Progress Energy Carolinas, Inc.
Roxboro Electric Generating Plant
1700 Dunnaway Rd
Semora, NC 27343

Mike Mosley
Plant Manager

August 8, 2011

Mr. Edward Mussler, P.E.
NC DENR – DWM Solid Waste Section
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

RE: Progress Energy Carolinas, Inc.
Roxboro Steam Electric Plant
P6 Structural Fill Notification
Person County, North Carolina

Dear Mr. Mussler:

As discussed in your meeting with our project team on July 22, 2011 and in accordance with 15A NCAC 13B .1703, this notification with attachments describes the P6 Structural Fill project at the Roxboro Plant. Incorporated in the attachments are construction plans prepared by BlackRock Engineers, Inc. for the project.

Progress Energy acknowledges that this project will use coal combustion by-products for structural fill on its land. In accordance with 15A NCAC 13B .1707, within 90 days of project completion Progress Energy will file a statement of the final CCB quantity and map delineating the location of the structural fill with the Person County Register of Deeds.

Please contact Stan Morton at 336.597.6245 with any questions regarding this notification.

Regards,

Mike Mosley, Plant Manager
Progress Energy Carolinas, Inc.
Roxboro Steam Electric Plant

Roxboro P6 Structural Fill Notification

August 8, 2011

cc: L. Stan Morton
Gary Ahlberg, P.E.
John Toepfer, P.E.
Caroline Broughton, P.E.
Robert Howard
William Milam

Mr. Larry Frost, Regional Engineer
NC DENR - Solid Waste Section
Asheville Regional Office
2090 U.S. Highway 70
Swannanoa, North Carolina 28778

STRUCTURAL FILL NOTIFICATION
ROXBORO P6 STRUCTURAL FILL
PERSON COUNTY, NORTH CAROLINA

Prepared for:

Progress Energy Carolinas, Inc.
Roxboro Steam Electric Plant
1700 Dunnaway Road
Semora, North Carolina 27343

Progress Energy

REGULATORY NOTICE
August 8, 2011

Design Engineer:
Gary W. Ahlberg, P.E.

BlackRock Engineers, Inc.
PO Box 58
Wilmington, NC 28402
107 Plumtree Lane
Castle Hayne, NC 28429
910.232.6696
N.C. Lic. No. C-2919

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PROGRESS ENERGY CAROLINAS, INC.
ROXBORO P6 STRUCTURAL FILL NOTIFICATION
SUBMITTED TO THE
NC DENR DIVISION OF WASTE MANAGEMENT

August 8, 2011

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2. TCLP Analysis of CCBs
3. 15A NCAC 13B Section .1700 Rules
4. P6 Construction Plans

Sheet	Drawing	Title
1	S1	P6 Site Plan
2	C1	P6 Structural Fill
3	SF1	P6 Details
4	SF2	P6 Details
5	G1	Seasonal High Potentiometric Map

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1.0 EXECUTIVE SUMMARY

This notification summarizes construction activities proposed for the P6 Structural Fill at the Roxboro Steam Electric Plant, in the northwest corner of Person County, North Carolina. The plant and landfill are owned by Progress Energy Carolinas (PEC). The landfill facility is located at 1700 Dunnaway Road, approximately 7 miles northwest of Roxboro, near Semora, North Carolina.

In accordance with 15A NCAC 13B Section .1700, this report provides the information required for a structural fill notification utilizing coal combustion by-products (CCB). A narrative description follows the notification requirements listed in the North Carolina Solid Waste Management Rules. Construction is proposed to begin 30 days following submittal of this notification. The engineer's certification documenting completion of the P6 structural fill project will be submitted within 30 days of final cover construction.

The structural fill is adjacent to the existing lined Roxboro Ash Landfill, approved in 2002 under NC Solid Waste Permit No. 73-02. The P6 structural fill project is proposed to utilize moisture conditioned, compacted, dry fly ash to build a suitable subgrade for lined landfill expansion. "Beneficial and beneficial use" means projects promoting public health and environmental protection, offering equivalent success relative to other alternatives, and preserving natural resources.

The projected beneficial end use of the structural fill is a foundation for lined expansion of the Roxboro Landfill. The use of CCBs will provide for an equivalent foundation to soil materials and conserve land and resources otherwise required for soil supply. Pending approval by the agency, liner construction for Phase 6 is planned to directly follow structural fill activities and will provide final closure of the P6 structural fill.

The following sections provide notification information in accordance with 15A NCAC 13B Section .1703 – Notification for Structural Fill Facilities. The rule citations are formatted in italics, followed by a narrative of the project conforming plan.

2.0 NOTIFICATION REQUIREMENTS

.1703(a)A minimum of 30 days before using coal combustion by-products in structural fill projects, the person proposing the use shall submit a written notice to the Division.

Placement of the structural fill is planned to begin 30 days following receipt of this document by NC DENR Division of Waste Management.

2.1 USGS Quadrangle Map and Project Site Location

.1703 (1) A description of the nature, purpose and location of the project, including the name of the United States Geological Survey seven and one-half minute map on which the project is located and a Department of Transportation map or an eight and one-half by 11 inch topographic map showing the project.

Attachment 1 is Figure 1 – Project Site Location Map, locating the 28 Acre project site for the P6 Structural Fill on an excerpt of the Olive Hill USGS Quadrangle Map.

2.2 Project Schedule and Volume

.1703(a)(2) The estimated start and completion dates for the project.
.1703(a)(3) An estimate of the volume of coal combustion by-products to be used for the project.

The P6 Structural Fill will utilize CCBs from Progress Energy Carolinas plants. The total estimated volume of CCBs for the P6 Structural Fill project is 725,000 Cubic Yards. With a projected start date of September 2011, the project is planned for substantial completion in one year. Final closure of the structural fill will be contingent upon the approval and construction of the Phase 6 liner system for landfill operation.

2.3 TCLP Waste Characterization

.1703(a)(4) A Toxicity Characteristic Leaching Procedure (TCLP) analysis from a representative sample of each different coal combustion by-product source to be used in the project. The TCLP analysis shall be conducted and certified by the generator to be representative of each coal combustion by-product source used in the project. A TCLP analysis shall be conducted at least annually. A minimum analysis shall include: arsenic, barium, cadmium, lead, chromium, mercury, selenium and silver.

Representative samples of Dry Fly Ash from the Roxboro and Mayo plants were collected and analyzed for the required TCLP analysis. Attachment 2 includes the lab

report for each sample. All results are within the acceptable TCLP limits as non-hazardous solid waste.

2.4 Owner's Statement

.1703 (a)(5)A signed and dated statement by the owner(s) of the land on which the structural fill is to be placed, acknowledging and consenting to the use of coal combustion by-products as structural fill and agreeing to record the fill in accordance with Rule .1707 of this Section.

The attached cover letter signed by the plant manager and reference to this notification provide the owner's statement of acknowledgement, consent, and agreement to record the fill as required.

2.5 Generator Information and Contacts

.1703 (a)(6) The notification shall include:

- *(A) Name of coal combustion by-products generator;*
- *(B) Physical location of the generating facility;*
- *(C) Address of generator;*
- *(D) Name of contact for generator;*
- *(E) Telephone number of generator; and*
- *(F) Changes that occur will require subsequent notification of the Division of Solid Waste Management.*

Roxboro Steam Electric Plant Generator Information

CCB Generator's Name	Progress Energy Carolinas, Inc.
Physical Location	1700 Dunnaway Road Semora, NC 27343
Contact Address	410 S. Wilmington Street/PEB4 Raleigh, NC 27601
Contact Name	John Toepfer
Contact Telephone Number	919.546.7863

Mayo Steam Electric Plant Generator Information

CCB Generator's Name	Progress Energy Carolinas, Inc.
Physical Location	10660 Boston Road Roxboro, NC 27574
Contact Address	410 S. Wilmington Street/PEB4 Raleigh, NC 27601
Contact Name	John Toepfer
Contact Telephone Number	919.546.7863

2.6 Responsible parties

Currently, implementation of the project includes the following parties.

Owner	**Progress Energy Carolinas, Inc.** Roxboro Steam Electric Plant 1700 Dunnaway Road Semora, North Carolina 27343 Contact: Stan Morton: 336-597-6245
Engineer	**BlackRock Engineers, Inc.** P.O. Box 58 Wilmington, NC 28402 Contact: Gary Ahlberg, P.E.: 910-232-6696
Contractor	**Charah, Inc**. 12601 Plantside Drive Louisville, KY 40299 Contact: Matt Winfree: 502-815-5076
Surveyor	**Taylor Wiseman Taylor** 3500 Regency Pkwy, Suite 160 Cary, NC 27518 Contact: Aaron Joplin, PLS: 919-297-0085
Soils Testing Laboratory	**Geotechnics** 2200 Westinghouse Blvd., Suite 105 Raleigh, N.C. 27604 Contact: Mike Smith Phone: 919-876-0405

3.0 CONSTRUCTION PLANS

Construction Plans for the P6 Structural Fill Project are included in Attachment 4. The plans include notation and all information regarding the site and design that conform to the requirements of 15A NCAC 13B .1704 – Siting of Structural Fill Facilities, .1705 – Design, Construction, and Operation for Structural Fill Facilities, and .1706 Closure of Structural Fill Facilities. The subject rules are included in Attachment 3.

The plans include the following project drawings are issued for this notification:

Sheet	Drawing	Title
1	S1	P6 Site Plan
2	C1	P6 Structural Fill
3	SF1	P6 Details
4	SF2	P6 Details
5	G1	Seasonal High Potentiometric Map

The limits of construction are approximately 28.5 Acres. The entire P6 structural fill project is within the 257-Acre Limits of Disturbance defined within the Division of Land Resources Approved Plan. All stormwater that contacts ash shall be routed to the NPDES West Pond for treatment. Sediment traps, channels, and diversions are included in the plan to manage on-site erosion and direct stormwater to the NPDES discharge. Installation of on-site controls and performance shall be observed by the Engineer and documented throughout the project to ensure compliance with 15A NCAC 13B and the North Carolina Sedimentation and Pollution Control Act of 1973.

Piezometer P-20 shall be abandoned during site preparation. The abandonment procedure in unconsolidated materials will consist of plugging the well with an impermeable, chemically-inert sealant such as neat cement grout and/or bentonite clay, and over-boring/excavating the well location to a depth of 10 feet below ground elevation and backfilling with hydrated bentonite pellets (Baroid Hole-Plug or equal). Well abandonment records shall be submitted to the Solid Waste Section with 30 days of abandonment activities.

Please contact BlackRock Engineers, Inc., Gary W. Ahlberg, P.E. at 910.232.6696 with any questions regarding the Construction Plans.

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ATTACHMENT 1

FIGURE 1 – LOCATION MAP

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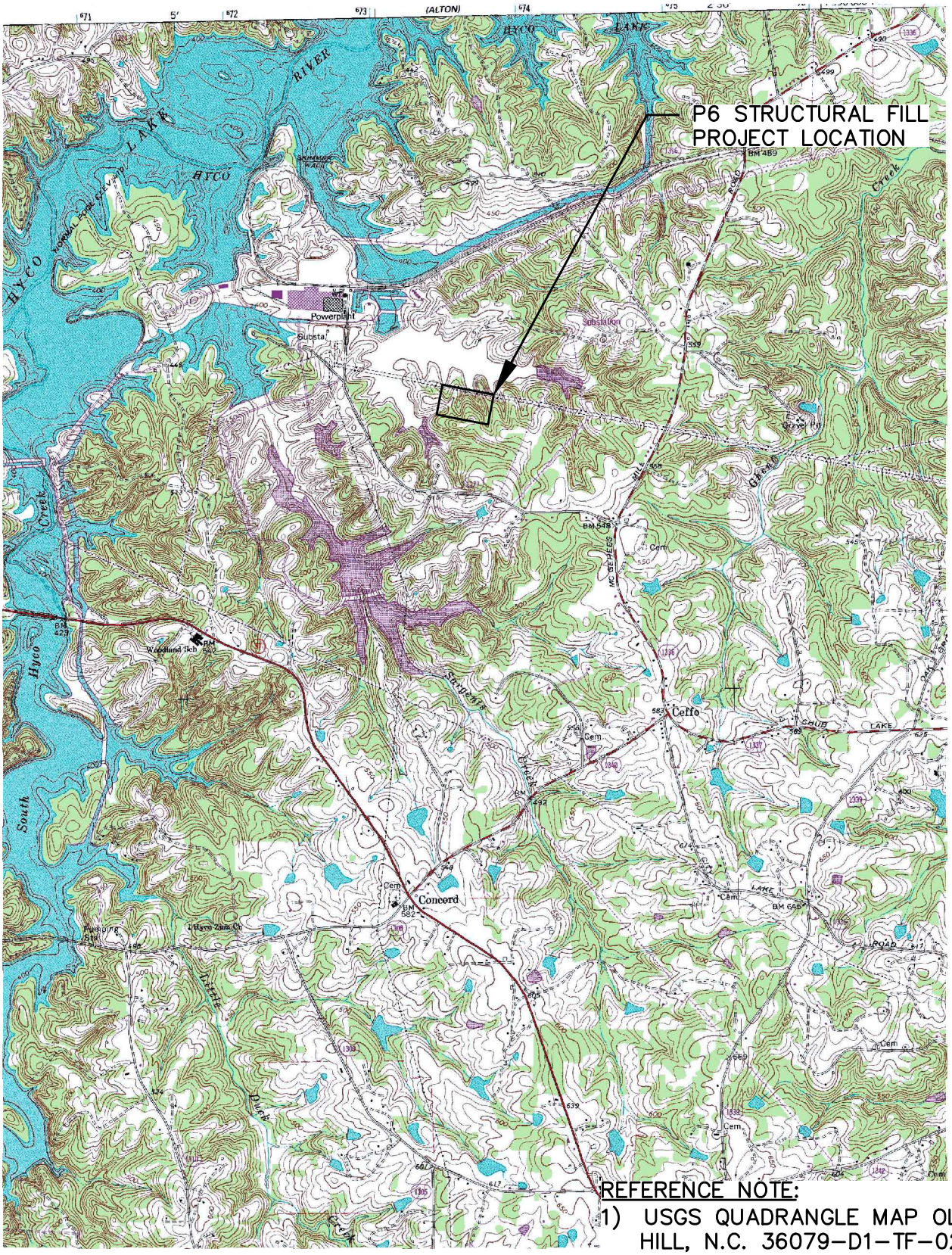

REFERENCE NOTE:

1) USGS QUADRANGLE MAP OLIVE HILL, N.C. 36079-D1-TF-024 REVISED 1994.

TITLE:

FIG. 1 – LOCATION MAP
PROGRESS ENERGY CAROLINAS
ROXBORO, N.C.

DATE: 07.27.11

SCALE: NTS

DRAWN BY: JWG

BLACKROCK ENGINEERS, INC.

POST OFFICE BOX 58
WILMINGTON, NORTH CAROLINA 28401
PHONE: 910.232.6696

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ATTACHMENT 2

TCLP ANALYSIS OF CCBs

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ROXBORO AND MAYO DRY FLY ASH
TCLP WASTE CHARACTERIZATION FOR
ROXBORO P6 STRUCTURAL FILL NOTIFICATION
PROGRESS ENERGY CAROLINAS, INC.

Parameter	RCRA TCLP Regulatory Standard	ROX-01	MAYO-02
Arsenic	5000	36	29
Barium	100000	201	265
Cadmium	1000	<2.78 U	34
Chromium	5000	177	563
Lead	5000	18	24
Mercury	200	0.0665	0.0665
Selenium	1000	83	10
Silver	5000	<3.74 U	<3.74 U
Additional NC SWS Parameters			
Boron	NE	2460	13400
Iron	NE	1180	5880
Manganese	NE	288	1430
Thallium	NE	<85.7 U	<85.7 U

Notes:
Results in ug/l, SGS lab report dated 08.05.11
U - Undetected
J - Estimated Concentration
NE - Not Established for RCRA waste characterization

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Laboratory Report of Analysis

To: Gary Ahlberg
BlackRock Engineers
5102 Wrightsville Ave.
Wilmington, NC 28403

Report Number: **31101963**

Client Project: **Roxboro P6 DFA**

Dear Gary Ahlberg,

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 Date
Project Manager
barbara.hager@sgs.com

SGS North America Inc.
5500 Business Drive, Wilmington, NC 28405
t 910.350.1903 f 910.350.1557 www.us.sgs.com
Member of SGS Group

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 < LOD)
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	Amount detected is between the Method Detection Limit and the Lower Calibration Limit
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
EMC	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
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.

SGS North America Inc.
5500 Business Drive, Wilmington, NC 28405
t 910.350.1903 f 910.350.1557 www.us.sgs.com

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
ROX-01	31101963001	07/26/2011 11:00	07/27/2011 10:00	Soil-Solid as dr
MAYO-02	31101963002	07/26/2011 11:00	07/27/2011 10:00	Soil-Solid as dr

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Results of **ROX-01**

Client Sample ID: **ROX-01**
Client Project ID: **Roxboro P6 DFA**
Lab Sample ID: 31101963001-A
Lab Project ID: 31101963

Collection Date: 07/26/2011 11:00
Received Date: 07/27/2011 10:00
Matrix: Soil-Solid as dry weight
Solids (%): 100

Results by **SW-846 7470A**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Mercury	ND	U	0.0000380	0.000300	mg/L	1	08/3/2011 15:54

Batch Information

Analytical Batch: **MHG1107**
Analytical Method: **SW-846 7470A**
Instrument: **HG2**
Analyst: **NTM**
Analytical Date/Time: **08/03/2011 15:54**

Prep Batch: **MXX1405**
Prep Method: **SW-846 7470A PREP TCLP**
Prep Date/Time: **08/03/2011 10:28**
Prep Initial Wt./Vol.: **20 mL**
Prep Extract Vol: **57 mL**

SGS North America Inc.
5500 Business Drive, Wilmington, NC 28405
t 910.350.1903 **f** 910.350.1557 www.us.sgs.com

Results of **ROX-01**

Client Sample ID: **ROX-01**
Client Project ID: **Roxboro P6 DFA**
Lab Sample ID: 31101963001-A
Lab Project ID: 31101963

Collection Date: 07/26/2011 11:00
Received Date: 07/27/2011 10:00
Matrix: Soil-Solid as dry weight
Solids (%): 100

Results by **SW-846 6010C - TCLP**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Thallium	ND	U	0.0857	0.100	mg/L	1	08/2/2011 18:11
Barium	**0.201**	J	0.00394	1.00	mg/L	1	08/2/2011 18:11
Manganese	**0.288**		0.0152	0.100	mg/L	1	08/1/2011 19:36
Iron	**1.18**		0.222	1.00	mg/L	1	08/1/2011 19:36
Chromium	**0.177**		0.0147	0.100	mg/L	1	08/1/2011 19:36
Boron	**2.46**		0.0209	0.100	mg/L	1	08/3/2011 10:39

Batch Information

Analytical Batch: **MIP1182**
Analytical Method: **SW-846 6010C - TCLP**
Instrument: **ICP1**
Analyst: **NTM**
Analytical Date/Time: **08/01/2011 19:36**

Prep Batch: **MXX1397**
Prep Method: **SW-846 3010A TCLP**
Prep Date/Time: **08/01/2011 08:43**
Prep Initial Wt./Vol.: **5 mL**
Prep Extract Vol: **50 mL**

Analytical Batch: **MIP1183**
Analytical Method: **SW-846 6010C - TCLP**
Instrument: **ICP1**
Analyst: **NTM**
Analytical Date/Time: **08/02/2011 18:11**

Prep Batch: **MXX1397**
Prep Method: **SW-846 3010A TCLP**
Prep Date/Time: **08/01/2011 08:43**
Prep Initial Wt./Vol.: **5 mL**
Prep Extract Vol: **50 mL**

Analytical Batch: **MIP1184**
Analytical Method: **SW-846 6010C - TCLP**
Instrument: **ICP1**
Analyst: **NTM**
Analytical Date/Time: **08/03/2011 10:39**

Prep Batch: **MXX1397**
Prep Method: **SW-846 3010A TCLP**
Prep Date/Time: **08/01/2011 08:43**
Prep Initial Wt./Vol.: **5 mL**
Prep Extract Vol: **50 mL**

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Results of **ROX-01**

Client Sample ID: **ROX-01**
Client Project ID: **Roxboro P6 DFA**
Lab Sample ID: 31101963001-A
Lab Project ID: 31101963

Collection Date: 07/26/2011 11:00
Received Date: 07/27/2011 10:00
Matrix: Soil-Solid as dry weight
Solids (%): 100

Results by **SW-846 6020A - TCLP**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Arsenic	**0.0360**	J	0.00712	0.0500	mg/L	10	08/3/2011 15:11
Selenium	**0.0830**		0.00824	0.0500	mg/L	10	08/3/2011 15:11
Silver	ND	U	0.00374	0.0500	mg/L	10	08/3/2011 12:37
Lead	**0.0180**	J	0.00640	0.0500	mg/L	10	08/3/2011 12:37
Cadmium	ND	U	0.00278	0.0500	mg/L	10	08/3/2011 17:05

Batch Information

Analytical Batch: **MMS1065**
Analytical Method: **SW-846 6020A - TCLP**
Instrument: **ICPMS2**
Analyst: **PSW**
Analytical Date/Time: **08/03/2011 12:37**

Prep Batch: **MXX1397**
Prep Method: **SW-846 3010A TCLP**
Prep Date/Time: **08/01/2011 08:43**
Prep Initial Wt./Vol.: **5 mL**
Prep Extract Vol: **50 mL**

Analytical Batch: **MMS1066**
Analytical Method: **SW-846 6020A - TCLP**
Instrument: **ICPMS2**
Analyst: **PSW**
Analytical Date/Time: **08/03/2011 15:11**

Prep Batch: **MXX1397**
Prep Method: **SW-846 3010A TCLP**
Prep Date/Time: **08/01/2011 08:43**
Prep Initial Wt./Vol.: **5 mL**
Prep Extract Vol: **50 mL**

Analytical Batch: **MMS1067**
Analytical Method: **SW-846 6020A - TCLP**
Instrument: **ICPMS2**
Analyst: **PSW**
Analytical Date/Time: **08/03/2011 17:05**

Prep Batch: **MXX1397**
Prep Method: **SW-846 3010A TCLP**
Prep Date/Time: **08/01/2011 08:43**
Prep Initial Wt./Vol.: **5 mL**
Prep Extract Vol: **50 mL**

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5500 Business Drive, Wilmington, NC 28405
t 910.350.1903 **f** 910.350.1557 www.us.sgs.com

Results of **MAYO-02**

Client Sample ID: **MAYO-02**
Client Project ID: **Roxboro P6 DFA**
Lab Sample ID: 31101963002-A
Lab Project ID: 31101963

Collection Date: 07/26/2011 11:00
Received Date: 07/27/2011 10:00
Matrix: Soil-Solid as dry weight
Solids (%): 100

Results by **SW-846 7470A**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Mercury	**0.0000665**	J	0.0000380	0.000300	mg/L	1	08/3/2011 15:42

Batch Information

Analytical Batch: **MHG1107**
Analytical Method: **SW-846 7470A**
Instrument: **HG2**
Analyst: **NTM**
Analytical Date/Time: **08/03/2011 15:42**

Prep Batch: **MXX1405**
Prep Method: **SW-846 7470A PREP TCLP**
Prep Date/Time: **08/03/2011 10:28**
Prep Initial Wt./Vol.: **20 mL**
Prep Extract Vol: **57 mL**

SGS North America Inc.
5500 Business Drive, Wilmington, NC 28405
t 910.350.1903 **f** 910.350.1557 www.us.sgs.com

Results of **MAYO-02**

Client Sample ID: **MAYO-02**
Client Project ID: **Roxboro P6 DFA**
Lab Sample ID: 31101963002-A
Lab Project ID: 31101963

Collection Date: 07/26/2011 11:00
Received Date: 07/27/2011 10:00
Matrix: Soil-Solid as dry weight
Solids (%): 100

Results by **SW-846 6010C - TCLP**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Thallium	ND	U	0.0857	0.100	mg/L	1	08/2/2011 17:43
Barium	**0.265**	J	0.00394	1.00	mg/L	1	08/2/2011 17:43
Manganese	**1.43**		0.0152	0.100	mg/L	1	08/1/2011 18:59
Iron	**5.88**		0.222	1.00	mg/L	1	08/1/2011 18:59
Chromium	**0.563**		0.0147	0.100	mg/L	1	08/1/2011 18:59
Boron	**13.4**		0.209	1.00	mg/L	10	08/3/2011 10:55

Batch Information

Analytical Batch: **MIP1182**
Analytical Method: **SW-846 6010C - TCLP**
Instrument: **ICP1**
Analyst: **NTM**
Analytical Date/Time: **08/01/2011 18:59**

Prep Batch: **MXX1397**
Prep Method: **SW-846 3010A TCLP**
Prep Date/Time: **08/01/2011 08:43**
Prep Initial Wt./Vol.: **5 mL**
Prep Extract Vol: **50 mL**

Analytical Batch: **MIP1183**
Analytical Method: **SW-846 6010C - TCLP**
Instrument: **ICP1**
Analyst: **NTM**
Analytical Date/Time: **08/02/2011 17:43**

Prep Batch: **MXX1397**
Prep Method: **SW-846 3010A TCLP**
Prep Date/Time: **08/01/2011 08:43**
Prep Initial Wt./Vol.: **5 mL**
Prep Extract Vol: **50 mL**

Analytical Batch: **MIP1184**
Analytical Method: **SW-846 6010C - TCLP**
Instrument: **ICP1**
Analyst: **NTM**
Analytical Date/Time: **08/03/2011 10:55**

Prep Batch: **MXX1397**
Prep Method: **SW-846 3010A TCLP**
Prep Date/Time: **08/01/2011 08:43**
Prep Initial Wt./Vol.: **5 mL**
Prep Extract Vol: **50 mL**

SGS North America Inc.
5500 Business Drive, Wilmington, NC 28405
t 910.350.1903 **f** 910.350.1557 www.us.sgs.com

Results of **MAYO-02**

Client Sample ID: **MAYO-02**
Client Project ID: **Roxboro P6 DFA**
Lab Sample ID: 31101963002-A
Lab Project ID: 31101963

Collection Date: 07/26/2011 11:00
Received Date: 07/27/2011 10:00
Matrix: Soil-Solid as dry weight
Solids (%): 100

Results by **SW-846 6020A - TCLP**

Parameter	Result	Qual	DL	LOQ/CL	Units	DF	Date Analyzed
Silver	ND	U	0.00374	0.0500	mg/L	10	08/3/2011 12:28
Lead	**0.0240**	J	0.00640	0.0500	mg/L	10	08/3/2011 12:28
Cadmium	**0.0340**	J	0.00278	0.0500	mg/L	10	08/3/2011 16:57
Arsenic	**0.0290**	J	0.00712	0.0500	mg/L	10	08/3/2011 15:00
Selenium	**0.0100**	J	0.00824	0.0500	mg/L	10	08/3/2011 15:00

Batch Information

Analytical Batch: **MMS1065**
Analytical Method: **SW-846 6020A - TCLP**
Instrument: **ICPMS2**
Analyst: **PSW**
Analytical Date/Time: **08/03/2011 12:28**

Prep Batch: **MXX1397**
Prep Method: **SW-846 3010A TCLP**
Prep Date/Time: **08/01/2011 08:43**
Prep Initial Wt./Vol.: **5 mL**
Prep Extract Vol: **50 mL**

Analytical Batch: **MMS1066**
Analytical Method: **SW-846 6020A - TCLP**
Instrument: **ICPMS2**
Analyst: **PSW**
Analytical Date/Time: **08/03/2011 15:00**

Prep Batch: **MXX1397**
Prep Method: **SW-846 3010A TCLP**
Prep Date/Time: **08/01/2011 08:43**
Prep Initial Wt./Vol.: **5 mL**
Prep Extract Vol: **50 mL**

Analytical Batch: **MMS1067**
Analytical Method: **SW-846 6020A - TCLP**
Instrument: **ICPMS2**
Analyst: **PSW**
Analytical Date/Time: **08/03/2011 16:57**

Prep Batch: **MXX1397**
Prep Method: **SW-846 3010A TCLP**
Prep Date/Time: **08/01/2011 08:43**
Prep Initial Wt./Vol.: **5 mL**
Prep Extract Vol: **50 mL**

SGS North America Inc.
5500 Business Drive, Wilmington, NC 28405
t 910.350.1903 **f** 910.350.1557 www.us.sgs.com

SGS

CHAIN OF CUSTODY RECORD
SGS Environmental Services Inc.

Locations Nationwide
Alaska North Carolina
Maryland New Jersey

www.us.sgs.com

CLIENT: **BlackRock Engineers, Inc**
CONTACT: Gary Ahlberg PHONE NO: 910.232.6696
PROJECT: Roxboro P6 DFA SITE/PWSID#:
REPORTS TO: **Gary Ahlberg**
INVOICE TO: **Gary Ahlberg** QUOTE #:
P.O. NUMBER:

SGS Reference #: 31101963

page 1 of 1

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	# CONTAINERS	Preserv used	SAMPLE TYPE C = COMP G = GRAB	TCLP Metals 2	Boron1	Manganese1	Iron1	Lead 1	Thallium1	REMARKS
	ROX-01	07.26.11	11:00	solid	1									1. Separate report for 5 added
	MAYO-02	07.26.11	11:00	solid	1									2. MDLs custom as per quote

Collected/Relinquished By: (1) Justin Mize	Date 7-26-11	Received By:	Shipping Carrier: / Shipping Ticket No:	Samples Received Cold? YES (NO) Temperature °C: 23.7 Ambient
Relinquished By: (2)	Date	Received By:	Special Deliverable Requirements:	Chain of Custody Seal: (Circle) INTACT BROKEN (ABSENT)
Relinquished By: (3)	Date	Received By:	Requested Turnaround Time and-or Special Instructions:	
Relinquished By: (4)	Date 7/27/11 10:00	Received For Laboratory By:		

☐ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-5301
☐ 3180 Peger Road **Fairbanks, AK 99701** Tel: (907) 474-8656 Fax: (907) 474-9685
☐ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557

SGS North America Inc.

Sample Receipt Checklist (SRC)

Client: **Black Rock Engineers** Work Order No.: **31101963**

1. _x_ Shipped — Notes:
   ___ 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. ___ Chilled on Receipt Actual Temp.(s) in °C: 23.7
   _x_ 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 — NA
   ___ 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
10. ___ No Headspace present in VOC vials
    ___ Headspace present in VOC vials >6mm

Comments: Ambient

Inspected and Logged in by: TP

Date: Wed-7/27/11 00:00

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ATTACHMENT 3

STRUCTURAL FILL RULE CITATIONS

15A NCAC 13B .1704 – SITING

15A NCAC 13B .1705 – DESIGN, CONSTRUCTION, AND OPERATION

15A NCAC 13B .1706 – CLOSURE

15A NCAC 13B .1707 – RECORDATION

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SECTION .1700 - REQUIREMENTS FOR BENEFICIAL USE OF COAL COMBUSTION BY-PRODUCTS

15A NCAC 13B .1704 SITING FOR STRUCTURAL FILL FACILITIES

(a) Coal combustion by-products used as a structural fill shall not be placed:

(1) Within 50 horizontal feet of a jurisdictional wetland unless after consideration of the chemical and physical impact on the wetland, the U.S. Corps of Engineers issues a permit or waiver for the fill;
(2) Within 50 horizontal feet of the top of the bank of a perennial stream or other surface water body;
(3) Within two feet of the seasonal high ground-water table;
(4) Within 100 horizontal feet of any source of drinking water, such as a well, spring or other groundwater source of drinking water;
(5) Within an area subject to a one-hundred year flood, unless it can be demonstrated to the Division that the facility will be protected from inundation, and washout, and the flow of water is not restricted and the storage volume of the flood plain will not be significantly reduced;
(6) Within 25 feet of any property boundary; and
(7) Within 25 feet of a bedrock outcrop.

(b) The Division and the Department of Transportation may agree on specific structural fill siting criteria that may be used on Department of Transportation projects.

History Note: *Authority G.S. 130A-294;*
Eff. January 4, 1994.

15A NCAC 13B .1705 DESIGN, CONSTRUCTION, AND OPERATION FOR STRUCTURAL FILL FACILITIES

(a) The structural fill facility must be designed, constructed, operated, closed, and maintained in such a manner as to minimize the potential for harmful release of constituents of coal combustion by-products to the environment or create a nuisance to the public.

(b) Coal combustion by-products shall be collected and transported in a manner that will prevent nuisances and hazards to public health and safety. Coal combustion by-products shall be moisture conditioned, as necessary, and transported in covered trucks to prevent dusting.

(c) Coal combustion by-products shall be placed uniformly and compacted in lifts not exceeding one foot in thickness and shall be compacted to standards, including in-situ density, compaction effort and relative density, specified by a registered professional engineer for a specific end use purpose.

(d) Equipment shall be provided which is capable of placing and compacting the coal combustion by-products and handling the earthwork required during the periods that coal combustion by-products are received at the fill area.

(e) The coal combustion by-product structural fill facility shall be effectively maintained and operated as a non-discharge system to prevent discharge to surface water resulting from the operation of the facility.

(f) The coal combustion by-product structural fill facility shall be effectively maintained and operated to ensure no violations of ground water standards, 15A NCAC 2L.

(g) Surface waters resulting from precipitation shall be diverted away from the active coal combustion by-product placement area during filling and construction activity.

(h) Site development shall comply with the North Carolina Sedimentation Pollution Control Act of 1973, as amended.

(i) The structural fill project must be operated with sufficient dust control measures to minimize airborne emissions and to prevent dust from creating a nuisance or safety hazard and must not violate applicable air quality regulations.

(j) All structural fills shall be covered with a minimum of 12 inches compacted earth, and an additional surface six inches of soil capable of supporting native plant growth.

(k) Compliance with these standards does not insulate any of the owners or operators from claims for damages to surface waters, ground-water or air resulting from the operation of the structural fill facility. If the facility fails to

comply with the requirements of this Section, the constructor, generator, owner or operator shall notify the Division and shall take such immediate corrective action as may be required by the Department.
(l) Coal combustion by-products utilized on an exterior slope of a structural fill shall not be placed with a slope greater than 3.0 horizontal to 1.0 vertical.
(m) The Division and the Department of Transportation may agree on specific design, construction, and operation criteria that may apply to the Department of Transportation projects.

History Note: *Authority G.S. 130A-294;*
Eff. January 4, 1994.

15A NCAC 13B .1706 CLOSURE OF STRUCTURAL FILL FACILITIES
(a) No later than 30 working days or 60 calendar days, whichever is less after coal combustion by-product placement has ceased, the final cover shall be applied over the coal combustion by-product placement area.
(b) The final surface of the structural fill shall be graded and provided with drainage systems that:
(1) Minimize erosion of cover materials; and
(2) Promote drainage of area precipitation, minimize infiltration and prevent ponding of surface water on the structural fill.
(c) Other erosion control measures, such as temporary mulching, seeding, or silt barriers shall be installed to ensure no visible coal combustion by-product migration to adjacent properties until the beneficial end use of the project is realized.
(d) The constructor or operator shall submit a certification to the Division signed and sealed by a registered professional engineer or signed by the Secretary of the Department of Transportation or his designee certifying that all requirements in the Rules of this Section have been met. The report shall be submitted within 30 days of application of the final cover.
(e) The Division and the Department of Transportation shall agree on specific closure criteria that apply to Department of Transportation projects.

History Note: *Authority G.S. 130A-294;*
Eff. January 4, 1994.

15A NCAC 13B .1707 RECORDATION OF STRUCTURAL FILL FACILITIES
(a) The owners of land where coal combustion by-products have been utilized in volumes of more than 1,000 cubic yards shall file a statement of the volume and locations of the coal combustion by-products with the Register of Deeds in the county or counties where the property is located. The statement shall identify the parcel of land according to the complete legal description on the recorded deed, either by metes and bounds, or by reference to a recorded plat map. The statement shall be signed and acknowledged by the landowners(s) in the form prescribed by G.S. 47-38 through 47-43.
(b) Recordation shall be required within 90 days after completion of coal combustion by-product fill project.
(c) The Register of Deeds in accordance with G.S. 161-14 shall record the notarized statement and index it in the Grantor Index under the name of the owner(s) of the land. The original notarized statement with the Register's seal and the date, book and page number of recording shall be returned to the Division after recording.
(d) When property with more than 1,000 cubic yards of coal combustion by-products is sold, leased, conveyed or transferred in any manner, the deed or other instrument of transfer shall contain in the description section in no smaller type than used in the body of the deed or instrument a statement that coal combustion by-products have been used as fill material on the property.

History Note: *Authority G.S. 130A-294;*
Eff. January 4, 1994.

ATTACHMENT 4

P6 CONSTRUCTION PLANS

Sheet	Drawing	Title
1	S1	P6 Site Plan
2	C1	P6 Structural Fill
3	SF1	P6 Details
4	SF2	P6 Details
5	G1	Seasonal High Potentiometric Map

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TO ASH SILOS

SHOP

TO BORROW SITE

GMW-1

PZ-15

PZ-14

CONSTRUCTION LIMITS

404 WETLAND

NON-404 WETLAND

MAIN HAUL ROAD

P-15

PZ-12

WEST HAUL ROAD

P-18

GMW-7

F 4.0 AC

E 4.6 AC

D 4.9 AC

C 4.9 AC

B 4.9 AC

P-20

A 4.4 AC

P-21

GMW-8

P-13

GMW-9

P-14

P-17

P-16

EAST ASH POND REMNANT

DUNNAWAY ROAD

PLANT PROPERTY LINE

0′ 200′ 400′ 600′

LEGEND

490	EXISTING 10' CONTOUR (SEE REFERENCE 1)
	EXISTING 2' CONTOUR
	PROPOSED CONSTRUCTION LIMITS
	EXISTING LIMITS OF LINER
	CELL LIMITS
	NON 404 - ISOLATED WETLANDS
	INTERMITTENT STREAMS
	JURISDICTIONAL WETLANDS
	EXISTING CHANNEL/POND
	EXISTING UNPAVED ROAD/PARKING
	PROPOSED ACCESS ROAD
P-20	PIEZOMETER LOCATION 2007
GMW-7	MONITORING WELL

NOTES

1. P6 SITE PLAN. THIS DRAWING ILLUSTRATES EXISTING SITE CONDITIONS AND SITE PREPARATION FEATURES FOR CONSTRUCTION OF THE P6 STRUCTURAL FILL. THIS PROJECT IS ESTIMATED TO HAVE A DURATION OF APPROXIMATELY 1 YEAR BASED ON DRY FLY ASH RECEIPTS FROM THE PROGRESS ENERGY CAROLINAS, INC.
2. CONSTUCTION LIMITS. THE FOOTPRINT OF THE P6 STRUCTURAL FILL IS APPROXIMATELY 28.5 ACRES. THE 7-ACRE PERIMETER SLOPES (4:1) SHALL BE COVERED WITH A MINIMUM 18" VEGETATED SOIL LAYER.
3. FILL PROGRESSION. THE PROJECT IS DIVIDED INTO 5-ACRE CELLS TO MANAGE THE ACTIVE AREA TO A PRACTICLE SIZE FOR DUST AND EROSION CONTROL. AREAS REACHING INTERMEDIATE OR FINAL GRADE SHALL BE COVERED WITH SOIL OR ALTERNATIVES APPROVED BY THE ENGINEER. NEW CELL AREAS OR SUBCELLS MAY BE ACTIVATED WHEN EQUIVALENT AREAS ARE COVERED. THE ACTIVE ASH FILL AREA SHALL BE LIMITED TO A TOTAL OF 5-ACRES.
4. DRAINAGE PLAN. WITH THE EXCEPTION OF EAST SLOPE SOIL COVERED AREAS, ALL DRAINAGE SHALL BE ROUTED TO THE WEST VIA CHANNELS TO THE LANDFILL BASIN. THE LANDFILL BASIN DISCHARGES STORMWATER TO THE NPDES WEST ASH POND FOR TREATMENT AND ROUTING TO THE MONITORED PLANT DISCHARGE CANAL.
5. HAUL ROUTES. ALL WEATHER ACCESS ROADS SHALL BE MAINTAINED AND EXTENDED TO THE ACTIVE CELL AREA AS NEEDED.
6. MONITORING WELLS AND PIEZOMETERS. CARE SHALL BE TAKEN TO PROTECT MONITORING WELLS AND PIEZOMETERS FROM EQUIPMENT DAMAGE DURING GRADING ACTIVITIES.

REFERENCES

1. EXISTING TOPOGRAPHY SHOWN IS REPRESENTATIVE OF EXISTING CONDITIONS FOR THE P6 STRUCTURAL FILL CONSTRUCTION LIMITS AS COMPILED (2' CONTOURS) BY CAROLINA RESOURCE MAPPING, WILMINGTON, N.C., FROM AERIAL PHOTOGRAPHY DATED MARCH, 2007 (CONTOURS COMPILED AT 2' INTERVAL).

NO.	DATE	REVISION
0	08.08.11	NCDENR - DWM NOTIFICATION

BLACKROCK ENGINEERS, INC.
POST OFFICE BOX 58
WILMINGTON, NORTH CAROLINA 28401
107 PLUMTREE LANE
CASTLE HAYNE, NORTH CAROLINA 28429
PHONE: 910.232.6696
NC LICENSE # C-2919

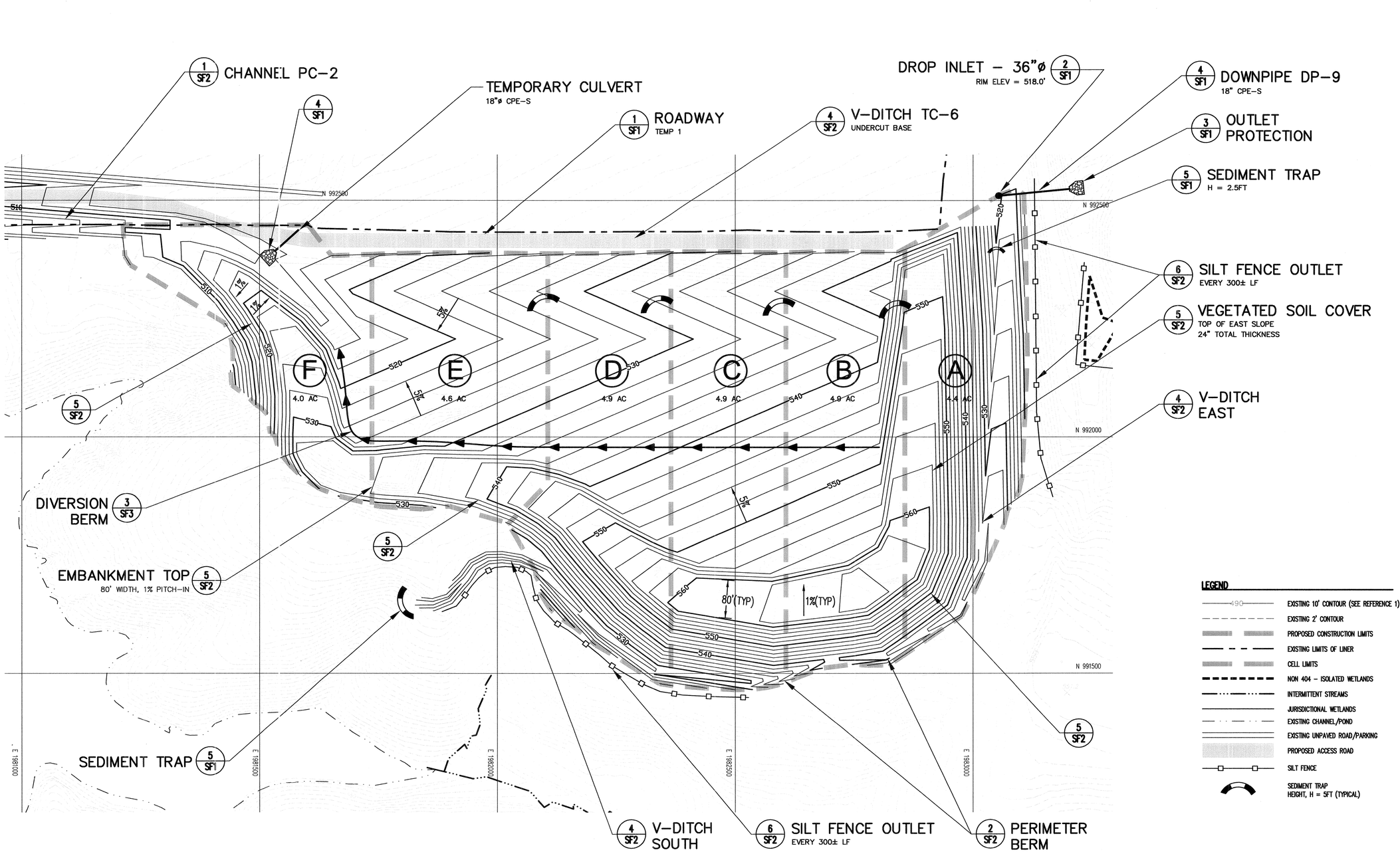
SEAL

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER SEAL 26170 GARY W. ALLEN

PROJECT TITLE:
P6 - CONSTRUCTION PLAN
PROGRESS ENERGY CAROLINAS
ROXBORO, N.C.

DRAWING TITLE:
P6 - SITE PLAN
PROGRESS ENERGY CAROLINAS
ROXBORO LANDFILL

DESIGNED BY: GWA	DRAWN BY: JWG
CHECKED BY: GWA	PROJECT NO.: ROXP611-07
SCALE: AS SHOWN	DATE: 08.08.11
FILE NAME: ROXP611-03_D0002	
SHEET NO.: 1	DRAWING NO.: S1



NOTES

1. P6 STRUCTURAL FILL. THIS PLAN UTILIZES APPROXIMATELY 725,000 CY± OF COMPACTED DRY FLY ASH (DFA) TO ESTABLISH A BASE GRADE FOR FUTURE LINER CONSTRUCTION.
2. COMPACTION. ALL FILL MATERIAL SHALL BE PLACED IN 1-FOOT LIFTS, MOISTURE CONDITIONED TO OPTIMUM WATER CONTENT AND COMPACTED TO A MINIMUM 95% MAXIMUM DRY DENSITY (MDD). ERODED OR WEAK SURFACES SHALL BE REPAIRED AND RECOMPACTED PROMPTLY. PLANNED COMPACTION TESTING FREQUENCY IS EVERY 10,000 CUBIC YARDS, WITH CONSTRUCTION QUALITY ASSURANCE MONITORING BY THE ENGINEER.
3. CELL PROGRESSION. THE STRUCTURAL FILL SHALL BE DEVELOPED IN 6 CELLS, WORKING IN AN EAST TO WEST PROGRESSION FROM HIGHER ELEVATION TO LOWER ELEVATION (TOP-DOWN LAYOUT). WHEN AN ACTIVE AREA IS COVERED, ADDITIONAL AREAS MAY BE OPENED FOR FILL OPERATION PROVIDED THE TOTAL ACTIVE AREA IS MAINTAINED LESS THAN 5 ACRES. SOIL CEMENT IS AN APPROVED DUST CONTROL AND TEMPORARY COVER FOR THE SITE AND PROJECT. SURFACE WATER RUN-ON SHALL BE DIVERTED AWAY FROM THE ACTIVE AREA.
4. FINAL COVER ON EAST SLOPE. THE 2-FT SOIL FINAL COVER SHALL BE INSTALLED PROGRESSIVELY ON THE EAST SLOPE AS ELEVATION INCREASES. UPSLOPE ACTIVE ASH SURFACE SHALL NOT BE LESS THAN 10 FEET IN ELEVATION AND NO MORE THAN 50 FEET OF RUN ABOVE THE SOIL COVER LIMITS. SLOPES ARE 4(V):1(H).
5. INTERIM SLOPE COVER. AN 18-INCH VEGETATED SOIL COVER SHALL BE INSTALLED ON THE WEST AND SOUTH SLOPES, AND EMBNKMENT TOP (80' WIDTH). SOIL CEMENT MAY BE APPROVED BY THE OWNER FOR TEMPORARY DUST CONTROL PRIOR TO SOIL COVER APPLICATION.
6. ACTIVE TOP SURFACE. DURING OPERATIONS, THE WORKING TOP SURFACE SHALL BE GRADED TO 0.5%± AND SHALL BE MOISTURE CONDITIONED TO CONTROL DUST. SEDIMENT TRAPS SHALL BE POSITIONED TO CONTROL DISCHARGE OF RUN-OFF INTO CHANNELS OR INLETS.
7. DRAINAGE CHANNELS AND INLETS. ALL DRAINAGE CHANNEL SECTIONS AND PIPE INLET STRUCTURES SHALL CONSTRUCTED WITH A MINIMUM 2-FOOT LAYER OF COMPACTED SOIL SUBGRADE.
8. VEGETATION. ALL SOIL COVERS SHALL BE PREPARED AND SEEDED WITH PERMANENT MIX ACCORDING TO PROJECT SPECIFICATIONS. PRIOR TO SEEDING, AN EROSION CONTROL BLANKET (ECB, CURLEX II OR EQUAL) SHALL BE INSTALLED IN GRASS LINED CHANNELS.
9. ONLY STORMWATER FROM FINAL COVER AREAS MAY BE ROUTED TO THE EAST VIA DP-9. ALL DRAINAGE FROM THE ACTIVE FILL SHALL BE ROUTED TO THE WEST FOR FINAL TREATMENT IN THE WEST NPDES POND. NO STORMWATER SHALL BE IMPOUNDED BY ASH OR ALLOWED TO POND ON THE FILL.
10. FINAL SURFACE. THE FINAL SURFACE SHALL BE A LINER OF FINAL COVER SYSTEM APPROVED BY THE NCDENR DIVISION OF WASTE MANAGEMENT FOR COMPLETION OF THE STRUCTURAL FILL.

LEGEND

- 490 — EXISTING 10' CONTOUR (SEE REFERENCE 1)
- EXISTING 2' CONTOUR
- PROPOSED CONSTRUCTION LIMITS
- EXISTING LIMITS OF LINER
- CELL LIMITS
- NON 404 - ISOLATED WETLANDS
- INTERMITTENT STREAMS
- JURISDICTIONAL WETLANDS
- EXISTING CHANNEL/POND
- EXISTING UNPAVED ROAD/PARKING
- PROPOSED ACCESS ROAD
- SILT FENCE
- SEDIMENT TRAP HEIGHT, H = 5FT (TYPICAL)

REFERENCES

1. EXISTING TOPOGRAPHY SHOWN IS REPRESENTATIVE OF EXISTING CONDITIONS FOR THE P6 STRUCTURAL FILL CONSTRUCTION LIMITS AS COMPILED (2' CONTOURS) BY CAROLINA RESOURCE MAPPING, WILMINGTON, N.C., FROM AERIAL PHOTOGRAPHY DATED MARCH, 2007 (CONTOURS COMPILED AT 2' INTERVAL).

0' 100' 200' 300'

NO.	DATE	REVISION
0	08.08.11	NCDENR - DWM NOTIFICATION

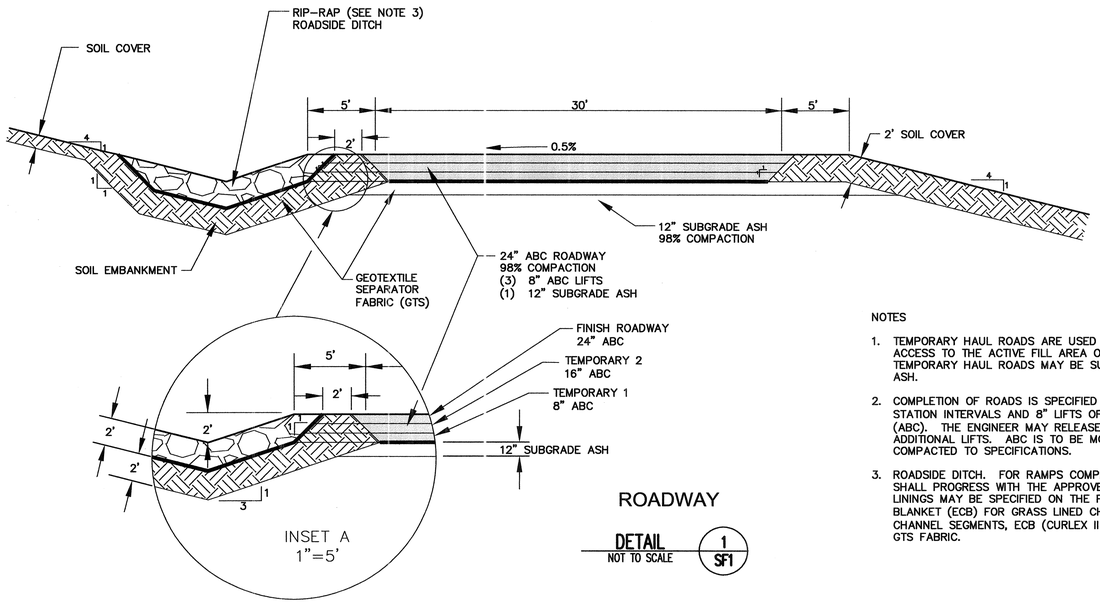
BLACKROCK ENGINEERS, INC.
POST OFFICE BOX 58
WILMINGTON, NORTH CAROLINA 28401
107 PLUMTREE LANE
CASTLE HAYNE, NORTH CAROLINA 28429
PHONE: 910.232.6696
NC LICENSE # C-2919

SEAL

PROJECT TITLE:
P6 - CONSTRUCTION PLAN
PROGRESS ENERGY CAROLINAS
ROXBORO, N.C.

DRAWING TITLE:
P6 - STRUCTURAL FILL
PROGRESS ENERGY CAROLINAS
ROXBORO LANDFILL

DESIGNED BY:	DRAWN BY:
GWA	JWG
CHECKED BY:	PROJECT NO.:
GWA	ROXP611-07
SCALE:	DATE:
AS SHOWN	08.08.11
FILE NAME	
ROXP611-03_D0003	
SHEET NO.	DRAWING NO.
2	C1

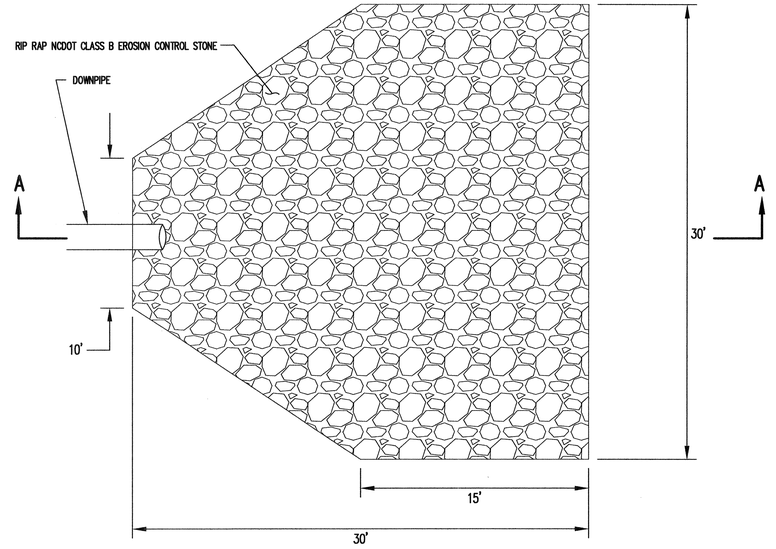


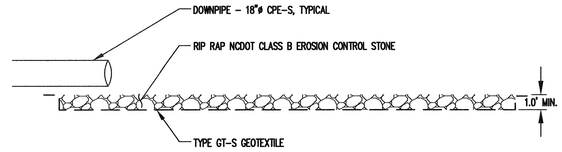
ROADWAY

DETAIL 1 SF1
NOT TO SCALE

NOTES

1. TEMPORARY HAUL ROADS ARE USED ON THE LANDFILL FOR ACCESS TO THE ACTIVE FILL AREA OR AS NOTED ON PLANS. TEMPORARY HAUL ROADS MAY BE SUBGRADE BOTTOM ASH OR FLY ASH.
2. COMPLETION OF ROADS IS SPECIFIED IN THE PLANS, TYPICALLY BY STATION INTERVALS AND 8" LIFTS OF COMPACTED AGGREGATE (ABC). THE ENGINEER MAY RELEASE CONSTRUCTION OF ADDITIONAL LIFTS. ABC IS TO BE MOISTURE CONDITIONED AND COMPACTED TO SPECIFICATIONS.
3. ROADSIDE DITCH. FOR RAMPS COMPLETION OF THE RIPRAP DITCH SHALL PROGRESS WITH THE APPROVED LIFTS. OTHER DITCH LININGS MAY BE SPECIFIED ON THE PLANS, E.G. EROSION CONTROL BLANKET (ECB) FOR GRASS LINED CHANNEL. FOR GRASS LINES CHANNEL SEGMENTS, ECB (CURLEX II OR EQUAL) SHALL REPLACE GTS FABRIC.

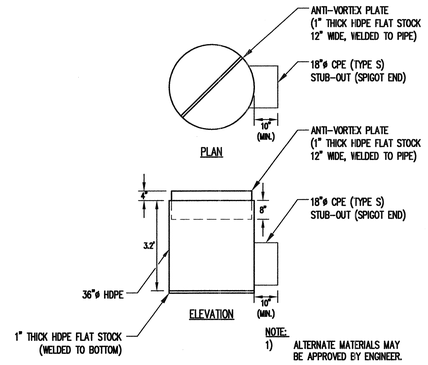




SECTION A-A

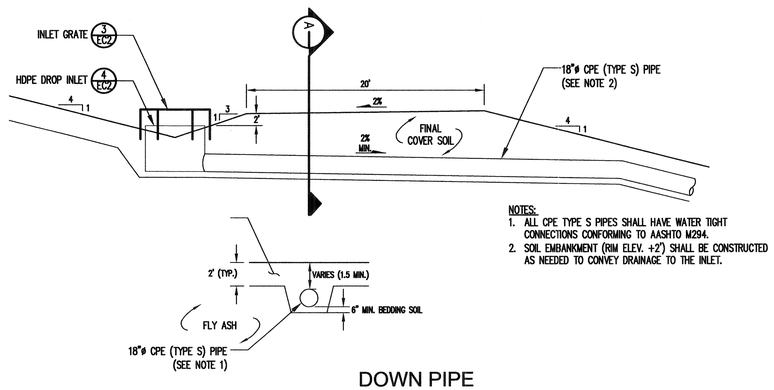
RIPRAP OUTLET
PROTECTION

DETAIL 3 SF1
NOT TO SCALE



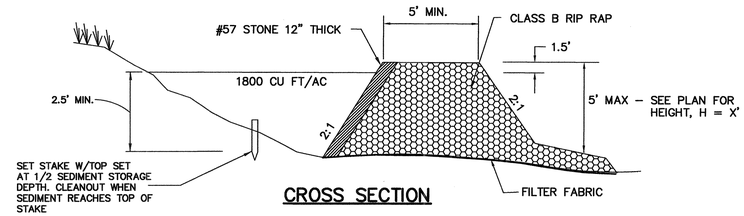
TYPICAL HDPE DROP
INLET

DETAIL 2 SF1
NOT TO SCALE

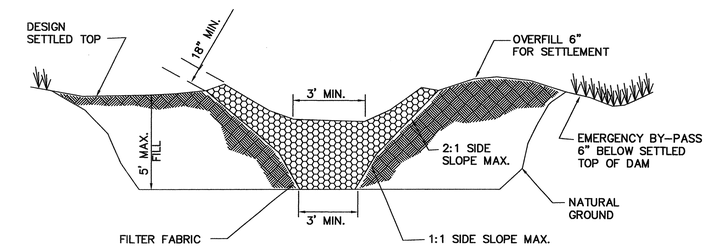


DOWN PIPE
AT ACCESS PATH

DETAIL 4 SF1
NOT TO SCALE



CROSS SECTION



FRONT VIEW

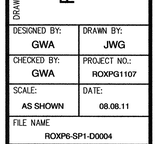
SEDIMENT TRAP

DETAIL 5 SF1
NOT TO SCALE

NO.	DATE	REVISION
0	08.08.11	NCDENR - DWM NOTIFICATION

BLACKROCK ENGINEERS, INC.
POST OFFICE BOX 58
WILMINGTON, NORTH CAROLINA 28401
107 PLUMTREE LANE
CASTLE HAYNE, NORTH CAROLINA 28429
PHONE: 910.232.6696
NC LICENSE # C-2919

SEAL

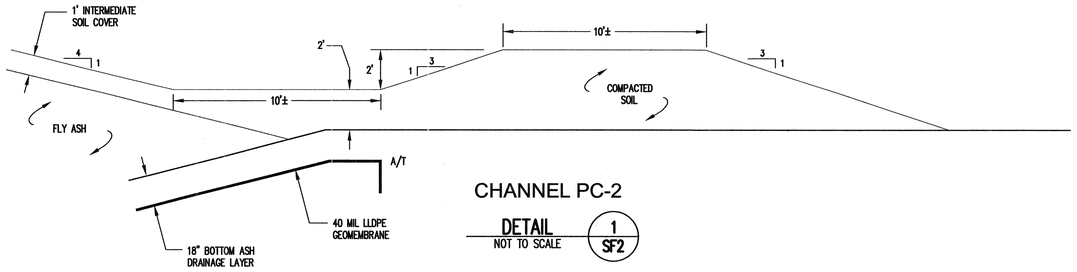


SEAL

PROJECT TITLE:
P6 - CONSTRUCTION PLANS
PROGRESS ENERGY CAROLINAS
ROXBORO, N.C.

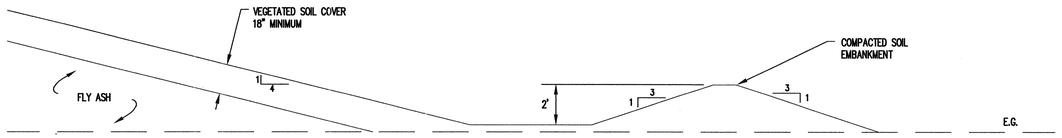
DRAWING TITLE:
P6 - DETAILS
PROGRESS ENERGY CAROLINAS
ROXBORO LANDFILL

DESIGNED BY:	DRAWN BY:
GWA	JWG
CHECKED BY:	PROJECT NO.:
GWA	ROXPG1107
SCALE:	DATE:
AS SHOWN	08.08.11
FILE NAME	
ROXP6-SP1-D0004	
SHEET NO.	DRAWING NO.
3	SF1



CHANNEL PC-2

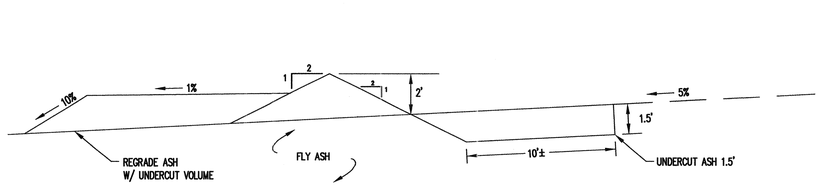
DETAIL 1 SF2
NOT TO SCALE



PERIMETER BERM

DETAIL 2 SF2
NOT TO SCALE

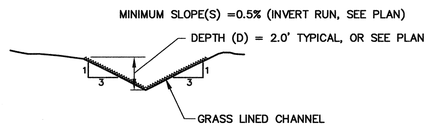
NOTE:
1) PERIMETER BERM IS POSITIONED AT THE TOE OF THE STRUCTURAL FILL AS ALIGNED ON PLAN.
2) GRASS LINED CHANNEL IS LINED WITH CURLEX II ECB AND GRADED AT A MINIMUM 1% RUN AND AS ALIGNED ON PLAN.



DIVERSION BERM

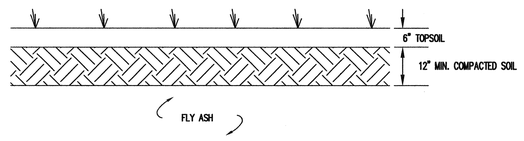
DETAIL 3 SF2
NOT TO SCALE

NOTE:
1) DIVERSION BERM DIVIDES THE 5% BASE SLOPE. GRASS LINED CHANNEL IS LINED WITH CURLEX II ECB AND GRADED AT A 2% RUN.



V-DITCH

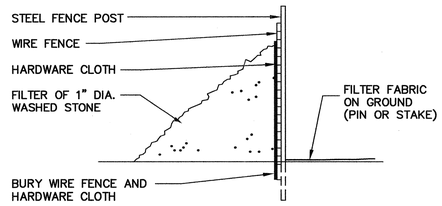
DETAIL 4 SF2
NOT TO SCALE



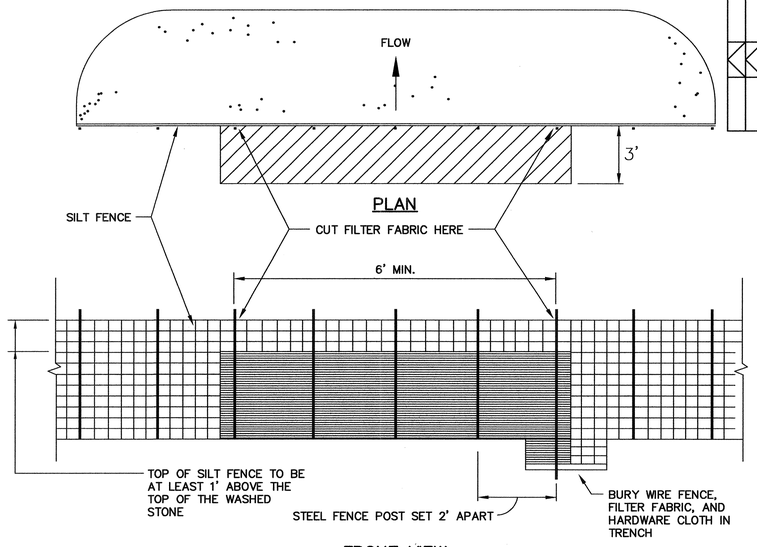
NOTES
1) EAST SLOPE COVER SHALL BE 24" TOTAL THICKNESS
2) COMPACTED SOIL LAYER SHALL BE 90% MDD (MINIMUM)

VEGETATED SOIL LAYER

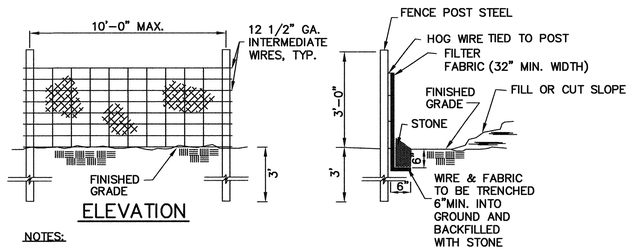
DETAIL 5 SF2
NOT TO SCALE



SECTION



FRONT VIEW



ELEVATION

SECTION

NOTES:

- POSTS: METAL – 6' LONG, TRIANGLE STEP MAX. PLACEMENT OF POSTS TO BE 10' APART.
- WIRE: 32" MIN. WIDTH HOGWIRE, 10 GA. LINE WIRE.
- FABRIC: PROPEX (BY AMOCO) OR EQUAL
- STONE: #4 WASHED STONE, TO BE PLACED 6" DEEP.
- SPACING: PLACEMENT OF POSTS USING HOGWIRE TO BE 10' APART. PLACEMENT OF POST WITHOUT HOGWIRE TO BE 6' APART.

SILT FENCE

DETAIL 6 SF2
NOT TO SCALE

NO.	DATE	REVISION
0	07.27.11	NCDENR – DWM NOTIFICATION

BLACKROCK ENGINEERS, INC.
POST OFFICE BOX 58
WILMINGTON, NORTH CAROLINA 28401
107 PLUMTREE LANE
CASTLE HAYNE, NORTH CAROLINA 28429
PHONE 910.232.6696
NC LICENSE # C-2919

SEAL

SEAL

PROJECT TITLE:
P6 - CONSTRUCTION PLANS
PROGRESS ENERGY CAROLINAS
ROXBORO, N.C.

DRAWING TITLE:
P6 - DETAILS
PROGRESS ENERGY CAROLINAS
ROXBORO LANDFILL

DESIGNED BY: GWA	DRAWN BY: JWG
CHECKED BY: GWA	PROJECT NO.: ROXPG1107
SCALE: AS SHOWN	DATE: 07.27.11
FILE NAME: ROXP6-SP1-D0004	
SHEET NO.: 4	DRAWING NO.: SF2

PHASES 1–5
APPROXIMATE LIMIT
OF EXISTING LINER
71± ACRES

LANDFILL BASE
AT EAST SLOPE

EXISTING PONDS
W.E.=467.6

EXISTING POND
W.E.=466.7

EXISTING POND
W.E.=472.1

PERIMETER
CHANNEL PC-1

PERIMETER
CHANNEL PC-2

EXISTING CHANNEL

SITE
ENTRANCE

DUNNAWAY ROAD (S.R. 1337)

EXISTING LANDFILL
130± ACRES

P6 STRUCTURAL FILL
CONSTRUCTION LIMITS

GMW-1 WL.=412.00
GMW-2 WL.=420.00
GMW-6 WL.=457.45
GMW-7 WL.=474.93
GMW-8 WL.=484.41
GMW-9 WL.=512.32
GMW-10 WL.=461.98
GMW-11 WL.=473.44
PZ-12 WL.=470.23
P-13 WL.=503.14
P-14 WL.=512.13
P-15 WL.=471.5
P-15 WL.=455
P-16 WL.=507.44
P-17 WL.=476.04
P-18 WL.=486.06
P-20 WL.=496.37
P-21 WL.=492.95
P-19 ABANDONED

BL1 & PZ1
BL2 & PZ2
BL3 & PZ3
BL4
BL5
BL6
BL7
BL8
PZ4
PZ5
PZ6
PZ7
PZ8
PZ9
PZ10
TC-5

B-1 B-2 B-3 B-4 B-5 B-6 B-7 B-8 B-9 B-10 B-11 B-12 B-13 B-14 B-15 B-16 B-17 B-18

N 994,500
N 994,000
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E 1,981,500
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E 1,982,500
E 1,983,000
E 1,983,500
E 1,984,000

PIEZOMETER LOCATION SCHEDULE

WELL ID	NORTHING	EASTING	TOP OF CASING ELEVATION
P-13	991829.35	1983129.15	533.94
P-14	991584.89	1983090.19	545.02
P-15	992847.45	1981247.62	507.69
P-16	991416.06	1982593.39	536.23
P-17	991463.3	1982225.62	523.9
P-18	991859.05	1981551.46	537.37
P-19	991973	1982362.8	ABANDONED
P-20	992150.83	1982894.83	522.15
P-21	992384.58	1981843.74	520.52

LEGEND

- 150 — EXISTING 10'/5' CONTOUR (SEE REFERENCE 1)
- EXISTING 2'/1' CONTOUR
- P6 CONSTRUCTION LIMITS
- APPROXIMATE LIMIT OF LINER
- APPROXIMATE LIMITS OF UNLINED LANDFILL
- EXISTING UNPAVED ROAD/PARKING
- EXISTING PAVED ROAD/PARKING
- EXISTING CHANNEL/POND
- P-20 WL= PIEZOMETER LOCATION 2007 WATER ELEVATION 2-19-09
- B-9 EXISTING BORING LOCATION

NOTES

1. PIEZOMETER LOCATIONS SURVEYED BY TAYLOR,WISEMAN, AND TAYLOR.
2. ALL PIEZOMETERS SECURED WITH LOCKING CAP.

REFERENCES

1. EXISTING TOPOGRAPHY SHOWN SOUTH OF EXISTING POND ADJACENT TO DUNAWAY ROAD WAS COMPILED BY KUCERA INTERNATIONAL, INC., WILLOUGHBY, OHIO, FROM AERIAL PHOTOGRAPHY DATED APRIL 5, 2002 (CONTOURS COMPILED AT 2' INTERVAL).
2. EXISTING TOPOGRAPHY SHOWN NORTH OF THE EXISTING POND AND SURROUNDING PHASES 1–3, WAS COMPILED BY CAROLINA RESOURCE MAPPING, WILMINGTON, N.C., FROM AERIAL PHOTOGRAPHY DATED MARCH, 2007 (CONTOURS COMPILED AT 2' INTERVAL).
3. EXISTING TOPOGRAPHY SHOWN INSIDE THE LIMITS OF PHASES 1–3 WAS SURVEYED BY TAYLOR WISEMAN & TAYLOR, ENGINEERS SURVEYORS SCIENTISTS, CARY, N.C. ON JULY 30, 2009 (CONTOURS COMPILED AT 1' INTERVAL).
4. ASBUILT LIMITS AND GRADES PROVIDED BY SMITH & SMITH LAND SURVEYORS, APEX, NC.

DATES OF SURVEY:

PHASE 1	JUNE 2003
PHASE 2A	JUNE 2004
PHASE 2B	JUNE 2005
PHASE 3	JUNE 2006

0 200' 400' 600'

NO.	DATE	REVISION
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PROJECT TITLE:
P6 - CONSTRUCTION PLANS
PROGRESS ENERGY CAROLINAS
ROXBORO, N.C.

DRAWING TITLE:
SEASONAL HIGH
POTENTIOMETRIC MAP
PROGRESS ENERGY CAROLINAS
ROXBORO LANDFILL

DESIGNED BY: GWA	DRAWN BY: JWG
CHECKED BY: GWA	PROJECT NO.: ROXPG1107
SCALE: AS SHOWN	DATE: 07.27.11
FILE NAME: ROXP6-G2-D0005	
SHEET NO. 5	DRAWING NO. G1