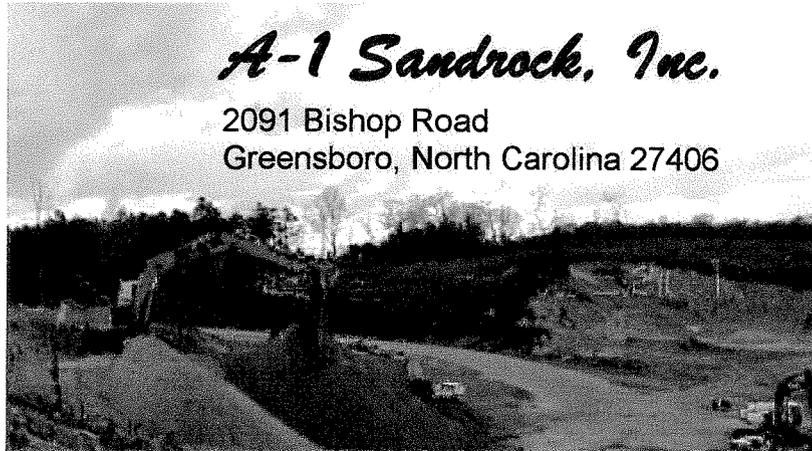


Fac/Perm/Co ID # <i>Minghao</i>	Date 23 03 12 109	Doc ID# 7076 DIN 7069
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**PERMIT TO OPERATE APPLICATION  
A-1 SANDROCK C&D LANDFILL PHASE 1**

**A-1 Sandrock CDLF (South Mine Facility)  
Guilford County, North Carolina  
Solid Waste Permit No. 41-17**

Prepared for

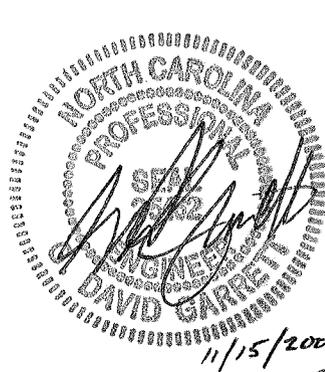


**March 2007**

**David Garrett, P.G., P.E.**  
Engineering and Geology

5105 Harbour Towne Drive, Raleigh, NC 27604

Telephone/Fax (919) 231-1818



**APPROVED**  
DIVISION OF WASTE MANAGEMENT  
SOLID WASTE SECTION  
DATE 04/17/2009 BY Minghao



**David Garrett & Associates**

*Engineering and Geology*



March 19, 2009

Mr. Ming Chao, P.E.  
NC Division of Waste Management  
Solid Waste Section  
Mail Service Center 1646  
Raleigh, NC 27699-1646

**RE: Transmittal of Construction Quality Assurance  
Electronic Documentation  
A-1 Sandrock, Inc. – Phase 1A  
Guilford County, NC (Permit #41-17)**

Dear Mr. Chao:

On behalf of A-1 Sandrock, Inc., I am pleased to present the following electronic data pertaining to the construction of Phase 1A at the A-1 Sandrock CDLF. The original documentation was presented to Mr. Geoff Little in your office ca. March 2007 (see attached report addressed to Mr. Little). This electronic data was recreated from our files. The original documents bear the signature and seal of the professional staff involved and are considered to be the record copy of said documents.

Please contact me at your earliest convenience if I can provide clarification.

Very Truly Yours,

G. David Garrett, P.G., P.E.

cc: Ronnie Petty – A-1 Sandrock

## **David Garrett & Associates**

*Engineering and Geology*



March 7, 2007

Mr. Geoff Little  
NC DENR Division of Waste Management  
Solid Waste Section  
401 Oberlin Road  
Raleigh, North Carolina, 27611

**RE: Construction Documentation Report  
A-1 Sandrock C&D Landfill Phase 1A  
Greensboro (Guilford County), North Carolina  
Solid Waste Permit No. 41-17 (PTC)**

Dear Mr. Little:

On behalf of A-1 Sandrock, Inc., I am pleased to present this documentation of construction completed for the referenced landfill. This report contains documentation intended to demonstrate compliance with regulatory requirements for obtaining a Permit to Operate for the new C&D landfill. Included with this report are the following sections (under separate tabs):

1. An Overview of the Permitting History  
(Including Other Relevant Permits and the Franchise)
2. An Updated Operations Plan
3. A Subgrade Inspection Report
4. Piezometer Abandonment Records
5. Baseline Water Quality Monitoring Report

I look forward to meeting with representatives of the NC DENR Solid Waste Section, if needed, to review the work. Please contact me if I can provide any additional data.

Sincerely,

A handwritten signature in black ink, appearing to read "G. David Garrett". The signature is fluid and cursive.

G. David Garrett, P.G., P.E.  
Consulting Engineer

## **David Garrett & Associates**

### **Engineering and Geology**



November 13, 2007

The following is a brief summary of the permitting history and development of the A-1 Sandrock C&D Landfill. This landfill has been under consideration by numerous agencies since before 2002, when the project was taken over by David Garrett, P.G., P.E.

1. Site Suitability and Design Hydrogeologic investigations were performed in 2002-03. Monitoring wells were installed at that time, based on criteria established with the reviewing Division of Waste Management – Solid Waste Section hydrogeologist.
2. The Franchise Agreement with Guilford County was executed on November 6, 2003.
3. The Division of Waste Management issued a Permit to Construct on February 24, 2004.
4. The Owner was not ready to proceed with construction until early 2006, for unspecified reasons. The project layout was modified to reverse the phase layout, so the project development could start on the east side (where grade cuts were shallower) rather than the west side. A new phase progression was presented to Solid Waste Section staff in the Central Office and the Winston-Salem Regional Office.
5. The Division of Waste Management issued a new Permit to Construct on June 1, 2006 (see attached).
6. The facility was built in stages between June 2006 and January 2007. The work involved widening a portion of Bishop Road and adding turn lanes; building the creek crossing in accordance with plans approved by NC DENR Divisions of Land Quality and Water Quality criteria; building the sediment pond and other protective measures; grading the initial cell (Phase 1A); and building the entrance drive and scale house in accordance with plans approved by Guilford County Planning and Development. Much of the construction work was performed by A-1 Sandrock, with specialty contractors brought in as needed (e.g., the road widening, Contech bottomless pipe arch culvert for the stream crossing, setting up the scales and scale house). Construction oversight was provided by David Garrett, P.G., P.E.
7. A-1 Sandrock desired a renegotiation of the financial assurance requirements contained within the Franchise Agreement, to which Guilford County has resisted. Negotiations were conducted with the County in early 2007. As of this writing, an amended Franchise Ordinance has not been passed by Guilford County Commissioners.
8. This application for the Permit to Operate was originally prepared on March 9, 2007. Due to the ongoing franchise concerns, the PTO application has not yet been finalized.

5105 Harbour Towne Drive • Raleigh • North Carolina • 27604

919-231-1818 (Office and Fax) • 919-418-4375 (Mobile) • E-mail: david@davidgarrettpe.com

## **Project Development**

An explanation of the reversal of phases is warranted. A-1 Sandrock, Inc., determined it would be advantageous to reverse the development progression from east to west, beginning with Phase 1A and working toward Phase 1C (rather than the original west to east sequence) to lessen the amount of initial earthwork (considering stockpiling of surplus soil) and to promote better drainage management. The development progression was approved by the Division of Waste Management with the issuance of the Permit to Construct for Phase 1 in 2006 (only Phase 1A has been built). The revised development sequence has been presented to Guilford County during the renegotiation of the Franchise Agreement. Please refer to Section 4 for drawings.

The Franchise requires recycling of at least 10% of the C&D waste stream, and this portion of the County has need of an LCID facility. As such, A-1 Sandrock has applied for a Treatment and Processing Facility permit for LCID, which is under review by the Division of Waste Management as of this writing. The Treatment and Processing Facility will eventually process a portion of the C&D waste stream to meet the Franchise requirements, as well as providing a local facility for LCID. The T&P facility will occupy a portion of future C&D Phases 1B and 1C, (with only minimal grading work above the final landfill grades); stockpiles for finished goods (e.g., mulch, boiler fuel, recycled aggregates and manufactured topsoil) will be located within the facility boundary but not within the footprint or regulatory buffers (see Section 3).

A-1 Sandrock, Inc, will notify the Division of Waste Management prior to building Phases 1B and 1C. A minor revision of the previously approved construction layout will be required to accommodate the T&P facility, the application for which is hereby made. The "As-built" construction drawings for Phase 1A (Section 3) indicate the location of the T&P facility at the north ends of Phases 1B and 1C, along with a proposed combination of the remaining areas in both phases into a single construction area for the next waste cell.

Several piezometers were abandoned in accordance with North Carolina regulations prior to developing Phase 1A. Several more piezometers will need to be abandoned for the development of Phases 1B, 1C, and beyond. A map and table showing the original piezometers and abandonment records for those already abandoned are presented in Section 7.

## **Other Permits and Regulatory Oversight**

The facility has a mining permit issued by NC DENR Division of Land Resources, Land Quality Section, Permit #41-22. This permit was issued in 2002 and was planned to accommodate the base grades required for the C&D landfill. The landfill operation is listed as the reclamation activity for the mine facility. The Land Quality Section oversees sedimentation & erosion control issues for the facility, as they would any other landfill. Additional oversight is provided Guilford County Planning and Development, which includes a Solid Waste component as well as a Storm Water component. Planning and Development has been involved with approval for the development of the entrance way and scale house/office building. These components were part of the overall site plan approval, which was integral to the Franchise negotiation (Section 2).

The Operation Plan originally prepared for this submittal has been superseded and subsequently removed to avoid confusion. Please refer to the Facility Plan Update prepared in March 2009 for the current version of the Operations Plan. DG

## **David Garrett & Associates**

*Engineering and Geology*



March 7, 2007

Mr. Geoff Little  
NC DENR Division of Waste Management  
Solid Waste Section  
401 Oberlin Road  
Raleigh, North Carolina, 27611

RE: Engineer's Subgrade Inspection Report  
A-1 Sandrock C&D Landfill Phase 1A  
Greensboro (Guilford County), North Carolina  
Solid Waste Permit No. 41-17

Dear Mr. Little:

On behalf of A-1 Sandrock, I am pleased to present this subgrade inspection report pertaining to the referenced landfill construction. Cell 1A is located at the east side of Phase 1, within a previously approved footprint (see the Figure following this text). This report is based in part on multiple first-hand inspections of subgrade conditions between July 2006 and December 2006, my knowledge of site conditions from the original permitting, and "as-built" construction drawings prepared based on a field surveys performed by L. Dennis Lee, RLS. The construction of Phase 1A and appurtenances, including the scale house, main sediment pond, and associated storm water conveyances, are now substantially complete per the approved plans.

The subgrade inspection was made per North Carolina Solid Waste regulations, 15A NCAC 13B .0500 and/or subsequent regulatory protocols. Said inspection requires that the owner's geologist or engineer examine the cell excavation and note any pertinent geologic features exposed during the construction process. The Owner shall notify the NC DENR Solid Waste Section Hydrogeologist of these findings prior to placement of any waste material. In recent experience, a certification has been required stating that the subgrade soils and other conditions are consistent with the approved plans, or noting any differences. This letter completes said required notification and certification.

Subgrade soils consist of clayey and silty fine to medium sand, in general accordance with the findings of earlier test boring investigations. There were scattered pockets of soil containing stringers of small rock fragments (angular, gravel-size quartz fragments); these were considered minor and not deleterious. The subgrade surface was generally dry with no cracking observed. There were pockets of harder materials (not identified as bedrock based on the permitting studies), which were difficult to excavate, i.e., boulders, thus these areas were covered with soil to bring the vertical separation to the required minimum of 4 feet – no blasting was performed.

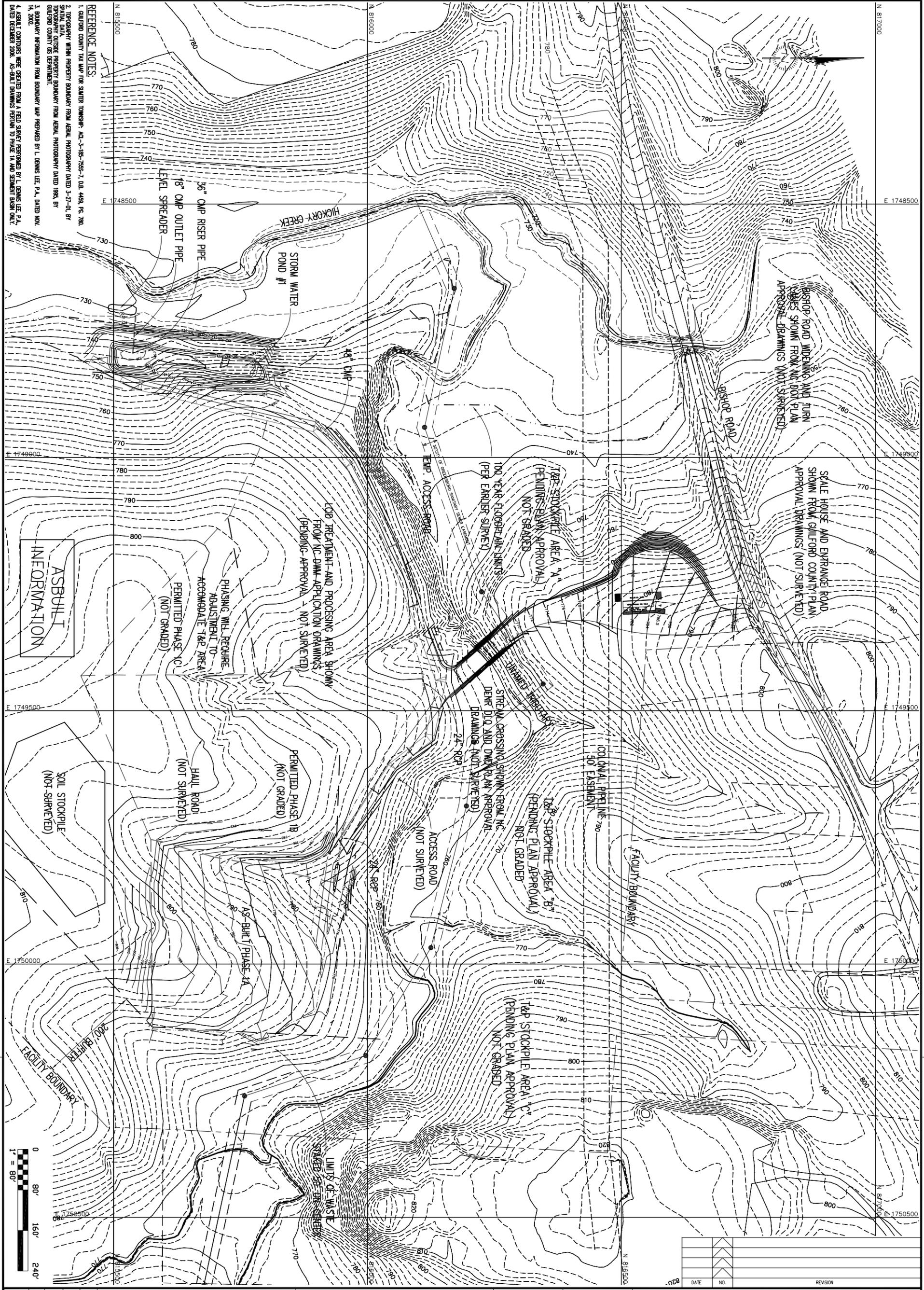
Overall, the conditions exposed in the Phase 1A subgrade appear consistent with expectations based on the earlier permitting studies, e.g., no obvious large veins, dikes or distinct linear features were visible in the subgrade. I recommend no modifications to the Ground Water Monitoring Plan or Operations Plan based on these findings. I conclude that Phase 1A has been constructed in accordance with the approved plans, with the exception that a portion of the subgrade was left a few inches higher than planned grades. No further subgrade evaluations are warranted, and I recommend that Phase 1A be approved for operations.

I look forward to meeting with representatives of the NC DENR Solid Waste Section, if needed, to review the work. Please contact me if I can provide any additional data.

Sincerely,

A handwritten signature in black ink, appearing to read "G. David Garrett".

G. David Garrett, P.G., P.E.  
Consulting Engineer



**REFERENCE NOTES:**  
 1. GUILFORD COUNTY TAX MAP FOR SUMNER TOWNSHIP, AQ-3-187-755-7, DB 4492, PG. 780.  
 2. TOPOGRAPHY WITH PROPERTY BOUNDARY FROM AERIAL PHOTOGRAPHY DATED 3-27-01, BY SPITAL DATA INC. PHOTOGRAPHY DATED 1995, BY GUILFORD COUNTY GIS DEPARTMENT.  
 3. BOUNDARY INFORMATION FROM BOUNDARY MAP PREPARED BY L. DENNIS, P.E., DATED NOV. 14, 2002.  
 4. AS-BUILT CONTOURS WERE CREATED FROM A FIELD SURVEY PERFORMED BY L. DENNIS, P.E., DATED DECEMBER 2006. AS-BUILT DRAWINGS PERTAIN TO PHASE 1A AND SEWAGE BASIN ONLY.

**AS-BUILT INFORMATION**



NO.	DATE	REVISION

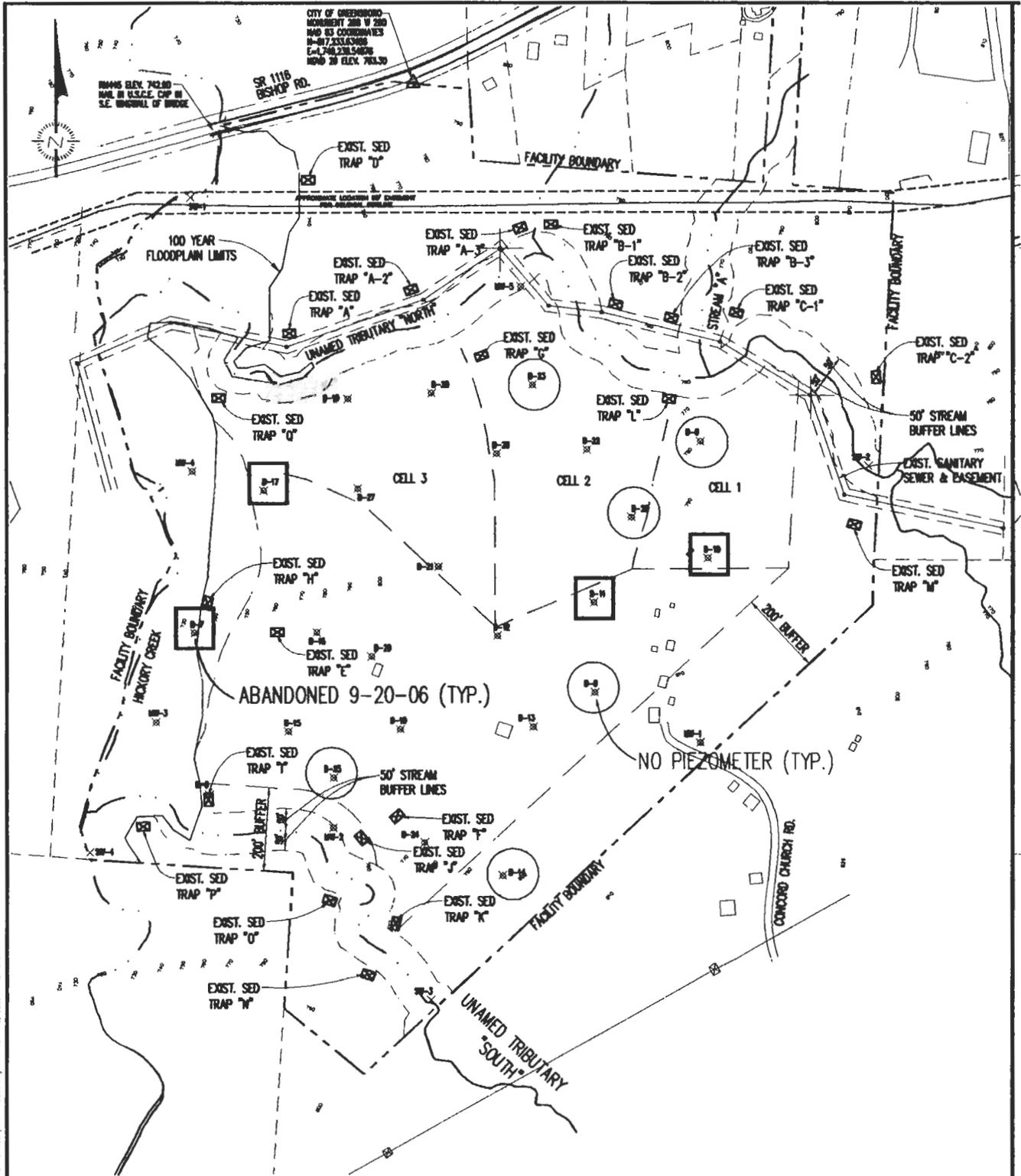
DRAWING NO. 1  
 SHEET NO. S1

DRAWING TITLE:  
**AS-BUILT SURVEY PHASE 1A  
 BASE GRADES AND POND**

PROJECT TITLE:  
**A-1 SANDROCK C.D.L.F.  
 GUILFORD COUNTY, N.C.**



**David Garrett, PG, PE.**  
 Engineering and Geology  
 5105 Harbour Towne Drive, Raleigh, North Carolina 27604  
 Email: david\_garrett\_pg@mindspring.com 919-231-1818 (Office and Fax) 919-418-4375 (mobile)



**PHASE 1 - EXISTING CONDITIONS**

BASE GRADES AND TOP CONTOURS SHOWN HERE ARE THE SAME AS PERMITTED IN FEBRUARY 2004.

- REFERENCE NOTES:**
1. GUILFORD COUNTY GIS MAP FOR SUMNER TOWNSHIP: ACL-3-185-2006-7, S.B. #429, PG. 700.
  2. TOPOGRAPHY WITHIN PROPERTY BOUNDARY FROM AERIAL PHOTOGRAPHY DATED 3-27-04, BY SPATIAL DATA. TOPOGRAPHY OUTSIDE PROPERTY BOUNDARY FROM AERIAL PHOTOGRAPHY DATED 1985, BY GUILFORD COUNTY GIS DEPARTMENT.
  3. BOUNDARY INFORMATION FROM BOUNDARY MAP PREPARED BY L. DOUGLASS LEE, P.A., DATED NOV. 14, 2002.

DATE	NO.	REVISION
01/24/06	1	REVISED CELL LAYOUT PER OWNER

L:\Projects\2006\0124\06\0124\_06\0124\_06.dwg, 12:00 PM, 01/24/06



B-7

### WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 2789

**1. WELL CONTRACTOR:**

Mark E Seiler SR  
Well Contractor (Individual) Name

Red Dog Drilling  
Well Contractor Company Name

STREET ADDRESS 216 Pinewood Lane

Midland N.C 28107  
City or Town State Zip Code

(704)-338-5422  
Area code - Phone number

**2. WELL INFORMATION:**

SITE WELL ID # (if applicable) \_\_\_\_\_

STATE WELL PERMIT # (if applicable) \_\_\_\_\_

COUNTY WELL PERMIT # (if applicable) \_\_\_\_\_

DWQ or OTHER PERMIT # (if applicable) \_\_\_\_\_

WELL USE (Circle applicable use):  Monitoring  Residential  
 Municipal/Public  Industrial/Commercial  Agricultural  
 Recovery  Injection  Irrigation  
Other (list use) Piezometer

**3. WELL LOCATION:**

COUNTY \_\_\_\_\_ QUADRANGLE NAME \_\_\_\_\_

NEAREST TOWN: Greensboro

Bishop Rd

(Street/Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)

TOPOGRAPHIC / LAND SETTING:

Slope  Valley  Flat  Ridge  Other \_\_\_\_\_  
(Circle appropriate setting)

LATITUDE 815 921 4547

LONGITUDE 1748815 1276

May be in degrees, minutes, seconds, or in a decimal format

Latitude/longitude source:  GPS  Topographic map  
(Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)

**4a. FACILITY** - The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.)

FACILITY ID # (if applicable) \_\_\_\_\_

NAME OF FACILITY \_\_\_\_\_

STREET ADDRESS \_\_\_\_\_

City or Town State Zip Code

**4b. CONTACT PERSON/WELL OWNER:**

NAME A-1 Sandrock

STREET ADDRESS \_\_\_\_\_

City or Town State Zip Code

( ) - \_\_\_\_\_  
Area code - Phone number

**5. WELL DETAILS:**

a. Total Depth: 18.2 ft. Diameter: 2 in.

b. Water Level (Below Measuring Point): 13.1 ft.  
Measuring point is 2' ft. above land surface.

**6. CASING:** Length Diameter

a. Casing Depth (if known): 13' ft. 2" in.

b. Casing Removed: 5' seal 5' ft. \_\_\_\_\_ in.  
5" screen

**7. DISINFECTION:** H<sup>2</sup>O 2165

(Amount of 65%-75% calcium hypochlorite used)

**8. SEALING MATERIAL:**

Neat Cement

Sand Cement

Cement 133 lb.  
Water 20 gal.

Cement \_\_\_\_\_ lb.  
Water \_\_\_\_\_ gal.

Bentonite

Bentonite 10 lb.  
Type: Slurry \_\_\_\_\_ Pellets \_\_\_\_\_  
Water \_\_\_\_\_ gal.

Other

Type material \_\_\_\_\_

Amount \_\_\_\_\_

**9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:**

overdrill Augers  
\* Pull Entire Well  
Tremie Grout

**10. WELL DIAGRAM:** Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.

**11. DATE WELL ABANDONED** 9/20/06

I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Mark E Seiler SR 9/20/06  
SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE  
(The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C .0113.)

Mark E Seiler SR  
PRINTED NAME OF PERSON ABANDONING THE WELL



B-10

WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 2789

WELL CONTRACTOR:

Mark E Seiler SR
Well Contractor (Individual) Name

Red Dog Drilling
Well Contractor Company Name

STREET ADDRESS 216 Pinewood Lane
Midland N.C 28107
City or Town State Zip Code
(204)-338-5422
Area code - Phone number

2. WELL INFORMATION:

SITE WELL ID # (if applicable)

STATE WELL PERMIT # (if applicable)

COUNTY WELL PERMIT # (if applicable)

DWQ or OTHER PERMIT # (if applicable)

WELL USE (Circle applicable use): Monitoring Residential
Municipal/Public Industrial/Commercial Agricultural
Recovery Injection Irrigation
Other (list use) Piezometer

WELL LOCATION:

COUNTY QUADRANGLE NAME

NEAREST TOWN: Greensburg

B. shop Rd
Street Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)

TOPOGRAPHIC LAND SETTING:

Slope Valley Flat Ridge Other
(Circle appropriate setting)

LATITUDE 816 100.1714
LONGITUDE 1748 640.3453
Latitude/longitude source: GPS Topographic map
Location of well must be shown on a USGS topo map and attached to this form if not using GPS.)

May be in degrees, minutes, seconds, or in a decimal format

4a. FACILITY- The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.)

FACILITY ID # (if applicable)

NAME OF FACILITY

STREET ADDRESS

City or Town State Zip Code

4b. CONTACT PERSON/WELL OWNER:

NAME A-1 Sandrock

STREET ADDRESS

City or Town State Zip Code

Area code - Phone number

5. WELL DETAILS:

a. Total Depth: 27.5 ft. Diameter: 2" in.

b. Water Level (Below Measuring Point): 25.3 ft.
Measuring point is 2 ft. above land surface.

6. CASING: Length Diameter

a. Casing Depth (if known): 22.5 ft. 2 in.

b. Casing Removed: Screen 5 ft. 2 in.

7. DISINFECTION: 2 1/2 HTH

(Amount of 65%-75% calcium hypochlorite used)

8. SEALING MATERIAL:

Neat Cement Sand Cement
Cement 282 lb. Cement lb.
Water 35 gal. Water gal.

Bentonite
Bentonite 15 lb.
Type: Slurry Pellets
Water gal.

Other
Type material
Amount

9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:

Overdrill Auger to Rock
Known out Bottom cap
Tremie and Pull well
all PVC Removed

10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.

11. DATE WELL ABANDONED 9/20/06

I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C. WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Signature of Mark E Seiler SR
SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE 9/20/06

SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE
(The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C 0113.)

Signature of Mark E Seiler SR
PRINTED NAME OF PERSON ABANDONING THE WELL



B-17

WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 2789

1. WELL CONTRACTOR:

Well Contractor (Individual) Name: Mark E Seiler SR

Well Contractor Company Name: Red Dog Drilling

STREET ADDRESS: 216 Pinewood Lane

City or Town: Midland N.C. State: N.C. Zip Code: 28107

Area code - Phone number: (204) 338-5422

2. WELL INFORMATION:

SITE WELL ID # (if applicable):

STATE WELL PERMIT # (if applicable):

COUNTY WELL PERMIT # (if applicable):

DWQ or OTHER PERMIT # (if applicable):

WELL USE (Circle applicable use): Monitoring Residential Municipal/Public Industrial/Commercial Agricultural Recovery Injection Irrigation Other (list use): Piezometer

WELL LOCATION:

COUNTY: QUADRANGLE NAME:

NEAREST TOWN: Greensburg

Street Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code: Bishop Rd

TOPOGRAPHIC LAND SETTING:

Slope Valley Flat Ridge Other (Circle appropriate setting)

LATITUDE: 816260 8741

LONGITUDE: 1748849.7840

May be in degrees, minutes, seconds, or in a decimal format

Latitude/longitude source: GPS Topographic map Location of well must be shown on a USGS topo map and attached to this form if not using GPS.

4a. FACILITY - The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.)

FACILITY ID # (if applicable):

NAME OF FACILITY:

STREET ADDRESS:

City or Town State Zip Code

4b. CONTACT PERSON/WELL OWNER:

NAME: A-1 Sandrock

STREET ADDRESS:

City or Town State Zip Code

Area code - Phone number

5. WELL DETAILS:

a. Total Depth: 36.5 ft. Diameter: 2 in.

b. Water Level (Below Measuring Point): 33.1 ft. Measuring point is 2' ft. above land surface.

6. CASING: Length Diameter

a. Casing Depth (if known): 31.5 ft. 2 in.

b. Casing Removed: 5.0 ft. 2 in. Screen

7. DISINFECTION: 2 1/2 ATA

(Amount of 65%-75% calcium hypochlorite used)

8. SEALING MATERIAL:

Neat Cement Sand Cement

Cement 376 lb. Water 40 gal.

Bentonite

Bentonite 20 lb. Type: Slurry Pellets Water gal.

Other

Type material:

Amount:

9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:

Overdrill - Auger Full Entire Well Tremie Grout

10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.

11. DATE WELL ABANDONED: 9/26/06

I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C. WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CERTIFIED WELL CONTRACTOR: Mark E Seiler SR DATE: 9/26/06

SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE (The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C 0113.)

Mark E Seiler SR PRINTED NAME OF PERSON ABANDONING THE WELL



B-11

### WELL ABANDONMENT RECORD

North Carolina Department of Environment and Natural Resources- Division of Water Quality

WELL CONTRACTOR CERTIFICATION # 2789

**WELL CONTRACTOR:**

Mart E Seiler SR  
Well Contractor (Individual) Name

Red Dog Drilling  
Well Contractor Company Name

STREET ADDRESS 216 Pinewood Lane

Midland N.C 28107  
City or Town State Zip Code

(704)-838-5422  
Area code - Phone number

**2. WELL INFORMATION:**

SITE WELL ID # (if applicable) \_\_\_\_\_

STATE WELL PERMIT # (if applicable) \_\_\_\_\_

COUNTY WELL PERMIT # (if applicable) \_\_\_\_\_

DWQ or OTHER PERMIT # (if applicable) \_\_\_\_\_

WELL USE (Circle applicable use): Monitoring Residential  
Municipal/Public Industrial/Commercial Agricultural  
Recovery Injection Irrigation  
Other (list use) Piezometer

**WELL LOCATION:**

COUNTY GUILFORD QUADRANGLE NAME \_\_\_\_\_

NEAREST TOWN: Greensboro

219 Bishop Rd 27407  
(Street, Road Name, Number, Community, Subdivision, Lot No., Parcel, Zip Code)

**TOPOGRAPHIC LAND SETTING:**

Slope  Valley  Flat  Ridge  Other  
(Circle appropriate setting)

LATITUDE 815 993.7130

LONGITUDE 1748 605.9989

May be in degrees, minutes, seconds, or in a decimal format

Latitude/longitude source: GPS Topographic map

*Location of well must be shown on a USGS topo map and attached to this form if not using GPS.*

4a. FACILITY- The name of the business where the well is located. Complete 4a and 4b. (If a residential well, skip 4a; complete 4b, well owner information only.)

FACILITY ID # (if applicable) #41-22

NAME OF FACILITY A 41-17

STREET ADDRESS \_\_\_\_\_

City or Town State Zip Code

**4b. CONTACT PERSON/WELL OWNER:**

NAME A-1 Sandrock

STREET ADDRESS 2091 Bishop Rd

Greensboro N.C 27407  
City or Town State Zip Code

Area code - Phone number \_\_\_\_\_

**5. WELL DETAILS:**

a. Total Depth: 27.6 ft. Diameter: 2" in.

b. Water Level Below Measuring Point: 26.1 ft.  
Measuring point is 2.0' ft. above land surface.

**6. CASING:** Length Diameter

a. Casing Depth (if known): 22.6 ft. 2 in.

b. Casing Removed: screen 5.0' ft. 2 in.

**7. DISINFECTION:** \_\_\_\_\_

(Amount of 65%-75% calcium hypochlorite used)

**8. SEALING MATERIAL:**

Neat Cement

Sand Cement

Cement 202 lb.  
Water 35 gal.

Cement \_\_\_\_\_ lb.  
Water \_\_\_\_\_ gal.

Bentonite

Bentonite 15 lb.  
Type: Slurry Pellets  
Water \_\_\_\_\_ gal.

Other

Type material \_\_\_\_\_

Amount \_\_\_\_\_

**9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:**

overdrill Auger to Rock  
Knock out Bottom cap  
Trim and Pull well  
all PVC removed

10. WELL DIAGRAM: Draw a detailed sketch of the well on the back of this form showing total depth, depth and diameter of screens (if any) remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.

11. DATE WELL ABANDONED 9/20/06

I DO HEREBY CERTIFY THAT THIS WELL WAS ABANDONED IN ACCORDANCE WITH 15A NCAC 2C. WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

Mart E Seiler SR 9/20/06  
SIGNATURE OF CERTIFIED WELL CONTRACTOR DATE

SIGNATURE OF PRIVATE WELL OWNER ABANDONING THE WELL DATE  
(The private well owner must be an individual who personally abandons his/her residential well in accordance with 15A NCAC 2C 0113.)

Mart E Seiler SR  
PRINTED NAME OF PERSON ABANDONING THE WELL

## **David Garrett & Associates**

*Engineering and Geology*



January 12, 2007

Ms. Jackie Drummond  
NC Division of Waste Management  
Solid Waste Section  
Mail Service Center 1646  
Raleigh, NC 27699-1646

**RE: Baseline Water Quality Monitoring Report  
A-1 Sandrock, Inc. (Guilford County, NC)**

Dear Ms. Drummond:

On behalf of A-1 Sandrock, Inc., I am pleased to present this summary report of the background water-quality sampling event. Ground and surface water samples were collected on November 29, 2006 by a representative of Environmental Field Management, Inc. David Garrett was present during the initial phases of the sampling to orient EFM's personnel to the site. All sampling lab work was conducted in accordance with the site Water Quality Monitoring Plan (WQMP), previously approved by NC DENR Division of Waste Management, and industry standard protocol.

The sampling consisted of five ground water monitoring wells and four surface stream sampling locations, shown on the attached figure. Attached to this letter are the following:

1. Summary Data Table showing detected constituents and field parameters
2. Monitoring location map, showing ground water potentiometric contours
3. Laboratory report from Tritest, Inc.

All wells were purged by manually bailing a conventional three well volumes, and unfiltered samples only were collected. Field parameters (pH, conductivity, turbidity, and static water level) were measured and have been summarized in the Summary Data Table. Of note in these data, relatively high turbidity was observed (caused by suspended solids) in water samples collected from all of the monitoring, although the wells were purged when constructed. The turbidity may clear up with time, as it is likely caused by disturbance of the soil fines adjacent to the well screen during the sampling process. This condition does not diminish the value of the samples, although turbidity could lead to falsely elevated inorganic constituents (metals), which could influence future interpretation of the results.

The pH of the ground water samples ranged from approximately 6.0 to 6.4, and conductivity ranged from 109 to 216  $\mu\text{mho/cm}$  (relatively low). No organic constituents on the Appendix I list were detected during the baseline sampling. This is to be expected, since the site was a "green" site (no previous industrial development) and the Appendix I organic constituents are not naturally occurring compounds. The future monitoring of organic constituents will be the key indication of a ground water impact from the landfill.

A few inorganic constituents were detected in the ground water samples collected from the site monitoring wells, i.e. metals (barium, chromium, cobalt, copper, lead, nickel, silver, vanadium, zinc), however none was reported at a concentration above the corresponding 15A NCAC 2L ground water quality standard. These are naturally occurring constituents that frequently show up in the background at ground water monitoring sites within the Piedmont. It should also be noted that these results represent *total* metals analysis, i.e. unfiltered samples, which are subject to turbidity, as opposed to a *dissolved* metals analysis (filtered samples).

The stream water data indicate similar but slightly higher pH conditions than measured in ground water (6.8 to 7.1), turbidity ranged from 15 to 38 NTU (low), and conductivity was fairly low (109 to 335  $\mu\text{mho/cm}$ ). Antimony and copper were reported in the water sample collected from location SW-3 at concentrations of 0.033 mg/L and 0.042 mg/l, respectively. These concentrations do not exceed the corresponding 15A NCAC 2L ground water quality standards. It is noted that the area in the vicinity of the site has a history of mining operations extending back over 100 years and copper-bearing minerals (and various metal-sulfide constituents) are abundant in certain local rock formations. Inasmuch as SW-3 is an upgradient background sampling point located along an unnamed tributary to Hickory Creek south of the landfill unit (see attached site map), the concentration of copper reported in the surface water sample is considered representative of background conditions. Barium was reported at concentrations ranging from 0.047 mg/L to 0.082 mg/L in the surface water samples collected from locations SW-1, SW-2 and SW-4, which do not exceed the corresponding 15A NCAC 2L ground water quality standard. Please note that there are three streams converging at the site, hence three background sampling points and one existing stream sample.

Ground and surface water sampling is normally conducted on a semi-annual basis for these type facilities. Presumably, the next semi-annual sampling event will be scheduled in May or June 2007, approximately six months after the baseline event. The object is to have sampling events that are representative of both wet and dry seasons. Once future samples are collected and analyzed, the results should be added to the data base. Future sampling will adhere to the new protocols established in 2006 by NC DENR DMW, including an expanded list of inorganic constituents in addition to the Appendix I list.

Please contact me at your earliest convenience if I can provide clarification.

Very Truly Yours,

Brian S. Boutin, P.G.

Cc: Ronnie Petty – A-1 Sandrock  
G. David Garrett, P.G., P.E.

**Detected Inorganic Constituents**

All values are given in mg/l

No Appendix I organic constituents were detected.

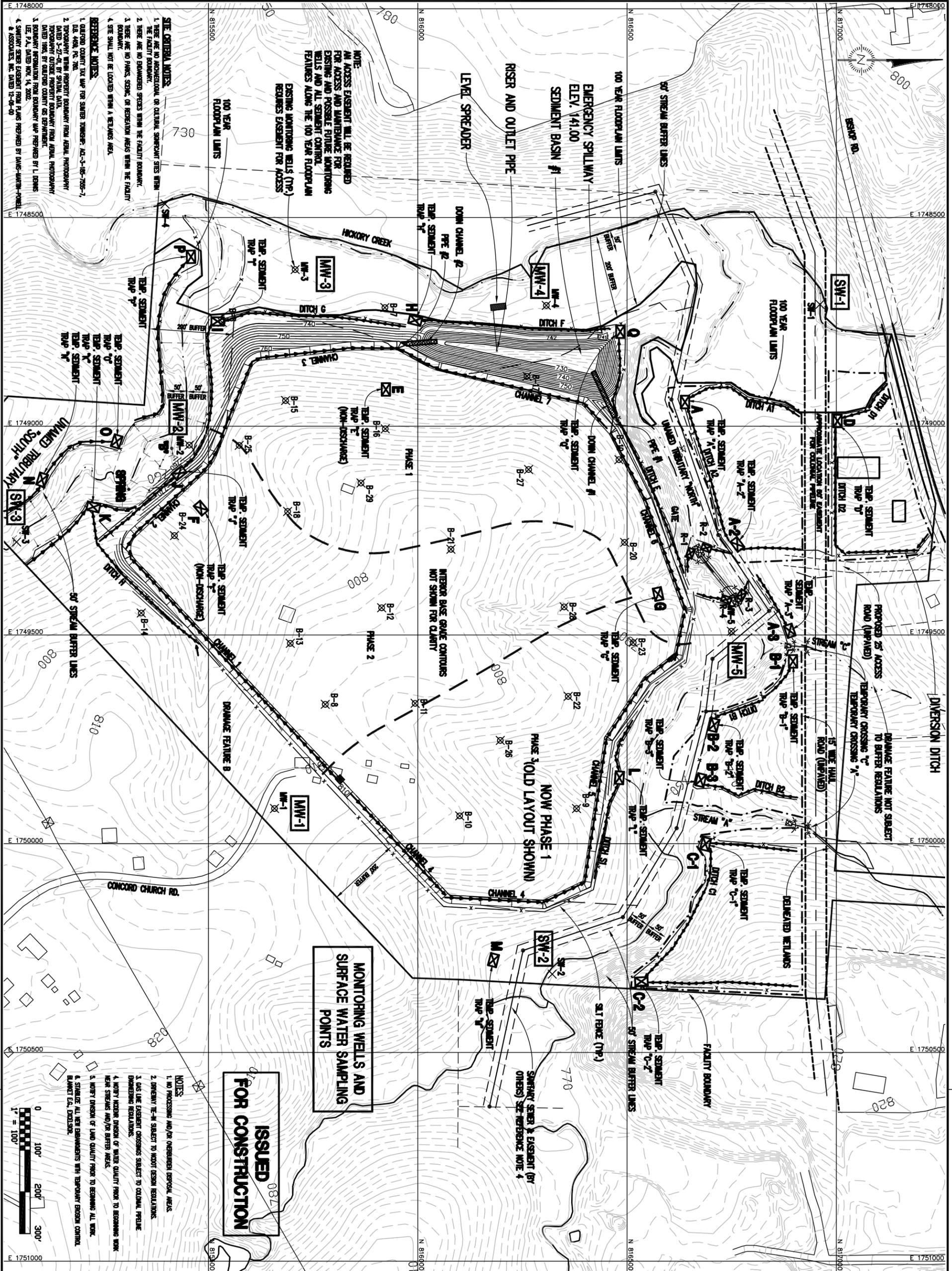
**Bold data represent duplicates or resampling events, if required.**

Constituent	NC 2L Standard	Sampling Date	MW-1 Backgrnd	MW-2	MW-3	MW-4	MW-5	Surface 1 Backgrnd	Surface 2 Backgrnd	Surface 3 Backgrnd	Surface 4
Antimony		11/29/06								0.033	
Arsenic	0.05	11/29/06									
Barium	2.0	11/29/06	0.390	0.449	0.860	0.768	0.534	0.082	0.047		0.070
Beryllium		11/29/06									
Cadmium	0.005	11/29/06									
Cobalt		11/29/06	0.009	0.009	0.030	0.011	0.014				

Constituent	NC 2L Standard	Sampling Date	MW-1 Backgrnd	MW-2	MW-3	MW-4	MW-5	Surface 1 Backgrnd	Surface 2	Surface 3	Surface 4
Copper	1.0	11/29/06	0.036	0.045	0.060	0.067	0.055			0.042	
Chromium (total)	0.05	11/29/06			0.029	0.011	0.011				
Lead	0.015	11/29/06	0.011			0.006					
Nickel	0.1	11/29/06	0.010		0.067	0.015	0.014				
Selenium	0.05	11/29/06									
Silver	0.018	11/29/06	0.012								
Thallium		11/29/06									

Constituent	NC 2L Standard	Sampling Date	MW-1 Backgrnd	MW-2	MW-3	MW-4	MW-5	Surface 1 Backgrnd	Surface 2	Surface 3	Surface 4
Vanadium		11/29/06	0.200	0.200	0.135	0.106	0.145				
Zinc	2.1	11/29/06	0.202	0.236	0.219	0.354	0.501				
pH		11/29/06	6.42	6.20	6.28	6.01	6.27	7.14	6.82	6.96	6.96
Specific Conductance, <b>m</b> ho/cm		11/29/06	216	125	128	128	218	335	152	109	280
Turbidity, NTU		11/29/06	1,000+	1,000+	1,000+	1,000+	725	22	15	38	32
Static Water Level, feet (toc)		11/29/06	25.85	8.41	4.43	4.55	14.96	NA	NA	NA	NA

Notes: Relatively high turbidity noted at MW-1, MW-2, MW-3 and MW-4.



<p>3-30-03</p>	<p>2-12-03</p>	<p>1-22-03</p>	<p>1-22-03</p>	<p>DATE</p>	<p>NO.</p>	<p>REVISION</p>
<p>3</p>	<p>2</p>	<p>1</p>	<p>1</p>			
<p>REVERSE SEDIMENT TRAPS                  REVISED BASE GRADES PER ESTIMATED SEASONAL HIGH GROUNDWATER                  SEDIMENT BASIN MODIFIED                  100 YEAR FLOODPLAIN RESUBMITTED</p>						

**NOTES**

1. NO PROCESSING AND/OR OVERBURDEN DISPOSAL AREAS.
2. DRAINAGE IS SUBJECT TO MOST DESIGN REGULATIONS.
3. GAS LINE EXISTENCE SUBJECT TO LOCAL PIPELINE ENGINEERING REGULATIONS.
4. NOTIFY AGENCY DIVISION OF WATER QUALITY PRIOR TO BEGINNING WORK NEAR STREAMS AND/OR BUFFER AREAS.
5. NOTIFY DIVISION OF LAND QUALITY PRIOR TO BEGINNING ALL WORK.
6. STABILIZE ALL NEW EXPOSURES WITH TEMPORARY EROSION CONTROL BLANKET E.A. EXPOSURE.

**ISSUED FOR CONSTRUCTION**

**MONITORING WELLS AND SURFACE WATER SAMPLING POINTS**

**FACILITY PLAN AND SEDIMENTATION AND EROSION CONTROL PLAN**

DESIGNED BY: A.M.H.  
 CHECKED BY: SANDROCK-2  
 DATE: JULY, 2002

**A-1 SANDROCK C.D.L.F. GUILFORD COUNTY, N.C.**

David Garrett, P.G., P.E.  
 Engineering and Geology  
 5105 Harbour Towne Drive, Raleigh, North Carolina 27604  
 E-mail: david\_garrett\_pg@mhndepng.com 919-231-1818 (Office and Fax) 919-418-4375 (mobile)