

Permit No.	Date	Document ID No.
06-03	October 27, 2010	11976



DATE: 21-Oct-10  
BY: SAS / DMM

Avery County C&D Landfill (NC SW Permit No. 06-03)  
Engineer's Post Closure Estimate

Item	Quantity	Unit	Comments
<b>Groundwater Monitoring</b>			
Monitoring wells	4	wells	Reference 1
Surface water point	2	points	Reference 1
Sampling frequency	2	events	Reference 1
Field sampling, collection, and shipping.	\$800	per event	RSG estimate
Laboratory Analysis	\$325	per well	RSG estimate
Data review, statistics, and reporting	\$2,000	per event	RSG estimate
Maintenance and repair	\$1,000	per well	RSG historical estimate
<b>Subtotal Cost</b>	<b>\$13,500</b>	<b>per year</b>	
<b>Landfill Gas Management</b>			
Control System Vents	7	vents	Per Ref. 1 (pro-rated @ one (1) per acre)
Sub-Surface Perimeter Monitoring Probes	4	probes	Per Ref. 1
Control system monitoring, maintenance and repair	\$50	per vent per year	RSG estimate
Semi-Annual Perimeter Monitoring	\$50	per probe per year	RSG estimate
<b>Subtotal Cost</b>	<b>\$560</b>	<b>per year</b>	Averaged over post-closure period
<b>Final Cover Management</b>			
Area of maintenance	7.19	acres	Extends to area immediately around landfill.
Mowing	\$100	per acre	Site historical estimate
Erosion and sediment control maintenance	\$200	per acre	Site historical estimate
Topdressing (seed & fertilizer)	\$150	per acre	Site historical estimate
Vector and rodent control	\$10	per acre	Site historical estimate
Maintenance Mobilization	\$1,000	per year	Site historical estimate
<b>Subtotal Cost</b>	<b>\$4,307</b>	<b>per year</b>	
<b>Administration, Inspections, and Reporting</b>			
Administration and record keeping	\$1,000	per year	Site historical estimate
Inspection	\$1,000	per year	Site historical estimate
Miscellaneous engineering	\$1,500	per year	Site historical estimate
<b>Subtotal Cost</b>	<b>\$3,500</b>	<b>per year</b>	
<b>Subtotal Post-Closure Costs</b>			
Estimated Average Annual Costs	\$21,867	per year (2010\$)	
Number of Years for Post-Closure	30	years (see Note 1)	
Cost per Acre	\$3,041.29	per year	
<b>Subtotal Post Closure Costs</b>	<b>\$656,007</b>	<b>(2010\$) (See Note 2)</b>	
<b>Potential Assessment and Corrective (Remedial) Action</b>			
Minimum amount required by NCDENR Division of Waste Management	\$3,000,000	lump sum	Regulatory requirement
Deduct Groundwater Monitoring	\$405,000	see above	Includes full post closure period. 30 years.
Deduct Landfill Gas Management	\$16,785	see above	Includes full post closure period. 30 years.
Deduct Administration, Inspections, and Reporting	\$105,000	see above	Includes full post closure period. 30 years.
<b>Subtotal Remedial Cost</b>	<b>\$2,473,215</b>	<b>lump sum</b>	
<b>Total Post Closure and Remedial Costs</b>	<b>\$3,129,222</b>	<b>(2010\$) (See Note 2)</b>	
<b>Total Closure, Post Closure, and Remedial Costs</b>	<b>\$3,524,181</b>	<b>(2010\$) (See Note 2)</b>	

Notes:

- All costs are presented in current dollars and should be increased at an inflation rate prescribed by the NCDENR Division of Waste Management per <http://portal.ncdenr.org/web/wm/sw/financialassurance> if additional review is not performed annually.
- This ESTIMATE has been prepared for financial assurance purposes only and shall not be considered a replacement for an actual bid from a licensed contractor and is considered acceptable within a +/- 10% of the Total Estimate value.

References:

- Avery County Construction and Demolition Landfill Phase III Permit to Construct Application by Richardson Smith Gardner & Associates, Inc. dated February 2009 with revisions through August 2009.

Denotes values calculated in spreadsheet.



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Avery County C&D Landfill (NC SW Permit No. 06-03)  
Engineer's Closure Construction Cost Estimate

Item No.	Item Description	Unit	Contractor			Comments
			Quantity	Unit Price	Total Price	
<b>Closure Area (Horizontal Plan) ----&gt;</b>		<b>AC</b>	<b>7.19</b>			
<b>1.0</b>	<b>Pre-Construction</b>			<b>Subtotal</b>	<b>\$18,595.00</b>	
1.1	Construction Documents & Bidding	AC	7	\$10k + \$500/AC	\$18,595.00	RSG Estimate
<b>2.0</b>	<b>Construction</b>				<b>\$320,314.50</b>	References 1 and 2.
2.1	Surveys and Layout	AC	7	\$1,000.00	\$7,190.00	RSG Historical Estimate
2.2	Mobilization	AC	7	\$1,000.00	\$7,190.00	~4% of Construction Cost
2.3	Site Preparation (repairs to intermediate cover layer)	AC	7	\$1,000.00	\$7,190.00	Assumed estimate for repair of erosion rills.
2.4	18" On-site Low Permeability Soil	CY	17,400	\$8.00	\$139,198.40	RSG Estimate
2.5	18" Vegetative Support Layer	CY	17,400	\$4.50	\$78,299.10	RSG Estimate
2.6	Landfill Gas Venting System	AC	7	\$2,500.00	\$17,975.00	RSG Estimate
2.7	Cap Drainage Structures (berms, piping, etc.)	AC	7	\$5,000.00	\$35,950.00	RSG Historical Estimate
2.8	Erosion & Sediment Control (grading, silt fence, maintenance, etc.)	AC	7	\$800.00	\$5,752.00	RSG Historical Estimate
2.9	Revegetation	AC	7	\$3,000.00	\$21,570.00	Site Historical Estimate
<b>3.0</b>	<b>Quality Assurance, Certification, &amp; Deed Notation</b>				<b>\$47,061.50</b>	
3.1	Field Monitoring	AC	7	\$3,000.00	\$21,570.00	RSG Estimate
3.2	Laboratory Testing	AC	7	\$2,500.00	\$17,975.00	RSG Estimate
3.3	Engineering Certification	AC	7	\$5k + \$250/AC	\$6,797.50	RSG Estimate
3.4	Surveying and Deed Notation	AC	7	\$100.00	\$719.00	RSG Historical Estimate
<b>4.0</b>	<b>Miscellaneous Costs to Close</b>				<b>\$8,987.50</b>	
4.1	Erosion and Stormwater Control (outside landfill footprint)	AC	7	\$1,000.00	\$7,190.00	RSG Historical Estimate
4.2	Engineering and Reporting	AC	7	\$250.00	\$1,797.50	RSG Historical Estimate
<b>5.0</b>	<b>Total Closure Costs</b>					
<b>Construction Estimate ----&gt;</b>					<b>\$394,959</b>	(2010\$)
<b>Cost per Acre ----&gt;</b>					<b>\$54,932</b>	
<b>Total Estimate ----&gt;</b>					<b>\$394,959</b>	(2010\$) (See Note 1)

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References:

- Avery County Construction and Demolition Landfill Phase III Permit to Construct Application by Richardson Smith Gardner & Associates, Inc. dated February 2009 with revisions through August 2009.
- Correspondence dated March 17, 2010 regarding approval of the site suitability including lateral expansion of Phase 2 following purchase of the Lechler parcel to Mr. Buddy Norris, Avery County from Mr. Zinith Barbee, NCDENR.

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