



**North Carolina Department of Transportation
Preliminary Site Assessment
State Project: R-3622B
WBS Element: 38068.1.1**

**Tammy Wood Wright Property
Parcel 23
June 16, 2014**

**AMEC Environment and Infrastructure, Inc.
AMEC Project: 566773622**

A handwritten signature in blue ink that reads "Rodney M. Clark". The signature is fluid and cursive.

Rodney M. Clark, LG
Staff Geologist

A handwritten signature in blue ink that reads "Helen Corley". The signature is fluid and cursive.

Helen Corley, LG
Senior Associate



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1.0 INTRODUCTION

In accordance with the North Carolina Department of Transportation (NCDOT) Request for Proposal, dated March 13, 2014, AMEC Environment and Infrastructure, Inc. (AMEC) has performed a Preliminary Site Assessment (PSA) for the southeast portion of Parcel 23, Tammy Wood Wright Property, containing an apparent former service station (site). The site is located at 5135 Highway 294 (Tammy Wood Wright residence is 5165), Murphy, Cherokee County, North Carolina and is located northwest of the current intersection of NC 294 and Crowe Road (SR 1152) in Cherokee County, North Carolina. **Figure 1** presents a vicinity map. The remaining portion of concrete foundation of the former service station is at Sta. 99+00 and contains an apparent open-topped vehicle oil changing pit. The ground penetrating radar survey also included the Proposed Utility Easement (PUE) in addition to the area included in the PSA. The investigation was conducted in accordance with AMEC's Technical and Cost proposal dated March 24, 2014 and revised April 10, 2014.

NCDOT contracted AMEC to perform the PSA on the southeast portion of Parcel 23 due to the reported presence of a former service station and apparent presence of an existing oil change pit at the site. The PSA was performed to determine if soils have been impacted by a potential petroleum release as a result of past uses of the property within the proposed design project area, and if any buried underground storage tanks (USTs) still are present in the area of investigation.

The following report summarizes a ground penetrating radar survey, presents location and capacities of any USTs, and describes our subsurface field investigation at the site. The report includes the evaluation of field screening, as well as field and laboratory analyses with regards to the presence or absence of soil contamination within the NCDOT ROW in the southeast portion of Parcel 23 and estimates the extent of soil contamination. **Appendix A** includes a Photograph log for the site.

1.1 Site Location and History

The site is located at 5135 Highway 294 (Tammy Wood Wright residence is 5165), Murphy, Cherokee County, North Carolina and is located northwest of the current intersection of NC 294 and Crowe Road (SR 1152) in Cherokee County, North Carolina. The site is an apparent former gas/service station and contains the northeast portion of a former concrete foundation at the site. There is an apparent open-topped vehicle oil changing pit in the remaining concrete foundation. The property owner indicated to a NCDOT Right of Way

(ROW) agent that the site operated as a gas station in the 1960's and 1970's. The physical address for the former gas/service station is 5135 Highway 294, Murphy, North Carolina. The site did not appear in the UST Section Registry. AMEC's geophysical surveying subcontractor Vaughn & Melton, Inc. identified one geophysical anomaly, a potential UST, in the graveled/concrete area between the concrete foundation of the former gas station and Highway 294 via ground penetrating radar on April 4, 2014. The potential UST measures approximately four feet by eight feet.

1.2 Site Description

The site is located in a rural area of Cherokee County and the general vicinity is primarily residential, grassy areas, pasture and woodlands. The adjacent properties to the north and west are grassy areas followed by residences. The adjacent property to the south-southeast across Crowe Road is a residence. Further southeast along NC 294 are additional residences, woodlands and pastureland. The adjacent property located to the east across NC 294 contains a grassy area, a church and an associated graveyard.

2.0 GEOLOGY

2.1 Regional Geology

The Site is located within the Ocoee Supergroup of the Blue Ridge Belt Physiographic Province of western North Carolina. The site vicinity is underlain by the Hughes Gap Formation, Hothouse Formation, Horse Branch Member of the Ammons Formation and the Grassy Branch Formation, which are undifferentiated and include metasandstone, metagraywacke, metasilstone and mica schist.

2.2 Site Geology

Site geology was observed through the drilling and sampling of 12 shallow direct push probe soil borings (SB) onsite. **Figure 2** presents the boring locations. Borings did not exceed a total depth of ten feet below ground surface (bgs), with the exception of one boring, SB-3 that extended to 15 feet bgs. Depth to groundwater was observed to range from approximately 13 feet bgs in SB-3 in the vicinity of the former gas/service station to approximately 7 feet bgs in SB-12, which was located south and downhill from the former

gas/service station. Fill material consisting of gray to reddish brown sandy silt or silty sand was observed up to a thickness of seven feet bgs in the vicinity of the potential UST. Native soils generally consisted of gray to yellowish and/or reddish brown, silty, fine-grained sand with some relict rock structure. Boring logs are presented in **Appendix B**.

3.0 FIELD ACTIVITIES

3.1 Preliminary Activities

Prior to commencing field sampling activities at the site, several tasks were accomplished in preparation for the subsurface investigation. The Health and Safety Plan (HASP) was modified to include the site-specific health and safety information necessary for the field activities. North Carolina-1-Call was contacted on April 9, 2014 to report the proposed drilling activities and subsequently notify all affected utilities for the parcel. Geologic Exploration Inc. of Statesville, North Carolina was retained by AMEC to perform the direct push sampling for soil borings. QROS was contacted for acquisition of a rented UVF Hydrocarbon Analyzer and Pace Analytical Services, Inc. was contacted for acquisition of sample bottles. Soil boring locations were focused in the general vicinity of the former gas/service station and the identified geophysical anomaly and within the NCDOT ROW. Boring locations were strategically placed around the potential UST, within and around the former service and existing oil change pit to maximize the likelihood of intercepting potential soil contamination.

3.2 Site Reconnaissance

AMEC personnel performed a site reconnaissance on April 4, 2014. During the site reconnaissance, the area was visually examined for the presence of any UST or areas/obstructions that could potentially affect the subsurface investigation and the number of boring locations were discussed. Mr. Dan Shuler and Mr. Richard Caldwell with the NCDOT were present during our site reconnaissance. An approximate five-gallon plastic trash can was situated in the base of the oil change pit. It was filled to the brim (e.g. overflowed during rain events) with oil and water. Used oil filters were also observed. Apparent surficial staining was observed in the base of the oil change pit. A terra-cotta drain was observed from the interior of the oil change pit to the exterior of the building foundation (southwest side of building). Apparent surficial staining was observed extending

from the drain outlet into a grassy area southwest of the building foundation and within the NCDOT ROW.

3.3 Ground Penetrating Radar Survey

AMEC conducted a ground penetrating radar survey of the site on April 4, 2014. AMEC's ground penetrating radar surveying subcontractor Vaughn & Melton, Inc. identified one geophysical anomaly, which they classified as a potential UST, in the graveled/concrete area between the remaining concrete foundation of the oil change pit and NC 294 via ground penetrating radar on April 4, 2014. The potential UST measured approximately four feet by eight feet and was located approximately 25 feet northwest from Crowe Road and approximately 15 feet southwest of NC 294. The potential UST was observed to be located primarily beneath a concrete apron that formerly extended from the service station storefront. Vaughn & Melton did not identify additional potential USTs, potential product lines and/or subsurface utilities at the site.

3.4 Well Survey

A well survey was not performed as part of this PSA.

3.5 Soil Sampling

AMEC conducted drilling activities at the site on April 24, 2014. AMEC's drilling subcontractor Geologic Exploration Inc. advanced twelve direct push soil borings in the general vicinity of the former service station at the site and within the proposed expanded NCDOT ROW. Boring locations were strategically placed around the identified potential UST and in the vicinity of the former service station and existing oil change pit to maximize the likelihood of intercepting potential soil contamination. AMEC also attempted to delineate areas of identified soil contamination. Figure 2 presents the Site Map with boring locations and identifications.

The purpose of soil sampling was to determine if a petroleum release has occurred in the vicinity of the former service station at the site, and if so, to estimate the volume of impacted soil that might require special handling during construction activities. Soil sampling was performed utilizing direct push methods accompanied by field screening and onsite quantitative analyses. AMEC conducted field screening of the soil borings utilizing a photoionization detector (PID) that was used to screen recovered soil at approximate one-

foot intervals. An interval of the soil boring exhibiting elevated PID readings was selected for onsite quantitative analysis of total petroleum hydrocarbons (TPH) and polycyclic aromatic hydrocarbons (PAH) soil via ultraviolet fluorescence (UVF) utilizing a QROS-QED Hydrocarbon Analyzer. The analysis was performed onsite by Troy Holzschuh, a certified QED UVF technician with AMEC. The UVF results were generated concurrent with soil boring activities so that real-time decision making could be utilized for strategic boring placement.

Due to the former presence of an oil change pit at the site, it was determined that chlorinated solvents and metals were potentially present at the site. UVF cannot distinguish/detect chlorinated solvents and metals, therefore two soil samples were collected for analysis of volatile organic compounds (VOCs) via EPA Method 8260B and total metals (chromium and lead) by EPA Method 3050B. The two soil samples were collected from soil borings SB-2 and SB-8 from intervals exhibiting elevated PID readings. Soil boring SB-2 was located within the center of the oil change pit and SB-8 was located on the southwest side of the oil change pit in an area of apparent surficial oil staining that was near the terra cotta drain outlet from the adjacent pit. The soil samples were collected in accordance with EPA protocols in laboratory-supplied containers. Once placed in the containers, the samples were labeled with the sample number, time of collection, date of collection, name of the collector, and the requested analysis. The samples were packed on ice, and then hand delivered to Pace Analytical in Asheville, who then couriered the samples to Pace Analytical in Huntersville, a North Carolina Certified Laboratory following proper chain-of-custody procedures.

4.0 SOIL SAMPLING RESULTS

Based on PID field screening, onsite UVF hydrocarbon analysis and two samples analyzed by offsite laboratory, there is evidence of a petroleum hydrocarbon release onsite.

Onsite Soil Screening and UVF Analysis

Elevated PID readings, above ten parts per million, were detected in ten of the 12 borings conducted at the site. The elevated PID readings detected were generally highest deeper than 5 feet bgs and from the interval slightly above the saturated zone. The maximum PID reading detected was 1,977 parts per million (ppm) at 2.5 feet below floor surface in SB-2, from within the oil change pit. The PID field screening results are summarized in **Table 1** and are provided on the boring logs in Appendix B.

Results from UVF onsite hydrocarbon analyses are presented in **Table 2**, with instrument generated tables in **Appendix C**. Several categories of analyses were measured onsite such as: gasoline range organics (GRO); diesel range organics (DRO); benzene, ethylbenzene, toluene, xylenes (BETX); total aromatics; and polycyclic aromatics (PAHs). **Figure 3** presents the GRO and DRO results at each boring.

Elevated GRO or DRO values, above the NCDENR Action Limit of 10 mg/kg, were detected in 8 of the 12 soil borings drilled at the site. These 8 borings are located closest to the potential UST and the former oil change pit. The maximum TPH impact was observed in SB-8 with 863 mg/kg DRO and 292.8 mg/kg GRO at 6.5 feet bgs. This boring is on the southwest side of the oil change pit in an area of apparent surficial oil staining. This boring location is topographically down gradient from the oil change pit and potential UST.

Elevated PID readings and TPH values were also detected in the soil borings SB-1, SB-3, SB-4, and SB-7, performed in the vicinity of the potential UST at the site and in the soil borings SB-8, SB-10 and SB-12 performed southeast to south and topographically down gradient of the potential UST and former service station. Near the potential UST, GRO detections ranged from 1.4 to 75.7 mg/kg, while DRO detections ranged from 11.53 to 146.4 mg/kg. Near the former service station building and oil change pit, GRO detections ranged from 23.67 to 292.8 mg/kg, while DRO detections ranged from 61.74 to 863 mg/kg.

Onsite UVF hydrocarbon analysis results also identified elevated total benzene, toluene, ethylbenzene and xylenes (BTEX), and/or PAHs in 8 of the 12 soil borings as shown in Table 2. The maximum total BTEX value detected was 177.1 mg/kg from SB-8 from 6 feet bgs. The maximum PAH value detected was 10.04 mg/kg from SB-3 at 7.5 feet bgs. Benzo(a)pyrene was also detected in one boring, SB-12 from 7.5 feet bgs, at a concentration of 0.024 mg/kg. The hydrocarbon analysis results from the QED QROS Hydrocarbon Analyzer are provided in **Appendix C**.

Offsite Laboratory Analyses

Offsite laboratory analyses, of VOCs via EPA Method 8260B and total metals (chromium and lead) according to EPA Method 6010, was performed for two soil samples collected from soil borings SB-2 and SB-8. Six VOCs, total chromium and/or total lead were detected above the laboratory reporting limits in the soil samples collected from SB-2 and SB-8. These data are presented in **Table 3**. In the SB-8 soil sample collected from 6 foot bgs, five VOC constituents (n-butylbenzene, n-propylbenzene, p-isopropyltoluene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene) and total chromium were reported at

concentrations above NCDENR's Soil-to-Groundwater Maximum Soil Contaminant Concentration (MSCC). No chlorinated VOCs were measurable. Total chromium was also detected at a concentration above NCDENR's Soil-to-Groundwater MSCC in the soil sample collected from SB-2 from 2.5 feet below oil pit floor. The laboratory analytical report and chain-of-custody documentation are included as **Appendix D**.

5.0 CONCLUSIONS

Based on site observations, onsite UVF analysis and laboratory analysis petroleum-impacted soil contamination was identified. The soil contamination is petroleum in nature with a predominance of DRO over GRO. An outline of the impacted soil area within the expanded ROW is illustrated in **Figure 5**.

Shallow unsaturated soil contamination at the site appears to be limited from approximately 5 feet bgs to the water table, which is roughly 13 ft bgs in the former service station area. The horizontal extent of soil contamination has been delineated to the north, northwest and northeast based upon onsite UVF analysis. AMEC estimates approximately 350 cubic yards of unsaturated contaminated soil are present in the vicinity of the potential UST and beneath the footprint of the former service station with oil change pit. Shallow unsaturated soil contaminated was not delineated to the west across the expanded NCDOT ROW line or downslope to the south and southeast, although TPH impact decreases sharply to the east.

Vertical delineation of shallow unsaturated soil was not accomplished due to the presence of impacted groundwater across the area of investigation. The extent of groundwater contamination is unknown at this time as investigation of groundwater was beyond the scope of our assessment.

The following bulleted summary is based upon AMEC's evaluation of field observations and laboratory analyses of samples collected from the Site in April 2014.

- The property historically operated as a service station and contains the remnants of a former oil change pit.
- Ground penetrating radar identified the presence of an approximate four feet by eight feet potential UST within the NCDOT ROW in the level gravel/concrete drive

between the existing concrete foundation of the oil change pit and NC 294 on April 4, 2014. The potential UST is approximately 15 feet southwest of NC 294 and will likely be impacted by proposed construction activities.

- Twelve soil borings were performed and at least one soil sample was collected from each boring from an interval that exhibited elevated PID readings. This sample was analyzed via UVF in the field utilizing a QROS QED Hydrocarbon Analyzer.
- Ten of the twelve soil borings contained elevated PID readings above 10 ppm and eight of the twelve soil borings contained TPH values that exceeded the NCDENR Action Limit of 10 ppm.
- The maximum PID reading detected was 1,977 parts per million at 3 feet bgs in SB-2, from the center of the oil change pit.
- The maximum TPH value detected was 1,155.89 ppm from 6.5 feet bgs in SB-8, performed on the southwest side of the oil change pit in an area of apparent surficial oil staining and located topographically down gradient from the oil change pit and potential UST.
- Elevated PID readings and TPH values were detected in the soil borings SB-1, SB-3, SB-4, and SB-7 performed in the vicinity of the potential UST at the site and in the soil borings SB-2, SB-8, SB-10 and SB-12 performed adjacent or with the oil change pit and southeast to south and topographically down gradient of the potential UST at the site.
- Five VOC constituents and total chromium were detected at concentration above NCDENR's Soil-to-Groundwater Maximum Soil Contaminant Concentration (MSCC) in the soil sample collected from SB-8 from 6-7 feet bgs. Total chromium was also detected at a concentration above NCDENR's Soil-to-Groundwater MSCC in the soil sample collected from SB-2 from 6-7 feet bgs.
- Shallow unsaturated soil contamination was horizontally delineated with respect to TPH values to the northwest, northeast and east of the potential UST and former service station at the site. Shallow unsaturated soil contamination was not horizontally delineated to the south/southwest, therefore the NCDOT ROW boundary trending north to south was utilized to horizontally delineate soil contamination to the southwest and the approximate base of the embankment

along Crowe Road trending southwest to northeast was utilized to horizontally delineate soil contamination to the south.

- AMEC estimates a total of approximately 350 cubic yards of unsaturated contaminated soil is present at the site and ground water contamination also underlies the site.

6.0 RECOMMENDATIONS

AMEC recommends that the potential UST located within the NCDOT ROW be closed by removal and a UST Closure report be submitted to NCDENR. AMEC does not anticipate that a “clean” closure (e.g. no further action letter) can be obtained based on the observed horizontal extent of unsaturated soil contamination and the likely presence of groundwater contamination. Following completion of a UST Closure Report, NCDENR may require performance of additional assessment activities at the site. AMEC recommends that soil removed in the delineated areas of shallow unsaturated soil contamination as part of NCDOT construction activities be properly segregated and disposed of as nonhazardous waste.

TABLES

Table 1
PID Field Screening
Parcel 23, Tammy Wood Wright Property
Cherokee County, North Carolina

SAMPLE ID	Sample Date	Comments	Sample Depth (feet bgs)	Maximum Field Screening (ppm)
SB-1	4/24/2014	East Edge of Potential UST	7	980
SB-2	4/24/2014	Center of Oil Changing Pit	2.5*	1,977
SB-3	4/24/2014	5 Feet South of Potential UST	7	848
SB-4	4/24/2014	10 Feet South of Potential UST	9.5	1,641
SB-5	4/24/2014	10 Feet East of Potential UST	3	4.7
SB-6	4/24/2014	10 Feet North of Potential UST	9	38.5
SB-7	4/24/2014	10 Feet West of Potential UST	7.5	1,269
SB-8	4/24/2014	West Side of Oil Changing Pit	6	1,508
SB-9	4/24/2014	5 Feet Northwest of Oil Pit	9	21.1
SB-10	4/24/2014	23 Feet West of Potential UST	8	219
SB-11	4/24/2014	15 Feet Southwest of Potential UST	5	1.6
SB-12	4/24/2014	23 Feet West of Potential UST	7.5	1,433

Notes: PPM = Parts Per Million

Table 2
UVF Onsite Hydrocarbon Analysis
Parcel 23, Tammy Wood Wright Property
Cherokee, North Carolina

Sample ID Number	Sample Depth (ft bgs)	GRO (mg/kg)	DRO (mg/kg)	BTEX (mg/kg)	PAHs (mg/kg)
SB-1	7	2.49	11.53	<0.7	0.13
SB-2	2.5	60.3	20.49	37	0.22
SB-3	7	75.7	146.4	46	10.04
SB-4	9.5	1.4	54.51	<1.2	4.75
SB-5	3	<0.9	<0.18	<0.9	<0.02
SB-6	9	<1.0	<0.19	<1.0	<0.02
SB-7	7.5	4.37	12.22	<0.9	0.33
SB-8	6	292.8	863	177	2.59
SB-9	9	<0.8	<0.15	<0.8	<0.02
SB10	8	23.87	61.74	14.74	0.12
SB-11	5	<0.8	<0.16	<0.8	<0.02
SB-12	6.5	<0.9	<0.19	<0.9	<0.02
SB-12	7.5	82.09	176.4	49.99	0.71

NOTES:

(mg/kg) = Milligrams per kilogram
GRO = Gasoline Range Organics
DRO = Diesel Range Organics
BTEX = Benzene, Toluene, Ethylbenzene and Xylenes
PAHs = Polycyclic Aromatic Hydrocarbon
ft bgs = feet below ground surface

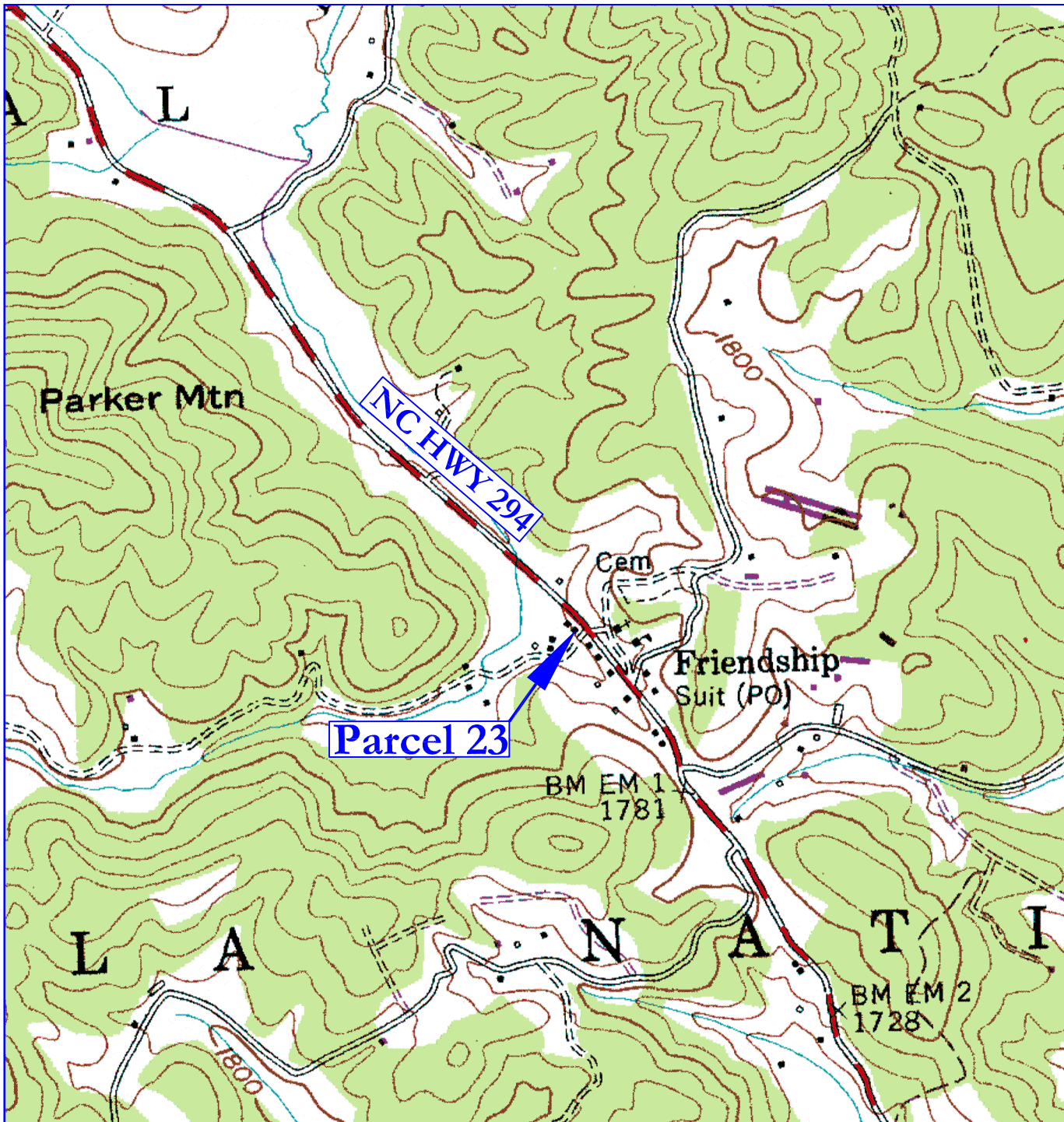
Table 3
Laboratory Analytical Detections
Volatile Organic Compounds and Total Metals (CR and Pb)
Parcel 23, Tammy Wood Wright Property
Cherokee County, North Carolina

Sample ID Number	Sample Date	Sample Depth (ft bgs)	VOCs (µg/kg)					Total Metals (mg/kg)		
			n-Butylbenzene	sec-Butylbenzene	p-Isopropyltoluene	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Chromium	Lead
<i>Industrial/Commercial MSCC</i>			16,350,000	16,350,000	4,000,000	16,350,000	20,440,000	20,440,000	1,226	400
<i>Residential MSCC</i>			626,000	626,000	100,000	626,000	782,000	782,000	47	400
<i>Soil-to-Groundwater MSCC</i>			4,300	3,300	120	1,700	8,500	8,300	5.4	270
SB-2	4/25/2014	2.5	4,010	<1,230	<1,230	<1,230	2,040	1,330	5.6	5.5
SB-8	4/25/2014	6	4,980	1,170	1,210	5,270	15,700	13,200	13.5	12.6

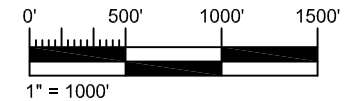
NOTES:

(µg/kg) = Micrograms per kilogram
(mg/kg) = Milligrams per kilogram
MSCC = Maximum soil contaminant concentration (MSCC from April 2014)
NE - Not established
VOC = Volatile organic compounds
ft bgs = feet below ground surface
Concentrations which exceed the Soil-to-Groundwater MSCC are highlighted in **BOLD**
Concentrations which exceed the Residential MSCC are highlighted in **BOLD** and Underlined
Concentrations which exceed the Industrial/Commercial MSCC are highlighted in **BOLD**, Underlined and Shaded Gray

FIGURES



Not to Scale



7.5 Minute Quadrangle
North Carolina, 1983
Photorevised 1993

VICINITY MAP

Parcel #23, Tammy Wood Wright Property
Cherokee County, NC

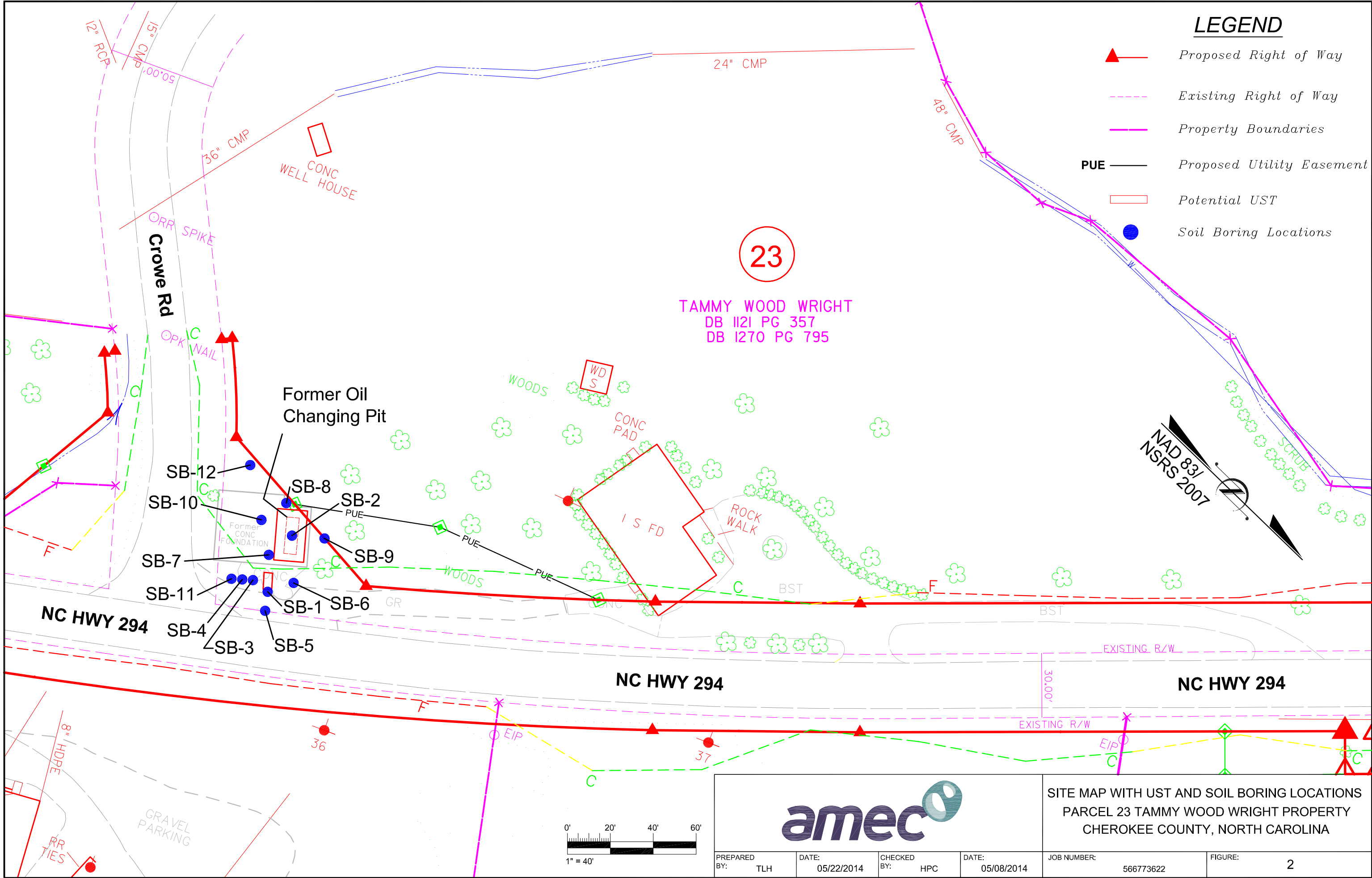
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SCALE: 1 INCH = 1,000 FEET	DR: TLH CHK: HPC REV:

PREPARED FOR:
NC Department Of Transportation
Geotechnical Unit
WBS Element: 38068.1.1
TIP# R-3622B

Prepared By:	Figure:
2801 Yorkmont Rd. Suite 100 Charlotte, NC 28208 (704) 357-5616	Figure 1

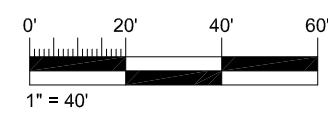
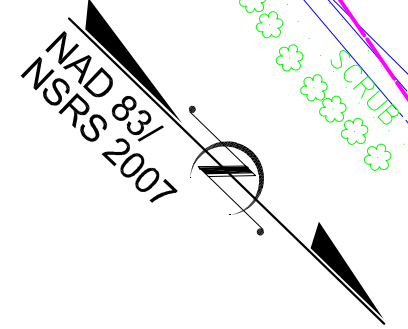
LEGEND

-  Proposed Right of Way
-  Existing Right of Way
-  Property Boundaries
- PUE**  Proposed Utility Easement
-  Potential UST
-  Soil Boring Locations



23

TAMMY WOOD WRIGHT
DB 1121 PG 357
DB 1270 PG 795

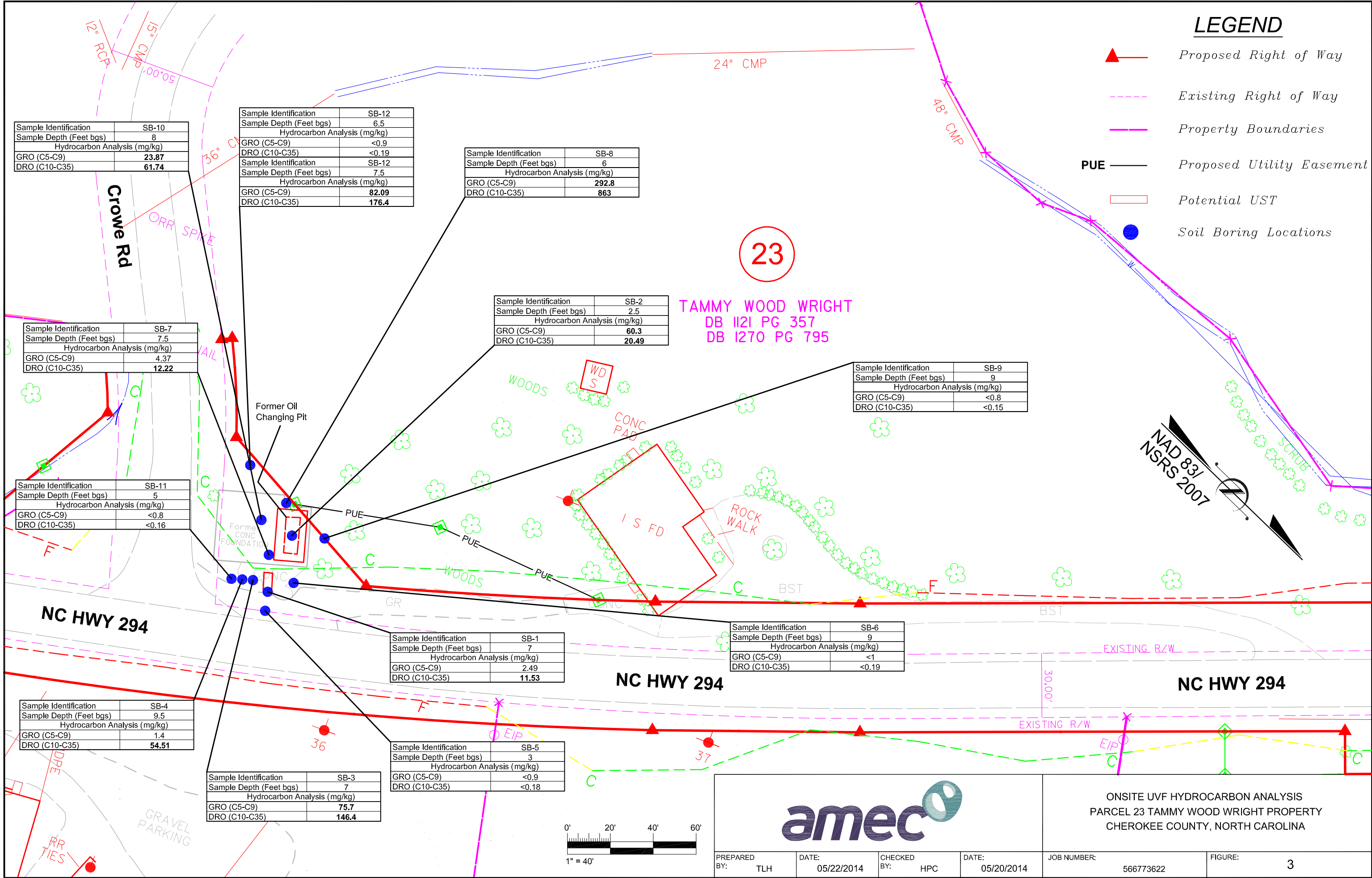


SITE MAP WITH UST AND SOIL BORING LOCATIONS
PARCEL 23 TAMMY WOOD WRIGHT PROPERTY
CHEROKEE COUNTY, NORTH CAROLINA

PREPARED BY: TLH	DATE: 05/22/2014	CHECKED BY: HPC	DATE: 05/08/2014	JOB NUMBER: 566773622	FIGURE: 2
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LEGEND

-  Proposed Right of Way
-  Existing Right of Way
-  Property Boundaries
-  Proposed Utility Easement
-  Potential UST
-  Soil Boring Locations



23

TAMMY WOOD WRIGHT
DB 1121 PG 357
DB 1270 PG 795

Sample Identification	SB-10
Sample Depth (Feet bgs)	8
Hydrocarbon Analysis (mg/kg)	
GRO (C5-C9)	23.87
DRO (C10-C35)	61.74

Sample Identification	SB-12
Sample Depth (Feet bgs)	6.5
Hydrocarbon Analysis (mg/kg)	
GRO (C5-C9)	<0.9
DRO (C10-C35)	<0.19
Sample Identification	SB-12
Sample Depth (Feet bgs)	7.5
Hydrocarbon Analysis (mg/kg)	
GRO (C5-C9)	82.09
DRO (C10-C35)	176.4

Sample Identification	SB-8
Sample Depth (Feet bgs)	6
Hydrocarbon Analysis (mg/kg)	
GRO (C5-C9)	292.8
DRO (C10-C35)	863

Sample Identification	SB-7
Sample Depth (Feet bgs)	7.5
Hydrocarbon Analysis (mg/kg)	
GRO (C5-C9)	4.37
DRO (C10-C35)	12.22

Sample Identification	SB-2
Sample Depth (Feet bgs)	2.5
Hydrocarbon Analysis (mg/kg)	
GRO (C5-C9)	60.3
DRO (C10-C35)	20.49

Sample Identification	SB-9
Sample Depth (Feet bgs)	9
Hydrocarbon Analysis (mg/kg)	
GRO (C5-C9)	<0.8
DRO (C10-C35)	<0.15

Sample Identification	SB-11
Sample Depth (Feet bgs)	5
Hydrocarbon Analysis (mg/kg)	
GRO (C5-C9)	<0.8
DRO (C10-C35)	<0.16

Sample Identification	SB-1
Sample Depth (Feet bgs)	7
Hydrocarbon Analysis (mg/kg)	
GRO (C5-C9)	2.49
DRO (C10-C35)	11.53

Sample Identification	SB-6
Sample Depth (Feet bgs)	9
Hydrocarbon Analysis (mg/kg)	
GRO (C5-C9)	<1
DRO (C10-C35)	<0.19

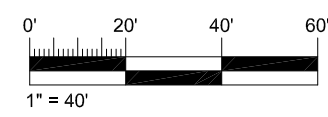
Sample Identification	SB-4
Sample Depth (Feet bgs)	9.5
Hydrocarbon Analysis (mg/kg)	
GRO (C5-C9)	1.4
DRO (C10-C35)	54.51

Sample Identification	SB-3
Sample Depth (Feet bgs)	7
Hydrocarbon Analysis (mg/kg)	
GRO (C5-C9)	75.7
DRO (C10-C35)	146.4

Sample Identification	SB-5
Sample Depth (Feet bgs)	3
Hydrocarbon Analysis (mg/kg)	
GRO (C5-C9)	<0.9
DRO (C10-C35)	<0.18



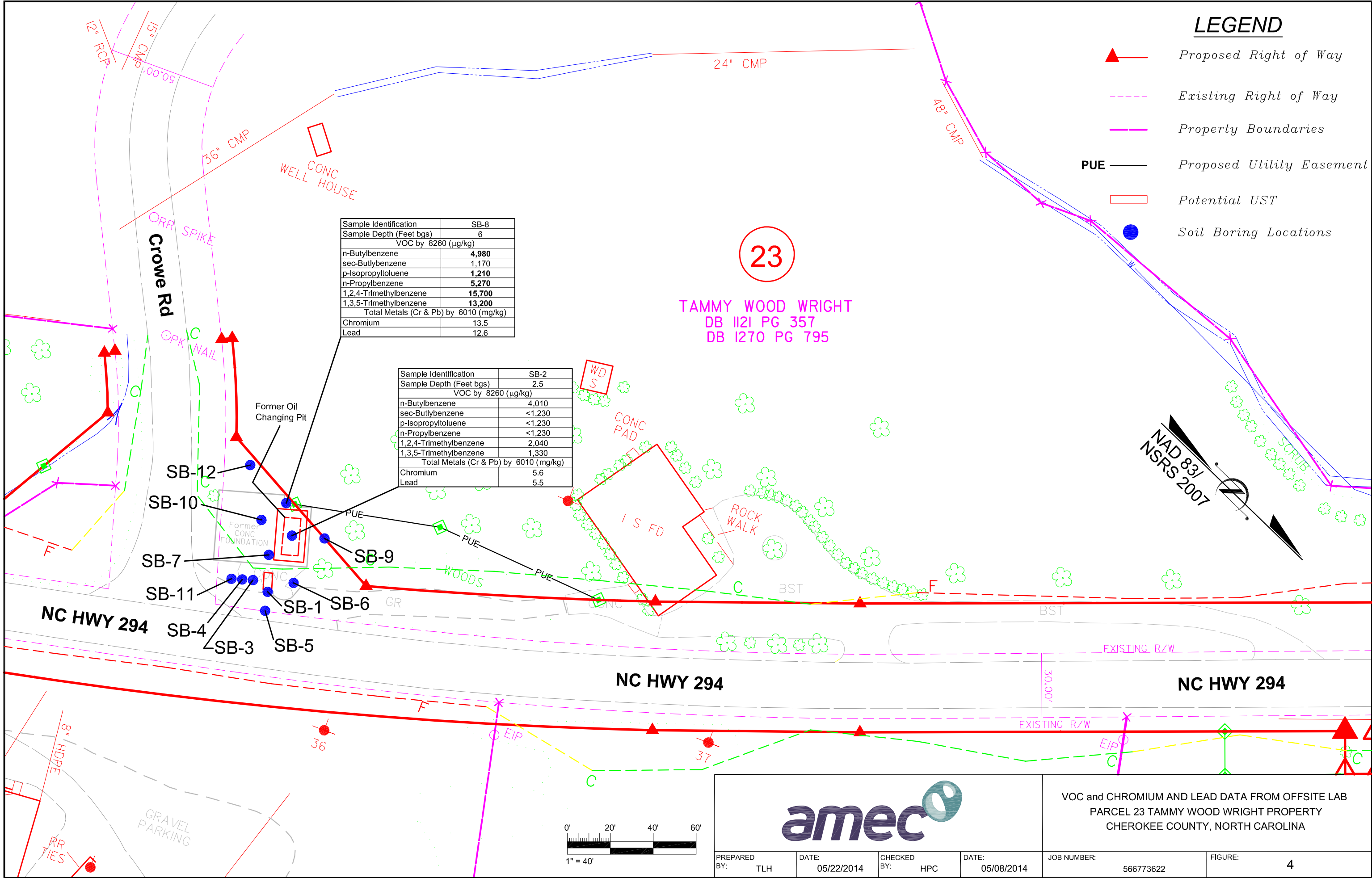
ONSITE UVF HYDROCARBON ANALYSIS
PARCEL 23 TAMMY WOOD WRIGHT PROPERTY
CHEROKEE COUNTY, NORTH CAROLINA



PREPARED BY: TLH	DATE: 05/22/2014	CHECKED BY: HPC	DATE: 05/20/2014	JOB NUMBER: 566773622	FIGURE: 3
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LEGEND

-  Proposed Right of Way
-  Existing Right of Way
-  Property Boundaries
-  PUE Proposed Utility Easement
-  Potential UST
-  Soil Boring Locations

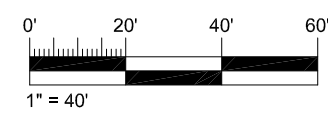
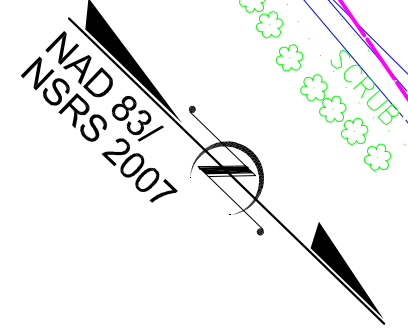


23

TAMMY WOOD WRIGHT
DB 1121 PG 357
DB 1270 PG 795

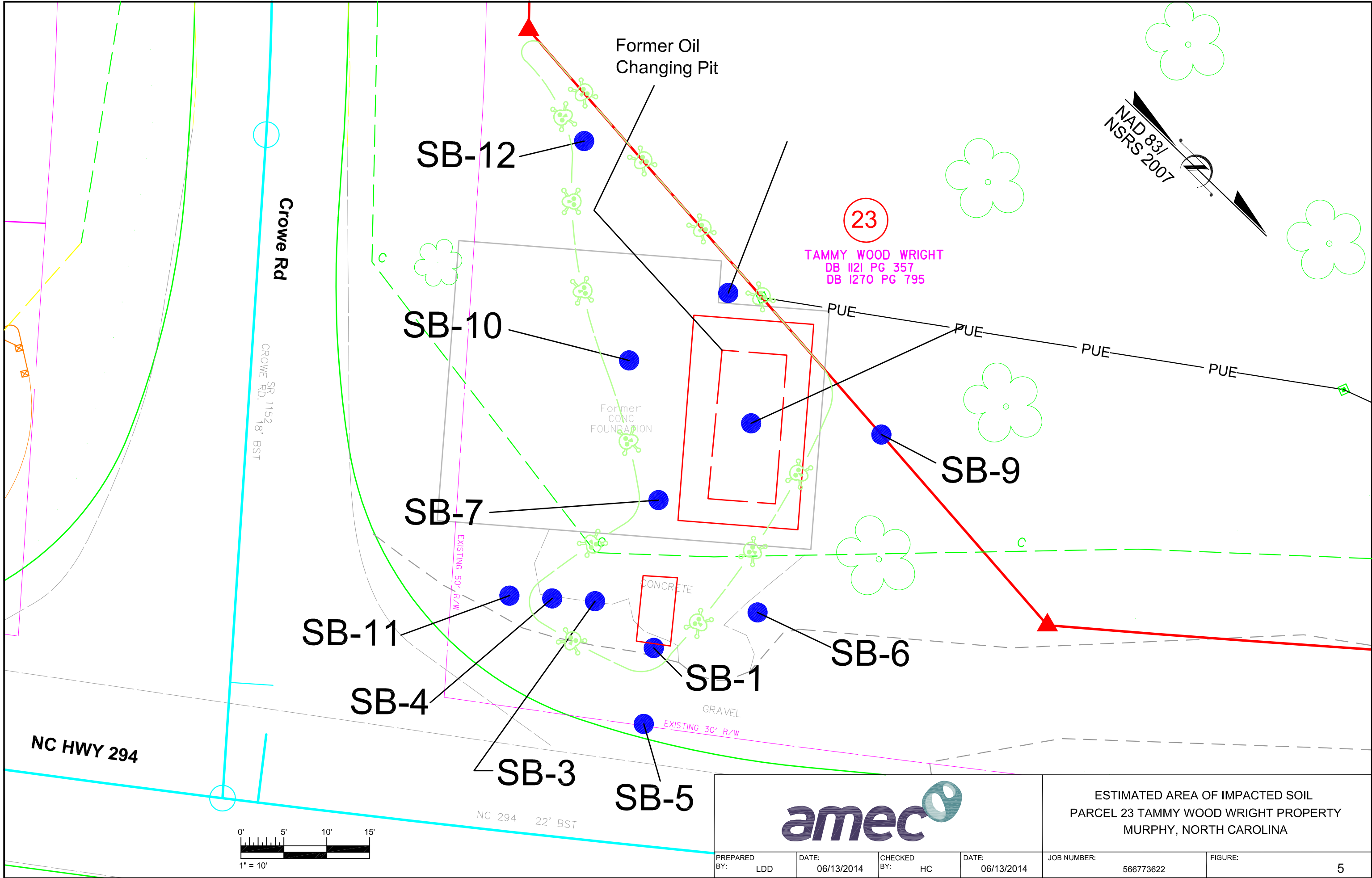
Sample Identification	SB-8
Sample Depth (Feet bgs)	6
VOC by 8260 (µg/kg)	
n-Butylbenzene	4,980
sec-Butylbenzene	1,170
p-Isopropyltoluene	1,210
n-Propylbenzene	5,270
1,2,4-Trimethylbenzene	15,700
1,3,5-Trimethylbenzene	13,200
Total Metals (Cr & Pb) by 6010 (mg/kg)	
Chromium	13.5
Lead	12.6

Sample Identification	SB-2
Sample Depth (Feet bgs)	2.5
VOC by 8260 (µg/kg)	
n-Butylbenzene	4,010
sec-Butylbenzene	<1,230
p-Isopropyltoluene	<1,230
n-Propylbenzene	<1,230
1,2,4-Trimethylbenzene	2,040
1,3,5-Trimethylbenzene	1,330
Total Metals (Cr & Pb) by 6010 (mg/kg)	
Chromium	5.6
Lead	5.5



VOC and CHROMIUM AND LEAD DATA FROM OFFSITE LAB
PARCEL 23 TAMMY WOOD WRIGHT PROPERTY
CHEROKEE COUNTY, NORTH CAROLINA

PREPARED BY: TLH	DATE: 05/22/2014	CHECKED BY: HPC	DATE: 05/08/2014	JOB NUMBER: 566773622	FIGURE: 4
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ESTIMATED AREA OF IMPACTED SOIL
PARCEL 23 TAMMY WOOD WRIGHT PROPERTY
MURPHY, NORTH CAROLINA

PREPARED BY: LDD	DATE: 06/13/2014	CHECKED BY: HC	DATE: 06/13/2014	JOB NUMBER: 566773622	FIGURE: 5
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APPENDIX A
PHOTOGRAPH LOG



Photograph 1: Potential UST (4' by 8') identified at NCDOT Parcel 23 by GPR and demarcated in orange paint on April 4, 2014. View is to the southeast parallel to NC 294. Crowe Road can be seen to from left to right in background.



Photograph 2: Potential UST identified at NCDOT Parcel 23 by GPR and demarcated in orange paint on April 4, 2014. View is to the northwest parallel to NC 294. Gravel drive extends to the Tammy Wood Wright residence, which can be seen in background.



Photograph 3: View of oil change pit at the site. Oil staining, oil containers, oil filters and plastic trash can containing oil can be seen in photograph in base of pit. View is to the southwest.



Photograph 4: View of southwest exterior of oil change pit at the site. Oil stained grass can be seen emanating from an outlet drain from the base of the oil change pit. A NCDOT ROW stake can be seen in foreground.



Photograph 5: View of UVF onsite quantitative analysis underway.

APPENDIX B
BORING LOGS

SOIL BORING RECORD - FIELD DATA SHEET
 NCDOT Project R-3622B - Highway 294, Murphy, North Carolina

BORING
ID

Parcel 23

SB-1

Date Started: 4/24/14 Drilling Contractor: GEX Page 1 of 1
 Date Completed: 4/24/14 Driller: Danny Summers Depth to Water: NA
 Logged By: Rodney Clax Equipment: Geoprobe G6200T Boring Depth: 9.5

DEPTH (ft bgs)	BLOWS PER 6 INCHES	REC. (%)	USCS	SOIL DESCRIPTION	PID (ppm)
1	0'-5'		GW	(Hard drilling from 0.0' to 5.0')	0.0
2	4'/5'		SM	Gravel w/some sand, Fills brown, dry	0.0
3			SM/ML	1.5' to 7.0 reddish brown to yellowish brown, sandy, SILT, moist to wet, to silt, SAND, SM	0.0
4			FILL	(SM) fill material (tank excavation)	0.0
5				TPH 46.2 / waste oil RMC 4/24/14	0.0
6	5'-10'			TPH 14 / degraded diesel	483
7	4.5'/4.5'			7.0' - 9.5' reddish brown, ← collect sample @ 7.0' for QED Azer	980
8			SM	silty, SAND, (SM), relict rock structure (eg. foliation), moist,	225
9			PSOU	trace arg. rock fragments, some mica.	6.8
10				← refusal @ 9.5	5.6
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

SOIL BORING RECORD - FIELD DATA SHEET
 NCDOT Project R-3622B - Highway 294, Murphy, North Carolina

BORING
ID

Parcel 23

SB-2

Date Started: 4/24/14 Drilling Contractor: GEX Page 1 of 1
 Date Completed: 4/24/14 Driller: Darryl Depth to Water: N.A
 Logged By: Rodney Clark Equipment: Geoprobe 66200T Boring Depth: 10.0'

DEPTH (ft bgs)	BLOWS PER 6 INCHES	REC. (%)	USCS	SOIL DESCRIPTION	PID (ppm)
1	0'-5'	3 1/5	CONCRETE	Boring in oil change pit / concrete 0.0 to 0.5' - Concrete 0.5' - 10.0'	186
2				light grayish tan/brown silty f.	1534
3			SM	SAND, moist, strong petroleum-like	1977
			RSD	odor, residue, some relict rock	184
4				structure Collect VOC's & Pb & Cr from 3 bgs	
5				Collect QED sample from 6'-7' bgs	1308
6	5'-10'	5 1/5		80 TPH / degraded diesel Collect VOC's RMC 4/24/14	1586
7				7'-8'-moist to wet zone, but is only slightly moist from 8'-10'	1822
8					418.6
9					
10				Terminate Boring @ 10.0'	12.1
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

SOIL BORING RECORD - FIELD DATA SHEET
 NCDOT Project R-3622B - Highway 294, Murphy, North Carolina
 Parcel 23

BORING
ID
SB-3

Date Started: 4/24/14 Drilling Contractor: GEY Page 1 of 1
 Date Completed: 4/24/14 Driller: Danny Summers Depth to Water: 13' NA RMC 4/24/14
 Logged By: Rodney Clark Equipment: Geoprobe G5200 Boring Depth: 15'

DEPTH (ft bgs)	BLOWS PER 6 INCHES	REC. (%)	USCS	SOIL DESCRIPTION	PID (ppm)
1	NA	4 1/5	SM	0.0 - 7.0 reddish brown, silty SAND(SM), no structure	0.7
2			SM	Material	2.7
3			FILL	0.0 - 0.5 concrete/gravel	1.5
4					11.4
5				Concrete RMC 4/24/14	/
6				TPH 222 @ 7.5' bgs	0.2
7	NA	5 1/5	SM	grayish brown, silty SAND(SM) fill material, collect sample @ 7.5' bgs	0.1
8			SM		848
9			SDM	yellowish brown, silty fine SAND, SM, moist, trace relict rock structure	686
10					159
11				Extend boring to determine depth to groundwater.	36.3
12	NA	5 1/5			40.1
13				wet @ 13' bgs shear zone	1150
14					226
15				← Terminate Boring @ 15	19.0
16					
17					
18					
19					
20					

SOIL BORING RECORD - FIELD DATA SHEET
 NCDOT Project R-3622B - Highway 294, Murphy, North Carolina
 Parcel 23

BORING
ID
SB-4

Date Started: 4/24/14 Drilling Contractor: GEX Page 1 of 1
 Date Completed: 4/24/14 Driller: Danny Summers Depth to Water: NA
 Logged By: Rodney Clark Equipment: Geoprobe 66200T Boring Depth: 10'

DEPTH (ft bgs)	BLOWS PER 6 INCHES	REC. (%)	USCS	SOIL DESCRIPTION	PID (ppm)
1	0-5'			0.0-0.5' gravel	0.0
2	2 1/5'	2 1/5'		0.5'-5.0' poor rec.	0.0
3				brown, sandy, SILT, FILL, no structure, some siltier, SAND, SM, zone	/
4					/
5				5'-10'	
6	5-10'			grayish reddish brown, silty, SAND, SM, little to some red rock str.	0.0
7		4 1/5'			0.2
8					48.2
9				Collected TPH sample from 9.5'	183
10				TPH-55.9	1641
11				Terminate @ 10	
12					
13				SB-4 (10' South of UST	
14				towards Crocker Rd)	
15					
16					
17					
18					
19					
20					

SOIL BORING RECORD - FIELD DATA SHEET
 NCDOT Project R-3622B - Highway 294, Murphy, North Carolina
 Parcel 23

BORING
ID
SB-5

Date Started: 4/24/14 Drilling Contractor: GEX Page 1 of 1
 Date Completed: 4/24/14 Driller: Vanny Summer Depth to Water: NA
 Logged By: Rodney Clark Equipment: Godprobe Boring Depth: 10

DEPTH (ft bgs)	BLOWS PER 6 INCHES	REC. (%)	USCS	SOIL DESCRIPTION	PID (ppm)
1	0-5'			0'-0.5' gravelly TPH = 0.0 ppm @ 1.0' ^{<0.9 ppm}	0.0
2			FILL	0.5-4.0' reddish brown to gray	4.7
3	5/4		SM	silty SAND, SM, moist, FILL	0.0
4	4 1/5'			4.0-10.0' reddish brown	0.0
5			ESOM	silty SAND, SM, moist, some	0.0
6	5-10'		SM	relict rock structure	0.0
7	5 1/5'			SB-5	0.0
8				- 10 to east of UST	0.7
9				towards 294)	0.8
10				Terminate Boring @ 10'	0.0
11					RMC
12					
13					
14					
15					
16					
17					
18					
19					
20					

SOIL BORING RECORD - FIELD DATA SHEET
 NCDOT Project R-3622B - Highway 294, Murphy, North Carolina

BORING ID

Parcel 23

SBC

Date Started: 4/24/14 Drilling Contractor: GEX Page 1 of 1
 Date Completed: 4/24/14 Driller: Danny Summer Depth to Water: NA
 Logged By: Rodney Clark Equipment: Geoprobe 6200B Boring Depth: 10'

DEPTH (ft bgs)	BLOWS PER 6 INCHES	REC. (%)	USCS	SOIL DESCRIPTION	PID (ppm)
1	0-5	4 1/5		0.0'-0.5' Gravel	0.0
2			ML	0.5' - 1.5' yellowish brown, sandy, SILT, ML Fill material	0.0
3					0.0
4					0.0
5				yellowish brown, silty, SAND	0.0
6	5-10		SM	SM, some relict rock structure some mica	0.0
7					0.8
8				North side 10' of OST	22.4
9				Collect sample @ 9' bgs TPH = 0.0 PPM by QED	38.5
10				analyze	0.8
11				terminate @ 10'	
12					
13					
14					
15					
16					
17					
18					
19					
20					

SOIL BORING RECORD - FIELD DATA SHEET
 NCDOT Project R-3622B - Highway 294, Murphy, North Carolina

BORING ID

SB-7

Page 1 23

Date Started: 4/24/14 Drilling Contractor: GET Page 1 of 1
 Date Completed: 4/24/14 Driller: Danning Summers Depth to Water: NA
 Logged By: Robert Clark Equipment: Geoprobe G620ST Boring Depth: 10

DEPTH (ft bgs)	BLOWS PER 6 INCHES	REC. (%)	USCS	SOIL DESCRIPTION	PID (ppm)
1	0.0'-5.0'			0.0'-0.50'	0.0
2	4.5	4.5	FILL	-reddish brown, sandy SILT, ML moist, fill material	0.0
3		5.0			0.0
4					0.0
5				8.0' 5.0'-7.5' - reddish brown, silty SAND, trace structure, ^{RMC 4100 ppm} residuum, some mica mottled, fill material	0.0
6	5.0'-10'				18.2
7		5.0			0.5
8		5.0		16.6 ppm = TPHT; collected @ 7.5'	1269
9			PSUM	8.0'-10.0' SFA, but gray, strong odor some relict rock structure	469
10				Terminate Boring @ 10'	1229
11					
12				West side UST 10'	
13					
14					
15					
16					
17					
18					
19					
20					

SOIL BORING RECORD - FIELD DATA SHEET
 NCDOT Project R-3622B - Highway 294, Murphy, North Carolina
 Parcel 23

BORING
ID
SB-8

Date Started: 4/24/14 Drilling Contractor: GET Page 1 of 1
 Date Completed: 4/24/14 Driller: Danny Summer Depth to Water: NA
 Logged By: R. Clark Equipment: Casagrate 6209 Boring Depth: 10

DEPTH (ft bgs)	BLOWS PER 6 INCHES	REC. (%)	USCS	SOIL DESCRIPTION	PID (ppm)
1	0-5'			0.0'-5.5'	6.9
2		5.0'		reddish brown, sandy silt, ML, moist, some roots @ surface	12.3
3		5.0'	ML		10.1
4					8.5
5					4.1
6	5-10'			5.5'-8.0' silty fine SAND (SM) TPH = (BTEX) no structure	1221
7		5.0'	SM	1155.8 ppm @ 6' bgs	1508
8		5.0'		micaceous (residual) collect VOCs B lead @ 1230	1410
9				8.0-10.0 reddish brown, silty f. sand some relict rock structure	43.1
10					52.2
11				Terminate Boring @	
12				10' bgs	
13					
14					
15					
16					
17					
18					
19					
20					

SOIL BORING RECORD - FIELD DATA SHEET
 NCDOT Project R-3622B - Highway 294, Murphy, North Carolina
 Parcel 23

BORING
 SB-ID
 SB-9
 SB-8 RMC
 4/24/14

Date Started: 4/24/14 Drilling Contractor: GEX Page 1 of 1
 Date Completed: 4/24/14 Driller: Danny Summers Depth to Water: NA
 Logged By: Rodney Pak Equipment: Geoprobe G6200T Boring Depth: 10

DEPTH (ft bgs)	BLOWS PER 6 INCHES	REC. (%)	USCS	SOIL DESCRIPTION	PID (ppm)
1	0-5			0.0-5.5 brown, fine sandy SLL, ML, moist, residual ^{and 4/24/14} trace roots, organic	0.0
2	7/5'		ML	fill material	0.0
3			Fill		
4					
5				5.5-10' grayish brown to yellowish brown, silty, f.	
6	5-10	5 1/5'		SAND, SM, moist, trace to	0.0
7			SM	some rock structure, residual	0.0
8			RSM	some mica	17.5
9				Collect soil sample from 9' obj TPH = 50.8 ppm	21.1
10				Terminate @ 10'	0.7
11					
12				(5' NW of oil pit building)	
13					
14					
15					
16					
17					
18					
19					
20					

SOIL BORING RECORD - FIELD DATA SHEET
 NCDOT Project R-3622B - Highway 294, Murphy, North Carolina
 Parcel 23

BORING ID
 SB-10
~~SB-9~~ RMC
 4/24/14

Date Started: 4/24/14 Drilling Contractor: CEX Page 1 of 1
 Date Completed: 4/24/14 Driller: Danny Summers Depth to Water: NA
 Logged By: R. Clark Equipment: Geoprobe (6200) Boring Depth: 10

DEPTH (ft bgs)	BLOWS PER 6 INCHES	REC. (%)	USCS	SOIL DESCRIPTION	PID (ppm)
1	0-5	25	SM	0.0-6.5 reddish brown, silty SAND,	0.0
2	5.0	5.0	ML Fill	SM, moist to slightly wet in zones, and some sandy SILT (ML) zones.	0.0 0.0
3				Fill Material, no structure	
4					
5					
6	5-10	5.0		6.5-10' yellowish brown silt. SAND (SM) cap	10' 11.7
7	5.0	5.0	SM	8' soil sample for QEO	9' 45.8
8			SDM	TPH = 0.8 RMC 4/24/14	8' 21.9
9				TPH = 85.61	7' 59.5
10				Terminate @ 10'	6' 1.1
11				5' south of oil change	
12				pit bdy. F appx. 10"	
13				23' West of UST	
14					
15					
16					
17					
18					
19					
20					

Flip Radiograph

SOIL BORING RECORD - FIELD DATA SHEET
 NCDOT Project R-3622B - Highway 294, Murphy, North Carolina
 Parcel 23

BORING
ID
SB-11

Date Started: 4/24/14 Drilling Contractor: GEX Page 1 of 1
 Date Completed: 4/24/14 Driller: Jarvis Summers Depth to Water: NA
 Logged By: Rodney Clark Equipment: Geoprobe G62001 Boring Depth: 10

DEPTH (ft bgs)	BLOWS PER 6 INCHES	REC. (%)	USCS	SOIL DESCRIPTION	PID (ppm)
1	0'-5'		GW GW	0.0'-0.5' gravel. (appx. due to poor rec.) collect samples @ 2 bgs	0.8
2		2 1/5'	ML	0.5'-9' (poor recovery) TPH = < 0.8 ppm	1.6
3			FILL	brown to grayish brown, sandy SILT, ML, moist to slightly wet	
4				no structure, FILL material	
5					
6	5'-10'	4 1/5'			0.0
7					0.0
8					0.0
9				9'-10' yellowish brown silty SANDY some relict rock structure, irregular	0.0
10			SM ESDM	Terminate Boring @ 10'	
11				(15' Southeast of UST and 5' beyond SB-4)	
12					
13					
14					
15					
16					
17					
18					
19					
20					

SOIL BORING RECORD - FIELD DATA SHEET
 NCDOT Project R-3622B - Highway 294, Murphy, North Carolina
 Parcel 23

BORING
ID
SB-12

Date Started: 4/24/14 Drilling Contractor: GEX Page 1 of 1
 Date Completed: 4/24/14 Driller: Darney Summers Depth to Water: NA
 Logged By: Rodney Clark Equipment: Geoprobe G3200S Boring Depth: 10'

DEPTH (ft bgs)	BLOWS PER 6 INCHES	REC. (%)	USCS	SOIL DESCRIPTION	PID (ppm)
1	0-5'	5 1/5	ML FILL	0.0'-1.0' brown sandy SILT ML moist fill	0.0
2			SM	1.0'-10.0' gray silty v. fine	0.0
3			SM REDU	SAWO SM, moist to wet	0.7
4					0.0
5				^{RMC 4/24/14} Trough per analysis w/soil	952
6	5-10'	4 5/5		← From approx 6.0' bgs w/QED TPH=258.5	1201
7		5/5		← Collect sample @ 6.5' bgs for QED TPH = 0.0, first analysis	1433
8				← W.I. approx @ 7.5 bgs	1644
9					219
10					49.8
11				Terminate @ 10.0'	
12					
13					
14					
15					
16					
17					
18					
19					
20					

APPENDIX C
HYDROCARBON ANALYSIS RESULTS



Hydrocarbon Analysis Results

Client: NCDOT
Address: Parcel 23 HWY 294

Samples taken
Samples extracted
Samples analysed

SB-1 to SB-8
 Thursday, April 24, 2014
 Thursday, April 24, 2014

Contact: Craig Haden

Operator

Troy L. Holzschuh

Project: R-3622B

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	SB-1 (7)	14.0	<0.7	2.49	11.53	14.02	4.15	0.13	<0.014	93.8	4.6	1.6	Deg.Diesel (FCM) 72.4%
s	SB-2 (2.5)	23.0	37.17	60.3	20.49	80.79	7.27	0.22	<0.023	99.1	0.7	0.1	Deg.Gas (FCM) 84.6%
s	SB-3 (7)	23.0	45.81	75.7	146.4	222.1	31.78	10.04	<0.023	96.3	3.6	0.1	Deg.CreosoteWaste Oil (FCM) 93.4%
s	SB-4 (9.5)	23.0	<1.2	1.4	54.51	55.91	11.61	4.75	<0.023	91.8	5.7	2.5	CreosoteWaste Oil (FCM) 85.9%
s	SB-5 (3)	18.0	<0.9	<0.9	<0.18	<0.9	<0.18	<0.02	<0.018	0	0	0	Background Organics (P)
s	SB-6 (9)	19.0	<1	<1	<0.19	<0.19	<0.19	<0.02	<0.019	0	0	100	Background Organics (P)
s	SB-7 (7.5)	17.0	<0.9	4.37	12.22	16.59	3.56	0.33	<0.017	93.7	3.9	2.4	Deg.Diesel + Coal Tar Traces (FCM) 54%
s	SB-8 (6)	22.0	177.1	292.8	863	1155.8	83.01	2.59	<0.022	99.1	0.9	0.1	JP-5 (FCM) 80.6%

Initial Calibrator QC check OK

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



Hydrocarbon Analysis Results

Client: NCDOT
Address: Parcel 23 HWY 294

Samples taken
Samples extracted
Samples analysed

SB-9 to SB-13
Thursday, April 24, 2014
Thursday, April 24, 2014

Contact: Craig Haden

Operator

Troy L. Holzschuh

Project: R-3622B

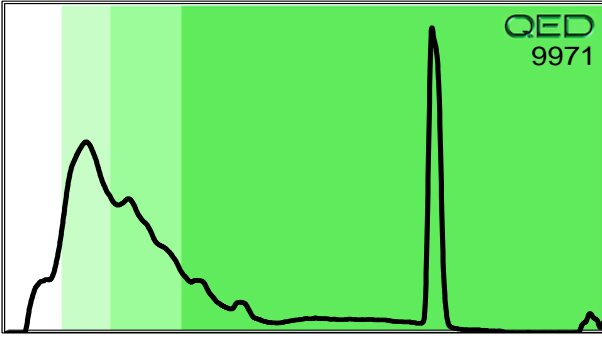
Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	Ratios			HC Fingerprint Match
										% light	% mid	% heavy	
s	SB-9 (9)	15.0	<0.8	<0.8	<0.15	<0.8	<0.15	<0.02	<0.015	0	0	0	Background Organics
s	SB-10 (8)	15.0	14.74	23.87	61.74	85.61	3.58	0.12	<0.015	99.2	0.7	0.1	Deg.Fuel (P) 65.4%
s	SB-11 (5)	16.0	<0.8	<0.8	<0.16	<0.8	<0.16	<0.02	<0.016	0	100	0	Background Organics (P)
s	SB-12 (6.5)	19.0	<0.9	<0.9	<0.19	<0.19	<0.19	<0.02	<0.019	0	0	100	V.Deg.PHC (P) 9.6%
s	SB-12 (7.5)	19.0	49.99	82.09	176.4	258.49	29.25	0.71	0.024	98.1	1.7	0.2	Waste OilWaste Oil (PFM) (FCM) 72%

Initial Calibrator QC check **OK**

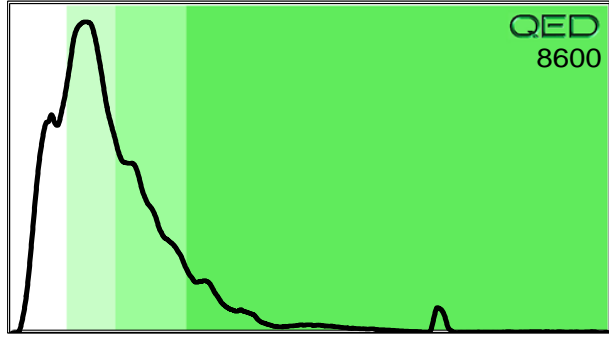
Results generated by a QED HC-1 analyser. Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values are not corrected for moisture or stone content

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

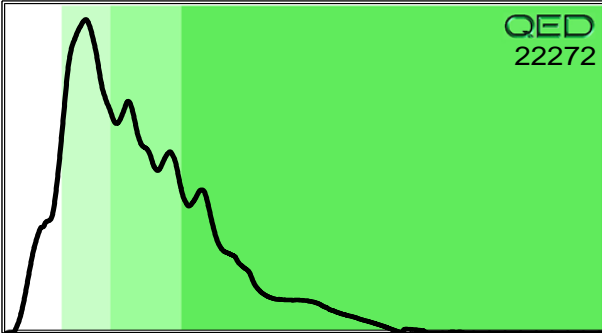
Deg.Diesel (FCM) 72.4% SB-1



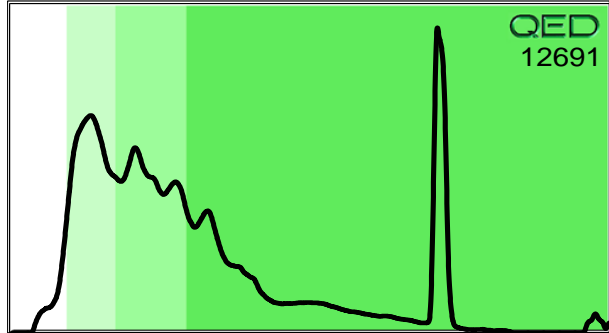
Deg.Gas (FCM) 84.6% SB-2



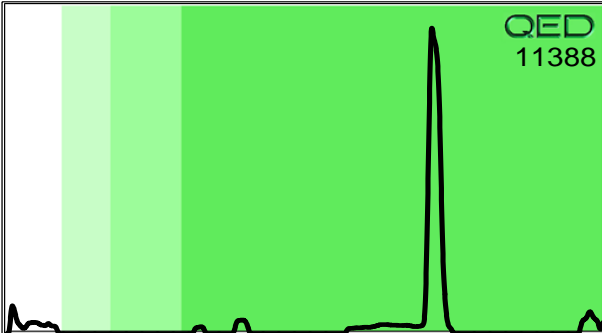
Deg.CreosoteWaste Oil (FCM) 93.4% SB-3



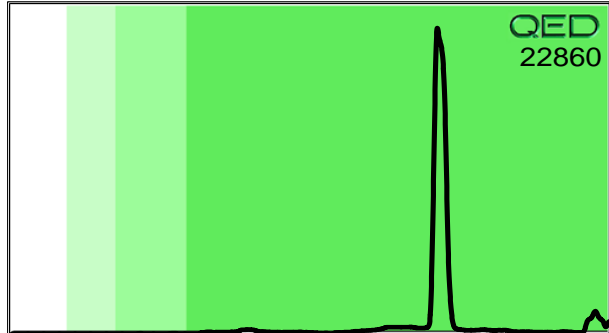
CreosoteWaste Oil (FCM) 85.9% SB-4



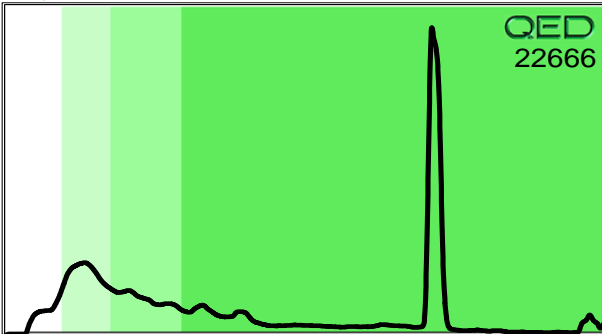
Background Organics (P) SB-5



Background Organics (P) SB-6



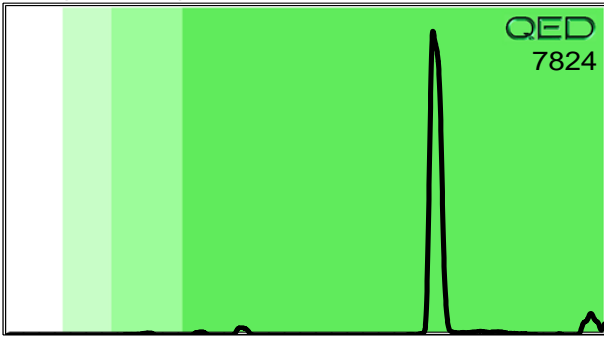
Deg.Diesel + Coal Tar Traces (FCM) 54% SB-7



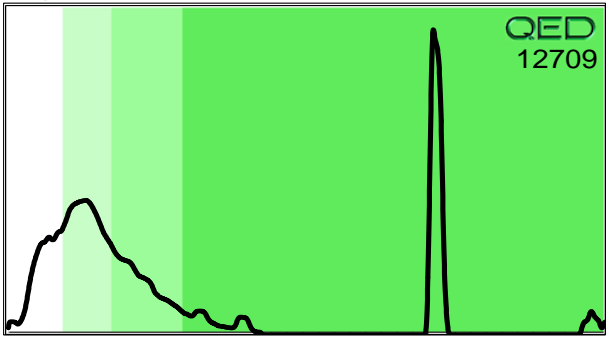
JP-5 (FCM) 80.6% SB-8



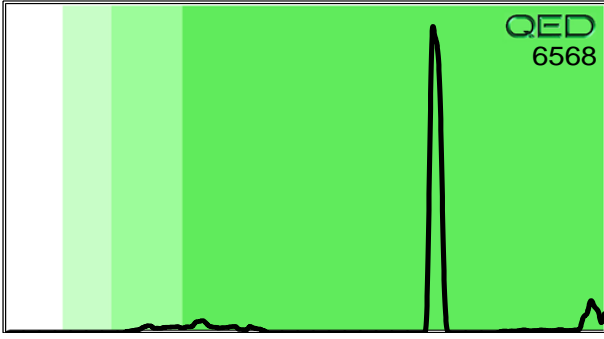
Background Organics SB-9



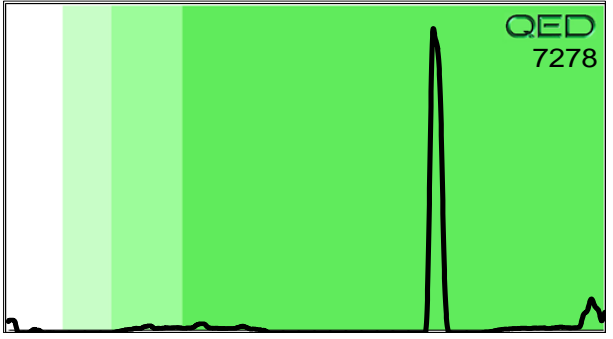
Deg.Fuel (P) 65.4% SB-10



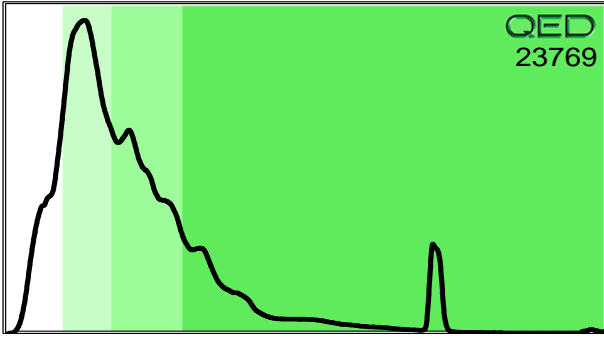
Background Organics (P) SB-11



V.Deg.PHC (P) 9.6% SB-12



Waste Oil Waste Oil (PFM) (FCM) 72% SB-13



APPENDIX D
LABORATORY ANALYTICAL RESULTS

May 05, 2014

Chemical Testing Engineer
NCDOT
Materials & Tests Unit
1801 Blue Ridge Road
Raleigh, NC 27607

RE: Project: NCDOT R-3622B HWY294
Pace Project No.: 92198901

Dear Chemical Engineer:

Enclosed are the analytical results for sample(s) received by the laboratory on April 25, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kevin Godwin
kevin.godwin@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: NCDOT R-3622B HWY294

Pace Project No.: 92198901

Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001

Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

Asheville Certification IDs

2225 Riverside Dr., Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
West Virginia Certification #: 356
Virginia/VELAP Certification #: 460222

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SAMPLE ANALYTE COUNT

Project: NCDOT R-3622B HWY294

Pace Project No.: 92198901

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92198901001	SB-2	EPA 6010	JMW	2	PASI-A
		EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	ZAK	1	PASI-C
92198901002	SB-8	EPA 6010	JMW	2	PASI-A
		EPA 8260	DLK	70	PASI-C
		ASTM D2974-87	ZAK	1	PASI-C

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: NCDOT R-3622B HWY294

Pace Project No.: 92198901

Method: EPA 6010

Description: 6010 MET ICP

Client: NCDOT West Central

Date: May 05, 2014

General Information:

2 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 3050 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: NCDOT R-3622B HWY294

Pace Project No.: 92198901

Method: EPA 8260

Description: 8260/5035A Volatile Organics

Client: NCDOT West Central

Date: May 05, 2014

General Information:

2 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: MSV/26597

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- SB-2 (Lab ID: 92198901001)
- Dichlorodifluoromethane

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NCDOT R-3622B HWY294

Pace Project No.: 92198901

Sample: SB-2 **Lab ID: 92198901001** Collected: 04/24/14 09:46 Received: 04/25/14 16:47 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3050						
Chromium	5.6	mg/kg	1.7	5	05/02/14 10:45	05/05/14 14:04	7440-47-3	
Lead	5.5	mg/kg	1.7	5	05/02/14 10:45	05/05/14 14:04	7439-92-1	
8260/5035A Volatile Organics		Analytical Method: EPA 8260						
Acetone	ND	ug/kg	24500	250		04/28/14 21:06	67-64-1	
Benzene	ND	ug/kg	1230	250		04/28/14 21:06	71-43-2	
Bromobenzene	ND	ug/kg	1230	250		04/28/14 21:06	108-86-1	
Bromochloromethane	ND	ug/kg	1230	250		04/28/14 21:06	74-97-5	
Bromodichloromethane	ND	ug/kg	1230	250		04/28/14 21:06	75-27-4	
Bromoform	ND	ug/kg	1230	250		04/28/14 21:06	75-25-2	
Bromomethane	ND	ug/kg	2450	250		04/28/14 21:06	74-83-9	
2-Butanone (MEK)	ND	ug/kg	24500	250		04/28/14 21:06	78-93-3	
n-Butylbenzene	4010	ug/kg	1230	250		04/28/14 21:06	104-51-8	
sec-Butylbenzene	ND	ug/kg	1230	250		04/28/14 21:06	135-98-8	
tert-Butylbenzene	ND	ug/kg	1230	250		04/28/14 21:06	98-06-6	
Carbon tetrachloride	ND	ug/kg	1230	250		04/28/14 21:06	56-23-5	
Chlorobenzene	ND	ug/kg	1230	250		04/28/14 21:06	108-90-7	
Chloroethane	ND	ug/kg	2450	250		04/28/14 21:06	75-00-3	
Chloroform	ND	ug/kg	1230	250		04/28/14 21:06	67-66-3	
Chloromethane	ND	ug/kg	2450	250		04/28/14 21:06	74-87-3	
2-Chlorotoluene	ND	ug/kg	1230	250		04/28/14 21:06	95-49-8	
4-Chlorotoluene	ND	ug/kg	1230	250		04/28/14 21:06	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	1230	250		04/28/14 21:06	96-12-8	
Dibromochloromethane	ND	ug/kg	1230	250		04/28/14 21:06	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	1230	250		04/28/14 21:06	106-93-4	
Dibromomethane	ND	ug/kg	1230	250		04/28/14 21:06	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	1230	250		04/28/14 21:06	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	1230	250		04/28/14 21:06	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	1230	250		04/28/14 21:06	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	2450	250		04/28/14 21:06	75-71-8	D3
1,1-Dichloroethane	ND	ug/kg	1230	250		04/28/14 21:06	75-34-3	
1,2-Dichloroethane	ND	ug/kg	1230	250		04/28/14 21:06	107-06-2	
1,1-Dichloroethene	ND	ug/kg	1230	250		04/28/14 21:06	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	1230	250		04/28/14 21:06	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	1230	250		04/28/14 21:06	156-60-5	
1,2-Dichloropropane	ND	ug/kg	1230	250		04/28/14 21:06	78-87-5	
1,3-Dichloropropane	ND	ug/kg	1230	250		04/28/14 21:06	142-28-9	
2,2-Dichloropropane	ND	ug/kg	1230	250		04/28/14 21:06	594-20-7	
1,1-Dichloropropene	ND	ug/kg	1230	250		04/28/14 21:06	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	1230	250		04/28/14 21:06	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	1230	250		04/28/14 21:06	10061-02-6	
Diisopropyl ether	ND	ug/kg	1230	250		04/28/14 21:06	108-20-3	
Ethylbenzene	ND	ug/kg	1230	250		04/28/14 21:06	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	1230	250		04/28/14 21:06	87-68-3	
2-Hexanone	ND	ug/kg	12300	250		04/28/14 21:06	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	1230	250		04/28/14 21:06	98-82-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NCDOT R-3622B HWY294

Pace Project No.: 92198901

Sample: SB-2 **Lab ID: 92198901001** Collected: 04/24/14 09:46 Received: 04/25/14 16:47 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260						
p-Isopropyltoluene	ND	ug/kg	1230	250		04/28/14 21:06	99-87-6	
Methylene Chloride	ND	ug/kg	4910	250		04/28/14 21:06	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	12300	250		04/28/14 21:06	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	1230	250		04/28/14 21:06	1634-04-4	
Naphthalene	ND	ug/kg	1230	250		04/28/14 21:06	91-20-3	
n-Propylbenzene	ND	ug/kg	1230	250		04/28/14 21:06	103-65-1	
Styrene	ND	ug/kg	1230	250		04/28/14 21:06	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	1230	250		04/28/14 21:06	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	1230	250		04/28/14 21:06	79-34-5	
Tetrachloroethene	ND	ug/kg	1230	250		04/28/14 21:06	127-18-4	
Toluene	ND	ug/kg	1230	250		04/28/14 21:06	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	1230	250		04/28/14 21:06	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	1230	250		04/28/14 21:06	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	1230	250		04/28/14 21:06	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	1230	250		04/28/14 21:06	79-00-5	
Trichloroethene	ND	ug/kg	1230	250		04/28/14 21:06	79-01-6	
Trichlorofluoromethane	ND	ug/kg	1230	250		04/28/14 21:06	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	1230	250		04/28/14 21:06	96-18-4	
1,2,4-Trimethylbenzene	2040	ug/kg	1230	250		04/28/14 21:06	95-63-6	
1,3,5-Trimethylbenzene	1330	ug/kg	1230	250		04/28/14 21:06	108-67-8	
Vinyl acetate	ND	ug/kg	12300	250		04/28/14 21:06	108-05-4	
Vinyl chloride	ND	ug/kg	2450	250		04/28/14 21:06	75-01-4	
Xylene (Total)	ND	ug/kg	2450	250		04/28/14 21:06	1330-20-7	
m&p-Xylene	ND	ug/kg	2450	250		04/28/14 21:06	179601-23-1	
o-Xylene	ND	ug/kg	1230	250		04/28/14 21:06	95-47-6	
Surrogates								
Toluene-d8 (S)	100	%	70-130	250		04/28/14 21:06	2037-26-5	
4-Bromofluorobenzene (S)	106	%	70-130	250		04/28/14 21:06	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-132	250		04/28/14 21:06	17060-07-0	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	21.9	%	0.10	1		04/28/14 15:01		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NCDOT R-3622B HWY294

Pace Project No.: 92198901

Sample: SB-8 **Lab ID: 92198901002** Collected: 04/24/14 12:30 Received: 04/25/14 16:47 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP		Analytical Method: EPA 6010 Preparation Method: EPA 3050						
Chromium	13.5	mg/kg	1.7	5	05/02/14 10:45	05/05/14 14:14	7440-47-3	
Lead	12.6	mg/kg	1.7	5	05/02/14 10:45	05/05/14 14:14	7439-92-1	
8260/5035A Volatile Organics		Analytical Method: EPA 8260						
Acetone	ND	ug/kg	22900	250		04/28/14 21:26	67-64-1	
Benzene	ND	ug/kg	1140	250		04/28/14 21:26	71-43-2	
Bromobenzene	ND	ug/kg	1140	250		04/28/14 21:26	108-86-1	
Bromochloromethane	ND	ug/kg	1140	250		04/28/14 21:26	74-97-5	
Bromodichloromethane	ND	ug/kg	1140	250		04/28/14 21:26	75-27-4	
Bromoform	ND	ug/kg	1140	250		04/28/14 21:26	75-25-2	
Bromomethane	ND	ug/kg	2290	250		04/28/14 21:26	74-83-9	
2-Butanone (MEK)	ND	ug/kg	22900	250		04/28/14 21:26	78-93-3	
n-Butylbenzene	4980	ug/kg	1140	250		04/28/14 21:26	104-51-8	
sec-Butylbenzene	1170	ug/kg	1140	250		04/28/14 21:26	135-98-8	
tert-Butylbenzene	ND	ug/kg	1140	250		04/28/14 21:26	98-06-6	
Carbon tetrachloride	ND	ug/kg	1140	250		04/28/14 21:26	56-23-5	
Chlorobenzene	ND	ug/kg	1140	250		04/28/14 21:26	108-90-7	
Chloroethane	ND	ug/kg	2290	250		04/28/14 21:26	75-00-3	
Chloroform	ND	ug/kg	1140	250		04/28/14 21:26	67-66-3	
Chloromethane	ND	ug/kg	2290	250		04/28/14 21:26	74-87-3	
2-Chlorotoluene	ND	ug/kg	1140	250		04/28/14 21:26	95-49-8	
4-Chlorotoluene	ND	ug/kg	1140	250		04/28/14 21:26	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	1140	250		04/28/14 21:26	96-12-8	
Dibromochloromethane	ND	ug/kg	1140	250		04/28/14 21:26	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	1140	250		04/28/14 21:26	106-93-4	
Dibromomethane	ND	ug/kg	1140	250		04/28/14 21:26	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	1140	250		04/28/14 21:26	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	1140	250		04/28/14 21:26	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	1140	250		04/28/14 21:26	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	2290	250		04/28/14 21:26	75-71-8	
1,1-Dichloroethane	ND	ug/kg	1140	250		04/28/14 21:26	75-34-3	
1,2-Dichloroethane	ND	ug/kg	1140	250		04/28/14 21:26	107-06-2	
1,1-Dichloroethene	ND	ug/kg	1140	250		04/28/14 21:26	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	1140	250		04/28/14 21:26	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	1140	250		04/28/14 21:26	156-60-5	
1,2-Dichloropropane	ND	ug/kg	1140	250		04/28/14 21:26	78-87-5	
1,3-Dichloropropane	ND	ug/kg	1140	250		04/28/14 21:26	142-28-9	
2,2-Dichloropropane	ND	ug/kg	1140	250		04/28/14 21:26	594-20-7	
1,1-Dichloropropene	ND	ug/kg	1140	250		04/28/14 21:26	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	1140	250		04/28/14 21:26	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	1140	250		04/28/14 21:26	10061-02-6	
Diisopropyl ether	ND	ug/kg	1140	250		04/28/14 21:26	108-20-3	
Ethylbenzene	ND	ug/kg	1140	250		04/28/14 21:26	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	1140	250		04/28/14 21:26	87-68-3	
2-Hexanone	ND	ug/kg	11400	250		04/28/14 21:26	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	1140	250		04/28/14 21:26	98-82-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: NCDOT R-3622B HWY294

Pace Project No.: 92198901

Sample: SB-8 **Lab ID: 92198901002** Collected: 04/24/14 12:30 Received: 04/25/14 16:47 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics		Analytical Method: EPA 8260						
p-Isopropyltoluene	1210	ug/kg	1140	250		04/28/14 21:26	99-87-6	
Methylene Chloride	ND	ug/kg	4580	250		04/28/14 21:26	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	11400	250		04/28/14 21:26	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	1140	250		04/28/14 21:26	1634-04-4	
Naphthalene	ND	ug/kg	1140	250		04/28/14 21:26	91-20-3	
n-Propylbenzene	5270	ug/kg	1140	250		04/28/14 21:26	103-65-1	
Styrene	ND	ug/kg	1140	250		04/28/14 21:26	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	1140	250		04/28/14 21:26	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	1140	250		04/28/14 21:26	79-34-5	
Tetrachloroethene	ND	ug/kg	1140	250		04/28/14 21:26	127-18-4	
Toluene	ND	ug/kg	1140	250		04/28/14 21:26	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	1140	250		04/28/14 21:26	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	1140	250		04/28/14 21:26	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	1140	250		04/28/14 21:26	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	1140	250		04/28/14 21:26	79-00-5	
Trichloroethene	ND	ug/kg	1140	250		04/28/14 21:26	79-01-6	
Trichlorofluoromethane	ND	ug/kg	1140	250		04/28/14 21:26	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	1140	250		04/28/14 21:26	96-18-4	
1,2,4-Trimethylbenzene	15700	ug/kg	1140	250		04/28/14 21:26	95-63-6	
1,3,5-Trimethylbenzene	13200	ug/kg	1140	250		04/28/14 21:26	108-67-8	
Vinyl acetate	ND	ug/kg	11400	250		04/28/14 21:26	108-05-4	
Vinyl chloride	ND	ug/kg	2290	250		04/28/14 21:26	75-01-4	
Xylene (Total)	ND	ug/kg	2290	250		04/28/14 21:26	1330-20-7	
m&p-Xylene	ND	ug/kg	2290	250		04/28/14 21:26	179601-23-1	
o-Xylene	ND	ug/kg	1140	250		04/28/14 21:26	95-47-6	
Surrogates								
Toluene-d8 (S)	97	%	70-130	250		04/28/14 21:26	2037-26-5	
4-Bromofluorobenzene (S)	108	%	70-130	250		04/28/14 21:26	460-00-4	
1,2-Dichloroethane-d4 (S)	123	%	70-132	250		04/28/14 21:26	17060-07-0	
Percent Moisture		Analytical Method: ASTM D2974-87						
Percent Moisture	18.2	%	0.10	1		04/28/14 15:01		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NCDOT R-3622B HWY294

Pace Project No.: 92198901

QC Batch:	MPRP/15849	Analysis Method:	EPA 6010
QC Batch Method:	EPA 3050	Analysis Description:	6010 MET
Associated Lab Samples:	92198901001, 92198901002		

METHOD BLANK: 1190261 Matrix: Solid

Associated Lab Samples: 92198901001, 92198901002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium	mg/kg	ND	0.50	05/02/14 16:49	
Lead	mg/kg	ND	0.50	05/02/14 16:49	

LABORATORY CONTROL SAMPLE: 1190262

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium	mg/kg	50	49.3	99	80-120	
Lead	mg/kg	50	50.0	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1190263 1190264

Parameter	Units	92198901001		MSD		MS		MSD		% Rec Limits	RPD	Qual
		Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	% Rec	% Rec				
Chromium	mg/kg	5.6	43.3	37.7	42.7	37.1	86	84	75-125	14		
Lead	mg/kg	5.5	43.3	37.7	41.7	36.0	84	81	75-125	15		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NCDOT R-3622B HWY294

Pace Project No.: 92198901

METHOD BLANK: 1186736

Matrix: Solid

Associated Lab Samples: 92198901001, 92198901002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/kg	ND	4.3	04/28/14 12:50	
Ethylbenzene	ug/kg	ND	4.3	04/28/14 12:50	
Hexachloro-1,3-butadiene	ug/kg	ND	4.3	04/28/14 12:50	
Isopropylbenzene (Cumene)	ug/kg	ND	4.3	04/28/14 12:50	
m&p-Xylene	ug/kg	ND	8.7	04/28/14 12:50	
Methyl-tert-butyl ether	ug/kg	ND	4.3	04/28/14 12:50	
Methylene Chloride	ug/kg	ND	17.4	04/28/14 12:50	
n-Butylbenzene	ug/kg	ND	4.3	04/28/14 12:50	
n-Propylbenzene	ug/kg	ND	4.3	04/28/14 12:50	
Naphthalene	ug/kg	ND	4.3	04/28/14 12:50	
o-Xylene	ug/kg	ND	4.3	04/28/14 12:50	
p-Isopropyltoluene	ug/kg	ND	4.3	04/28/14 12:50	
sec-Butylbenzene	ug/kg	ND	4.3	04/28/14 12:50	
Styrene	ug/kg	ND	4.3	04/28/14 12:50	
tert-Butylbenzene	ug/kg	ND	4.3	04/28/14 12:50	
Tetrachloroethene	ug/kg	ND	4.3	04/28/14 12:50	
Toluene	ug/kg	ND	4.3	04/28/14 12:50	
trans-1,2-Dichloroethene	ug/kg	ND	4.3	04/28/14 12:50	
trans-1,3-Dichloropropene	ug/kg	ND	4.3	04/28/14 12:50	
Trichloroethene	ug/kg	ND	4.3	04/28/14 12:50	
Trichlorofluoromethane	ug/kg	ND	4.3	04/28/14 12:50	
Vinyl acetate	ug/kg	ND	43.4	04/28/14 12:50	
Vinyl chloride	ug/kg	ND	8.7	04/28/14 12:50	
Xylene (Total)	ug/kg	ND	8.7	04/28/14 12:50	
1,2-Dichloroethane-d4 (S)	%	88	70-132	04/28/14 12:50	
4-Bromofluorobenzene (S)	%	102	70-130	04/28/14 12:50	
Toluene-d8 (S)	%	97	70-130	04/28/14 12:50	

LABORATORY CONTROL SAMPLE: 1186737

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	42.4	47.1	111	70-131	
1,1,1-Trichloroethane	ug/kg	42.4	34.7	82	70-141	
1,1,2,2-Tetrachloroethane	ug/kg	42.4	38.7	91	70-130	
1,1,2-Trichloroethane	ug/kg	42.4	42.3	100	70-132	
1,1-Dichloroethane	ug/kg	42.4	34.4	81	70-143	
1,1-Dichloroethene	ug/kg	42.4	35.3	83	70-137	
1,1-Dichloropropene	ug/kg	42.4	35.4	84	70-135	
1,2,3-Trichlorobenzene	ug/kg	42.4	42.3	100	69-153	
1,2,3-Trichloropropane	ug/kg	42.4	42.7	101	70-130	
1,2,4-Trichlorobenzene	ug/kg	42.4	41.8	99	55-171	
1,2,4-Trimethylbenzene	ug/kg	42.4	42.7	101	70-149	
1,2-Dibromo-3-chloropropane	ug/kg	42.4	39.3	93	68-141	
1,2-Dibromoethane (EDB)	ug/kg	42.4	44.3	104	70-130	
1,2-Dichlorobenzene	ug/kg	42.4	40.1	95	70-140	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NCDOT R-3622B HWY294

Pace Project No.: 92198901

LABORATORY CONTROL SAMPLE: 1186737

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/kg	42.4	33.4	79	70-137	
1,2-Dichloropropane	ug/kg	42.4	42.2	100	70-133	
1,3,5-Trimethylbenzene	ug/kg	42.4	41.9	99	70-143	
1,3-Dichlorobenzene	ug/kg	42.4	40.1	95	70-144	
1,3-Dichloropropane	ug/kg	42.4	44.0	104	70-132	
1,4-Dichlorobenzene	ug/kg	42.4	41.5	98	70-142	
2,2-Dichloropropane	ug/kg	42.4	35.6	84	68-152	
2-Butanone (MEK)	ug/kg	84.7	72J	85	70-149	
2-Chlorotoluene	ug/kg	42.4	39.4	93	70-141	
2-Hexanone	ug/kg	84.7	85.4	101	70-149	
4-Chlorotoluene	ug/kg	42.4	40.2	95	70-149	
4-Methyl-2-pentanone (MIBK)	ug/kg	84.7	83.0	98	70-153	
Acetone	ug/kg	84.7	77.2J	91	70-157	
Benzene	ug/kg	42.4	41.0	97	70-130	
Bromobenzene	ug/kg	42.4	41.7	98	70-141	
Bromochloromethane	ug/kg	42.4	37.7	89	70-149	
Bromodichloromethane	ug/kg	42.4	40.6	96	70-130	
Bromoform	ug/kg	42.4	49.2	116	70-131	
Bromomethane	ug/kg	42.4	39.2	92	64-136	
Carbon tetrachloride	ug/kg	42.4	39.6	93	70-154	
Chlorobenzene	ug/kg	42.4	42.4	100	70-135	
Chloroethane	ug/kg	42.4	35.2	83	68-151	
Chloroform	ug/kg	42.4	35.8	84	70-130	
Chloromethane	ug/kg	42.4	35.6	84	70-132	
cis-1,2-Dichloroethene	ug/kg	42.4	35.8	85	70-140	
cis-1,3-Dichloropropene	ug/kg	42.4	41.6	98	70-137	
Dibromochloromethane	ug/kg	42.4	42.1	99	70-130	
Dibromomethane	ug/kg	42.4	40.6	96	70-136	
Dichlorodifluoromethane	ug/kg	42.4	35.5	84	36-148	
Diisopropyl ether	ug/kg	42.4	35.6	84	70-139	
Ethylbenzene	ug/kg	42.4	43.8	103	70-137	
Hexachloro-1,3-butadiene	ug/kg	42.4	40.3	95	70-145	
Isopropylbenzene (Cumene)	ug/kg	42.4	44.4	105	70-141	
m&p-Xylene	ug/kg	84.7	86.5	102	70-140	
Methyl-tert-butyl ether	ug/kg	42.4	33.7	80	45-150	
Methylene Chloride	ug/kg	42.4	34.0	80	70-133	
n-Butylbenzene	ug/kg	42.4	43.2	102	65-155	
n-Propylbenzene	ug/kg	42.4	42.2	100	70-148	
Naphthalene	ug/kg	42.4	43.9	104	70-148	
o-Xylene	ug/kg	42.4	43.2	102	70-141	
p-Isopropyltoluene	ug/kg	42.4	41.7	99	70-148	
sec-Butylbenzene	ug/kg	42.4	42.0	99	70-145	
Styrene	ug/kg	42.4	44.2	104	70-138	
tert-Butylbenzene	ug/kg	42.4	42.1	99	70-143	
Tetrachloroethene	ug/kg	42.4	41.7	98	70-140	
Toluene	ug/kg	42.4	40.2	95	70-130	
trans-1,2-Dichloroethene	ug/kg	42.4	34.9	82	70-136	
trans-1,3-Dichloropropene	ug/kg	42.4	42.5	100	70-138	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: NCDOT R-3622B HWY294

Pace Project No.: 92198901

LABORATORY CONTROL SAMPLE: 1186737

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/kg	42.4	45.6	108	70-132	
Trichlorofluoromethane	ug/kg	42.4	35.6	84	69-134	
Vinyl acetate	ug/kg	84.7	40.5J	48	24-161	F3
Vinyl chloride	ug/kg	42.4	40.0	94	55-140	
Xylene (Total)	ug/kg	127	130	102	70-141	
1,2-Dichloroethane-d4 (S)	%			85	70-132	
4-Bromofluorobenzene (S)	%			109	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE SAMPLE: 1187197

Parameter	Units	92198894001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	ug/kg	ND	40.4	39.7	98	49-180	
Benzene	ug/kg	ND	40.4	44.3	109	50-166	
Chlorobenzene	ug/kg	ND	40.4	44.7	111	43-169	
Toluene	ug/kg	ND	40.4	39.8	98	52-163	
Trichloroethene	ug/kg	ND	40.4	49.3	122	49-167	
1,2-Dichloroethane-d4 (S)	%				96	70-132	
4-Bromofluorobenzene (S)	%				112	70-130	
Toluene-d8 (S)	%				96	70-130	

SAMPLE DUPLICATE: 1187196

Parameter	Units	92198910001 Result	Dup Result	RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	<0.0051 mg/kg	ND		
1,1,1-Trichloroethane	ug/kg	<0.0051 mg/kg	ND		
1,1,2,2-Tetrachloroethane	ug/kg	<0.0051 mg/kg	ND		
1,1,2-Trichloroethane	ug/kg	<0.0051 mg/kg	ND		
1,1-Dichloroethane	ug/kg	<0.0051 mg/kg	ND		
1,1-Dichloroethene	ug/kg	<0.0051 mg/kg	ND		
1,1-Dichloropropene	ug/kg	<0.0051 mg/kg	ND		
1,2,3-Trichlorobenzene	ug/kg	<0.0051 mg/kg	ND		
1,2,3-Trichloropropane	ug/kg	<0.0051 mg/kg	ND		
1,2,4-Trichlorobenzene	ug/kg	<0.0051 mg/kg	ND		
1,2,4-Trimethylbenzene	ug/kg	<0.0051 mg/kg	ND		
1,2-Dibromo-3-chloropropane	ug/kg	<0.0051 mg/kg	ND		

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QUALITY CONTROL DATA

Project: NCDOT R-3622B HWY294

Pace Project No.: 92198901

SAMPLE DUPLICATE: 1187196

Parameter	Units	92198910001 Result	Dup Result	RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/kg	<0.0051 mg/kg	ND		
1,2-Dichlorobenzene	ug/kg	<0.0051 mg/kg	ND		
1,2-Dichloroethane	ug/kg	<0.0051 mg/kg	ND		
1,2-Dichloropropane	ug/kg	<0.0051 mg/kg	ND		
1,3,5-Trimethylbenzene	ug/kg	<0.0051 mg/kg	ND		
1,3-Dichlorobenzene	ug/kg	<0.0051 mg/kg	ND		
1,3-Dichloropropane	ug/kg	<0.0051 mg/kg	ND		
1,4-Dichlorobenzene	ug/kg	<0.0051 mg/kg	ND		
2,2-Dichloropropane	ug/kg	<0.0051 mg/kg	ND		
2-Butanone (MEK)	ug/kg	<0.10 mg/kg	ND		
2-Chlorotoluene	ug/kg	<0.0051 mg/kg	ND		
2-Hexanone	ug/kg	<0.051 mg/kg	ND		
4-Chlorotoluene	ug/kg	<0.0051 mg/kg	ND		
4-Methyl-2-pentanone (MIBK)	ug/kg	<0.051 mg/kg	ND		
Acetone	ug/kg	<0.10 mg/kg	ND		
Benzene	ug/kg	<0.0051 mg/kg	ND		
Bromobenzene	ug/kg	<0.0051 mg/kg	ND		
Bromochloromethane	ug/kg	<0.0051 mg/kg	ND		
Bromodichloromethane	ug/kg	<0.0051 mg/kg	ND		
Bromoform	ug/kg	<0.0051 mg/kg	ND		
Bromomethane	ug/kg	<0.010 mg/kg	ND		
Carbon tetrachloride	ug/kg	<0.0051 mg/kg	ND		
Chlorobenzene	ug/kg	<0.0051 mg/kg	ND		
Chloroethane	ug/kg	<0.010 mg/kg	ND		
Chloroform	ug/kg	<0.0051 mg/kg	ND		
Chloromethane	ug/kg	<0.010 mg/kg	ND		
cis-1,2-Dichloroethene	ug/kg	<0.0051 mg/kg	ND		
cis-1,3-Dichloropropene	ug/kg	<0.0051 mg/kg	ND		
Dibromochloromethane	ug/kg	<0.0051 mg/kg	ND		
Dibromomethane	ug/kg	<0.0051 mg/kg	ND		
Dichlorodifluoromethane	ug/kg	<0.010 mg/kg	ND		

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QUALITY CONTROL DATA

Project: NCDOT R-3622B HWY294
Pace Project No.: 92198901

SAMPLE DUPLICATE: 1187196

Parameter	Units	92198910001 Result	Dup Result	RPD	Qualifiers
Diisopropyl ether	ug/kg	<0.0051 mg/kg	ND		
Ethylbenzene	ug/kg	<0.0051 mg/kg	ND		
Hexachloro-1,3-butadiene	ug/kg	<0.0051 mg/kg	ND		
Isopropylbenzene (Cumene)	ug/kg	<0.0051 mg/kg	ND		
m&p-Xylene	ug/kg	<0.010 mg/kg	ND		
Methyl-tert-butyl ether	ug/kg	<0.0051 mg/kg	ND		
Methylene Chloride	ug/kg	<0.021 mg/kg	ND		
n-Butylbenzene	ug/kg	<0.0051 mg/kg	ND		
n-Propylbenzene	ug/kg	<0.0051 mg/kg	ND		
Naphthalene	ug/kg	<0.0051 mg/kg	ND		
o-Xylene	ug/kg	<0.0051 mg/kg	ND		
p-Isopropyltoluene	ug/kg	<0.0051 mg/kg	ND		
sec-Butylbenzene	ug/kg	<0.0051 mg/kg	ND		
Styrene	ug/kg	<0.0051 mg/kg	ND		
tert-Butylbenzene	ug/kg	<0.0051 mg/kg	ND		
Tetrachloroethene	ug/kg	<0.0051 mg/kg	ND		
Toluene	ug/kg	<0.0051 mg/kg	ND		
trans-1,2-Dichloroethene	ug/kg	<0.0051 mg/kg	ND		
trans-1,3-Dichloropropene	ug/kg	<0.0051 mg/kg	ND		
Trichloroethene	ug/kg	<0.0051 mg/kg	ND		
Trichlorofluoromethane	ug/kg	<0.0051 mg/kg	ND		
Vinyl acetate	ug/kg	<0.051 mg/kg	ND		
Vinyl chloride	ug/kg	<0.010 mg/kg	ND		
Xylene (Total)	ug/kg	<0.010 mg/kg	ND		
1,2-Dichloroethane-d4 (S)	%	108	108	19	
4-Bromofluorobenzene (S)	%	113	109	22	
Toluene-d8 (S)	%	100	102	17	

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QUALITY CONTROL DATA

Project: NCDOT R-3622B HWY294

Pace Project No.: 92198901

QC Batch: PMST/6506 Analysis Method: ASTM D2974-87
 QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
 Associated Lab Samples: 92198901001, 92198901002

SAMPLE DUPLICATE: 1186570

Parameter	Units	92198740007 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	14.8	14.6	2	

SAMPLE DUPLICATE: 1186571

Parameter	Units	92198873003 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	16.0	15.2	5	

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: NCDOT R-3622B HWY294

Pace Project No.: 92198901

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-C Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

F3 The recovery of the second source standard used to verify the initial calibration curve for this analyte is outside the laboratory's control limits. The result is estimated.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: NCDOT R-3622B HWY294

Pace Project No.: 92198901

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92198901001	SB-2	EPA 3050	MPRP/15849	EPA 6010	ICP/14341
92198901002	SB-8	EPA 3050	MPRP/15849	EPA 6010	ICP/14341
92198901001	SB-2	EPA 8260	MSV/26597		
92198901002	SB-8	EPA 8260	MSV/26597		
92198901001	SB-2	ASTM D2974-87	PMST/6506		
92198901002	SB-8	ASTM D2974-87	PMST/6506		

REPORT OF LABORATORY ANALYSIS

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Document Name: **Sample Condition Upon Receipt (SCUR)**

Document Revised: June 4, 2013
Page 1 of 2

Document No.:
F-ASV-CS-003-rev.11

Issuing Authorities:
Pace Asheville Quality Office

Client Name: AMEC

Where Received: Huntersville Asheville Eden Raleigh

Courier (Circle): Fed Ex UPS USPS Client Commercial Pace Other _____

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other _____

Circle Thermometer Used: IR Gun#3 -130265963 Type of Ice: Wet Blue None Samples on ice, cooling process has begun
IR Gun #2- 80344039

Temp Correction Factor: Add / Subtract 0 C

Corrected Cooler Temp.: 3.3 C Biological Tissue is Frozen: Yes No N/A

Date and Initials of person examining contents: L 4/25/14

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>SL</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

SCURF Review:

[Signature]

Date:

4/25/14

Place label here

SRF Review:

[Signature]

Date:

4/25/14

OR

92198901

Handwrite project number (if no label available)

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information: Company: <u>AMEC</u> Address: <u>1308 Patton Avenue</u> Phone: <u>888-232-8130</u> Requested Date/TAT: _____	Section B Required Project Information: Report To: <u>Helen Colby</u> Copy To: <u>Rodney Clark</u> Purchase Order No.: <u>4300264765</u> Project Name: <u>NC DOT R3512B - Hwy 294</u> Project Number: <u>566773622</u>
Section C Invoice Information: Attention: _____ Company Name: <u>NC DOT</u> Address: _____ Page Queue: _____ Reference: _____ Pace Project Manager: <u>Kevin Goodwin</u> Pace Profile #: _____	REGULATORY AGENCY <input checked="" type="checkbox"/> NPDES <input type="checkbox"/> UST <input type="checkbox"/> GROUND WATER <input type="checkbox"/> RCRA <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> OTHER _____ Site Location STATE: <u>N.C.</u>

Section D
Required Client Information

ITEM #	MATRIX ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
				COMPOSITE START	COMPOSITE END/GRAB			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol		

ITEM #	MATRIX ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	
				COMPOSITE START	COMPOSITE END/GRAB			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol			Other
1	SB-2 (G/Bags)	SLG	---	4/24/14	0946	1	5										
2	SB-8 (G/Bags)	SLG	---	4/24/14	1230	1	5										
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

ADDITIONAL COMMENTS

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
<i>Helen Colby</i>	4/25/14	1628	<i>Kevin Goodwin</i>	4/25/14	1628	33	X	X	X
<i>Allen Ferriss/Amec</i>	4/25/14	1647	<i>Allen Ferriss/Amec</i>	4/25/14	1647	33	X	X	X

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Rodney M. Clark

SIGNATURE of SAMPLER: *Rodney M. Clark*

DATE Signed (MM/DD/YY): _____

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020-rev.07.15-May-2007