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SOLID WASTE SECTION
ASHEVILLE REGIONAL OFFICE

October 31, 2011

North Carolina Department of Environment and Natural Resources
Division of Waste Management
Solid Waste Section
2090 U.S. Highway 70
Swannanoa, NC 28778

Attention: Mr. Larry Frost
Regional Engineer

**Reference: Financial Assurance Estimate of Probable Cost
Lincoln County Landfill**
S&ME Project No: 1356-11-013
NC Engineering License No. F-0176

Dear Mr. Frost:

In response to your letter dated October 20, 2011, titled "Completeness and Technical Review – Permit Amendment, Five (5) Year Renewal", S&ME, Inc. (S&ME), on behalf of Lincoln County, has prepared an estimate for financial assurance for the Lincoln County Landfill. Please find attached to this letter an estimate of probable cost in 2011 dollars for closure, post-closure, and potential assessment and corrective actions as per the North Carolina Solid Waste Management Rules identified under 15A NCAC 13B .1628.

FINANCIAL ASSURANCE

S&ME prepared this estimate of probable cost for closure, post-closure, and potential assessment and corrective actions. We based this estimate on the 2010 estimate, our recent experience with landfill construction and maintenance projects, and our understanding of the rules and requirements in effect.

MSW Landfill

The estimate of probable cost for closure, post-closure, and potential assessment and corrective actions for the MSW landfill is summarized in Table 1 attached. The detailed estimate of probable closure cost is summarized in Table 2. The detailed estimate of post-closure care is summarized in Table 3. The detailed estimate of corrective action is summarized in Table 4.

The estimate is based on the following assumptions:

- the current MSW landfill footprint that would require closure consists of Phases I, II, and III;
- the Phase I through III area requiring closure is 30 acres;
- the cover system will consist of from top to bottom:
 - a 6-inch thick vegetative layer;
 - a 18-inch thick earthen barrier layer;
 - a geocomposite drainage layer;
 - a 40 mil thick linear low density polyethylene (LLDPE) geomembrane;
 - and
 - a 12-inch thick interim cover soil/cover foundation layer.
- an active gas collection and control system will be installed;
- a 30-year post closure care period;
- quarterly observations and an annual certification by a registered professional engineer during the post-closure care period;
- corrective action efforts include monitoring groundwater, surface water, landfill gas, and leachate quality semi-annually during the 30-year post-closure period (consistent with requirements under a detection monitoring program); and
- corrective action costs assuming response to one leachate breakout every ten years during the 30-year post-closure period.

C&D Landfill

The estimate of probable cost for closure and post-closure for the C&D landfill is summarized in Table 5 attached. The detailed estimate of probable closure cost is summarized in Table 6. The detailed estimate of post-closure care is summarized in Table 7.

The estimate is based on the following assumptions:

- the Phase II area requiring closure is 7.5 acres;
- the cover system will consist of from top to bottom:
 - a 18-inch thick erosion layer; and
 - a 18-inch thick low-permeability barrier;
- a passive gas venting system will be installed;
- a 30-year post closure care period; and
- quarterly observations and an annual certification by a registered professional engineer during the post-closure care period.

CLOSURE

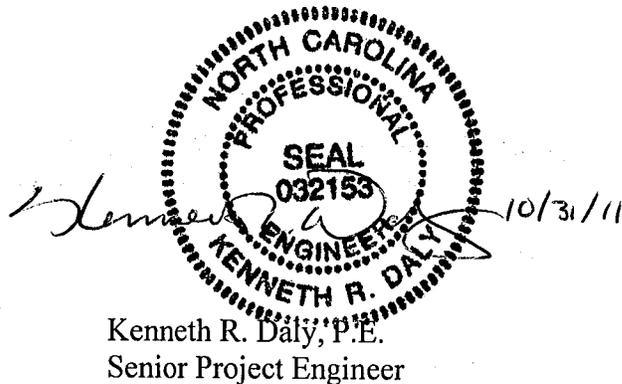
If you should have any questions or need additional information pertaining to this letter, please do not hesitate to contact us at your convenience.

Sincerely,

S&ME, Inc.



Julie R. Petersen, P.G.
Project Manager/Senior Geologist



Kenneth R. Daly, P.E.
Senior Project Engineer

Senior reviewed by: Jason S. Reeves, P.E., Senior Project Engineer

Attachments: Tables 1 through 7

TABLE 1 - Estimate of Probable Cost Summary (2011 Dollars)

Final Closure/ Post Closure/Corrective Action
Lincoln County MSW Landfill Phases I, II, and III
S&ME Project No. 1356-11-013

ACTION	COST ESTIMATE
FINAL CLOSURE	\$4,691,000
POST-CLOSURE	\$2,525,000
CORRECTIVE ACTION	\$1,813,000

TOTAL (2011 DOLLARS) \$9,029,000

TABLE 2 - Final Closure Estimate of Probable Cost

Lincoln County MSW Landfill Phases I, II, and III

S&ME Project No. 1356-11-013

Total Area (Phase I, II, and III)	30 Acres	1,306,800 SF
Area Capped Previously (Phase I and II)	0 Acres	0 SF
Area to be Capped (Phase I, II, and III)	30 Acres	1,306,800 SF

Item	Quantity	Unit	Cost/Unit	Total Cost
Final Cover System				
Vegetative Layer (6 inch thick)	24,200	CY	\$ 10.00	\$ 242,000
Earthen Barrier Layer (18 inch thick)	72,600	CY	\$ 4.00	\$ 290,400
Geocomposite Drainage Layer	1,306,800	SF	\$ 0.98	\$ 1,280,664
Geomembrane (Textured 40-Mil LLDPE)	1,306,800	SF	\$ 0.63	\$ 823,284
				\$ 2,636,348

Sedimentation and Erosion Control Devices				
Grass Lined Ditches	10,930	LF	\$ 4.20	\$ 45,906
Down-Piping	1,415	LF	\$ 35.00	\$ 49,525
Silt Fence	1,200	LF	\$ 4.00	\$ 4,800
Outlet Protection Aprons	3	EA	\$ 2,000.00	\$ 6,000
Drop Inlets	10	EA	\$ 3,500.00	\$ 35,000
				\$ 141,231

Gas Controls - Active Gas Venting System				
Methane Enclosed Flare System	1	EA	\$ 162,250.00	\$ 162,250
Methane Blower Building and Controls	1	EA	\$ 108,000.00	\$ 108,000
Methane Pipe Network, Valves, Condensate Sump, Wells Installed	30	Acres	\$ 21,700.00	\$ 651,000
				\$ 921,250

Final Landscaping				
Seeding / Fertilizing / Mulching	30	Acres	\$ 1,800.00	\$ 54,000
				\$ 54,000

SUBTOTAL (2011 DOLLARS) \$ 3,752,829

Contractor Mobilization/Demobilization (5% of Subtotal)	1	LS		\$ 187,641
				\$ 187,641

Engineering - Permitting, Design & Construction CQA (10% of Subtotal)	1	LS		\$ 375,283
				\$ 375,283

Contingency (10% of Subtotal)	1	LS		\$ 375,283
				\$ 375,283

TOTAL COST (2011 DOLLARS) \$ 4,691,036

TABLE 3 - Post-Closure Estimate of Probable Cost

Lincoln County MSW Landfill Phases I, II, and III

S&ME Project No. 1356-11-013

Total Area (Phase I, II, and III)	30 Acres	1,306,800 SF
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Item	Quantity	Unit	Cost/Unit	Total Cost
Leachate Collection & Treatment	21,885	GAL	\$ 0.026	\$ 569
				\$ 569

Maintenance (Preventative & Corrective)				
Leachate Collection Removal and Treatment Systems - Annual Cleaning	1	LS	\$ 4,100.00	\$ 4,100
Operate Gas Removal System	1	LS	\$ 3,100.00	\$ 3,100
Wells (Methane & Groundwater)	1	LS	\$ 510.00	\$ 510
Final Cover Maintenance	30	Acre	\$ 1,550.00	\$ 46,500
Miscellaneous (Fencing, Gates, Signs, Roads, Storm Water Structures)	1	LS	\$ 2,000.00	\$ 2,000
				\$ 56,210

Permit Fees	1	LS	\$ 500.000	\$ 500
				\$ 500

Administration / Inspections / Record Keeping				
Project Engineer Labor	96	HRS	\$ 110.00	\$ 10,560
Technician Labor	64	HRS	\$ 66.00	\$ 4,224
Clerical Labor	48	HRS	\$ 44.00	\$ 2,112
				\$ 16,896

ANNUAL COST (2011 DOLLARS) \$ 74,175

Leachate and Gas Collection System Abandonment (One Time Cost)				
Abandon LCS Tanks	1	LS	\$ 150,000.00	\$ 150,000
Abandon Gas Collection Control System	1	LS	\$ 150,000.00	\$ 150,000
				\$ 300,000

TOTAL COST - 30 YEARS (2011 DOLLARS) \$ 2,525,250

TABLE 4 - Corrective Action Estimate of Probable Cost

Lincoln County MSW Landfill Phases I, II, and III

S&ME Project No. 1356-11-013

Assumption: Leachate Break-Out on a Side Slope	
Quantity of Contaminated Soil	300 CY
No. of Assessment Monitoring Wells to be Added	2
No. of Monitoring Events	2
No. of Occurrences over 30 Years (Assumed)	3

Item	Quantity	Unit	Cost/Unit	Total Cost
Break-Out Repair (1 Event Per 10 Years Over 30 Years)				
Well Installation	2	EA	\$ 2,700.00	\$ 5,400
Excavation of Contaminated Soil with On-Site Placement	300	CY	\$ 4.000	\$ 1,200
Replacement of Excavated Soil (Backfill & Compact)	300	CY	\$ 4.600	\$ 1,380
Engineering / Documentation of Repairs	1	LS	\$ 5,300.00	\$ 5,300
Geosynthetic Contractor - Mobilization & Repair	1	LS	\$ 16,700.00	\$ 16,700
Detection Monitoring	2	EA	\$ 1,600.00	\$ 3,200
Groundwater Assessment Report / Statistical Analysis	1	LS	\$ 4,300.00	\$ 4,300

SUBTOTAL PER OCCURENCE (2010 DOLLARS) \$ 37,480

TOTAL FOR 3 OCCURENCES IN 30 YEARS (2010 DOLLARS) \$ 112,440

Compliance Monitoring (Annually for 30 Years)				
Explosive Gas	40	EA	\$ 105.00	\$ 4,200
Groundwater	58	EA	\$ 540.000	\$ 31,320
Surface Water	12	EA	\$ 540.000	\$ 6,480
Leachate	2	EA	\$ 540.00	\$ 1,080
Air Quality	1	LS	\$ 3,000.00	\$ 3,000
Compliance Monitoring Reporting	2	LS	\$ 5,300.00	\$ 10,600

ANNUAL SUBTOTAL (2011 DOLLARS) \$ 56,680

TOTAL ANNUAL MONITORING EXPENSE (2011 DOLLARS) \$ 1,700,400

TOTAL FOR 30 YEARS (2011 DOLLARS) \$ 1,812,840

TABLE 5 - Estimate of Probable Cost Summary (2011 Dollars)

Final Closure/ Post Closure
Lincoln County C&D Landfill Phase II
S&ME Project No. 1356-11-013

ACTION	COST ESTIMATE
FINAL CLOSURE	\$498,000
POST-CLOSURE	\$955,000

TOTAL (2011 DOLLARS) \$1,453,000

TABLE 6 - Final Closure Estimate of Probable Cost

Lincoln County C&D Landfill Phase II

S&ME Project No. 1356-11-013

Total Area (Phase II)	7.5 Acres	326,700 SF
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Item	Quantity	Unit	Cost/Unit	Total Cost
Final Cover System				
Excavating & Screening On-Site Material (Low Permeability Only)	18,150	CY	\$ 4.20	\$ 76,230.00
Borrow Area Clearing & Grubbing	1.15	Acres	\$ 4,900.00	\$ 5,635.00
Borrow Area Silt Fence	500	LF	\$ 4.00	\$ 2,000.00
18" Low Permeability Layer	18,150	CY	\$ 4.00	\$ 72,600.00
18" Erosion Layer	18,150	CY	\$ 4.00	\$ 72,600.00
Access Road	5,914	Sq. Yd	\$ 20.00	\$ 118,280.00
Gas Vent Materials (HDPE Pipe, 57 Stone, Geotextile, GCDL)	8	Pcs	\$ 1,490.00	\$ 11,920.00
Gas Vent Installation	8	Pcs	\$ 770.00	\$ 6,160.00
Surveying	1	LS	\$ 6,200.00	\$ 6,200.00
				\$ 371,625.00

Sediment & Erosion Control Measures				
Silt Fencing*	1,470	LF	\$ 4.00	\$ 5,880.00
Drop Inlet Catch Basin (2.5' x 2.5' x 2.0')	4	Pcs	\$ 3,500.00	\$ 14,000.00
12" Smooth-Lined Corrugated HDPE Pipe	174	LF	\$ 26.50	\$ 4,611.00
15" Smooth-Lined Corrugated HDPE Pipe	227	LF	\$ 30.00	\$ 6,810.00
18" Smooth-Lined Corrugated HDPE Pipe	220	LF	\$ 33.50	\$ 7,370.00
21" Smooth-Lined Corrugated HDPE Pipe	160	LF	\$ 38.38	\$ 6,140.00
Rip-Rap & Geotextile (Outlet Protection)	1	LS	\$ 2,000.00	\$ 2,000.00
				\$ 46,811.00

Final Landscaping				
Seeding/Fertilizing/Mulching	7.5	Acres	\$ 1,800.00	\$ 13,500.00
				\$ 13,500.00

Contractor Mobilization/Demobilization (5% of Subtotal)				
Contractor Mobilization/Demobilization	1	LS	\$ 21,596.80	\$ 21,596.80
				\$ 21,596.80

Engineering - Permitting, Design & Construction CQA (10% of Subtotal)				
	1	LS	\$ 43,193.60	\$ 43,193.60
				\$ 43,193.60

Administration				
Announcements/Deeds/Fees	1	LS	\$ 1,100.00	\$ 1,100.00
				\$ 1,100.00

Total Cost (2011 Dollars): \$ 497,826.40

TABLE 7 - Post-Closure Care Estimate of Probable Cost

Lincoln County C&D Landfill Phase II

S&ME Project No. 1356-11-013

Total Area (Phase II)	7.5 Acres	326,700 SF
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Item	Quantity	Unit	Cost/Unit	Total Cost
Monitoring/Reporting				
Groundwater Monitoring (4 wells semi-annually)	8	Sample	\$ 540.00	\$ 4,320.00
Semi-Annual Reporting (Groundwater Reports)	2	Event	\$ 2,200.00	\$ 4,400.00
				\$ 8,720.00
Maintenance (Preventive & Corrective)				
Wells (4 Groundwater Wells)	4	Well	\$ 510.00	\$ 2,040.00
Final Cover Maintenance	7.5	Acre	\$ 1,550.00	\$ 11,625.00
				\$ 13,665.00

Administration				
Annual Certification	1	LS	\$ 4,300.00	\$ 4,300.00
Monthly Administration	12	LS	\$ 430.00	\$ 5,160.00
				\$ 9,460.00

Total Annual Cost (2011 Dollars): \$ 31,845.00

Total Cost Over 30 years (2011 Dollars): \$ 955,350.00



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SOLID WASTE SECTION
ASHEVILLE REGIONAL OFFICE

LETTER OF TRANSMITTAL

Date: October 31, 2011

S&ME, Inc.
9751 Southern Pine Blvd
Charlotte NC 28273
704-523-4726
704 525 3953 Fax

Attn: Larry Frost
S&ME Project Nos. 1356-11-013

TO: NCDENR – DWM - SWS
2090 U.S. Highway 70
Swannanoa, NC 28778

Enclosed:

Copies	Date	Description
1	10/31/11	Financial Assurance Estimate of Probable Cost

Thank you

Signed

Julie R. Petersen, P.G.
Project Manager/Senior Geologist

If enclosures are not as noted, please notify us at once.

This letter of transmittal and documents accompanying this Letter of Transmittal contain information from S&ME, Inc., which is confidential and legally privileged. The information is intended only for the use of the individual or entity named on this Letter of Transmittal. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution or the taking of any action in reliance on these documents is strictly prohibited.