Preliminary Site Assessment

1006 Bancroft Avenue

Parcel #20, Claudius E. Baines

Previous Greenville Shop 2 Gas Station

Greenville, Pitt County, North Carolina

State Project No. U-3315

WBS Element: 35781.1.2

February 22, 2013

Terracon Project No. 70127335

Prepared for:

North Carolina Department of Transportation (NCDOT)

Geotechnical Engineering Unit

Prepared by:

Terracon Consultants, Inc.

Raleigh, North Carolina

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February 22, 2013

North Carolina Department of Transportation
Attention: Mr. Gordon Box, LG
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, NC 27699

Re: Preliminary Site Assessment (PSA)
Parcel #20, Claudius E. Baines
Previous Greenville Shop 2 Gas Station
1006 Bancroft Avenue
Greenville, Pitt County, North Carolina
Terracon Project No. 70127335
WBS Element: 35781.1.2

Dear Mr. Box:

Terracon Consultants, Inc. (Terracon) is pleased to submit a Preliminary Site Assessment (PSA) report for the above referenced site. This assessment was performed in accordance with our Proposal for Preliminary Site Assessment (Terracon Proposal No. P70127314) dated August 7, 2012. This report includes the findings of the investigation, and provides our conclusions and recommendations.

Terracon appreciates the opportunity to provide these services to NCDOT. If you have any questions concerning this report or need additional information, please contact us at 919-873-2211.

Sincerely,
Terracon Consultants, Inc.

Prepared by:

Benjamin W. Swift
Environmental Professional

Reviewed by:

for Christopher L. Corbitt, PG
Authorized Project Reviewer

Lori C. Hoffman

Lori Hoffman, PE
Environmental Department Manager

PRELIMINARY SITE ASSESSMENT

PARCEL #20, CLAUDIUS E. BAINES
1006 BANCROFT AVENUE
GREENVILLE, PITT COUNTY, NORTH CAROLINA

1.0 INTRODUCTION

1.1 Site Description

Site Name	Parcel #20, Claudius E. Baines (Previous Greenville Shop 2 Gas Station)
Site Location/Address	Located at 1006 Bancroft Avenue, Greenville, North Carolina
General Site Description	The site is currently vacant land. Greenville Shop 2 Gas Station operated on the site in the past. A LUST incident (Incident #19904) is documented for the property, related to previous on-site gasoline station operations.

1.2 Site History

This property previously operated as the Greenville Shop 2 Gas Station. According to the North Carolina Department of Environment and Natural Resources (NCDENR) LUST database (Incident #19904), groundwater at the site was reportedly impacted by a release from underground petroleum storage tanks (USTs) at the site. The incident was reportedly closed in 1988. Regulatory information also indicated that a 500-gallon gasoline UST (installed in 1981) and a second 500-gallon gasoline UST (installed in 1964) were removed in 1999. Mr. Scott Ryals, with the NCDENR UST Section Trust Fund Branch, indicated the incident was closed in 2008 with a Notice of Residual Petroleum (deed restriction). Groundwater contamination levels were reportedly above the NCAC 2L Groundwater Quality Standards, but below Gross Contamination Levels (GCLs). Terracon observed three monitoring wells on the site. Two of the wells are located within the proposed NCDOT right-of-way (ROW).

1.3 Scope of Work

Terracon has prepared the following Preliminary Site Assessment (PSA) scope of work in accordance with the NCDOT's Request for Technical and Cost Proposal dated June 19, 2012 and Terracon's Proposal for Preliminary Site Assessment (Proposal No. P70127314) dated August 7, 2012. The scope of work included a geophysical investigation, the collection of five soil samples and two groundwater samples for laboratory analysis and preparation of a report documenting soil and groundwater investigation activities.

1.4 Standard of Care

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. Terracon makes no warranties, either expressed or implied, regarding the findings, conclusions or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies or other third parties supplying information used in the preparation of the report. These PSA services were performed in accordance with the scope of work authorized by you and were not conducted in accordance with ASTM E1903-97.

1.5 Additional Scope Limitations

Findings, conclusions and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, undetectable or not present during these services; thus, we cannot represent that the site is free of hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this PSA. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations or exploratory services; the data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services.

1.6 Reliance

This report has been prepared for the exclusive use of the North Carolina Department of Transportation (NCDOT). Authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the expressed written authorization of the client and Terracon.

2.0 FIELD ACTIVITIES

The following PSA activities are presented in the order that they were conducted in the field on August 16, 23, 29 and September 10, 2012. Exhibit 1 presents the general boundaries and topography of the site on portions of the USGS topographic quadrangle map of Greenville SW, North Carolina dated 1998. Exhibit 2 is a site layout plan that depicts the approximate locations of the site features, soil borings and previously installed groundwater monitoring wells.

2.1 Geophysical Survey

On August 16, and 23, 2012, Pyramid Environmental conducted a geophysical investigation at the site in an effort to determine if unknown, metallic underground storage tanks (USTs) were

present beneath the proposed right-of-way area. The geophysical investigation included an electromagnetic (EM) induction survey using a Geonics EM-61 MK1 metal detection instrument and a ground penetrating radar (GPR) survey using a GSSI SIR-2000 unit.

The geophysical investigation revealed one possible metallic UST and other potential buried anomalies on the property; however, the location of the apparent UST is outside the limits of the proposed NCDOT ROW. A copy of the geophysical report is included in Appendix B.

2.2 Soil Sampling

Based on the findings of the geophysical investigation, Terracon provided oversight for the advancement of five (5) soil borings within the proposed NCDOT ROW on August 29, 2012. Soil borings B-1, B-2, and B-3 were advanced along Farmville Boulevard at the southern property boundary while soil borings B-4 and B-5 were advanced along Bancroft Avenue at the eastern property boundary.The borings were completed by Bridger Drilling Enterprises, Inc., a North Carolina licensed driller using a Geoprobe® rig.

Soil samples were collected in 5-foot, disposable, acetate sleeves to document soil lithology, color, moisture content, and sensory evidence of impairment. The soil samples were placed in resealable plastic bags for a sufficient amount of time to allow volatilization of organic compounds from the soils. The soil samples were then screened using a *Thermo Electron Corporation TVA-1000* Photoionization/Flame Ionization Detector (PID/FID) by inserting the probe tip into the headspace of each bagged sample. The PID readings and soil sample depths are included on Table 1 and on individual boring logs in Appendix A.

Soil boring B-1 was advanced to a depth of approximately 20 feet below ground surface (bgs). Soil borings B-2, B-3, B-4, and B-5 were advanced to depths of approximately 15 feet bgs. Evidence of groundwater was not noted in the soil borings advanced at the site. Soils obtained from the acetate sleeves were separated for screening and sampling into two and half foot intervals.

The soil samples were placed in laboratory prepared glassware and packed in ice within a cooler. The sample cooler and completed chain-of-custody forms were relinquished to SGS North American Inc. in Wilmington, North Carolina.

2.3 Groundwater Sampling

Following soil sampling activities, previously installed monitoring well MW-1 was sampled on August 29, 2012. Groundwater was measured in monitoring well MW-1 at a depth of approximately 9.3 feet bgs. Prior to sampling, the monitoring well was purged of approximately three well volumes with a peristaltic pump. A petroleum odor was noted in the well during sampling activities. The water sample collected from the monitoring well was placed into

laboratory supplied, pre-preserved sample containers and packed in ice. The sample cooler and chain of custody documentation were picked up by a courier for delivery to the laboratory.

On September 10, 2012, monitoring well MW-2 was sampled at the site. Groundwater was measured in monitoring well MW-2 at a depth of approximately 8.9 feet bgs. Monitoring well MW-2 was purged and sampled for laboratory analysis and the samples were transported to the laboratory by similar methods as well MW-1. A petroleum odor was also noted in the well during sampling activities.

2.4 Subsurface Conditions

The soil samples from ground surface to a depth of 15 feet included silty sands, clayey sands, and sandy clay. Petroleum odors and elevated PID readings were noted in the soils from boring B-3 at a depth of about 5 to 15 feet bgs. Soil samples from the interval in each boring exhibiting the highest PID reading or most obvious evidence of contamination were submitted for laboratory analysis.

3.0 LABORATORY ANALYSES

Soil samples were submitted for laboratory analysis of Total Petroleum Hydrocarbons (TPH) Diesel Range Organics (DRO) by Method 3546 and TPH Gasoline Range Organics (GRO) by Method 5035. The groundwater samples were submitted for laboratory analysis of volatile organic compounds (VOCs) by EPA Method 8260, semi-volatile organic compounds (SVOCs) by EPA Method 8270, MADEP VPH, and MADEP EPH. Samples were submitted to SGS North American Inc. in Wilmington, North Carolina for analysis. Please refer to Appendix C for the laboratory analytical reports.

4.0 DATA EVALUATION

4.1 Soil Sample Analytical Results and Interpretation

TPH-GRO constituents were reported in soil sample S-3 (127 mg/kg) at concentrations above the NCDENR Action Level of 10 mg/kg. TPH-GRO constituents were not detected in the soil samples from borings S-1, S-2, S-4 or S-5 above laboratory reporting limits.

TPH-DRO constituents were also reported in soil sample S-3 (11.2 mg/kg) at concentrations above the NCDENR Action Level of 10 mg/kg. TPH-DRO compounds were not detected in the soil samples from the other four borings above laboratory reporting limits.

A summary of the soil sampling analytical results are included in Table 1 as an attachment to this report.

4.2 Groundwater Analytical Results and Interpretation

Well MW-1

Laboratory analytical results reported 1,2,4-trimethylbenzene (633 ug/L), benzene (24.8 ug/L J), isopropylbenzene (74.4 ug/L J), n-propylbenzene (106 ug/L), 2-methylnaphthalene (131 ug/L), total xylenes (517 ug/L), bis(2-ethylhexyl)phthalate (11.7 ug/L J), 4-isopropyltoluene (55.2 ug/L J) and naphthalene (178 ug/L) in well MW-1 at concentrations that exceed their respective NCAC 2L Groundwater Quality Standards.

Laboratory analytical results also reported 1,3,5-trimethylbenzene (214 ug/L) and ethylbenzene (370 ug/L) and in well MW-1 at concentrations that were below their respective NCAC 2L Groundwater Quality Standards.

Based on the NCDENR UST Section MADEP Groundwater Sample Worksheet, C5-C8 Aliphatics (687 ug/L), C9-C18 Aliphatics (2060 ug/L), and C9-C22 Aromatics (1540 ug/L) exceed their respective NCAC 2L Groundwater Quality Standards for low boiling fuels typical of gasoline.

Well MW-2

Laboratory analytical results reported benzene (2.12 ug/L) and naphthalene (26.6 ug/L) in well MW-2 at concentrations that exceed the NCAC 2L Groundwater Quality Standards.

Laboratory analytical results reported ethylbenzene (43.2 ug/L), 1,2,4-trimethylbenzene (29.4 ug/L), 1,3,5-trimethylbenzene (6.81 ug/L), 4-isopropyltoluene (1.4 ug/L), isopropylbenzene (32.6 ug/L), total xylenes (4.58 ug/L), n-propylbenzene (34.1 ug/L), and 2-methylnaphthalene (8.57 ug/L) in well MW-2 at concentrations that were below their respective NCAC 2L Groundwater Quality Standards.

Based on the NCDENR UST Section MADEP Groundwater Sample Worksheet C5-C8 Aliphatics (738 ug/L) and C9-C22 Aromatics (453 ug/L) exceed their respective NCAC 2L Groundwater Quality Standards for low boiling fuels.

A summary of the groundwater sampling analytical results are included in Tables 2 and 3 as an attachment to this report.

5.0 CONCLUSIONS

The findings of this investigation are discussed below.

- The geophysical investigation revealed one possible metallic UST and other potential buried anomalies at the site; however, the location of the apparent UST is outside the proposed ROW area and is not considered to be an environmental concern at this time.

- Five soil borings were advanced at the site to depths of approximately 15 to 20 feet bgs.

- TPH-GRO and TPH-DRO constituents were reported in soil sample S-3 at concentrations above the NCDENR Action Level of 10 mg/kg. Gasoline and diesel petroleum compounds were not detected in the soil samples from the other four borings above the laboratory reporting limits.

- The extent of soil contamination appears to be localized at the site. The actual amount of impacted soil can only be determined after excavation or by advancing additional borings at the site to further delineate the extent of contamination.

- Based on measurements obtained from the on-site groundwater monitoring wells, the depth to groundwater is approximately 8.9 and 9.3 feet bgs.

- Laboratory analytical results reported 1,2,4-trimethylbenzene, benzene, isopropylbenzene, n-propylbenzene, 2-methylnapthalene, total xylenes, bis(2-ethylhexyl)phthalate, 4-isopropyltoluene, naphthalene, C5-C8 Aliphatics, C9-C18 Aliphatics, and C9-C22 Aromatics in well MW-1 at concentrations that exceed their respective NCAC 2L Groundwater Quality Standards. 1,3,5-trimethylbenzne and ethylbenzene were detected in well MW-1 at concentrations below their respective NCAC 2L Groundwater Quality Standards.

- Laboratory analytical results reported benzene, 4-isopropyltoluene, naphthalene, C5-C8 Aliphatics and C9-C22 Aromatics in well MW-2 at concentrations that exceed their respective NCAC 2L Groundwater Quality Standards. Ethylbenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, isopropylbenzene, total xylenes, n-propylbenzene, and 2-methylnapthalene were detected in well MW-2 at concentrations that were below their respective NCAC 2L Groundwater Quality Standards.

- Based on planned ROW construction information provided by the NCDOT, petroleum-impacted soil and groundwater may be encountered at the site due to shallow groundwater and the proposed depth of disturbance.

  Based on information provided by NCDOT, Terracon estimates a total of 261 cubic yards or 391.5 tons of contaminated soil be used for estimating quantities to be removed during construction. This is based on the following assumptions:

  Utility Excavation
  - 55 feet of water line through the contaminated area at 10 feet deep by 5 feet wide = 2750 cubic feet or 102 cubic yards

  Drainage Excavation
  - 70 feet of 42” RCP line through the contaminated area with existing elevation ~69

feet and invert elevation at ~57 feet

- (69'-57')*(42"/12")(70') =2940 cubic feet or 109 cubic yards

Roadway Excavation

- Sta. 31+75, 37' Lt to 75' Lt to Sta. 32+48, 37' Lt to 77' Lt., Surface area = 1,190 square feet
- Based on provided cross-sections, 31+50, 32+00, little to no cut anticipated.
- Consider contingency of 50 cubic yards to account for the contaminated area to be cut ~1 foot.

TABLES

Table 1 - Soil Sampling Analytical Results Summary (DRO/GRO)
Table 2 - Soil Sampling Analytical Results Summary (VOCs/SVOCs)
Table 3 – Groundwater Sampling Analytical Results Summary

Table 1
Soil Sampling Analytical Results Summary
Parcel #20, Baines, Claudius E. Property
Greenville, Pitt County, North Carolina

Sample ID	Depth	PID reading	Method 5035/GRO	Method 3546/DRO
	ft bgs	ppm	mg/kg	mg/kg
S-1	5.0-7.5	12.82	<3.37	<6.95
S-2	2.5-5.0	12.4	<2.98	<7.16
S-3	7.5-10.0	118	**127**	**11.2**
S-4	10.0-12.5	8.78	<4.13	<8.52
S-5	7.5-10.0	7.14	<4.39	<8.56
NCDENR Action Level			10	10

Notes:
ft bgs = feet below ground surface
ppm = parts per million
DRO = Diesel Range Organics
GRO = Gasoline Range Organics
ND = Below laboratory detection limits
Highlighted results indicate above NCDENR UST Section Action Level

Table 2
Groundwater Sampling Analytical Results Summary
Parcel #20, Baines, Claudius E. Property
Greenville, Pitt County, North Carolina
Terracon Project No. 70127335

			Sample ID	MW-1	MW-2
			GW Depth	9.3 FT	8.9 FT
Method	**Parameter**	**Units**	**NCAC 2L Groundwater Quality Standard**	**Value**	**Value**
8260B	1,2,4-Trimethylbenzene	ug/l	400	**633**	**29.4**
	1,3,5-Trimethylbenzene	ug/l	400	**214**	**6.81**
	4-Isopropyltoluene	ug/l	25	**55.2 J**	**1.4**
	Benzene	ug/l	1	**24.8 J**	**2.12**
	Ethylbenzene	ug/l	600	**370**	**43.2**
	Isopropylbenzene	ug/l	70	**74.4 J**	**32.6**
	Napthalene	ug/l	6	**144**	**25.1**
	Xylenes (total)	ug/l	500	**517**	**4.58**
	n-propylbenzene	ug/l	NE	**106**	**34.1**
8270C	2-Methylnaphthalene	ug/l	4000	**131**	**8.57**
	Bis(2-Ethylhexyl)phthalate	ug/l	3	**11.7 J**	**<5.19**
	Napthalene	ug/l	6	**178**	**26.6**

Notes:

Sample collected on August 29 and September 10, 2012

NE = Not established

units = ug/L - sample analyte compound concentrations measured in micrograms per liter

Bold concentrations were reported above the laboratory method detection limits but below the NCAC 2L Groundwater Quality Standard

=Greater than or equal to the NCAC 2L Groundwater Quality Standard

J = Estimated Concentration (J Qualifier)

Table 3
Summary of Groundwater Analytical Results (MADEP EPH/VPH)
Parcel #20, Baines, Claudius E. Property
Greenville, Pitt County, North Carolina
Terracon Project No. 70127335

Sample Designation / Sample Location GW Depth Date Sampled				MW-1 9.3 FT 8/29/2012		MW-2 8.9 FT 9/10/2012	
Hydrocarbon Fraction Ranges	Analytical Hydrocarbon Fractions		NCAC 2L Groundwater Quality Standard (ug/L)	Lab Results Conc.	Final VPH and/or EPH Conc.	Lab Results Conc.	Final VPH and/or EPH Conc.
C5-C8 Aliphatics	C5-C8 Aliphatics	VPH	400	687	687	738	738
C9-C18 Aliphatics	C9-C12 Aliphatics	VPH	700	2060	2060	438	438
C9-C22 Aromatics	C9-C10 Aromatics	VPH	200	1540	1540	453	453

Notes:
ft = feet
ug/L = micrograms per liter
Where no detectable concentration was measured, the method detection limit was used for the final calculation

FIGURES

Exhibit 1 – Site Vicinity Map (Topographic Map)
Exhibit 2 – Site Diagram with Soil Boring Locations and Analytical Data

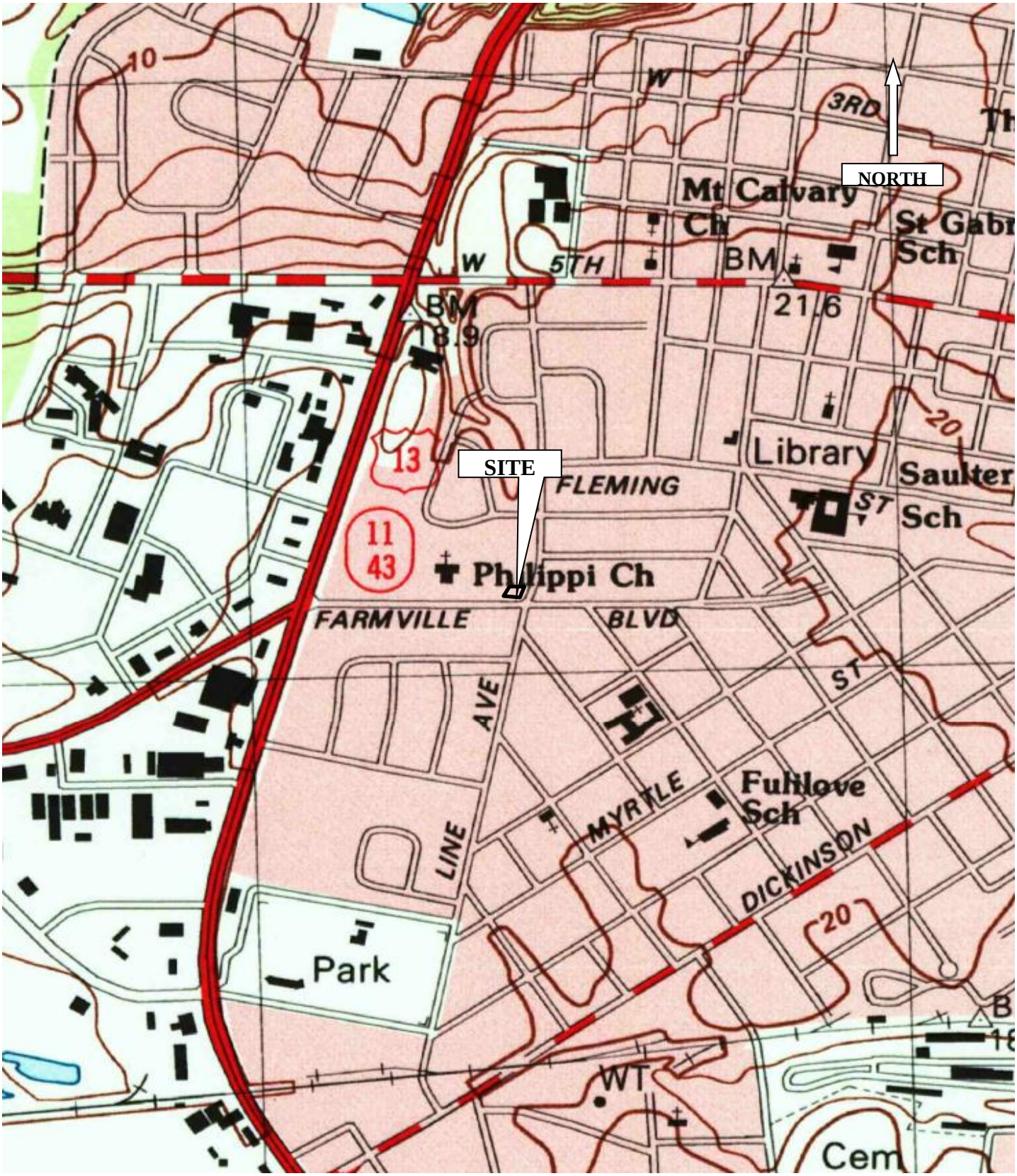


Diagram is for general location only

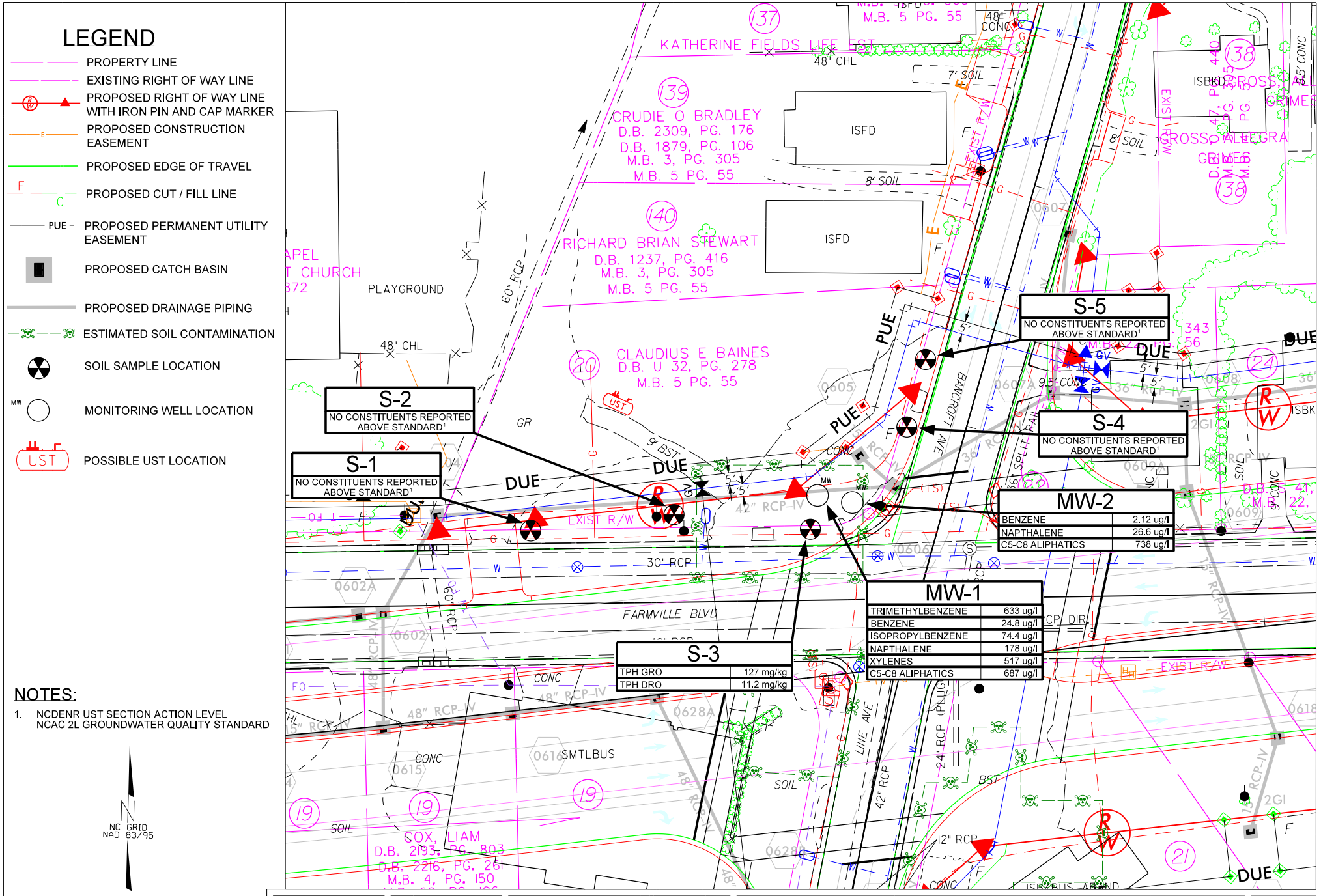
Site Vicinity Map
Parcel # 20
1006 Bancroft Avenue
Greenville, Pitt County, North Carolina

Reference: Greenville SW, NC USGS Quadrangle

Dated Year: 1998

Terracon

PROJECT NO.: 70127335	
DATE: 10/2/12	CONTOUR INT: 2 meters
DRAWN: MDP	CHECK: LCH
SCALE: NTS	



SCALE:	1:50
DATE:	FEBRUARY 2013
DRAWN BY:	MJA
APPROVED BY:	LCH / BWS
PROJ. REFERENCE NUMBER:	35781.1.2
TIP NUMBER:	U-3315
COUNTY:	PITT
TERRACON PROJECT:	70127335

Terracon
5240 GREEN'S DAIRY ROAD RALEIGH, NC 27616
PH. (919) 873-2211 FAX. (919) 873-9555

SITE DIAGRAM WITH SOIL BORING LOCATIONS AND ANALYTICAL DATA

BAINES, CLAUDIUS E PROPERTY - PARCEL 20
-L- STATION 31+60
1006 BANCROFT AVENUE
GREENVILLE, PITT COUNTY, NORTH CAROLINA

EXHIBIT 2

APPENDIX A

Boring Logs

SOIL BORING LOG

PROJECT NAME: Stantonsburg/Tenth Street Connector	SOIL BORING I.D.: B-1
PROJECT NO.: 70127335	DATE(S) DRILLED: August 29, 2012
PROJECT LOCATION: Parcel #20, 1006 Bancroft Avenue Greenville, North Carolina	DRILLING CONTR.: Bridger Drilling Enterprises, Inc. DRILL METHOD: Geoprobe BORING DIAMETER: 2 inches
CLIENT: NCDOT Geoenvironmental	SAMPLING METHOD/INTERVAL: 5-Foot
LOGGED BY: Ben Swift	REMARKS: BGS = below grade surface

DESCRIPTIVE LOG

SAMPLE INTERVAL	SAMPLE REC. (IN.)	BLOWS PER 6"	PID/FID (ppm)	Odors	DEPTH (FT)	DESCRIPTION OF SOIL
0-2.5		NA	10.83	No petroleum odors	0.0	Topsoil
					0.5	Orange silty sand
					1.0	
					1.5	
					2.0	
2.5 - 5.0		NA	10.38		2.5	
					3.0	Tan, grey silty sand
					3.5	
					4.0	
					4.5	
5.0 - 7.5*		NA	12.82		5.0	
					5.5	
					6.0	
					6.5	
					7.0	Grey, tan clay/hard to stiff
7.5 - 10.0		NA	9.88		7.5	
					8.0	
					8.5	
					9.0	
					9.5	
10.0 - 12.5		NA	11.66		10.0	
					10.5	
					11.0	
					11.5	
					12.0	
12.5 - 15.0		NA	12.56		12.5	
					13.0	
					13.5	
					14.0	Grey, clay/hard to stiff
					14.5	
15.0 - 17.5		NA	10.76		15.0	
					15.5	
					16.0	Tan, orange sand/wet
					16.5	
					17.0	
17.5 - 20.0		NA	10.10		17.5	
					18.0	
					18.5	
					19.0	
					19.5	
					20.0	Boring terminated at 15.0 feet bgs
					20.5	
					21.0	
					21.5	

DRILLING METHODS
AR - AIR ROTARY
CFA - CONTINUOUS FLIGHT AUGER
DC - DRIVEN CASING
HA - HAND AUGER
HOLLOW STEM AUGER
MD - MUD DRILLING
RC - ROCK CORING
WR - WATER ROTARY

SAMPLING METHODS
SS - SPLIT SPOON
ST - SHELBY TUBE
GP - GEOPROBE
HSA -

* - Sample collected for analysis
ND = <1 ppm

Terracon

SOIL BORING LOG

PROJECT NAME: Stantonsburg/Tenth Street Connector	SOIL BORING I.D.: B-2
PROJECT NO.: 70127335	DATE(S) DRILLED: August 29, 2012
PROJECT LOCATION: Parcel #20, 1006 Bancroft Avenue Greenville, North Carolina	DRILLING CONTR.: Bridger Drilling Enterprises, Inc. DRILL METHOD: Geoprobe BORING DIAMETER: 2 inches
CLIENT: NCDOT Geoenvironmental	SAMPLING METHOD/INTERVAL: 5-Foot
LOGGED BY: Ben Swift	REMARKS: BGS = below grade surface

DESCRIPTIVE LOG

SAMPLE INTERVAL	SAMPLE REC. (IN.)	BLOWS PER 6"	PID/FID (ppm)	Odors	DEPTH (FT)	DESCRIPTION OF SOIL
0-2.5		NA	12.40	No petroleum odors	0.0	Topsoil
					0.5	
					1.0	Tan, grey silty sand/moist
					1.5	
					2.0	
2.5 - 5.0*		NA	9.53		2.5	
					3.0	Tan, grey sandy clay/moist
					3.5	
					4.0	
					4.5	
5.0 - 7.5		NA	9.51		5.0	
					5.5	
					6.0	
					6.5	
					7.0	
7.5 - 10.0		NA	8.88		7.5	
					8.0	
					8.5	
					9.0	
					9.5	
10.0 - 12.5		NA	8.26		10.0	Tan, grey clayey sand
					10.5	
					11.0	
					11.5	
					12.0	
12.5 - 15		NA	8.16		12.5	
					13.0	
					13.5	
					14.0	
					14.5	
					15.0	Boring terminated at 15.0 feet bgs
					15.5	
					16.0	
					16.5	
					17.0	
					17.5	
					18.0	
					18.5	
					19.0	
					19.5	
					20.0	
					20.5	
					21.0	
					21.5	

DRILLING METHODS
AR - AIR ROTARY
CFA - CONTINUOUS FLIGHT AUGER
DC - DRIVEN CASING
HA - HAND AUGER
HSA - HOLLOW STEM AUGER
MD - MUD DRILLING
RC - ROCK CORING
WR - WATER ROTARY

SAMPLING METHODS
SS - SPLIT SPOON
ST - SHELBY TUBE
GP - GEOPROBE

* - Sample collected for analysis
ND = <1 ppm

Terracon

SOIL BORING LOG

PROJECT NAME: Stantonsburg/Tenth Street Connector	SOIL BORING I.D.: B-3
PROJECT NO.: 70127335	DATE(S) DRILLED: August 29, 2012
PROJECT LOCATION: Parcel #20, 1006 Bancroft Avenue Greenville, North Carolina	DRILLING CONTR.: Bridger Drilling Enterprises, Inc. DRILL METHOD: Geoprobe BORING DIAMETER: 2 inches
CLIENT: NCDOT Geoenvironmental	SAMPLING METHOD/INTERVAL: 5-Foot
LOGGED BY: Ben Swift	REMARKS: BGS = below grade surface

DESCRIPTIVE LOG

SAMPLE INTERVAL	SAMPLE REC. (IN.)	BLOWS PER 6"	PID/FID (ppm)	Odors	DEPTH (FT)	DESCRIPTION OF SOIL
0-2.5		NA	8.23	No petroleum odors	0.0	Concret
					0.5	Tan, grey sandy clay
					1.0	
					1.5	
					2.0	
2.5 - 5.0		NA	8.98		2.5	
					3.0	
					3.5	
					4.0	
					4.5	
5.0 - 7.5		NA	10.23	Slight odor	5.0	
					5.5	
					6.0	
					6.5	
					7.0	Tan, grey clay
7.5 - 10.0*		NA	118	Yes	7.5	
					8.0	
					8.5	
					9.0	
					9.5	
10.0 - 12.5		NA	19.89		10.0	
					10.5	
					11.0	
					11.5	
					12.0	
12.5 - 15		NA	15.98		12.5	
					13.0	
					13.5	
					14.0	
					14.5	
					15.0	Boring terminated at 15.0 feet bgs
					15.5	
					16.0	
					16.5	
					17.0	
					17.5	
					18.0	
					18.5	
					19.0	
					19.5	
					20.0	
					20.5	
					21.0	
					21.5	

DRILLING METHODS
AR - AIR ROTARY
CFA - CONTINUOUS FLIGHT AUGER
DC - DRIVEN CASING
HA - HAND AUGER
HSA - HOLLOW STEM AUGER
MD - MUD DRILLING
RC - ROCK CORING
WR - WATER ROTARY

SAMPLING METHODS
SS - SPLIT SPOON
ST - SHELBY TUBE
GP - GEOPROBE

* - Sample collected for analysis
ND = <1 ppm

Terracon

SOIL BORING LOG

PROJECT NAME: Stantonsburg/Tenth Street Connector	SOIL BORING I.D.: B-4
PROJECT NO.: 70127335	DATE(S) DRILLED: August 29, 2012
PROJECT LOCATION: Parcel #20, 1006 Bancroft Avenue Greenville, North Carolina	DRILLING CONTR.: Bridger Drilling Enterprises, Inc. DRILL METHOD: Geoprobe BORING DIAMETER: 2 inches
CLIENT: NCDOT Geoenvironmental	SAMPLING METHOD/INTERVAL: 5-Foot
LOGGED BY: Ben Swift	REMARKS: BGS = below grade surface

DESCRIPTIVE LOG

SAMPLE INTERVAL	SAMPLE REC. (IN.)	BLOWS PER 6"	PID/FID (ppm)	Odors	DEPTH (FT)	DESCRIPTION OF SOIL
0-2.5		NA	6.70	No petroleum odors	0.0	Concrete
					0.5	Grey, tan sandy clay/moist
					1.0	
					1.5	
					2.0	
2.5 - 5.0		NA	6.69		2.5	
					3.0	
					3.5	
					4.0	
					4.5	
5.0 - 7.5		NA	0.12		5.0	
					5.5	
					6.0	
					6.5	
					7.0	Tan, grey sand/wet
7.5 - 10.0		NA	8.20		7.5	
					8.0	Tan, orange sandy clay/hard to stiff
					8.5	
					9.0	
					9.5	
10.0 - 12.5*		NA	8.78		10.0	
					10.5	
					11.0	
					11.5	
					12.0	
12.5 - 15		NA	8.42		12.5	
					13.0	
					13.5	
					14.0	
					14.5	
					15.0	Boring terminated at 15.0 feet bgs
					15.5	
					16.0	
					16.5	
					17.0	
					17.5	
					18.0	
					18.5	
					19.0	
					19.5	
					20.0	
					20.5	
					21.0	
					21.5	

DRILLING METHODS
AR - AIR ROTARY
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DC - DRIVEN CASING
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MD - MUD DRILLING
RC - ROCK CORING
WR - WATER ROTARY

SAMPLING METHODS
SS - SPLIT SPOON
ST - SHELBY TUBE
GP - GEOPROBE

* - Sample collected for analysis
ND = <1 ppm

Terracon

SOIL BORING LOG

PROJECT NAME: Stantonsburg/Tenth Street Connector	SOIL BORING I.D.: B-5
PROJECT NO.: 70127335	DATE(S) DRILLED: August 29, 2012
PROJECT LOCATION: Parcel #20, 1006 Bancroft Avenue Greenville, North Carolina	DRILLING CONTR.: Bridger Drilling Enterprises, Inc. DRILL METHOD: Geoprobe BORING DIAMETER: 2 inches
CLIENT: NCDOT Geoenvironmental	SAMPLING METHOD/INTERVAL: 5-Foot
LOGGED BY: Ben Swift	REMARKS: BGS = below grade surface

DESCRIPTIVE LOG

SAMPLE INTERVAL	SAMPLE REC. (IN.)	BLOWS PER 6"	PID/FID (ppm)	Odors	DEPTH (FT)	DESCRIPTION OF SOIL
0-2.5		NA	6.08	No petroleum odors	0.0	Concrete
					0.5	Tan, orange sandy clay
					1.0	
					1.5	
					2.0	
2.5 - 5.0		NA	6.92		2.5	
					3.0	
					3.5	
					4.0	
					4.5	
5.0 - 7.5		NA	6.65		5.0	Grey, orange clay/hard to stiff
					5.5	
					6.0	
					6.5	
					7.0	
7.5 - 10.0*		NA	7.14		7.5	
					8.0	
					8.5	
					9.0	
					9.5	
10.0 - 12.5		NA	6.03		10.0	
					10.5	
					11.0	
					11.5	
					12.0	Yellow Orange sand
12.5 - 15		NA	6.71		12.5	
					13.0	
					13.5	
					14.0	
					14.5	
					15.0	Boring terminated at 15.0 feet bgs
					15.5	
					16.0	
					16.5	
					17.0	
					17.5	
					18.0	
					18.5	
					19.0	
					19.5	
					20.0	
					20.5	
					21.0	
					21.5	

DRILLING METHODS
AR - AIR ROTARY
CFA - CONTINUOUS FLIGHT AUGER
DC - DRIVEN CASING
HA - HAND AUGER
HSA - HOLLOW STEM AUGER
MD - MUD DRILLING
RC - ROCK CORING
WR - WATER ROTARY

SAMPLING METHODS
SS - SPLIT SPOON
ST - SHELBY TUBE
GP - GEOPROBE

* - Sample collected for analysis
ND = <1 ppm

Terracon

APPENDIX B

Geophysical Survey Report

Pyramid Project # 2012212

GEOPHYSICAL INVESTIGATION REPORT

EM61 & GPR SURVEYS

CLAUDIUS E. BAINES PROPERTY (PARCEL 20)
1006 Bancroft Avenue
Greenville, North Carolina

September 24, 2012

Report prepared for: **Lori C. Hoffman, PE**
Stephen J. Kerlin
Terracon
5240 Green's Dairy Road
Raleigh, North Carolina 27616

Prepared by: _____
Mark J. Denil, P.G.

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

Terracon
GEOPHYSICAL INVESTIGATION REPORT
CLAUDIUS E. BAINES PROPERTY (PARCEL 20)
1006 Bancroft Avenue
Greenville, North Carolina

TABLE OF CONTENTS PAGE

FIGURES

1.0 INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Terracon across the proposed Right-of-Way (ROW) area at the Claudius E. Baines property (Parcel 20) located at 1006 Bancroft Avenue in Greenville, North Carolina. Conducted on August 16 and 23, 2012, the geophysical investigation was performed as part of the North Carolina Department of Transportation (NCDOT) preliminary site assessment for state project number U-3315 (WBS Element 35781.1.2) to determine if unknown, metallic, underground storage tanks (USTs) were present beneath the proposed ROW area of the site.

The Baines property consists of a vacant lot which was a former gas station site. The proposed ROW area consists of concrete pavement surrounded by a large grass yard. Residential properties and a church lie north and west of the site, respectively. The geophysical survey (proposed ROW) area has a maximum length and width of 180 feet and 110 feet, respectively.

Terracon representatives Mr. Stephen Kerlin and Ms. Lori Hoffman, PE provided information and maps identifying the geophysical survey area to Mark Denil, PG prior to conducting the investigation. Photographs of the geophysical equipment used in this investigation and the property are shown in **Figure 1**.

2.0 FIELD METHODOLOGY

Prior to conducting the geophysical investigation, a 10-foot by 20-foot survey grid was established across the geophysical survey (proposed ROW) area using measuring tapes, pin flags and water-based marking paint. These grid marks were used as X-Y coordinates for location control when collecting the geophysical data and establishing base maps for the geophysical results.

The geophysical investigation consisted of electromagnetic (EM) induction-metal detection surveys and ground penetrating radar (GPR) surveys. The EM survey was performed using a Geonics EM61-MK1 metal detection instrument. According to the instrument specifications, the EM61 can detect a

metal drum down to a maximum depth of approximately 8 feet. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. All of the EM61 data were digitally collected at approximately 0.8 foot intervals along northerly-southerly or easterly-westerly trending, parallel survey lines spaced five feet apart. All of the data were downloaded to a computer and reviewed in the field and office using the Geonics DAT61W and Surfer for Windows Version 7.0 software programs.

The GPR investigation was conducted across the areas containing steel reinforced concrete and selected EM61 differential anomalies using a GSSI SIR-2000 unit equipped with a 400 MHz antenna. Data were digitally collected in a continuous mode along X-axis and/or Y-axis survey lines, spaced 2.5 to 5.0 feet apart using a vertical scan of 512 samples, at a rate of 48 scans per second. A 70 MHz high pass filter and an 800 MHz low pass filter were used during data acquisition with the 400 MHz antenna. GPR data were collected down to a maximum depth of approximately 5 feet, based on an estimated two-way travel time of 8 nanoseconds per foot.

Verbal, preliminary geophysical results obtained from the site were provided to Mr. Kerlin or Ms Hoffman during the week of August 27, 2012.

3.0 DISCUSSION OF RESULTS

Contour plots of the EM61 bottom coil and differential results are presented in **Figures 2 and 3**, respectively**.** The bottom coil results represent the most sensitive component of the EM61 instrument and detect metal objects regardless of size. The bottom coil response can be used to delineate metal conduits or utility lines, small, isolated metal objects, and areas containing insignificant metal debris. The differential results are obtained from the difference between the top and bottom coils of the EM61 instrument. The differential results focus on the larger metal objects such as drum and UST-size objects and ignore the smaller insignificant metal objects.

The linear, EM61 bottom coil anomalies intersecting grid coordinates X=40 Y=20, X=136 Y=65 and X=144 Y=65 are probably in response to buried utility lines or conduits. The bottom coil anomalies

centered near grid coordinates X=205 Y=124 are probably in response to buried miscellaneous debris/objects and close proximity to a house. GPR scans suggest the EM61 differential anomalies centered near grid coordinates X=25 Y=65 and X=65 Y=50 are in response to an adjacent fence line and/or miscellaneous metal debris/objects. GPR data suggest the large EM61 anomalies centered near grid coordinates X170 Y=55 are in response to steel reinforced concrete and buried conduits.

GPR data acquired across the EM61 differential anomaly centered near grid coordinates X=148 Y=85 detected a possible (low confidence) metallic UST or buried, wide-diameter conduit. Based on the GPR data, the possible UST or conduit is approximately 6.0 feet long, 3.5 feet wide and buried 2.0 feet below present grade. The possible UST or conduit may lie on the edge or immediately beyond the proposed ROW area. A GPR image obtained along a portion of a survey line beginning at X=140 Y=80 and ending at X=152 Y=88, which crosses the possible UST or wide-diameter conduits and a photograph showing the location of the possible UST are presented in **Figure 4.** The foot print of the possible UST was marked in the field using orange marking paint and pin flags.

The remaining EM61 anomalies shown in Figures 2 and 3 are probably in response to known surface objects, conduits or to small, insignificant metal debris/objects. The geophysical investigation suggests the remaining portion of the proposed ROW area at Parcel 20 does not contain metallic USTs.

4.0 SUMMARY & CONCLUSIONS

Our evaluation of the EM61 and GPR data collected across the proposed ROW area of the Claudius E. Baines property (Parcel 20) located at 1006 Bancroft Avenue in Greenville, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the surveyed portion of the site.

- The linear, EM61 bottom coil anomalies intersecting grid coordinates X=40 Y=20, X=136 Y=65 and X=144 Y=65 are probably in response to buried utility lines or conduits.

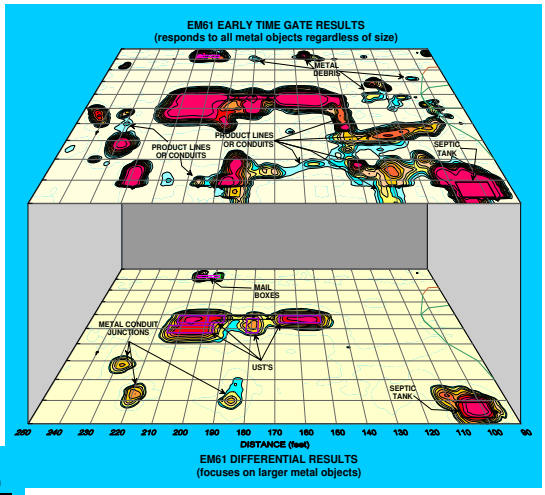
- GPR data suggest the large EM61 anomalies centered near grid coordinates X170 Y=55 are in response to steel reinforced concrete and buried conduits.

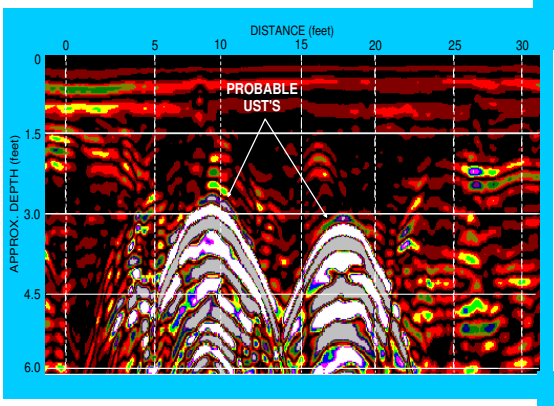
- GPR data acquired across the EM61 differential anomaly centered near grid coordinates X=148 Y=85 detected a possible (low confidence) metallic UST or buried, wide-diameter conduit. Based on the GPR data, the possible UST or conduit is approximately 6.0 feet long, 3.5 feet wide and buried 2.0 feet below present grade.

- The remaining EM61 anomalies shown in Figures 2 and 3 are probably in response to known surface objects, buried lines, conduits, or to small, insignificant metal debris/objects.

5.0 LIMITATIONS

EM61 and GPR surveys have been performed and this report prepared for Terracon in accordance with generally accepted guidelines for EM61 and GPR surveys. It is generally recognized that the results of the EM61 and GPR are non-unique and may not represent actual subsurface conditions. The EM61 and GPR results obtained for this project have detected one possible metallic UST or a segment of a wide diameter conduit. However, additional unknown metallic USTs may lie beneath the site that were not detected by the geophysical investigation.

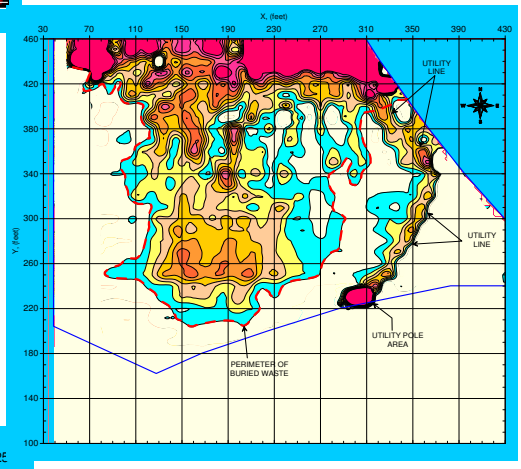


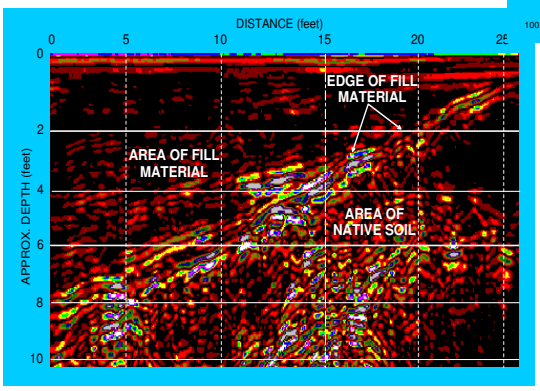


FIGURES

(on the following pages)

Figures shown on this page are for esthetic purposes only and are not related to the geophysical results discussed in this report.





The photograph shows the Geonics EM61 metal detector that was used to conduct the metal detection survey across the proposed Right-of-Way area at the Claudius Baines property (Parcel 20) on August 16, 2012.

The photographs show the SIR-2000 GPR system equipped with a 400 MHz antenna that were used to conduct the ground penetrating radar investigation across the areas containing steel reinforced concrete and selected EM61 differential anomalies at the Parcel 20 site on August 23, 2012.

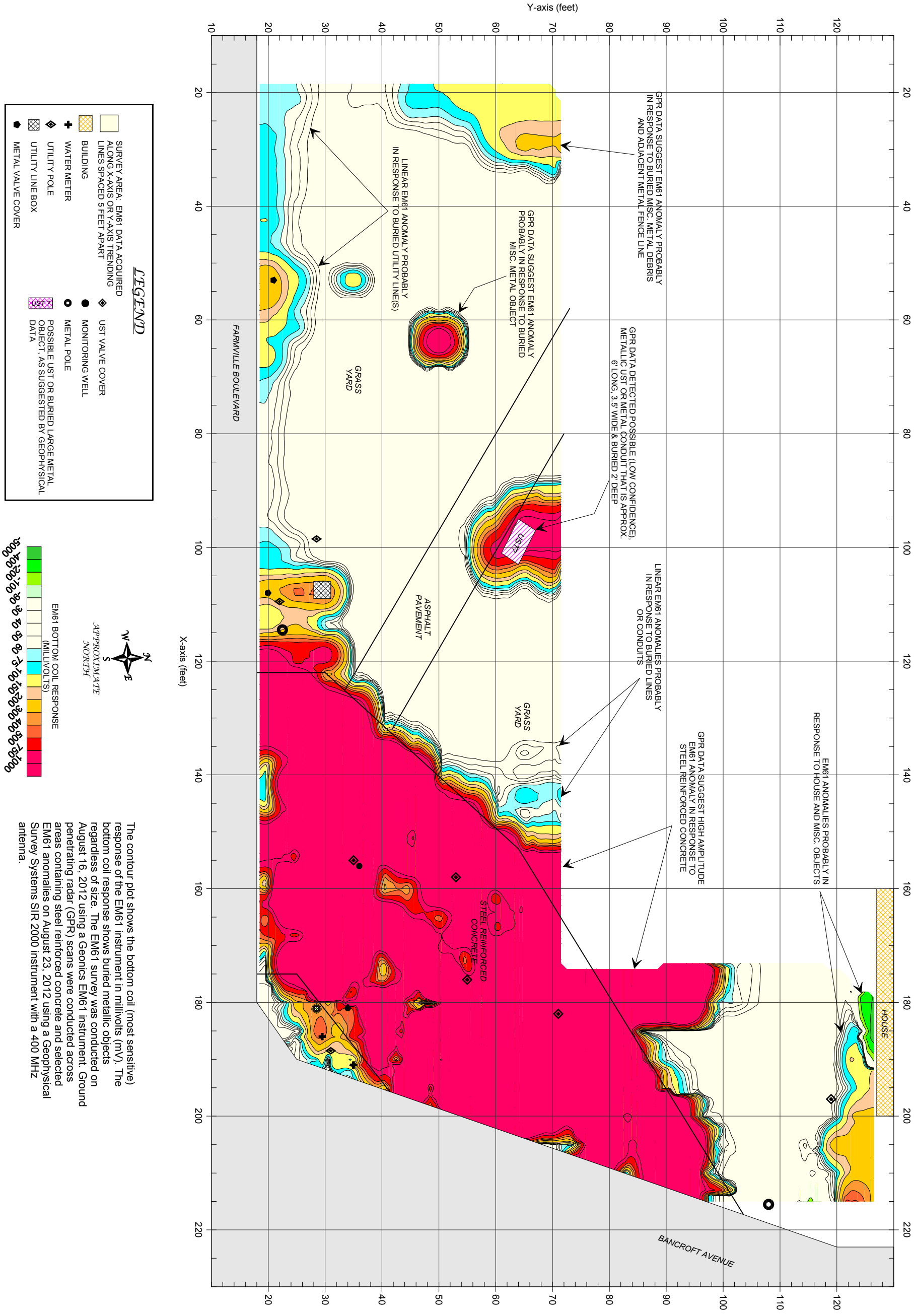
The photograph shows the Claudius E. Baines property (Parcel 20) located at the intersection of Farmville Boulevard and Bancroft Avenue in Greenville, North Carolina. The photograph is viewed in a northwesterly direction.

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT	TERRACON CONSULTANTS, INC.	DATE	09/24/12	DRWN	MJD
SITE	CLAUDIUS E. BAINES PROPERTY (PARCEL 20)	LAY		CHKD	
CITY	GREENVILLE	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	J.NO	2012-212	FIGURE	

GEOPHYSICAL EQUIPMENT & SITE PHOTOGRAPHS

FIGURE 1



LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- BUILDING
- WATER METER
- UTILITY POLE
- UTILITY LINE BOX
- METAL VALVE COVER
- UST VALVE COVER
- MONITORING WELL
- METAL POLE
- POSSIBLE UST OR BURIED LARGE METAL OBJECT, AS SUGGESTED BY GEOPHYSICAL DATA

The contour plot shows the bottom coil (most sensitive) response of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The EM61 survey was conducted on August 16, 2012 using a Geonics EM61 instrument. Ground penetrating radar (GPR) scans were conducted across areas containing steel reinforced concrete and selected EM61 anomalies on August 23, 2012 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

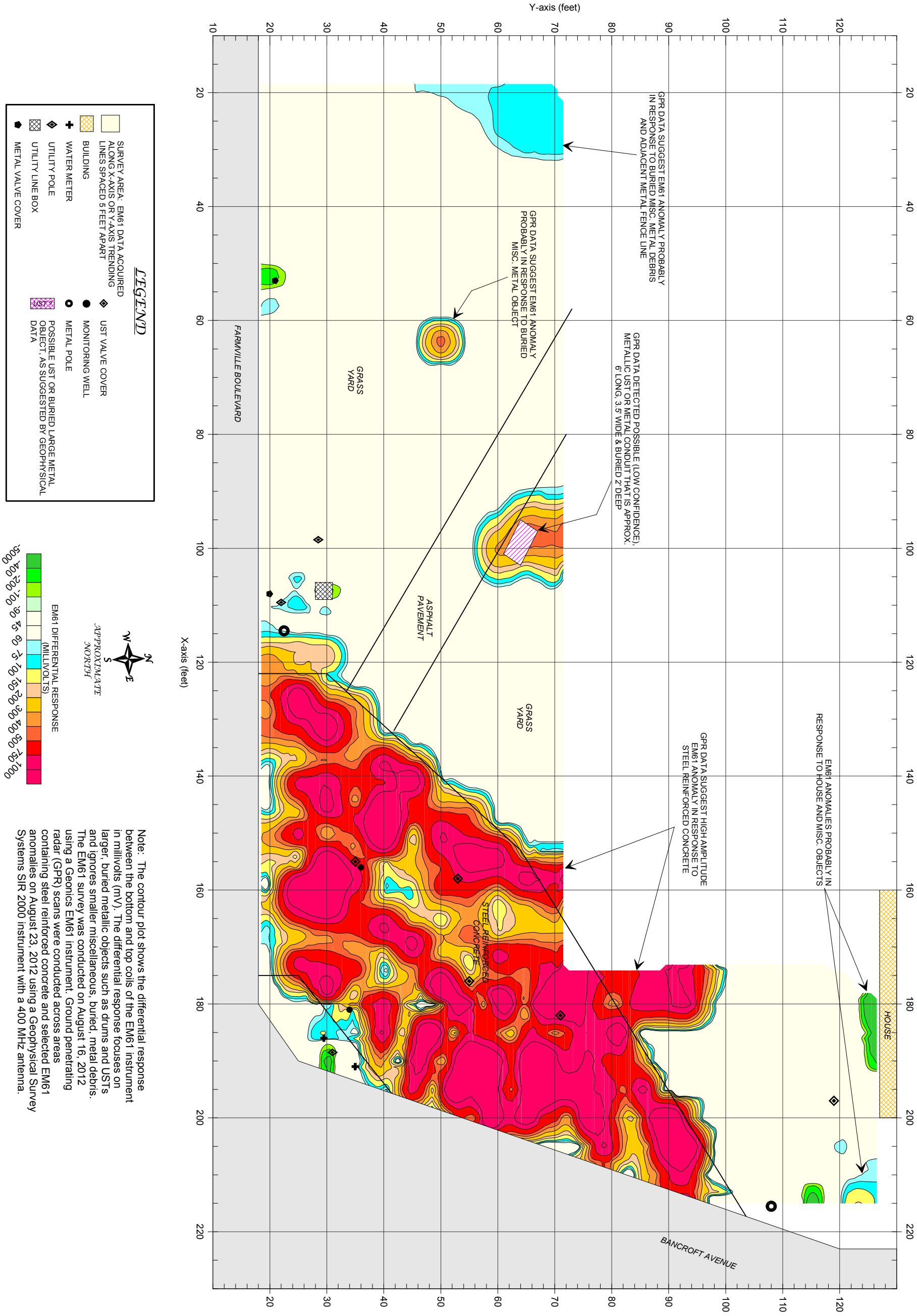
PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT	TERRACON CONSULTANTS, INC.	DATE	09/24/12	DRWN	MJD
SITE	CLAUDIUS E. BAINES PROPERTY (PARCEL 20)	LAY		CHKD	
CITY	GREENVILLE	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	J.-NO.	2012-212	FIGURE	

GRAPHIC SCALE IN FEET

EM61 METAL DETECTION
(BOTTOM COIL RESULTS)

FIGURE 2



LEGEND

- SURVEY AREA: EM61 DATA ACQUIRED ALONG X-AXIS OR Y-AXIS TRENDING LINES SPACED 5 FEET APART
- BUILDING
- WATER METER
- UTILITY POLE
- UTILITY LINE BOX
- METAL VALVE COVER
- UST VALVE COVER
- MONITORING WELL
- METAL POLE
- UST ? — POSSIBLE UST OR BURIED LARGE METAL OBJECT, AS SUGGESTED BY GEOPHYSICAL DATA

EM61 DIFFERENTIAL RESPONSE (MILLIVOLTS)

-5000 -400 -200 -100 -90 -80 -70 -60 -50 -40 -30 -20 -15 -10 -7.5 -5 -3 -2 -1 -0.5 0 0.5 1 2 3 5 7.5 10 15 20 30 40 50 75 100 200 400 1000 5000

Note: The contour plot shows the differential response between the bottom and top coils of the EM61 instrument in millivolts (mV). The differential response focuses on larger, buried metallic objects such as drums and USTs and ignores smaller miscellaneous, buried, metal debris. The EM61 survey was conducted on August 16, 2012 using a Geonics EM61 instrument. Ground penetrating radar (GPR) scans were conducted across areas containing steel reinforced concrete and selected EM61 anomalies on August 23, 2012 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.

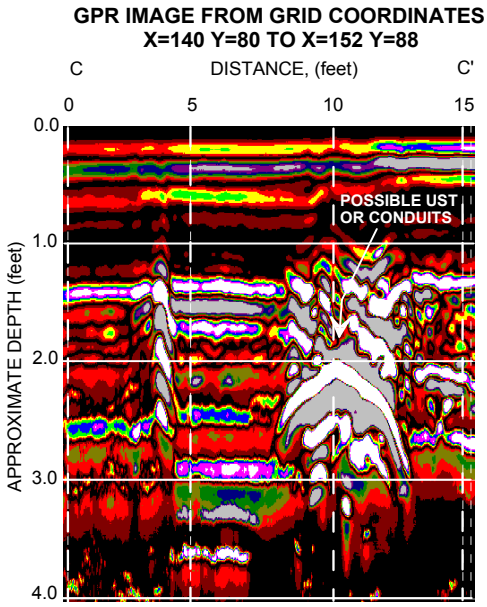
PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT	TERRACON CONSULTANTS, INC.	DATE	09/24/12	DRWN	MJD
SITE	CLAUDIUS E. BAINES PROPERTY (PARCEL 20)	LAY		CH'KD	
CITY	GREENVILLE	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	J.NO.	2012-212	FIGURE	

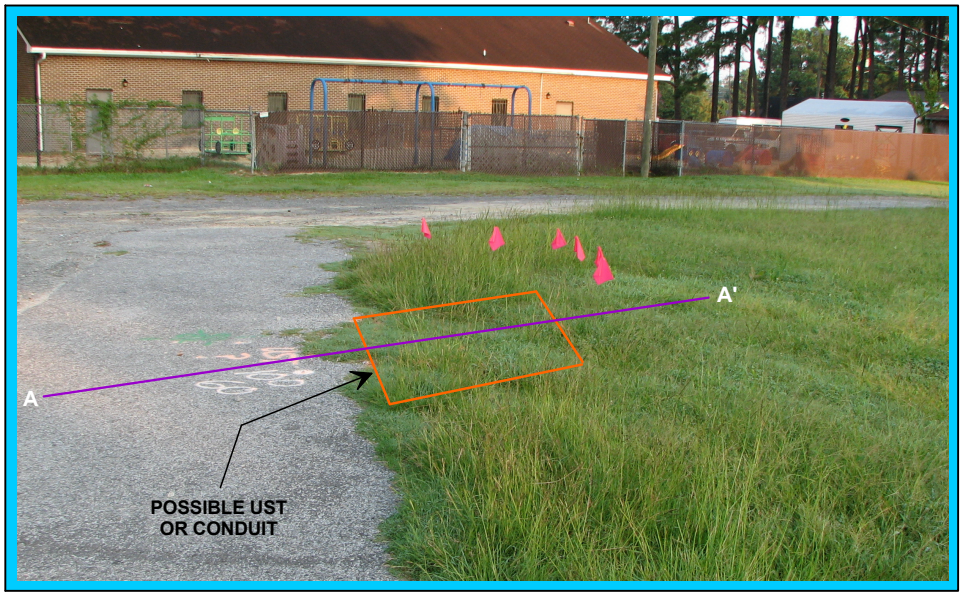
GRAPHIC SCALE IN FEET

EM61 METAL DETECTION (DIFFERENTIAL RESULTS)

FIGURE 3



The GPR image obtained across the EM61 differential anomaly centered near grid coordinates X=148 Y=85 recorded a higher amplitude, hyperbolic anomaly that may possibly be in response to a metallic UST or a segment of wide diameter conduit buried approximately 2.0 feet below present grade. The solid purple line labeled AA' in the photograph below represents the approximate location of the GPR image.



The orange rectangle in the photograph represents the approximate perimeter of a possible UST or a wide diameter conduit. Centered near grid coordinates X=148 Y=85, the possible UST is approximately 6.0 feet long, 3.5 feet wide and buried 2.0 feet below pavement. The solid purple line in the photograph represent the approximate location of the GPR image shown above. The photograph is viewed in a westerly direction.

PYRAMID
ENVIRONMENTAL & ENGINEERING, P.C.

CLIENT	TERRACON CONSULTANTS, INC.	DATE	09/24/12	DRWN	MJD
SITE	CLAUDIUS E. BAINES PROPERTY (PARCEL 20)	LAY		CHKD	
CITY	GREENVILLE	STATE	NORTH CAROLINA	DWG	
TITLE	GEOPHYSICAL RESULTS	J.NO	2012-212	FIGURE	

GPR IMAGE ACROSS POSSIBLE UST OR CONDUIT

FIGURE 4

APPENDIX C

Laboratory Analytical Reports and Chain of Custody

Laboratory Report of Analysis

To: Steve Kerlin
Terracon
5240 Greens Dairy Rd
Raleigh, NC 27616

Report Number: **31202772**

Client Project: **U-3315 #20**

Dear Steve Kerlin,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or services performed during this project, please call Michael D. Page at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Michael D. Page Date

Print Date: 09/10/2012 N.C. Certification # 481

Laboratory Qualifiers

Report Definitions

DL	Method, Instrument, or Estimated Detection Limit per Analytical Method
CL	Control Limits for the recovery result of a parameter
LOQ	Reporting Limit
DF	Dilution Factor
RPD	Relative Percent Difference
LCS(D)	Laboratory Control Spike (Duplicate)
MS(D)	Matrix Spike (Duplicate)
MB	Method Blank

Qualifier Definitions

*	Recovery or RPD outside of control limits
B	Analyte was detected in the Lab Method Blank at a level above the LOQ
U	Undetected (Reported as ND or < DL)
V	Recovery is below quality control limit. The data has been validated based on a favorable signal-to-noise and detection limit
A	Amount detected is less than the Lower Method Calibration Limit
J	Estimated Concentration.
O	The recovery of this analyte in the OPR is above the Method QC Limits and the reported concentration in the sample may be biased high
E	Amount detected is greater than the Upper Calibration Limit
S	The amount of analyte present has saturated the detector. This situation results in an underestimation of the affected analyte(s)
Q	Indicates the presence of a quantitative interference. This situation may result in an underestimation of the affected analyte(s)
I	Indicates the presence of a qualitative interference that could cause a false positive or an overestimation of the affected analyte(s)
DPE	Indicates the presence of a peak in the polychlorinated diphenylether channel that could cause a false positive or an overestimation of the affected analyte(s)
TIC	Tentatively Identified Compound
EMPC	Estimated Maximum possible Concentration due to ion ratio failure
ND	Not Detected
K	Result is estimated due to ion ratio failure in High Resolution PCB Analysis
P	RPD > 40% between results of dual columns
D	Spike or surrogate was diluted out in order to achieve a parameter result within instrument calibration range

Samples requiring manual integrations for various congeners and/or standards are marked and dated by the analyst. A code definition is provided below:

M1	Mis-identified peak

Note Results pages that include a value for "Solids (%)" have been adjusted for moisture content.

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
S-1	31202772001	08/29/2012 14:20	08/30/2012 15:50	Soil-Solid as dry weight
S-2	31202772002	08/29/2012 14:30	08/30/2012 15:50	Soil-Solid as dry weight
S-3	31202772003	08/29/2012 15:15	08/30/2012 15:50	Soil-Solid as dry weight
S-4	31202772004	08/29/2012 15:41	08/30/2012 15:50	Soil-Solid as dry weight
S-5	31202772005	08/29/2012 16:10	08/30/2012 15:50	Soil-Solid as dry weight
MW-1	31202772006	08/29/2012 17:45	08/30/2012 15:50	Water

Results of **S-1**

Client Sample ID: **S-1**
Client Project ID: **U-3315 #20**
Lab Sample ID: 31202772001-A
Lab Project ID: 31202772

Collection Date: 08/29/2012 14:20
Received Date: 08/30/2012 15:50
Matrix: Soil-Solid as dry weight
Solids (%): 83.20

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND	U	3.37	3.37	mg/kg	1	08/31/2012 16:53
Surrogates							
4-Bromofluorobenzene	105			70.0-130	%	1	08/31/2012 16:53

Batch Information

Analytical Batch: **VGC2119**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**

Prep Batch: **VXX3938**
Prep Method: **SW-846 5035**
Prep Date/Time: **08/30/2012 16:46**
Prep Initial Wt./Vol.: **7.13 g**
Prep Extract Vol: **5 mL**

Print Date: 09/10/2012

N.C. Certification # 481

Results of **S-1**

Client Sample ID: **S-1**
Client Project ID: **U-3315 #20**
Lab Sample ID: 31202772001-D
Lab Project ID: 31202772

Collection Date: 08/29/2012 14:20
Received Date: 08/30/2012 15:50
Matrix: Soil-Solid as dry weight
Solids (%): 83.20

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	ND	U	6.95	6.95	mg/kg	1	08/31/2012 16:24
Surrogates							
o-Terphenyl	82.9			40.0-140	%	1	08/31/2012 16:24

Batch Information

Analytical Batch: **XGC2495**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**

Prep Batch: **XXX3000**
Prep Method: **SW-846 3541**
Prep Date/Time: **08/31/2012 09:00**
Prep Initial Wt./Vol.: **34.56 g**
Prep Extract Vol: **10 mL**

Print Date: 09/10/2012

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Results of **S-2**

Client Sample ID: **S-2**
Client Project ID: **U-3315 #20**
Lab Sample ID: 31202772002-A
Lab Project ID: 31202772

Collection Date: 08/29/2012 14:30
Received Date: 08/30/2012 15:50
Matrix: Soil-Solid as dry weight
Solids (%): 88.20

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND	U	2.98	2.98	mg/kg	1	08/31/2012 3:39
Surrogates							
4-Bromofluorobenzene	106			70.0-130	%	1	08/31/2012 3:39

Batch Information

Analytical Batch: **VGC2117**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**

Prep Batch: **VXX3934**
Prep Method: **SW-846 5035**
Prep Date/Time: **08/30/2012 16:47**
Prep Initial Wt./Vol.: **7.6 g**
Prep Extract Vol: **5 mL**

Print Date: 09/10/2012

N.C. Certification # 481

Results of **S-2**

Client Sample ID: **S-2**
Client Project ID: **U-3315 #20**
Lab Sample ID: 31202772002-D
Lab Project ID: 31202772

Collection Date: 08/29/2012 14:30
Received Date: 08/30/2012 15:50
Matrix: Soil-Solid as dry weight
Solids (%): 88.20

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	ND	U	7.16	7.16	mg/kg	1	08/31/2012 17:48
Surrogates							
o-Terphenyl	84.1			40.0-140	%	1	08/31/2012 17:48

Batch Information

Analytical Batch: **XGC2495**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**

Prep Batch: **XXX3000**
Prep Method: **SW-846 3541**
Prep Date/Time: **08/31/2012 09:00**
Prep Initial Wt./Vol.: **31.67 g**
Prep Extract Vol: **10 mL**

Print Date: 09/10/2012

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Results of **S-3**

Client Sample ID: **S-3**
Client Project ID: **U-3315 #20**
Lab Sample ID: 31202772003-A
Lab Project ID: 31202772

Collection Date: 08/29/2012 15:15
Received Date: 08/30/2012 15:50
Matrix: Soil-Solid as dry weight
Solids (%): 75.80

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	**127**		22.0	22.0	mg/kg	5	09/5/2012 19:36
Surrogates							
4-Bromofluorobenzene	101			70.0-130	%	5	09/5/2012 19:36

Batch Information

Analytical Batch: **VGC2124**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**

Prep Batch: **VXX3951**
Prep Method: **SW-846 5035**
Prep Date/Time: **08/30/2012 16:48**
Prep Initial Wt./Vol.: **6 g**
Prep Extract Vol: **5 mL**

Print Date: 09/10/2012

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Results of **S-3**

Client Sample ID: **S-3**
Client Project ID: **U-3315 #20**
Lab Sample ID: 31202772003-D
Lab Project ID: 31202772

Collection Date: 08/29/2012 15:15
Received Date: 08/30/2012 15:50
Matrix: Soil-Solid as dry weight
Solids (%): 75.80

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	**11.2**		8.65	8.65	mg/kg	1	08/31/2012 18:16
Surrogates							
o-Terphenyl	70.2			40.0-140	%	1	08/31/2012 18:16

Batch Information

Analytical Batch: **XGC2495**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**

Prep Batch: **XXX3000**
Prep Method: **SW-846 3541**
Prep Date/Time: **08/31/2012 09:00**
Prep Initial Wt./Vol.: **30.5 g**
Prep Extract Vol: **10 mL**

Print Date: 09/10/2012

N.C. Certification # 481

Results of **S-4**

Client Sample ID: **S-4**
Client Project ID: **U-3315 #20**
Lab Sample ID: 31202772004-A
Lab Project ID: 31202772

Collection Date: 08/29/2012 15:41
Received Date: 08/30/2012 15:50
Matrix: Soil-Solid as dry weight
Solids (%): 74.80

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND	U	4.13	4.13	mg/kg	1	08/31/2012 4:29
Surrogates							
4-Bromofluorobenzene	103			70.0-130	%	1	08/31/2012 4:29

Batch Information

Analytical Batch: **VGC2117**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**

Prep Batch: **VXX3934**
Prep Method: **SW-846 5035**
Prep Date/Time: **08/30/2012 16:49**
Prep Initial Wt./Vol.: **6.48 g**
Prep Extract Vol: **5 mL**

Print Date: 09/10/2012

N.C. Certification # 481

Results of **S-4**

Client Sample ID: **S-4**
Client Project ID: **U-3315 #20**
Lab Sample ID: 31202772004-D
Lab Project ID: 31202772

Collection Date: 08/29/2012 15:41
Received Date: 08/30/2012 15:50
Matrix: Soil-Solid as dry weight
Solids (%): 74.80

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	ND	U	8.52	8.52	mg/kg	1	08/31/2012 18:44
Surrogates							
o-Terphenyl	79.7			40.0-140	%	1	08/31/2012 18:44

Batch Information

Analytical Batch: **XGC2495**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**

Prep Batch: **XXX3000**
Prep Method: **SW-846 3541**
Prep Date/Time: **08/31/2012 09:00**
Prep Initial Wt./Vol.: **31.4 g**
Prep Extract Vol: **10 mL**

Print Date: 09/10/2012

N.C. Certification # 481

Results of **S-5**

Client Sample ID: **S-5**
Client Project ID: **U-3315 #20**
Lab Sample ID: 31202772005-A
Lab Project ID: 31202772

Collection Date: 08/29/2012 16:10
Received Date: 08/30/2012 15:50
Matrix: Soil-Solid as dry weight
Solids (%): 74.30

Results by **SW-846 8015C GRO**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND	U	4.39	4.39	mg/kg	1	08/31/2012 4:55
Surrogates							
4-Bromofluorobenzene	103			70.0-130	%	1	08/31/2012 4:55

Batch Information

Analytical Batch: **VGC2117**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**

Prep Batch: **VXX3934**
Prep Method: **SW-846 5035**
Prep Date/Time: **08/30/2012 16:50**
Prep Initial Wt./Vol.: **6.13 g**
Prep Extract Vol: **5 mL**

Print Date: 09/10/2012

N.C. Certification # 481

Results of **S-5**

Client Sample ID: **S-5**
Client Project ID: **U-3315 #20**
Lab Sample ID: 31202772005-D
Lab Project ID: 31202772

Collection Date: 08/29/2012 16:10
Received Date: 08/30/2012 15:50
Matrix: Soil-Solid as dry weight
Solids (%): 74.30

Results by **SW-846 8015C DRO**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	ND	U	8.56	8.56	mg/kg	1	08/31/2012 19:12
Surrogates							
o-Terphenyl	70.4			40.0-140	%	1	08/31/2012 19:12

Batch Information

Analytical Batch: **XGC2495**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**

Prep Batch: **XXX3000**
Prep Method: **SW-846 3541**
Prep Date/Time: **08/31/2012 09:00**
Prep Initial Wt./Vol.: **31.47 g**
Prep Extract Vol: **10 mL**

Print Date: 09/10/2012

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Results of **MW-1**

Client Sample ID: **MW-1**
Client Project ID: **U-3315 #20**
Lab Sample ID: 31202772006-A
Lab Project ID: 31202772

Collection Date: 08/29/2012 17:45
Received Date: 08/30/2012 15:50
Matrix: Water

Results by **SW-846 8260B**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	U	14.0	80.0	ug/L	80	09/4/2012 19:37
1,1,1-Trichloroethane	ND	U	17.7	80.0	ug/L	80	09/4/2012 19:37
1,1,2,2-Tetrachloroethane	ND	U	17.8	80.0	ug/L	80	09/4/2012 19:37
1,1,2-Trichloroethane	ND	U	17.3	80.0	ug/L	80	09/4/2012 19:37
1,1-Dichloroethane	ND	U	13.0	80.0	ug/L	80	09/4/2012 19:37
1,1-Dichloroethene	ND	U	16.2	80.0	ug/L	80	09/4/2012 19:37
1,1-Dichloropropene	ND	U	14.1	80.0	ug/L	80	09/4/2012 19:37
1,2,3-Trichlorobenzene	ND	U	19.7	80.0	ug/L	80	09/4/2012 19:37
1,2,3-Trichloropropane	ND	U	16.8	80.0	ug/L	80	09/4/2012 19:37
1,2,4-Trichlorobenzene	ND	U	17.6	80.0	ug/L	80	09/4/2012 19:37
1,2,4-Trimethylbenzene	**633**		14.3	80.0	ug/L	80	09/4/2012 19:37
1,2-Dibromo-3-chloropropane	ND	U	150	400	ug/L	80	09/4/2012 19:37
1,2-Dibromoethane	ND	U	14.3	80.0	ug/L	80	09/4/2012 19:37
1,2-Dichlorobenzene	ND	U	17.1	80.0	ug/L	80	09/4/2012 19:37
1,2-Dichloroethane	ND	U	11.1	80.0	ug/L	80	09/4/2012 19:37
1,2-Dichloropropane	ND	U	12.6	80.0	ug/L	80	09/4/2012 19:37
1,3,5-Trimethylbenzene	**214**		12.7	80.0	ug/L	80	09/4/2012 19:37
1,3-Dichlorobenzene	ND	U	14.4	80.0	ug/L	80	09/4/2012 19:37
1,3-Dichloropropane	ND	U	15.8	80.0	ug/L	80	09/4/2012 19:37
1,4-Dichlorobenzene	ND	U	19.4	80.0	ug/L	80	09/4/2012 19:37
2,2-Dichloropropane	ND	U	15.5	80.0	ug/L	80	09/4/2012 19:37
2-Butanone	ND	U	111	2000	ug/L	80	09/4/2012 19:37
2-Chlorotoluene	ND	U	12.8	80.0	ug/L	80	09/4/2012 19:37
2-Hexanone	ND	U	111	400	ug/L	80	09/4/2012 19:37
4-Chlorotoluene	ND	U	20.7	80.0	ug/L	80	09/4/2012 19:37
4-Isopropyltoluene	**55.2**	J	13.6	80.0	ug/L	80	09/4/2012 19:37
4-Methyl-2-pentanone	ND	U	92.0	400	ug/L	80	09/4/2012 19:37
Acetone	ND	U	205	2000	ug/L	80	09/4/2012 19:37
Benzene	**24.8**	J	12.5	80.0	ug/L	80	09/4/2012 19:37
Bromobenzene	ND	U	16.4	80.0	ug/L	80	09/4/2012 19:37
Bromochloromethane	ND	U	10.7	80.0	ug/L	80	09/4/2012 19:37
Bromodichloromethane	ND	U	17.8	80.0	ug/L	80	09/4/2012 19:37
Bromoform	ND	U	16.6	80.0	ug/L	80	09/4/2012 19:37
Bromomethane	ND	U	40.6	80.0	ug/L	80	09/4/2012 19:37
n-Butylbenzene	ND	U	13.4	80.0	ug/L	80	09/4/2012 19:37
Carbon disulfide	ND	U	15.8	80.0	ug/L	80	09/4/2012 19:37
Carbon tetrachloride	ND	U	13.5	80.0	ug/L	80	09/4/2012 19:37
Chlorobenzene	ND	U	12.6	80.0	ug/L	80	09/4/2012 19:37
Chloroethane	ND	U	72.2	80.0	ug/L	80	09/4/2012 19:37
Chloroform	ND	U	16.4	80.0	ug/L	80	09/4/2012 19:37
Chloromethane	ND	U	23.6	80.0	ug/L	80	09/4/2012 19:37
Dibromochloromethane	ND	U	13.8	80.0	ug/L	80	09/4/2012 19:37
Dibromomethane	ND	U	13.7	80.0	ug/L	80	09/4/2012 19:37

Print Date: 09/10/2012

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Results of **MW-1**

Client Sample ID: **MW-1**
Client Project ID: **U-3315 #20**
Lab Sample ID: 31202772006-A
Lab Project ID: 31202772

Collection Date: 08/29/2012 17:45
Received Date: 08/30/2012 15:50
Matrix: Water

Results by **SW-846 8260B**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND	U	22.6	400	ug/L	80	09/4/2012 19:37
cis-1,3-Dichloropropene	ND	U	14.8	80.0	ug/L	80	09/4/2012 19:37
trans-1,3-Dichloropropene	ND	U	13.4	80.0	ug/L	80	09/4/2012 19:37
Diisopropyl Ether	ND	U	10.7	80.0	ug/L	80	09/4/2012 19:37
Ethyl Benzene	**370**		14.9	80.0	ug/L	80	09/4/2012 19:37
Hexachlorobutadiene	ND	U	29.2	80.0	ug/L	80	09/4/2012 19:37
Isopropylbenzene (Cumene)	**74.4**	J	15.7	80.0	ug/L	80	09/4/2012 19:37
Methyl iodide	ND	U	19.8	80.0	ug/L	80	09/4/2012 19:37
Methylene chloride	ND	U	15.9	400	ug/L	80	09/4/2012 19:37
Naphthalene	**144**		20.8	80.0	ug/L	80	09/4/2012 19:37
Styrene	ND	U	16.6	80.0	ug/L	80	09/4/2012 19:37
Tetrachloroethene	ND	U	18.0	80.0	ug/L	80	09/4/2012 19:37
Toluene	ND	U	14.4	80.0	ug/L	80	09/4/2012 19:37
Trichloroethene	ND	U	15.9	80.0	ug/L	80	09/4/2012 19:37
Trichlorofluoromethane	ND	U	24.6	80.0	ug/L	80	09/4/2012 19:37
Vinyl chloride	ND	U	30.9	80.0	ug/L	80	09/4/2012 19:37
Xylene (total)	**517**		48.2	160	ug/L	80	09/4/2012 19:37
cis-1,2-Dichloroethene	ND	U	14.3	80.0	ug/L	80	09/4/2012 19:37
m,p-Xylene	**164**		32.6	160	ug/L	80	09/4/2012 19:37
n-Propylbenzene	**106**		14.8	80.0	ug/L	80	09/4/2012 19:37
o-Xylene	**353**		15.6	80.0	ug/L	80	09/4/2012 19:37
sec-Butylbenzene	ND	U	12.1	80.0	ug/L	80	09/4/2012 19:37
tert-Butyl methyl ether (MTBE)	ND	U	15.6	80.0	ug/L	80	09/4/2012 19:37
tert-Butylbenzene	ND	U	19.1	80.0	ug/L	80	09/4/2012 19:37
trans-1,2-Dichloroethene	ND	U	19.8	80.0	ug/L	80	09/4/2012 19:37
trans-1,4-Dichloro-2-butene	ND	U	100	400	ug/L	80	09/4/2012 19:37
Surrogates							
1,2-Dichloroethane-d4	103			64.0-140	%	80	09/4/2012 19:37
4-Bromofluorobenzene	101			85.0-115	%	80	09/4/2012 19:37
Toluene d8	99.0			82.0-117	%	80	09/4/2012 19:37

Batch Information

Analytical Batch: **VMS2521**
Analytical Method: **SW-846 8260B**
Instrument: **MSD3**
Analyst: **BWS**

Prep Batch: **VXX3941**
Prep Method: **SW-846 5030B**
Prep Date/Time: **09/04/2012 08:46**
Prep Initial Wt./Vol.: **40 mL**
Prep Extract Vol: **40 mL**

Print Date: 09/10/2012

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Results of **MW-1**

Client Sample ID: **MW-1**
Client Project ID: **U-3315 #20**
Lab Sample ID: 31202772006-G
Lab Project ID: 31202772

Collection Date: 08/29/2012 17:45
Received Date: 08/30/2012 15:50
Matrix: Water

Results by **MADEP VPH**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
C5-C8 Aliphatics	**687**		500	500	ug/L	5	08/31/2012 13:55
C9-C10 Aromatics	**1540**		500	500	ug/L	5	08/31/2012 13:55
C9-C12 Aliphatics	**2060**		500	500	ug/L	5	08/31/2012 13:55
Surrogates							
FID - 4-Bromofluorobenzene	102			70.0-130	%	5	08/31/2012 13:55
PID - 4-Bromofluorobenzene	111			70.0-130	%	5	08/31/2012 13:55

Batch Information

Analytical Batch: **VGC2118**
Analytical Method: **MADEP VPH**
Instrument: **GC4**
Analyst: **MDY**

Prep Batch: **VXX3937**
Prep Method: **SW-846 5030B**
Prep Date/Time: **08/31/2012 11:29**
Prep Initial Wt./Vol.: **40 mL**
Prep Extract Vol: **40 mL**

Print Date: 09/10/2012

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Results of **MW-1**

Client Sample ID: **MW-1**
Client Project ID: **U-3315 #20**
Lab Sample ID: 31202772006-D
Lab Project ID: 31202772

Collection Date: 08/29/2012 17:45
Received Date: 08/30/2012 15:50
Matrix: Water

Results by **SW-846 8270D**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
1,2,4-Trichlorobenzene	ND	U	8.82	25.5	ug/L	5	09/5/2012 13:41
1,2-Dichlorobenzene	ND	U	8.72	25.5	ug/L	5	09/5/2012 13:41
1,3-Dichlorobenzene	ND	U	8.41	25.5	ug/L	5	09/5/2012 13:41
1,4-Dichlorobenzene	ND	U	8.31	25.5	ug/L	5	09/5/2012 13:41
2,4,5-Trichlorophenol	ND	U	10.6	25.5	ug/L	5	09/5/2012 13:41
2,4,6-Trichlorophenol	ND	U	10.3	25.5	ug/L	5	09/5/2012 13:41
2,4-Dichlorophenol	ND	U	10.5	25.5	ug/L	5	09/5/2012 13:41
2,4-Dinitrophenol	ND	U	3.40	127	ug/L	5	09/5/2012 13:41
2,4-Dinitrotoluene	ND	U	9.38	25.5	ug/L	5	09/5/2012 13:41
2,6-Dinitrotoluene	ND	U	9.58	25.5	ug/L	5	09/5/2012 13:41
2-Chloronaphthalene	ND	U	10.2	25.5	ug/L	5	09/5/2012 13:41
2-Chlorophenol	ND	U	14.3	25.5	ug/L	5	09/5/2012 13:41
2-Methylnaphthalene	**131**		9.89	25.5	ug/L	5	09/5/2012 13:41
2-Methylphenol	ND	U	10.6	25.5	ug/L	5	09/5/2012 13:41
2-Nitroaniline	ND	U	8.61	25.5	ug/L	5	09/5/2012 13:41
2-Nitrophenol	ND	U	10.0	25.5	ug/L	5	09/5/2012 13:41
3 and/or 4-Methylphenol	ND	U	11.4	25.5	ug/L	5	09/5/2012 13:41
3,3'-Dichlorobenzidine	ND	U	8.92	51.0	ug/L	5	09/5/2012 13:41
3-Nitroaniline	ND	U	8.41	127	ug/L	5	09/5/2012 13:41
4,6-Dinitro-2-methylphenol	ND	U	2.52	127	ug/L	5	09/5/2012 13:41
4-Chloro-3-methylphenol	ND	U	10.1	25.5	ug/L	5	09/5/2012 13:41
4-Chloroaniline	ND	U	9.58	127	ug/L	5	09/5/2012 13:41
4-Chlorophenyl phenyl ether	ND	U	12.5	25.5	ug/L	5	09/5/2012 13:41
Acenaphthene	ND	U	10.5	25.5	ug/L	5	09/5/2012 13:41
Acenaphthylene	ND	U	10.2	25.5	ug/L	5	09/5/2012 13:41
Anthracene	ND	U	9.84	25.5	ug/L	5	09/5/2012 13:41
Benzo(a)anthracene	ND	U	9.99	25.5	ug/L	5	09/5/2012 13:41
Benzo(a)pyrene	ND	U	9.48	25.5	ug/L	5	09/5/2012 13:41
Benzo(b)fluoranthene	ND	U	9.99	25.5	ug/L	5	09/5/2012 13:41
Benzo(g,h,i)perylene	ND	U	11.0	25.5	ug/L	5	09/5/2012 13:41
Benzo(k)fluoranthene	ND	U	11.8	25.5	ug/L	5	09/5/2012 13:41
Benzoic acid	ND	U	11.6	25.5	ug/L	5	09/5/2012 13:41
Bis(2-Chloroethoxy)methane	ND	U	10.8	25.5	ug/L	5	09/5/2012 13:41
Bis(2-Chloroethyl)ether	ND	U	11.3	25.5	ug/L	5	09/5/2012 13:41
Bis(2-Chloroisopropyl)ether	ND	U	10.4	25.5	ug/L	5	09/5/2012 13:41
Bis(2-Ethylhexyl)phthalate	**11.7**	J	9.94	25.5	ug/L	5	09/5/2012 13:41
4-Bromophenyl phenyl ether	ND	U	10.4	25.5	ug/L	5	09/5/2012 13:41
Butyl benzyl phthalate	ND	U	9.63	25.5	ug/L	5	09/5/2012 13:41
Chrysene	ND	U	11.2	25.5	ug/L	5	09/5/2012 13:41
Di-n-butyl phthalate	ND	U	9.73	25.5	ug/L	5	09/5/2012 13:41
Di-n-octyl phthalate	ND	U	7.44	25.5	ug/L	5	09/5/2012 13:41
Dibenz(a,h)anthracene	ND	U	10.3	25.5	ug/L	5	09/5/2012 13:41
Dibenzofuran	ND	U	11.3	25.5	ug/L	5	09/5/2012 13:41

Print Date: 09/10/2012

N.C. Certification # 481

Results of **MW-1**

Client Sample ID: **MW-1**
Client Project ID: **U-3315 #20**
Lab Sample ID: 31202772006-D
Lab Project ID: 31202772

Collection Date: 08/29/2012 17:45
Received Date: 08/30/2012 15:50
Matrix: Water

Results by **SW-846 8270D**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Diethyl phthalate	ND	U	10.7	25.5	ug/L	5	09/5/2012 13:41
Dimethyl phthalate	ND	U	10.9	25.5	ug/L	5	09/5/2012 13:41
2,4-Dimethylphenol	ND	U	11.3	25.5	ug/L	5	09/5/2012 13:41
Diphenylamine	ND	U	10.3	25.5	ug/L	5	09/5/2012 13:41
Fluoranthene	ND	U	10.3	25.5	ug/L	5	09/5/2012 13:41
Fluorene	ND	U	12.4	25.5	ug/L	5	09/5/2012 13:41
Hexachlorobenzene	ND	U	9.84	25.5	ug/L	5	09/5/2012 13:41
Hexachlorobutadiene	ND	U	7.75	25.5	ug/L	5	09/5/2012 13:41
Hexachlorocyclopentadiene	ND	U	4.02	51.0	ug/L	5	09/5/2012 13:41
Hexachloroethane	ND	U	7.14	25.5	ug/L	5	09/5/2012 13:41
Indeno(1,2,3-cd)pyrene	ND	U	10.3	25.5	ug/L	5	09/5/2012 13:41
Isophorone	ND	U	10.7	25.5	ug/L	5	09/5/2012 13:41
Naphthalene	**178**		9.89	25.5	ug/L	5	09/5/2012 13:41
4-Nitroaniline	ND	U	8.56	127	ug/L	5	09/5/2012 13:41
Nitrobenzene	ND	U	11.2	25.5	ug/L	5	09/5/2012 13:41
4-Nitrophenol	ND	U	6.47	127	ug/L	5	09/5/2012 13:41
Pentachlorophenol	ND	U	7.90	127	ug/L	5	09/5/2012 13:41
Phenanthrene	ND	U	10.1	25.5	ug/L	5	09/5/2012 13:41
Phenol	ND	U	12.0	25.5	ug/L	5	09/5/2012 13:41
Pyrene	ND	U	10.2	25.5	ug/L	5	09/5/2012 13:41
n-Nitrosodi-n-propylamine	ND	U	11.4	25.5	ug/L	5	09/5/2012 13:41
Surrogates							
2,4,6-Tribromophenol	108			29.3-152	%	5	09/5/2012 13:41
2-Fluorobiphenyl	98.0			50.0-107	%	5	09/5/2012 13:41
2-Fluorophenol	79.0			33.1-118	%	5	09/5/2012 13:41
Nitrobenzene-d5	113			46.0-118	%	5	09/5/2012 13:41
Phenol-d6	101			49.0-120	%	5	09/5/2012 13:41
Terphenyl-d14	89.0			22.1-142	%	5	09/5/2012 13:41

Batch Information

Analytical Batch: **XMS1657**
Analytical Method: **SW-846 8270D**
Instrument: **MSD10**
Analyst: **CMP**

Prep Batch: **XXX3002**
Prep Method: **SW-846 3520C**
Prep Date/Time: **09/04/2012 09:12**
Prep Initial Wt./Vol.: **981 mL**
Prep Extract Vol: **5 mL**

Print Date: 09/10/2012

N.C. Certification # 481

Results of **MW-1**

Client Sample ID: **MW-1**
Client Project ID: **U-3315 #20**
Lab Sample ID: 31202772006-I
Lab Project ID: 31202772

Collection Date: 08/29/2012 17:45
Received Date: 08/30/2012 15:50
Matrix: Water

Results by **MADEP EPH**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
C11-C22 Aromatics	**0.255**		0.0902	0.0902	mg/L	1	09/6/2012 22:52
C19-C36 Aliphatics	ND	U	0.0425	0.0425	mg/L	1	09/6/2012 22:23
C9-C18 Aliphatics	**0.0351**		0.0318	0.0318	mg/L	1	09/6/2012 22:23
Surrogates							
2-Bromonaphthalene	46.4			40.0-140	%	1	09/6/2012 22:52
2-Fluorobiphenyl	64.0			40.0-140	%	1	09/6/2012 22:52
n-Tricosane	104			40.0-140	%	1	09/6/2012 22:23
o-Terphenyl	61.0			40.0-140	%	1	09/6/2012 22:52

Batch Information

Analytical Batch: **XGC2507**
Analytical Method: **MADEP EPH**
Instrument: **GC6**
Analyst: **DTF**

Prep Batch: **XXX3008**
Prep Method: **SW-846 3520C**
Prep Date/Time: **09/05/2012 15:05**
Prep Initial Wt./Vol.: **942 mL**
Prep Extract Vol: **5 mL**

Print Date: 09/10/2012

N.C. Certification # 481

CHAIN OF CUSTODY #20

SGS ANALYTICAL PERSPECTIVES
5500 Business Drive
Wilmington, NC 28405
+1 910 350 1903
WWW.SGS.COM

CLIENT: TERRACON / NCDOT
CONTACT: BEN SWIFT PHONE NO: 919 247-3962
PROJECT: SITE / PWSID / WBS #: U-3315 #20
REPORTS TO: lchoffman.@terracon.com
EMAIL:
INVOICE TO: NCDOT QUOTE #
P.O. NUMBER

SGS Reference #: 31202772

PAGE 1 OF 1

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	# CONTAINERS	SAMPLE TYPE (C=COMP G=GRAB)	PRESERVATIVES USED: METH	NONE	HCl	NONE	HCl	HCl				ANALYSIS REQUIRED: GRO	DRO	VOCs (8260)	SVOCs (3270)	MADEP VPH	MADEP EPH				REMARKS
1	S-1	8-29-12	1420	SOIL	4	G										X	X								
2	S-2	"	1430	"	"	"										"	"								
3	S-3	"	1515	"	"	"										"	"								
4	S-4	"	1541	"	"	"										"	"								
5	S-5	"	1610	"	"	"										"	"								
6	MW-1	"	1745	GW	9	"												X	X	X	X				

COLLECTED/RELINQUISHED BY: (1)	DATE	TIME	RECEIVED BY:	
BEN SWIFT	8/30/12	0620		8/31/12 1230
Relinquished By: (2)	Date	Time	Received By:	
	8/30/12	1430		8/30/12 15:30
Relinquished By: (3)	Date	Time	Received By:	
Received For Laboratory By:	Date	Time	CoC Seal: INTACT BROKEN (ABSENT)	
			Sample Receipt Temp: C 2.2°C	

REPORT LEVEL: ☐ Level I ☐ Level II ☐ Level IV

REQUESTED TURNAROUND TIME: ☐ Rush:_____ ☒ Standard

SPECIAL DELIVERABLES: State of Origin:_____ ☐ Trust Fund
☐ DoD ☐ EDD:_____ Other:_____

SPECIAL INSTRUCTIONS:

Shipping Carrier:
Shipping Ticket No:

Notes:

White - Retained by Lab
Yellow - Retained by Client

SGS North America Inc.

Sample Receipt Checklist (SRC)

Client: **Terracon/NCDOT** Work Order No.: **31202772**

1. ___ Shipped
   _X_ Hand Delivered

   Notes: SGS Courier

2. _X_ COC Present on Receipt
   ___ No COC
   ___ Additional Transmittal Forms

3. ___ Custody Tape on Container
   _X_ No Custody Tape

4. _X_ Samples Intact
   ___ Samples Broken / Leaking

5. _X_ Chilled on Receipt Actual Temp.(s) in °C: 2.2
   ___ Ambient on Receipt
   ___ Walk-in on Ice; Coming down to temp.
   ___ Received Outside of Temperature Specifications

6. _X_ Sufficient Sample Submitted
   ___ Insufficient Sample Submitted

7. ___ Chlorine absent
   ___ HNO3 < 2
   ___ HCL < 2
   ___ Additional Preservatives verified (see notes)

8. _X_ Received Within Holding Time
   ___ Not Received Within Holding Time

9. _X_ No Discrepancies Noted
   ___ Discrepancies Noted
   ___ NCDENR notified of Discrepancies*

10. _X_ No Headspace present in VOC vials
    ___ Headspace present in VOC vials >6mm

Comments:

Inspected and Logged in by: MP/JMM
Date: Thu-8/30/12 00:00

*NCDENR must be notified when collection, holding time or preservation requirements are not met.

Laboratory Report of Analysis

To: Steve Kerlin
Terracon
5240 Greens Dairy Rd
Raleigh, NC 27616

Report Number: **31202907**

Client Project: **70127335 U-3315 #20**

Dear Steve Kerlin,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or services performed during this project, please call Michael D. Page at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

_____

Michael D. Page Date
Project Manager
michael.page@sgs.com

Print Date: 09/26/2012 N.C. Certification # 481

Laboratory Qualifiers

Report Definitions

DL	Method, Instrument, or Estimated Detection Limit per Analytical Method
CL	Control Limits for the recovery result of a parameter
LOQ	Reporting Limit
DF	Dilution Factor
RPD	Relative Percent Difference
LCS(D)	Laboratory Control Spike (Duplicate)
MS(D)	Matrix Spike (Duplicate)
MB	Method Blank

Qualifier Definitions

*	Recovery or RPD outside of control limits
B	Analyte was detected in the Lab Method Blank at a level above the LOQ
U	Undetected (Reported as ND or < DL)
V	Recovery is below quality control limit. The data has been validated based on a favorable signal-to-noise and detection limit
A	Amount detected is less than the Lower Method Calibration Limit
J	Estimated Concentration.
O	The recovery of this analyte in the OPR is above the Method QC Limits and the reported concentration in the sample may be biased high
E	Amount detected is greater than the Upper Calibration Limit
S	The amount of analyte present has saturated the detector. This situation results in an underestimation of the affected analyte(s)
Q	Indicates the presence of a quantitative interference. This situation may result in an underestimation of the affected analyte(s)
I	Indicates the presence of a qualitative interference that could cause a false positive or an overestimation of the affected analyte(s)
DPE	Indicates the presence of a peak in the polychlorinated diphenylether channel that could cause a false positive or an overestimation of the affected analyte(s)
TIC	Tentatively Identified Compound
EMPC	Estimated Maximum possible Concentration due to ion ratio failure
ND	Not Detected
K	Result is estimated due to ion ratio failure in High Resolution PCB Analysis
P	RPD > 40% between results of dual columns
D	Spike or surrogate was diluted out in order to achieve a parameter result within instrument calibration range

Samples requiring manual integrations for various congeners and/or standards are marked and dated by the analyst. A code definition is provided below:

M1	Mis-identified peak

Note Results pages that include a value for "Solids (%)" have been adjusted for moisture content.

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
MW-2	31202907001	09/10/2012 11:45	09/12/2012 14:20	Water

Print Date: 09/26/2012

N.C. Certification # 481

Results of **MW-2**

Client Sample ID: **MW-2**
Client Project ID: **70127335 U-3315 #20**
Lab Sample ID: 31202907001-A
Lab Project ID: 31202907

Collection Date: 09/10/2012 11:45
Received Date: 09/12/2012 14:20
Matrix: Water

Results by **SW-846 8260B**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND		1.00	ug/L	1	09/13/2012 17:29
1,1,1-Trichloroethane	ND		1.00	ug/L	1	09/13/2012 17:29
1,1,2,2-Tetrachloroethane	ND		1.00	ug/L	1	09/13/2012 17:29
1,1,2-Trichloroethane	ND		1.00	ug/L	1	09/13/2012 17:29
1,1-Dichloroethane	ND		1.00	ug/L	1	09/13/2012 17:29
1,1-Dichloroethene	ND		1.00	ug/L	1	09/13/2012 17:29
1,1-Dichloropropene	ND		1.00	ug/L	1	09/13/2012 17:29
1,2,3-Trichlorobenzene	ND		1.00	ug/L	1	09/13/2012 17:29
1,2,3-Trichloropropane	ND		1.00	ug/L	1	09/13/2012 17:29
1,2,4-Trichlorobenzene	ND		1.00	ug/L	1	09/13/2012 17:29
1,2,4-Trimethylbenzene	**29.4**		1.00	ug/L	1	09/13/2012 17:29
1,2-Dibromo-3-chloropropane	ND		5.00	ug/L	1	09/13/2012 17:29
1,2-Dibromoethane	ND		1.00	ug/L	1	09/13/2012 17:29
1,2-Dichlorobenzene	ND		1.00	ug/L	1	09/13/2012 17:29
1,2-Dichloroethane	ND		1.00	ug/L	1	09/13/2012 17:29
1,2-Dichloropropane	ND		1.00	ug/L	1	09/13/2012 17:29
1,3,5-Trimethylbenzene	**6.81**		1.00	ug/L	1	09/13/2012 17:29
1,3-Dichlorobenzene	ND		1.00	ug/L	1	09/13/2012 17:29
1,3-Dichloropropane	ND		1.00	ug/L	1	09/13/2012 17:29
1,4-Dichlorobenzene	ND		1.00	ug/L	1	09/13/2012 17:29
2,2-Dichloropropane	ND		1.00	ug/L	1	09/13/2012 17:29
2-Butanone	ND		25.0	ug/L	1	09/13/2012 17:29
2-Chlorotoluene	ND		1.00	ug/L	1	09/13/2012 17:29
2-Hexanone	ND		5.00	ug/L	1	09/13/2012 17:29
4-Chlorotoluene	ND		1.00	ug/L	1	09/13/2012 17:29
4-Isopropyltoluene	**1.40**		1.00	ug/L	1	09/13/2012 17:29
4-Methyl-2-pentanone	ND		5.00	ug/L	1	09/13/2012 17:29
Acetone	ND		25.0	ug/L	1	09/13/2012 17:29
Benzene	**2.12**		1.00	ug/L	1	09/13/2012 17:29
Bromobenzene	ND		1.00	ug/L	1	09/13/2012 17:29
Bromochloromethane	ND		1.00	ug/L	1	09/13/2012 17:29
Bromodichloromethane	ND		1.00	ug/L	1	09/13/2012 17:29
Bromoform	ND		1.00	ug/L	1	09/13/2012 17:29
Bromomethane	ND		1.00	ug/L	1	09/13/2012 17:29
n-Butylbenzene	ND		1.00	ug/L	1	09/13/2012 17:29
Carbon disulfide	ND		1.00	ug/L	1	09/13/2012 17:29
Carbon tetrachloride	ND		1.00	ug/L	1	09/13/2012 17:29
Chlorobenzene	ND		1.00	ug/L	1	09/13/2012 17:29
Chloroethane	ND		1.00	ug/L	1	09/13/2012 17:29
Chloroform	ND		1.00	ug/L	1	09/13/2012 17:29
Chloromethane	ND		1.00	ug/L	1	09/13/2012 17:29
Dibromochloromethane	ND		1.00	ug/L	1	09/13/2012 17:29
Dibromomethane	ND		1.00	ug/L	1	09/13/2012 17:29

Print Date: 09/26/2012

N.C. Certification # 481

Results of **MW-2**

Client Sample ID: **MW-2**
Client Project ID: **70127335 U-3315 #20**
Lab Sample ID: 31202907001-A
Lab Project ID: 31202907

Collection Date: 09/10/2012 11:45
Received Date: 09/12/2012 14:20
Matrix: Water

Results by **SW-846 8260B**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Dichlorodifluoromethane	ND		5.00	ug/L	1	09/13/2012 17:29
cis-1,3-Dichloropropene	ND		1.00	ug/L	1	09/13/2012 17:29
trans-1,3-Dichloropropene	ND		1.00	ug/L	1	09/13/2012 17:29
Diisopropyl Ether	ND		1.00	ug/L	1	09/13/2012 17:29
Ethyl Benzene	**43.2**		1.00	ug/L	1	09/13/2012 17:29
Hexachlorobutadiene	ND		1.00	ug/L	1	09/13/2012 17:29
Isopropylbenzene (Cumene)	**32.6**		1.00	ug/L	1	09/13/2012 17:29
Methyl iodide	ND		1.00	ug/L	1	09/13/2012 17:29
Methylene chloride	ND		5.00	ug/L	1	09/13/2012 17:29
Naphthalene	**25.1**		1.00	ug/L	1	09/13/2012 17:29
Styrene	ND		1.00	ug/L	1	09/13/2012 17:29
Tetrachloroethene	ND		1.00	ug/L	1	09/13/2012 17:29
Toluene	ND		1.00	ug/L	1	09/13/2012 17:29
Trichloroethene	ND		1.00	ug/L	1	09/13/2012 17:29
Trichlorofluoromethane	ND		1.00	ug/L	1	09/13/2012 17:29
Vinyl chloride	ND		1.00	ug/L	1	09/13/2012 17:29
Xylene (total)	**4.58**		2.00	ug/L	1	09/13/2012 17:29
cis-1,2-Dichloroethene	ND		1.00	ug/L	1	09/13/2012 17:29
m,p-Xylene	**3.74**		2.00	ug/L	1	09/13/2012 17:29
n-Propylbenzene	**34.1**		1.00	ug/L	1	09/13/2012 17:29
o-Xylene	ND		1.00	ug/L	1	09/13/2012 17:29
sec-Butylbenzene	ND		1.00	ug/L	1	09/13/2012 17:29
tert-Butyl methyl ether (MTBE)	ND		1.00	ug/L	1	09/13/2012 17:29
tert-Butylbenzene	ND		1.00	ug/L	1	09/13/2012 17:29
trans-1,2-Dichloroethene	ND		1.00	ug/L	1	09/13/2012 17:29
trans-1,4-Dichloro-2-butene	ND		5.00	ug/L	1	09/13/2012 17:29
Surrogates						
1,2-Dichloroethane-d4	104		64.0-140	%	1	09/13/2012 17:29
4-Bromofluorobenzene	99.0		85.0-115	%	1	09/13/2012 17:29
Toluene d8	103		82.0-117	%	1	09/13/2012 17:29

Batch Information

Analytical Batch: **VMS2548**
Analytical Method: **SW-846 8260B**
Instrument: **MSD4**
Analyst: **BWS**

Prep Batch: **VXX3990**
Prep Method: **SW-846 5030B**
Prep Date/Time: **09/13/2012 08:33**
Prep Initial Wt./Vol.: **40 mL**
Prep Extract Vol: **40 mL**

Print Date: 09/26/2012

N.C. Certification # 481

Results of **MW-2**

Client Sample ID: **MW-2**
Client Project ID: **70127335 U-3315 #20**
Lab Sample ID: 31202907001-D
Lab Project ID: 31202907

Collection Date: 09/10/2012 11:45
Received Date: 09/12/2012 14:20
Matrix: Water

Results by **MADEP VPH**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
C5-C8 Aliphatics	**738**		100	ug/L	1	09/18/2012 15:15
C9-C10 Aromatics	**453**		100	ug/L	1	09/18/2012 15:15
C9-C12 Aliphatics	**438**		100	ug/L	1	09/18/2012 15:15
Surrogates						
FID - 4-Bromofluorobenzene	96.0		70.0-130	%	1	09/18/2012 15:15
PID - 4-Bromofluorobenzene	84.0		70.0-130	%	1	09/18/2012 15:15

Batch Information

Analytical Batch: **VGC2143**
Analytical Method: **MADEP VPH**
Instrument: **GC4**
Analyst: **MDY**

Prep Batch: **VXX4014**
Prep Method: **SW-846 5030B**
Prep Date/Time: **09/18/2012 15:33**
Prep Initial Wt./Vol.: **40 mL**
Prep Extract Vol: **40 mL**

Print Date: 09/26/2012

N.C. Certification # 481

Results of **MW-2**

Client Sample ID: **MW-2**
Client Project ID: **70127335 U-3315 #20**
Lab Sample ID: 31202907001-E
Lab Project ID: 31202907

Collection Date: 09/10/2012 11:45
Received Date: 09/12/2012 14:20
Matrix: Water

Results by **SW-846 8270D**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
1,2,4-Trichlorobenzene	ND		5.19	ug/L	1	09/19/2012 21:36
1,2-Dichlorobenzene	ND		5.19	ug/L	1	09/19/2012 21:36
1,3-Dichlorobenzene	ND		5.19	ug/L	1	09/19/2012 21:36
1,4-Dichlorobenzene	ND		5.19	ug/L	1	09/19/2012 21:36
2,4,5-Trichlorophenol	ND		5.19	ug/L	1	09/19/2012 21:36
2,4,6-Trichlorophenol	ND		5.19	ug/L	1	09/19/2012 21:36
2,4-Dichlorophenol	ND		5.19	ug/L	1	09/19/2012 21:36
2,4-Dinitrophenol	ND		26.0	ug/L	1	09/19/2012 21:36
2,4-Dinitrotoluene	ND		5.19	ug/L	1	09/19/2012 21:36
2,6-Dinitrotoluene	ND		5.19	ug/L	1	09/19/2012 21:36
2-Chloronaphthalene	ND		5.19	ug/L	1	09/19/2012 21:36
2-Chlorophenol	ND		5.19	ug/L	1	09/19/2012 21:36
2-Methylnaphthalene	**8.57**		5.19	ug/L	1	09/19/2012 21:36
2-Methylphenol	ND		5.19	ug/L	1	09/19/2012 21:36
2-Nitroaniline	ND		5.19	ug/L	1	09/19/2012 21:36
2-Nitrophenol	ND		5.19	ug/L	1	09/19/2012 21:36
3 and/or 4-Methylphenol	ND		5.19	ug/L	1	09/19/2012 21:36
3,3'-Dichlorobenzidine	ND		10.4	ug/L	1	09/19/2012 21:36
3-Nitroaniline	ND		26.0	ug/L	1	09/19/2012 21:36
4,6-Dinitro-2-methylphenol	ND		26.0	ug/L	1	09/19/2012 21:36
4-Chloro-3-methylphenol	ND		5.19	ug/L	1	09/19/2012 21:36
4-Chloroaniline	ND		26.0	ug/L	1	09/19/2012 21:36
4-Chlorophenyl phenyl ether	ND		5.19	ug/L	1	09/19/2012 21:36
Acenaphthene	ND		5.19	ug/L	1	09/19/2012 21:36
Acenaphthylene	ND		5.19	ug/L	1	09/19/2012 21:36
Anthracene	ND		5.19	ug/L	1	09/19/2012 21:36
Benzo(a)anthracene	ND		5.19	ug/L	1	09/19/2012 21:36
Benzo(a)pyrene	ND		5.19	ug/L	1	09/19/2012 21:36
Benzo(b)fluoranthene	ND		5.19	ug/L	1	09/19/2012 21:36
Benzo(g,h,i)perylene	ND		5.19	ug/L	1	09/19/2012 21:36
Benzo(k)fluoranthene	ND		5.19	ug/L	1	09/19/2012 21:36
Benzoic acid	ND		5.19	ug/L	1	09/19/2012 21:36
Bis(2-Chloroethoxy)methane	ND		5.19	ug/L	1	09/19/2012 21:36
Bis(2-Chloroethyl)ether	ND		5.19	ug/L	1	09/19/2012 21:36
Bis(2-Chloroisopropyl)ether	ND		5.19	ug/L	1	09/19/2012 21:36
Bis(2-Ethylhexyl)phthalate	ND		5.19	ug/L	1	09/19/2012 21:36
4-Bromophenyl phenyl ether	ND		5.19	ug/L	1	09/19/2012 21:36
Butyl benzyl phthalate	ND		5.19	ug/L	1	09/19/2012 21:36
Chrysene	ND		5.19	ug/L	1	09/19/2012 21:36
Di-n-butyl phthalate	ND		5.19	ug/L	1	09/19/2012 21:36
Di-n-octyl phthalate	ND		5.19	ug/L	1	09/19/2012 21:36
Dibenz(a,h)anthracene	ND		5.19	ug/L	1	09/19/2012 21:36
Dibenzofuran	ND		5.19	ug/L	1	09/19/2012 21:36

Print Date: 09/26/2012

N.C. Certification # 481

Results of **MW-2**

Client Sample ID: **MW-2**
Client Project ID: **70127335 U-3315 #20**
Lab Sample ID: 31202907001-E
Lab Project ID: 31202907

Collection Date: 09/10/2012 11:45
Received Date: 09/12/2012 14:20
Matrix: Water

Results by **SW-846 8270D**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
Diethyl phthalate	ND		5.19	ug/L	1	09/19/2012 21:36
Dimethyl phthalate	ND		5.19	ug/L	1	09/19/2012 21:36
2,4-Dimethylphenol	ND		5.19	ug/L	1	09/19/2012 21:36
Diphenylamine	ND		5.19	ug/L	1	09/19/2012 21:36
Fluoranthene	ND		5.19	ug/L	1	09/19/2012 21:36
Fluorene	ND		5.19	ug/L	1	09/19/2012 21:36
Hexachlorobenzene	ND		5.19	ug/L	1	09/19/2012 21:36
Hexachlorobutadiene	ND		5.19	ug/L	1	09/19/2012 21:36
Hexachlorocyclopentadiene	ND		10.4	ug/L	1	09/19/2012 21:36
Hexachloroethane	ND		5.19	ug/L	1	09/19/2012 21:36
Indeno(1,2,3-cd)pyrene	ND		5.19	ug/L	1	09/19/2012 21:36
Isophorone	ND		5.19	ug/L	1	09/19/2012 21:36
Naphthalene	**26.6**		5.19	ug/L	1	09/19/2012 21:36
4-Nitroaniline	ND		26.0	ug/L	1	09/19/2012 21:36
Nitrobenzene	ND		5.19	ug/L	1	09/19/2012 21:36
4-Nitrophenol	ND		26.0	ug/L	1	09/19/2012 21:36
Pentachlorophenol	ND		26.0	ug/L	1	09/19/2012 21:36
Phenanthrene	ND		5.19	ug/L	1	09/19/2012 21:36
Phenol	ND		5.19	ug/L	1	09/19/2012 21:36
Pyrene	ND		5.19	ug/L	1	09/19/2012 21:36
n-Nitrosodi-n-propylamine	ND		5.19	ug/L	1	09/19/2012 21:36
Surrogates						
2,4,6-Tribromophenol	113		29.3-152	%	1	09/19/2012 21:36
2-Fluorobiphenyl	105		50.0-107	%	1	09/19/2012 21:36
2-Fluorophenol	90.0		33.1-118	%	1	09/19/2012 21:36
Nitrobenzene-d5	113		46.0-118	%	1	09/19/2012 21:36
Phenol-d6	105		49.0-120	%	1	09/19/2012 21:36
Terphenyl-d14	120		22.1-142	%	1	09/19/2012 21:36

Batch Information

Analytical Batch: **XMS1669**
Analytical Method: **SW-846 8270D**
Instrument: **MSD10**
Analyst: **CMP**

Prep Batch: **XXX3053**
Prep Method: **SW-846 3520C**
Prep Date/Time: **09/17/2012 10:29**
Prep Initial Wt./Vol.: **963 mL**
Prep Extract Vol: **5 mL**

Print Date: 09/26/2012

N.C. Certification # 481

Results of **MW-2**

Client Sample ID: **MW-2**
Client Project ID: **70127335 U-3315 #20**
Lab Sample ID: 31202907001-I
Lab Project ID: 31202907

Collection Date: 09/10/2012 11:45
Received Date: 09/12/2012 14:20
Matrix: Water

Results by **MADEP EPH**

Parameter	Result	Qual	LOQ/CL	Units	DF	Date Analyzed
C11-C22 Aromatics	**0.0880**		0.0878	mg/L	1	09/25/2012 21:09
C19-C36 Aliphatics	ND		0.0413	mg/L	1	09/25/2012 20:41
C9-C18 Aliphatics	ND		0.0310	mg/L	1	09/25/2012 20:41
Surrogates						
2-Bromonaphthalene	98.5		40.0-140	%	1	09/25/2012 21:09
2-Fluorobiphenyl	92.0		40.0-140	%	1	09/25/2012 21:09
n-Tricosane	126		40.0-140	%	1	09/25/2012 20:41
o-Terphenyl	94.0		40.0-140	%	1	09/25/2012 21:09

Batch Information

Analytical Batch: **XGC2559**
Analytical Method: **MADEP EPH**
Instrument: **GC6**
Analyst: **DTF**

Prep Batch: **XXX3079**
Prep Method: **SW-846 3520C**
Prep Date/Time: **09/20/2012 17:09**
Prep Initial Wt./Vol.: **968 mL**
Prep Extract Vol: **5 mL**

Print Date: 09/26/2012

N.C. Certification # 481

SGS Pace Analytical www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

31202907

Page: 1 of 1

1655263

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: TIERRA	Report To: Lori Hoffman	Attention:
Address: 5240 Greens Dairy Road	Copy To:	Company Name: NCDOT
		Address:
Email To: lchoffman@tierraeng.com	Purchase Order No.:	Pace Quote Reference:
Phone: 919-873-2211 Fax:	Project Name: U-3315 #20	Pace Project Manager:
Requested Due Date/TAT: STANDARD	Project Number: 70127335	Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☑ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: NC

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	8260	8270	MADEP EPH	MADEP VPH	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-2	WT	G			9-10-12	1145		9	2			7					X	X	X	X			
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

Requested Analysis Filtered (Y/N)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Ben Swift / Tierra	9-10-12	1829		9/11/12	1300				
		9/12/12	1420		9/12/12	1420	0.2			

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Ben Swift

SIGNATURE of SAMPLER: _____ DATE Signed (MM/DD/YY): 9-10-12

*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-020rev.07, 15-May-2007

SGS North America Inc.

Sample Receipt Checklist (SRC)

Client: **NCDOT-Terracon** Work Order No.: **31202907**

1. ___ Shipped
   X Hand Delivered

2. X COC Present on Receipt
   ___ No COC
   ___ Additional Transmittal Forms

3. ___ Custody Tape on Container
   X No Custody Tape

4. X Samples Intact
   ___ Samples Broken / Leaking

5. X Chilled on Receipt Actual Temp.(s) in °C: 0.2
   ___ Ambient on Receipt
   ___ Walk-in on Ice; Coming down to temp.
   ___ Received Outside of Temperature Specifications

6. X Sufficient Sample Submitted
   ___ Insufficient Sample Submitted

7. ___ Chlorine absent
   ___ HNO3 < 2
   X HCL < 2
   ___ Additional Preservatives verified (see notes)

8. X Received Within Holding Time
   ___ Not Received Within Holding Time

9. X No Discrepancies Noted
   ___ Discrepancies Noted
   ___ NCDENR notified of Discrepancies*

10. X No Headspace present in VOC vials
    ___ Headspace present in VOC vials >6mm

Notes:

Comments:

Inspected and Logged in by: JJ

Date: Thu-9/13/12 00:00

*NCDENR must be notified when collection, holding time or preservation requirements are not met. MI_11.6