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N.C. Engineering License No. C-1598

November 1, 2012

Mr. Gordon Box
NC Department of Transportation
GeoEnvironmental Section
1589 Mail Service Center
Raleigh, North Carolina, 27699-1589

Reference: Preliminary Site Assessment
Parcel 55
1200 Myrtle Street, Greenville, NC 27834
State Project: U-3315
WBS Element 35781.1.2
ATC Project No. 45.19873.0007

Dear Mr. Box:

ATC Associates of North Carolina, P.C. (ATC) has prepared this report to document the results of a preliminary site assessment (PSA) conducted at the above referenced site. The assessment was conducted in accordance with the Technical and Cost Proposal submitted to the North Carolina Department of Transportation (NCDOT) on July 27, 2012, and a Notice to Proceed letter issued by the NCDOT on August 16, 2012. This report describes field activities, laboratory results, estimated impacted soil quantities, and conclusions based on the collected data.

1.0 BACKGROUND INFORMATION

According to the request for technical and cost proposal (RFP) dated July 10, 2012, parcel 55 (site) is located at 1200 Myrtle Street in Greenville, North Carolina. Note that the RFP and the Pitt County online parcel information system (OPIS) both indicate that the site is comprised of three adjacent county parcels. The northernmost county parcel shares a building with parcel 171 toward the southwest and both parcels are owned by the same property owner (Jonathon Sutton). The shared building houses an operating grocery/convenience store. The function of parcel 55 is the rear of the building and an adjacent parking lot extending northeast to Pennsylvania Avenue.

The site lies within the coastal plain of North Carolina and is underlain by the Yorktown formation, which generally consists of fossiliferous clays and sands. The site lies in the Tar-Pamlico river basin and groundwater flows generally to the northeast across the site. A groundwater gradient map for the site and surrounding parcels is included as *Figure 1*.

Though parcel 55 has been identified for total take status, NCDOT requested investigative actions only be performed on the northernmost county parcel. Per the RFP, the other county lots (2) are empty and the historical use of these empty lots is unclear. A parcel identification map is included as *Figure 2*.

As per the Technical and Cost Proposal, ATC obtained a report provided by Environmental Data Resources, Inc. (EDR) of Milford, Connecticut. The report was reviewed for information regarding reported releases of hazardous substances and petroleum products on or near the site. ATC also reviewed the “unmappable” (also referred to as “orphan”) listings within the database report, cross-referencing available address information and facility names. Unmappable sites are listings that could not be plotted with confidence, but are potentially in the general area of the property in question based on the partial street address, city, or zip code. No unmappable sites were identified by ATC as being within the approximate minimum search distance from Parcel 55 based on the site reconnaissance and/or cross-referencing to mapped listings. In addition, Parcel 55 was not listed on any federal or state databases reviewed for this part of the historical assessment. The 1923, 1929, 1946 and 1958 Sanborn Maps for the site depict the property with a residential dwelling. Based on aerial photographs at least one residence appears to be present on the property until the 1993 photograph; however, given the scale and clarity of the photographs, a definitive date the residential dwelling was razed could not be determined. The property has been vacant since at least the early 1990s based on this information. The complete EDR report is included in *Appendix A*.

2.0 FIELD ACTIVITIES

2.1 Geophysical Survey

Prior to performing assessment activities, ATC contracted Stantec Consulting Services, Inc. (Stantec) to perform a geophysical survey of the site. The purpose of the survey was to locate USTs and/or other buried structures on the parcel. This was to be done in the area of the proposed NCDOT right of way and included proposed excavations for drainage lines, utilities, and slope stake cuts. The survey was conducted on July 18 through 19, 2012 and included electromagnetic (EM) induction-magnetic detection and ground penetrating radar (GPR) surveys. According to Stantec’s survey, no USTs and/or other buried structures were present on the parcel. The complete geophysical report is provided in *Appendix B*. Based on the findings of the survey and proposed construction details, ATC performed a drilling event to assess soil and groundwater conditions only in areas within the proposed (by NCDOT) right-of-way and/or easement. Details of the soil and groundwater assessment are included in *Sections 2.2* and *2.3*.

2.2 Soil Assessment

Based on the results of the geophysical survey and in anticipation of a total take by the NCDOT, a soil assessment was completed on-site. On August 7, 2012, ATC mobilized to the site with South Atlantic Environmental Drilling and Construction Company (SAEDACCO) to conduct sampling activities. Over the course of the event, nine borings (SB55-1 through SB55-8 and TW55-1) were advanced using direct-push technology (DPT) drilling techniques. Prior to the drilling, Stantec was contracted to conduct utility clearance in conjunction with the geophysical

survey investigation. The NCDOT and North Carolina's 811 service were also notified prior to field activities.

The locations of the borings are shown on the attached **Figure 3**. Each boring was advanced to a depth of five feet below ground surface (bgs) via hand auger prior to utilizing DPT drilling techniques to complete the sampling. Soil samples were collected every 1 to 3 feet and screened with a photo-ionization detector (PID). Soils encountered consisted primarily of tan to gray silty sands and clays. All PID readings were below the instrument detection limit. Boring logs are included in **Appendix C**.

One soil sample from each boring was submitted for laboratory analysis. This was determined by either submitting the interval with the highest PID reading, or, if not applicable, the deepest interval at which proposed construction would take place. Samples were submitted to SGS Analytical Perspectives (SGS) in Wilmington, North Carolina. Following proper chain-of-custody protocol, the samples were placed in laboratory supplied containers in an ice filled cooler for analysis of Total Petroleum Hydrocarbons – Gasoline Range Organics (TPH-GRO) and Diesel Range Organics (TPH-DRO) by EPA Method 8015 Modified. A discussion of the laboratory results is provided in **Section 3.0**.

2.3 Groundwater Assessment

ATC supervised SAEDACCO during the installation of temporary well TW55-1 on August 7, 2012. The boring was advanced to a depth of five feet bgs via hand auger prior to utilizing DPT drilling techniques to complete the well installation activities. Temporary well TW55-1 was installed to a depth of 12 feet bgs using 10 feet of 0.010-inch machine slotted 1-inch poly vinyl chloride (PVC) well screen and solid PVC riser. The annular space of the boring was filled with washed silica sand to an approximate depth of 2 feet bgs. The location of the temporary well is shown on the attached **Figure 3** and a boring log is included in **Appendix C**.

Following the temporary well installation, ATC gauged an approximate depth to water level of 9.8 feet below the top of well casing. A peristaltic pump and dedicated polyethylene tubing were used to purge approximately one gallon prior to collecting a groundwater sample. The sample was submitted to SGS under chain-of-custody protocol for analysis of VOCs by EPA Method 8260B. Following sampling, the top of well casing was surveyed for vertical elevation using standard surveying practices from a temporary benchmark with an arbitrary, assumed elevation of 100.00 feet. This was done in conjunction with adjacent temporary wells installed on the surrounding parcels. Following surveying, the borings were filled with native soil and finished to approximately 6 inches below surface grade with bentonite. The remainder of the boring was then filled using material to match the surrounding surface.

3.0 LABORATORY RESULTS

The results of the laboratory analyses for soil samples collected on-site indicated no detectable concentrations of TPH-GRO, however, detectable concentrations of TPH-DRO were indicated in numerous samples. Comparison of detected concentrations to the NCDENR action level of 10 milligrams per kilogram (mg/kg) indicated exceedences of TPH-DRO in SB55-2 through SB55-8 and TW55-1.

The results of laboratory analyses for groundwater sample TW-55-1 did not indicate any compounds at concentrations above NC Title 15A NCAC 2L .0202 Groundwater Standards (2L Standards). Only one compound, chloromethane, was detected above laboratory detection limits but below 2L Standards. The laboratory analytical report is included in *Appendix D* and a summary of the laboratory results for the soil and groundwater sampling are provided in *Tables 1* and *2*, respectively.

4.0 IMPACTED SOIL ASSESSMENT

The results of the soil and groundwater assessment indicate that soil has been impacted above the NCDENR action level. Therefore, ATC proceeded with estimating the quantity of impacted soil as directed in the RFP. Specifically, soil samples collected from the 0-2.5 feet bgs interval in borings SB55-2 through SB55-8 and TW55-1 were used to calculate volumes in two locations. At the request of the NCDOT, volume calculations are separated into two categories. The first volume estimation represents the total quantity of impacted soil on-site. The second volume estimation represents the quantity of impacted soil that will need to be handled during the proposed construction. The volume to be handled during the proposed construction was estimated based on proposed drainage, utility, and cut/fill construction elevations provided by the NCDOT. Further delineation of impacted soil estimates are based on parcel boundaries and are classified as “on-site” and “off-site” areas. Quantities are estimated in cubic yards and converted to tons using an NCDOT provided multiplier of 1.5 tons per cubic yard.

For the first volume estimation, ATC calculated a volume of approximately 404.56 cubic yards (606.84 tons) and 64.58 cubic yards (96.87 tons) for the total volume of impacted soil on-site and off-site, respectively. For the second volume estimation, ATC calculated a volume of approximately 161.83 cubic yards (242.75 tons) and 25.84 cubic yards (38.76 tons) for the volume of impacted soil that may need to be handled during proposed construction activities on-site and off-site, respectively. It should be noted that the exact horizontal extent of impacted soil has not been fully delineated. As such, ATC’s estimations should be considered approximations and actual quantities may vary. If the NCDOT requires a greater level of assurance regarding the extent, additional sampling could be performed for confirmation. Detailed calculations, references, and ATC’s assumptions are included in *Appendix E*.

5.0 CONCLUSIONS

ATC has completed PSA activities at the Parcel 55 site in Greenville, North Carolina. The results of the assessment indicate that soil at the site has been impacted above NCDENR action levels. Groundwater assessed on-site did not indicate constituents above 2L Standards. Based on a review of the site’s historical data, geophysical investigation, and field assessment, ATC concludes that the impacted soil may be associated with former commercial and/or industrial activities at the site. ATC recommends that the collected data be provided to the NCDENR Division of Waste Management. If impacted soil or groundwater is encountered during construction activities, appropriate measures should be taken to ensure worker safety. In addition, any impacted soil or groundwater disturbed during construction should be handled and disposed of in accordance with applicable regulations.

ATC appreciates the opportunity to assist the NCDOT with this project. If you have questions or require additional information, please do not hesitate to contact us at (919) 871-0999.

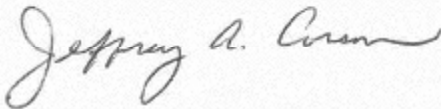
Sincerely,
ATC Associates of North Carolina, P.C.



Corey M. Scheip
Staff Scientist



Justin C. Ballard, P.G.
Project Geologist



Jeffrey A. Corson
Project Manager

Attachments:

1. Table 1 – Soil Analytical Data
2. Table 2 – Groundwater Analytical Data
3. Figure 1 – Project Groundwater Gradient Map
4. Figure 2 – Parcel Identification Map
5. Figure 3 – Sample Location Map
6. Figure 4 – Soil Analytical Data Map
7. Figure 5 – Groundwater Analytical Data Map
8. Appendix A – EDR Report
9. Appendix B – Geophysical Investigation Report
10. Appendix C – Boring Logs
11. Appendix D – Laboratory Analytical Report
12. Appendix E – Volumetric Calculations

TABLES

TABLE 1

PSA
SOIL ANALYTICAL DATA

PARCEL 55
GREENVILLE, PITT COUNTY, NORTH CAROLINA
ATC PROJECT NO. 45.19873.0007
WBS ELEMENT NO. 35781.1.2

EPA Method:				5030/8015	3550/8015
Boring I.D.	Depth (feet)	Sampling Date	PID Reading (ppm)	TPH-GRO	TPH-DRO
SB55-1	0-2.5	08/07/2012	0	<3.89	<7.88
SB55-2	0-2.5	08/07/2012	0	<3.8	23.3
SB55-3	0-2.5	08/07/2012	0	<4.05	50.7
SB55-4	0-2.5	08/06/2012	0	<4.23	60
SB55-5	0-2.5	08/06/2012	0	<3.93	28.8
SB55-6	0-2.5	08/07/2012	0	<3.07	67.7
SB55-7	0-2.5	08/07/2012	0	<3.07	11.1
SB55-8	0-2.5	08/07/2012	0	<3.47	11.1
TW55-1	0-2.5	08/06/2012	0	<3.65	105
NCDENR Action Level				10	10
Soil-to-Groundwater MSCC				--	--
Residential MSCC				--	--
Industrial/Commercial MSCC				--	--

Notes:

1. TPH = Total petroleum hydrocarbons.
2. GRO = Gasoline range organics.
3. DRO = Diesel range organics.
4. Concentrations reported in milligrams per kilogram (mg/kg).
5. "<" = not detected at or above the laboratory detection limit.
6. MSCC = Maximum Soil Contaminant Concentration Levels.
7. NE = Not established.
8. NA = Not analyzed.
9. MTBE = Methyl tertiary butyl ether.
10. Values in **BOLD** indicate levels above Soil-to-Groundwater MSCCs and/or the NCDENR Action Level.
11. # = Health based level > 100%.

TABLE 2

PSA
GROUNDWATER ANALYTICAL DATA

PARCEL 55
GREENVILLE, PITT COUNTY, NORTH CAROLINA
ATC PROJECT NO. 45.19873.0007
WBS ELEMENT NO. 35781.1.2

Analytical Method		EPA Method 8260B							
Contaminant of Concern		Benzene	Toluene	Ethylbenzene	Total Xylenes	Total BTEX	MTBE	Naphthalene	Chloromethane
Well ID	Date Collected								
TW55-1	08/09/2012	<1.0	<1.0	<1.0	<1.0	NE	<1.0	<1.0	1.15
2L Standard (mg/l)		1	600	600	500	NE	20	6	3
GCL (mg/l)		5,000	260,000	84,500	85,500	NE	20,000	6,000	3,000

Notes:

1. "<" or ND = Not detected at or above the laboratory detection limit.
2. Concentrations are reported in micrograms per liter ($\mu\text{g/l}$) = parts per billion.
3. Concentrations in bold print equal or exceed the NCDENR 2L Standard (2L).
4. NCDENR = North Carolina Department of Environment and Natural Resources.
5. GCL = Gross Contaminant Level.
6. NE = Not Established.
7. MTBE = Methyl Tertiary Butyl Ether.
8. Gross Contamination Levels for Groundwater are referenced in the Guidelines for Assessment and Corrective Action, November 2008, updated January 2010.
9. BTEX = Benzene, Toluene, Ethylbenzene, Total Xylenes
10. Temporary well TW55-1 was installed on 8/7/2012, sampled on 8/9/2012, and abandoned on 8/9/2012.

FIGURES

NOTES:
 1) WELL TW55-1 NOT USED TO CONSTRUCT CONTOURS.

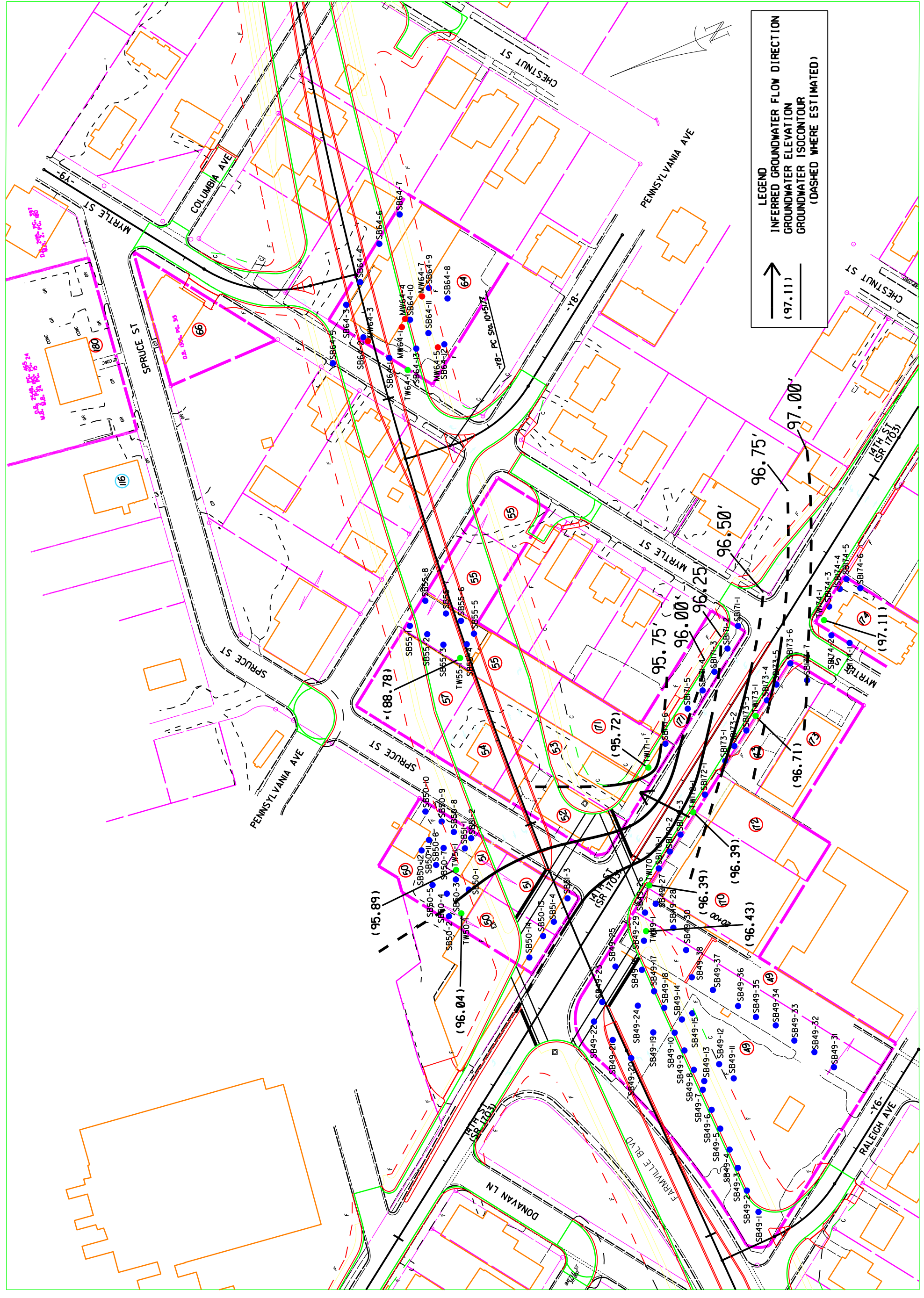
FIGURE 1
 PROJECT GROUNDWATER GRADIENT MAP

STANTONSBURG ROAD/TENTH STREET CONNECTOR FROM MEMORIAL DRIVE (US13) TO EVAN STREET GREENVILLE, NC
 NCDOT PROJECT U-3315



ATC Associates of North Carolina, P.C.
 RALEIGH, NORTH CAROLINA (919) 871-0999 FAX (919) 871-0335

CAD FILE	WBS ELEMENT	PREP. BY	REV. BY	SCALE	DATE	PROJECT NO.
	35781.1.2	CS	JB	1" = 100'	10-3-1-2012	45.19873.0007

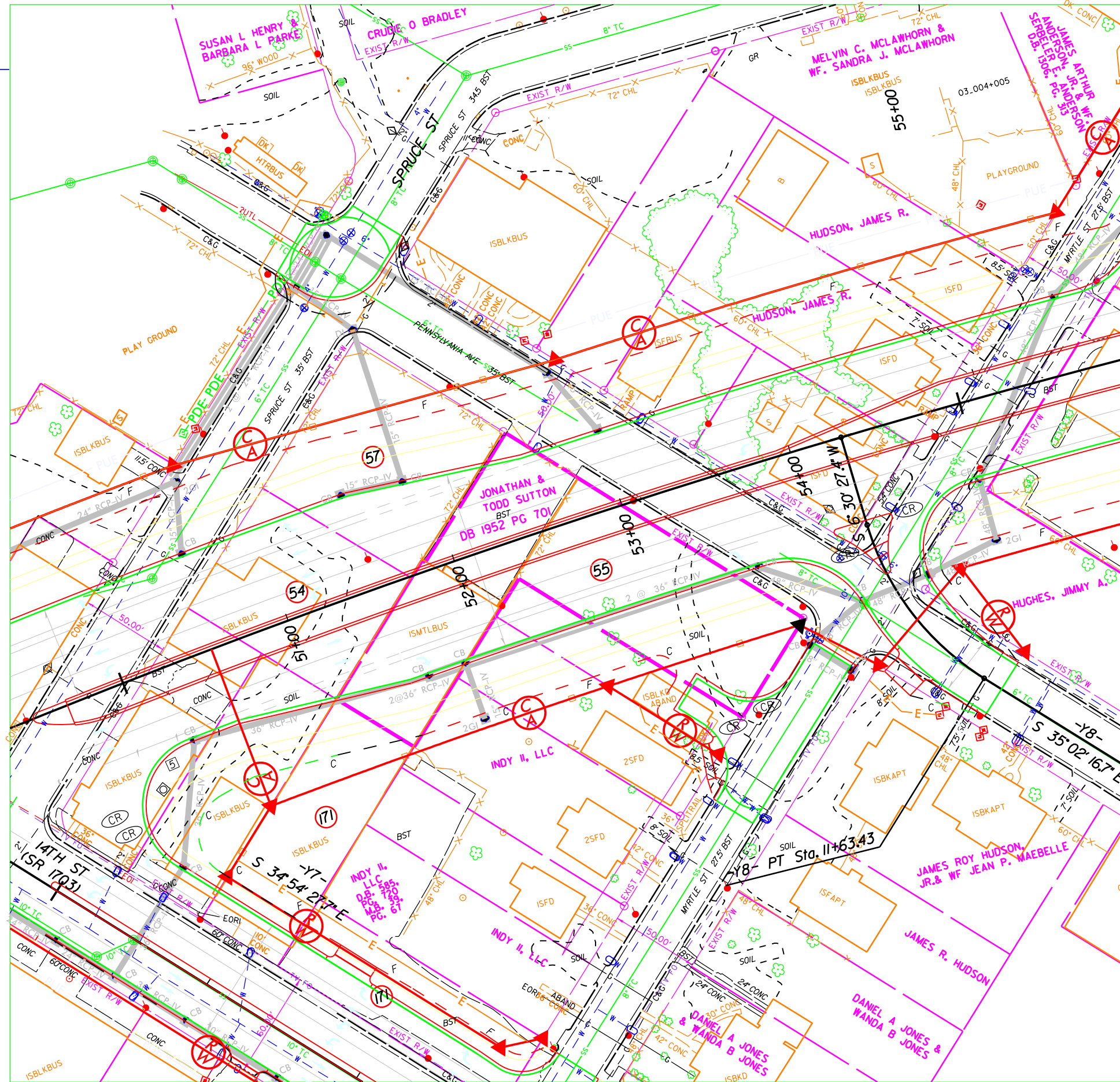


LEGEND

INFERRED GROUNDWATER FLOW DIRECTION
 GROUNDWATER ELEVATION
 GROUNDWATER ISOCONTOUR (DASHED WHERE ESTIMATED)

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPERTY LINE
- U/G CABLE TV
- U/G CABLE TELEPHONE
- U/G CABLE TELEPHONE FIBER OPTIC
- EXISTING HYDRO
- U/G CABLE TV FIBER OPTIC
- PERMANENT UTILITY EASEMENT
- FILL LINE
- CUT LINE
- CHL CHAIN LINK
- CB CATCH BASIN
- RCP REINFORCED CONCRETE PIPE
- EOT EDGE OF TRAVEL
- MH MANHOLE
- TC TERRA COTTA PIPE
- ☐ TRAFFIC SIGNAL POLE



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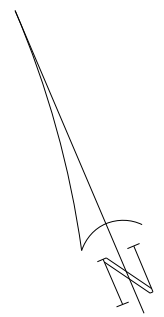
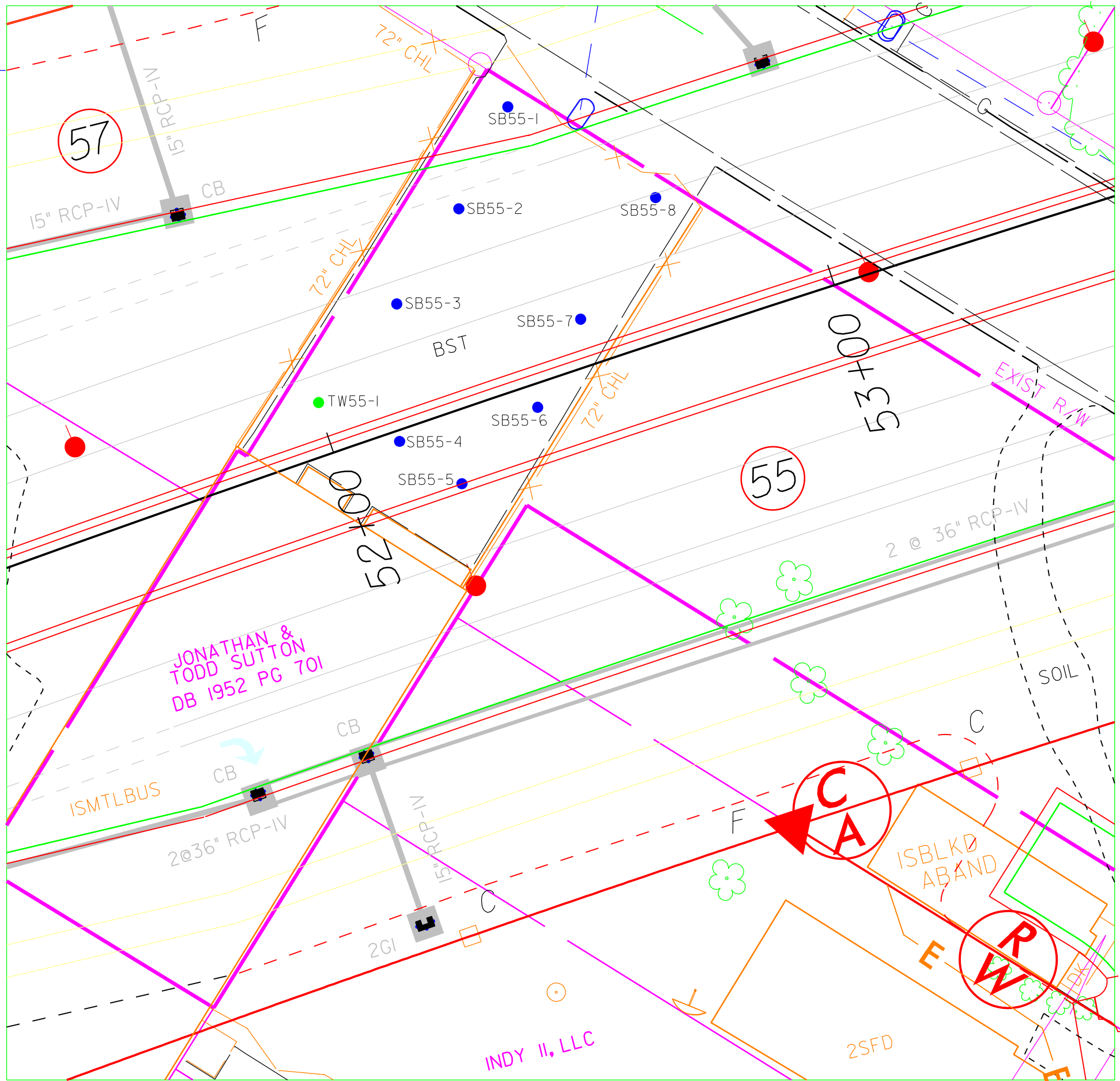
FIGURE 2
 PARCEL IDENTIFICATION MAP
 JONATHAN & TODD SUTTON PROPERTY - PARCEL 55
 1200 MYRTLE ST
 GREENVILLE NC 27858

CAD FILE	WBS ELEMENT	PREP. BY	REV. BY	SCALE	DATE	PROJECT NO.
	3578 I. 1.2	JB	KN	1"=60'-0"	10-30-2012	45.19873.0007

NOTES:

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPERTY LINE
- U/G CABLE TV
- U/G CABLE TELEPHONE
- U/G CABLE TELEPHONE FIBER OPTIC
- U/G ELECTRIC
- EXISTING HYDRO
- U/G CABLE TV FIBER OPTIC
- PERMANENT UTILITY EASEMENT
- FILL LINE
- CUT LINE
- CHAIN LINK
- CATCH BASIN
- REINFORCED CONCRETE PIPE
- EDGE OF TRAVEL
- MANHOLE
- TERRA COTTA PIPE
- TRAFFIC SIGNAL POLE
- UTILITY POLE
- LIGHT POLE
- SOIL BORING LOCATION
- TEMPORARY WELL LOCATION



ATC Associates of North Carolina, P.C.
 RALEIGH, NORTH CAROLINA (919) 871-0999 FAX (919) 871-0335
 SCALE 1"=20'-0" DATE 10-30-2012 PROJECT NO. 45.19873.0007

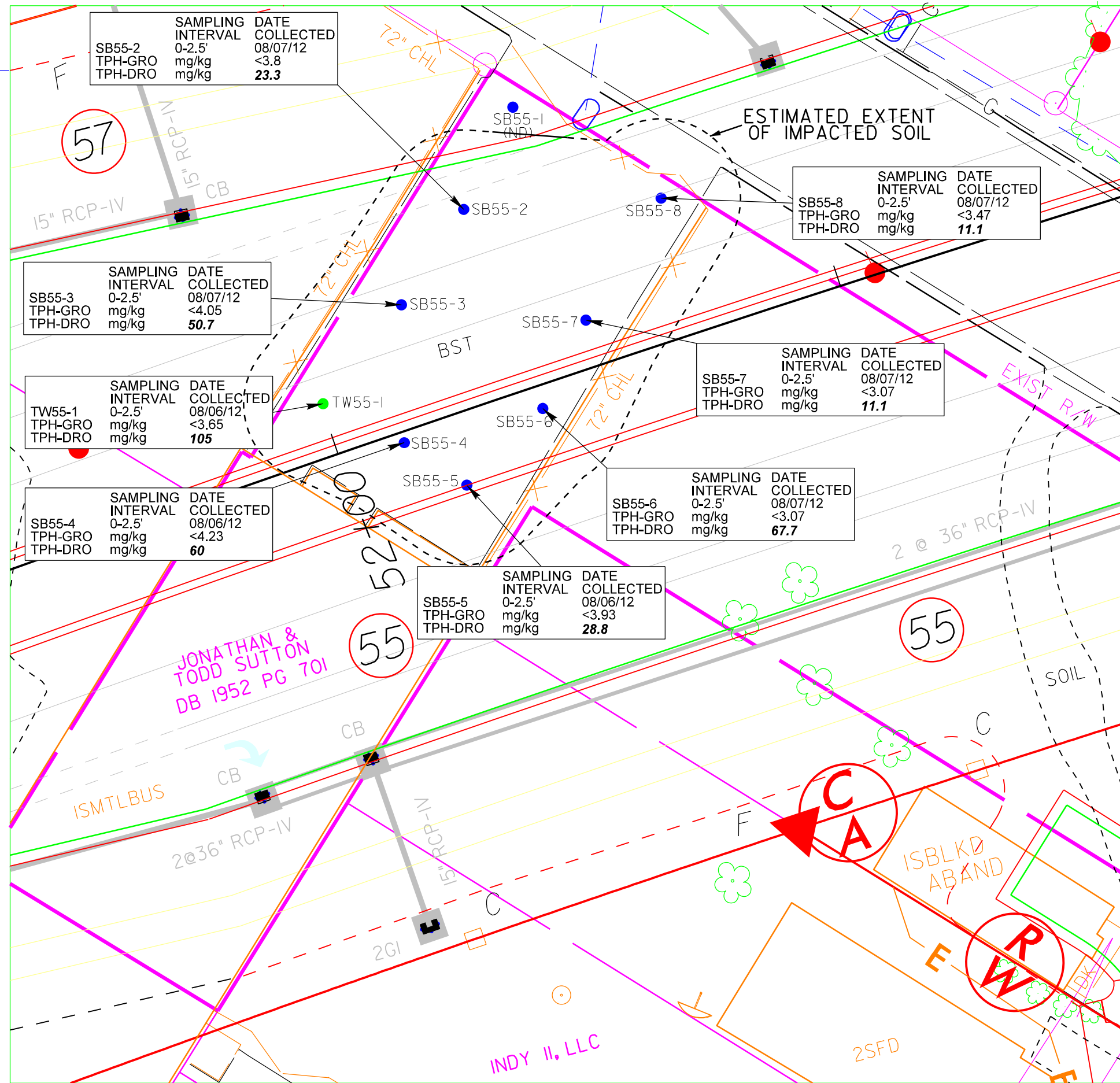
TITLE **FIGURE 3**
 SAMPLE LOCATION MAP
 JONATHAN & TODD SUTTON PROPERTY - PARCEL 55
 1200 MYRTLE ST
 GREENVILLE NC 27858

WBS ELEMENT 3578 I.1.2
 PREP. BY JB
 REV. BY KN

NOTES:

LEGEND

- - - EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPERTY LINE
- - - TV - - - U/G CABLE TV
- - - T - - - U/G CABLE TELEPHONE
- - - T FO - - - U/G CABLE TELEPHONE FIBER OPTIC
- - - P - - - U/G ELECTRIC
- - - EXISTING HYDRO
- - - TV FO - - - U/G CABLE TV FIBER OPTIC
- - - PUE - - - PERMANENT UTILITY EASEMENT
- - - F - - - FILL LINE
- - - C - - - CUT LINE
- CHL CHAIN LINK
- CB CATCH BASIN
- RCP REINFORCED CONCRETE PIPE
- EOT EDGE OF TRAVEL
- MH MANHOLE
- TC TERRA COTTA PIPE
- ☐ TRAFFIC SIGNAL POLE
- ⊙ UTILITY POLE
- ⊙ LIGHT POLE
- SOIL BORING LOCATION
- TEMPORARY WELL LOCATION
- ESTIMATED EXTENT OF IMPACTED SOIL (DASHED WHERE INFERRED)
- ND NO ANALYZED COMPOUNDS DETECTED AT OR ABOVE MSCCS AND/OR NCDENR ACTION LEVELS
- NS NOT SAMPLED



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 RALEIGH, NORTH CAROLINA (919) 871-0999 FAX (919) 871-0335
 SCALE 1"=20'-0"
 DATE 10-30-2012
 PROJECT NO. 45.19873.0007

TITLE **FIGURE 4**
 SOIL ANALYTICAL DATA MAP
 JONATHAN & TODD SUTTON PROPERTY - PARCEL 55
 1200 MYRTLE ST
 GREENVILLE NC 27858

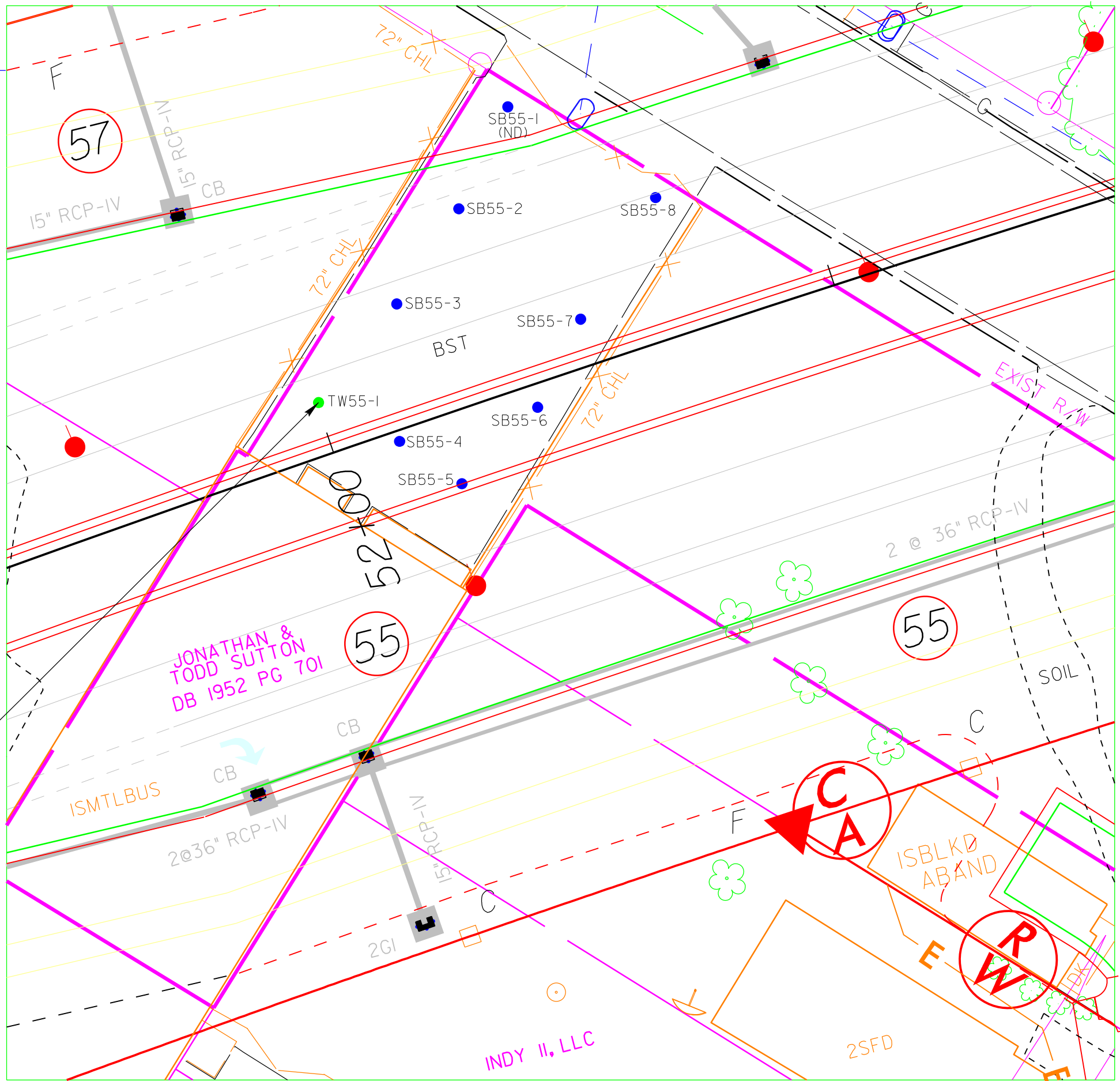
CAD FILE
 WBS ELEMENT 3578 I, 1.2
 PREP. BY CS
 REV. BY JB

NOTES:
 1) VALUES IN BOLD INDICATE LEVELS ABOVE SOIL-TO-GROUNDWATER MAXIMUM SOIL CONTAMINANT CONCENTRATIONS (MSCC) AND/OR NCDENR ACTION LEVELS.

LEGEND

- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- PROPERTY LINE
- U/G CABLE TV
- U/G CABLE TELEPHONE
- U/G CABLE TELEPHONE FIBER OPTIC
- U/G ELECTRIC
- EXISTING HYDRO
- U/G CABLE TV FIBER OPTIC
- PERMANENT UTILITY EASEMENT
- FILL LINE
- CUT LINE
- CHL CHAIN LINK
- CB CATCH BASIN
- RCP REINFORCED CONCRETE PIPE
- EOT EDGE OF TRAVEL
- MH MANHOLE
- TC TERRA COTTA PIPE
- TRAFFIC SIGNAL POLE
- UTILITY POLE
- LIGHT POLE
- SOIL BORING LOCATION
- TEMPORARY WELL LOCATION
- ND NO ANALYZED COMPOUNDS DETECTED AT OR ABOVE MSCCS AND/OR NCDENR ACTION LEVELS
- NS NOT SAMPLED

		DATE COLLECTED
TW55-1		08/07/12
BENZENE	µg/L	<1.0
TOLUENE	µg/L	<1.0
ETHYLBENZENE	µg/L	<1.0
TOTAL XYLENES	µg/L	<1.0
MTBE	µg/L	<1.0
NAPHTHALENE	µg/L	<1.0
CHLOROMETHANE	µg/L	1.5



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 SCALE 1"=20'-0" DATE 10-30-2012 PROJECT NO. 45.19873.0007

TITLE **FIGURE 5**
 GROUNDWATER ANALYTICAL DATA MAP
 JONATHAN & TODD SUTTON PROPERTY - PARCEL 55
 1200 MYRTLE ST
 GREENVILLE NC 27858
 WBS ELEMENT 35781.1.2
 PREP. BY CS REV. BY JB
 CAD FILE

NOTES:
 1) VALUES IN BOLD INDICATE LEVELS AT OR ABOVE NC 2L STANDARDS.
 2) TW55-1 SET AT 12' BELOW GROUND SURFACE (BGS) WITH A SCREENED INTERVAL OF 2-12' BGS.

APPENDIX A
EDR REPORT

U-3315

West 14th Street

Greenville, NC 27834

Inquiry Number: 3363129.5

July 10, 2012

The EDR Aerial Photo Decade Package



440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

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Date EDR Searched Historical Sources:

Aerial Photography July 10, 2012

Target Property:

West 14th Street

Greenville, NC 27834

<u><i>Year</i></u>	<u><i>Scale</i></u>	<u><i>Details</i></u>	<u><i>Source</i></u>
1957	Aerial Photograph. Scale: 1"=500'	Panel #: 35077-E4, Greenville SW, NC; Flight Date: March 10, 1957	EDR
1961	Aerial Photograph. Scale: 1"=1000'	Panel #: 35077-E4, Greenville SW, NC; Flight Date: October 16, 1961	EDR
1974	Aerial Photograph. Scale: 1"=1000'	Panel #: 35077-E4, Greenville SW, NC; Flight Date: April 10, 1974	EDR
1977	Aerial Photograph. Scale: 1"=750'	Panel #: 35077-E4, Greenville SW, NC; Flight Date: January 30, 1977	EDR
1982	Aerial Photograph. Scale: 1"=1000'	Panel #: 35077-E4, Greenville SW, NC; Flight Date: March 29, 1982	EDR
1993	Aerial Photograph. Scale: 1"=500'	Panel #: 35077-E4, Greenville SW, NC; Composite DOQQ - acquisition dates: March 08, 1993	EDR
1999	Aerial Photograph. Scale: 1"=1000'	Panel #: 35077-E4, Greenville SW, NC; Flight Date: September 23, 1999	EDR
2005	Aerial Photograph. Scale: 1"=500'	Panel #: 35077-E4, Greenville SW, NC; Flight Year: 2005	EDR
2006	Aerial Photograph. Scale: 1"=500'	Panel #: 35077-E4, Greenville SW, NC; Flight Year: 2006	EDR
2008	Aerial Photograph. Scale: 1"=500'	Panel #: 35077-E4, Greenville SW, NC; Flight Year: 2008	EDR



INQUIRY #: 3363129.5

YEAR: 1957

 = 500'





INQUIRY #: 3363129.5

YEAR: 1961

| = 1000'





INQUIRY #: 3363129.5

YEAR: 1974

 = 1000'





INQUIRY #: 3363129.5

YEAR: 1977

 = 750'





INQUIRY #: 3363129.5

YEAR: 1982

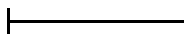
 = 1000'





INQUIRY #: 3363129.5

YEAR: 1993

 = 500'





INQUIRY #: 3363129.5

YEAR: 1999

| = 1000'





INQUIRY #: 3363129.5

YEAR: 2005

| = 500'



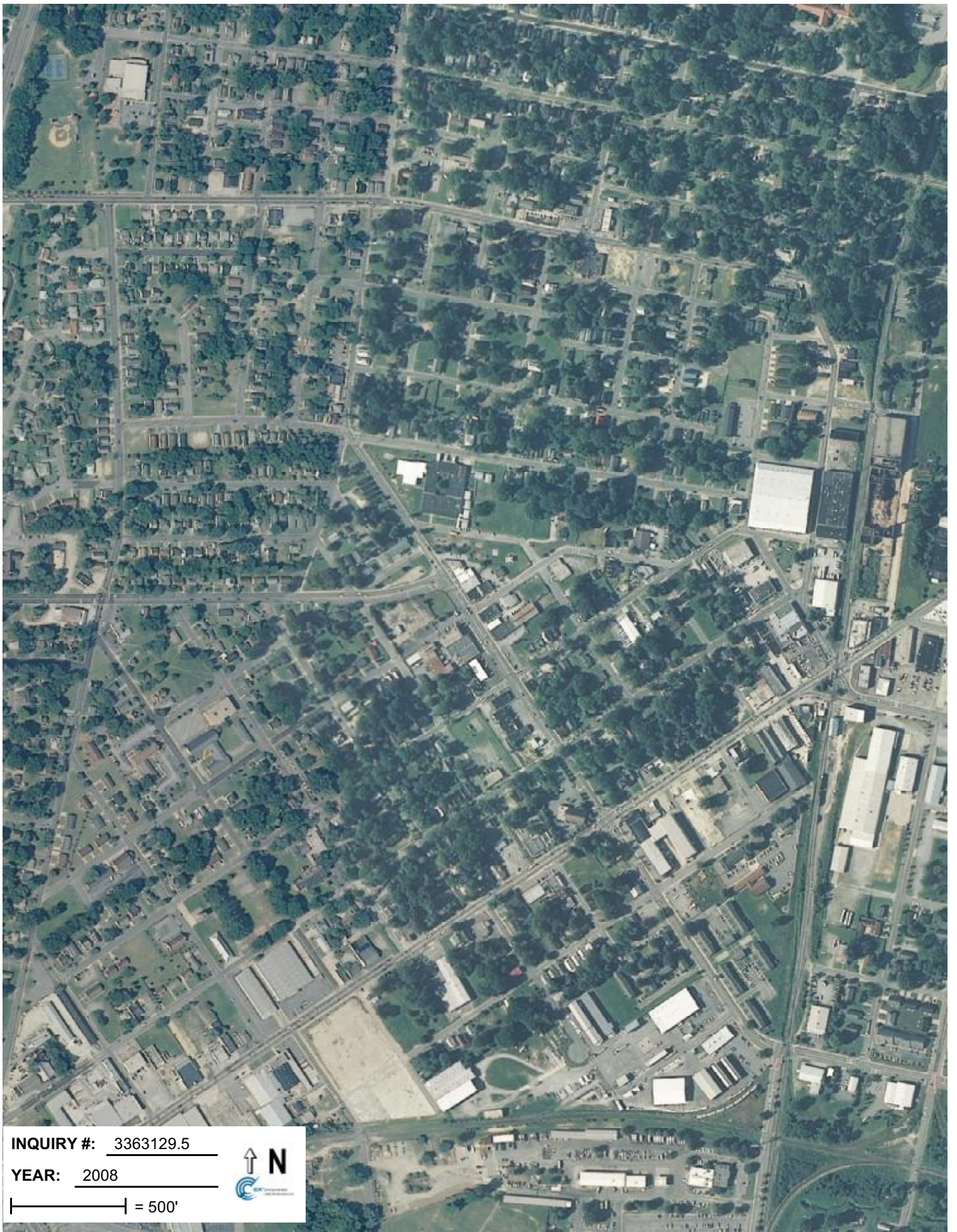


INQUIRY #: 3363129.5

YEAR: 2006

 = 500'





INQUIRY #: 3363129.5

YEAR: 2008

 = 500'



U-3315

West 14th Street

Greenville, NC 27834

Inquiry Number: 3363129.3

July 10, 2012

Certified Sanborn® Map Report



440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

7/10/12

Site Name:

U-3315
West 14th Street
Greenville, NC 27834

Client Name:

ATC Associates Inc. #45
2725 East Millbrook Road
Raleigh, NC 27604

EDR Inquiry # 3363129.3

Contact: Jeff Corson



The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by ATC Associates Inc. #45 were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: U-3315
Address: West 14th Street
City, State, Zip: Greenville, NC 27834
Cross Street:
P.O. # NA
Project: NA
Certification # D067-4C5F-9194



Sanborn® Library search results
Certification # D067-4C5F-9194

Maps Provided:

1958
1946
1929
1923

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- Library of Congress
- University Publications of America
- EDR Private Collection

The Sanborn Library LLC Since 1866™

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Sanborn Sheet Thumbnails

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.



1958 Source Sheets

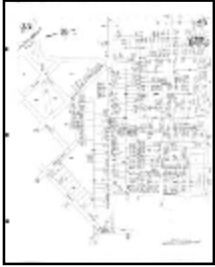


Volume 1, Sheet 23



Volume 1, Sheet 25

1946 Source Sheets



Volume 1, Sheet 23



Volume 1, Sheet 25

1929 Source Sheets



Volume 1, Sheet 23



Volume 1, Sheet 25

1923 Source Sheets

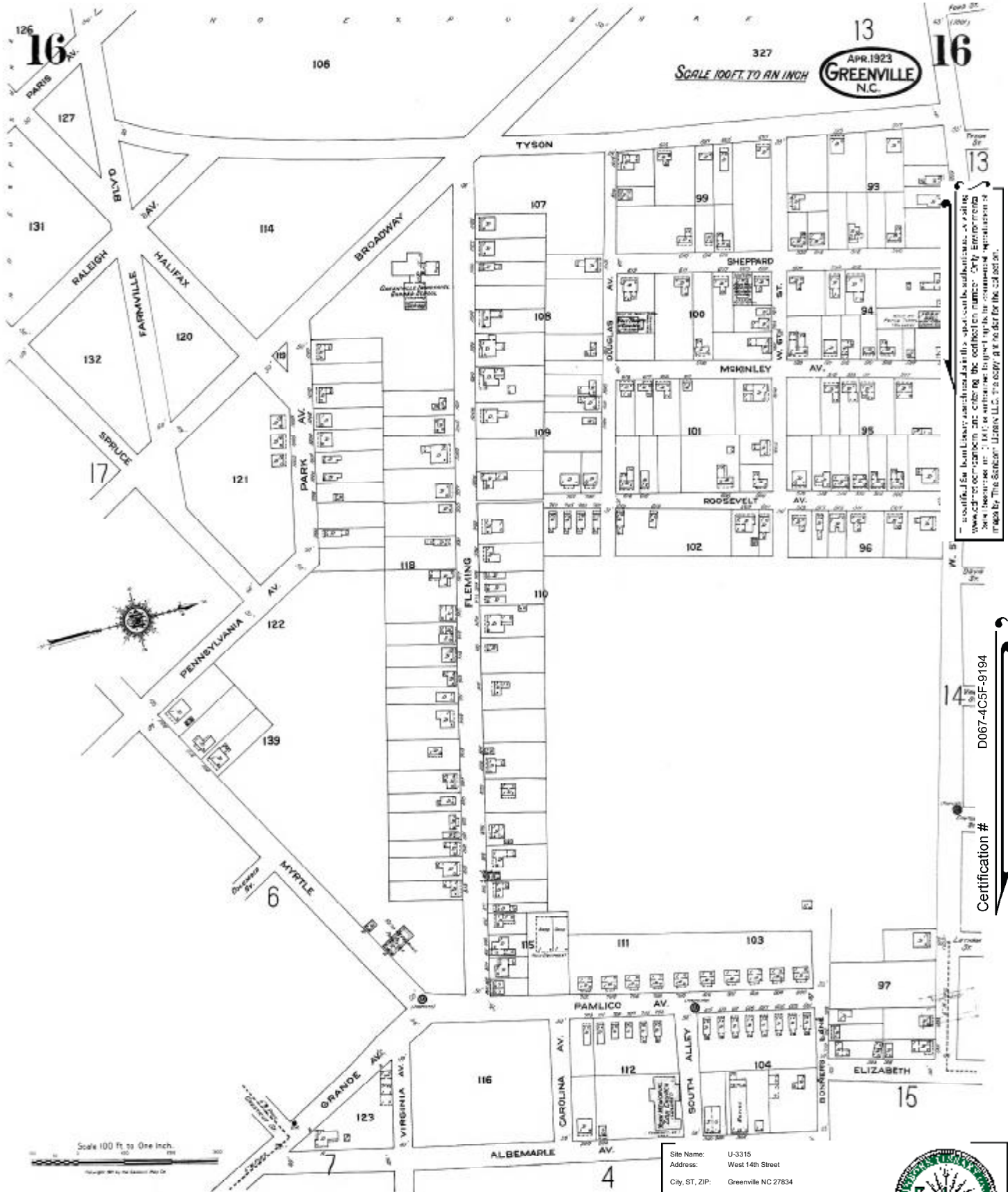


Volume 1, Sheet 16



Volume 1, Sheet 17

1923 Certified Sanborn Map



APR. 1923
GREENVILLE
N.C.

SCALE 100 FT. TO AN INCH



Scale 100 Ft. to One Inch.

This map is a reproduction of the original map as published by the Sanborn Fire Insurance Company. It is not to be used for any other purpose without the express written consent of the Sanborn Fire Insurance Company.

Certification # D067-4C5F-9194

Site Name: U-3315
 Address: West 14th Street
 City, ST, ZIP: Greenville NC 27834
 Client: ATC Associates Inc. #45
 EDR Inquiry: 3363129.3
 Order Date: 7/10/2012 9:52:03 AM
 Certification #: D067-4C5F-9194
 Copyright: 1923



1923 Certified Sanborn Map

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Certification # D067-4CSF-9194

Site Name: U-3315
 Address: West 14th Street
 City, ST, ZIP: Greenville NC 27834
 Client: ATC Associates Inc. #45
 EDR Inquiry: 3363129-3
 Order Date: 7/10/2012 9:52:03 AM
 Certification #: D067-4CSF-9194
 Copyright: 1923



1929 Certified Sanborn Map



Special Fire Insurance Map of Greenville, N.C., showing building footprints, streets, and other details. This map is a reproduction of the original map made by The Sanborn Map Company, Inc. in 1929. It is not to be used for any other purpose without the express permission of The Sanborn Map Company, Inc.

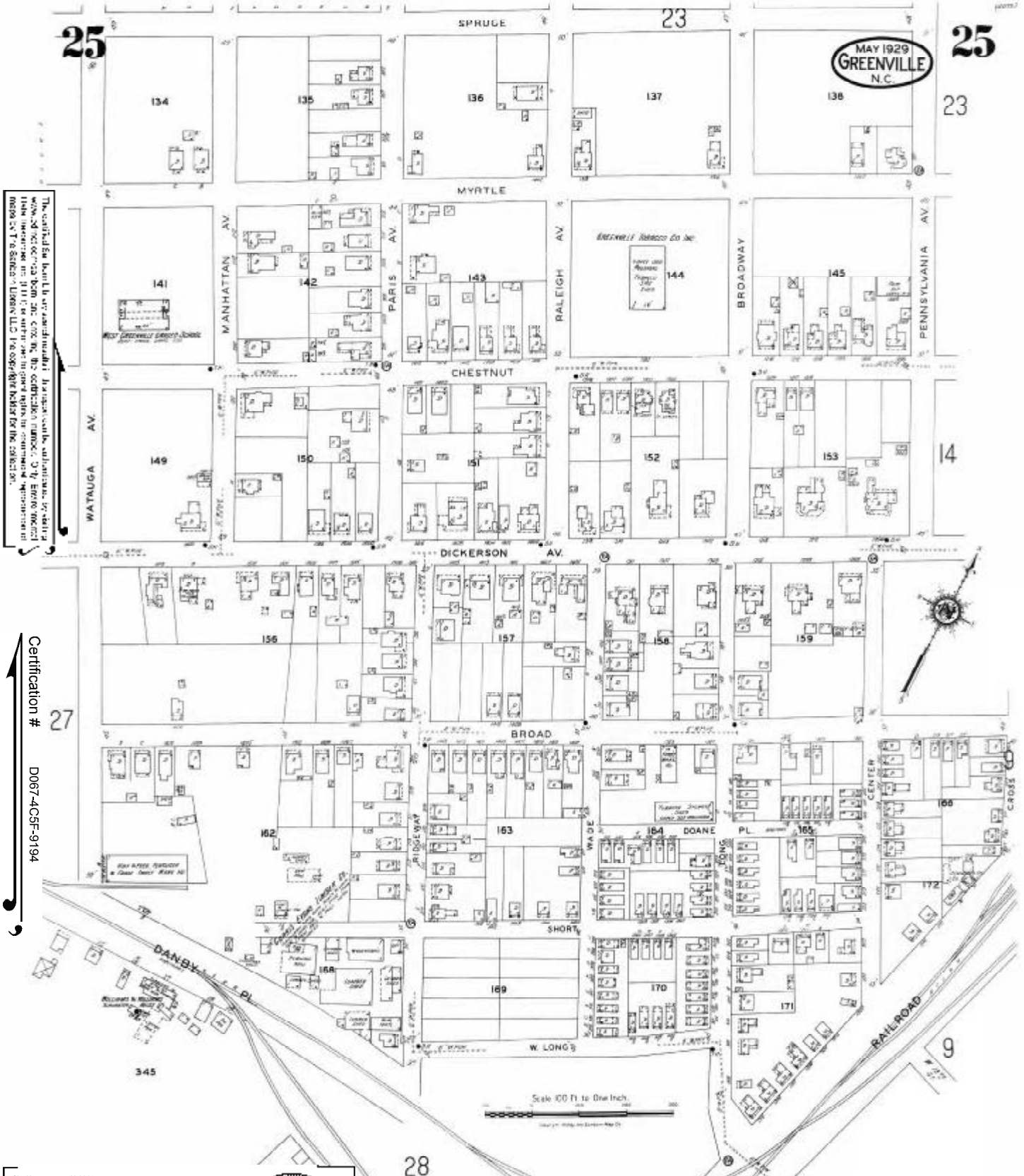
Certification # D067-4C5F-9194

Site Name: U-3315
 Address: West 14th Street
 City, ST, ZIP: Greenville NC 27834
 Client: ATC Associates Inc. #45
 EDR Inquiry: 3363129.3
 Order Date: 7/10/2012 9:52:03 AM
 Certification #: D067-4C5F-9194
 Copyright: 1929



3363129 - 3

1929 Certified Sanborn Map



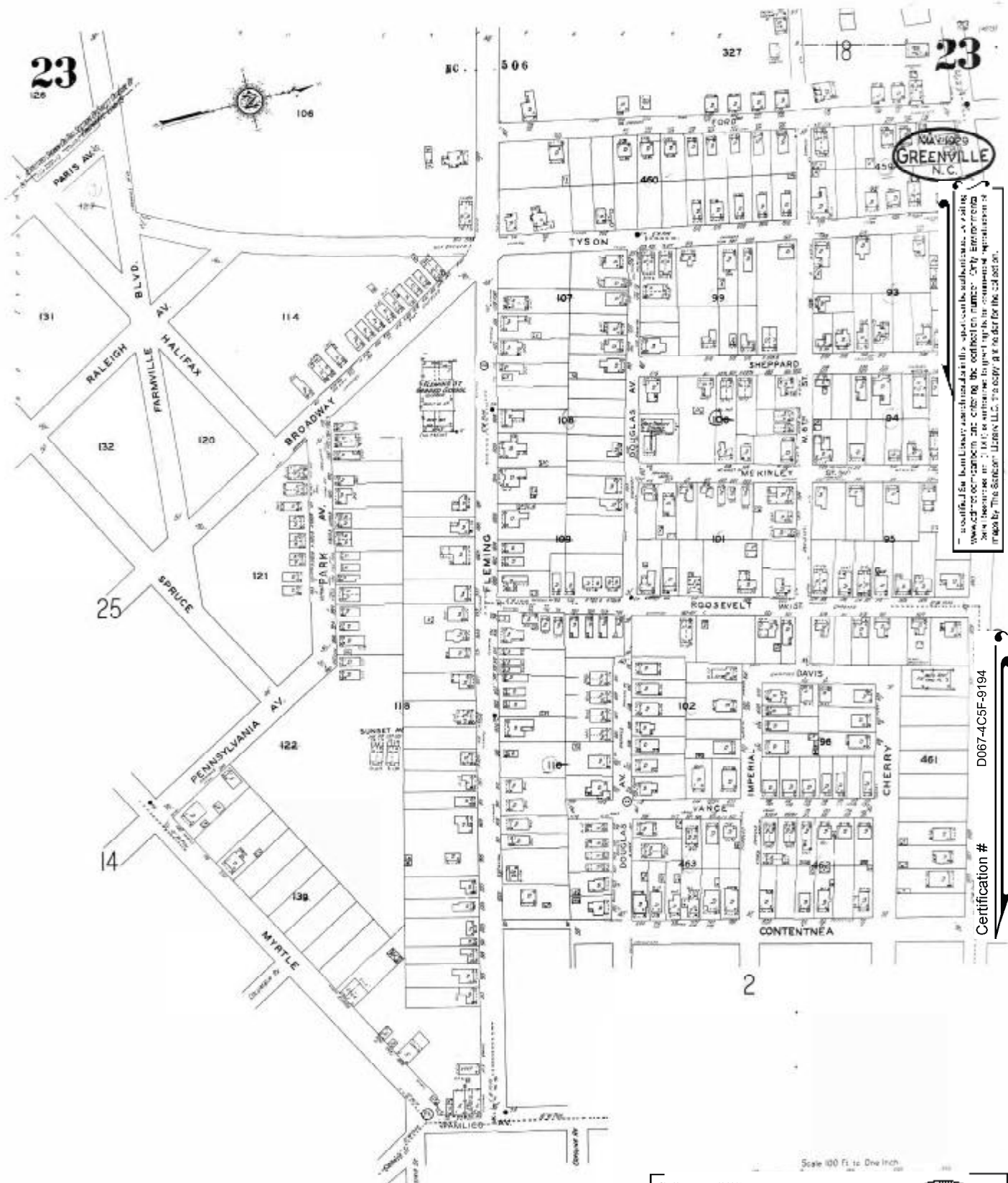
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Certification # D067-4CSF-9194

Site Name: U-3315
 Address: West 14th Street
 City, ST, ZIP: Greenville NC 27834
 Client: ATC Associates Inc.#45
 EDR Inquiry: 3363129-3
 Order Date: 7/10/2012 9:52:03 AM
 Certification #: D067-4CSF-9194
 Copyright: 1929



1946 Certified Sanborn Map



Greenville
N.C.

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Certification # D067-4C5F-9194

Scale 100 Ft. to One Inch

Site Name: U-3315
 Address: West 14th Street
 City, ST, ZIP: Greenville NC 27834
 Client: ATC Associates Inc. #45
 EDR Inquiry: 3363129.3
 Order Date: 7/10/2012 9:52:03 AM
 Certification #: D067-4C5F-9194
 Copyright: 1946



3363129 - 3

1946 Certified Sanborn Map

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Certification # D067-4CSF-9194



Site Name: U-3315
 Address: West 14th Street
 City, ST, ZIP: Greenville NC 27834
 Client: ATC Associates Inc. #45
 EDR Inquiry: 3363129-3
 Order Date: 7/10/2012 9:52:03 AM
 Certification #: D067-4CSF-9194
 Copyright: 1946



1958 Certified Sanborn Map



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Certification # D067-4C5F-9194

Site Name: U-3315
 Address: West 14th Street
 City, ST, ZIP: Greenville NC 27834
 Client: ATC Associates Inc. #45
 EDR Inquiry: 3363129.3
 Order Date: 7/10/2012 9:52:03 AM
 Certification #: D067-4C5F-9194
 Copyright: 1958

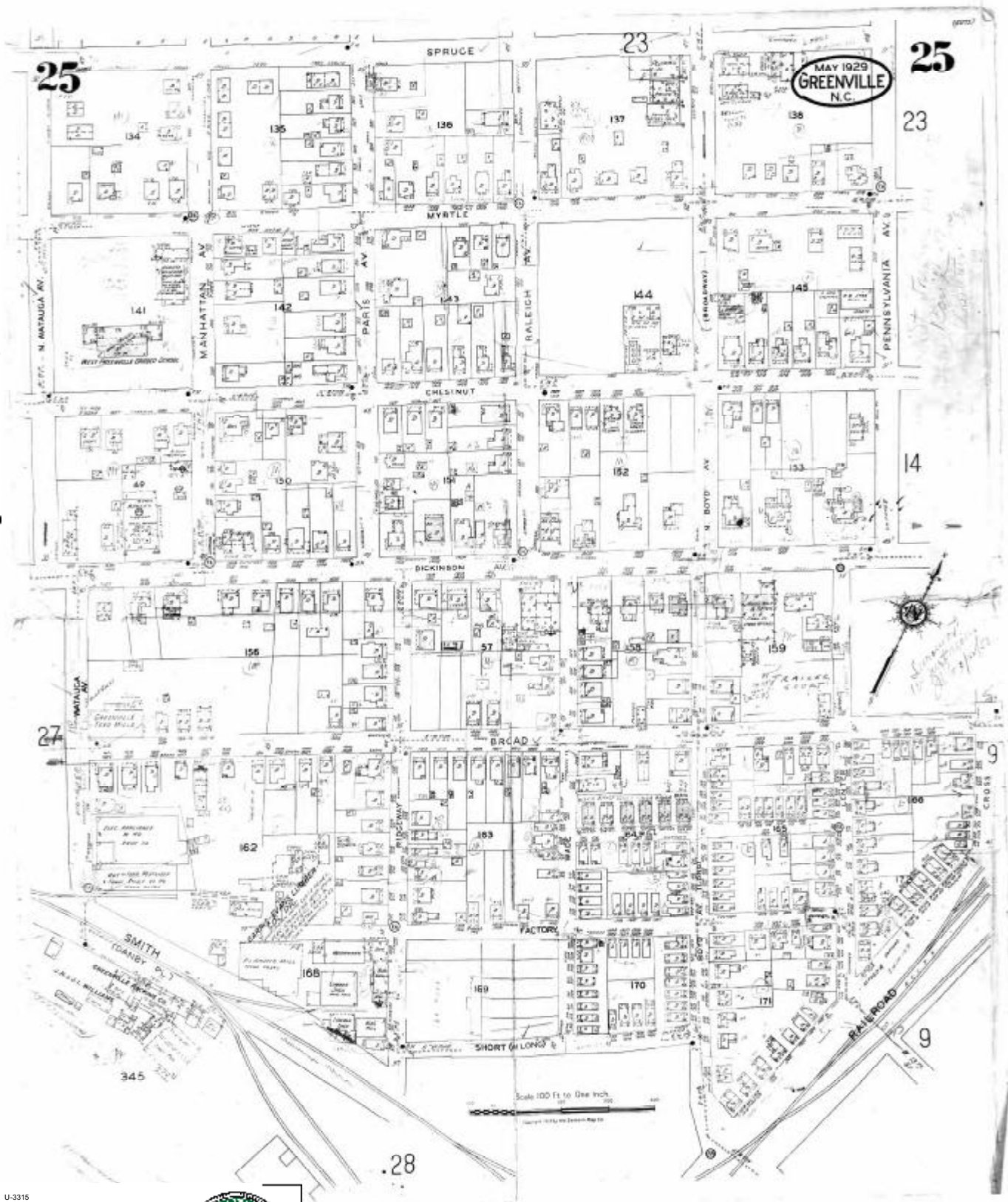
3363129 - 3



1958 Certified Sanborn Map

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Site Name: U-3315
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 City, ST, ZIP: Greenville NC 27834
 Client: ATC Associates Inc. #45
 EDR Inquiry: 3363129-3
 Order Date: 7/10/2012 9:52:03 AM
 Certification #: D067-4CSF-9194
 Copyright: 1958



APPENDIX B
GEOPHYSICAL REPORT

SUBSURFACE INVESTIGATION REPORT

Electromagnetic Induction, Magnetic Detection & *GPR* Survey

**Sutton, Jonathon Property (Parcel 55)
1200 Myrtle Street
Greenville, North Carolina**

July 19, 2012

**Report prepared for:
Justin C. Ballard, P.G.
ATC Associates of North Carolina
2725 Millbrook Road, Suite 121
Raleigh, North Carolina 27604**

Investigative Team: Shane Haniford, Joe Chiocca

Reviewed by: Bruce Beavers P.L.S. and Alex Baldwin L.L.S.

**Stantec Consulting Services Inc.
801 Jones Franklin Road, Suite 300
Raleigh, NC 27606
(919) 851-6866**

**ATC Associates of North Carolina
Subsurface Investigation Report
Sutton, Jonathon Property (Parcel 55)
1200 Myrtle Street
Greenville, North Carolina**

1.0 PURPOSE

Stantec Consulting Services Inc. performed a subsurface investigation utilizing surface Ground Penetrating Radar (GPR), Magnetic Detection and Electromagnetic Induction (EM) to survey the subject site located at 1200 Myrtle Street in the city of Greenville, North Carolina and bordered on the north by Pennsylvania Ave., the east by Myrtle Street and the west by parcel 57.

Parcel 55 is a composite of three (3) county parcels. The northern most portion of Parcel 55 lies behind Parcel 172 which has a building spanning both parcels. The building use is unclear and may have been used historically as industrial. The other lots are empty and historical use is unclear but may have been used as industrial.

ATC Associates representative Mr. Justin C. Ballard, P.G. provided information and maps identifying the geophysical survey area to Stantec personnel prior to conducting the investigation.

Survey was conducted at the request of Justin C. Ballard, P.G. on July 18th to 19th 2012.

The purpose of this investigation was to:

- Survey for detectable structures (UST) and other subsurface anomalies.

The specified survey area was described 1200 Myrtle Street in the city of Greenville, North Carolina and bordered on the north by Pennsylvania Ave., the east by Myrtle Street and the west by parcel 57.

A map depicting this area is included herein.

1.1 LIMITING CONDITIONS

In the event portions of the subject site were not accessible due to obstructions and/or stored items, those areas will be noted as inaccessible. An attempt was made to be as thorough as

possible in the survey process. The surveyed area was defined, at the time of the investigation, by the Client. Client representative on site was Aaron Leff with ATC Associates of North Carolina.

In order to accurately conduct a radar survey, linear scans were made across the target area. Confined, obstructed or non-level areas which restrict the scanning pattern can impede the data collected and reduce the accuracy of the desired results.

The assessment of this site is based on our professional evaluation of the data gathered, and our experience with the properties with surface ground penetrating radar within this setting and scope. The evaluation rendered in this report meets the standards of our profession and was conducted in accordance with generally accepted guidelines for EM, Magnetic Detection and GPR surveys. It is generally recognized that the results of the EM, Magnetic Detection and GPR are non-unique and may not represent actual subsurface conditions.

Note: A diligent effort has been made to obtain the highest quality data and make useful interpretations.

Analysis of data was accomplished by visual inspection in the field and then recording the data for post processing.

1.2 APPROACH

Multiple tools involving differing technologies were used in this investigation.

For the GPR analysis, the entire subject survey area was divided logistically into manageable/workable sections.

These isometric sections represent the arrangement of the survey scans. Within these sections, scans were made in an orthogonal pattern on two foot centers. This provided two separate data sets for each section.

For Magnetic Detection and Electromagnetic Induction the area was systematically scanned in such a pattern so to cover over 100% of the accessible portions of the site. This is possible due to the size and shape of the resulting fields produced from the sensors thus resulting in an “overlapping” of each transect covered.

2.0 METHODOLOGY

2.1 EQUIPMENT

Ground Penetrating Radar (GPR)

The GPR method transmits electromagnetic waves, which are pulsed at discrete distance/ time intervals.

The transmitted pulse radiates through the earth whereby a portion of the energy is reflected from interfaces of contrasting electrical properties (e.g. pavement and soil interface, soil stratigraphic changes and buried metallic objects) while the remaining energy continues until reaching additional reflectors where the process is repeated.

Reflected energy is received by the antennae and recorded for later processing and interpretation. Factors such as soil moisture, clay content, and variations in the dielectric constants of materials control the effectiveness of the GPR method. Wet conductive soils severely attenuate GPR signals and thus the effective depth of exploration.

The presence of foreign products leached into the soil can eschew the data collected thereby affecting the images.

GPR energy cannot transmit through ferrous objects since metal acts as a pure reflector.

Stantec employed a MALA X3M/GPR digital radar unit with a 250 MHz center frequency, bistatic antenna to survey the site. The instrument was configured to detect moderately shallow reflectors within the geologic strata. The chosen instrument configuration facilitates the analysis. The GPR system unit was configured for data collection as follows:

- Trigger Source: Cart
- Range: 0-66 ns
- Samples per Scan: 250-512
- Sampling Frequency: 10852.27 to 7234.85 MHz
- Vertical High Pass Filter: 15 Samples
- Vertical Low Pass Filter: 5 Samples
- Point Interval: 0.669 to 0.906 in
- Pulses/Ft: 108.48

Software utilized for the collection and analysis of these data included:
RAMAC Ground Vision GPR Software version 3. 1. 19. (5).

2.2 EQUIPMENT

Electromagnetic (EM) and Magnetic Detection

The magnetic detection method is a LF (30 to 300 kHz) or VLF (below 30 kHz) receiver for detecting electromagnetic fields which radiate off of metallic objects. Magnetic locators operate on a simple principal.

An electronic transmitter and receiving antennae are mounted on a support structure. The two antennae are mounted a fixed distance apart aligned opposing so that the magnetic field measured by one sensor is negative of the magnetic field measured by the other. Each measures the average magnetic field component along their axis i.e. the magnetic field component along the longitudinal axis between the antennae.

This is calibrated in the field to a position (setting) which is neutral to the earth's natural magnetic field. When a metallic object is introduced within this field, it is detected as a differing field. This differing magnetic field is the field of interest.

Stantec employed this method of locating buried metallic objects as a compliment to GPR for the subject site.

Stantec selected the following instruments for this particular task:

- Subsurface Magnetic Locator ML-1M
- Schonstedt GA-52Cx. HeliFlux magnetic field sensors—drive frequency 7.5 KHz.
- RadioDetection 8000 T-10 model utilizing 512 hertz, 8 KHz, 33 KHz, 65 KHz, 50/60 hertz, long wave radio frequencies

3.0 DATA PROCESSING AND ANALYSIS-GPR

Stantec calculated the average radar propagation velocity for the subject sites. This procedure is necessary to provide reasonably accurate depth estimates for reflection events in the subsurface strata.

The average radar velocity for the site was estimated. It should be noted that the dielectric constants and hence the corresponding radar propagation velocities did vary by an order of degree(s) of magnitude across the surveyed area. Additionally, radar propagation velocity decreases with depth in most geologic sections.

Data processing of the GPR data prior to interpretation included band pass filtering, background removal, horizontal smoothing, trace editing, and time gain adjustments. After processing, the data profiles were reviewed for analysis. These processing techniques were applied to the GPR data to provide the highest quality data and therefore facilitate the overall interpretation process.

4.0 RESULTS & CONCLUSIONS

Stantec Consulting Services Inc. has completed a subsurface investigation of the subject site.

Multiple methods and technologies were used where permitted by the environment.

Survey scans were made throughout the targeted area.

The survey revealed anomalies within the subject site.

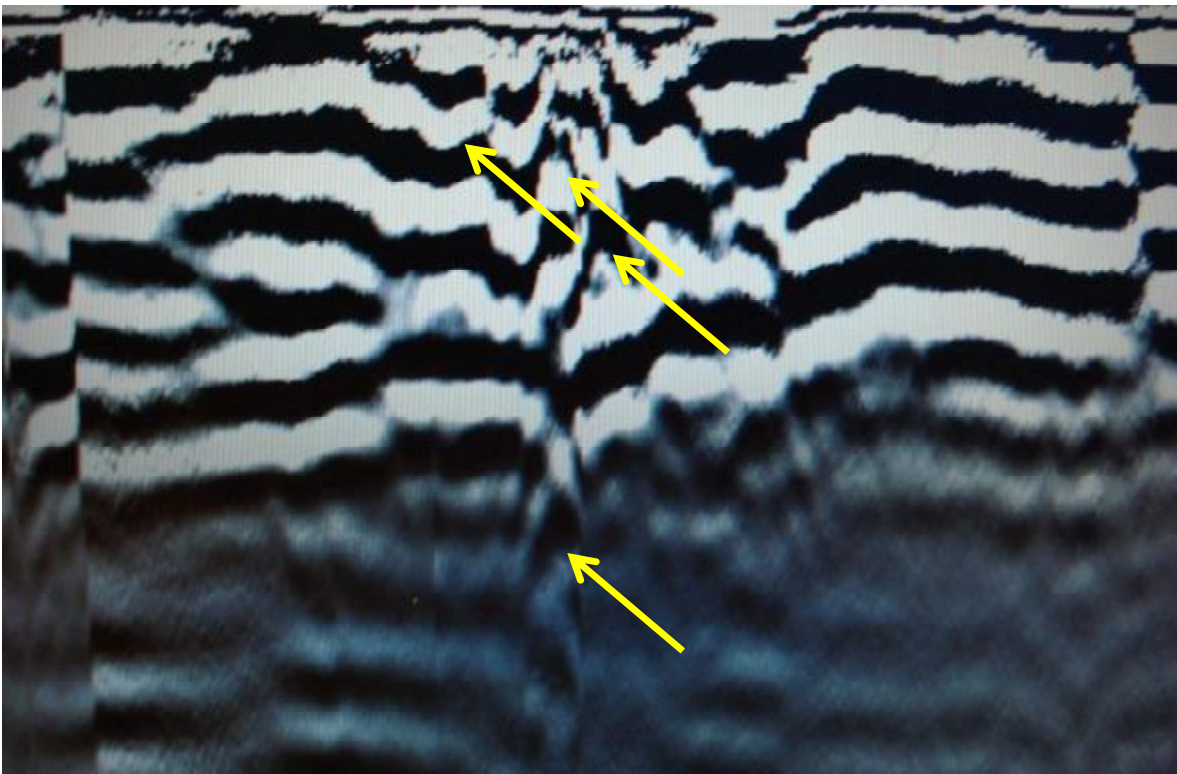
1. A water service was detected in the northern most lot with a surface meter just off the edge of Pennsylvania Road. The water connected to the rear of the building on Parcels 55 and 172. This was detected using Electromagnetic Induction with 33 and 65 kHz frequencies. A sketch of this area is included on page 9.
2. An unknown utility line was discovered crossing the three (3) lots comprising Parcel 55 running parallel with Pennsylvania Road. This line was discovered using Electromagnetic Induction with 65 and 200 kHz frequencies. A sketch of this area is included on page 9.
3. Fire Hydrant on corner of Pennsylvania and Myrtle Street. Water was detected to connect to main in Myrtle Street outside of parcel limits. A sketch of this area is included on page 9.
4. Storm drainage pipe was discovered crossing at the corner of Pennsylvania and Myrtle Streets. This was discovered visually. A sketch of this area is included on page 9.



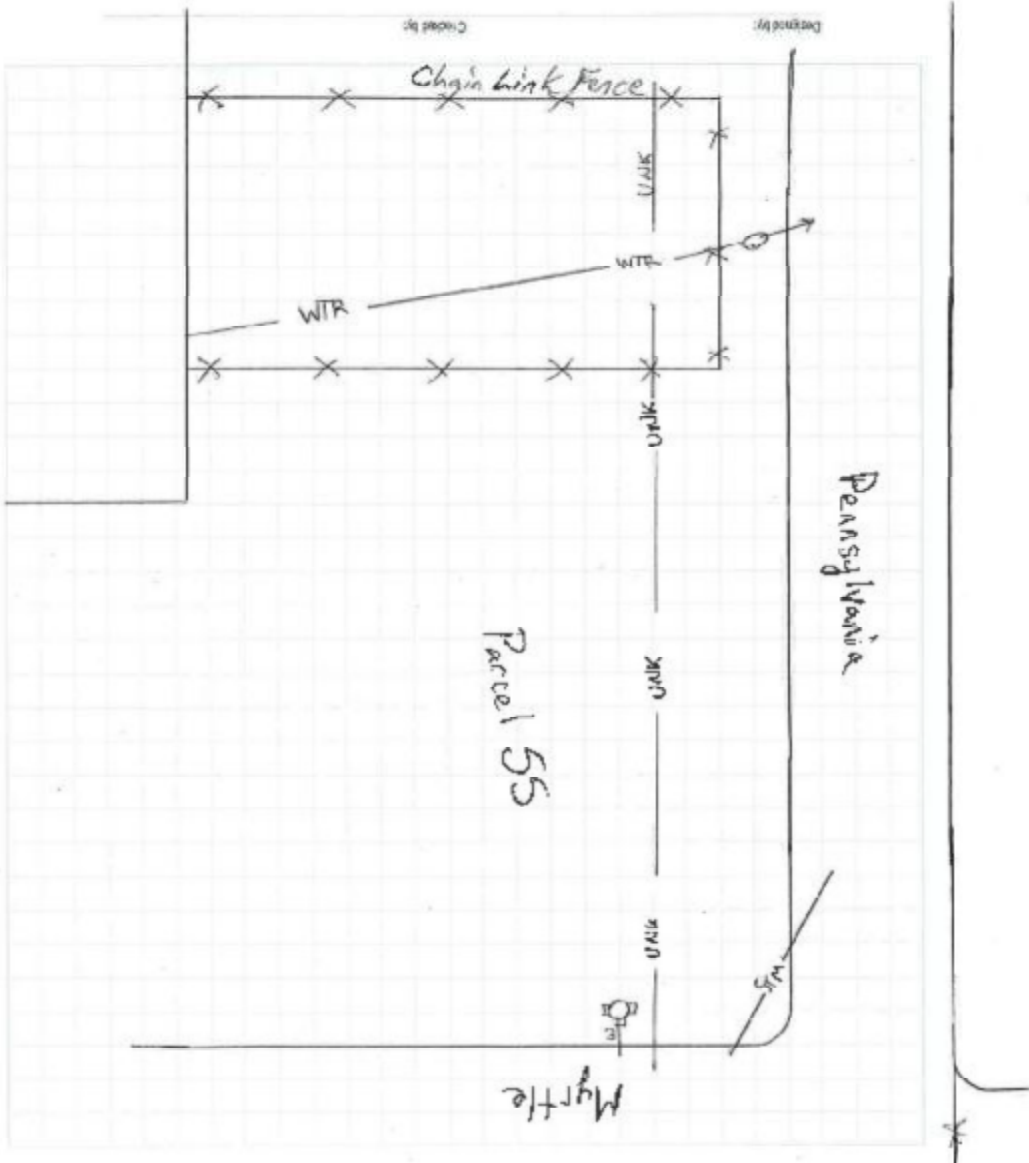
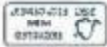
Fire Hydrant on corner of Pennsylvania and Myrtle. Storm at bottom of photo



Water meter with service to building on Parcels 55 and 172



Multiple tree roots found with GPR



Designed by:

Checked by:

Stantec





Parcel 55 Geophysical Project Map

Pitt County, NC
July 2012

 Study Area



APPENDIX C
BORING LOGS



BORING LOG: SB55-1

Client: NCDOT
 Project: U-3315 Parcel 55
 Greenville, Pitt County, North Carolina
 WBS Element 35781.1.2

Date(s) Drilled : 8/6-7/2012
 Driller : SAEDACCO
 Drilling Method : Direct Push

Boring Diameter : 2.25 Inches
 Sampling Method : Macrocore
 Sampling Interval : Continuous

ATC Project No. 45.19873.0007

Logged By : Aaron Leff

Depth In Feet	USCS	GRAPHIC	DESCRIPTION	PID VOC (ppm)	Sample
0	AR		Asphalt and subbase		
	SW		Tan, gravelly, silty SAND		
1			Gray and light brown, sandy CLAY	0.0	x
2					
3	SW				
4				0.0	
4	CL		Gray and tan, CLAY		
5					
5	SW		Tan, silty SAND, moist	0.0	
6					
7	SW		Tan, silty SAND, saturated	0.0	
8			End of boring at 8' bgs		

Soil sample was collected from 0'-2.5' bgs interval.



BORING LOG: SB55-2

Client: NCDOT
 Project: U-3315 Parcel 55
 Greenville, Pitt County, North Carolina
 WBS Element 35781.1.2

Date(s) Drilled : 8/6-7/2012
 Driller : SAEDACCO
 Drilling Method : Direct Push

Boring Diameter : 2.25 Inches
 Sampling Method : Macrocore
 Sampling Interval : Continuous

ATC Project No. 45.19873.0007

Logged By : Aaron Leff

Depth In Feet	USCS	GRAPHIC	DESCRIPTION	PID VOC (ppm)	Sample
0	AR		Asphalt and subbase		
1	SW		Gray, gravelly SAND		
2	SW		Light gray, silty SAND	0.0	x
3	SW				
4	CL		Gray and tan, sandy CLAY, moist	0.0	
5	ML		Tan, clayey, sandy SILT, moist	0.0	
6	ML				
7	SW		Tan, silty SAND, moist	0.0	
8	SW		Tan, silty SAND, saturated		
9	SW			0.0	
10	SW				
11	SW			0.0	
12	End of boring at 12' bgs				

Soil sample was collected from 0'-2.5' bgs interval.



BORING LOG: SB55-3

Client: NCDOT
 Project: U-3315 Parcel 55
 Greenville, Pitt County, North Carolina
 WBS Element 35781.1.2

Date(s) Drilled : 8/6-7/2012
 Driller : SAEDACCO
 Drilling Method : Direct Push

Boring Diameter : 2.25 Inches
 Sampling Method : Macrocore
 Sampling Interval : Continuous

ATC Project No. 45.19873.0007

Logged By : Aaron Leff

Depth In Feet	USCS	GRAPHIC	DESCRIPTION	PID VOC (ppm)	Sample
0	AR		Asphalt and subbase		
1	SW		Tan, medium grained SAND, moist	0.0	x
2					
3	CL		Dark grayish brown, sandy SILT, moist		
4	SW		Gray, silty SAND, moist	0.0	
5	SW		Gray and tan, CLAY		
6	SW		Tan, clayey, sandy SILT	0.0	
7	SW		Tan, silty SAND, moist	0.0	
8					
9				0.0	
10	SW		Tan, silty SAND, saturated		
11				0.0	
12	End of boring at 12' bgs				

Soil sample was collected from 0'-2.5' bgs interval.



BORING LOG: SB55-4

Client: NCDOT
 Project: U-3315 Parcel 55
 Greenville, Pitt County, North Carolina
 WBS Element 35781.1.2

Date(s) Drilled : 8/6-7/2012
 Driller : SAEDACCO
 Drilling Method : Direct Push

Boring Diameter : 2.25 Inches
 Sampling Method : Macrocore
 Sampling Interval : Continuous

ATC Project No. 45.19873.0007

Logged By : Aaron Leff

Depth In Feet	USCS	GRAPHIC	DESCRIPTION	PID VOC (ppm)	Sample
0	AR		Asphalt and subbase		
1	SW		Dark brown, sandy SILT, moist	0.0	x
2					
3	CL		Gray CLAY, moist	0.0	
4					
5	SW		Gray and tan, clayey, silty SAND, moist	0.0	
6					
7	SW		Gray and tan, silty SAND, saturated	0.0	
8			End of boring at 8' bgs		

Soil sample was collected from 0'-2.5' bgs interval.



BORING LOG: SB55-5

Client: NCDOT
 Project: U-3315 Parcel 55
 Greenville, Pitt County, North Carolina
 WBS Element 35781.1.2

Date(s) Drilled : 8/6-7/2012
 Driller : SAEDACCO
 Drilling Method : Direct Push

Boring Diameter : 2.25 Inches
 Sampling Method : Macrocore
 Sampling Interval : Continuous

ATC Project No. 45.19873.0007

Logged By : Aaron Leff

Depth In Feet	USCS	GRAPHIC	DESCRIPTION	PID VOC (ppm)	Sample
0	CG		Asphalt and subbase		
1	SW		Dark brown, sandy SILT, moist	0.0	x
3	CL		Gray CLAY, moist	0.0	
5	SW		Gray and tan, clayey, silty SAND, moist	0.0	
6	SW		Gray and tan, silty SAND, saturated	0.0	
7	SW			0.0	
8	End of boring at 8' bgs				

Soil sample was collected from 0'-2.5' bgs interval.



BORING LOG: SB55-6

Client: NCDOT
 Project: U-3315 Parcel 55
 Greenville, Pitt County, North Carolina
 WBS Element 35781.1.2

Date(s) Drilled : 8/6-7/2012
 Driller : SAEDACCO
 Drilling Method : Direct Push

Boring Diameter : 2.25 Inches
 Sampling Method : Macrocore
 Sampling Interval : Continuous

ATC Project No. 45.19873.0007

Logged By : Aaron Leff

Depth In Feet	USCS	GRAPHIC	DESCRIPTION	PID VOC (ppm)	Sample
0	CG		Asphalt and subbase		
1	SW		Brown and tan, silty SAND	0.0	x
2					
3	SW		Gray, silty SAND, saturated		
4				0.0	
5			End of boring at 5' bgs		

Soil sample was collected from 0'-2.5' bgs interval.



BORING LOG: SB55-7

Client: NCDOT
 Project: U-3315 Parcel 55
 Greenville, Pitt County, North Carolina
 WBS Element 35781.1.2

Date(s) Drilled : 8/6-7/2012
 Driller : SAEDACCO
 Drilling Method : Direct Push

Boring Diameter : 2.25 Inches
 Sampling Method : Macrocore
 Sampling Interval : Continuous

ATC Project No. 45.19873.0007

Logged By : Aaron Leff

Depth In Feet	USCS	GRAPHIC	DESCRIPTION	PID VOC (ppm)	Sample
0	CG		Asphalt and subbase		
1	SW		Brown and tan, silty, gravelly SAND	0.0	x
3	CL		Gray and tan, silty CLAY	0.0	
5	SW		Tan, silty SAND, moist	0.0	
7	SW		Tan, silty SAND, saturated	0.0	
8	End of boring at 8' bgs				

Soil sample was collected from 0'-2.5' bgs interval.



BORING LOG: SB55-8

Client: NCDOT
 Project: U-3315 Parcel 55
 Greenville, Pitt County, North Carolina
 WBS Element 35781.1.2

Date(s) Drilled : 8/6-7/2012
 Driller : SAEDACCO
 Drilling Method : Direct Push

Boring Diameter : 2 Inches
 Sampling Method : Macrocore
 Sampling Interval : Continuous

ATC Project No. 45.19873.0007

Logged By : Aaron Leff

Depth In Feet	USCS	GRAPHIC	DESCRIPTION	PID VOC (ppm)	Sample
0	CG		Asphalt and subbase		
	SW		Brown and tan, silty, gravelly SAND		
1	CL		Medium stiff, gray and tan, silty CLAY	0.0	x
2					
3				0.0	
4					
5	ML		Tan, sandy SILT, moist	0.0	
6	SW		Tan, silty SAND, saturated		
7					0.0
8	SW		Tan, silty SAND, saturated		
	End of boring at 8' bgs				

Soil sample was collected from 0'-2.5' bgs interval.



WELL LOG: TW55-1

Client: NCDOT Project: U-3315 Parcel 55 Greenville, Pitt County, North Carolina	Date Drilled : 8/7/2012 Drilling Company : SAEDACCO Drilling Method : Direct-Push	Boring Diameter : 2.25 inches Sampling Method : Macrocore Sampling Interval : Continuous Logged By : Aaron Leff
WBS Element 35784.1.1.2		
ATC Project No. 45.19873.0007		

DEPTH	USCS	GRAPHIC	DESCRIPTION	PID (ppm)	
0	AR		Asphalt and subbase		Well: TW55-1 Top of Casing: Not Surveyed
1			Tan and brown, gravelly, silty SAND	0.0	
2	SW			0.0	
3					
4	CL		Gray, CLAY		
5	CL		Silty, coarse grained SAND, very moist	0.0	
6			Silty SAND, saturated		
7	SW			wet	
8			End of sampling at 8' bgs		
9					
10					
11					
12					

Temporary well TW55-1 set at 12' bgs

Temporary well TW55-1 set at 12 feet bgs and screened from 2-12 feet bgs.
 Soil sample taken at 0-2.5 feet bgs.
 Depth to water approximately 9.80 feet from top of casing (TOC).
 TOC is approximately 1 foot above ground surface.

APPENDIX D
LABORATORY ANALYTICAL REPORTS



Laboratory Report of Analysis

To: Justin Ballard
ATC Associates
2725 E. Millbrook Rd
Suite 121
Raleigh, NC 27604

Report Number: **31202558**

Client Project: **NCDOT U-3315**

Dear Justin Ballard,

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.

Digitally signed by: Michael Page
Date: 2012.10.03 15:54:15 -04'00'

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

Date

Print Date: 08/23/2012

N.C. Certification # 481

ANALYTICAL PERSPECTIVES IS NOW PART OF SGS, THE WORLD'S LEADING INSPECTION, VERIFICATION, TESTING AND CERTIFICATION COMPANY.

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
M2	Software did not integrate peak
M3	Incorrect baseline construction (i.e. not all of peak included; two peaks integrated as one)
M4	Pattern integration required (i.e. DRO, GRO, PCB, Toxaphene and Technical Chlordane)
M5	Other - Explained in case narrative

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

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
SB55-7 (0-2.5)	31202558001	08/07/2012 08:45	08/10/2012 15:45	Soil-Solid as dry weight
SB55-1 (0-2.5)	31202558002	08/07/2012 07:40	08/10/2012 15:45	Soil-Solid as dry weight
SB55-2 (0-2.5)	31202558003	08/07/2012 07:30	08/10/2012 15:45	Soil-Solid as dry weight
SB55-3 (0-2.5)	31202558004	08/07/2012 07:05	08/10/2012 15:45	Soil-Solid as dry weight
SB55-4 (0-2.5)	31202558005	08/06/2012 14:30	08/10/2012 15:45	Soil-Solid as dry weight
SB55-5 (0-2.5)	31202558006	08/06/2012 15:00	08/10/2012 15:45	Soil-Solid as dry weight
SB55-6 (0-2.5)	31202558007	08/07/2012 08:30	08/10/2012 15:45	Soil-Solid as dry weight
SB55-8 (0-2.5)	31202558008	08/07/2012 09:10	08/10/2012 15:45	Soil-Solid as dry weight
TW55-1 (0-2.5)	31202558009	08/06/2012 15:20	08/10/2012 15:45	Soil-Solid as dry weight
TW55-1	31202558024	08/09/2012 10:00	08/10/2012 15:45	Water

Results of SB55-7 (0-2.5)

Client Sample ID: **SB55-7 (0-2.5)**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558001-A
 Lab Project ID: 31202558

Collection Date: 08/07/2012 08:45
 Received Date: 08/10/2012 15:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 85.20

Results by SW-846 8015C GRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		3.07	mg/kg	1	08/21/2012 22:56

Surrogates

4-Bromofluorobenzene	101		70.0-130	%	1	08/21/2012 22:56
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Batch Information

Analytical Batch: **VGC2087**
 Analytical Method: **SW-846 8015C GRO**
 Instrument: **GC7**
 Analyst: **MDY**
 Analytical Date/Time: **08/21/2012 22:56**

Prep Batch: **VXX3875**
 Prep Method: **SW-846 5035**
 Prep Date/Time: **08/13/2012 09:23**
 Prep Initial Wt./Vol.: **7.65 g**
 Prep Extract Vol: **5 mL**

Results of SB55-7 (0-2.5)

Client Sample ID: **SB55-7 (0-2.5)**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558001-C
 Lab Project ID: 31202558

Collection Date: 08/07/2012 08:45
 Received Date: 08/10/2012 15:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 85.20

Results by SW-846 8015C DRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	11.1		7.57	mg/kg	1	08/15/2012 0:41
Surrogates						
o-Terphenyl	87.1		40.0-140	%	1	08/15/2012 0:41

Batch Information

Analytical Batch: **XGC2444**
 Analytical Method: **SW-846 8015C DRO**
 Instrument: **GC6**
 Analyst: **DTF**
 Analytical Date/Time: **08/15/2012 00:41**

Prep Batch: **XXX2919**
 Prep Method: **SW-846 3541**
 Prep Date/Time: **08/13/2012 17:19**
 Prep Initial Wt./Vol.: **31.04 g**
 Prep Extract Vol: **10 mL**

Results of SB55-1 (0-2.5)

Client Sample ID: **SB55-1 (0-2.5)**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558002-A
 Lab Project ID: 31202558

Collection Date: 08/07/2012 07:40
 Received Date: 08/10/2012 15:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 81.00

Results by SW-846 8015C GRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		3.89	mg/kg	1	08/16/2012 15:38

Surrogates

4-Bromofluorobenzene	108		70.0-130	%	1	08/16/2012 15:38
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Batch Information

Analytical Batch: **VGC2073**
 Analytical Method: **SW-846 8015C GRO**
 Instrument: **GC7**
 Analyst: **MDY**
 Analytical Date/Time: **08/16/2012 15:38**

Prep Batch: **VXX3837**
 Prep Method: **SW-846 5035**
 Prep Date/Time: **08/13/2012 09:24**
 Prep Initial Wt./Vol.: **6.34 g**
 Prep Extract Vol: **5 mL**

Results of SB55-1 (0-2.5)

Client Sample ID: **SB55-1 (0-2.5)**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558002-C
 Lab Project ID: 31202558

Collection Date: 08/07/2012 07:40
 Received Date: 08/10/2012 15:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 81.00

Results by SW-846 8015C DRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	ND		7.88	mg/kg	1	08/15/2012 1:09

Surrogates

o-Terphenyl	80.6		40.0-140	%	1	08/15/2012 1:09
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Batch Information

Analytical Batch: **XGC2444**
 Analytical Method: **SW-846 8015C DRO**
 Instrument: **GC6**
 Analyst: **DTF**
 Analytical Date/Time: **08/15/2012 01:09**

Prep Batch: **XXX2919**
 Prep Method: **SW-846 3541**
 Prep Date/Time: **08/13/2012 17:19**
 Prep Initial Wt./Vol.: **31.31 g**
 Prep Extract Vol: **10 mL**

Results of SB55-2 (0-2.5)

Client Sample ID: **SB55-2 (0-2.5)**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558003-A
 Lab Project ID: 31202558

Collection Date: 08/07/2012 07:30
 Received Date: 08/10/2012 15:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 87.60

Results by SW-846 8015C GRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		3.80	mg/kg	1	08/16/2012 16:03

Surrogates

4-Bromofluorobenzene	107		70.0-130	%	1	08/16/2012 16:03
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Batch Information

Analytical Batch: **VGC2073**
 Analytical Method: **SW-846 8015C GRO**
 Instrument: **GC7**
 Analyst: **MDY**
 Analytical Date/Time: **08/16/2012 16:03**

Prep Batch: **VXX3837**
 Prep Method: **SW-846 5035**
 Prep Date/Time: **08/13/2012 09:25**
 Prep Initial Wt./Vol.: **6 g**
 Prep Extract Vol: **5 mL**

Results of SB55-2 (0-2.5)

Client Sample ID: **SB55-2 (0-2.5)**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558003-C
 Lab Project ID: 31202558

Collection Date: 08/07/2012 07:30
 Received Date: 08/10/2012 15:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 87.60

Results by SW-846 8015C DRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	23.3		6.81	mg/kg	1	08/15/2012 1:37

Surrogates

o-Terphenyl	84.9		40.0-140	%	1	08/15/2012 1:37
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Batch Information

Analytical Batch: **XGC2444**
 Analytical Method: **SW-846 8015C DRO**
 Instrument: **GC6**
 Analyst: **DTF**
 Analytical Date/Time: **08/15/2012 01:37**

Prep Batch: **XXX2919**
 Prep Method: **SW-846 3541**
 Prep Date/Time: **08/13/2012 17:19**
 Prep Initial Wt./Vol.: **33.54 g**
 Prep Extract Vol: **10 mL**

Results of SB55-3 (0-2.5)

Client Sample ID: **SB55-3 (0-2.5)**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558004-A
 Lab Project ID: 31202558

Collection Date: 08/07/2012 07:05
 Received Date: 08/10/2012 15:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 82.40

Results by SW-846 8015C GRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		4.05	mg/kg	1	08/16/2012 16:28

Surrogates

4-Bromofluorobenzene	109		70.0-130	%	1	08/16/2012 16:28
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Batch Information

Analytical Batch: **VGC2073**
 Analytical Method: **SW-846 8015C GRO**
 Instrument: **GC7**
 Analyst: **MDY**
 Analytical Date/Time: **08/16/2012 16:28**

Prep Batch: **VXX3837**
 Prep Method: **SW-846 5035**
 Prep Date/Time: **08/13/2012 09:26**
 Prep Initial Wt./Vol.: **5.99 g**
 Prep Extract Vol: **5 mL**

Results of SB55-3 (0-2.5)

Client Sample ID: **SB55-3 (0-2.5)**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558004-C
 Lab Project ID: 31202558

Collection Date: 08/07/2012 07:05
 Received Date: 08/10/2012 15:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 82.40

Results by SW-846 8015C DRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	50.7		7.64	mg/kg	1	08/15/2012 2:05

Surrogates

o-Terphenyl	97.3		40.0-140	%	1	08/15/2012 2:05
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Batch Information

Analytical Batch: **XGC2444**
 Analytical Method: **SW-846 8015C DRO**
 Instrument: **GC6**
 Analyst: **DTF**
 Analytical Date/Time: **08/15/2012 02:05**

Prep Batch: **XXX2919**
 Prep Method: **SW-846 3541**
 Prep Date/Time: **08/13/2012 17:19**
 Prep Initial Wt./Vol.: **31.74 g**
 Prep Extract Vol: **10 mL**

Results of SB55-4 (0-2.5)

Client Sample ID: **SB55-4 (0-2.5)**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558005-A
 Lab Project ID: 31202558

Collection Date: 08/06/2012 14:30
 Received Date: 08/10/2012 15:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 79.10

Results by SW-846 8015C GRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		4.23	mg/kg	1	08/16/2012 16:54

Surrogates

4-Bromofluorobenzene	108		70.0-130	%	1	08/16/2012 16:54
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Batch Information

Analytical Batch: **VGC2073**
 Analytical Method: **SW-846 8015C GRO**
 Instrument: **GC7**
 Analyst: **MDY**
 Analytical Date/Time: **08/16/2012 16:54**

Prep Batch: **VXX3837**
 Prep Method: **SW-846 5035**
 Prep Date/Time: **08/13/2012 09:27**
 Prep Initial Wt./Vol.: **5.98 g**
 Prep Extract Vol: **5 mL**

Results of SB55-4 (0-2.5)

Client Sample ID: **SB55-4 (0-2.5)**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558005-C
 Lab Project ID: 31202558

Collection Date: 08/06/2012 14:30
 Received Date: 08/10/2012 15:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 79.10

Results by SW-846 8015C DRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	60.0		7.78	mg/kg	1	08/15/2012 2:33

Surrogates

o-Terphenyl	70.0		40.0-140	%	1	08/15/2012 2:33
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Batch Information

Analytical Batch: **XGC2444**
 Analytical Method: **SW-846 8015C DRO**
 Instrument: **GC6**
 Analyst: **DTF**
 Analytical Date/Time: **08/15/2012 02:33**

Prep Batch: **XXX2919**
 Prep Method: **SW-846 3541**
 Prep Date/Time: **08/13/2012 17:19**
 Prep Initial Wt./Vol.: **32.48 g**
 Prep Extract Vol: **10 mL**

Results of SB55-5 (0-2.5)

Client Sample ID: **SB55-5 (0-2.5)**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558006-A
 Lab Project ID: 31202558

Collection Date: 08/06/2012 15:00
 Received Date: 08/10/2012 15:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 82.00

Results by SW-846 8015C GRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		3.93	mg/kg	1	08/16/2012 17:19

Surrogates

4-Bromofluorobenzene	110		70.0-130	%	1	08/16/2012 17:19
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Batch Information

Analytical Batch: **VGC2073**
 Analytical Method: **SW-846 8015C GRO**
 Instrument: **GC7**
 Analyst: **MDY**
 Analytical Date/Time: **08/16/2012 17:19**

Prep Batch: **VXX3837**
 Prep Method: **SW-846 5035**
 Prep Date/Time: **08/13/2012 09:29**
 Prep Initial Wt./Vol.: **6.21 g**
 Prep Extract Vol: **5 mL**

Results of SB55-5 (0-2.5)

Client Sample ID: **SB55-5 (0-2.5)**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558006-C
 Lab Project ID: 31202558

Collection Date: 08/06/2012 15:00
 Received Date: 08/10/2012 15:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 82.00

Results by SW-846 8015C DRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	28.8		6.86	mg/kg	1	08/15/2012 3:01
Surrogates						
o-Terphenyl	86.6		40.0-140	%	1	08/15/2012 3:01

Batch Information

Analytical Batch: **XGC2444**
 Analytical Method: **SW-846 8015C DRO**
 Instrument: **GC6**
 Analyst: **DTF**
 Analytical Date/Time: **08/15/2012 03:01**

Prep Batch: **XXX2919**
 Prep Method: **SW-846 3541**
 Prep Date/Time: **08/13/2012 17:19**
 Prep Initial Wt./Vol.: **35.55 g**
 Prep Extract Vol: **10 mL**

Results of SB55-6 (0-2.5)

Client Sample ID: **SB55-6 (0-2.5)**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558007-A
 Lab Project ID: 31202558

Collection Date: 08/07/2012 08:30
 Received Date: 08/10/2012 15:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 85.70

Results by SW-846 8015C GRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		3.07	mg/kg	1	08/16/2012 17:44

Surrogates

4-Bromofluorobenzene	108		70.0-130	%	1	08/16/2012 17:44
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Batch Information

Analytical Batch: **VGC2073**
 Analytical Method: **SW-846 8015C GRO**
 Instrument: **GC7**
 Analyst: **MDY**
 Analytical Date/Time: **08/16/2012 17:44**

Prep Batch: **VXX3837**
 Prep Method: **SW-846 5035**
 Prep Date/Time: **08/13/2012 09:30**
 Prep Initial Wt./Vol.: **7.6 g**
 Prep Extract Vol: **5 mL**

Results of SB55-6 (0-2.5)

Client Sample ID: **SB55-6 (0-2.5)**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558007-C
 Lab Project ID: 31202558

Collection Date: 08/07/2012 08:30
 Received Date: 08/10/2012 15:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 85.70

Results by SW-846 8015C DRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	67.7		7.71	mg/kg	1	08/15/2012 3:29

Surrogates

o-Terphenyl	93.3		40.0-140	%	1	08/15/2012 3:29
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Batch Information

Analytical Batch: **XGC2444**
 Analytical Method: **SW-846 8015C DRO**
 Instrument: **GC6**
 Analyst: **DTF**
 Analytical Date/Time: **08/15/2012 03:29**

Prep Batch: **XXX2919**
 Prep Method: **SW-846 3541**
 Prep Date/Time: **08/13/2012 17:19**
 Prep Initial Wt./Vol.: **30.26 g**
 Prep Extract Vol: **10 mL**

Results of SB55-8 (0-2.5)

Client Sample ID: **SB55-8 (0-2.5)**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558008-A
 Lab Project ID: 31202558

Collection Date: 08/07/2012 09:10
 Received Date: 08/10/2012 15:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 85.50

Results by SW-846 8015C GRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		3.47	mg/kg	1	08/16/2012 18:09

Surrogates

4-Bromofluorobenzene	109		70.0-130	%	1	08/16/2012 18:09
----------------------	-----	--	----------	---	---	------------------

Batch Information

Analytical Batch: **VGC2073**
 Analytical Method: **SW-846 8015C GRO**
 Instrument: **GC7**
 Analyst: **MDY**
 Analytical Date/Time: **08/16/2012 18:09**

Prep Batch: **VXX3837**
 Prep Method: **SW-846 5035**
 Prep Date/Time: **08/13/2012 09:31**
 Prep Initial Wt./Vol.: **6.75 g**
 Prep Extract Vol: **5 mL**

Results of SB55-8 (0-2.5)

Client Sample ID: **SB55-8 (0-2.5)**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558008-C
 Lab Project ID: 31202558

Collection Date: 08/07/2012 09:10
 Received Date: 08/10/2012 15:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 85.50

Results by SW-846 8015C DRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	11.1		6.90	mg/kg	1	08/15/2012 3:58

Surrogates

o-Terphenyl	96.7		40.0-140	%	1	08/15/2012 3:58
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Batch Information

Analytical Batch: **XGC2444**
 Analytical Method: **SW-846 8015C DRO**
 Instrument: **GC6**
 Analyst: **DTF**
 Analytical Date/Time: **08/15/2012 03:58**

Prep Batch: **XXX2919**
 Prep Method: **SW-846 3541**
 Prep Date/Time: **08/13/2012 17:19**
 Prep Initial Wt./Vol.: **33.92 g**
 Prep Extract Vol: **10 mL**

Results of TW55-1 (0-2.5)

Client Sample ID: **TW55-1 (0-2.5)**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558009-A
 Lab Project ID: 31202558

Collection Date: 08/06/2012 15:20
 Received Date: 08/10/2012 15:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 83.50

Results by SW-846 8015C GRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Gasoline Range Organics (GRO)	ND		3.65	mg/kg	1	08/16/2012 18:34

Surrogates

4-Bromofluorobenzene	109		70.0-130	%	1	08/16/2012 18:34
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Batch Information

Analytical Batch: **VGC2073**
 Analytical Method: **SW-846 8015C GRO**
 Instrument: **GC7**
 Analyst: **MDY**
 Analytical Date/Time: **08/16/2012 18:34**

Prep Batch: **VXX3837**
 Prep Method: **SW-846 5035**
 Prep Date/Time: **08/13/2012 09:32**
 Prep Initial Wt./Vol.: **6.57 g**
 Prep Extract Vol: **5 mL**

Results of TW55-1 (0-2.5)

Client Sample ID: **TW55-1 (0-2.5)**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558009-C
 Lab Project ID: 31202558

Collection Date: 08/06/2012 15:20
 Received Date: 08/10/2012 15:45
 Matrix: Soil-Solid as dry weight
 Solids (%): 83.50

Results by SW-846 8015C DRO

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Diesel Range Organics (DRO)	105		7.07	mg/kg	1	08/15/2012 4:26
Surrogates						
o-Terphenyl	107		40.0-140	%	1	08/15/2012 4:26

Batch Information

Analytical Batch: **XGC2444**
 Analytical Method: **SW-846 8015C DRO**
 Instrument: **GC6**
 Analyst: **DTF**
 Analytical Date/Time: **08/15/2012 04:26**

Prep Batch: **XXX2919**
 Prep Method: **SW-846 3541**
 Prep Date/Time: **08/13/2012 17:19**
 Prep Initial Wt./Vol.: **33.87 g**
 Prep Extract Vol: **10 mL**



Results of **TW55-1**

Client Sample ID: **TW55-1**
Client Project ID: **NCDOT U-3315**
Lab Sample ID: 31202558024-A
Lab Project ID: 31202558

Collection Date: 08/09/2012 10:00
Received Date: 08/10/2012 15:45
Matrix: Water

Results by **SW-846 8260B**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	ND		1.00	ug/L	1	08/13/2012 14:22
1,1,1-Trichloroethane	ND		1.00	ug/L	1	08/13/2012 14:22
1,1,2,2-Tetrachloroethane	ND		1.00	ug/L	1	08/13/2012 14:22
1,1,2-Trichloroethane	ND		1.00	ug/L	1	08/13/2012 14:22
1,1-Dichloroethane	ND		1.00	ug/L	1	08/13/2012 14:22
1,1-Dichloroethene	ND		1.00	ug/L	1	08/13/2012 14:22
1,1-Dichloropropene	ND		1.00	ug/L	1	08/13/2012 14:22
1,2,3-Trichlorobenzene	ND		1.00	ug/L	1	08/13/2012 14:22
1,2,3-Trichloropropane	ND		1.00	ug/L	1	08/13/2012 14:22
1,2,4-Trichlorobenzene	ND		1.00	ug/L	1	08/13/2012 14:22
1,2,4-Trimethylbenzene	ND		1.00	ug/L	1	08/13/2012 14:22
1,2-Dibromo-3-chloropropane	ND		5.00	ug/L	1	08/13/2012 14:22
1,2-Dibromoethane	ND		1.00	ug/L	1	08/13/2012 14:22
1,2-Dichlorobenzene	ND		1.00	ug/L	1	08/13/2012 14:22
1,2-Dichloroethane	ND		1.00	ug/L	1	08/13/2012 14:22
1,2-Dichloropropane	ND		1.00	ug/L	1	08/13/2012 14:22
1,3,5-Trimethylbenzene	ND		1.00	ug/L	1	08/13/2012 14:22
1,3-Dichlorobenzene	ND		1.00	ug/L	1	08/13/2012 14:22
1,3-Dichloropropane	ND		1.00	ug/L	1	08/13/2012 14:22
1,4-Dichlorobenzene	ND		1.00	ug/L	1	08/13/2012 14:22
2,2-Dichloropropane	ND		1.00	ug/L	1	08/13/2012 14:22
2-Butanone	ND		25.0	ug/L	1	08/13/2012 14:22
2-Chlorotoluene	ND		1.00	ug/L	1	08/13/2012 14:22
2-Hexanone	ND		5.00	ug/L	1	08/13/2012 14:22
4-Chlorotoluene	ND		1.00	ug/L	1	08/13/2012 14:22
4-Isopropyltoluene	ND		1.00	ug/L	1	08/13/2012 14:22
4-Methyl-2-pentanone	ND		5.00	ug/L	1	08/13/2012 14:22
Acetone	ND		25.0	ug/L	1	08/13/2012 14:22
Benzene	ND		1.00	ug/L	1	08/13/2012 14:22
Bromobenzene	ND		1.00	ug/L	1	08/13/2012 14:22
Bromochloromethane	ND		1.00	ug/L	1	08/13/2012 14:22
Bromodichloromethane	ND		1.00	ug/L	1	08/13/2012 14:22
Bromoform	ND		1.00	ug/L	1	08/13/2012 14:22
Bromomethane	ND		1.00	ug/L	1	08/13/2012 14:22
n-Butylbenzene	ND		1.00	ug/L	1	08/13/2012 14:22
Carbon disulfide	ND		1.00	ug/L	1	08/13/2012 14:22
Carbon tetrachloride	ND		1.00	ug/L	1	08/13/2012 14:22
Chlorobenzene	ND		1.00	ug/L	1	08/13/2012 14:22
Chloroethane	ND		1.00	ug/L	1	08/13/2012 14:22
Chloroform	ND		1.00	ug/L	1	08/13/2012 14:22
Chloromethane	1.15		1.00	ug/L	1	08/13/2012 14:22
Dibromochloromethane	ND		1.00	ug/L	1	08/13/2012 14:22
Dibromomethane	ND		1.00	ug/L	1	08/13/2012 14:22
Dichlorodifluoromethane	ND		5.00	ug/L	1	08/13/2012 14:22

Results of TW55-1

Client Sample ID: **TW55-1**
 Client Project ID: **NCDOT U-3315**
 Lab Sample ID: 31202558024-A
 Lab Project ID: 31202558

Collection Date: 08/09/2012 10:00
 Received Date: 08/10/2012 15:45
 Matrix: Water

Results by SW-846 8260B

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
cis-1,3-Dichloropropene	ND		1.00	ug/L	1	08/13/2012 14:22
trans-1,3-Dichloropropene	ND		1.00	ug/L	1	08/13/2012 14:22
Diisopropyl Ether	ND		1.00	ug/L	1	08/13/2012 14:22
Ethyl Benzene	ND		1.00	ug/L	1	08/13/2012 14:22
Hexachlorobutadiene	ND		1.00	ug/L	1	08/13/2012 14:22
Isopropylbenzene (Cumene)	ND		1.00	ug/L	1	08/13/2012 14:22
Methyl iodide	ND		1.00	ug/L	1	08/13/2012 14:22
Methylene chloride	ND		5.00	ug/L	1	08/13/2012 14:22
Naphthalene	ND		1.00	ug/L	1	08/13/2012 14:22
Styrene	ND		1.00	ug/L	1	08/13/2012 14:22
Tetrachloroethene	ND		1.00	ug/L	1	08/13/2012 14:22
Toluene	ND		1.00	ug/L	1	08/13/2012 14:22
Trichloroethene	ND		1.00	ug/L	1	08/13/2012 14:22
Trichlorofluoromethane	ND		1.00	ug/L	1	08/13/2012 14:22
Vinyl chloride	ND		1.00	ug/L	1	08/13/2012 14:22
Xylene (total)	ND		2.00	ug/L	1	08/13/2012 14:22
cis-1,2-Dichloroethene	ND		1.00	ug/L	1	08/13/2012 14:22
m,p-Xylene	ND		2.00	ug/L	1	08/13/2012 14:22
n-Propylbenzene	ND		1.00	ug/L	1	08/13/2012 14:22
o-Xylene	ND		1.00	ug/L	1	08/13/2012 14:22
sec-Butylbenzene	ND		1.00	ug/L	1	08/13/2012 14:22
tert-Butyl methyl ether (MTBE)	ND		1.00	ug/L	1	08/13/2012 14:22
tert-Butylbenzene	ND		1.00	ug/L	1	08/13/2012 14:22
trans-1,2-Dichloroethene	ND		1.00	ug/L	1	08/13/2012 14:22
trans-1,4-Dichloro-2-butene	ND		5.00	ug/L	1	08/13/2012 14:22

Surrogates

1,2-Dichloroethane-d4	103		64.0-140	%	1	08/13/2012 14:22
4-Bromofluorobenzene	103		85.0-115	%	1	08/13/2012 14:22
Toluene d8	104		82.0-117	%	1	08/13/2012 14:22

Batch Information

Analytical Batch: **VMS2470**
 Analytical Method: **SW-846 8260B**
 Instrument: **MSD3**
 Analyst: **BWS**
 Analytical Date/Time: **08/13/2012 14:22**

Prep Batch: **VXX3811**
 Prep Method: **SW-846 5030B**
 Prep Date/Time: **08/13/2012 10:02**
 Prep Initial Wt./Vol.: **40 mL**
 Prep Extract Vol: **40 mL**



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1 CLIENT: **ATC ASSOCIATES** PHONE NO: (919) 871-0999 PAGE 1 OF 2
 CONTACT: **JUSTIN BAUMO** SITE/PIWSID#: _____
 PROJECT: **NCDOT U-3315** FAX NO.: (919) 871-0335
 REPORTS TO: _____
 JUSTIN BAUMO QUOTE #: _____
 INVOICE TO: **NCDOT** P.O. NUMBER: _____

2

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	CONTAINERS	SAMPLE TYPE	Preservatives Used	Analysis Required	REMARKS
1	SB55-7 (0-2.5)	8/1/12	0845	Soil	3	G		3	
2	SB55-1 (0-2.5)	8/1/12	0740						
3	SB55-2 (0-2.5)	8/1/12	0730						
4	SB55-3 (0-2.5)	8/1/12	0703						
5	SB55-4 (0-2.5)	8/6/12	1430						
6	SB55-5 (0-2.5)	8/6/12	1500						
7	SB55-6 (0-2.5)	8/7/12	0830						
8	SB55-8 (0-2.5)	8/7/12	0910						
9	TW55-1 (0-2.5)	8/6/12	1520						
5	TW171-1 (0-2.5)	8/6/12	1250						

3

SGS Reference: **31202558**

Shipping Carrier: _____
 Shipping Ticket No: _____
 Special Deliverable Requirements: _____
 Special Instructions: _____

4

Samples Received Cold? (Circle) YES NO
 Temperature °C: **19.8**
 Chain of Custody Seal: (Circle) INTACT BROKEN **ABSENT**

5

Collected/Relinquished By: (1) *[Signature]* Date: **8/1/12** Time: **12:45**
 Relinquished By: (2) *[Signature]* Date: **8/1/12** Time: **13:20**
 Relinquished By: (3) *[Signature]* Date: **8/1/12** Time: **1545**
 Relinquished By: (4) *[Signature]* Date: _____ Time: _____

Requested Turnaround Time: _____
 RUSH STD Date Needed _____



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1 CLIENT: ATC ASSOCIATES PHONE NO: (919) 811-0999

CONTACT: JUSTIN BEARD SITE/PWSID#: _____

PROJECT: NCDOT U-3315 FAX NO.: (919) 871-0355

REPORTS TO: _____ QUOTE #: _____

JUSTIN BEARD P.O. NUMBER: _____

INVOICE TO: _____

2 NCDOT

SGS Reference: 31202558 PAGE 2 OF 2

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	CONTAINERS			REMARKS
					No	C= COMP	G= GRAB	
11	TN50-1 (5-6)	8/7/12	1410	SOILS	8			
12	TN51-1 (0-2.5)	8/7/12	1315	↓	↓			
13	SB50-1 (0-2.5)	8/7/12	1545	↓	↓			
14	SB50-3 (2.5-5)	8/8/12	1400	X	X			
15	SB50-9 (0-2.5)	8/8/12	1415	X	X			
16	SB50-6 (2.5-5.0)	8/8/12	1420	X	X			
17	SB50-8 (2.5-5.0)	8/8/12	1430	X	X			
18	SB50-10 (2.5-5.0)	8/8/12	1440	X	X			
19	SB50-4 (2.5-5.0)	8/8/12	1445	X	X			
20	SB50-2 (2.5-5.0)	8/8/12	1455	X	X			

3 PRESERVATIVES USED: _____ ANALYSTS REQUIRED: 3

4 SHIPPING CARRIER: _____ SHIPPING TICKET NO: _____

SAMPLES RECEIVED COLD? (Circle) YES NO NO

TEMPERATURE C: 77.0-79.1-9.0

CHAIN OF CUSTODY SEAL: (Circle) INTACT BROKEN ABSENT

SPECIAL DELIVERABLE REQUIREMENTS: _____

SPECIAL INSTRUCTIONS: _____

REQUESTED TURNAROUND TIME: _____

RUSH ASTD Date Needed _____

5

Collected/Relinquished By: (1)	Date	Time	Received By:	Time
<i>[Signature]</i>	8/8/12	1245	<i>[Signature]</i>	
Relinquished By: (2)	Date	Time	Received By:	Time
<i>[Signature]</i>	8/10/12	1320	<i>[Signature]</i>	
Relinquished By: (3)	Date	Time	Received By:	Time
<i>[Signature]</i>	8/11/12	1545	<i>[Signature]</i>	
Relinquished By: (4)	Date	Time	Received By:	Time



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1 CLIENT: <u>ATZ</u> PHONE NO.: <u>919 871 6999</u>		SGS Reference: <u>31202558</u> PAGE <u>3</u> OF <u>4</u>		
CONTACT: <u>JUSTIN BACKLUND</u>		Preservatives Used:		
PROJECT:		Analysis Required: <u>(3)</u>		
REPORTS TO: <u>JUSTIN BACKLUND</u>		8260 8270		
INVOICE TO: <u>NC DOT</u>		REMARKS		
QUOTE #:		SAMPLE TYPE: C= COMP G= GRAB		
P.O. NUMBER:		No CONTAINERS		
LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX
21	TW 50-1	8/9	0810	W
22	TW 51-1	8/9	0835	W
23	TW 171-1	8/9	0930	W
24	TW 55-1	8/9	1000	W
25	TW 172-1(6-8)	8/11	1045	S
4 Shipping Carrier:				
Samples Received Cold? (Circle) YES NO				
Temperature °C: <u>1.9, 8.7</u>				
Chain of Custody Seal: (Circle) INTACT BROKEN <u>ABSENT</u>				
Shipping Ticket No.:				
Special Deliverable Requirements:				
Special Instructions:				
Requested Turnaround Time: <input type="checkbox"/> RUSH <input checked="" type="checkbox"/> STD Date Needed				
5 Collected/Relinquished By: (1) <u>[Signature]</u>		Date	Time	Received By: <u>[Signature]</u> 8/11/12 0747Z
Relinquished By: (2) <u>[Signature]</u>		Date	Time	Received By: <u>[Signature]</u> 1245
Relinquished By: (3) <u>[Signature]</u>		Date	Time	Received By: <u>[Signature]</u> 1320
Relinquished By: (4) <u>[Signature]</u>		Date	Time	Received By: <u>[Signature]</u> 1545



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1 CLIENT: **ATC** PHONE NO: (415) 571 0999 PAGE **4** OF **4**

CONTACT: **JUSTIN BALUND** SITE/PWSID#: PRESERVATIVES USED: ANALYSIS REQUIRED: **3**

PROJECT: **MCDOT 3315** QUOTE #: P.O. NUMBER: SAMPLE TYPE: C= COMP G= GRAB No CONTAINERS

REPORTS TO: **JUSTIN BALUND** FAX NO: (940) 871 0335 No CONTAINERS

INVOICE TO: **NCDOT** DATE: TIME: MATRIX: REMARKS: Shipping Carrier: Samples Received Cold? (Circle) YES NO

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	REMARKS	Shipping Carrier	Samples Received Cold? (Circle) YES NO
26	SB 50-7 (2-5-5)	8/8/12	1515	S			
27	SB 50-11 (2-5-5)	8/8/12	1525	S			
28	SB 50-5 (0-2-5)	8/8/12	1525	S			
29	SB 51-1 (0-2-5)	8/8/12	1600	S			
30	SB 51-4 (0-2-5)	8/8/12	1630	S			
31	SB 50-12 (2-5-5)	8/8	1650	S			
32	SB 51-2 (0-2-5)	8/8	1700	S			
33	SB 50-13 (0-2-5)	8/8	1750	S			
34	SB 50-14 (0-2-5)	8/8	1800	S			
35	SB 51-3 (0-2-5)	8/8	1830	S			

4 Collected/Relinquished By: (1) *[Signature]* Date: 8/8 Time: 1245 Received By: *[Signature]* Date: 8/10/12 Time: 1320

Relinquished By: (2) *[Signature]* Date: 8/10/12 Time: 1320 Received By: *[Signature]* Date: 8/10/12 Time: 1545

Relinquished By: (3) *[Signature]* Date: 8/10/12 Time: 1545 Received By: *[Signature]* Date: 8/10/12 Time: 1830

Relinquished By: (4) *[Signature]* Date: Time: Received By: Date: Time: Special Instructions:

Shipping Ticket No: Special Deliverable Requirements: Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Requested Turnaround Time: RUSH STD Date Needed

□ 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
 □ 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

White - Retained by Lab
 Pink - Retained by Client

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Sample Receipt Checklist (SRC)

Client: NCDOT-ATC Work Order No.: 31202558

1. Shipped
 Hand Delivered
- Notes: SGS Courier
2. COC Present on Receipt
 No COC
 Additional Transmittal Forms
3. Custody Tape on Container
 No Custody Tape
4. Samples Intact
 Samples Broken / Leaking
5. Chilled on Receipt Actual Temp.(s) in °C: 1.9, 0.7
 Ambient on Receipt
 Walk-in on Ice; Coming down to temp.
 Received Outside of Temperature Specifications
6. Sufficient Sample Submitted
 Insufficient Sample Submitted
7. Chlorine absent
 HNO3 < 2
 HCL < 2
 Additional Preservatives verified (see notes)
8. Received Within Holding Time
 Not Received Within Holding Time
9. No Discrepancies Noted
 Discrepancies Noted
 NCDENR notified of Discrepancies*
10. No Headspace present in VOC vials
 Headspace present in VOC vials >6mm

Comments: _____

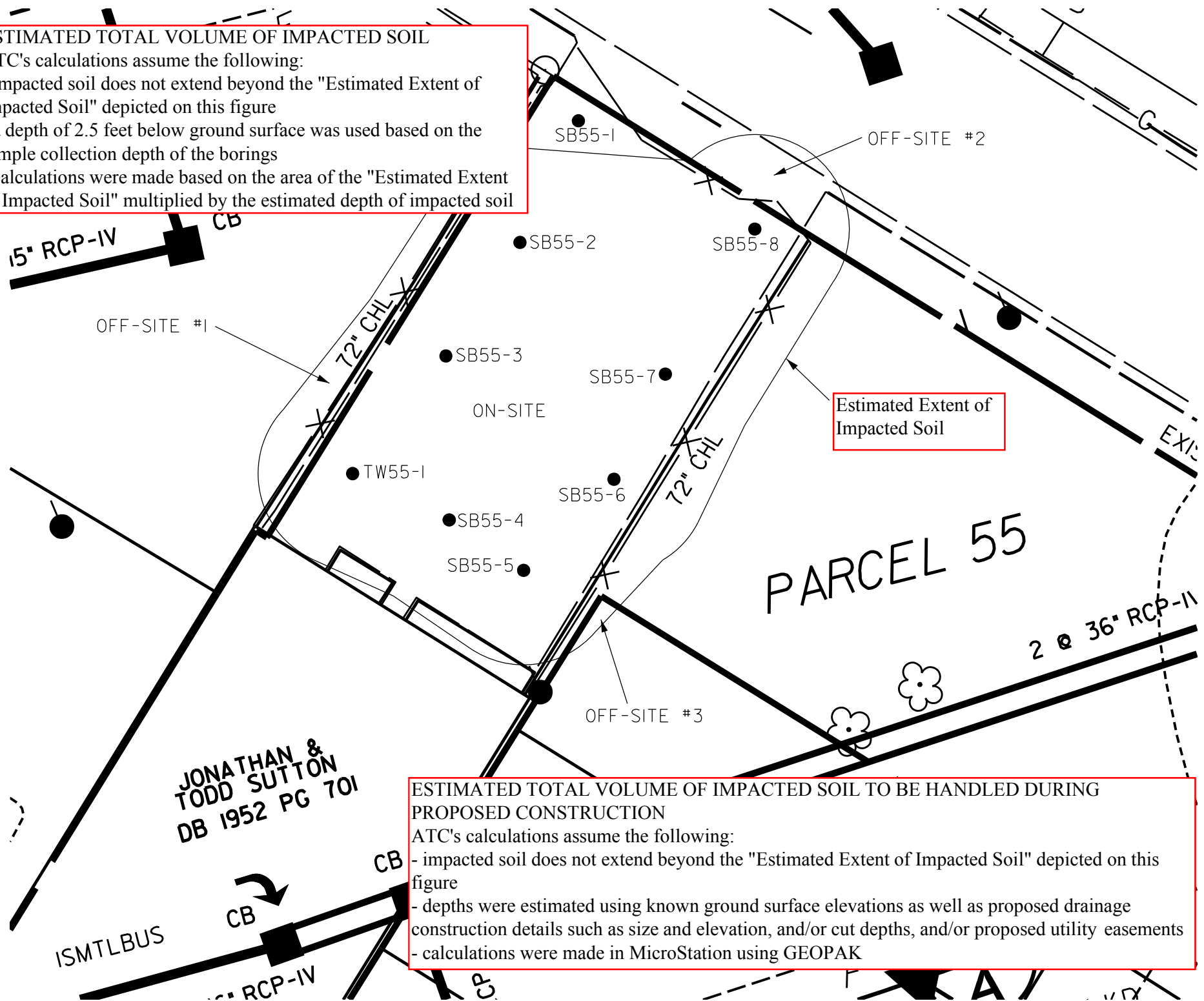
Inspected and Logged in by: JMM
Date: Fri-8/10/12 00:00

APPENDIX E
VOLUMETRIC CALCULATIONS

ESTIMATED TOTAL VOLUME OF IMPACTED SOIL

ATC's calculations assume the following:

- impacted soil does not extend beyond the "Estimated Extent of Impacted Soil" depicted on this figure
- a depth of 2.5 feet below ground surface was used based on the sample collection depth of the borings
- calculations were made based on the area of the "Estimated Extent of Impacted Soil" multiplied by the estimated depth of impacted soil



ESTIMATED TOTAL VOLUME OF IMPACTED SOIL TO BE HANDLED DURING PROPOSED CONSTRUCTION

ATC's calculations assume the following:

- impacted soil does not extend beyond the "Estimated Extent of Impacted Soil" depicted on this figure
- depths were estimated using known ground surface elevations as well as proposed drainage construction details such as size and elevation, and/or cut depths, and/or proposed utility easements
- calculations were made in MicroStation using GEOPAK

SB55-on-site_volume_121026

** VOLUME ON-SITE FOR PARCEL 55

** ON-SITE AREA (SB55-2 through SB55-8 and TW55-1) **

**

** Construction Depth of 1.0' **

** 4369.29 Sq.Ft. x 1.0' = 4369.29 C.Ft. = 161.83 Cubic Yards **

**

** Total contaminated depth of 2.5' **

** 4369.29 Sq.Ft. x 2.5' = 10923.23 C.Ft. = 404.56 Cubic Yards **

**

** VOLUME OFF-SITE FOR PARCEL 55

** OFF-SITE AREA #1 (SB55-2, SB55-3 and TW55-1) **

** Construction Depth of 1.0' **
** 433.23 Sq.Ft. x 1.0' = 433.23 C.Ft. = 16.05 Cubic Yards **

** Total contaminated depth of 2.5' **
** 433.23 Sq.Ft. x 2.5' = 1083.08 C.Ft. = 40.11 Cubic Yards **

** OFF-SITE AREA #2 (SB55-8) **

** Construction Depth of 1.0' **
** 241.84 Sq.Ft. x 1.0' = 241.84 C.Ft. = 8.96 Cubic Yards **

** Total contaminated depth of 2.5' **
** 241.84 Sq.Ft. x 2.5' = 604.60 C.Ft. = 22.39 Cubic Yards **

** OFF-SITE AREA #3 (SB55-5) **

** Construction Depth of 1.0' **
** 22.51 Sq.Ft. x 1.0' = 22.51 C.Ft. = 0.83 Cubic Yards **

** Total contaminated depth of 2.5' **
** 22.51 Sq.Ft. x 2.5' = 56.28 C.Ft. = 2.08 Cubic Yards **

SQUARE FOOTAGE CALCULATIONS

