Fac/Perm/Co ID #	Date	Doc ID#
06-03	3/17/09	DIN 7035

RICHARDSON SMITH GARDNER
& ASSOCIATES
ENGINEERING & GEOLOGICAL
SERVICES

RECEIVED
MAR - 2 2009
SOLID WASTE SECTION

February 26, 2009

Mr. Zinith Barbee
NCDENR – Division of Waste Management
Solid Waste Section
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

RE: Additional Site Study
Avery County Landfill
Newland, North Carolina

Dear Mr. Barbee:

Thank you for taking the time to meet with me last week regarding additional site study work needed to obtain a letter of Site Suitability for the northern and western portions of the Avery County Landfill property. This letter, submitted on behalf of Avery County, outlines our proposed work plan to respond to comments received November 18, 2008 (**copy attached**) which required additional site study as we discussed.

Scope of Work

Richardson Smith Gardner and Associates, Inc. (RSG) will install three additional piezometers (labeled PZ-14, PZ-15 and PZ-16) as shown on the attached **Figure 1**. One (1) of these piezometers, PZ-15, will be installed to the depth of bedrock (approximately 90 feet below grade). The remaining two (2) piezometers, PZ-14 and PZ-16, will be installed to a depth approximately 10 feet below the water table surface.

All three borings will be drilled by hollow stem auger with standard penetration test samples being collected every five feet of auger advancement. Two undisturbed Shelby tube samples will also be collected from piezometer PZ-15. Each boring will be completed as a piezometer with 10 feet of 10-slot screen and solid PVC riser pipe to approximately 3 feet above grade. Lockable steel outer casings will be installed on each piezometer to maintain long term viability of the piezometer. A well tag will be completed for each piezometer and affixed to the outside of the outer steel casing.

Soil samples from each boring will be analyzed for geotechnical properties including sieve analysis, atterberg limits, natural moisture, density and the undisturbed sample will be analyzed for hydraulic conductivity and strength testing.

Upon completion of the field work and receipt of geotechnical laboratory analysis, RSG will submit a supplemental report to the Site Study report submitted in April 2008. This report will outline the results of this additional work and will contain revisions to pertinent drawings in the Site Study to add the new piezometer locations and information.

14 N. BOYLAN AVENUE • RALEIGH, NC 27603 • TEL: 919-828-0577 • FAX 919-828-3899 • WWW.RSGENGINEERS.COM

Schedule

RSG will contact you prior to implementing this work. At this time, we plan to perform this work in Avery County's fiscal year 2009-2010. We estimate this work will take approximately six (6) weeks to complete.

Avery County would like approval of this plan prior to budgeting and engaging in this work. We appreciate your quick response in this matter. If you have any questions, or require additional information please call or e-mail me at your earliest convenience.

Sincerely,
Richardson Smith Gardner and Associates, Inc.

Joan A. Smyth

Joan A. Smyth, P.G.
Senior Hydrogeologist
joan@rsgengineers.com

Attachments

cc: Buddy Norris, Avery County
Bill Wagner, NCDENR
Allan Gaither, NCDENR
File

NCDENR

North Carolina Department of Environment and Natural Resources

Dexter R. Matthews, Director | **Division of Waste Management** | Michael F. Easley, Governor
William G. Ross Jr., Secretary

November 18, 2008

Mr. Buddy Norris
Avery County Solid Waste - Director
PO Box 640
Newland, North Carolina 28657

Subject: Notice of Incomplete Demonstration for Site Suitability and Technical Review Letter, Hydrogeologic Investigation Report, Revised Site Study, C&DLF Expansion Avery County, Permit #06-03. Doc ID No: 6258

Dear Mr. Norris:

The Division of Waste Management, Solid Waste Section (Section) completed the technical review of the document, *Revised Site Study, Avery County Landfill ,Ingalls, North Carolina*, April 2008, prepared on your behalf by Richardson, Smith, Gardner and Associates. At this time, with the information provided in the Revised Site Study, the Section cannot make a determination on the suitability for landfill construction of most of the proposed expansion site.

The Hydrogeologic Investigation Report, dated April 2008, included in Appendix C, failed to adequately assess geologic and hydrogeologic characteristics of the proposed site pursuant to 15A NCAC13B .0538(a). Foremost, there is an insufficient number of borings within and around the proposed expansion area North of existing Phases 1 and 2 on the Eastern portion of the property and within and around the proposed expansion area on the Western portion of the property. Although part of Rule .0538(a)(3) specifies a minimum ratio of borings to acreage, another part specifies that the number and depths of borings will "depend on the hydrogeologic characteristics of the site." The Rule further stipulates that the numbers, locations, and depths of borings should be sufficient to provide adequate understanding of subsurface conditions and the groundwater flow regime of the uppermost aquifer. Avery County's mountainous terrain requires more data than what suffices in hilly and coastal terrain. No determination on site suitability can be made without sufficient numbers, locations, and depths of borings to characterize geologic and hydrogeologic conditions of the entire site proposed for expansion.

Groundwater conditions in and around existing Phases 1 and 2 had been acceptably characterized in a prior study. Proposed Phase 3 depicted on Drawing P1, Sheet 6 and Drawing X2, Sheet 5 in Appendix H is within these areas. Therefore, since all other required documents for the Site Study have been submitted, after approval of the Nationwide Permit application a Permit to Construct application for Phase 3 can proceed.

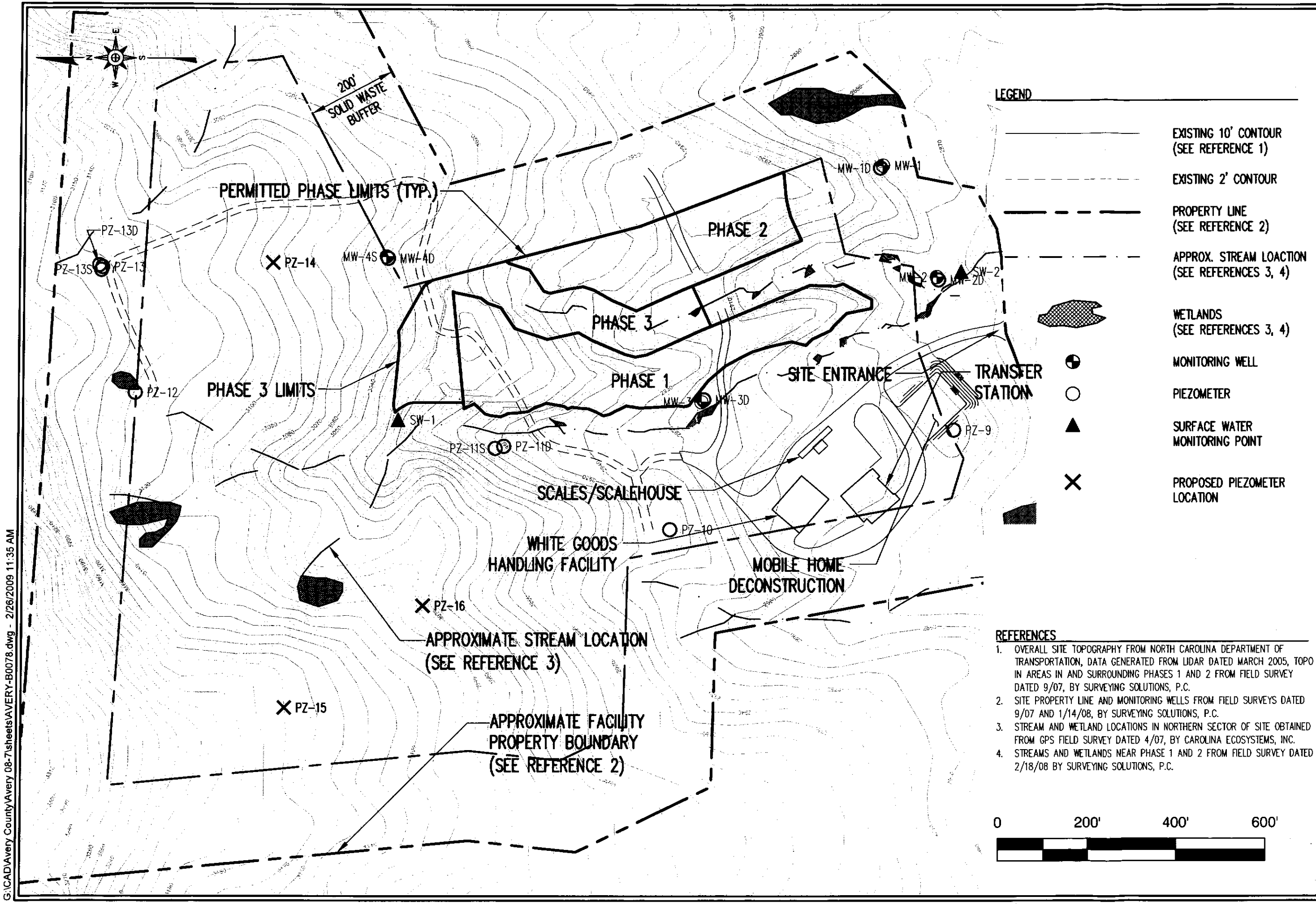
If you should have any questions regarding this matter, please contact me at (919) 508-8401.

Sincerely,

Zinith Barbee

Zinith Barbee
Hydrogeologist

Cc: Stacey Smith – RSG Engineers
Allen Gaither – SWS/ARO
Bill Wagner – SWS/ARO



REFERENCES

1. OVERALL SITE TOPOGRAPHY FROM NORTH CAROLINA DEPARTMENT OF TRANSPORTATION, DATA GENERATED FROM LIDAR DATED MARCH 2005, TOPO IN AREAS IN AND SURROUNDING PHASES 1 AND 2 FROM FIELD SURVEY DATED 9/07, BY SURVEYING SOLUTIONS, P.C.
2. SITE PROPERTY LINE AND MONITORING WELLS FROM FIELD SURVEYS DATED 9/07 AND 1/14/08, BY SURVEYING SOLUTIONS, P.C.
3. STREAM AND WETLAND LOCATIONS IN NORTHERN SECTOR OF SITE OBTAINED FROM GPS FIELD SURVEY DATED 4/07, BY CAROLINA ECOSYSTEMS, INC.
4. STREAMS AND WETLANDS NEAR PHASE 1 AND 2 FROM FIELD SURVEY DATED 2/18/08 BY SURVEYING SOLUTIONS, P.C.

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FIGURE NO. 1	FILE NAME AVERY-B0078
SCALE: AS SHOWN	PROJECT NO. AVERY 08-7
CHECKED BY:	
DRAWN BY: J.A.L.	DATE: Feb. 2009

TITLE: AVERY COUNTY C&D LANDFILL PROPOSED PIEZOMETERS FOR ADDITIONAL SITE STUDY

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