PROJECT SPECIAL PROVISIONS
GEOENVIRONMENTAL

CONTAMINATED SOIL (11/29/2023)

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-2577A", "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	Pay Unit
Hauling and Disposal of Petroleum Contaminated Soil	Ton

DocuSigned by:
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11/29/2023

June 5, 2020

Ashley B. Cox, Jr, LG
Geotechnical Engineering Unit
North Carolina Department of Transportation
1020 Birch Ridge Drive
Raleigh, NC 27610

RE: **PHASE II INVESTIGATION OF PARCEL 7**
Jay's One Stop, The Joyce Family LLP
3965 Old Greensboro Road, Winston-Salem, NC
ESP Project No. GR22.325

TIP Number:	R-2577A
WBS Number:	37405.1.2
County:	FORSYTH
Description:	US 158 from North of US 421 to SR 1965 (Belews Creek Road)

Dear Mr. Cox:

ESP Associates, Inc. (ESP) is pleased to submit this report on our GeoEnvironmental Phase II Investigation of the subject parcel. This work was performed in accordance with your Request for Proposal received on April 14, 2020, and our Cost Proposal dated April 23, 2020.

We appreciate the opportunity to assist you during this phase of the project. If you should have any questions concerning this report, or if we may be of further assistance, please contact us.

Sincerely,

ESP Associates, Inc.

Edward D. Billington, PG
Senior Geologist/Geophysicist
EDB/CRP/NAZ

NORTH CAROLINA LICENSED SEAL 1631 GEOLOGIST EDWARD DAVIS BILLINGTON

DocuSigned by: Ed Billington 74025...DC92F4E0...

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APPENDICES

1.0 INTRODUCTION

The North Carolina Department of Transportation (NCDOT) is planning to widen U.S. 158 (Reidsville Road) from north of U.S. 421/I-40 Business to Belews Creek Road (S.R. 1965) in Forsyth County. The primary purpose of this project is to improve traffic operations. The NCDOT requested that ESP Associates, Inc. (ESP) perform a Phase II geoenvironmental investigation of the proposed temporary construction easement (E) of Parcel 7 to locate possible underground storage tanks (USTs), sample soil, and delineate potential contaminated soil. Parcel 7 is located on the northwest side of Old Greensboro Road at the intersection with Harvest Drive, approximately 700 feet southwest of the intersection with Reidsville Road (Figure 1). The proposed temporary construction easement is on the southwest side of the parcel.

2.0 HISTORY

2.1 Ownership

The following is the current parcel ownership, according to the Forsyth County GIS (https://www.forsyth.cc/Tax/geodata.aspx):

- Sale Date: 2/27/2020
- Current Owner: Humayun, Nizam
- Owner's Address: 890 West Northwest Blvd, Winston Salem NC 27101

2.2 NCDEQ Information

This site was not listed in the 2004 Phase 1 report that was provided by the NCDOT. We checked the following sources at the NCDEQ with the results summarized below:

- Division of Waste Management Site Locator Tool
  - Indicated Facility ID 28203. No files in Documents Link.
- NC UST Facility Operating Permits
  - Facility No. 28203 (City View One Stop).
  - Permit expired December 31, 2018.
- Registered USTs Database
  - 5 Registered USTs installed in September 1979.
  - Tanks 4 and 5 were removed in July 1997.
  - The remaining tanks 1, 2, and 3 are listed as containing gasoline with capacities of 6000, 4000, and 3000 gallons.
- Incident Management Database (Regional USTs)
  - No listing.
- Winston-Salem Regional NCDEQ Office
  - Copy of the August 1997 UST closure report for the removal of a 550-gallon kerosene tank and a 2000-gallon used oil tank. Based on the sketch map in the

report, the kerosene tank was located on the left side (facing) of the building. The used oil tank was located on the rear side of the building. Testing of a closure soil sample from below the south end of the kerosene tank indicated TPH-GRO and TPH-DRO levels above the current North Carolina Action Levels of 50 ppm GRO and 100 ppm DRO.

- A copy of Figure 1 from the 1997 closure report is included in Appendix D.

3.0 SITE OBSERVATIONS

During our May 2020 field work, the site was occupied by a vacant gasoline service station and market (Jay's One Stop) (Figure 2). The ground in the study area was covered by grass and gravel. The existing tank bed was located approximately 43 feet northeast of the center of the study area and approximately 25 feet outside of the proposed temporary construction easement.

4.0 METHODS

ESP performed a geophysical study of the area designated by the NCDOT on May 4, 2020. The geophysical investigation area was approximately 0.1 acres and encompassed the proposed temporary construction easement. We performed direct-push drilling and sampling of subsurface soils on May 13, 2020. A photoionization detector (PID) was used to screen subsurface soils in the field and select soil samples to send for laboratory analysis. Groundwater was not encountered during the drilling investigation.

4.1 Geophysics

ESP performed a metal detector study over the accessible areas of the site using a Geonics EM61 MK2 with a line spacing of approximately three feet (Figures 3 and 4). Location control was provided in real-time using a differential global positioning system (DGPS). No EM61 anomalies were observed that required additional investigation using ground-penetrating radar (GPR).

4.2 Borings

ESP performed direct-push drilling activities within the proposed temporary construction easement of Parcel 7 using a subcontractor, SAEDACCO of Fort Mill, South Carolina. Four borings were drilled, designated B7-1 through B7-4, and were located approximately evenly spaced within the proposed temporary construction easement (Figure 7). The soil borings were advanced using a GeoProbe 7822DT drill rig. Soil samples were obtained to a maximum depth of approximately 10 feet using two 5-foot long Macro-Core® tubes. Soil cores varied in recovery from 3.8 to 5.0 feet (76 to 100 percent recovery). Two borings encountered refusal at 7.0 feet depth with 100 percent recovery of the second tube (2.0 of 2.0 feet), probably on weathered rock. The sampling equipment was decontaminated prior to drilling and between borings by the driller using a Liquinox® detergent solution.

4.3 Soil Sample Protocol

Representative soil samples were taken from the Macro-Core tubes at approximate one-foot intervals by the ESP field geologist while wearing nitrile disposable gloves. Each sample was placed in a sealed plastic bag and then kept in a warm area for approximately 10 to 15 minutes prior to measuring volatile organic compound (VOC) levels in the head space with the PID. The PID readings ranged from 0.0 to 0.8 parts per million (ppm) (Table 1).

Four soil samples were selected for laboratory analysis, as listed in Table 2. For each selected sample, an approximate 10-gram soil sample was collected from the sample bag using a Terra Core™ sampler and placed into a laboratory-supplied 40-milliliter volatile organic analysis (VOA) vial containing methanol. Once sealed, the vial was labeled with the sample identification number and then shaken vigorously for about one minute. The samples were packed on ice and sent via overnight delivery to RED Lab, LLC (RED Lab), located in Wilmington, North Carolina, following proper chain-of-custody procedures (Appendix C).

RED Lab used a QED Hydrocarbon Analyzer to quantitatively analyze the soil samples using the ultraviolet fluorescence (UVF) method for benzene, toluene, ethylbenzene, and xylene (BTEX); gasoline range organics (GRO); diesel range organics (DRO); total petroleum hydrocarbons (TPH); total aromatics; polycyclic aromatic hydrocarbons (PAHs); and benzo(a)pyrene (BaP).

4.4 Groundwater

Groundwater was not encountered in the 4 borings.

5.0 RESULTS

5.1 Geophysics

The EM61 early time gate data show the response from both shallow and deeper metallic objects (Figure 3). The differential response reduces the effect of shallow anomalies and emphasizes anomalies from larger and more deeply buried metallic objects, such as USTs (Figure 4). Our evaluation of the differential response indicated the anomalies were caused by known site features.

The EM61 early time gate response and differential response are shown on the plan sheet on Figures 5 and 6, respectively.

5.2 Sample Data

The soil sample UVF hydrocarbon analysis results for BTEX, GRO, DRO, and PAHs are presented in Table 2. The RED Lab laboratory report, which also includes results for TPH, total aromatics, and BaP, is provided in Appendix B. Values are provided in milligrams per kilogram (mg/kg or ppm).

5.3 Sample Observations

The results of the laboratory testing indicate that BTEX, GRO, DRO, PAHs and BaP were below the laboratory detection limits for the 4 samples tested (Table 2, Appendix B).

6.0 CONCLUSIONS

The results of the Phase II investigation for Parcel 7 of NCDOT Project R-2577A indicates that there is no evidence for abandoned USTs in the proposed temporary construction easement. The 3 known USTs are approximately 25 feet outside of the proposed temporary construction easement. Laboratory testing did not detect petroleum compounds in the 4 soil samples tested. The PID readings during sampling were 0.8 ppm or less.

7.0 RECOMMENDATIONS

No limitations on construction activities or special handling of excavated soil are recommended for Parcel 7. Groundwater was not encountered in the upper 10 feet in the study area.

8.0 LIMITATIONS

ESP's professional services have been performed, findings obtained, and recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. ESP is not responsible for the independent conclusions, opinions, or recommendations made by others based on the data presented in this report.

The passage of time may result in a change in the environmental characteristics at this site and surrounding properties. ESP does not warrant against future operations or conditions, or against operations or conditions present of a type or at a location not investigated. ESP does not assume responsibility for other environmental issues that may be associated with the subject site.

TABLES

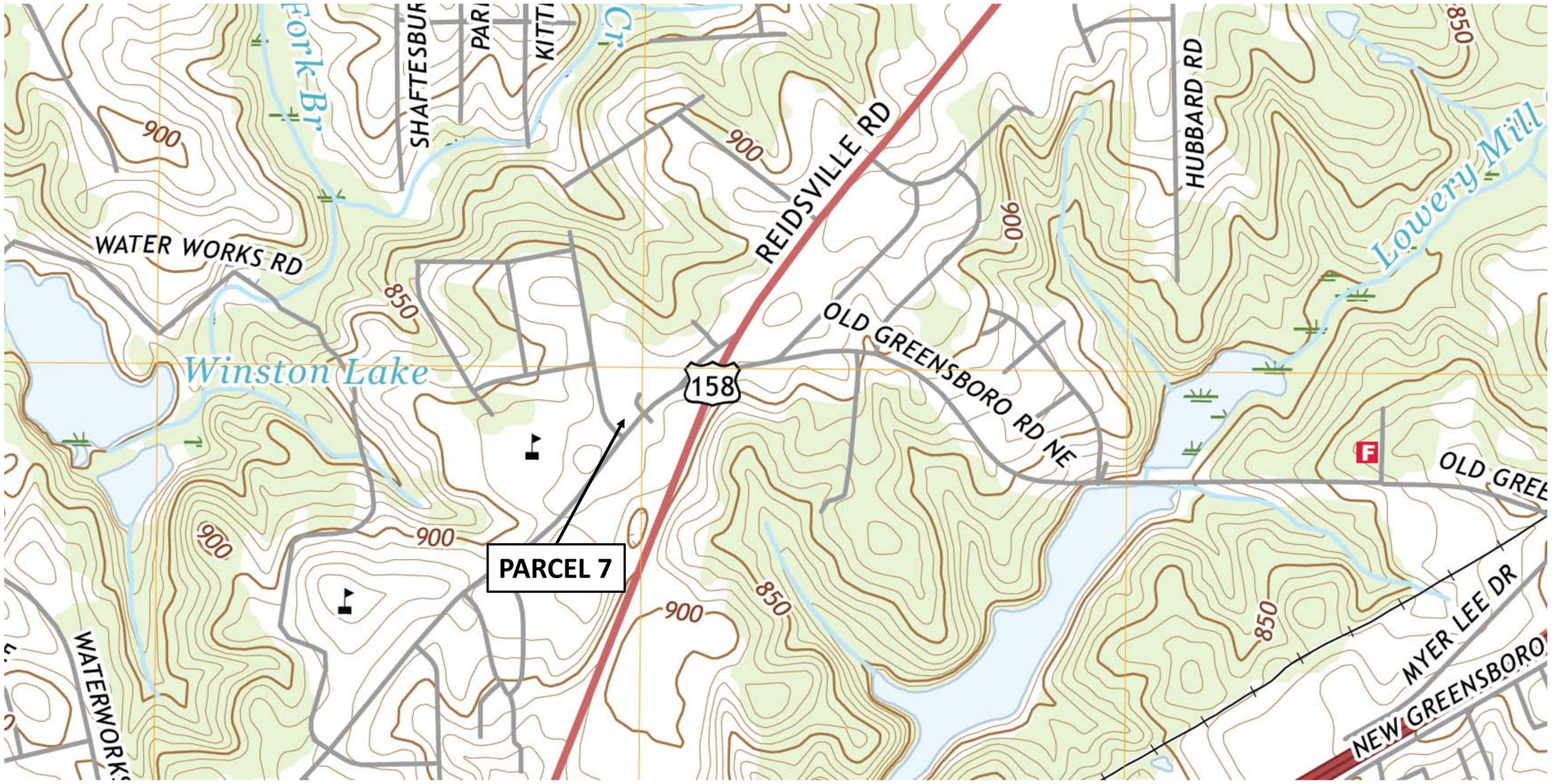
TABLE 1
SOIL SAMPLE PID READINGS

Boring	Sample Depth Range with PID > 10 ppm (feet bgs)	Maximum PID Reading (ppm) and Sample Depth (feet bgs)
B7-1	none	0.8 (1.0-1.5)
B7-2	none	0.2 (2.0-2.5, 6.0-6.5, 9.0-9.5)
B7-3	none	0.3 (1.0-1.5, 3.0-4.5)
B7-4	none	0.3 (3.0-3.5, 7.0-7.5)

TABLE 2
SOIL SAMPLE UVF RESULTS SUMMARY

Boring	Sample ID (depth in feet bgs)	Date Collected	BTEX (C6-C9) (mg/kg)	GRO (C5-C10) (mg/kg)	DRO (C10-C35) (mg/kg)	PAHs (mg/kg)
B7-1	S5 (5.0-5.5)	5/13/20	<0.49	<0.49	<0.49	<0.16
B7-2	S6 (6.0-6.5)	5/13/20	<0.46	<0.46	<0.46	<0.15
B7-3	S4 (4.0-4.5)	5/13/20	<0.44	<0.44	<0.44	<0.14
B7-4	S7 (7.0-7.5)	5/13/20	<0.44	<0.44	<0.44	<0.14

FIGURES



From: USGS US Topo 7.5 - minute map for WINSTON SALEM EAST, NC, Date: 2019, Original Scale: 1:24,000

PROJECT NO. GR22.325	***FIGURE 1 – PARCEL 7, THE JOYCE FAMILY LLP SITE VICINITY MAP***
SCALE AS SHOWN	***NCDOT PROJECT R-2577A***
DATE 5/29/2020	***US 158 FROM NORTH OF US 421 TO SR 1965***
BY CRP/EDB	***FORSYTH COUNTY, NORTH CAROLINA***

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com

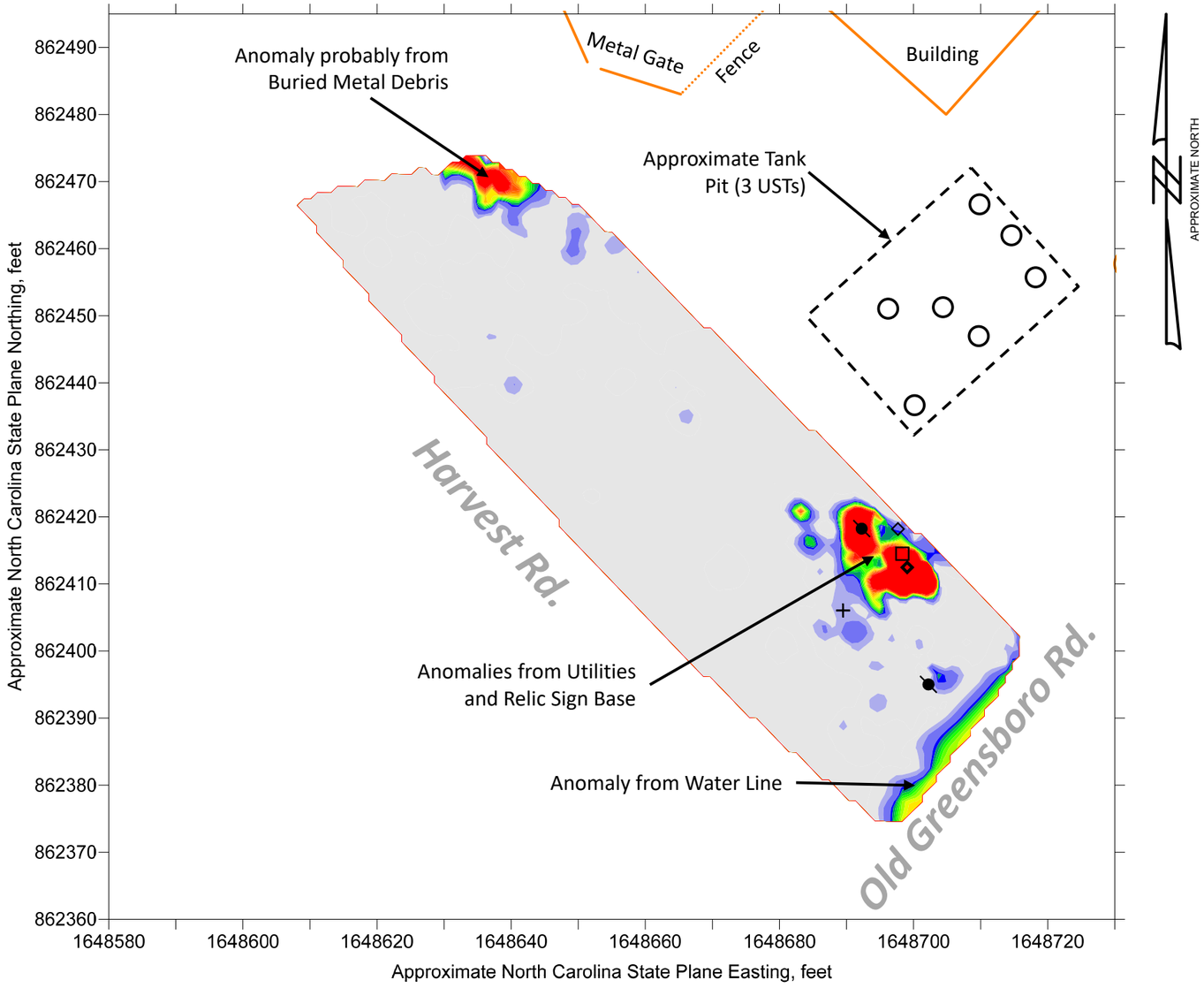
A. Photograph from southeast end of parcel, looking northwest.

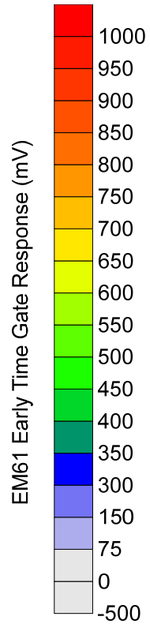
B. Photograph from northwest end of parcel, looking southeast.

C. Photograph of tank bed area, looking northeast.

D. Photograph during drilling operations.

PROJECT NO. GR22.325	***FIGURE 2 – PARCEL 7, THE JOYCE FAMILY LLP SITE PHOTOGRAPHS***	ESP Associates, Inc. 7011 Albert Pick Rd., Suite E Greensboro, NC 27409 336.334.7724 www.espassociates.com
SCALE N/A		
DATE 5/29/2020	***NCDOT PROJECT R-2577A*** ***US 158 FROM NORTH OF US 421 TO SR 1965*** ***FORSYTH COUNTY, NORTH CAROLINA***	
BY CRP/EDB		





EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Drop Inlet, Catch Basin, Manhole
- Culvert, storm drain pipe
- Utility pole
- Guy wire anchor
- Sign pole, other pole
- UST Fill Port or Valve Cover
- Monitoring Well
- Buried utility line (marked by others)
- EM61 Data Collection Areas
- GPR Data Collection Areas
- Underground Storage Tank

Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

PROJECT NO. GR22.325	***FIGURE 3 – PARCEL 7, THE JOYCE FAMILY LLP EM61 EARLY TIME GATE DATA***
SCALE AS SHOWN	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***
DATE 5/29/2020	
BY CRP/EDB	

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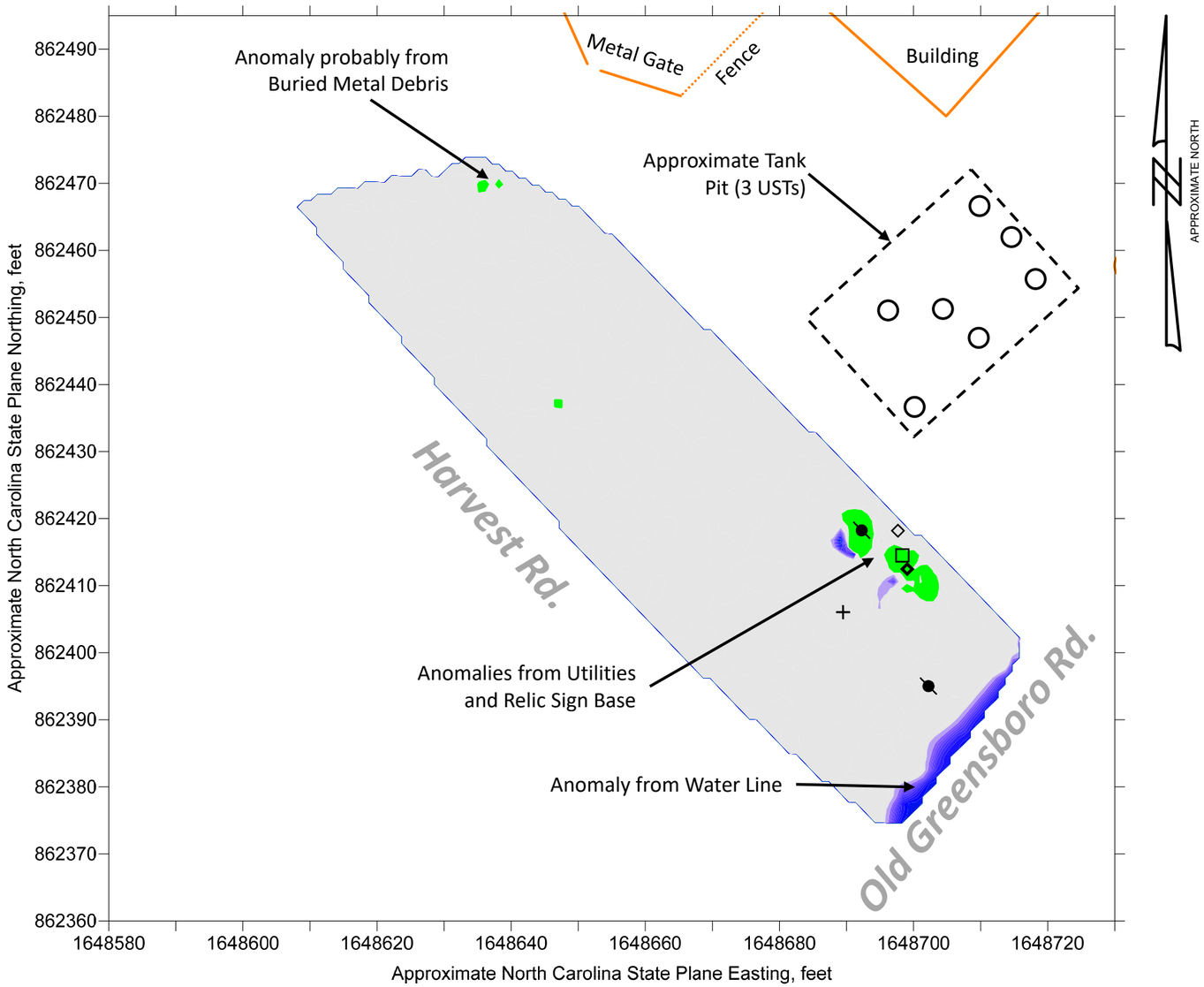

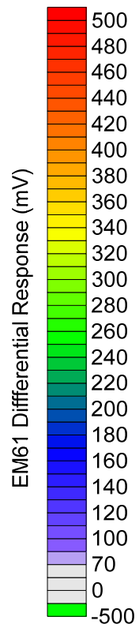

EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Drop Inlet, Catch Basin, Manhole
- Culvert, storm drain pipe
- Utility pole
- Guy wire anchor
- Sign pole, other pole
- UST Fill Port or Valve Cover
- Monitoring Well
- Buried utility line (marked by others)
- EM61 Data Collection Areas
- GPR Data Collection Areas
- Underground Storage Tank

Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

PROJECT NO. GR22.325	***FIGURE 4 – PARCEL 7, THE JOYCE FAMILY LLP EM61 DIFFERENTIAL DATA***
SCALE AS SHOWN	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***
DATE 5/29/2020	
BY CRP/EDB	

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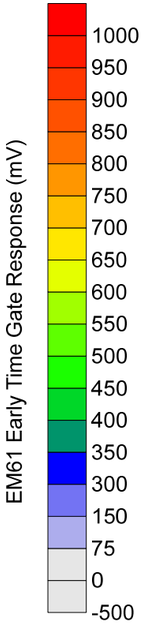

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  - R-2577A_rdy_dsn_driveways.dgn
  - R-2577A_rdy_dsn_guardrail.dgn
  - R-2577A_rdy_HISTORIC.dgn
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  - R-2577A_rdy_row.dgn
  - R-2577A_rdy_row_AG.dgn
  - R-2577A_rdy_row_SB.dgn
  - R-2577A_rdy_ss.dgn

0 30 60
FEET

See Figure 9 for explanation of symbols and line types

PROJECT NO. GR22.325	***FIGURE 5 – PARCEL 7, THE JOYCE FAMILY LLP EM61 EARLY TIME GATE DATA ON PLAN SHEET***
SCALE 1" = 30'	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***
DATE 5/29/2020	
BY CRP/EDB	

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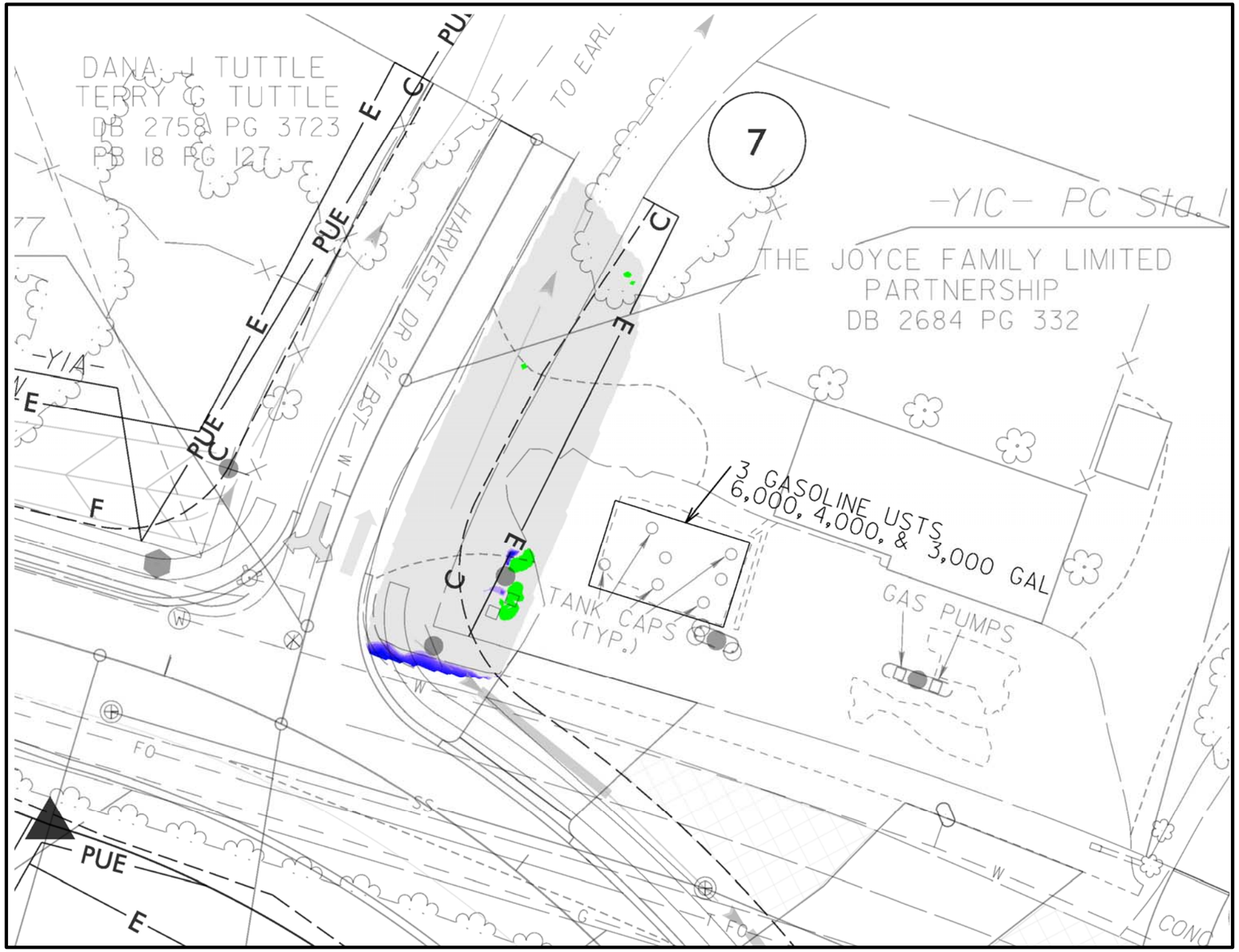

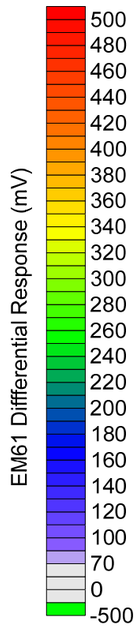

See Figure 9 for explanation of symbols and line types

PROJECT NO. GR22.325	***FIGURE 6 – PARCEL 7, THE JOYCE FAMILY LLP EM61 DIFFERENTIAL DATA ON PLAN SHEET***
SCALE 1" = 30'	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***
DATE 5/29/2020	
BY CRP/EDB	

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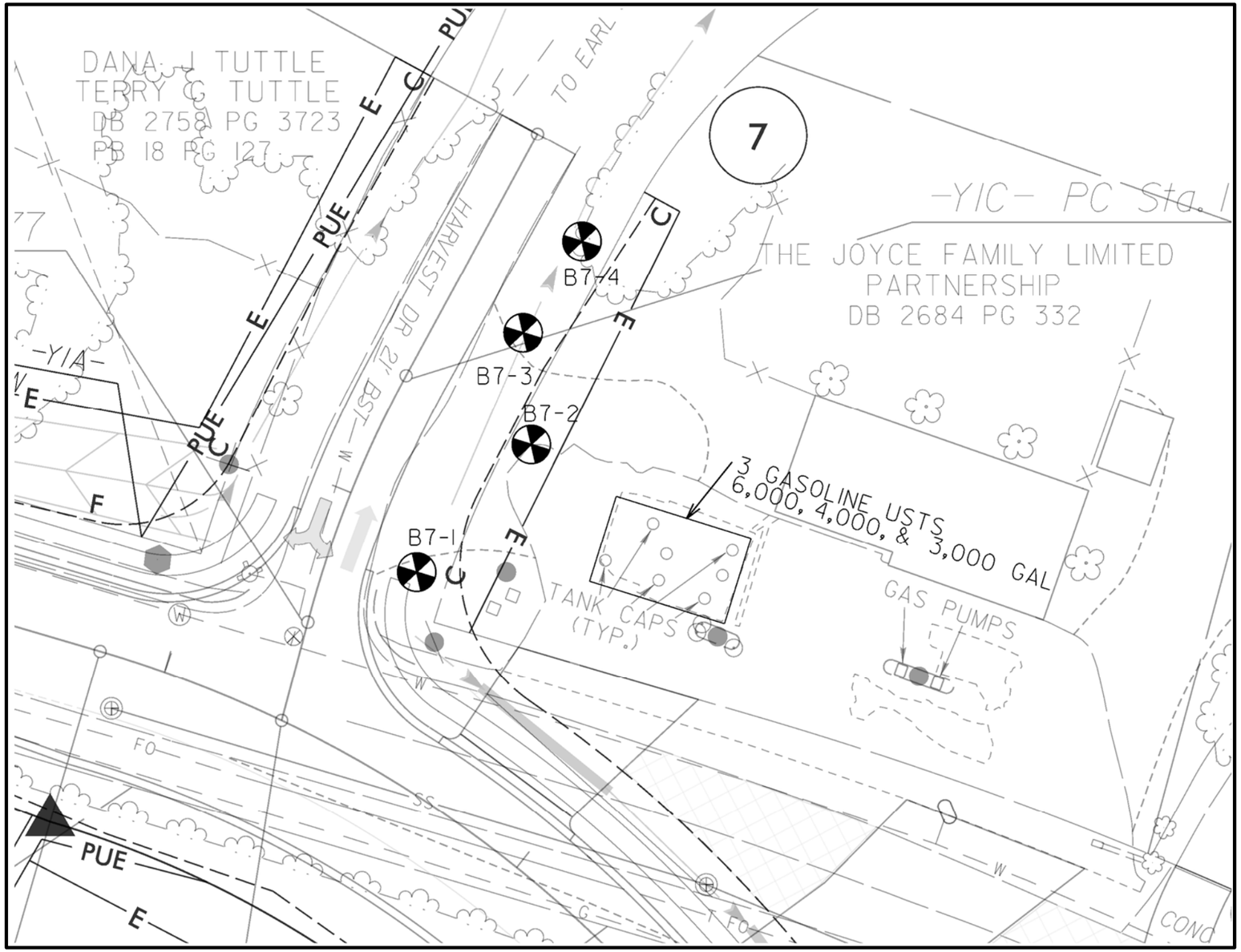

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  - R-2577A_rdy_HISTORIC.dgn
  - R-2577A_rdy_map_owner_no.dgn
  - R-2577A_rdy_row.dgn
  - R-2577A_rdy_row_AG.dgn
  - R-2577A_rdy_row_SB.dgn
  - R-2577A_rdy_ss.dgn

0 30 60
FEET

See Figure 9 for explanation of symbols and line types

PROJECT NO.	GR22.325
SCALE	1" = 30'
DATE	5/29/2020
BY	CRP/EDB

FIGURE 7 – PARCEL 7, THE JOYCE FAMILY LLP BORING LOCATIONS ON PLAN SHEET

NCDOT PROJECT R-2577A
US 158 FROM NORTH OF US 421 TO SR 1965
FORSYTH COUNTY, NORTH CAROLINA

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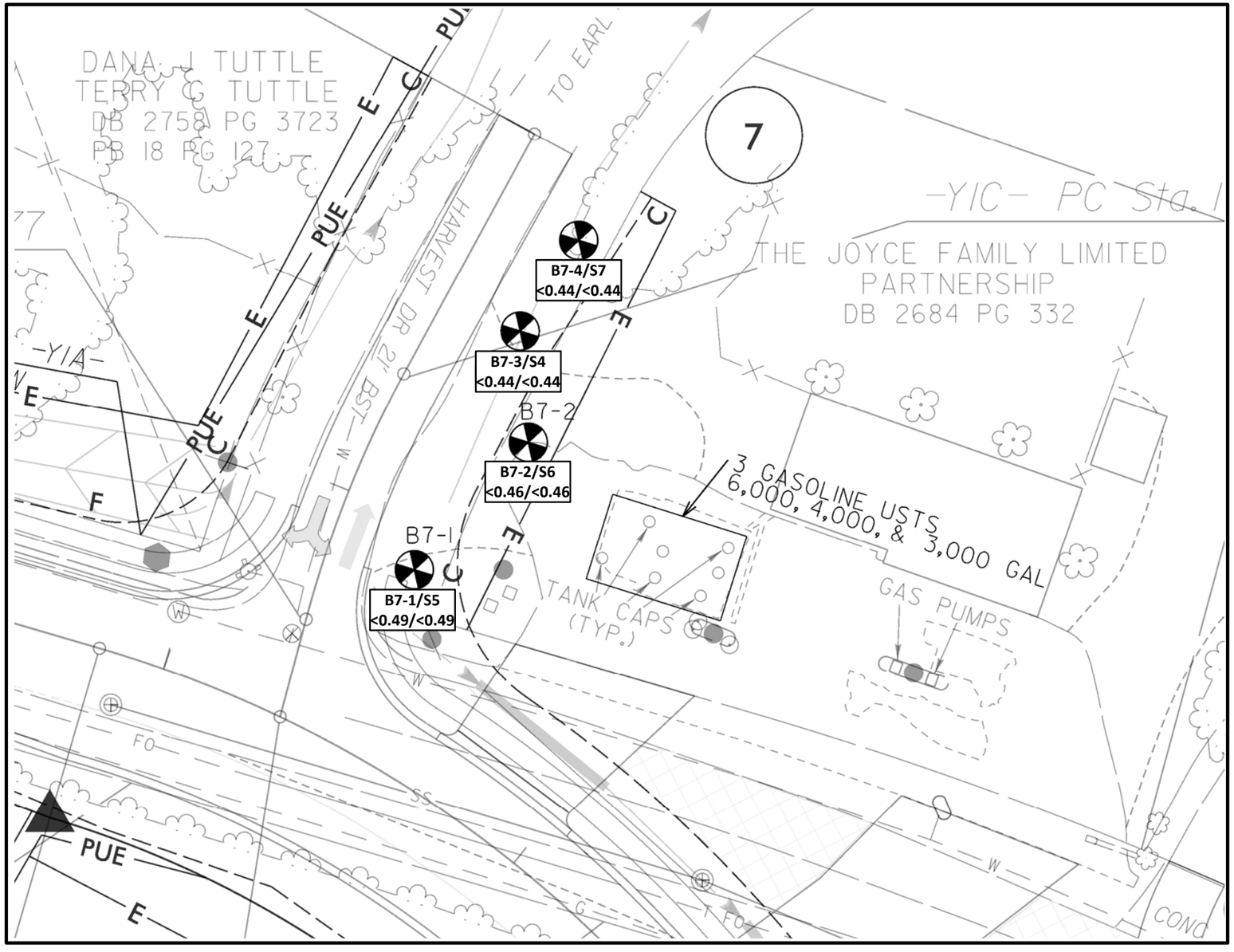

Explanation

B7-2/S6 <0.46/<0.46 **Maximum Analytical Results per Boring** Boring No./Sample No. GRO/DRO (mg/kg, ppm)

See Figure 9 for explanation of symbols and line types

0 30 60
FEET

- R-2577A_Geo_env.dgn
  - R-2577A_hyd_drn.dgn
  - R2577A_ncdot_fs.dgn
  - R-2577A_rdy_dsn.dgn
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PROJECT NO. GR22.325	***FIGURE 8 – PARCEL 7, THE JOYCE FAMILY LLP SOIL ANALYTICAL RESULTS ON PLAN SHEET***
SCALE 1" = 30'	
DATE 5/29/2020	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***
BY CRP/EDB	

ESP Associates, Inc.
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12/2/2016

PROJECT REFERENCE NO.	SHEET NO.

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS
CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:
- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Computed Property Corner
- Property Monument (ECM)
- Parcel/Sequence Number (123)
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary (WLB)
- Proposed Wetland Boundary (WLB)
- Existing Endangered Animal Boundary (EAB)
- Existing Endangered Plant Boundary (EPB)
- Existing Historic Property Boundary (HPB)
- Known Contamination Area: Soil (S)
- Potential Contamination Area: Soil (S)
- Known Contamination Area: Water (W)
- Potential Contamination Area: Water (W)
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:
- Gas Pump Vent or U/G Tank Cap
- Sign
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:
- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream (JS)
- Buffer Zone 1 (BZ 1)
- Buffer Zone 2 (BZ 2)
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch (Flow)
- False Sump

RAILROADS:
- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:
- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line (RW)
- New Right of Way Line with Pin and Cap (RW)
- New Right of Way Line with Concrete or Granite R/W Marker (RW)
- New Control of Access Line with Concrete C/A Marker (CA)
- Existing Control of Access (CA)
- New Control of Access (CA)
- Existing Easement Line (E)
- New Temporary Construction Easement (E)
- New Temporary Drainage Easement (TDE)
- New Permanent Drainage Easement (PDE)
- New Permanent Drainage / Utility Easement (DUE)
- New Permanent Utility Easement (PUE)
- New Temporary Utility Easement (TUE)
- New Aerial Utility Easement (AUE)

ROADS AND RELATED FEATURES:
- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut (C)
- Proposed Slope Stakes Fill (F)
- Proposed Curb Ramp (CR)
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:
- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard (Vineyard)

EXISTING STRUCTURES:
MAJOR:
- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:
- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer (S)

UTILITIES:
POWER:
- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) (P)
- U/G Power Line LOS C (S.U.E.*) (P)
- U/G Power Line LOS D (S.U.E.*) (P)

TELEPHONE:
- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole (T)
- Telephone Pedestal (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole (HH)
- U/G Telephone Cable LOS B (S.U.E.*) (T)
- U/G Telephone Cable LOS C (S.U.E.*) (T)
- U/G Telephone Cable LOS D (S.U.E.*) (T)
- U/G Telephone Conduit LOS B (S.U.E.*) (TC)
- U/G Telephone Conduit LOS C (S.U.E.*) (TC)
- U/G Telephone Conduit LOS D (S.U.E.*) (TC)
- U/G Fiber Optics Cable LOS B (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS C (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS D (S.U.E.*) (T FO)

WATER:
- Water Manhole (W)
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E.*) (W)
- U/G Water Line LOS C (S.U.E.*) (W)
- U/G Water Line LOS D (S.U.E.*) (W)
- Above Ground Water Line (A/G Water)

TV:
- TV Pedestal (C)
- TV Tower
- U/G TV Cable Hand Hole (HH)
- U/G TV Cable LOS B (S.U.E.*) (TV)
- U/G TV Cable LOS C (S.U.E.*) (TV)
- U/G TV Cable LOS D (S.U.E.*) (TV)
- U/G Fiber Optic Cable LOS B (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS C (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS D (S.U.E.*) (TV FO)

GAS:
- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) (G)
- U/G Gas Line LOS C (S.U.E.*) (G)
- U/G Gas Line LOS D (S.U.E.*) (G)
- Above Ground Gas Line (A/G Gas)

SANITARY SEWER:
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line (SS)
- Above Ground Sanitary Sewer (A/G Sanitary Sewer)
- SS Forced Main Line LOS B (S.U.E.*) (FSS)
- SS Forced Main Line LOS C (S.U.E.*) (FSS)
- SS Forced Main Line LOS D (S.U.E.*) (FSS)

MISCELLANEOUS:
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line LOS B (S.U.E.*) (UNK)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. (UST)
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records (AATUR)
- End of Information (E.O.I.)

PROJECT NO. GR22.325	**FIGURE 9**
SCALE N/A	**LEGEND FOR PLAN SHEET FIGURES**
DATE 5/29/2020	**NCDOT PROJECT R-2577A**
BY CRP/EDB	**US 158 FROM NORTH OF US 421 TO SR 1965**
	FORSYTH COUNTY, NORTH CAROLINA

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com

APPENDIX A
SOIL BORING LOGS

FIELD BORING LOG

BORING NO. B7-1

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: Southern corner of parcel
TYPE OF BORING: Direct Push | DATE STARTED: 5/13/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/13/20 | TOTAL DEPTH: 7.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.3' - Topsoil	Core 1 Rec 3.0'/3.0'
				0.3' - 4.7' - Red-Brown, Silty SAND, Moist	0.0' - 2.0' Hand Auger
					2.0' -5.0' Direct Push
1	S-1	1.0-1.5	0.8		
2	S-2	2.0-2.5	0.2		
3	S-3	3.0-3.5	0.3		
4	S-4	4.0-4.5	0.4		
				4.7' - 7.0' - Red-Brown to Gray-Brown, Silty SAND, Mottled, Moist	
5	S-5	5.0-5.5	0.5		Core 2 Rec 2.0'/2.0'
6	S-6	6.0-6.5	0.3	6.0' - with Rock Fragments	
7				7.0' - Refusal	
8					
9					
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B7-2

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: East side of Proposed Tempory Construction Easement, near USTs
TYPE OF BORING: Direct Push | DATE STARTED: 5/13/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/13/20 | TOTAL DEPTH: 10.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.4' - Gravel	Core 1 Rec 3.8'/5.0'
				0.4' - 2.0' - Red-Brown, Silty CLAY, Moist	
1	S-1	1.0-1.5	0.1		
2	S-2	2.0-2.5	0.2	2.0' - 8.5' - Red-Brown, Sandy SILT, Moist	
3	S-3	3.0-3.5	0.0		
4					
5	S-5	5.0-5.5	0.1		Core 2 Rec 5.0'/5.0'
6	S-6	6.0-6.5	0.2		
7	S-7	7.0-7.5	0.1		
8	S-8	8.0-8.5	0.1		
				8.5' - 10.0' - Red-Brown to Gray, White, and Black, Silty SAND, Mottled, Moist to Dry	
9	S-9	9.0-9.5	0.2		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B7-3

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: Approximately 25 feet north of B7-2
TYPE OF BORING: Direct Push | DATE STARTED: 5/13/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/13/20 | TOTAL DEPTH: 7.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.2' - Topsoil	Core 1 Rec 4.5'/5.0'
				0.2' - 4.2' - Red-Brown, Sandy CLAY, Moist	
1	S-1	1.0-1.5	0.3		
2	S-2	2.0-2.5	0.2		
3	S-3	3.0-3.5	0.3		
4	S-4	4.0-4.5	0.3		
				4.2' - 6.0' - Red-Brown, Sandy SILT, Moist	
5	S-5	5.0-5.5	0.1		Core 2 Rec 2.0'/2.0'
6	S-6	6.0-6.5	0.1	6.0' - 7.0' - Gray-Brown and White, Silty SAND, Mottled, Dry	
7				7.0' - Refusal	
8					
9					
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B7-4

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325

LOCATION: Western end of proposed easement, next to wooded area

TYPE OF BORING	Direct Push	DATE STARTED:	5/13/20	SHEET:	1 of 1
DRILLING FIRM:	SAEDACCO	DATE FINISHED:	5/13/20	TOTAL DEPTH:	10.0 ft
DRILLER:	Brian Ewing	SAMPLE METHOD:	5' Macrocore	DEPTH TO GW:	N/A ft
DRILL RIG:	GeoProbe 722DT	LOGGED BY:	R. Pastrana	COMMENT:	

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.3' - Topsoil	Core 1 Rec 4.3'/5.0'
				0.3' - 2.5' - Red-Brown, Silty CLAY, Moist	
1	S-1	1.0-1.5	0.2		
2	S-2	2.0-2.5	0.1		
				2.5' - 9.0' - Red-Brown, Sandy SILT, Trace Mica, Moist	
3	S-3	3.0-3.5	0.3		
4	S-4	4.0-4.5	0.2		
5	S-5	5.0-5.5	0.2		Core 2 Rec 5.0'/5.0'
6	S-6	6.0-6.5	0.1		
7	S-7	7.0-7.5	0.3		
8	S-8	8.0-8.5	0.1		
9	S-9	9.0-9.5	0.0	9.0' - 10.0' - Red-Brown to Gray-Brown, Silty SAND, Mottled, Moist to Dry	
10					
11					
12					
13					
14					
15					

APPENDIX B

RED LAB LABORATORY TESTING REPORT

QED REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS QROS

Hydrocarbon Analysis Results

Client: ESP
Address: 7011 Albert Pick Rd
Ste E
Greensboro, NC 27409

Contact: Ned Billington

Project: GR22.325

Samples taken 5/13 - 5/14/2020
Samples extracted 5/13 - 5/14/2020
Samples analysed Monday, May 18, 2020

Operator Harry Wooten

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	B7-1 , S5	19.6	<0.49	<0.49	<0.49	<0.49	<0.1	<0.16	<0.02	0	0	0	PHC not detected,(BO)
s	B7-2 , S6	18.5	<0.46	<0.46	<0.46	<0.46	<0.09	<0.15	<0.018	0	0	0	PHC not detected,(BO)
s	B7-3 , S4	17.7	<0.44	<0.44	<0.44	<0.44	<0.09	<0.14	<0.018	0	0	0	PHC not detected,(BO)
s	B7-4 , S7	17.6	<0.44	<0.44	<0.44	<0.44	<0.09	<0.14	<0.018	0	0	0	PHC not detected,(BO)

Initial Calibrator QC check OK Final FCM QC Check OK 101.6 %

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 C
CHAIN-OF-CUSTODY FORM

Client Name:	ESP
Address:	Greensboro
Contact:	Ned Billingsley
Project Ref.:	GR22.325
Email:	on file
Phone #:	on file
Collected by:	R. Pastrana

REDLAB™
RAPID ENVIRONMENTAL DIAGNOSTICS

CHAIN OF CUSTODY AND ANALYTICAL REQUEST FORM

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

Each UVF sample will be analyzed for total BTEX, GRO, DRO, TPH, PAH total aromatics and BaP. Standard GC Analyses are for BTEX and Chlorinated Solvents: VC, 1,1 DCE, 1,2 cis DCE, 1,2 trans DCE, TCE, and PCE. Specify target analytes in the space provided below.

Sample Collection	TAT Requested		Analysis Type				Total Wt.	Tare Wt.	Sample Wt.
Date/Time	24 Hour	48 Hour	UVF	GC	Initials	Sample ID (letter "S")			
5/13/20		✓	✓		SDS	B7-1, S5	55.6	44.4	11.2
						B7-2, S6	56.6	44.7	11.9
						B7-3, S4 *	56.6	44.2	12.4
						B7-4, S7 *	56.2	43.7	12.5

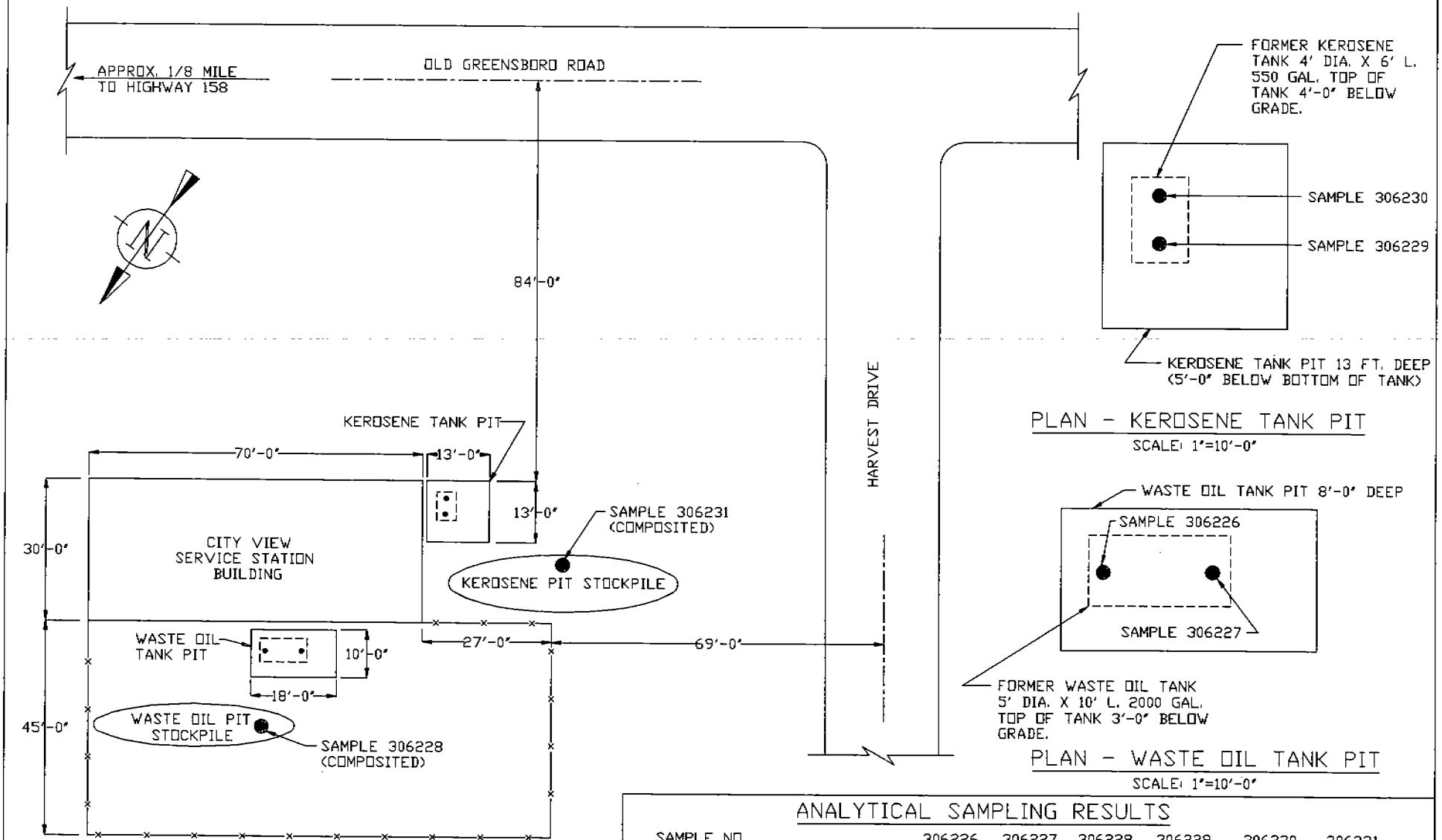
COMMENTS/REQUESTS:
* Report bracketed samples separately

TARGET GC/UVF ANALYTES:

Relinquished by		Accepted by	Date/Time
[signature]	5/15/20	[signature]	5/18/20 12:00
Relinquished by		Accepted by	Date/Time

RED Lab USE ONLY
20
Ref. No H01-02

APPENDIX D
1997 UST CLOSURE REPORT FIGURE 1



PROJECT SITE PLAN

SCALE: 1"=30'-0"

PLAN - KEROSENE TANK PIT

SCALE: 1"=10'-0"

PLAN - WASTE OIL TANK PIT

SCALE: 1"=10'-0"

ANALYTICAL SAMPLING RESULTS

SAMPLE NO.	306226	306227	306228	306229	306230	306231
SAMPLE DEPTH	9.5 FT.	9.5 FT.	NA	13.5 FT.	13.5 FT.	NA
METHOD 8021 RESULT (MG/KG)	BDL	BDL	BDL	NA	NA	NA
METHOD 9071 RESULT (MG/KG)	219	90.9	776	NA	NA	NA
METHOD 3550 RESULT (MG/KG)	NA	NA	NA	BDL	9,510	2,350
METHOD 5030 RESULT (MG/KG)	NA	NA	NA	BDL	605	508

NOTE: BDL= BELOW DETECTION LEVELS, NA = NOT ANALYZED, MG/KG = MILLIGRAMS PER KILOGRAM

SAMPLE DATE: 10 JULY 1997

FIGURE 1
CITY VIEW SERVICE STATION
WASTE OIL AND KEROSENE UST CLOSURE SITE PLAN

R&A ENGINEERING, INC.

108 SHORT STREET
KERNERSVILLE, NORTH CAROLINA
910-996-2841

June 5, 2020

Ashley B. Cox, Jr, LG
Geotechnical Engineering Unit
North Carolina Department of Transportation
1020 Birch Ridge Drive
Raleigh, NC 27610

RE: **PHASE II INVESTIGATION OF PARCEL 42**
Parker's Stop & Shop, PPWS, LLC
4257 Reidsville Road, Winston-Salem, NC
ESP Project No. GR22.325

TIP Number:	R-2577A
WBS Number:	37405.1.2
County:	FORSYTH
Description:	US 158 from North of US 421 to SR 1965 (Belews Creek Road)

Dear Mr. Cox:

ESP Associates, Inc. (ESP) is pleased to submit this report on our GeoEnvironmental Phase II Investigation of the subject parcel. This work was performed in accordance with your Request for Proposal received on April 14, 2020, and our Cost Proposal dated April 23, 2020.

We appreciate the opportunity to assist you during this phase of the project. If you should have any questions concerning this report, or if we may be of further assistance, please contact us.

Sincerely,

ESP Associates, Inc.

NORTH CAROLINA LICENSED SEAL 1631 GEOLOGIST EDWARD DAVIS BILLINGTON

DocuSigned by:
Edward Billington
74925440C92F4E0...

Edward D. Billington, PG
Senior Geologist/Geophysicist
EDB/CRP/NAZ

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TABLES

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FIGURES

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1.0 INTRODUCTION

The North Carolina Department of Transportation (NCDOT) is planning to widen U.S. 158 (Reidsville Road) from north of U.S. 421/I-40 Business to Belews Creek Road (S.R. 1965) in Forsyth County. The primary purpose of this project is to improve traffic operations. The NCDOT requested that ESP Associates, Inc. (ESP) perform a Phase II geoenvironmental investigation of the proposed right-of-way (ROW) and proposed temporary construction easement (E) (collectively proposed ROW/easement) of Parcel 42 to locate possible underground storage tanks (USTs), sample soil, and delineate potential contaminated soil. Parcel 42 is located on the north side of Reidsville Road opposite the intersection with Rickard Road (Figure 1).

2.0 HISTORY

2.1 Ownership

The following is the current parcel ownership, according to the Forsyth County GIS (https://www.forsyth.cc/Tax/geodata.aspx):

- Deed Date: 6/25/2004
- Current Owner: PPWS, LLC
- Owner's Address: 4648 Old Belews Creek Rd, Winston-Salem, NC 27101

2.2 NCDEQ Information

This site was listed as Site No. 2 in the 2004 Phase 1 report (Geoenvironmental Impact Evaluation) that was provided by the NCDOT. Site 2 was anticipated to have low monetary and scheduling impact to the project. We checked the following sources at the NCDEQ with the results summarized below:

- Division of Waste Management Site Locator Tool
    - Indicated Facility ID Facility No. 20022
    - UST Incident No. 21402
    - UST WS-5930
    - No files in Documents Link
- NCDEQ UST Facility Operating Permits
    - Facility No. 20022 (Parkers Stop & Shop, LLC)
- Registered USTs Database
    - 5 Registered USTs removed in December 1998
    - 3 USTs installed in May 1999
        - 10,000-gallon gasoline
        - 6,000-gallon gasoline
        - 2,000-gallon kerosene (Inventory Report from station indicates diesel)
- Incident Management Database (Regional USTs)
    - UST No. WS-5930

  - Incident Name: Quality Mart No. 7
  - Date Occurred: 12/1/1998
  - Contamination: Groundwater
  - No Further Action (NFA) issued 2/3/2015
- Winston-Salem Regional NCDEQ Office
  - Copy of the June 2000 Limited Site Assessment (LSA) report
  - Copy of the final NFA letter
  - Copies of relevant figures from the 2000 LSA report are included in Appendix D. The former tank pit was located between the current tank pit and Reidsville Road.
  - Analytical results reported in the LSA indicated several constituents in the groundwater samples that exceeded the North Carolina 2L groundwater standards but did not exceed the established Gross Contamination Levels (GCLs) for groundwater. Groundwater was measured at depths of 9.52 to 15.79 feet in the monitoring wells during the LSA.

3.0 SITE OBSERVATIONS

During our May 2020 field work, the site was occupied by an active gasoline station and market (Parker's Stop & Shop) (Figure 2). The ground in the study area was covered by asphalt and concrete. There was one monitoring well in the existing ROW and 2 monitoring wells within the proposed temporary construction easement. The proposed temporary construction easement goes through the approximate middle of the current tank pit. The tank inventory report provided by the station listed one 10,000-gallon gasoline UST, one 6,000-gallon gasoline UST, and one 2,000-gallon diesel UST. In addition, an above-ground tank (AST) and a kerosene pump are located at the north corner of the building, outside of the proposed ROW/easement.

4.0 METHODS

ESP performed a geophysical study of the area designated by the NCDOT on May 4, 2020. The geophysical investigation area was approximately 0.27 acres and encompassed the proposed ROW/easement. We performed direct-push drilling and sampling of subsurface soils on May 13 and 14, 2020. A photoionization detector (PID) was used to screen subsurface soils in the field and select soil samples to send for laboratory analysis. Groundwater was not encountered during the drilling investigation.

4.1 Geophysics

ESP performed a metal detector study over the accessible areas of the site using a Geonics EM61 MK2 with a line spacing of approximately three feet (Figures 3 and 4). Location control was provided in real-time using a differential global positioning system (DGPS). Ground-penetrating radar (GPR) data were collected over the tank pit to designate the approximate edges of the known USTs, and beneath the canopy to evaluate the EM61 anomaly caused by reinforced concrete and the pump island, and in other locations to evaluate unknown utilities (Figure 5).

4.2 Borings

ESP performed direct-push drilling activities within the proposed ROW/easement of Parcel 42 using a subcontractor, SAEDACCO of Fort Mill, South Carolina. Seven borings were drilled, designated B42-1 through B42-7 (Figure 8). The borings were approximately evenly spaced in the accessible portions of the study area. Boring B42-5 was located close to a proposed drop inlet. Boring B42-6 was located next to the existing tank pit. Boring B42-7 was located in the vicinity of the former tank pit.

The soil borings were advanced using a GeoProbe 7822DT drill rig. Soil samples were obtained to a maximum depth of approximately 10 feet using two 5-foot long Macro-Core® tubes. Soil cores varied in recovery from 3.3 to 5.0 feet (66 to 100 percent recovery). A hand auger was used to sample the upper 5 feet of Boring B42-2 due to poor direct-push recovery. The sampling equipment was decontaminated prior to drilling and between borings by the driller using a Liquinox® detergent solution.

4.3 Soil Sample Protocol

Representative soil samples were taken from the Macro-Core tubes at approximate one-foot intervals by the ESP field geologist while wearing nitrile disposable gloves. Each sample was placed in a sealed plastic bag and then kept in a warm area for approximately 10 to 15 minutes prior to measuring volatile organic compound (VOC) levels in the head space with the PID. The PID readings ranged from 0.1 to 848.6 parts per million (ppm) (Table 1 and soil borings logs in Appendix A).

Eight soil samples were selected for laboratory analysis, as listed in Table 2. For each selected sample, an approximate 10-gram soil sample was collected from the sample bag using a Terra Core™ sampler and placed into a laboratory-supplied 40-milliliter volatile organic analysis (VOA) vial containing methanol. Once sealed, the vial was labeled with the sample identification number and then shaken vigorously for about one minute. The samples were packed on ice and sent via overnight delivery to RED Lab, LLC (RED Lab), located in Wilmington, North Carolina, following proper chain-of-custody procedures (Appendix C).

RED Lab used a QED Hydrocarbon Analyzer to quantitatively analyze the soil samples using the ultraviolet fluorescence (UVF) method for benzene, toluene, ethylbenzene, and xylene (BTEX); gasoline range organics (GRO); diesel range organics (DRO); total petroleum hydrocarbons (TPH); total aromatics; polycyclic aromatic hydrocarbons (PAHs); and benzo(a)pyrene (BaP).

4.4 Groundwater

Groundwater was not encountered in the 7 borings.

5.0 RESULTS

5.1 Geophysics

The EM61 early time gate data show the response from both shallow and deeper metallic objects (Figure 3). The differential response reduces the effect of shallow anomalies and emphasizes anomalies from larger and more deeply buried metallic objects, such as USTs (Figure 4). Our evaluation of the differential response indicated the anomalies were caused by known site features. The GPR data indicated that the 3 known USTs appeared to extend approximately 0.5 feet past the southeast side of the concrete slab over the tank pit (Figure 5). The GPR data also did not indicate abandoned USTs beneath the canopy.

The EM61 early time gate response and differential response are shown on the plan sheet on Figures 6 and 7, respectively.

5.2 Sample Data

The soil sample UVF hydrocarbon analysis results for BTEX, GRO, DRO, and PAHs are presented in Table 2 with maximum GRO and DRO results shown on Figure 9. The RED Lab laboratory report, which also includes results for TPH, total aromatics, and BaP, is provided in Appendix B. Values are provided in milligrams per kilogram (mg/kg or ppm).

5.3 Sample Observations

The results of the laboratory testing indicate GRO was detected in 2 samples, with one sample above the NCDEQ action level of 50 ppm (353.4 ppm in B42-3, Sample 9) (Table 2, Figure 9). DRO was detected in 6 samples, with two samples above the NCDEQ action level of 100 ppm (594.5 ppm in B42-3, Sample 9 and 105.2 in Boring B42-7, Sample 8). BTEX was below detection limits for the 8 samples tested. PAHs were detected in 2 samples with values of 2.3 and 5.5 ppm. BaP was detected in one sample with a value of 0.027 ppm which is less than NCDEQ's preliminary soil remediation goal for residential health for BaP of 0.11 ppm.

6.0 CONCLUSIONS

6.1 Interpretation of Results

The results of the Phase II investigation for Parcel 42 of NCDOT Project R-2577A indicates that there is no evidence for abandoned USTs in the proposed ROW/easement. The 3 known USTs are partially within the proposed temporary construction easement. Laboratory testing indicated petroleum compounds in 6 of the 8 soil samples tested with two samples from two separate borings having results above the NCDEQ action levels of 50 ppm for GRO and/or 100 ppm for DRO. The PID readings during sampling were above 10 ppm in 4 of the 7 borings.

6.2 Estimated Quantities

Based on the laboratory results and PID readings for Borings B42-3, B42-4, and B42-7, the petroleum contamination appears to extend from approximately 6.0 to 10.0 feet below ground surface with an average thickness of 2.3 feet. Using a contaminated soil thickness of 2.3 feet and an area of 2846 square feet, the volume of contaminated soil within the proposed ROW in the vicinity of Borings B42-3, B42-4, and B42-7 is estimated as follows:

- Estimated area of contaminated soil: 2846 square feet
- Estimated average thickness of contaminated soil: 2.3 feet
- Estimated volume of contaminated soil: 2846 square feet * 2.3 feet = 6546 cubic feet = 242 cubic yards

Assuming 100 pounds per cubic foot, the estimated amount of contaminated soil is approximately:

- 6546 * 100 / 2000 = 327 tons.

7.0 RECOMMENDATIONS

ESP recommends that soil removed from the site as part of NCDOT construction activities in the vicinity of the known USTs, the product lines, the dispenser islands, and Borings B42-3, B42-4, and B42-7 be screened for petroleum hydrocarbon contamination, properly handled, segregated, and disposed of in accordance with NCDEQ regulations.

The product lines and dispenser island are within the proposed ROW and will need to be properly closed and relocated to another location on the parcel. If the final plans indicate that the 3 known USTs that are partially within the proposed temporary construction easement will be encountered during construction, the USTs should be properly closed by removal prior to construction and relocated.

Groundwater was not encountered in the upper 10 feet in the study area. However, documented groundwater contamination exists at Parcel 42. If groundwater is encountered during construction, it should be properly handled and disposed of in accordance with NCDEQ regulations.

8.0 LIMITATIONS

ESP's professional services have been performed, findings obtained, and recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. ESP is not responsible for the independent conclusions, opinions, or recommendations made by others based on the data presented in this report.

The passage of time may result in a change in the environmental characteristics at this site and surrounding properties. ESP does not warrant against future operations or conditions, or against

operations or conditions present of a type or at a location not investigated. ESP does not assume responsibility for other environmental issues that may be associated with the subject site.

TABLES

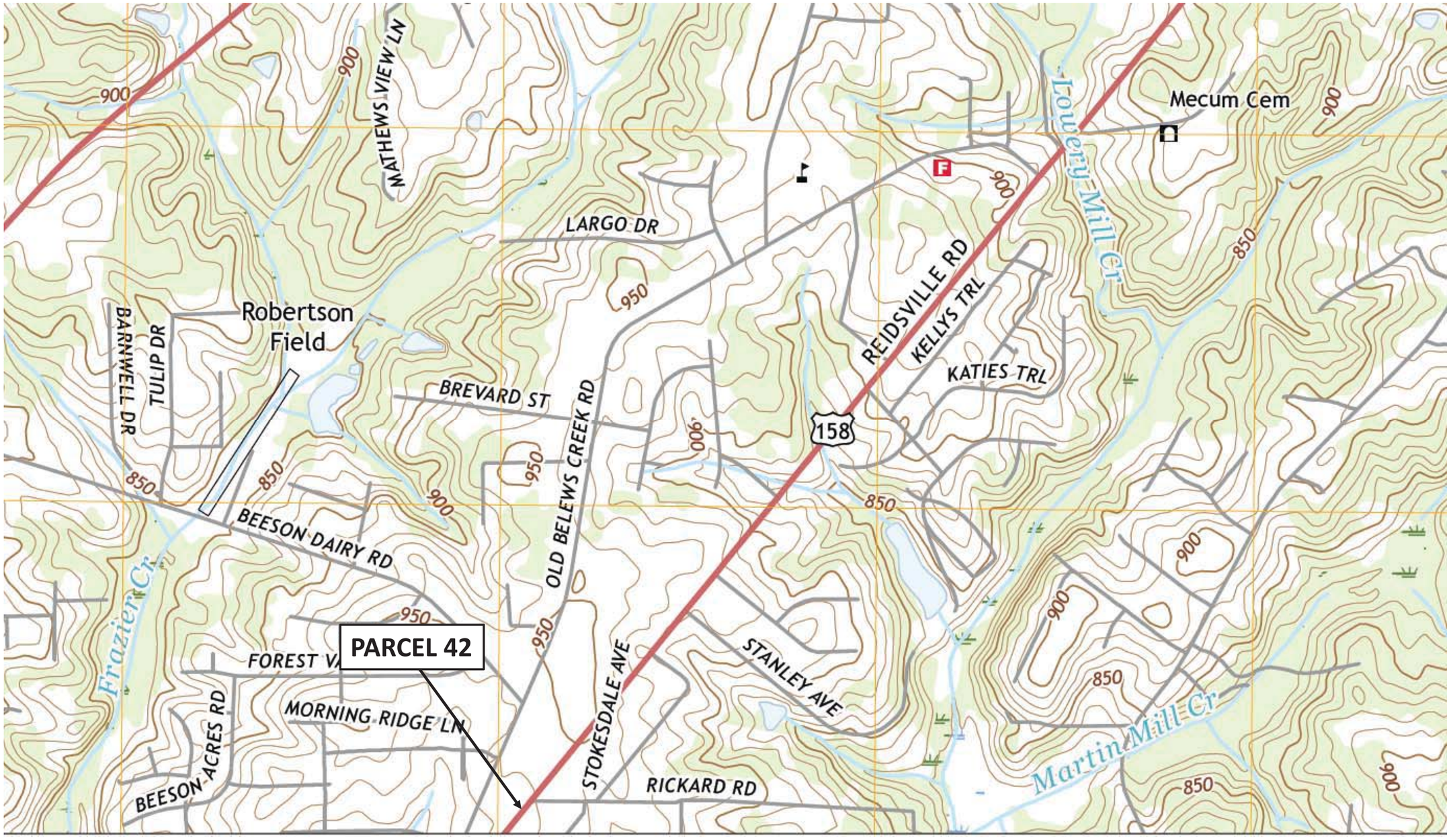
TABLE 1
SOIL SAMPLE PID READINGS

Boring	Sample Depth Range with PID > 10 ppm (feet bgs)	Maximum PID Reading (ppm) and Sample Depth (feet bgs)
B42-1	none	2.4 (8.0-8.5)
B42-2	6.0-7.0, 8.0-9.0	14.8 (8.0-8.5)
B42-3	5.0-10.0	848.6 (9.0-9.5)
B42-4	7.0-7.5, 9.0-9.5	67.2 (9.0-9.5)
B42-5	none	2.0 (7.0-7.5)
B42-6	none	0.6 (4.0-4.5, 6.0-6.5)
B42-7	5.0-10.0	427.0 (8.0-8.5)

TABLE 2
SOIL SAMPLE UVF RESULTS SUMMARY

Boring	Sample ID (depth in feet bgs)	Date Collected	BTEX (C6-C9) (mg/kg)	GRO (C5-C10) (mg/kg)	DRO (C10-C35) (mg/kg)	PAHs (mg/kg)
B42-2	S6 (6.0-6.5)	5/13/20	<0.44	<0.44	43.6	2.3
B42-2	S8 (8.0-8.5)	5/13/20	<0.42	<0.42	0.86	<0.13
B42-3	S5 (5.0-5.5)	5/13/20	<0.5	<0.5	1.8	<0.16
B42-3	S9 (9.0-9.5)	5/13/20	<3.2	**353.4**	**594.5**	<1
B42-4	S9 (9.0-9.5)	5/13/20	<0.45	<0.45	<0.45	<0.15
B42-5	S7 (7.0-7.5)	5/14/20	<0.31	<0.31	<0.31	<0.1
B42-7	S6 (6.0-6.5)	5/14/20	<0.41	<0.41	1.1	<0.13
B42-7	S8 (8.0-8.5)	5/14/20	<0.79	6.1	**105.2**	5.5

FIGURES



From: USGS US Topo 7.5 - minute map for WALKERTOWN QUADRANGLE, NC, Date: 2019, Original Scale: 1:24,000

APPROXIMATE NORTH

PROJECT NO. GR22.325	***FIGURE 1 – PARCEL 42, PPWS, LLC***
SCALE AS SHOWN	***SITE VICINITY MAP***
DATE 5/29/2020	***NCDOT PROJECT R-2577A***
BY CRP/EDB	***US 158 FROM NORTH OF US 421 TO SR 1965***
	FORSYTH COUNTY, NORTH CAROLINA

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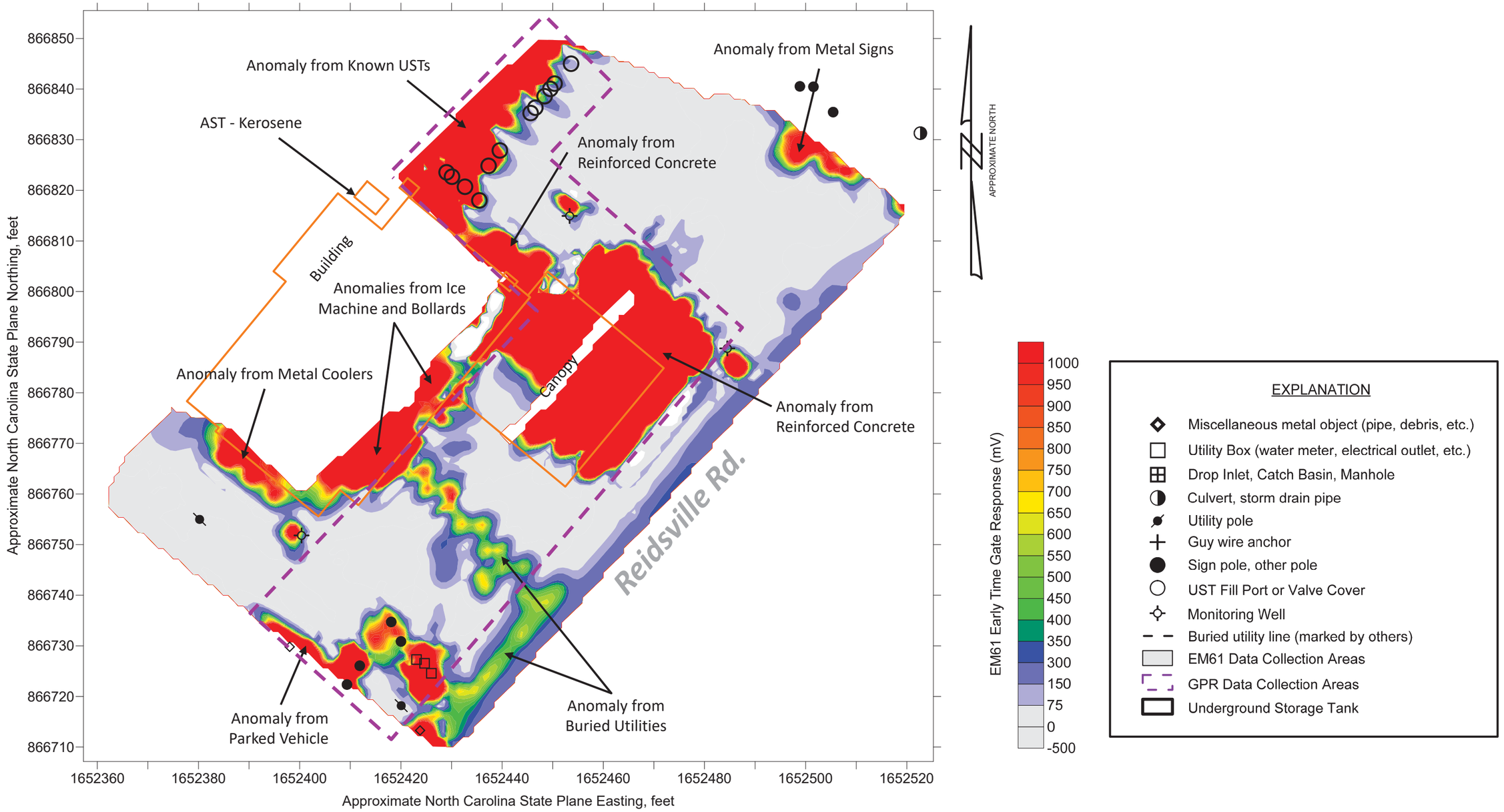
A. Photograph from northeast corner of parcel, looking southwest.

B. Photograph from southern corner of parcel, looking north.

C. Photograph of tank bed area, looking northeast. Magenta lines are approximate edges of USTs, as indicated by GPR images.

D. Photograph of drilling operations, looking northeast.

PROJECT NO. GR22.325 SCALE N/A DATE 5/29/2020 BY CRP/EDB	***FIGURE 2 –PARCEL 42, PPWS, LLC SITE PHOTOGRAPHS*** ***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***	ESP Associates, Inc. 7011 Albert Pick Rd., Suite E Greensboro, NC 27409 336.334.7724 www.espassociates.com



Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

PROJECT NO. GR22.325	***FIGURE 3 – PARCEL 42, PPWS, LLC***
SCALE AS SHOWN	***EM61 EARLY TIME GATE DATA***
DATE 5/29/2020	***NCDOT PROJECT R-2577A***
BY CRP/EDB	***US 158 FROM NORTH OF US 421 TO SR 1965***
	FORSYTH COUNTY, NORTH CAROLINA

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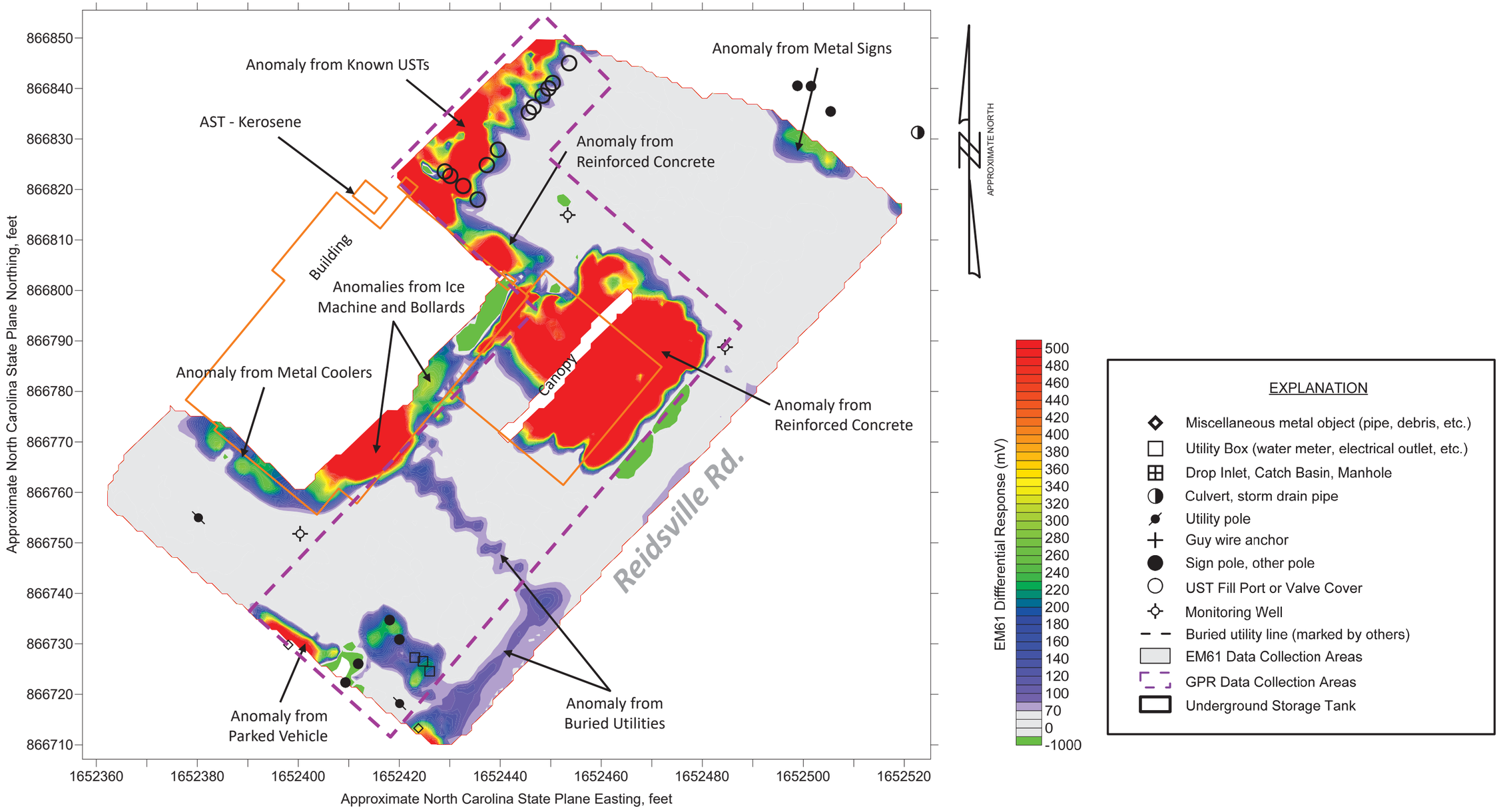

Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

PROJECT NO. GR22.325	***FIGURE 4 – PARCEL 42, PPWS, LLC EM61 DIFFERENTIAL DATA***
SCALE AS SHOWN	
DATE 5/29/2020	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***
BY CRP/EDB	

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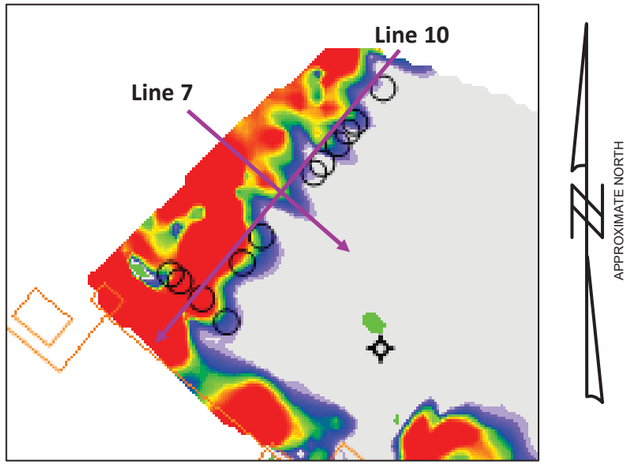
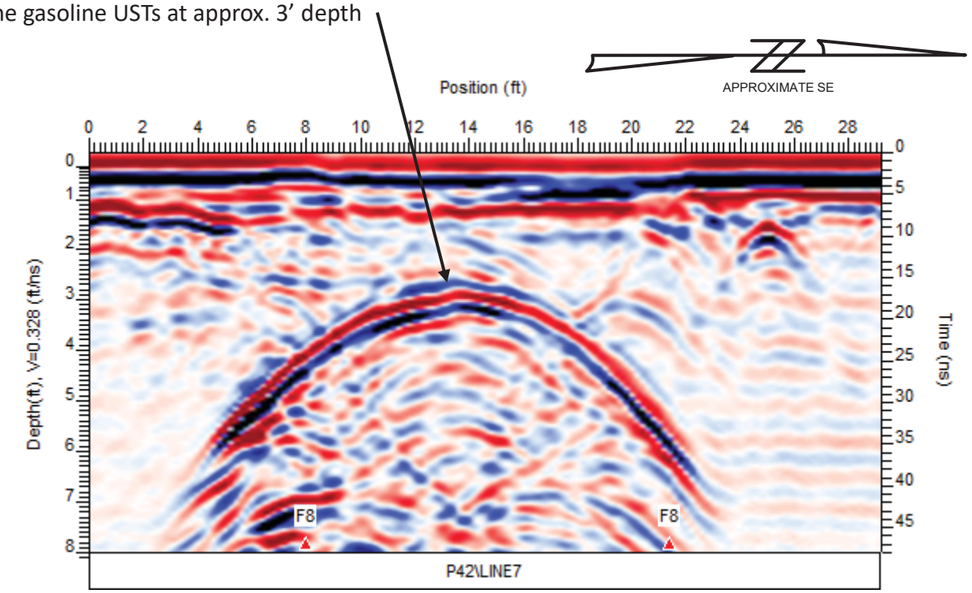
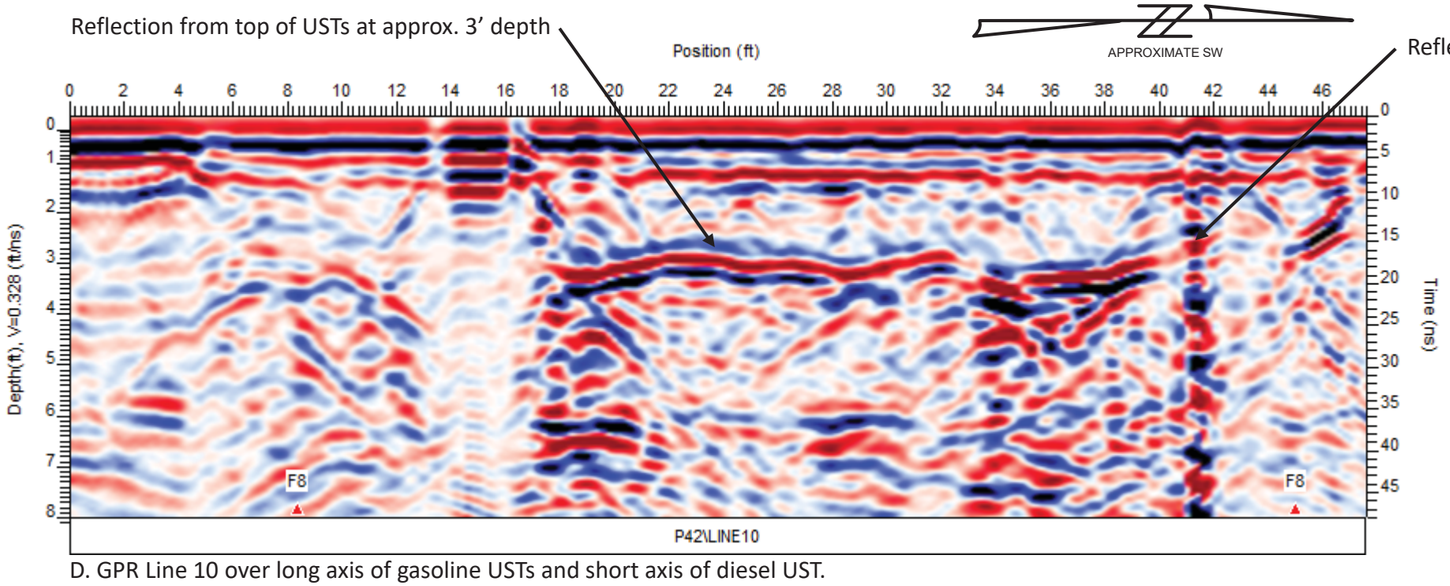


A. EM61 differential data with example GPR line locations.

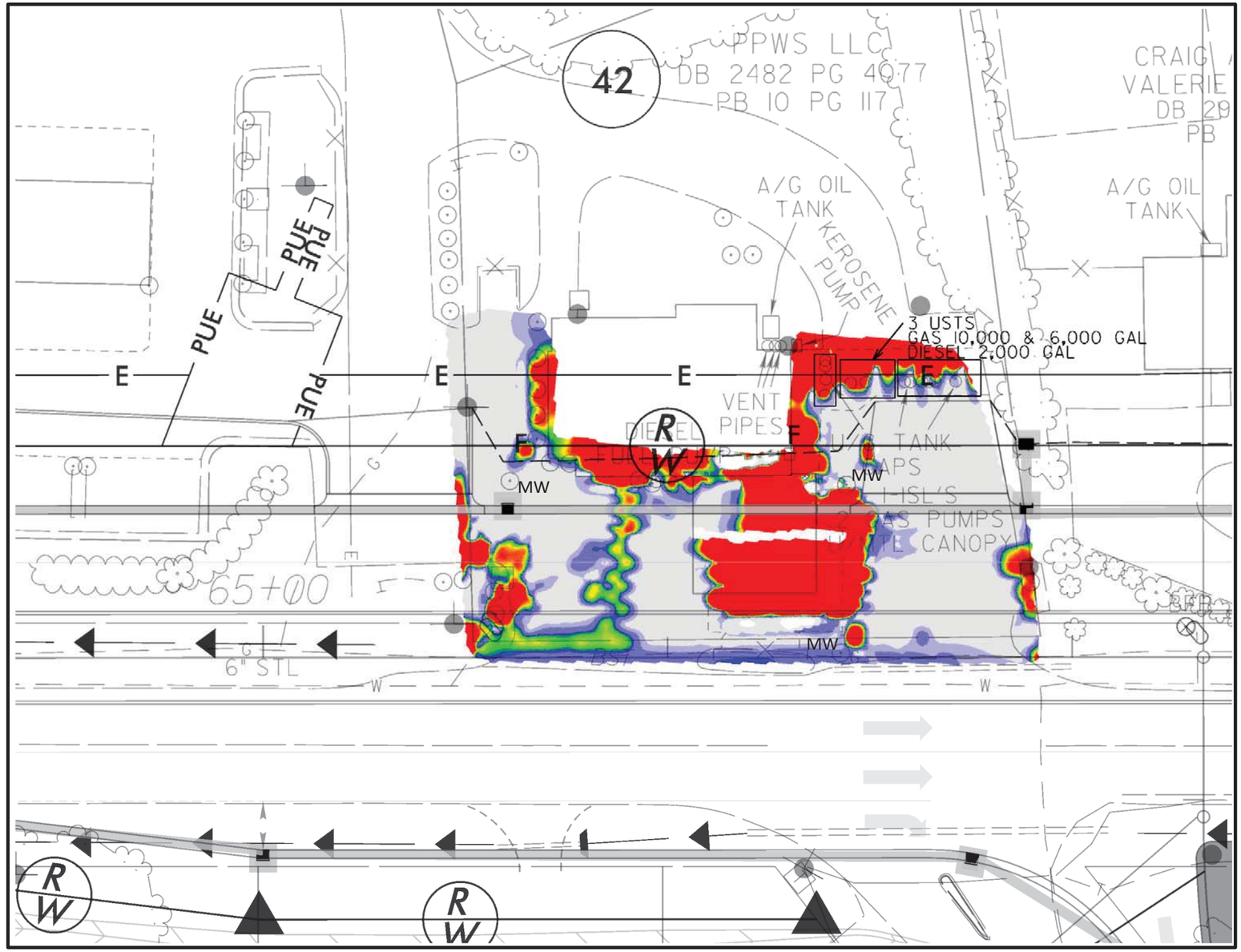


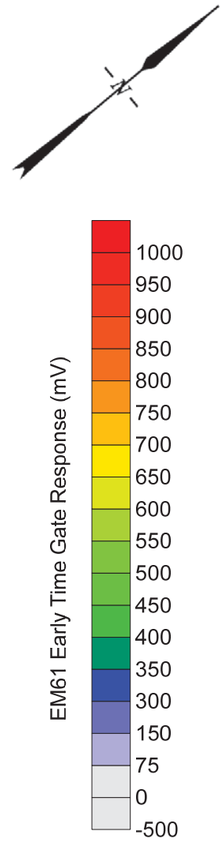
B. GPR Line 7 over short axis of 1 of 2 gasoline USTs.



D. GPR Line 10 over long axis of gasoline USTs and short axis of diesel UST.

PROJECT NO. GR22.325	***FIGURE 5 – PARCEL 42, PPWS, LLC GPR IMAGES OVER KNOWN USTS***	ESP Associates, Inc. 7011 Albert Pick Rd., Suite E Greensboro, NC 27409 336.334.7724 www.espassociates.com
SCALE AS SHOWN		
DATE 5/29/2020	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***	
BY CRP/EDB		





- R-2577A_Geo_env.dgn
  - R-2577A_hyd_drn.dgn
  - R2577A_ncdot_fs.dgn
  - R-2577A_rdy_dsn.dgn
  - R-2577A_rdy_dsn_driveways.dgn
  - R-2577A_rdy_dsn_guardrail.dgn
  - R-2577A_rdy_HISTORIC.dgn
  - R-2577A_rdy_map_owner_no.dgn
  - R-2577A_rdy_row.dgn
  - R-2577A_rdy_row_AG.dgn
  - R-2577A_rdy_row_SB.dgn
  - R-2577A_rdy_ss.dgn

0 30 60
FEET

See Figure 10 for explanation of symbols and line types

PROJECT NO. GR22.325	***FIGURE 6 – PARCEL 42, PPWS, LLC***
SCALE 1" = 30'	***EM61 EARLY TIME GATE DATA ON PLAN SHEET***
DATE 5/29/2020	***NCDOT PROJECT R-2577A***
BY CRP/EDB	***US 158 FROM NORTH OF US 421 TO SR 1965***
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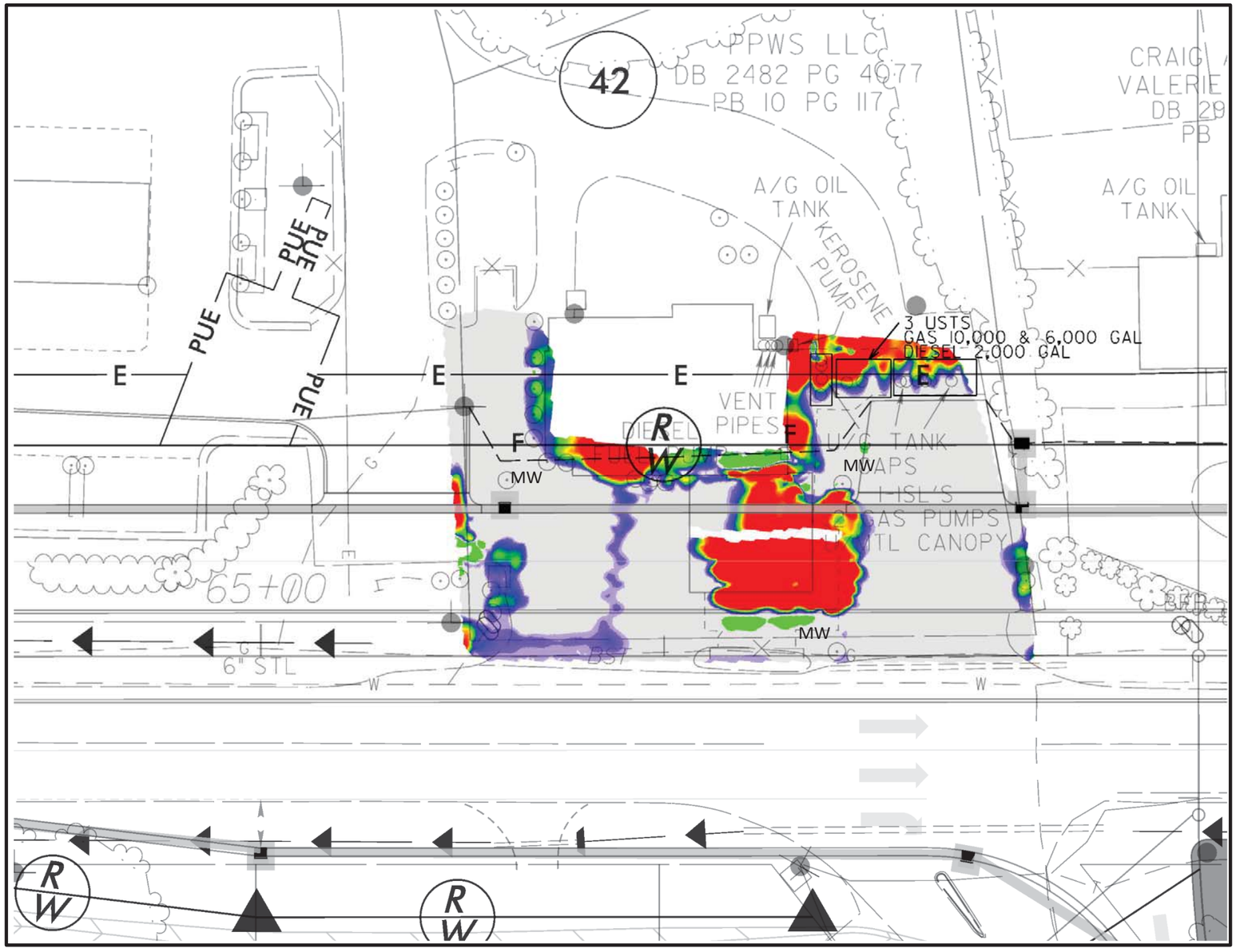

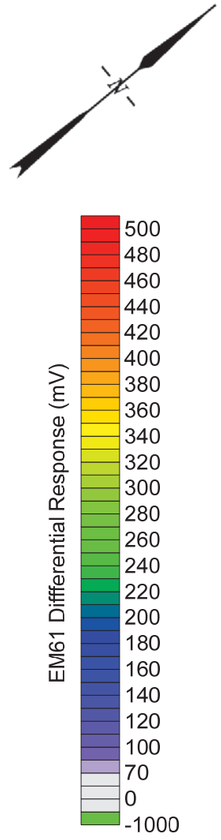

- R-2577A_Geo_env.dgn
  - R-2577A_hyd_drn.dgn
  - R2577A_ncdot_fs.dgn
  - R-2577A_rdy_dsn.dgn
  - R-2577A_rdy_dsn_driveways.dgn
  - R-2577A_rdy_dsn_guardrail.dgn
  - R-2577A_rdy_HISTORIC.dgn
  - R-2577A_rdy_map_owner_no.dgn
  - R-2577A_rdy_row.dgn
  - R-2577A_rdy_row_AG.dgn
  - R-2577A_rdy_row_SB.dgn
  - R-2577A_rdy_ss.dgn

0 30 60
FEET

See Figure 10 for explanation of symbols and line types

PROJECT NO. GR22.325	***FIGURE 7 – PARCEL 42, PPWS, LLC***
SCALE 1" = 30'	***EM61 DIFFERENTIAL DATA ON PLAN SHEET***
DATE 5/29/2020	***NCDOT PROJECT R-2577A***
BY CRP/EDB	***US 158 FROM NORTH OF US 421 TO SR 1965***
	FORSYTH COUNTY, NORTH CAROLINA

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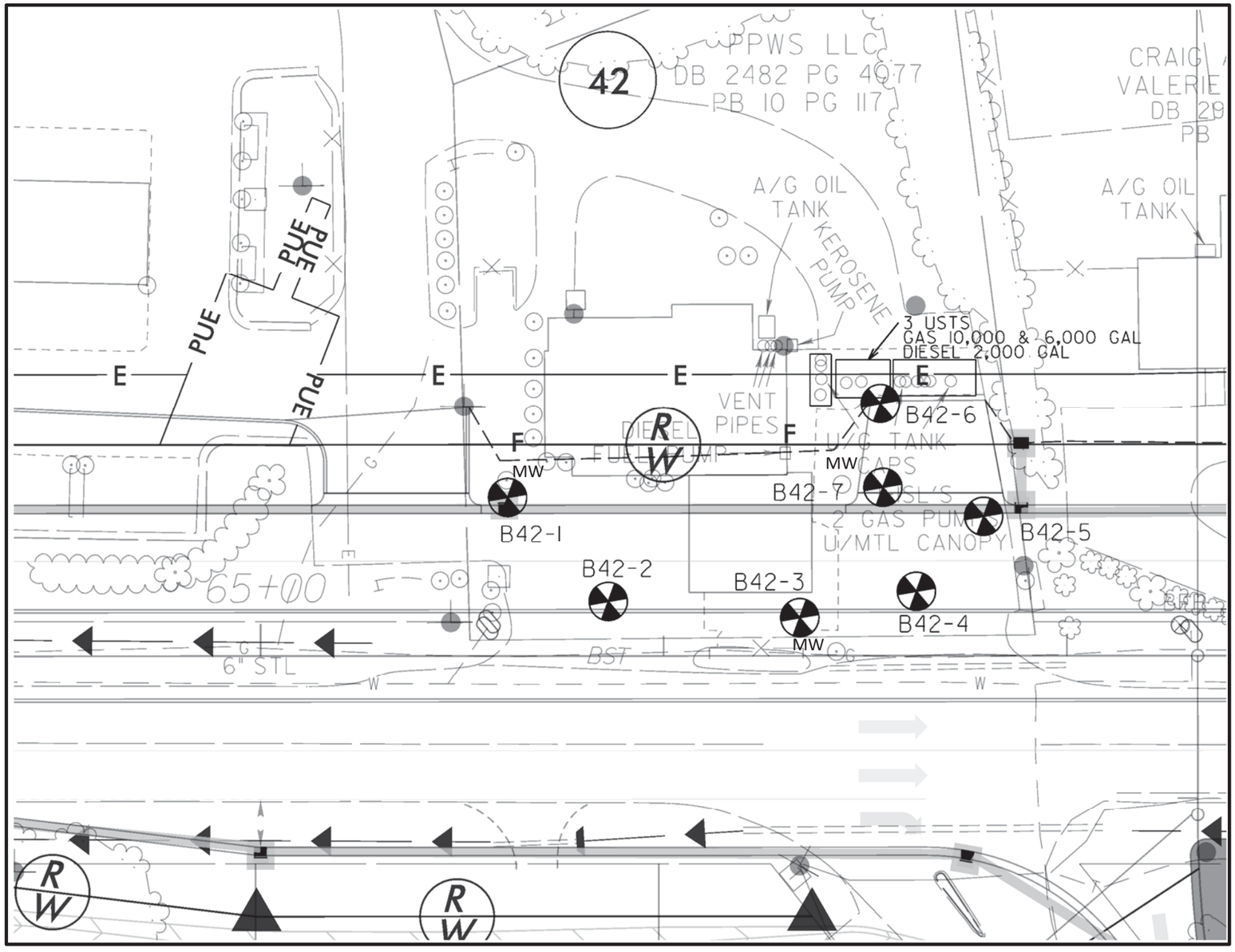

- R-2577A_Geo_env.dgn
  - R-2577A_hyd_drn.dgn
  - R2577A_ncdot_fs.dgn
  - R-2577A_rdy_dsn.dgn
  - R-2577A_rdy_dsn_driveways.dgn
  - R-2577A_rdy_dsn_guardrail.dgn
  - R-2577A_rdy_HISTORIC.dgn
  - R-2577A_rdy_map_owner_no.dgn
  - R-2577A_rdy_row.dgn
  - R-2577A_rdy_row_AG.dgn
  - R-2577A_rdy_row_SB.dgn
  - R-2577A_rdy_ss.dgn

0 30 60

FEET

See Figure 10 for explanation of symbols and line types

PROJECT NO. GR22.325	***FIGURE 8 – PARCEL 42, PPWS, LLC BORING LOCATIONS ON PLAN SHEET***
SCALE 1" = 30'	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***
DATE 5/29/2020	
BY CRP/EDB	

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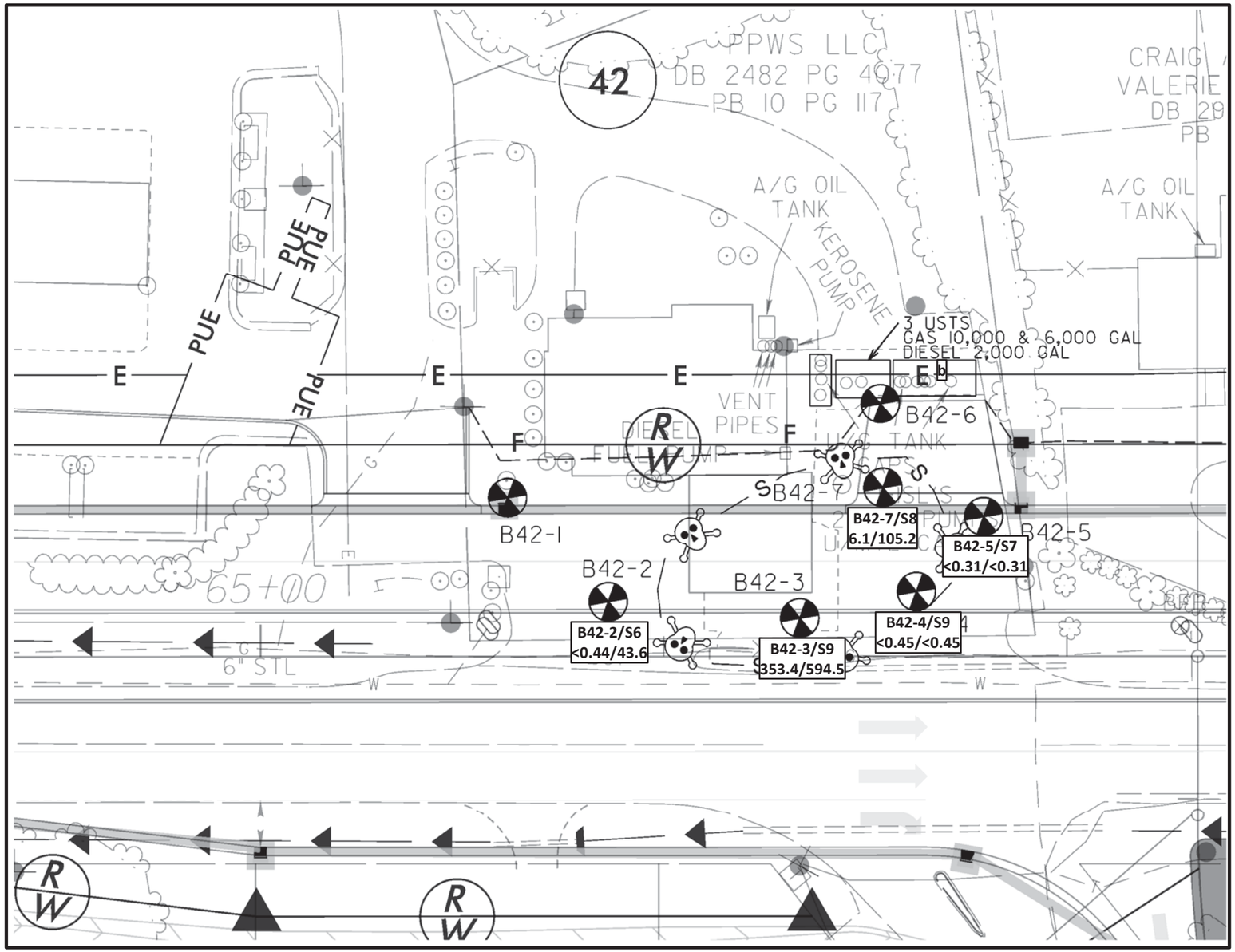

Explanation

Maximum Analytical Results per Boring

B42-4/S9
<0.45/<0.45

Boring No./Sample No.
GRO/DRO (mg/kg, ppm)

- R-2577A_Geo_env.dgn
  - R-2577A_hyd_drn.dgn
  - R2577A_ncdot_fs.dgn
  - R-2577A_rdy_dsn.dgn
  - R-2577A_rdy_dsn_driveways.dgn
  - R-2577A_rdy_dsn_guardrail.dgn
  - R-2577A_rdy_HISTORIC.dgn
  - R-2577A_rdy_map_owner_no.dgn
  - R-2577A_rdy_row.dgn
  - R-2577A_rdy_row_AG.dgn
  - R-2577A_rdy_row_SB.dgn
  - R-2577A_rdy_ss.dgn

0 30 60
FEET

See Figure 10 for explanation of symbols and line types

PROJECT NO. GR22.325	***FIGURE 9 – PARCEL 42, PPWS, LLC SOIL ANALYTICAL RESULTS ON PLAN SHEET***
SCALE 1" = 30'	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***
DATE 5/29/2020	
BY CRP/EDB	

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12/2/2016

PROJECT REFERENCE NO.	SHEET NO.

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS
CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:
- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin
- Computed Property Corner
- Property Monument (ECM)
- Parcel/Sequence Number (23)
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary (WLB)
- Proposed Wetland Boundary (WLB)
- Existing Endangered Animal Boundary (EAB)
- Existing Endangered Plant Boundary (EPB)
- Existing Historic Property Boundary (HPB)
- Known Contamination Area: Soil (S)
- Potential Contamination Area: Soil (S)
- Known Contamination Area: Water (W)
- Potential Contamination Area: Water (W)
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:
- Gas Pump Vent or U/G Tank Cap
- Sign
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:
- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream (JS)
- Buffer Zone 1 (BZ 1)
- Buffer Zone 2 (BZ 2)
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch (flow)
- False Sump

RAILROADS:
- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:
- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line (RW)
- New Right of Way Line with Pin and Cap (RW)
- New Right of Way Line with Concrete or Granite R/W Marker (RW)
- New Control of Access Line with Concrete C/A Marker (CA)
- Existing Control of Access (CA)
- New Control of Access (CA)
- Existing Easement Line (E)
- New Temporary Construction Easement (E)
- New Temporary Drainage Easement (TDE)
- New Permanent Drainage Easement (PDE)
- New Permanent Drainage / Utility Easement (DUE)
- New Permanent Utility Easement (PUE)
- New Temporary Utility Easement (TUE)
- New Aerial Utility Easement (AUE)

ROADS AND RELATED FEATURES:
- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut (C)
- Proposed Slope Stakes Fill (F)
- Proposed Curb Ramp (CR)
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:
- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard (Vineyard)

EXISTING STRUCTURES:
MAJOR:
- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:
- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer (S)

UTILITIES:
POWER:
- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) (P)
- U/G Power Line LOS C (S.U.E.*) (P)
- U/G Power Line LOS D (S.U.E.*) (P)

TELEPHONE:
- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole (T)
- Telephone Pedestal (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole (HH)
- U/G Telephone Cable LOS B (S.U.E.*) (T)
- U/G Telephone Cable LOS C (S.U.E.*) (T)
- U/G Telephone Cable LOS D (S.U.E.*) (T)
- U/G Telephone Conduit LOS B (S.U.E.*) (TC)
- U/G Telephone Conduit LOS C (S.U.E.*) (TC)
- U/G Telephone Conduit LOS D (S.U.E.*) (TC)
- U/G Fiber Optics Cable LOS B (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS C (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS D (S.U.E.*) (T FO)

WATER:
- Water Manhole (W)
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E.*) (W)
- U/G Water Line LOS C (S.U.E.*) (W)
- U/G Water Line LOS D (S.U.E.*) (W)
- Above Ground Water Line (A/G Water)

TV:
- TV Pedestal (C)
- TV Tower
- U/G TV Cable Hand Hole (HH)
- U/G TV Cable LOS B (S.U.E.*) (TV)
- U/G TV Cable LOS C (S.U.E.*) (TV)
- U/G TV Cable LOS D (S.U.E.*) (TV)
- U/G Fiber Optic Cable LOS B (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS C (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS D (S.U.E.*) (TV FO)

GAS:
- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) (G)
- U/G Gas Line LOS C (S.U.E.*) (G)
- U/G Gas Line LOS D (S.U.E.*) (G)
- Above Ground Gas Line (A/G Gas)

SANITARY SEWER:
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line (SS)
- Above Ground Sanitary Sewer (A/G Sanitary Sewer)
- SS Forced Main Line LOS B (S.U.E.*) (FSS)
- SS Forced Main Line LOS C (S.U.E.*) (FSS)
- SS Forced Main Line LOS D (S.U.E.*) (FSS)

MISCELLANEOUS:
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line LOS B (S.U.E.*) (U/L)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. (UST)
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records (AATUR)
- End of Information (E.O.I.)

PROJECT NO. GR22.325	**FIGURE 10**
SCALE N/A	**LEGEND FOR PLAN SHEET FIGURES**
DATE 5/29/2020	**NCDOT PROJECT R-2577A**
BY CRP/EDB	**US 158 FROM NORTH OF US 421 TO SR 1965**
	FORSYTH COUNTY, NORTH CAROLINA

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APPENDIX A
SOIL BORING LOGS

FIELD BORING LOG

BORING NO. B42-1

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: South End of Parcel, by MW and near S Corner of Building
TYPE OF BORING: Direct Push | DATE STARTED: 5/13/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/13/20 | TOTAL DEPTH: 10.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.3' - Asphalt	Core 1 Rec 3.8'/5.0'
				0.3' - 1.0' - Concrete	
					1st Attempt Rec. 0.8/5.0'
1				1.0' - 8.0' - Red-Brown to Orange, Silty CLAY, Moist	
					2nd Attempt - Core was stuck in casing
2	S-2	2.0-2.5	0.2		3rd Attempt Rec. 3.8'/5.0'
3	S-3	3.0-3.5	0.1		
4	S-4	4.0-4.5	0.3		
5	S-5	5.0-5.5	0.1	5.0' - grading to Red-Brown, Moist to Very Moist	Core 2 Rec 3.8'/5.0'
6	S-6	6.0-6.5	0.2		
7	S-7	7.0-7.5	0.3		
8	S-8	8.0-8.5	2.4	8.0' - 10.0' - Red-Brown to Brown, Sandy SILT, Moist	
9					
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B42-2

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: South Entrance to Parcel
TYPE OF BORING: Direct Push, Hand Auger | DATE STARTED: 5/13/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/13/20 | TOTAL DEPTH: 10.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore / Hand Auger | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.6' - Asphalt	Core 1 Rec N/A
				0.6' - 5.0' Red-Brown, Silty CLAY, Moist	
					1st & 2nd Attempt
1	S-1	1.0-1.5	0.2		No Recovery
					Hand Augered to 5.0'
					Rec. 5.0/5.0
2	S-2	2.0-2.5	0.3		
3	S-3	3.0-3.5	0.4		
4	S-4	4.0-4.5	0.2		
5	S-5	5.0-5.5	0.5	5.0'-7.8' - Red-Brown, Clayey SILT, Moist to Very Moist	Core 2 Rec 3.3'/5.0'
					1st Attempt Rec. 2.5'/5.0'
6	S-6	6.0-6.5	12.4		2nd Attempt Rec. 3.3'/5.0'
					6.0-10.0 - Slight
					petroleum odor
7	S-7	7.0-7.5	8.2		
				7.8' - 10.0' - Orange-Brown to Green-Brown, Silty SAND, Mottled,	
8	S-8	8.0-8.5	14.8	Moist to Very Moist	
9					
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B42-3

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: North Entrance to Parcel
TYPE OF BORING: Direct Push | DATE STARTED: 5/13/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/13/20 | TOTAL DEPTH: 10.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.7' - Asphalt	Core 1 Rec 3.7'/5.0'
				0.7' - 3.2' - Tan-Brown, Silty and Clayey SAND, Moist to Very Moist	
1	S-1	1.0-1.5	0.2		
2	S-2	2.0-2.5	0.5		
3	S-3	3.0-3.5	0.3		
				3.2' - 5.6' - Red-Brown, Silty CLAY, Moist to Very Mosit	
4	S-4	4.0-4.5	0.8		
5	S-5	5.0-5.5	16.6		Core 2 Rec 5.0'/5.0'
					5.0-10.0 - Strong
				5.6' - 10.0' - Red-Brown, Sandy SILT, Moist to Very Moist	Petroleum Odor
6	S-6	6.0-6.5	66.3		
7	S-7	7.0-7.5	154.0		
				7.6' - grading to Orange-Brown to Gray-Brown	
8	S-8	8.0-8.5	108.6		
9	S-9	9.0-9.5	848.6		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B42-4

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: North End of Parcel, North Side of North Entrance
TYPE OF BORING: Direct Push | DATE STARTED: 5/13/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/13/20 | TOTAL DEPTH: 10.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.6' - Asphalt	Core 1 Rec 4.1'/5.0'
				0.6' - 1.8' - Gravel and Soil Mix	
1	S-1	1.0-1.5	6.5		
				1.8' - 5.2' - Tan-Brown to Red-Brown, Silty CLAY, Moist	
2	S-2	2.0-2.5	1.9		
3	S-3	3.0-3.5	1.0		
4	S-4	4.0-4.5	3.4		
5	S-5	5.0-5.5	3.2		Core 2 Rec 5.0'/5.0'
				5.2' - 10.0 - Red-Brown to Dark Brown, Sandy SILT, Micaceous, Moist	
6	S-6	6.0-6.5	2.9		
7	S-7	7.0-7.5	10.2		7.0-10.0 - Petroleum Odor
8	S-8	8.0-8.5	6.3		
9	S-9	9.0-9.5	67.2		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B42-5

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: Middle of North End of Parcel
TYPE OF BORING: Direct Push | DATE STARTED: 5/14/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/14/20 | TOTAL DEPTH: 10.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.6' - Asphalt	Core 1 Rec 4.2'/5.0'
				0.6' - 4.0' - Red-Brown to Tan-Brown, Silty and Sandy CLAY, Dry to Very Moist	
1	S-1	1.0-1.5	0.2		
2	S-2	2.0-2.5	0.4		
3	S-3	3.0-3.5	0.5		
4	S-4	4.0-4.5	0.3	4.0' - 5.5' - Red-Brown, Silty CLAY, Moist	
5	S-5	5.0-5.5	0.4		Core 2 Rec 5.0'/5.0'
				5.5' - 10.0' - Red-Brown to Brown, Sandy SILT, Moist	
6	S-6	6.0-6.5	0.3		
7	S-7	7.0-7.5	2.0		
8	S-8	8.0-8.5	1.6		
9	S-9	9.0-9.5	1.5		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B42-6

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: East Side of Known USTs
TYPE OF BORING: Direct Push | DATE STARTED: 5/14/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/14/20 | TOTAL DEPTH: 10.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.6' - Asphalt	Core 1 Rec 3.7'/5.0'
				0.6' - 1.2' - ABC Stone	
1					
				1.2' - 5.0' - Red to Tan-Brown, Silty and Sandy CLAY, Dry to Moist	
2	S-2	2.0-2.5	0.5		
3	S-3	3.0-3.5	0.4		
4	S-4	4.0-4.5	0.6		
5	S-5	5.0-5.5	0.3	5.0' - 10.0' - Red-Brown to Brown, Sandy and Clayey SILT, Moist	Core 2 Rec 5.0'/5.0'
6	S-6	6.0-6.5	0.6		
7	S-7	7.0-7.5	0.3		
8	S-8	8.0-8.5	0.3		
9	S-9	9.0-9.5	0.4		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B42-7

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: In Vicinity of Former Tank Piit
TYPE OF BORING: Direct Push | DATE STARTED: 5/14/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/14/20 | TOTAL DEPTH: 10.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.5' - Asphalt	Core 1 Rec 3.3'/5.0'
				0.5' - 1.3' - ABC Stone	
1					
				1.3' - 6.0' - Red-Brown to Brown, Silty CLAY, Moist	
2	S-2	2.0-2.5	1.4		
3	S-3	3.0-3.5	7.4		
4	S-4	4.0-4.5	9.3		4.0-10.0 Petroleum Odor
5	S-5	5.0-5.5	15.8		Core 2 Rec 4.3'/5.0'
					1st Attempt Rec 1.8'/5.0'
6	S-6	6.0-6.5	29.7	6.0' - 10.0' Red-Brown to Brown, Clayey and Sandy SILT, Moist to Very Moist	2nd Attempt Rec 4.3'/5.0'
7	S-7	7.0-7.5	26.2	7.0' - 7.8' - with Layer of Gravel	
8	S-8	8.0-8.5	427.0	8.0' - grading to Dry	
9	S-9	9.0-9.5	160.3		
10					
11					
12					
13					
14					
15					

APPENDIX B

RED LAB LABORATORY TESTING REPORT

QED REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS QROS

Hydrocarbon Analysis Results

Client: ESP
Address: 7011 Albert Pick Rd
Ste E
Greensboro, NC 27409

Contact: Ned Billington

Project: GR22.325

Samples taken 5/13 - 5/14/2020
Samples extracted 5/13 - 5/14/2020
Samples analysed Monday, May 18, 2020

Operator Harry Wooten

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	B42-2 , S6	17.7	<0.44	<0.44	43.6	43.6	21.2	2.3	0.027	0	94.7	5.3	Road Tar 90.2%,(FCM)
s	B42-2 , S8	16.8	<0.42	<0.42	0.86	0.86	0.34	<0.13	<0.017	0	93.5	6.5	Deg Fuel 92.7%,(FCM)
s	B42-3 , S5	20.2	<0.5	<0.5	1.8	1.8	0.91	<0.16	<0.02	0	92.2	7.8	Road Tar 94.9%,(FCM)
s	B42-3 , S9	128.0	<3.2	353.4	594.5	947.9	25.4	<1	<0.13	99.7	0.3	0	Deg.Kerosene 90.4%,(FCM)
s	B42-4 , S9	18.2	<0.45	<0.45	<0.45	<0.45	<0.09	<0.15	<0.018	0	0	0	PHC not detected
s	B42-5 , S7	12.5	<0.31	<0.31	<0.31	<0.31	<0.06	<0.1	<0.012	0	0	0	,(FCM),(BO)
s	B42-7 , S6	16.5	<0.41	<0.41	1.1	1.1	0.72	<0.13	<0.017	0	95.5	4.5	Deg Fuel 73.4%,(FCM)
s	B42-7 , S8	31.6	<0.79	6.1	105.2	111.3	51.1	5.5	<0.032	10.4	86.3	3.3	Road Tar 93.7%,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 100.3 %

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

APPENDIX C
CHAIN-OF-CUSTODY FORM

Client Name:	ESP
Address:	Greensboro
Contact:	Ned Billingsley
Project Ref.:	GR22.325
Email:	on file
Phone #:	on file
Collected by:	R. Pastrana

REDLAB™
RAPID ENVIRONMENTAL DIAGNOSTICS

CHAIN OF CUSTODY AND ANALYTICAL REQUEST FORM

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

Each UVF sample will be analyzed for total BTEX, GRO, DRO, TPH, PAH total aromatics and BaP. Standard GC Analyses are for BTEX and Chlorinated Solvents: VC, 1,1 DCE, 1,2 cis DCE, 1,2 trans DCE, TCE, and PCE. Specify target analytes in the space provided below.

Sample Collection	TAT Requested		Analysis Type		Initials	Sample ID (letter "S")	Total Wt.	Tare Wt.	Sample Wt.
Date/Time	24 Hour	48 Hour	UVF	GC					
5/13/20		✓	✓		EDB				
						B42-2, 56	57.1	44.7	12.4
						B42-2, 58	58.0	44.9	13.1
						B42-3, 55	55.2	44.5	10.9
						B42-3, 59	68.5	45.3	13.2
						B42-4, 59 *	55.8	43.7	12.1
5/14/20						B42-5, 57	56.1	43.8	12.3
					↓	B42-7, 56	57.8	44.5	13.3
		↓	X		EDB	B42-7, 58	57.7	44.4	13.3

COMMENTS/REQUESTS:
* Report bracketed samples separately

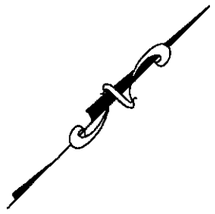
TARGET GC/UVF ANALYTES:

Relinquished by		Accepted by	Date/Time
[signature]	5/15/20	[signature]	5/18/20 12:00
Relinquished by		Accepted by	Date/Time

RED Lab USE ONLY
20
Ref. No H01 - 02

APPENDIX D

2000 LSA REPORT FIGURES 2, 4, 5, AND 6



PROPERTY LINE

PROPERTY LINE

GRASS

MW2

MW3

SEPTIC FIELD

MW6

SEPTIC TANK

GRASS

CHAIN LINK FENCE

RESIDENCE

CAR PORT

T7

QM No. 7

K-1 PUMP

VENT LINES/PIPES

RESIDENCE

MW5

T2 T3 T4 T5

MW1

T1

LIMIT OF UST EXCAVATION

PUMP ISLAND

T6

VENT LINES/PIPES

GRASS

PRODUCT LINES

ASPHALT

CONCRETE

MW4

U.S. HWY. 158 (Reidsville Rd.)

LEGEND

Type II Monitoring Well

Type III Monitoring Well

Potable Well (Inactive)

TANK INFORMATION	
T1	4,000 gal. kerosene (fiberglass)
T2	4,000 gal. gasoline (steel)
T3	4,000 gal. gasoline (steel)
T4	4,000 gal. gasoline (steel)
T5	4,000 gal. gasoline (steel)
T6	6,000 gal. gasoline (steel)
T7	550 gal. heating oil (closed 1988)

VACANT LOT

SR 2397 (Rickard Rd.)

GRASS

GRAPHIC SCALE

0' 15' 30' 60'

1" = 30'

SITE LAYOUT MAP

QUALITY MART No. 7

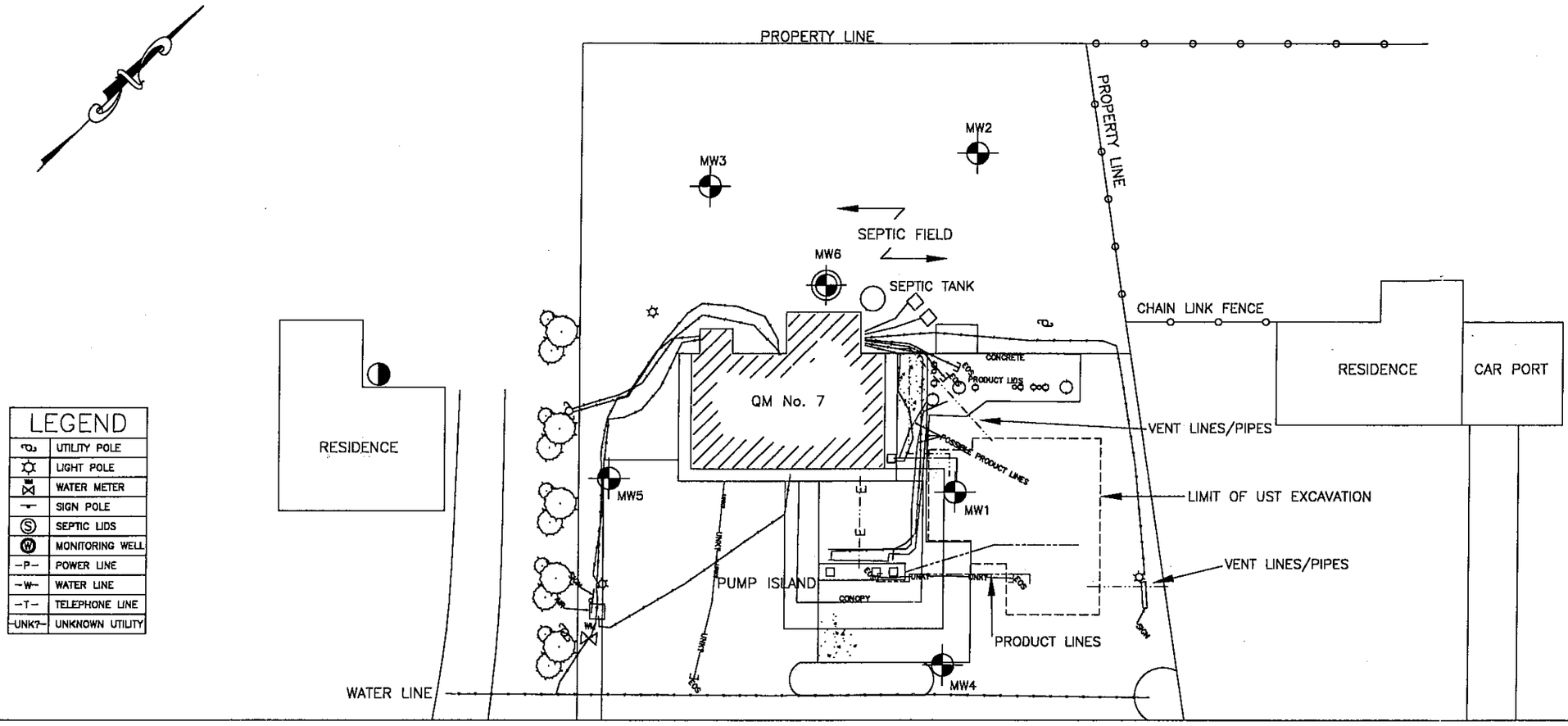
WINSTON-SALEM, NC

QUALITY OIL COMPANY, LLC

PROJECT NO:	04198
SCALE:	1"=30'
CHECKED BY:	MJB
DRAWN BY:	MJB/RDK
FIGURE NO.	2
DATE:	5/30/00

TURNER ENVIRONMENTAL CONSULTANTS, P.C.

CARRBORO, NC



LEGEND	
	UTILITY POLE
	LIGHT POLE
	WATER METER
	SIGN POLE
S	SEPTIC LIDS
W	MONITORING WELL
-P-	POWER LINE
-W-	WATER LINE
-T-	TELEPHONE LINE
-UNK?-	UNKNOWN UTILITY

U.S. HWY. 158 (Reidsville Rd.)

SR 2397 (Rickard Rd.)

LEGEND

Type II Monitoring Well

Type III Monitoring Well

Potable Well (Inactive)

NOTE: Utility locating performed by Taylor, Weisman and Taylor.

GRAPHIC SCALE

0' 15' 30' 60'

1" = 30'

UNDERGROUND UTILITIES MAP

QUALITY MART No. 7

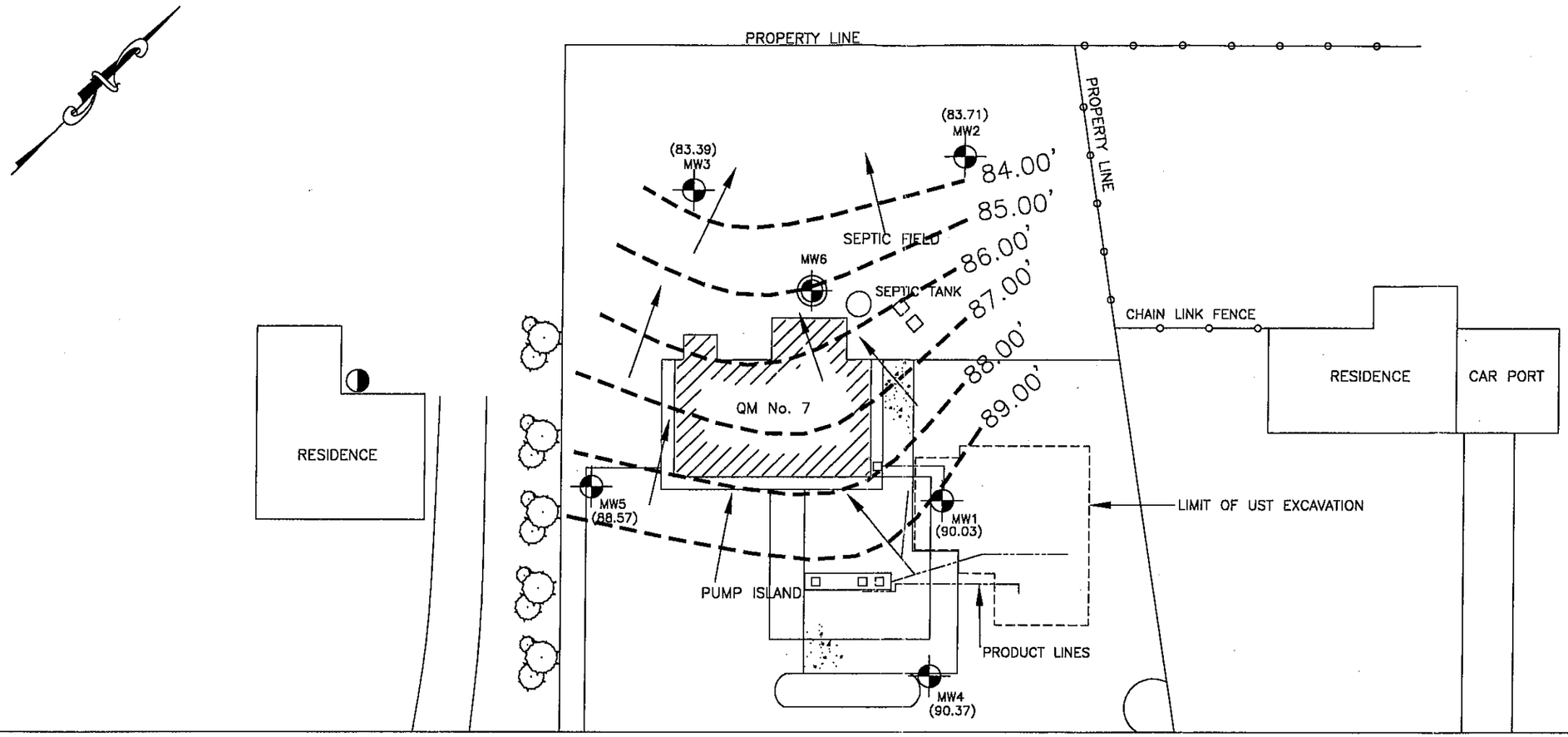
WINSTON-SALEM, NC

QUALITY OIL COMPANY, LLC

PROJECT NO: 04198	CHECKED BY: MJB	FIGURE NO.	4
SCALE: 1"=30'	DRAWN BY: MJB/RDK	DATE:	5/30/00

TURNER ENVIRONMENTAL CONSULTANTS, P.C.

CARRBORO, NC



LEGEND

- Type II Monitoring Well
- Type III Monitoring Well
- Potable Well (Inactive)

(90.37) Water elevations shown next to corresponding monitoring wells in parentheses.

88.00 Contour lines shown are in one foot intervals. Elevations are in feet.
89.00 Arrows indicate interpreted groundwater flow direction.

NOTE: MW6 is a Type III well and was not used to construct this map.
Water elevation data is from 5/23/00 measurements.

GRAPHIC SCALE
0' 15' 30' 60'
1" = 30'

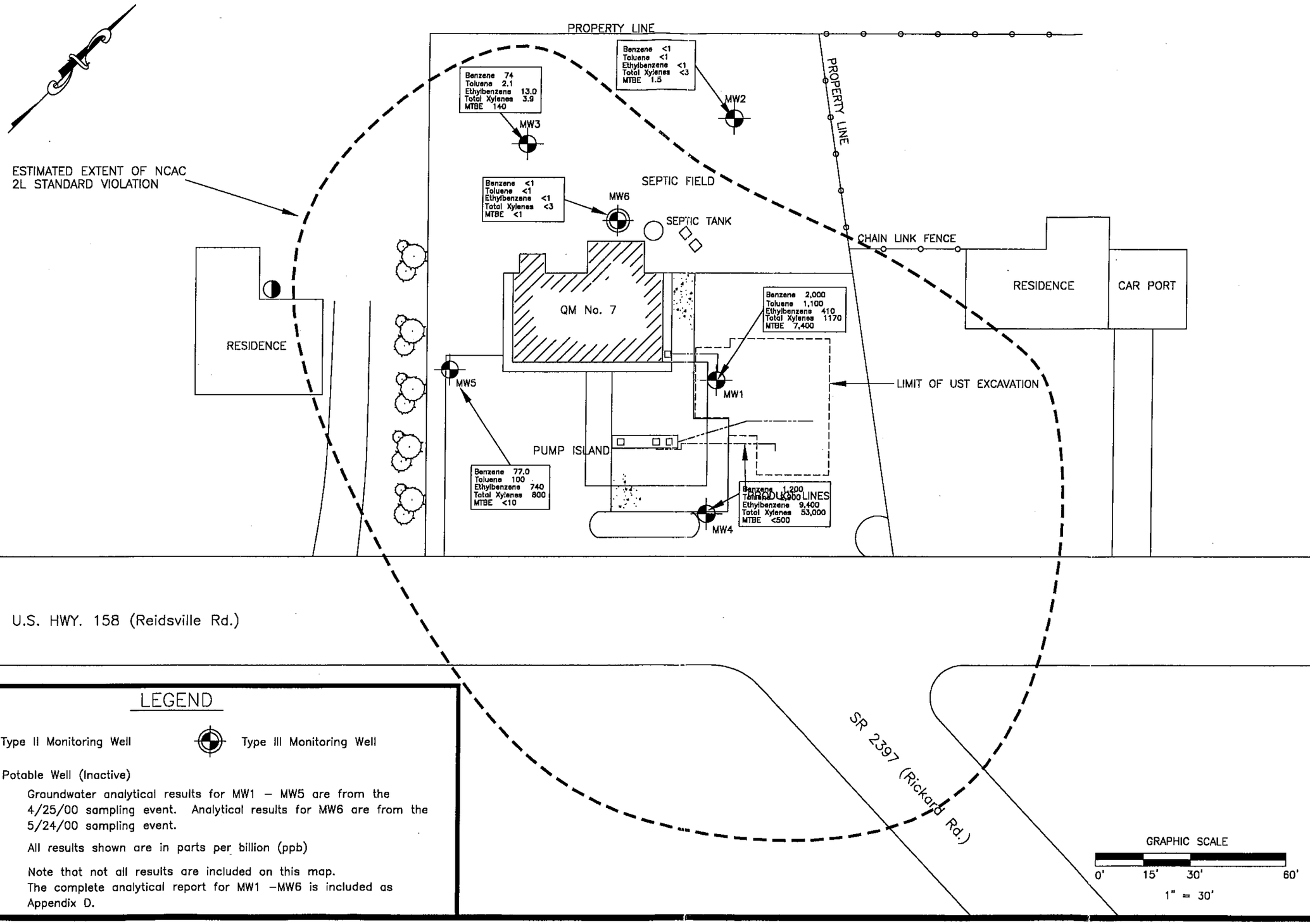
POTENTIOMETRIC SURFACE MAP (5/23/00)

QUALITY MART No. 7
WINSTON-SALEM, NC

QUALITY OIL COMPANY, LLC

PROJECT NO: 04198	CHECKED BY: MJB
SCALE: 1"=30'	DRAWN BY: MJB/RDK
FIGURE NO. 5	DATE: 5/30/00

TURNER ENVIRONMENTAL CONSULTANTS, P.C.
CARRBORO, NC



LEGEND

Type II Monitoring Well

Type III Monitoring Well

Potable Well (Inactive)

NOTE: Groundwater analytical results for MW1 – MW5 are from the 4/25/00 sampling event. Analytical results for MW6 are from the 5/24/00 sampling event.

All results shown are in parts per billion (ppb)

Note that not all results are included on this map. The complete analytical report for MW1 –MW6 is included as Appendix D.

GROUNDWATER ANALYTICAL RESULTS (VARIOUS DATES)

QUALITY MART No. 7

WINSTON-SALEM, NC

QUALITY OIL COMPANY, LLC

PROJECT NO: 04198	CHECKED BY: MJB	FIGURE NO. 6	
SCALE: 1"=30'	DRAWN BY: MJB/RDK	DATE: 5/30/00	

TURNER ENVIRONMENTAL CONSULTANTS, P.C.

CARRBORO, NC

June 5, 2020

Ashley B. Cox, Jr, LG
Geotechnical Engineering Unit
North Carolina Department of Transportation
1020 Birch Ridge Drive
Raleigh, NC 27610

RE: **PHASE II INVESTIGATION OF PARCEL 85**
Former Hensdale Grocery, Daniel Ray Lasley
4685 Reidsville Road, Winston-Salem, NC
ESP Project No. GR22.325

TIP Number:	R-2577A
WBS Number:	37405.1.2
County:	FORSYTH
Description:	US 158 from North of US 421 to SR 1965 (Belews Creek Road)

Dear Mr. Cox:

ESP Associates, Inc. (ESP) is pleased to submit this report on our GeoEnvironmental Phase II Investigation of the subject parcel. This work was performed in accordance with your Request for Proposal received on April 14, 2020, and our Cost Proposal dated April 23, 2020.

We appreciate the opportunity to assist you during this phase of the project. If you should have any questions concerning this report, or if we may be of further assistance, please contact us.

Sincerely,

ESP Associates, Inc.

Edward D. Billington, PG
Senior Geologist/Geophysicist
EDB/CRP/NAZ

NORTH CAROLINA LICENSED SEAL 1631 GEOLOGIST EDWARD DAVIS BILLINGTON

DocuSigned by: Edward Billington 2402544DC92F4E0...

TABLE OF CONTENTS

TABLES

TABLE OF CONTENTS (continued)

FIGURES

APPENDICES

1.0 INTRODUCTION

The North Carolina Department of Transportation (NCDOT) is planning to widen U.S. 158 (Reidsville Road) from north of U.S. 421/I-40 Business to Belews Creek Road (S.R. 1965) in Forsyth County. The primary purpose of this project is to improve traffic operations. The NCDOT requested that ESP Associates, Inc. (ESP) perform a Phase II geoenvironmental investigation of the existing right-of-way (ROW) and part of the proposed ROW of Parcel 85 to locate possible underground storage tanks (USTs), sample soil, and delineate potential contaminated soil. Parcel 85 is located on the north side of Reidsville Road between Old Belews Creek Road and Franklin Farm Road (Figure 1).

2.0 HISTORY

2.1 Ownership

The following is the current parcel ownership, according to the Forsyth County GIS (https://www.forsyth.cc/Tax/geodata.aspx):

- Sale Date: 3/7/2008
- Current Owner: Lasley, Daniel Ray
- Owner's Address: 4915 Harley Dr, Walkertown NC 27051

2.2 NCDEQ Information

This parcel was listed as Site 3 in the 2004 Phase 1 report that was provided by the NCDOT. We checked the following sources at the NCDEQ with the results summarized below:

- Division of Waste Management Site Locator Tool
  - Indicated UST Incident #30195
  - Site Name: Hensdale Grocery.
  - No files in Documents Link.
- NC UST Facility Operating Permits
  - No listing
- Registered USTs Database
  - 3 Registered USTs installed in May 1982
    - Facility: 016021
    - Facility Name: Steve Moore-Hensdale Grocery
    - 8000, 4000, and 4000-gallon gasoline USTs
  - The 3 USTs were removed in June 2003.
- Incident Management Database (Regional USTs)
  - Incident: 30195
  - UST No.: WS-6682
  - Date Occurred: 6/17/2003

  - Closed out: 4/28/2006
  - Contamination: Soil
  - Site sent to State Lead 4/30/2004
- Winston-Salem Regional NCDEQ Office
  - Provided information on AST Incident #95451
    - Spill occurred 3/10/2017 (Hagan Trucking Diesel Spill)
    - Soil remediation report dated 3/28/2017 indicated that the spill occurred in the existing NCDOT ROW of Parcel 85 on the edge of Reidsville Road near the intersection of Old Belews Creek Road.
      - Cleanup was hampered by shallow bedrock and buried utilities.
      - Soil testing after cleanup indicated that one sample (near our Boring B85-1) exceeded current NC action levels for Gasoline Range Organics (GRO) and Diesel Range Organics (DRO).
- NCDEQ UST Section, Trust Fund Branch
  - Provided copy of July 15, 2003 UST Closure Report
    - The closure report indicated that the 3 USTs, the vent lines, and the product line to the former dispenser island were removed. Soil was excavated down to bedrock about 5 to 6 feet below ground surface (bgs) and disposed of offsite. Samples taken at the bottom of the excavation indicated some remaining petroleum contamination.
    - The closure report indicated that the former tank pit was located on the northeast side of the parcel (near our Boring B85-10) and the former dispenser island was located near the center of the parcel (near our Boring B85-7).
    - A copy of the figure from that report showing the location of the former tank pit and the former dispenser island is included in Appendix D.
  - Provided copy of January 14, 2005 Limited Assessment Report (LSA) for Incident #30195.
    - A monitoring well (MW-1) was installed at the location of the former dispenser island. The groundwater level was approximately 25 feet bgs.
    - A copy of the figure from the LSA report showing the location of the former tank pit, the former dispenser island, and MW-1 is included in Appendix D.

3.0 SITE OBSERVATIONS

During our May 2020 field work, the site was occupied by a single building with two businesses: Creative Designs and Black Clover Tattoo (Figure 2). The ground in the study area was covered by grass and gravel. Some apparent rock outcrops were noted on the northeast side of the parcel towards Franklin Farm Road. One monitoring well was present at the former dispenser island location.

4.0 METHODS

ESP performed a geophysical study of the area designated by the NCDOT on May 4, 2020. The geophysical investigation area was approximately 0.53 acres and encompassed the existing ROW and some of the proposed ROW. We performed direct-push drilling and sampling of subsurface soils on May 14, 2020. A photoionization detector (PID) was used to screen subsurface soils in the field and select soil samples to send for laboratory analysis. Groundwater was not encountered during the drilling investigation.

4.1 Geophysics

ESP performed a metal detector study over the accessible areas of the site using a Geonics EM61 MK2 with a line spacing of approximately three feet (Figures 3 and 4). Location control was provided in real-time using a differential global positioning system (DGPS). No EM61 anomalies were observed that required additional investigation using ground-penetrating radar (GPR).

4.2 Borings

ESP performed direct-push drilling activities within the existing and proposed ROWs of Parcel 85 using a subcontractor, SAEDACCO of Fort Mill, South Carolina. Ten borings were drilled, designated B85-1 through B85-10 (Figure 7). The borings were evenly spaced throughout the study area. Boring B85-1 was located near the southern corner of the parcel, in the vicinity of the 2017 diesel spill. Boring B85-7 was located near the former dispenser island. Boring B85-10 was located in the vicinity of the former tank pit. Borings B85-3, B85-9, and B85-10 were located close to proposed drainage structures.

The soil borings were advanced using a GeoProbe 7822DT drill rig. A hand auger was used to sample two borings due to poor direct-push recovery. Soil samples were obtained to a maximum depth of approximately 10 feet using two 5-foot long Macro-Core® tubes. The sampling equipment was decontaminated prior to drilling and between borings by the driller using a Liquinox® detergent solution. Soil cores varied in recovery from 1.8 to 4.4 feet (36 to 88 percent recovery). Eight of the borings encountered refusal at depths ranging from 1.8 to 7.0 feet and were offset for a second attempt. Direct-push refusal was likely on weathered bedrock.

4.3 Soil Sample Protocol

Representative soil samples were taken from the Macro-Core tubes at approximate one-foot intervals by the ESP field geologist while wearing nitrile disposable gloves. Each sample was placed in a sealed plastic bag and then kept in a warm area for approximately 10 to 15 minutes prior to measuring volatile organic compound (VOC) levels in the head space with the PID. The maximum PID readings in each of the borings ranged from 0.3 to 1.3 parts per million (ppm) (Table 1).

Eight soil samples were selected for laboratory analysis, as listed in Table 2. For each selected sample, an approximate 10-gram soil sample was collected from the sample bag using a Terra Core™ sampler and placed into a laboratory-supplied 40-milliliter volatile organic analysis (VOA) vial containing methanol. Once sealed, the vial was labeled with the sample identification number and then shaken vigorously for about one minute. The samples were packed on ice and sent via overnight delivery to RED Lab, LLC (RED Lab), located in Wilmington, North Carolina, following proper chain-of-custody procedures (Appendix C).

RED Lab used a QED Hydrocarbon Analyzer to quantitatively analyze the soil samples using the ultraviolet fluorescence (UVF) method for benzene, toluene, ethylbenzene, and xylene (BTEX); gasoline range organics (GRO); diesel range organics (DRO); total petroleum hydrocarbons (TPH); total aromatics; polycyclic aromatic hydrocarbons (PAHs); and benzo(a)pyrene (BaP).

4.4 Groundwater

Groundwater was not encountered in the 10 borings.

5.0 RESULTS

5.1 Geophysics

The EM61 early time gate data show the response from both shallow and deeper metallic objects (Figure 3). The differential response reduces the effect of shallow anomalies and emphasizes anomalies from larger and more deeply buried metallic objects, such as USTs (Figure 4). Our evaluation of the differential response indicated the anomalies were caused by known site features.

The EM61 early time gate response and differential response are shown on the plan sheet on Figures 5 and 6, respectively.

5.2 Sample Data

The soil sample UVF hydrocarbon analysis results for BTEX, GRO, DRO, and PAHs are presented in Table 2. The maximum values of GRO and DRO per boring are shown on Figure 8. The RED Lab laboratory report, which also includes results for TPH, total aromatics, and BaP, is provided in Appendix B. Values are provided in milligrams per kilogram (mg/kg or ppm).

5.3 Sample Observations

The results of the laboratory testing indicate that DRO was detected in 6 samples (ranging from 0.63 to 34.8 ppm) but below the NCDEQ action level for DRO of 100 ppm. BTEX, GRO, and BaP values were below the laboratory detection limits for the 8 samples tested (Table 2). PAHs were detected in one sample (B85-7, S1) with a value of 0.92 ppm.

6.0 CONCLUSIONS

The results of the Phase II investigation for Parcel 85 of NCDOT Project R-2577A indicates that there is no evidence for abandoned USTs in the study area. Laboratory testing detected DRO petroleum compounds in 6 of the 8 soil samples tested but the readings were less than the NCDEQ action level for DRO. The PID readings during sampling ranged from 0.1 to 1.3 ppm.

7.0 RECOMMENDATIONS

No limitations on construction activities or special handling of excavated soil are recommended for the study area on Parcel 85. Groundwater was not encountered in the upper 10 feet in the study area. Direct-push boring refusal from apparent weathered bedrock was encountered at depths from 1.8 to 7.0 feet bgs; this may be an issue in areas of planned cut during construction.

8.0 LIMITATIONS

ESP's professional services have been performed, findings obtained, and recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. ESP is not responsible for the independent conclusions, opinions, or recommendations made by others based on the data presented in this report.

The passage of time may result in a change in the environmental characteristics at this site and surrounding properties. ESP does not warrant against future operations or conditions, or against operations or conditions present of a type or at a location not investigated. ESP does not assume responsibility for other environmental issues that may be associated with the subject site.

TABLES

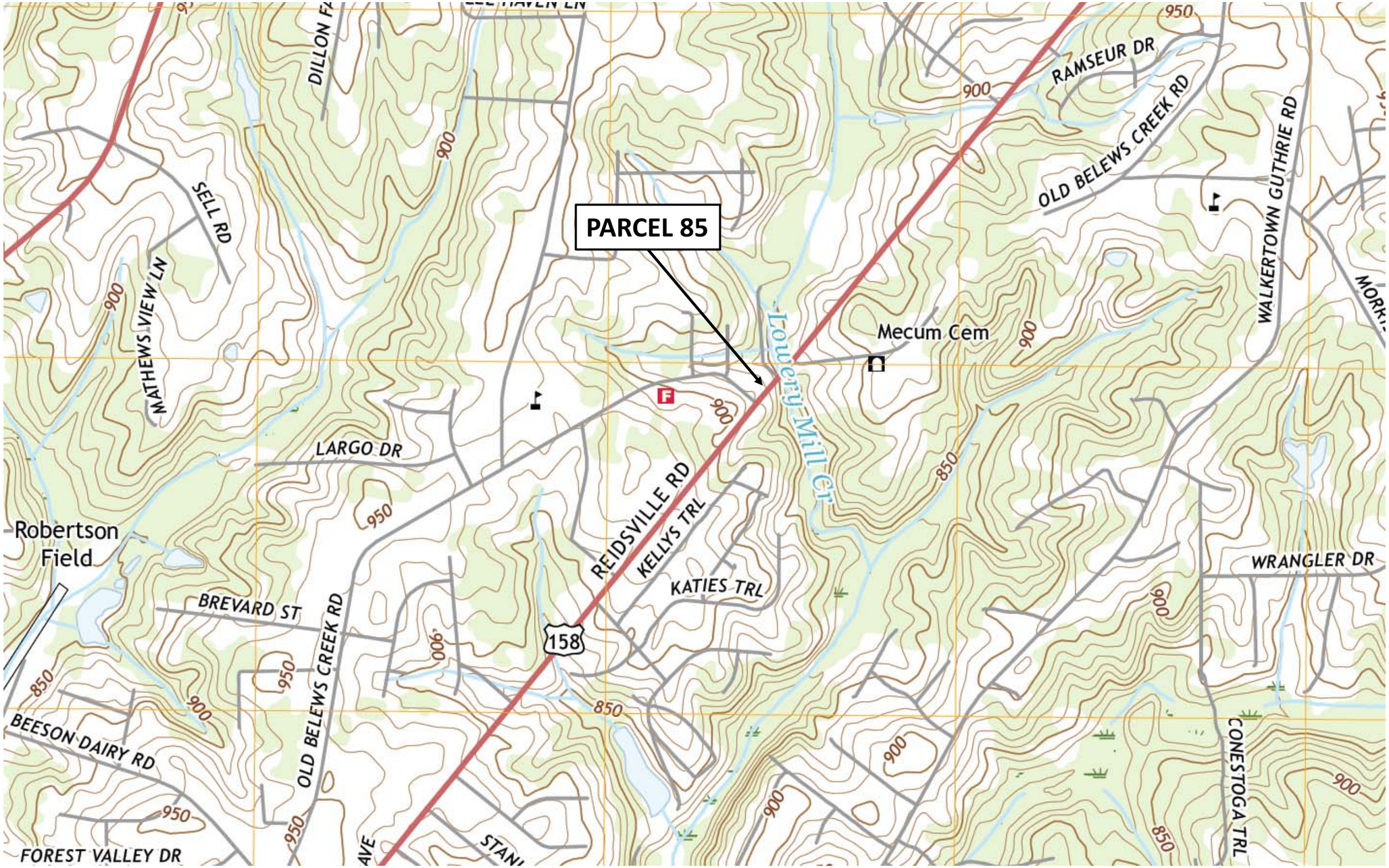
TABLE 1
SOIL SAMPLE PID READINGS

Boring	Sample Depth Range with PID > 10 ppm (feet bgs)	Maximum PID Reading (ppm) and Sample Depth (feet bgs)
B85-1	none	0.6 (3.0-3.5)
B85-2	none	0.4 (1.0-1.5)
B85-3	none	0.3 (2.0-2.5)
B85-4	none	0.6 (1.0-1.5)
B85-5	none	0.4 (1.0-1.5)
B85-6	none	0.4 (2.0-4.5)
B85-7	none	0.6 (1.0-1.5)
B85-8	none	0.8 (6.0-6.5)
B85-9	none	0.8 (7.0-7.5)
B85-10	none	1.3 (2.0-2.5)

TABLE 2
SOIL SAMPLE UVF RESULTS SUMMARY

Boring	Sample ID (depth in feet bgs)	Date Collected	BTEX (C6-C9) (mg/kg)	GRO (C5-C10) (mg/kg)	DRO (C10-C35) (mg/kg)	PAHs (mg/kg)
B85-1	S3 (3.0-3.5)	5/14/20	<0.44	<0.44	1.1	<0.14
B85-2	S1 (1.0-1.5)	5/14/20	<0.52	<0.52	0.76	<0.17
B85-4	S1 (1.0-1.5)	5/14/20	<0.52	<0.52	<0.52	<0.17
B85-5	S1 (1.0-1.5)	5/14/20	<0.52	<0.52	0.63	<0.17
B85-7	S1 (1.0-1.5)	5/14/20	<0.5	<0.5	34.8	0.92
B85-8	S6 (6.0-6.5)	5/14/20	<0.44	<0.44	1.7	<0.14
B85-9	S7 (7.0-7.5)	5/14/20	<0.53	<0.53	0.9	<0.17
B85-10	S6 (6.0-6.5)	5/14/20	<0.5	<0.5	<0.5	<0.16

FIGURES



From: USGS US Topo 7.5 - minute map for WALKERTOWN QUADRANGLE, NC, Date: 2019, Original Scale: 1:24,000

PROJECT NO. GR22.325	***FIGURE 1 – PARCEL 85, DANIEL RAY LASLEY***
SCALE AS SHOWN	***SITE VICINITY MAP***
DATE 5/29/2020	***NCDOT PROJECT R-2577A***
BY CRP/EDB	***US 158 FROM NORTH OF US 421 TO SR 1965***
	FORSYTH COUNTY, NORTH CAROLINA

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com

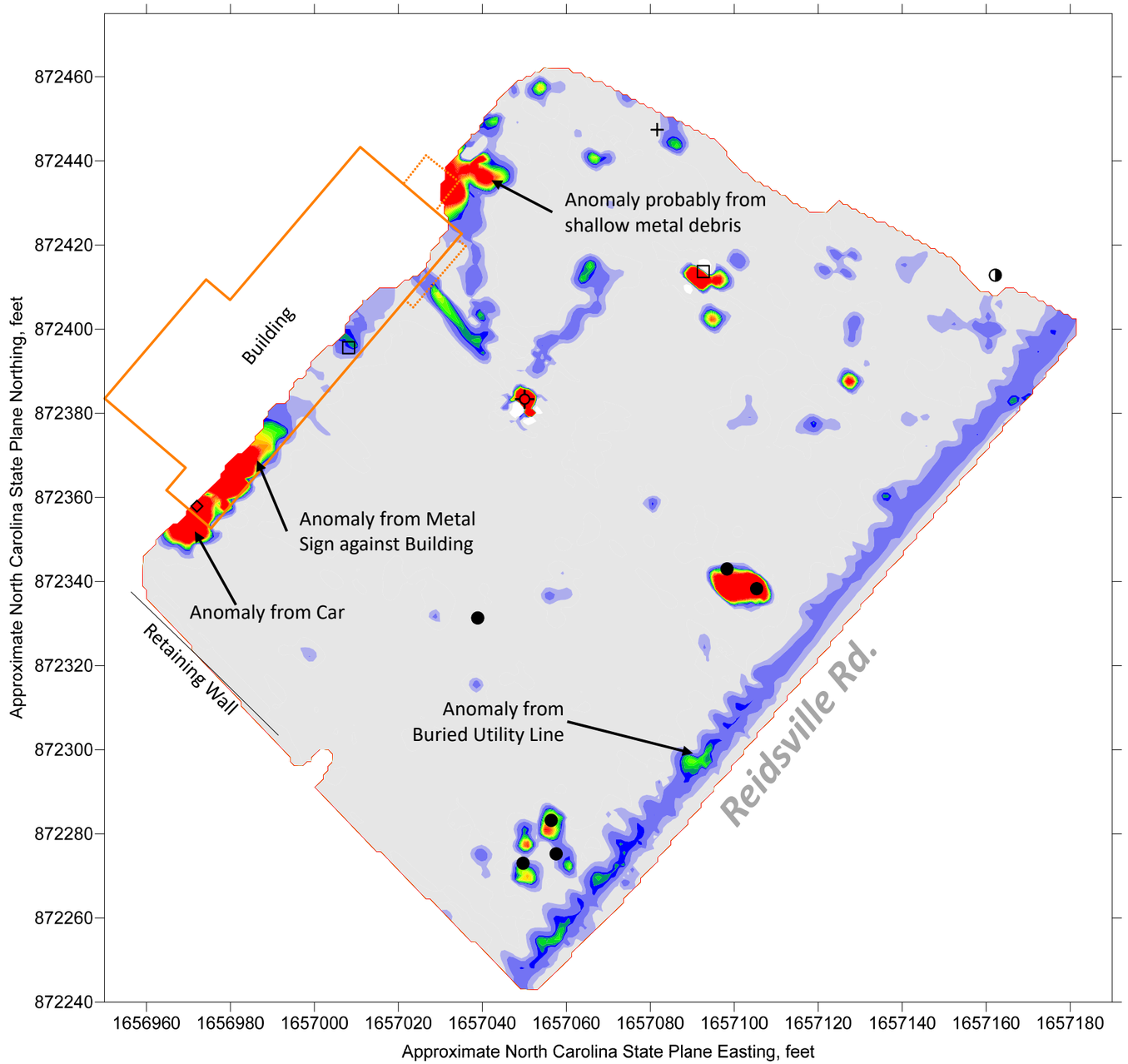
A. Photograph from northeast corner, looking southwest.

B. Photograph from south end, looking north.

C. Photograph from west corner, looking east.

D. Photograph of collecting hand auger samples at Boring B85-1.

PROJECT NO. GR22.325	***FIGURE 2 – PARCEL 85, DANIEL RAY LASLEY SITE PHOTOGRAPHS***	ESP Associates, Inc. 7011 Albert Pick Rd., Suite E Greensboro, NC 27409 336.334.7724 www.espassociates.com
SCALE N/A		
DATE 5/29/2020	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***	
BY CRP/EDB		



APPROXIMATE NORTH

EM61 Early Time Gate Response (mV)

1000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
150
75
0
-500

EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Drop Inlet, Catch Basin, Manhole
- Culvert, storm drain pipe
- Utility pole
- Guy wire anchor
- Sign pole, other pole
- UST Fill Port or Valve Cover
- Monitoring Well
- Buried utility line (marked by others)
- EM61 Data Collection Areas
- GPR Data Collection Areas
- Underground Storage Tank

Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

PROJECT NO.	GR22.325
SCALE	AS SHOWN
DATE	5/29/2020
BY	CRP/EDB

FIGURE 3 – PARCEL 85, DANIEL RAY LASLEY
EM61 EARLY TIME GATE DATA

NCDOT PROJECT R-2577A
US 158 FROM NORTH OF US 421 TO SR 1965
FORSYTH COUNTY, NORTH CAROLINA

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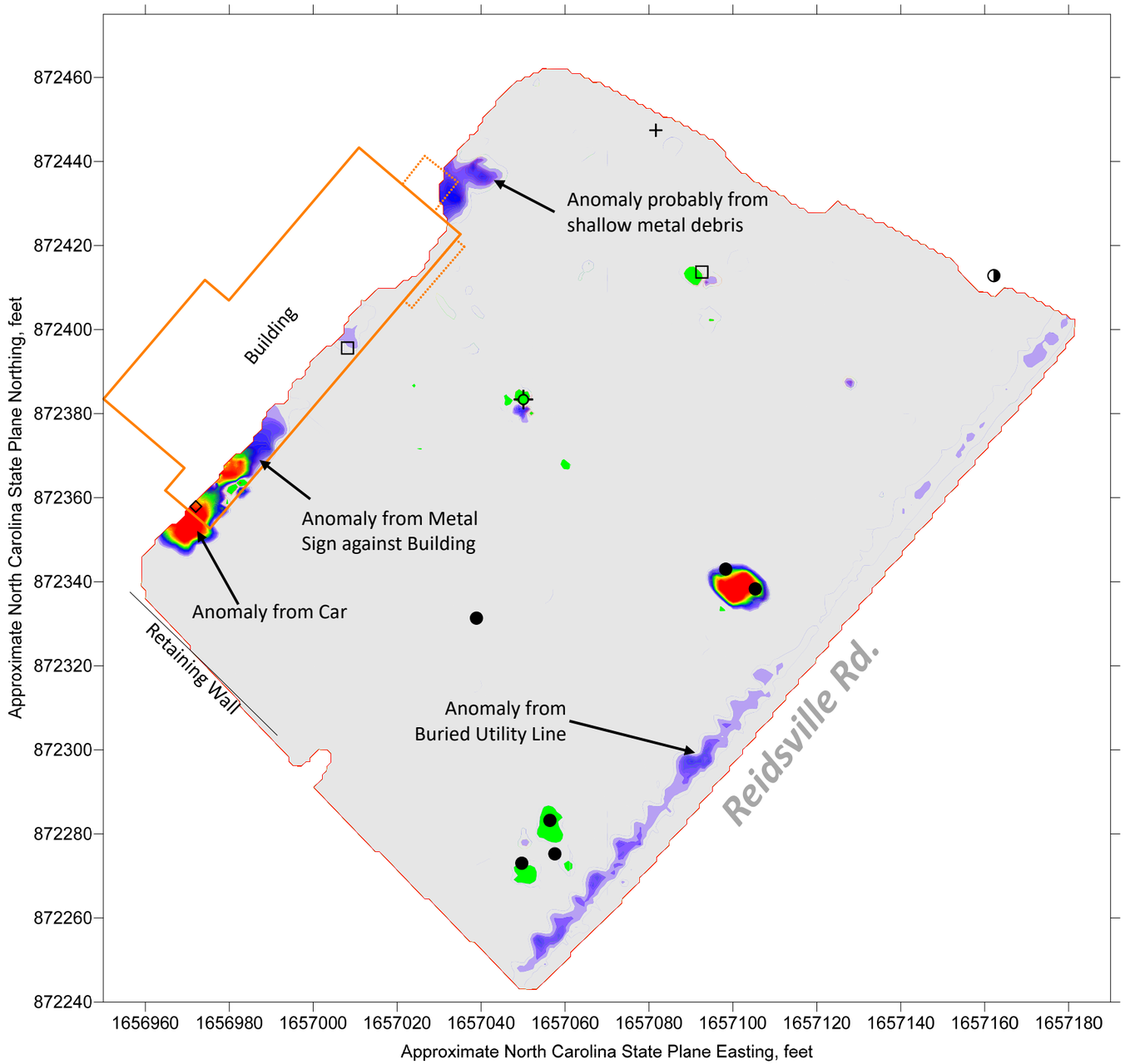
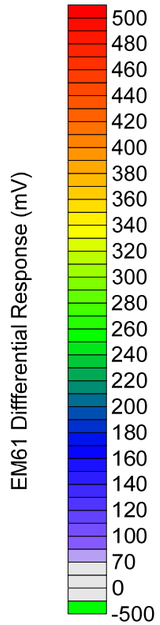


APPROXIMATE NORTH



EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Drop Inlet, Catch Basin, Manhole
- Culvert, storm drain pipe
- Utility pole
- Guy wire anchor
- Sign pole, other pole
- UST Fill Port or Valve Cover
- Monitoring Well
- Buried utility line (marked by others)
- EM61 Data Collection Areas
- GPR Data Collection Areas
- Underground Storage Tank

Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

PROJECT NO. GR22.325	***FIGURE 4 – PARCEL 85, DANIEL RAY LASLEY EM61 DIFFERENTIAL DATA***
SCALE AS SHOWN	
DATE 5/29/2020	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***
BY CRP/EDB	

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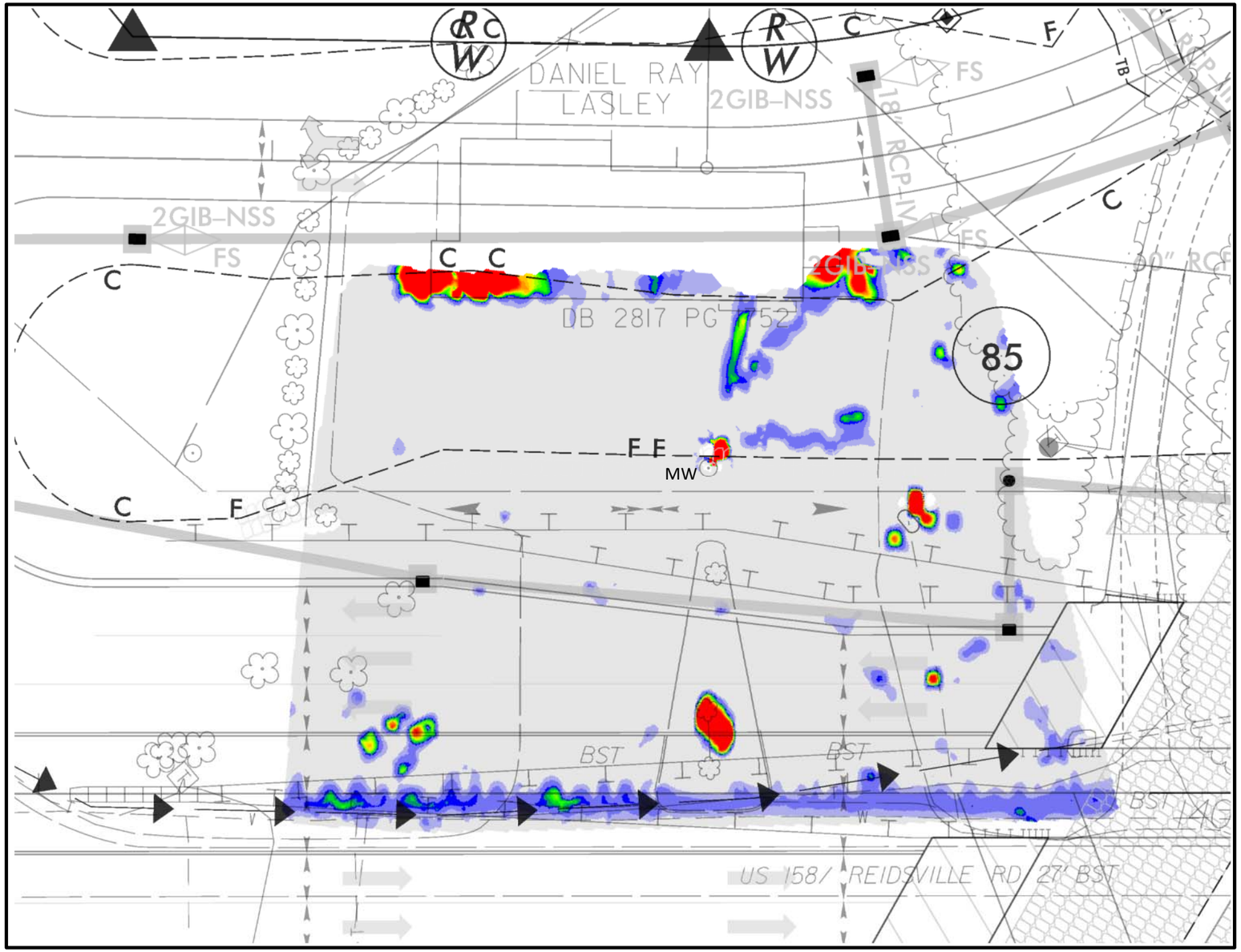

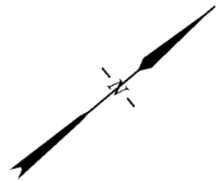

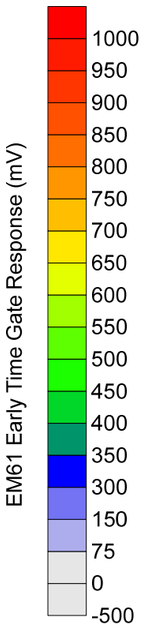

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  - R-2577A_hyd_drn.dgn
  - R2577A_ncdot_fs.dgn
  - R-2577A_rdy_dsn.dgn
  - R-2577A_rdy_dsn_driveways.dgn
  - R-2577A_rdy_dsn_guardrail.dgn
  - R-2577A_rdy_HISTORIC.dgn
  - R-2577A_rdy_map_owner_no.dgn
  - R-2577A_rdy_row.dgn
  - R-2577A_rdy_row_AG.dgn
  - R-2577A_rdy_row_SB.dgn
  - R-2577A_rdy_ss.dgn

0 30 60
FEET

See Figure 9 for explanation of symbols and line types

PROJECT NO. GR22.325	***FIGURE 5 – PARCEL 85, DANIEL RAY LASLEY EM61 EARLY TIME GATE DATA ON PLAN SHEET***
SCALE 1" = 30'	
DATE 5/29/2020	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***
BY CRP/EDB	

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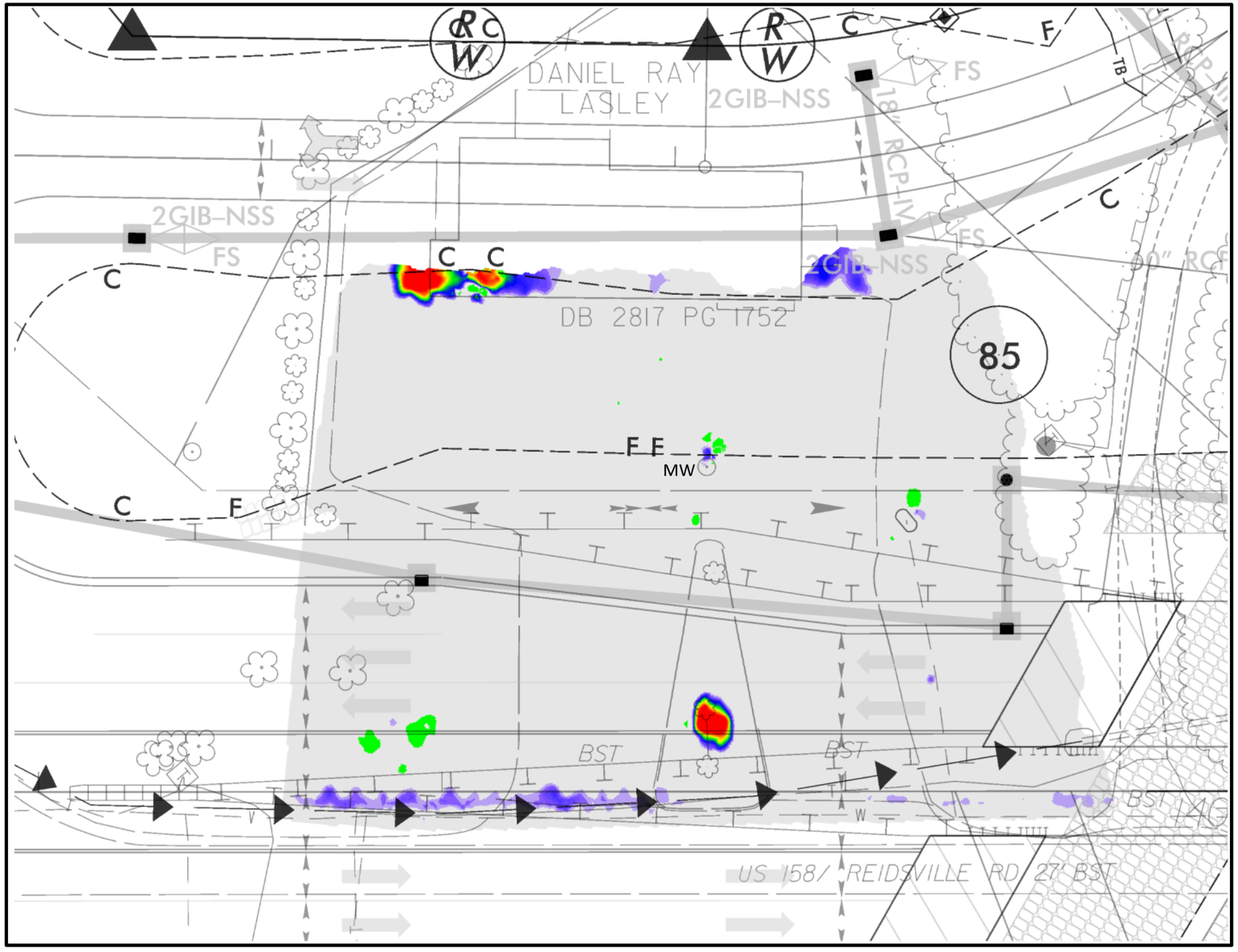

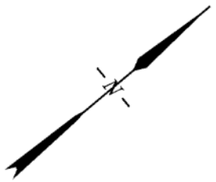

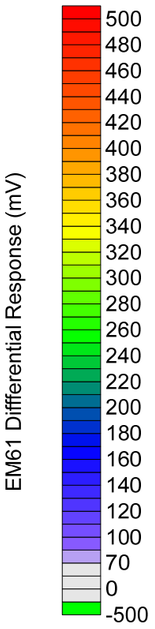

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  - R-2577A_hyd_drn.dgn
  - R2577A_ncdot_fs.dgn
  - R-2577A_rdy_dsn.dgn
  - R-2577A_rdy_dsn_driveways.dgn
  - R-2577A_rdy_dsn_guardrail.dgn
  - R-2577A_rdy_HISTORIC.dgn
  - R-2577A_rdy_map_owner_no.dgn
  - R-2577A_rdy_row.dgn
  - R-2577A_rdy_row_AG.dgn
  - R-2577A_rdy_row_SB.dgn
  - R-2577A_rdy_ss.dgn

0 30 60
FEET

See Figure 9 for explanation of symbols and line types

PROJECT NO. GR22.325	***FIGURE 6 – PARCEL 85, DANIEL RAY LASLEY EM61 DIFFERENTIAL DATA ON PLAN SHEET***
SCALE 1" = 30'	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***
DATE 5/29/2020	
BY CRP/EDB	

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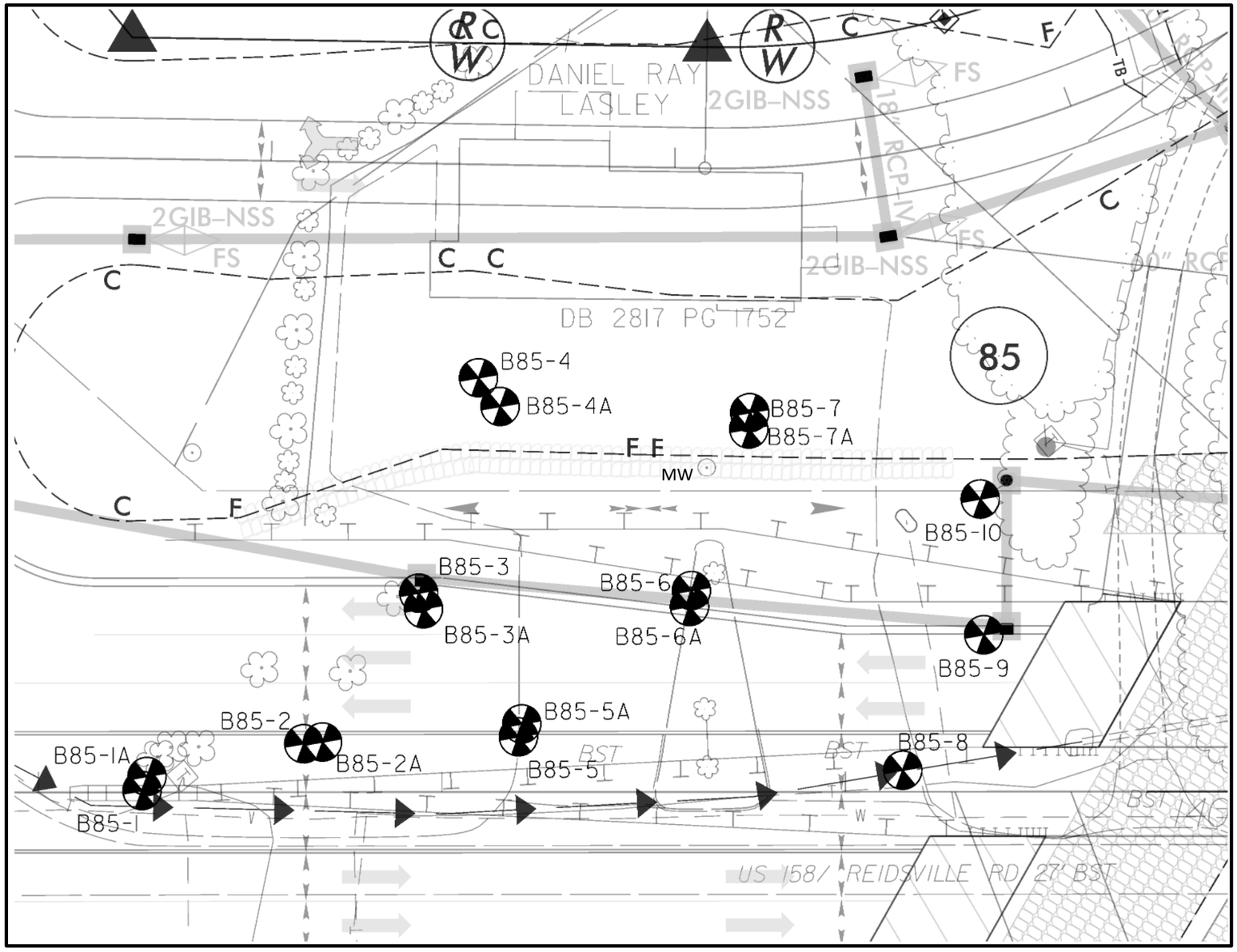

- R-2577A_Geo_env.dgn
  - R-2577A_hyd_drn.dgn
  - R2577A_ncdot_fs.dgn
  - R-2577A_rdy_dsn.dgn
  - R-2577A_rdy_dsn_driveways.dgn
  - R-2577A_rdy_dsn_guardrail.dgn
  - R-2577A_rdy_HISTORIC.dgn
  - R-2577A_rdy_map_owner_no.dgn
  - R-2577A_rdy_row.dgn
  - R-2577A_rdy_row_AG.dgn
  - R-2577A_rdy_row_SB.dgn
  - R-2577A_rdy_ss.dgn

0 30 60
FEET

See Figure 9 for explanation of symbols and line types

PROJECT NO. GR22.325	***FIGURE 7 – PARCEL 85, DANIEL RAY LASLEY BORING LOCATIONS ON PLAN SHEET***
SCALE 1" = 30'	
DATE 5/29/2020	***NCDOT PROJECT R-2577A***
BY CRP/EDB	***US 158 FROM NORTH OF US 421 TO SR 1965***
	FORSYTH COUNTY, NORTH CAROLINA

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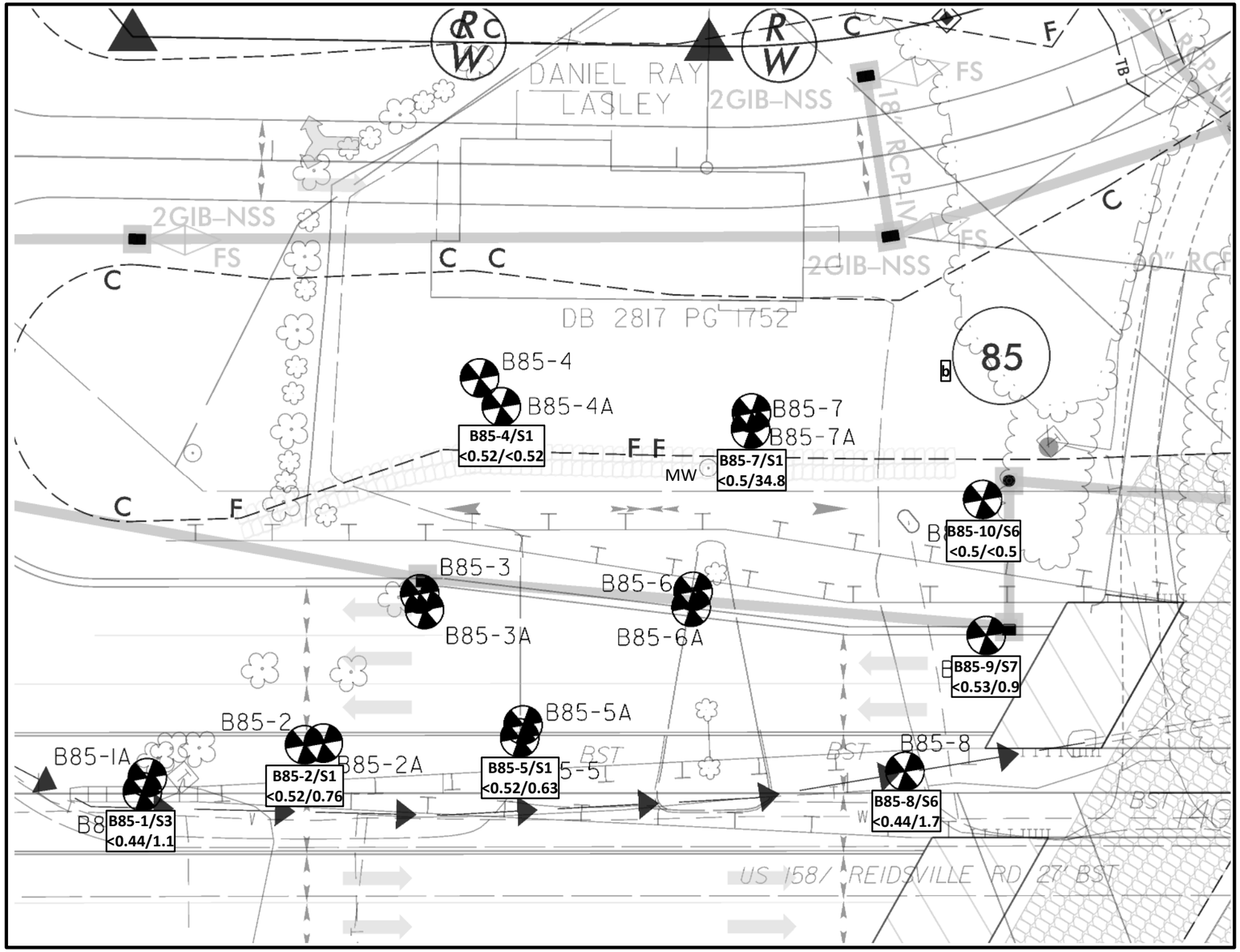

Explanation

Maximum Analytical Results per Boring

B85-1/S3 <0.44/1.1

Boring No./Sample No.
GRO/DRO (mg/kg, ppm)

- R-2577A_Geo_env.dgn
  - R-2577A_hyd_drn.dgn
  - R2577A_ncdot_fs.dgn
  - R-2577A_rdy_dsn.dgn
  - R-2577A_rdy_dsn_driveways.dgn
  - R-2577A_rdy_dsn_guardrail.dgn
  - R-2577A_rdy_HISTORIC.dgn
  - R-2577A_rdy_map_owner_no.dgn
  - R-2577A_rdy_row.dgn
  - R-2577A_rdy_row_AG.dgn
  - R-2577A_rdy_row_SB.dgn
  - R-2577A_rdy_ss.dgn

0 30 60
FEET

See Figure 9 for explanation of symbols and line types

PROJECT NO. GR22.325	***FIGURE 8 – PARCEL 85, DANIEL RAY LASLEY SOIL ANALYTICAL RESULTS ON PLAN SHEET***
SCALE 1" = 30'	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***
DATE 5/29/2020	
BY CRP/EDB	

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12/2/2016

PROJECT REFERENCE NO.	SHEET NO.

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS
CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:
- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (IP)
- Computed Property Corner
- Property Monument (CM)
- Parcel/Sequence Number (123)
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary (W,B)
- Proposed Wetland Boundary (W,B)
- Existing Endangered Animal Boundary (EAB)
- Existing Endangered Plant Boundary (EPB)
- Existing Historic Property Boundary (HPB)
- Known Contamination Area: Soil (S)
- Potential Contamination Area: Soil (S)
- Known Contamination Area: Water (W)
- Potential Contamination Area: Water (W)
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:
- Gas Pump Vent or U/G Tank Cap
- Sign
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:
- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream (JS)
- Buffer Zone 1 (BZ 1)
- Buffer Zone 2 (BZ 2)
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch (Flow)
- False Sump

RAILROADS:
- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:
- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easement Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line (RW)
- New Right of Way Line with Pin and Cap (RW)
- New Right of Way Line with Concrete or Granite R/W Marker (RW)
- New Control of Access Line with Concrete C/A Marker (CA)
- Existing Control of Access (CA)
- New Control of Access (CA)
- Existing Easement Line (E)
- New Temporary Construction Easement (E)
- New Temporary Drainage Easement (TDE)
- New Permanent Drainage Easement (PDE)
- New Permanent Drainage / Utility Easement (DUE)
- New Permanent Utility Easement (PUE)
- New Temporary Utility Easement (TUE)
- New Aerial Utility Easement (AUE)

ROADS AND RELATED FEATURES:
- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut (C)
- Proposed Slope Stakes Fill (F)
- Proposed Curb Ramp (CR)
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:
- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard (Vineyard)

EXISTING STRUCTURES:
MAJOR:
- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:
- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer (S)

UTILITIES:
POWER:
- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) (P)
- U/G Power Line LOS C (S.U.E.*) (P)
- U/G Power Line LOS D (S.U.E.*) (P)

TELEPHONE:
- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole (T)
- Telephone Pedestal (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole (HH)
- U/G Telephone Cable LOS B (S.U.E.*) (T)
- U/G Telephone Cable LOS C (S.U.E.*) (T)
- U/G Telephone Cable LOS D (S.U.E.*) (T)
- U/G Telephone Conduit LOS B (S.U.E.*) (TC)
- U/G Telephone Conduit LOS C (S.U.E.*) (TC)
- U/G Telephone Conduit LOS D (S.U.E.*) (TC)
- U/G Fiber Optics Cable LOS B (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS C (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS D (S.U.E.*) (T FO)

WATER:
- Water Manhole (W)
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E.*) (W)
- U/G Water Line LOS C (S.U.E.*) (W)
- U/G Water Line LOS D (S.U.E.*) (W)
- Above Ground Water Line (A/G Water)

TV:
- TV Pedestal (C)
- TV Tower
- U/G TV Cable Hand Hole (HH)
- U/G TV Cable LOS B (S.U.E.*) (TV)
- U/G TV Cable LOS C (S.U.E.*) (TV)
- U/G TV Cable LOS D (S.U.E.*) (TV)
- U/G Fiber Optic Cable LOS B (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS C (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS D (S.U.E.*) (TV FO)

GAS:
- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) (G)
- U/G Gas Line LOS C (S.U.E.*) (G)
- U/G Gas Line LOS D (S.U.E.*) (G)
- Above Ground Gas Line (A/G Gas)

SANITARY SEWER:
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line (SS)
- Above Ground Sanitary Sewer (A/G Sanitary Sewer)
- SS Forced Main Line LOS B (S.U.E.*) (FSS)
- SS Forced Main Line LOS C (S.U.E.*) (FSS)
- SS Forced Main Line LOS D (S.U.E.*) (FSS)

MISCELLANEOUS:
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line LOS B (S.U.E.*) (?/U)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. (UST)
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records (AATUR)
- End of Information (E.O.I.)

PROJECT NO. GR22.325	**FIGURE 9** **LEGEND FOR PLAN SHEET FIGURES**
SCALE N/A	
DATE 5/29/2020	**NCDOT PROJECT R-2577A** **US 158 FROM NORTH OF US 421 TO SR 1965** **FORSYTH COUNTY, NORTH CAROLINA**
BY CRP/EDB	

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com

APPENDIX A
SOIL BORING LOGS

FIELD BORING LOG

BORING NO. B85-1

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: South end of parcel near intersection with Belews Creek Road
TYPE OF BORING: Hand Auger | DATE STARTED: 5/14/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/14/20 | TOTAL DEPTH: 3.5 ft
DRILLER: Brian Ewing | SAMPLE METHOD: Hand Auger | DEPTH TO GW: N/A ft
DRILL RIG: N/A | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 2.0' - Crushed ABC Stone (CR6)	Core 1 Rec N/A
					Hand Auger 0'-3.5'
1	S-1	1.0-1.5	0.1		B85-1A - Offset 5'
					Refusal at 3.0'
2	S-2	2.0-2.5	0.2	2.0' - 3.5' - Red-Brown, Sandy SILT, Moist	
3	S-3	3.0-3.5	0.6		
				3.5' - Refusal	
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B85-2

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: Approx. 40 feet NE of B85-1
TYPE OF BORING: Direct Push | DATE STARTED: 5/14/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/14/20 | TOTAL DEPTH: 2.0' ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.5' - Topsoil	Core 1 Rec 2.0'/5.0'
				0.5' - 2.0' - Red-Brown to Brown, Clayey and Sandy SILT, Dry	
					B85-2A - Offset 5'
1	S-1	1.0-1.5	0.4		Refusal at 2.0'
2				2.0' - Refusal	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B85-3

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: Approx. 40' of B85-2, near proposed drop inlet
TYPE OF BORING: Direct Push | DATE STARTED: 5/14/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/14/20 | TOTAL DEPTH: 3.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.3' - Topsoil	Core 1 Rec 3.0'/5.0'
				0.3' - 3.0' - Brown to Dark Brown, Sandy SILT, Micaceous, Moist	
					Attempt to punch through
1	S-1	1.0-1.5	0.2		refusal depth with point tip
					No Penetration
					B85-3A - Offset 5'
2	S-2	2.0-2.5	0.3		Refusal at 3.0'
3				3.0' - Refusal	
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B85-4

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: Near S. corner of building
TYPE OF BORING: Direct Push | DATE STARTED: 5/14/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/14/20 | TOTAL DEPTH: 3.5 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.3' - Gravel	Core 1 Rec 3.0'/5.0'
				0.3' - 3.5' - Red-Brown to White, Black, and Brown, Silty SAND, Dry	
					B85-4 - Refusal at 1.8'
1	S-1	1.0-1.5	0.6		
					B85-4A - Offset 5'
					Refusal at 3.5'
					Rec 3.0'/3.5'
2	S-2	2.0-2.5	0.2		
3	S-3	3.0-3.5	0.2		
				3.5' - Refusal	
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B85-5

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: Near S edge of S entrance
TYPE OF BORING: Direct Push | DATE STARTED: 5/14/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/14/20 | TOTAL DEPTH: 2.2 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.4' - Asphalt	Core 1 Rec 2.0'/5.0'
				0.4- 2.2' - Red-Brown to Brown, White, and Black, Silty SAND, Dry	
					B85-5A - Offset 5'
1	S-1	1.0-1.5	0.4		Refusal at 2.0'
2				2.2' - Refusal	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B85-6

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: S side of S entrance near highway
TYPE OF BORING: Direct Push | DATE STARTED: 5/14/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/14/20 | TOTAL DEPTH: 5.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.4' - Topsoil and Gravel	Core 1 Rec 4.4'/5.0'
				0.4- 5.0' - Dark Brown to Black and White, Sandy SILT, Moist to Dry	
					B85-6A - Offset 5'
1	S-1	1.0-1.5	0.2		Refusal at 5.0'
2	S-2	2.0-2.5	0.4		
3	S-3	3.0-3.5	0.4		
4	S-4	4.0-4.5	0.4		
5				5.0' - Refusal	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B85-7

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325

LOCATION: Between grassy island and NE corner of building, near former dispenser location

TYPE OF BORING: Direct Push | DATE STARTED: 5/14/20 | SHEET: 1 of 1

DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/14/20 | TOTAL DEPTH: 2.1 ft

DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft

DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.4' - Asphalt	Core 1 Rec 1.9'/5.0'
				0.4' - 2.1' - Red-Brown, Clayey SILT, Moist	
					B85-6A - Offset 5'
1	S-1	1.0-1.5	0.6		Refusal at 2.0'
2				2.1' - Refusal	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B85-8

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: N side of N entrance
TYPE OF BORING: Direct Push | DATE STARTED: 5/14/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/14/20 | TOTAL DEPTH: 10.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.8' - Asphalt and Gravel	Core 1 Rec 4.3'/5.0'
				0.8' - 2.0' - Red-Brown to Brown, Sandy SILT, Moist	
1	S-1	1.0-1.5	0.6		
2	S-2	2.0-2.5	0.5	2.0' - 10.0' - Brown, White, and Black, Silty SAND, with Rock Fragments, Dry	
3	S-3	3.0-3.5	0.5		
4	S-4	4.0-4.5	0.3		
5	S-5	5.0-5.5	0.7	5.0' - grading to with Layers of Brown, Sandy SILT, Moist	Core 2 Rec 3.9'/5.0'
					1st Attempt Rec 2.0'/5.0'
6	S-6	6.0-6.5	0.8		2nd Attempt Rec 3.9'/5.0'
7	S-7	7.0-7.5	0.2		
8	S-8	8.0-8.5	0.5		
9					
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B85-9

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325

LOCATION: About 40 feet N of B85-8, near proposed drop inlet

TYPE OF BORING	Direct Push	DATE STARTED:	5/14/20	SHEET:	1 of 1
DRILLING FIRM:	SAEDACCO	DATE FINISHED:	5/14/20	TOTAL DEPTH:	10.0 ft
DRILLER:	Brian Ewing	SAMPLE METHOD:	5' Macrocore	DEPTH TO GW:	N/A ft
DRILL RIG:	GeoProbe 722DT	LOGGED BY:	R. Pastrana	COMMENT:	

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' -0.4' - Topsoil	Core 1 Rec 3.2'/5.0'
				0.4' - 10.0' - Red-Brown, Sandy SILT, With Layers of Brown, White, and Black,	
				Silty SAND, Rock Fragments, Dry to Moist	1st Attempt Rec 1.8'/5.0'
1	S-1	1.0-1.5	0.3		
					2nd Attempt Rec 3.2'/5.0'
2	S-2	2.0-2.5	0.3		
3	S-3	3.0-3.5	0.4		
4					
5	S-5	5.0-5.5	0.6		Core 2 Rec 4.2'/5.0'
					1st Attempt Rec 2.1'/5.0'
6	S-6	6.0-6.5	0.4		2nd Attempt Rec 4.2'/5.0'
7	S-7	7.0-7.5	0.8		
8	S-8	8.0-8.5	0.5		
9					
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B85-10

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: N end of parcel, near planned drop inlet, in vicinity of former tank pit
TYPE OF BORING: Direct Push & Hand Auger | DATE STARTED: 5/14/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/14/20 | TOTAL DEPTH: 7.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' -0.2' - Topsoil	Core 1 Rec N/A
				0.2' - 7.0' - Red-Brown, Sandy SILT with Layers of Black, White, and Brown,	
				Silty SAND, Micaceous, Moist to Dry	1st Attempt Rec 0.6'/5.0'
1	S-1	1.0-1.5	0.7		
					2nd Attempt Rec 1.2'/5.0'
					3rd Attempt Hand Auger
2	S-2	2.0-2.5	1.3		0-5'
3	S-3	3.0-3.5	0.8		
4	S-4	4.0-4.5	0.8		
5	S-5	5.0-5.5	0.7		Core 2 Rec 1.5'/5.0'
					1st Attempt Rec 0.2'/5.0'
6	S-6	6.0-6.5	1.2		2nd Attempt Rec 1.5'/5.0'
7				7.0' - Refusal	
8					
9					
10					
11					
12					
13					
14					
15					

APPENDIX B

RED LAB LABORATORY TESTING REPORT

QED REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS QROS

Hydrocarbon Analysis Results

Client: ESP
Address: 7011 Albert Pick Rd
Ste E
Greensboro, NC 27409

Contact: Ned Billington

Project: GR22.325

Samples taken 5/13 - 5/14/2020
Samples extracted 5/13 - 5/14/2020
Samples analysed Monday, May 18, 2020

Operator Harry Wooten

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	B85-1 , S3	17.6	<0.44	<0.44	1.1	1.1	0.6	<0.14	<0.018	0	87.4	12.6	Deg.PHC 77%,(FCM)
s	B85-2, S1	21.0	<0.52	<0.52	0.76	0.76	0.39	<0.17	<0.021	0	87.4	12.6	V.Deg.PHC 92.6%,(FCM)
s	B85-4 , S1	21.0	<0.52	<0.52	<0.52	<0.52	<0.1	<0.17	<0.021	0	0	0	PHC not detected
s	B85-5 , S1	20.8	<0.52	<0.52	0.63	0.63	0.33	<0.17	<0.021	0	90.1	9.9	Road Tar 87.1%,(FCM)
s	B85-7 , S1	19.8	<0.5	<0.5	34.8	34.8	17.8	0.92	<0.02	0	91.4	8.6	V.Deg.PHC 77.8%,(FCM)
s	B85-8 , S6	17.6	<0.44	<0.44	1.7	1.7	0.84	<0.14	<0.018	0	86.6	13.4	V.Deg.PHC 90%,(FCM)
s	B85-9 , S7	21.4	<0.53	<0.53	0.9	0.9	0.43	<0.17	<0.021	0	88.1	11.9	Road Tar 89.1%,(FCM)
s	B85-10 , S6	19.8	<0.5	<0.5	<0.5	<0.5	<0.1	<0.16	<0.02	0	0	0	PHC not detected,(BO)

Initial Calibrator QC check OK Final FCM QC Check OK 101.5 %

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

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

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

APPENDIX C
CHAIN-OF-CUSTODY FORM

Client Name:	ESP
Address:	Greensboro
Contact:	Ned Billington
Project Ref.:	GR22.325
Email:	On file
Phone #:	
Collected by:	R. Pastrana

REDLAB™
RAPID ENVIRONMENTAL DIAGNOSTICS

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

Each UVF sample will be analyzed for total BTEX, GRO, DRO, TPH, PAH total aromatics and BaP. Standard GC Analyses are for BTEX and Chlorinated Solvents: VC, 1,1 DCE, 1,2 cis DCE, 1,2 trans DCE, TCE, and PCE. Specify target analytes in the space provided below.

CHAIN OF CUSTODY AND ANALYTICAL REQUEST FORM

Sample Collection	TAT Requested		Analysis Type		Initials	Letter "S" ↓ Sample ID		Total Wt.	Tare Wt.	Sample Wt.
Date/Time	24 Hour	48 Hour	UVF	GC						
5/14/20		✓	✓		SDS	B85-1, S3		57.8	45.3	12.5
						B85-2, S1		54.2	43.7	10.5
						B85-4, S1		55.3	44.8	10.5
						B85-5, S1		54.7	44.1	10.6
						B85-7, S1	*	55.4	44.3	11.1
						B85-8, S6		56.9	44.4	12.5
						B85-9, S7		54.2	43.9	10.3
						B85-10, S6		56.0	44.9	11.1

COMMENTS/REQUESTS:
* Report bracketed samples separately

TARGET GC/UVF ANALYTES:

Relinquished by		Accepted by	Date/Time
[signature]	5/15/20	[signature]	5/18/20 12:30
Relinquished by		Accepted by	Date/Time

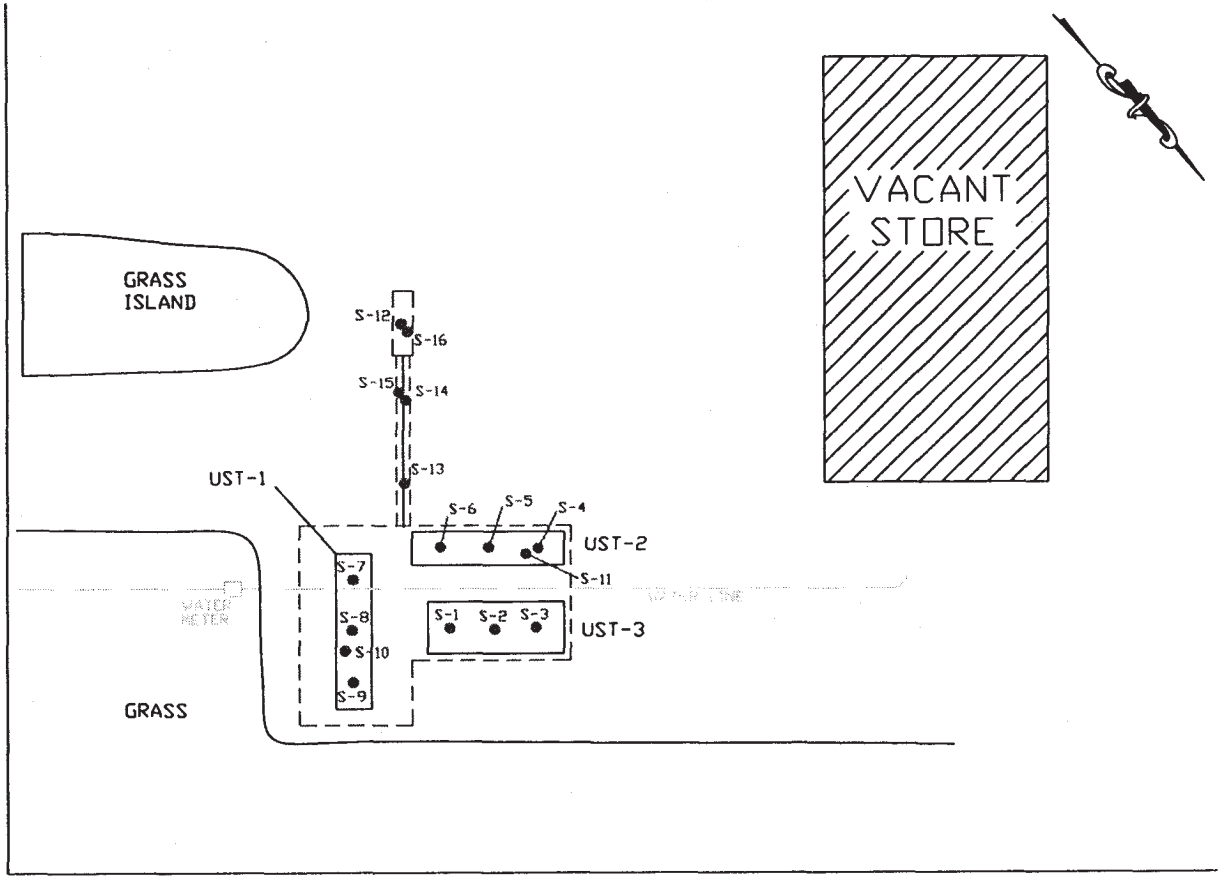
RED Lab USE ONLY
(13)
Ref. No H02

APPENDIX D

2003 UST CLOSURE REPORT FIGURE 2

2005 LSA REPORT FIGURE 2

FILE	DATE	PROJECT MANAGER	CHECKED BY	DRAFTER	PROJECT NUMBER
SITE.DWG	7/11/03	CZ	DH	CZ	1625.03A3.DENR



LEGEND

- SOIL SAMPLE
- EXCAVATION AREA

FRANKLIN FARM ROAD (PRIVATE)

APPROXIMATE SCALE: 1" = 30'

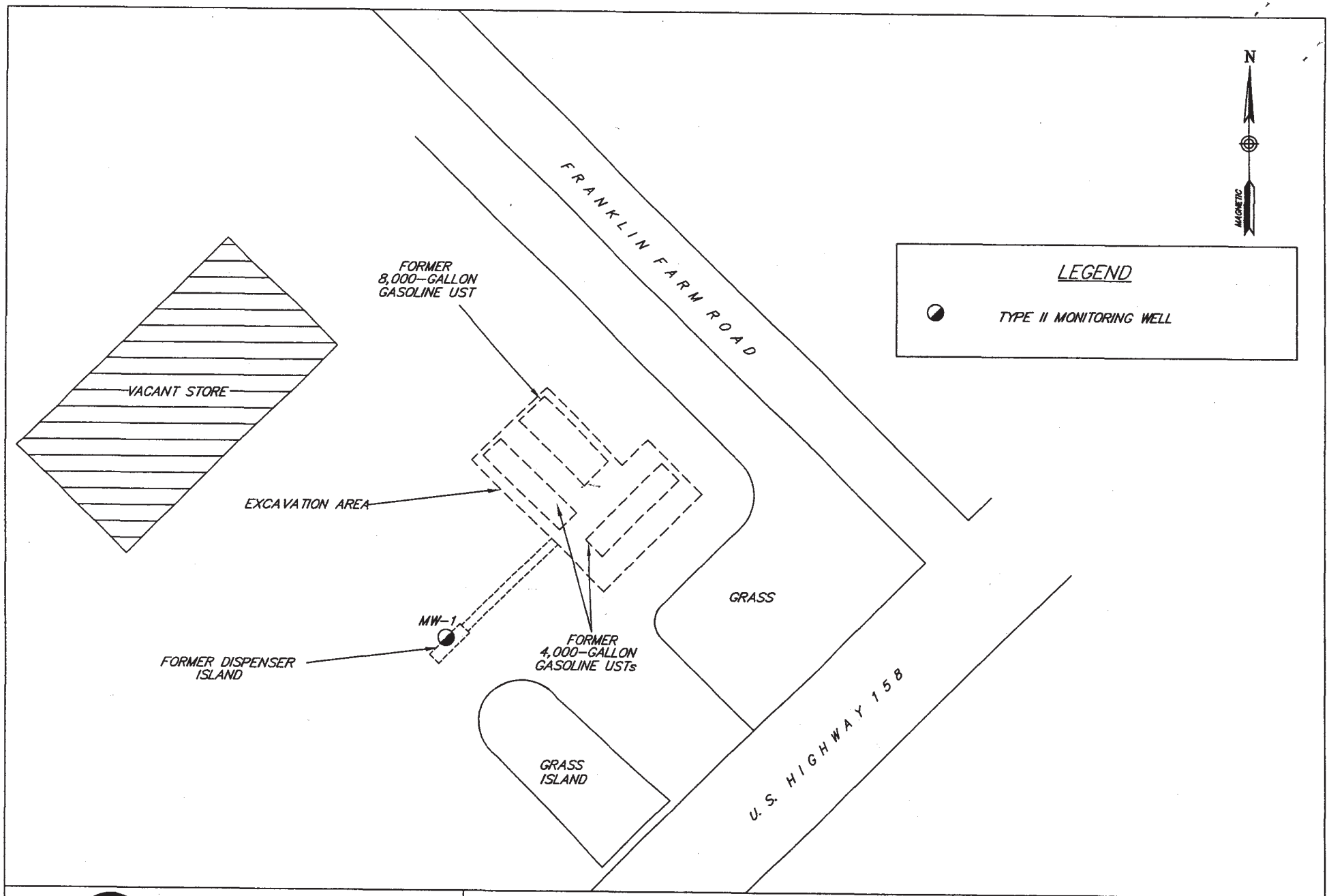
NOTE: DRAWN BASED ON FIELD MEASUREMENTS

Solutions
Industrial & Environmental Services
3722 BENSON DRIVE
RALEIGH, NORTH CAROLINA 27609
TEL.: (919) 873-1060 FAX.: (919) 873-1074

SITE MAP

HENSDALE GROCERY
4685 REIDSVILLE ROAD
WALKERTOWN, NORTH CAROLINA

FIGURE: 2



Geological Resources, Inc.

Environmental and Mining Geologists
- Charlotte, North Carolina
- Greensboro, North Carolina
- Asheville, North Carolina

0 15 30 60
(IN FEET)
1 inch = 30 ft.

SITE MAP

Hansdale Grocery — 4685 Reidsville Road
Walkertown, Forsyth County, NC — Incident # 30195

Date:	01/11/05	Drawn by:	RS	Figure:	2

June 5, 2020

Ashley B. Cox, Jr, LG
Geotechnical Engineering Unit
North Carolina Department of Transportation
1020 Birch Ridge Drive
Raleigh, NC 27610

RE: **PHASE II INVESTIGATION OF PARCEL 173**
Reidsville Mart (Citgo), HNR Holding LLC
4206 Reidsville Road, Winston-Salem, NC
ESP Project No. GR22.325

TIP Number:	R-2577A
WBS Number:	37405.1.2
County:	FORSYTH
Description:	US 158 from North of US 421 to SR 1965 (Belews Creek Road)

Dear Mr. Cox:

ESP Associates, Inc. (ESP) is pleased to submit this report on our GeoEnvironmental Phase II Investigation of the subject parcel. This work was performed in accordance with your Request for Proposal received on April 14, 2020, and our Cost Proposal dated April 23, 2020.

We appreciate the opportunity to assist you during this phase of the project. If you should have any questions concerning this report, or if we may be of further assistance, please contact us.

Sincerely,

ESP Associates, Inc.

Edward D. Billington, PG
Senior Geologist/Geophysicist
EDB/CRP/NAZ

NORTH CAROLINA LICENSED SEAL 1631 GEOLOGIST EDWARD DAVIS BILLINGTON

DocuSigned by: Billington
7402544DC92F4E0...

TABLE OF CONTENTS

TABLES

TABLE OF CONTENTS (continued)

FIGURES

APPENDICES

1.0 INTRODUCTION

The North Carolina Department of Transportation (NCDOT) is planning to widen U.S. 158 (Reidsville Road) from north of U.S. 421/I-40 Business to Belews Creek Road (S.R. 1965) in Forsyth County. The primary purpose of this project is to improve traffic operations. The NCDOT requested that ESP Associates, Inc. (ESP) perform a Phase II geoenvironmental investigation of the proposed right-of-way (ROW) and proposed permanent utility easement (PUE) (collectively, proposed ROW/easement) of Parcel 173 to locate possible underground storage tanks (USTs), sample soil, and delineate potential contaminated soil. Parcel 173 is located on the south side of Reidsville Road approximately 100 feet northeast of the intersection with Old Belews Creek Road (Figure 1).

2.0 HISTORY

2.1 Ownership

The following is the current parcel ownership, according to the Forsyth County GIS (https://www.forsyth.cc/Tax/geodata.aspx):

- Sale Date: 8/1/2017
- Current Owner: HNR Holding LLC
- Owner's Address: 371 S. Swing Rd, Greensboro, NC 27409

2.2 NCDEQ Information

This site was listed as Site No. 1 in the 2004 Phase 1 report (GeoEnvironmental Impact Evaluation) that was provided by the NCDOT. Site 1 was anticipated to have low monetary and scheduling impact to the project. We checked the following sources at the NCDEQ with the results summarized below:

- Division of Waste Management Site Locator Tool
    - Indicated Facility ID 16561.
    - UST Incident No. 44096
    - No files in Documents Link.
- NC UST Facility Operating Permits
    - Facility No. 16561 (Reidsville Mart).
- Registered USTs Database
    - 5 USTs listed as current (removed in December 1998).
    - 3 USTs listed as intent to install (current)
        - 14,000-gallon gasoline
        - 3,000-gallon gasoline
        - 3,000-gallon diesel

- Incident Management Database (Regional USTs)
    - UST No. WS-8850
    - Incident Number: 44096
    - Incident Name: Exprez It
    - Date Occurred: 1/23/2013
    - Contamination: Soil
    - Closed out 6/8/2014
- Winston-Salem Regional NCDEQ Office
    - Copy of the May 2014 20-Day and Initial Abatement Action Report
        - Approximately 156 cubic yards of contaminated soil were excavated and disposed of offsite on March 25, 2014.
        - Copies of relevant figures from the above report are included in Appendix D. The former tank pit was located on the southeast side of the current tank pit and outside of the proposed ROW/easement.

3.0 SITE OBSERVATIONS

During our May 2020 field work, the site was occupied by an active gasoline station and market (Reidsville Mart, Citgo) (Figure 2). The ground in the study area was covered by asphalt, concrete, and grass. The proposed PUE goes through the approximate middle of the current tank pit and between the two sets of pumps.

4.0 METHODS

ESP performed a geophysical study of the area designated by the NCDOT on May 4, 2020. The geophysical investigation area was approximately 0.21 acres and encompassed the proposed ROW/easement. We performed direct-push drilling and sampling of subsurface soils on May 13, 2020. A photoionization detector (PID) was used to screen subsurface soils in the field and select soil samples to send for laboratory analysis. Groundwater was not encountered during the drilling investigation.

4.1 Geophysics

ESP performed a metal detector study over the accessible areas of the site using a Geonics EM61 MK2 with a line spacing of approximately three feet (Figures 3 and 4). Location control was provided in real-time using a differential global positioning system (DGPS). Ground-penetrating radar (GPR) data were collected over the tank pit using a Noggin 250 GPR cart to designate the approximate edges of the known tanks. We also used the GPR to attempt to locate the product line(s) from the known tanks to the pumps and to look for abandoned USTs beneath the canopy where the EM61 response was dominated by the response from the reinforced concrete and pump islands.

4.2 Borings

ESP performed direct-push drilling activities within the proposed ROW/easement of Parcel 173 using a subcontractor, SAEDACCO of Fort Mill, South Carolina. Eight borings were drilled, designated B173-1 through B173-8, and were approximately evenly spaced over the accessible areas of the site (Figure 8). Boring B173-1 was located near the existing USTs and close to a proposed drop inlet. Boring B173-2 was located near the existing USTs. Boring B173-5 was located close to a proposed drop inlet.

The soil borings were advanced using a GeoProbe 7822DT drill rig. Soil samples were obtained to a maximum depth of approximately 10 feet using two 5-foot long Macro-Core® tubes. Boring B173-5 hit refusal at 3.0 feet below ground surface (bgs) so a second boring was drilled 4 feet closer to the highway where refusal was encountered at 6.0 feet bgs. Refusal was probably due to buried debris or a boulder. Soil cores varied in recovery from 3.4 to 5.0 feet (68 to 100 percent recovery). The sampling equipment was decontaminated prior to drilling and between borings by the driller using a Liquinox® detergent solution.

4.3 Soil Sample Protocol

Representative soil samples were taken from the Macro-Core tubes at approximate one-foot intervals by the ESP field geologist while wearing nitrile disposable gloves. Each sample was placed in a sealed plastic bag and then kept in a warm area for approximately 10 to 15 minutes prior to measuring volatile organic compound (VOC) levels in the head space with the PID. The PID readings ranged from 0.1 to 908.4 parts per million (ppm) (Table 1 and Appendix A).

Eight soil samples were selected for laboratory analysis, as listed in Table 2. For each selected sample, an approximate 10-gram soil sample was collected from the sample bag using a Terra Core™ sampler and placed into a laboratory-supplied 40-milliliter volatile organic analysis (VOA) vial containing methanol. Once sealed, the vial was labeled with the sample identification number and then shaken vigorously for about one minute. The samples were packed on ice and sent via overnight delivery to RED Lab, LLC (RED Lab), located in Wilmington, North Carolina, following proper chain-of-custody procedures (Appendix C).

RED Lab used a QED Hydrocarbon Analyzer to quantitatively analyze the soil samples using the ultraviolet fluorescence (UVF) method for benzene, toluene, ethylbenzene, and xylene (BTEX); gasoline range organics (GRO); diesel range organics (DRO); total petroleum hydrocarbons (TPH); total aromatics; polycyclic aromatic hydrocarbons (PAHs); and benzo(a)pyrene (BaP).

4.4 Groundwater

Groundwater was not encountered in the 8 borings.

5.0 RESULTS

5.1 Geophysics

The EM61 early time gate data show the response from both shallow and deeper metallic objects (Figure 3). The differential response reduces the effect of shallow anomalies and emphasizes anomalies from larger and more deeply buried metallic objects, such as USTs (Figure 4). Our evaluation of the differential response indicated the anomalies were caused by known site features. The known USTs do not appear to extend outside of the concrete slab over the USTs (Figure 5). The GPR data also did not indicate abandoned USTs beneath the concrete underneath the canopy.

The EM61 early time gate response and differential response are shown on the plan sheet on Figures 6 and 7, respectively.

5.2 Sample Data

The soil sample UVF hydrocarbon analysis results for BTEX, GRO, DRO, and PAHs are presented in Table 2 with maximum GRO and DRO results shown on Figure 9. The RED Lab laboratory report, which also includes results for TPH, total aromatics, and BaP, is provided in Appendix B. Values are provided in milligrams per kilogram (mg/kg or ppm).

5.3 Sample Observations

The results of the laboratory testing indicate GRO was detected in one sample with the value above the NCDEQ action level of 50 ppm (79.5 ppm in B173-4, Sample 9) (Table 2, Figure 9). DRO was detected in three samples, with the value in one sample above the NCDEQ action level of 100 ppm (284.1 ppm in B173-4, Sample 9). BTEX was below detection limits for the 8 samples tested. PAHs were detected in 2 samples with values of 0.59 and 1.3 ppm. BaP was not detected in the 8 samples.

6.0 CONCLUSIONS

6.1 Interpretation of Results

The results of the Phase II investigation for Parcel 173 of NCDOT Project R-2577A indicates that there is no evidence for abandoned USTs in the proposed ROW/easement. The 3 known USTs are partially within the proposed PUE. Laboratory testing indicated petroleum compounds in 3 of the 8 soil samples tested with one sample above the NCDEQ action levels for GRO (50 ppm) and DRO (100 ppm). The PID readings during sampling were above 10 ppm in one of the 8 borings (B173-4).

6.2 Estimated Quantities

Based on the laboratory results and PID readings from Boring 173-4, the petroleum contamination appears to extend from approximately 5.0 to 10.0 feet below ground surface with a thickness of approximately 5.0 feet. Using a contaminated soil thickness of 5.0 feet and an area of 317 square feet, the volume of contaminated soil within the proposed ROW in the vicinity of Boring B173-4 is estimated as follows:

- Estimated area of contaminated soil: 317 square feet
- Estimated thickness of contaminated soil: 5.0 feet
- Estimated volume of contaminated soil: 317 square feet * 5.0 feet = 1585 cubic feet = 59 cubic yards.

Assuming 100 pounds per cubic foot, the estimated amount of contaminated soil is approximately:

- 1585 * 100 / 2000 = 79 tons.

7.0 RECOMMENDATIONS

ESP recommends that soil removed from the site as part of NCDOT construction activities in the vicinity of the known USTs, the dispenser islands, and Boring B173-4 be screened for petroleum hydrocarbon contamination, properly handled, segregated, and disposed of in accordance with NCDEQ regulations.

If the final plans indicate that the 3 known USTs and dispensers that are within the proposed ROW/easement will be encountered during construction, the USTs and dispensers should be properly closed by removal prior to construction. Since this is an active gasoline station, arrangements may need to be made for relocating the USTs and dispensers to another location on the parcel.

Groundwater was not encountered in the upper 10 feet in the study area. If groundwater is encountered during construction, it should be screened for petroleum contamination, properly handled, and disposed of in accordance with NCDEQ regulations.

8.0 LIMITATIONS

ESP's professional services have been performed, findings obtained, and recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. ESP is not responsible for the independent conclusions, opinions, or recommendations made by others based on the data presented in this report.

The passage of time may result in a change in the environmental characteristics at this site and surrounding properties. ESP does not warrant against future operations or conditions, or against

operations or conditions present of a type or at a location not investigated. ESP does not assume responsibility for other environmental issues that may be associated with the subject site.

TABLES

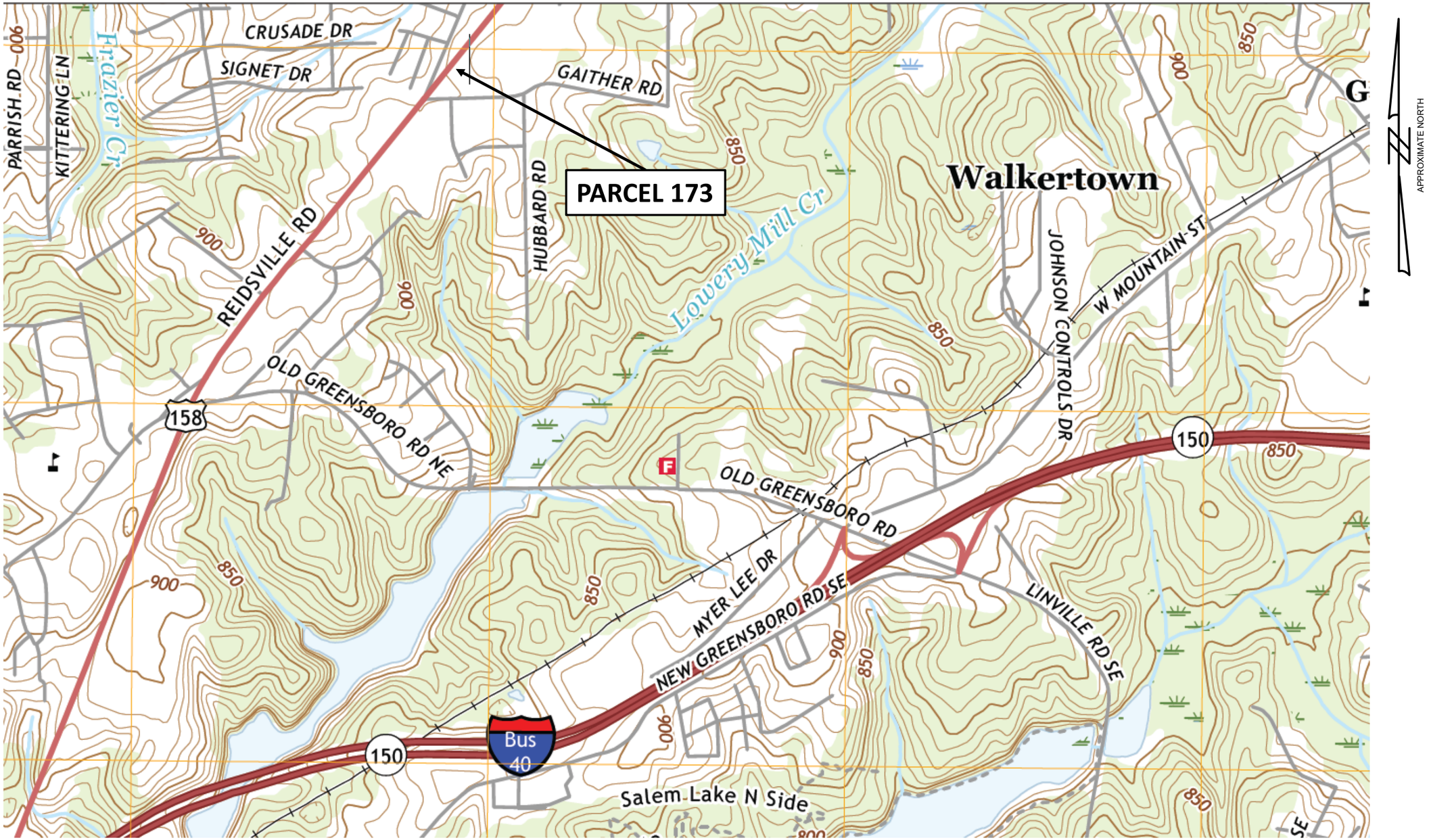
TABLE 1
SOIL SAMPLE PID READINGS

Boring	Sample Depth Range with PID > 10 ppm (feet bgs)	Maximum PID Reading (ppm) and Sample Depth (feet bgs)
B173-1	none	2.8 (1.0-1.5)
B173-2	none	0.4 (1.0-1.5)
B173-3	none	0.4 (1.0-1.5)
B173-4	5.0-10.0	908.4 (8.0-8.5)
B173-5	none	0.6 (2.0-3.5)
B173-6	none	0.7 (2.0-2.5)
B173-7	none	2.6 (8.0-8.5)
B173-8	none	1.5 (2.0-2.5)

TABLE 2
SOIL SAMPLE UVF RESULTS SUMMARY

Boring	Sample ID (depth in feet bgs)	Date Collected	BTEX (C6-C9) (mg/kg)	GRO (C5-C10) (mg/kg)	DRO (C10-C35) (mg/kg)	PAHs (mg/kg)
B173-1	S1 (1.0-1.5)	5/13/20	<0.43	<0.43	53.4	1.3
B173-3	S6 (6.0-6.5)	5/13/20	<0.48	<0.48	<0.48	<0.15
B173-4	S5 (5.0-5.5)	5/13/20	<0.41	<0.41	<0.41	<0.13
B173-4	S9 (9.0-9.5)	5/13/20	<0.88	**79.5**	**284.1**	0.59
B173-6	S2 (2.0-2.5)	5/13/20	<0.43	<0.43	2.1	<0.14
B173-7	S8 (8.0-8.5)	5/13/20	<0.45	<0.45	<0.45	<0.15
B173-8	S4 (4.0-4.5)	5/13/20	<0.45	<0.45	<0.45	<0.14
B173-8	S9 (9.0-9.5)	5/13/20	<0.44	<0.44	<0.44	<0.14

FIGURES



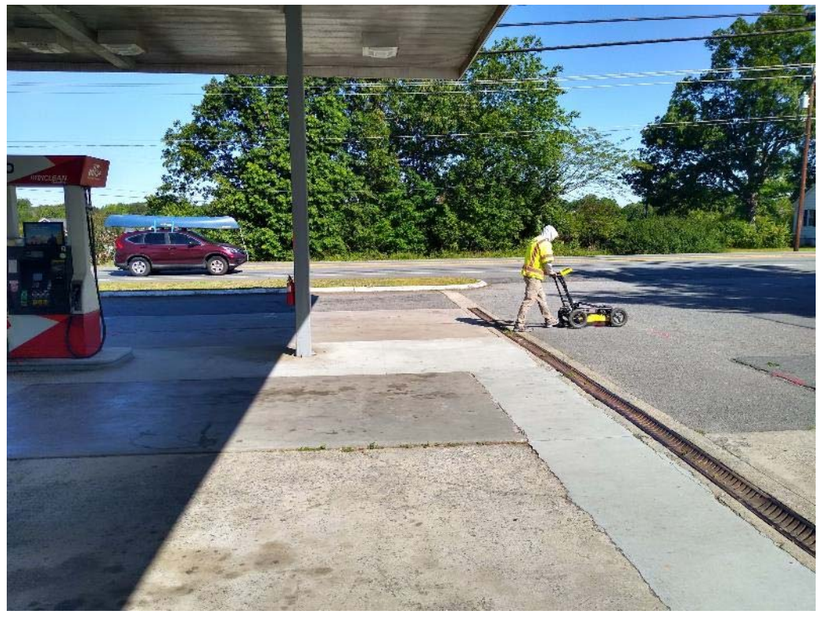
From: USGS US Topo 7.5 - minute map for WINSTON SALEM EAST QUADRANGLE, NC, Date: 2019, Original Scale: 1:24,000

PROJECT NO. GR22.325 SCALE AS SHOWN DATE 5/29/2020 BY CRP/EDB	***FIGURE 1 – PARCEL 173, HNR HOLDING LLC SITE VICINITY MAP*** ***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***	ESP Associates, Inc. 7011 Albert Pick Rd., Suite E Greensboro, NC 27409 336.334.7724 www.espassociates.com

A. Photograph from northeast corner of parcel, looking southwest.

B. Photograph from southwest corner of parcel, looking northeast.

C. Photograph of tank bed, looking southeast.



D. Photograph of GPR data collection around known USTs, looking northwest.

PROJECT NO. GR22.325	***FIGURE 2 – PARCEL 173 , HNR HOLDING LLC SITE PHOTOGRAPHS***
SCALE N/A	
DATE 5/29/2020	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***
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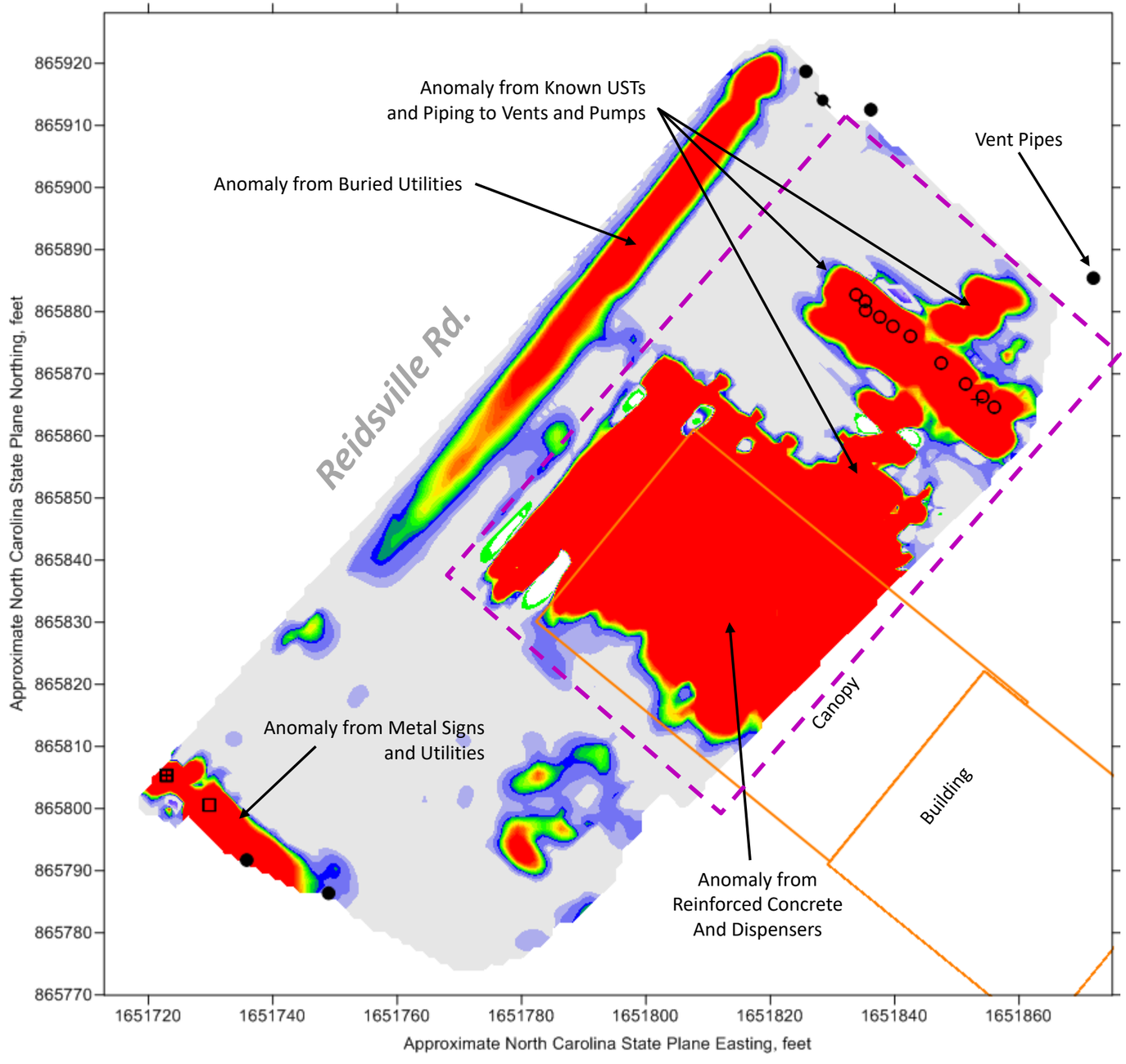

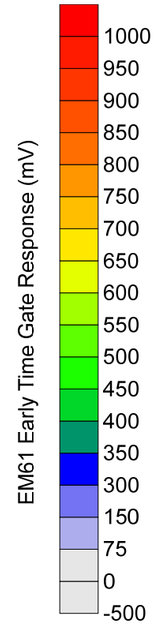

EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Drop Inlet, Catch Basin, Manhole
- Culvert, storm drain pipe
- Utility pole
- Guy wire anchor
- Sign pole, other pole
- UST Fill Port or Valve Cover
- Monitoring Well
- Buried utility line (marked by others)
- EM61 Data Collection Areas
- GPR Data Collection Areas
- Underground Storage Tank

Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

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SCALE	AS SHOWN
DATE	5/29/2020
BY	CRP/EDB

FIGURE 3 – PARCEL 173 , HNR HOLDING LLC
EM61 EARLY TIME GATE DATA

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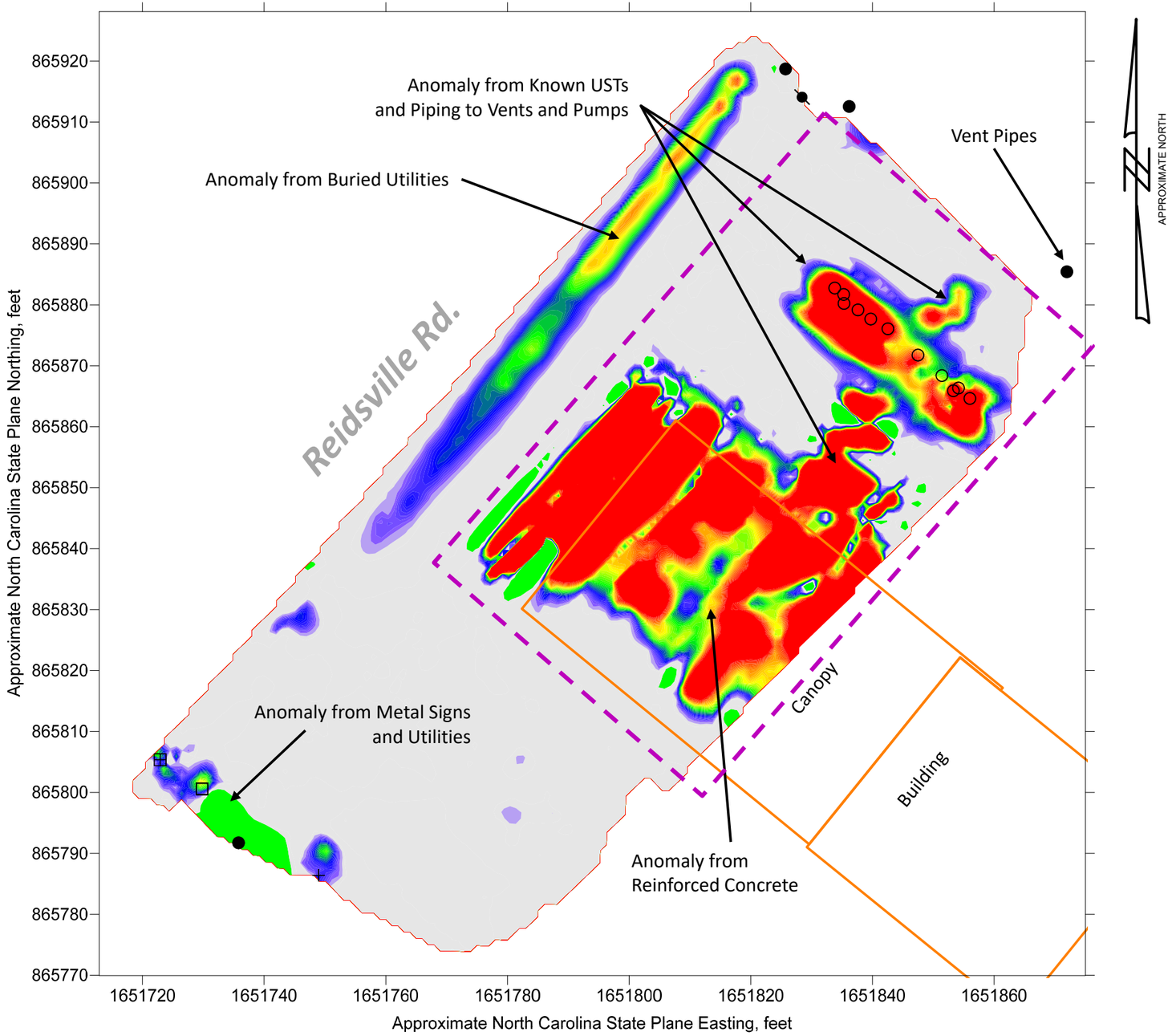

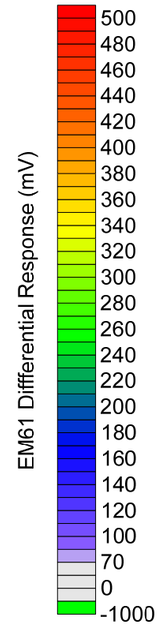

EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Drop Inlet, Catch Basin, Manhole
- Culvert, storm drain pipe
- Utility pole
- Guy wire anchor
- Sign pole, other pole
- UST Fill Port or Valve Cover
- Monitoring Well
- Buried utility line (marked by others)
- EM61 Data Collection Areas
- GPR Data Collection Areas
- Underground Storage Tank

Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP makes no guarantees as to the accuracy of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

PROJECT NO. GR22.325	***FIGURE 4 – PARCEL 173 , HNR HOLDING LLC EM61 DIFFERENTIAL DATA***
SCALE AS SHOWN	
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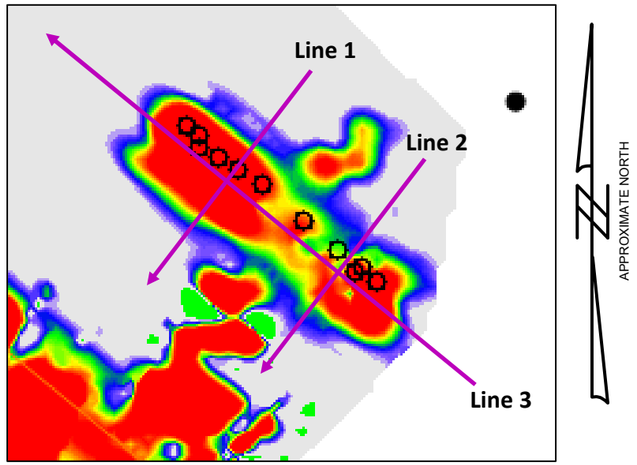
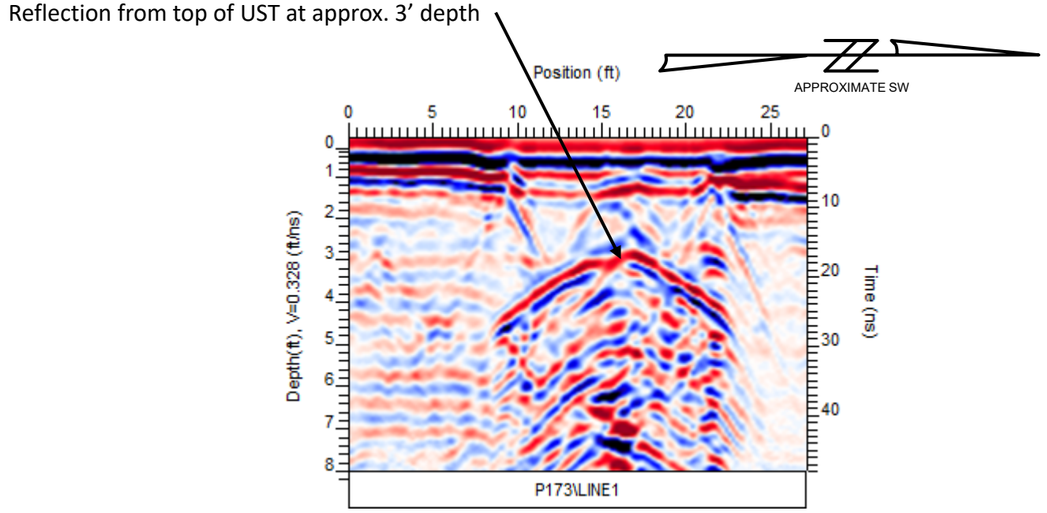
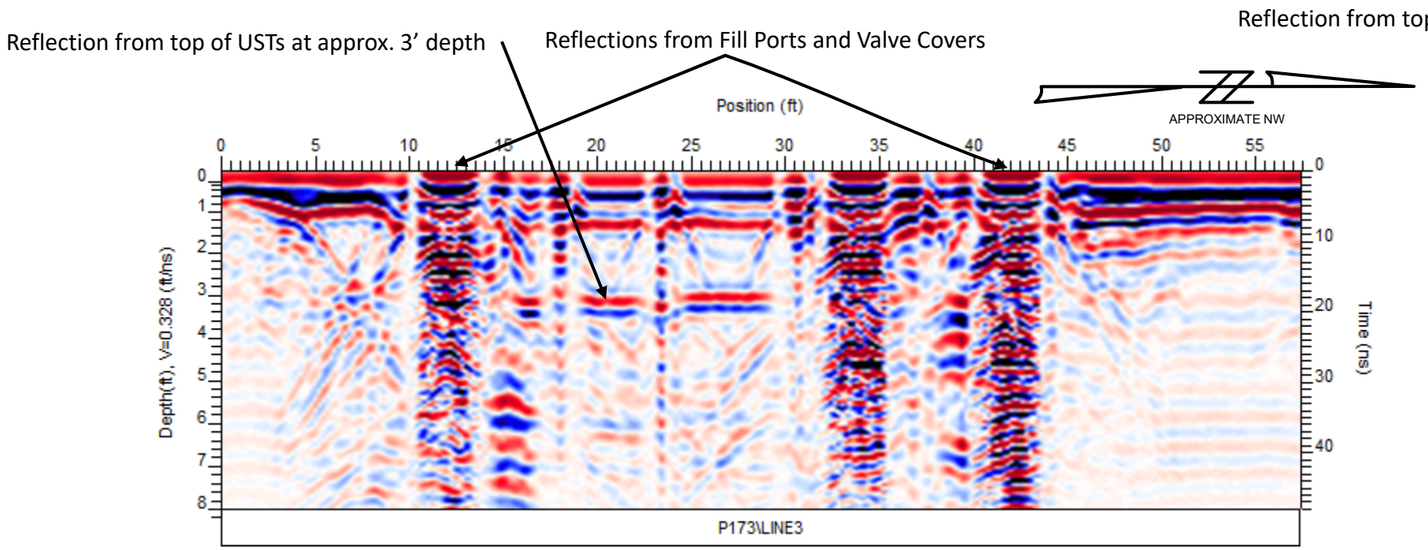


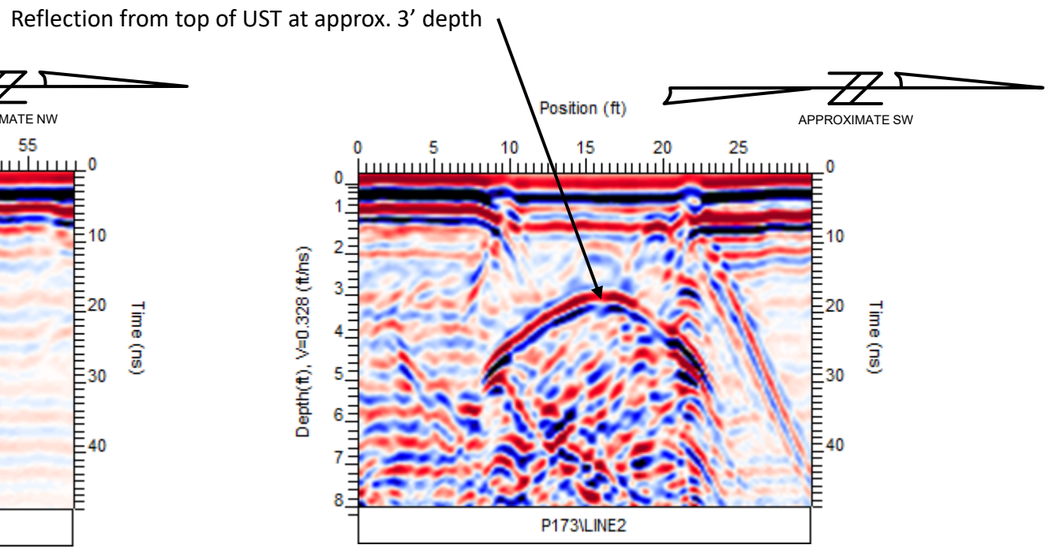
A. EM61 differential data with GPR line locations



B. GPR Line 1 over short axis of 1 of 3 USTs

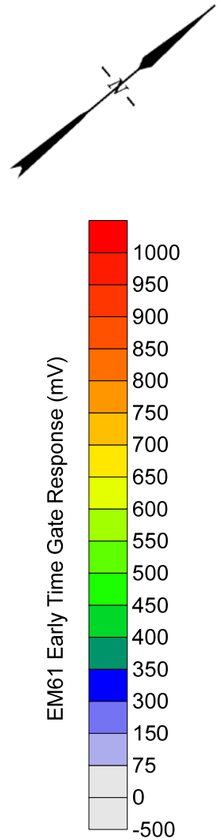


D. GPR Line 3 over long axis of USTs.



C. GPR Line 2 over short axis of 2 of 3 USTs

PROJECT NO. GR22.325	***FIGURE 5 – PARCEL 173 , HNR HOLDING LLC GPR DATA OVER KNOWN USTS***	ESP Associates, Inc. 7011 Albert Pick Rd., Suite E Greensboro, NC 27409 336.334.7724 www.espassociates.com
SCALE AS SHOWN		
DATE 5/29/2020	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***	
BY CRP/EDB		



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  - R2577A_ncdot_fs.dgn
  - R-2577A_rdy_dsn.dgn
  - R-2577A_rdy_dsn_driveways.dgn
  - R-2577A_rdy_dsn_guardrail.dgn
  - R-2577A_rdy_HISTORIC.dgn
  - R-2577A_rdy_map_owner_no.dgn
  - R-2577A_rdy_row.dgn
  - R-2577A_rdy_row_AG.dgn
  - R-2577A_rdy_row_SB.dgn
  - R-2577A_rdy_ss.dgn

0 30 60
FEET

See Figure 10 for explanation of symbols and line types

PROJECT NO. GR22.325	***FIGURE 6 – PARCEL 173 , HNR HOLDING LLC EM61 EARLY TIME GATE DATA ON PLAN SHEET***
SCALE 1" = 30'	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***
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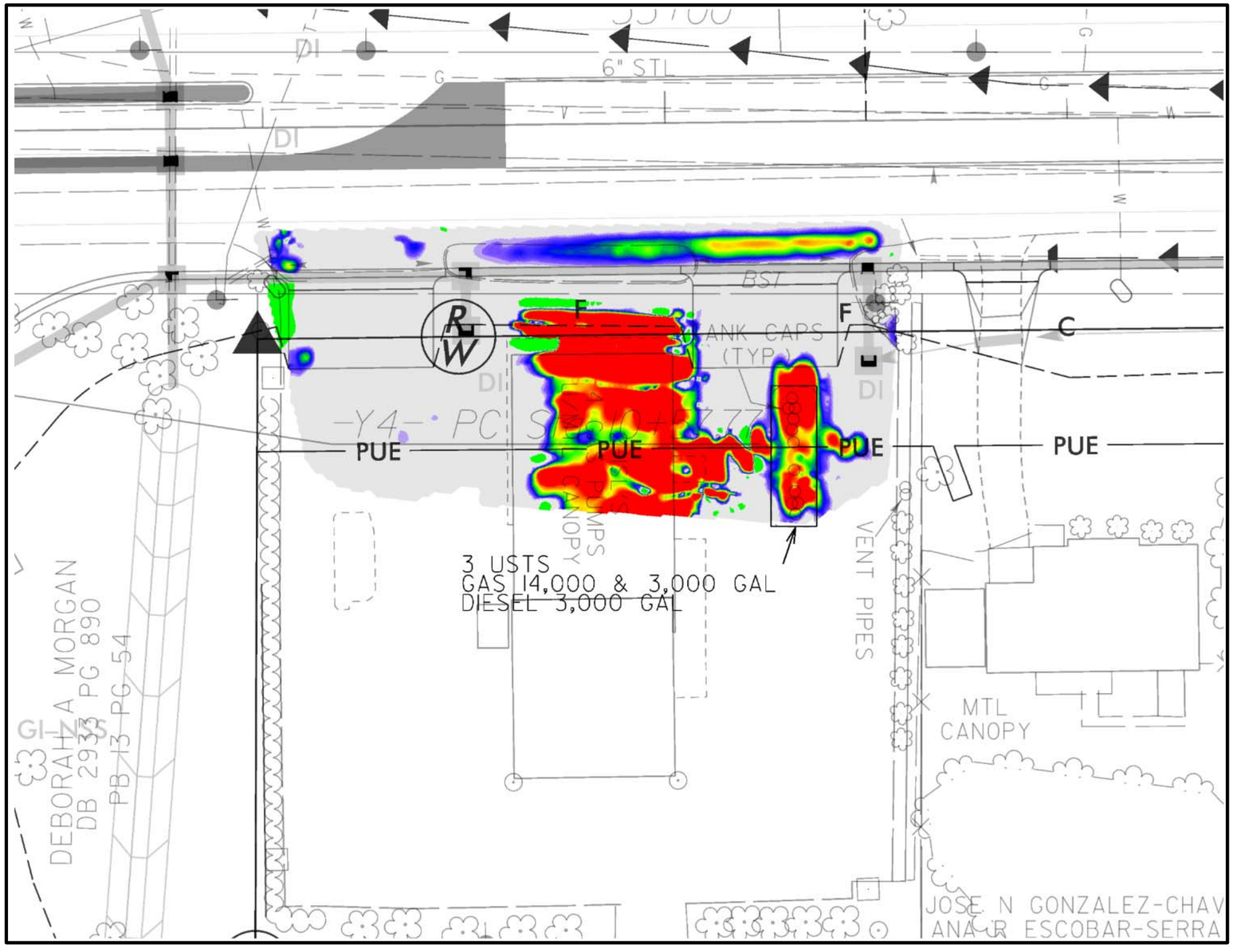

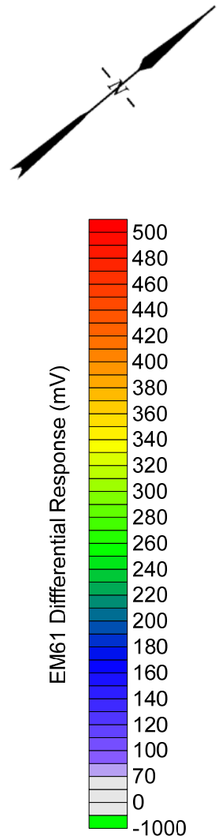

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  - R2577A_ncdot_fs.dgn
  - R-2577A_rdy_dsn.dgn
  - R-2577A_rdy_dsn_driveways.dgn
  - R-2577A_rdy_dsn_guardrail.dgn
  - R-2577A_rdy_HISTORIC.dgn
  - R-2577A_rdy_map_owner_no.dgn
  - R-2577A_rdy_row.dgn
  - R-2577A_rdy_row_AG.dgn
  - R-2577A_rdy_row_SB.dgn
  - R-2577A_rdy_ss.dgn

0 30 60
FEET

See Figure 10 for explanation of symbols and line types

PROJECT NO. GR22.325	***FIGURE 7 – PARCEL 173 , HNR HOLDING LLC EM61 DIFFERENTIAL DATA ON PLAN SHEET***
SCALE 1" = 30'	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***
DATE 5/29/2020	
BY CRP/EDB	

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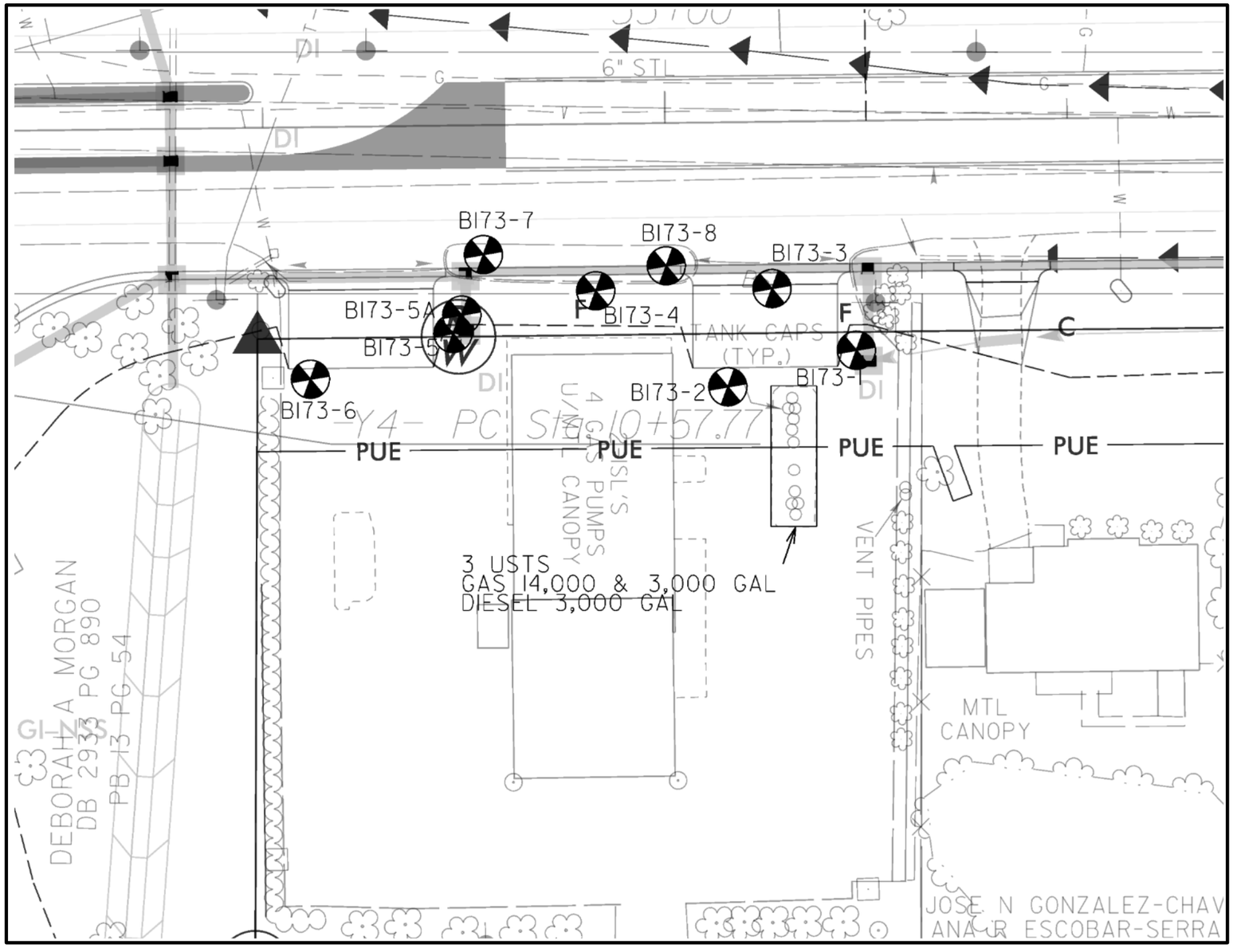

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  - R-2577A_hyd_drn.dgn
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  - R-2577A_rdy_dsn.dgn
  - R-2577A_rdy_dsn_driveways.dgn
  - R-2577A_rdy_dsn_guardrail.dgn
  - R-2577A_rdy_HISTORIC.dgn
  - R-2577A_rdy_map_owner_no.dgn
  - R-2577A_rdy_row.dgn
  - R-2577A_rdy_row_AG.dgn
  - R-2577A_rdy_row_SB.dgn
  - R-2577A_rdy_ss.dgn

0 30 60
FEET

See Figure 10 for explanation of symbols and line types

PROJECT NO. GR22.325	***FIGURE 8 – PARCEL 173 , HNR HOLDING LLC BORING LOCATIONS ON PLAN SHEET***
SCALE 1" = 30'	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***
DATE 5/29/2020	
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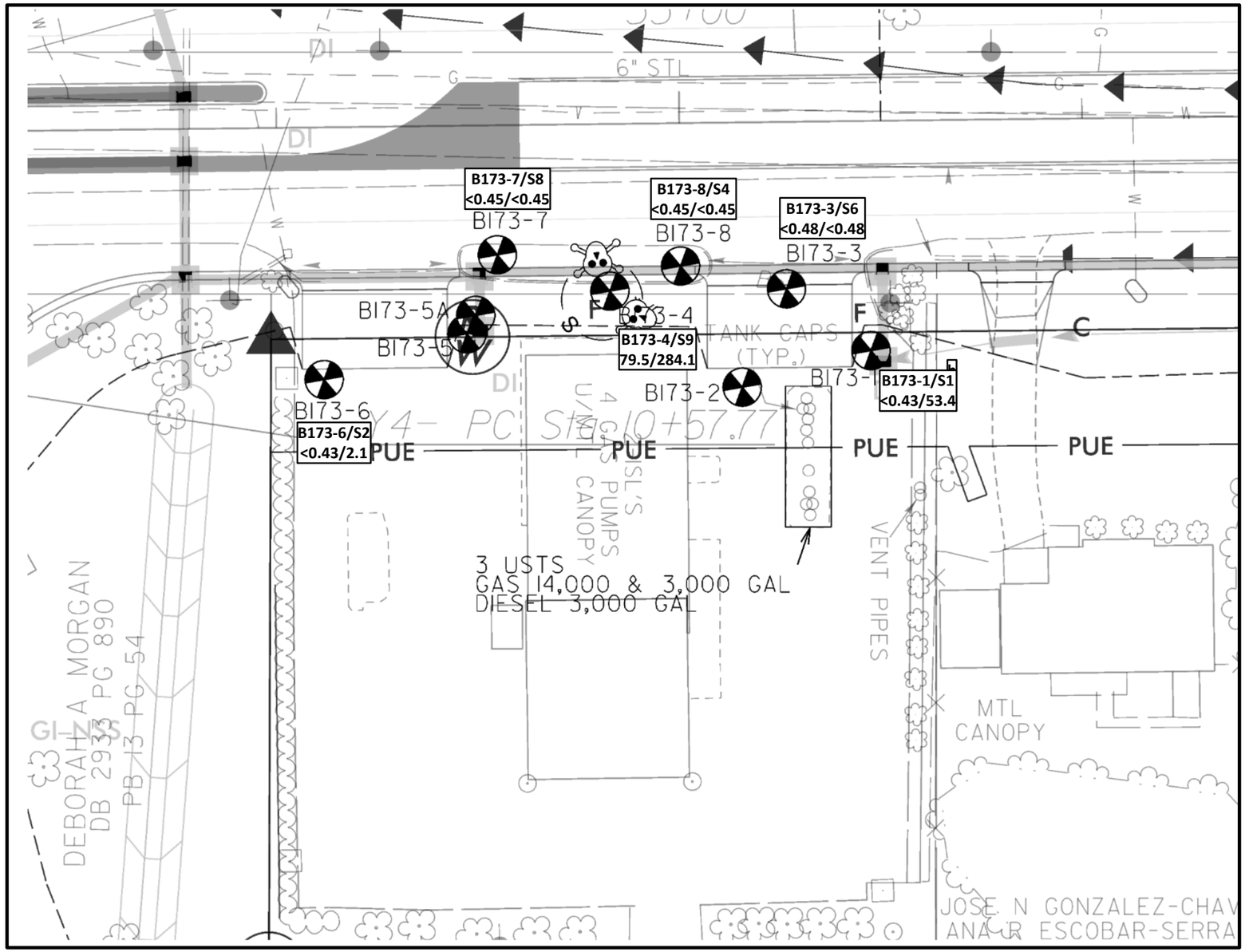

Explanation

Maximum Analytical Results per Boring

B173-1/S1
<0.43/53.4
Boring No./Sample No.
GRO/DRO (mg/kg, ppm)

- R-2577A_Geo_env.dgn
  - R-2577A_hyd_drn.dgn
  - R2577A_ncdot_fs.dgn
  - R-2577A_rdy_dsn.dgn
  - R-2577A_rdy_dsn_driveways.dgn
  - R-2577A_rdy_dsn_guardrail.dgn
  - R-2577A_rdy_HISTORIC.dgn
  - R-2577A_rdy_map_owner_no.dgn
  - R-2577A_rdy_row.dgn
  - R-2577A_rdy_row_AG.dgn
  - R-2577A_rdy_row_SB.dgn
  - R-2577A_rdy_ss.dgn

0 30 60
FEET

See Figure 10 for explanation of symbols and line types

PROJECT NO. GR22.325	***FIGURE 9 – PARCEL 173 , HNR HOLDING LLC SOIL ANALYTICAL RESULTS ON PLAN SHEET***
SCALE 1" = 30'	***NCDOT PROJECT R-2577A US 158 FROM NORTH OF US 421 TO SR 1965 FORSYTH COUNTY, NORTH CAROLINA***
DATE 5/29/2020	
BY CRP/EDB	

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12/2/2016

PROJECT REFERENCE NO.	SHEET NO.

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS
CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:
- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (IP)
- Computed Property Corner
- Property Monument (CM)
- Parcel/Sequence Number (123)
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary (W,B)
- Proposed Wetland Boundary (W,B)
- Existing Endangered Animal Boundary (EAB)
- Existing Endangered Plant Boundary (EPB)
- Existing Historic Property Boundary (HPB)
- Known Contamination Area: Soil (S)
- Potential Contamination Area: Soil (S)
- Known Contamination Area: Water (W)
- Potential Contamination Area: Water (W)
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:
- Gas Pump Vent or U/G Tank Cap
- Sign
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:
- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream (JS)
- Buffer Zone 1 (BZ 1)
- Buffer Zone 2 (BZ 2)
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch (Flow)
- False Sump

RAILROADS:
- Standard Gauge (CSX TRANSPORTATION)
- RR Signal Milepost (MILEPOST 35)
- Switch (SWITCH)
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:
- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easement Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line (RW)
- New Right of Way Line with Pin and Cap (RW)
- New Right of Way Line with Concrete or Granite R/W Marker (RW)
- New Control of Access Line with Concrete C/A Marker (CA)
- Existing Control of Access (CA)
- New Control of Access (CA)
- Existing Easement Line (E)
- New Temporary Construction Easement (E)
- New Temporary Drainage Easement (TDE)
- New Permanent Drainage Easement (PDE)
- New Permanent Drainage / Utility Easement (DUE)
- New Permanent Utility Easement (PUE)
- New Temporary Utility Easement (TUE)
- New Aerial Utility Easement (AUE)

ROADS AND RELATED FEATURES:
- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut (C)
- Proposed Slope Stakes Fill (F)
- Proposed Curb Ramp (CR)
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:
- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard (Vineyard)

EXISTING STRUCTURES:
MAJOR:
- Bridge, Tunnel or Box Culvert (CONC)
- Bridge Wing Wall, Head Wall and End Wall (CONC WW)

MINOR:
- Head and End Wall (CONC HW)
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB (CB)
- Paved Ditch Gutter
- Storm Sewer Manhole (S)
- Storm Sewer (S)

UTILITIES:
POWER:
- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole (P)
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole (PH)
- H-Frame Pole
- U/G Power Line LOS B (S.U.E.*) (P)
- U/G Power Line LOS C (S.U.E.*) (P)
- U/G Power Line LOS D (S.U.E.*) (P)

TELEPHONE:
- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole (T)
- Telephone Pedestal (T)
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole (TH)
- U/G Telephone Cable LOS B (S.U.E.*) (T)
- U/G Telephone Cable LOS C (S.U.E.*) (T)
- U/G Telephone Cable LOS D (S.U.E.*) (T)
- U/G Telephone Conduit LOS B (S.U.E.*) (TC)
- U/G Telephone Conduit LOS C (S.U.E.*) (TC)
- U/G Telephone Conduit LOS D (S.U.E.*) (TC)
- U/G Fiber Optics Cable LOS B (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS C (S.U.E.*) (T FO)
- U/G Fiber Optics Cable LOS D (S.U.E.*) (T FO)

WATER:
- Water Manhole (W)
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line LOS B (S.U.E.*) (W)
- U/G Water Line LOS C (S.U.E.*) (W)
- U/G Water Line LOS D (S.U.E.*) (W)
- Above Ground Water Line (A/G Water)

TV:
- TV Pedestal (C)
- TV Tower
- U/G TV Cable Hand Hole (HH)
- U/G TV Cable LOS B (S.U.E.*) (TV)
- U/G TV Cable LOS C (S.U.E.*) (TV)
- U/G TV Cable LOS D (S.U.E.*) (TV)
- U/G Fiber Optic Cable LOS B (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS C (S.U.E.*) (TV FO)
- U/G Fiber Optic Cable LOS D (S.U.E.*) (TV FO)

GAS:
- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*) (G)
- U/G Gas Line LOS C (S.U.E.*) (G)
- U/G Gas Line LOS D (S.U.E.*) (G)
- Above Ground Gas Line (A/G Gas)

SANITARY SEWER:
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line (SS)
- Above Ground Sanitary Sewer (A/G Sanitary Sewer)
- SS Forced Main Line LOS B (S.U.E.*) (FSS)
- SS Forced Main Line LOS C (S.U.E.*) (FSS)
- SS Forced Main Line LOS D (S.U.E.*) (FSS)

MISCELLANEOUS:
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box (S)
- Utility Unknown U/G Line LOS B (S.U.E.*) (?/U)
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. (UST)
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)
- Abandoned According to Utility Records (AATUR)
- End of Information (E.O.I.)

PROJECT NO. GR22.325	**FIGURE 10** **LEGEND FOR PLAN SHEET FIGURES**
SCALE N/A	
DATE 5/29/2020	**NCDOT PROJECT R-2577A** **US 158 FROM NORTH OF US 421 TO SR 1965** **FORSYTH COUNTY, NORTH CAROLINA**
BY CRP/EDB	

ESP Associates, Inc.
7011 Albert Pick Rd., Suite E
Greensboro, NC 27409
336.334.7724
www.espassociates.com

APPENDIX A
SOIL BORING LOGS

FIELD BORING LOG

BORING NO. B173-1

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325

LOCATION: North corner of parcel at proposed drop inlet

TYPE OF BORING: Direct Push | DATE STARTED: 5/13/20 | SHEET: 1 of 1

DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/13/20 | TOTAL DEPTH: 10.0 ft

DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft

DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.3' - Asphalt	Core 1 Rec 4.4'/5.0'
				0.3' - 2.4' - Red-Brown Clay, Moist	
1	S-1	1.0-1.5	2.8		
2	S-2	2.0-2.5	0.8		
				2.4' - 9.0' - Red-Brown, Sandy SILT, Trace Mica, Moist	
3	S-3	3.0-3.5	0.3		
4	S-4	4.0-4.5	0.2		
5	S-5	5.0-5.5	0.1		Core 2 Rec 4.7'/5.0'
6	S-6	6.0-6.5	0.1		
7	S-7	7.0-7.5	0.1		
8	S-8	8.0-8.5	0.1		
9	S-9	9.0-9.5	0.2	9.0' -10.0' - Orange, Gray, and White, Silty SAND, Mottled, Moist to Dry	
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B173-2

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325

LOCATION: By west corner of USTs

TYPE OF BORING: Direct Push | DATE STARTED: 5/13/20 | SHEET: 1 of 1

DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/13/20 | TOTAL DEPTH: 10.0 ft

DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft

DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.3' - Asphalt	Core 1 Rec 4.6'/5.0'
				0.3' - 0.8' - ABC Stone	
				0.8' - 6.7' - Red-Brown, Sandy SILT, Moist	
1	S-1	1.0-1.5	0.4		
2	S-2	2.0-2.5	0.2		
3	S-3	3.0-3.5	0.3		
4	S-4	4.0-4.5	0.2		
5	S-5	5.0-5.5	0.3		Core 2 Rec 4.8'/5.0'
6	S-6	6.0-6.5	0.3		
				6.7' - 10.0' - Orange, Black, Gray, and White, Silty SAND, Mottled, Moist to Dry	
7	S-7	7.0-7.5	0.3		
8	S-8	8.0-8.5	0.2		
9	S-9	9.0-9.5	0.2		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B173-3

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: Near N corner of parcel by highway
TYPE OF BORING: Direct Push | DATE STARTED: 5/13/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/13/20 | TOTAL DEPTH: 10.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.3' - Asphalt	Core 1 Rec 3.6'/5.0'
				0.3' - 0.9' - ABC Stone	
				0.9' - 3.2' - Red-Brown, Silty CLAY, Moist	
1	S-1	1.0-1.5	0.4		
2	S-2	2.0-2.5	0.3		
3	S-3	3.0-3.5	0.2		
				3.2' - 6.0' - Red-Brown, Sandy SILT, Moist	
4					
5	S-5	5.0-5.5	0.1		Core 2 Rec 5.0'/5.0'
6	S-6	6.0-6.5	0.3	6.0' - 6.6' - Layer of Coarse Sandy and Pebbles	
				6.6' - 10.0' - Brown to Orange, Gray, and White, Silty SAND, Mottled, Moist to Dry	
7	S-7	7.0-7.5	0.1		
8	S-8	8.0-8.5	0.2		
9	S-9	9.0-9.5	0.1		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B173-4

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: Center of NW side of parcel, in front of canopy
TYPE OF BORING: Direct Push | DATE STARTED: 5/13/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/13/20 | TOTAL DEPTH: 10.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.4' - Asphalt	Core 1 Rec 3.2'/5.0'
				0.4' - 0.9' - ABC Stone	
				0.9' - 2.6' - Red-Brown, Silty CLAY, Very Moist	
1	S-1	1.0-1.5	0.8		
2	S-2	2.0-2.5	2.3		
				2.6' - 6.2' - Red-Brown, Sandy SILT, Very Moist	
3	S-3	3.0-3.5	0.6		
4					
5	S-5	5.0-5.5	30.2		Core 2 Rec 5.0'/5.0' with petroleum odor
6	S-6	6.0-6.5	104.6		
				6.2' - 10.0' - Red-Brown to White, Gray, and Black with White, Silty SAND, Mottled, Moist to Dry	
7	S-7	7.0-7.5	224.9		
8	S-8	8.0-8.5	908.4		
9	S-9	9.0-9.5	724.9		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B173-5

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: Near W corner of canopy
TYPE OF BORING: Direct Push | DATE STARTED: 5/13/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/13/20 | TOTAL DEPTH: 6.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.3' - Asphalt	Core 1 Rec 3.4'/5.0'
				0.3' - 0.7' - ABC Stone	
				0.7' - 3.2' - Red-Brown, Silty CLAY, Moist to Very Moist	2nd Attempt - 4' Offset
1	S-1	1.0-1.5	0.3		Refusal at 3.0'
2	S-2	2.0-2.5	0.6		
3	S-3	3.0-3.5	0.6		
				3.2' - 6.0' - Red-Brown, Sandy SILT, Small Rock Fragments, Very Moist to Dry	
4					
5	S-5	5.0-5.5	0.4		Core 2 Rec 1.0'/5.0'
6				6.0' - Refusal	
7					
8					
9					
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B173-6

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: Near SW corner of parcel
TYPE OF BORING: Direct Push | DATE STARTED: 5/13/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/13/20 | TOTAL DEPTH: 10.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.4' - Asphalt	Core 1 Rec 3.4'/5.0'
				0.4' - 0.8' - ABC Stone	
				0.8' - 2.0' - Red-Brown, Silty CLAY, Moist	
1	S-1	1.0-1.5	0.3		
2	S-2	2.0-2.5	0.7	2.0' - 10.0' - Red-Brown to Brown, Sandy SILT, Some Rock Fragments, Moist to Very Moist	
3	S-3	3.0-3.5	0.4		
4					
5	S-5	5.0-5.5	0.2		Core 2 Rec 4.6'/5.0'
6	S-6	6.0-6.5	0.2		
7	S-7	7.0-7.5	0.4		
8	S-8	8.0-8.5	0.2		
9	S-9	9.0-9.5	0.1		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B173-7

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: Near B173-5, near proposed drop inlet by highway
TYPE OF BORING: Direct Push | DATE STARTED: 5/13/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/13/20 | TOTAL DEPTH: 10.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.4' - Asphalt	Core 1 Rec 3.4'/5.0'
				0.4' - 0.9' - ABC Stone	
				0.9' - 5.0' - Red-Brown, Silty CLAY, Moist	
1	S-1	1.0-1.5	0.5		
2	S-2	2.0-2.5	0.4		
3	S-3	3.0-3.5	0.1		
4					
5	S-5	5.0-5.5	1.8	5.0' - 10.0' - Red-Brown to Gray-Brown, Clayey SILT and Silty SAND, Mottled, Moist	Core 2 Rec 4.9'/5.0'
6	S-6	6.0-6.5	0.6		
7	S-7	7.0-7.5	0.4		
8	S-8	8.0-8.5	2.6		
9	S-9	9.0-9.5	2.1		
10					
11					
12					
13					
14					
15					

FIELD BORING LOG

BORING NO. B173-8

PROJECT NAME: NCDOT R-2577A Phase II | PROJ. NO.: GR22.325
LOCATION: Opposite N corner of canopy next to highway
TYPE OF BORING: Direct Push | DATE STARTED: 5/13/20 | SHEET: 1 of 1
DRILLING FIRM: SAEDACCO | DATE FINISHED: 5/13/20 | TOTAL DEPTH: 10.0 ft
DRILLER: Brian Ewing | SAMPLE METHOD: 5' Macrocore | DEPTH TO GW: N/A ft
DRILL RIG: GeoProbe 722DT | LOGGED BY: R. Pastrana | COMMENT:

DEPTH (ft)	SAMPLE NO.	SAMPLE DEPTH (ft)	PID READING (ppm)	FIELD CLASSIFICATION AND PHYSICAL DESCRIPTION	REMARKS
				0.0' - 0.3' - Asphalt	Core 1 Rec 4.2'/5.0'
				0.3' - 10.0' - Red-Brown, Sandy SILT, Moist	
1	S-1	1.0-1.5	0.9		
2	S-2	2.0-2.5	1.5		
3	S-3	3.0-3.5	0.7		
4	S-4	4.0-4.5	0.8	4.0' - grading to Micaceous	
5	S-5	5.0-5.5	0.6		Core 2 Rec 4.7'/5.0'
6	S-6	6.0-6.5	0.4	6.0' - grading to Red-Brown, Black and White, Mottled	
7	S-7	7.0-7.5	0.6		
8	S-8	8.0-8.5	0.3		
9	S-9	9.0-9.5	0.6		
10					
11					
12					
13					
14					
15					

APPENDIX B

RED LAB LABORATORY TESTING REPORT

QED REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS AQROS

Hydrocarbon Analysis Results

Client: ESP
Address: 7011 Albert Pick Rd
Ste E
Greensboro, NC 27409

Contact: Ned Billington

Project: GR22.325

Samples taken 5/13 - 5/14/2020
Samples extracted 5/13 - 5/14/2020
Samples analysed Monday, May 18, 2020

Operator Harry Wooten

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	B173-1 , S1	17.3	<0.43	<0.43	53.4	53.4	25.7	1.3	<0.017	0	92.6	7.4	V.Deg.PHC 92.5%,(FCM),(BO)
s	B173-3 , S6	19.3	<0.48	<0.48	<0.48	<0.48	<0.1	<0.15	<0.019	0	80	20	PHC not detected
s	B173-4 , S5	16.4	<0.41	<0.41	<0.41	<0.41	<0.08	<0.13	<0.016	0	100	0	PHC not detected
s	B173-4 , S9	35.3	<0.88	79.5	284.1	363.6	15	0.59	<0.035	98.9	1.1	0	Undeg.Kerosene 91.1%,(FCM)
s	B173-6 , S2	17.1	<0.43	<0.43	2.1	2.1	1.1	<0.14	<0.017	0	85.9	14.1	V.Deg.PHC 89.2%,(FCM)
s	B173-7 , S8	18.2	<0.45	<0.45	<0.45	<0.45	<0.09	<0.15	<0.018	0	100	0	PHC not detected
s	B173-8 , S4	17.9	<0.45	<0.45	<0.45	<0.45	<0.09	<0.14	<0.018	0	0	0	PHC not detected
s	B173-8 , S9	17.7	<0.44	<0.44	<0.44	<0.44	<0.09	<0.14	<0.018	0	0	0	PHC not detected,(BO)

Initial Calibrator QC check OK Final FCM QC Check OK 99.7 %

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

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

APPENDIX C
CHAIN-OF-CUSTODY FORM

Client Name:	ESP
Address:	Greensboro
Contact:	Ned Billingsley
Project Ref.:	GR22.325
Email:	on file
Phone #:	on file
Collected by:	R. Pastrana

REDLAB™
RAPID ENVIRONMENTAL DIAGNOSTICS

CHAIN OF CUSTODY AND ANALYTICAL REQUEST FORM

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

Each UVF sample will be analyzed for total BTEX, GRO, DRO, TPH, PAH total aromatics and BaP. Standard GC Analyses are for BTEX and Chlorinated Solvents: VC, 1,1 DCE, 1,2 cis DCE, 1,2 trans DCE, TCE, and PCE. Specify target analytes in the space provided below.

Sample Collection	TAT Requested		Analysis Type		Initials	Sample ID (letter "S")		Total Wt.	Tare Wt.	Sample Wt.
Date/Time	24 Hour	48 Hour	UVF	GC						
5/13/20		✓	✓		EDB					
						B173-1, S1		57.1	44.4	12.7
						B173-2, S6		55.4	44.0	11.4
						B173-4, S5		58.2	44.8	13.4
						B173-4, S9		56.4	44.5	11.9
						B173-6, S2	*	57.6	44.7	12.9
						B173-7, S8		57.1	45.0	12.1
						B173-8, S4		56.5	44.2	12.3
						B173-8, S9		55.3	43.7	11.6

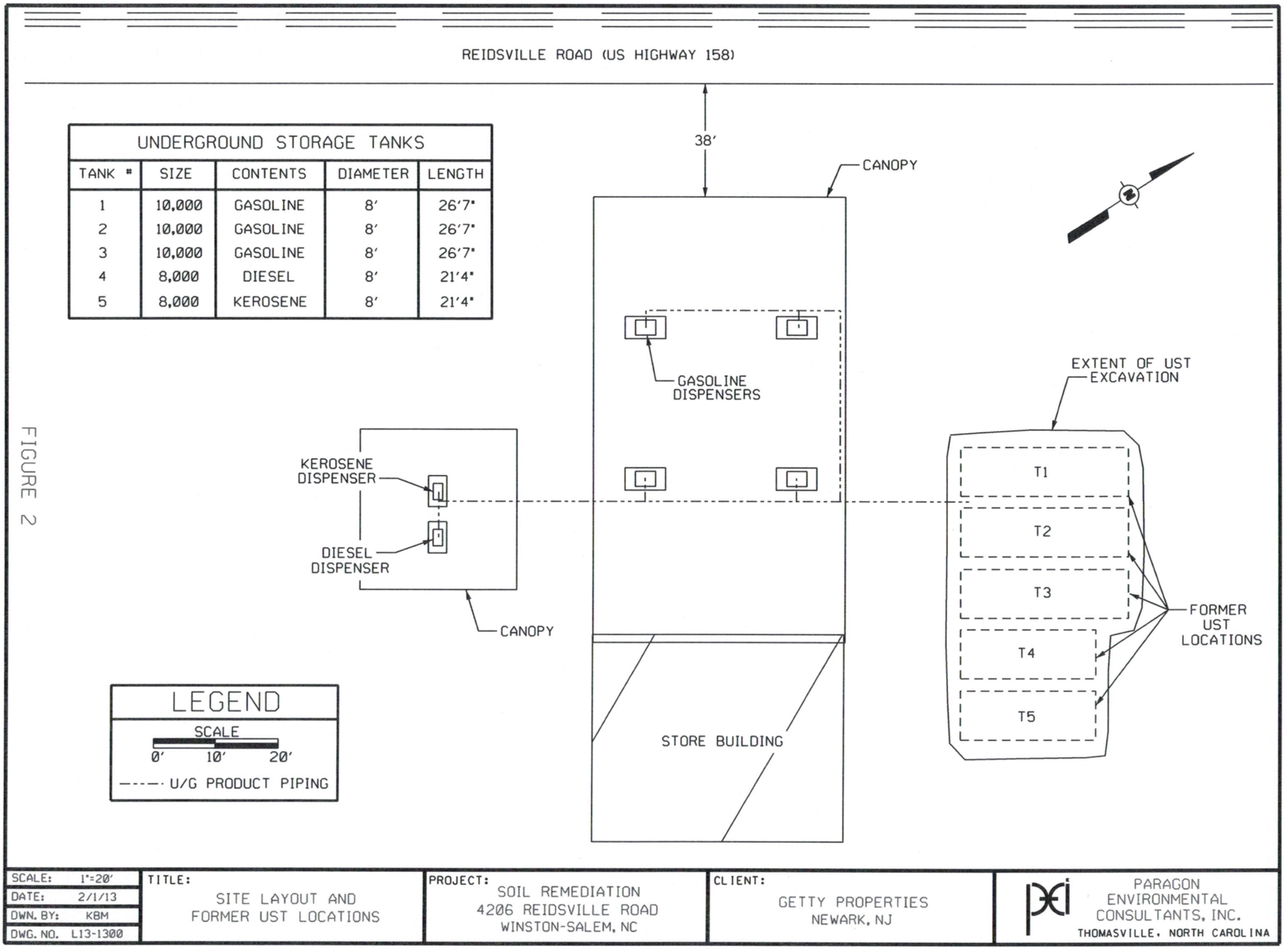
COMMENTS/REQUESTS:
* Report bracketed samples separately

TARGET GC/UVF ANALYTES:

Relinquished by		Accepted by	Date/Time
[signature]	5/15/20	[signature]	5/18/20 12:00
Relinquished by		Accepted by	Date/Time

RED Lab USE ONLY
20
Ref. No H01-02

APPENDIX D
2014 20-DAY AND INITIAL ABATEMENT ACTION REPORT
FIGURES 2 AND 3



UNDERGROUND STORAGE TANKS				
TANK #	SIZE	CONTENTS	DIAMETER	LENGTH
1	10,000	GASOLINE	8'	26'7"
2	10,000	GASOLINE	8'	26'7"
3	10,000	GASOLINE	8'	26'7"
4	8,000	DIESEL	8'	21'4"
5	8,000	KEROSENE	8'	21'4"

FIGURE 2

SCALE: 1"=20'	TITLE: SITE LAYOUT AND FORMER UST LOCATIONS	PROJECT: SOIL REMEDIATION 4206 REIDSVILLE ROAD WINSTON-SALEM, NC	CLIENT: GETTY PROPERTIES NEWARK, NJ	PARAGON ENVIRONMENTAL CONSULTANTS, INC. THOMASVILLE, NORTH CAROLINA
DATE: 2/1/13				
DWN. BY: KBM				
DWG. NO. L13-1300				

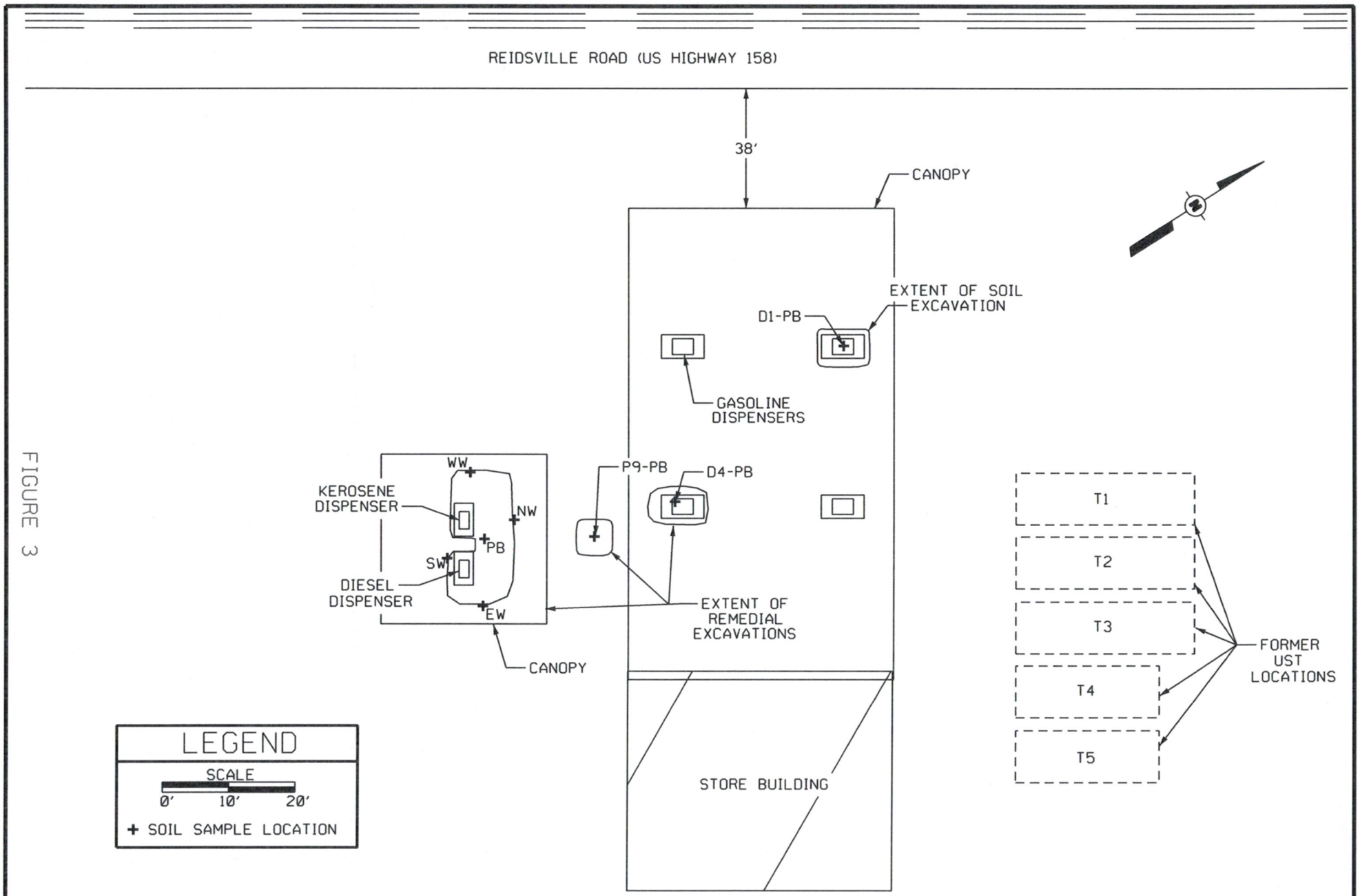


FIGURE 3

SCALE: 1"=20'	TITLE: REMEDIAL EXCAVATION AND SOIL SAMPLE LOCATIONS	PROJECT: SOIL REMEDIATION 4206 REIDSVILLE ROAD WINSTON-SALEM, NC	CLIENT: GETTY PROPERTIES NEWARK, NJ	PARAGON ENVIRONMENTAL CONSULTANTS, INC. THOMASVILLE, NORTH CAROLINA
DATE: 5/7/14				
DWN. BY: BWR				
DWG. NO. L14-1300B				