Revised Preliminary Site Assessment Report

Parcel 137
US 17 North of NC 171 to Multi-lanes South of Williamston
8224 and 8131 U.S. Highway 17 South
Martin County, North Carolina
WBS Number 35494.1.1
TIP Number R-2511
NCDOT Parcel No. 137
Martin County PIN 5773-10-5428

Prepared for

North Carolina Department of Transportation
Geotechnical Engineering Unit
GeoEnvironmental Section
Raleigh, North Carolina

Prepared by

Duncklee & Dunham, P.C.
Cary, North Carolina

June 14, 2019

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June 14, 2019

Mr. Dennis Li, L.G., PhD
North Carolina Department of Transportation
Geotechnical Engineering Unit
GeoEnvironmental Section
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

Reference: **Revised Preliminary Site Assessment Report**
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Dear Mr. Li:

Duncklee & Dunham, P.C. (Duncklee & Dunham) is pleased to submit this *Revised Preliminary Site Assessment Report* for the referenced site. The objective of our services was to assist the North Carolina Department of Transportation (NCDOT) – Geotechnical Engineering Unit with identifying potential environmental concerns within the rights-of-way and/or easements of the above-referenced parcel. This work is consistent with the NCDOT's Request for Technical and Cost Proposal dated March 5, 2019 and our *Revised Technical and Cost Proposal for Preliminary Site Assessment* dated May 14, 2019. Based on the findings from this work, Duncklee & Dunham recommends submitting this report to the Washington Regional Office of the North Carolina Department of Environmental Quality.

Please contact Rick Kolb at rkolb@dunckleedunham.com or (919) 858-9898, ext. 111 if you have any questions or require additional information.

Sincerely,

Duncklee & Dunham, P.C.

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Staff Geologist II

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Senior Geologist
North Carolina License No. 1153

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Andrew M. Rodak, P.E.
Senior Engineer/Director of Engineering
North Carolina No. 24576

Attachment: Revised Preliminary Site Assessment Report

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Revised Preliminary Site Assessment Report
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1 Introduction

Duncklee & Dunham, P.C. (Duncklee & Dunham) conducted a Preliminary Site Assessment (PSA) at the referenced site located on the western side of U.S. Highway 17 (US 17) south of Williamston in Martin County, North Carolina (Figures 1 and 2). The North Carolina Department of Transportation (NCDOT) plans to widen the two-lane portion of US 17 between Washington and Williamston, North Carolina. Our work is consistent with the NCDOT's *Request for Technical and Cost Proposal* dated March 5, 2019 and our *Revised Technical and Cost Proposal* dated May 14, 2019. The objective of this work was to assist the NCDOT – Geotechnical Engineering Unit with identifying potential environmental concerns within the rights-of-way and/or easements of the above-referenced site.

NCDOT*'s Request for Technical and Cost Proposal* shows Site 14 is located at 8162 US 17 South. However, William Peele, owner of the parcel, stated it is located at 8131 US 17 South. Our services included a geophysical survey to identify subsurface metallic features such as underground storage tank (UST) systems, and the advancement of 11 soil borings to test for the presence of petroleum contaminants in the areas where the new roadway will be constructed, along rights-of-way for NCDOT and at new utility easements.

2 History

The NCDOT prepared a Hazardous Materials Report dated November 14, 2011 that identified Site 13 as a former gasoline station, later converted to a church, and used for storage at that time. This report identified Site 14 as a barn with a UST and dispenser, which are now unused. NCDOT reviewed the incident list of the UST Section of the North Carolina Department of Environment and Natural Resources (NCDENR, now the North Carolina Department of Environmental Quality – NCDEQ) and did not identify the subject sites on the incident list.

3 Methods

Duncklee & Dunham called NC811 on March 26, 2019 and requested utilities to be marked in the areas of investigation. NC811 notified the Martin County Water Department, USIC Locating Services, CenturyLink, MCNC, Piedmont Natural Gas, Suddenlink Communications, Dominion North Carolina Power, and the City of Washington. The clearance was valid through April 16, 2019.

Duncklee & Dunham reviewed regulatory records on NCDEQ's Laserfiche website and did not find records for this parcel. During site reconnaissance, Duncklee & Dunham did not observe evidence of past or present hydraulic lifts or drains in the barn on Site 14. Duncklee & Dunham interviewed William Peele, owner of

the property, and he stated that the barn was last used for the drying and storage of tobacco approximately 50 years ago. Mr. Peele confirmed that the barn did not contain past or present hydraulic lifts or drains. He also stated that he expects an aboveground storage tank (AST) and the UST were installed on the property approximately 60 years ago, and they haven't been used in approximately 40 years. Mr. Peele said that the UST was used to store leaded gasoline, and the AST was used to store heating oil that was used to heat the barn to aid in the drying of tobacco. He was not aware of past or present tanks on Site 13.

3.1 Geophysics

ESP Associates (ESP), under contract to Duncklee & Dunham, conducted a geophysical survey at the site on April 3, 4, and 5, 2019. ESP used a Geonics EM61 MK2® metal detector equipment with a DGPS instrument to locate buried metal objects, and then used a Sensors and Software Noggin® GPR instrument with a 250 MHz antenna to image selected anomalies.

3.2 Soil Borings

Site 13

Troxler Geologic Services, Inc. (Troxler), under contract to Duncklee & Dunham, used a Geoprobe® equipped with direct-push technology to advance five soil borings, nos. B-27 through B-31, on April 9, 2019. The locations of these borings are shown on Figure 2. Troxler advanced B-27 and B-28 near the foundation blocks of the former fuel dispensers (Photograph No. 1, Appendix A), B-29 and B-30 south of the canopy within the former location of the UST pit (Photograph No. 2), and B-31 south of the building (Photograph No. 3). Troxler advanced B-27, -29, and -31 to a depth of 6 feet below land surface (bls) and the remaining borings to a depth of 4 feet bls. We encountered the water table at a depth of 2.25 to 2.5 feet bls. Duncklee & Dunham used a Trimble Geo 7x® handheld data collector to determine the location of each boring. Approximate Northings, Eastings, and elevations above sea level for these borings are in Table 1.

Troxler collected soil samples in new acetate sleeves, each 4 feet long. A majority of the soil samples were comprised of dark brown, silty, clayey sand and light brown with gray, sandy clay. Boring logs are provided in Appendix B. Duncklee & Dunham collected representative samples of native material at selected intervals in each soil boring and stored the samples in twin Ziploc® bags. After allowing one of the bags to sit untouched in the sun and the other in the shade for approximately 15 minutes, we used a photoionization detector (PID) to screen the headspace in each bag left in the sun for volatile organic compounds (VOCs). We recorded the soil-screening results in the field log. Table 2 summarizes the screening results. The soil samples collected above the water table were not stained and did not exhibit petroleum odors. The PID readings of these soil samples ranged from 0.0 to 0.2 parts per million (ppm), indicative of background concentrations. The samples collected from soil borings B-29 and B-30 exhibited a petroleum odor from approximately 3 to 6 feet bls. Duncklee & Dunham also observed petroleum-stained soil from 3 to 6 feet bls in B-29.

Site 14

Troxler used a Geoprobe® that utilized direct-push technology to advance six soil borings, nos. B-32 through B-37, on April 10, 2019. The locations of these borings are shown on Figure 2. Troxler advanced B-32 through B-35 near the UST and fuel dispenser (Photograph No. 4) and B-36 and B-37 along the

underground line originating from the AST (Photograph No. 5). We encountered the water table at a depth of 2 feet bls. Troxler advanced B-32 to a depth of 6 feet bls, B-33 and B-34 to a depth of 11 feet bls in order to extend the borings past a confining unit, B-35 and B-37 to a depth of 4 feet bls, and B-36 to a depth of 3 feet bls. Duncklee & Dunham used a Trimble Geo 7x® handheld data collector to determine the location of each boring. Approximate Northings, Eastings, and elevations above sea level for these borings are in Table 1.

Troxler collected soil samples in new acetate sleeves, each 4 feet long. A majority of the soil samples were comprised of dark brown, silty, clayey sand and light brown, sandy clay. Boring logs are provided in Appendix B. Duncklee & Dunham collected representative samples of native material at selected intervals in each soil boring and stored the samples in twin Ziploc® bags. After allowing one of the bags to sit untouched in the sun and the other in the shade for approximately 15 minutes, we used a PID to screen the headspace in each bag left in the sun for VOCs. We recorded the soil-screening results in the field log. Table 2 summarizes the screening results. The soil samples collected above the water table were not stained and did not exhibit petroleum odors. The PID readings of these soil samples ranged from 0.1 to 0.9 ppm, indicative of background concentrations. The PID readings from B-34 at 8 feet bls and B-36 at 3 feet bls were 490.9 ppm and 89.6 ppm, respectively. Samples from soil borings B-32 through B-34 exhibited petroleum odors beginning at approximately 5 to 6 feet bls, and B-36 exhibited a petroleum odor at approximately 3 feet bls.

3.3 Groundwater

Site 13

The sample collected below the water table from boring B-29 exhibited petroleum stains. Therefore, Troxler constructed temporary monitoring well TW-3 in boring B-29 to a depth of 8 feet bls using Screen Point 16 groundwater sampling rods. Troxler screened the well from 4 to 8 feet bls within the elevations where Duncklee & Dunham observed a petroleum odor. Duncklee & Dunham purged groundwater from the well using a peristaltic pump with a new length of low-density polyethylene tubing and silicon tubing for the pump head. Once the purge water appeared clear, Duncklee & Dunham sampled TW-3 with a peristaltic pump. We placed the groundwater sample in laboratory-supplied containers and placed the containers in a cooler with ice. Duncklee & Dunham discharged the purge water on to the ground around TW-3 once we had collected this groundwater sample.

Site 14

The samples from borings B-34 and B-36 collected below the water table evoked anomalous responses on the PID. Therefore, Troxler constructed temporary monitoring well TW-4 in boring B-34 to a depth of 8 feet bls, and TW-5 in boring B-36 to a depth of 4 feet bls. Troxler used Screen Point 16 groundwater sampling rods to advance the temporary monitoring wells. Troxler screened TW-4 from 4 to 8 feet bls and TW-5 from 0 to 4 feet bls. Duncklee & Dunham purged groundwater from the wells using a peristaltic pump with a new length of low-density polyethylene tubing and silicon tubing for the pump head. Once the purge water appeared clear, Duncklee & Dunham sampled the wells with a peristaltic pump. However, only one temporary monitoring well was required to be sampled per site at the request of NCDOT. Therefore, we collected a groundwater sample from only TW-4, using the procedures described above, and placed the sample in the cooler with the sample from TW-3. Duncklee & Dunham discharged the purge water on the ground around TW-4 once we had collected the groundwater sample.

We brought the cooler back to our office and delivered it under chain of custody to a courier for Pace National Laboratory (Pace), who shipped it by overnight express mail to their laboratory in Mt. Juliet, Tennessee. The laboratory tested the groundwater samples for VOCs according to EPA Method 6200B, semivolatile organic compounds (SVOCs) according to EPA Method 625, and volatile petroleum hydrocarbons (VPH) according to the method of the Massachusetts Department of Environmental Protection (MADEP).

4 Results

4.1 Geophysics

ESP's *Geophysical Survey* report dated May 9, 2019 is in Appendix C. ESP identified the presence of one probable UST on Site 14. The UST had a capacity of approximately 575 gallons and was located approximately 2 feet bls. ESP used ground penetrating radar to confirm the location of this UST. ESP also identified an underground line, approximately 40 feet long, that extended from the 575-gallon AST south of the barn on Site 14 to the southwestern corner of the enclosed portion of the barn. ESP did not identify anomalies indicative of abandoned USTs or buried metal drums on Site 13.

4.2 Soil Borings

Table 2 summarizes the screening results. The PID readings of the soil samples collected from both sites ranged from 0.0 to 0.9 ppm above the water table, indicative of background concentrations. We did not submit soil samples to a laboratory for testing because the soil samples did not evoke an anomalous response on the PID.

4.3 Groundwater

Table 3 and Figure 3 summarize the laboratory results for the sample collected from TW-3 and TW-4. Pace detected 15 petroleum constituents in the groundwater sample collected from TW-3; the concentrations of three analytes exceeded the respective North Carolina groundwater quality standards promulgated in Title 15A, Subchapter 2L, Section .0202 of the North Carolina Administrative Code (15A NCAC 2L .0202; the "2L standards"). Pace detected 14 petroleum constituents in the groundwater collected from TW-4; the concentrations of 11 analytes exceeded the respective 2L Standards. The concentrations of the analytes detected in both wells did not exceed the respective Gross Contamination Levels.

5 Conclusions

5.1 Geophysics

ESP identified one probable UST on Site 14 and an underground line that extends from an AST to the barn. Each tank had a capacity of approximately 575 gallons. ESP did not identify anomalies indicative of abandoned USTs or buried metal drums on Site 13.

5.2 Soil Sampling

The soil samples above the water table did not evoke anomalous responses on the PID, and Duncklee & Dunham did not detect petroleum odors or observe stains in soil samples from the borings. We do not have evidence that soil on the site exhibits petroleum constituents at concentrations that exceed the action levels established by NCDEQ.

5.3 Groundwater Sampling

Pace detected three analytes at concentrations that exceeded the respective 2L Standards in the groundwater sample collected from TW-3, and 11 analytes at concentrations that exceeded the respective 2L Standards in the groundwater sample collected from TW-4. The analytes in the sample from TW-3 suggest the source of contamination is heating oil, which may have been stored in the past in a UST at the church site. The analytes in TW-4 suggest the source of contamination is a low boiling point fuel such as gasoline, as Mr. Peele had stated. The estimated extent of contamination is shown on Figure 3. The shapes of the plumes reflect what we estimate is the direction of groundwater flow.

6 Recommendations

Duncklee & Dunham recommends 1) closing by removal the UST system on Site 14 in accordance with NCDEQ guidance and 2) submitting this report to the Washington Regional Office of the NCDEQ.

Tables

Table 1
Coordinates of Soil Borings
Parcel 137
Martin County, North Carolina
TIP No. R-2511; WBS No. 35494.1.1

Boring Identification	Northing (feet)	Easting (feet)	Elevation (feet asl)
B-27	730263.265	2570922.239	56.278
B-28	730255.598	2570929.965	58.482
B-29	730243.626	2570913.641	59.868
B-30	730245.025	2570908.018	59.691
B-31	730231.855	2570900.470	55.982
B-32	730682.398	2570903.183	57.995
B-33	730677.586	2570906.826	57.025
B-34	730672.529	2570903.436	57.012
B-35	730669.528	2570906.490	56.487
B-36	730643.146	2570857.608	55.528
B-37	730664.683	2570865.936	55.924

Notes:

B-27 through B-31 were collected on Site 13

B-32 through B37 were collected on Site 14

Coordinate system NAD83 NC State Plane - Survey Feet

GPS data collected using a Trimble Geo 7x handheld data collector

GPS data are approximate

Table 2
Summary of Soil Screening Results
Parcel 137
Martin County, North Carolina
TIP Number R-2511; WBS No. 35494.1.1

Soil Screening Results		
Boring Identification	**Depth (feet bls)**	**PID Reading (ppm)**
B-27	1	0.1
	2	0.1
B-28	0.5	0.0
	1.5	0.2
B-29	1	0.2
	2	0.1
	3.5	40.8
B-30	1	0.1
	1.5	0.2
	4	0.3
B-31	0.5	0.2
	1.5	0.2
B-32	1.5	0.9
	6	0.1
B-33	1	0.1
	6	1.1
	10	5.0
B-34	1	0.1
	6	25.3
	8	490.9
	10	14.9
B-35	1	0.6
B-36	1	0.8
	3	89.6
B-37	1.5	0.4

Notes:
Data for B-27 through B-31 were collected on Site 13 on April 9, 2019
Data for B-32 through B37 were collected on Site 14 on April 10, 2019
bls - Feet below land surface
ppm - Parts per million
PID - Photoionization detector
Results shaded in blue were collected from below the water table

Table 3
Summary of Groundwater Test Results
Parcel 137
Martin County, North Carolina
TIP No. R-2511; WBS No. 35494.1.1

Sample Identification →			TW-3 (Site 13)		TW-4 (Site 14)	
Sample Date→			4/9/2019		4/10/2019	
Analyte	**2L Standard**	**GCL**	**Value**	**Q**	**Value**	**Q**
Volatile Organic Compounds by EPA Method 6200B						
Benzene	1	5,000	<1.00		187	J
n-Butylbenzene	70	6,900	**11.2**		<200	
sec-Butylbenzene	70	8,500	**21.1**		<200	
tert-Butylbenzene	70	15,000	**2.82**		<200	
Ethylbenzene	600	84,500	**9.51**		**827**	
Isopropylbenzene	70	25,000	**26.7**		<200	
p-Isopropyltoluene	NE	NE	**6.51**		<200	
Naphthalene	6	6,000	**172**		**1,120**	
n-Propylbenzene	70	30,000	**41.4**		185	J
Toluene	600	260,000	<1.00		**2,950**	
1,2,4-Trimethylbenzene	400	28,500	**10.5**		**1,330**	
1,3,5-Trimethylbenzene	400	25,000	**17.4**		**348**	
Xylenes-total	500	85,500	<1.00		**3,960**	
Semivolatile Organic Compounds by EPA Method 625.1						
Fluorene	300	990	**1.67**		0.370	J
Naphthalene	6	6,000	**79.8**		**150**	
Phenanthrene	200	410	<1.00		0.439	J
Volatile Petroleum Hydrocarbons by MADEP Method						
C5-C8 Aliphatics	400	NE	62.6	J	**14,200**	
C9-C12 Aliphatics	700	NE	**350**		**15,700**	
C9-C10 Aromatics	200	NE	**630**		**11,700**	

Notes:

Units are µg/L

2L Standard - North Carolina Groundwater Quality Standard (15A NCAC 2L .0202)

GCL - North Carolina Gross Contamination Levels for groundwater

Result in bold exceeds the reported detection limit

Result with shaded cell exceeds the 2L Standard

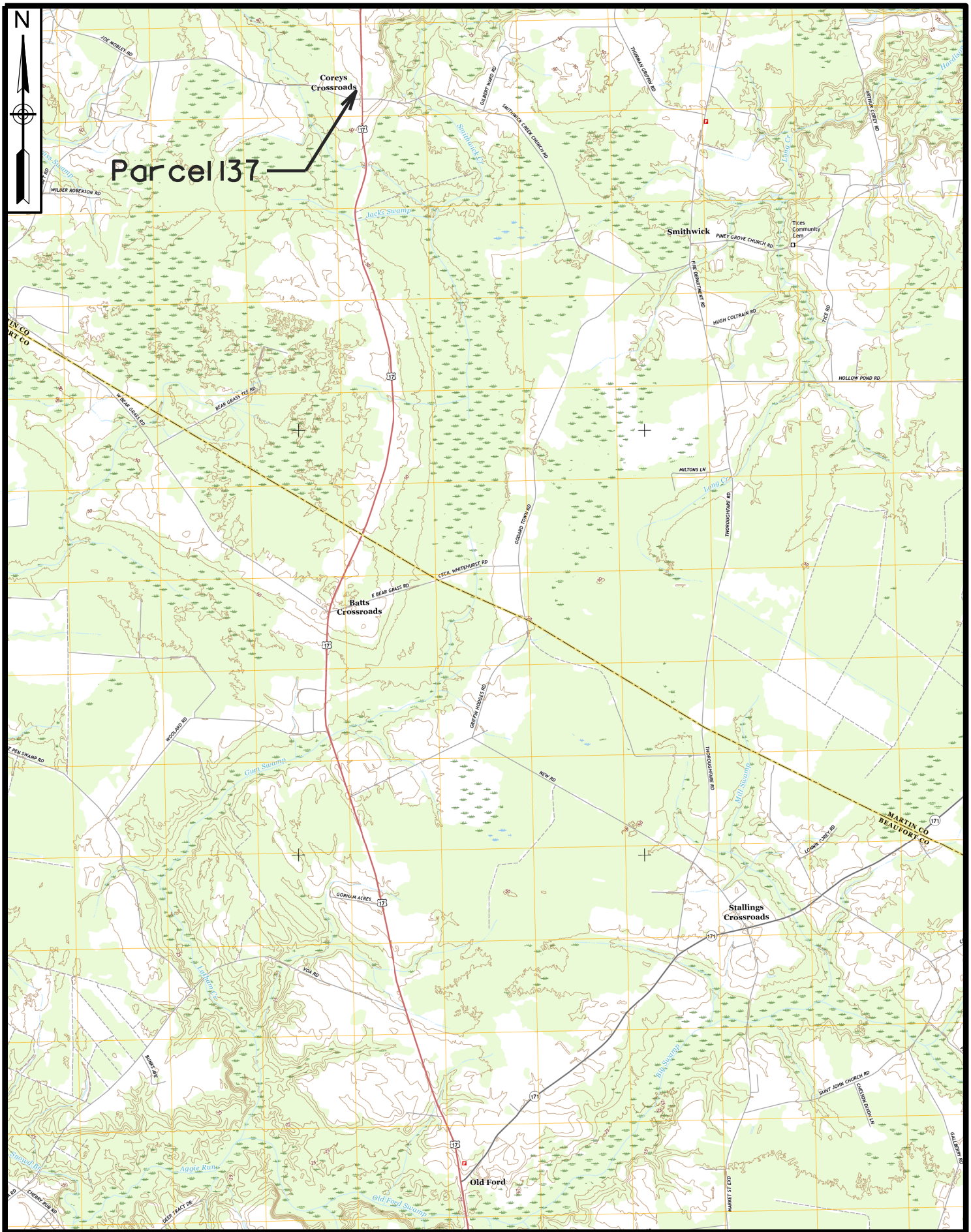
MADEP - Massachusetts Department of Environmental Protection

NE - Not Established

Q - Qualifier

J - Estimated concentration above the method detection limit and below the reported detection limit

Figures



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Site Topographic Map

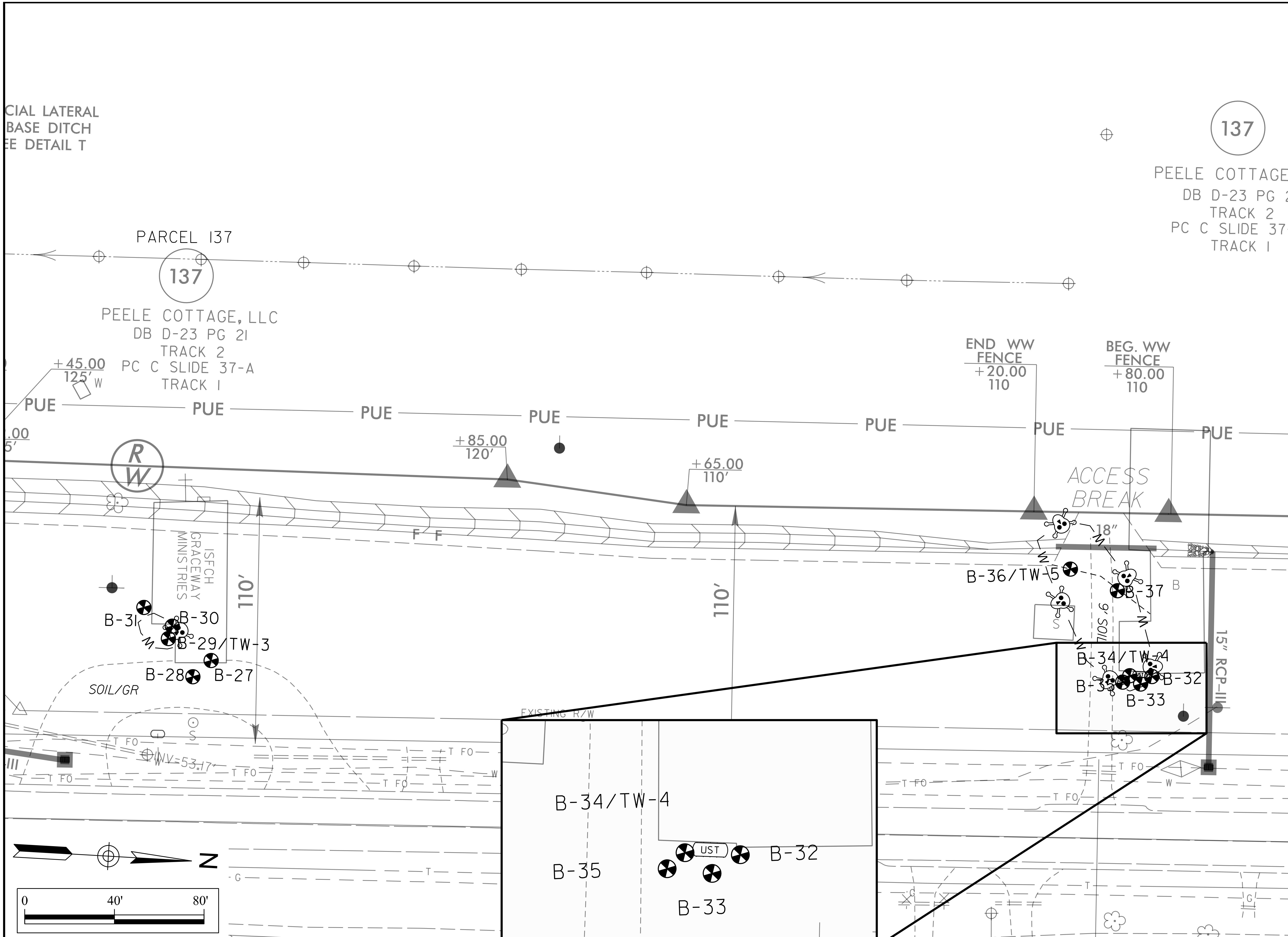
NCDOT Parcel 137
Martin County, North Carolina

Drawn By:	Checked By:	Project Number:	Date:	References:
SBM	EDB	R-2511	4/30/2019	USGS US TOPO 7.5 Minute Old Fort Quadrangle

Scale: (Original)	Size:	Layers:	Filename:
1" = 24,000'	8.5" x 11"	N/A	R:\Projects\E9 (H)\HO40.300 (Duncklee and Dunham R-2511 NCDOT Geophysics)\CADD\R2511_Geo_TopoMap_137

Figure

1



Site Map

NCDOT Parcel 137
8224/8131 US 17 S Williamston, Martin County, NC 27892

Drawn By:	Checked By:	Project Number:	Date:	References:
SBM	EDB	R-2511	5/6/19	R2511_NCDOT_FS.dgn r2511_rdy_dsn.dgn
Scale: 1" = 40'	**Size:** 11" x 17"	**Layers:** N/A	**Filename:** R:\ProjectsE9 (H)\HO40.300 (Duncklee and Dunham R-2511 NCDOT Geophysics)\CADD\R2511_Geo_SiteMap_137	

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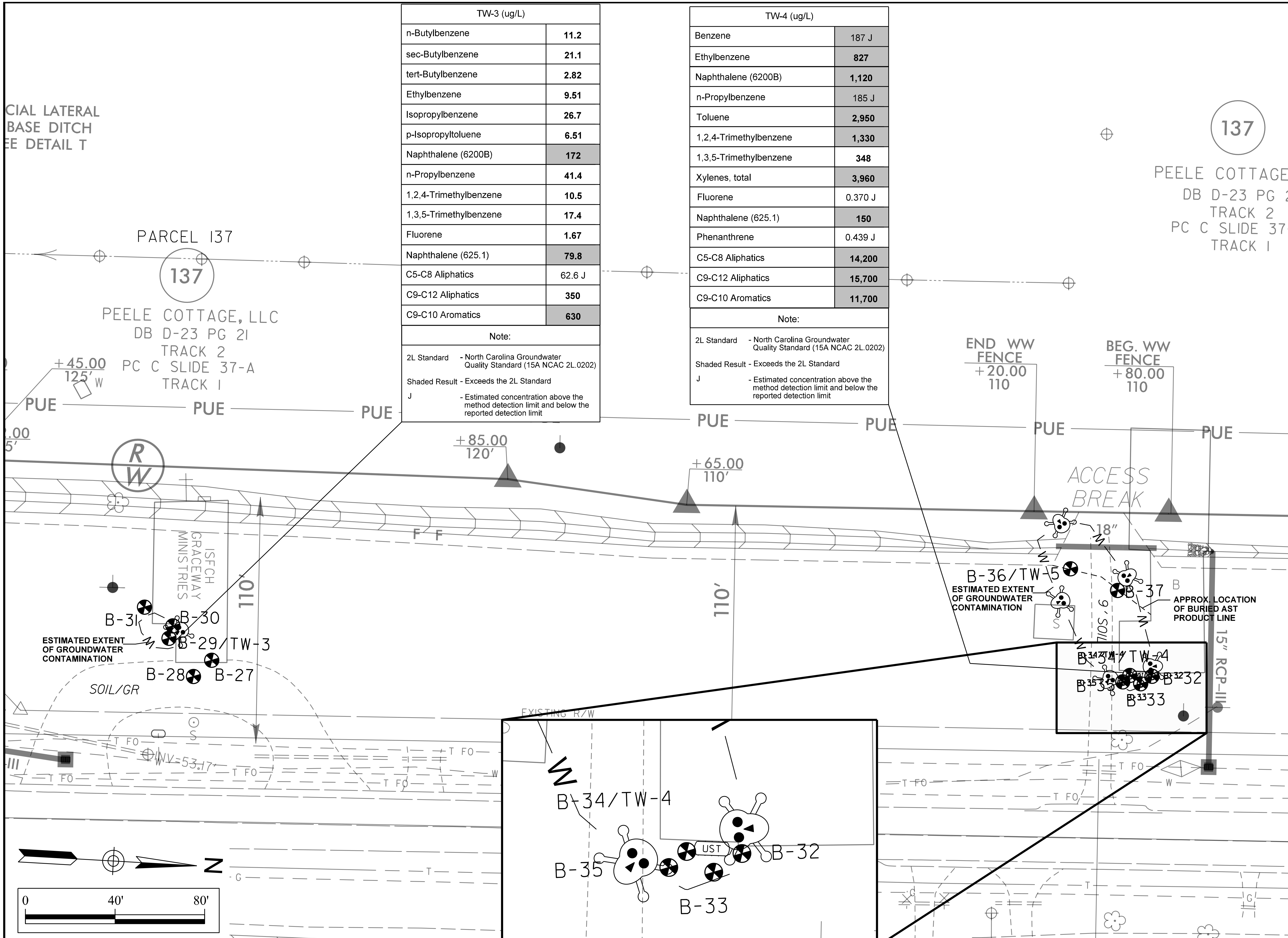
Figure

2



TW-3 (ug/L)	
n-Butylbenzene	11.2
sec-Butylbenzene	21.1
tert-Butylbenzene	2.82
Ethylbenzene	9.51
Isopropylbenzene	26.7
p-Isopropyltoluene	6.51
Naphthalene (6200B)	172
n-Propylbenzene	41.4
1,2,4-Trimethylbenzene	10.5
1,3,5-Trimethylbenzene	17.4
Fluorene	1.67
Naphthalene (625.1)	79.8
C5-C8 Aliphatics	62.6 J
C9-C12 Aliphatics	350
C9-C10 Aromatics	630

Note:

2L Standard - North Carolina Groundwater Quality Standard (15A NCAC 2L.0202)

Shaded Result - Exceeds the 2L Standard

J - Estimated concentration above the method detection limit and below the reported detection limit

TW-4 (ug/L)	
Benzene	187 J
Ethylbenzene	827
Naphthalene (6200B)	1,120
n-Propylbenzene	185 J
Toluene	2,950
1,2,4-Trimethylbenzene	1,330
1,3,5-Trimethylbenzene	348
Xylenes, total	3,960
Fluorene	0.370 J
Naphthalene (625.1)	150
Phenanthrene	0.439 J
C5-C8 Aliphatics	14,200
C9-C12 Aliphatics	15,700
C9-C10 Aromatics	11,700

Note:

2L Standard - North Carolina Groundwater Quality Standard (15A NCAC 2L.0202)

Shaded Result - Exceeds the 2L Standard

J - Estimated concentration above the method detection limit and below the reported detection limit

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Site Map with Results

NCDOT Parcel 137

8224/8131 US 17 S Williamston, Martin County, NC 27892

Drawn By:	Checked By:	Project Number:	Date:	References:
SBM	EDB	R-2511	5/6/19	R2511_NCDOT_FS.dgn r2511_rdy_dsn.dgn

Scale:	Size:	Layers:	Filename:
1" = 40'	11" x 17"	N/A	R:\ProjectsÉ9 (H)\HO40.300 (Duncklee and Dunham R-2511 NCDOT Geophysics)\CADD\R2511_Geo_SiteMapResults_137

Figure

3

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 — 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
New Right of Way Line with Pin and Cap
New Right of Way Line with Concrete or Granite R/W Marker
New Control of Access Line with Concrete C/A Marker
Existing Control of Access
New Control of Access
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.*) — PUTL
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.

DUNCKLEE & DUNHAM
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www.dunckleedunham.com
NC Geo. License No. C-261

Legend for Plan Sheet Figures
NCDOT Parcel 137
Martin County, North Carolina

References: NCDOT PLAN SHEET SYMBOLOGY, Microstation Cell, 12/2/2016

Date: 5/3/2019

Filename: R:\Projects\F0 (H)\H340.300 (Duncklee and Dunham R-2511 NCDOT Geophysics)\CADD\R2511_Geo_Legend_137

Project Number: R-2511

Layers: N/A

Checked By: EDB

Size: 11" x 17"

Drawn By: SBM

Scale: N/A

Figure

4

Appendix A

PHOTOGRAPHIC LOG

DUNCKLEE & DUNHAM
ENVIRONMENTAL GEOLOGISTS & ENGINEERS

Client Name:	Site Location:	Project No.
NCDOT-GeoEnvironmental	Parcel 137; Martin County, North Carolina	201939

Photo No.	Date:
1	4/9/2019

Direction of Photo:

Southwest

Description:

Site 13:
Soil borings B-27 and B-28 advanced near the former foundation blocks of the fuel dispensers.

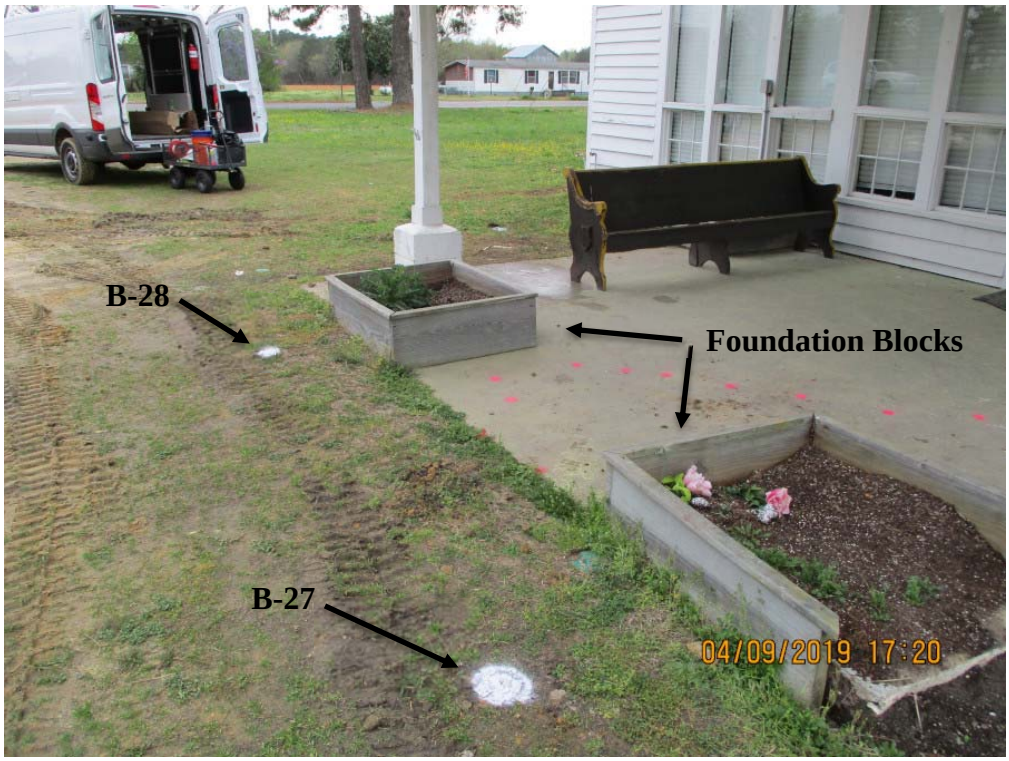


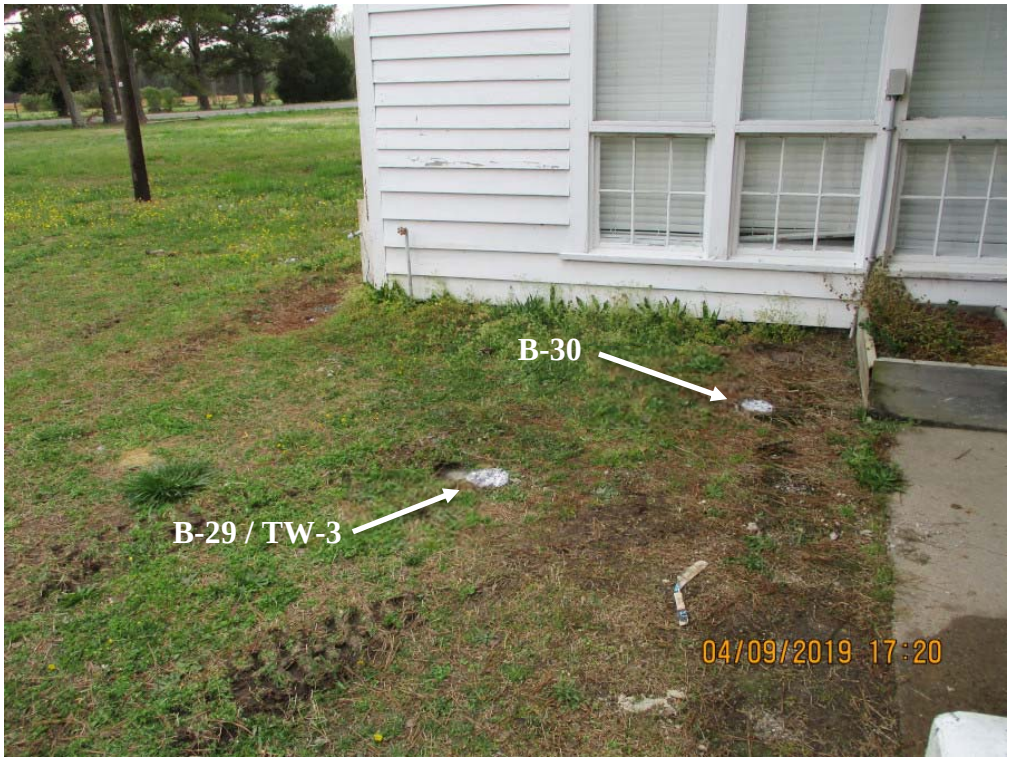
Photo No.	Date:
2	4/9/2019

Direction of Photo:

West

Description:

Site 13:
Soil borings B-29 and B-30 advanced in the former location of the UST pit.



PHOTOGRAPHIC LOG

DUNCKLEE & DUNHAM
ENVIRONMENTAL GEOLOGISTS & ENGINEERS

Client Name:	Site Location:	Project No.
NCDOT-GeoEnvironmental	Parcel 137; Martin County, North Carolina	201939

Photo No.	Date:
3	4/9/2019

Direction of Photo:

Northeast

Description:

Site 13:
Soil boring B-31 advanced south of the building on the parcel.

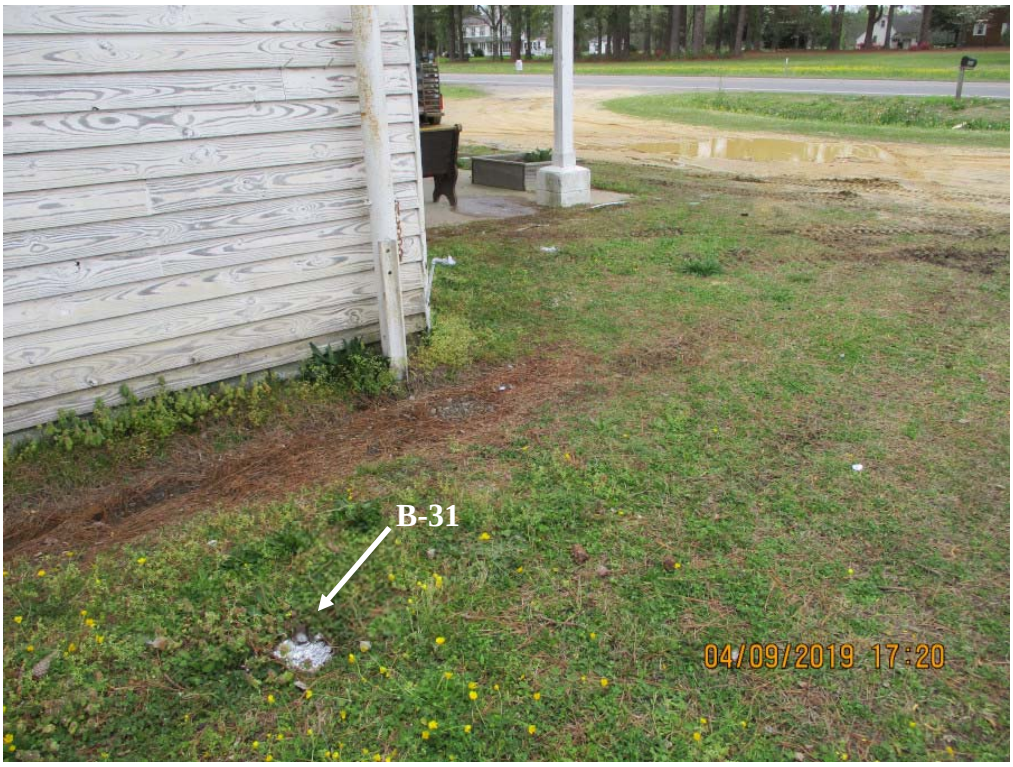


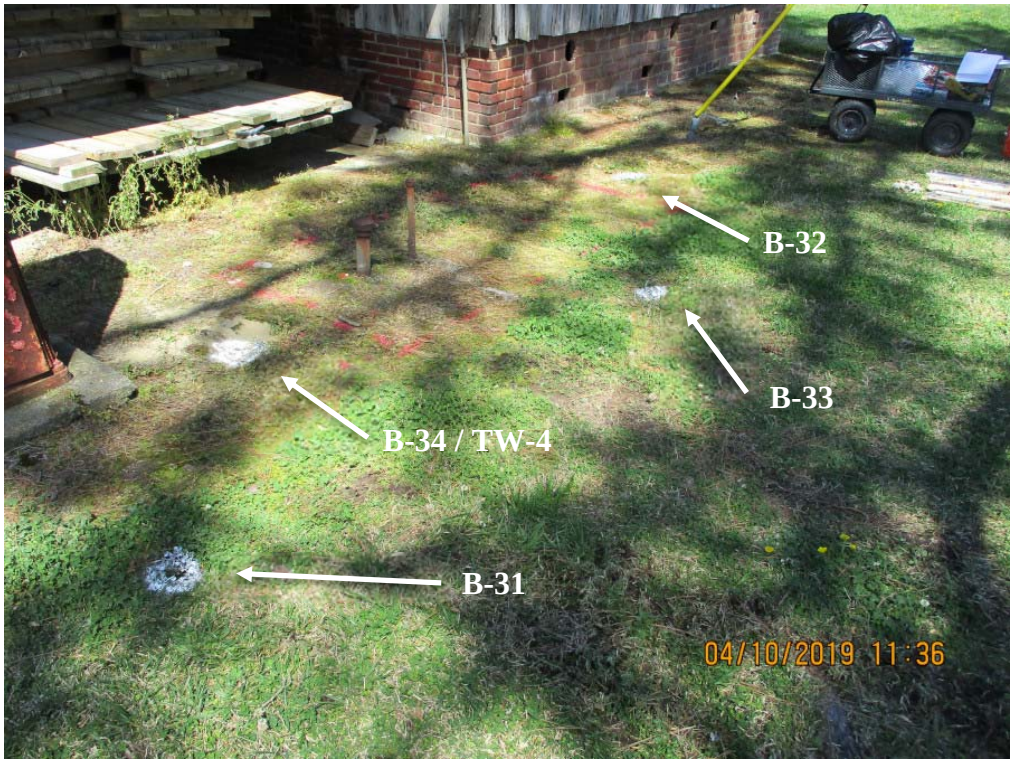
Photo No.	Date:
4	4/10/2019

Direction of Photo:

Northwest

Description:

Site 14:
Soil borings B-32 through B-35 advanced near the UST and the fuel dispenser.



PHOTOGRAPHIC LOG

DUNCKLEE & DUNHAM
ENVIRONMENTAL GEOLOGISTS & ENGINEERS

Client Name:	Site Location:	Project No.
NCDOT-GeoEnvironmental	Parcel 137; Martin County, North Carolina	201939

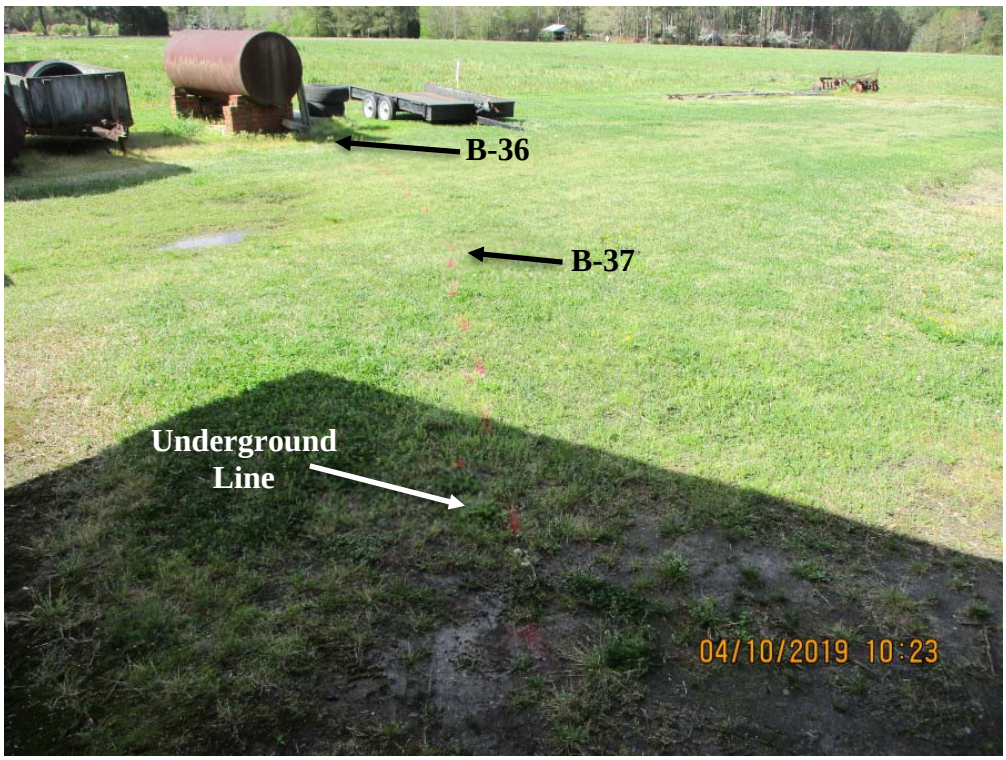
Photo No.	Date:
5	4/10/2019

Direction of Photo:

Southwest

Description:

Site 14:
The underground line that extends from the AST to the barn.



Appendix B

Boring/Well Construction Log

DUNCKLEE & DUNHAM

I. D. Number	B-27	**Purpose**	Soil boring
Project Name	Beaufort & Martin Co. - Site 13	**Contractor**	Troxler Geologic
Project No.	201939	**Registration No.**	2511
Geologist	Alec Dziwanowski	**Driller**	Ben Troxler
Start Date	4/9/19 **Complete Date** 4/9/19	**Equipment**	Geoprobe

Drilling Method Direct-push

Comments WT at 2.5' bls
Petroleum odors/stains not ~~detected~~ observed

Well Construction Information	Depth From - To (ft.)	Lithology	FID / PID (ppm) @ Depth (ft.)	Petroleum odor?
Borehole Diameter	0-1	light brown, Silty SAND w/ organics	NA	no
Riser Type	1-2	dark brown, Silty, Clayey SAND	0.1 @ 1'	no
Diameter	2-4	light brown w/ gray ~~clayey SAND~~	0.1 @ 2'	no
Screen Type	4-6	red-orange plastic CLAY w/ sand	NA	no
Diameter		↓ Sandy CLAY		
Riser Interval				
Screen Interval				
Slot Size				
Grout Type				
Interval				
Bentonite Type				
Interval				
Filter Pack				
Interval				
Total Depth				
R.P. Elevation				
Datum				

Water Level Information

Date	W.L. Below R.P.

R.P. = Reference Point *W.L. = Water Level* *TBM = Temporary Benchmark* *MSL = Mean Sea Level*

Boring/Well Construction Log

DUNCKLEE & DUNHAM

I. D. Number	B-28	**Purpose**	Soil boring
Project Name	Beaufort & Martin Co. - Site 13	**Contractor**	Troxler Geologic
Project No.	201939	**Registration No.**	2511
Geologist	Alec Dziwanowski	**Driller**	Ben Troxler
Start Date	4/9/19 **Complete Date** 4/9/19	**Equipment**	Geoprobe

Drilling Method Direct-push

Comments WT at 2.25' bls
Petroleum odors / stains not observed

Well Construction Information	Depth From - To (ft.)	Lithology	FID / PID (ppm) @ Depth (ft.)
Borehole Diameter	0-1	light brown, silty SAND w/ organics	0.0 @ 0.5'
Riser Type	1-2	dark brown, silty, clayey SAND	0.2 @ 1.5'
Diameter	2-4	light brown w/ gray, ~~clayey SAND~~ AS Sandy CLAY	NA
Screen Type			
Diameter			
Riser Interval			
Screen Interval			
Slot Size			
Grout Type			
Interval			
Bentonite Type			
Interval			
Filter Pack			
Interval			
Total Depth			
R.P. Elevation			
Datum			

Petroleum odor?
no
no
no

Water Level Information

Date	W.L. Below R.P.

R.P. = Reference Point *W.L. = Water Level* *TBM = Temporary Benchmark* *MSL = Mean Sea Level*

Boring/Well Construction Log

DUNCKLEE & DUNHAM

I. D. Number	B-29 / TW-3	**Purpose**	Soil boring / GW sampling
Project Name	Beaufort & Martin Co. - Site 13	**Contractor**	Troxler Geologic
Project No.	20P139	**Registration No.**	2511
Geologist	Alec Dziwanowski	**Driller**	Ben Troxler
Start Date	4/9/19 **Complete Date** 4/9/19	**Equipment**	Geoprobe

Drilling Method Direct-push, well type - GW sampling rods (screen point to WT at 2.5'

Comments
Petroleum odors and stains observed from 3'-6' bls
Collected GW sample at 1655 at 8' (screened from 4-8', but not enough water)
- GW smelled of petroleum and had a sheen
collected Soil Sample at 2' at 1705

Well Construction Information		Depth From - To (ft.)	Lithology	FID / PID (ppm) @ Depth (ft.)	Petroleum odor?
Borehole Diameter	2.75"	0-1	light brown, silty SAND w/ organics	NA	no
Riser Type	Sampling rod	1-2 sampled	dark brown, silty, clayey SAND	0.2 @ 1'	no
Diameter	1.25"	2-4	light brown w/ gray, Sandy CLAY	0.1 @ 2'	yes
Screen Type	Sampling rod	4-6	light gray, Sandy CLAY w/ stains petroleum	4p.8@ 3.5'	yes
Diameter	1.25"				
Riser Interval	0-4', NA*				
Screen Interval	4-8 bls		*purged water until clear		
Slot Size	0.005				
Grout Type	↑				
Interval					
Bentonite Type	NA				
Interval					
Filter Pack	↓				
Interval					
Total Depth	8' bls				
R.P. Elevation	0' bls				
Datum	Land surface				

Water Level Information

Date	W.L. Below R.P.
4/9/19	2.15

R.P. = Reference Point *W.L. = Water Level* *TBM = Temporary Benchmark* *MSL = Mean Sea Level*

Boring/Well Construction Log

DUNCKLEE & DUNHAM

I. D. Number	B-30	**Purpose**	Soil boring
Project Name	Beaufort & Martin Co. - Site 13	**Contractor**	Troxler Geologic
Project No.	201939	**Registration No.**	2511
Geologist	Alec Dziwanowski	**Driller**	Ben Troxler
Start Date	4/9/19 **Complete Date** 4/9/19	**Equipment**	Geoprobe

Drilling Method Direct-push

Comments WT at 2.25'

Slight Petroleum odor observed from 3.5'-6' bls, no staining

Well Construction Information	Depth From - To (ft.)	Lithology	FID / PID (ppm) @ Depth (ft.)	Petroleum odor?
Borehole Diameter	0-1	light brown, silty SAND w/ organics	0.1 @ 1'	no
Riser Type	1-2	dark brown, silty clayey SAND	0.2 @ 1.5'	no
Diameter	2-4	light brown w/ gray, Sandy CLAY	NA	yes
Screen Type	4-6	light gray, Sandy CLAY	0.3 @ 4'	yes
Diameter				
Riser Interval				
Screen Interval				
Slot Size				
Grout Type				
Interval				
Bentonite Type				
Interval				
Filter Pack				
Interval				
Total Depth				
R.P. Elevation				
Datum				

Water Level Information

Date	W.L. Below R.P.

R.P. = Reference Point *W.L. = Water Level* *TBM = Temporary Benchmark* *MSL = Mean Sea Level*

Boring/Well Construction Log

DUNCKLEE & DUNHAM

I. D. Number	B-31	**Purpose**	Soil boring
Project Name	Beaufort & Martin Co. - Site 13	**Contractor**	Troxler Geologic
Project No.	201939	**Registration No.**	2511
Geologist	Alex Dziwanowski	**Driller**	Ben Troxler
Start Date	4/9/19 **Complete Date** 4/9/19	**Equipment**	Geoprobe

Drilling Method Direct-push

Comments WT at 2.25'
Petroleum odors/stains not observed

Well Construction Information	Depth From - To (ft.)	Lithology	FID / PID (ppm) @ Depth (ft.)
Borehole Diameter	0-1	light brown, silty SAND w/ organics	0.2 @ 0.5'
Riser Type	1-2	dark brown, silty, clayey SAND	0.2 @ 1.5'
Diameter	2-4	light brown w/ gray sandy CLAY	NA
Screen Type			
Diameter			
Riser Interval			
Screen Interval			
Slot Size			
Grout Type			
Interval			
Bentonite Type			
Interval			
Filter Pack			
Interval			
Total Depth			
R.P. Elevation			
Datum			

Petroleum odor?
no
no
no

Water Level Information

Date	W.L. Below R.P.

R.P. = Reference Point *W.L. = Water Level* *TBM = Temporary Benchmark* *MSL = Mean Sea Level*

Boring/Well Construction Log

DUNCKLEE & DUNHAM

I. D. Number	B-32	**Purpose**	Soil boring
Project Name	Beaufort & Martin Co. - Site 14	**Contractor**	Troxler Geologic
Project No.	201939	**Registration No.**	2511
Geologist	Alec Dziwanowski	**Driller**	Ben Troxler
Start Date	3/10/19 **Complete Date** 3/10/19	**Equipment**	Geoprobe

Drilling Method direct-push

Comments WT at 2'
Petroleum odor from 6' bls - minor, sweet odor
collected soil sample at 1205 at 1.5'

Well Construction Information	Depth From - To (ft.)	Lithology	FID / PID (ppm) @ Depth (ft.)
Borehole Diameter	0-2	dark brown, silty, clayey SAND	0.9 @ 1.5'
Riser Type	2-4	light brown, Sandy CLAY	NA
Diameter	4-6	light gray w/ orange, Sandy CLAY	0.1 @ 6'
Screen Type			
Diameter			
Riser Interval			
Screen Interval			
Slot Size			
Grout Type			
Interval			
Bentonite Type			
Interval			
Filter Pack			
Interval			
Total Depth			
R.P. Elevation			
Datum			

Petroleum odor?

sweet odor

Water Level Information

Date	W.L. Below R.P.

R.P. = Reference Point *W.L. = Water Level* *TBM = Temporary Benchmark* *MSL = Mean Sea Level*

Boring/Well Construction Log

DUNCKLEE & DUNHAM

I. D. Number	B-33	**Purpose**	Soil boring
Project Name	Beaufort & Martin Co. - Site 14	**Contractor**	Troxler Geologic
Project No.	201939	**Registration No.**	2511
Geologist	Alec Dziwanowski	**Driller**	Ben Troxler
Start Date	4/10/19 **Complete Date** 4/10/19	**Equipment**	Geoprobe

Drilling Method direct-push

Comments WT @ 2'
Petroleum odor from 6' - 10' bls - stronger odor at deeper depths

Well Construction Information	Depth From - To (ft.)	Lithology	FID / PID (ppm) @ Depth (ft.)	Petroleum odor?
Borehole Diameter	0-2	dark brown, silty, clayey SAND	0.1 @ 1'	no
Riser Type	2-4	light brown, sandy CLAY	NA	no
Diameter	4-7	light gray w/ orange, sandy CLAY	1.1 @ 6'	yes
Screen Type	7-11	light gray, sandy CLAY	5.0 @ 10'	yes
Diameter				
Riser Interval				
Screen Interval				
Slot Size				
Grout Type				
Interval				
Bentonite Type				
Interval				
Filter Pack				
Interval				
Total Depth				
R.P. Elevation				
Datum				

Water Level Information

Date	W.L. Below R.P.

R.P. = Reference Point *W.L. = Water Level* *TBM = Temporary Benchmark* *MSL = Mean Sea Level*

Boring/Well Construction Log

DUNCKLEE & DUNHAM

I. D. Number	B-34 / TW-4	**Purpose**	Soil boring/gw sampling
Project Name	Beaufort & Martin Co. - Site 14	**Contractor**	Troxler Geologic
Project No.	201939	**Registration No.**	2511
Geologist	Alec Dziwanowski	**Driller**	Ben Troxler
Start Date	4/10/19 **Complete Date** 4/10/19	**Equipment**	Geoprobe

Drilling Method direct-push

Comments
WT @ 2'
Petroleum odor from 5' - 11'
Pumped on temp. well until it was clear
Sampled gw at 1120 at -8' bls
- Sheen on water and odor from water

Well Construction Information		Depth From - To (ft.)	Lithology	FID / PID (ppm) @ Depth (ft.)	Petroleum odor?
Borehole Diameter	2.75"	0-1.5	dark brown, silty, clayey SAND	0.1 @ 1'	no
Riser Type	Sampling rod	1.5-3	light brown, Sandy CLAY	NA	no
Diameter	1.25"	3-5	light gray w/ orange, Sandy CLAY	25.3@ 6'	no
Screen Type	Sampling rod	5-11	light gray Sandy CLAY → bag1:	490.9@ 8'	yes
Diameter	1.25"		→ bag2:	19.9@ 10'	yes
Riser Interval	0-4' bls				
Screen Interval	4-8' bls				
Slot Size	0.005"				
Grout Type	↑				
Interval					
Bentonite Type	NA				
Interval					
Filter Pack					
Interval	↓				
Total Depth	8' bls				
R.P. Elevation	0' bls				
Datum	land surface				

Water Level Information

Date ~~AD~~	W.L. Below R.P.
~~4/19~~ 4/10/19	2.92'

R.P. = Reference Point *W.L. = Water Level* *TBM = Temporary Benchmark* *MSL = Mean Sea Level*

Boring/Well Construction Log

DUNCKLEE & DUNHAM

I. D. Number	B-35	**Purpose**	Soil boring
Project Name	Beaufort & Martin Co. - Site 14	**Contractor**	Troxler Geologic
Project No.	201939	**Registration No.**	2511
Geologist	Alec Dziwanowski	**Driller**	Ben Troxler
Start Date	4/10/19 **Complete Date** 4/10/19	**Equipment**	Geoprobe

Drilling Method direct-push

Comments WT at 2' bls
Petroleum odors/stains not observed

Well Construction Information	Depth From - To (ft.)	Lithology	FID / PID (ppm) @ Depth (ft.)	Petroleum odor?
Borehole Diameter	0 - 1.5	dark brown, silty, clayey SAND	0.6ppm@1'	no odor
Riser Type	1.5 - 3	light brown, sandy CLAY	NA	no odor
Diameter	3 - 4	light gray w/ orange, sandy CLAY	NA	no odor
Screen Type				
Diameter				
Riser Interval				
Screen Interval				
Slot Size				
Grout Type				
Interval				
Bentonite Type				
Interval				
Filter Pack				
Interval				
Total Depth				
R.P. Elevation				
Datum				

Water Level Information

Date	W.L. Below R.P.

R.P. = Reference Point *W.L. = Water Level* *TBM = Temporary Benchmark* *MSL = Mean Sea Level*

Boring/Well Construction Log

DUNCKLEE & DUNHAM

I. D. Number	B-3L / TW-5	**Purpose**	Soil boring/gw sampling
Project Name	Beaufort & Martin Co. - Site 14	**Contractor**	Troxler Geologic
Project No.	201939	**Registration No.**	2511
Geologist	Alec Dziwanowski	**Driller**	Ben Troxler
Start Date	4/10/19 **Complete Date** 4/10/19	**Equipment**	Geoprobe

Drilling Method direct-push

Comments WT at 2' bls
Petroleum odor noted at ~3' bls → smelled of petroleum and had slight sheen
Advanced TW-5
Collected gw sample at 1215 at 4' bls after purging until clear
Collected soil sample at 1210 at 1' bls

Well Construction Information		Depth From - To (ft.)	Lithology	FID / PID (ppm) @ Depth (ft.)
Borehole Diameter	2.75"	0-2	dark brown, silty, clayey SAND	0.8 @ 1'
Riser Type	sampling rod	2-3	light brown, sandy CLAY	89.6 @ 3'
Diameter	1.25"			
Screen Type	sampling rod			
Diameter	1.25"			
Riser Interval	NA			
Screen Interval	0-4'			
Slot Size	0.0065"			
Grout Type	↑			
Interval				
Bentonite Type	NA			
Interval				
Filter Pack	↓			
Interval				
Total Depth	4' bls			
R.P. Elevation	0' bls			
Datum	land surface			

Water Level Information

Date	W.L. Below R.P.
4/10/19	2.54'

Petroleum odor?
no
yes

R.P. = Reference Point *W.L. = Water Level* *TBM = Temporary Benchmark* *MSL = Mean Sea Level*

Boring/Well Construction Log

DUNCKLEE & DUNHAM

I. D. Number	B-37	**Purpose**	soil boring
Project Name	Beaufort & Martin Co. - Site H	**Contractor**	Troxler Geologic
Project No.	201939	**Registration No.**	2511
Geologist	Alec Dziwanowski	**Driller**	Ben Troxler
Start Date	4/10/19 **Complete Date** 4/10/19	**Equipment**	Geoprobe

Drilling Method direct-push

Comments WT at 2' bls
Petroleum odor/stains not observed

Well Construction Information	Depth From - To (ft.)	Lithology	FID / PID (ppm) @ Depth (ft.)
Borehole Diameter	0-2	dark brown, silty, clayey SAND	0.4 @ 1.5'
Riser Type	2-4	light brown, sandy CLAY	NA
Diameter			
Screen Type			
Diameter			
Riser Interval			
Screen Interval			
Slot Size			
Grout Type			
Interval			
Bentonite Type			
Interval			
Filter Pack			
Interval			
Total Depth			
R.P. Elevation			
Datum			

Petroleum odor? no

Water Level Information

Date	W.L. Below R.P.

R.P. = Reference Point *W.L. = Water Level* *TBM = Temporary Benchmark* *MSL = Mean Sea Level*

Appendix C

May 9, 2019

Richard A. Kolb, L.G.
Duncklee & Dunham, P.C.
511 Keisler Drive, Suite 102
Cary, North Carolina 27518

Reference: **REPORT ON GEOPHYSICAL SERVICES FOR PARCEL 137, PEELE COTTAGE, LLC**
8162 US 17 South, Williamston, North Carolina
ESP Project No. HO40.300

TIP Number: R-2511
WBS Number: 35494.1.1
County: Beaufort and Martin
Description: US 17 North of NC 171 to Multi-lanes South of Williamston in Beaufort and Martin Counties

Dear Mr. Kolb:

ESP Associates, Inc. (ESP) is pleased to present this report to Duncklee & Dunham, P.C. (Duncklee & Dunham) on the geophysical services we provided for the referenced project. This work was performed under our subcontractor agreement dated January 28, 2019, as authorized by the Work Authorization dated March 26, 2019, and in accordance with our cost proposal to you dated March 13, 2019. The purpose of the work was to help identify possible underground storage tanks (USTs).

1.0 GEOPHYSICAL DATA COLLECTION

On April 3 through 5, 2019, ESP performed geophysical studies at Parcel 137, located on the west side of US 17 South in Williamston, North Carolina. The work consisted of metal detection using a Geonics EM61 MK2 instrument, obtaining the approximate locations of relevant site features using a DGPS instrument, and collecting ground-penetrating radar (GPR) data over selected EM61 anomalies.

The limits of the study areas were based on NCDOT field staking and on the NCDOT MicroStation file provided by Duncklee & Dunham, and extended from the edge of the current roadway to the proposed right-of-way (ROW)/easement. The two study areas consisted of the former gas station area in the southern part of the parcel and the two barns in the northern part of the parcel. A plowed field between the two areas was not investigated. Representative photographs of the geophysical study area are provided on Figure 1.

The EM61 data were collected over the accessible areas of the study areas using a line spacing of approximately 3 feet. We used a Hemisphere XF101 differential GPS instrument (DGPS) connected to an Archer field computer to provide approximate locations of the EM61 data in real time. The DGPS instrument was also used to obtain the approximate location of site features that could affect the EM61 readings.

We compared the location of the EM61 responses to the location of site features and noted several anomalies that did not correspond to known features. We collected GPR data in six areas using a Sensors and Software Noggin GPR system with a 250 MHz antenna, including over the probable UST by the southeast corner of barn number 1. We also traced the approximate location of the buried product line from the above-ground storage tank (AST) on the south side of barn number one.

2.0 DATA ANALYSIS AND PRESENTATION

The EM61 data were gridded and contoured in Surfer to produce plan view contour maps of the early time gate response and the differential response (Figures 2 and 3). The EM61 data are shown at a larger scale for each of the two areas on Figures 4 through 7.

The differential response is calculated by subtracting the response of the bottom coil from the response of the top coil of the EM61. Typically, the differential response diminishes the response from smaller, near-surface metallic objects, thus emphasizing the response from deeper and larger metallic objects, such as USTs. The DGPS locations of observed site features were superimposed on the EM61 contour maps so that anomalies caused by site features such as metal objects on the ground surface could be recognized. Figures 2 through 7 show the EM61 data and the site features that we observed and mapped in the field with DGPS; these figures do not necessarily show all existing site features.

The GPR data collected over the EM61 anomalies were reviewed in the field. GPR data collected over the area next to the existing dispenser pump by the southeast corner of barn number one indicated 1 probable UST approximately 3.5 feet in diameter, 8 feet in length and buried 2 feet deep (Figure 8). The UST vent port is visible in the approximate center of the tank. The GPR data did not indicate the presence of abandoned USTs in the other areas.

The EM61 early time gate response and differential response were exported from Surfer as geo-referenced images and attached to the NCDOT plan sheet in MicroStation (Figures 9 through 12). The legend for the NCDOT line types and symbols is shown on Figure 13.

4.0 SUMMARY AND CONCLUSIONS

Our review of the geophysical data collected for this project indicates the presence of a probable UST within the proposed ROW/easement of Parcel 137. This UST located near the southeast corner of barn number one and is approximately 575 gallons in size.

5.0 LIMITATIONS

These services have been provided to Duncklee & Dunham in accordance with generally accepted guidelines for performing geophysical surveys. It is recognized that the results of geophysical surveys are non-unique and subject to interpretation. Further, the locations of data and features included in this report are approximate and were collected using a DGPS instrument. ESP makes no guarantee as to the accuracy of these locations.

Thank you for the opportunity to be of service on this project. Please contact us if you have any questions or need further information.

Sincerely,

ESP Associates, Inc.

Edward D. Billington, PG
Senior Geophysicist

SBM/EDB

Attachments: Figures 1 – 13

A. Photograph of former gas station, view taken looking west. This is the southernmost building on Parcel 137.

B. Photograph of barn number one showing the old UST pump and probable UST marked on the eastern corner, taken looking west.

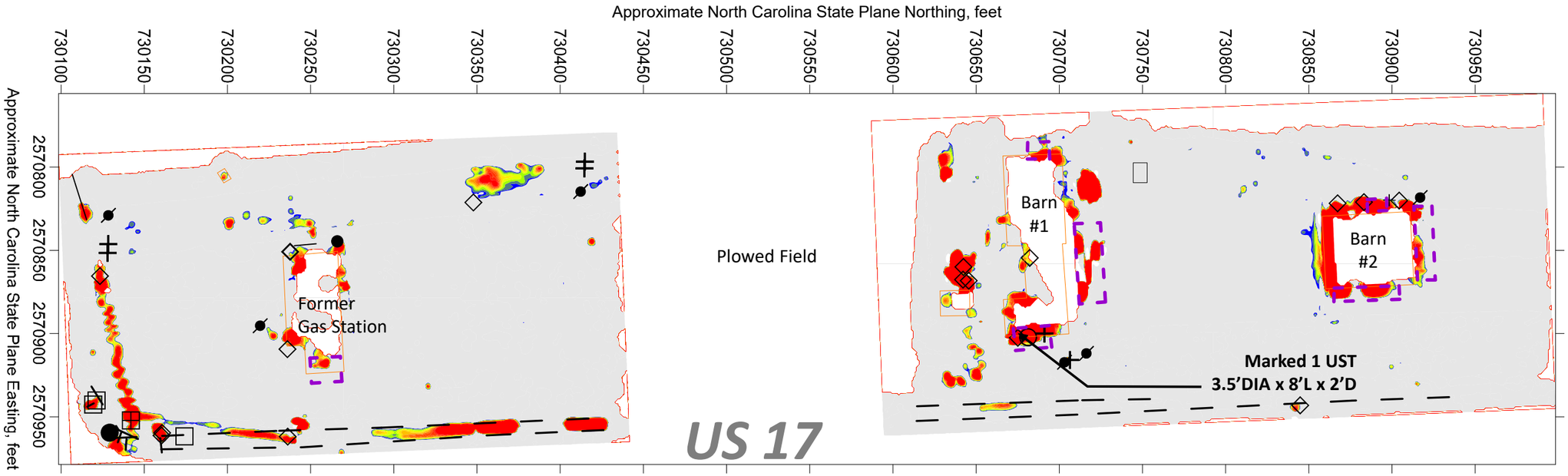
C. Close-up of probable UST marked on east side of barn number one (middle structure) on Parcel 137. Probable UST is approximately 3 feet diameter by 8 feet long.

D. Approximate location of buried product line leading from AST to barn.

E. Photograph of the barn number two. This is the northernmost building located on Parcel 137, taken looking west.

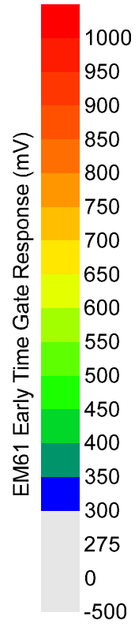
PROJECT NO. HO40.300	***FIGURE 1 - PARCEL 137, PEEL COTTAGE, LLC SITE PHOTOGRAPHS***	ESP Associates, Inc. 7011 Albert Pick Rd., Suite E Greensboro, NC 27409 336.334.7724 www.espassociates.com
SCALE N/A		
DATE 4/11/19	***NCDOT PROJECT R-2511, US 17 NORTH OF NC 171 TO MULTI-LANES SOUTH OF WILLIAMSTON BEAUFORT AND MARTIN COUNTIES, NORTH CAROLINA***	
BY SBM/EDB		

APPROXIMATE NORTH



EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Storm drain
- Utility pole
- Guy wire anchor
- Sign pole, other pole
- UST Valve Cover or Fill Port
- Buried utility line (marked by others)
- Existing Building (per NCDOT file)
- 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 make 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. HO40.300	***FIGURE 2 - PARCEL 137, PEEL COTTAGE, LLC***
SCALE AS SHOWN	***EM61 EARLY TIME GATE DATA, Former Station & Barns***
DATE 4/11/19	***NCDOT PROJECT R-2511, US 17 NORTH OF NC 171 TO MULTI-LANES SOUTH OF WILLIAMSTON***
BY SBM/EDB	***BEAUFORT AND MARTIN COUNTIES, NORTH CAROLINA***

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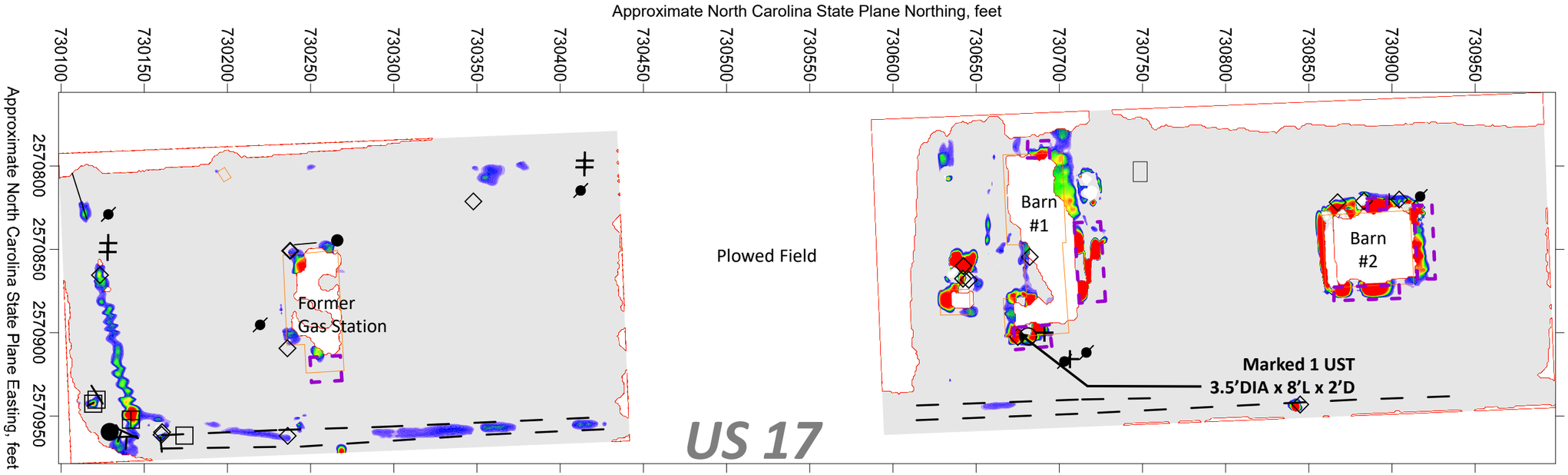
APPROXIMATE NORTH



EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Storm drain
- Utility pole
- Guy wire anchor
- Sign pole, other pole
- UST Valve Cover or Fill Port
- Buried utility line (marked by others)
- Existing Building (per NCDOT file)
- EM61 Data Collection Areas
- GPR Data Collection Areas
- Underground Storage Tank

EM61 Differential Response (mV)

500
470
440
410
380
350
320
290
260
230
200
170
140
110
80

PROJECT NO.	HO40.300
SCALE	AS SHOWN
DATE	4/11/19
BY	SBM/EDB

FIGURE 3 - PARCEL 137, PEEL COTTAGE, LLC
EM61 DIFFERENTIAL DATA , Former Station & Barns

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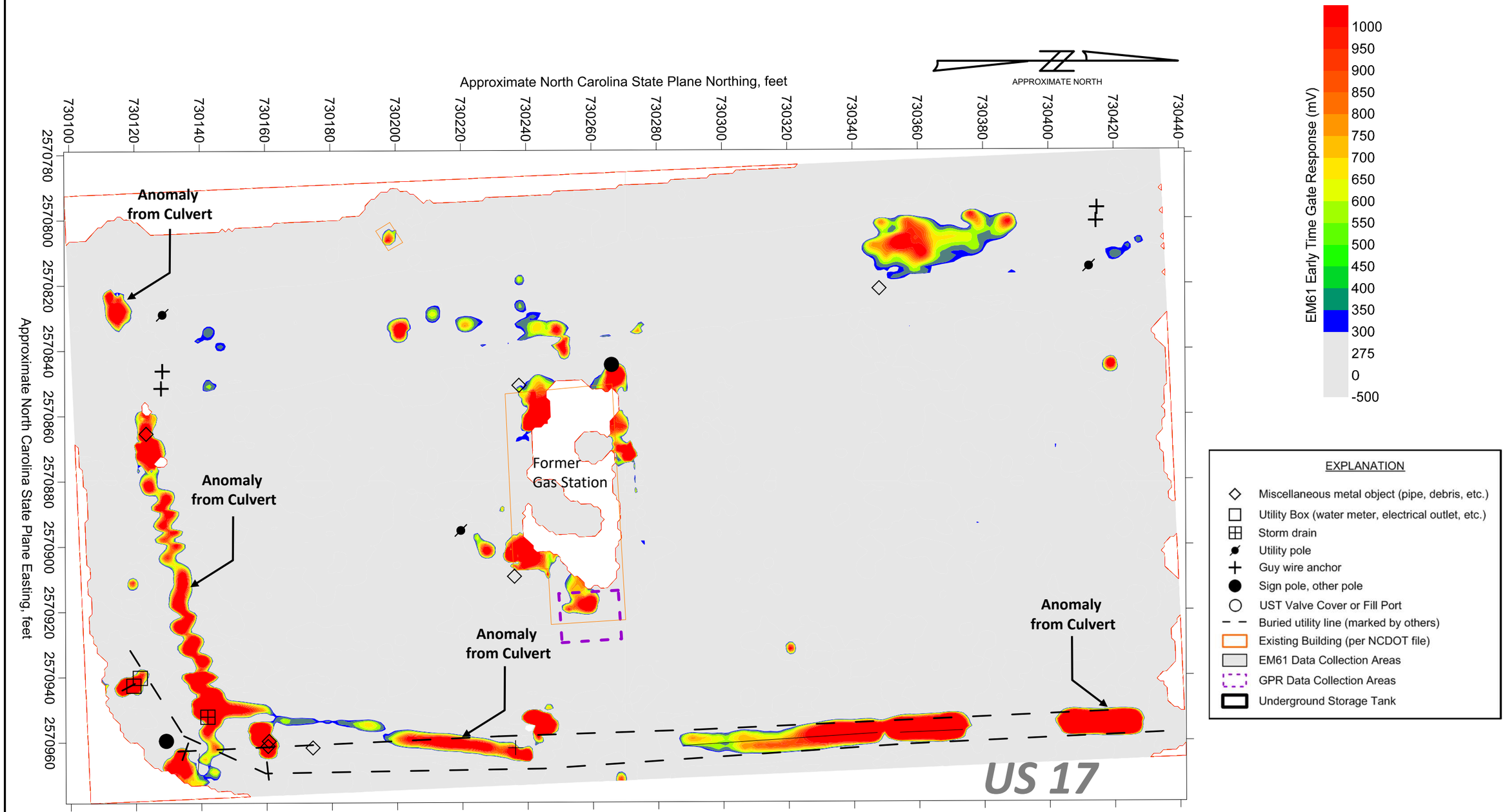

Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP make no guarantees as to the accuracy of these locations. Coordinates on the axes of the maps are approximate and provided for general reference only.

PROJECT NO.	HO40.300
SCALE	AS SHOWN
DATE	4/11/19
BY	SBM/EDB

FIGURE 4 - PARCEL 137, PEEL COTTAGE, LLC
EM61 EARLY TIME GATE DATA, Storage Building

NCDOT PROJECT R-2511, US 17 NORTH OF NC 171 TO MULTI-LANES SOUTH OF WILLIAMSTON
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Approximate North Carolina State Plane Northing, feet

730100 730120 730140 730160 730180 730200 730220 730240 730260 730280 730300 730320 730340 730360 730380 730400 730420 730440

Approximate North Carolina State Plane Easting, feet

2570780 2570800 2570820 2570840 2570860 2570880 2570900 2570920 2570940 2570960

APPROXIMATE NORTH

EM61 Differential Response (mV)

500 470 440 410 380 350 320 290 260 230 200 170 140 110 80

Anomaly from Culvert

Anomaly from Culvert

Former Gas Station

Anomaly from Culvert

Anomaly from Culvert

US 17

EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Storm drain
- Utility pole
- Guy wire anchor
- Sign pole, other pole
- UST Valve Cover or Fill Port
- Buried utility line (marked by others)
- Existing Building (per NCDOT file)
- 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 make 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. HO40.300	***FIGURE 5 - PARCEL 137, PEEL COTTAGE, LLC EM61 DIFFERENTIAL DATA, Storage Building***
SCALE AS SHOWN	
DATE 4/11/19	***NCDOT PROJECT R-2511, US 17 NORTH OF NC 171 TO MULTI-LANES SOUTH OF WILLIAMSTON BEAUFORT AND MARTIN COUNTIES, NORTH CAROLINA***
BY SBM/EDB	

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www.espassociates.com

APPROXIMATE NORTH

Approximate North Carolina State Plane Northing, feet

730600 730620 730640 730660 730680 730700 730720 730740 730760 730780 730800 730820 730840 730860 730880 730900 730920 730940

Approximate North Carolina State Plane Easting, feet

2570760 2570780 2570800 2570820 2570840 2570860 2570880 2570900 2570920 2570940 2570960

Anomaly from culvert

Anomaly from trailer

Anomaly from 2 ASTs, tires, trailer, debris

Barn #1

Barn #2

Shed

Marked 1 UST 3.5'DIA x 8'L x 2'D

Culvert

US 17

EM61 Early Time Gate Response (mV)

1000 950 900 850 800 750 700 650 600 550 500 450 400 350 300 275 0 -500

EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Storm drain
- Utility pole
- Guy wire anchor
- Sign pole, other pole
- UST Valve Cover or Fill Port
- Buried utility line (marked by others)
- Existing Building (per NCDOT file)
- 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 make 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.	HO40.300
SCALE	AS SHOWN
DATE	4/11/19
BY	SBM/EDB

FIGURE 6 - PARCEL 137, PEEL COTTAGE, LLC
EM61 EARLY TIME GATE DATA, Barns 1,2 & Shed

NCDOT PROJECT R-2511, US 17 NORTH OF NC 171 TO MULTI-LANES SOUTH OF WILLIAMSTON
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336.334.7724
www.espassociates.com

APPROXIMATE NORTH

Approximate North Carolina State Plane Northing, feet

730600 730620 730640 730660 730680 730700 730720 730740 730760 730780 730800 730820 730840 730860 730880 730900 730920 730940

Approximate North Carolina State Plane Easting, feet

2570760 2570780 2570800 2570820 2570840 2570860 2570880 2570900 2570920 2570940 2570960

EM61 Differential Response (mV)

500 470 440 410 380 350 320 290 260 230 200 170 140 110 80

Anomaly from pile of pipes

Anomaly from trailer

Anomaly from 2 ASTs, tires, trailer, debris

Barn #1

Barn #2

Shed

Marked 1 UST 3.5'DIA x 8'L x 2'D

Culvert

US 17

EXPLANATION

- Miscellaneous metal object (pipe, debris, etc.)
- Utility Box (water meter, electrical outlet, etc.)
- Storm drain
- Utility pole
- Guy wire anchor
- Sign pole, other pole
- UST Valve Cover or Fill Port
- Buried utility line (marked by others)
- Existing Building (per NCDOT file)
- EM61 Data Collection Areas
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- Underground Storage Tank

Note: Locations of data and features are approximate and were collected using a DGPS instrument. ESP make 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.	HO40.300
SCALE	AS SHOWN
DATE	4/11/19
BY	SBM/EDB

FIGURE 7 – PARCEL 137, PEEL COTTAGE, LLC
EM61 DIFFERENTIAL DATA, Barns 1,2 & Shed

NCDOT PROJECT R-2511, US 17 NORTH OF NC 171 TO MULTI-LANES SOUTH OF WILLIAMSTON
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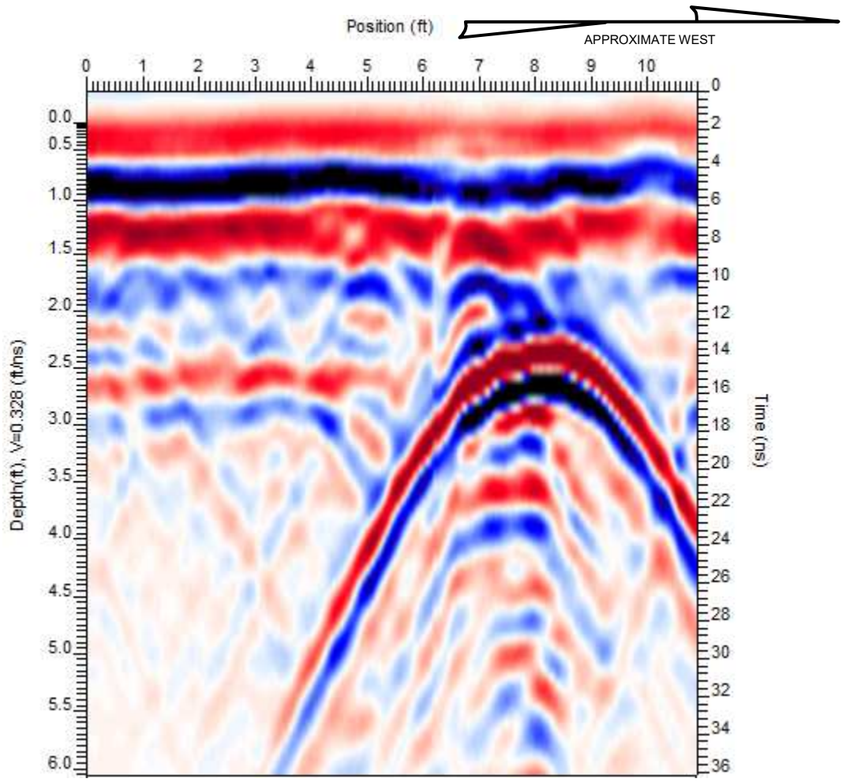
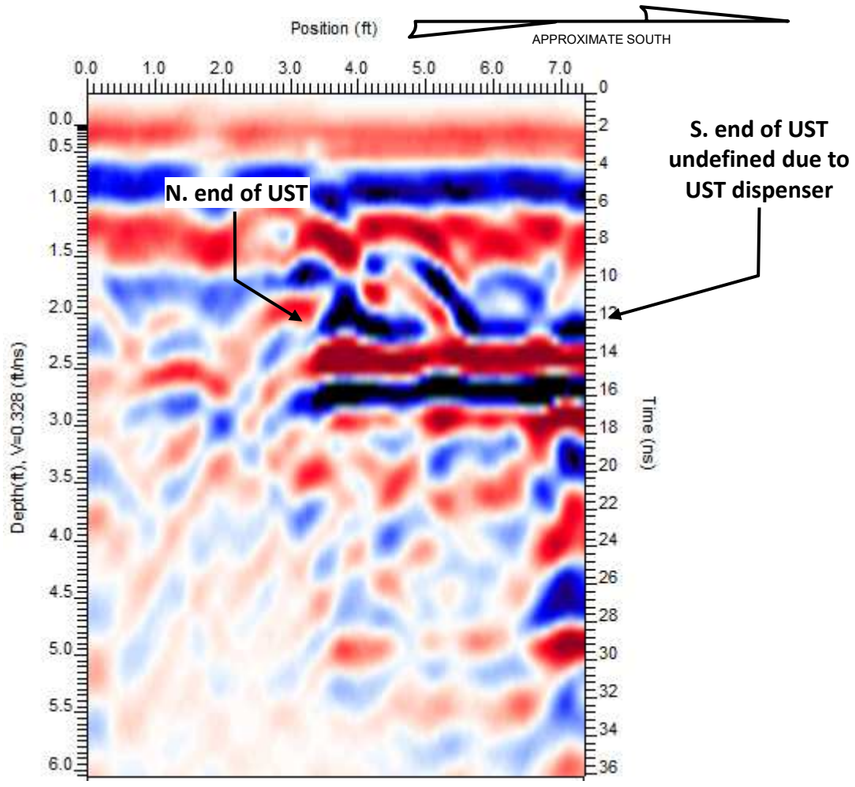


A. GPR image collected across short axes of probable UST marked on the southeastern corner of barn number one.



B. GPR image collected across long axis of the probable USTs marked on the southeastern corner of barn number one. The southern end of the UST is undefined due to the location of the dispenser and surrounding debris.

PROJECT NO. HO40.300	***FIGURE 8 - PARCEL 137, PEEL COTTAGE, LLC GPR IMAGES OF PROBABLE UST, BARN #1***
SCALE AS SHOWN	***NCDOT PROJECT R-2511, US 17 NORTH OF NC 171 TO MULTI-LANES SOUTH OF WILLIAMSTON BEAUFORT AND MARTIN COUNTIES, NORTH CAROLINA***
DATE 4/11/19	
BY SBM/EDB	

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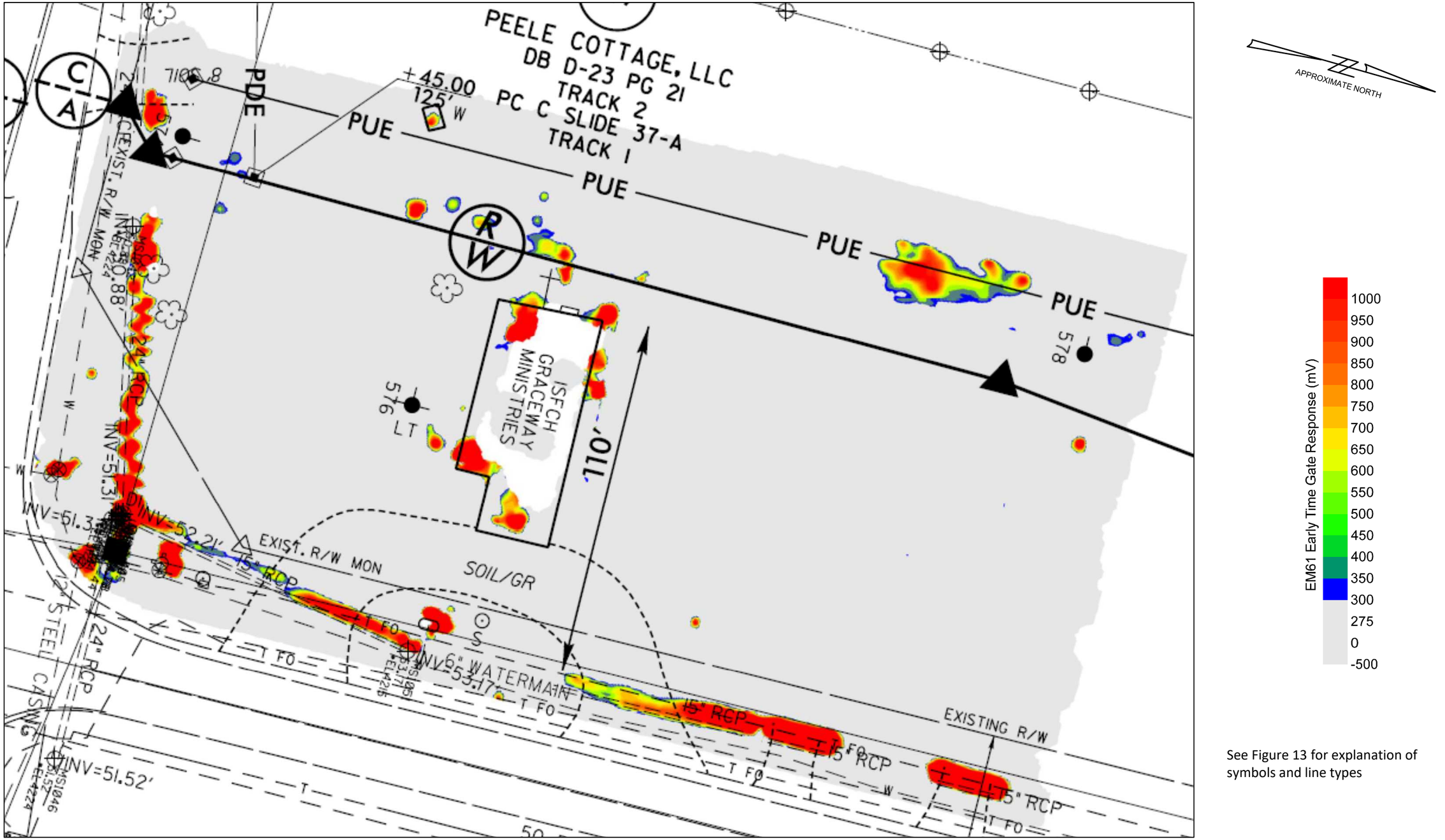

See Figure 13 for explanation of symbols and line types

List of NCDOT reference files

- R2511_Geo_Env.dgn
  - R2511_NCDOT_FS.dgn
  - R2511_Rdy_row.dgn

30′ 0′ 30′
GRAPHIC SCALE

PROJECT NO.	HO40.300
SCALE	1" = 30'
DATE	4/11/19
BY	SBM/EDB

FIGURE 9 – PARCEL 137, PEEL COTTAGE, LLC EM61 EARLY TIME GATE DATA ON PLAN SHEET, STATION

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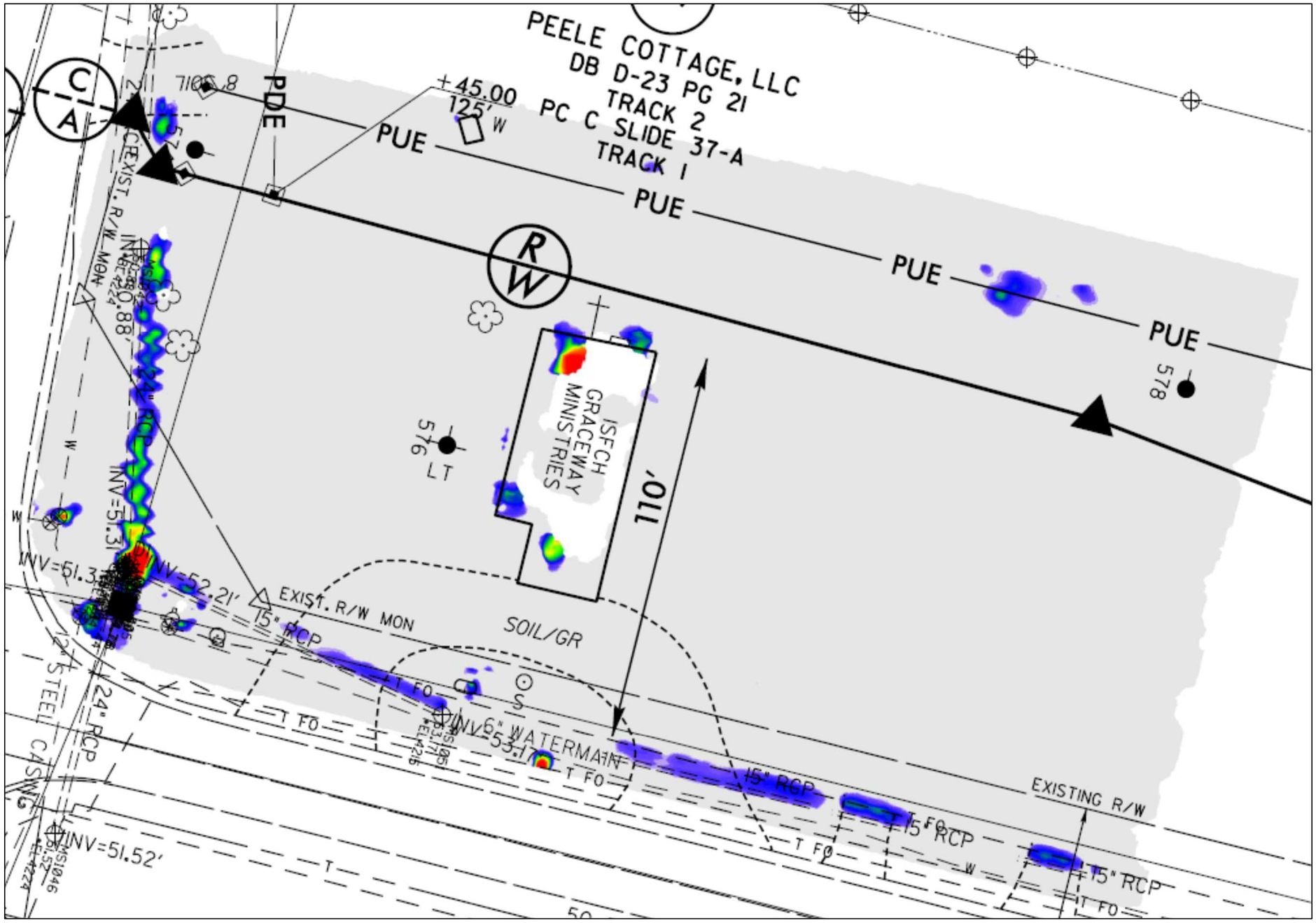

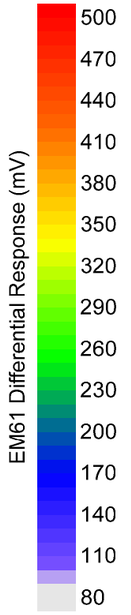

See Figure 13 for explanation of symbols and line types

List of NCDOT reference files

- R2511_Geo_Env.dgn
  - R2511_NCDOT_FS.dgn
  - R2511_Rdy_row.dgn

30' 0' 30'
GRAPHIC SCALE

PROJECT NO.	HO40.300
SCALE	1" = 30'
DATE	4/11/19
BY	SBM/EDB

FIGURE 10 – PARCEL 137, PEEL COTTAGE, LLC
EM61 DIFFERENTIAL DATA ON PLAN SHEET, STATION

NCDOT PROJECT R-2511, US 17 NORTH OF NC 171 TO MULTI-LANES SOUTH OF WILLIAMSTON
BEAUFORT AND MARTIN COUNTIES, NORTH CAROLINA

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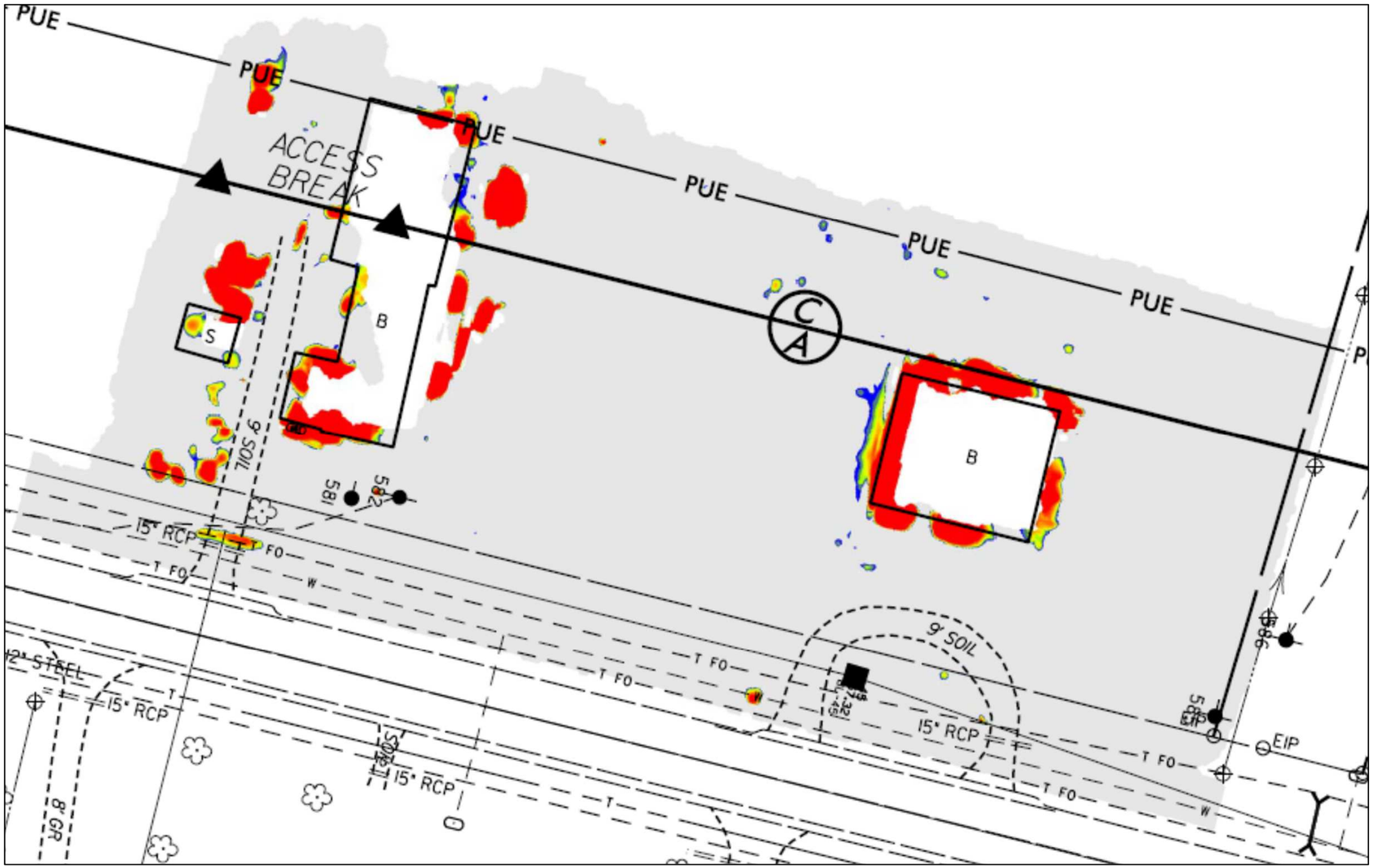

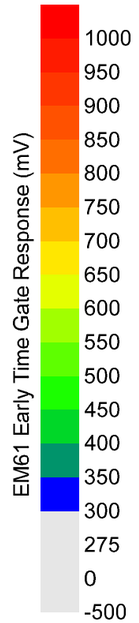

See Figure 13 for explanation of symbols and line types

List of NCDOT reference files

- R2511_Geo_Env.dgn
  - R2511_NCDOT_FS.dgn
  - R2511_Rdy_row.dgn

40’ 0’ 40’

GRAPHIC SCALE

PROJECT NO.	HO40.300
SCALE	1” = 40’
DATE	4/11/19
BY	SBM/EDB

FIGURE 11 – PARCEL 137, PEEL COTTAGE, LLC EM61 EARLY TIME GATE DATA ON PLAN SHEET, BARNS

NCDOT PROJECT R-2511, US 17 NORTH OF NC 171 TO MULTI-LANES SOUTH OF WILLIAMSTON BEAUFORT AND MARTIN COUNTIES, NORTH CAROLINA

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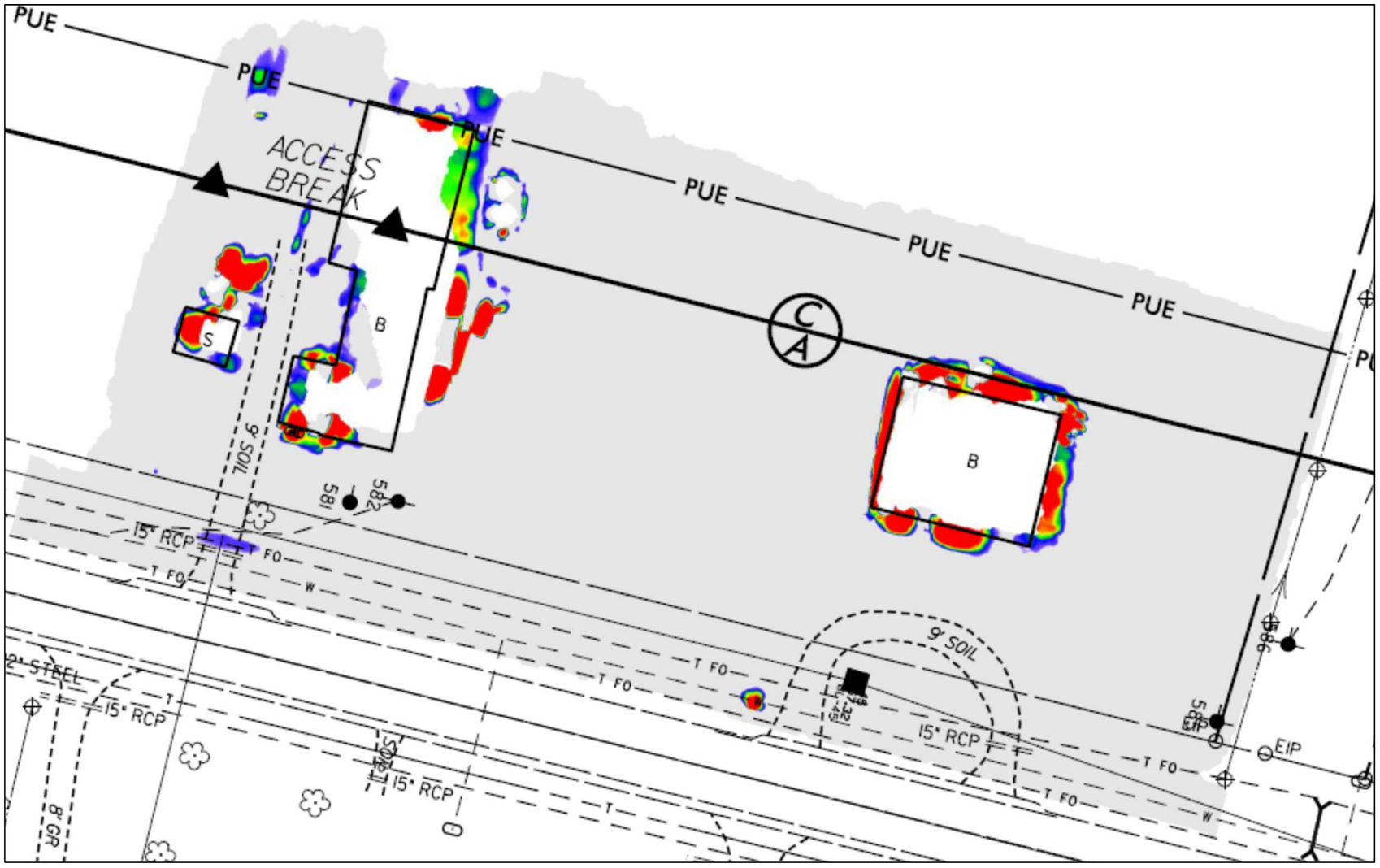

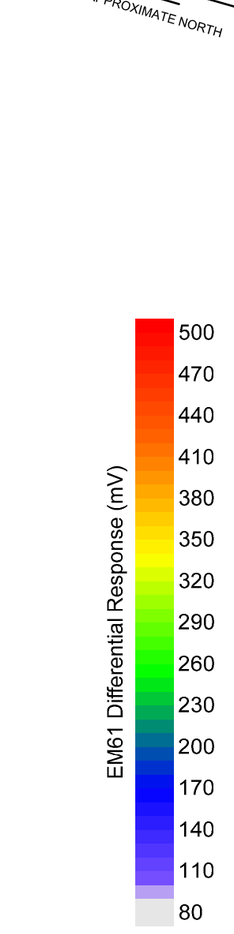

APPROXIMATE NORTH

See Figure 13 for explanation of symbols and line types

List of NCDOT reference files

- R2511_Geo_Env.dgn
  - R2511_NCDOT_FS.dgn
  - R2511_Rdy_row.dgn

40’ 0’ 40’

GRAPHIC SCALE

PROJECT NO.	HO40.300
SCALE	1” = 40’
DATE	4/11/19
BY	SBM/EDB

FIGURE 12 – PARCEL 137, PEEL COTTAGE, LLC EM61 DIFFERENTIAL DATA ON PLAN SHEET, BARNS

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336.334.7724
www.espassociates.com

04/26/15

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
- Property Corner
- Property Monument
- Parcel/Sequence Number
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary
- Proposed Wetland Boundary
- Existing Endangered Animal Boundary
- Existing Endangered Plant Boundary
- Existing Historic Property Boundary
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- 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
- False Sump

RAILROADS:

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

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line
- Proposed Right of Way Line with Iron Pin and Cap Marker
- Proposed Right of Way Line with Concrete or Granite R/W Marker
- Proposed Control of Access Line with Concrete C/A Marker
- Existing Control of Access
- Proposed Control of Access
- Existing Easement Line (E)
- Proposed Temporary Construction Easement (E)
- Proposed Temporary Drainage Easement (TDE)
- Proposed Permanent Drainage Easement (PDE)
- Proposed Permanent Drainage / Utility Easement (DUE)
- Proposed Permanent Utility Easement (PUE)
- Proposed Temporary Utility Easement (TUE)
- Proposed Aerial Utility Easement (AUE)
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut
- Proposed Slope Stakes Fill
- 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

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.*)
- U/G Power Line LOS C (S.U.E.*)
- U/G Power Line LOS D (S.U.E.*)

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line LOS B (S.U.E.*)
- U/G Gas Line LOS C (S.U.E.*)
- U/G Gas Line LOS D (S.U.E.*)
- 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
- 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.	HO40.300
SCALE	N/A
DATE	4/11/19
BY	SBM/EDB

FIGURE 13
LEGEND FOR PLAN SHEET FIGURES

NCDOT PROJECT R-2511, US 17 NORTH OF NC 171 TO MULTI-LANES SOUTH OF WILLIAMSTON
BEAUFORT AND MARTIN COUNTIES, NORTH CAROLINA

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

Appendix D

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

April 25, 2019

Duncklee and Dunham

Sample Delivery Group:	L1088281
Samples Received:	04/11/2019
Project Number:	201939
Description:	NCDOT R-2511 Beaufort and Martin Counties-Parcel 137
Report To:	Rick Kolb
	PO Box 639
	Cary, NC 27512

Entire Report Reviewed By:

Heather J Wagner
Project Manager

TABLE OF CONTENTS

TW-3 L1088281-03 GW

Collected by: Alec Dziwanowski
Collected date/time: 04/09/19 16:55
Received date/time: 04/11/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 6200B-2011	WG1265185	1	04/12/19 23:25	04/12/19 23:25	GLN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 625.1	WG1264757	1	04/12/19 16:46	04/13/19 12:01	LEA	Mt. Juliet, TN

TW-4 L1088281-04 GW

Collected by: Alec Dziwanowski
Collected date/time: 04/10/19 11:20
Received date/time: 04/11/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 6200B-2011	WG1265185	200	04/12/19 23:46	04/12/19 23:46	GLN	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 625.1	WG1264757	1	04/12/19 16:46	04/13/19 12:25	LEA	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Heather J Wagner
Project Manager

Project Narrative

Sample TW-3 and TW-4 are reported separately per client request. All samples listed on the attached COC have been reported individually under SDG number L1088281 based on their Parcel ID.

Volatile Organic Compounds (GC/MS) by Method 6200B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	U		10.0	50.0	1	04/12/2019 23:25	WG1265185
Acrolein	U		8.87	50.0	1	04/12/2019 23:25	WG1265185
Acrylonitrile	U		1.87	10.0	1	04/12/2019 23:25	WG1265185
Benzene	U		0.331	1.00	1	04/12/2019 23:25	WG1265185
Bromobenzene	U		0.352	1.00	1	04/12/2019 23:25	WG1265185
Bromodichloromethane	U		0.380	1.00	1	04/12/2019 23:25	WG1265185
Bromoform	U		0.469	1.00	1	04/12/2019 23:25	WG1265185
Bromomethane	U		0.866	5.00	1	04/12/2019 23:25	WG1265185
n-Butylbenzene	11.2		0.361	1.00	1	04/12/2019 23:25	WG1265185
sec-Butylbenzene	21.1		0.365	1.00	1	04/12/2019 23:25	WG1265185
tert-Butylbenzene	2.82		0.399	1.00	1	04/12/2019 23:25	WG1265185
Carbon tetrachloride	U		0.379	1.00	1	04/12/2019 23:25	WG1265185
Chlorobenzene	U		0.348	1.00	1	04/12/2019 23:25	WG1265185
Chlorodibromomethane	U		0.327	1.00	1	04/12/2019 23:25	WG1265185
Chloroethane	U		0.453	5.00	1	04/12/2019 23:25	WG1265185
Chloroform	U		0.324	5.00	1	04/12/2019 23:25	WG1265185
Chloromethane	U		0.276	2.50	1	04/12/2019 23:25	WG1265185
2-Chlorotoluene	U		0.375	1.00	1	04/12/2019 23:25	WG1265185
4-Chlorotoluene	U		0.351	1.00	1	04/12/2019 23:25	WG1265185
1,2-Dibromo-3-Chloropropane	U		1.33	5.00	1	04/12/2019 23:25	WG1265185
1,2-Dibromoethane	U		0.381	1.00	1	04/12/2019 23:25	WG1265185
Dibromomethane	U		0.346	1.00	1	04/12/2019 23:25	WG1265185
1,2-Dichlorobenzene	U		0.349	1.00	1	04/12/2019 23:25	WG1265185
1,3-Dichlorobenzene	U		0.220	1.00	1	04/12/2019 23:25	WG1265185
1,4-Dichlorobenzene	U		0.274	1.00	1	04/12/2019 23:25	WG1265185
Dichlorodifluoromethane	U		0.551	5.00	1	04/12/2019 23:25	WG1265185
1,1-Dichloroethane	U		0.259	1.00	1	04/12/2019 23:25	WG1265185
1,2-Dichloroethane	U		0.361	1.00	1	04/12/2019 23:25	WG1265185
1,1-Dichloroethene	U		0.398	1.00	1	04/12/2019 23:25	WG1265185
cis-1,2-Dichloroethene	U		0.260	1.00	1	04/12/2019 23:25	WG1265185
trans-1,2-Dichloroethene	U		0.396	1.00	1	04/12/2019 23:25	WG1265185
1,2-Dichloropropane	U		0.306	1.00	1	04/12/2019 23:25	WG1265185
1,1-Dichloropropene	U		0.352	1.00	1	04/12/2019 23:25	WG1265185
1,3-Dichloropropane	U		0.366	1.00	1	04/12/2019 23:25	WG1265185
2,2-Dichloropropane	U		0.321	1.00	1	04/12/2019 23:25	WG1265185
Di-isopropyl ether	U		0.320	1.00	1	04/12/2019 23:25	WG1265185
Ethylbenzene	9.51		0.384	1.00	1	04/12/2019 23:25	WG1265185
Hexachloro-1,3-butadiene	U		0.256	1.00	1	04/12/2019 23:25	WG1265185
Isopropylbenzene	26.7		0.326	1.00	1	04/12/2019 23:25	WG1265185
p-Isopropyltoluene	6.51		0.350	1.00	1	04/12/2019 23:25	WG1265185
2-Butanone (MEK)	U		3.93	10.0	1	04/12/2019 23:25	WG1265185
Methylene Chloride	U		1.00	5.00	1	04/12/2019 23:25	WG1265185
4-Methyl-2-pentanone (MIBK)	U		2.14	10.0	1	04/12/2019 23:25	WG1265185
Methyl tert-butyl ether	U		0.367	1.00	1	04/12/2019 23:25	WG1265185
Naphthalene	172		1.00	5.00	1	04/12/2019 23:25	WG1265185
n-Propylbenzene	41.4		0.349	1.00	1	04/12/2019 23:25	WG1265185
Styrene	U		0.307	1.00	1	04/12/2019 23:25	WG1265185
1,1,1,2-Tetrachloroethane	U		0.385	1.00	1	04/12/2019 23:25	WG1265185
1,1,2,2-Tetrachloroethane	U		0.130	1.00	1	04/12/2019 23:25	WG1265185
Tetrachloroethene	U		0.372	1.00	1	04/12/2019 23:25	WG1265185
Toluene	U		0.412	1.00	1	04/12/2019 23:25	WG1265185
1,2,3-Trichlorobenzene	U		0.230	1.00	1	04/12/2019 23:25	WG1265185
1,2,4-Trichlorobenzene	U		0.355	1.00	1	04/12/2019 23:25	WG1265185
1,1,1-Trichloroethane	U		0.319	1.00	1	04/12/2019 23:25	WG1265185
1,1,2-Trichloroethane	U		0.383	1.00	1	04/12/2019 23:25	WG1265185
Trichloroethene	U		0.398	1.00	1	04/12/2019 23:25	WG1265185

Volatile Organic Compounds (GC/MS) by Method 6200B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Trichlorofluoromethane	U		1.20	5.00	1	04/12/2019 23:25	WG1265185
1,2,3-Trichloropropane	U		0.807	2.50	1	04/12/2019 23:25	WG1265185
1,2,4-Trimethylbenzene	10.5		0.373	1.00	1	04/12/2019 23:25	WG1265185
1,3,5-Trimethylbenzene	17.4		0.387	1.00	1	04/12/2019 23:25	WG1265185
Vinyl chloride	U		0.259	1.00	1	04/12/2019 23:25	WG1265185
Xylenes, Total	U		1.06	3.00	1	04/12/2019 23:25	WG1265185
(S) Toluene-d8	*103*			*80.0-120*		*04/12/2019 23:25*	WG1265185
(S) a,a,a-Trifluorotoluene	*97.2*			*80.0-120*		*04/12/2019 23:25*	WG1265185
(S) 4-Bromofluorobenzene	*115*			*77.0-126*		*04/12/2019 23:25*	WG1265185
(S) 1,2-Dichloroethane-d4	*90.0*			*70.0-130*		*04/12/2019 23:25*	WG1265185

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acenaphthene	U		0.316	1.00	1	04/13/2019 12:01	WG1264757
Acenaphthylene	U		0.309	1.00	1	04/13/2019 12:01	WG1264757
Anthracene	U		0.291	1.00	1	04/13/2019 12:01	WG1264757
Benzidine	U		4.32	10.0	1	04/13/2019 12:01	WG1264757
Benzo(a)anthracene	U		0.0975	1.00	1	04/13/2019 12:01	WG1264757
Benzo(b)fluoranthene	U		0.0896	1.00	1	04/13/2019 12:01	WG1264757
Benzo(k)fluoranthene	U		0.355	1.00	1	04/13/2019 12:01	WG1264757
Benzo(g,h,i)perylene	U		0.161	1.00	1	04/13/2019 12:01	WG1264757
Benzo(a)pyrene	U		0.340	1.00	1	04/13/2019 12:01	WG1264757
Bis(2-chlorethoxy)methane	U		0.329	10.0	1	04/13/2019 12:01	WG1264757
Bis(2-chloroethyl)ether	U		1.62	10.0	1	04/13/2019 12:01	WG1264757
Bis(2-chloroisopropyl)ether	U		0.445	10.0	1	04/13/2019 12:01	WG1264757
4-Bromophenyl-phenylether	U		0.335	10.0	1	04/13/2019 12:01	WG1264757
2-Chloronaphthalene	U	J4	0.330	1.00	1	04/13/2019 12:01	WG1264757
4-Chlorophenyl-phenylether	U		0.303	10.0	1	04/13/2019 12:01	WG1264757
Chrysene	U		0.332	1.00	1	04/13/2019 12:01	WG1264757
Dibenz(a,h)anthracene	U		0.279	1.00	1	04/13/2019 12:01	WG1264757
3,3-Dichlorobenzidine	U		2.02	10.0	1	04/13/2019 12:01	WG1264757
2,4-Dinitrotoluene	U		1.65	10.0	1	04/13/2019 12:01	WG1264757
2,6-Dinitrotoluene	U		0.279	10.0	1	04/13/2019 12:01	WG1264757
Fluoranthene	U		0.310	1.00	1	04/13/2019 12:01	WG1264757
Fluorene	1.67		0.323	1.00	1	04/13/2019 12:01	WG1264757
Hexachlorobenzene	U		0.341	1.00	1	04/13/2019 12:01	WG1264757
Hexachloro-1,3-butadiene	U		0.329	10.0	1	04/13/2019 12:01	WG1264757
Hexachlorocyclopentadiene	U		2.33	10.0	1	04/13/2019 12:01	WG1264757
Hexachloroethane	U	J4	0.365	10.0	1	04/13/2019 12:01	WG1264757
Indeno(1,2,3-cd)pyrene	U		0.279	1.00	1	04/13/2019 12:01	WG1264757
Isophorone	U		0.272	10.0	1	04/13/2019 12:01	WG1264757
Naphthalene	79.8		0.372	1.00	1	04/13/2019 12:01	WG1264757
Nitrobenzene	U		0.367	10.0	1	04/13/2019 12:01	WG1264757
n-Nitrosodimethylamine	U		1.26	10.0	1	04/13/2019 12:01	WG1264757
n-Nitrosodiphenylamine	U		1.19	10.0	1	04/13/2019 12:01	WG1264757
n-Nitrosodi-n-propylamine	U		0.403	10.0	1	04/13/2019 12:01	WG1264757
Phenanthrene	U		0.366	1.00	1	04/13/2019 12:01	WG1264757
Benzylbutyl phthalate	U		0.275	3.00	1	04/13/2019 12:01	WG1264757
Bis(2-ethylhexyl)phthalate	U		0.709	3.00	1	04/13/2019 12:01	WG1264757
Di-n-butyl phthalate	U		0.266	3.00	1	04/13/2019 12:01	WG1264757
Diethyl phthalate	U		0.282	3.00	1	04/13/2019 12:01	WG1264757
Dimethyl phthalate	U		0.283	3.00	1	04/13/2019 12:01	WG1264757
Di-n-octyl phthalate	U		0.278	3.00	1	04/13/2019 12:01	WG1264757
Pyrene	U		0.330	1.00	1	04/13/2019 12:01	WG1264757
1,2,4-Trichlorobenzene	U	J4	0.355	10.0	1	04/13/2019 12:01	WG1264757

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
4-Chloro-3-methylphenol	U		0.263	10.0	1	04/13/2019 12:01	WG1264757
2-Chlorophenol	U		0.283	10.0	1	04/13/2019 12:01	WG1264757
2,4-Dichlorophenol	U		0.284	10.0	1	04/13/2019 12:01	WG1264757
2,4-Dimethylphenol	U		0.624	10.0	1	04/13/2019 12:01	WG1264757
4,6-Dinitro-2-methylphenol	U		2.62	10.0	1	04/13/2019 12:01	WG1264757
2,4-Dinitrophenol	U		3.25	10.0	1	04/13/2019 12:01	WG1264757
2-Nitrophenol	U		0.320	10.0	1	04/13/2019 12:01	WG1264757
4-Nitrophenol	U		2.01	10.0	1	04/13/2019 12:01	WG1264757
Pentachlorophenol	U		0.313	10.0	1	04/13/2019 12:01	WG1264757
Phenol	U		0.334	10.0	1	04/13/2019 12:01	WG1264757
2,4,6-Trichlorophenol	U		0.297	10.0	1	04/13/2019 12:01	WG1264757
(S) Nitrobenzene-d5	*45.2*			*15.0-314*		*04/13/2019 12:01*	WG1264757
(S) 2-Fluorobiphenyl	*48.3*			*22.0-127*		*04/13/2019 12:01*	WG1264757
(S) p-Terphenyl-d14	*63.9*			*29.0-141*		*04/13/2019 12:01*	WG1264757
(S) Phenol-d5	*19.2*			*8.00-424*		*04/13/2019 12:01*	WG1264757
(S) 2-Fluorophenol	*33.4*			*10.0-120*		*04/13/2019 12:01*	WG1264757
(S) 2,4,6-Tribromophenol	*73.7*			*10.0-153*		*04/13/2019 12:01*	WG1264757

Volatile Organic Compounds (GC/MS) by Method 6200B-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	U		2000	10000	200	04/12/2019 23:46	WG1265185
Acrolein	U		1770	10000	200	04/12/2019 23:46	WG1265185
Acrylonitrile	U		374	2000	200	04/12/2019 23:46	WG1265185
Benzene	187	J	66.2	200	200	04/12/2019 23:46	WG1265185
Bromobenzene	U		70.4	200	200	04/12/2019 23:46	WG1265185
Bromodichloromethane	U		76.0	200	200	04/12/2019 23:46	WG1265185
Bromoform	U		93.8	200	200	04/12/2019 23:46	WG1265185
Bromomethane	U		173	1000	200	04/12/2019 23:46	WG1265185
n-Butylbenzene	U		72.2	200	200	04/12/2019 23:46	WG1265185
sec-Butylbenzene	U		73.0	200	200	04/12/2019 23:46	WG1265185
tert-Butylbenzene	U		79.8	200	200	04/12/2019 23:46	WG1265185
Carbon tetrachloride	U		75.8	200	200	04/12/2019 23:46	WG1265185
Chlorobenzene	U		69.6	200	200	04/12/2019 23:46	WG1265185
Chlorodibromomethane	U		65.4	200	200	04/12/2019 23:46	WG1265185
Chloroethane	U		90.6	1000	200	04/12/2019 23:46	WG1265185
Chloroform	U		64.8	1000	200	04/12/2019 23:46	WG1265185
Chloromethane	U		55.2	500	200	04/12/2019 23:46	WG1265185
2-Chlorotoluene	U		75.0	200	200	04/12/2019 23:46	WG1265185
4-Chlorotoluene	U		70.2	200	200	04/12/2019 23:46	WG1265185
1,2-Dibromo-3-Chloropropane	U		266	1000	200	04/12/2019 23:46	WG1265185
1,2-Dibromoethane	U		76.2	200	200	04/12/2019 23:46	WG1265185
Dibromomethane	U		69.2	200	200	04/12/2019 23:46	WG1265185
1,2-Dichlorobenzene	U		69.8	200	200	04/12/2019 23:46	WG1265185
1,3-Dichlorobenzene	U		44.0	200	200	04/12/2019 23:46	WG1265185
1,4-Dichlorobenzene	U		54.8	200	200	04/12/2019 23:46	WG1265185
Dichlorodifluoromethane	U		110	1000	200	04/12/2019 23:46	WG1265185
1,1-Dichloroethane	U		51.8	200	200	04/12/2019 23:46	WG1265185
1,2-Dichloroethane	U		72.2	200	200	04/12/2019 23:46	WG1265185
1,1-Dichloroethene	U		79.6	200	200	04/12/2019 23:46	WG1265185
cis-1,2-Dichloroethene	U		52.0	200	200	04/12/2019 23:46	WG1265185
trans-1,2-Dichloroethene	U		79.2	200	200	04/12/2019 23:46	WG1265185
1,2-Dichloropropane	U		61.2	200	200	04/12/2019 23:46	WG1265185
1,1-Dichloropropene	U		70.4	200	200	04/12/2019 23:46	WG1265185
1,3-Dichloropropane	U		73.2	200	200	04/12/2019 23:46	WG1265185
2,2-Dichloropropane	U		64.2	200	200	04/12/2019 23:46	WG1265185
Di-isopropyl ether	U		64.0	200	200	04/12/2019 23:46	WG1265185
Ethylbenzene	827		76.8	200	200	04/12/2019 23:46	WG1265185
Hexachloro-1,3-butadiene	U		51.2	200	200	04/12/2019 23:46	WG1265185
Isopropylbenzene	U		65.2	200	200	04/12/2019 23:46	WG1265185
p-Isopropyltoluene	U		70.0	200	200	04/12/2019 23:46	WG1265185
2-Butanone (MEK)	U		786	2000	200	04/12/2019 23:46	WG1265185
Methylene Chloride	U		200	1000	200	04/12/2019 23:46	WG1265185
4-Methyl-2-pentanone (MIBK)	U		428	2000	200	04/12/2019 23:46	WG1265185
Methyl tert-butyl ether	U		73.4	200	200	04/12/2019 23:46	WG1265185
Naphthalene	1120		200	1000	200	04/12/2019 23:46	WG1265185
n-Propylbenzene	185	J	69.8	200	200	04/12/2019 23:46	WG1265185
Styrene	U		61.4	200	200	04/12/2019 23:46	WG1265185
1,1,1,2-Tetrachloroethane	U		77.0	200	200	04/12/2019 23:46	WG1265185
1,1,2,2-Tetrachloroethane	U		26.0	200	200	04/12/2019 23:46	WG1265185
Tetrachloroethene	U		74.4	200	200	04/12/2019 23:46	WG1265185
Toluene	2950		82.4	200	200	04/12/2019 23:46	WG1265185
1,2,3-Trichlorobenzene	U		46.0	200	200	04/12/2019 23:46	WG1265185
1,2,4-Trichlorobenzene	U		71.0	200	200	04/12/2019 23:46	WG1265185
1,1,1-Trichloroethane	U		63.8	200	200	04/12/2019 23:46	WG1265185
1,1,2-Trichloroethane	U		76.6	200	200	04/12/2019 23:46	WG1265185
Trichloroethene	U		79.6	200	200	04/12/2019 23:46	WG1265185

Volatile Organic Compounds (GC/MS) by Method 6200B-2011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Trichlorofluoromethane	U		240	1000	200	04/12/2019 23:46	WG1265185
1,2,3-Trichloropropane	U		161	500	200	04/12/2019 23:46	WG1265185
1,2,4-Trimethylbenzene	1330		74.6	200	200	04/12/2019 23:46	WG1265185
1,3,5-Trimethylbenzene	348		77.4	200	200	04/12/2019 23:46	WG1265185
Vinyl chloride	U		51.8	200	200	04/12/2019 23:46	WG1265185
Xylenes, Total	3960		212	600	200	04/12/2019 23:46	WG1265185
(S) Toluene-d8	*98.8*			*80.0-120*		*04/12/2019 23:46*	WG1265185
(S) a,a,a-Trifluorotoluene	*96.9*			*80.0-120*		*04/12/2019 23:46*	WG1265185
(S) 4-Bromofluorobenzene	*96.5*			*77.0-126*		*04/12/2019 23:46*	WG1265185
(S) 1,2-Dichloroethane-d4	*91.8*			*70.0-130*		*04/12/2019 23:46*	WG1265185

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.316	1.00	1	04/13/2019 12:25	WG1264757
Acenaphthylene	U		0.309	1.00	1	04/13/2019 12:25	WG1264757
Anthracene	U		0.291	1.00	1	04/13/2019 12:25	WG1264757
Benzidine	U		4.32	10.0	1	04/13/2019 12:25	WG1264757
Benzo(a)anthracene	U		0.0975	1.00	1	04/13/2019 12:25	WG1264757
Benzo(b)fluoranthene	U		0.0896	1.00	1	04/13/2019 12:25	WG1264757
Benzo(k)fluoranthene	U		0.355	1.00	1	04/13/2019 12:25	WG1264757
Benzo(g,h,i)perylene	U		0.161	1.00	1	04/13/2019 12:25	WG1264757
Benzo(a)pyrene	U		0.340	1.00	1	04/13/2019 12:25	WG1264757
Bis(2-chlorethoxy)methane	U		0.329	10.0	1	04/13/2019 12:25	WG1264757
Bis(2-chloroethyl)ether	U		1.62	10.0	1	04/13/2019 12:25	WG1264757
Bis(2-chloroisopropyl)ether	U		0.445	10.0	1	04/13/2019 12:25	WG1264757
4-Bromophenyl-phenylether	U		0.335	10.0	1	04/13/2019 12:25	WG1264757
2-Chloronaphthalene	U	J4	0.330	1.00	1	04/13/2019 12:25	WG1264757
4-Chlorophenyl-phenylether	U		0.303	10.0	1	04/13/2019 12:25	WG1264757
Chrysene	U		0.332	1.00	1	04/13/2019 12:25	WG1264757
Dibenz(a,h)anthracene	U		0.279	1.00	1	04/13/2019 12:25	WG1264757
3,3-Dichlorobenzidine	U		2.02	10.0	1	04/13/2019 12:25	WG1264757
2,4-Dinitrotoluene	U		1.65	10.0	1	04/13/2019 12:25	WG1264757
2,6-Dinitrotoluene	U		0.279	10.0	1	04/13/2019 12:25	WG1264757
Fluoranthene	U		0.310	1.00	1	04/13/2019 12:25	WG1264757
Fluorene	0.370	J	0.323	1.00	1	04/13/2019 12:25	WG1264757
Hexachlorobenzene	U		0.341	1.00	1	04/13/2019 12:25	WG1264757
Hexachloro-1,3-butadiene	U		0.329	10.0	1	04/13/2019 12:25	WG1264757
Hexachlorocyclopentadiene	U		2.33	10.0	1	04/13/2019 12:25	WG1264757
Hexachloroethane	U	J4	0.365	10.0	1	04/13/2019 12:25	WG1264757
Indeno(1,2,3-cd)pyrene	U		0.279	1.00	1	04/13/2019 12:25	WG1264757
Isophorone	U		0.272	10.0	1	04/13/2019 12:25	WG1264757
Naphthalene	150		0.372	1.00	1	04/13/2019 12:25	WG1264757
Nitrobenzene	U		0.367	10.0	1	04/13/2019 12:25	WG1264757
n-Nitrosodimethylamine	U		1.26	10.0	1	04/13/2019 12:25	WG1264757
n-Nitrosodiphenylamine	U		1.19	10.0	1	04/13/2019 12:25	WG1264757
n-Nitrosodi-n-propylamine	U		0.403	10.0	1	04/13/2019 12:25	WG1264757
Phenanthrene	0.439	J	0.366	1.00	1	04/13/2019 12:25	WG1264757
Benzylbutyl phthalate	U		0.275	3.00	1	04/13/2019 12:25	WG1264757
Bis(2-ethylhexyl)phthalate	U		0.709	3.00	1	04/13/2019 12:25	WG1264757
Di-n-butyl phthalate	U		0.266	3.00	1	04/13/2019 12:25	WG1264757
Diethyl phthalate	U		0.282	3.00	1	04/13/2019 12:25	WG1264757
Dimethyl phthalate	U		0.283	3.00	1	04/13/2019 12:25	WG1264757
Di-n-octyl phthalate	U		0.278	3.00	1	04/13/2019 12:25	WG1264757
Pyrene	U		0.330	1.00	1	04/13/2019 12:25	WG1264757
1,2,4-Trichlorobenzene	U	J4	0.355	10.0	1	04/13/2019 12:25	WG1264757

Semi Volatile Organic Compounds (GC/MS) by Method 625.1

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
4-Chloro-3-methylphenol	U		0.263	10.0	1	04/13/2019 12:25	WG1264757
2-Chlorophenol	U		0.283	10.0	1	04/13/2019 12:25	WG1264757
2,4-Dichlorophenol	U		0.284	10.0	1	04/13/2019 12:25	WG1264757
2,4-Dimethylphenol	U		0.624	10.0	1	04/13/2019 12:25	WG1264757
4,6-Dinitro-2-methylphenol	U		2.62	10.0	1	04/13/2019 12:25	WG1264757
2,4-Dinitrophenol	U		3.25	10.0	1	04/13/2019 12:25	WG1264757
2-Nitrophenol	U		0.320	10.0	1	04/13/2019 12:25	WG1264757
4-Nitrophenol	U		2.01	10.0	1	04/13/2019 12:25	WG1264757
Pentachlorophenol	U		0.313	10.0	1	04/13/2019 12:25	WG1264757
Phenol	U		0.334	10.0	1	04/13/2019 12:25	WG1264757
2,4,6-Trichlorophenol	U		0.297	10.0	1	04/13/2019 12:25	WG1264757
(S) Nitrobenzene-d5	*60.8*			*15.0-314*		*04/13/2019 12:25*	WG1264757
(S) 2-Fluorobiphenyl	*51.3*			*22.0-127*		*04/13/2019 12:25*	WG1264757
(S) p-Terphenyl-d14	*68.8*			*29.0-141*		*04/13/2019 12:25*	WG1264757
(S) Phenol-d5	*24.3*			*8.00-424*		*04/13/2019 12:25*	WG1264757
(S) 2-Fluorophenol	*38.1*			*10.0-120*		*04/13/2019 12:25*	WG1264757
(S) 2,4,6-Tribromophenol	*74.2*			*10.0-153*		*04/13/2019 12:25*	WG1264757

Method Blank (MB)

(MB) R3402078-3 04/12/19 15:56

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	U		10.0	50.0
Acrolein	U		8.87	50.0
Acrylonitrile	U		1.87	10.0
Benzene	U		0.331	1.00
Bromobenzene	U		0.352	1.00
Bromodichloromethane	U		0.380	1.00
Bromoform	U		0.469	1.00
Bromomethane	U		0.866	5.00
n-Butylbenzene	U		0.361	1.00
sec-Butylbenzene	U		0.365	1.00
tert-Butylbenzene	U		0.399	1.00
Carbon tetrachloride	U		0.379	1.00
Chlorobenzene	U		0.348	1.00
Chlorodibromomethane	U		0.327	1.00
Chloroethane	U		0.453	5.00
Chloroform	U		0.324	5.00
Chloromethane	U		0.276	2.50
2-Chlorotoluene	U		0.375	1.00
4-Chlorotoluene	U		0.351	1.00
1,2-Dibromo-3-Chloropropane	U		1.33	5.00
1,2-Dibromoethane	U		0.381	1.00
Dibromomethane	U		0.346	1.00
1,2-Dichlorobenzene	U		0.349	1.00
1,3-Dichlorobenzene	U		0.220	1.00
1,4-Dichlorobenzene	U		0.274	1.00
Dichlorodifluoromethane	U		0.551	5.00
1,1-Dichloroethane	U		0.259	1.00
1,2-Dichloroethane	U		0.361	1.00
1,1-Dichloroethene	U		0.398	1.00
cis-1,2-Dichloroethene	U		0.260	1.00
trans-1,2-Dichloroethene	U		0.396	1.00
1,2-Dichloropropane	U		0.306	1.00
1,1-Dichloropropene	U		0.352	1.00
1,3-Dichloropropane	U		0.366	1.00
2,2-Dichloropropane	U		0.321	1.00
Di-isopropyl ether	U		0.320	1.00
Ethylbenzene	U		0.384	1.00
Hexachloro-1,3-butadiene	U		0.256	1.00
Isopropylbenzene	U		0.326	1.00
p-Isopropyltoluene	U		0.350	1.00

Method Blank (MB)

(MB) R3402078-3 04/12/19 15:56

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
2-Butanone (MEK)	U		3.93	10.0
Methylene Chloride	U		1.00	5.00
4-Methyl-2-pentanone (MIBK)	U		2.14	10.0
Methyl tert-butyl ether	U		0.367	1.00
Naphthalene	U		1.00	5.00
n-Propylbenzene	U		0.349	1.00
Styrene	U		0.307	1.00
1,1,1,2-Tetrachloroethane	U		0.385	1.00
1,1,2,2-Tetrachloroethane	U		0.130	1.00
Tetrachloroethene	U		0.372	1.00
Toluene	U		0.412	1.00
1,2,3-Trichlorobenzene	U		0.230	1.00
1,2,4-Trichlorobenzene	U		0.355	1.00
1,1,1-Trichloroethane	U		0.319	1.00
1,1,2-Trichloroethane	U		0.383	1.00
Trichloroethene	U		0.398	1.00
Trichlorofluoromethane	U		1.20	5.00
1,2,3-Trichloropropane	U		0.807	2.50
1,2,4-Trimethylbenzene	U		0.373	1.00
1,3,5-Trimethylbenzene	U		0.387	1.00
Vinyl chloride	U		0.259	1.00
Xylenes, Total	U		1.06	3.00
(S) Toluene-d8	*102*			*80.0-120*
(S) a,a,a-Trifluorotoluene	*98.5*			*80.0-120*
(S) 4-Bromofluorobenzene	*98.7*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*94.4*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3402078-1 04/12/19 14:53 • (LCSD) R3402078-2 04/12/19 15:14

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	125	134	142	107	114	19.0-160			5.73	27
Acrolein	125	126	131	101	105	10.0-160			3.94	26
Acrylonitrile	125	128	136	103	109	55.0-149			5.92	20
Benzene	25.0	24.7	25.6	98.7	102	70.0-123			3.67	20
Bromobenzene	25.0	23.0	24.0	92.0	96.0	73.0-121			4.31	20
Bromodichloromethane	25.0	25.2	26.1	101	104	75.0-120			3.49	20
Bromoform	25.0	24.9	26.0	99.5	104	68.0-132			4.55	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3402078-1 04/12/19 14:53 • (LCSD) R3402078-2 04/12/19 15:14

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromomethane	25.0	28.2	30.3	113	121	10.0-160			7.10	25
n-Butylbenzene	25.0	24.7	25.8	99.0	103	73.0-125			4.17	20
sec-Butylbenzene	25.0	25.5	26.2	102	105	75.0-125			3.00	20
tert-Butylbenzene	25.0	25.6	26.8	102	107	76.0-124			4.56	20
Carbon tetrachloride	25.0	26.2	27.4	105	109	68.0-126			4.27	20
Chlorobenzene	25.0	24.7	25.7	99.0	103	80.0-121			3.79	20
Chlorodibromomethane	25.0	25.2	25.9	101	104	77.0-125			2.85	20
Chloroethane	25.0	25.4	27.1	101	108	47.0-150			6.49	20
Chloroform	25.0	25.5	26.9	102	107	73.0-120			5.06	20
Chloromethane	25.0	24.9	27.6	99.4	111	41.0-142			10.6	20
2-Chlorotoluene	25.0	25.2	26.7	101	107	76.0-123			5.62	20
4-Chlorotoluene	25.0	24.9	26.0	99.7	104	75.0-122			4.00	20
1,2-Dibromo-3-Chloropropane	25.0	24.8	26.2	99.2	105	58.0-134			5.54	20
1,2-Dibromoethane	25.0	25.9	26.4	103	106	80.0-122			2.19	20
Dibromomethane	25.0	25.0	26.0	99.8	104	80.0-120			4.01	20
1,2-Dichlorobenzene	25.0	25.1	26.5	101	106	79.0-121			5.48	20
1,3-Dichlorobenzene	25.0	25.6	26.6	102	107	79.0-120			3.94	20
1,4-Dichlorobenzene	25.0	23.5	24.5	94.1	98.1	79.0-120			4.24	20
Dichlorodifluoromethane	25.0	22.4	23.5	89.8	94.1	51.0-149			4.75	20
1,1-Dichloroethane	25.0	24.3	26.1	97.0	104	70.0-126			7.21	20
1,2-Dichloroethane	25.0	22.7	23.8	90.8	95.0	70.0-128			4.53	20
1,1-Dichloroethene	25.0	24.9	26.3	99.4	105	71.0-124			5.72	20
cis-1,2-Dichloroethene	25.0	24.8	26.4	99.2	106	73.0-120			6.26	20
trans-1,2-Dichloroethene	25.0	27.8	28.7	111	115	73.0-120			3.33	20
1,2-Dichloropropane	25.0	25.1	25.6	101	102	77.0-125			1.73	20
1,1-Dichloropropene	25.0	25.9	26.8	104	107	74.0-126			3.40	20
1,3-Dichloropropane	25.0	26.5	26.8	106	107	80.0-120			0.930	20
2,2-Dichloropropane	25.0	19.0	19.4	76.1	77.7	58.0-130			2.04	20
Di-isopropyl ether	25.0	24.2	25.4	96.8	101	58.0-138			4.71	20
Ethylbenzene	25.0	26.7	26.9	107	108	79.0-123			1.07	20
Hexachloro-1,3-butadiene	25.0	24.2	25.0	96.9	99.8	54.0-138			2.92	20
Isopropylbenzene	25.0	25.4	26.4	102	106	76.0-127			3.98	20
p-Isopropyltoluene	25.0	24.8	26.2	99.2	105	76.0-125			5.50	20
2-Butanone (MEK)	125	119	124	95.6	99.0	44.0-160			3.57	20
Methylene Chloride	25.0	23.5	24.2	94.0	96.7	67.0-120			2.84	20
4-Methyl-2-pentanone (MIBK)	125	128	129	102	103	68.0-142			0.817	20
Methyl tert-butyl ether	25.0	25.0	25.4	100	102	68.0-125			1.46	20
Naphthalene	25.0	24.2	26.2	97.0	105	54.0-135			7.92	20
n-Propylbenzene	25.0	24.7	25.9	99.0	103	77.0-124			4.45	20
Styrene	25.0	27.4	28.3	110	113	73.0-130			3.30	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3402078-1 04/12/19 14:53 • (LCSD) R3402078-2 04/12/19 15:14

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
1,1,1,2-Tetrachloroethane	25.0	25.0	25.7	100	103	75.0-125			2.52	20
1,1,2,2-Tetrachloroethane	25.0	24.0	24.8	95.9	99.2	65.0-130			3.46	20
Tetrachloroethene	25.0	25.6	26.5	102	106	72.0-132			3.76	20
Toluene	25.0	24.0	24.6	95.8	98.5	79.0-120			2.76	20
1,2,3-Trichlorobenzene	25.0	25.5	27.9	102	112	50.0-138			9.02	20
1,2,4-Trichlorobenzene	25.0	25.4	27.0	102	108	57.0-137			6.03	20
1,1,1-Trichloroethane	25.0	25.1	26.4	101	105	73.0-124			4.80	20
1,1,2-Trichloroethane	25.0	24.6	25.2	98.5	101	80.0-120			2.16	20
Trichloroethene	25.0	28.8	29.4	115	118	78.0-124			2.18	20
Trichlorofluoromethane	25.0	27.2	28.1	109	112	59.0-147			3.12	20
1,2,3-Trichloropropane	25.0	25.4	27.1	102	108	73.0-130			6.33	20
1,2,4-Trimethylbenzene	25.0	25.9	27.1	103	108	76.0-121			4.53	20
1,3,5-Trimethylbenzene	25.0	24.1	25.3	96.2	101	76.0-122			4.99	20
Vinyl chloride	25.0	25.8	27.7	103	111	67.0-131			7.31	20
Xylenes, Total	75.0	78.2	80.0	104	107	79.0-123			2.28	20
(S) Toluene-d8				*98.1*	*98.7*	*80.0-120*				
(S) α,α,α-Trifluorotoluene				*97.1*	*101*	*80.0-120*				
(S) 4-Bromofluorobenzene				*101*	*103*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*107*	*106*	*70.0-130*				

Method Blank (MB)

(MB) R3401482-3 04/13/19 12:08

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acenaphthene	U		0.316	1.00
Acenaphthylene	U		0.309	1.00
Anthracene	U		0.291	1.00
Benzidine	U		4.32	10.0
Benzo(a)anthracene	U		0.0975	1.00
Benzo(b)fluoranthene	U		0.0896	1.00
Benzo(k)fluoranthene	U		0.355	1.00
Benzo(g,h,i)perylene	U		0.161	1.00
Benzo(a)pyrene	U		0.340	1.00
Bis(2-chlorethoxy)methane	U		0.329	10.0
Bis(2-chloroethyl)ether	U		1.62	10.0
Bis(2-chloroisopropyl)ether	U		0.445	10.0
4-Bromophenyl-phenylether	U		0.335	10.0
2-Chloronaphthalene	U		0.330	1.00
4-Chlorophenyl-phenylether	U		0.303	10.0
Chrysene	U		0.332	1.00
Dibenz(a,h)anthracene	U		0.279	1.00
3,3-Dichlorobenzidine	U		2.02	10.0
2,4-Dinitrotoluene	U		1.65	10.0
2,6-Dinitrotoluene	U		0.279	10.0
Fluoranthene	U		0.310	1.00
Fluorene	U		0.323	1.00
Hexachlorobenzene	U		0.341	1.00
Hexachloro-1,3-butadiene	U		0.329	10.0
Hexachlorocyclopentadiene	U		2.33	10.0
Hexachloroethane	U		0.365	10.0
Indeno(1,2,3-cd)pyrene	U		0.279	1.00
Isophorone	U		0.272	10.0
Naphthalene	U		0.372	1.00
Nitrobenzene	U		0.367	10.0
n-Nitrosodimethylamine	U		1.26	10.0
n-Nitrosodiphenylamine	U		1.19	10.0
n-Nitrosodi-n-propylamine	U		0.403	10.0
Phenanthrene	U		0.366	1.00
Benzylbutyl phthalate	U		0.275	3.00
Bis(2-ethylhexyl)phthalate	U		0.709	3.00
Di-n-butyl phthalate	U		0.266	3.00
Diethyl phthalate	U		0.282	3.00
Dimethyl phthalate	U		0.283	3.00
Di-n-octyl phthalate	U		0.278	3.00

Method Blank (MB)

(MB) R3401482-3 04/13/19 12:08

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Pyrene	U		0.330	1.00
1,2,4-Trichlorobenzene	U		0.355	10.0
4-Chloro-3-methylphenol	U		0.263	10.0
2-Chlorophenol	U		0.283	10.0
2,4-Dichlorophenol	U		0.284	10.0
2,4-Dimethylphenol	U		0.624	10.0
4,6-Dinitro-2-methylphenol	U		2.62	10.0
2,4-Dinitrophenol	U		3.25	10.0
2-Nitrophenol	U		0.320	10.0
4-Nitrophenol	U		2.01	10.0
Pentachlorophenol	U		0.313	10.0
Phenol	U		0.334	10.0
2,4,6-Trichlorophenol	U		0.297	10.0
(S) Nitrobenzene-d5	*49.5*			*15.0-314*
(S) 2-Fluorobiphenyl	*48.0*			*22.0-127*
(S) p-Terphenyl-d14	*63.6*			*29.0-141*
(S) Phenol-d5	*24.1*			*8.00-424*
(S) 2-Fluorophenol	*37.8*			*10.0-120*
(S) 2,4,6-Tribromophenol	*51.0*			*10.0-153*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3401482-1 04/13/19 11:27 • (LCSD) R3401482-2 04/13/19 11:47

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acenaphthene	50.0	32.8	31.7	65.6	63.4	47.0-145			3.41	48
Acenaphthylene	50.0	31.5	30.7	63.0	61.4	33.0-145			2.57	74
Anthracene	50.0	36.0	35.5	72.0	71.0	27.0-133			1.40	66
Benzidine	100	34.7	40.5	34.7	40.5	1.00-120			15.4	36
Benzo(a)anthracene	50.0	37.0	36.6	74.0	73.2	33.0-143			1.09	53
Benzo(b)fluoranthene	50.0	36.0	35.9	72.0	71.8	24.0-159			0.278	71
Benzo(k)fluoranthene	50.0	36.9	35.9	73.8	71.8	11.0-162			2.75	63
Benzo(g,h,i)perylene	50.0	35.4	35.0	70.8	70.0	1.00-219			1.14	97
Benzo(a)pyrene	50.0	35.0	34.4	70.0	68.8	17.0-163			1.73	72
Bis(2-chlorethoxy)methane	50.0	30.1	29.2	60.2	58.4	1.00-219			3.04	54
Bis(2-chloroethyl)ether	50.0	30.0	28.5	60.0	57.0	33.0-185			5.13	108
Bis(2-chloroisopropyl)ether	50.0	29.9	28.7	59.8	57.4	36.0-166			4.10	76
4-Bromophenyl-phenylether	50.0	37.0	35.7	74.0	71.4	53.0-127			3.58	43
2-Chloronaphthalene	50.0	29.7	28.3	59.4	56.6	60.0-120	J4	J4	4.83	24

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3401482-1 04/13/19 11:27 • (LCSD) R3401482-2 04/13/19 11:47

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
4-Chlorophenyl-phenylether	50.0	33.7	33.2	67.4	66.4	25.0-158			1.49	61
Chrysene	50.0	37.6	36.9	75.2	73.8	17.0-168			1.88	87
Dibenz(a,h)anthracene	50.0	35.7	35.2	71.4	70.4	1.00-227			1.41	126
3,3-Dichlorobenzidine	100	73.2	72.0	73.2	72.0	1.00-262			1.65	108
2,4-Dinitrotoluene	50.0	37.4	37.7	74.8	75.4	39.0-139			0.799	42
2,6-Dinitrotoluene	50.0	34.9	34.4	69.8	68.8	50.0-158			1.44	48
Fluoranthene	50.0	38.3	38.2	76.6	76.4	26.0-137			0.261	66
Fluorene	50.0	33.9	33.4	67.8	66.8	59.0-121			1.49	38
Hexachlorobenzene	50.0	36.4	35.3	72.8	70.6	1.00-152			3.07	55
Hexachloro-1,3-butadiene	50.0	21.0	18.9	42.0	37.8	24.0-120			10.5	62
Hexachlorocyclopentadiene	50.0	21.4	20.0	42.8	40.0	10.0-120			6.76	31
Hexachloroethane	50.0	19.0	17.4	38.0	34.8	40.0-120	J4	J4	8.79	52
Indeno(1,2,3-cd)pyrene	50.0	33.8	34.2	67.6	68.4	1.00-171			1.18	99
Isophorone	50.0	31.2	30.0	62.4	60.0	21.0-196			3.92	93
Naphthalene	50.0	26.0	24.4	52.0	48.8	21.0-133			6.35	65
Nitrobenzene	50.0	27.6	26.8	55.2	53.6	35.0-180			2.94	62
n-Nitrosodimethylamine	50.0	21.5	20.8	43.0	41.6	10.0-120			3.31	34
n-Nitrosodiphenylamine	50.0	35.0	35.0	70.0	70.0	44.0-120			0.000	21
n-Nitrosodi-n-propylamine	50.0	34.5	33.4	69.0	66.8	1.00-230			3.24	87
Phenanthrene	50.0	36.1	35.4	72.2	70.8	54.0-120			1.96	39
Benzylbutyl phthalate	50.0	37.6	37.4	75.2	74.8	1.00-152			0.533	60
Bis(2-ethylhexyl)phthalate	50.0	38.4	37.6	76.8	75.2	8.00-158			2.11	82
Di-n-butyl phthalate	50.0	39.2	39.3	78.4	78.6	1.00-120			0.255	47
Diethyl phthalate	50.0	35.5	35.3	71.0	70.6	1.00-120			0.565	100
Dimethyl phthalate	50.0	34.9	34.3	69.8	68.6	1.00-120			1.73	183
Di-n-octyl phthalate	50.0	38.9	38.9	77.8	77.8	4.00-146			0.000	69
Pyrene	50.0	37.2	36.7	74.4	73.4	52.0-120			1.35	49
1,2,4-Trichlorobenzene	50.0	23.0	21.2	46.0	42.4	44.0-142		J4	8.14	50
4-Chloro-3-methylphenol	50.0	33.5	33.6	67.0	67.2	22.0-147			0.298	73
2-Chlorophenol	50.0	29.1	28.0	58.2	56.0	23.0-134			3.85	61
2,4-Dichlorophenol	50.0	29.4	28.4	58.8	56.8	39.0-135			3.46	50
2,4-Dimethylphenol	50.0	29.4	28.6	58.8	57.2	32.0-120			2.76	58
4,6-Dinitro-2-methylphenol	50.0	39.7	40.2	79.4	80.4	1.00-181			1.25	203
2,4-Dinitrophenol	50.0	30.0	29.8	60.0	59.6	1.00-191			0.669	132
2-Nitrophenol	50.0	31.1	30.4	62.2	60.8	29.0-182			2.28	55
4-Nitrophenol	50.0	17.6	17.9	35.2	35.8	1.00-132			1.69	131
Pentachlorophenol	50.0	30.4	30.5	60.8	61.0	14.0-176			0.328	86
Phenol	50.0	15.4	15.2	30.8	30.4	5.00-120			1.31	64
2,4,6-Trichlorophenol	50.0	31.3	30.5	62.6	61.0	37.0-144			2.59	58
(S) Nitrobenzene-d5				*56.3*	*53.7*	*15.0-314*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3401482-1 04/13/19 11:27 • (LCSD) R3401482-2 04/13/19 11:47

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
(S) 2-Fluorobiphenyl				*60.1*	*58.1*	*22.0-127*				
(S) p-Terphenyl-d14				*72.1*	*70.2*	*29.0-141*				
(S) Phenol-d5				*28.4*	*27.8*	*8.00-424*				
(S) 2-Fluorophenol				*43.3*	*41.7*	*10.0-120*				
(S) 2,4,6-Tribromophenol				*66.0*	*66.0*	*10.0-153*				

L1087068-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1087068-01 04/13/19 14:47 • (MS) R3401475-1 04/13/19 15:11 • (MSD) R3401475-2 04/13/19 15:34

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	50.0	U	26.4	30.2	52.8	60.4	1	47.0-145			13.4	48
Acenaphthylene	50.0	U	24.8	28.6	49.6	57.2	1	33.0-145			14.2	74
Anthracene	50.0	U	31.2	35.7	62.4	71.4	1	27.0-133			13.5	66
Benzo(a)anthracene	50.0	U	33.9	37.0	67.8	74.0	1	33.0-143			8.74	53
Benzo(b)fluoranthene	50.0	0.0164	31.3	33.8	62.6	67.6	1	24.0-159			7.68	71
Benzo(k)fluoranthene	50.0	U	32.5	34.3	65.0	68.6	1	11.0-162			5.39	63
Benzo(g,h,i)perylene	50.0	U	33.3	36.1	66.6	72.2	1	1.00-219			8.07	97
Benzo(a)pyrene	50.0	U	31.0	33.2	62.0	66.4	1	17.0-163			6.85	72
Bis(2-chlorethoxy)methane	50.0	U	21.2	23.8	42.4	47.6	1	33.0-184			11.6	54
Bis(2-chloroethyl)ether	50.0	U	18.9	22.7	37.8	45.4	1	12.0-158			18.3	108
Bis(2-chloroisopropyl)ether	50.0	U	22.7	27.5	45.4	55.0	1	36.0-166			19.1	76
4-Bromophenyl-phenylether	50.0	U	30.4	33.3	60.8	66.6	1	53.0-127			9.11	43
2-Chloronaphthalene	50.0	U	22.9	26.6	45.8	53.2	1	60.0-120	J6	J6	14.9	24
4-Chlorophenyl-phenylether	50.0	U	27.6	31.1	55.2	62.2	1	25.0-158			11.9	61
Chrysene	50.0	U	31.4	34.1	62.8	68.2	1	17.0-168			8.24	87
Dibenz(a,h)anthracene	50.0	U	32.7	35.2	65.4	70.4	1	1.00-227			7.36	126
3,3-Dichlorobenzidine	100	U	38.9	50.5	38.9	50.5	1	1.00-262			26.0	108
2,4-Dinitrotoluene	50.0	U	33.7	38.7	67.4	77.4	1	39.0-139			13.8	42
2,6-Dinitrotoluene	50.0	U	29.2	33.2	58.4	66.4	1	50.0-158			12.8	48
Benzidine	100	U	ND	4.71	0.000	4.71	1	1.00-120	J6	J3	200	40
Fluoranthene	50.0	U	36.0	39.4	72.0	78.8	1	26.0-137			9.02	66
Fluorene	50.0	U	28.6	32.7	57.2	65.4	1	59.0-121	J6		13.4	38
Hexachlorobenzene	50.0	U	29.5	32.9	59.0	65.8	1	1.00-152			10.9	55
Hexachloro-1,3-butadiene	50.0	U	18.2	21.3	36.4	42.6	1	24.0-120			15.7	62
Hexachlorocyclopentadiene	50.0	U	17.1	20.3	34.2	40.6	1	10.0-146			17.1	34
Hexachloroethane	50.0	U	15.7	18.4	31.4	36.8	1	40.0-120	J6	J6	15.8	52
Indeno(1,2,3-cd)pyrene	50.0	U	32.0	34.8	64.0	69.6	1	1.00-171			8.38	99
Isophorone	50.0	U	22.0	24.6	44.0	49.2	1	21.0-196			11.2	93

L1087068-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1087068-01 04/13/19 14:47 • (MS) R3401475-1 04/13/19 15:11 • (MSD) R3401475-2 04/13/19 15:34

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Naphthalene	50.0	U	20.9	24.0	41.8	48.0	1	21.0-133			13.8	65
Nitrobenzene	50.0	0.827	21.3	25.2	40.9	48.7	1	35.0-180			16.8	62
n-Nitrosodimethylamine	50.0	U	19.6	24.1	39.2	48.2	1	10.0-120			20.6	40
n-Nitrosodiphenylamine	50.0	U	31.1	35.5	62.2	71.0	1	16.0-160			13.2	28
n-Nitrosodi-n-propylamine	50.0	U	23.1	27.2	46.2	54.4	1	1.00-230			16.3	87
Phenanthrene	50.0	U	31.9	34.9	63.8	69.8	1	54.0-120			8.98	39
Benzylbutyl phthalate	50.0	U	37.4	40.2	74.8	80.4	1	1.00-152			7.22	60
Bis(2-ethylhexyl)phthalate	50.0	0.772	38.4	41.5	75.3	81.5	1	8.00-158			7.76	82
Di-n-butyl phthalate	50.0	U	38.9	43.0	77.8	86.0	1	1.00-120			10.0	47
Diethyl phthalate	50.0	U	33.2	36.8	66.4	73.6	1	1.00-120			10.3	100
Dimethyl phthalate	50.0	U	30.0	33.5	60.0	67.0	1	1.00-120			11.0	183
Di-n-octyl phthalate	50.0	0.420	40.9	44.6	81.0	88.4	1	4.00-146			8.65	69
Pyrene	50.0	U	31.1	34.2	62.2	68.4	1	52.0-120			9.49	49
1,2,4-Trichlorobenzene	50.0	U	18.7	21.3	37.4	42.6	1	44.0-142	J6	J6	13.0	50
4-Chloro-3-methylphenol	50.0	U	30.1	34.3	60.2	68.6	1	22.0-147			13.0	73
2-Chlorophenol	50.0	U	22.0	25.8	44.0	51.6	1	23.0-134			15.9	61
2,4-Dichlorophenol	50.0	U	26.9	31.8	53.8	63.6	1	39.0-135			16.7	50
2,4-Dimethylphenol	50.0	U	26.1	29.3	52.2	58.6	1	32.0-120			11.6	58
4,6-Dinitro-2-methylphenol	50.0	U	42.7	49.2	85.4	98.4	1	1.00-181			14.1	203
2,4-Dinitrophenol	50.0	U	28.9	33.6	57.8	67.2	1	1.00-191			15.0	132
2-Nitrophenol	50.0	U	28.7	33.1	57.4	66.2	1	29.0-182			14.2	55
4-Nitrophenol	50.0	U	16.2	18.4	32.4	36.8	1	1.00-132			12.7	131
Pentachlorophenol	50.0	U	29.8	32.8	59.6	65.6	1	14.0-176			9.58	86
Phenol	50.0	U	11.1	13.7	22.2	27.4	1	5.00-120			21.0	64
2,4,6-Trichlorophenol	50.0	U	27.5	32.2	55.0	64.4	1	37.0-144			15.7	58
(S) Nitrobenzene-d5					*44.0*	*50.0*		*15.0-314*				
(S) 2-Fluorobiphenyl					*47.6*	*54.3*		*22.0-127*				
(S) p-Terphenyl-d14					*60.3*	*65.4*		*29.0-141*				
(S) Phenol-d5					*19.9*	*22.0*		*8.00-424*				
(S) 2-Fluorophenol					*32.5*	*38.3*		*10.0-120*				
(S) 2,4,6-Tribromophenol					*65.0*	*72.0*		*10.0-153*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

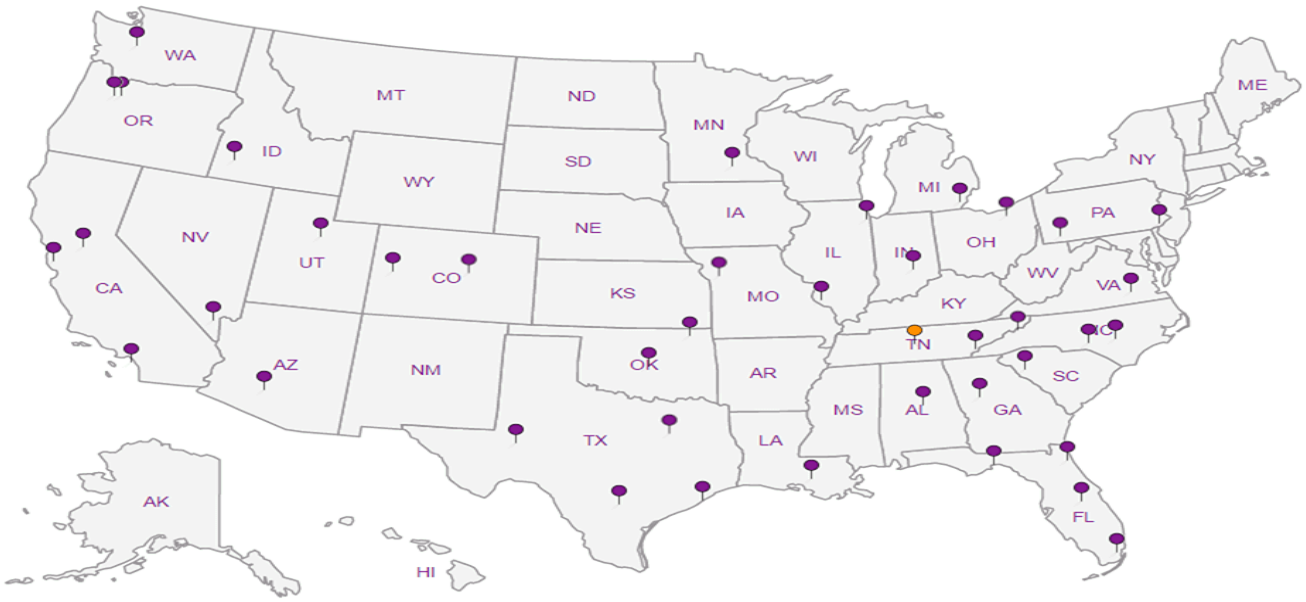
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Dunckiee and Dunham

PO Box 639
Cary, NC 27512

Billing Information:
Project Manager
511 Keisler Drive, Suite 102
Cary, NC 27518

Report to: **Rick Kolb**

Email To: **rkolb@dunckleedunham.com**

Project Description: **NCDOT R-2511 Beaufort and Martin Countie**

City/State Collected: Washington and Williamston / NC

Phone: **919-858-9898**
Fax: **919-858-9899**

Client Project # 201939

Lab Project # **DUNDUNNC-NCDOT R2511**

Collected by (print): Alec Dziwanowski

Site/Facility ID # D&D standard

P.O. #

Collected by (signature): Alec Dziwanowski

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ✓ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Pres Chk:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	1000 100ml Amb NoPres 6/25	VA250 40mlAmb-HCl 6/20									
TW-1	Grab	GW	NA	4/8/19	1450	5	X	X									-01
TW-2	↓	GW	↓	4/8/19	1800	5	X	X									-02
TW-3		GW		4/9/19	1655	5	X	X									-03
TW-4		GW		4/10/19	1120	5	X	X									-04
TW-5		GW		4/10/19	1215	5	X	X									
		~~GW~~ NA				~~5~~	~~X~~	X NA									
									RAD SCREEN: <0.5 mR/hr								

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1088281

F078

Acctnum: **DUNDUNNC**
Template: **T147651**
Prelogin: **P699279**
TSR: **873 - Heather J Wagner**
PB:
Shipped Via: **FedEX Ground**

Remarks | Sample # (lab only)

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: HOLD TW-5 → we will contact the lab when we know if we need it tested

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS ✓ FedEx __ Courier _____

Tracking # 4871 0896 3900

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		✓Y N
Bottles arrive intact:		✓Y N
Correct bottles used:		✓Y N
Sufficient volume sent:		✓Y N
If Applicable		
VOA Zero Headspace:		✓Y N
Preservation Correct/Checked:		✓Y N

	Date:	Time:		
Relinquished by: (Signature) Alec Dziwanowski	4/10/19	1541	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Relinquished by: (Signature)	4/10/19	1555	Received by: (Signature)	Temp: 2.5 -0.1 = 2.4 °C Bottles Received: 25
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 4/11/19 Time: 0900

If preservation required by Login: Date/Time

Hold: 03-0237

Condition: NCF / OK

Divider
Page

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

April 26, 2019

Duncklee and Dunham

Sample Delivery Group:	L1091336
Samples Received:	04/11/2019
Project Number:	201939
Description:	NCDOT R-2511 Beaufort and Martin Counties-Parcel 137
Report To:	Rick Kolb
	PO Box 639
	Cary, NC 27512

Entire Report Reviewed By:

Heather J Wagner
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

TABLE OF CONTENTS

TW-3 L1091336-03 GW

Collected by: Alec Dziwanowski
Collected date/time: 04/09/19 16:55
Received date/time: 04/11/19 09:00

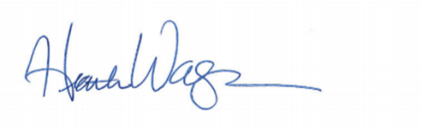
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Petroleum Hydrocarbons by Method MADEPV	WG1270096	1	04/22/19 18:11	04/22/19 18:11	ACG	Mt. Juliet, TN

TW-4 L1091336-04 GW

Collected by: Alec Dziwanowski
Collected date/time: 04/10/19 11:20
Received date/time: 04/11/19 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Petroleum Hydrocarbons by Method MADEPV	WG1270096	20	04/22/19 19:50	04/22/19 19:50	ACG	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Heather J Wagner
Project Manager

Project Narrative

Sample TW-3 and TW-4 are reported separately per client request. All samples listed on the attached COC have been reported individually under SDG number L1091336 based on their Parcel ID.

Volatile Petroleum Hydrocarbons by Method MADEPV

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Unadjusted C5-C8 Aliphatics	62.6	J	33.3	100	1	04/22/2019 18:11	WG1270096
Unadjusted C9-C12 Aliphatics	350		33.3	100	1	04/22/2019 18:11	WG1270096
Unadjusted C9-C10 Aromatics	630		33.3	100	1	04/22/2019 18:11	WG1270096
Total VPH	1040		33.3	100	1	04/22/2019 18:11	WG1270096
(S) 2,5-Dibromotoluene(FID)	*108*			*70.0-130*		*04/22/2019 18:11*	WG1270096
(S) 2,5-Dibromotoluene(PID)	*91.9*			*70.0-130*		*04/22/2019 18:11*	WG1270096

Volatile Petroleum Hydrocarbons by Method MADEPV

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Unadjusted C5-C8 Aliphatics	14200		666	2000	20	04/22/2019 19:50	WG1270096
Unadjusted C9-C12 Aliphatics	15700		666	2000	20	04/22/2019 19:50	WG1270096
Unadjusted C9-C10 Aromatics	11700		666	2000	20	04/22/2019 19:50	WG1270096
Total VPH	41600		666	2000	20	04/22/2019 19:50	WG1270096
(S) 2,5-Dibromotoluene(FID)	*101*			*70.0-130*		*04/22/2019 19:50*	WG1270096
(S) 2,5-Dibromotoluene(PID)	*93.4*			*70.0-130*		*04/22/2019 19:50*	WG1270096

Method Blank (MB)

(MB) R3404446-3 04/22/19 17:38

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Unadjusted C5-C8 Aliphatics	U		33.3	100
Unadjusted C9-C12 Aliphatics	U		33.3	100
Unadjusted C9-C10 Aromatics	U		33.3	100
Total VPH	U		33.3	100
(S) 2,5-Dibromotoluene(FID)	*96.7*			*70.0-130*
(S) 2,5-Dibromotoluene(PID)	*91.2*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3404446-1 04/22/19 15:28 • (LCSD) R3404446-2 04/22/19 15:59

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Unadjusted C5-C8 Aliphatics	1200	1030	1030	86.0	86.2	70.0-130			0.289	25
Unadjusted C9-C12 Aliphatics	1400	1280	1290	91.5	92.1	70.0-130			0.700	25
Unadjusted C9-C10 Aromatics	200	159	160	79.5	79.9	70.0-130			0.510	25
Total VPH	2800	2470	2480	88.2	88.6	70.0-130			0.445	25
(S) 2,5-Dibromotoluene(FID)				*95.5*	*99.0*	*70.0-130*				
(S) 2,5-Dibromotoluene(PID)				*90.8*	*92.8*	*70.0-130*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

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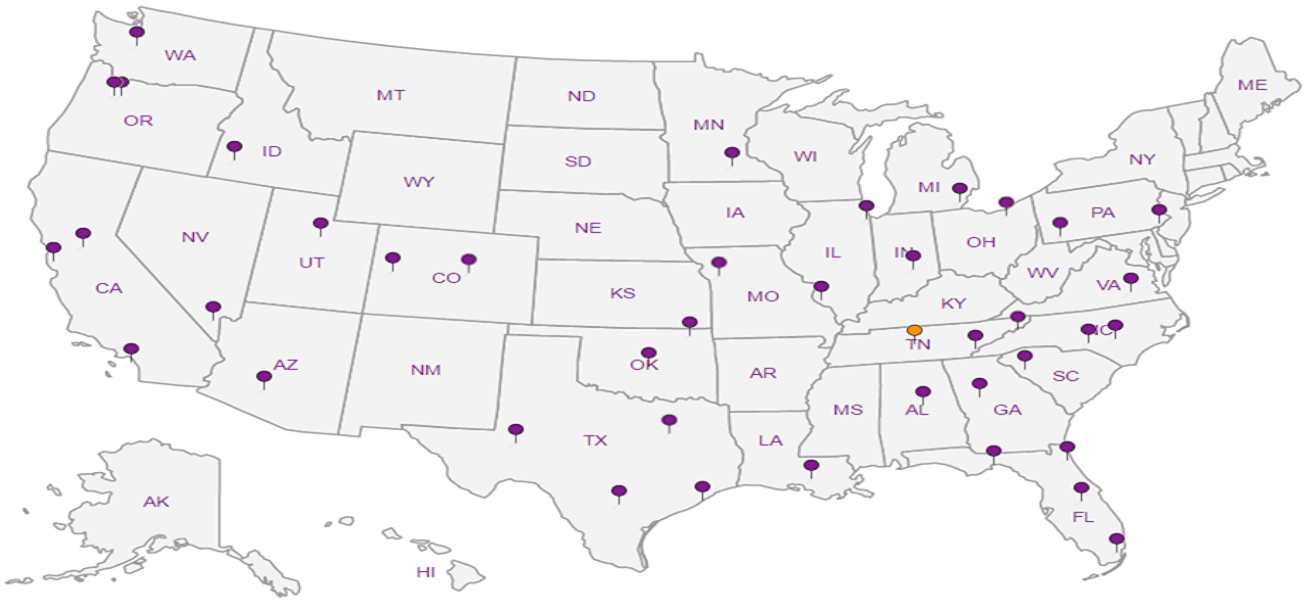

Dunckiee and Dunham

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P.O. #

Collected by (signature): Alec Dziwanowski

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ✓ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Chain of Custody Page ___ of ___

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Mount Juliet, TN 37122
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Fax: 615-758-5859

L# L1066281
F078
L1091336

Acctnum: DUNDUNNC
Template: T147651
Prelogin: P699279
TSR: 873 - Heather J Wagner
PB:

Shipped Via: FedEX Ground

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Analysis / Container / Preservative: 250mL 100ml Amb NoPres (625)	Analysis / Container / Preservative: VA240 40mlAmb-HCl (6200)	Remarks	Sample # (lab only)
TW-1	Grab	GW	NA	4/8/19	1450	5	X	X		01 -01
TW-2		GW		4/8/19	1800	5	X	X		-02 02
TW-3		GW		4/9/19	1655	5	X	X		-03 03
TW-4		GW		4/10/19	1120	5	X	X		-04 04
TW-5	↓	GW	↓	4/10/19	1215	5	X	X		
		~~GW~~				~~5~~ 10	~~X~~	~~X~~		

RAD SCREEN: <0.5 mR/hr

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: HOLD TW-5 → we will contact the lab when we know if we need it tested

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS ✓ FedEx __ Courier _____

Tracking # 4871 [illegible] 6390

Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: ✓Y __N
Preservation Correct/Checked: ✓Y __N

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Alec Dziwanowski	4/10/19	54/	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	4/10/19	1555	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: 2.5 - 0.1 = 2.4 °C Bottles Received: 25

Date: 4/11/19 Time: 0900

If preservation required by Login: Date/Time

Hold: 03-0237

Condition: NCF / OK

NJ 4/22/19

Andy Vann

From: Heather Wagner
Sent: Monday, April 22, 2019 9:09 AM
To: Login
Subject: L1088281 - relog for VPH - expires today

Please relog L1088281-01, -02, -03 and -04 for VPHNC. -01 and -02 go out of hold today. R5 due 4/29

Thanks,

Heather Wagner
Project Manager
Pace Analytical National Center for Testing & Innovation
12065 Lebanon Road | Mt. Juliet, TN 37122
Office 615.773.9686 | Cell 615.289.9801
hwagner@pacenational.com | pacenational.com

ESC Lab Sciences is now Pace Analytical National Center for Testing & Innovation! Please make note of my new email address and website.