PRELIMINARY SITE ASSESSMENT
FOR
PARCEL 100, STATE OF NORTH CAROLINA – WILCAR EXECUTIVE CENTER
223 W. 10TH STREET
GREENVILLE, NORTH CAROLINA

STATE PROJECT: U-3315
WBS ELEMENT: 35781.1.2

PREPARED FOR:

NCDOT GEOTECHNICAL ENGINEERING UNIT
GEOENVIRONMENTAL SECTION
1589 MSC
RALEIGH, NORTH CAROLINA 27699-1589

SEPTEMBER 7, 2012

PREPARED BY:

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CATLIN PROJECT NO. 212077

CORPORATE GEOLOGY LICENSE CERTIFICATION NO. C-118
CORPORATE LICENSURE NO. FOR ENGINEERING SERVICES C-0585

TABLE OF CONTENTS

		Page
1.0	PURPOSE OF INVESTIGATION AND DESCRIPTION	1
2.0	METHODS	2
2.1	FIELD METHODS	3
2.2	LABORATORY TESTING	4
3.0	RESULTS	5
4.0	SUMMARY AND RECOMMENDATIONS	6
5.0	LIMITATIONS	7
6.0	SIGNATURES	7

TABLES

TABLE 1	SUMMARY OF SOIL LABORATORY RESULTS – TPH DRO AND GRO
TABLE 2	SUMMARY OF GROUNDWATER RESULTS – STANDARD METHOD 6200B AND EPA METHOD 625 BASE NEUTRAL

SHEETS

SHEET 1	GENERAL LOCATION
SHEET 1A	CONVENTIONAL PLAN SHEET SYMBOLS
SHEET 2	BORING LOCATIONS AND SUMMARIZED LABORATORY ANALYTICAL RESULTS

APPENDICES

APPENDIX A	FILE REVIEW INFORMATION
APPENDIX B	SCHNABEL GEOPHYSICAL REPORT
APPENDIX C	BORING LOGS
APPENDIX D	LABORATORY REPORT AND CHAIN OF CUSTODY RECORD
APPENDIX E	PHOTOGRAPHS

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STATE PROJECT: U-3315
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September 7, 2012

1.0 PURPOSE OF INVESTIGATION AND DESCRIPTION

CATLIN Engineers and Scientists (CATLIN) was retained by the North Carolina Department of Transportation (NCDOT) Geotechnical Engineering Unit to provide a field investigation concluding with a Preliminary Site Assessment (PSA) for the above site. In response to a June 19, 2012 Request for Proposal (RFP) (Updated June 29, 2012) and subsequent work scope clarifications with Mr. Gordon Box, LG and Mr. Cyrus Parker, PE, LG, CATLIN submitted a proposal for conducting an investigation at the Parcel 100, State of North Carolina Property, WILCAR Executive Center. The parcel/property is located at 223 West 10th Street along the NCDOT Project "*Stantonsburg Road/Tenth Street Connector from Memorial Drive (US 13) to Evans Street"* in Greenville, North Carolina. Sheet 1 illustrates the general location.

The following specific parcel information was provided by NCDOT:

> *This facility is currently a building façade with adjoining office complex. The site is located on the southwest quadrant of the intersection of West 10th Street and South Washington Street According to NCDENR's UST Section Registry one (1) UST was removed in 2002. The tank bed appeared to be located 170 feet west of South Washington Street and 45 feet south of West 10th Street. Several monitoring wells were observed on site and the site appears to be under remediation. Groundwater Incident #24346 has been assigned to this facility.*

According to NCDOT acquisition of the right of way (ROW) is necessary for roadway construction (State Project U-3315) and specifically at the above referenced parcel (Parcel 100). A site investigation is requested before ROW acquisition and roadway construction. A North Carolina Department of Environment and Natural Resources (NCDENR) groundwater incident, monitoring wells and a former underground storage tank (UST) have been identified in the proposed ROW and/or easement(s).

The work scope as requested includes:

- Communicate progress reports to the GeoEnvironmental Section.
- Review the history of monitoring wells, and locate and indicate on plans any existing monitoring wells.
- Determine if contaminated soils or USTs are present within the NCDOT ROW, controlled access boundary (CA), or easement with particular emphasis on the vicinity of proposed excavations for drainage, utilities, and slope stake cuts.
- Estimate the quantity of impacted soils. Estimate the volume of impacted soils across the study area and the volume that will require excavation during construction. Indicate the approximate area of soil contamination on a site map and CADD file.
- Research the site for past uses and possible releases and include findings in final report.
- Report the depth to groundwater and obtain one groundwater sample from the site with emphasis on the vicinity of proposed drainage features. Test groundwater sample for contaminants relevant to the site's past use and/or possible releases.
- Provide a MicroStation file with the boring locations and estimated extent of impacted soils (if any).
- Prepare a report including field activities, findings, and recommendations and submit in triplicate and electronically to the NCDOT GeoEnvironmental Section.

This report documents our activities and findings at Parcel 100, State of North Carolina Property, WILCAR Executive Center, 223 W. 10th Street, Greenville, North Carolina. The site is illustrated on Sheet 2.

2.0 METHODS

Approximate proposed boring locations were discussed with NCDOT personnel before final Workplan submittal. There were no slope stake cuts identified within the subject site. Per NCDOT request, borings (soil samples) were located near known or suspect UST systems and proposed drainage features (as indicated on NCDOT provided plan sheets). Accessible proposed drainage features at the site include drainage piping and catch basin numbers 1013, 1014, 1015, 1016, 1021, 1024, and 1028.

A NCDENR UST file review was conducted at the NCDENR Washington Regional Office. File review information was utilized to determine the need and location of borings/samples and pertinent file review documents are provided in Appendix A.

CATLIN coordinated geophysical activities concurrently with soil boring and

sampling. The geophysical investigation methods are detailed in the SCHNABEL ENGINEERING SOUTH, PC (Schnabel) geophysical report provided in Appendix B. Final boring/sample locations were determined based on proposed drainage feature locations and elevations, geophysical results, file review information, field observations, and discussion with NCDOT personnel. CATLIN's field activities at the site began and concluded on July 24, 2012.

2.1 FIELD METHODS

All field work was conducted in general accordance with state and federal guidelines and industry standards.

Underground utility locating was coordinated by CATLIN personnel. The North Carolina One Call Center (NC-1-Call) was contacted for underground utility location. The areas around the proposed boring locations were checked and underground utilities were indicated by NC-1-Call personnel.

CATLIN personnel gathered subsurface soil data at the site by Direct Push Technology (DPT) boring advancement using an AMS PowerProbe^{TM} 9600D (PowerProbe). Borings were identified by the parcel number (as indicated by NCDOT) followed by "DPT" and consecutive numbers starting with "01" at each parcel (example: 100-DPT-01). Borings were located at proposed catch basins and along the proposed drainage feature line. The borings were advanced to depth by static force and a 90-pound hydraulic percussion hammer. Two and one-quarter inch diameter by four-foot length steel is used as casing. Soil samples were continuously collected in four-foot long and one and one-half inch diameter clear liners. Liners are removed from the casing and then cut in half longitudinally to allow for visual/manual classification utilizing the Unified Soil Classification System (USCS). Soils were collected continuously from near the surface to boring termination. Borings for soil sample collection were terminated near the approximate proposed drainage feature installation elevation [approximately four to six feet below land surface (BLS)]. Half of the soils from the liners were removed in two-foot intervals and placed in sealable polyethylene bags for organic vapor analysis (OVA) headspace screening utilizing a photo ionization detector (PID). The USCS, OVA/PID reading, and any indication of petroleum impact were recorded on field logs and have been transferred to the Boring Logs provided in Appendix C. As illustrated on Sheet 2, eight (8) borings were advanced for soil sample collection.

Soil samples for laboratory analysis were collected from the sample interval with the highest OVA/PID reading and/or the sample interval near the bottom of the proposed drainage feature installation elevation.

The sample interval was included with the boring identification as part of the soil sample identification [example: 100DPT-01(5-5.5 ft)]. Eight (8) soil samples were submitted for laboratory analysis. The sample identifications are included on the Boring Logs in Appendix C and the laboratory analytical Chain of Custody in Appendix D.

Seven (7) of the eight (8) borings were terminated at approximately four (4) to six (6) feet BLS. The 100DPT-04 boring was terminated at 12 feet BLS for approximate depth to water (DTW) determination and groundwater sample collection. Following removal of the PowerProbe tooling, groundwater was pumped directly into the appropriate laboratory provided glassware utilizing new polypropylene tubing and a peristaltic pump.

New disposable nitrile gloves were worn during sampling activities. All samples were placed into laboratory provided glassware and packed on ice in an insulated cooler for transportation to the laboratory. Sample integrity was maintained by following proper Chain of Custody procedures. A copy of the Chain of Custody is provided following the analytical report in Appendix D.

Boreholes were abandoned to just below the surface using three-eighth inch bentonite chips. Bentonite and water were poured into the borehole simultaneously to facilitate hydration. Borings located in asphalt or gravel were topped with asphalt cold patch. Final borehole and sample locations were surveyed utilizing a Trimble® GPS survey instrument.

2.2 LABORATORY TESTING

Following boring advancement, selected soils were placed in the appropriately labeled glassware. In an attempt to provide information regarding possible petroleum and/or dry cleaning/solvent compound impact to soils and groundwater with reasonable analytical expense, soil samples were analyzed for total petroleum hydrocarbon (TPH) diesel and gasoline range organics (DRO and GRO) by Environmental Protection Agency (EPA) Method 8015 and the groundwater sample was analyzed for volatile and semi-volatile organics per Standard Method (SM) 6200B and EPA Method 625 Base Neutral (BN).

A total of eight (8) soil samples and one (1) groundwater sample were submitted to SGS Analytical Perspectives (NC Certification # 481). Chain of Custody documentation is included in Appendix D.

3.0 RESULTS

NCDENR File Review

NCDENR file review information provided in Appendix A indicates a 1,000 gallon heating oil UST was utilized at the site from 1972 until removal in June 2002. Tank removal and subsequent assessment activities were conducted by Allied Environmental Services, PLLC (AES). Free-phase petroleum product was discovered during tank removal activities. Approximately five (5) gallons of free-phase product was removed during tank removal. A soil sample collected during tank closure activities revealed petroleum impacts. A Limited Site Assessment was conducted by AES and the report dated August 12, 2002 was submitted to NCDENR. The site was assigned UST Incident Number 24346 and a High Risk ranking.

Additional monitoring wells and soil borings were installed and sampled by AES as part of a Comprehensive Site Assessment (CSA). The CSA dated November 25, 2002 is provided in Appendix A. A total of eight (8) Type II (shallow) monitoring wells and one (1) Type III (deep, telescoping) monitoring well and seven (7) soil borings were sampled during the CSA. AES soil borings/samples indicate petroleum impacted soils are limited to the area immediately surrounding the former UST. Three (3) soil samples revealed soil contamination above the lowest Risk Based Maximum Soil Contaminant Concentrations (MSCCs). Two (2) soil sample results for volatile petroleum hydrocarbon (VPH) C9-C22 Aromatics per the Massachusetts Department of Environmental Protection (MADEP) method were the only results above the Residential MSCCs. No soil sample results were above the Industrial Commercial MSCCs. Groundwater impact [above the 2L Groundwater Quality Standards (2L) but below the Gross Contaminant Levels (GCLs) established in the North Carolina Administrative Code (NCAC)] was delineated within the site and exists primarily around the former UST (MW-1) and down gradient (MW-4).

According to the NCDENR UST Incident Database and file review information a Groundwater Monitoring Report by AES dated December 1, 2003 is the last assessment/monitoring activity at the site. The report (included in Appendix A) summarizes groundwater sampling activities and indicates impacted groundwater at MW-1 and MW-4. Depth to groundwater at the site ranged from approximately five (5) to six (6) feet BLS.

NCDENR correspondence following review of the monitoring report states monitoring and remediation efforts must continue at the site on a semi-annual basis, however, no additional monitoring reports were identified. Review of the NCDENR UST Incident Database shows the site has not been closed or received a Notice of No Further Action.

Geophysical Investigation

The complete geophysical investigation report by Schnabel is included in Appendix B and indicates that metallic USTs are unlikely to be encountered within 8 feet of the ground surface in the areas surveyed on the subject property.

Site Reconnaissance

CATLIN personnel identified the monitoring well locations and approximate former UST location (see Sheet 2). Three (3) of the monitoring well locations (MW-6, MW-7, and MW-9 were determined to be within the proposed ROW and/or construction easement. Photographs of the site are provided in Appendix E and in the Schnabel report provided in Appendix B.

Soil and Groundwater

Sandy clay / clayey sand soils with varying amounts of silt and clean sands were encountered to a depth of six (6) feet deep across the project site. Generally, clay content increased with depth. Gravel and brick fill was encountered in some borings to two (2) feet BLS. No petroleum odor was noted at any of the boring locations. The OVA/PID headspace screening/readings ranged from 0 to 1 parts per million. Complete boring logs including OVA/PID results are provided in Appendix C.

Summarized soil sample analytical results are provided on Table 1. Soil sample locations and summarized soil analytical results are illustrated on Sheet 2. As indicated on Table 1 and Sheet 2, no TPH concentrations were reported above the laboratory reporting limits.

Summarized groundwater sample analytical results are provided on Table 2 and Sheet 2. No SM 6200B or EPA Method 625 BN parameters were detected above the analytical method detection limits. Depth to groundwater at the 100DPT-04 boring was measured at approximately 5.2 feet BLS. The complete laboratory analytical report is provided in Appendix D.

4.0 SUMMARY AND RECOMMENDATIONS

A preliminary site assessment was conducted at the subject site as requested by NCDOT. NCDOT is planning roadway construction including utility installation and ROW acquisition at the site.

No impacted soils or groundwater were revealed in samples collected from the proposed construction area. Based on NCDENR file review information, petroleum (heating oil) impacted soils and groundwater associated with a 1,000

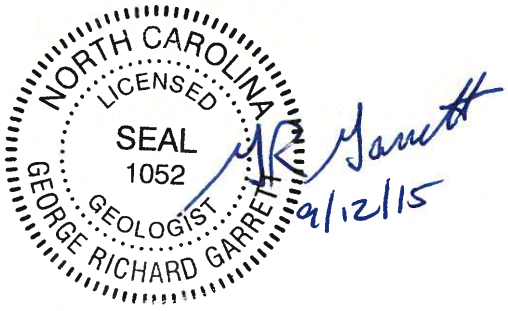
gallon heating oil UST utilized at the site from 1972 to June 2002 may be found near monitoring well MW-1 but outside the proposed construction area. There are no indications of any USTs remaining at the site.

5.0 LIMITATIONS

This report is based on the agreed work scope and a review of available data from limited sampling. It is possible that this investigation may have failed to reveal the presence of contamination in the project area where such contamination may exist. Although CATLIN has used accepted methods appropriate for soil and groundwater sampling, CATLIN cannot guarantee that additional soil and/or groundwater contamination does not exist.

6.0 SIGNATURES

Benjamin J. Ashba, P.G.
Project Manager



G. Richard Garrett, P.G.
Senior Project Manager

TABLES

TABLE 1
SUMMARY OF SOIL LABORATORY RESULTS - TPH DRO AND GRO

Parcel 100, State of North Carolina – Wilcar Executive Center
223 W. 10th Street

Sample ID	Contaminant of Concern →		Diesel Range Organics (DRO)	Gasoline Range Organics (GRO)
	Date Collected	Location		
100 DPT-01 (5-5.5ft)	7/24/2012	@ CB 1021	<8.81	<4.72
100 DPT-02 (5-5.5ft)	7/24/2012	@ CB 1016	<8.07	<4.25
100DPT-03 (4.5-5ft)	7/24/2012	@ CB 1024	<7.20	<3.65
100DPT-04 (4-4.3ft)	7/24/2012	@ CB 1015	<7.82	<3.53
100DPT-05 (3.5-4ft)	7/24/2012	Along proposed Construction Easement, near former UST	<7.57	<3.54
100DPT-06 (4.5-5ft)	7/24/2012	@ CB 1014	<8.65	<4.48
100DPT-07 (4.5-5ft)	7/24/2012	@ CB 1013	<8.72	<4.32
100DPT-08 (4.5-5ft)	7/24/2012	@ CB 1028	<9.01	<4.72
		State Action Level (mg/kg)	**10**	**10**

TPH = Total Petroleum Hydrocarbon
All results in milligrams per kilogram (mg/kg).
Sample depth below land surface provided in parenthesis as part of the sample identification.
BMDL = Below Method Detection Limit
ft. BLS = Feet Below Land Surface
CB = Proposed Catch Basin

TABLE 2
SUMMARY OF GROUNDWATER LABORATORY RESULTS
- STANDARD METHOD 6200B AND EPA METHOD 625 BASE NEUTRAL

Parcel 100, State of North Carolina – Wilcar Executive Center
223 W. 10th Street

Sample ID	Method →		Standard Method 6200B	EPA Method 625 Base Neutral
	Contaminant of Concern →		All Standard Method 6200B Parameters	All EPA Method 625 Base Neutral Parameters
	Date Collected	Location		
100DPT04	7/25/12	@ CB 1015	BMDL	BMDL
2L GWQS (ug/L)			Varies	Varies

All results in micrograms per liter (ug/L).
BMDL = Below Method Detection Limit
CB = Proposed Catch Basin
Refer to analytical report for a complete list of parameters and detection limits.

SHEETS

PROJECT REFERENCE NO.	SHEET
35781.1.2 (U-3315)	1

GeoEnvironmental

0 2,000 4,000

FEET

PARCEL 100

GREENVILLE

GREENVILLE

PROJECT REFERENCE NO.	SHEET NO.
U-3315	1-A

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Note: Not to Scale

***S.U.E. = Subsurface Utility Engineering**

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin
- Property Corner
- Property Monument
- Parcel/Sequence Number
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Curb Cut Future Ramp — CFR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

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

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H-Frame Pole
- Recorded U/G Power Line
- Designated U/G Power Line (S.U.E.*)

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole
- Telephone Booth
- Telephone Pedestal
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole
- Recorded U/G Telephone Cable
- Designated U/G Telephone Cable (S.U.E.*)
- Recorded U/G Telephone Conduit
- Designated U/G Telephone Conduit (S.U.E.*)
- Recorded U/G Fiber Optics Cable
- Designated U/G Fiber Optics Cable (S.U.E.*)

WATER:

- Water Manhole
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line
- Designated U/G Water Line (S.U.E.*)
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal
- TV Tower
- U/G TV Cable Hand Hole
- Recorded U/G TV Cable
- Designated U/G TV Cable (S.U.E.*)
- Recorded U/G Fiber Optic Cable
- Designated U/G Fiber Optic Cable (S.U.E.*)

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line
- Designated U/G Gas Line (S.U.E.*)
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line
- Designated SS Forced Main Line (S.U.E.*)

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET
35781.1.2 (U-3315)	2

GeoEnvironmental

0 20 40
FEET

LEGEND

- ID. SOIL BORING/SAMPLE
- ID. SOIL BORING/SAMPLE & GROUNDWATER SAMPLE
- ID. "HOT" SAMPLE
- MONITORING WELL

SUMMARY OF SOIL LABORATORY RESULTS - TPH DRO AND GRO

Parcel 100, State of North Carolina – Wilcar Executive Center
223 W. 10th Street

Sample ID	Contaminant of Concern → Date Collected	Location	Diesel Range Organics (DRO)	Gasoline Range Organics (GRO)
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100DPT-03 (4.5-5ft)	7/24/2012	@ CB 1024	<7.20	<3.65
100DPT-04 (4-4.3ft)	7/24/2012	@ CB 1015	<7.82	<3.53
100DPT-05 (3.5-4ft)	7/24/2012	Along proposed Construction Easement, near former UST	<7.57	<3.54
100DPT-06 (4.5-5ft)	7/24/2012	@ CB 1014	<8.65	<4.48
100DPT-07 (4.5-5ft)	7/24/2012	@ CB 1013	<8.72	<4.32
100DPT-08 (4.5-5ft)	7/24/2012	@ CB 1028	<9.01	<4.72
		State Action Level (mg/kg)	10	10

TPH = Total Petroleum Hydrocarbon
All results in milligrams per kilogram (mg/kg).
Sample depth below land surface provided in parenthesis as part of the sample identification.
BMDL = Below Method Detection Limit
ft. BLS = Feet Below Land Surface
CB = Proposed Catch Basin

SUMMARY OF GROUNDWATER LABORATORY RESULTS
- STANDARD METHOD 6200B AND EPA METHOD 625 BASE NEUTRAL

Parcel 100, State of North Carolina – Wilcar Executive Center
223 W. 10th Street

Sample ID	Method →	Standard Method 6200B	EPA Method 625 Base Neutral
	Contaminant of Concern →	All Standard Method 6200B Parameters	All EPA Method 625 Base Neutral Parameters
	Date Collected / Location		
100DPT04	7/25/12 @ CB 1015	BMDL	BMDL
2L GWQS (ug/L)		Varies	Varies

All results in micrograms per liter (ug/L).
BMDL = Below Method Detection Limit
CB = Proposed Catch Basin
Refer to analytical report for a complete list of parameters and detection limits.

NOTES:
- BORING ID'S PREFACED WITH "100" UNLESS OTHERWISE NOTED
- DARK GRAYSCALE BORINGS ASSOCIATED WITH NEARBY PROJECTS
- AERIAL PHOTOGRAPHS OBTAINED FROM NCDOT
- PROPOSED DETAILS OBTAINED FROM NCDOT

W. 10TH ST.
223 W. 10TH ST.
S. WASHINGTON ST.
STATE OF NORTH CAROLINA C/O STATE PROPERTY OFFICE
APPROXIMATE LOCATION FORMER UST
APPROXIMATE LOCATION PROBABLE UST NO. 1
101HA-01
101DPT-09
101 DPT-05
101DPT-04
DPT-01
DPT-02
DPT-03
DPT-04
DPT-05
DPT-06
DPT-07
DPT-08
MW-1
MW-2
MW-3
MW-4
MW-5
MW-6
MW-7
MW-9
DW-1

APPENDICES

APPENDIX A

FILE REVIEW INFORMATION

State of North Carolina
Department of Environment and
Natural Resources
Washington Regional Office

Michael F. Easley, Governor
William G. Ross Jr., Secretary
Dexter R. Matthews, Director

NCDENR
North Carolina Department of Environment and Natural Resources

DIVISION OF WASTE MANAGEMENT
UNDERGROUND STORAGE TANK SECTION
January 9, 2004

Mr. James M. Williamson
2403 S. Charles Blvd.
Greenville, NC 27858

RE: Groundwater Monitoring Report
Wilcar Executive Center
223 W. 10th Street
Greenville, Pitt County, North Carolina
UST Incident No. 24346
Risk Category: High

Dear Mr. Williamson:

On January 8, 2004, the Washington Regional Office (WaRO) Underground Storage Tank (UST) Section received a Groundwater Monitoring Report (Report) for the site noted above. The Report summarized the activities, water levels, and water quality information from the monitoring efforts at the site. Please continue to sample groundwater semi-annually. Please submit the groundwater monitoring results within 30 days of receipt of the analytical results.

Monitoring and remediation efforts must continue at the site until conditions meet the criteria for No Further Action as specified in the July 1, 2001, *Guidelines for Assessment and Corrective Action*. If you have any questions, please contact me at (252) 946-6481.

Sincerely,

Scott Bullock, L.G.
Hydrogeologist

cc: ECU, 116 Spillman Building, Greenville, NC 27858-4353
Allied Environmental Services, PLLC, 2411-B S. Charles Blvd., Greenville, NC 27858
WaRO

1195

Monitoring Report

Site Identification

Date of Report: **12/01/03**

Facility I.D.:

UST Incident Number: **24346**

Site Name: **WILCAR Executive Center**

Site Location: **223 W. 10th Street**

Nearest City/Town: **Greenville** County: **Pitt**

UST Owner: **James M. Williamson**

Address: **2403 S. Charles Blvd., Greenville, NC 27858** Phone: **252-355-2300**

UST Operator: **James M. Williamson**

Address: **2403 S. Charles Blvd., Greenville, NC 27858** Phone: **252-355-2300**

Property Owner: **East Carolina University**

Address: **116 Spillman building, Greenville, NC 27858-4353** Phone: **252-328-6910**

Property Occupant: **Vacant**

Address: Phone:

Consultant/
Contractor: **Allied Environmental Services, PLLC**

Address: **2411-B S. Charles Blvd. Greenville, NC 27858** Phone: **252-758-3311**

Release Information

Date Discovered: **6/10/02**

Latitude (dd.mm.ss.): **35.16.13N** Longitude (dd.mm.ss.): **77.22.33W**

Estimated Quantity of Release : **Unknown**

Cause of Release: **Unknown**

Source of Release (e.g., Piping/UST): **Leaking heating oil UST**

Sizes and Contents of UST system(s) from which the release occurred:

1-1,000 gal. Heating Oil

I, **Brian E. Gray** a ~~Professional Engineer~~/**Licensed Geologist** for **Allied Environmental Services, PLLC** do certify that the information contained in this accurate to report is correct and the best of my knowledge.

NORTH CAROLINA LICENSED SEAL 663 12/31/03 GEOLOGIST BRIAN ERWIN GRAY

SEMI-ANNUAL
GROUND WATER
MONITORING REPORT

SAMPLING PERIOD:
September 26, 2003

LOCATION:

WILCAR EXECUTIVE CENTER
223 W. 10th. STREET
GREENVILLE, PITT CO., NC
GROUNDWATER INCIDENT NO. 24346
RISK CLASSIFICATION: HIGH
Latitude: 35°16'13" N
Longitude: 77°22'33" W

PREPARED FOR:

EAST CAROLINA UNIVERSITY
116 SPILLMAN BUILDING
GREENVILLE, NC 27858-4353
(252) 328-6910

PREPARED BY:

Allied Environmental Services, PLLC
2411 B. South Charles Blvd.
Greenville , NC 27858
(252) 758-3311

Brian E. Gray, L.G.

December 2003

INTRODUCTION

Allied Environmental Services, PLLC (AES), is pleased to submit the results of the ground water sampling event for the subject site. The purpose of this report is to present the results of the September ground water sampling event conducted on September 11, 2003, at the former facility located at 223 W. 10th Street in Greenville, Pitt County, North Carolina (Appendix A & B). The activity was conducted in accordance with the NCDENR pre-approval dated September 3, 2003. Allied Environmental Services, PLLC. (AES) was retained as the consultant for the project by East Carolina University to continue with the project.

The site is currently vacant (building demolished) but was formerly used as an office building. Properties in the immediate vicinity of the site are primarily commercial/industrial with some residential.

DISCUSSION OF SAMPLING RESULTS

Free Product Data

Free product was not present at the site visit.

Potentiometric Surface Mapping

A potentiometric surface map (Appendix C) was constructed utilizing depth to ground water measurements and TOC elevations (Appendix D). Utilizing monitoring wells MW-2, MW-3, and MW-6, ground water flow direction and hydraulic gradient were calculated using the calculated ground water elevations. Ground water flow was to the south from the former UST pit with a hydraulic gradient of 0.0088 ft/ft on 09/11/03. Historical potentiometric surface maps are located in Appendix E.

Ground Water Contamination Assessment

AES performed depth to ground water measurements, free phase petroleum check, followed by sampling of monitoring wells. The ground water samples were submitted for analysis by EPA Methods 602 (extended) and Lead by 3030C prep (Appendix F).

Benzene, and Naphthalene are present above NCAC2L .0202 standards only in monitoring wells MW-1 and MW-4. The dissolved contaminant plume has not migrated off-site during this sampling period. Contaminant iso-concentration maps are included in Appendix G.

Historical Analytical Results

The following tables summarize the contaminant levels to date.

DATE	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	NCAC 2L STD
09/11/03	**3.8**	<1	<1	**2.8**	<1	<1	1 µg/l
10/14/02	---	---	---	---	<1	<6	1 µg/l
09/19/02	*	<1	<1	*	---	---	1 µg/l
07/01/02	**10**	---	---	---	---	---	1 µg/l
							1 µg/l
							1 µg/l
							1 µg/l
							1 µg/l

DATE	MW-7	MW-8	DW-1	NCAC 2L STD
09/11/03	<1	<1	<1	1 µg/l
10/14/02	<1	<1	---	1 µg/l
09/19/02	---	---	**2.9**	1 µg/l
07/02/02	---	---	---	1 µg/l
				1 µg/l
				1 µg/l
				1 µg/l
				1 µg/l

DATE	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	NCAC 2L STD
09/11/03	5.4	<1	<1	<1	<1	<1	29 µg/l
10/14/02	---	---	---	---	<1	<1	29 µg/l
09/19/02	*	<1	<1	*	---	---	29 µg/l
07/01/02	33	---	---	---	---	---	29 µg/l
							29 µg/l
							29 µg/l
							29 µg/l
							29 µg/l

DATE	MW-7	MW-8	DW-1	NCAC 2L STD
09/11/03	<1	<1	<1	29 µg/l
010/14/02	<1	<1	---	29 µg/l
09/19/02	-----	-----	3.7	29 µg/l
07/01/02	-----	-----	---	29 µg/l
				29 µg/l
				29 µg/l
				29 µg/l
				29 µg/l

DATE	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	NCAC 2L STD
09/11/03	<1	<1	<1	<1	<1	<1	1,000 µg/l
10/14/02	---	---	---	---	<1	<1	1,000 µg/l
09/19/02	*	<1	<1	*	----	----	1,000 µg/l
07/01/02	14	-----	-----	-----	-----	-----	1,000 µg/l
							1,000 µg/l
							1,000 µg/l
							1,000 µg/l
							1,000 µg/l

DATE	MW-7	MW-8	DW-1	NCAC 2L STD
09/11/03	<1	<1	<1	1,000 µg/l
10/14/02	<1	<1	---	1,000 µg/l
09/19/02	-----	-----	1.9	1,000 µg/l
07/01/02	-----	-----	---	1,000 µg/l
				1,000 µg/l
				1,000 µg/l
				1,000 µg/l
				1,000 µg/l

DATE	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	NCAC 2L STD
09/11/03	18	<1	<1	<1	<1	<1	530 µg/l
10/14/02	---	---	---	---	<3	<3	530 µg/l
09/19/02	*	<3	<3	*	-----	-----	530 µg/l
07/01/1/02	101	-----	-----	-----	-----	-----	530 µg/l
							530 µg/l
							530 µg/l
							530 µg/l
							530 µg/l

DATE	MW-7	MW-8	DW-1	NCAC 2L STD
09/11/03	<1	<1	<1	530 µg/l
10/14/02	<3	<3	---	530 µg/l
09/19/02	-----	-----	11	530 µg/l
07/01/02	-----	-----	---	530 µg/l
				530 µg/l
				530 µg/l
				530 µg/l
				530 µg/l

DATE	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	NCAC 2L STD
09/11/03	3	<1	<1	1.1	<1	<1	200 µg/l
10/14/02	-----	-----	-----	-----	<1	<1	200 µg/l
09/19/02	*	<1	<1	*	-----	-----	200 µg/l
07/01/02	46	-----	-----	-----	-----	-----	200 µg/l
							200 µg/l
							200 µg/l
							200 µg/l
							200 µg/l

DATE	MW-7	MW-8	DW-1	NCAC 2L STD
09/11/03	<1	<1	<1	200 µg/l
10/14/02	2.6	<1	---	200 µg/l
09/19/02	-----	-----	3.7	200 µg/l
07/01/02	-----	-----	---	200 µg/l
				200 µg/l
				200 µg/l
				200 µg/l
				200 µg/l

DATE	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	NCAC 2L STD
09/11/03	**130**	<1	<1	**50**	<1	16	21 µg/l
10/14/02	-----	-----	-----	-----	<10	<10	21 µg/l
09/19/02	*	<10	<10	*	-----	-----	21 µg/l
07/01/02	<50	-----	-----	-----	-----	-----	21 µg/l
							21 µg/l
							21 µg/l
							21 µg/l
							21 µg/l

DATE	MW-7	MW-8	DW-1	NCAC 2L STD
09/11/03	<1	<1	<1	21 µg/l
10/14/02	<10	<10	---	21 µg/l
09/19/02	-----	-----	10.2	21 µg/l
07/01/02	-----	-----	---	21 µg/l
				21 µg/l
				21 µg/l
				21 µg/l
				21 µg/l

NOTES: ----- = Not Analyzed
* = Free Product present

SURVEY OF POTENTIAL RECEPTORS

The subject site and vicinity utilize a city/county water system, however there are several private water supply wells in the area. Previously one (1) municipal water supply well was identified. There are no surface water bodies in the vicinity of the site.

The Washington street well for the City of Greenville is located at the intersection of Washington street and 13th Street, approximately 950 feet south-southeast of the source. This well is used only as a reserve in times of low surface water.

SUMMARY OF REMEDIATION ACTIVITIES

The subject site is undergoing evaluation for natural attenuation in accordance with NCAC 2L .0106(f). To date remedial action at the site has been removal of the former UST, and removal of a small amount of free product.

CONCLUSIONS AND RECOMMENDATIONS

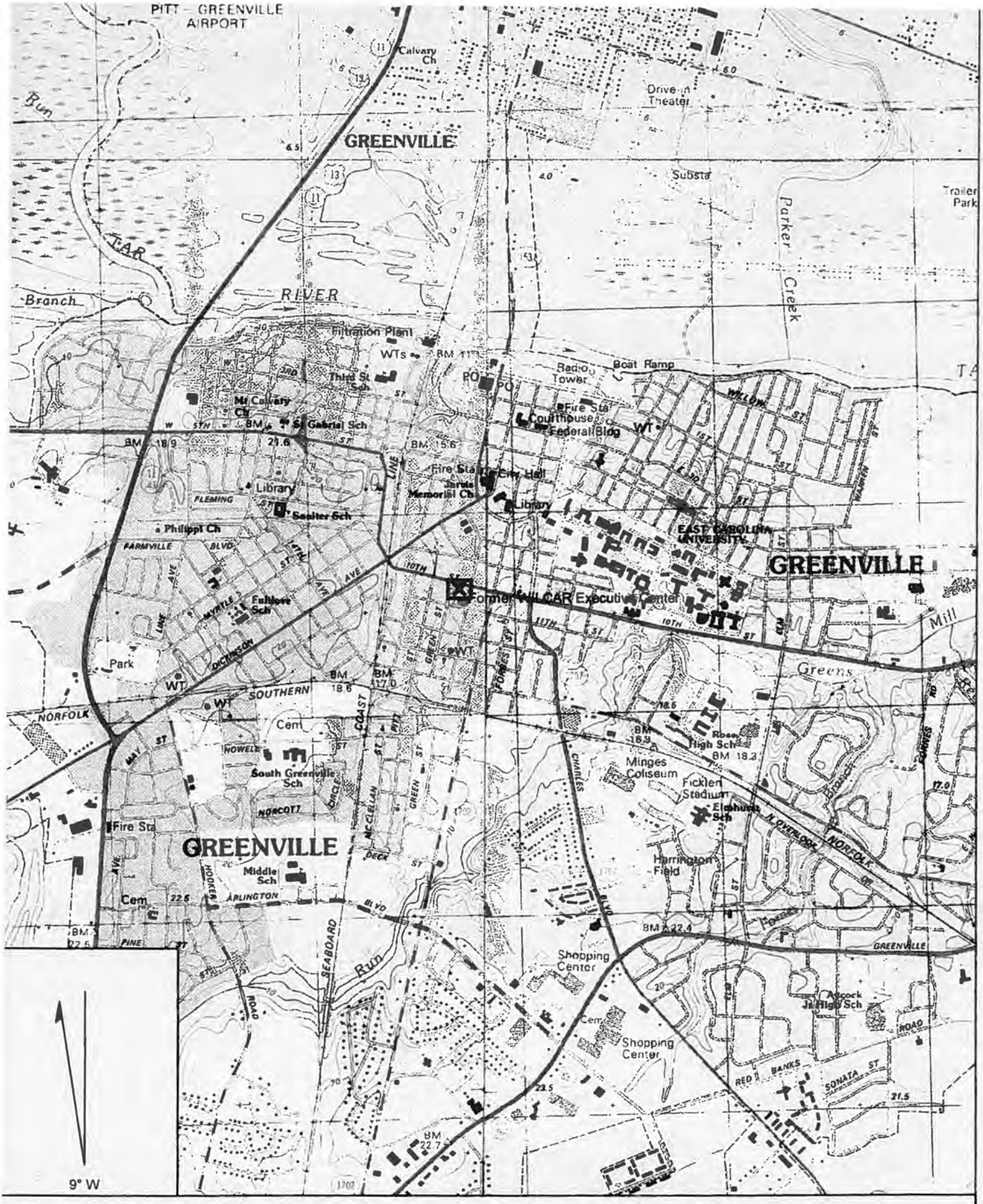
Free phase petroleum product was not identified at the subject site. AES has performed the ground water sampling at the subject site as per NCDENR-DWM-UST Section requirements. Current ground water analytical results indicate that NCAC 2L .0202 ground water standards have been exceeded only for Benzene and Naphthalene only in monitoring wells MW-1 and MW-4.

AES recommends continued semi-annual sampling and check on free product.

DISCLAIMER

The purpose of this report was to assess the existing and potential environmental concerns and liabilities associated with the discharge/leakage from underground storage tank(s) located at the subject site. The interpretive conclusions presented in this report are based solely on the observations of AES personnel on the dates of site visits. These conclusions should not be relied upon to represent site conditions at other dates. The report also presents a description of subsurface conditions observed at each sampling location conducted during the investigation. Subsurface conditions may vary significantly through time, particularly with respect to ground water elevations, flow, and quality.

AES is pleased to submit this report on behalf of East Carolina University. If you have any questions or desire additional information, please contact our office at your earliest convenience.

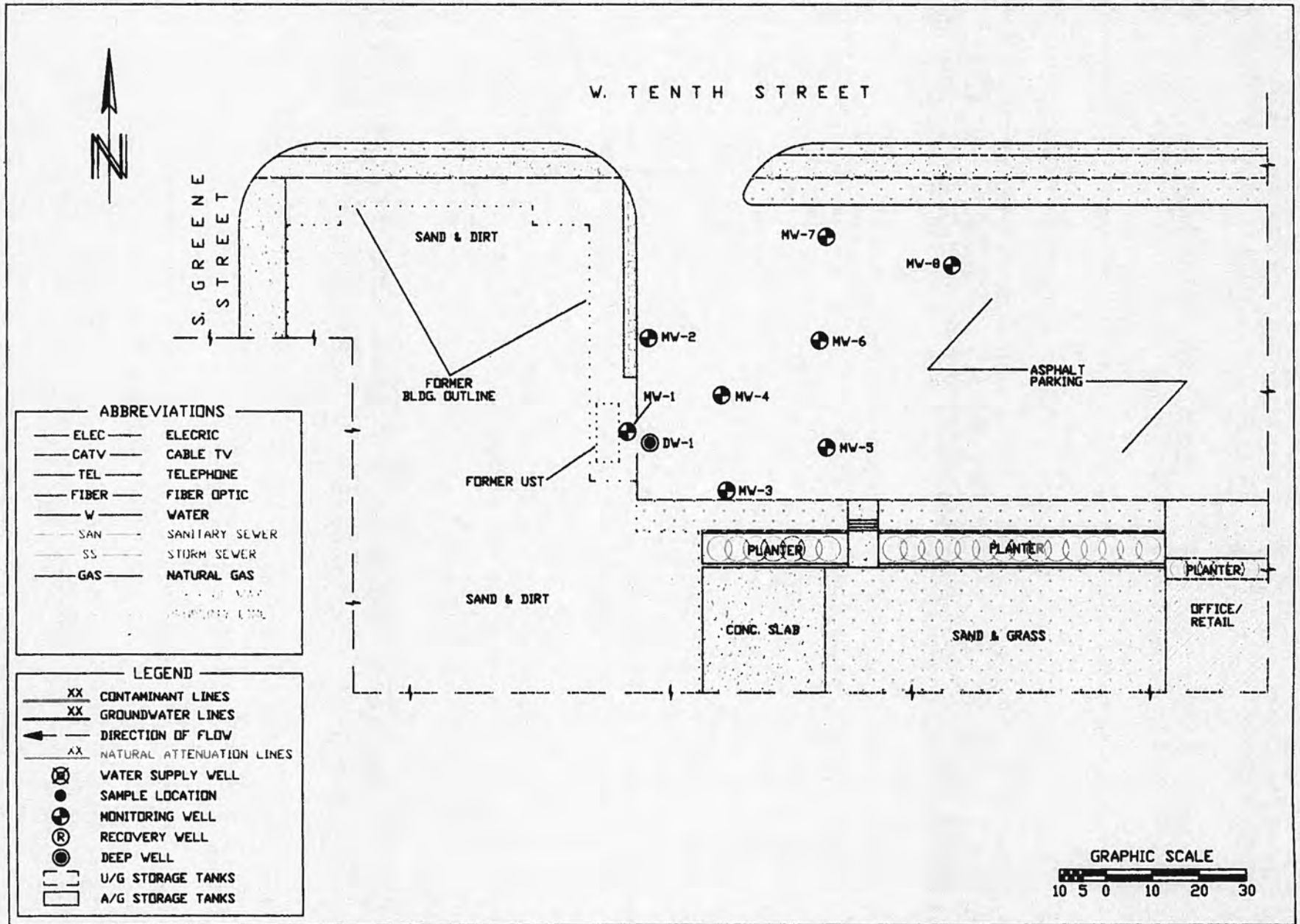


Name: GREENVILLE SW
Date: 1/5/104
Scale: 1 inch equals 2000 feet

Location: 035° 36' 19.6" N 077° 22' 29.9" W
Caption: Former WILCAR Executive Center
223 W. Tenth Street
Greenville, Pitt Co., NC

APPENDIX B

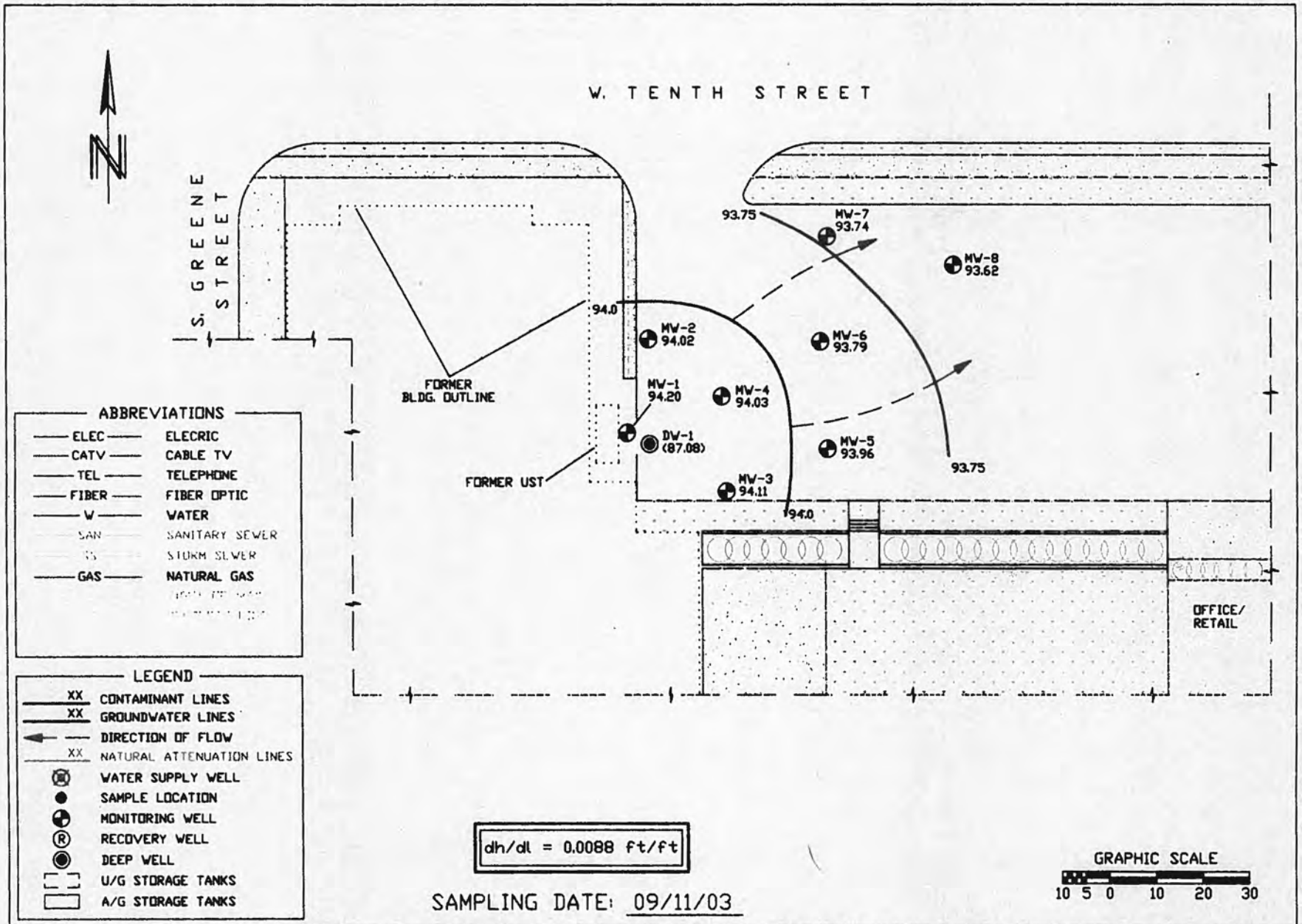
SITE MAP



Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. C001 Scale 1"=30' Date 12/17/03	PARTIAL SITE MAP (FORMER) WILCAR EXECUTIVE CENTER WEST 10th STREET GREENVILLE, PITT CO., NC	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA

APPENDIX C

POTENTIOMETRIC SURFACE MAP



SAMPLING DATE: 09/11/03

Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. C014 Scale 1"=30' Date 12/19/03	POTENTIOMETRIC SURFACE MAP (ft) (FORMER) WILCAR EXECUTIVE CENTER WEST 10th STREET GREENVILLE, PITT CO., NC	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA

35.60411
77.37Hole

APPENDIX D

GROUND WATER DATA

Well Construction Information

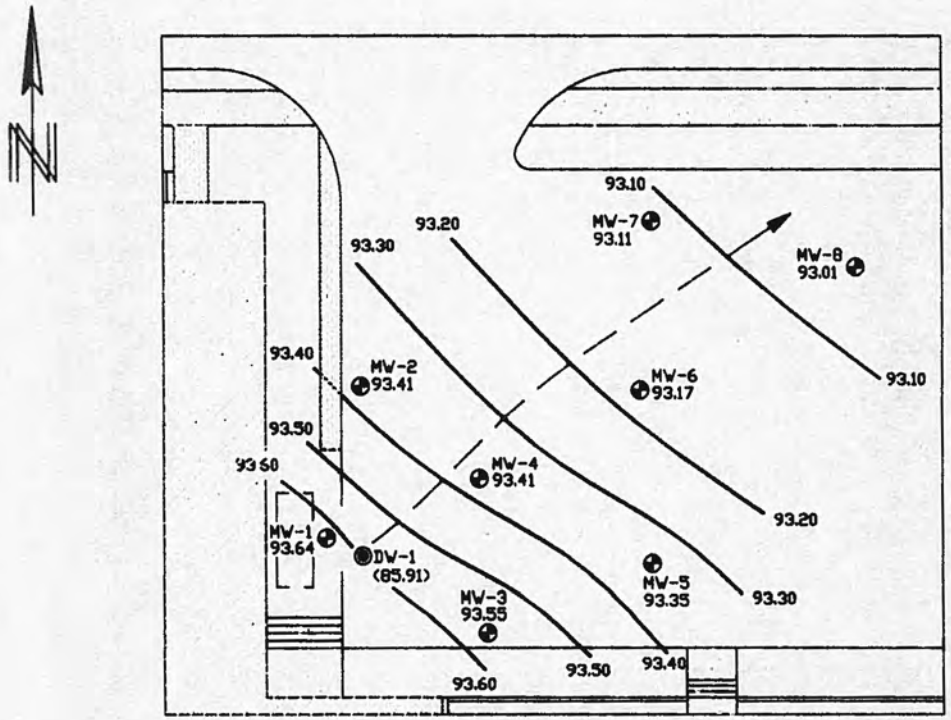
Date: 09/26/03 Incident Number and Name: 24346 WILCAR Executive Center Facility ID#: N/A

Well ID	Date Installed (m/dd/yy)	Date Water Level Measured (m/dd/yy)	Well Casing Depth (ft. BGS)	Screened Interval (x to y ft. BGS)	Bottom of Well (ft. BGS)	Top of Casing Elevation* (ft.)	Depth to Water from Top of Casing (ft.)	Free Product Thickness ** (ft.)	Ground Water Elevation* (ft.)	Comments
MW-1	06/28/02	09/11/03	5'	5-15'	15'	100.00	5.80	-----	94.20	
MW-2	09/16/02	09/11/03	5'	5-15'	15'	99.31	5.29	-----	94.02	
MW-3	09/16/02	09/11/03	5'	5-15'	15'	100.34	6.23	-----	94.11	
MW-4	09/16/02	09/11/03	5'	5-15'	15'	99.95	5.92	-----	94.03	
MW-5	10/08/02	09/11/03	5'	5-15'	15'	100.18	6.22	-----	93.96	
MW-6	10/08/02	09/11/03	5'	5-15'	15'	99.50	5.71	-----	93.79	
MW-7	10/08/02	09/11/03	5'	5-15'	15'	98.74	5.00	-----	93.74	
MW-8	10/08/02	09/11/03	5'	5-15'	15'	99.05	5.43	-----	93.62	
DW-1	09/18/02	09/11/03	20	30-35	35	99.98	12.90	-----	87.08	

* Reference Point for Elevation Measurements TOC MW-1 , Assumed Elevation: 100.00 ft.

** If free product is present in a well, ground water elevation should be calculated by: [Top of Casing Elevation – Depth to Water] + [free product thickness x 0.8581]

ft. BGS = feet below ground surface



PARTIAL PLAN

dh/dl = 0.0053 ft/ft

LEGEND

- XX CONTAMINANT LINES
- XX GROUNDWATER LINES
- DIRECTION OF FLOW
- XX NATURAL ATTENUATION LINES
- SAMPLE LOCATION
- MONITORING WELL
- (R) RECOVERY WELL
- DEEP WELL
- U/G STORAGE TANKS
- A/G STORAGE TANKS

GRAPHIC SCALE

10 0 10 20 30 40 50

Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. 007 Scale 1"=50' Date 09/19/02	POTENTIOMETRIC MAP WILCAR EXECUTIVE CENTER GREENVILLE, PITT CO., NORTH CAROLINA	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA

APPENDIX F

GROUND WATER ANALYTICAL RESULTS

Summary of Ground Water Sampling Results

Date: 09/26/03 Incident Number and Name: 24346 Former Wilcar Executive Center

Analytical Method (e.g., VOC by EPA 8260)			602	602	602	602	602	602	602	602/610			
Contaminant of Concern			Benzene	Ethylbenzene	Toluene	Xylenes	MTBE	IPE	EDB	Naphthalene			
Well ID	Sample ID	Date Collected (m/dd/yy)											
MW-1	MW-1	09/12/03	**3.8**	5.4	<1	18	3.0	<1	<1	**130**			
MW-2	MW-2	09/12/03	<1	<1	<1	<1	<1	<1	<1	<1			
MW-3	MW-3	09/12/03	<1	<1	<1	<1	1.8	<1	<1	<1			
MW-4	MW-4	09/12/03	**2.8**	<1	<1	<1	1.1	<1	<1	**50**			
MW-5	MW-5	09/12/03	<1	<1	<1	<1	<1	<1	<1	<1			
MW-6	MW-6	09/12/03	<1	<1	<1	<1	<1	<1	<1	16			
MW-7	MW-7	09/12/03	<1	<1	<1	<1	<1	<1	<1	<1			
MW-8	MW-8	09/12/03	<1	<1	<1	<1	<1	<1	<1	<1			
2L Standard (ug/l)			1	29	1,000	530	200	70	4E-4	21			
GCL (ug/l)			5,000	29,000	257,500	87,500	200,000	70,000	50	15,500			

SHEALY ENVIRONMENTAL SERVICES, INC.

SHEALY **Chain of Custody Record**

106 Vantage Point Drive
Cayce, South Carolina 29033
Telephone No. (803) 791-9700 Fax No. (803) 791-9111

Number 24694

Client: Allied Environmental Services	Report to Contact: Brian E. Gray	Telephone No. / Fax No. / E-mail: (252) 758-3311	Quote No.
Address: 2411-B S. Charles Blvd.	Sampler's Signature: X J. Read Williamson	Waybill No.	Page 1 of ___
City: Greenville / State: NC / Zip Code: 27858	Printed Name: J. Read Williamson	Analysis (Attach list if more space is needed.)	
Project Name: Wilcar			

Project No.	P.O. No.				Matrix			No. of Containers by Preservative Type							602 Extended	610	Nitrate	Sulfate	Ferrous Iron	Methane	Lot No. 012002
Sample ID / Description (Containers for each sample may be combined on one line.)	Date	Time	Grab	Composite	Aqueous	Solid	Non-Aqueous	Unpres.	H_2SO_4	HNO_3	HCl	NaOH	5035 Kit								Remarks / Cooler I.D.
MW-1	09/11/03	11:30	G		A										X	X	X	X	X	X	22.5°C
MW-2	09/11/03	11:45	G		A										X	X	X	X	X	X	22.3°C
MW-3	09/11/03	12:00	G		A										X	X	X	X	X	X	[illegible] 22.3°C
MW-4	09/11/03	11:40	G		A										X	X	X	X	X	X	23.1°C
MW-5	09/11/03	11:05	G		A										X	X	X	X	X	X	24.7°C
MW-6	09/11/03	11:10	G		A										X	X	X	X	X	X	24.6°C
MW-7	09/11/03	11:15	G		A										X	X	X	X	X	X	26.4°C
MW-8	09/11/03	11:20	G		A										X	X	X	X	X	X	25.2°C
DW-1	09/11/03	11:50	G		A										X	X					18.4°C

Possible Hazard Identification
[X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison [ ] Unknown

Sample Disposal
[ ] Return to Client [X] Disposal by Lab

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

Turn Around Time Required (Prior lab approval required for expedited TAT.)
[X] Standard [ ] Rush (Specify)

QC Requirements (Specify)

1. Relinquished by: Brian E. Gray	Date: 09/11/03	Time: 13:45	1. Received by	Date	Time
2. Relinquished by	Date	Time	2. Received by	Date	Time
3. Relinquished by: FedEx	Date: 9/12/03	Time: 0830	3. Laboratory received by: [illegible]	Date: 9/12/03	Time: 0830

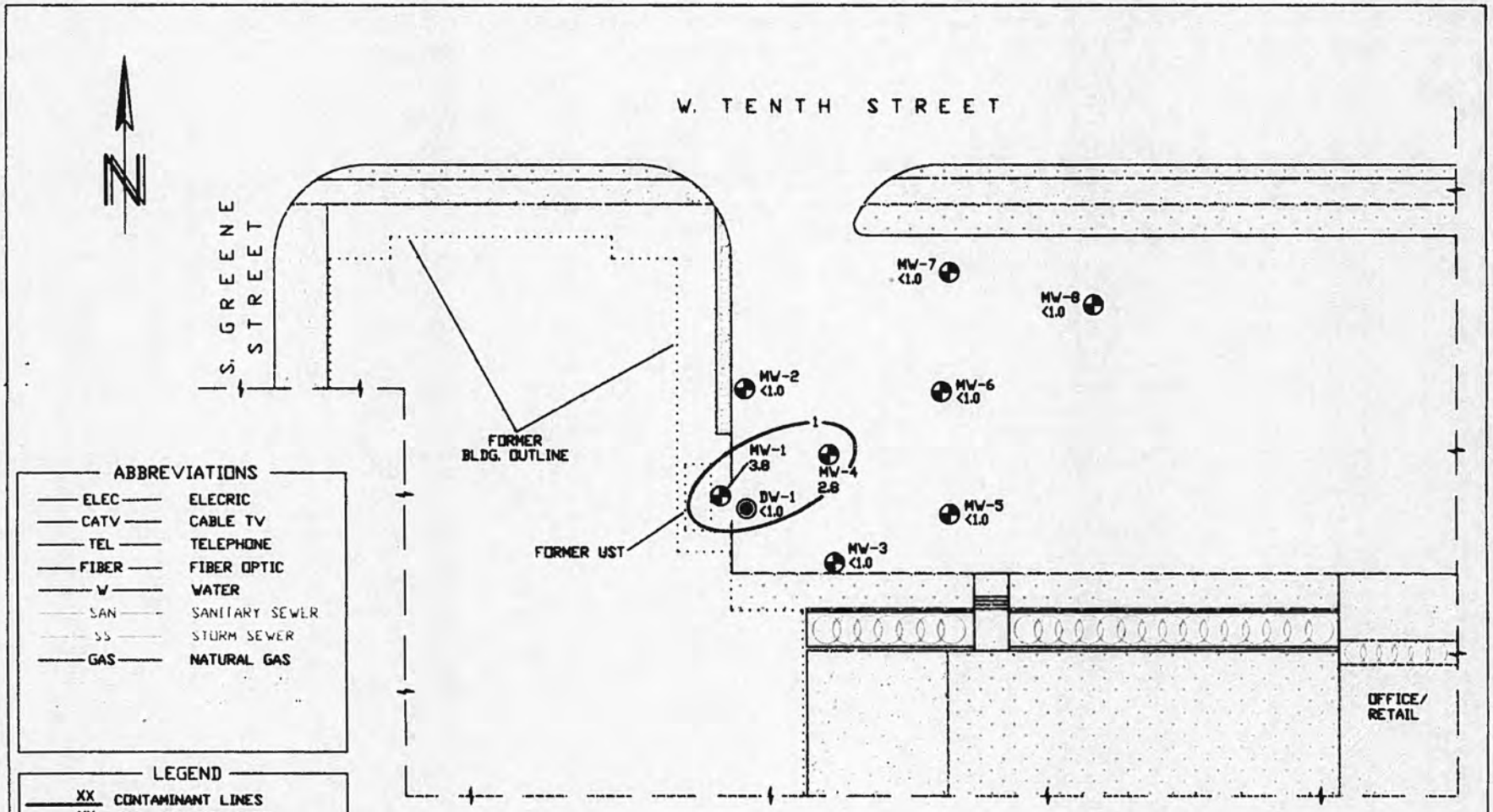
Comments

LAB USE ONLY
Received on ice (Circle) (Yes) No Ice Pack
Receipt Temp. 2.1, 2.3 °C

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

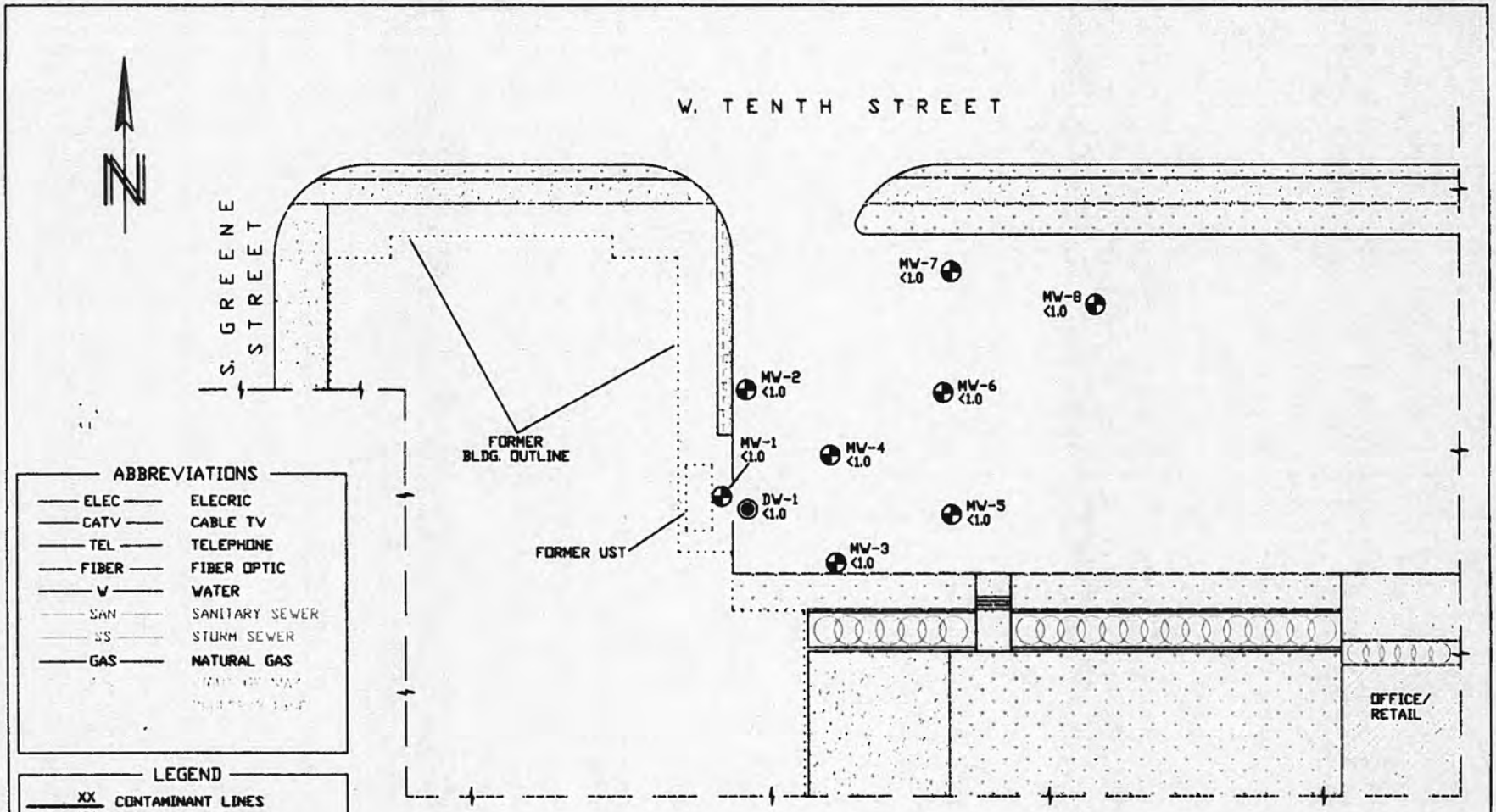
APPENDIX G

CONTAMINANT CONCENTRATION MAPS



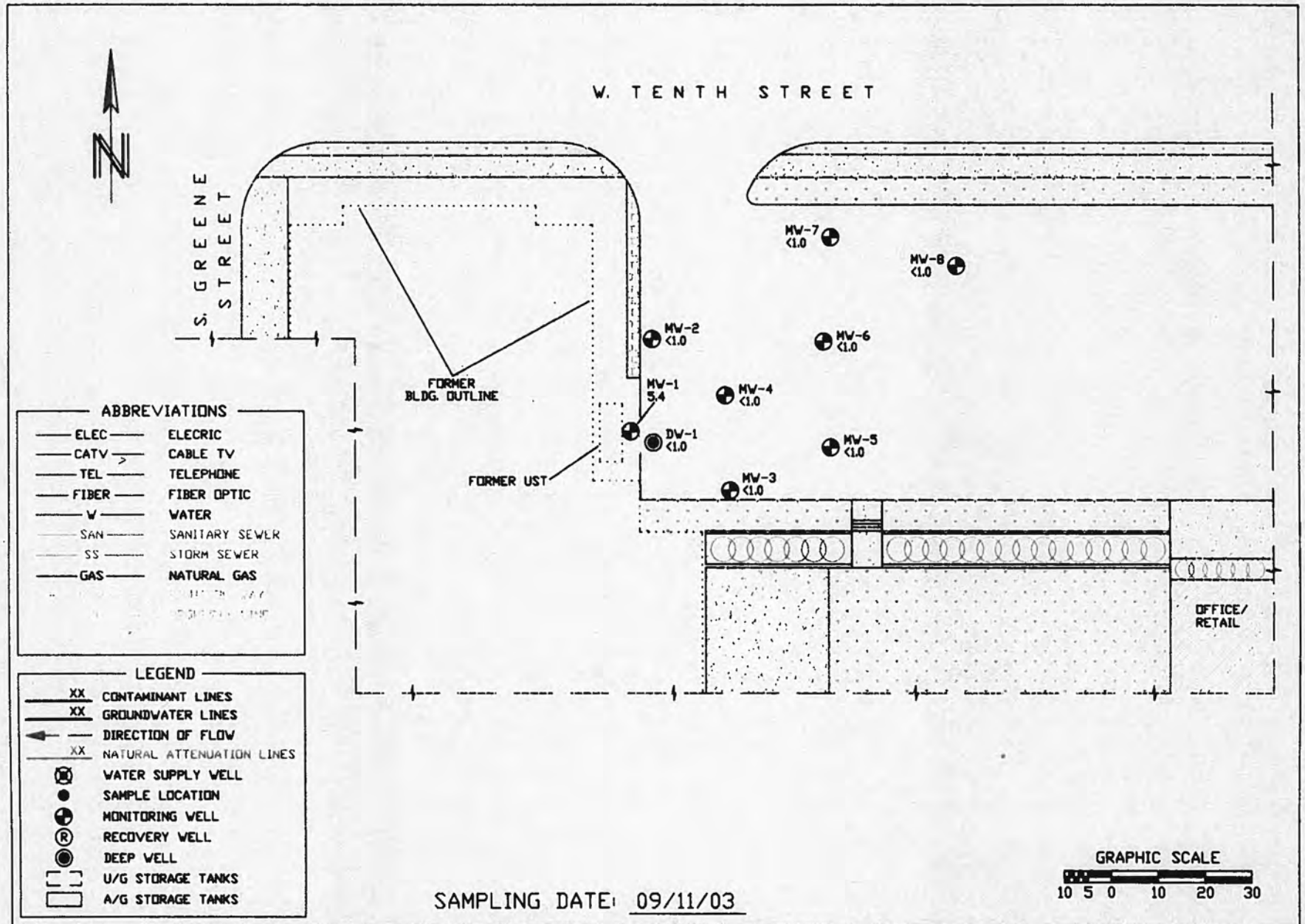
SAMPLING DATE: 09/11/03

Proj. No.	02-1001	Dwg. No.	C002	BENZENE CONCENTRATION MAP (ug/l) (FORMER) WILCAR EXECUTIVE CENTER WEST 10th STREET GREENVILLE, PITT CO., NC	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA
Ckd. By	BEG	Scale	1"=30'		
Drn. By	BWG	Date	12/18/03		



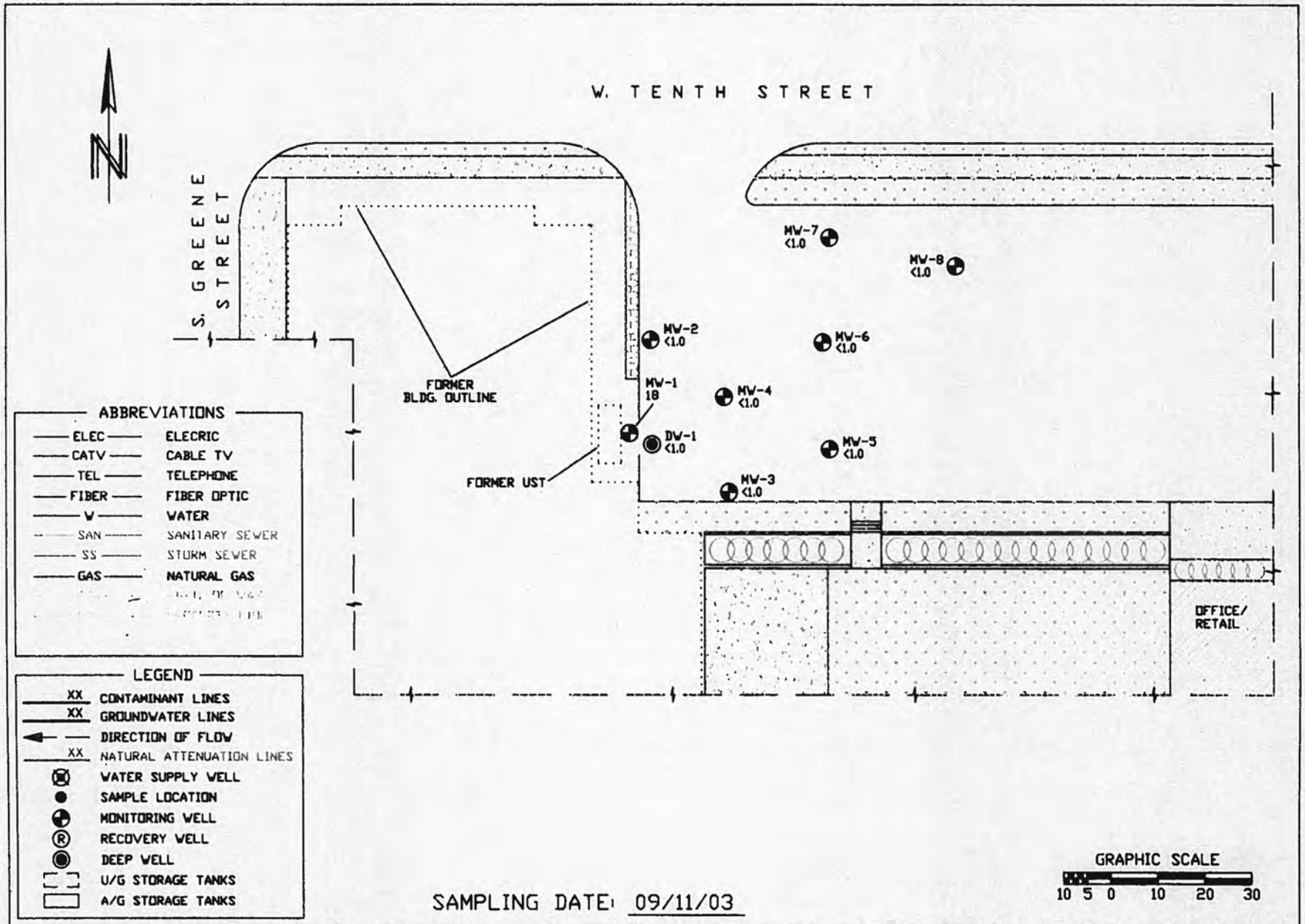
SAMPLING DATE: 09/11/03

Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. C003 Scale 1"=30' Date 12/18/03	TOLUENE CONCENTRATION MAP (ug/l) (FORMER) WILCAR EXECUTIVE CENTER WEST 10th STREET GREENVILLE, PITT CO., NC	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA		



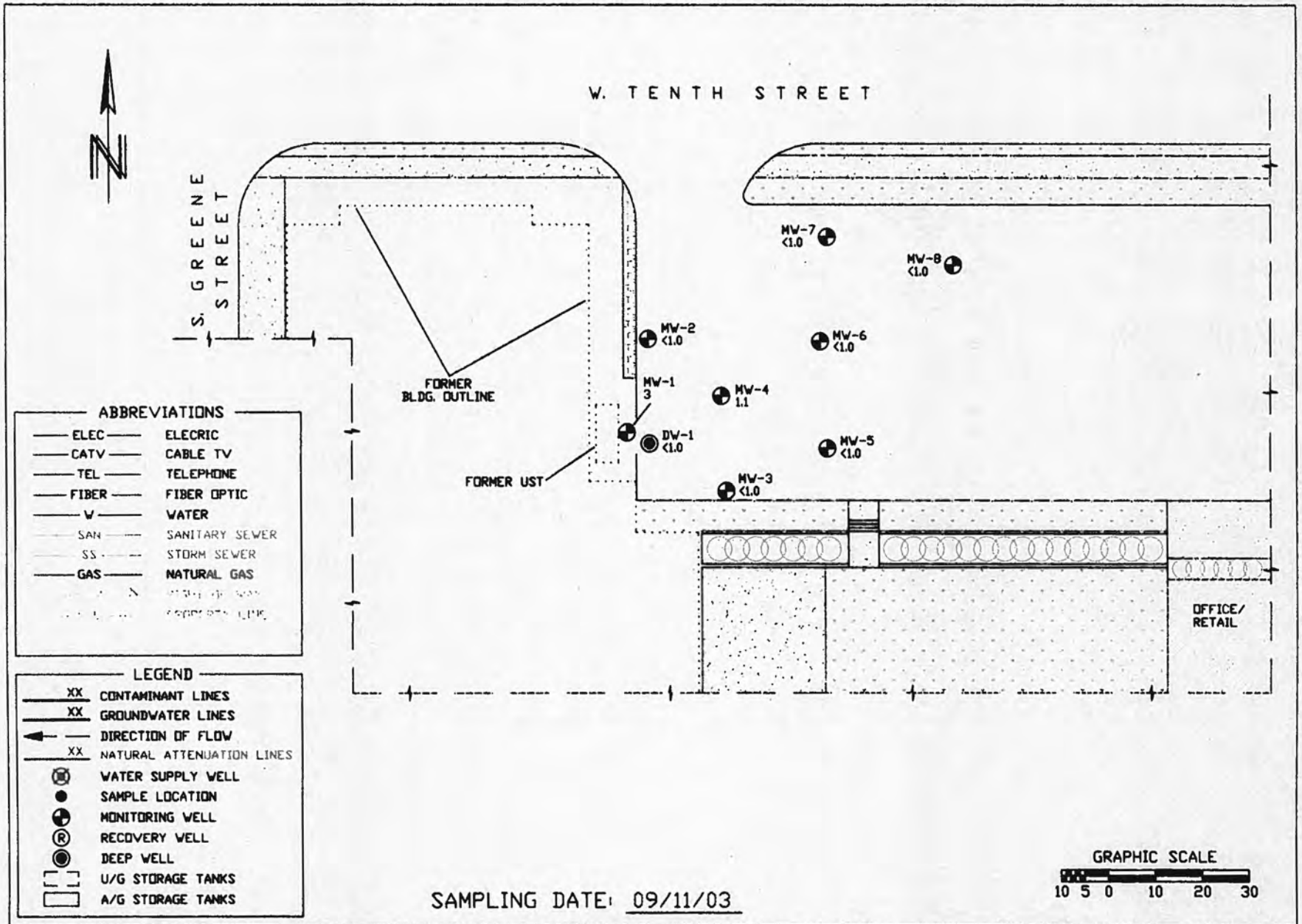
SAMPLING DATE: 09/11/03

Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. C004 Scale 1"=30' Date 12/18/03	ETHYLBENZENE CONCENTRATION MAP (ug/l) (FORMER) WILCAR EXECUTIVE CENTER WEST 10th STREET GREENVILLE, PITT CO., NC	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA



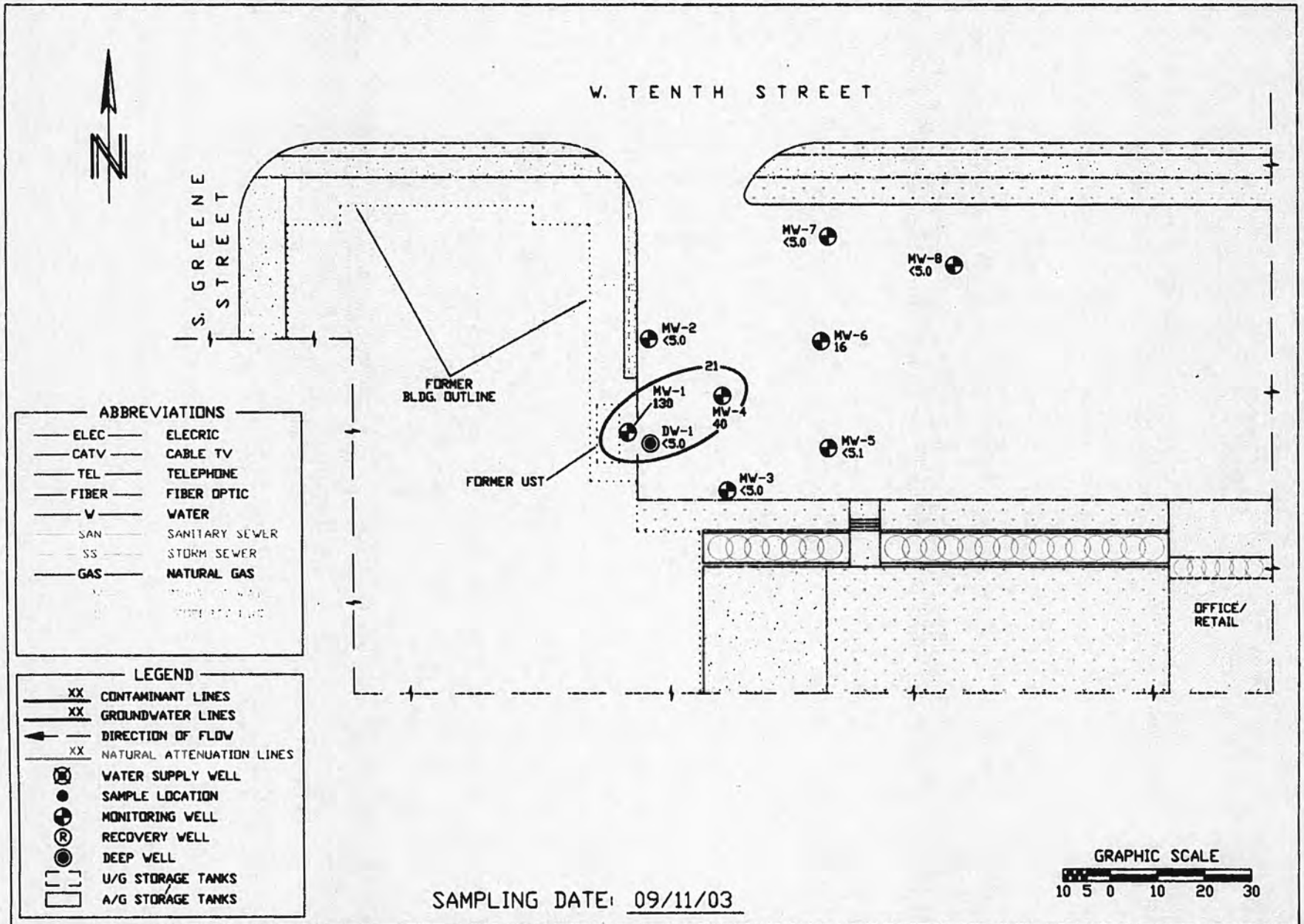
SAMPLING DATE: 09/11/03

Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. C005 Scale 1"=30' Date 12/18/03	XYLENES CONCENTRATION MAP (ug/l) (FORMER) WILCAR EXECUTIVE CENTER WEST 10th STREET GREENVILLE, PITT CO., NC	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA



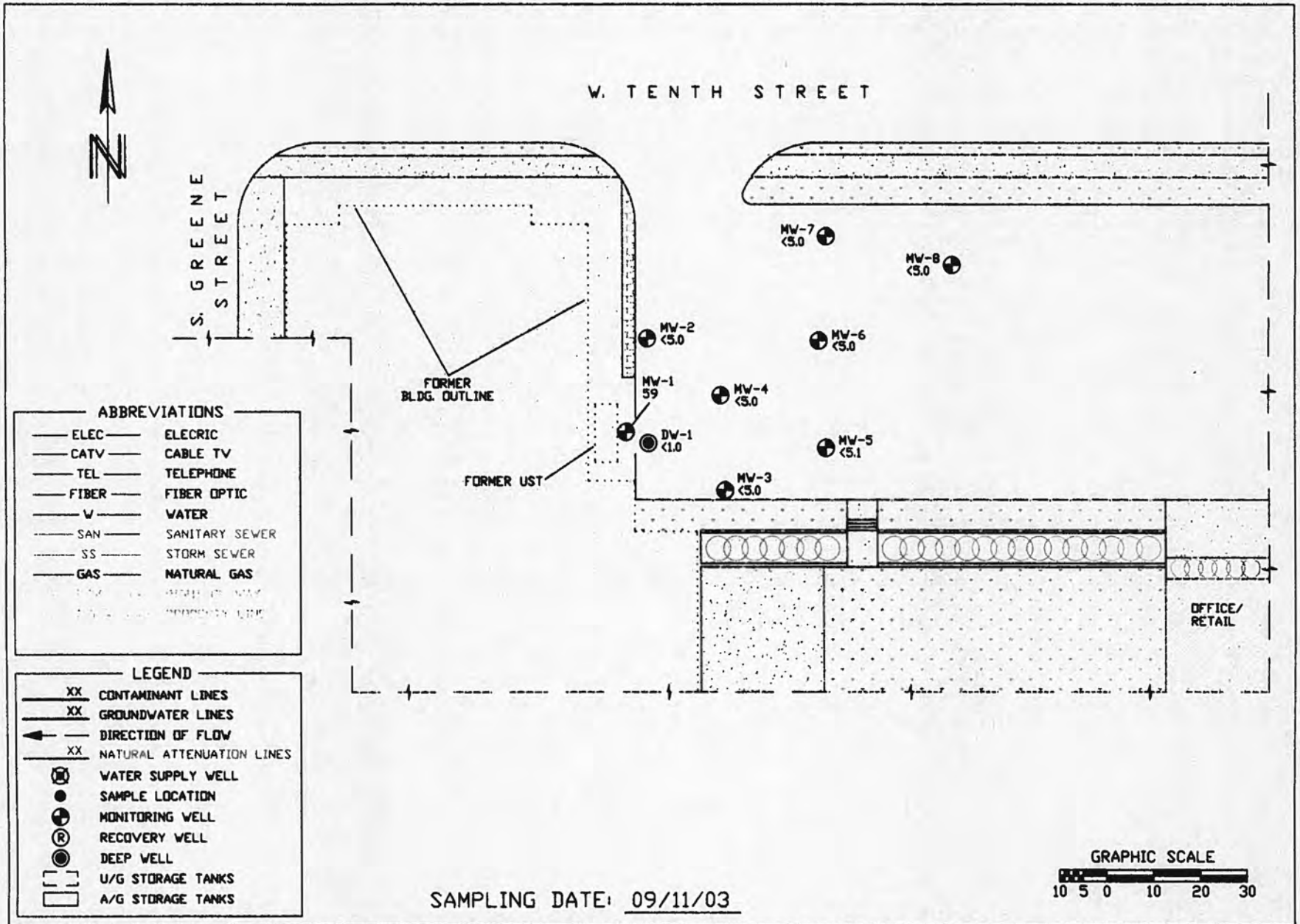
SAMPLING DATE: 09/11/03

Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. C006 Scale 1"=30' Date 12/18/03	MTBE CONCENTRATION MAP (ug/l) (FORMER) WILCAR EXECUTIVE CENTER WEST 10th STREET GREENVILLE, PITT CO., NC	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA



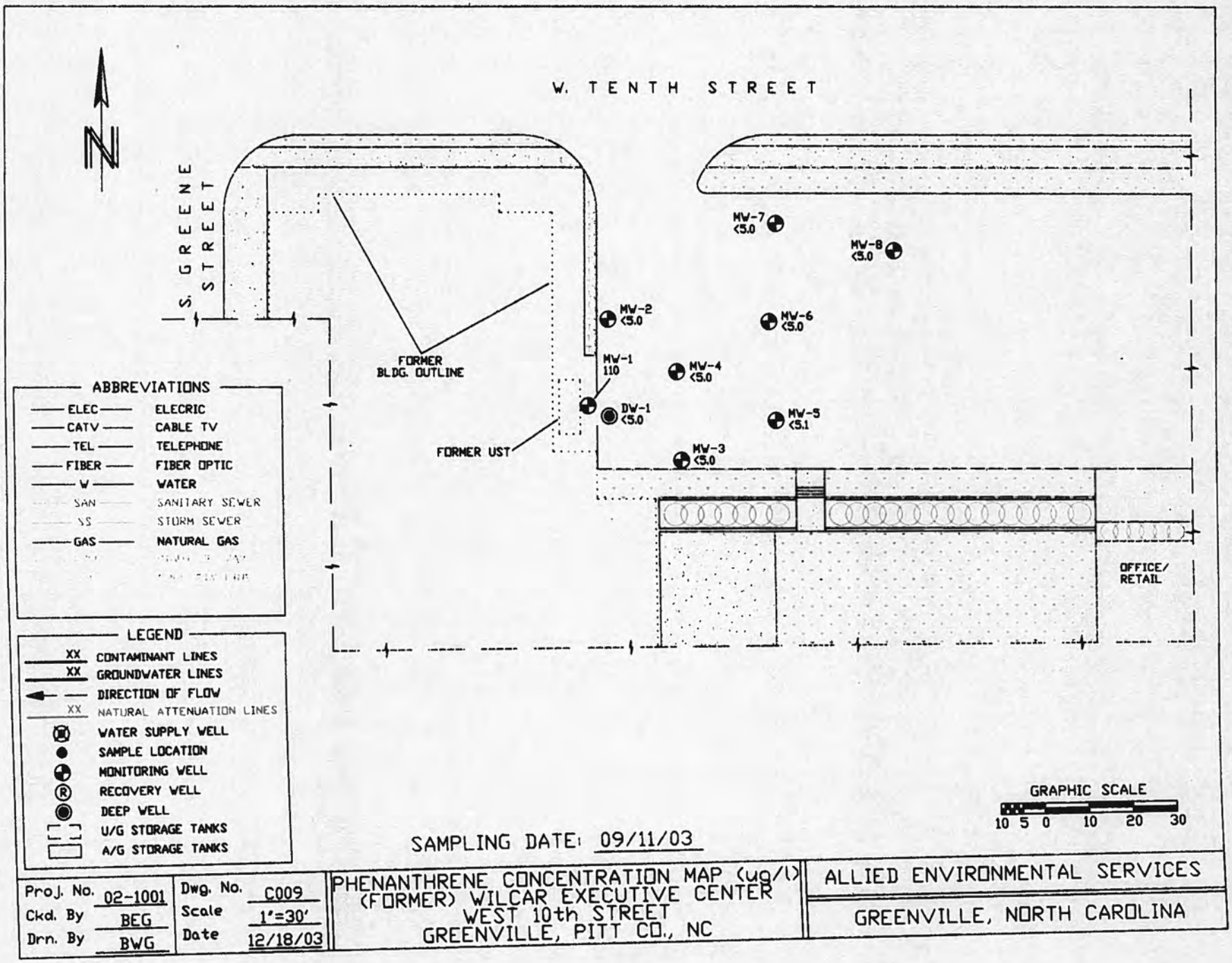
SAMPLING DATE: 09/11/03

Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. C007 Scale 1"=30' Date 12/18/03	NAPHTHALENE CONCENTRATION MAP (ug/l) (FORMER) WILCAR EXECUTIVE CENTER WEST 10th STREET GREENVILLE, PITT CO., NC	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA



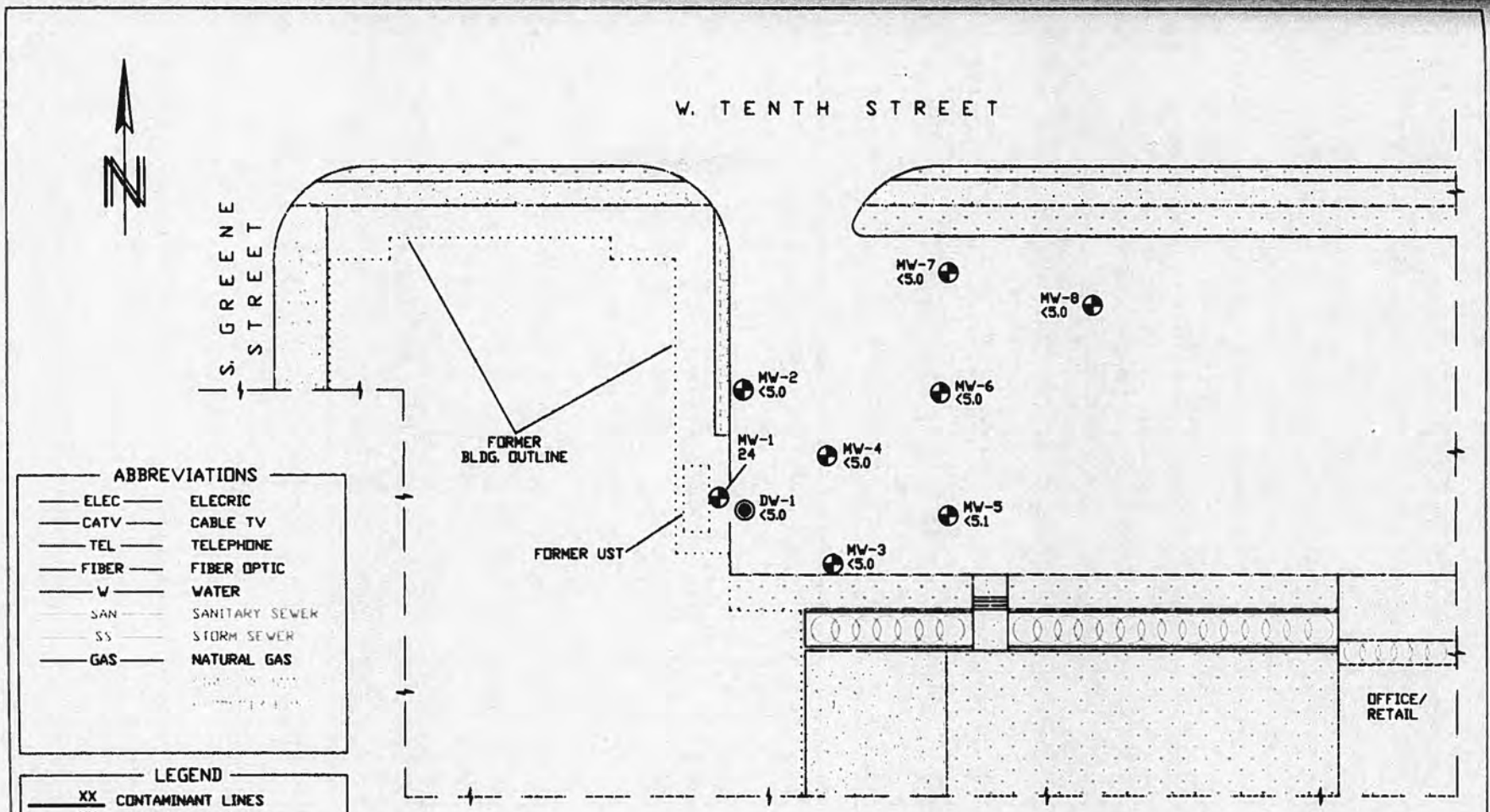
SAMPLING DATE: 09/11/03

Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. C008 Scale 1"=30' Date 12/18/03	FLUORENE CONCENTRATION MAP (ug/l) (FORMER) WILCAR EXECUTIVE CENTER WEST 10th STREET GREENVILLE, PITT CO., NC	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA



SAMPLING DATE: 09/11/03

Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. C009 Scale 1"=30' Date 12/18/03	PHENANTHRENE CONCENTRATION MAP (ug/l) (FORMER) WILCAR EXECUTIVE CENTER WEST 10th STREET GREENVILLE, PITT CO., NC	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA



SAMPLING DATE: 09/11/03

Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. C010 Scale 1"=30' Date 12/18/03	PYRENE CONCENTRATION MAP (ug/l) (FORMER) WILCAR EXECUTIVE CENTER WEST 10th STREET GREENVILLE, PITT CO., NC	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA

Comprehensive Site Assessment Report

Site Identification

Date of Report: **11/25/02**

Facility I.D.: **NA (non-commercial)** UST Incident Number: **24346**

Site Name: **WILCAR Executive Center**

Site Location: **223 W. 10th Street**

Nearest City/Town: **Greenville** County: **Pitt**

UST Owner: **James M. Williamson**

Address: **2403 S. Charles Blvd., Greenville, NC 27858** Phone: **252-355-2300**

UST Operator: **James M. Williamson**

Address: **2403 S. Charles Blvd., Greenville, NC 27858** Phone: **252-355-2300**

Property Owner: **James M. Williamson**

Address: **2403 S. Charles Blvd., Greenville, NC 27858** Phone: **252-355-2300**

Property Occupant: **Vacant**

Address: **223 W. 10th Street, Greenville, NC 27858** Phone: **N/A**

Consultant/
Contractor: **Allied Environmental Services, PLLC**

Address: **P.O. Box 1148 Winterville, NC 28590** Phone: **252-758-3311**

Release Information

Date Discovered: **6/10/02**

Latitude (dd.mm.ss.): **35.16.13 N** Longitude (dd.mm.ss.): **77.22.33 W**

Estimated Quantity of Release : **Unknown**

Cause of Release: **Unknown**

Source of Release (e.g., Piping/UST): **Leaking heating oil UST**

Sizes and Contents of UST system(s) from which the release occurred: **One 1,000-gallon heating oil UST**

I, **Brian E. Gray** a ~~Professional Engineer~~/**Licensed Geologist** for **Allied Environmental Services, PLLC** do certify that the information contained in this accurate to report is correct and the best of my knowledge.

COMPREHENSIVE SITE ASSESSMENT

SITE LOCATION:

WILCAR EXECUTIVE CENTER
223 W. 10TH STREET
GREENVILLE, PITT CO., NC
GROUND WATER INCIDENT #24346
RISK CLASSIFICATION: HIGH
LATITUDE: 35°16'13" N
LONGITUDE: 77°22'33" W

PREPARED FOR:

JAMES M. WILLIAMSON
2403 S. CHARLES BOULEVARD
GREENVILLE, NC 27858
(252) 355-2300

PREPARED BY:

Allied Environmental Services, PLLC
P.O. Box 1148
Winterville, NC 28590
(252) 758-3311

Brian E. Gray, L.G.

November 2002

TABLE OF CONTENTS

EXECUTIVE SUMMARY 4
I. INTRODUCTION 5
II. SITE HISTORY AND SOURCE CHARACTERIZATION 5
A. SITE DESCRIPTION (OWNERSHIP AND USAGE) 5
B. RELEASE INCIDENTS AND ENVIRONMENTAL INVESTIGATIONS 7
C. ABATEMENT MEASURES TO DATE 7
III. POTENTIAL RECEPTORS & MIGRATION PATHWAYS 8
A. ADJACENT PROPERTY OWNERS 8
B. WATER SUPPLY SOURCES AND LOCATIONS 9
C. UNDERGROUND UTILITIES 10
D. MIGRATION PATHWAYS 10
E. POTENTIAL EXPOSURE PATHWAYS 10
F. TOXICITY AND BEHAVIOR OF KNOWN CONTAMINANT 11
IV. GEOLOGIC INVESTIGATION 11
A. TOPOGRAPHY 11
B. REGIONAL GEOLOGIC TRENDS 11
C. SITE GEOLOGY 13
D. SOIL INVESTIGATION 13
V. GROUND WATER INVESTIGATION 17
A. MONITORING WELL LOCATION AND CONSTRUCTION 17
B. CONTAMINANT PLUME CHARACTERISTICS 17
C. HYDROGEOLOGIC CHARACTERISTICS 22
D. RATIONALE FOR WELL LOCATION AND CONSTRUCTION 23
VI. CONCLUSIONS AND RECOMMENDATIONS 24
VII. LIMITATIONS 25
VIII. REFERENCES 25

LIST OF APPENDICES

Appendix A - Vicinity Map
Appendix B - Site Map
Appendix C - Property Owners Map
Appendix D - Water Supply Well Map
Appendix E - MSDS Information for Common Petroleum Compounds
Appendix F - Monitoring Well Construction Records
Appendix G - Geologic Cross Sections
Appendix H - Soil Laboratory Analyses
Appendix I Soil Contaminant Maps
Appendix J - Monitoring well Location Map
Appendix K - Ground Water Laboratory Analyses
Appendix L - Contaminant Iso-Concentration Maps
Appendix M - Ground Water Sampling Protocol
Appendix N - Depth To Ground Water Data
Appendix O - Potentiometric Surface Maps
Appendix P- Slug Test Data
Appendix Q- Grain Size Analysis

EXECUTIVE SUMMARY

Allied Environmental Services, PLLC (AES) has completed a Comprehensive Site Assessment (CSA) at the subject site. The subject site is formerly a commercial office building (not currently occupied). The subject site is located at 223 W. 10th Street in Greenville, Pitt County, North Carolina. The facility formerly contained a 1,000 gallon heating oil underground storage tank (UST). This UST was removed on June 10, 2002. The Comprehensive Site Assessment was performed at the subject site in accordance with 40 CFR 280.65, and NCAC 2N .0706 requirements.

AES has installed eight (8) Type II monitor wells and one (1) Type III monitoring well; performed depth to ground water measurements; performed soil sampling for Methods 8260, 8270, and MADEP VPH and EPH; performed ground water sampling for EPA Method 602 extended, 625 BNA, and MADEP VPH and EPH analyses as per proper protocol; conducted aquifer testing; and constructed potentiometric surface maps and iso-contamination maps.

Free phase petroleum product was observed at the subject site during UST removal and during Limited Site Assessment (LSA) investigation. Free product has been recovered by down well sorbent socks.

Contaminated soil at the subject site (Naphthalene and C9-C22 Aromatics) has been identified only in the area surrounding the former UST.

The ground water analytical results indicate that several monitoring wells currently exceed the NCAC 2L standard for contaminant parameters (Benzene, Ethylbenzene, C9-C18 Aliphatics, and C9-C22 Aromatics). Monitoring wells MW-1 and MW-4, located at the source and along the plume mid-line, contained the highest concentrations of any monitoring well.

Based on the ground water data, ground water flow was to the northeast with a hydraulic gradient of 0.0053 ft/ft (10/14/02) using MW-2, MW-3, and MW-6. Hydraulic conductivity (k) and velocity (V) were calculated to be 0.015 ft/day and 0.0109 ft^2/day, respectively.

AES has determined the areal extent of soil and ground water contamination associated with the subject site. Contaminated soil at the site is limited to the area immediately surrounding the former UST. The ground water contamination is limited to the subject site, but it appears that the dissolved plume, as well as the free product plume, is migrating down gradient where it may intercept utilities (water and sewer lines, and the storm drain system).

I. INTRODUCTION

Mr. James Williamson contracted Allied Environmental Services, PLLC (AES) to conduct a Comprehensive Site Assessment at the WILCAR Executive Center facility. The subject site is located at 223 W. 10th Street, Greenville, Pitt County, North Carolina (Appendix A). The subject site is currently an unoccupied office building (Appendix B). The site formerly contained a 1,000 gallon heating oil UST used to heat the building.

AES has since conducted a Comprehensive Site Assessment (CSA) investigation at the subject site. AES has installed a monitoring system, which includes eight (8) Type II and one (1) Type III monitoring wells. Based on analytical results from the monitoring wells, the ground water has been impacted by petroleum product at the subject site.

AES has performed a comprehensive site assessment based upon these objectives:

1) Characterize the shallow geologic/hydrogeologic conditions.
2) Sample soil by Methods 8260, 8270, and MADEP VPH and EPH
3) Sample ground water by EPA Methods 602 with Xylenes, Methyl Tertiary Butyl Ether (MTBE), and Isopropyl Ether (IPE), 625 BNA, and MADEP VPH and EPH.
4) Characterize the horizontal and vertical extent of ground water contamination.
5) Determine the hydrogeologic parameters.
6) Conclusions and recommendations.

II. SITE HISTORY AND SOURCE CHARACTERIZATION

A. SITE DESCRIPTION (OWNERSHIP AND USAGE)

A vicinity map for the subject site is located within Appendix A. A site map with utilities is located within Appendix B. The following summarizes information regarding ownership and operation at the subject site. The information was compiled from Pitt County Tax Records, and Mr. Williamson.

TABLE 1
SITE HISTORY
UST Owner//Operator Information (most recent first)

UST ID Number	Name of Owner or Operator	Dates of Ownership / Operation [(m/dd/yy) to (m/dd/yy)]			Owner or Operator?
1	James M. Williamson	1972	to	Present	Owner
Address: 2403 S. Charles Boulevard Greenville, NC 27858				(252) 355-2300	

TABLE 2
PPOPERTY OWNERS/OCCUPANTS
Date: 06/23/02 **Incident #. & Name:** #24346 WILCAR Executive Center **Facility ID#:** N/A

Tax Parcel Number/ Map ID	Owner/Occupant Name (Last, First, MI)	Address
03737	Williamson, James M.	2403 S. Charles Boulevard Greenville, NC 27858

TABLE 3
SITE HISTORY
UST System Information

UST ID Number	Product (gasoline, diesel, jet fuel, etc.)	Capacity (gallons)	Date Installed (m/dd/yy)	Date Permanently Closed (P), or Still in Use* (C) (m/dd/yy)	Was Release Associa With UST System (Yes/No)
1	Heating Oil	1,000	1972	06/10/02 (P)	Yes

*Still in use means not permanently closed.

B. RELEASE INCIDENTS AND ENVIRONMENTAL INVESTIGATIONS

TABLE 5
SUMMARY OF LABORATORY ANALYSES[1]
UST CLOSURE SOIL SAMPLE
WILCAR EXECUTIVE CENTER
JUNE 10, 2002

Sample ID	Sample Depth (feet)	TPH-GRO 5030	TPH-DRO 3550
1B	5-6	**792[2]**	**9,260**
	MRC[3]	10	10

Notes:
1. Laboratory analyses for gasoline- and diesel-range TPH by Methods 5030/8015M and 3550/8015M, respectively; results reported in mg/kg.
2. Numbers in bold-faced type exceeded the MRC.
3. Minimum reportable concentration.

AES submits 24-Hour Release and UST Leak Reporting Form (06/10/02).

AES submits 20-Day Report (06/30/02).

AES submits Limited Site Assessment (LSA) report (08/12/02).

C. ABATEMENT MEASURES TO DATE

The following summarizes work performed a the subject to date.

Project Summary to Date:

- 06/10/02 – AES removes 1,000 gal. heating oil UST. Free phase petroleum product found and removed approximately 5 gal. from the excavation. Approximately 3 cy of soil was stockpiled on-site. AES submits UST Form 61 (24-Hour Release and UST Leak Reporting Form) to DWM-UST Section.

- 06/20/02 – DWM-UST Section issues Notice of Regulatory Requirements (NORR) for the site.

- 06/28/02 – AES supervises the installation of soil boring and monitoring well MW-1 at the subject site. Soil samples obtained and submitted for Phase I LSA investigation.

- 06/30/02 – AES submits 20-Day Report to DWM-UST Section.
- 07/01/02 – AES samples monitoring well MW-1.
- 08/12/02 – AES submits Phase I LSA Report.
- 08/23/02 – DWM-UST Section issues letter requesting Comprehensive Site Assessment (CSA) for the site.
- 09/16-18/02 – AES supervises the installation of monitoring wells MW-2, MW-3, MW-4, and DW-1.
- 09/19/02 – AES samples monitoring wells MW-2, MW-3, MW-4, and DW-1.
- 10/08/02 – AES Supervises the installation of monitoring wells MW-5, MW-6, MW-7, and MW-8 at the site.
- 10/11/02 – AES supervises the installation of soil borings BH-1, BH-2, BH-3, and BH-4 at the site.
- 10/14/02 – AES samples monitoring wells MW-5, MW-6, MW-7, and MW-8 at the site.
- 11/14/02 – AES installs soil borings BH-5, BH-6, and BH-7 at the site.

III. POTENTIAL RECEPTORS & MIGRATION PATHWAYS

A. ADJACENT PROPERTY OWNERS

The subject site is located at 223 W. 10th Street in Greenville, Pitt Co., NC. The following is a list of the adjacent property owners according to the Pitt County Tax Office. A property owner's map is located within Appendix C.

TABLE 4
ADJACENT PROPERTY OWNERS[1]

Parcel No.	Name	Address
007373, 012110	H.A. Haynie Co., Inc.	301 W. Tenth Street Greenville, NC 27834
020202, 023619, 023620	Walter L. Williams	3602 US Hwy. 264 East Greenville, NC 27834
007780	Earl Faulkner	5420 US Hwy. 13 Greenville, NC 27834
007775, 007782, 007779, 007778	David J. Mitchell, II	P.O. Box 1482 Oxford, NC 27565
000882	William C. Glisson Life Estate	4369 Black Jack-Simpson Road Greenville, NC 27858
007809, 006869	WP & JP Enterprises, LLC	P.O. Box 1602 Greenville, NC 27858

Note: Properties in **Table 1** are correlated by map and parcel number with those shown in Appendix C.

B. WATER SUPPLY SOURCES AND LOCATIONS

The subject site and vicinity are supplied water by a public water supply (City of Greenville). The City of Greenville water supply comes from the Tar River with several water supply wells for backup. AES previously conducted a water supply well survey for the area within 1,500 ft. of the subject site. AES identified one primary water supply well.

The Washington Street Well for the City of Greenville is located at the intersection of Washington Street and 13th Street, approximately 950 feet south-southeast of the source (Appendix D). This well is used only as a reserve in times of low surface water.

TABLE 6
WATER SUPPLY WELL INFORMATION

Date: 06/23/02 **Incident Number and Name:** 24346 WILCAR Executive Center **Facility ID#:** N/A

(Include the following information. The well number (can use tax number), well owner and user names, addresses and telephone numbers, use of well (potable, agricultural, etc.), well depth, type of well (i.e. drilled or bored), well casing depth, well screen interval and distance of well from the source area of the release.

Well #	Well Owner/User (indicate which)	Address	Phone Number	Well Use	Well Depth (ft. BGS)	Type of Well	Well Casing Depth (ft. BGS)	Well Screen Interval (x to y ft. BGS)	Distance from source area of release (ft.)
1	City of Greenville (Owner)	Greenville Utilities Commission	(252) 551-1560	Primary	421	6 in.	100	See enclosed	950

Ft. BGS = feet below ground surface

C. UNDERGROUND UTILITIES

The subject site is located inside the city limits of Greenville, Pitt Co., NC. Residents and businesses have access to municipal water, telephone, sanitary sewer, and storm sewer as underground services in the area.

Underground water (municipal), sanitary sewer, and storm sewer lines are located along 10th Street, 11th Street, S. Greene Street, and S. Washington Street. All electrical power and most telephone at or near the subject site are located overhead. Storm drainage is along 10th Street.

D. MIGRATION PATHWAYS

The subject site is located inside the city limits of Greenville, Pitt Co., NC. Several underground utilities are located in the vicinity, however, the dissolved contaminant plume has not reached these utilities.

E. POTENTIAL EXPOSURE PATHWAYS

Potential for exposure to contaminants associated with the subject site would relate to exposure through contaminated soil, ground water, and/or vapors. Potential human exposure would include inhalation (due to vapors entering buildings), ingestion, and absorption through the skin (from contaminated soil and water).

F. TOXICITY AND BEHAVIOR OF KNOWN CONTAMINANT

The following is a summary of the toxicity and behavior of these normal target petroleum components. Please note that currently only Benzene, Ethylbenzene, and MADEP VPH and EPH levels are above the NCAC 2L standards in monitoring wells.

Benzene is a colorless light-yellow liquid with an aromatic odor. Benzene is relatively highly soluble in water. Benzene is considered to be a potential occupational carcinogen according to NIOSH. Benzene has been recognized as an irritant to eyes, nose and respiratory tract. The IDLH (immediately dangerous to life and health) for Benzene is 3,000 ppm. Benzene can cause skin irritation, central nervous system depression, bone depression, and leukemia. Ingestion of Benzene can also cause staggered gait, fatigue, and anorexia.

Ethylbenzene is a colorless liquid with an aromatic odor. The IDLH for Ethylbenzene if 2,000 ppm. Ethylbenzene is a recognized primary irritant to the eyes and mucus membranes. Ingestion of Ethylbenzene can cause headache, dermatitis, narcosis, and coma.

A summary of the Material Safety Data Sheet (MSDS) information is located in Appendix E for Benzene and Ethylbenzene.

IV. GEOLOGIC INVESTIGATION

A. TOPOGRAPHY

Topographically, the subject site slopes slightly to the north.

B. REGIONAL GEOLOGIC TRENDS

Greenville and Pitt County are situated in the Central Coastal Plain Physiographic Province of North Carolina. Greenville lies in central Pitt County.

The Coastal Plain Province is composed of exposed, non-marine to marine sediments and sedimentary rocks of Cretaceous to Recent age. In the Greenville area these include, from youngest to oldest: Pleistocene deposits of sands, clays and minor gravels; Pliocene Yorktown Formation consisting of sands and clays; and the Cretaceous Pee Dee, Black Creek, and Cape Fear Formations are composed of continental, marginal marine, and marine silts, sands and clays (Geologic Map Of North Carolina, 1985).

According to the 1985 Geologic Map of North Carolina, the subject site is located in the Coastal Plain physiographic province. The Coastal Plain aquifer system consists of aquifers primarily composed of gravel, sand, sandstone and limestone separated by confining units of clay and silt. Water can leak through confining units where they are thin or contain sand. Therefore, aquifers in this system may be considered interconnected to some degree.

The site is situated on the surficial aquifer, which is primarily composed of Quaternary age unconsolidated sand, locally gravelly. The surficial aquifer is recognized as a principal aquifer because underlying aquifers commonly contain saline water and their use is therefore restricted.

Underlying the surficial aquifer is the Yorktown confining unit. This unit is averages 22 feet thick and is composed predominantly of clay and sandy clay. Below the Yorktown confining unit is the Yorktown aquifer. This aquifer consists of fine sand, silty and clayey sand, and clay with shells and shell beds. This aquifer has an estimated hydraulic conductivity of 22 feet/day (Winner and Coble, 1996). Sand units are typically less than 10 feet thick and are discontinuous throughout the area. The Yorktown Formation thickens to the east.

Underlying the Yorktown aquifer is the Peedee – upper Cape Fear aquifer. This aquifer consists of (in descending order): the Peedee, Black Creek, and upper Cape Fear aquifers, each separated by clay and silt confining units. The Peedee aquifer is composed of fine to medium glauconitic sand (Cretaceous Peedee Formation) with shell material and calcareous sandstone beds. The Black Creek aquifer is composed of interbedded very fine to fine lignitic, glauconitic and shelly sand and clay overlying fine to medium sand, lenses of coarse sand and clay of the Cretaceous upper Cape Fear Formation (Winner and Coble, 1996). The upper Cape Fear aquifer is composed of alternating beds of fine to medium sand and clay (upper portion of the Cretaceous Cape Fear Formation) (Winner and Coble, 1996).

A confining unit of clay and sandy clay separates the Peedee – upper Cape Fear Aquifer from the underlying lower Cape Fear and lower Cretaceous Aquifers. The lower Cape Fear aquifer is composed of interbedded fine to medium sand and clay (lower portion of the Cretaceous Cape Fear Formation) along with other hydraulically connected permeable sediments. The lower Cretaceous Aquifer is composed of fine to medium sand with a few beds of coarse sand and limestone. These lower Cretaceous strata are known only from sparse subsurface data and have no formal stratigraphic names.

The Black Creek Formation has been elevated to Group status and subdivided into three formations bounded by unconformities (Owens and Sohl, 1989). From oldest to youngest, these include: Tar Heel Formation, Bladen Formation, and Donoho Creek Formation. Each formation has been further subdivided into delta plain, delta front, prodelta, and shelf lithofacies.

C. SITE GEOLOGY

The CSA investigation found fill material from 0-approximately 5 ft. below land surface (bls). This is underlain by tan and yellow-brown, fine sandy clay with very fine sand stringers to a depth of 7-10 ft. bls. Below this is a gray plastic clay, usually with iron mineralization along dessication? fractures to a depth of 13 ft. bls. This is underlain by a dark blue-gray, silty clay to a depth of 30 ft. bls. This is underlain by a dark blue-gray silty clay with marine fossils. Well construction logs are included in Appendix F. Geologic cross sections are located in Appendix G.

D. SOIL INVESTIGATION

On 06/28/02, one soil boring was installed and samples were collected in order to meet the requirements of the LSA rules. The boring was completed using hollow stem augers (HSA) and samples were collected in 24" split spoon samplers. The boring was advanced to a depth of 16 feet, at which point a monitoring well was installed. One soil sample was obtained at a depth of 5 ft. bls for analysis.

A later soil investigation was conducted on 10/11/02 and consisted of four (4) soil borings (BH-1 through BH-4) in the parking lot area of the site. Soil samples were collected at depths of 4-5 ft. and 7-8 ft. bls. Samples from the 4-5 ft depth showed no sign of contamination. Soil samples from the 7-8 ft. bls were submitted for laboratory analysis due to depth to ground water (8.5 ft. bls) at that time (during long drought conditions). Soil borings BH-1 and BH-2 showed Naphthalene and C9-C22 Aromatics above the soil-to-groundwater maximum soil contaminant concentration (MSCC).

A subsequent soil investigation (11/14/02) consisted of three (3) additional soil borings to a depth of 4 ft. bls. Soil samples from the 3-4 ft. bls were submitted for laboratory analysis due to depth to ground water (4.5 ft. bls) at that time (during heavy precipitation conditions). Only the sample from BH-6 showed soil contamination at 50.2 mg/kg (C9-C22 Aromatics). AES consideres the soil contamination defined as immediately adjacent to the UST pit and in the area of BH-1, BH-2, and BH-6.

Laboratory results for soil soil samples are included in Appendix H. Soil contamination maps are included in Appendix I.

TABLE 7
SUMMARY OF SOIL SAMPLING RESULTS

Date: 06/28/02 **Incident Number and Name:** 24346 WILCAR Executive Center **Facility ID#:** N/A

Analytical Method (e.g., VOC by EPA 8260) →			8260	8260	8260	8260	8260	VPH/EPH	VPH/EPH	VPH/EPH	VPH/EPH
Sample ID	**Contaminant of Concern** →		n-Butylbenzene	Naphthalene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	o-Xylene	C5-C8 Aliphatics	C9-C18 Aliphatics	C19-C36 Aliphatics	C9-C22 Aromatics
	Date Collected (m/dd/yy)	**Sample Depth** (ft. BGS)									
MW-1	06/28/02	5	0.546	**0.664**	1.15	0.547	0.603	<20	315	106	**136.4**
SOIL-TO-GROUNDWATER(mg/kg)			4	0.58	8	7	5	72	3,255	##	34
Residential MSCC (mg/kg)			156	63	782	782	32,000	939	9,386	93,860	469
Industrial/Commercial MSCC (mg/kg)			4,088	1,635	20,440	20,440	200,000	24,528	245,280	#	12,264

- Indicate method detection limit for contaminants when analyzed, but not detected (e.g., <1, 10, 42)
- List any contaminant detected above the method detection limit
- MSCC = maximum soil contaminant concentration
- Ft. BGS = feet below ground surface
- Results must be reported in mg/kg
- mg/kg = milligrams per kilogram
- Contaminant levels in bold exceed the minimum reportable quantity
- # = Health based level >100%
- ## = Considered immobile

TABLE 8
SUMMARY OF SOIL SAMPLING RESULTS

Date: 06/28/02 **Incident Number and Name:** 24346 WILCAR Executive Center **Facility ID#:** N/A

Analytical Method (e.g., VOC by EPA 8260) →			8260	8260	8260	8260	8260	VPH/EPH	VPH/EPH	VPH/EPH	VPH/EPH
Sample ID	**Contaminant of Concern →**		n-Butylbenzene	Naphthalene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	o-Xylene	C5-C8 Aliphatics	C9-C18 Aliphatics	C19-C36 Aliphatics	C9-C22 Aromatics
	Date Collected (m/dd/yy)	**Sample Depth (ft. BGS)**									
BH-1	10/11/02	7-8	<1.25	**3.11**	3.54	<1.25	<1.25	<100	2,330	662	**1,417**
BH-2	10/11/02	7-8	2.25	**2.40**	5.89	2.82	2.71	<100	1,430	470	**1,194**
BH-3	10/11/02	7-8	<0.005	<0.005	<0.005	<0.005	<0.005	<10	<10	<10	<10
BH-4	10/11/02	7-8	<0.005	<0.005	<0.005	<0.005	<0.005	<10	<10	25.8	<10
SOIL-TO-GROUNDWATER(mg/kg)			4	0.58	8	7	5	72	3,255	##	34
Residential MSCC (mg/kg)			156	63	782	782	32,000	939	9,386	93,860	469
Industrial/Commercial MSCC (mg/kg)			4,088	1,635	20,440	20,440	200,000	24,528	245,280	#	12,264

TABLE 9
SUMMARY OF SOIL SAMPLING RESULTS

Date: 06/28/02 **Incident Number and Name:** 24346 WILCAR Executive Center **Facility ID#:** N/A

Analytical Method (e.g., VOC by EPA 8260) →			8260	8260	8260	8260	8260	VPH/EPH	VPH/EPH	VPH/EPH	VPH/EPH
Sample ID	**Contaminant of Concern →**		n-Butylbenzene	Naphthalene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	o-Xylene	C5-C8 Aliphatics	C9-C18 Aliphatics	C19-C36 Aliphatics	C9-C22 Aromatics
	Date Collected (m/dd/yy)	**Sample Depth (ft. BGS)**									
BH-5	11/14/02	3-4	<0.005	<0.005	<0.005	<0.005	<0.005	<10	<10	<10	<10
BH-6	11/14/02	3-4	<0.005	<0.005	<0.005	<0.005	<0.005	<10	<10	61.8	**50.2**
BH-7	11/14/02	3-4	<0.005	<0.005	<0.005	<0.005	<0.005	<10	<10	<10	<10
SOIL-TO-GROUNDWATER(mg/kg)			4	0.58	8	7	5	72	3,255	##	34
Residential MSCC (mg/kg)			156	63	782	782	32,000	939	9,386	93,860	469
Industrial/Commercial MSCC (mg/kg)			4,088	1,635	20,440	20,440	200,000	24,528	245,280	#	12,264

V. GROUND WATER INVESTIGATION

A. MONITORING WELL LOCATION AND CONSTRUCTION

All monitoring wells were installed by Rogers Drill and Probe. AES supervised the installation of eight (8) Type II and one (1) Type III monitoring wells at the subject site (Appendix H & L). The monitoring wells are constructed of two inch Sch. 40 PVC. The Type II monitoring wells are 15 ft. deep, each with ten feet of 0.010 in. slotted screen (Appendix H). The Type III monitoring well was 35 ft. deep with a screen interval from 30-35 ft deep. The monitoring wells were placed to screen the surficial aquifer.

The following table summarizes the known well construction data for the monitoring well at the subject site. Well construction records for the monitoring wells are included in Appendix H. A monitoring well location map is included in Appendix L.

TABLE 10
WELL CONSTRUCTION INFORMATION
Date: 06/28/02 **Incident Number and Name:** 24346 WILCAR Executive Center **Facility:** N/A

Well #	Date Constructed	Total Depth (ft)	Screened Interval (ft)
MW-1	06/28/02	15	5-15
MW-2	09/16/02	15	5-15
MW-3	09/16/02	15	5-15
MW-4	09/16/02	15	5-15
MW-5	10/08/02	15	5-15
MW-6	10/08/02	15	5-15
MW-7	10/08/02	15	5-15
MW-8	10/08/02	15	5-15
DW-1	09/18/02	35	30-35

B. CONTAMINANT PLUME CHARACTERISTICS

Free Product Survey

Free phase petroleum product has been observed in the past in monitoring wells MW-1 and MW-4.

Dissolved Contaminant Determination

AES performed ground water sampling at the end of each phase of work at the subject site. The monitoring wells were sampled as per proper protocol for EPA Methods 602 with the following additions: Xylene, MTBE, and IPE; 625 BNA; and MADEP VPH and EPH. The following summarizes the analytical results of the ground water sampling events.

Supporting analytical results are located within Appendix M. Dissolved iso-contaminant maps are included in Appendix N. A copy of the ground water sampling protocol is located in Appendix O.

TABLE 11

SUMMARY OF GROUND WATER SAMPLING RESULTS

Date: 07/01/02 **Incident Number and Name:** 24346 WILCAR Executive Center **Facility ID#:** N/A

Analytical Method (e.g., VOC by EPA 8260) →			602	602	602	602	602	625	625	VPH/ EPH	VPH/ EPH	VPH/ EPH	VPH/ EPH
Contaminant of Concern →			Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Acenaphthene	Phenanthrene	C5-C8 Aliphatics	C9-C18 Aliphatics	C19-C36 Aliphatics	C9-C22 Aromatics
Well ID	**Sample ID**	**Date Collected (m/dd/yy)**											
MW-1	MW-1	07/01/02	**10**	14	**33**	101	46	63	52	**610**	**24,600**	5,410	**7,210**
2L Standard (µg/l)			1	1,000	29	530	200	80	210	420	4,200	42,000	210
GCL (µg/l)			5,000	257,500	29,000	87,500	200,000	2,120	410	N/A	N/A	N/A	N/A

- Indicate method detection limit for contaminants when analyzed, but not detected (e.g., <1, 10, 42)
- List any contaminant detected above the method detection limit
- µg/l = micrograms per liter
- GCL = gross contamination level
- Contaminant levels in bold exceed the minimum reportable quantity

TABLE 12
SUMMARY OF GROUND WATER SAMPLING RESULTS

Date: 09/19/02 **Incident Number and Name:** 24346 WILCAR Executive Center **Facility ID#:** N/A

Analytical Method (e.g., VOC by EPA 8260) →			602	602	602	602	602	625	VPH/EPH	VPH/EPH	VPH/EPH	VPH/EPH
Contaminant of Concern →			Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	C5-C8 Aliphatics	C9-C18 Aliphatics	C19-C36 Aliphatics	C9-C22 Aromatics
Well ID	**Sample ID**	**Date Collected (m/dd/yy)**										
MW-1	MW-1	09/19/02	*	*	*	*	*	*	*	*	*	*
MW-2	MW-2	09/19/02	<1	<1	<1	<3	<1	<10	<100	<100	<100	<100
MW-3	MW-3	09/19/02	<1	<1	<1	<3	<1	<10	<100	<100	<100	<100
MW-4	MW-4	09/19/02	*	*	*	*	*	*	*	*	*	*
DW-1	DW-1	09/19/02	**2.90**	1.90	3.70	11.0	3.70	10.20	<100	**50,400**	310	**955**
2L Standard (µg/l)			1	1,000	29	530	200	21	420	4,200	42,000	210
GCL (µg/l)			5,000	257,500	29,000	87,500	200,000	15,500	N/A	N/A	N/A	N/A

- Indicate method detection limit for contaminants when analyzed, but not detected (e.g., <1, 10, 42)
- List any contaminant detected above the method detection limit
- µg/l = micrograms per liter
- GCL = gross contamination level
- * = Free phase petroleum product

TABLE 13
SUMMARY OF GROUND WATER SAMPLING RESULTS

Date: 10/14/02 **Incident Number and Name:** 24346 WILCAR Executive Center **Facility ID#:** N/A

Analytical Method (e.g., VOC by EPA 8260) →			602	602	602	602	602	625	VPH/EPH	VPH/EPH	VPH/EPH	VPH/EPH
Contaminant of Concern →			Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Naphthalene	C5-C8 Aliphatics	C9-C18 Aliphatics	C19-C36 Aliphatics	C9-C22 Aromatics
Well ID	**Sample ID**	**Date Collected (m/dd/yy)**										
MW-5	MW-5	10/14/02	<1	<1	<1	<3	<1	<10	<100	<100	<100	<100
MW-6	MW-6	10/14/02	<1	<1	<1	<3	<1	<10	<100	<100	<100	<100
MW-7	MW-7	10/14/02	<1	<1	<1	<3	2.60	<10	<100	<100	<100	<100
MW-8	MW-8	10/14/02	<1	<1	<1	<3	<1	<10	<100	<100	<100	127
2L Standard (µg/l)			1	1,000	29	530	200	21	420	4,200	42,000	210
GCL (µg/l)			5,000	257,500	29,000	87,500	200,000	15,500	N/A	N/A	N/A	N/A

- Indicate method detection limit for contaminants when analyzed, but not detected (e.g., <1, 10, 42)
- List any contaminant detected above the method detection limit
- µg/l = micrograms per liter
- GCL = gross contamination level

C. HYDROGEOLOGIC CHARACTERISTICS

After the installation of the monitoring wells, the wells were developed to remove fines and drill cuttings using a purge pump. After well development, the ground water was allowed to equilibrate for a period of not less than 24 hours.

The static water level was measured from the top of the casing with a water level meter. The tops of casing (TOC) of monitoring wells were surveyed for spatial distribution (horizontal and vertical). The TOC of sump well MW-1 was utilized as a benchmark with an assumed elevation of 100.00 feet above Mean Sea Level.

Depths to ground water elevation measurements (Appendix N) were utilized in constructing potentiometric surface maps (Appendix O). Ground water flow direction and gradient were also calculated using the calculated ground water elevations.

Based on the ground water data, ground water flow was to the northeast with a hydraulic gradient of 0.0083 ft/ft (09/23/02) using MW-2, MW-3, and MW-4. Ground water flow was to the northeast with a hydraulic gradient of 0.0053 ft/ft (10/21/02) using MW-2, MW-3, and MW-6.

AES personnel performed three slug tests (slug out) at the subject site (Bouwer and Rice). Wells used for slug tests include MW-1, MW-2, MW-3, and MW-4 (Appendix P). Below is a table showing results from the withdrawal slug tests and the average hydraulic conductivity (k) and transmissivity (T) by using T = kb where b = aquifer thickness (5 ft.).

TABLE 14
SUMMARY OF SLUG TEST RESULTS
Date: 10/14/02 **Incident Number and Name:** 24346 WILCAR Executive Center **Facility ID#:** N/A

WELL #	MW-1	MW-2	MW-3	MW-4
HYDRAULIC CONDUCTIVITY (k)	1.11 X 10^{-3} ft./min	2.49 X 10^{-4} ft./min	7.34 X 10^{-4} ft./min	1.07 X 10^{-3} ft./min
(AVERAGE)	7.91 X 10^{-4} ft./min			
TRANSMISSIVITY (T)	0.0055 sq.ft./day	0.0012 sq.ft./day	0.0037 sq.ft./day	0.0053 sq.ft./day
(AVERAGE)	0.0109 sq.ft./day			

AES used the average slug test hydraulic conductivity value of 7.91 X 10^{-4} ft/min (1.14 ft/day), an estimated porosity of 0.40 and the hydraulic gradient of 0.0053 ft/ft to yield an average linear flow velocity (v) of 0.015 ft/day or 5.51 ft/yr using the formula v=k(dh/dl)/porosity for the shallow regime.

The hydraulic conductivity can also be calculated using values generated by mechanically analyzing a sample of the aquifer material (Driscoll, 1986). Using the US Standard Sieve chart for loose soils (determined by blow counts) and values from the grain size distribution test report (Appendix Q). This method incorporates a grain size analysis distribution curve, i.e. cumulative % retained vs. grain size, constructed from sieve analysis data. From the grain size distribution curve, a Uniformity Coefficient (UC) can be calculated by the following equation:

UC = 40% Retained ÷ 90% Retained

The lower the value, the more uniform the grading is between the 90% and 40% limits. The larger the value the less the uniform the grading.

The hydraulic conductivity can be estimated using the Uniformity Coefficient (UC), using 50% retained grain size (mm), and the relative density of the sediment (loose, medium-dense and dense). The permeability (x 10^{-4} cm/sec) is read directly from a graph and must be converted mathematically to yield hydraulic conductivity in units of gal/day/ft^2 or ft/day. This method could not be used because the 90% retained (10% finer) level was never reached in the grain size analysis.

AES feels that the slug test numbers should be used only as estimates for aquifer parameters since the actual porosity, a mixture of saprolite porosity and fracture porosity in the weathered rock, is unknown. For ground water modeling in further reports AES will use the hydraulic conductivity (k), transmissivity (T), and velocity (v) values obtained from the slug test analysis.

D. RATIONALE FOR WELL LOCATION AND CONSTRUCTION

The subject site has contained petroleum products in an underground storage tank. These products in the undissolved state are lighter than water and would therefore, float on the ground water table.

The target compounds of these petroleum products in the dissolved state are volatile and semi-volatile compounds such as Benzene, Toluene, Ethylbenzene, Xylene, and Naphthalene. These compounds, which are identified within the EPA Method 602 extended and 626 BNA analyses, distribute by equilibration throughout the aquifer or monitoring well.

AES supervised the installation of eight (8) Type II and one (1) Type III monitoring wells (Appendix J). The monitoring wells were installed to determine: the ground water flow direction (down, up, and side gradient of the subject site); the presence or absence of free phase petroleum product; the horizontal and vertical concentration of dissolved contaminants associated with the suspected release of petroleum product at the subject site; and the lithology of subsurface material.

VI. CONCLUSIONS AND RECOMMENDATIONS

AES has performed a Comprehensive Site Assessment as per federal regulations 40 CFR Parts 280.65 and NCAC 2N .0706. AES supervised the installation of eight (8) Type II and one (1) Type III monitoring wells, performed ground water sampling at the end of each phase of work at the subject site, and performed aquifer testing.

The CSA investigation found fill material form 0-approximately 5 ft. below land surface (bls). This is underlain by tan and yellow-brown, fine sandy clay with very fine sand stringers to a depth of 7-10 ft. bls. Below this is a gray plastic clay, usually with iron mineralization along dessication? fractures to a depth of 13 ft. bls. This is underlain by a dark blue-gray, silty clay to a depth of 30 ft. bls. This is underlain by a dark blue-gray silty clay with marine fossils.

Contaminated soil at the subject site has been identified only in the immediate area of the former UST.

The ground water analytical results indicate that several monitoring wells currently exceed the NCAC 2L standard for contaminant parameters (Benzene, Ethylbenzene, and C9-C22 Aromatics). Monitoring wells MW-1 and MW-4 contained the highest concentrations of any monitoring well. These monitoring wells have formerly contained free phase petroleum products.

Based on the ground water data, ground water flow was to the northeast with a hydraulic gradient of 0.0083 ft/ft (09/23/02) using MW-2, MW-3, and MW-4. Ground water flow was to the northeast with a hydraulic gradient of 0.0053 ft/ft (10/21/02) using MW-2, MW-3, and MW-6. The average slug test hydraulic conductivity value of 7.91×10^{-4} ft/min (1.14 ft/day), an estimated porosity of 0.40 and the hydraulic gradient of 0.0053 ft/ft were used to yield an average linear flow velocity (v) of 0.015 ft/day or 5.51 ft/yr using the formula v=k(dh/dl)/porosity for the shallow regime.

Based on the information gathered during the CSA investigation, AES recommends the completion of a Corrective Action Plan (CAP). This CAP should be for natural attenuation in spite of the site being a high priority site due to the proximity of the city well. The city well is located at approximately 950 feet in an up gradient position and is screened in a deep aquifer system. Other than this well, there is no reason for the high priority ranking. The presence of free product at the site does necessitate an intermediate site ranking.

The site is slated for possible demolition and if this happens, some additional soil investigation is warranted. At this point a limited area of soil excavation is needed.

VII. LIMITATIONS

The purpose of this report was to assess the existing and potential environmental concerns and liabilities associated with the discharge/leakage of petroleum from underground storage tanks formerly located at the subject site. The interpretive conclusions presented in this report are based only on the observations of AES personnel made during the dates of site visits and should not be relied upon to represent site conditions at other dates or other contaminants. The report presents a description of subsurface conditions observed at each boring location conducted during the investigation. Subsurface conditions may vary significantly through time, particularly with respect to ground water flow, ground water elevations, and ground water quality.

VIII. REFERENCES

Driscoll, Fletcher G., 1986, Groundwater and Wells, 2nd ed., Johnson Filtration Systems, Inc., St. Paul, Minnesota, 1089 p.

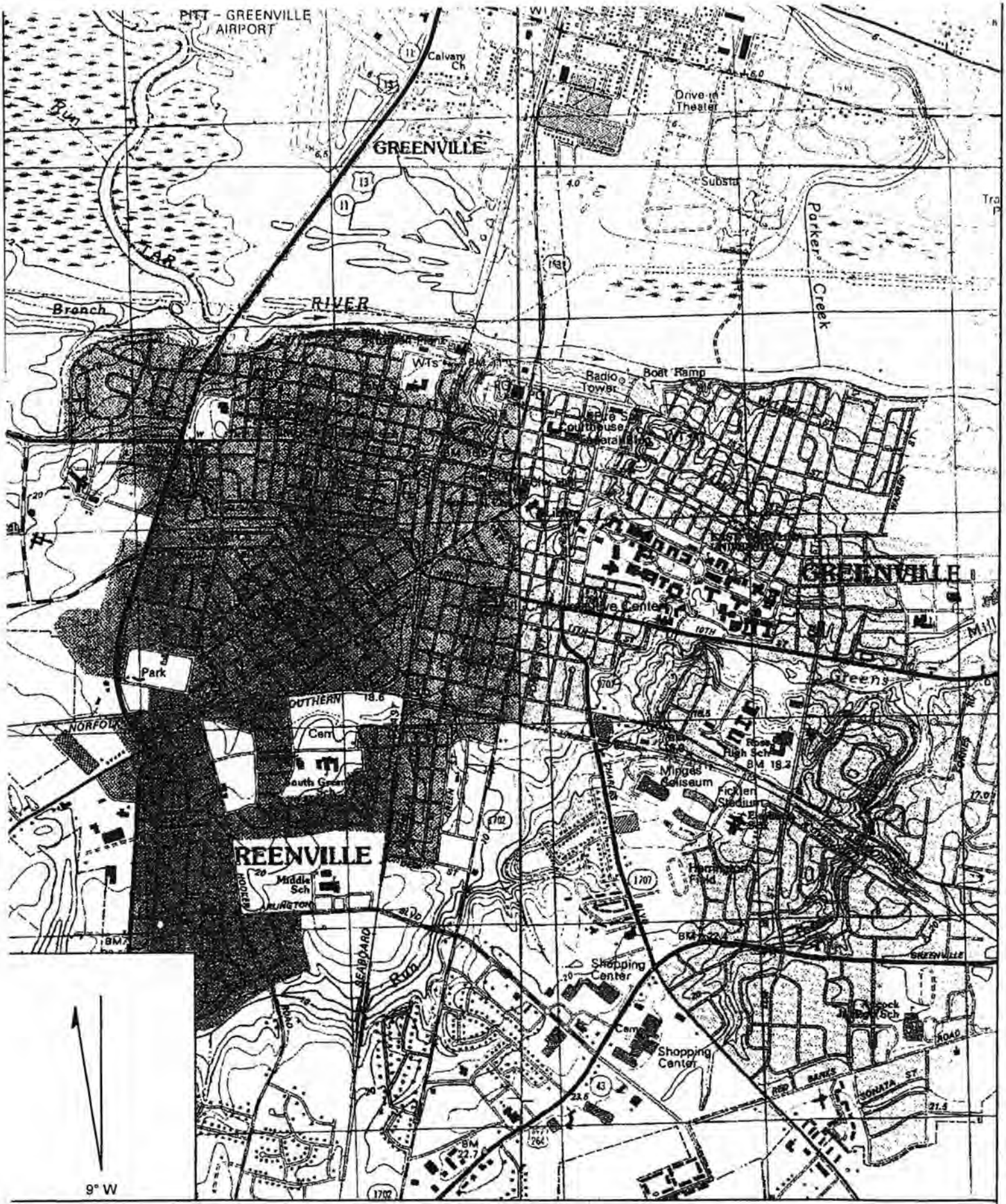
Geologic Map Of North Carolina, 1985. Dept. of Natural Resources, Div. of Land Resources, Raleigh, NC.

Owens, James P. and Sohl, Norman F., 1989, Campanian and Maastictian Depositional Systems of the Black Creek Group of the Carolinas, Carolina Geological Society Field Trip Guidebook, October 28-29, 1989, NC Geological Survey, Raleigh, NC.

Winner, M.D. and Coble, R.W., 1996, Hydrogeologic Framework of the North Carolina Coastal Plain, USGS Professional paper 1404-I, Washington D.C.

APPENDIX A

VICINITY MAP

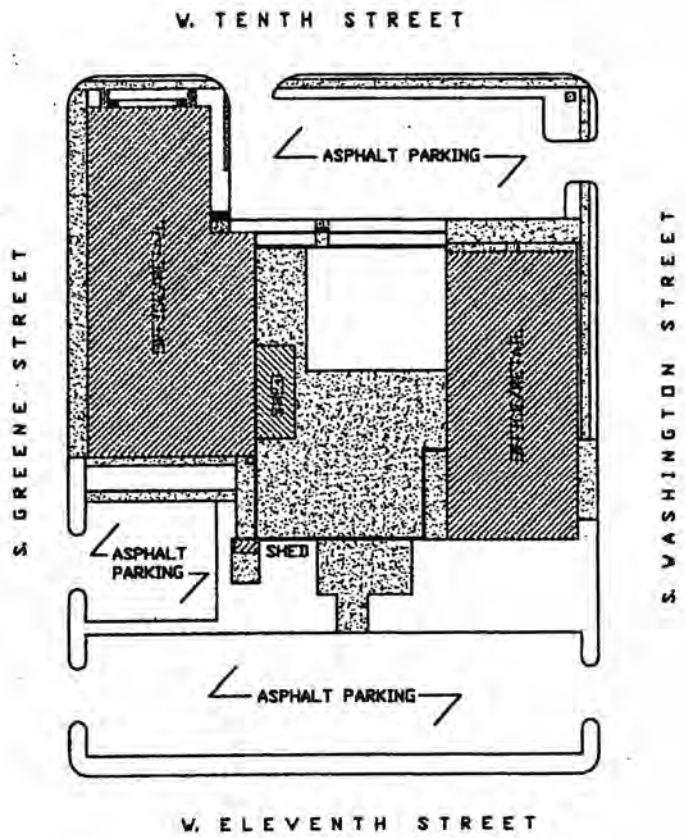


Name: GREENVILLE SE
Date: 11/21/102
Scale: 1 inch equals 2000 feet

Location: 035° 36' 20.3" N 077° 22' 33.5" W
Caption: WILCAR Executive Center
223 W. 10th Street
Greenville, Pitt Co., NC

APPENDIX B

SITE MAP



LEGEND

- MONITORING WELL
- RECOVERY WELL
- DEEP WELL
- U/G STORAGE TANKS
- A/G STORAGE TANKS

GRAPHIC SCALE

20 0 20 40 60 80 100

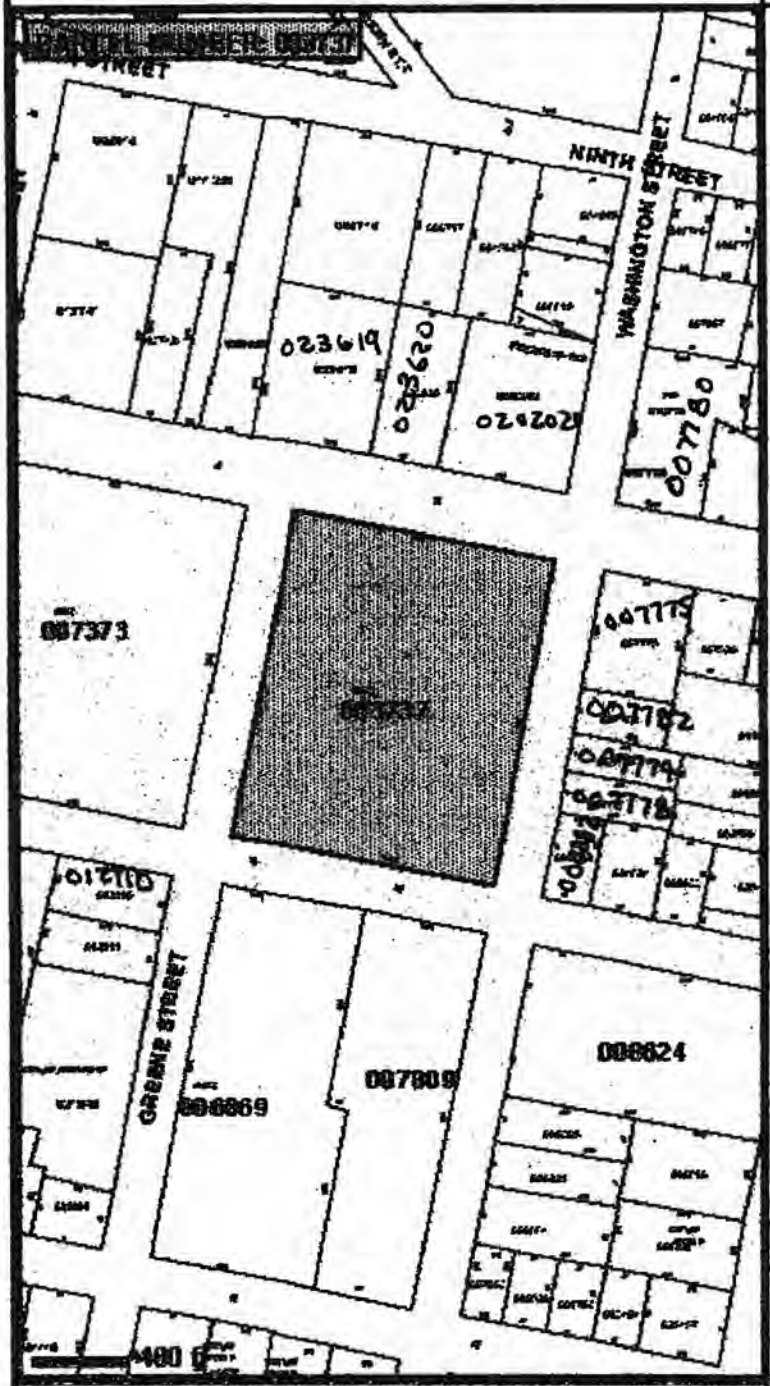
Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. 001 Scale 1"=100' Date 08/08/02	SITE MAP WILCAR EXECUTIVE CENTER GREENVILLE, PITT CO., NORTH CAROLINA	ALLIED ENVIRONMENTAL SERVICES	GREENVILLE, NORTH CAROLINA

APPENDIX C

PROPERTY OWNERS MAP

Pitt County, North Carolina

www.co.pitt.nc.us



PARCEL NUMBER: 003737

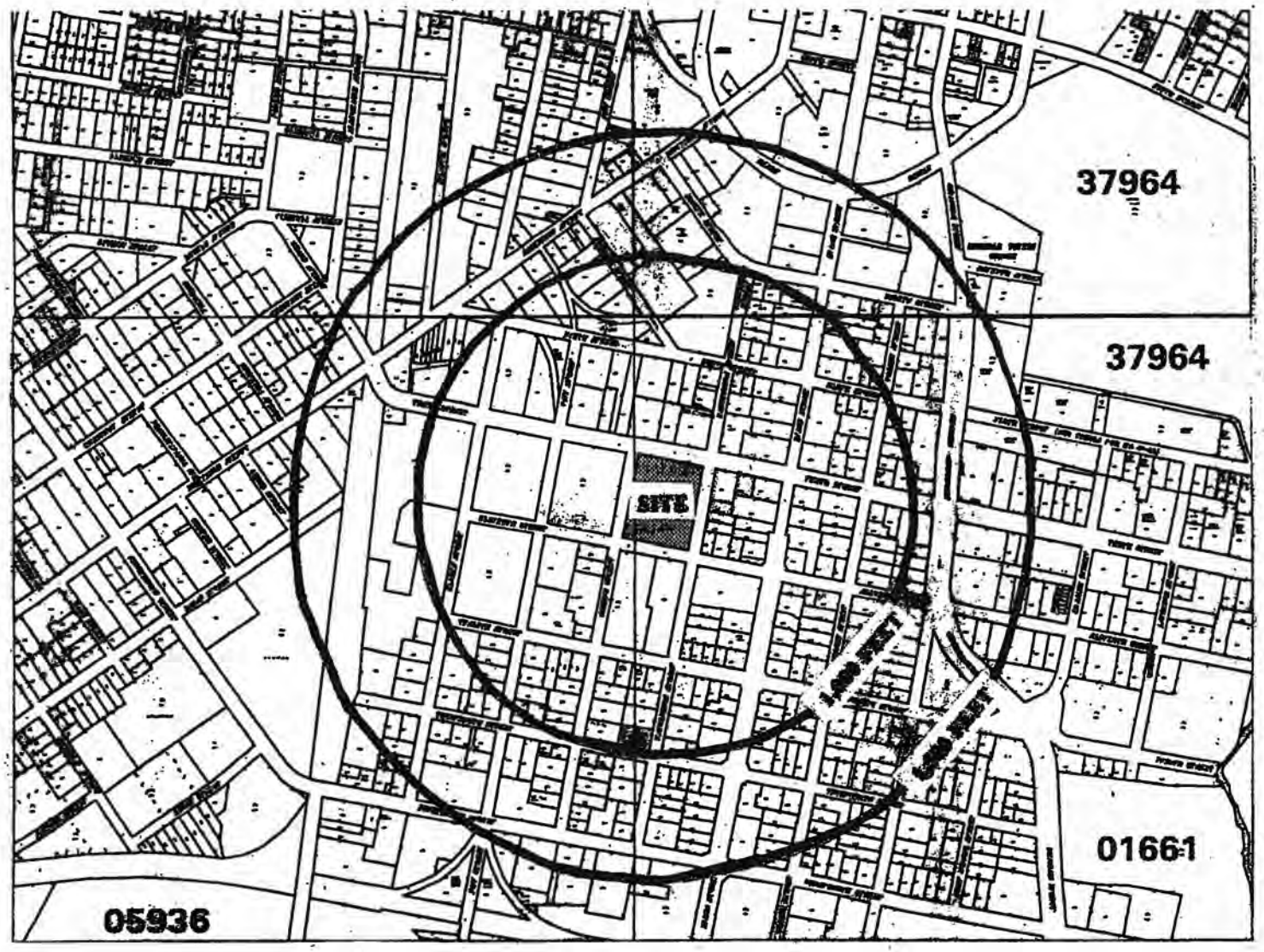
ParcelNumber	003737
AccountNumber	88882000
LocationNumber	223
LocationDirection	-
LocationStreet	TENTH & GREENE
LocationType	-
Municipality	GREENVILLE
OwnerName	WILLIAMSON JAMES MILTON
OwnerAddress1	2403 S CHARLES ST
OwnerAddress2	-
OwnerAddress3	-
City	GREENVILLE
State	NC
ZipCode	27858
LegalDescription	TENTH & GREENE
DeedBook	A49
DeedPage	0811
MapBlockLot	4687.06-29-6206.000
Township	GREENVILLE
CensusTract	3714701
FireTaxDistrict	GREENVILLE
RescueTaxDistrict	GREENVILLE
Zoning	IU
UseCode	COMMERCIAL
YearBuilt	1925
HeatedSqFt	8158
TotalSqFt	10385
SalesMonth	06
SalesYear	1980
SalesPrice	$0
Acres	.00
TotalTaxValue	$441,900
BuildingValue	$277,860
LandValue	$145,750
XTraFeaturesValue	$18,290
TaxesBilled	$5,722.61
TaxesDue	$.00
ElementarySchool	ELMHURST
MiddleSchool	E.B. AYCOCK
HighSchool	J.H. ROSE

Data Current As Of:
Fri 06/14/2002 2:21p

FIGURE 5
ADJACENT PROPERTY OWNERS

APPENDIX D

WATER SUPPLY WELL MAP



Owner:WILLIAMSON, JAMES MILTON
Asset#:88882000
Cur-tax-value:441900
Cur-land-value:145750

FIGURE 3
RECEPTOR MAP

PITT COUNTY
TAX ASSESSOR'S
OFFICE

Parcel Number: 03737

Requested by:
WILLIAMSON

Parcel Lines

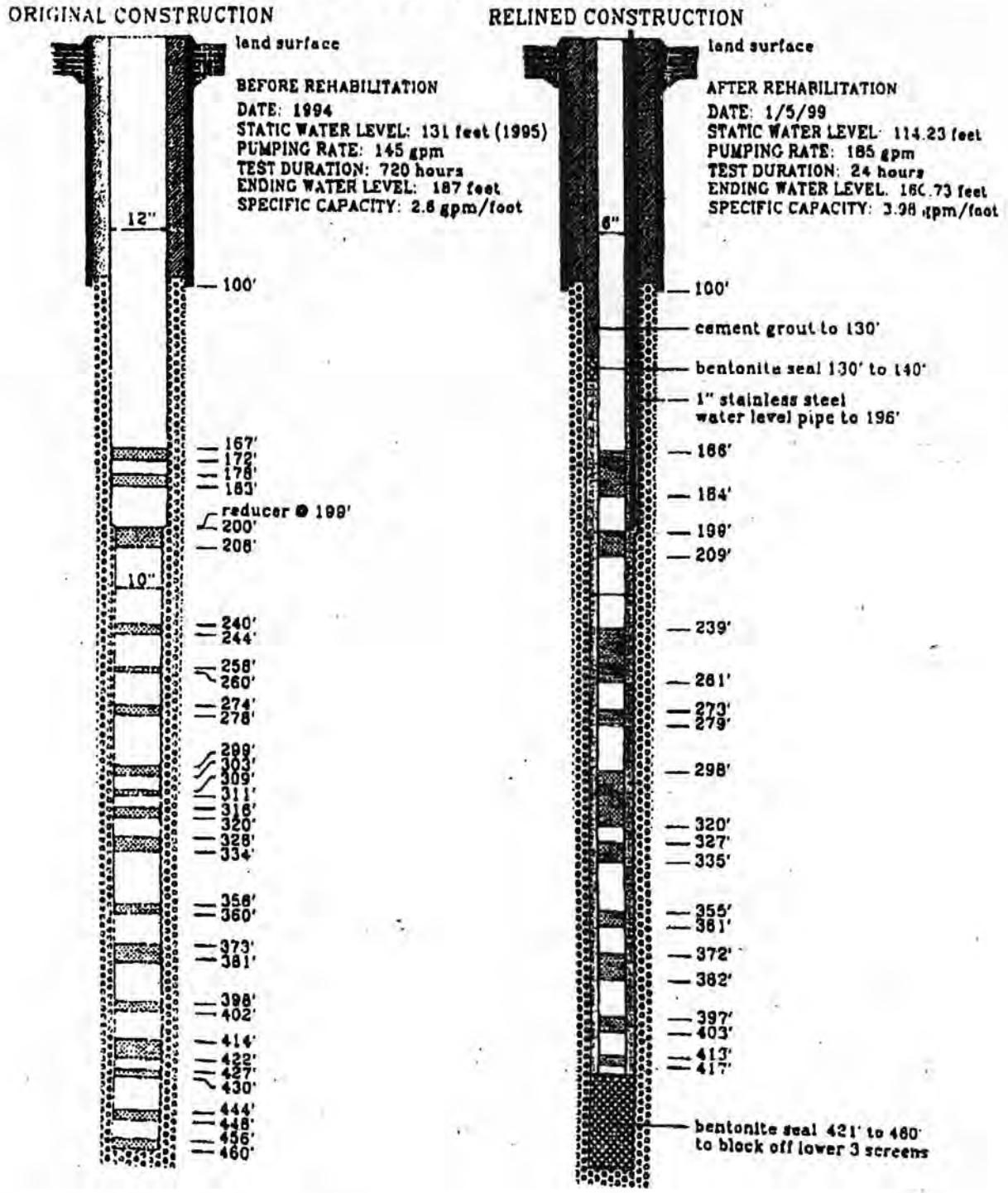
Soil Lines

Based on the North Carolina
State Plane Coordinate System
1927 Datum

Scale: 1" : 654 ft

This map is furnished by PITT COUNTY for illustration purposes only. This map is NOT a certified survey and no reliance may be placed in its accuracy.

WASHINGTON STREET WELL



Depths measured from top of outer casing.

gpm = gallons per minute

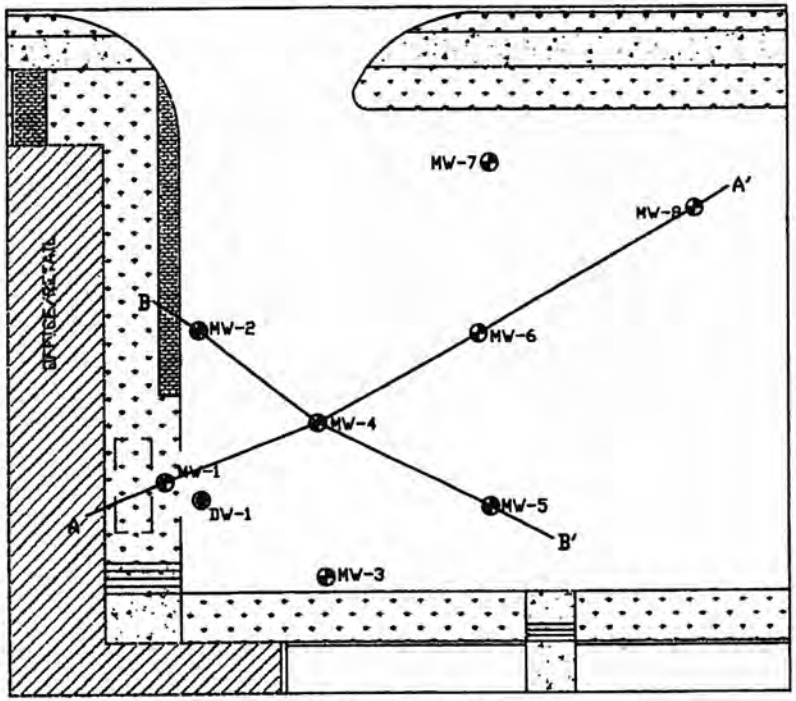
Vertical Scale:
1 inch = 60 feet

Greenville Utilities Commission
Greenville, Pitt County
Groundwater Management Associates, Inc.

Date: 1/15/99
File Name: 22005\well1.dw2

APPENDIX G

GEOLOGIC CROSS SECTIONS



PARTIAL PLAN

N

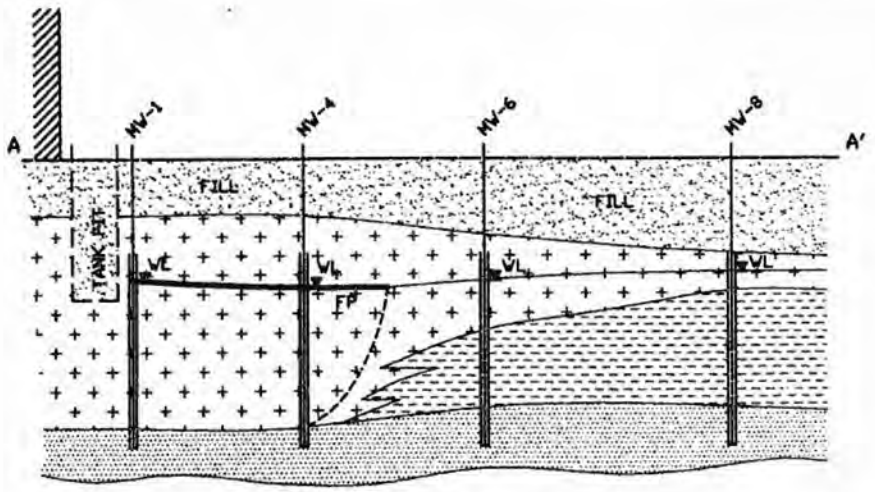
LEGEND

- XX CONTAMINANT LINES
- XX GROUNDWATER LINES
- DIRECTION OF FLOW
- XX NATURAL ATTENUATION LINES
- SAMPLE LOCATION
- MONITORING WELL
- (R) RECOVERY WELL
- DEEP WELL
- U/G STORAGE TANKS
- A/G STORAGE TANKS

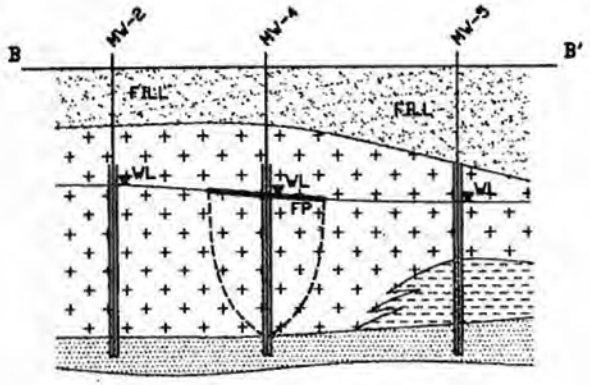
GRAPHIC SCALE

10 0 10 20 30 40 50

Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. 008A Scale 1"=50' Date 11/22/02	GEOLOGIC CROSS SECTIONS WILCAR EXECUTIVE CENTER GREENVILLE, PITT CO., NORTH CAROLINA	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA



SECTION A-A' (SW-NE)



SECTION B-B' (NW-SE)

LEGEND

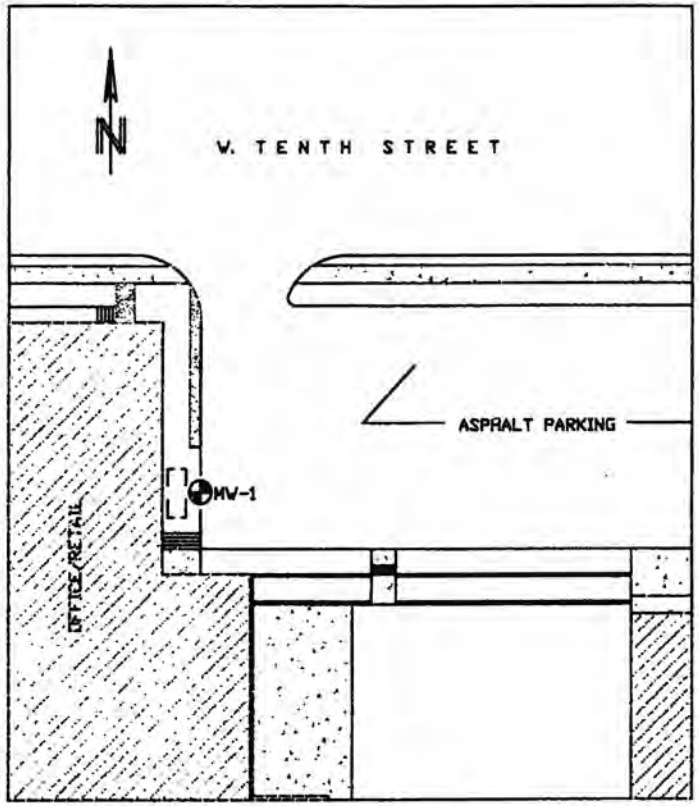
- WL — WATER LEVEL
- FP — FREE PRODUCT
- LIMIT OF GW CONTAMINATION
- TAN-YEL/BRN FINE SAND
- YEL/BRN-GRY SILTY CLAY
- GRY PLASTIC CLAY
- DK-GRY SILTY CLAY

VERTICAL SCALE: 1" = 50'
HORIZONTAL SCALE: 1" = 10'

Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. 008B Scale NOTED Date 11/22/02	GEOLOGIC CROSS SECTIONS WILCAR EXECUTIVE CENTER GREENVILLE, PITT CO., NORTH CAROLINA	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA

APPENDIX I

SOIL CONTAMINANT MAPS



PARTIAL PLAN

SOIL ANALYSIS 06/28/02 (mg/kg)		
COMPOUND	MW-1 5 FT	STGW MSCC
n-Butylbenzene	0.546	4
Naphthalene	<0.664>	0.58
1,2,4-Trimethylbenzene	1.15	8
1,3,5-Trimethylbenzene	0.547	7
o-Xylene	0.603	5
C9-C18 Aliphatics	315	3,255
C19-C36 Aliphatics	106	*
C9-C22 Aromatics	<136.4>	34

* CONSIDERED IMMOBILE

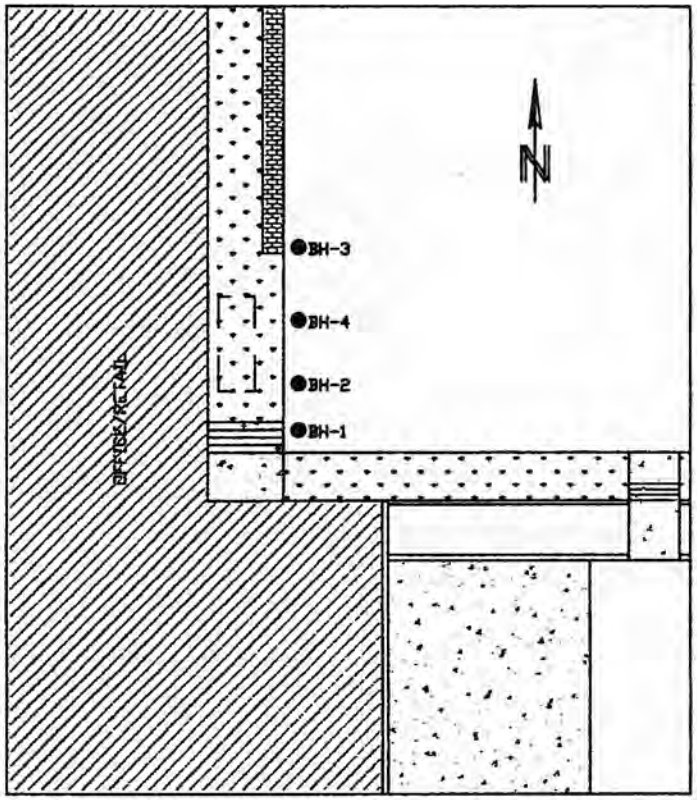
LEGEND
- MONITORING WELL
- RECOVERY WELL
- DEEP WELL
- U/G STORAGE TANKS
- A/G STORAGE TANKS

GRAPHIC SCALE
10 0 10 20 30 40 50

Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. 003 Scale 1"=50' Date 08/09/02	SOIL CONTAMINATION MAP WILCAR EXECUTIVE CENTER GREENVILLE, PITT CO., NORTH CAROLINA	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA

SOIL ANALYSIS 10/11/02 (mg/kg)					
COMPOUND	BH-1 7-8 FT	BH-2 7-8 FT	BH-3 7-8 FT	BH-4 7-8 FT	STGW MSCC
n-Butylbenzene	<1.25	2.25	<0.005	<0.005	4.0
Naphthalene	<3.11>	<2.40>	<0.005	<0.005	0.58
1,2,4-Trimethylbenzene	3.54	5.89	<0.005	<0.005	8.0
1,3,5-Trimethylbenzene	<1.25	2.82	<0.005	<0.005	7.0
Xylenes	<1.25	2.71	<0.005	<0.005	5.0
C9-C18 Aliphatics	2,300	1,430	<10	<10	3,255
C19-C36 Aliphatics	662	470	<10	25.8	*
C9-C22 Aromatics	<1,417>	<1,194>	<10	<10	34.0

* CONSIDERED IMMOBILE



PARTIAL PLAN

LEGEND

- XX CONTAMINANT LINES
- XX GROUNDWATER LINES
- DIRECTION OF FLOW
- XX NATURAL ATTENUATION LINES
- SAMPLE LOCATION
- MONITORING WELL
- RECOVERY WELL
- DEEP WELL
- U/G STORAGE TANKS
- A/G STORAGE TANKS

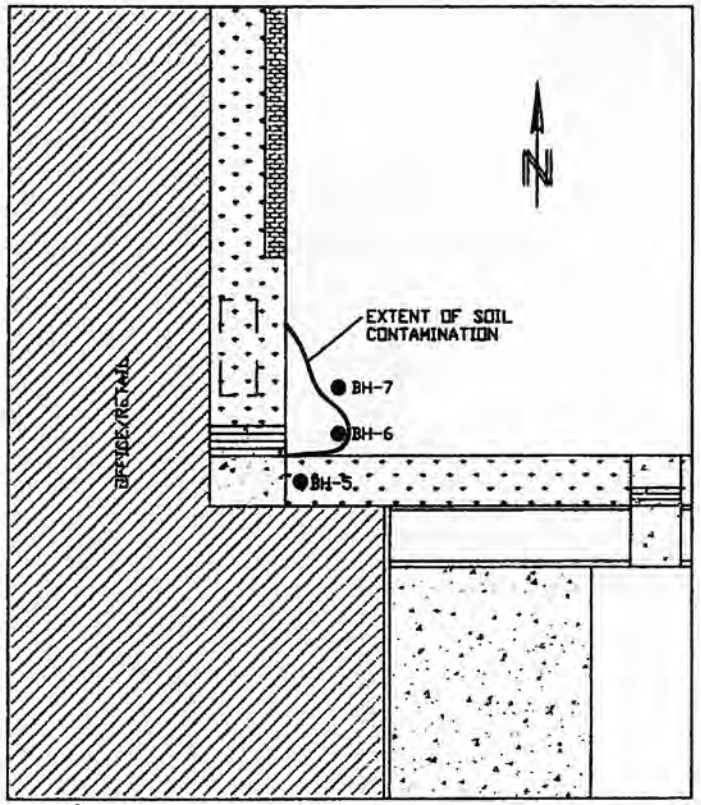
GRAPHIC SCALE

10 0 10 20 30 40 50

Proj. No.	02-1001	Dwg. No.	005A	SOIL CONTAMINATION MAP WILCAR EXECUTIVE CENTER GREENVILLE, PITT CO., NORTH CAROLINA	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA
Ckd. By	BEG	Scale	1"=50'		
Drn. By	BWG	Date	10/24/02		

SOIL ANALYSIS 11/14/02 (mg/kg)				
COMPOUND	BH-5 7-8 FT	BH-6 7-8 FT	BH-7 7-8 FT	STGW MSCC
n-Butylbenzene	<0.005	<0.005	<0.005	4.0
Naphthalene	<0.005	<0.005	<0.005	0.58
1,2,4-Trimethylbenzene	<0.005	<0.005	<0.005	8.0
1,3,5-Trimethylbenzene	<0.005	<0.005	<0.005	7.0
o-Xylene	<0.005	<0.005	<0.005	5.0
C9-C18 Aliphatics	<10	<10	<10	3,255
C19-C36 Aliphatics	<10	61.8	<10	*
C9-C22 Aromatics	<10	50.2	<10	34.0

* CONSIDERED IMMOBILE



PARTIAL PLAN

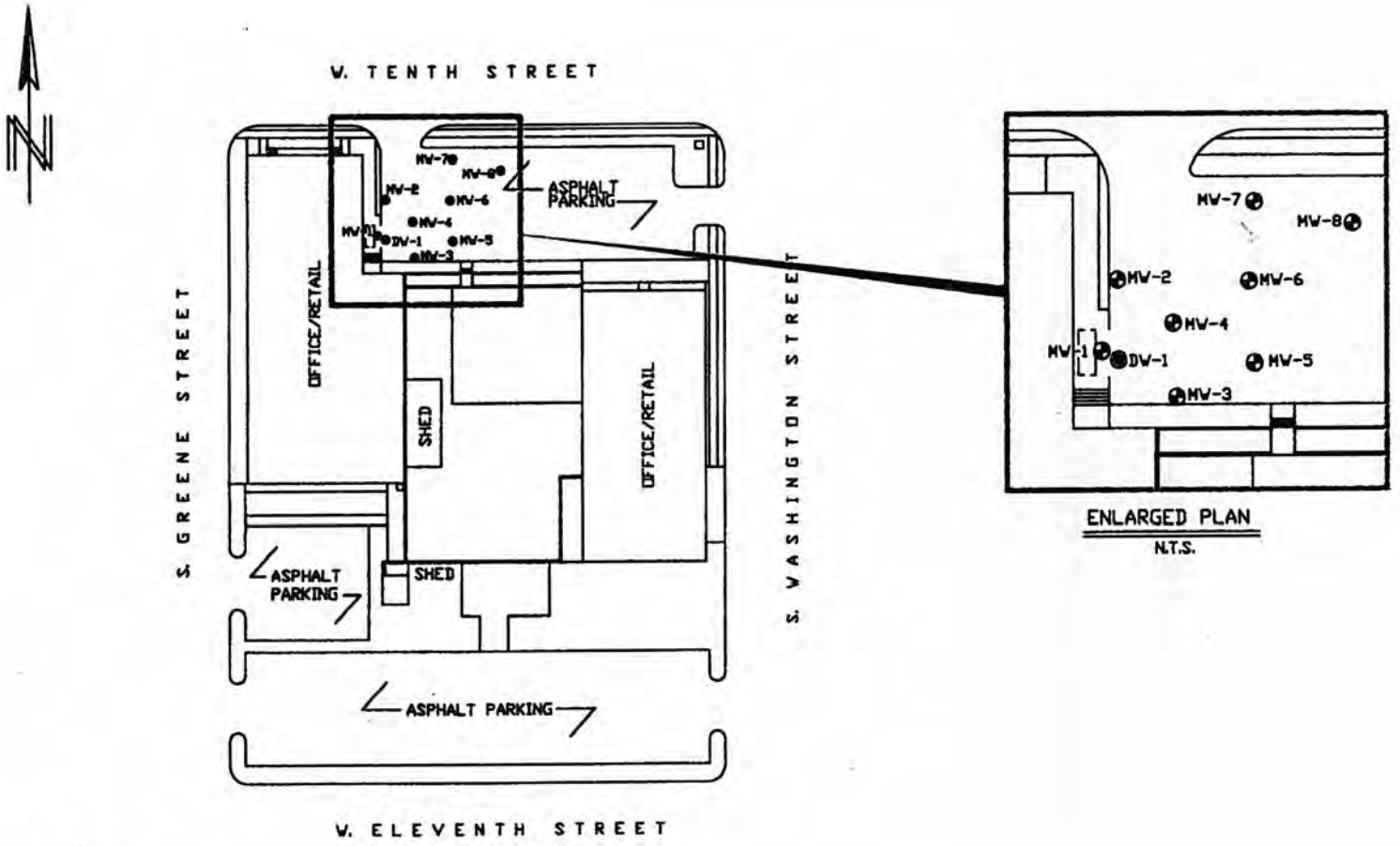
LEGEND
- XX CONTAMINANT LINES
- XX GROUNDWATER LINES
- DIRECTION OF FLOW
- XX NATURAL ATTENUATION LINES
- SAMPLE LOCATION
- MONITORING WELL
- (R) RECOVERY WELL
- DEEP WELL
- U/G STORAGE TANKS
- A/G STORAGE TANKS

GRAPHIC SCALE
10 0 10 20 30 40 50

Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. 005B Scale 1"=50' Date 11/21/02	SOIL CONTAMINATION MAP WILCAR EXECUTIVE CENTER GREENVILLE, PITT CO., NORTH CAROLINA	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA

APPENDIX J

MONITORING WELL LOCATION MAP



LEGEND

- MONITORING WELL
- RECOVERY WELL
- DEEP WELL
- U/G STORAGE TANKS
- A/G STORAGE TANKS

GRAPHIC SCALE

20 0 20 40 60 80 100

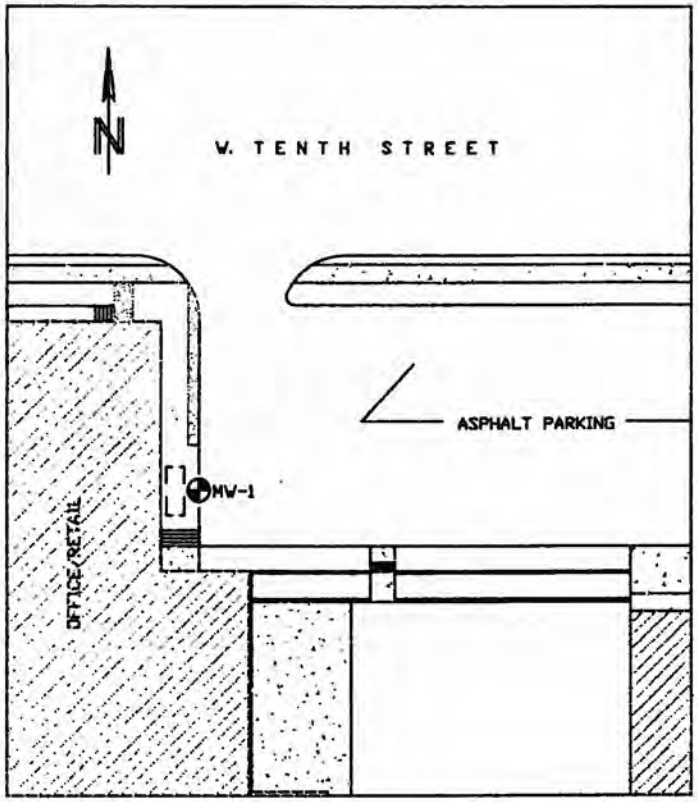
Proj. No.	02-1001	Dwg. No.	002	MONITORING WELL LOCATION MAP WILCAR EXECUTIVE CENTER GREENVILLE, PITT CO., NORTH CAROLINA	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA
Ckd. By	BEG	Scale	1"=100'		
Drn. By	BWG	Date	08/08/02		

APPENDIX K

GROUND WATER LABORATORY ANALYSES

APPENDIX L

CONTAMINANT ISO-CONCENTRATION MAPS



PARTIAL PLAN

GROUND WATER SAMPLE 07/01/02 (ug/l)		
COMPOUND	MW-1	NCAC 2L
Benzene	<10>	1
Toluene	14	1,000
Ethylbenzene	<33>	29
Xylenes	101	530
MTBE	46	200
Acentaphthene	63	80
Phenanthrene	52	210
C5-C8 Alphatics	<610>	420
C9-C18 Alphatics	<24,600>	4,200
C19-C36 Alphatics	5,410	42,000
C9-C22 Aromatics	<7,210>	210

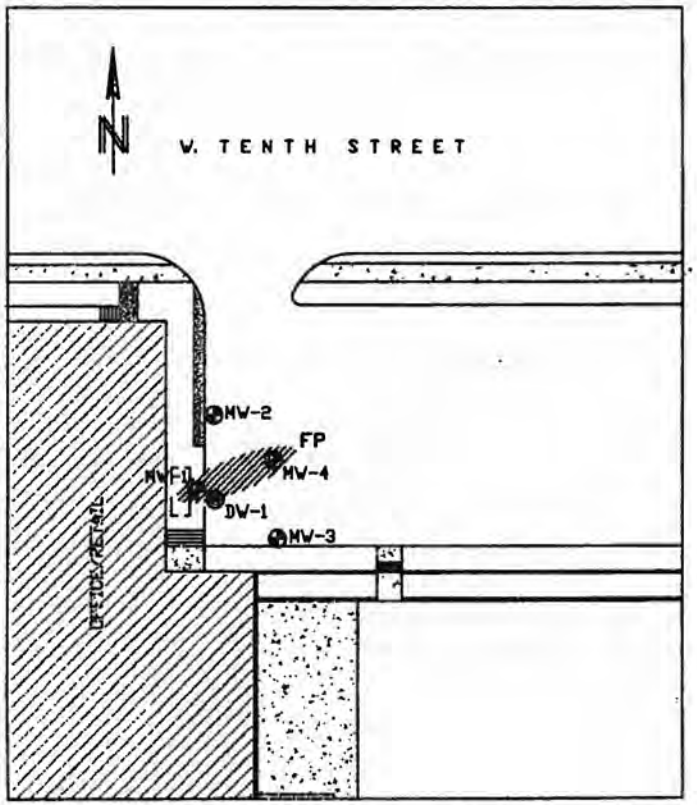
LEGEND
- MONITORING WELL
- RECOVERY WELL
- DEEP WELL
- U/G STORAGE TANKS
- A/G STORAGE TANKS

GRAPHIC SCALE
10 0 10 20 30 40 50

Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. 004 Scale 1"=50' Date 08/12/02	GROUND WATER CONTAMINATION MAP WILCAR EXECUTIVE CENTER GREENVILLE, PITT CO., NORTH CAROLINA

ALLIED ENVIRONMENTAL SERVICES

GREENVILLE, NORTH CAROLINA



PARTIAL PLAN

GROUND WATER SAMPLE 09/19/02 (ug/l)						
COMPOUND	MW-1	MW-2	MW-3	MW-4	DW-1	NCAC 2L
Benzene	FP	<1	<1	FP	2.90	1
Toluene	FP	<1	<1	FP	1.90	1,000
Ethylbenzene	FP	<1	<1	FP	3.70	29
Xylenes	FP	<1	<1	FP	11.00	530
MTBE	FP	<3	<3	FP	3.70	200
Naphthalene	FP	<1	<1	FP	10.20	21
C5-C8 Aliphatics	FP	<100	<100	FP	<100	420
C9-C18 Aliphatics	FP	<100	<100	FP	50,400	4,200
C19-C36 Aliphatics	FP	<100	<100	FP	310	42,000
C9-C22 Aromatics	FP	<100	<100	FP	955	210

FP = FREE PRODUCT

LEGEND

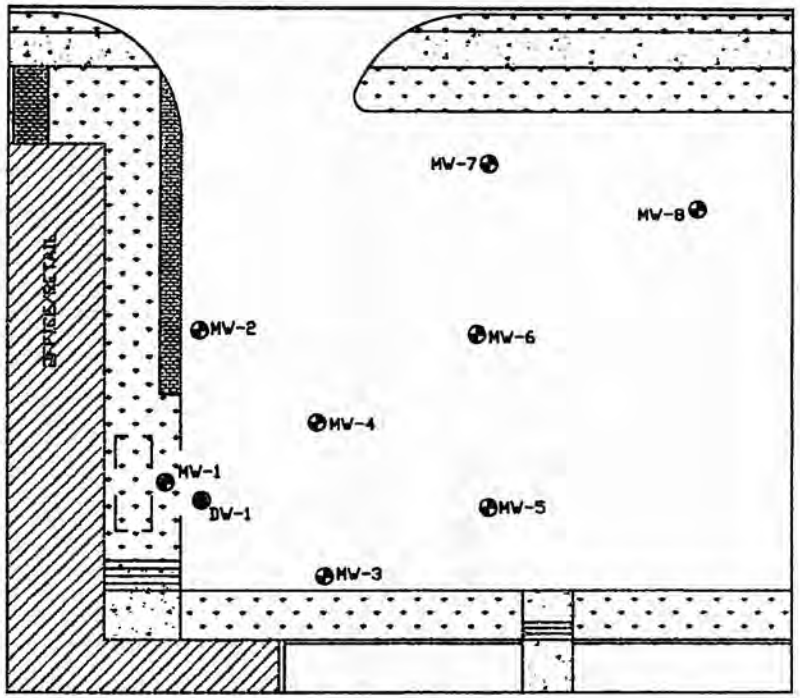
- XX CONTAMINANT LINES
- XX GROUNDWATER LINES
- DIRECTION OF FLOW
- XX NATURAL ATTENUATION LINES
- SAMPLE LOCATION
- MONITORING WELL
- (R) RECOVERY WELL
- DEEP WELL
- U/G STORAGE TANKS
- A/G STORAGE TANKS

GRAPHIC SCALE

10 0 10 20 30 40 50

Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. 006A Scale 1"=50' Date 09/18/02	GROUND WATER CONTAMINATION MAP WILCAR EXECUTIVE CENTER GREENVILLE, PITT CO., NORTH CAROLINA	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA

GROUND WATER SAMPLE 10/14/02 (ug/l)					
COMPOUND	MW-5	MW-6	MW-7	MW-8	NCAC 2L
Benzene	<1	<1	<1	<1	1
Toluene	<1	<1	<1	<1	1,000
Ethylbenzene	<1	<1	<1	<1	29
Xylenes	<3	<3	<3	<3	530
MTBE	<1	<1	2.60	<1	200
Acentaphthene	<10	<10	<10	<10	80
Phenanthrene	<10	<10	<10	<10	210
C5-C8 Aliphatics	<100	<100	<100	<100	420
C9-C18 Aliphatics	<100	<100	<100	<100	4,200
C19-C36 Aliphatics	<100	<100	<100	<100	42,000
C9-C22 Aromatics	<100	127	<100	<100	210



PARTIAL PLAN

LEGEND

- XX CONTAMINANT LINES
- XX GROUNDWATER LINES
- DIRECTION OF FLOW
- XX NATURAL ATTENUATION LINES
- SAMPLE LOCATION
- MONITORING WELL
- RECOVERY WELL
- DEEP WELL
- U/G STORAGE TANKS
- A/G STORAGE TANKS

GRAPHIC SCALE

10 0 10 20 30 40 50

Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. 006B Scale 1'=50' Date 10/14/02	GROUND WATER CONTAMINATION MAP WILCAR EXECUTIVE CENTER GREENVILLE, PITT CO., NORTH CAROLINA	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA

APPENDIX M

GROUND WATER SAMPLING PROTOCOL

Ground Water Sampling

After monitor well completion and development, time was allowed to elapse (ie. greater than 24 hours) in order for the ground water to recover within the monitor well. The depth to ground water was measured using a water meter. The depth to ground water was subtracted from the total depth of the monitor well, and a well volume was calculated. The wells were purged of a minimum of three to four well volumes to remove stagnant water using a one liter disposable polyethylene bailer prior to obtaining a ground water sample. The ground water samples were placed in 40 ml clear, borosilicate vials with Teflon coated septums and one liter amber borosilicate jars. The 40 ml vials were checked to insure that no air bubbles were present in laboratory samples. The vials were labeled, chain of custody records were filled out, and the vials were placed on ice for delivery to the laboratory for analysis.

APPENDIX N

DEPTH TO GROUND WATER DATA

WELL CONSTRUCTION INFORMATION

Date: 06/28/02 **Incident Number and Name:** 24346 WILCAR Executive Center **Facility:** N/A

Well ID	Date Installed (m/dd/yy)	Date Water Level Measured (m/dd/yy)	Well Casing Depth (ft. BGS)	Screened Interval (x to y ft. BGS)	Bottom of Well (ft. BGS)	Top of Casing Elevation* (ft.)	Depth to Water from Top of Casing (ft.)	Free Product Thickness ** (ft.)	Ground Water Elevation* (ft.)	Comments
MW-1	06/28/02	07/01/02	5	5-15	15	100.00	8.57	0.00	91.43	Sheen on water

* Reference Point for Elevation Measurements TOC MW-1, Assumed Elevation: 100.00 ft.

** If free product is present in a well, ground water elevation should be calculated by: [Top of Casing Elevation – Depth to Water] + [free product thickness x 0.8581]

ft. BGS = feet below ground surface

WELL CONSTRUCTION INFORMATION

Date: 06/28/02 **Incident Number and Name:** 24346 WILCAR Executive Center **Facility:** N/A

Well ID	Date Installed (m/dd/yy)	Date Water Level Measured (m/dd/yy)	Well Casing Depth (ft. BGS)	Screened Interval (x to y ft. BGS)	Bottom of Well (ft. BGS)	Top of Casing Elevation* (ft.)	Depth to Water from Top of Casing (ft.)	Free Product Thickness ** (ft.)	Ground Water Elevation* (ft.)	Comments
MW-1	06/28/02	09/23/02	5	5-15	15	100.00	7.18	0.02	92.84	Free Product
MW-2	09/16/02	09/23/02	5	5-15	15	99.31	6.60	-----	92.71	
MW-3	09/16/02	09/23/02	5	5-15	15	100.34	7.43	-----	92.91	Free Product
MW-4	09/16/02	09/23/02	5	5-15	15	99.95	7.20	0.01	92.76	
DW-1	09/18/02	09/23/02	30	30-35	35	99.98	14.40	-----	85.58	

* Reference Point for Elevation Measurements TOC MW-1, Assumed Elevation: 100.00 ft.

** If free product is present in a well, ground water elevation should be calculated by: [Top of Casing Elevation – Depth to Water] + [free product thickness x 0.8581]

ft. BGS = feet below ground surface

WELL CONSTRUCTION INFORMATION

Date: 06/28/02 **Incident Number and Name:** 24346 WILCAR Executive Center **Facility:** N/A

Well ID	Date Installed (m/dd/yy)	Date Water Level Measured (m/dd/yy)	Well Casing Depth (ft. BGS)	Screened Interval (x to y ft. BGS)	Bottom of Well (ft. BGS)	Top of Casing Elevation* (ft.)	Depth to Water from Top of Casing (ft.)	Free Product Thickness ** (ft.)	Ground Water Elevation* (ft.)	Comments
MW-1	06/28/02	10/21/02	5	5-15	15	100.00	6.36	-----	93.64	
MW-2	09/16/02	10/21/02	5	5-15	15	99.31	5.90	-----	93.41	
MW-3	09/16/02	10/21/02	5	5-15	15	100.34	6.79	-----	93.55	
MW-4	09/16/02	10/21/02	5	5-15	15	99.95	6.54	-----	93.41	
MW-5	10/08/02	10/21/02	5	5-15	15	100.18	6.83	-----	93.35	
MW-6	10/08/02	10/21/02	5	5-15	15	99.50	6.33	-----	93.17	
MW-7	10/08/02	10/21/02	5	5-15	15	98.74	5.63	-----	93.11	
MW-8	10/08/02	10/21/02	5	5-15	15	99.05	6.04	-----	93.01	
DW-1	09/18/02	10/21/02	30	30-35	35	99.98	14.07	-----	85.91	

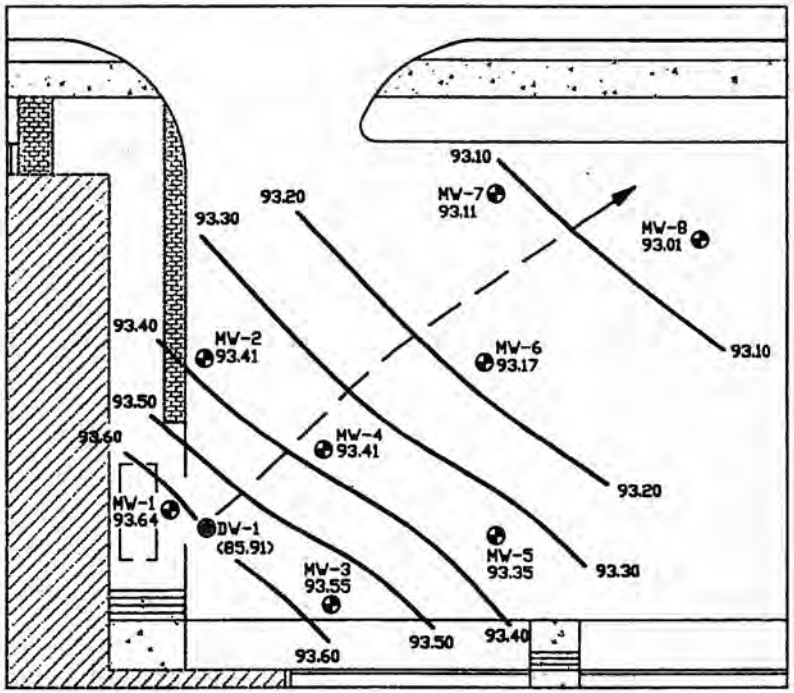
* Reference Point for Elevation Measurements TOC MW-1, Assumed Elevation: 100.00 ft.

** If free product is present in a well, ground water elevation should be calculated by: [Top of Casing Elevation – Depth to Water] + [free product thickness x 0.8581]

ft. BGS = feet below ground surface

APPENDIX O

POTENTIOMETRIC SURFACE MAPS



PARTIAL PLAN

dh/dl = 0.0053 ft/ft

LEGEND

- XX CONTAMINANT LINES
- XX GROUNDWATER LINES
- DIRECTION OF FLOW
- XX NATURAL ATTENUATION LINES
- SAMPLE LOCATION
- MONITORING WELL
- RECOVERY WELL
- DEEP WELL
- U/G STORAGE TANKS
- A/G STORAGE TANKS

GRAPHIC SCALE

10 0 10 20 30 40 50

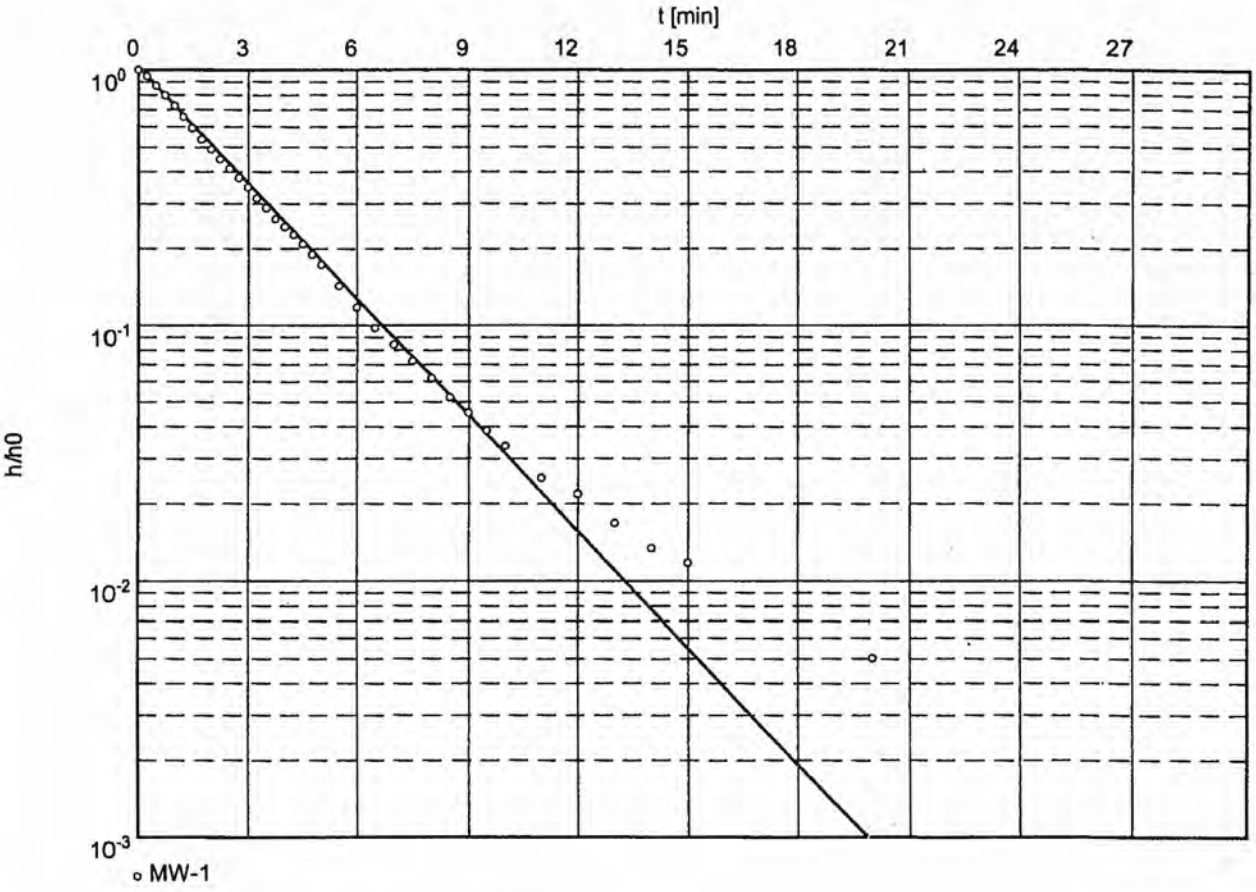
Proj. No. 02-1001 Ckd. By BEG Drn. By BWG	Dwg. No. 007 Scale 1"=50' Date 09/19/02	POTENTIOMETRIC MAP WILCAR EXECUTIVE CENTER GREENVILLE, PITT CO., NORTH CAROLINA	ALLIED ENVIRONMENTAL SERVICES GREENVILLE, NORTH CAROLINA

APPENDIX P

SLUG TEST DATA

Waterloo Hydrogeologic 180 Columbia St. W. Waterloo,Ontario,Canada ph.(519)746-1798	slug/bail test analysis BOUWER-RICE's method	Date: 08.10.2002	Page 1
		Project: Wilcar Executive Center	
		Evaluated by: MAC	

Slug Test No. 1	Test conducted on: 07.30.2002
MW-1	



Hydraulic conductivity [ft/min]: 1.11×10^{-3}

Waterloo Hydrogeologic
180 Columbia St. W.
Waterloo,Ontario,Canada
ph.(519)746-1798

slug/bail test analysis
BOUWER-RICE's method

Date: 08.10.2002 |

Project: Wilcar Executive Center

Evaluated by: MAC

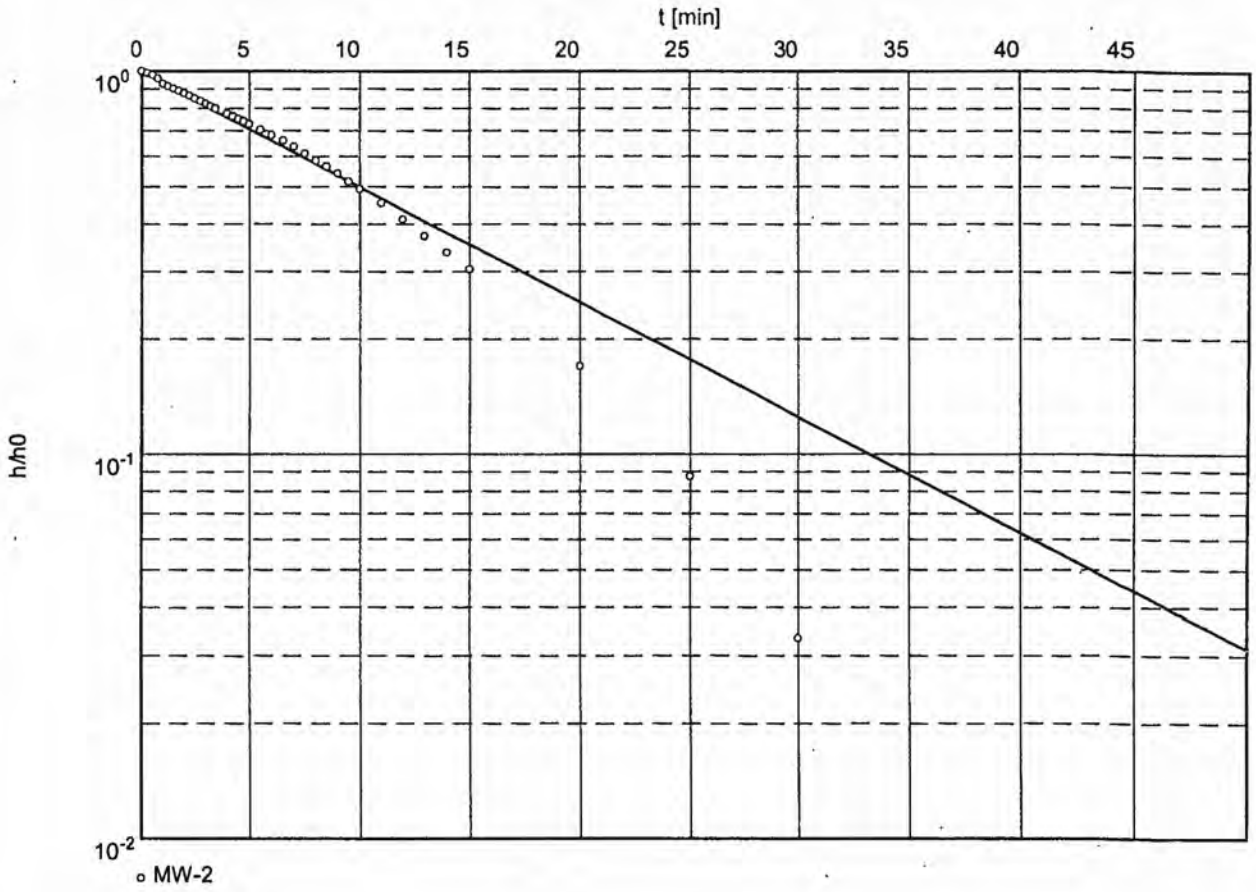
Slug Test No. 1	Test conducted on: 07.30.2002
MW-1	MW-1

Static water level: 7.23 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.00	13.19	5.96	
2	0.25	12.85	5.62	
3	0.50	12.41	5.18	
4	0.75	11.98	4.75	
5	1.00	11.56	4.33	
6	1.25	11.15	3.92	
7	1.50	10.76	3.53	
8	1.75	10.42	3.19	
9	2.00	10.15	2.92	
10	2.25	9.90	2.67	
11	2.50	9.68	2.45	
12	2.75	9.49	2.26	
13	3.00	9.30	2.07	
14	3.25	9.11	1.88	
15	3.50	8.95	1.72	
16	3.75	8.79	1.56	
17	4.00	8.68	1.45	
18	4.25	8.58	1.35	
19	4.50	8.47	1.24	
20	4.75	8.36	1.13	
21	5.00	8.26	1.03	
22	5.50	8.08	0.85	
23	6.00	7.93	0.70	
24	6.50	7.81	0.58	
25	7.00	7.73	0.50	
26	7.50	7.66	0.43	
27	8.00	7.60	0.37	
28	8.50	7.54	0.31	
29	9.00	7.50	0.27	
30	9.50	7.46	0.23	
31	10.00	7.43	0.20	
32	11.00	7.38	0.15	
33	12.00	7.36	0.13	
34	13.00	7.33	0.10	
35	14.00	7.31	0.08	
36	15.00	7.30	0.07	
37	20.00	7.26	0.03	
38	25.00	7.23	0.00	

Waterloo Hydrogeologic 180 Columbia St. W. Waterloo,Ontario,Canada ph.(519)746-1798	slug/bail test analysis BOUWER-RICE's method	Date: 08.10.2002 | Page 1 Project: Wilcar Executive Center Evaluated by: MAC

Slug Test No. 2	Test conducted on: 07.30.2002
MW-2	



Hydraulic conductivity [ft/min]: 2.49×10^{-4}

Waterloo Hydrogeologic
180 Columbia St. W.
Waterloo,Ontario,Canada
ph.(519)746-1798

slug/bail test analysis
BOUWER-RICE's method

Project: Wilcar Executive Center

Evaluated by: MAC

Slug Test No. 2	Test conducted on: 07.30.2002
MW-2	MW-2

Static water level: 6.62 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.00	13.81	7.19	
2	0.25	13.73	7.11	
3	0.50	13.65	7.03	
4	0.75	13.50	6.88	
5	1.00	13.29	6.67	
6	1.25	13.19	6.57	
7	1.50	13.10	6.48	
8	1.75	13.02	6.40	
9	2.00	12.92	6.30	
10	2.25	12.83	6.21	
11	2.50	12.73	6.11	
12	2.75	12.63	6.01	
13	3.00	12.54	5.92	
14	3.25	12.45	5.83	
15	3.50	12.37	5.75	
16	4.00	12.20	5.58	
17	4.25	12.11	5.49	
18	4.50	12.02	5.40	
19	4.75	11.95	5.33	
20	5.00	11.86	5.24	
21	5.50	11.69	5.07	
22	6.00	11.53	4.91	
23	6.50	11.37	4.75	
24	7.00	11.20	4.58	
25	7.50	11.01	4.39	
26	8.00	10.83	4.21	
27	8.50	10.69	4.07	
28	9.00	10.52	3.90	
29	9.50	10.33	3.71	
30	10.00	10.17	3.55	
31	11.00	9.88	3.26	
32	12.00	9.58	2.96	
33	13.00	9.29	2.67	
34	14.00	9.04	2.42	
35	15.00	8.81	2.19	
36	20.00	7.84	1.22	
37	25.00	7.25	0.63	
38	30.00	6.86	0.24	
39	35.00	6.62	0.00	

Waterloo Hydrogeologic
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Waterloo, Ontario, Canada
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slug/bail test analysis
BOUWER-RICE's method

Date: 08.10.2002 | Page 2

Project: Wilcar Executive Center

Evaluated by: MAC

Slug Test No. 3	Test conducted on: 07.30.2002
MW-3	MW-3

Static water level: 7.23 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.00	13.39	6.16	
2	0.25	13.17	5.94	
3	0.50	13.04	5.81	
4	0.75	12.91	5.68	
5	1.00	12.71	5.48	
6	1.25	12.48	5.25	
7	1.50	12.27	5.04	
8	1.75	12.07	4.84	
9	2.00	11.84	4.61	
10	2.25	11.64	4.41	
11	2.50	11.44	4.21	
12	2.75	11.23	4.00	
13	3.00	11.02	3.79	
14	3.25	10.82	3.59	
15	3.50	10.63	3.40	
16	3.75	10.45	3.22	
17	4.00	10.27	3.04	
18	4.50	9.91	2.68	
19	5.00	9.58	2.35	
20	5.50	9.28	2.05	
21	6.00	9.06	1.83	
22	6.50	8.86	1.63	
23	7.00	8.68	1.45	
24	7.50	8.52	1.29	
25	8.00	8.38	1.15	
26	8.50	8.24	1.01	
27	9.00	8.10	0.87	
28	9.50	7.98	0.75	
29	10.00	7.87	0.64	
30	11.00	7.72	0.49	
31	12.00	7.66	0.43	
32	13.00	7.61	0.38	
33	14.00	7.59	0.36	
34	15.00	7.57	0.34	
35	20.00	7.51	0.28	
36	25.00	7.49	0.26	

Waterloo Hydrogeologic
180 Columbia St. W.
Waterloo,Ontario,Canada
ph.(519)746-1798

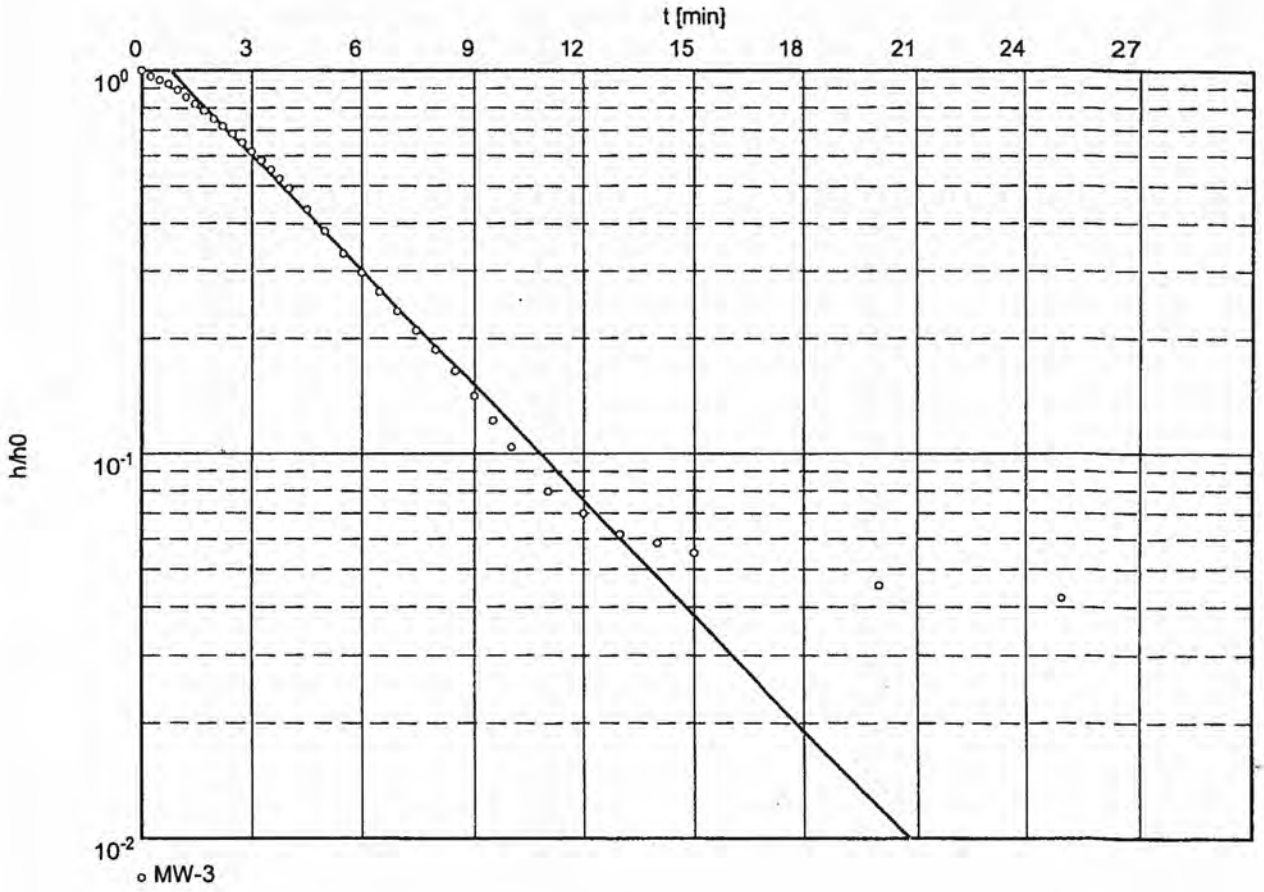
slug/bail test analysis
BOUWER-RICE's method

Date: 08.10.2002 | Page 1

Project: Wilcar Executive Center

Evaluated by: MAC

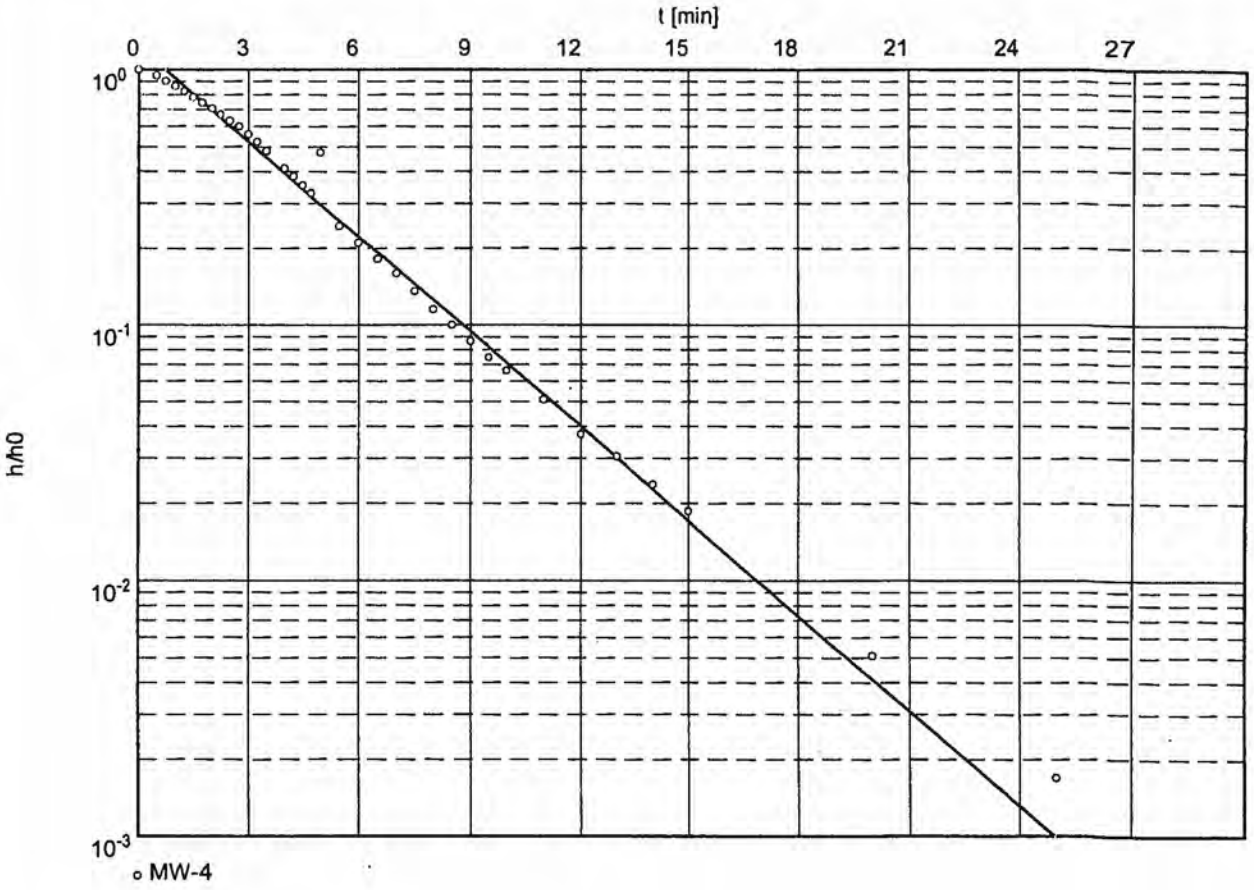
Slug Test No. 3	Test conducted on: 07.30.2002
MW-3	



Hydraulic conductivity [ft/min]: 7.34×10^{-4}

Waterloo Hydrogeologic 180 Columbia St. W. Waterloo,Ontario,Canada ph.(519)746-1798	slug/bail test analysis BOUWER-RICE's method	Date: 08.10.2002 | Page 1 Project: Wilcar Executive Center Evaluated by: MAC

Slug Test No. 4	Test conducted on: 07.30.2002
MW-4	



Hydraulic conductivity [ft/min]: 1.07×10^{-3}

Waterloo Hydrogeologic
180 Columbia St. W.
Waterloo,Ontario,Canada
ph.(519)746-1798

slug/bail test analysis
BOUWER-RICE's method

Date: 08.10.2002 |

Project: Wilcar Executive Center

Evaluated by: MAC

Slug Test No. 4	Test conducted on: 07.30.2002
MW-4	MW-4

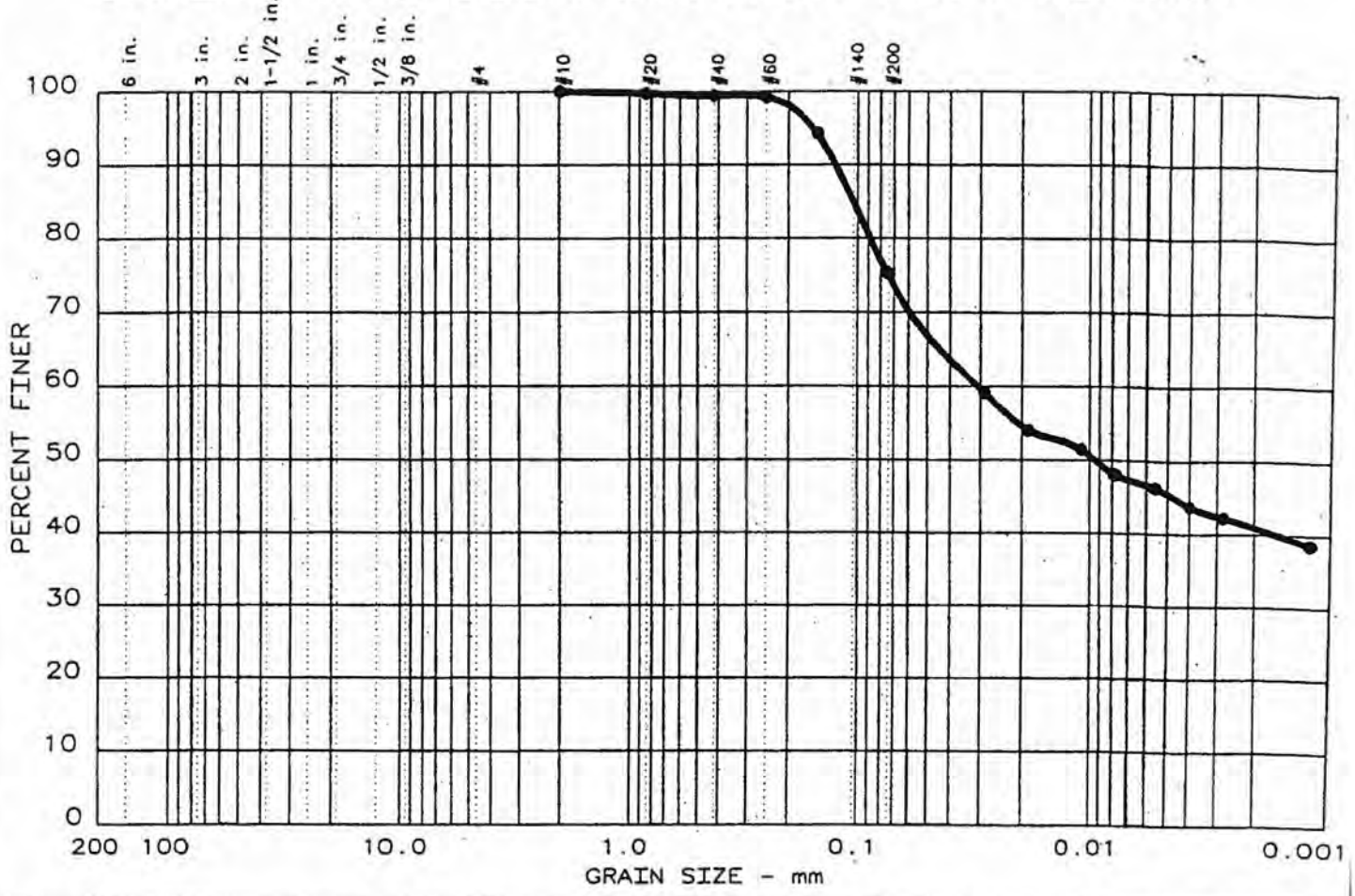
Static water level: 7.18 ft below datum

	Pumping test duration [min]	Water level [ft]	Drawdown [ft]	
1	0.00	13.08	5.90	
2	0.50	12.76	5.58	
3	0.75	12.50	5.32	
4	1.00	12.26	5.08	
5	1.25	12.03	4.85	
6	1.50	11.79	4.61	
7	1.75	11.57	4.39	
8	2.00	11.34	4.16	
9	2.25	11.12	3.94	
10	2.50	10.91	3.73	
11	2.75	10.72	3.54	
12	3.00	10.49	3.31	
13	3.25	10.27	3.09	
14	3.50	10.02	2.84	
15	4.00	9.61	2.43	
16	4.25	9.44	2.26	
17	4.50	9.27	2.09	
18	4.75	9.12	1.94	
19	5.00	9.98	2.80	
20	5.50	8.62	1.44	
21	6.00	8.42	1.24	
22	6.50	8.25	1.07	
23	7.00	8.12	0.94	
24	7.50	7.98	0.80	
25	8.00	7.86	0.68	
26	8.50	7.77	0.59	
27	9.00	7.69	0.51	
28	9.50	7.62	0.44	
29	10.00	7.57	0.39	
30	11.00	7.48	0.30	
31	12.00	7.40	0.22	
32	13.00	7.36	0.18	
33	14.00	7.32	0.14	
34	15.00	7.29	0.11	
35	20.00	7.21	0.03	
36	25.00	7.19	0.01	

APPENDIX Q

GRAIN SIZE ANALYSIS

GRAIN SIZE DISTRIBUTION TEST REPORT



	Test	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
●	6	0.0	0.0	24.7	29.8	45.5

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●	* N	* N	0.105		0.0094					

MATERIAL DESCRIPTION	USCS	AASHTO
● YELLOW BROWN FINE SANDY SILTY CLAY	CH	A-7-6

Project No.: 20736-80
Project: LAB SERVICES FOR ALLIED ENVIRONMENTAL
● Location: WILCAR PROJECT

Date: OCTOBER 25, 2002

Remarks:
* NOT PERFORMED

GRAIN SIZE DISTRIBUTION TEST REPORT

TITAN ATLANTIC GROUP, INC.

Fig. No.: 20736-2

APPENDIX B
SCHNABEL GEOPHYSICAL REPORT

Schnabel
ENGINEERING

August 15, 2012

Mr. Richard Garrett, LG, Project Manager
Catlin Engineers and Scientists, Inc.
P.O. Box 10279
Wilmington, NC 28404-0279

RE:
State Project: U-3315
WBS Element: 35781.1.2
County: Pitt
Description: Stantonsburg Road/Tenth Street Connector from Memorial Drive (US 13) to Evans Street

Subject: **Project 11821014.17, Report on Geophysical Surveys**
Parcel 100, State of North Carolina Property, Greenville, North Carolina

Dear Mr. Garrett:

SCHNABEL ENGINEERING SOUTH, PC (Schnabel) is pleased to present this report on the geophysical surveys we performed on the subject property. The report includes two 11x17 color figures and two 8.5x11 color figures.

INTRODUCTION

The work described in this report was performed on July 10 and 24, 2012, by Schnabel under our 2011 contract with the NCDOT. The surveys were performed over the accessible areas of the property as indicated by the NCDOT to support their environmental assessment of the subject property. Photographs of the property are included on Figure 1. The property is located on the southwest quadrant of W 10th Street and S Washington Street in Greenville, NC. The purpose of the geophysical surveys was to investigate the presence of metal underground storage tanks (USTs) in the accessible areas of the right-of-way and/or easement.

The geophysical surveys consisted of an electromagnetic (EM) induction survey and a ground penetrating radar (GPR) survey. The EM survey was performed using a Geonics EM61-MK2 instrument. The EM61 is a time domain metal detector that is used to locate metal objects buried up to about eight feet below ground surface. When collecting EM61 data, three or four time gates are recorded of the response decay rate. The GPR survey was performed over selected EM61 anomalies, including areas of reinforced

concrete, using a Geophysical Survey Systems SIR-3000 system equipped with a 400 MHz antenna. Photographs of the equipment used are shown on Figure 2.

FIELD METHODOLOGY

Locations of geophysical data points were obtained using a sub-meter Trimble Pro-XRS DGPS system. References to direction and location in this report are based on the US State Plane 1983 System, North Carolina 3200 Zone, using the NAD 83 datum, with units in US survey feet. We recorded the locations of existing site features (monitoring wells, signs, etc.) with the Trimble system for later correlation with the geophysical data and locations provided by the NCDOT.

The EM61 data were collected along parallel survey lines spaced approximately 2.5 feet apart. The EM61 and DGPS data were recorded digitally using a field computer and later transferred to a desktop computer for data processing. The GPR data were collected along survey lines spaced one to two feet apart in orthogonal directions over areas of reinforced concrete and anomalous EM readings not attributed to cultural features. The GPR data were reviewed in the field to evaluate the possible presence of USTs. The GPR data also were recorded digitally and later transferred to a desktop computer for further review.

DISCUSSION OF RESULTS

The contoured EM61 data collected over Parcel 100 are shown on Figures 3 and 4. The EM61 early time gate data are plotted on Figure 3. The early time gate data provide a more sensitive detection of metal objects than the later time gate data. Figure 4 shows the differential response between the top and bottom coils of the EM61 instrument. The differential response data filters out the effect of surface and very shallowly buried metallic objects. Typically, the differential response emphasizes anomalies from deeper and larger objects such as USTs.

The early time gate and differential results show anomalies of unknown cause, in addition to those apparently caused by known site features (Figures 3 and 4). The GPR data indicate that the EM anomalies of unknown cause are probably caused by reinforced concrete and buried utilities. The GPR data collected at the site do not indicate the presence of metallic USTs within the areas surveyed.

CONCLUSIONS

Our evaluation of the geophysical data collected on the subject property on Project U-3315 in Greenville, NC indicates that metallic USTs are unlikely to be encountered within 8 feet of the ground surface in the areas surveyed on the subject property.

LIMITATIONS

These services have been performed and this report prepared for Catlin Engineers and Scientists, Inc. and the North Carolina Department of Transportation in accordance with generally accepted guidelines for conducting geophysical surveys. It is generally recognized that the results of geophysical surveys are non-unique and may not represent actual subsurface conditions.

We appreciate the opportunity to have provided these services. Please call if you need additional information or have any questions.

Sincerely,

SCHNABEL ENGINEERING SOUTH, PC

James W. Whitt, LG
Senior Staff Geophysicist

Jeremy S. Strohmeyer, LG
Project Manager

JW:JS
Attachments: Figures (4)
CC: NCDOT, Gordon Box
FILE: G:\2011-SDE-JOBS\11821014_00_NCDOT_2011_GEOTECHNICAL_UNIT_SERVICES\11821014_17_U-3315_PITT_COUNTY\REPORT\PARCEL 100\SCHNABEL GEOPHYSICAL REPORT ON PARCEL 100 (U-3315).DOCX

Parcel 100 (State of North Carolina Property), looking southeast

Parcel 100 (State of North Carolina Property), looking southwest

Schnabel ENGINEERING	STATE PROJECT U-3315 NC DEPT. OF TRANSPORTATION PITT COUNTY, NORTH CAROLINA PROJECT NO. 11821014.17	PARCEL 100 SITE PHOTOS FIGURE 1

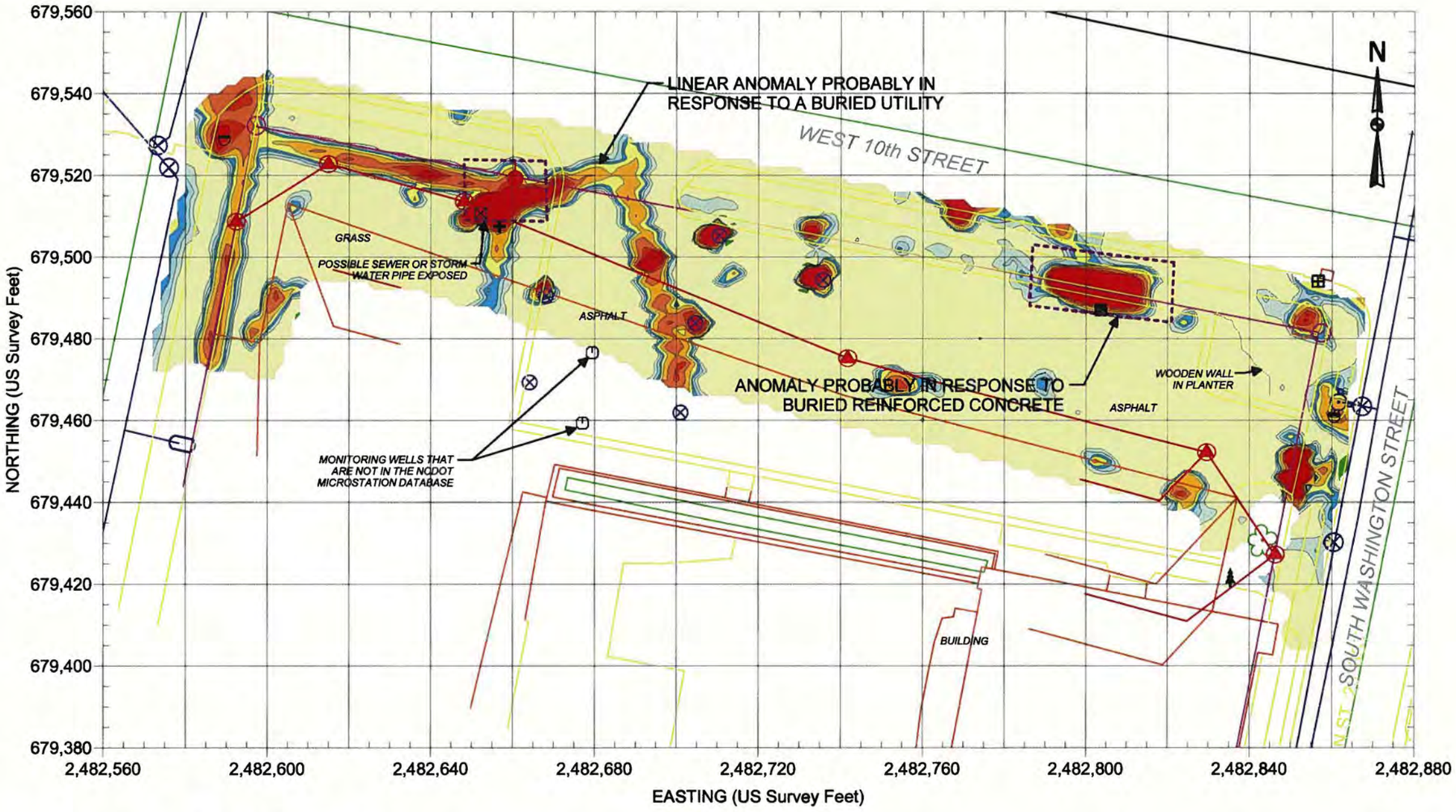
Geonics EM61-MK2 Metal Detector with Trimble DGPS Unit

GSSI SIR-3000 Ground-Penetrating Radar with 400 MHz Antenna

Note: Stock photographs – not taken on site.

Schnabel ENGINEERING	STATE PROJECT U-3315 NC DEPT. OF TRANSPORTATION PITT COUNTY, NORTH CAROLINA PROJECT NO. 11821014.17	PHOTOS OF GEOPHYSICAL EQUIPMENT USED FIGURE 2

PARCEL 100



REF.: NCDOT FILE: u3315_rdy_psh10.dgn
(FOR SOME SITE FEATURES)

Note: The contour plot shows the earliest and more sensitive time gate of the EM61 bottom coil/channel in millivolts (mV). The EM data were collected on July 10, 2012, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina Zone 3200, using the NAD 1983 datum. GPR data were acquired on July 24, 2012, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.

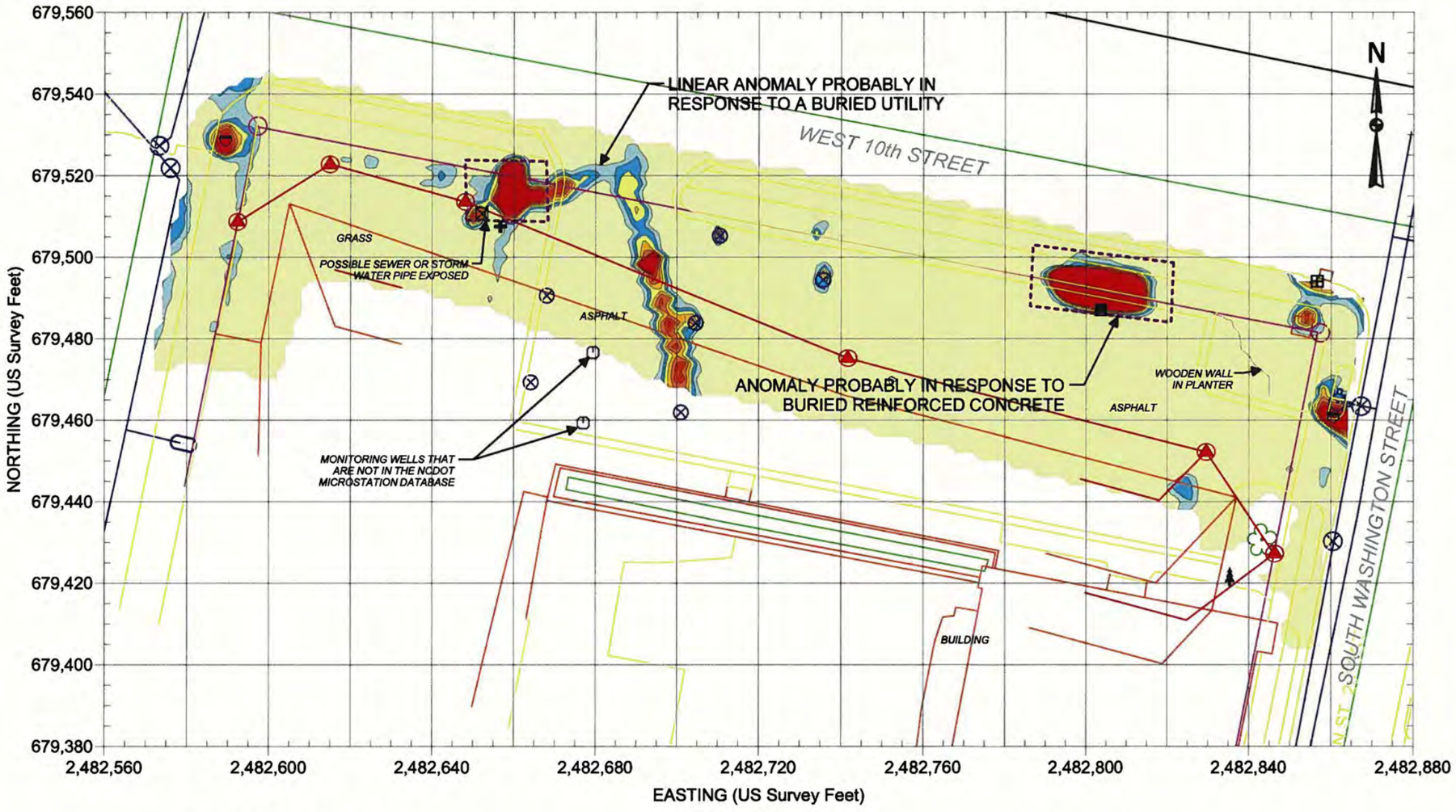
Schnabel ENGINEERING

STATE PROJECT U-3315
NC DEPARTMENT OF TRANSPORTATION
PITT COUNTY, NORTH CAROLINA
PROJECT NO. 11821014.17

EM61
EARLY TIME GATE
RESPONSE

FIGURE 3

PARCEL 100



EXPLANATION

- SIGN
- MISCELLANEOUS METALLIC OBJECT
- UTILITY MANHOLE, METER, BOX, ETC.
- STORMSEWER INLET
- GUY WIRE
- EDGE OF NCDOT PROPOSED R/W
- PROPERTY LINE
- GPR SURVEY AREA

REF.: NCDOT FILE: u3315_rdy_psh10.dgn
(FOR SOME SITE FEATURES)

Scale in US Survey Feet

0 30 60 90

EM61 Differential Response (mV)

-20000 -100 0 40 60 80 100 120 140 160 200

Note: The contour plot shows the difference, in millivolts (mV), between the readings from the top and bottom coils of the EM61. The difference is taken to reduce the effect of shallow metal objects and emphasize anomalies caused by deeper metallic objects, such as drums and tanks. The EM data were collected on July 10, 2012, using a Geonics EM61-MK2 instrument. Positioning for the EM61 survey was provided using a submeter Trimble ProXRS DGPS system. Coordinates are in the US State Plane 1983 System, North Carolina 3200 Zone, using the NAD 1983 datum. GPR data were acquired on July 24, 2012, using a Geophysical Survey Systems SIR 3000 equipped with a 400 MHz antenna.

Schnabel ENGINEERING

STATE PROJECT U-3315
NC DEPARTMENT OF TRANSPORTATION
PITT COUNTY, NORTH CAROLINA
PROJECT NO. 11821014.17

EM61
DIFFERENTIAL
RESPONSE

FIGURE 4

APPENDIX C
BORING LOGS

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC
WBS Element: 35781.1.2
State Project: U-3315

PROJECT NO.: 212077	STATE: NC	COUNTY: Pitt		LOCATION: Greenville	
PROJECT NAME: Parcel 100 - State of North Carolina - Wilcar Exec. Center		LOGGED BY: Ben Ashba		BORING ID: 100DPT-01	
		DRILLER: William J. Miller			
NORTHING: 679,391.00	EASTING: 2,482,849.00	CREW: Corey Futral			
SYSTEM: NCSP NAD 83 (USft)	BORING LOCATION: Between sidewalk & driveway @ CB1021			LAND ELEV.: NM	
DRILL MACHINE: Power Probe	METHOD: CPT / DPT		0 HOUR DTW: N/A	BORING DEPTH: 6.0	
START DATE: 7/24/12	FINISH DATE: 7/24/12		24 HOUR DTW: N/A	ROCK DEPTH: --	

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 250 500 750 1,000	LAB.	USCS	LOG	SOIL AND ROCK DESCRIPTION	DEPTH	ELEVATION
							LAND SURFACE	0.0	
0.0			▲1						
2.0					SC/SM		Brown, Silty SAND grading to Clayey SAND.		
4.0			▲1					4.5	
5.0			▲1	DPT-01 (5-5.5')	CL		Orange and brown mottled, Sandy CLAY.		
5.5			▲1					6.0	
6.0							Boring Terminated at Depth 6.0 ft		

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO LOG 212077 GREENVILLE-PSAS U3315.GPJ CATLIN.GDT 9/4/12

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC
WBS Element: 35781.1.2
State Project: U-3315

PROJECT NO.: 212077	**STATE:** NC	**COUNTY:** Pitt		**LOCATION:** Greenville	
PROJECT NAME: Parcel 100 - State of North Carolina - Wilcar Exec. Center		**LOGGED BY:** Ben Ashba		**BORING ID:** 100DPT-02	
		DRILLER: William J. Miller			
NORTHING: 679,466.00	**EASTING:** 2,482,849.00	**CREW:** Corey Futral			
SYSTEM: NCSP NAD 83 (USft)	**BORING LOCATION:** Landscape bed @ CB1016			**LAND ELEV.:** NM	
DRILL MACHINE: Power Probe	**METHOD:** CPT / DPT		**0 HOUR DTW:** N/A	**BORING DEPTH:** 6.0	
START DATE: 7/24/12	**FINISH DATE:** 7/24/12		**24 HOUR DTW:** N/A	**ROCK DEPTH:** --	

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 250 500 750 1,000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0					GW		0.5	GRAVEL FILL	
			▲0		SM		2.0	Dark brown, Silty SAND.	
2.0			▲1		CL			Sandy CLAY w/varying clay content. Mottled orange and gray.	
4.0			▲1						
5.0			▲1	DPT- 02 (5-5.5')					
5.5			▲1				6.0		
6.0								Boring Terminated at Depth 6.0 ft	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO.LOG 212077 GREENVILLE-PSAS U3315.GPJ CATLIN.GDT 9/4/12

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC
WBS Element: 35781.1.2
State Project: U-3315

PROJECT NO.: 212077	**STATE:** NC	**COUNTY:** Pitt		**LOCATION:** Greenville	
PROJECT NAME: Parcel 100 - State of North Carolina - Wilcar Exec. Center		**LOGGED BY:** Ben Ashba		**BORING ID:** 100DPT-03	
		DRILLER: William J. Miller			
NORTHING: 679,477.00	**EASTING:** 2,482,828.00	**CREW:** Corey Futral			
SYSTEM: NCSP NAD 83 (USft)	**BORING LOCATION:** Edge of parking lot and curb @ CB1024			**LAND ELEV.:** NM	
DRILL MACHINE: Power Probe	**METHOD:** CPT / DPT		**0 HOUR DTW:** N/A	**BORING DEPTH:** 5.0	
START DATE: 7/24/12	**FINISH DATE:** 7/24/12		**24 HOUR DTW:** N/A	**ROCK DEPTH:** --	

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 250 500 750 1,000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0			▲0		SM		1.5	Dark brown, Silty SAND.	
2.0			▲0		SC/SM		4.0	Lt. tannish brown, Silty SAND grading to brown, Clayey SAND.	
4.0			▲1		SC/CL			Sandy CLAY to Clayey SAND. Mottled orange and brown.	
4.5			▲1	DPT-03 (4.5-5')			5.0		
5.0								Boring Terminated at Depth 5.0 ft	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO LOG 212077 GREENVILLE-PSAS U3315.GPJ CATLIN.GDT 9/4/12

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC
WBS Element: 35781.1.2
State Project: U-3315

PROJECT NO.: 212077	**STATE:** NC	**COUNTY:** Pitt		**LOCATION:** Greenville	
PROJECT NAME: Parcel 100 - State of North Carolina - Wilcar Exec. Center		**LOGGED BY:** Ben Ashba		**BORING ID:** 100DPT-04	
		DRILLER: William J. Miller			
NORTHING: 679,519.00	**EASTING:** 2,482,699.00	**CREW:** Corey Futral			
SYSTEM: NCSP NAD 83 (USft)	**BORING LOCATION:** Edge of grass @ CB1015			**LAND ELEV.:** NM	
DRILL MACHINE: Power Probe	**METHOD:** CPT / DPT		**0 HOUR DTW:** 5.2	**BORING DEPTH:** 12.0	
START DATE: 7/24/12	**FINISH DATE:** 7/24/12		**24 HOUR DTW:** N/A	**ROCK DEPTH:** --	

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 250 500 750 1,000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
					SM		0.4	TOPSOIL	
					GW		1.0	GRAVEL FILL	
1.0					SP		2.0	Light brown, f. SAND. Poorly sorted.	
			▲0						
3.0					SC		4.0	Clayey SAND. Brown w/slight mottling.	
			▲0						
4.0				DPT-04 (4-4.3')					
4.3									
				▽	CL		8.0	Sandy CLAY. Mottled orange, brown, and gray.	
								NO RETURN	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO LOG 212077 GREENVILLE-PSAS U3315.GPJ CATLIN.GDT 9/4/12

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC

WBS Element: 35781.1.2
State Project: U-3315

PROJECT NO.: 212077	**STATE:** NC	**COUNTY:** Pitt		**LOCATION:** Greenville	
PROJECT NAME: Parcel 100 - State of North Carolina - Wilcar Exec. Center		**LOGGED BY:** Ben Ashba		**BORING ID:** 100DPT-04	
		DRILLER: William J. Miller			
NORTHING: 679,519.00	**EASTING:** 2,482,699.00	**CREW:** Corey Futral			
SYSTEM: NCSP NAD 83 (USft)	**BORING LOCATION:** Edge of grass @ CB1015			**LAND ELEV.:** NM	
DRILL MACHINE: Power Probe	**METHOD:** CPT / DPT		**0 HOUR DTW:** 5.2	**BORING DEPTH:** 12.0	
START DATE: 7/24/12	**FINISH DATE:** 7/24/12		**24 HOUR DTW:** N/A	**ROCK DEPTH:** --	

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 250 500 750 1,000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
								NO RETURN *(continued)*	
12.0							12.0	Boring Terminated at Depth 12.0 ft	

▽ = 0hr. DTW ▼ = 24hr. DTW

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC

WBS Element: 35781.1.2
State Project: U-3315

PROJECT NO.: 212077	**STATE:** NC	**COUNTY:** Pitt		**LOCATION:** Greenville	
PROJECT NAME: Parcel 100 - State of North Carolina - Wilcar Exec. Center		**LOGGED BY:** Ben Ashba		**BORING ID:** 100DPT-05	
		DRILLER: William J. Miller			
NORTHING: 679,493.00	**EASTING:** 2,482,663.00	**CREW:** Corey Futral			
SYSTEM: NCSP NAD 83 (USft)	**BORING LOCATION:** Grass adjacent to MW-1			**LAND ELEV.:** NM	
DRILL MACHINE: Power Probe	**METHOD:** CPT / DPT		**0 HOUR DTW:** N/A	**BORING DEPTH:** 4.0	
START DATE: 7/24/12	**FINISH DATE:** 7/24/12		**24 HOUR DTW:** N/A	**ROCK DEPTH:** --	

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 250 500 750 1,000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0					SM		0.4	TOPSOIL	
			▲0		GW		1.5	GRAVEL FILL w/brick frags.	
2.0			▲0		CL			Dark brown, Sandy CLAY. Tr. mottling.	
3.5			▲0	DPT-05 (3.5-4')			4.0		
4.0								Boring Terminated at Depth 4.0 ft	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO LOG 212077 GREENVILLE-PSAS_U3315.GPJ CATLIN.GDT 8/4/12

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC
WBS Element: 35781.1.2
State Project: U-3315

PROJECT NO.: 212077	**STATE:** NC	**COUNTY:** Pitt		**LOCATION:** Greenville	
PROJECT NAME: Parcel 100 - State of North Carolina - Wilcar Exec. Center		**LOGGED BY:** Ben Ashba		**BORING ID:** 100DPT-06	
		DRILLER: William J. Miller			
NORTHING: 679,519.00	**EASTING:** 2,482,603.00	**CREW:** Corey Futral			
SYSTEM: NCSP NAD 83 (USft)	**BORING LOCATION:** Grass @ CB1014			**LAND ELEV.:** NM	
DRILL MACHINE: Power Probe	**METHOD:** CPT / DPT		**0 HOUR DTW:** N/A	**BORING DEPTH:** 5.0	
START DATE: 7/24/12	**FINISH DATE:** 7/24/12		**24 HOUR DTW:** N/A	**ROCK DEPTH:** --	

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 250 500 750 1,000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0					SM		0.5	TOPSOIL	
			▲0		SM		2.0	Dark brown, Silty SAND. Saturated.	
2.0					CL		2.5	Dark brown, Sandy CLAY.	
			▲0		CL			Dark brown to dark gray, CLAY w/tr. sand. Mottled at depth.	
4.0			▲0						
4.5			▲0	DPT-06 (4.5-5')					
5.0							5.0	Boring Terminated at Depth 5.0 ft	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO LOG 212077 GREENVILLE-PSAS U3315.GPJ CATLIN.GDT 8/4/12

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC
WBS Element: 35781.1.2
State Project: U-3315

PROJECT NO.: 212077	**STATE:** NC	**COUNTY:** Pitt		**LOCATION:** Greenville	
PROJECT NAME: Parcel 100 - State of North Carolina - Wilcar Exec. Center		**LOGGED BY:** Ben Ashba		**BORING ID:** 100DPT-07	
		DRILLER: William J. Miller			
NORTHING: 679,517.00	**EASTING:** 2,482,586.00	**CREW:** Corey Futral			
SYSTEM: NCSP NAD 83 (USft)	**BORING LOCATION:** Edge of sidewalk @ CB1013			**LAND ELEV.:** NM	
DRILL MACHINE: Power Probe	**METHOD:** CPT / DPT		**0 HOUR DTW:** N/A	**BORING DEPTH:** 5.0	
START DATE: 7/24/12	**FINISH DATE:** 7/24/12		**24 HOUR DTW:** N/A	**ROCK DEPTH:** --	

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 250 500 750 1,000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0			▲0		GW			GRAVEL FILL w/interlayered brick frags.	
2.0			▲0				4.0		
4.0			▲0				4.5		
4.5			▲0	DPT-07 (4.5-5')	CL		5.0	Dark gray, Sandy CLAY. Mottled.	
5.0								Boring Terminated at Depth 5.0 ft	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO.LOG 212077 GREENVILLE-PSAS U3315.GPJ CATLIN.GDT 9/4/12

BORING LOG

CATLIN Engineers and Scientists
Wilmington, NC
WBS Element: 35781.1.2
State Project: U-3315

PROJECT NO.: 212077	**STATE:** NC	**COUNTY:** Pitt		**LOCATION:** Greenville	
PROJECT NAME: Parcel 100 - State of North Carolina - Wilcar Exec. Center		**LOGGED BY:** Ben Ashba		**BORING ID:** 100DPT-08	
		DRILLER: William J. Miller			
NORTHING: 679,492.00	**EASTING:** 2,482,581.00	**CREW:** Corey Futral			
SYSTEM: NCSP NAD 83 (USft)	**BORING LOCATION:** In concrete @ CB1028			**LAND ELEV.:** NM	
DRILL MACHINE: Power Probe	**METHOD:** CPT / DPT		**0 HOUR DTW:** N/A	**BORING DEPTH:** 5.0	
START DATE: 7/24/12	**FINISH DATE:** 7/24/12		**24 HOUR DTW:** N/A	**ROCK DEPTH:** --	

DEPTH	BLOW COUNT 0.5 0.5 0.5 0.5	MOI.	PID RESULTS (ppm) 0 250 500 750 1,000	LAB.	USCS	LOG	DEPTH	SOIL AND ROCK DESCRIPTION	ELEVATION
							0.0	LAND SURFACE	
0.0					GW			GRAVEL FILL	
			▲0				1.0		
					SC/ SM			Silty SAND grading to Clayey SAND.	
2.0							2.0		
					CL			Sandy CLAY.	
			▲0				3.0		
4.0					CL			CLAY w/tr. sand. Varying brown and gray.	
			▲0						
4.5									
			▲0	DPT-08 (4.5-5')					
5.0							5.0		
								Boring Terminated at Depth 5.0 ft	

▽ = 0hr. DTW ▼ = 24hr. DTW

CATLIN ENVIRO_LOG 212077_GREENVILLE-PSAS_U3315.GPJ CATLIN.GDT 9/4/12

APPENDIX D

LABORATORY REPORT AND CHAIN OF CUSTODY RECORD

Laboratory Report of Analysis

To: Ben Ashba
RICHARD CATLIN & ASSOCIATES
P.O. Box 10279
Wilmington, NC 28404

Report Number: **31202358**

Client Project: **NCDOT Parcel 100**

Dear Ben Ashba,

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 Barbara A. Hager 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.

Barbara A. Hager
2012.08.06 13:12:37 -05'00'

Barbara A. Hager — Date
Project Manager
barbara.hager@sgs.com

Print Date: 08/06/2012

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

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
100 DPT-01 (5-5.5ft)	31202358001	07/24/2012 14:15	07/26/2012 16:42	Soil-Solid as dry weight
100 DPT-02 (5-5.5ft)	31202358002	07/24/2012 14:40	07/26/2012 16:42	Soil-Solid as dry weight
100DPT-03 (4.5-5ft)	31202358003	07/24/2012 15:00	07/26/2012 16:42	Soil-Solid as dry weight
100DPT-04 (4-4.3ft)	31202358004	07/24/2012 15:30	07/26/2012 16:42	Soil-Solid as dry weight
100DPT-05 (3.5-4ft)	31202358005	07/24/2012 15:50	07/26/2012 16:42	Soil-Solid as dry weight
100DPT-06 (4.5-5ft)	31202358006	07/24/2012 16:20	07/26/2012 16:42	Soil-Solid as dry weight
100DPT-07 (4.5-5ft)	31202358007	07/24/2012 16:40	07/26/2012 16:42	Soil-Solid as dry weight
100DPT-08 (4.5-5ft)	31202358008	07/24/2012 17:10	07/26/2012 16:42	Soil-Solid as dry weight
100DPT04	31202358009	07/25/2012 07:30	07/26/2012 16:42	Water

Detectable Results Summary

*** No Detectable Results ***

Print Date: 08/06/2012

N.C. Certification # 481

Results of 100 DPT-01 (5-5.5ft)

Client Sample ID: **100 DPT-01 (5-5.5ft)**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358001-A
Lab Project ID: 31202358

Collection Date: 07/24/2012 14:15
Received Date: 07/26/2012 16:42
Matrix: Soil-Solid as dry weight
Solids (%): 70.40

Results by SW-846 8015C GRO

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND	U	4.72	4.72	mg/kg	1	07/30/2012 12:49
Surrogates							
4-Bromofluorobenzene	110			70.0-130	%	1	07/30/2012 12:49

Batch Information

Analytical Batch: **VGC2043**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**
Analytical Date/Time: **07/30/2012 12:49**

Prep Batch: **VXX3729**
Prep Method: **SW-846 5035**
Prep Date/Time: **07/27/2012 10:08**
Prep Initial Wt./Vol.: **6.02 g**
Prep Extract Vol: **5 mL**

Print Date: 08/06/2012

N.C. Certification # 481

Results of 100 DPT-01 (5-5.5ft)

Client Sample ID: **100 DPT-01 (5-5.5ft)**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358001-C
Lab Project ID: 31202358

Collection Date: 07/24/2012 14:15
Received Date: 07/26/2012 16:42
Matrix: Soil-Solid as dry weight
Solids (%): 70.40

Results by SW-846 8015C DRO

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	ND	U	8.81	8.81	mg/kg	1	07/27/2012 18:35
Surrogates							
o-Terphenyl	61.1			40.0-140	%	1	07/27/2012 18:35

Batch Information

Analytical Batch: **XGC2405**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **07/27/2012 18:35**

Prep Batch: **XXX2862**
Prep Method: **SW-846 3541**
Prep Date/Time: **07/27/2012 09:49**
Prep Initial Wt./Vol.: **32.24 g**
Prep Extract Vol: **10 mL**

Print Date: 08/06/2012

N.C. Certification # 481

Results of 100 DPT-02 (5-5.5ft)

Client Sample ID: **100 DPT-02 (5-5.5ft)**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358002-A
Lab Project ID: 31202358

Collection Date: 07/24/2012 14:40
Received Date: 07/26/2012 16:42
Matrix: Soil-Solid as dry weight
Solids (%): 76.10

Results by SW-846 8015C GRO

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND	U	4.25	4.25	mg/kg	1	07/30/2012 13:14
Surrogates							
4-Bromofluorobenzene	110			70.0-130	%	1	07/30/2012 13:14

Batch Information

Analytical Batch: **VGC2043**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**
Analytical Date/Time: **07/30/2012 13:14**

Prep Batch: **VXX3729**
Prep Method: **SW-846 5035**
Prep Date/Time: **07/27/2012 10:09**
Prep Initial Wt./Vol.: **6.18 g**
Prep Extract Vol: **5 mL**

Print Date: 08/06/2012

N.C. Certification # 481

Results of 100 DPT-02 (5-5.5ft)

Client Sample ID: **100 DPT-02 (5-5.5ft)**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358002-C
Lab Project ID: 31202358

Collection Date: 07/24/2012 14:40
Received Date: 07/26/2012 16:42
Matrix: Soil-Solid as dry weight
Solids (%): 76.10

Results by SW-846 8015C DRO

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	ND	U	8.07	8.07	mg/kg	1	07/27/2012 19:59
Surrogates							
o-Terphenyl	83.6			40.0-140	%	1	07/27/2012 19:59

Batch Information

Analytical Batch: **XGC2405**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **07/27/2012 19:59**

Prep Batch: **XXX2862**
Prep Method: **SW-846 3541**
Prep Date/Time: **07/27/2012 09:49**
Prep Initial Wt./Vol.: **32.54 g**
Prep Extract Vol: **10 mL**

Print Date: 08/06/2012

N.C. Certification # 481

Results of 100DPT-03 (4.5-5ft)

Client Sample ID: **100DPT-03 (4.5-5ft)**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358003-A
Lab Project ID: 31202358

Collection Date: 07/24/2012 15:00
Received Date: 07/26/2012 16:42
Matrix: Soil-Solid as dry weight
Solids (%): 86.70

Results by SW-846 8015C GRO

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND	U	3.65	3.65	mg/kg	1	07/30/2012 13:39
Surrogates							
4-Bromofluorobenzene	109			70.0-130	%	1	07/30/2012 13:39

Batch Information

Analytical Batch: **VGC2043**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**
Analytical Date/Time: **07/30/2012 13:39**

Prep Batch: **VXX3729**
Prep Method: **SW-846 5035**
Prep Date/Time: **07/27/2012 10:10**
Prep Initial Wt./Vol.: **6.31 g**
Prep Extract Vol: **5 mL**

Print Date: 08/06/2012

N.C. Certification # 481

Results of 100DPT-03 (4.5-5ft)

Client Sample ID: **100DPT-03 (4.5-5ft)**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358003-C
Lab Project ID: 31202358

Collection Date: 07/24/2012 15:00
Received Date: 07/26/2012 16:42
Matrix: Soil-Solid as dry weight
Solids (%): 86.70

Results by SW-846 8015C DRO

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	ND	U	7.20	7.20	mg/kg	1	07/27/2012 20:27
Surrogates							
o-Terphenyl	88.8			40.0-140	%	1	07/27/2012 20:27

Batch Information

Analytical Batch: **XGC2405**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **07/27/2012 20:27**

Prep Batch: **XXX2862**
Prep Method: **SW-846 3541**
Prep Date/Time: **07/27/2012 09:49**
Prep Initial Wt./Vol.: **32.01 g**
Prep Extract Vol: **10 mL**

Print Date: 08/06/2012

N.C. Certification # 481

Results of 100DPT-04 (4-4.3ft)

Client Sample ID: **100DPT-04 (4-4.3ft)**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358004-A
Lab Project ID: 31202358

Collection Date: 07/24/2012 15:30
Received Date: 07/26/2012 16:42
Matrix: Soil-Solid as dry weight
Solids (%): 85.30

Results by SW-846 8015C GRO

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND	U	3.53	3.53	mg/kg	1	07/30/2012 14:05
Surrogates							
4-Bromofluorobenzene	107			70.0-130	%	1	07/30/2012 14:05

Batch Information

Analytical Batch: **VGC2043**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**
Analytical Date/Time: **07/30/2012 14:05**

Prep Batch: **VXX3729**
Prep Method: **SW-846 5035**
Prep Date/Time: **07/27/2012 10:11**
Prep Initial Wt./Vol.: **6.65 g**
Prep Extract Vol: **5 mL**

Print Date: 08/06/2012

N.C. Certification # 481

Results of 100DPT-04 (4-4.3ft)

Client Sample ID: **100DPT-04 (4-4.3ft)**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358004-C
Lab Project ID: 31202358

Collection Date: 07/24/2012 15:30
Received Date: 07/26/2012 16:42
Matrix: Soil-Solid as dry weight
Solids (%): 85.30

Results by SW-846 8015C DRO

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	ND	U	7.82	7.82	mg/kg	1	07/27/2012 20:55
Surrogates							
o-Terphenyl	95.1			40.0-140	%	1	07/27/2012 20:55

Batch Information

Analytical Batch: **XGC2405**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **07/27/2012 20:55**

Prep Batch: **XXX2862**
Prep Method: **SW-846 3541**
Prep Date/Time: **07/27/2012 09:49**
Prep Initial Wt./Vol.: **30.01 g**
Prep Extract Vol: **10 mL**

Print Date: 08/06/2012

N.C. Certification # 481

Results of 100DPT-05 (3.5-4ft)

Client Sample ID: **100DPT-05 (3.5-4ft)**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358005-A
Lab Project ID: 31202358

Collection Date: 07/24/2012 15:50
Received Date: 07/26/2012 16:42
Matrix: Soil-Solid as dry weight
Solids (%): 83.90

Results by SW-846 8015C GRO

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND	U	3.54	3.54	mg/kg	1	07/30/2012 14:30
Surrogates							
4-Bromofluorobenzene	107			70.0-130	%	1	07/30/2012 14:30

Batch Information

Analytical Batch: **VGC2043**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**
Analytical Date/Time: **07/30/2012 14:30**

Prep Batch: **VXX3729**
Prep Method: **SW-846 5035**
Prep Date/Time: **07/27/2012 10:12**
Prep Initial Wt./Vol.: **6.73 g**
Prep Extract Vol: **5 mL**

Print Date: 08/06/2012

N.C. Certification # 481

Results of 100DPT-05 (3.5-4ft)

Client Sample ID: **100DPT-05 (3.5-4ft)**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358005-C
Lab Project ID: 31202358

Collection Date: 07/24/2012 15:50
Received Date: 07/26/2012 16:42
Matrix: Soil-Solid as dry weight
Solids (%): 83.90

Results by SW-846 8015C DRO

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	ND	U	7.57	7.57	mg/kg	1	07/27/2012 21:23
Surrogates							
o-Terphenyl	80.2			40.0-140	%	1	07/27/2012 21:23

Batch Information

Analytical Batch: **XGC2405**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **07/27/2012 21:23**

Prep Batch: **XXX2862**
Prep Method: **SW-846 3541**
Prep Date/Time: **07/27/2012 09:49**
Prep Initial Wt./Vol.: **31.5 g**
Prep Extract Vol: **10 mL**

Print Date: 08/06/2012

N.C. Certification # 481

Results of 100DPT-06 (4.5-5ft)

Client Sample ID: **100DPT-06 (4.5-5ft)**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358006-A
Lab Project ID: 31202358

Collection Date: 07/24/2012 16:20
Received Date: 07/26/2012 16:42
Matrix: Soil-Solid as dry weight
Solids (%): 71.80

Results by SW-846 8015C GRO

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND	U	4.48	4.48	mg/kg	1	07/30/2012 14:56
Surrogates							
4-Bromofluorobenzene	108			70.0-130	%	1	07/30/2012 14:56

Batch Information

Analytical Batch: **VGC2043**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**
Analytical Date/Time: **07/30/2012 14:56**

Prep Batch: **VXX3729**
Prep Method: **SW-846 5035**
Prep Date/Time: **07/27/2012 10:13**
Prep Initial Wt./Vol.: **6.22 g**
Prep Extract Vol: **5 mL**

Print Date: 08/06/2012

N.C. Certification # 481

Results of 100DPT-06 (4.5-5ft)

Client Sample ID: **100DPT-06 (4.5-5ft)**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358006-C
Lab Project ID: 31202358

Collection Date: 07/24/2012 16:20
Received Date: 07/26/2012 16:42
Matrix: Soil-Solid as dry weight
Solids (%): 71.80

Results by SW-846 8015C DRO

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	ND	U	8.65	8.65	mg/kg	1	07/27/2012 21:51
Surrogates							
o-Terphenyl	82.5			40.0-140	%	1	07/27/2012 21:51

Batch Information

Analytical Batch: **XGC2405**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **07/27/2012 21:51**

Prep Batch: **XXX2862**
Prep Method: **SW-846 3541**
Prep Date/Time: **07/27/2012 09:49**
Prep Initial Wt./Vol.: **32.23 g**
Prep Extract Vol: **10 mL**

Print Date: 08/06/2012

N.C. Certification # 481

Results of 100DPT-07 (4.5-5ft)

Client Sample ID: **100DPT-07 (4.5-5ft)**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358007-A
Lab Project ID: 31202358

Collection Date: 07/24/2012 16:40
Received Date: 07/26/2012 16:42
Matrix: Soil-Solid as dry weight
Solids (%): 71.50

Results by SW-846 8015C GRO

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND	U	4.32	4.32	mg/kg	1	07/30/2012 15:21
Surrogates							
4-Bromofluorobenzene	108			70.0-130	%	1	07/30/2012 15:21

Batch Information

Analytical Batch: **VGC2043**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**
Analytical Date/Time: **07/30/2012 15:21**

Prep Batch: **VXX3729**
Prep Method: **SW-846 5035**
Prep Date/Time: **07/27/2012 10:14**
Prep Initial Wt./Vol.: **6.47 g**
Prep Extract Vol: **5 mL**

Print Date: 08/06/2012

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Results of 100DPT-07 (4.5-5ft)

Client Sample ID: **100DPT-07 (4.5-5ft)**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358007-C
Lab Project ID: 31202358

Collection Date: 07/24/2012 16:40
Received Date: 07/26/2012 16:42
Matrix: Soil-Solid as dry weight
Solids (%): 71.50

Results by SW-846 8015C DRO

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	ND	U	8.72	8.72	mg/kg	1	07/27/2012 22:18
Surrogates							
o-Terphenyl	69.6			40.0-140	%	1	07/27/2012 22:18

Batch Information

Analytical Batch: **XGC2405**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **07/27/2012 22:18**

Prep Batch: **XXX2862**
Prep Method: **SW-846 3541**
Prep Date/Time: **07/27/2012 09:49**
Prep Initial Wt./Vol.: **32.08 g**
Prep Extract Vol: **10 mL**

Print Date: 08/06/2012

N.C. Certification # 481

Results of 100DPT-08 (4.5-5ft)

Client Sample ID: **100DPT-08 (4.5-5ft)**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358008-A
Lab Project ID: 31202358

Collection Date: 07/24/2012 17:10
Received Date: 07/26/2012 16:42
Matrix: Soil-Solid as dry weight
Solids (%): 70.90

Results by SW-846 8015C GRO

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Gasoline Range Organics (GRO)	ND	U	4.72	4.72	mg/kg	1	07/30/2012 15:47
Surrogates							
4-Bromofluorobenzene	109			70.0-130	%	1	07/30/2012 15:47

Batch Information

Analytical Batch: **VGC2043**
Analytical Method: **SW-846 8015C GRO**
Instrument: **GC7**
Analyst: **MDY**
Analytical Date/Time: **07/30/2012 15:47**

Prep Batch: **VXX3729**
Prep Method: **SW-846 5035**
Prep Date/Time: **07/27/2012 10:15**
Prep Initial Wt./Vol.: **5.98 g**
Prep Extract Vol: **5 mL**

Print Date: 08/06/2012

N.C. Certification # 481

Results of 100DPT-08 (4.5-5ft)

Client Sample ID: **100DPT-08 (4.5-5ft)**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358008-C
Lab Project ID: 31202358

Collection Date: 07/24/2012 17:10
Received Date: 07/26/2012 16:42
Matrix: Soil-Solid as dry weight
Solids (%): 70.90

Results by SW-846 8015C DRO

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Diesel Range Organics (DRO)	ND	U	9.01	9.01	mg/kg	1	07/27/2012 22:46
Surrogates							
o-Terphenyl	69.1			40.0-140	%	1	07/27/2012 22:46

Batch Information

Analytical Batch: **XGC2405**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**
Analytical Date/Time: **07/27/2012 22:46**

Prep Batch: **XXX2862**
Prep Method: **SW-846 3541**
Prep Date/Time: **07/27/2012 09:49**
Prep Initial Wt./Vol.: **31.32 g**
Prep Extract Vol: **10 mL**

Print Date: 08/06/2012

N.C. Certification # 481

Results of **100DPT04**

Client Sample ID: **100DPT04**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358009-A
Lab Project ID: 31202358

Collection Date: 07/25/2012 07:30
Received Date: 07/26/2012 16:42
Matrix: Water

Results by **SM 6200-B**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
1,1,1,2-Tetrachloroethane	ND	U	0.104	0.500	ug/L	1	07/27/2012 17:05
1,1,1-Trichloroethane	ND	U	0.123	0.500	ug/L	1	07/27/2012 17:05
1,1,2,2-Tetrachloroethane	ND	U	0.156	0.500	ug/L	1	07/27/2012 17:05
1,1,2-Trichloroethane	ND	U	0.126	0.500	ug/L	1	07/27/2012 17:05
1,1-Dichloroethane	ND	U	0.165	0.500	ug/L	1	07/27/2012 17:05
1,1-Dichloroethene	ND	U	0.212	0.500	ug/L	1	07/27/2012 17:05
1,1-Dichloropropene	ND	U	0.112	0.500	ug/L	1	07/27/2012 17:05
1,2,3-Trichlorobenzene	ND	U	0.110	0.500	ug/L	1	07/27/2012 17:05
1,2,3-Trichloropropane	ND	U	0.212	0.500	ug/L	1	07/27/2012 17:05
1,2,4-Trichlorobenzene	ND	U	0.0913	0.500	ug/L	1	07/27/2012 17:05
1,2,4-Trimethylbenzene	ND	U	0.0961	0.500	ug/L	1	07/27/2012 17:05
1,2-Dibromo-3-chloropropane	ND	U	0.748	5.00	ug/L	1	07/27/2012 17:05
1,2-Dibromoethane	ND	U	0.120	0.500	ug/L	1	07/27/2012 17:05
1,2-Dichlorobenzene	ND	U	0.137	0.500	ug/L	1	07/27/2012 17:05
1,2-Dichloroethane	ND	U	0.167	0.500	ug/L	1	07/27/2012 17:05
1,2-Dichloropropane	ND	U	0.163	0.500	ug/L	1	07/27/2012 17:05
1,3,5-Trimethylbenzene	ND	U	0.113	0.500	ug/L	1	07/27/2012 17:05
1,3-Dichlorobenzene	ND	U	0.103	0.500	ug/L	1	07/27/2012 17:05
1,3-Dichloropropane	ND	U	0.189	0.500	ug/L	1	07/27/2012 17:05
1,4-Dichlorobenzene	ND	U	0.130	0.500	ug/L	1	07/27/2012 17:05
2,2-Dichloropropane	ND	U	0.393	0.500	ug/L	1	07/27/2012 17:05
2-Chlorotoluene	ND	U	0.113	0.500	ug/L	1	07/27/2012 17:05
4-Chlorotoluene	ND	U	0.125	0.500	ug/L	1	07/27/2012 17:05
4-Isopropyltoluene	ND	U	0.0769	0.500	ug/L	1	07/27/2012 17:05
Benzene	ND	U	0.113	0.500	ug/L	1	07/27/2012 17:05
Bromobenzene	ND	U	0.110	0.500	ug/L	1	07/27/2012 17:05
Bromochloromethane	ND	U	0.211	0.500	ug/L	1	07/27/2012 17:05
Bromodichloromethane	ND	U	0.110	0.500	ug/L	1	07/27/2012 17:05
Bromoform	ND	U	0.0974	0.500	ug/L	1	07/27/2012 17:05
Bromomethane	ND	U	0.237	0.500	ug/L	1	07/27/2012 17:05
n-Butylbenzene	ND	U	0.0769	0.500	ug/L	1	07/27/2012 17:05
Carbon tetrachloride	ND	U	0.101	0.500	ug/L	1	07/27/2012 17:05
Chlorobenzene	ND	U	0.116	0.500	ug/L	1	07/27/2012 17:05
Chloroethane	ND	U	0.311	0.500	ug/L	1	07/27/2012 17:05
Chloroform	ND	U	0.139	0.500	ug/L	1	07/27/2012 17:05
Chloromethane	ND	U	0.448	0.500	ug/L	1	07/27/2012 17:05
Dibromochloromethane	ND	U	0.134	0.500	ug/L	1	07/27/2012 17:05
Dibromomethane	ND	U	0.168	0.500	ug/L	1	07/27/2012 17:05
Dichlorodifluoromethane	ND	U	0.171	5.00	ug/L	1	07/27/2012 17:05
cis-1,3-Dichloropropene	ND	U	0.0767	0.500	ug/L	1	07/27/2012 17:05
trans-1,3-Dichloropropene	ND	U	0.0862	0.500	ug/L	1	07/27/2012 17:05
Diisopropyl Ether	ND	U	0.155	0.500	ug/L	1	07/27/2012 17:05
Ethyl Benzene	ND	U	0.0877	0.500	ug/L	1	07/27/2012 17:05
Hexachlorobutadiene	ND	U	0.0792	0.500	ug/L	1	07/27/2012 17:05

Print Date: 08/06/2012

N.C. Certification # 481

Results of 100DPT04

Client Sample ID: **100DPT04**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358009-A
Lab Project ID: 31202358

Collection Date: 07/25/2012 07:30
Received Date: 07/26/2012 16:42
Matrix: Water

Results by SM 6200-B

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Isopropylbenzene (Cumene)	ND	U	0.0869	0.500	ug/L	1	07/27/2012 17:05
Methylene chloride	ND	U	0.152	5.00	ug/L	1	07/27/2012 17:05
Naphthalene	ND	U	0.0855	0.500	ug/L	1	07/27/2012 17:05
Styrene	ND	U	0.102	0.500	ug/L	1	07/27/2012 17:05
Tetrachloroethene	ND	U	0.155	0.500	ug/L	1	07/27/2012 17:05
Toluene	ND	U	0.133	0.500	ug/L	1	07/27/2012 17:05
Trichloroethene	ND	U	0.125	0.500	ug/L	1	07/27/2012 17:05
Trichlorofluoromethane	ND	U	0.137	0.500	ug/L	1	07/27/2012 17:05
Vinyl chloride	ND	U	0.124	0.500	ug/L	1	07/27/2012 17:05
Xylene (total)	ND	U	0.269	1.50	ug/L	1	07/27/2012 17:05
cis-1,2-Dichloroethene	ND	U	0.136	0.500	ug/L	1	07/27/2012 17:05
m,p-Xylene	ND	U	0.182	1.00	ug/L	1	07/27/2012 17:05
n-Propylbenzene	ND	U	0.113	0.500	ug/L	1	07/27/2012 17:05
o-Xylene	ND	U	0.0874	0.500	ug/L	1	07/27/2012 17:05
sec-Butylbenzene	ND	U	0.112	0.500	ug/L	1	07/27/2012 17:05
tert-Butyl methyl ether (MTBE)	ND	U	0.144	0.500	ug/L	1	07/27/2012 17:05
tert-Butylbenzene	ND	U	0.0855	0.500	ug/L	1	07/27/2012 17:05
trans-1,2-Dichloroethene	ND	U	0.223	0.500	ug/L	1	07/27/2012 17:05
Surrogates							
1,2-Dichloroethane-d4	92.9			64.0-140	%	1	07/27/2012 17:05
4-Bromofluorobenzene	98.5			85.0-115	%	1	07/27/2012 17:05
Toluene d8	104			82.0-117	%	1	07/27/2012 17:05

Batch Information

Analytical Batch: **VMS2417**
Analytical Method: **SM 6200-B**
Instrument: **MSD8**
Analyst: **DVO**
Analytical Date/Time: **07/27/2012 17:05**

Prep Batch: **VXX3716**
Prep Method: **SM 6200-B Prep**
Prep Date/Time: **07/27/2012 08:00**
Prep Initial Wt./Vol.: **40 mL**
Prep Extract Vol: **40 mL**

Print Date: 08/06/2012

N.C. Certification # 481

SGS ANALYTICAL PERSPECTIVES

Results of 100DPT04

Client Sample ID: **100DPT04**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358009-D
Lab Project ID: 31202358

Collection Date: 07/25/2012 07:30
Received Date: 07/26/2012 16:42
Matrix: Water

Results by EPA 625

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
1,2,4-Trichlorobenzene	ND	U	1.93	5.57	ug/L	1	08/1/2012 23:13
2,4-Dinitrotoluene	ND	U	2.05	5.57	ug/L	1	08/1/2012 23:13
2,6-Dinitrotoluene	ND	U	2.10	5.57	ug/L	1	08/1/2012 23:13
2-Chloronaphthalene	ND	U	2.23	5.57	ug/L	1	08/1/2012 23:13
3,3'-Dichlorobenzidine	ND	U	1.95	11.1	ug/L	1	08/1/2012 23:13
4-Chlorophenyl phenyl ether	ND	U	2.74	5.57	ug/L	1	08/1/2012 23:13
Acenaphthene	ND	U	2.30	5.57	ug/L	1	08/1/2012 23:13
Acenaphthylene	ND	U	2.23	5.57	ug/L	1	08/1/2012 23:13
Anthracene	ND	U	2.15	5.57	ug/L	1	08/1/2012 23:13
Benzo(a)anthracene	ND	U	2.19	5.57	ug/L	1	08/1/2012 23:13
Benzo(a)pyrene	ND	U	2.07	5.57	ug/L	1	08/1/2012 23:13
Benzo(b)fluoranthene	ND	U	2.19	5.57	ug/L	1	08/1/2012 23:13
Benzo(g,h,i)perylene	ND	U	2.40	5.57	ug/L	1	08/1/2012 23:13
Benzo(k)fluoranthene	ND	U	2.58	5.57	ug/L	1	08/1/2012 23:13
Bis(2-Chloroethoxy)methane	ND	U	2.36	5.57	ug/L	1	08/1/2012 23:13
Bis(2-Chloroethyl)ether	ND	U	2.46	5.57	ug/L	1	08/1/2012 23:13
Bis(2-Chloroisopropyl)ether	ND	U	2.27	5.57	ug/L	1	08/1/2012 23:13
Bis(2-Ethylhexyl)phthalate	ND	U	2.17	5.57	ug/L	1	08/1/2012 23:13
4-Bromophenyl phenyl ether	ND	U	2.27	5.57	ug/L	1	08/1/2012 23:13
Butyl benzyl phthalate	ND	U	2.11	5.57	ug/L	1	08/1/2012 23:13
Chrysene	ND	U	2.45	5.57	ug/L	1	08/1/2012 23:13
Di-n-butyl phthalate	ND	U	2.13	5.57	ug/L	1	08/1/2012 23:13
Di-n-octyl phthalate	ND	U	1.63	5.57	ug/L	1	08/1/2012 23:13
Dibenz(a,h)anthracene	ND	U	2.25	5.57	ug/L	1	08/1/2012 23:13
Diethyl phthalate	ND	U	2.34	5.57	ug/L	1	08/1/2012 23:13
Dimethyl phthalate	ND	U	2.39	5.57	ug/L	1	08/1/2012 23:13
Diphenylamine	ND	U	2.25	5.57	ug/L	1	08/1/2012 23:13
Fluoranthene	ND	U	2.25	5.57	ug/L	1	08/1/2012 23:13
Fluorene	ND	U	2.72	5.57	ug/L	1	08/1/2012 23:13
Hexachlorobenzene	ND	U	2.15	5.57	ug/L	1	08/1/2012 23:13
Hexachlorobutadiene	ND	U	1.69	5.57	ug/L	1	08/1/2012 23:13
Hexachlorocyclopentadiene	ND	U	0.878	11.1	ug/L	1	08/1/2012 23:13
Hexachloroethane	ND	U	1.56	5.57	ug/L	1	08/1/2012 23:13
Indeno(1,2,3-cd)pyrene	ND	U	2.25	5.57	ug/L	1	08/1/2012 23:13
Isophorone	ND	U	2.33	5.57	ug/L	1	08/1/2012 23:13
Naphthalene	ND	U	2.16	5.57	ug/L	1	08/1/2012 23:13
Nitrobenzene	ND	U	2.44	5.57	ug/L	1	08/1/2012 23:13
Phenanthrene	ND	U	2.22	5.57	ug/L	1	08/1/2012 23:13
Pyrene	ND	U	2.24	5.57	ug/L	1	08/1/2012 23:13
n-Nitrosodi-n-propylamine	ND	U	2.49	5.57	ug/L	1	08/1/2012 23:13
Surrogates							
2-Fluorobiphenyl	87.4			50.0-107	%	1	08/1/2012 23:13
Nitrobenzene-d5	91.9			46.0-118	%	1	08/1/2012 23:13

Print Date: 08/06/2012

N.C. Certification # 481

Results of 100DPT04

Client Sample ID: **100DPT04**
Client Project ID: **NCDOT Parcel 100**
Lab Sample ID: 31202358009-D
Lab Project ID: 31202358

Collection Date: 07/25/2012 07:30
Received Date: 07/26/2012 16:42
Matrix: Water

Results by EPA 625

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Terphenyl-d14	87.6			22.1-142	%	1	08/1/2012 23:13

Batch Information

Analytical Batch: **XMS1619**
Analytical Method: **EPA 625**
Instrument: **MSD10**
Analyst: **CMP**
Analytical Date/Time: **08/01/2012 23:13**

Prep Batch: **XXX2868**
Prep Method: **EPA 625**
Prep Date/Time: **07/30/2012 14:41**
Prep Initial Wt./Vol.: **897 mL**
Prep Extract Vol: **5 mL**

Print Date: 08/06/2012

N.C. Certification # 481

Batch Summary

Analytical Method: SM 6200-B

Prep Method: SW-846 5030B
Prep Batch: VXX3716
Prep Date: 07/27/2012 10:08

Client Sample ID	Lab Sample ID	Analysis Date	Analytical Batch	Instrument	Analyst
LCS for HBN 26128 [VXX/3716]	82378	07/27/2012 11:12	VMS2417	MSD8	DVO
LCSD for HBN 26128 [VXX/3716]	82379	07/27/2012 11:37	VMS2417	MSD8	DVO
MB for HBN 26128 [VXX/3716]	82380	07/27/2012 12:27	VMS2417	MSD8	DVO
USTHPFF-MW17(81787MS)	82487	07/27/2012 14:59	VMS2417	MSD8	DVO
USTHPFF-MW17(81787MSD)	82488	07/27/2012 15:24	VMS2417	MSD8	DVO
100DPT04	31202358009	07/27/2012 17:05	VMS2417	MSD8	DVO

Method Blank

Blank ID: MB for HBN 26128 [VXX/3716]
Blank Lab ID: 82380
QC for Samples:
31202358009

Matrix: Water

Results by SM 6200-B

Parameter	Result	Qual	DL	LOQ/CL	Units	DF
Dichlorodifluoromethane	ND	U	0.171	5.00	ug/L	1
Chloromethane	ND	U	0.448	0.500	ug/L	1
Vinyl chloride	ND	U	0.124	0.500	ug/L	1
Bromomethane	ND	U	0.237	0.500	ug/L	1
Chloroethane	ND	U	0.311	0.500	ug/L	1
Trichlorofluoromethane	ND	U	0.137	0.500	ug/L	1
1,1-Dichloroethene	ND	U	0.212	0.500	ug/L	1
Methylene chloride	ND	U	0.152	5.00	ug/L	1
trans-1,2-Dichloroethene	ND	U	0.223	0.500	ug/L	1
tert-Butyl methyl ether (MTBE)	ND	U	0.144	0.500	ug/L	1
1,1-Dichloroethane	ND	U	0.165	0.500	ug/L	1
Diisopropyl Ether	ND	U	0.155	0.500	ug/L	1
2,2-Dichloropropane	ND	U	0.393	0.500	ug/L	1
cis-1,2-Dichloroethene	ND	U	0.136	0.500	ug/L	1
Bromochloromethane	ND	U	0.211	0.500	ug/L	1
Chloroform	ND	U	0.139	0.500	ug/L	1
1,1,1-Trichloroethane	ND	U	0.123	0.500	ug/L	1
Carbon tetrachloride	ND	U	0.101	0.500	ug/L	1
1,1-Dichloropropene	ND	U	0.112	0.500	ug/L	1
Benzene	ND	U	0.113	0.500	ug/L	1
1,2-Dichloroethane	ND	U	0.167	0.500	ug/L	1
Trichloroethene	ND	U	0.125	0.500	ug/L	1
1,2-Dichloropropane	ND	U	0.163	0.500	ug/L	1
Dibromomethane	ND	U	0.168	0.500	ug/L	1
Bromodichloromethane	ND	U	0.110	0.500	ug/L	1
cis-1,3-Dichloropropene	ND	U	0.0767	0.500	ug/L	1
Toluene	ND	U	0.133	0.500	ug/L	1
trans-1,3-Dichloropropene	ND	U	0.0862	0.500	ug/L	1
1,1,2-Trichloroethane	ND	U	0.126	0.500	ug/L	1
Tetrachloroethene	ND	U	0.155	0.500	ug/L	1
1,3-Dichloropropane	ND	U	0.189	0.500	ug/L	1
Dibromochloromethane	ND	U	0.134	0.500	ug/L	1
1,2-Dibromoethane	ND	U	0.120	0.500	ug/L	1
Chlorobenzene	ND	U	0.116	0.500	ug/L	1
1,1,1,2-Tetrachloroethane	ND	U	0.104	0.500	ug/L	1
Bromoform	ND	U	0.0974	0.500	ug/L	1
Bromobenzene	ND	U	0.110	0.500	ug/L	1
1,1,2,2-Tetrachloroethane	ND	U	0.156	0.500	ug/L	1
1,2,3-Trichloropropane	ND	U	0.212	0.500	ug/L	1
Ethyl Benzene	ND	U	0.0877	0.500	ug/L	1
m,p-Xylene	ND	U	0.182	1.00	ug/L	1
Styrene	ND	U	0.102	0.500	ug/L	1

Print Date: 08/06/2012

N.C. Certification # 481

Method Blank

Blank ID: MB for HBN 26128 [VXX/3716]
Blank Lab ID: 82380
QC for Samples:
31202358009

Matrix: Water

Results by SM 6200-B

Parameter	Result	Qual	DL	LOQ/CL	Units	DF
o-Xylene	ND	U	0.0874	0.500	ug/L	1
Xylene (total)	ND	U	0.269	1.50	ug/L	1
Isopropylbenzene (Cumene)	ND	U	0.0869	0.500	ug/L	1
n-Propylbenzene	ND	U	0.113	0.500	ug/L	1
2-Chlorotoluene	ND	U	0.113	0.500	ug/L	1
4-Chlorotoluene	ND	U	0.125	0.500	ug/L	1
1,3,5-Trimethylbenzene	ND	U	0.113	0.500	ug/L	1
tert-Butylbenzene	ND	U	0.0855	0.500	ug/L	1
1,2,4-Trimethylbenzene	ND	U	0.0961	0.500	ug/L	1
sec-Butylbenzene	ND	U	0.112	0.500	ug/L	1
1,3-Dichlorobenzene	ND	U	0.103	0.500	ug/L	1
4-Isopropyltoluene	ND	U	0.0769	0.500	ug/L	1
1,4-Dichlorobenzene	ND	U	0.130	0.500	ug/L	1
1,2-Dichlorobenzene	ND	U	0.137	0.500	ug/L	1
n-Butylbenzene	ND	U	0.0769	0.500	ug/L	1
1,2-Dibromo-3-chloropropane	ND	U	0.748	5.00	ug/L	1
1,2,4-Trichlorobenzene	ND	U	0.0913	0.500	ug/L	1
Hexachlorobutadiene	ND	U	0.0792	0.500	ug/L	1
Naphthalene	ND	U	0.0855	0.500	ug/L	1
1,2,3-Trichlorobenzene	ND	U	0.110	0.500	ug/L	1
Surrogates						
1,2-Dichloroethane-d4	101			64.0-140	%	1
Toluene d8	100			82.0-117	%	1
4-Bromofluorobenzene	92.8			85.0-115	%	1

Batch Information

Analytical Batch: VMS2417
Analytical Method: SM 6200-B
Instrument: MSD8
Analyst: DVO
Analytical Date/Time: 7/27/2012 12:27:00PM

Prep Batch: VXX3716
Prep Method: SW-846 5030B
Prep Date/Time: 7/27/2012 10:08:03AM
Prep Initial Wt./Vol.: 40 mL
Prep Extract Vol: 40 mL

Print Date: 08/06/2012

N.C. Certification # 481

Blank Spike Summary

Blank Spike ID: LCS for HBN 26128 [VXX/3716]
Blank Spike Lab ID: 82378
Date Analyzed: 07/27/2012 11:12

Spike Duplicate ID: LCSD for HBN 26128 [VXX/3716]
Spike Duplicate Lab ID: 82379
Date Analyzed: 07/27/2012 11:37
Matrix: Water

QC for Samples: 31202358009

Results by SM 6200-B

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Dichlorodifluoromethane	5.00	5.54	111	5.00	4.85	97	33.0-170	13	30.00
Chloromethane	5.00	4.72	94	5.00	4.65	93	57.0-132	1.5	30.00
Vinyl chloride	5.00	5.20	104	5.00	4.65	93	59.0-138	11	30.00
Bromomethane	5.00	6.28	126	5.00	5.07	101	51.0-134	21	30.00
Chloroethane	5.00	5.47	109	5.00	4.76	95	64.0-145	14	30.00
Trichlorofluoromethane	5.00	5.11	102	5.00	4.57	91	64.0-133	11	30.00
1,1-Dichloroethene	5.00	6.78	136*	5.00	5.91	118	71.0-128	14	30.00
Methylene chloride	5.00	5.25	105	5.00	5.04	101	70.0-113	4.1	30.00
trans-1,2-Dichloroethene	5.00	5.66	113	5.00	5.60	112	57.0-138	1.1	30.00
tert-Butyl methyl ether (MTBE)	5.00	5.60	112	5.00	5.13	103	47.0-142	8.8	30.00
1,1-Dichloroethane	5.00	5.87	117	5.00	5.28	106	68.0-133	11	30.00
Diisopropyl Ether	5.00	5.29	106	5.00	4.84	97	66.0-132	8.9	30.00
2,2-Dichloropropane	5.00	5.36	107	5.00	5.11	102	74.0-125	4.8	30.00
cis-1,2-Dichloroethene	5.00	5.76	115	5.00	5.79	116	73.0-128	0.52	30.00
Bromochloromethane	5.00	6.08	122	5.00	5.83	117	73.0-128	4.2	30.00
Chloroform	5.00	5.89	118	5.00	5.44	109	74.0-124	7.9	30.00
1,1,1-Trichloroethane	5.00	5.66	113	5.00	5.11	102	76.0-119	10	30.00
Carbon tetrachloride	5.00	5.48	110	5.00	5.26	105	75.0-120	4.1	30.00
1,1-Dichloropropene	5.00	5.38	108	5.00	5.02	100	76.0-124	6.9	30.00
Benzene	5.00	5.46	109	5.00	5.10	102	76.0-124	6.8	30.00
1,2-Dichloroethane	5.00	5.93	119	5.00	5.06	101	76.0-119	16	30.00
Trichloroethene	5.00	5.29	106	5.00	5.25	105	74.0-121	0.76	30.00
1,2-Dichloropropane	5.00	5.46	109	5.00	4.66	93	74.0-124	16	30.00
Dibromomethane	5.00	5.73	115	5.00	4.98	100	71.0-128	14	30.00
Bromodichloromethane	5.00	5.44	109	5.00	4.99	100	72.0-120	8.6	30.00
cis-1,3-Dichloropropene	5.00	5.73	115	5.00	5.42	108	73.0-122	5.6	30.00
Toluene	5.00	5.59	112	5.00	5.25	105	75.0-123	6.3	30.00
trans-1,3-Dichloropropene	5.00	5.29	106	5.00	4.97	99	70.0-125	6.2	30.00
1,1,2-Trichloroethane	5.00	5.18	104	5.00	5.12	102	76.0-121	1.2	30.00
Tetrachloroethene	5.00	5.06	101	5.00	5.24	105	59.0-112	3.5	30.00
1,3-Dichloropropane	5.00	5.10	102	5.00	4.84	97	74.0-120	5.2	30.00
Dibromochloromethane	5.00	4.95	99	5.00	4.86	97	67.0-122	1.8	30.00
1,2-Dibromoethane	5.00	5.68	114	5.00	5.08	102	74.0-119	11	30.00
Chlorobenzene	5.00	5.24	105	5.00	5.01	100	74.0-120	4.5	30.00

Print Date: 08/06/2012

N.C. Certification # 481

Blank Spike Summary

Blank Spike ID: LCS for HBN 26128 [VXX/3716]
Blank Spike Lab ID: 82378
Date Analyzed: 07/27/2012 11:12

Spike Duplicate ID: LCSD for HBN 26128 [VXX/3716]
Spike Duplicate Lab ID: 82379
Date Analyzed: 07/27/2012 11:37
Matrix: Water

QC for Samples: 31202358009

Results by SM 6200-B

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	5.00	4.76	95	5.00	4.81	96	73.0-119	1.0	30.00
Bromoform	5.00	4.83	97	5.00	5.16	103	62.0-127	6.6	30.00
Bromobenzene	5.00	5.03	101	5.00	4.74	95	75.0-120	5.9	30.00
1,1,2,2-Tetrachloroethane	5.00	5.24	105	5.00	5.22	104	68.0-129	0.38	30.00
1,2,3-Trichloropropane	5.00	5.21	104	5.00	5.08	102	67.0-126	2.5	30.00
Ethyl Benzene	5.00	5.44	109	5.00	4.97	99	76.0-123	9.0	30.00
m,p-Xylene	10.0	10.9	109	10.0	9.60	96	76.0-124	13	30.00
Styrene	5.00	5.29	106	5.00	4.79	96	76.0-121	9.9	30.00
o-Xylene	5.00	5.48	110	5.00	5.03	101	75.0-124	8.6	30.00
Isopropylbenzene (Cumene)	5.00	5.51	110	5.00	5.02	100	77.0-120	9.3	30.00
n-Propylbenzene	5.00	5.65	113	5.00	5.10	102	77.0-123	10	30.00
2-Chlorotoluene	5.00	5.59	112	5.00	5.10	102	74.0-127	9.2	30.00
4-Chlorotoluene	5.00	5.94	119	5.00	5.14	103	77.0-123	14	30.00
1,3,5-Trimethylbenzene	5.00	5.45	109	5.00	4.81	96	76.0-122	12	30.00
tert-Butylbenzene	5.00	5.46	109	5.00	4.91	98	67.0-122	11	30.00
1,2,4-Trimethylbenzene	5.00	5.38	108	5.00	4.82	96	76.0-124	11	30.00
sec-Butylbenzene	5.00	5.36	107	5.00	4.92	98	78.0-121	8.6	30.00
1,3-Dichlorobenzene	5.00	5.70	114	5.00	5.01	100	75.0-120	13	30.00
4-Isopropyltoluene	5.00	5.34	107	5.00	4.80	96	77.0-120	11	30.00
1,4-Dichlorobenzene	5.00	5.39	108	5.00	5.15	103	70.0-125	4.6	30.00
1,2-Dichlorobenzene	5.00	4.95	99	5.00	5.00	100	76.0-118	1.0	30.00
n-Butylbenzene	5.00	5.17	103	5.00	5.01	100	78.0-118	3.1	30.00
1,2-Dibromo-3-chloropropane	30.0	33.1	110	30.0	28.4	95	62.0-130	15	30.00
1,2,4-Trichlorobenzene	5.00	4.39	88	5.00	4.16	83	72.0-119	5.4	30.00
Hexachlorobutadiene	5.00	5.19	104	5.00	4.07	81	69.0-121	24	30.00
Naphthalene	5.00	4.63	93	5.00	4.40	88	67.0-122	5.1	30.00
1,2,3-Trichlorobenzene	5.00	4.77	95	5.00	4.42	88	21.0-193	7.6	30.00
Surrogates									
1,2-Dichloroethane-d4			111			106	64.0-140		
Toluene d8			105			102	82.0-117		
4-Bromofluorobenzene			98.2			97	85.0-115		

Print Date: 08/06/2012

N.C. Certification # 481

Blank Spike Summary

Blank Spike ID: LCS for HBN 26128 [VXX/3716]
Blank Spike Lab ID: 82378
Date Analyzed: 07/27/2012 11:12

Spike Duplicate ID: LCSD for HBN 26128 [VXX/3716]
Spike Duplicate Lab ID: 82379
Date Analyzed: 07/27/2012 11:37
Matrix: Water

QC for Samples: 31202358009

Results by SM 6200-B

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS2417
Analytical Method: SM 6200-B
Instrument: MSD8
Analyst: DVO

Prep Batch: VXX3716
Prep Method: SW-846 5030B
Prep Date/Time: 07/27/2012 10:08
Spike Init Wt./Vol.: 40 mL Extract Vol: 40 mL
Dupe Init Wt./Vol.: 40 mL Extract Vol: 40 mL

Print Date: 08/06/2012

N.C. Certification # 481

Batch Summary

Analytical Method: SW-846 8015C GRO

Prep Method: SW-846 5035
Prep Batch: VXX3729
Prep Date: 07/30/2012 09:04

Client Sample ID	Lab Sample ID	Analysis Date	Analytical Batch	Instrument	Analyst
LCS for HBN 26265 [VXX/3729]	82580	07/30/2012 11:33	VGC2043	GC7	MDY
LCSD for HBN 26265 [VXX/3729]	82581	07/30/2012 11:59	VGC2043	GC7	MDY
MB for HBN 26265 [VXX/3729]	82582	07/30/2012 12:24	VGC2043	GC7	MDY
100 DPT-01 (5-5.5ft)	31202358001	07/30/2012 12:49	VGC2043	GC7	MDY
100 DPT-02 (5-5.5ft)	31202358002	07/30/2012 13:14	VGC2043	GC7	MDY
100DPT-03 (4.5-5ft)	31202358003	07/30/2012 13:39	VGC2043	GC7	MDY
100DPT-04 (4-4.3ft)	31202358004	07/30/2012 14:05	VGC2043	GC7	MDY
100DPT-05 (3.5-4ft)	31202358005	07/30/2012 14:30	VGC2043	GC7	MDY
100DPT-06 (4.5-5ft)	31202358006	07/30/2012 14:56	VGC2043	GC7	MDY
100DPT-07 (4.5-5ft)	31202358007	07/30/2012 15:21	VGC2043	GC7	MDY
100DPT-08 (4.5-5ft)	31202358008	07/30/2012 15:47	VGC2043	GC7	MDY
100DPT-08 (4.5-5ft)(82317MS)	82783	07/30/2012 16:12	VGC2043	GC7	MDY
100DPT-08 (4.5-5ft)(82317MSD)	82784	07/30/2012 16:37	VGC2043	GC7	MDY

Method Blank

Blank ID: MB for HBN 26265 [VXX/3729]
Blank Lab ID: 82582
Matrix: Soil-Solid as dry weight
QC for Samples:
31202358001, 31202358002, 31202358003, 31202358004, 31202358005, 31202358006, 31202358007, 31202358008

Results by SW-846 8015C GRO

Parameter	Result	Qual	DL	LOQ/CL	Units	DF
Gasoline Range Organics (GRO)	ND	U	4.00	4.00	mg/kg	1
Surrogates						
4-Bromofluorobenzene	104			70.0-130	%	1

Batch Information

Analytical Batch: VGC2043
Analytical Method: SW-846 8015C GRO
Instrument: GC7
Analyst: MDY
Analytical Date/Time: 7/30/2012 12:24:00PM

Prep Batch: VXX3729
Prep Method: SW-846 5035
Prep Date/Time: 7/30/2012 9:04:26AM
Prep Initial Wt./Vol.: 5 g
Prep Extract Vol: 5 mL

Print Date: 08/06/2012

N.C. Certification # 481

Blank Spike Summary

Blank Spike ID: LCS for HBN 26265 [VXX/3729]
Blank Spike Lab ID: 82580
Date Analyzed: 07/30/2012 11:33

Spike Duplicate ID: LCSD for HBN 26265 [VXX/3729]
Spike Duplicate Lab ID: 82581
Date Analyzed: 07/30/2012 11:59
Matrix: Soil-Solid as dry weight

QC for Samples: 31202358001, 31202358002, 31202358003, 31202358004, 31202358005, 31202358006, 31202358007, 31202358008

Results by SW-846 8015C GRO

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics (GRO)	16.0	16.3	102	16.0	15.6	97	70.0-130	4.4	30.00
Surrogates									
4-Bromofluorobenzene			99.9			102	70.0-130		

Batch Information

Analytical Batch: VGC2043
Analytical Method: SW-846 8015C GRO
Instrument: GC7
Analyst: MDY

Prep Batch: VXX3729
Prep Method: SW-846 5035
Prep Date/Time: 07/30/2012 09:04
Spike Init Wt./Vol.: 5 g Extract Vol: 5 mL
Dupe Init Wt./Vol.: 5 g Extract Vol: 5 mL

Matrix Spike Summary

Original Sample ID: 31202358008 (100DPT-08 (4.5-5ft))
MS Sample ID: 82783
MSD Sample ID: 82784

Analysis Date: 07/30/2012 15:47
Analysis Date: 07/30/2012 16:12
Analysis Date: 07/30/2012 16:37
Matrix: Soil-Solid as dry weight

QC for Samples: 31202358001, 31202358002, 31202358003, 31202358004, 31202358005, 31202358006, 31202358007, 31202358008

Results by SW-846 8015C GRO

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics (GRO)	ND	18.9	22.9	121	18.9	17.2	91	70.0-130	28	30.00

Batch Information

Analytical Batch: VGC2043
Analytical Method: SW-846 8015C GRO
Instrument: GC7
Analyst: MDY

Prep Batch: VXX3729
Prep Method: SW-846 5035
Prep Date/Time: 07/27/2012 10:15
MS Init Wt./Vol.: 5.98 g Extract Vol.: 5 mL
MSD Init Wt./Vol.: 5.98 g Extract Vol.: 5 mL

Print Date: 08/06/2012

N.C. Certification # 481

Batch Summary

Analytical Method: EPA 625

Prep Method: EPA 625
Prep Batch: XXX2868
Prep Date: 07/30/2012 14:41

Client Sample ID	Lab Sample ID	Analysis Date	Analytical Batch	Instrument	Analyst
MB for HBN 26282 [XXX/2868]	82693	08/01/2012 21:41	XMS1619	MSD10	CMP
LCS for HBN 26282 [XXX/2868]	82694	08/01/2012 22:04	XMS1619	MSD10	CMP
Effluent(82229MS)	82695	08/01/2012 22:50	XMS1619	MSD10	CMP
100DPT04	31202358009	08/01/2012 23:13	XMS1619	MSD10	CMP
100DPT04(82341DUP)	82696	08/01/2012 23:36	XMS1619	MSD10	CMP

Method Blank

Blank ID: MB for HBN 26282 [XXX/2868]
Blank Lab ID: 82693
QC for Samples:
31202358009

Matrix: Water

Results by EPA 625

Parameter	Result	Qual	DL	LOQ/CL	Units	DF
Bis(2-Chloroethyl)ether	ND	U	2.21	5.00	ug/L	1
Bis(2-Chloroisopropyl)ether	ND	U	2.04	5.00	ug/L	1
n-Nitrosodi-n-propylamine	ND	U	2.23	5.00	ug/L	1
Hexachloroethane	ND	U	1.40	5.00	ug/L	1
Nitrobenzene	ND	U	2.19	5.00	ug/L	1
Isophorone	ND	U	2.09	5.00	ug/L	1
Bis(2-Chloroethoxy)methane	ND	U	2.12	5.00	ug/L	1
1,2,4-Trichlorobenzene	ND	U	1.73	5.00	ug/L	1
Naphthalene	ND	U	1.94	5.00	ug/L	1
Hexachlorobutadiene	ND	U	1.52	5.00	ug/L	1
Hexachlorocyclopentadiene	ND	U	0.788	10.0	ug/L	1
2-Chloronaphthalene	ND	U	2.00	5.00	ug/L	1
Dimethyl phthalate	ND	U	2.14	5.00	ug/L	1
2,6-Dinitrotoluene	ND	U	1.88	5.00	ug/L	1
Acenaphthene	ND	U	2.06	5.00	ug/L	1
2,4-Dinitrotoluene	ND	U	1.84	5.00	ug/L	1
Fluorene	ND	U	2.44	5.00	ug/L	1
Diethyl phthalate	ND	U	2.10	5.00	ug/L	1
4-Chlorophenyl phenyl ether	ND	U	2.46	5.00	ug/L	1
Diphenylamine	ND	U	2.02	5.00	ug/L	1
4-Bromophenyl phenyl ether	ND	U	2.04	5.00	ug/L	1
Hexachlorobenzene	ND	U	1.93	5.00	ug/L	1
Phenanthrene	ND	U	1.99	5.00	ug/L	1
Anthracene	ND	U	1.93	5.00	ug/L	1
Di-n-butyl phthalate	ND	U	1.91	5.00	ug/L	1
Fluoranthene	ND	U	2.02	5.00	ug/L	1
Pyrene	ND	U	2.01	5.00	ug/L	1
Butyl benzyl phthalate	ND	U	1.89	5.00	ug/L	1
Benzo(a)anthracene	ND	U	1.96	5.00	ug/L	1
3,3'-Dichlorobenzidine	ND	U	1.75	10.0	ug/L	1
Chrysene	ND	U	2.20	5.00	ug/L	1
Bis(2-Ethylhexyl)phthalate	ND	U	1.95	5.00	ug/L	1
Benzo(b)fluoranthene	ND	U	1.96	5.00	ug/L	1
Benzo(k)fluoranthene	ND	U	2.31	5.00	ug/L	1
Benzo(a)pyrene	ND	U	1.86	5.00	ug/L	1
Indeno(1,2,3-cd)pyrene	ND	U	2.02	5.00	ug/L	1
Dibenz(a,h)anthracene	ND	U	2.02	5.00	ug/L	1
Benzo(g,h,i)perylene	ND	U	2.15	5.00	ug/L	1
Acenaphthylene	ND	U	2.00	5.00	ug/L	1
Di-n-octyl phthalate	ND	U	1.46	5.00	ug/L	1
Surrogates						
2-Fluorophenol	78.0			33.1-118	%	1

Print Date: 08/06/2012

N.C. Certification # 481

Method Blank

Blank ID: MB for HBN 26282 [XXX/2868]
Blank Lab ID: 82693
QC for Samples:
31202358009

Matrix: Water

Results by EPA 625

Parameter	Result	Qual	DL	LOQ/CL	Units	DF
Phenol-d6	94.2			49.0-120	%	1
Nitrobenzene-d5	92.1			46.0-118	%	1
2-Fluorobiphenyl	90.7			50.0-107	%	1
2,4,6-Tribromophenol	96.4			29.3-152	%	1
Terphenyl-d14	112			22.1-142	%	1

Batch Information

Analytical Batch: XMS1619
Analytical Method: EPA 625
Instrument: MSD10
Analyst: CMP
Analytical Date/Time: 8/1/2012 9:41:00PM

Prep Batch: XXX2868
Prep Method: EPA 625
Prep Date/Time: 7/30/2012 2:41:33PM
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 5 mL

Print Date: 08/06/2012

N.C. Certification # 481

Blank Spike Summary

Blank Spike ID: LCS for HBN 26282 [XXX/2868]
Blank Spike Lab ID: 82694
Date Analyzed: 08/01/2012 22:04

Matrix: Water

QC for Samples: 31202358009

Results by **EPA 625**

Blank Spike (ug/L)

Parameter	Spike	Result	Rec (%)	CL
Bis(2-Chloroethyl)ether	50.0	47.6	95	12.0-158
Bis(2-Chloroisopropyl)ether	50.0	47.7	95	36.0-166
n-Nitrosodi-n-propylamine	50.0	45.3	91	0.0100-230
Hexachloroethane	50.0	29.8	60	40.0-113
Nitrobenzene	50.0	49.4	99	35.0-180
Isophorone	50.0	53.2	106	21.0-196
Bis(2-Chloroethoxy)methane	50.0	52.6	105	33.0-184
1,2,4-Trichlorobenzene	50.0	44.6	89	44.0-142
Naphthalene	50.0	48.5	97	21.0-133
Hexachlorobutadiene	50.0	41.2	82	24.0-116
Hexachlorocyclopentadiene	50.0	56.5	113	0.0100-417
2-Chloronaphthalene	50.0	46.3	93	60.0-118
Dimethyl phthalate	50.0	53.2	106	0.0100-112
2,6-Dinitrotoluene	50.0	52.8	106	50.0-158
Acenaphthene	50.0	51.1	102	47.0-145
2,4-Dinitrotoluene	50.0	53.0	106	39.0-139
Fluorene	50.0	54.5	109	59.0-121
Diethyl phthalate	50.0	53.5	107	0.0100-114
4-Chlorophenyl phenyl ether	50.0	53.6	107	25.0-158
Diphenylamine	50.0	52.0	**104***	63.8-100
4-Bromophenyl phenyl ether	50.0	53.9	108	53.0-127
Hexachlorobenzene	50.0	52.4	105	0.0100-152
Phenanthrene	50.0	55.6	111	54.0-120
Anthracene	50.0	49.8	100	27.0-133
Di-n-butyl phthalate	50.0	60.7	**121***	1.00-118
Fluoranthene	50.0	57.2	114	26.0-137
Pyrene	50.0	54.2	108	52.0-115
Butyl benzyl phthalate	50.0	53.9	108	0.0100-152
Benzo(a)anthracene	50.0	52.1	104	33.0-143
3,3'-Dichlorobenzidine	50.0	49.9	100	0.0100-262
Chrysene	50.0	53.5	107	17.0-168
Bis(2-Ethylhexyl)phthalate	50.0	55.5	111	8.00-158
Benzo(b)fluoranthene	50.0	51.0	102	24.0-159
Benzo(k)fluoranthene	50.0	56.0	112	11.0-162

Print Date: 08/06/2012

N.C. Certification # 481

Blank Spike Summary

Blank Spike ID: LCS for HBN 26282 [XXX/2868]
Blank Spike Lab ID: 82694
Date Analyzed: 08/01/2012 22:04

Matrix: Water

QC for Samples: 31202358009

Results by EPA 625

Blank Spike (ug/L)

Parameter	Spike	Result	Rec (%)	CL
Benzo(a)pyrene	50.0	49.4	99	17.0-163
Indeno(1,2,3-cd)pyrene	50.0	52.2	104	0.0100-171
Dibenz(a,h)anthracene	50.0	53.3	107	0.0100-227
Benzo(g,h,i)perylene	50.0	51.3	103	0.0100-219
Acenaphthylene	50.0	50.6	101	33.0-145
Di-n-octyl phthalate	50.0	61.8	124	-
Surrogates				
2-Fluorophenol			82.2	33.1-118
Phenol-d6			103	49.0-120
Nitrobenzene-d5			99.7	46.0-118
2-Fluorobiphenyl			99.6	50.0-107
2,4,6-Tribromophenol			113	29.3-152
Terphenyl-d14			104	22.1-142

Batch Information

Analytical Batch: XMS1619
Analytical Method: EPA 625
Instrument: MSD10
Analyst: CMP

Prep Batch: XXX2868
Prep Method: EPA 625
Prep Date/Time: 07/30/2012 14:41
Spike Init Wt./Vol.: 1000 mL Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 08/06/2012

N.C. Certification # 481

Duplicate Sample Summary

Original Sample ID: 31202358009-D
Duplicate Sample ID: 82696

Analysis Date: 08/01/2012 23:13
Analysis Date: 08/01/2012 23:36
Matrix: Water

QC for Samples: 31202358009

Results by EPA 625

PARAMETER	Original (ug/L)	Qual	Duplicate (ug/L)	Qual	RPD (%)	RPD CL
1,2,4-Trichlorobenzene	ND	U	ND	U		30.00
2,4-Dinitrotoluene	ND	U	ND	U		30.00
2,6-Dinitrotoluene	ND	U	ND	U		30.00
2-Chloronaphthalene	ND	U	ND	U		30.00
3,3'-Dichlorobenzidine	ND	U	ND	U		30.00
4-Bromophenyl phenyl ether	ND	U	ND	U		30.00
4-Chlorophenyl phenyl ether	ND	U	ND	U		30.00
Acenaphthene	ND	U	ND	U		30.00
Acenaphthylene	ND	U	ND	U		30.00
Anthracene	ND	U	ND	U		30.00
Benzo(a)anthracene	ND	U	ND	U		30.00
Benzo(a)pyrene	ND	U	ND	U		30.00
Benzo(b)fluoranthene	ND	U	ND	U		30.00
Benzo(g,h,i)perylene	ND	U	ND	U		30.00
Benzo(k)fluoranthene	ND	U	ND	U		30.00
Bis(2-Chloroethoxy)methane	ND	U	ND	U		30.00
Bis(2-Chloroethyl)ether	ND	U	ND	U		30.00
Bis(2-Chloroisopropyl)ether	ND	U	ND	U		30.00
Bis(2-Ethylhexyl)phthalate	ND	U	ND	U		30.00
Butyl benzyl phthalate	ND	U	ND	U		30.00
Chrysene	ND	U	ND	U		30.00
Di-n-butyl phthalate	ND	U	ND	U		30.00
Di-n-octyl phthalate	ND	U	ND	U		
Dibenz(a,h)anthracene	ND	U	ND	U		30.00
Diethyl phthalate	ND	U	ND	U		30.00
Dimethyl phthalate	ND	U	ND	U		30.00
Diphenylamine	ND	U	ND	U		30.00
Fluoranthene	ND	U	ND	U		30.00

Print Date: 08/06/2012

N.C. Certification # 481

Duplicate Sample Summary

Original Sample ID: 31202358009-D
Duplicate Sample ID: 82696

Analysis Date: 08/01/2012 23:13
Analysis Date: 08/01/2012 23:36
Matrix: Water

QC for Samples: 31202358009

Results by EPA 625

PARAMETER	Original (ug/L)	Qual	Duplicate (ug/L)	Qual	RPD (%)	RPD CL
Fluorene	ND	U	ND	U		30.00
Hexachlorobenzene	ND	U	ND	U		30.00
Hexachlorobutadiene	ND	U	ND	U		30.00
Hexachlorocyclopentadiene	ND	U	ND	U		30.00
Hexachloroethane	ND	U	ND	U		30.00
Indeno(1,2,3-cd)pyrene	ND	U	ND	U		30.00
Isophorone	ND	U	ND	U		30.00
n-Nitrosodi-n-propylamine	ND	U	ND	U		30.00
Naphthalene	ND	U	ND	U		30.00
Nitrobenzene	ND	U	ND	U		30.00
Phenanthrene	ND	U	ND	U		30.00
Pyrene	ND	U	ND	U		30.00

Batch Information

Analytical Batch: XMS1619
Analytical Method: EPA 625
Instrument: MSD10
Analyst: CMP

Print Date: 08/06/2012

N.C. Certification # 481

Batch Summary

Analytical Method: SW-846 8015C DRO

Prep Method: SW-846 3541
Prep Batch: XXX2862
Prep Date: 07/27/2012 09:49

Client Sample ID	Lab Sample ID	Analysis Date	Analytical Batch	Instrument	Analyst
MB for HBN 26124 [XXX/2862]	82367	07/27/2012 17:39	XGC2405	GC6	DTF
LCS for HBN 26124 [XXX/2862]	82368	07/27/2012 18:07	XGC2405	GC6	DTF
100 DPT-01 (5-5.5ft)	31202358001	07/27/2012 18:35	XGC2405	GC6	DTF
100 DPT-01 (5-5.5ft)(82310MS)	82369	07/27/2012 19:03	XGC2405	GC6	DTF
100 DPT-01 (5-5.5ft)(82310MSD)	82370	07/27/2012 19:31	XGC2405	GC6	DTF
100 DPT-02 (5-5.5ft)	31202358002	07/27/2012 19:59	XGC2405	GC6	DTF
100DPT-03 (4.5-5ft)	31202358003	07/27/2012 20:27	XGC2405	GC6	DTF
100DPT-04 (4-4.3ft)	31202358004	07/27/2012 20:55	XGC2405	GC6	DTF
100DPT-05 (3.5-4ft)	31202358005	07/27/2012 21:23	XGC2405	GC6	DTF
100DPT-06 (4.5-5ft)	31202358006	07/27/2012 21:51	XGC2405	GC6	DTF
100DPT-07 (4.5-5ft)	31202358007	07/27/2012 22:18	XGC2405	GC6	DTF
100DPT-08 (4.5-5ft)	31202358008	07/27/2012 22:46	XGC2405	GC6	DTF

Method Blank

Blank ID: MB for HBN 26124 [XXX/2862]
Blank Lab ID: 82367
Matrix: Soil-Solid as dry weight
QC for Samples:
31202358001, 31202358002, 31202358003, 31202358004, 31202358005, 31202358006, 31202358007, 31202358008

Results by SW-846 8015C DRO

Parameter	Result	Qual	DL	LOQ/CL	Units	DF
Diesel Range Organics (DRO)	ND	U	6.25	6.25	mg/kg	1
Surrogates						
o-Terphenyl	98.6			40.0-140	%	1

Batch Information

Analytical Batch: XGC2405
Analytical Method: SW-846 8015C DRO
Instrument: GC6
Analyst: DTF
Analytical Date/Time: 7/27/2012 5:39:00PM

Prep Batch: XXX2862
Prep Method: SW-846 3541
Prep Date/Time: 7/27/2012 9:49:19AM
Prep Initial Wt./Vol.: 32 g
Prep Extract Vol: 10 mL

Print Date: 08/06/2012
N.C. Certification # 481

Blank Spike Summary

Blank Spike ID: LCS for HBN 26124 [XXX/2862]
Blank Spike Lab ID: 82368
Date Analyzed: 07/27/2012 18:07

Matrix: Soil-Solid as dry weight

QC for Samples: 31202358001, 31202358002, 31202358003, 31202358004, 31202358005, 31202358006, 31202358007, 31202358008

Results by SW-846 8015C DRO

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
Diesel Range Organics (DRO)	62.5	62.4	100	55.0-137
Surrogates				
o-Terphenyl			106	40.0-140

Batch Information

Analytical Batch: **XGC2405**
Analytical Method: **SW-846 8015C DRO**
Instrument: **GC6**
Analyst: **DTF**

Prep Batch: **XXX2862**
Prep Method: **SW-846 3541**
Prep Date/Time: **07/27/2012 09:49**
Spike Init Wt./Vol.: **32 g** Extract Vol: **10 mL**
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 08/06/2012

N.C. Certification # 481

Matrix Spike Summary

Original Sample ID: 31202358001 (100 DPT-01 (5-5.5ft))
MS Sample ID: 82369
MSD Sample ID: 82370

Analysis Date: 07/27/2012 18:35
Analysis Date: 07/27/2012 19:03
Analysis Date: 07/27/2012 19:31
Matrix: Soil-Solid as dry weight

QC for Samples: 31202358001, 31202358002, 31202358003, 31202358004, 31202358005, 31202358006, 31202358007, 31202358008

Results by SW-846 8015C DRO

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics (DRO)	ND	92.8	82.6	89	91.1	84.6	93	40.0-140	2.5	30.00
Surrogates										
o-Terphenyl				94.7			56.7	40.0-140		

Batch Information

Analytical Batch: XGC2405
Analytical Method: SW-846 8015C DRO
Instrument: GC6
Analyst: DTF

Prep Batch: XXX2862
Prep Method: SW-846 3541
Prep Date/Time: 07/27/2012 09:49
MS Init Wt./Vol.: 30.61 g Extract Vol.: 10 mL
MSD Init Wt./Vol.: 31.19 g Extract Vol.: 10 mL

Print Date: 08/06/2012

N.C. Certification # 481

CHAIN OF CUSTODY

SGS ANALYTICAL PERSPECTIVES

SGS ANALYTICAL PERSPECTIVES
5500 Business Drive
Wilmington, NC 28405
+1 910 350 1903
www.sgs.com

31202358

CLIENT: CATLIN / NCDOT
SGS Reference #:
PAGE 1 OF 1

CONTACT: Ben Ashby @ CATLIN PHONE NO: (910) 452-5861
PROJECT: NCDOT Parcel 100 SITE / PWSID / WBS #: 35781.1.2
REPORTS TO: Ben @ CATLIN U-3315 Pitt County
EMAIL: ben.ashby@catlinusa.com
INVOICE TO: NCDOT QUOTE #
P.O. NUMBER NCDOT

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	# CONTAINERS	SAMPLE TYPE C=COMP G=GRAB	PRESERVATIVES USED	ANALYSES REQUIRED: MeOH	TPH GRO & DRO	6200	625 BN	REMARKS
	100 DPT-01 (5-5.5')	7-24-12	1415	SOIL	3	G			✓			@ CB 1021
	100 DPT-02 (5-5.5')	7-24-12	1440	SOIL								@ CB 1016
	100 DPT-03 (4.5-5')	7-24-12	1500									@ CB 1024
	100 DPT-04 (4-4.3')	7-24-12	1530									@ CB 1015
	100 DPT-05 (3.5-4')	7-24-12	1550									adj. to MW-1
	100 DPT-06 (4.5-5')		1620									@ CB 1014
	100 DPT-07 (4.5-5')		1640									@ CB 1013
	100 DPT-08 (4.5-5')		1710									@ CB 1028
	100DPT04	7/25/12	0730	water						X	X	

COLLECTED/RELINQUISHED BY: (1)	DATE	TIME	RECEIVED BY:	REPORT LEVEL:	REQUESTED TURNAROUND TIME:
	7/26/12	1642		☐ Level I ☒ Level II ☐ Level IV	☐ Rush: _____ ☒ Standard
Relinquished By: (2)	Date	Time	Received By:	SPECIAL DELIVERABLES: State of Origin: NC	☐ Trust Fund
				☐ DoD ☒ EDD: Summary	Other: _____
Relinquished By: (3)	Date	Time	Received By:	SPECIAL INSTRUCTIONS:	
Received For Laboratory By:	Date	Time	CoC Seal: INTACT BROKEN ABSENT	Shipping Carrier:	Notes:
			Sample Receipt Temp: C 0.8	Shipping Ticket No:	

White - Retained by Lab
Yellow - Retained by Client

SGS North America Inc.

Sample Receipt Checklist (SRC)

Client: **NCDOT-Catlin** Work Order No.: **31202358**

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: 0.8
   ___ 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

Notes:

Comments:

Inspected and Logged in by: JJ

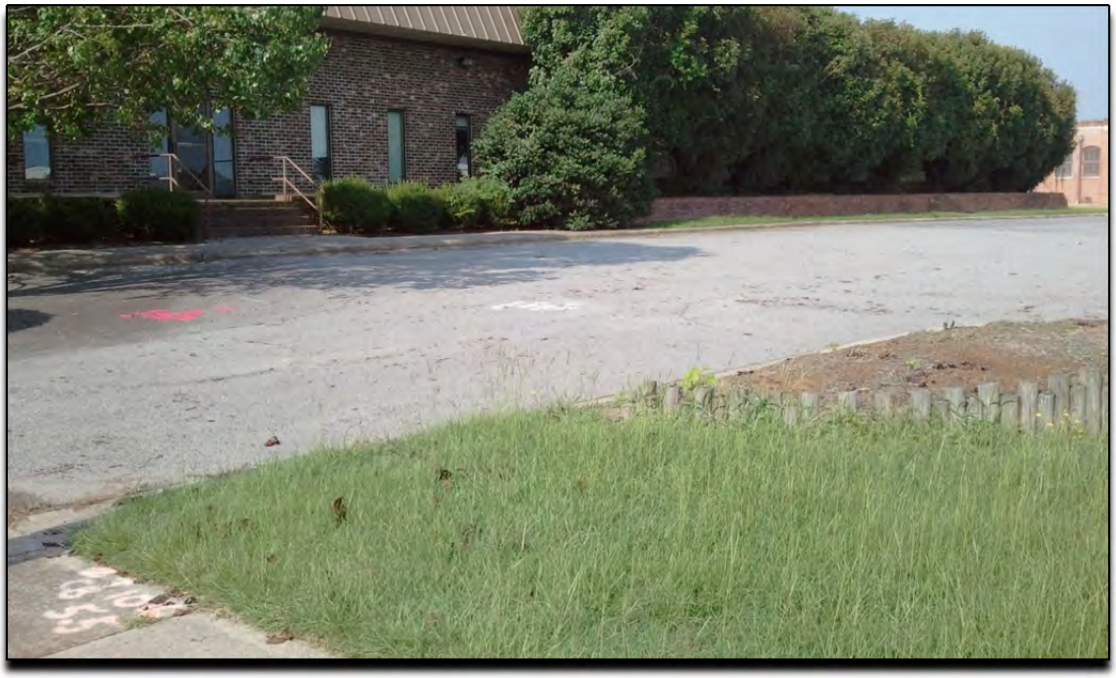
Date: Fri-7/27/12 00:00

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

APPENDIX E
PHOTOGRAPHS

PARCEL 100, STATE OF NORTH CAROLINA – WILCAR EXECUTIVE CENTER
223 W. 10TH STREET

From near corner of W. 10th St. and S. Washington St. looking South down S. Washington St, probing at proposed catch basin number 1021 (DPT-01) location.



From near corner of W. 10th St. and S. Washington St. looking Southwest across site, proposed catch basin number 1016 (DPT-02) location in left foreground.

PARCEL 100, STATE OF NORTH CAROLINA – WILCAR EXECUTIVE CENTER
223 W. 10TH STREET

From central portion of parking lot near proposed ROW/easement, looking West across site and monitoring well MW-1, -2, -3, -4, -5, -6, and DW-1 locations.

From central portion of parking lot near proposed ROW/easement, looking North-northwest across site and monitoring well MW-7 and -9 locations.