

Wilson, Donna

From: David Garrett [david@davidgarrettpe.com]
Sent: Tuesday, September 29, 2009 8:30 PM
To: ed.mussler@ncmail.net; 'Donna Wilson'
Cc: 'judson whitehurst'; 'Wayne Bell'
Subject: Revised Financial Assurance for C&D Landfill
Attachments: revised alternate financial assurance request.pdf

Greetings, all. In the interest of time, I am sending the latest revision to everyone for review. The memo is self-explanatory – we increased the closure costs and decreased the post-closure costs to keep the bond amount very close the last revision. We need both Judson's and Ed's concurrence that the numbers are acceptable. I believe Donna did a very thorough job in researching the bond amounts state-wide to determine average costs – I was not privileged with these numbers, but I believe this revision will be closer to the averages. Thank you.

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

David Garrett & Associates
5105 Harbour Towne Drive
Raleigh, NC 27604

Tel. 919-418-4375 (mobile)

David Garrett & Associates

Engineering and Geology



September 29, 2009

MEMORANDUM

TO: Ed Mussler, Donna Wilson – NC DENR Solid Waste Section

CC: Judson Whitehurst, Wayne Bell – C&D Landfill, Inc.

RE: Revised Alternate Financial Assurance Request

Please refer to attached financial assurance calculations (Rev. 2.4) dated 9/29/09, which include closure costs estimated at \$928,125 – equivalent to \$37,125 per acre – see Table 9A. These numbers are revised per my telephone conversation with Donna Wilson on 9/28/09 and have been modified to more closely reflect average unit closure costs state-wide (based on Donna's research) – these are lower than my original numbers but higher than the first proposed alternate.

Then refer to the post-closure costs – see Table 9C – which have reverted back to those presented in the alternate financial assurance request on 8/10/09 (Rev. 2.2), and which reflect an annual cost of \$33,775 per year. These numbers were found (by Donna) to be consistent with similar facilities – these are lower than my original numbers and consistent with the first proposed alternate.

Thus, the total closure and post-closure bond amount is \$1,989,375 (see Section 11.0), which is very close to the most recent alternate submittal (Rev. 2.3), dated 9/15/09, in which we demonstrated unit costs for earthwork using locally available borrow to be 3.50 per cubic yard, or less. All parties should understand that the actual closure costs may well be less than the bond, but the bond must reflect costs that the Solid Waste Section could obtain if they were to do the work under bond forfeiture – however unlikely this event might be.

If this is acceptable to all parties, I would recommend that this dollar amount be established as the final bond requirement for Phase 1 and Phase 2A. If acceptable, I will make appropriate changes in the text of the report and submit them to the Solid Waste Section.

Please contact me at your earliest convenience if you have questions or comments, or if I may be of further service.

A handwritten signature in black ink, appearing to read "David Garrett". The signature is fluid and cursive, with the first name being more prominent than the last.

TABLE 9A REVISED
ESTIMATED FINAL CLOSURE COSTS FOR PHASES 1 and 2A (2009 dollars) ¹

VSL (topsoil) ² – 25 acres	60,500 c.y.	@	\$3 / cubic yard ⁵	\$181,500
CSB (barrier) ² – 25 acres	70,000 c.y.	@	\$6 / cubic yard ⁵	\$420,000
Establish Vegetation	25 acres	@	\$1,300 per acre	\$ 32,500
Storm Water Piping ³	1200 LF	@	\$35.00 / LF	\$ 42,000
Erosion Control Stone ³	100 tons	@	\$40.00 / ton	\$ 4,000
Gas Vents – 25 ac * 3/ac	75 each	@	\$100 each	\$ 7,500
Subtotal Construction Costs				\$687,500
Testing and Surveying ⁴	Estimated 20 percent of subtotal			\$137,500
Contingency	Estimated 15 percent of subtotal			\$103,125
Total Construction Cost (if contracted out)				\$928,125
Unit Closure Costs				\$ 37,125

- 1 Intended to represent likely third-party construction costs (hired contractor, not the Owner/Operator), based on knowledge of local construction costs for similar projects – these estimates provided to meet NC DENR Division of Waste Management financial assurance requirements; actual costs may be lower for construction by the Owner/Operator; final closure work will be performed incrementally, spreading out the costs over the life of the project.
- 2 Includes soil work for regulatory requirements of 15A NCAC 13B .0543 (c), i.e., a minimum of 18 inches of compacted soil barrier (CSB) with max. permeability of 1×10^{-5} cm/sec and 18 inches of vegetation support layer (VSL), or topsoil, with a total soil thickness of 36 inches.

For the compacted soil barrier, use a shrinkage factor of 15%; costs include surface preparation, soil procurement and transport costs, soil placement and compaction, machine/equipment costs, fuel costs
- 3 Conservative estimate based on similar project history; includes materials and installation
- 4 Includes Construction document and bidding, construction administrative fee, CQA field monitoring and lab testing, CQA reporting and certification, final survey for as-built drawings, recordation/notation fee
- 5 Suitable soil has been identified in the adjacent soil borrow site in sufficient quantities to close the landfill, which would be available for third-party closure – a local contractor has verified the unit costs for earthwork

TABLE 9C REVISED
ESTIMATED POST-CLOSURE COSTS FOR PHASES 1 and 2A (in 2009 dollars)

Annual Events	Units		Unit Cost	Cost/Event	Annual Costs
Reseeding/mulching and erosion repair (Assume 5% of 25 ac., once per year)	1.25	ac.	\$1,300	\$1,625.00	\$1,625.00
Mow final cap (twice per year)	25	ac.	\$25	\$625.00	\$1,250.00
Ground Water (semi-annual, 22 wells)*	22	ea.	\$350	\$7700.00	\$15,400.00
Surface Water (semi-annual, 3 locations)*	3	ea.	\$350	\$1,050.00	\$2,100.00
Water quality analysis and reporting	2	ea.	\$2,500	\$2,500.00	\$5,000.00
Landfill Gas Monitoring (quarterly)	4	ea.	\$1,500	\$1,500.00	\$6,000.00
Engineering inspection (annual basis)	1	ea.	\$2,500	\$2,500.00	\$2,500.00
Maintain storm water conveyances	1	ea.	\$1,000	\$1,000.00	\$1,000.00
Maintain access roads, gates, buildings	1	ea.	\$500	\$500.00	\$500.00
	Total Estimated Annual Cost				\$35,375.00

*Appendix I Detection Monitoring (**Section 10.0**)

11.0 FINANCIAL ASSURANCE

The **2006 C&D Rules** require that Owners/Operators demonstrate financial assurance for closure and post-closure activities. Typically, for local government-owned facilities, said demonstration is based on a local government test. For private facilities, the posting of a performance bond or insurance policy is typically acceptable to the Division.

Cost estimates for closure and post-closure of CDLF Phases 1 and 2A are presented in **Sections 9.2.4** and **9.3.4**, respectively. The following is a summation of the projected closure and post closure costs in 2009 dollars, on which an initial financial assurance document will be based.

The financial assurance document will be recalculated upon reaching key milestones in the project, i.e., opening new cells or closing old ones with approved final cover (including incremental closure of exterior slopes), upon effecting a change the monitoring requirements, and annually during the post-closure period to account for completion of each year's monitoring and maintenance activities. Likewise, the posted financial assurance instrument amount (bond, insurance, etc.) should be adjusted on a yearly basis.

SUMMARY OF CLOSURE AND POST-CLOSURE COST

1.	Final Closure Construction (see Table 9A)	\$ 928,125
2.	Projected Post-Closure Costs (see Table 9C)	
		\$35,375 x 30 years = \$1,061,250
	TOTAL CLOSURE/POST-CLOSURE COST	\$1,989,375

Upon approval of the financial assurance amount (and issuance of the Permit) by NC DENR Division of Waste Management, Owners/Operators must furnish an acceptable financial assurance instrument (e.g., performance bond, irrevocable letter of credit, insurance policy, other fiduciary instrument) within 30 days of notification of approval. Said documentation shall be furnished by the deadline and will be included as a future amendment to this report (see **Appendix 10**).