--|------------------------------|---------------------|------------------|---|
| 1 | Observation | 211 Main Street | Unidentified | Cemex Walnut Cove/RMC Carolina Materials | N/A | Cement Dust, Metals | Low | The facility is not listed in the reviewed public records. The property is the site of truck operations and interior repair |
| 2 | Hist Auto | 207 S Main Street | Unidentified | Joe Grindstaff Residence | Unidentified | Petroleum | Moderate | HIST AUTO database, for records of the Automotive Supplies and Parts, Grindstaff Joe, in 1992 to 1999 |
| 3 | UST, LUST | Route 2 | 0-008364 00-0- 0000008364 | Former Friendly Food Mart 6 | Dan River Oil Co. | Petroleum | Moderate | UST database, for three 4,000-gallon gasoline tanks, all removed – and the LUST and the LUST TRUST databases, for an open case of petroleum release with gross benzene contamination of groundwater in February 2000, with clean-up completed in September 2001 |
| 4 | LAST, IMD | 511 McAlister Street | 87080, 87036 | Ray Neal residence | Unidentified | Petroleum | Moderate | LAST and the IMD databases, for a case of 200 gallons of petroleum release from an AST in March 2004, with soil contamination. Closure and cleanup were not reported, but contaminated soil was noted as being removed |
| 5 | Observation | 304 Main Street | Unidentified | N.C. County Ham | Unidentified | None | None | The facility is not listed in the reviewed public records. The property is the site of commercial operations with no tank use. |
| 6 | Observation | 407 Main Street | Unidentified | The Cove Grill/former Fulps Exxon | Unidentified | Petroleum | Moderate | The facility is not listed in the reviewed public records. The property is the site of a former gas station and car wash. |
| 7 | Observation | 415 Stokesburg Road | N/A | Car Wash | Walkertown Lube-N-Wash, LLC | None | None | Car wash within R-5768 |

Appendix B

| Site # | Type | Address | UST Facility ID# | Property Name | UST Owner/ Property Owner | Anticipated Impact | Anticipated Risk | Comments |
|--------|------------------|-------------------|------------------|--|--|--------------------|------------------|--|
| 8 | Geoenvironmental | 634 S Main Street | Unidentified | Mobil | AS&S Inc; Muhammad Ramzan Nasir; Robina Kausar | None | Moderate | Active petroleum station within R-5768 |
| 9 | Geoenvironmental | 711 S Main Street | Unidentified | Pork Produce Mart/former Gene Miller residence | McLamb Holdings, LLC | None | Low | Former USTs within R-5768 |

**PROJECT SPECIAL PROVISIONS
GEOENVIRONMENTAL**

CONTAMINATED SOIL (6/23/2022)

The Contractor's attention is directed to the fact that soil contaminated with petroleum hydrocarbon compounds exist within the project area. The known areas of contamination are indicated on corresponding plans sheets. Information relating to these contaminated areas, sample locations, and investigation reports will be available at the following web address by navigating to the correct letting year and month then selecting, "Plans and Proposals", "R-5768", "Individual Sheets/520 GeoEnvironmental":

<http://dotw-xfer01.dot.state.nc.us/dsplan/>

Petroleum contaminated soil may be encountered during any earthwork activities on the project. The Contractor shall only excavate those soils that the Engineer designates necessary to complete a particular task. The Engineer shall determine if soil is contaminated based on areas shown on the plans, petroleum odors, and unusual soil staining. Contaminated soil not required to be excavated is to remain in place and undisturbed. Undisturbed soil shall remain in place, whether contaminated or not. The Contractor shall transport all contaminated soil excavated from the project to a facility licensed to accept contaminated soil.

In the event that a stockpile is needed, the stockpile shall be created within the property boundaries of the source material and in accordance with the Diagram for Temporary Containment and Treatment of Petroleum-Contaminated Soil per North Carolina Department of Environmental Quality's (NCDEQ) Division of Waste Management UST Section GUIDELINES FOR EX SITU PETROLEUM CONTAMINATED SOIL REMEDIATION. If the volume of contaminated material exceeds available space on site, the Contractor shall obtain a permit from the NCDEQ UST Section's Regional Office for off-site temporary storage. The Contractor shall provide copies of disposal manifests completed per the disposal facilities requirements and weigh tickets to the Engineer.

Measurement and Payment:

The quantity of contaminated soil hauled and disposed of shall be the actual number of tons of material, which has been acceptably transported and weighed with certified scales as documented by disposal manifests and weigh tickets. The quantity of contaminated soil, measured as provided above, shall be paid for at the contract unit price per ton for "Hauling and Disposal of Petroleum Contaminated Soil".

The above price and payment shall be full compensation for all work covered by this section, including, but not limited to stockpiling, loading, transportation, weighing, laboratory testing, disposal, equipment, decontamination of equipment, labor, and personal protective equipment.

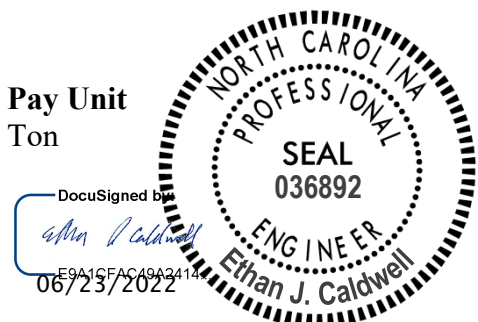
Payment shall be made under:

Pay Item

Hauling and Disposal of Petroleum Contaminated Soil

Pay Unit

Ton





September 9, 2021

Mr. Gordon Box
GeoEnvironmental Project Manager
Geotechnical Engineering Unit
1020 Birch Ridge Drive
Raleigh, NC 27610
Email : ghbox@ncdot.gov

TIP Number: R-5768
WBS Number: 44670.1.1
County: STOKES
Description: US 311, NC 65 in Walnut Cove- Upgrade Intersection

Subject: **Proper Management of Impacted Soil and Water**

| Parcel # | Owner | Address |
|----------|---|--------------------------------|
| 1 | NCDOT formerly Hunter & Cynthia Willard | 425 S Main St. Walnut Cove, NC |
| 3 | NCDOT formerly Duane Sutphin | 407 S Main St. Walnut Cove, NC |

Dear Mr. Box:

As requested by NCDOT, Pyramid Environmental & Engineering, P.C. (Pyramid) has completed the proper management of impacted soils and water at Parcel 1 and Parcel 3, located at 425 & 407 South Main Street, Walnut Cove, North Carolina. A Preliminary Site Assessment (PSA) was performed by Pyramid in 2019 and identified no USTs within the proposed right of way (ROW) area. The location of the site is shown on **Figure 1**. The location of the site features relative to the 2019 proposed ROW line are shown on **Figure 2**.

The NCDOT purchased additional property, adjacent to the proposed right-of-way, and an Oil-Water Separator (OWS) was located behind a car wash on the additional land. The demolition contractor found the OWS which contained water and sediment that needed to be removed and properly disposed. On another area of the project, some petroleum contaminated soil was discovered near a former heating oil tank (which was also outside the proposed ROW). The soil was excavated by the ROW demolition contractor and was stockpiled on plastic for disposal.

Pyramid prepared and submitted a proposal to complete the following scope of work:

Scope of Work

- Remove the fluid from vessels at Parcel 1 (approximately 750 gallons) generated from historical car wash operations (depth of fluid is reportedly approximately 6 ft. in two vessels).
- Remove approximately one (1) cubic yard (approximately 1.5 ton) of impacted soil at Parcel 3 (depth of excavation is reportedly approximately 2 ft. by width of 4 ft. by 4 ft.).
- Properly dispose of any impacted fluid and petroleum-impacted soils.
- On reports and NCDEQ forms attribute UST ownership to former property owner (see subject above)
- Prepare a letter report documenting your activities. Submit one electronic DocuSign copy to this office.
- The investigation report is requested to be due October 6, 2021.

After the work was approved by NCDOT GeoEnvironmental, Pyramid began the work with a site visit and soil sampling on August 10, 2021. Brett Higgins of Pyramid went to the site to locate the Oil-Water Separator (OWS) and examine access to perform the work. The OWS was reasonably accessible and was full of water and sediment.

Brett also collected a composite soil sample from the petroleum contaminated soil stockpile for laboratory analysis. Soil samples were collected from 6 locations within the stockpile and composited into a single sample for laboratory analysis. The composite soil sample was analyzed at RedLab in Wilmington, NC using the Ultra-Violet Fluorescence (UVF) analyses for petroleum compounds. The analyses Included:

- Benzene, Toluene, Ethylbenzene and Xylenes (BTEX)
- Gasoline Range Organics (GRO)
- Diesel Range Organics (DRO)
- Polycyclic Aromatic Hydrocarbons (PAH) total aromatics, and
- Benzo-a-Pyrene (BaP)

The soil pile was covered with plastic and weighted down with rocks and hay until the soil removal could be arranged. The source of the petroleum contamination was #2 fuel oil from an AST located on the additional property purchased by NCDOT. The laboratory analytical results are presented in **Attachment A**, and showed low levels of petroleum contamination, especially Diesel Range Organics (DRO). The composite analysis was used to prepare and submit a waste profile to the disposal facility which is presented in **Attachment B**. The soil profile was accepted by AES and the shipment of the soil was approved.

Once the soil removal was arranged, the contractor CCI agreed to meet Pyramid at the site on Thursday, August 19, 2021 to remove the contaminated soil and clean out the OWS. However, on Thursday morning after mobilization, the vacuum truck driver called in sick, and the clean-up date was rescheduled to Wednesday, August 25, 2021.

On Wednesday, August 25th, Josh Dasnoit of Pyramid, met with the vacuum truck driver and two technicians of CCI to conduct the site clean-up. The contaminated soil stockpile and plastic was loaded into the dump truck for transportation to the disposal facility. The vacuum truck operator began vacuuming liquids and cleaning the OWS. The two openings on top of the separator were used to access the separator, pressure wash the inside, and clean out the sediment. The pressure-washer removed the sludge from the sides and bottom of the concrete OWS. The pressure washer filter clogged, and it took more than an hour to get it working so that the project could be finished. The equipment was repaired, and the clean-up operations resumed, and the tank was cleaned.

After work was completed, Josh Dasnoit of Pyramid signed the manifests for the soil and water. Photographs of the OWS and stockpile area before and after cleanup are provided in **Attachment C**. The signed Manifests and weight ticket are provided in **Attachment D**. The contractor transported the contaminated soil to AES, and the OWS sludge was disposed at the CCI facility. The OWS was covered with the original concrete lids after work was completed.

This report presents the documentation of the successful cleaning of the OWS and the disposal of the petroleum contaminated soils. If you have any questions or comments, please call me at (336) 335-3174 ext. 124.

Sincerely,


Michael G. Jones, LG
Operations Manager



Figures 1 & 2
Attachments A - D

Figures

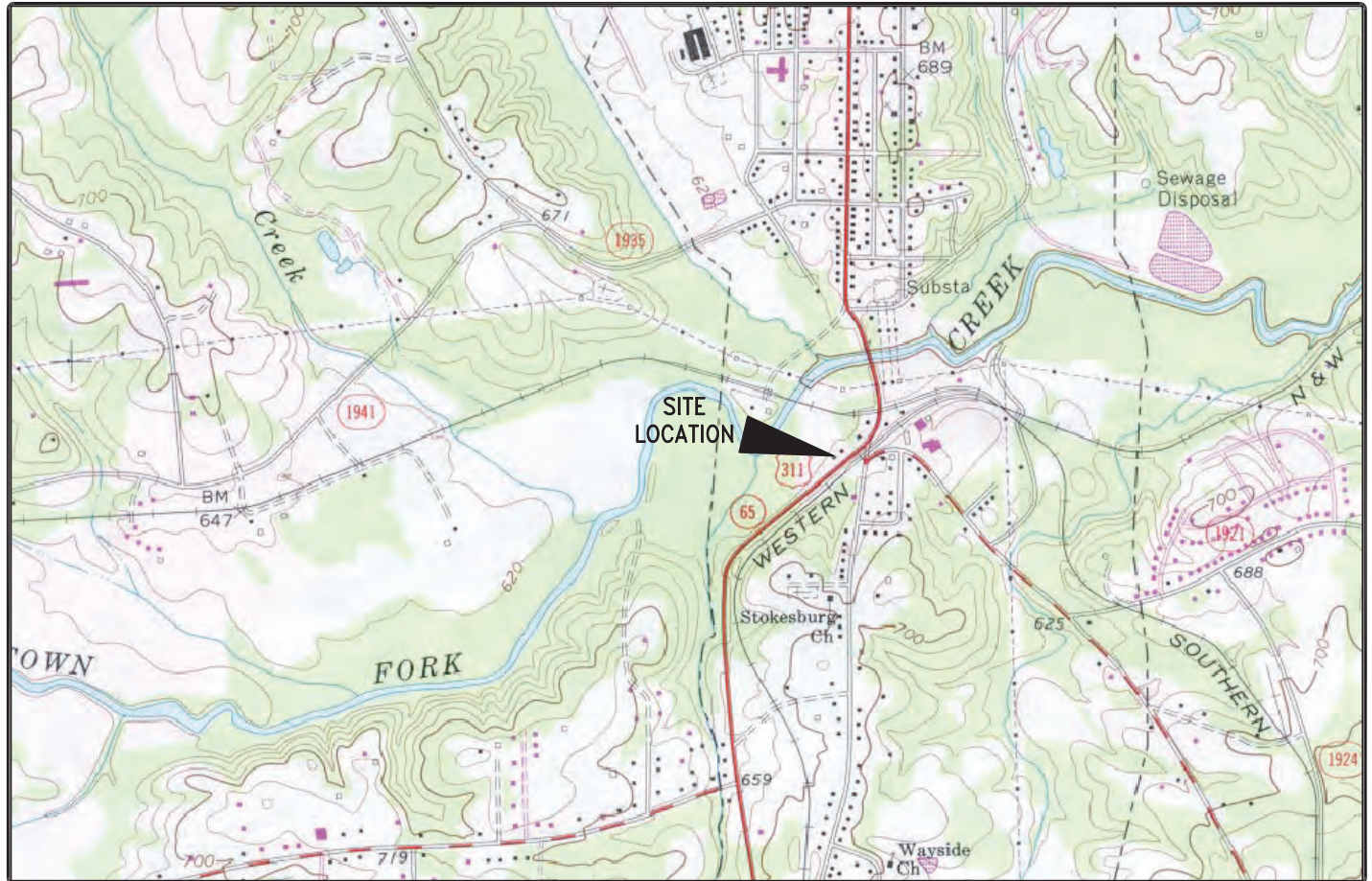
USGS TOPOGRAPHIC MAP

SITE:

425 S. MAIN STREET

LOCATION:

WALNUT COVE, NORTH CAROLINA



USGS IDENTIFICATION

SCALES

USGS 7.5
MINUTE MAP

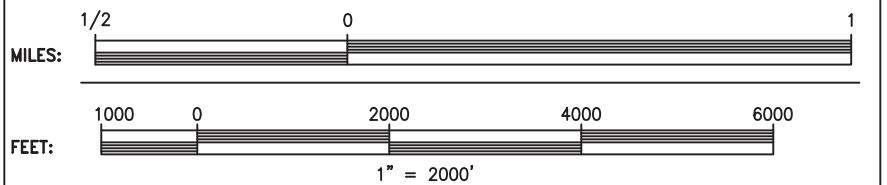
WALNUT COVE, N.C.

ORIGINAL DATE:

1971

PHOTOREVISION
DATE:

1986



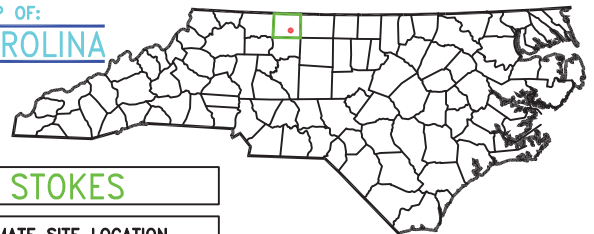
| | |
|--|--|
| | PRIMARY HIGHWAY, HARD SURFACE |
| | SECONDARY HIGHWAY, HARD SURFACE |
| | LIGHT-DUTY ROAD HARD OR IMPROVED SURFACE |
| | UNIMPROVED ROAD |
| | STATE ROAD |
| | U.S. ROUTE |
| | INTERSTATE ROUTE |

NOTES: ► TOPOGRAPHICAL CONTOUR INTERVAL = 20 FEET
► PHOTOREVISIONS DENOTED IN PURPLE

MAGNETIC
NORTH



COUNTY MAP OF:
NORTH CAROLINA



COUNTY: **STOKES**

APPROXIMATE SITE LOCATION



PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT: NCDOT PROJECT R-5768

PROPERTY NAME: 425 S. MAIN ST., PARCEL 1

CITY: WALNUT COVE

STATE: NORTH CAROLINA

TITLE: TOPOGRAPHIC MAP

SCALE:
1"=2000'

DATE:
4/4/19

DRAWING NAME:
USGSTOPO

DRAWN BY: KAM

CHECK BY: EC

JOB NO.: 2019-074

TYPE: PSA

FIGURE NUMBER:
1

NOTES

TOPOGRAPHIC MAP USED IN THIS GRAPHIC IS MAPPED, EDITED, AND PUBLISHED BY THE UNITED STATES GEOLOGIC SURVEY, DEPARTMENT OF THE INTERIOR, RESTON VIRGINIA.

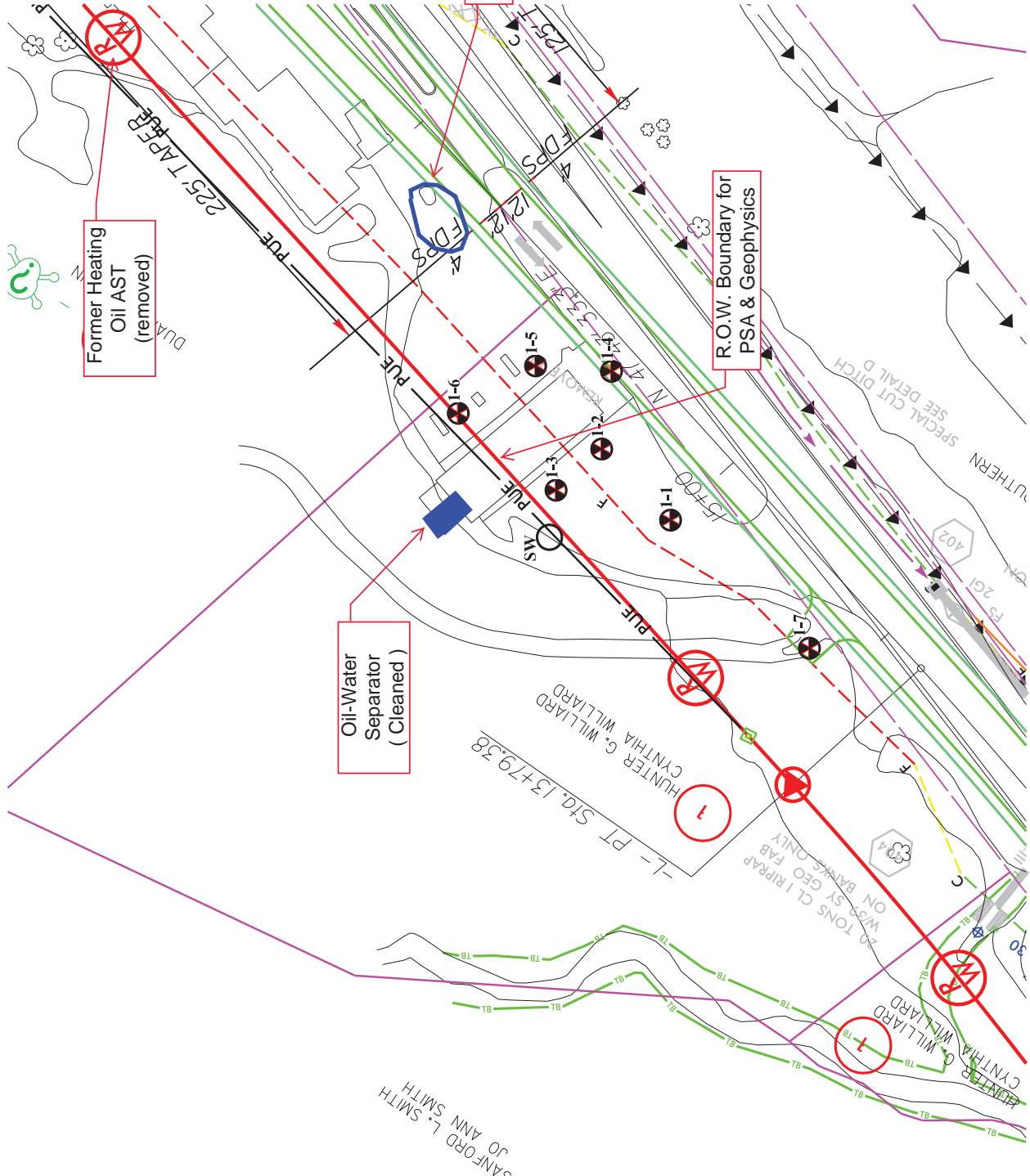
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS.

LEGEND

- EXISTING ROW
- EXISTING PROPERTY BOUNDARY
- PROPOSED ROW LINE
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED PERMANENT UTILITY EASEMENT
- PUE
- PROPOSED SS CUT LINE
- PROPOSED SS FILL LINE

- SOIL SAMPLING LOCATION*
- EXISTING SUPPLY WELL

*ANALYTICAL DATA PRESENTED IN TABLE 2 OF PHASE II REPORT



| |
|---|
| SOIL BORING AND SUPPLY WELL LOCATIONS |
| PROJECT |
| PARCEL 1 WALNUT COVE NORTH CAROLINA NCDOT PROJECT R-5768 |
| 503 INDUSTRIAL AVENUE WALNUT COVE, NC 27681 336.335.1124 (F) 336.691.0648 (O) License # C1251 Eng. / #C237 Geology |
| DATE: 04-23-2019 |
| REVISION NO. 0 |
| PYRAMID PROJECT NO. 2019-074 |
| FIGURE NO. 2 |

Attachment A



Hydrocarbon Analysis Results

Samples taken Tuesday, August 10, 2021
Samples extracted Tuesday, August 10, 2021
Samples analysed Thursday, August 12, 2021

Client: Pyramid Environmental
Address: Greensboro, NC

Contact: Brett Higgins **Operator** Tori Kelly

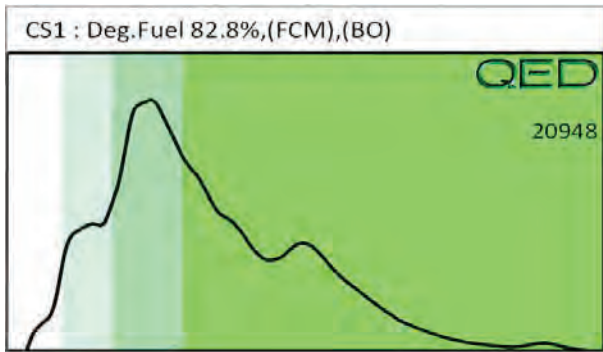
Project: NCDOT/ 2021-230

| 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 |
| | | | | | | | | | | % light | % mid | % heavy | |
| s | CS1 | 19.3 | <0.48 | 18.2 | 28.2 | 46.4 | 11.1 | 0.48 | <0.019 | 77.1 | 18.6 | 4.4 | Deg.Fuel 82.8%,(FCM),(BO) |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Initial Calibrator QC check | | | | | | | | | | OK | | | 96.3 % |

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

QED Hydrocarbon Fingerprints

Project: Pyramid Project #2021-230 - NCDOT R-5768 Soil Stockpile



Attachment B

NON-HAZARDOUS MATERIAL PROFILE SHEET

I. GENERATOR'S INFORMATION

NAME: NCDDT R.O.W. / PYRAMID ENVIRO consultant
CONTACT PERSON: MIKE JONES / "
PHONE #: 336 335-3174 FAX #: _____
MAILING ADDRESS: 503 INDUSTRIAL AVE, GREENSBORO, NC 27406

II. CUSTOMER'S INFORMATION

NAME: CE Environmental Services
CONTACT PERSON: Jason Jones
PHONE #: 910-759-1842 FAX #: _____
MAILING ADDRESS: 281 Lane Parkway, Salisbury NC 28146

III. MATERIAL DESCRIPTION

**MATERIALS MATRIX: SOIL/ WATER/ OTHER: **CONTAMINATES: Soil
 virgin product non-virgin product leaded gasoline unleaded gasoline
 diesel transmission fluids gasohol jp-4/jet/a/ jet fuel
 kerosene oils mineral oil Stoddard solvent/ verso waste oils
 #2 fuel oil #4 fuel oil #5 fuel oil #6 fuel oil hydraulic oils
 mineral oil lubrication/ cutting mineral spirits motor oils naphthalene

OTHER CONTAMINANT(S), LIST SPECIFICALLY: #2 FUEL OIL

**SOURCE OF CONTAMINANT(S):

- above ground storage tank (AST)
- underground storage tank (UST)
- farm/residential tank of 1100 gallons or less for storing motor fuel for non-commercial purposes
- tank used for heating oil/ boiler fuel for consumptive use on premise where stored
- pipeline
- surface impoundment, pit, pond or lagoon
- storm water or wastewater collection system
- flow-through process tank
- tank in underground area (basement/ mine/ tunnel) situated upon or above the floor
- surface spill/ release (not related to a UST system)

**OTHER SOURCE(S) OF CONTAMINANT(S), LIST SPECIFICALLY: NA

**ORIGNATION POINT OF MATERIAL (Be specific: street, city, state):

**CURRENT LOCATION OF MATERIAL (if different from above): 407 S. MAIN ST. WALKER CAFE, NC

IV. GENERATOR CERTIFICATION By signing this profile sheet, the Generator (or the Generator's Authorized Agent) certifies that unless clearly stated above or in attachments:

1. This material is not a "hazardous waste/ hazardous substance", as defined by USEPA, RCRA, CERCLA, OR ANY North Carolina or Federal Regulation;
2. This material does not contain any PCB's (polychlorinated Biphenyls)
3. This material does not contain any herbicides or pesticides; and
4. This profile sheet and its attachments contain true and accurate descriptions of the subject material, and all relevant information regarding known or suspected hazards in the possession of the Generator (of the Generator's Authorized Agent) has been disclosed
5. If Earthtec of NC, Inc. discovers, after having taken delivery of the subject material, that any of the material does not conform to the identification and description on this profile sheet, the Earthtec of NC, Inc. shall provide notice of such condition to the Generator (or the Generator's Authorized Agent) and coordinate the return of non-conforming waste to the point of origin as set forth on the manifest or to such other locations designated in writing by the Generator (or the Generator's Authorized Agent). The Generator and the Generator's Authorized Agent agree to reimburse Earthtec of NC, Inc. for any and all expenses involved in characterizing, handling, and disposing of the material properly, including without limitation, the costs of sampling, analysis, treatment, disposal, transportation, legal fees, consulting fees, fines and penalties.

NCDDT / Pyramid - Ops. Mgr.
*Generator's/ Generator's Agent Title

MICHAEL JONES 8/12/21
**Name (Type or Print) Date

Michael Jones

Attachment C









Attachment D

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

| | | | | | |
|---|--|------------------------------|---|---------------------------|-------------------------|
| NON-HAZARDOUS WASTE MANIFEST | | 1. Generator's US EPA ID No. | | Manifest Document No. | 2. Page 1 of |
| 3. Generator's Name and Mailing Address <i>Pyramid Environmental & Engineering 305 NCDOT Raleigh NC 27699-1589</i> | | | | | |
| 4. Generator's Phone () | | | | | |
| 5. Transporter 1 Company Name <i>CCI</i> | | 6. US EPA ID Number | | A. State Transporter's ID | |
| 7. Transporter 2 Company Name | | | | | |
| 8. US EPA ID Number | | C. State Transporter's ID | | | |
| 9. Designated Facility Name and Site Address <i>CCI</i> | | | | | |
| 10. US EPA ID Number | | E. State Facility's ID | | | |
| F. Facility's Phone | | | | | |
| 11. WASTE DESCRIPTION | | | 12. Containers No. | Type | 13. Total Quantity |
| a. | | | | | 14. Unit Wt./Vol. |
| <i>non hazardous sludge and water mixed</i> | | | <i>001</i> | <i>TT</i> | <i>859</i> |
| b. | | | | | |
| c. | | | | | |
| d. | | | | | |
| G. Additional Descriptions for Materials Listed Above | | | H. Handling Codes for Wastes Listed Above | | |
| 15. Special Handling Instructions and Additional Information | | | | | |
| 16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations. | | | | | |
| Printed/Typed Name <i>Josh Dasnoit</i> | | | Signature <i>Josh Dasnoit</i> | | Date <i>08/25/01</i> |
| 17. Transporter 1 Acknowledgement of Receipt of Materials | | | Signature <i>William Dougherty</i> | | Date <i>08/25/01</i> |
| Printed/Typed Name <i>William Dougherty</i> | | | Signature | | Date |
| 18. Transporter 2 Acknowledgement of Receipt of Materials | | | Signature | | Date |
| Printed/Typed Name | | | Signature | | Date |
| 19. Discrepancy Indication Space | | | | | |
| 20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19. | | | | | |
| Printed/Typed Name <i>Jason Jay</i> | | | Signature <i>J Jay</i> | | Date <i>8/25/01</i> |

NON-HAZARDOUS WASTE

GENERATOR

TRANSPORTER

FACILITY



NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

| | | | | | |
|---|--|--|---|--|-------------------|
| NON-HAZARDOUS WASTE MANIFEST | | 1. Generator's US EPA ID No. | | Manifest Document No. | 2. Page 1 of |
| 3. Generator's Name and Mailing Address <i>Pyramid Environmental & Engineering</i> | | 4. Generator's Phone () | | | |
| 5. Transporter 1 Company Name <i>CCI</i> | | 6. US EPA ID Number | | A. State Transporter's ID | |
| 7. Transporter 2 Company Name | | 8. US EPA ID Number | | B. Transporter 1 Phone | |
| 9. Designated Facility Name and Site Address <i>CCI</i> | | 10. US EPA ID Number | | C. State Transporter's ID | |
| | | | | D. Transporter 2 Phone | |
| | | | | E. State Facility's ID | |
| | | | | F. Facility's Phone | |
| 11. WASTE DESCRIPTION | | | 12. Containers | 13. Total Quantity | 14. Unit Wt./Vol. |
| a. | | | No. | Type | |
| <i>non-hazardous dirt</i> | | | | <i>DT</i> | <i>6.55 tons</i> |
| b. | | | | | |
| c. | | | | | |
| d. | | | | | |
| G. Additional Descriptions for Materials Listed Above | | | H. Handling Codes for Wastes Listed Above | | |
| 15. Special Handling Instructions and Additional Information | | | | | |
| 16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations. | | | | | |
| Printed/Typed Name <i>Josh Dasnoit</i> | | Signature <i>Josh Dasnoit</i> | | Date Month Day Year <i>8 25 21</i> | |
| 17. Transporter 1 Acknowledgement of Receipt of Materials | | Printed/Typed Name <i>Jeff Lopp</i> | | Signature <i>Jeff Lopp</i> | |
| 18. Transporter 2 Acknowledgement of Receipt of Materials | | Printed/Typed Name | | Signature | |
| 19. Discrepancy Indication Space | | | | | |
| 20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19. | | | | | |
| Printed/Typed Name <i>Juan Semp</i> | | Signature <i>Juan Semp</i> | | Date Month Day Year <i>8 26 21</i> | |

NON-HAZARDOUS WASTE


GENERATOR

TRANSPORTER

FACILITY



AES of NC, LLC
 Post Office Box 310
 Sanford, NC 27331
 (Phone #: 919-774-4317
 Fax #: 919-774-6415
 Email: ibounsa.aes@gmail.com

**NORTH CAROLINA
 PUBLIC WEIGHMASTER
 LICENSE EXPIRES JUNE 30, 2019
 JOE F. HOLDER**

42672
INVALID UNLESS SIGNED

NON-HAZARDOUS WASTE MANIFEST

| | |
|--|--|
| Project Number: 24197 | Load Number: 1 |
| Consultant: | Contact: |
| Generator: Pyramrd Walnut Cove | Contact: Keish Burch |
| Transporter: CCI Environmental | Phone: 704 650 1298 |
| Destination: AES of NC, LLC 3841 Cunningham Rd. Thomasville, NC 27380 | Contact: Scott Keller / Frankie Holder |
| Waste Description: Dirt | Phone: 919-774-4517 or 919-774-7703 |
| Track #: 7008 | Date of Originator: 1589 Mail Service Center Raleigh NC 27629 |
| | Gross Weight: 08:33am 08/26/2021 |
| | Tare Weight: 19 ID. NO. 44240 1b GR |
| | Net Weight: 31140 1b TR-RECALLED 13100 1b MT |
| | 6.55 tons |

Generator's Certification: I certify that the materials described above on this manifest are NOT subject to federal regulations for reporting, moving, storage or disposal of HAZARDOUS WASTE.

Generator/Agent Signature: 

8-26-21

Acknowledgment of Receipt of Material:

Title:

Date:

8-26-21

Driver's Signature: 

Date:

Printed Description:

Inspected & Accepted (except as noted) by: **AES of NC, LLC**

Accepted By: **Frankie Holder**

Date: **8-26-21**

GEOENVIRONMENTAL PHASE II INVESTIGATION
PARCEL 001 – HUNTER & CYNTHIA WILLIARD
425 MAIN STREET
WALNUT COVE, STOKES COUNTY, NORTH CAROLINA
STATE PROJECT: R-5768
WBS ELEMENT: 44670.1.1
APRIL 30, 2019

Report prepared for:

Mr. Craig Haden
GeoEnvironmental Section
Geotechnical Engineering Unit
North Carolina Department of Transportation
1020 Birch Ridge Drive
Raleigh, NC 27610

Report prepared by:

DocuSigned by:

Eric Cross

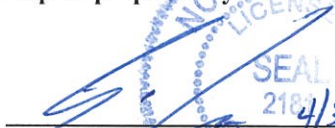
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Report reviewed by:

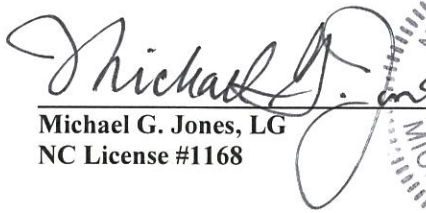
DocuSigned by:

Michael Jones

A7CBC72174E9413...


Eric C. Cross, LG
NC License #2181

4/30/19
5/7/2019


Michael G. Jones, LG
NC License #1168

04/30/19
5/7/2019



PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.
P.O. BOX 16265
GREENSBORO, NC 27416-0265
(336) 335-3174

C-257 –Geology
C-1251 – Engineering

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- Appendix A: Historical Aerial Photographs
- Appendix B: Geophysical Investigation Report
- Appendix C: Soil Boring Logs
- Appendix D: RED Lab QED HC-1 Hydrocarbon Analysis Results
- Appendix E: Personnel Logs

Acronyms

| | |
|-------------|---|
| BLS | Below Land Surface |
| BTEX | Benzene, Toluene, Ethylbenzene, & Xylenes |
| CADD | Computer Aided Design and Drafting |
| COC | Chain of Custody |
| CSA..... | Comprehensive Site Assessment |
| DEQ | Department of Environmental Quality |
| DRO | Diesel Range Organics |
| DWM | Division of Waste Management |
| EM..... | Electromagnetic (as with EM-61) |
| EPA..... | Environmental Protection Agency |
| GRO | Gasoline Range Organics |
| GCLs..... | Gross Contaminant Levels |
| GPR..... | Ground Penetrating Radar |
| HASP | Health & Safety Plan |
| MSCC | Maximum Soil Contaminant Concentration |
| MTBE | Methyl Tertiary Butyl Ether |
| µg/L..... | Micrograms per Liter |
| mg/kg | Milligram per kilogram |
| NPDES..... | National Pollution Discharge Elimination System |
| NCAC | North Carolina Administrative Code |
| NCDOT..... | North Carolina Department of Transportation |
| OSHA..... | Occupational Safety and Health Administration |
| OVA..... | Organic Vapor Analyzer |
| PPM..... | Parts Per Million |
| PID | Photo-ionization Detector |
| PSA | Preliminary Site Assessment |
| PVC..... | Poly-vinyl Chloride |
| RFP | Request for Proposal |
| ROW | Right of Way |
| SVOCs | Semi-Volatile Organic Compounds |
| TW | Temporary Well |
| TPH..... | Total Petroleum Hydrocarbons |
| UVF..... | Ultraviolet Fluorescence (UVF) QED Analyzer |
| UST..... | Underground Storage Tank |
| US EPA..... | United States Environmental Protection Agency |
| VOCs..... | Volatile Organic Compounds |

**GEOENVIRONMENTAL PHASE II INVESTIGATION
PARCEL 001 – HUNTER & CYNTHIA WILLIARD
425 MAIN STREET
WALNUT COVE, STOKES COUNTY, NORTH CAROLINA**

EXECUTIVE SUMMARY OF RESULTS

Pyramid Environmental & Engineering P.C. (Pyramid) has prepared this GeoEnvironmental Phase II Investigation (Phase II) report documenting background information, field activities, assessment activities, findings, conclusions, and recommendations for Parcel 001, owned by Hunter & Cynthia Williard. The property currently contains an abandoned former car wash structure surrounded by asphalt, grass and dirt surfaces at 425 Main Street, Walnut Cove, NC. This Phase II was conducted on behalf of the North Carolina Department of Transportation (NCDOT) in accordance with Pyramid’s February 28, 2019, technical proposal. This Phase II is a part of State Project R-5768.

The purpose of this assessment was to determine the presence or absence of underground storage tanks (USTs) and impacted soils between the existing edge of pavement and the proposed Right-Of-Way (ROW) and/or easements, whichever distance was greater. The Phase II was conducted with particular attention to the areas to be cut as indicated by slope stake lines and cross-sections or to be excavated for the installation of drainage features.

The following statements summarize the results of the Phase II:

- **Site History:** Pyramid interviewed DEQ personnel, interviewed property owners, and reviewed aerial photographs to assess past uses of the property. Pyramid reviewed aerial photographs from 1993 – 2018 obtained from Google Earth. Historical information reviewed as part of the Phase II indicated that the property appears to have remained in the same condition with its current building since at least 1993. The 1993 and 2018 aerial photographs are included in **Appendix A**.

On March 29, 2019, Pyramid emailed the Stokes County parcel address to Ms. Linda Estikowski at the NC Department of Environmental Quality (NC DEQ), with a request to investigate any environmental incidents associated with the parcel. Ms. Estikowski responded to the email and indicated that there were not any environmental incidents associated with the property.

Pyramid Staff Professional Tim Leatherman performed a site investigation at the property. Mr. Leatherman did not observe any significant environmental risks on

the property at the time of the investigation. No vent pipes were observed that could indicate the presence of USTs.

- **Geophysical Survey:** The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of seven EM anomalies were identified. All of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR was performed across EM anomalies associated with the building and suspected reinforced concrete to verify that the metallic interference associated with these features did not obscure any potential USTs. GPR did not record any evidence of significant buried structures. Collectively, the geophysical data did not record any evidence of USTs within the geophysical survey area at Parcel 1.
- **Limited Soil Assessment:** A total of seven soil borings were performed across the property. Soil samples were screened in the field using a Photo-Ionization Detector (PID) and select soil samples were analyzed for Diesel Range Organics (DRO) and Gasoline Range Organics (GRO) using a QED Analyzer. The DEQ action level for TPH-GRO is 50 milligrams per kilogram (mg/kg) and the action level for TPH-DRO is 100 mg/kg. Soil samples were screened with a PID and select soil samples were analyzed for DRO and GRO using a QED Analyzer.

None of the soil samples analyzed exhibited DRO or GRO concentrations above DEQ action levels.

- **Limited Groundwater Assessment:** The water table was not encountered in the upper 10 feet of the soil column that was sampled during this Phase II. Review of the NCDOT engineering plans for this parcel indicate that groundwater will not be encountered during construction activities. Therefore, it was not necessary to collect a groundwater sample.
- **Contaminated Soil Volumes:** None of the soil samples analyzed exhibited DRO or GRO concentrations above DEQ action levels.

It should be noted that, if additional impacted soil is encountered during road construction outside of the area analyzed by this investigation, the impacted soil should be managed according to NC DEQ Division of Waste Management (DWM) guidelines and disposed of at a permitted facility.

1.0 INTRODUCTION

Pyramid Environmental & Engineering P.C. (Pyramid) has prepared this GeoEnvironmental Phase II Investigation (Phase II) report documenting background information, field activities, assessment activities, findings, conclusions, and recommendations for Parcel 001, owned by Hunter & Cynthia Williard. The property currently contains an abandoned former car wash structure surrounded by asphalt, grass and dirt surfaces at 425 Main Street, Walnut Cove, NC. This Phase II was conducted on behalf of the North Carolina Department of Transportation (NCDOT) in accordance with Pyramid's February 28, 2019, technical proposal. This Phase II is a part of State Project R-5768.

The purpose of this assessment was to determine the presence or absence of underground storage tanks (USTs) and impacted soils between the existing edge of pavement and the proposed Right-Of-Way (ROW) and/or easements, whichever distance was greater. The Phase II was conducted with particular attention to the areas to be cut as indicated by slope stake lines and cross-sections or to be excavated for the installation of drainage features. The location of the subject site is shown on **Figure 1**.

1.1 Background Information

Based on the NCDOT's February 18, 2019, *Request for Technical and Cost Proposal (RFP)*, the Phase II was conducted between the existing edge of pavement and the proposed ROW and/or easement lines (whichever distance was greater), with emphasis on the areas to be cut as indicated by slope stake lines and cross-sections or to be excavated for the installation of drainage features and/or other utilities, in accordance with the CADD files provided to Pyramid by the NCDOT. The Phase II included the following:

- Research the properties for past uses and possible releases.
- Conduct a preliminary geophysical site assessment and limited soil assessment across the entire parcel with emphasis on the areas to be cut as indicated by slope stake lines and cross-sections or to be excavated for the installation of drainage features and/or other utilities.
- If groundwater is likely to be encountered by subsequent excavation required by construction, then Pyramid will attempt to obtain a groundwater sample from the parcel.

1.2 Project Information

Prior to field activities, a Health and Safety Plan was prepared. Prior to drilling activities, the public underground utilities were located and marked by the North Carolina One-Call Service. Pyramid's geophysical staff provided additional private utility locating services to mark the on-site private, buried utilities.

2.0 SITE HISTORY

The NCDOT GeoEnvironmental Planning Report and Phase I Reports included with the RFP documents provided to Pyramid on February 18, 2019, did not include any specific comments regarding this parcel.

Pyramid interviewed DEQ personnel, interviewed property owners, and reviewed aerial photographs to assess past uses of the property. Pyramid reviewed aerial photographs from 1993 – 2018 obtained from Google Earth. Historical information reviewed as part of the Phase II indicated that the property appears to have remained in the same condition with its current building since at least 1993. The 1993 and 2018 aerial photographs are included in **Appendix A**.

On March 29, 2019, Pyramid emailed the Stokes County parcel address to Ms. Linda Estikowski at the NC Department of Environmental Quality (NC DEQ), with a request to investigate any environmental incidents associated with the parcel. Ms. Estikowski responded to the email and indicated that there were not any environmental incidents associated with the property.

Pyramid Staff Professional Tim Leatherman performed a site investigation at the property. Mr. Leatherman did not observe any significant environmental risks on the property at the time of the investigation. No vent pipes were observed that could indicate the presence of USTs.

3.0 GEOPHYSICAL INVESTIGATION

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

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

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of seven EM anomalies were identified. All of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR was performed across EM anomalies associated with the building and suspected reinforced concrete to verify that the metallic interference associated with these features did not obscure any potential USTs. GPR did not record any evidence of significant buried structures. Collectively, the geophysical data did not record any evidence of USTs within the geophysical survey area at Parcel 1.

The full details of the geophysical investigation are documented in Pyramid's Geophysical Investigation Report, dated March 26, 2019, which is included as **Appendix B.**

4.0 SOIL SAMPLING ACTIVITIES & RESULTS

4.1 Soil Assessment Field Activities

On April 23, 2019, Pyramid mobilized to the site, drilled soil borings and collected the proposed soil samples for the Phase II. Seven (7) soil borings (1-1 through 1-7) were advanced on the subject property. The soil borings were completed using a truck-mounted Geoprobe drill rig. The selected locations were chosen to avoid public utilities along the adjacent roads and private utilities associated with the business while remaining in the proposed ROW and/or easement, or within other areas of concern such as proposed drainage features and areas designated for soil removal as indicated by the NCDOT engineering plans. The locations of the borings are shown on **Figure 2.**

Soil samples were continuously collected in four-foot long disposable sleeves from each boring for geologic description and visual examination for signs of contamination. Soil recovered from each sleeve was screened in the field using a Photo-Ionization Detector (PID) approximately every 2 feet, depending on the soil recovery. In general, the soil sample with the highest PID reading was selected from each boring for QED Ultra-Violet Fluorescence (UVF) laboratory analysis. If field screening detected multiple elevated readings, then additional soil samples from each boring were selectively chosen for UVF analysis. The soil boring logs with the soil descriptions, visual examination, and PID screening results are included in **Appendix C.** The PID field screening results are summarized in **Table 1.** To prevent cross-contamination, new disposable nitrile gloves were worn by the sampling technician during the sampling activities and were changed between samples. Petroleum odor was detected in borings 1-1, 1-2, 1-5 and 1-6 during the field screening.

The soil samples selected for total petroleum hydrocarbon (TPH) analyses were analyzed utilizing the QED UVF HC-1 Analyzer system from RED Lab. The DEQ & NCDOT now accept this instrument as an analytical method to provide total petroleum hydrocarbon

(TPH) results for soil analysis for Phase II projects. Pyramid preserved the samples for UVF analysis in methanol-filled containers provided by RED Lab. The samples were shipped to RED Lab for analysis following the soil collection. The soil samples selected for analysis using the QED Analyzer were analyzed for TPH as diesel range organics (DRO) and TPH as gasoline range organics (GRO).

4.2 Soil Sample Analytical Results

QED Results

The DEQ action level for TPH-GRO is 50 milligrams per kilogram (mg/kg) and the action level for TPH-DRO is 100 mg/kg. Soil samples were screened with an PID and select soil samples were analyzed for DRO and GRO using a QED Analyzer. None of the soil samples analyzed exhibited DRO or GRO concentrations above DEQ action levels. The soil sample QED results are summarized in **Table 2**. A copy of the QED analysis report is included in **Appendix D**.

4.3 Temporary Monitoring Well Installation

The water table was not encountered in the upper 10 feet of the soil column that was sampled during this Phase II. Review of the NCDOT engineering plans for this parcel indicate that groundwater will not be encountered during construction activities. Therefore, it was not necessary to collect a groundwater sample.

5.0 CONCLUSIONS AND RECOMMENDATIONS

As requested by the NCDOT, Pyramid has completed a Phase II at Parcel 001 (Hunter & Cynthia Williard) located at 425 Main Street, Walnut Cove, NC. The following is a summary of the assessment activities and results.

5.1 Geophysical Investigation

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of seven EM anomalies were identified. All of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR was performed across EM anomalies associated with the building and suspected reinforced concrete to verify that the metallic interference associated with these features did not obscure any potential USTs. GPR did not record any evidence of significant buried structures. Collectively, the geophysical data did not record any evidence of USTs within the geophysical survey area at Parcel 1.

5.2 Limited Soil Assessment

The DEQ action level for TPH-GRO is 50 milligrams per kilogram (mg/kg) and the action level for TPH-DRO is 100 mg/kg. Soil samples were screened with an PID and select soil samples were analyzed for DRO and GRO using a QED Analyzer. None of the soil samples analyzed exhibited DRO or GRO concentrations above DEQ action levels.

5.3 Limited Groundwater Assessment

The water table was not encountered in the upper 10 feet of the soil column that was sampled during this Phase II. Review of the NCDOT engineering plans for this parcel indicate that groundwater will not be encountered during construction activities. Therefore, it was not necessary to collect a groundwater sample.

5.4 Recommendations

Petroleum-Impacted Soils

No evidence of petroleum-impacted soils (DRO/GRO > DEQ Action Levels) was observed during this investigation. Therefore, no recommendations for the treatment, handling, or disposal of such materials are warranted.

It should be noted that, if deeper soils are deemed unsuitable or if impacted soil is encountered during road construction outside of the area analyzed by this investigation, the impacted soil should be managed according to NC DEQ Division of Waste Management (DWM) guidelines and disposed of at a permitted facility.

6.0 LIMITATIONS

The results of this preliminary investigation are limited to the boring locations completed during this limited assessment and presented in this report. The laboratory results only reflect the current conditions at the locations sampled on the date this Phase II was performed.

7.0 CLOSURE

This report was prepared for, and is available solely for use by, the NCDOT and their designees. The contents thereof may not be used or relied upon by any other person without the express written consent and authorization of Pyramid Environmental & Engineering, P.C. (Pyramid). The observations, conclusions, and recommendations documented in this report are based on site conditions and information reviewed at the time of Pyramid's investigation. Pyramid appreciates the opportunity to provide this environmental service.

FIGURES

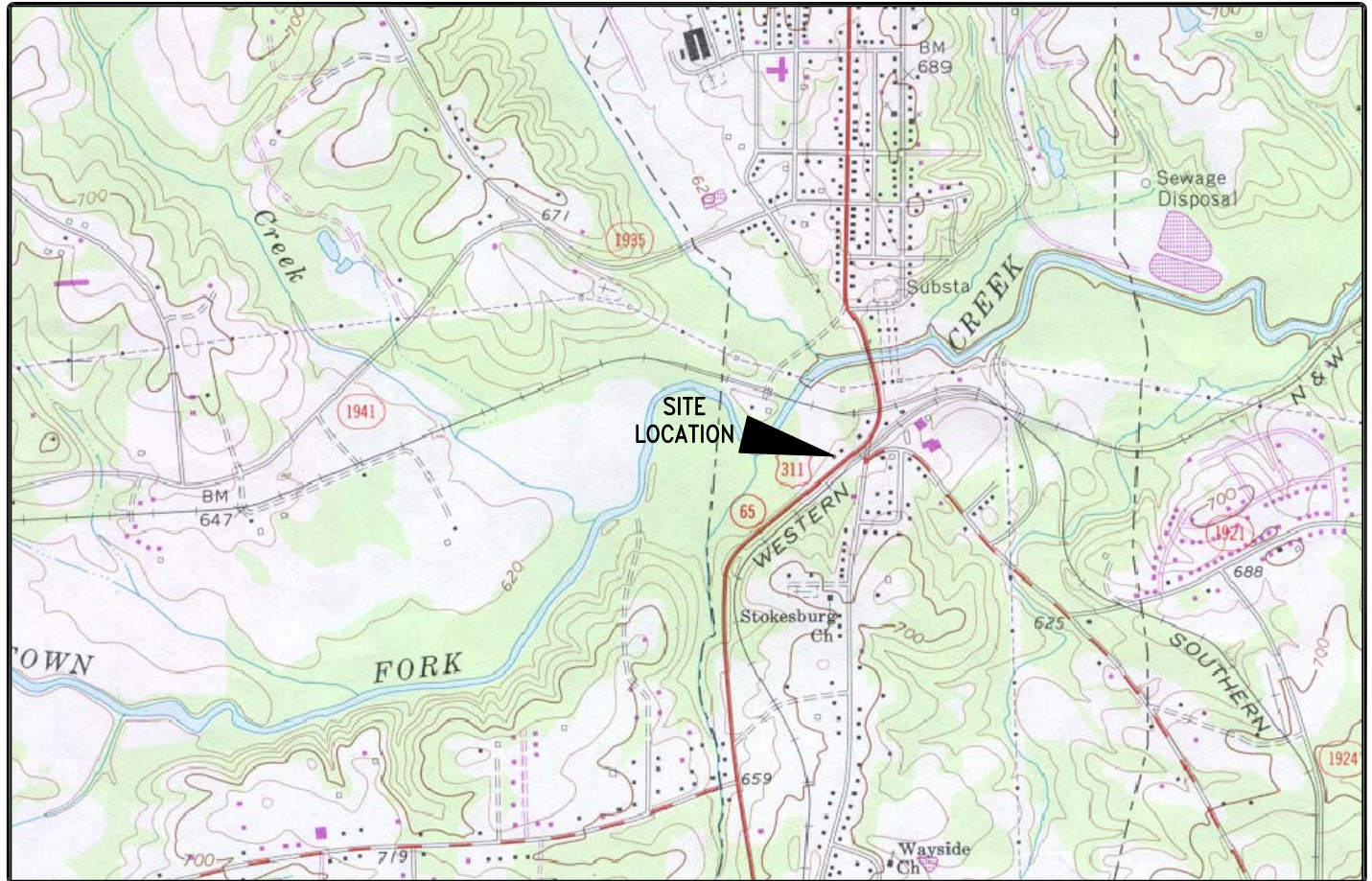
USGS TOPOGRAPHIC MAP

SITE:

425 S. MAIN STREET

LOCATION:

WALNUT COVE, NORTH CAROLINA



USGS IDENTIFICATION

SCALES

USGS 7.5
MINUTE MAP

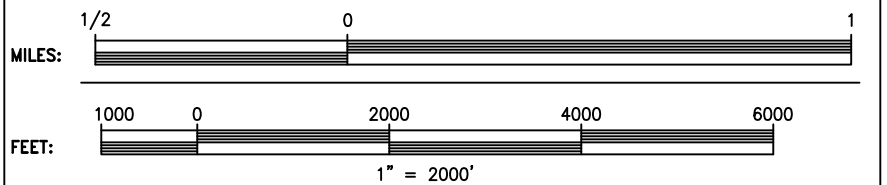
WALNUT COVE, N.C.

ORIGINAL DATE:

1971

PHOTOREVISION
DATE:

1986

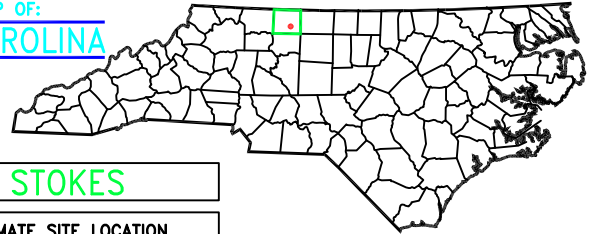


| | |
|--|--|
| | PRIMARY HIGHWAY, HARD SURFACE |
| | SECONDARY HIGHWAY, HARD SURFACE |
| | LIGHT-DUTY ROAD HARD OR IMPROVED SURFACE |
| | UNIMPROVED ROAD |
| | STATE ROAD |
| | U.S. ROUTE |
| | INTERSTATE ROUTE |

NOTES: TOPOGRAPHICAL CONTOUR INTERVAL = 20 FEET
 PHOTOREVISIONS DENOTED IN PURPLE

MAGNETIC
NORTH

COUNTY MAP OF:
NORTH CAROLINA



COUNTY: **STOKES**
 APPROXIMATE SITE LOCATION

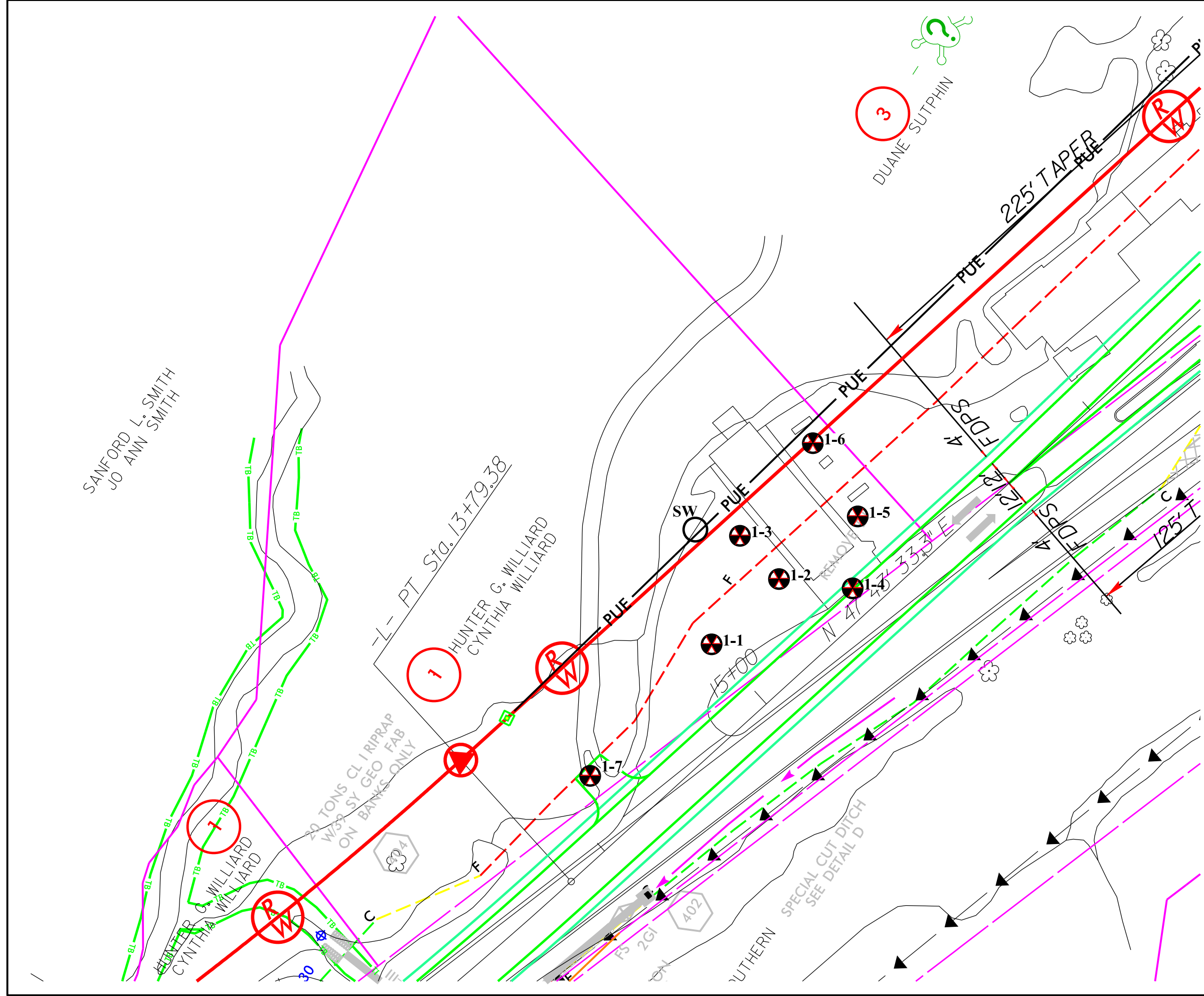


CLIENT: NCDOT PROJECT R-5768
 PROPERTY NAME: 425 S. MAIN ST., PARCEL 1
 CITY: WALNUT COVE STATE: NORTH CAROLINA
 TITLE: TOPOGRAPHIC MAP



SCALE: 1"=2000'
 DATE: 4/4/19
 DRAWING NAME: USGSTOPO

DRAWN BY: KAM
 CHECK BY: EC
 JOB NO.: 2019-074
 TYPE: PSA
 FIGURE NUMBER: 1

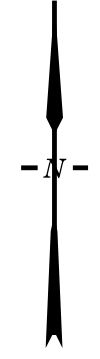
NOTES
 TOPOGRAPHIC MAP USED IN THIS GRAPHIC IS MAPPED, EDITED, AND PUBLISHED BY THE UNITED STATES GEOLOGIC SURVEY, DEPARTMENT OF THE INTERIOR, RESTON VIRGINIA.
 THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS.




LEGEND

- EXISTING ROW
- EXISTING PROPERTY BOUNDARY
- PROPOSED ROW LINE
- TEMPORARY CONSTRUCTION EASEMENT
- PUE --- PROPOSED PERMANENT UTILITY EASEMENT
- PROPOSED SS CUT LINE
- PROPOSED SS FILL LINE
-  1-1 SOIL SAMPLING LOCATION*
-  SW EXISTING SUPPLY WELL

*ANALYTICAL DATA PRESENTED IN TABLE 2 OF PHASE II REPORT



| | | |
|------------------------------|--|--|
| TITLE | SOIL BORING AND SUPPLY WELL LOCATIONS | |
| PROJECT | PARCEL 1 WALNUT COVE, NORTH CAROLINA NCDOT PROJECT R-5768 | |
| |  503 INDUSTRIAL AVENUE GREENSBORO, NC 27406 336.335.3174 (p) 336.691.0648 (f) License # C1251 Eng. / #C257 Geology | |
| DATE: 04-23-2019 | REVISION NO. 0 | |
| PYRAMID PROJECT NO. 2019-074 | FIGURE NO. 2 | |

TABLES

TABLE 1
Summary of Soil Field Screening Results
 NCDOT Project R-5768
 Parcel 001 - Stokes County PSAs
 Hunter & Cynthia Willard - 425 S. Main Street
 Walnut Cove, Stokes County, North Carolina

| SOIL BORING 4/23/2019 | SAMPLE ID | DEPTH (feet bgs) | PID READINGS (PPM) |
|--------------------------|-----------|---------------------|-----------------------|
| 1-1 | 1-1-0-2 | 0 to 2 | 160.0 |
| | 1-1-2-4 | 2 to 4 | 400.0 |
| | 1-1-4-6 | 4 to 6 | 395.0 |
| | 1-1-6-8 | 6 to 8 | 150.0 |
| | 1-1-8-10 | 8 to 10 | 3.0 |
| 1-2 | 1-2-0-2 | 0 to 2 | 86.0 |
| | 1-2-2-4 | 2 to 4 | 40.0 |
| | 1-2-4-6 | 4 to 6 | 36.0 |
| | 1-2-6-8 | 6 to 8 | 50.0 |
| 1-3 | 1-3-0-2 | 0 to 2 | 18.0 |
| | 1-3-2-4 | 2 to 4 | 3.4 |
| | 1-3-4-6 | 4 to 6 | 2.0 |
| | 1-3-6-8 | 6 to 8 | 3.1 |
| 1-4 | 1-4-0-2 | 0 to 2 | 200.0 |
| | 1-4-2-4 | 2 to 4 | 100.0 |
| 1-5 | 1-5-0-2 | 0 to 2 | 220.0 |
| | 1-5-2-4 | 2 to 4 | 125.0 |
| | 1-5-4-6 | 4 to 6 | 5.0 |
| | 1-5-6-8 | 6 to 8 | 70.0 |
| 1-6 | 1-6-0-2 | 0 to 2 | 270.0 |
| | 1-6-2-4 | 2 to 4 | 395.0 |
| | 1-6-4-6 | 4 to 6 | 50.0 |
| | 1-6-6-7 | 6 to 7 | 35.0 |
| 1-7 | 1-7-1-2 | 1 to 2 | 10.0 |
| | 1-7-2-3 | 2 to 3 | 11.0 |
| | 1-7-3-4 | 3 to 4 | 5.0 |

bgs= below ground surface

PID= photo-ionization detector

PPM= parts-per-million

☐ = sampled for lab analysis &/or QROS-QED analysis

OVA= Organic Vapor Analyzer

TABLE 2
Summary of Soil Sample QED Analytical Results for GRO/DRO
 NCDOT State Project R-5768
 Parcel 001 Hunter & Cynthia Willard - 425 S. Main Street
 Walnut Cove, Stokes County, North Carolina

| SAMPLE ID | DATE | DEPTH (feet) | PID (ppm) | QROS - QED Analysis | | |
|--|-----------|--------------|-----------|----------------------|-----------------------|----------------------|
| | | | | GRO (mg/kg) (C5-C10) | DRO (mg/kg) (C10-C35) | TPH (mg/kg) (C5-C35) |
| 1-1-2-4 | 4/23/2019 | 2-4 | 400.0 | <0.67 | 13 | 13 |
| 1-1-4-6 | 4/23/2019 | 4-6 | 395.0 | <0.73 | 10.3 | 10.3 |
| 1-2-0-2 | 4/23/2019 | 0-2 | 86.0 | 3.7 | 2.8 | 6.5 |
| 1-3-0-2 | 4/23/2019 | 0-2 | 18.0 | 11.2 | 1.9 | 13.1 |
| 1-3-2-4 | 4/23/2019 | 2-4 | 3.4 | <0.33 | 0.6 | 0.6 |
| 1-4-0-2 | 4/23/2019 | 0-2 | 200.0 | <0.3 | <0.3 | 0.21 |
| 1-5-0-2 | 4/23/2019 | 0-2 | 220.0 | <0.69 | 8.2 | 8.2 |
| 1-6-2-4 | 4/23/2019 | 2-4 | 395.0 | <0.26 | 0.63 | 0.63 |
| 1-7-2-3 | 4/23/2019 | 2-3 | 11.0 | <0.67 | 0.67 | 0.67 |
| NC Initial Action Level - UST Section for 5035/5030-GRO; 3550-DRO | | | | 50 | 100 | NA |

PID= photo-ionization detector
 PPM= parts-per-million

GRO= Gasoline Range Organics
 DRO= Diesel Range Organics
 mg/kg= milligrams-per-kilogram

TPH= Total Petroleum
 Hydrocarbons (GRO + DRO)

NA= Not Applicable

* Bold values indicate concentrations above initial action levels

APPENDIX A

Parcel 1

1993 Aerial



Google Earth

Image U.S. Geological Survey

Stokesburg Rd
65

311



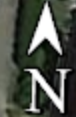
200 ft

Parcel 1
2018 Aerial



Google Earth

© 2018 Google



200 ft

APPENDIX B



PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2019-074)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION: PARCEL 1 NCDOT PROJECT R-5768 (44670.1.1)

425 MAIN STREET, WALNUT COVE, NC

APRIL 10, 2019

Report prepared for: Craig Haden
NCDOT Geotechnical Engineering Unit
1020 Birch Ridge Drive
Raleigh, NC 27610

Prepared by: _____

Eric C. Cross, P.G.
NC License #2181

Reviewed by: _____

Douglas A. Canavello, P.G.
NC License #1066

503 INDUSTRIAL AVENUE, WALNUT COVE, NC 27406

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C257: GEOLOGY C1251: ENGINEERING

GEOPHYSICAL INVESTIGATION REPORT
Parcel 1 – 425 Main Street
Walnut Cove, Stokes County, North Carolina

Table of Contents

Executive Summary 1
Introduction..... 2
Field Methodology 2
Discussion of Results 3
 Discussion of EM Results..... 3
 Discussion of GPR Results..... 4
Summary & Conclusions 5
Limitations 5

Figures

- Figure 1 – Parcel 1 - Geophysical Survey Boundaries and Site Photographs
- Figure 2 – Parcel 1 - EM61 Results Contour Map
- Figure 3 – Parcel 1 - GPR Transect Locations and Images
- Figure 4 – Overlay of Metal Detection Results on NCDOT Engineering Plans

LIST OF ACRONYMS

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

EXECUTIVE SUMMARY

Project Description: Pyramid Environmental conducted a geophysical investigation for the North Carolina Department of Transportation (NCDOT) at Parcel 1, located at 425 Main Street, in Walnut Cove, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project R-5768). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted on April 3, 2019, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

Geophysical Results: The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of seven EM anomalies were identified. All of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR was performed across EM anomalies associated with the building and suspected reinforced concrete to verify that the metallic interference associated with these features did not obscure any potential USTs. GPR did not record any evidence of significant buried structures. Collectively, the geophysical data did not record any evidence of USTs within the geophysical survey area at Parcel 1.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for the North Carolina Department of Transportation (NCDOT) at Parcel 1, located at 425 Main Street, in Walnut Cove, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project R-5768). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted on April 3, 2019, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site included a former car wash surrounded by asphalt and grass/dirt surfaces. An aerial photograph showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

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

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

generally parallel survey lines, spaced five feet apart. The data were downloaded to a computer and reviewed in the field and office using the Geonics NAV61 and Surfer for Windows Version 15.0 software programs.

GPR data were acquired across select EM anomalies on April 3, 2019, using a Geophysical Survey Systems, Inc. (GSSI) UtilityScan DF unit equipped with a dual frequency 300/800 MHz antenna. Data were collected both in reconnaissance fashion as well as along formal transect lines across EM features. The GPR data were viewed in real-time using a vertical scan of 512 samples, at a rate of 48 scans per second. GPR data were viewed down to a maximum depth of approximately 6 feet, based on dielectric constants calculated by the DF unit in the field during the reconnaissance scans. GPR transects across specific anomalies were saved to the hard drive of the DF unit for post-processing and figure generation.

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

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

DISCUSSION OF RESULTS

Discussion of EM Results

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

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

LIST OF METALLIC ANOMALIES IDENTIFIED BY EM SURVEY

| Metallic Anomaly # | Cause of Anomaly | Investigated with GPR |
|---------------------------|---|------------------------------|
| 1 | Surface Metal | |
| 2 | Supply Well | |
| 3 | Building/Surface Debris/Reinforced Concrete | ☑ |
| 4 | Bollards | |
| 5 | Water Meter | |
| 6 | Metal Poles | |
| 7 | Signs | |

All of the EM anomalies were directly attributed to visible cultural features at the ground surface, including metal debris, a supply well, a building, reinforced concrete, bollards, a water meter, metal poles, and signs. EM Anomaly 3 was investigated with GPR to confirm that these surface features did not obscure any potential USTs and that there was reinforcement in the concrete slab.

Discussion of GPR Results

Figure 3 presents the locations of the formal GPR transects performed at the property, as well as the transect images. A total of five formal GPR transects were performed at the site. GPR Transects 1-5 were performed across EM Anomaly 3. These transects confirmed the presence of reinforcement in the concrete slab. No evidence of any buried structures such as USTs was observed.

Collectively, the geophysical data did not record any evidence of metallic USTs within the survey area at Parcel 1. **Figure 4** provides an overlay of the geophysical metal detection results onto the NCDOT MicroStation engineering plans for reference.

SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 and GPR data collected at Parcel 1 in Walnut Cove, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- All of the EM anomalies were directly attributed to visible cultural features at the ground surface.
- GPR was performed across EM anomalies associated with the building and suspected reinforced concrete to verify that the metallic interference associated with these features did not obscure any potential USTs. GPR did not record any evidence of significant buried structures.
- Collectively, the geophysical data did not record any evidence of USTs within the geophysical survey area at Parcel 1.

LIMITATIONS

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

APPROXIMATE BOUNDARIES OF GEOPHYSICAL SURVEY AREA



View of Survey Area
(Facing Approximately Southwest)



View of Survey Area
(Facing Approximately Southwest)



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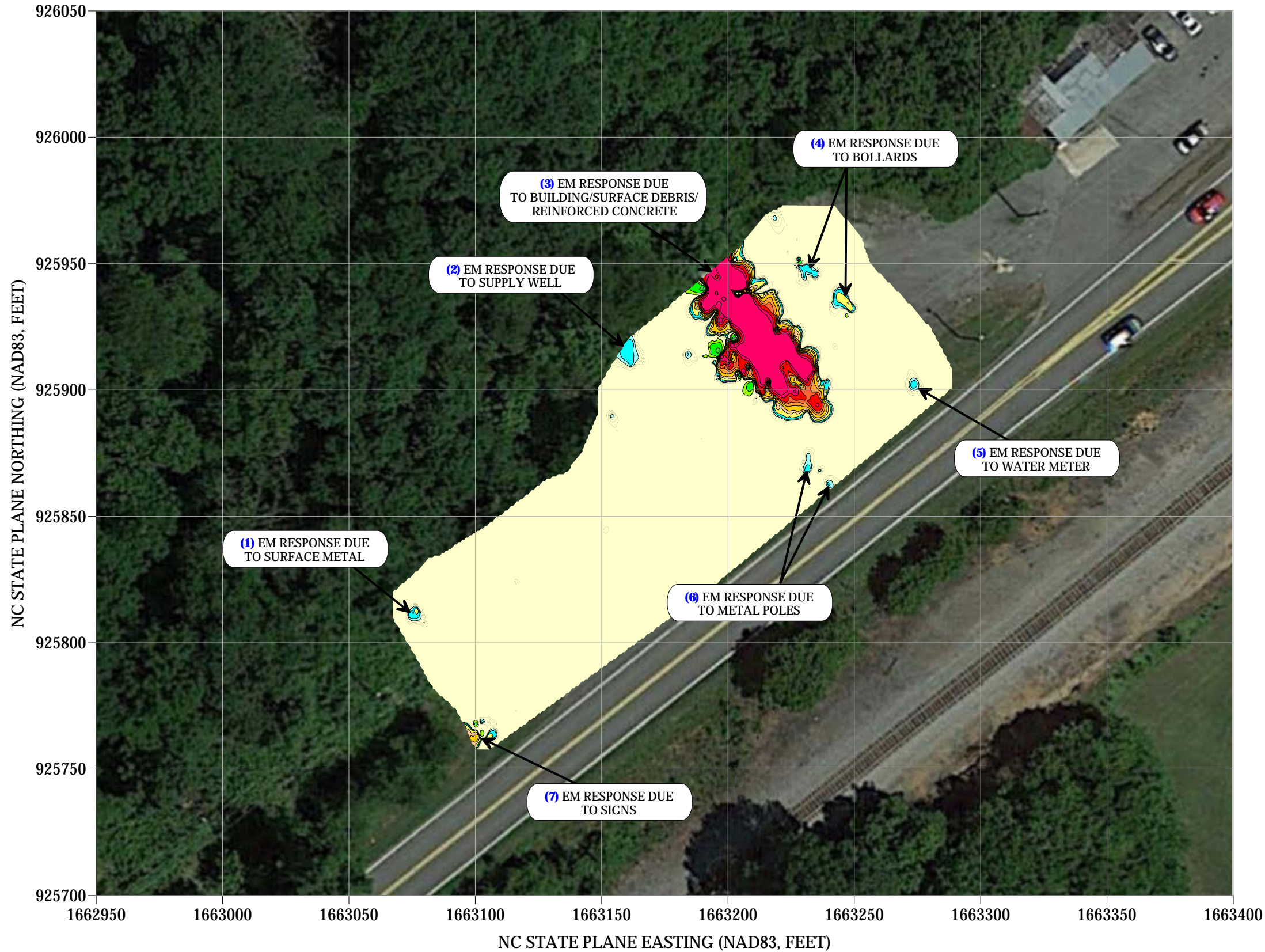
PROJECT
PARCEL 1
WALNUT COVE, NORTH CAROLINA
NCDOT PROJECT R-5768

TITLE
PARCEL 1 - GEOPHYSICAL SURVEY
BOUNDARIES AND SITE PHOTOGRAPHS

DATE
4/4/2019
PYRAMID PROJECT #:
2019-074

CLIENT
NCDOT
FIGURE 1

EM61 METAL DETECTION RESULTS



NO EVIDENCE OF METALLIC USTs WAS OBSERVED.

The contour plot shows the differential results of the EM61 instrument in millivolts (mV). The differential results focus on larger metallic objects such as USTs and drums. The EM61 data were collected on April 3, 2019, using a Geonics EM61 instrument. Verification GPR data were collected using a GSSI UtilityScan DF instrument with a dual frequency 300/800 MHz antenna on April 3, 2019.

EM61 Metal Detection Response (millivolts)



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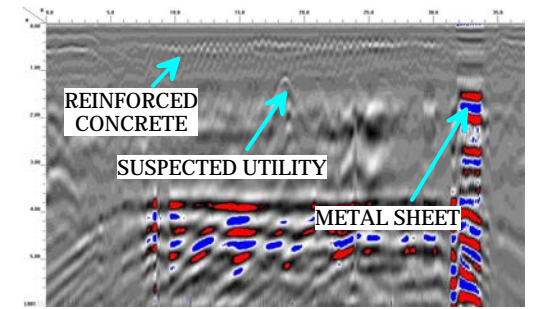
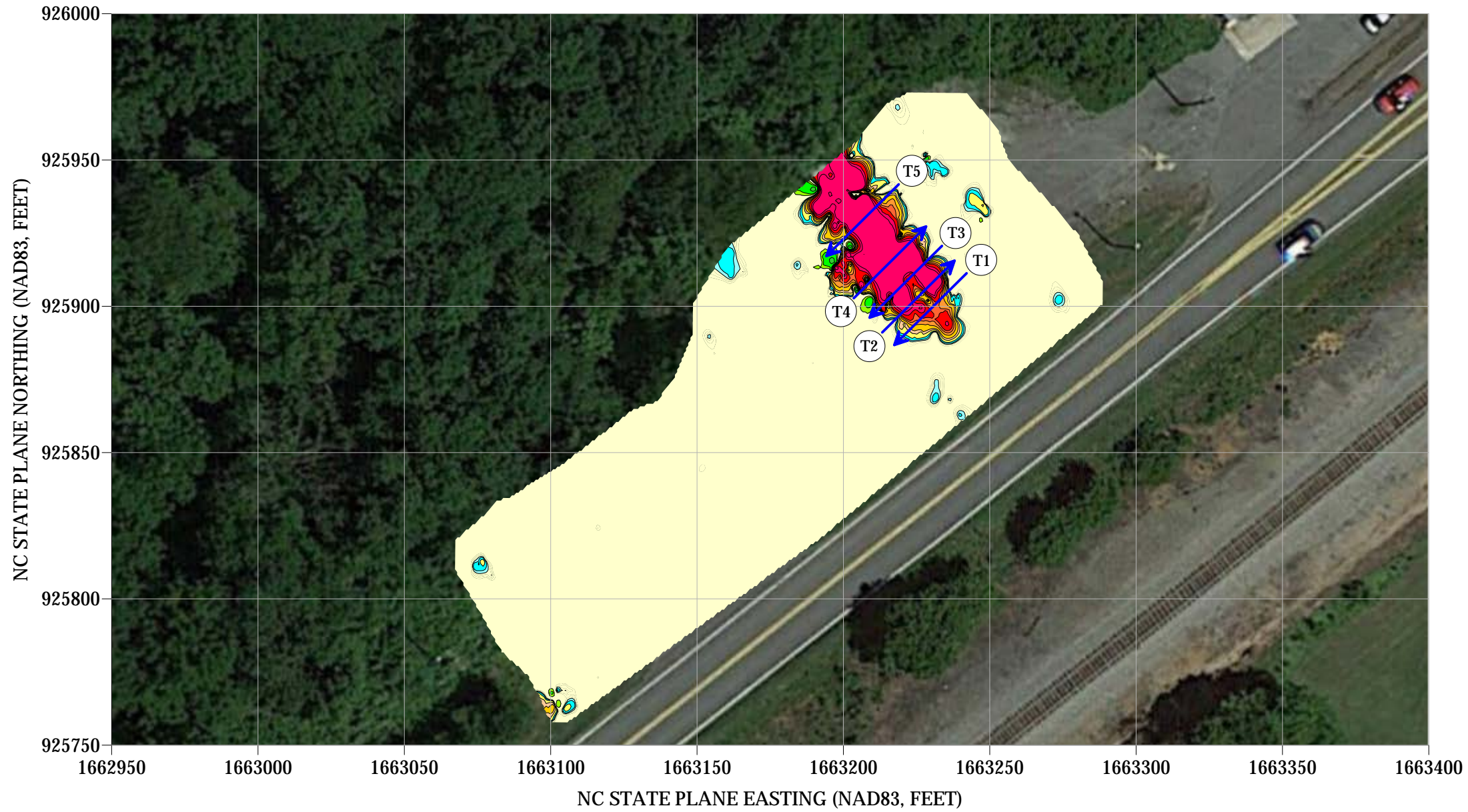
PROJECT
PARCEL 1
WALNUT COVE, NORTH CAROLINA
NCDOT PROJECT R-5768

TITLE
PARCEL 1 - EM61 METAL DETECTION
CONTOUR MAP

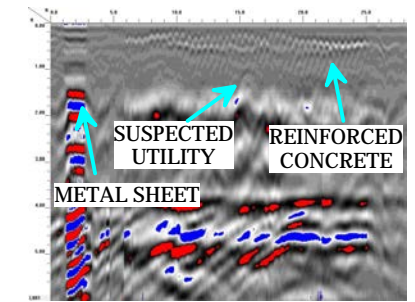
DATE
4/4/2019
PYRAMID PROJECT #:
2019-074

CLIENT
NCDOT
FIGURE 2

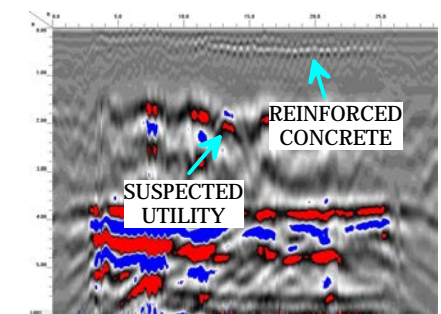
GPR TRANSECT LOCATIONS



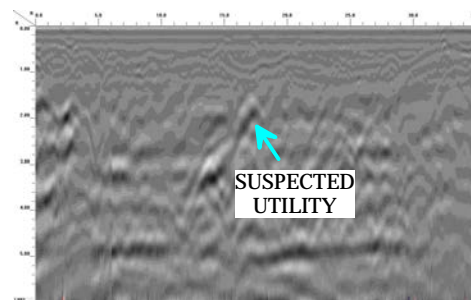
GPR TRANSECT 3 (T3)



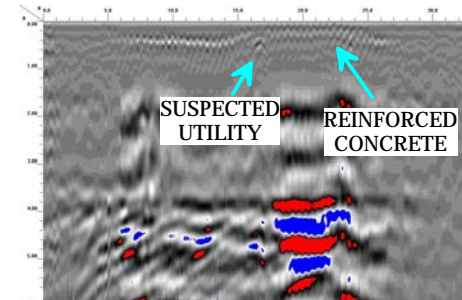
GPR TRANSECT 4 (T4)



GPR TRANSECT 5 (T5)



GPR TRANSECT 1 (T1)



GPR TRANSECT 2 (T2)



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PROJECT
PARCEL 1
WALNUT COVE, NORTH CAROLINA
NCDOT PROJECT U-5768

TITLE
PARCEL 1 - GPR TRANSECT LOCATIONS AND IMAGES

DATE
4/4/2019

PYRAMID PROJECT #:
2019-074

CLIENT
NCDOT

FIGURE 3

**EM61 METAL DETECTION CONTOURS
(SEE FIGURE 2 FOR ANOMALY LABELS)**

SANFORD L. SMITH
JO ANN SMITH

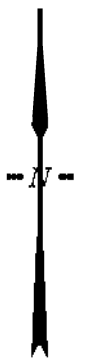
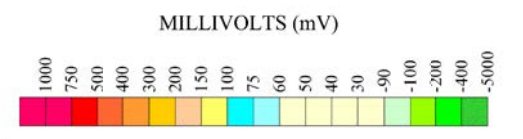
L- PT Sta. 13+79.38
HUNTER G. WILLIARD
CYNTHIA WILLIARD

20 TONS CL I RIPRAP
W/39 SY GEO FAB
ON BANKS ONLY

SOUTHERN SPECIAL CUT DITCH
SEE DETAIL D

3
DUANE SUTPHIN

- LEGEND**
- EXISTING ROW
 - EXISTING PROPERTY BOUNDARY
 - PROPOSED ROW LINE
 - TEMPORARY CONSTRUCTION EASEMENT
 - PUE
 - PROPOSED PERMANENT UTILITY EASEMENT
 - PROPOSED SS CUT LINE
 - PROPOSED SS FILL LINE



| | |
|--|----------------|
| TITLE OVERLAY OF METAL DETECTION RESULTS ON NCDOT ENGINEERING PLANS | |
| PROJECT PARCEL 1 WALNUT COVE, NORTH CAROLINA NCDOT PROJECT R-5768 | |
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| DATE: 04-03-2019 | REVISION NO. 0 |
| PYRAMID PROJECT NO. 2019-074 | FIGURE NO. 4 |

APPENDIX C

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

| | | | |
|--|--|------------------------------|------------------------|
| PROJECT NAME: PROJECT NUMBER: | NC DOT R-5768, Parcel 001, Walnut Cove, NC (2019-074) | BORING/WELL NO: | 1-5 |
| SITE LOCATION: | Stokes County, NC | BORING/WELL LOCATION: | Parcel 001, NW portion |
| START DATE: | 04/23/19 | COMPLETED: | 04/23/19 |
| GEOLOGIST: | T. Leatherman | DRILLER: | Draper Aden |
| DRILL METHOD: | Geoprobe | SAMPLE METHOD: | Macro-core |
| BORING DIA: | 2-inch | CASING DIA: | N/A |
| TOTAL DEPTH: | 8 feet | CASING DEPTH: | N/A |

| DEPTH (ft.) | VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC. | OVA RESULTS PERCENT RECOVERY BLOW COUNTS |
|----------------|---|--|
|----------------|---|--|

| | | |
|-----|---|--------------------|
| | Surface - Asphalt | Core Sample Depths |
| 0-2 | Gray, sandy-clayey-silt (ML), moist, possible oily odor | PID= 220 PPM |
| 2-4 | Brown, sandy-silty-clay (CL), firm, moist, no odor | PID= 125 PPM |
| 4-6 | Brown, sandy-silty-clay (CL), firm, moist, no odor | PID= 5.0 PPM |
| 6-8 | Brown, sandy-silty-clay (CL), firm, moist, no odor | PID= 70 PPM |
| | Geoprobe refusal at 8 feet. | |
| | No water in boring. | |
| | | |
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MONITORING WELL INFORMATION (IF APPLICABLE)

| | | | |
|---------------------------|---------------------|--------------------------------|----------------|
| RISER LENGTH (ft) ____ | DEPTH (ft) ____ | DIAMETER (in) ____ | MATERIAL ____. |
| SCREEN LENGTH (ft) ____ | DEPTH (ft) ____ | DIAMETER (in) ____ | MATERIAL ____. |
| DEPTH TO TOP OF SAND ____ | | BAGS OF SAND ____. | |
| DEPTH TO TOP SEAL ____ | BENTONITE USED ____ | BAGS OF CEMENT USED <u>0</u> . | |

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

| | | | |
|--|--|------------------------------|------------------------|
| PROJECT NAME: PROJECT NUMBER: | NC DOT R-5768, Parcel 001, Walnut Cove, NC (2019-074) | BORING/WELL NO: | 1-6 |
| SITE LOCATION: | Stokes County, NC | BORING/WELL LOCATION: | Parcel 001, NW portion |
| START DATE: | 04/23/19 | COMPLETED: | 04/23/19 |
| GEOLOGIST: | T. Leatherman | DRILLER: | Draper Aden |
| DRILL METHOD: | Geoprobe | SAMPLE METHOD: | Macro-core |
| BORING DIA: | 2-inch | CASING DIA: | N/A |
| TOTAL DEPTH: | 7 feet | CASING DEPTH: | N/A |

| DEPTH (ft.) | VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC. | OVA RESULTS PERCENT RECOVERY BLOW COUNTS |
|----------------|---|--|
|----------------|---|--|

| | | |
|-----|--|--------------------|
| | Surface - Asphalt | Core Sample Depths |
| 0-2 | brownish gray to gray, sandy-clayey-silt (ML), moist, possible oily odor | PID= 270 PPM |
| 2-4 | brownish gray to gray, sandy-clayey-silt (ML), moist, possible oily odor | PID= 395 PPM |
| 4-6 | Brown, sandy-clayey-silt (ML), moist, no odor | PID= 50 PPM |
| 6-7 | Brown, sandy-clayey-silt (ML), moist, no odor | PID= 35 PPM |
| | | |
| | Geoprobe refusal at 7 feet. | |
| | No water in boring. | |
| | | |
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| | | |

MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
 SCREEN LENGTH (ft) ___ DEPTH (ft) _____ DIAMETER (in) ___ MATERIAL _____.
 DEPTH TO TOP OF SAND _____ BAGS OF SAND _____.
 DEPTH TO TOP SEAL _____ BENTONITE USED _____ BAGS OF CEMENT USED 0_.

APPENDIX D



Hydrocarbon Analysis Results

Client: PYRAMID ENVIRONMENTAL
Address: 503 INDUSTRIAL AVENUE
 GREENSBORO NC 27406

Samples taken Tuesday, April 23, 2019
Samples extracted Tuesday, April 23, 2019
Samples analysed Thursday, April 25, 2019

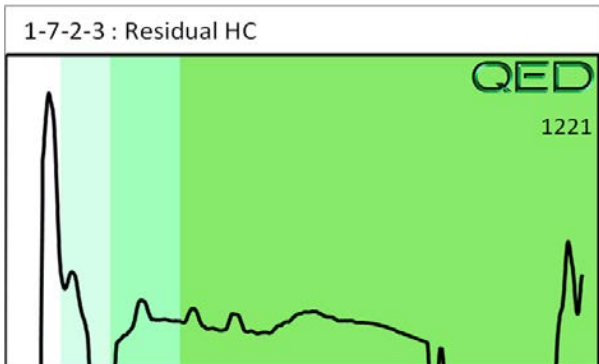
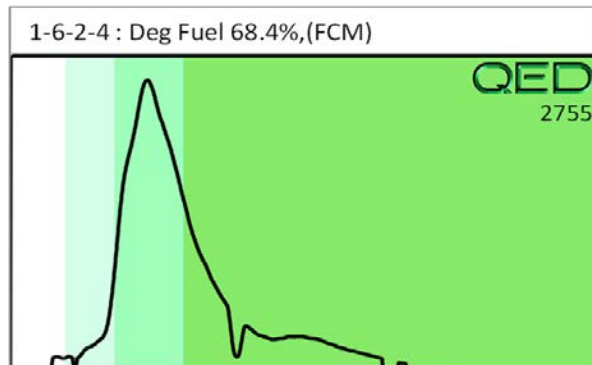
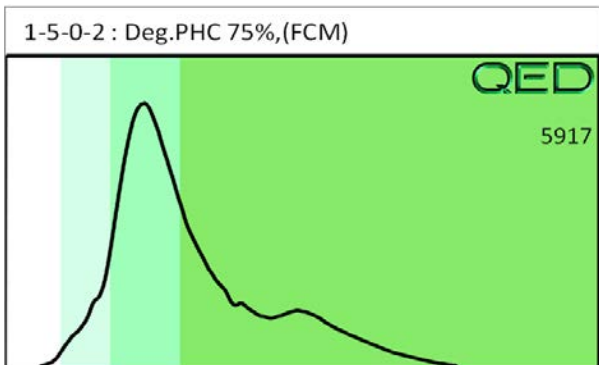
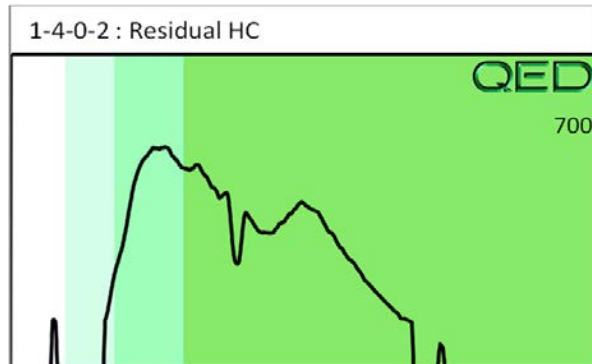
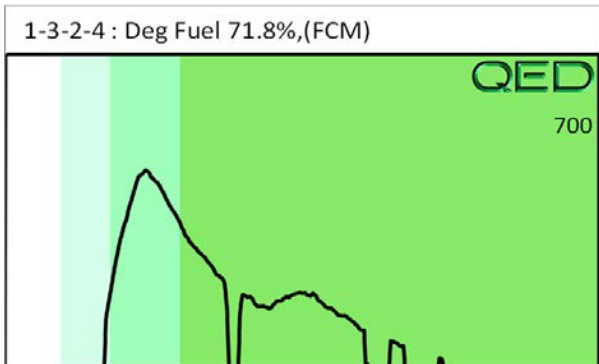
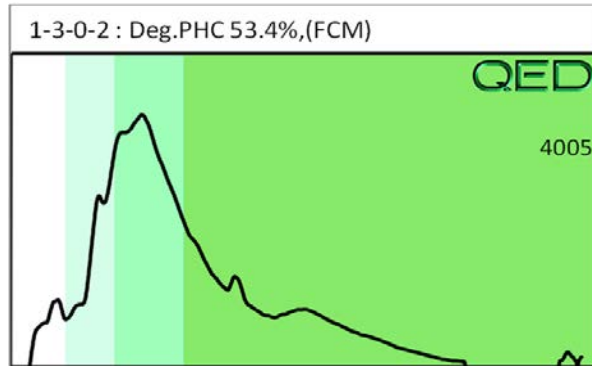
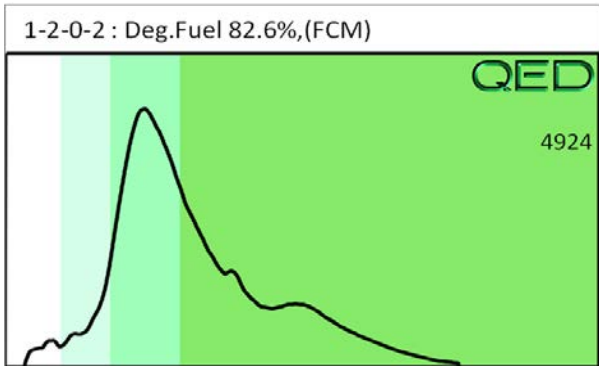
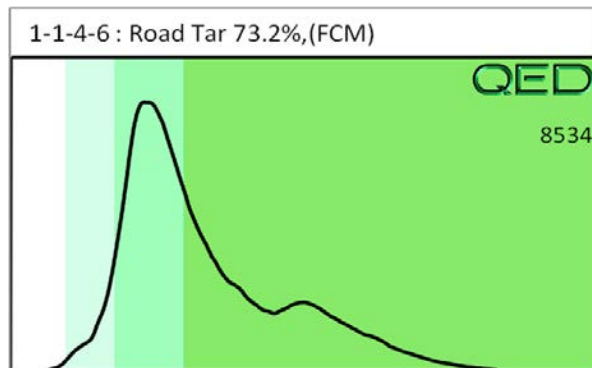
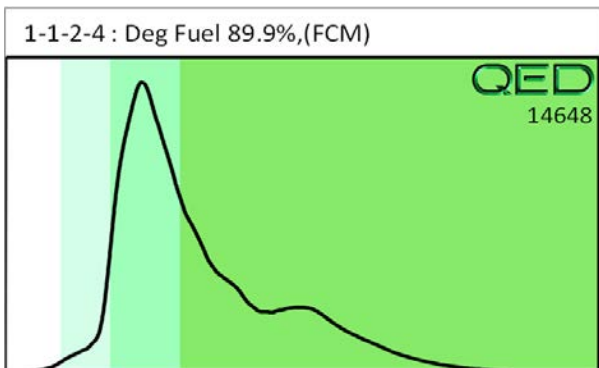
Contact: TIM LEATHERMAN

Operator DAVIS MARTINEC

Project: STOKES PARCEL 1 2019-074

| | | | | | | | | | | | F03640 | | |
|-----------------------------|-----------|---------------|----------------|----------------|-----------------|--------------------|---------------------------|-------------|--------|---------|--------|---------|----------------------|
| Matrix | Sample ID | Dilution used | BTEX (C6 - C9) | GRO (C5 - C10) | DRO (C10 - C35) | TPH (C5 - C35) | Total Aromatics (C10-C35) | 16 EPA PAHs | BaP | Ratios | | | HC Fingerprint Match |
| | | | | | | | | | | % light | % mid | % heavy | |
| s | 1-1-2-4 | 26.9 | <0.67 | <0.67 | 13 | 13 | 7.3 | 0.27 | <0.027 | 0 | 78 | 22 | Deg Fuel 89.9%,(FCM) |
| s | 1-1-4-6 | 29.4 | <0.73 | <0.73 | 10.3 | 10.3 | 4.5 | 0.44 | <0.029 | 0 | 75.8 | 24.2 | Road Tar 73.2%,(FCM) |
| s | 1-2-0-2 | 22.5 | <0.56 | 3.7 | 2.8 | 6.5 | 2.5 | <0.18 | <0.023 | 80.5 | 14.6 | 4.9 | Deg.Fuel 82.6%,(FCM) |
| s | 1-3-0-2 | 26.9 | <0.67 | 11.2 | 1.9 | 13.1 | 0.92 | <0.22 | <0.027 | 95.1 | 3.5 | 1.4 | Deg.PHC 53.4%,(FCM) |
| s | 1-3-2-4 | 13.4 | <0.33 | <0.33 | 0.6 | 0.6 | 0.16 | <0.11 | <0.013 | 0 | 60.8 | 39.2 | Deg Fuel 71.8%,(FCM) |
| s | 1-4-0-2 | 11.9 | <0.3 | <0.3 | <0.3 | 0.21 | 0.21 | <0.1 | <0.012 | 0 | 46.4 | 53.6 | Residual HC |
| s | 1-5-0-2 | 27.6 | <0.69 | <0.69 | 8.2 | 8.2 | 4.1 | <0.22 | <0.028 | 0 | 77 | 23 | Deg.PHC 75%,(FCM) |
| s | 1-6-2-4 | 10.3 | <0.26 | <0.26 | 0.63 | 0.63 | 0.34 | <0.08 | <0.01 | 0 | 83.6 | 16.4 | Deg Fuel 68.4%,(FCM) |
| s | 1-7-2-3 | 26.9 | <0.67 | <0.67 | 0.67 | 0.67 | 0.38 | <0.22 | <0.027 | 0 | 63.8 | 36.2 | Residual HC |
| Initial Calibrator QC check | | | OK | | | Final FCM QC Check | | | OK | | | 97.6 % | |

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



APPENDIX E

Pyramid Environmental & Engineering, P.C. Project # 2019-074
GeoEnvironmental Phase II Investigation (PHASE II) – Parcel 003 – Duane Sutphin

GEOENVIRONMENTAL PHASE II INVESTIGATION
PARCEL 003 – DUANE SUTPHIN
407 MAIN STREET
WALNUT COVE, STOKES COUNTY, NORTH CAROLINA
STATE PROJECT: R-5768
WBS ELEMENT: 44670.1.1
APRIL 30, 2019

Report prepared for:

Mr. Craig Haden
GeoEnvironmental Section
Geotechnical Engineering Unit
North Carolina Department of Transportation
1020 Birch Ridge Drive
Raleigh, NC 27610

Report prepared by:

Eric C. Cross, LG
NC License #2181



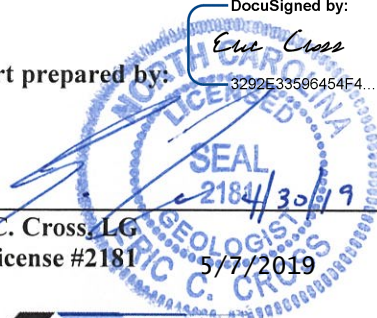
PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.
P.O. BOX 16265
GREENSBORO, NC 27416-0265
(336) 335-3174

C-257 –Geology
C-1251 – Engineering

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Michael Jones

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Report reviewed by:

Michael G. Jones, LG
NC License #1168

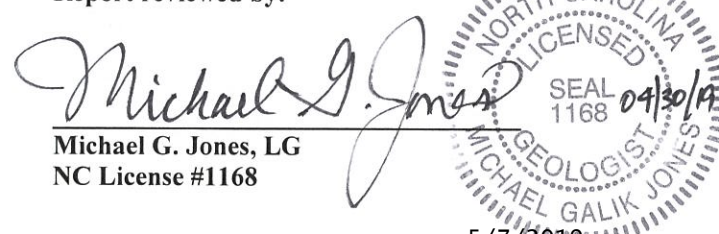


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APPENDICES

Appendix A: Historical Aerial Photographs

Appendix B: Geophysical Investigation Report

Appendix C: Soil Boring Logs

Appendix D: RED Lab QED HC-1 Hydrocarbon Analysis Results

Appendix E: Personnel Logs

Acronyms

| | | |
|--------|-------|---|
| BLS | ..... | Below Land Surface |
| BTEX | ..... | Benzene, Toluene, Ethylbenzene, & Xylenes |
| CADD | ..... | Computer Aided Design and Drafting |
| COC | ..... | Chain of Custody |
| CSA | ..... | Comprehensive Site Assessment |
| DEQ | ..... | Department of Environmental Quality |
| DRO | ..... | Diesel Range Organics |
| DWM | ..... | Division of Waste Management |
| EM | ..... | Electromagnetic (as with EM-61) |
| EPA | ..... | Environmental Protection Agency |
| GRO | ..... | Gasoline Range Organics |
| GCLs | ..... | Gross Contaminant Levels |
| GPR | ..... | Ground Penetrating Radar |
| HASP | ..... | Health & Safety Plan |
| MSCC | ..... | Maximum Soil Contaminant Concentration |
| MTBE | ..... | Methyl Tertiary Butyl Ether |
| µg/L | ..... | Micrograms per Liter |
| mg/kg | ..... | Milligram per kilogram |
| NPDES | ..... | National Pollution Discharge Elimination System |
| NCAC | ..... | North Carolina Administrative Code |
| NC DOT | ..... | North Carolina Department of Transportation |
| OSHA | ..... | Occupational Safety and Health Administration |
| OVA | ..... | Organic Vapor Analyzer |
| PPM | ..... | Parts Per Million |
| PID | ..... | Photo-ionization Detector |
| PSA | ..... | Preliminary Site Assessment |
| PVC | ..... | Poly-vinyl Chloride |
| RFP | ..... | Request for Proposal |
| ROW | ..... | Right of Way |
| SVOCs | ..... | Semi-Volatile Organic Compounds |
| TW | ..... | Temporary Well |
| TPH | ..... | Total Petroleum Hydrocarbons |
| UVF | ..... | Ultraviolet Fluorescence (UVF) QED Analyzer |
| UST | ..... | Underground Storage Tank |
| US EPA | ..... | United States Environmental Protection Agency |
| VOCs | ..... | Volatile Organic Compounds |

**GEOENVIRONMENTAL PHASE II INVESTIGATION
PARCEL 003 – DUANE SUTPHIN
407 MAIN STREET
WALNUT COVE, STOKES COUNTY, NORTH CAROLINA**

EXECUTIVE SUMMARY OF RESULTS

Pyramid Environmental & Engineering P.C. (Pyramid) has prepared this GeoEnvironmental Phase II Investigation (Phase II) report documenting background information, field activities, assessment activities, findings, conclusions, and recommendations for Parcel 003, owned by Duane Sutphin. The property currently contains a diner, a former market, and a vacant building surrounded by asphalt, grass and dirt surfaces at 407 Main Street, Walnut Cove, NC. This Phase II was conducted on behalf of the North Carolina Department of Transportation (NCDOT) in accordance with Pyramid’s February 28, 2019, technical proposal. This Phase II is a part of State Project R-5768.

The purpose of this assessment was to determine the presence or absence of underground storage tanks (USTs) and impacted soils between the existing edge of pavement and the proposed Right-Of-Way (ROW) and/or easements, whichever distance was greater. The Phase II was conducted with particular attention to the areas to be cut as indicated by slope stake lines and cross-sections or to be excavated for the installation of drainage features.

The following statements summarize the results of the Phase II:

- **Site History:** Pyramid interviewed DEQ personnel, interviewed property owners, and reviewed aerial photographs to assess past uses of the property. Pyramid reviewed aerial photographs from 1993 – 2018 obtained from Google Earth. Historical information reviewed as part of the Phase II indicated that the property appears to have remained in the same condition with its current building since at least 1993. Possible structures (it is unclear from the 1993 aerial if they are vehicles or other structures) are observed in front of the building in the 1993 aerial and are absent in the 1998 aerial.

On March 29, 2019, Pyramid emailed the Stokes County parcel address to Ms. Linda Estikowski at the NC Department of Environmental Quality (NC DEQ), with a request to investigate any environmental incidents associated with the parcel. Ms. Estikowski responded to the email and indicated that there were not any environmental incidents associated with the property.

Pyramid Staff Professional Tim Leatherman performed a site investigation at the property. Mr. Leatherman did not observe any significant environmental risks on the property at the time of the investigation. No vent pipes were observed that could indicate the presence of USTs.

- **Geophysical Survey:** The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of twelve EM anomalies were identified. All of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR was performed across EM anomalies associated with the building, vehicles, and suspected reinforced concrete to verify that the metallic interference associated with these features did not obscure any potential USTs. GPR did not record any evidence of significant buried structures. Collectively, the geophysical data did not record any evidence of USTs within the geophysical survey area at Parcel 3.
- **Limited Soil Assessment:** A total of seven soil borings were performed across the property. Soil samples were screened in the field using a Photo-Ionization Detector (PID) and select soil samples were analyzed for Diesel Range Organics (DRO) and Gasoline Range Organics (GRO) using a QED Analyzer. The DEQ action level for TPH-GRO is 50 milligrams per kilogram (mg/kg) and the action level for TPH-DRO is 100 mg/kg. Soil samples were screened with a PID and select soil samples were analyzed for DRO and GRO using a QED Analyzer.

One boring exhibited DRO concentrations above action levels. Specifically, one sample from boring 3-7 (2-3 feet) recorded a DRO concentration of **514.5 mg/kg**. None of the remaining soil samples analyzed exhibited DRO and GRO concentrations above action levels.

- **Limited Groundwater Assessment:** The water table was not encountered in the upper 10 feet of the soil column that was sampled during this Phase II. Review of the NCDOT engineering plans for this parcel indicate that groundwater will not be encountered during construction activities. Therefore, it was not necessary to collect a groundwater sample.
- **Contaminated Soil Volumes:** Pyramid's PSA investigation resulted in an **estimated volume of 428 cubic yards of impacted soil at the location of boring 3-7.** This was calculated using the bottom depth of the contaminated sample (3 feet below ground surface). The NCDOT engineering plans indicate that these contaminated soils are within a potential zone of planned soil excavation associated with a proposed drainage feature. The boundaries of the areas of contamination are approximate due to limited soil analytical data.

It should be noted that, if additional impacted soil is encountered during road construction outside of the area analyzed by this investigation, the impacted soil should be managed according to NC DEQ Division of Waste Management (DWM) guidelines and disposed of at a permitted facility.

1.0 INTRODUCTION

Pyramid Environmental & Engineering P.C. (Pyramid) has prepared this GeoEnvironmental Phase II Investigation (Phase II) report documenting background information, field activities, assessment activities, findings, conclusions, and recommendations for Parcel 003, owned by Duane Sutphin. The property currently contains a diner, a former market, and a vacant building surrounded by asphalt, grass and dirt surfaces at 407 Main Street, Walnut Cove, NC. This Phase II was conducted on behalf of the North Carolina Department of Transportation (NCDOT) in accordance with Pyramid's February 28, 2019, technical proposal. This Phase II is a part of State Project R-5768.

The purpose of this assessment was to determine the presence or absence of underground storage tanks (USTs) and impacted soils between the existing edge of pavement and the proposed Right-Of-Way (ROW) and/or easements, whichever distance was greater. The Phase II was conducted with particular attention to the areas to be cut as indicated by slope stake lines and cross-sections or to be excavated for the installation of drainage features. The location of the subject site is shown on **Figure 1**.

1.1 Background Information

Based on the NCDOT's February 18, 2019, *Request for Technical and Cost Proposal (RFP)*, the Phase II was conducted between the existing edge of pavement and the proposed ROW and/or easement lines (whichever distance was greater), with emphasis on the areas to be cut as indicated by slope stake lines and cross-sections or to be excavated for the installation of drainage features and/or other utilities, in accordance with the CADD files provided to Pyramid by the NCDOT. The Phase II included the following:

- Research the properties for past uses and possible releases.
- Conduct a preliminary geophysical site assessment and limited soil assessment across the entire parcel with emphasis on the areas to be cut as indicated by slope stake lines and cross-sections or to be excavated for the installation of drainage features and/or other utilities.
- If groundwater is likely to be encountered by subsequent excavation required by construction, then Pyramid will attempt to obtain a groundwater sample from the parcel.

1.2 Project Information

Prior to field activities, a Health and Safety Plan was prepared. Prior to drilling activities, the public underground utilities were located and marked by the North Carolina One-Call Service. Pyramid's geophysical staff provided additional private utility locating services to mark the on-site private, buried utilities.

2.0 SITE HISTORY

The NCDOT GeoEnvironmental Planning Report comments for Parcel 003 in the RFP documents provided to Pyramid on February 18, 2019, provided the following background information related to the site:

“The September 28, 2017, inspection of this property that fronts S. Main Street (US 311) observed the facility operating as restaurant and storage site. The facility is not listed in the reviewed public records. On the west side of the facility is a concrete patch in the asphalt paving pad. The owner of this property stated that a UST was removed between 1975 to 1980. The owner also operates a fuel delivery business with tanker trucks, but there is no infrastructure at this site. The wash bays located in the western portion of the property are not currently used. The ground surface is mostly asphalt pavement, with patches of gravel.”

Pyramid interviewed DEQ personnel, interviewed property owners, and reviewed aerial photographs to assess past uses of the property. Pyramid reviewed aerial photographs from 1993 – 2018 obtained from Google Earth. Historical information reviewed as part of the Phase II indicated that the property appears to have remained in the same condition with its current building since at least 1993. Possible structures (it is unclear from the 1993 aerial if they are vehicles or other structures) are observed in front of the building in the 1993 aerial and are absent in the 1998 aerial. The 1993, 1998 and 2018 aerial photographs are included in **Appendix A**.

On March 29, 2019, Pyramid emailed the Stokes County parcel address to Ms. Linda Estikowski at the NC Department of Environmental Quality (NC DEQ), with a request to investigate any environmental incidents associated with the parcel. Ms. Estikowski responded to the email and indicated that there were not any environmental incidents associated with the property.

Pyramid Staff Professional Tim Leatherman performed a site investigation at the property. Mr. Leatherman did not observe any significant environmental risks on the property at the time of the investigation. No vent pipes were observed that could indicate the presence of USTs.

3.0 GEOPHYSICAL INVESTIGATION

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

Geophysical Surveys for Underground Storage Tanks on NCDOT Projects

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

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of twelve EM anomalies were identified. All of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR was performed across EM anomalies associated with the building, vehicles, and suspected reinforced concrete to verify that the metallic interference associated with these features did not obscure any potential USTs. GPR did not record any evidence of significant buried structures. Collectively, the geophysical data did not record any evidence of USTs within the geophysical survey area at Parcel 3.

The full details of the geophysical investigation are documented in Pyramid's Geophysical Investigation Report, dated March 26, 2019, which is included as **Appendix B**.

4.0 SOIL SAMPLING ACTIVITIES & RESULTS

4.1 Soil Assessment Field Activities

On April 23, 2019, Pyramid mobilized to the site, drilled soil borings and collected the proposed soil samples for the Phase II. Seven (7) soil borings (3-1 through 3-7) were advanced on the subject property. The soil borings were completed using a truck-mounted Geoprobe drill rig. The selected locations were chosen to avoid public utilities along the adjacent roads and private utilities associated with the business while remaining in the proposed ROW and/or easement, or within other areas of concern such as proposed drainage features and areas designated for soil removal as indicated by the NCDOT engineering plans. The locations of the borings are shown on **Figure 2**.

Soil samples were continuously collected in four-foot long disposable sleeves from each boring for geologic description and visual examination for signs of contamination. Soil recovered from each sleeve was screened in the field using a Photo-Ionization Detector (PID) approximately every 2 feet, depending on the soil recovery. In general, the soil sample with the highest PID reading was selected from each boring for QED Ultra-Violet

Fluorescence (UVF) laboratory analysis. If field screening detected multiple elevated readings, then additional soil samples from each boring were selectively chosen for UVF analysis. The soil boring logs with the soil descriptions, visual examination, and PID screening results are included in **Appendix C**. The PID field screening results are summarized in **Table 1**. To prevent cross-contamination, new disposable nitrile gloves were worn by the sampling technician during the sampling activities and were changed between samples. Petroleum odor was detected in borings 3-1 and 3-6 during the field screening.

The soil samples selected for total petroleum hydrocarbon (TPH) analyses were analyzed utilizing the QED UVF HC-1 Analyzer system from RED Lab. The DEQ & NCDOT now accept this instrument as an analytical method to provide total petroleum hydrocarbon (TPH) results for soil analysis for Phase II projects. Pyramid preserved the samples for UVF analysis in methanol-filled containers provided by RED Lab. The samples were shipped to RED Lab for analysis following the soil collection. The soil samples selected for analysis using the QED Analyzer were analyzed for TPH as diesel range organics (DRO) and TPH as gasoline range organics (GRO).

4.2 Soil Sample Analytical Results

QED Results

The DEQ action level for TPH-GRO is 50 milligrams per kilogram (mg/kg) and the action level for TPH-DRO is 100 mg/kg. Soil samples were screened with an OVA, and select soil samples were analyzed for DRO and GRO using a QED Analyzer. One boring exhibited DRO concentrations above 10 mg/kg. Specifically, one sample from boring 3-7 (2-3 feet) recorded a DRO concentration of **514.5 mg/kg**. None of the remaining soil samples analyzed exhibited DRO and GRO concentrations above action levels. The soil sample QED results are summarized in **Table 2**. A copy of the QED analysis report is included in **Appendix D**.

4.3 Temporary Monitoring Well Installation

The water table was not encountered in the upper 10 feet of the soil column that was sampled during this Phase II. Review of the NCDOT engineering plans for this parcel indicate that groundwater will not be encountered during construction activities. Therefore, it was not necessary to collect a groundwater sample.

5.0 CONCLUSIONS AND RECOMMENDATIONS

As requested by the NCDOT, Pyramid has completed a Phase II at Parcel 003 (Duane Sutphin) located at 407 Main Street, Walnut Cove, NC. The following is a summary of the assessment activities and results.

5.1 Geophysical Investigation

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of twelve EM anomalies were identified. All of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR was performed across EM anomalies associated with the building, vehicles, and suspected reinforced concrete to verify that the metallic interference associated with these features did not obscure any potential USTs. GPR did not record any evidence of significant buried structures. Collectively, the geophysical data did not record any evidence of USTs within the geophysical survey area at Parcel 3.

5.2 Limited Soil Assessment

The DEQ action level for TPH-GRO is 50 milligrams per kilogram (mg/kg) and the action level for TPH-DRO is 100 mg/kg. Soil samples were screened with an OVA, and select soil samples were analyzed for DRO and GRO using a QED Analyzer. One boring exhibited DRO concentrations above action levels. Specifically, one sample from boring 3-7 (2-3 feet) recorded a DRO concentration of **514.5 mg/kg**. None of the remaining soil samples analyzed exhibited DRO and GRO concentrations above action levels.

5.3 Limited Groundwater Assessment

The water table was not encountered in the upper 10 feet of the soil column that was sampled during this Phase II. Review of the NCDOT engineering plans for this parcel indicate that groundwater will not be encountered during construction activities. Therefore, it was not necessary to collect a groundwater sample.

5.4 Recommendations

Petroleum-Impacted Soils

During road construction activities, it is possible the NCDOT may encounter petroleum impacted soil near soil boring 3-7. DRO concentrations of a soil sample from this boring exceeded action levels. The direct source of this petroleum was not evident during this investigation. The NCDOT MicroStation plans indicate a proposed drainage feature at this location that may require excavation for installation.

Estimating the Area of Contamination

The estimated area of contamination is depicted on **Figure 2**. The boundaries of the area of contamination are generally estimated by applying a circular area of contamination around a boring exhibiting DRO/GRO levels above action levels with a radius equal to half the distance between that boring and the nearest “clean” boring. In cases where this

approach is not feasible, such as near property boundaries or where data does not exist to provide a definitive boundary, the area of contamination is terminated using the distance to the property boundary as a radius, or an educated approximation is applied.

Pyramid's PSA investigation resulted in an **estimated volume of 428 cubic yards of impacted soil at the location of boring 3-7**. This was calculated using the bottom depth of the contaminated sample (3 feet below ground surface). The NCDOT engineering plans indicate that these contaminated soils are within a potential zone of planned soil excavation associated with a proposed drainage feature. The boundaries of the areas of contamination are approximate due to limited soil analytical data.

It should be noted that, if impacted soil is encountered during road construction outside of the area analyzed by this investigation, the impacted soil should be managed according to NC DEQ Division of Waste Management (DWM) UST Section Guidelines and disposed of at a permitted facility.

6.0 LIMITATIONS

The results of this preliminary investigation are limited to the boring locations completed during this limited assessment and presented in this report. The laboratory results only reflect the current conditions at the locations sampled on the date this Phase II was performed.

7.0 CLOSURE

This report was prepared for, and is available solely for use by, the NCDOT and their designees. The contents thereof may not be used or relied upon by any other person without the express written consent and authorization of Pyramid Environmental & Engineering, P.C. (Pyramid). The observations, conclusions, and recommendations documented in this report are based on site conditions and information reviewed at the time of Pyramid's investigation. Pyramid appreciates the opportunity to provide this environmental service.

FIGURES

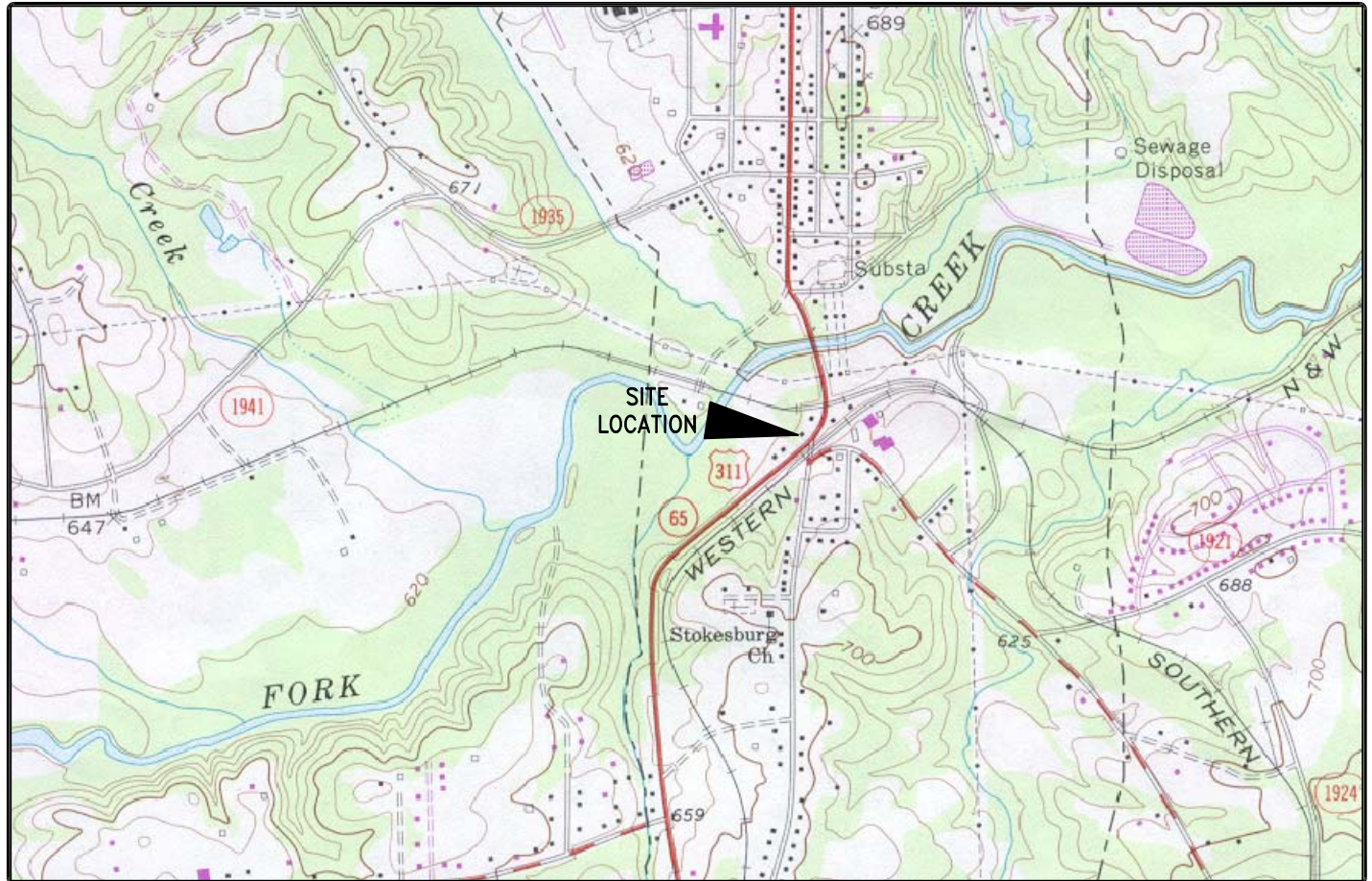
USGS TOPOGRAPHIC MAP

SITE:

407 S. MAIN STREET

LOCATION:

WALNUT COVE, NORTH CAROLINA



USGS IDENTIFICATION

SCALES

USGS 7.5
MINUTE MAP

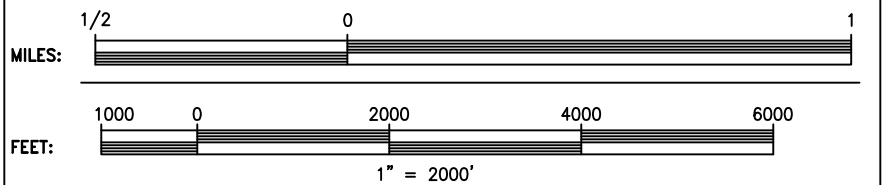
WALNUT COVE, N.C.

ORIGINAL DATE:

1971

PHOTOREVISION
DATE:

1986

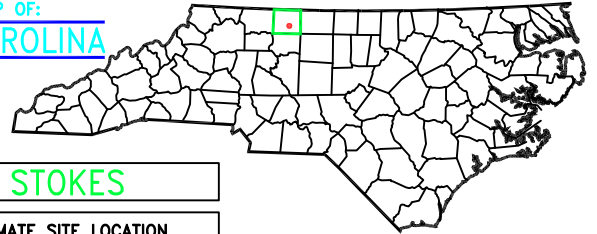


| | |
|--|--|
| | PRIMARY HIGHWAY, HARD SURFACE |
| | SECONDARY HIGHWAY, HARD SURFACE |
| | LIGHT-DUTY ROAD HARD OR IMPROVED SURFACE |
| | UNIMPROVED ROAD |
| | STATE ROAD |
| | U.S. ROUTE |
| | INTERSTATE ROUTE |

NOTES: TOPOGRAPHICAL CONTOUR INTERVAL = 20 FEET
 PHOTOREVISIONS DENOTED IN PURPLE

MAGNETIC
NORTH

COUNTY MAP OF:
NORTH CAROLINA



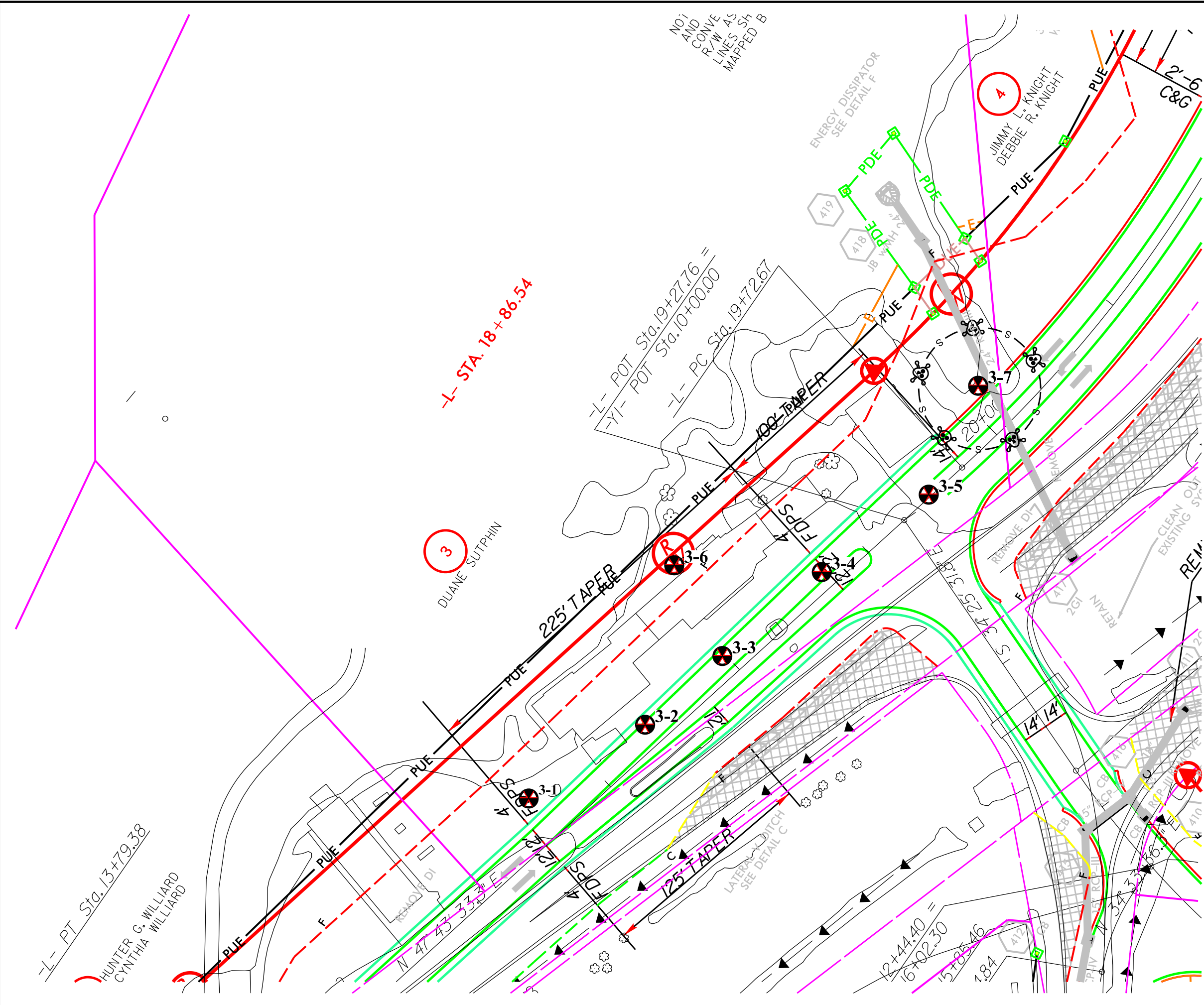
COUNTY: **STOKES**
 APPROXIMATE SITE LOCATION



CLIENT: NCDOT PROJECT R-5768
 PROPERTY NAME: 407 S. MAIN ST., PARCEL 3
 CITY: WALNUT COVE STATE: NORTH CAROLINA
 TITLE: TOPOGRAPHIC MAP

SCALE: 1"=2000'
 DATE: 4/4/19
 DRAWING NAME: USGSTOPO
 DRAWN BY: KAM
 CHECK BY: EC
 JOB NO.: 2019-074
 TYPE: PSA
 FIGURE NUMBER: 1

NOTES
 TOPOGRAPHIC MAP USED IN THIS GRAPHIC IS MAPPED, EDITED, AND PUBLISHED BY THE UNITED STATES GEOLOGIC SURVEY, DEPARTMENT OF THE INTERIOR, RESTON VIRGINIA.
 THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS.



NO. 1
AND
CONVE
R/W AS
LINES SH
MAPPED B

ENERGY DISSIPATOR
SEE DETAIL F

JIMMY L. KNIGHT
DEBBIE R. KNIGHT

3
DUANE SUTPHIN

L- PT Sta. 13+79.38
HUNTER G. WILLIARD
CYNTHIA WILLIARD

L- STA. 18+86.54
L- POT Sta. 19+27.76 =
-YI- POT Sta. 10+00.00
L- PC Sta. 19+72.67

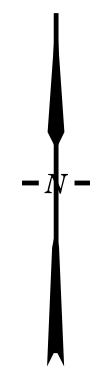
LATERAL DITCH
SEE DETAIL C

12+44.40 =
16+02.30
15+85.46
1.84

LEGEND

- EXISTING ROW
- EXISTING PROPERTY BOUNDARY
- PROPOSED ROW LINE
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED PERMANENT UTILITY EASEMENT
- PROPOSED SS CUT LINE
- PROPOSED SS FILL LINE
- SOIL SAMPLING LOCATION*
- AREA OF SOIL CONTAMINATION

*ANALYTICAL DATA PRESENTED
IN TABLE 2 OF PHASE II REPORT



| | |
|--|----------------|
| TITLE SOIL BORING LOCATIONS AND ESTIMATED AREA OF SOIL CONTAMINATION | |
| PROJECT PARCEL 3 WALNUT COVE, NORTH CAROLINA NCDOT PROJECT R-5768 | |
| 503 INDUSTRIAL AVENUE GREENSBORO, NC 27406 336.335.3174 (p) 336.691.0648 (f) License # C1251 Eng. / #C257 Geology | |
| DATE: 04-23-2019 | REVISION NO. 0 |
| PYRAMID PROJECT NO. 2019-074 | FIGURE NO. 2 |

TABLES

TABLE 1
Summary of Soil Field Screening Results
 NCDOT Project R-5768
 Parcel 003 - Stokes County PSAs
 Duane Sutphin - 407 S. Main Street
 Walnut Cove, Stokes County, North Carolina

| SOIL BORING 4/23/2019 | SAMPLE ID | DEPTH (feet bgs) | PID READINGS (PPM) |
|--------------------------|-----------|---------------------|-----------------------|
| 3-1 | 3-1-0-2 | 0 to 2 | 20.0 |
| | 3-1-2-4 | 2 to 4 | 5.0 |
| | 3-1-4-6 | 4 to 6 | 3.0 |
| | 3-1-6-8 | 6 to 8 | 2.0 |
| | 3-1-8-10 | 8 to 10 | 1.5 |
| 3-2 | 3-2-0-2 | 0 to 2 | 2.0 |
| | 3-2-2-4 | 2 to 4 | 2.2 |
| 3-3 | 3-3-0-2 | 0 to 2 | 3.0 |
| | 3-3-2-4 | 2 to 4 | 3.5 |
| | 3-3-4-6 | 4 to 6 | 3.0 |
| | 3-3-6-8 | 6 to 8 | 1.5 |
| 3-4 | 3-4-0-2 | 0 to 2 | 4.8 |
| | 3-4-2-4 | 2 to 4 | 3.5 |
| | 3-4-4-6 | 4 to 6 | 3.6 |
| | 3-4-6-8 | 6 to 8 | 2.8 |
| | 3-4-8-10 | 8 to 10 | 1.9 |
| 3-5 | 3-5-0-2 | 0 to 2 | 3.4 |
| | 3-5-2-4 | 2 to 4 | 2.2 |
| | 3-5-4-6 | 4 to 6 | 1.9 |
| | 3-5-6-8 | 6 to 8 | 2.8 |
| | 3-5-8-10 | 8 to 10 | 3.2 |
| 3-6 | 3-6-0-1 | 0 to 1 | 30.0 |
| | 3-6-2 | 2 | 200.0 |
| 3-7 | 3-7-0-1 | 0 to 1 | 3.4 |
| | 3-7-2-3 | 2 to 3 | 4.2 |

bgs= below ground surface

PID= photo-ionization detector

PPM= parts-per-million

☐ = sampled for lab analysis &/or QROS-QED analysis

OVA= Organic Vapor Analyzer

TABLE 2
Summary of Soil Sample QED Analytical Results for GRO/DRO
 NCDOT State Project R-5768
 Parcel 003 Duane Sutphin - 407 S. Main Street
 Walnut Cove, Stokes County, North Carolina

| SAMPLE ID | DATE | DEPTH (feet) | PID (ppm) | QROS - QED Analysis | | |
|--|-----------|--------------|-----------|----------------------|-----------------------|----------------------|
| | | | | GRO (mg/kg) (C5-C10) | DRO (mg/kg) (C10-C35) | TPH (mg/kg) (C5-C35) |
| 3-1-0-2 | 4/23/2019 | 0-2 | 20.0 | <0.58 | 32.8 | 32.8 |
| 3-1-2-4 | 4/23/2019 | 2-4 | 5.0 | <0.59 | <0.59 | <0.59 |
| 3-2-0-2 | 4/23/2019 | 0-2 | 2.2 | <0.54 | 9 | 9 |
| 3-3-2-4 | 4/23/2019 | 2-4 | 3.5 | <0.81 | 33.4 | 33.4 |
| 3-4-0-2 | 4/23/2019 | 0-2 | 4.8 | <0.61 | 4.7 | 4.7 |
| 3-5-0-2 | 4/23/2019 | 0-2 | 3.4 | <0.52 | 14.6 | 14.6 |
| 3-6-2 | 4/23/2019 | 2 | 200.0 | 7.6 | 50.2 | 57.8 |
| 3-7-2-3 | 4/23/2019 | 2-3 | 4.2 | <4.3 | 514.5 | 514.5 |
| NC Initial Action Level - UST Section for 5035/5030-GRO; 3550-DRO | | | | 50 | 100 | NA |

PID= photo-ionization detector
 PPM= parts-per-million

GRO= Gasoline Range Organics
 DRO= Diesel Range Organics
 mg/kg= milligrams-per-kilogram

TPH= Total Petroleum Hydrocarbons (GRO + DRO)

NA= Not Applicable

* Bold values indicate concentrations above initial action levels

APPENDIX A

Parcel 3

1993 Aerial

Depot Rd

Cement Plant

N Main St

311

North Carolina Hwy 65 E

Mealster St

65

S Main St

Google Earth

Image U.S. Geological Survey



500 ft



Parcel 3

1998 Aerial



Depot Rd

Cement Plant

N Main St

311

North Carolina Hwy 65 E

Mealster St

65

S Main St

Google Earth

Image U.S. Geological Survey

500 ft



Parcel 3
2018 Aerial



APPENDIX B



PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2019-074)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION: PARCEL 3 NCDOT PROJECT R-5768 (44670.1.1)

407 MAIN STREET, WALNUT COVE, NC

APRIL 10, 2019

Report prepared for: Craig Haden
NCDOT Geotechnical Engineering Unit
1020 Birch Ridge Drive
Raleigh, NC 27610

Prepared by: _____

Eric C. Cross, P.G.
NC License #2181

Reviewed by: _____

Douglas A. Canavello, P.G.
NC License #1066

GEOPHYSICAL INVESTIGATION REPORT
Parcel 3 – 407 Main Street
Walnut Cove, Stokes County, North Carolina

Table of Contents

Executive Summary 1
Introduction..... 2
Field Methodology..... 2
Discussion of Results..... 3
 Discussion of EM Results..... 3
 Discussion of GPR Results..... 4
Summary & Conclusions 5
Limitations 5

Figures

- Figure 1 – Parcel 3 - Geophysical Survey Boundaries and Site Photographs
- Figure 2 – Parcel 3 - EM61 Results Contour Map
- Figure 3 – Parcel 3 - GPR Transect Locations and Select Images
- Figure 4 – Overlay of Metal Detection Results on NCDOT Engineering Plans

Appendices

- Appendix A – GPR Transect Images

LIST OF ACRONYMS

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

EXECUTIVE SUMMARY

Project Description: Pyramid Environmental conducted a geophysical investigation for the North Carolina Department of Transportation (NCDOT) at Parcel 3, located at 407 Main Street, in Walnut Cove, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project R-5768). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted on April 3, 2019, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

Geophysical Results: The geophysical investigation consisted of electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of twelve EM anomalies were identified. All of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR was performed across EM anomalies associated with the building, vehicles, and suspected reinforced concrete to verify that the metallic interference associated with these features did not obscure any potential USTs. GPR did not record any evidence of significant buried structures. Collectively, the geophysical data did not record any evidence of USTs within the geophysical survey area at Parcel 3.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for the North Carolina Department of Transportation (NCDOT) at Parcel 3, located at 407 Main Street, in Walnut Cove, NC. The survey was part of an NCDOT Right-of-Way (ROW) investigation (NCDOT Project R-5768). The survey was designed to extend from the existing edge of pavement into the proposed ROW and/or easements, whichever distance was greater. Conducted on April 3, 2019, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site included a diner, a former market, and a vacant building surrounded by asphalt and grass/dirt surfaces. On the northeast portion of the property, there was metallic debris at and just below the surface. An aerial photograph showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

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

According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. The EM61 data were digitally collected at

approximately 0.8-foot intervals along north-south trending or east-west trending, generally parallel survey lines, spaced five feet apart. The data were downloaded to a computer and reviewed in the field and office using the Geonics NAV61 and Surfer for Windows Version 15.0 software programs.

GPR data were acquired across select EM anomalies on April 3, 2019, using a Geophysical Survey Systems, Inc. (GSSI) UtilityScan DF unit equipped with a dual frequency 300/800 MHz antenna. Data were collected both in reconnaissance fashion as well as along formal transect lines across EM features. The GPR data were viewed in real-time using a vertical scan of 512 samples, at a rate of 48 scans per second. GPR data were viewed down to a maximum depth of approximately 6 feet, based on dielectric constants calculated by the DF unit in the field during the reconnaissance scans. GPR transects across specific anomalies were saved to the hard drive of the DF unit for post-processing and figure generation.

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

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

DISCUSSION OF RESULTS

Discussion of EM Results

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

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

LIST OF METALLIC ANOMALIES IDENTIFIED BY EM SURVEY

| Metallic Anomaly # | Cause of Anomaly | Investigated with GPR |
|---------------------------|-------------------------------|------------------------------|
| 1 | AST/Air Conditioner | |
| 2 | Dumpsters | |
| 3 | Building/Surface Debris | ☑ |
| 4 | Metal Surface Debris | |
| 5 | Metal Surface Debris | |
| 6 | Signs/Utilities | |
| 7 | Vehicle (Moved During Survey) | ☑ |
| 8 | Vehicle | ☑ |
| 9 | Building | ☑ |
| 10 | Vehicle/Building | ☑ |
| 11 | Reinforced Concrete | ☑ |
| 12 | Sign | |

All of the EM anomalies were directly attributed to visible cultural features at the ground surface, including an AST, an air conditioner, dumpsters, a building, metal surface debris, signs, utilities, vehicles, and reinforced concrete. EM Anomalies 3 and 7-10 were investigated with GPR to confirm that these surface features did not obscure any potential USTs. EM Anomaly 11 was investigated with GPR to confirm that there was reinforcement in the concrete slab and the reinforcement did not obscure any potential USTs.

Discussion of GPR Results

Figure 3 presents the locations of the formal GPR transects and reconnaissance GPR performed at the property, as well as select transect images. All of the transect images are included in **Appendix A**. A total of 10 formal GPR transects were performed at the site. GPR Transects 1-5 were performed across EM Anomaly 11. These transects confirmed the presence of reinforcement in the concrete slab. No evidence of any buried structures such as USTs was observed.

GPR Transects 6-10 and reconnaissance GPR were performed across EM Anomalies 3 and 7-10. No evidence of any buried structures such as USTs was observed.

Collectively, the geophysical data did not record any evidence of metallic USTs within the survey area at Parcel 3. **Figure 4** provides an overlay of the geophysical metal detection results onto the NCDOT MicroStation engineering plans for reference.

SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 and GPR data collected at Parcel 3 in Walnut Cove, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- All of the EM anomalies were directly attributed to visible cultural features at the ground surface.
- GPR was performed across EM anomalies associated with the building, vehicles, and suspected reinforced concrete to verify that the metallic interference associated with these features did not obscure any potential USTs. GPR did not record any evidence of significant buried structures.
- Collectively, the geophysical data did not record any evidence of USTs within the geophysical survey area at Parcel 3.

LIMITATIONS

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

concrete, or other restrictions to the accessibility of the geophysical instruments could not be fully investigated.

APPROXIMATE BOUNDARIES OF GEOPHYSICAL SURVEY AREA



View of Survey Area
(Facing Approximately Northeast)



View of Survey Area
(Facing Approximately Northwest)



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PROJECT
PARCEL 3
WALNUT COVE, NORTH CAROLINA
NCDOT PROJECT R-5768

TITLE
PARCEL 3 - GEOPHYSICAL SURVEY
BOUNDARIES AND SITE PHOTOGRAPHS

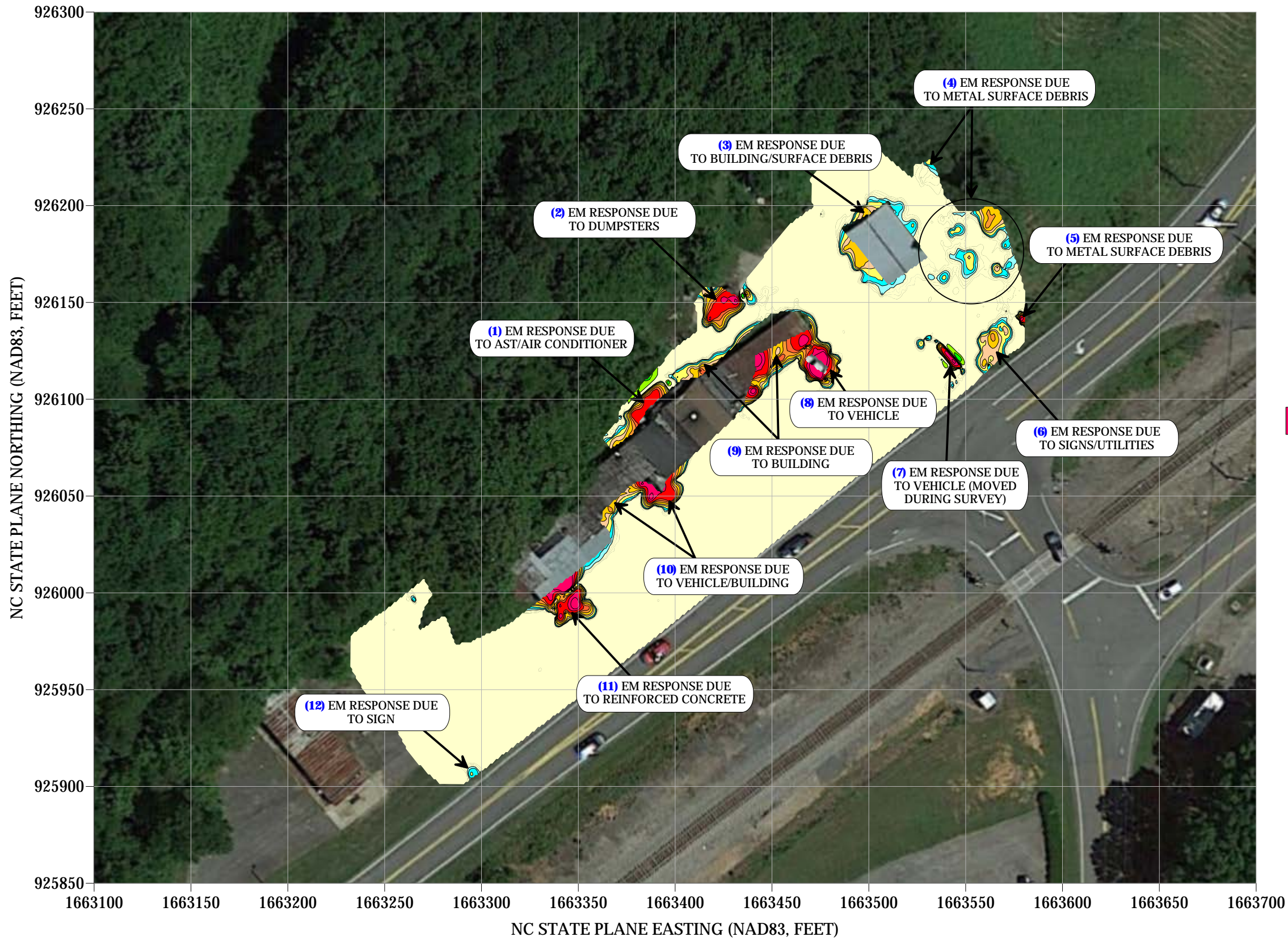
DATE
4/4/2019

PYRAMID PROJECT #:
2019-074

CLIENT
NCDOT

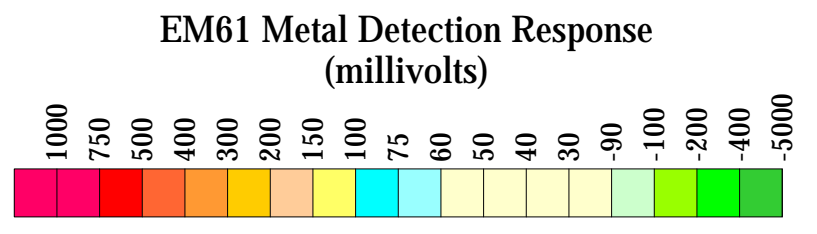
FIGURE 1

EM61 METAL DETECTION RESULTS



NO EVIDENCE OF METALLIC USTs WAS OBSERVED.

The contour plot shows the differential results of the EM61 instrument in millivolts (mV). The differential results focus on larger metallic objects such as USTs and drums. The EM61 data were collected on April 3, 2019, using a Geonics EM61 instrument. Verification GPR data were collected using a GSSI UtilityScan DF instrument with a dual frequency 300/800 MHz antenna on April 3, 2019.



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PROJECT
**PARCEL 3
WALNUT COVE, NORTH CAROLINA
NCDOT PROJECT R-5768**

TITLE
**PARCEL 3 - EM61 METAL DETECTION
CONTOUR MAP**

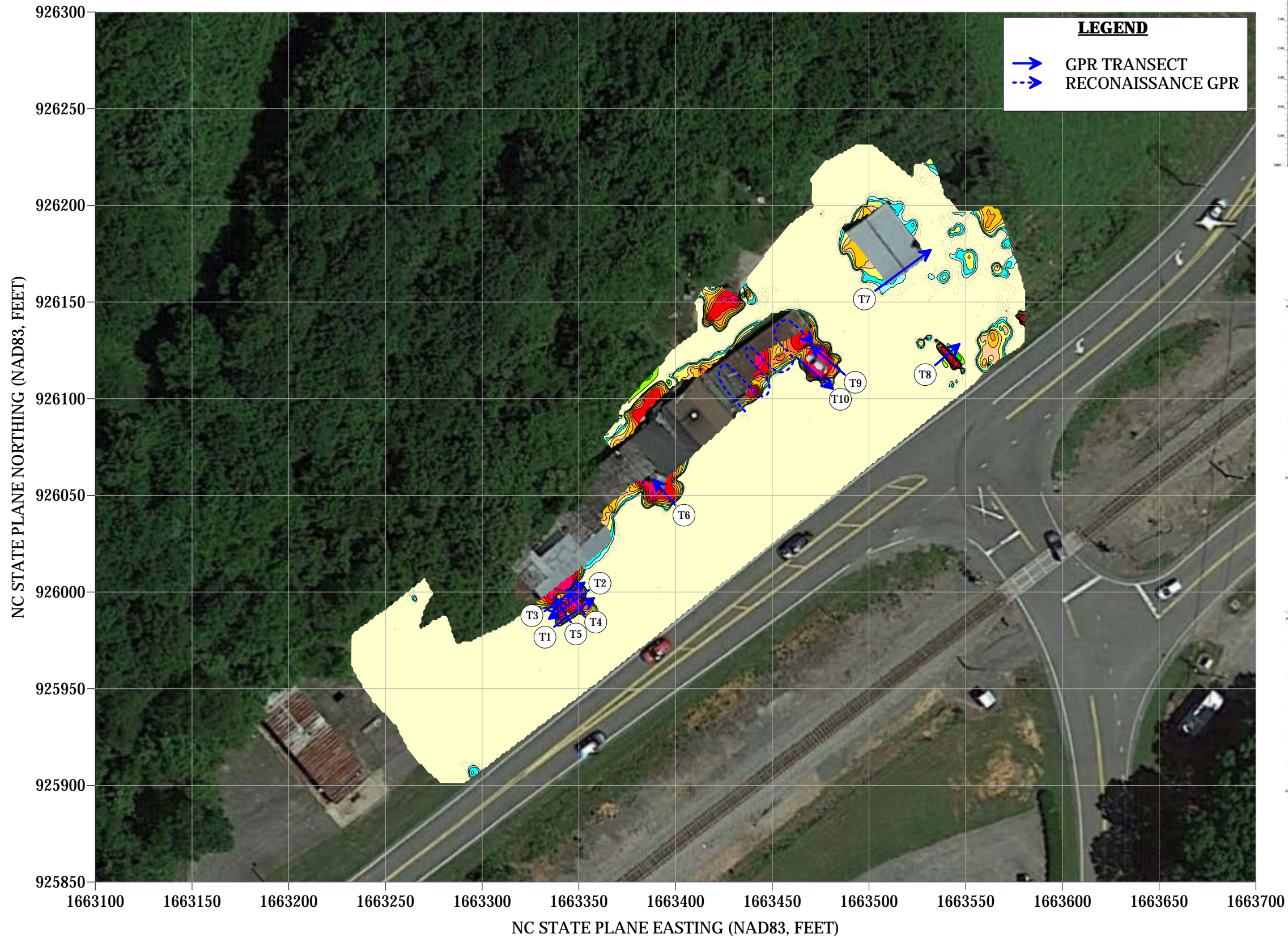
DATE
4/4/2019

PYRAMID PROJECT #:
2019-074

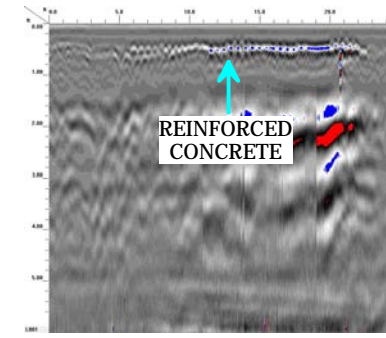
CLIENT
NCDOT

FIGURE 2

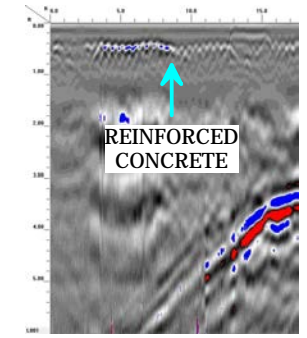
GPR TRANSECT LOCATIONS



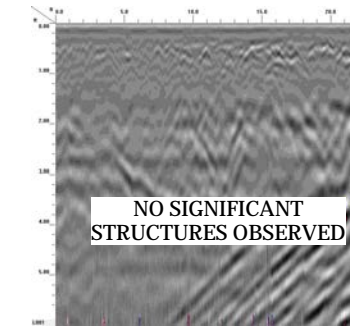
LEGEND
 → GPR TRANSECT
 - - - → RECONNAISSANCE GPR



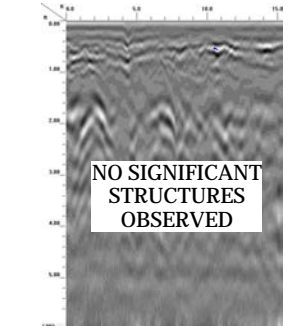
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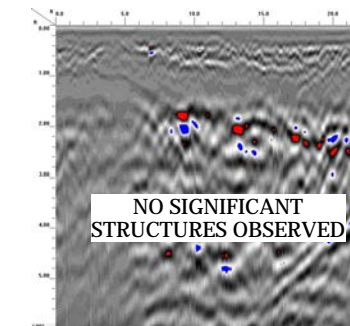
GPR TRANSECT 5 (T5)



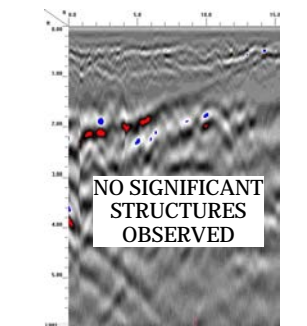
GPR TRANSECT 6 (T6)



GPR TRANSECT 8 (T8)



GPR TRANSECT 10 (T10)



GPR TRANSECT 11 (T11)



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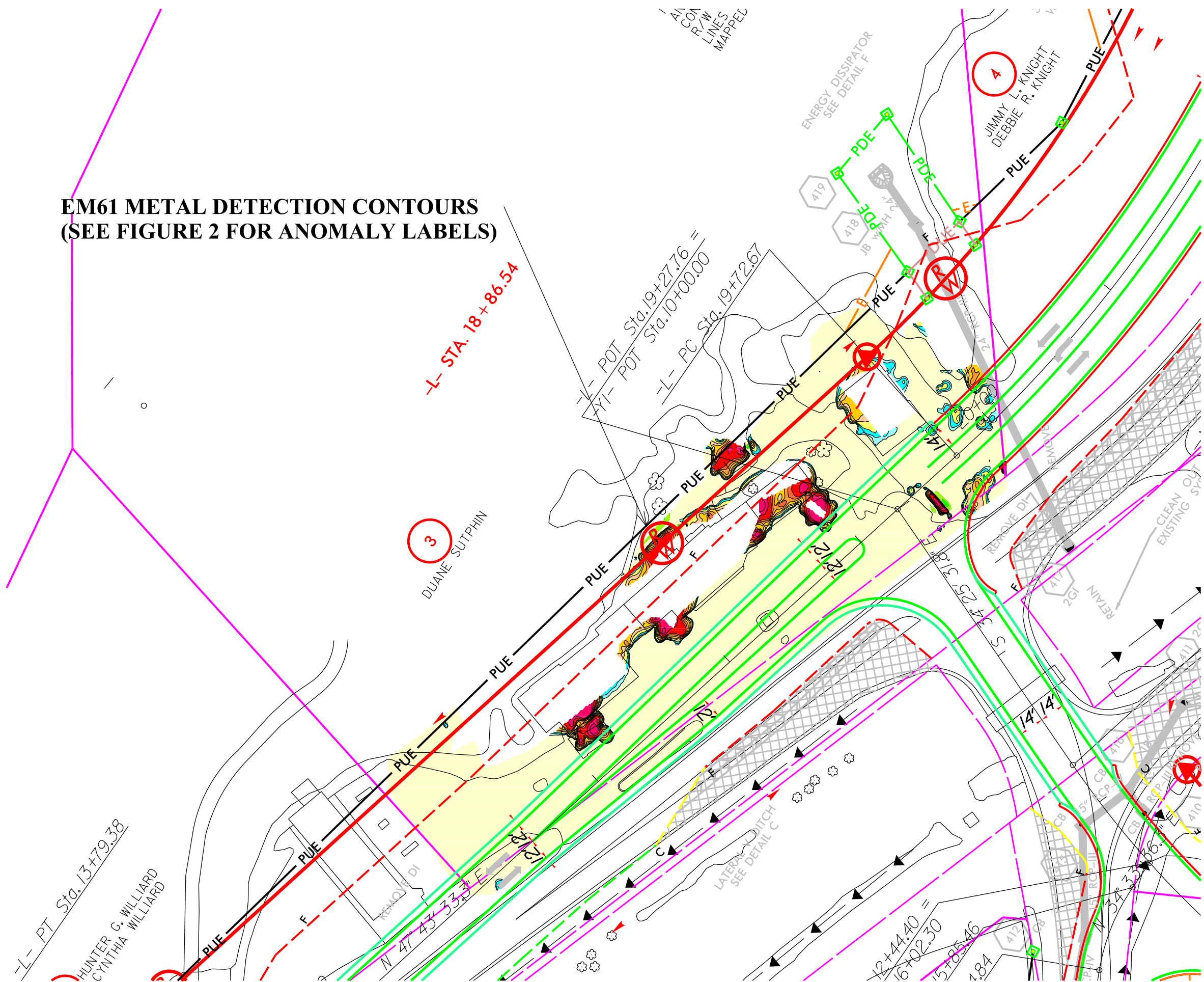
PROJECT
PARCEL 3
WALNUT COVE, NORTH CAROLINA
NCDOT PROJECT U-5768

TITLE
PARCEL 3 - GPR TRANSECT LOCATIONS
AND SELECT IMAGES

DATE
 4/4/2019
 PYRAMID PROJECT #:
 2019-074

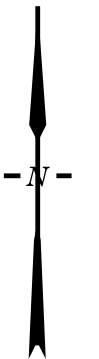
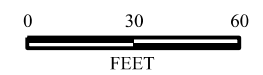
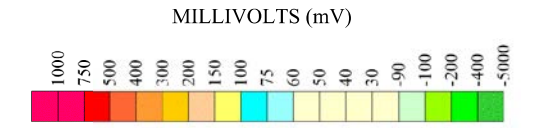
CLIENT
 NCDOT
FIGURE 3

**EM61 METAL DETECTION CONTOURS
(SEE FIGURE 2 FOR ANOMALY LABELS)**



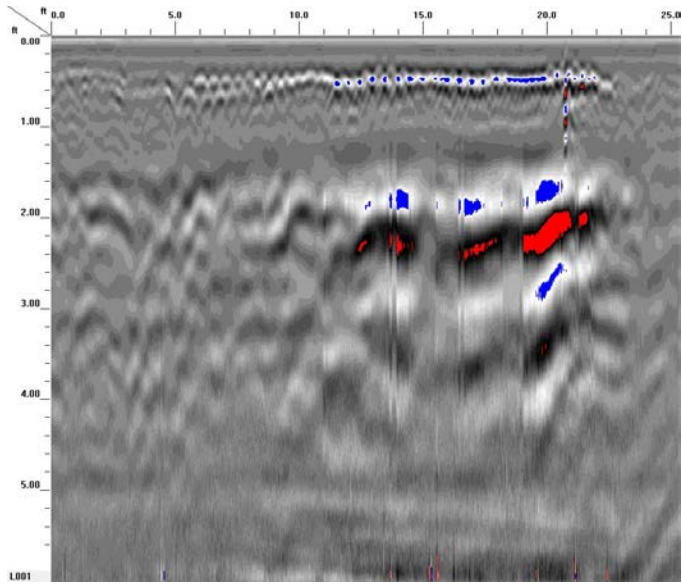
LEGEND

- EXISTING ROW
- EXISTING PROPERTY BOUNDARY
- PROPOSED ROW LINE
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED PERMANENT UTILITY EASEMENT
- PROPOSED SS CUT LINE
- PROPOSED SS FILL LINE

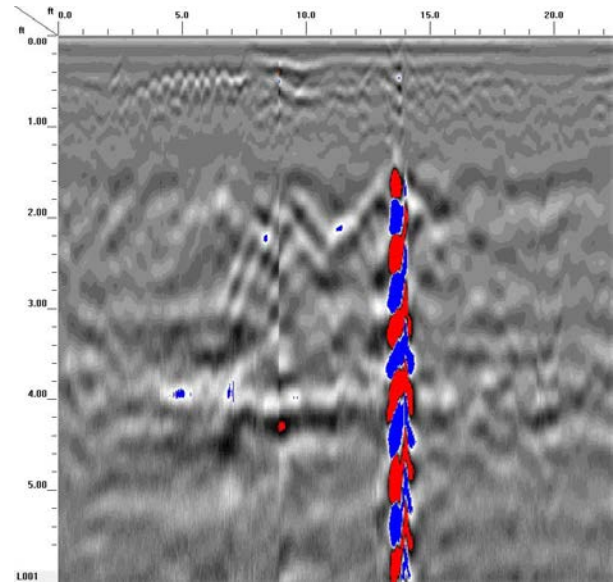


| | |
|--|----------------|
| TITLE OVERLAY OF METAL DETECTION RESULTS ON NCDOT ENGINEERING PLANS | |
| PROJECT PARCEL 3 WALNUT COVE, NORTH CAROLINA NCDOT PROJECT R-5768 | |
| 503 INDUSTRIAL AVENUE GREENSBORO, NC 27406 336.335.3174 (p) 336.691.0648 (f) License # C1251 Eng. / #C257 Geology | |
| DATE: 04-03-2019 | REVISION NO. 0 |
| PYRAMID PROJECT NO. 2019-074 | FIGURE NO. 4 |

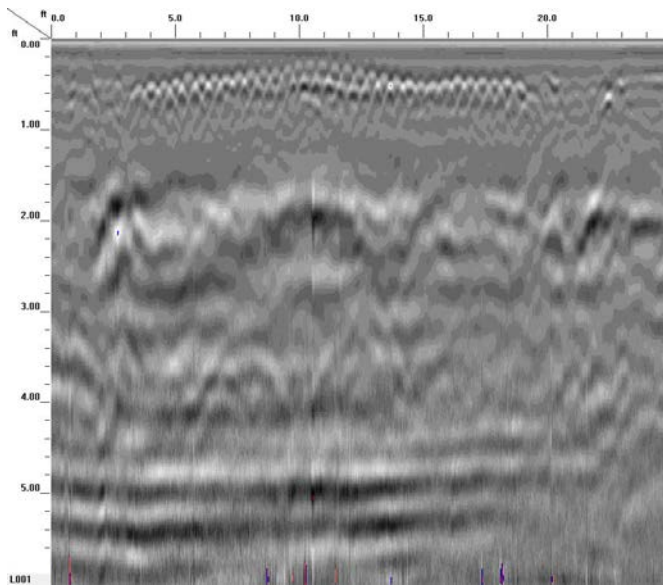
Appendix A – GPR Transect Images



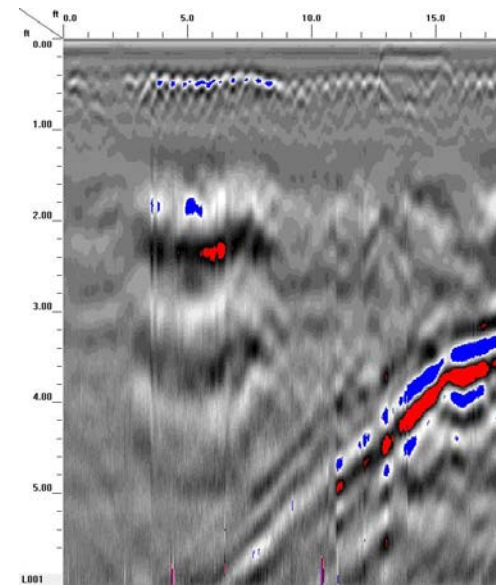
Transect 1



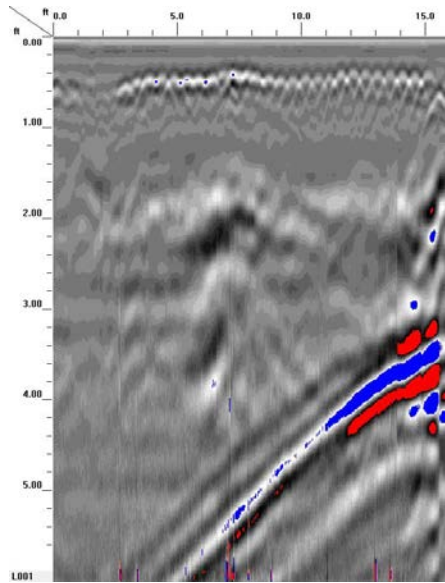
Transect 3



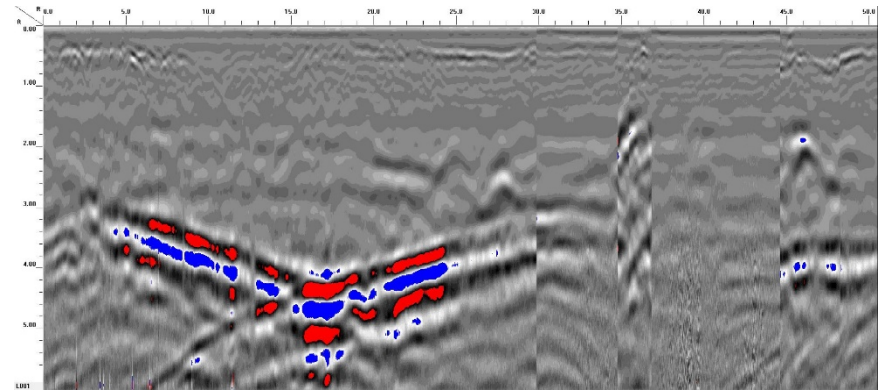
Transect 2



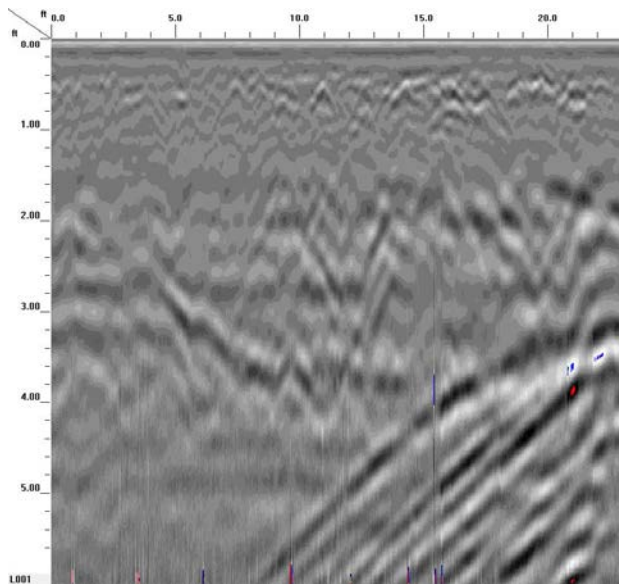
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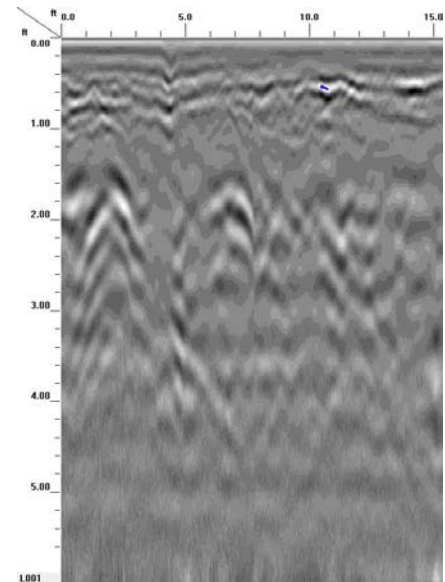
Transect 5



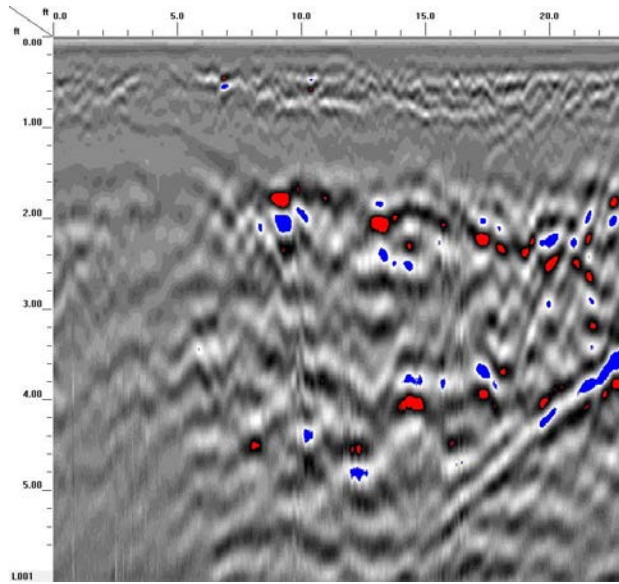
Transect 7



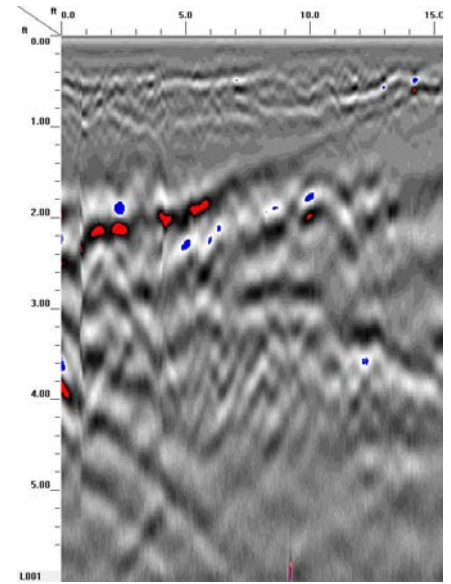
Transect 6



Transect 8



Transect 9



Transect 10

APPENDIX C

Pyramid Environmental & Engineering, P.C.

FIELD DRILLING RECORD

| | | | |
|--|--|------------------------------|-----------------------|
| PROJECT NAME: PROJECT NUMBER: | NC DOT R-5768, Parcel 003, Walnut Cove, NC (2019-074) | BORING/WELL NO: | 3-6 |
| SITE LOCATION: | Stokes County, NC | BORING/WELL LOCATION: | Parcel 003, N portion |
| START DATE: | 04/23/19 | COMPLETED: | 04/23/19 |
| GEOLOGIST: | T. Leatherman | DRILLER: | Draper Aden |
| DRILL METHOD: | Hand-Auger | SAMPLE METHOD: | Hand-Auger Bucket |
| BORING DIA: | 2-inch | CASING DIA: | N/A |
| TOTAL DEPTH: | 2 feet | CASING DEPTH: | N/A |

| DEPTH (ft.) | VISUAL MANUAL SOIL CLASSIFICATION COLOR, TEXTURE, STRUCTURE, CONSISTENCY, ODOR, ETC. | OVA RESULTS PERCENT RECOVERY BLOW COUNTS |
|----------------|---|--|
|----------------|---|--|

| | | |
|-----|--|--------------------|
| | Surface - grass and dirt | Core Sample Depths |
| 0-1 | Brown, sandy-clayey-silt (ML), moist, no odor | PID= 30 PPM |
| 1-2 | Brownish gray, clayey-sand and gravel (SC), petroleum odor | PID= 200 PPM |
| | | |
| | Hand-auger refusal at 2 feet. | |
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MONITORING WELL INFORMATION (IF APPLICABLE)

RISER LENGTH (ft) ____ DEPTH (ft) ____ DIAMETER (in) ____ MATERIAL ____.
 SCREEN LENGTH (ft) ____ DEPTH (ft) ____ DIAMETER (in) ____ MATERIAL ____.
 DEPTH TO TOP OF SAND ____ BAGS OF SAND ____.
 DEPTH TO TOP SEAL ____ BENTONITE USED ____ BAGS OF CEMENT USED 0.

APPENDIX D



Hydrocarbon Analysis Results

Client: PYRAMID ENVIRONMENTAL
Address: 503 INDUSTRIAL AVENUE
 GREENSBORO NC 27406

Samples taken Tuesday, April 23, 2019
Samples extracted Tuesday, April 23, 2019
Samples analysed Thursday, April 25, 2019

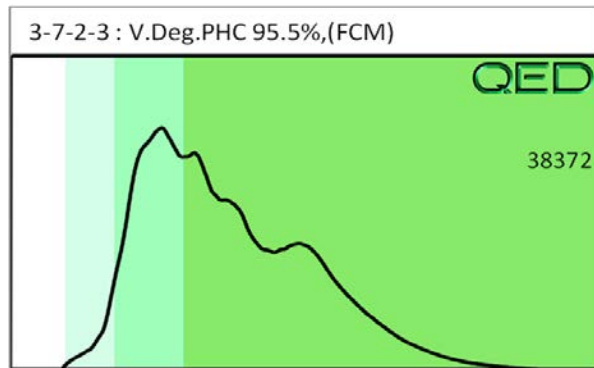
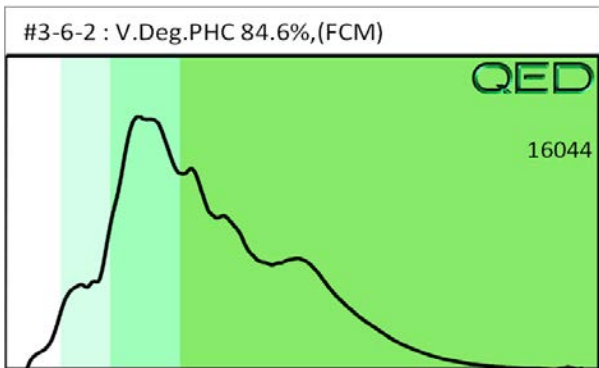
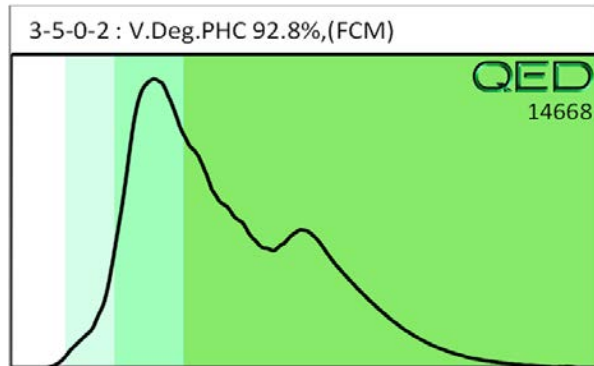
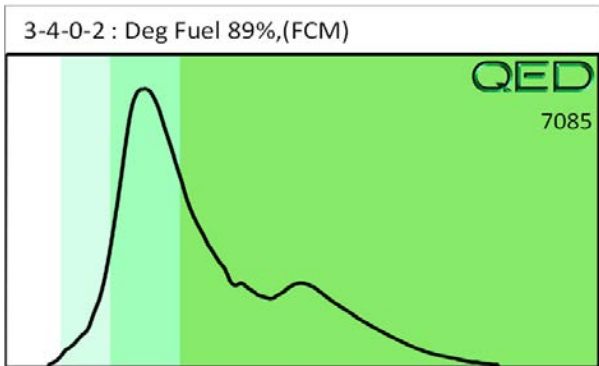
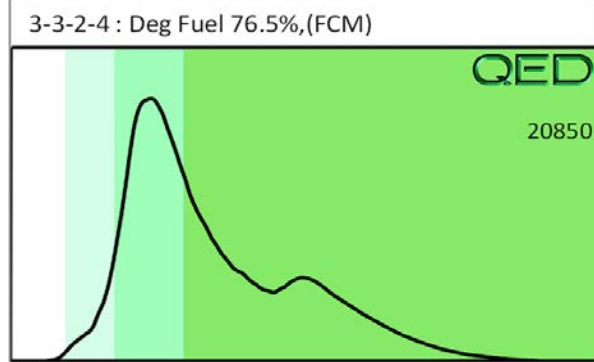
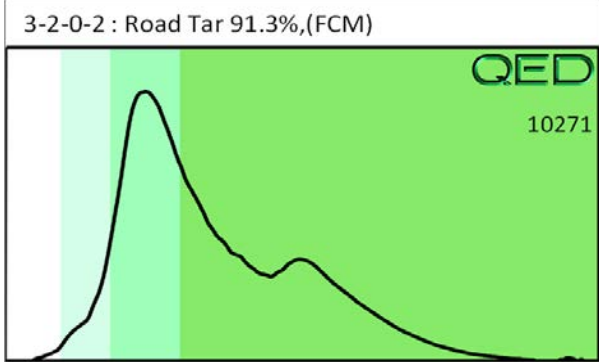
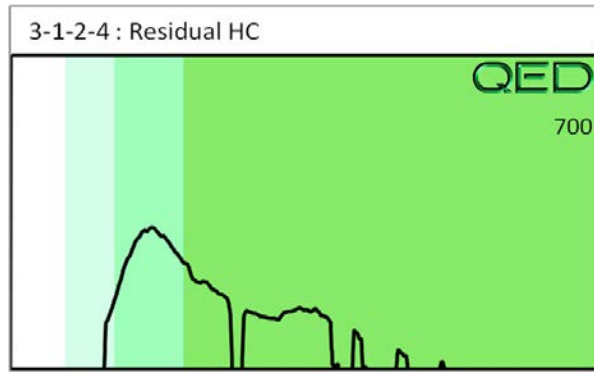
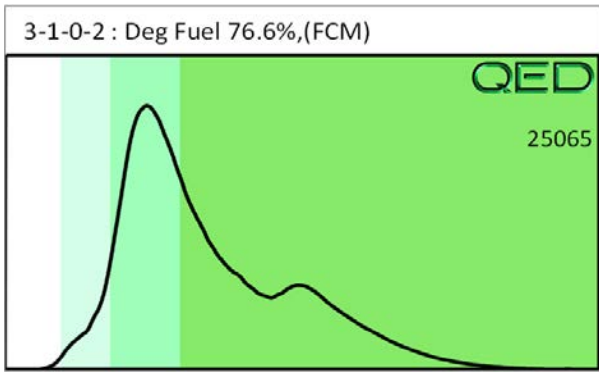
Contact: TIM LEATHERMAN

Operator DAVIS MARTINEC

Project: STOKES PARCEL 3 2019-074

| | | | | | | | | | | | F03640 | | |
|-----------------------------|-----------|---------------|----------------|----------------|-----------------|--------------------|---------------------------|-------------|--------|---------|--------|---------|-----------------------|
| Matrix | Sample ID | Dilution used | BTEX (C6 - C9) | GRO (C5 - C10) | DRO (C10 - C35) | TPH (C5 - C35) | Total Aromatics (C10-C35) | 16 EPA PAHs | BaP | Ratios | | | HC Fingerprint Match |
| | | | | | | | | | | % light | % mid | % heavy | |
| s | 3-1-0-2 | 23.0 | <0.58 | <0.58 | 32.8 | 32.8 | 23.2 | 0.8 | <0.023 | 0 | 80.1 | 19.9 | Deg Fuel 76.6%,(FCM) |
| s | 3-1-2-4 | 23.6 | <0.59 | <0.59 | <0.59 | <0.59 | <0.12 | <0.19 | <0.024 | 0 | 100 | 0 | Residual HC |
| s | 3-2-0-2 | 21.5 | <0.54 | <0.54 | 9 | 9 | 4.3 | 0.46 | <0.021 | 0 | 72.2 | 27.8 | Road Tar 91.3%,(FCM) |
| s | 3-3-2-4 | 32.5 | <0.81 | <0.81 | 33.4 | 33.4 | 22 | 0.75 | <0.033 | 0 | 77.5 | 22.5 | Deg Fuel 76.5%,(FCM) |
| s | 3-4-0-2 | 24.5 | <0.61 | <0.61 | 4.7 | 4.7 | 4 | <0.2 | <0.025 | 0 | 73.2 | 26.8 | Deg Fuel 89%,(FCM) |
| s | 3-5-0-2 | 20.6 | <0.52 | <0.52 | 14.6 | 14.6 | 6.6 | 0.29 | <0.021 | 0 | 71.6 | 28.4 | V.Deg.PHC 92.8%,(FCM) |
| s | #3-6-2 | 22.8 | <0.57 | 7.6 | 50.2 | 57.8 | 10.6 | 0.51 | <0.023 | 60.9 | 27.3 | 11.8 | V.Deg.PHC 84.6%,(FCM) |
| s | 3-7-2-3 | 170.0 | <4.3 | <4.3 | 514.5 | 514.5 | 233.8 | 9.4 | <0.17 | 0 | 75 | 25 | V.Deg.PHC 95.5%,(FCM) |
| Initial Calibrator QC check | | | OK | | | Final FCM QC Check | | | OK | | | 98.8 % | |

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



APPENDIX E
