

Wilson, Donna

From: David Garrett [david@davidgarrettpe.com]
Sent: Tuesday, August 25, 2009 2:07 PM
To: Wilson, Donna; ed.mussler@ncmail.net
Subject: C&D Landfill Alternate Financial Assurance
Attachments: alternate financial assurance request.pdf

I thought I had already sent this to you. They need an answer for their bonding agent. Thanks, in advance, for your prompt response.

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



August 11, 2009

Ms. Donna Wilson, Regional Engineer
NC Division of Waste Management
Solid Waste Section
Mail Service Center 1646
Raleigh, NC 27699-1646

RE: Alternate Financial Assurance Calculation
C&D Landfill, Inc. (Pitt County)
NC Solid Waste Permit #74-07

Dear Ms. Wilson:

On behalf of Judson Whitehurst and C&D Landfill, Inc., I am please to present this request for approval of an alternate financial assurance calculation for the referenced CDLF. Please find attached a proposed revision to Sections 9.0 and 11.0 (Revision 2.2, dated August 10, 2009), which is based primarily on revised earthwork cost estimates for final cover construction. This adjustment is needed to keep the bond premium within a reasonable cost to the facility, while maintaining an adequate measure of protection for the public.

The landfill is located adjacent to a permitted sand mine, which has been determined to contain a layer of silty and clayey fine sand and/or sandy clay within the upper 4 to 6 feet beneath the surface. This material has been tested relative to base grade construction for Phase 2A, now in progress, and the soil is believed to be suitable for constructing a compacted soil barrier for the final cover of Phases 1 and 2A. This material is readily accessible via surface excavations and would be available for final closure construction in the unlikely event that the surety bond needed to be activated. The haul distance is no more than a half-mile using off-road equipment.

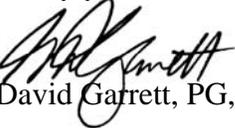
A local third-party contractor has examined the financial assurance calculations and concurs with the unit rates for the earthwork (see attachment). Therefore, I submit that the revised financial assurance calculations are representative of the third-party closure costs, and I hereby request that C&D Landfill's bond requirement be reduced accordingly. The new bond amount for final closure of Phase 1 and Phase 2A (25 acres) is \$640,625; a minor revision to the post-closure cost estimate brings that amount to \$35,375 per year, or \$1,061,250 projected over 30 years.

The revised total financial assurance bond amount is \$1,701,875, which I believe is correct and appropriate for this stage of the project. Please keep in mind that the bond amount is subject to periodic adjustment as old phases are closed and new phases are opened in the future.

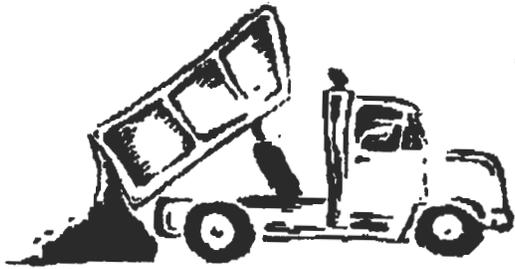
*5105 Harbour Towne Drive • Raleigh • North Carolina • 27604
919-418-4375 (Mobile) • 919-231-1818 (Office fax) • E-mail: david@davidgarrettpe.com*

C&D Landfill, Inc. is in the process of obtaining a surety bond to meet the financial assurance requirements of the permit. This documentation will be forwarded to the Solid Waste Section as soon as it is available. Please contact Wayne Bell (General Manager) or myself if you have any questions or comments. We look forward to your response.

Cordially yours,


G. David Garrett, PG, PE

Cc: Judson Whitehurst – C&D Landfill, Inc.
Wayne Bell – C&D Landfill, Inc.
Ed Mussler – NC DWM Solid Waste Section
John Tucker, PE – Consulting Engineer



St. Clair Trucking, Inc.

1085 E. 4th Street
P.O. Box 372
Washington, NC 27889
Phone: 252-946-7959
Fax: 252-946-5809
DBE Contractor
NC30071

8/11/09

David Garrett

Re: C&D Landfill Inc.

I Mitchell A. St.Clair am a licensed general contractor in good standing with the North Carolina General Contractor's Board and familiar with earthwork construction costs in the vicinity of Greenville, North Carolina. I have reviewed the unit rates presented in the August 10, 2009 revision of the financial assurance calculations for C&D Landfill, Inc., and I represent that the unit rates for moving and placing soil cover are accurate and representative of regional conditions.

A handwritten signature in cursive script that reads "Mitchell A. St. Clair". The signature is written in black ink and is positioned above a horizontal line.

Mitchell A. St. Clair
President

9.0 CLOSURE AND POST-CLOSURE (15A NCAC 13B .0543)

9.1 Summary of Regulatory Requirements

9.1.1 Final Cap

The final cap design for all phases (both Phase 1 – none of which was closed prior to June 30, 2008 – and Phase 2) shall conform to the minimum requirements of the Solid Waste Rules, i.e., the compacted soil barrier layer shall exhibit a thickness of 18 inches and a field permeability of not more than 1.0×10^{-5} cm/sec. The overlying vegetative support layer shall exhibit a thickness of 18 inches. See **Drawing E2** for final contours and **Drawing EC2** for final cover cross-section and details.

9.1.2 Construction Requirements

Final cap installation shall conform to the approved plans (see accompanying plan set), inclusive of the approved Sedimentation and Erosion Control Plan (see **Section 6.7** and **Appendix 8**). The CQA plan must be followed (see **Section 7.0**) and all CQA documentation must be submitted to the Division. Post-settlement surface slopes must not be flatter than 5% (on the upper cap) and not steeper than 25% (on the side slopes). Per the **2006 C&D Rules**, a gas venting system is required for the cap. A passive venting system will be specified, which will consist of a perforated pipe in crushed stone-filled trench – installed just below the final cap soil barrier layer – with a tentative minimum vent spacing of three vents per acre. **Drawing EC3** shows the gas vent system details.

9.1.3 Alternative Cap Design

The **2006 C&D Rules** make a provision for an alternative cap design, to be used in the event that the permeability requirements for the compacted soil barrier layer cannot be met. Past experience indicates that on-site soils may not meet the required field permeability of not more than 1.0×10^{-5} cm/sec, as supported by the laboratory data for the soils discussed in **Section 4.0**. Tentative final closure plans have assumed that on-site soils will be used for the compacted barrier layer – alternative cap designs may be researched and submitted for Division approval at a future time.

9.1.4 Division Notifications

The Operator shall notify the Division prior to beginning closure of any final closure activities. The Operator shall place documentation in the Operating Record pertaining to the closure, including the CQA requirements and location and date of cover placement.

9.1.5 Required Closure Schedule

The Operator shall close the landfill in increments as various areas are brought to final grade. The final cap shall be placed on such areas subject to the following:

- No later than 30 days following last receipt of waste;
- No later than 30 days following the date that an area of 10 acres or greater is within 15 feet of final grades;
- No later than one year following the most recent receipt of waste if there is remaining capacity.

Final closure activities **shall be completed within 180 days** following commencement of the closure, unless the Division grants extensions. Upon completion of closure activities for each area (or unit) the Owner shall notify the Division in writing with a **certification by the Engineer** that the closure has been completed in accordance with the approved closure plan and that said documentation has been placed in the operating record.

9.1.6 Recordation

The Owner shall record on the title deed to the subject property that a CDLF has been operated on the property and file said documentation with the Register of Deeds. Said recordation shall include a notation that the future use of the property is restricted under the provision of the approved closure plan.

9.2 Closure Plan

The following is a tentative closure plan for CDLF Phase 2, based on the prescribed operational sequence and anticipated conditions at the time of closure.

9.2.1 Final Cap Installation

9.2.1.1 Final Elevations – Final elevation of the landfill shall not exceed those depicted on Drawing E2 when it is closed, subject to approval of this closure plan. The elevations shown include the final cover. A periodic topographic survey shall be performed to verify elevations.

9.2.1.2 Final Slope Ratios – All upper surfaces shall have at least a 5 percent slope, but not greater than a 10 percent slope. The cover shall be graded to promote positive drainage. Side slope ratios shall not exceed 3H:1V. A periodic topographic survey shall be performed to verify slope ratios.

9.2.1.3 Final Cover Section – The terms “final cap” and “final cover” both apply. The final cover will subscribe to the minimum regulatory requirement for C&D landfills:

- An 18-inch thick compacted soil barrier layer (CSB), i.e., the “infiltration layer,” with a hydraulic conductivity not exceeding 1×10^{-5} cm/sec,
overlain by
- An 18-inch thick “topsoil” or vegetated surface layer (VSL), i.e., the “erosion layer.”

9.2.1.4 Final Cover Installation – All soils shall be graded to provide positive drainage away from the landfill area and compacted to meet applicable permeability requirements (see **Section 7.0**). Suitable materials for final cover soil shall meet the requirements defined above. Care shall be taken to exclude rocks and debris that would hinder compaction efforts. The surface will then be seeded in order to establish vegetation.

Test Pad – Whereas the lab data indicate that the required permeability is attainable, the ability to compact the materials in the field to achieve the required strength and permeability values shall be verified with a field trial involving a test pad, to be sampled with drive tubes and laboratory density and/or permeability testing, prior to full-scale construction. The materials, equipment, and testing procedures should be representative of the anticipated actual final cover construction. The test pad may be strategically located such that the test pad may be incorporated into the final cover.

Compacted Barrier – Materials shall be blended to a uniform consistency and placed in two loose lifts no thicker than 12 inches and compacted by tamping, rolling, or other suitable method – the targeted final thickness is 18 inches minimum. A thicker compacted barrier is acceptable. The cover shall be constructed in sufficiently small areas that can be completed in a single day (to avoid desiccation, erosion, or other damage), but large enough to allow ample time for testing without hindering production. The Contractor shall take care not to over-roll the cover such that the underlying waste materials would pump or rut, causing the overlying soil layers to crack – adequate subgrade compaction within the upper 36 inches of waste materials and/or the intermediate cover soil underlying the final cover is critical. All final cover soils shall be thoroughly compacted through the full depth to achieve the required maximum permeability required by Division regulations of 1.0×10^{-5} cm/sec, based on site-specific test criteria (see below). Compaction moisture control is essential for achieving adequate strength and permeability.

Vegetated Surface Layer – Materials shall be blended and placed in two loose lifts no thicker than 12 inches and compacted by tamping, rolling, or other suitable method – the targeted final layer thickness is 18 inches minimum per the design criteria. A thicker soil layer is acceptable. A relatively high organic content is also desirable. The incorporation of decayed wood mulch or other organic admixtures (WWTP sludge, with advance permission from the Division) is encouraged to provide nutrient and enhanced field capacity. These surface materials are not subject to a permeability requirement, thus no testing will be specified. Care should be taken to compact the materials sufficiently to promote stability and minimize erosion susceptibility, but not to over-compact the materials such that vegetation would be hindered. Following placement and inspection of the surface layer, seed bed preparation, seeding and mulching should follow immediately. The work should be scheduled to optimize weather conditions, if possible.

Inspection and Testing – Soils for the barrier layer are subject to the testing schedule outlined in the Construction Quality Assurance plan (see **Section 7.0**). The proposed testing program includes a minimum of one permeability test per lift per acre and four nuclear density gauge tests per lift per acre, to verify compaction of the compacted barrier layer. The moisture-density-permeability relationship of the materials has been established by the laboratory testing (discussed elsewhere in this report). The Contractor shall proof roll final cover subgrade materials (i.e., intermediate cover), which consist of essentially the same materials as the compacted barrier layer (without the permeability requirements), to assure that these materials will support the final cover.

9.2.1.5 Final Cover Vegetation – Seedbed preparation, seeding, and mulching shall be performed accordance the specifications provided in the Construction Plans (see **Drawing EC2**), unless approved otherwise (in advance) by the Engineer). In areas to be seeded, fertilizer and lime typically should be distributed uniformly at a rate of 1,000 pounds per acre for fertilizer and 2,000 pounds per acre for lime, and incorporated into the soil to a depth of at least 3 inches by disking and harrowing. The incorporation of the fertilizer and lime may be a part of the cover placement operation specified above. Distribution by means of an approved seed drill or hydro seeder equipped to sow seed and distribute lime and fertilizer at the same time will be acceptable. Please note that the seeding schedule varies by season.

All vegetated surfaces shall be mulched with wheat straw and a bituminous tack. Areas identified as prone to erosion mat be secured with curled-wood excelsior, installed and pinned in accordance with the manufacturer's recommendations. Certain perimeter channels will require excelsior or turf-reinforcement mat (TRM), as specified in the Channel Schedule. Alternative erosion control products may be substituted with the project engineer's prior consent. All rolled erosion control materials should be installed according to the generalized layout and staking plan found in the Construction Plans or the manufacturer's recommendations.

Irrigation for landfill covers is not a typical procedure, but consideration to temporary irrigation may be considered if dry weather conditions prevail during or after the planting. Care should be taken not to over-irrigate in order to prevent erosion. Collected storm water will be suitable for irrigation water. Maintenance of the final cover vegetation, described in the Post-Closure Plan (see below), is critical to the overall performance of the landfill cover system.

9.2.1.6 Documentation – The Owner shall complete an "as-built" survey to depict final elevations and to document any problems, amendments or deviations from the Construction Plan drawings. Records of all testing, including maps with test locations, shall be prepared by the third-party CQA testing firm. All materials pertaining to the closure shall be placed in the Operational Record for the facility. Whereas the closure will be incremental, special attention shall be given to keeping the closure records separate from the normal operational records.

9.2.1.7 Gas Venting System – Passive gas vents shall be installed incrementally (as portions of the landfill are closed) beneath the final cover as shown in the construction drawings. The vents consist of a slotted pipe embedded in drainage stone, with an inverted slope of approximately 2 to 5 percent (high toward the center), leading to a vertical riser pipe and topped with a vent cap to prevent the entry of water and nesting animals. Vents shall be placed at an average density of three per acre – the field layout will be determined at the time of closure, but typically the vents are arranged in a regular triangular pattern with the trenches oriented parallel to the slope contours.

The slotted pipe is either Schedule 40 PVC or HDPE with cemented slip connections. The pipe is to be installed in a trench excavated through the intermediate cover and/or waste materials to found the trench within the top of the waste. Washed stone with an allowable gradation range of No. 57 to No. 4 shall be placed a minimum of 12 inches thick beneath the pipe to enhance gas transmission and to provide bedding for the pipe. The pipe shall be covered with a minimum of 6 inches of stone prior to placing the final cover soil. An alternative aggregate, such as crushed concrete, may be substituted subject to meeting the gradation requirements.

The depth of the trench shall allow the full-depth of final cover to be placed above the top of the stone. Soil shall be sloped to promote positive drainage away from the vents. Attention shall be paid to compaction of the cover soils to prevent settling and subsequent ponding of surface water. Each vertical riser shall be made at least 8 feet above finished grades to protect breathing space. The vents shall be posted with “No Smoking” warning signs. Maintenance during post-closure shall consist of periodic inspection and repair or replacement of damaged pipe or vent grates as needed.

9.2.1.8 Slope Drains – A system of drainage swales and pipes, i.e., “slope drains,” shall be constructed incrementally along exterior slopes as portions of the landfill come to grade and are closed. Drainage swales shall be graded into the final cover, as shown in the construction plans, referred to as “add-on” or “tack-on” swales, whereas they are not typically graded into the waste itself. Compaction criteria appropriate to the final cover shall be observed (refer to the CQA Plan). The swales shall be vegetated immediately upon completion and maintained as needed to protect them from erosion. Refer to maintenance of the final cover and drainage systems on **Table 9B**.

Solid (non-slotted) corrugated drain pipes shall be placed as shown in the construction plans to convey surface runoff collected from the drainage swales to ditches located at the toes of the slopes. The drain pipes shall be secured in trenches within the 18-inch vegetation support layer (topsoil) of the final cover, above the compacted barrier layer, which shall be backfilled and compacted to prevent settlement and to curtail erosion – there is no specific compaction criteria for the vegetation support layer. Pipe bedding shall be tamped soil that is shaped to “cradle” the pipe below the spring line. Inlets and outlets shall be protected with rip-rap aprons, underlain by non-woven geotextile for erosion control; protruding end sections are acceptable but flared-end sections may be used at the Operator’s discretion.

Properly buried pipes should require relatively little maintenance except for possible erosion at the ends. Regular inspection of the pipe ends, aprons, and any diversion berms used to direct water to the inlets, with repairs as may be needed, are the major anticipated maintenance requirements (see **Table 9B**).

9.2.2 Maximum Area/Volume Subject to Closure

The largest anticipated area that will require final closure at any one time within the next 5-year period – including all of Phase 1 (15 acres) and Phase 2A (10 acres) – is 25 acres. Intermediate cover shall be used on areas that have achieved final elevations until the final cover is installed. Based on the original permitting for Phase 1 and the volumetric analysis for Phase 2 (**Appendix 3**), the combined volumes of Phase 1 and Phase 2A is 1,119,800 cubic yards (see **Section 1.3**).

9.2.3 Closure Schedule

Refer to the requirements outlined in **Section 9.1.5** (above). Phase 1 is nearing the end of its capacity and will be closed within 180 days of the opening of Phase 2A.

9.2.4 Closure Cost Estimate

The foregoing cost estimate is considered suitable for the **Financial Assurance** requirements (see **Section 11.0**).

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.	@	\$3.5 / cubic yard ⁵	\$245,000
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				\$512,500
Testing and Surveying ⁴	Estimated 15 percent of subtotal			\$ 76, 875
Contingency	Estimated 10 percent of subtotal			\$ 51,250
Total Construction Cost (if contracted out)				\$ 640,625

- 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

9.3 Post-Closure Plan

9.3.1 Monitoring and Maintenance

9.3.1.1 Term of Post-Closure Care – The facility shall conduct post-closure care for a minimum of 30 years after final closure of the landfill, unless justification is provided for a reduced post-closure care period. The post-closure care period may be extended by the Division if necessary to protect human health and the environment.

9.3.1.2 Maintenance of Closure Systems – Inspections of the final cover systems and sediment and erosion control (S&EC) measures shall be conducted quarterly. Maintenance will be provided during post-closure care as needed to protect the integrity and effectiveness of the final cover. The cover will be repaired as necessary to correct the effects of settlement, subsidence, erosion, or other events. Refer to the **Post Closure Monitoring and Maintenance Schedule** (below).

9.3.1.3 Landfill Gas Monitoring – Gas monitoring will be conducted during the operational period and the post-closure period via bar-hole punch tests at established locations (**Drawing MP-1**), sampling the head-space in monitoring wells with an Organic Vapor Analyzer (OVA), or similar equipment, during routine sampling events and continual monitoring in on-site buildings via a gas detection meter. Solid Waste regulations require quarterly gas monitoring throughout the operational period and for 30 years of post-closure care. The monitoring plan and financial assurance calculations presented herein are based on this premise. However, if no gas is detected consistently for a period of five years, the permittee may apply to the Solid Waste Section for reducing or discontinuing the landfill gas sampling. If gas is detected the Division will be notified and an evaluation of protective measures will be performed.

9.3.1.4 Ground Water Monitoring – Groundwater monitoring will be conducted under the current version of the approved Sampling and Analysis Plan (see **Section 10.2**). This plan will be reviewed periodically and may change in the future. Approximately one year prior to the landfill reaching permitted capacity, the facility will submit post-closure monitoring and maintenance schedules, specific to the ground water monitoring. Procedures, methods, and frequencies will be included in this plan. This future plan, and all subsequent amendments, will be incorporated by reference to this document.

9.3.1.5 Record Keeping – During the post closure period, maintenance and inspection records, i.e., a **Post Closure Record**, shall be kept as a continuation of the **Operating Record** that was kept during the operational period. The Post Closure Record shall include future inspection and engineering reports, as well as documentation of all routine and non-routine maintenance and/or amendments. The Post Closure Record shall include the ground water and gas monitoring records collected for the facility.

9.3.1.6 Certification of Completion – At the end of the post-closure care period the facility manager shall contact the Division to schedule an inspection. The facility manager shall make the Post Closure Record available for inspection. A certification that

the post-closure plan has been completed, signed by a North Carolina registered professional engineer, shall be placed in the operating/post closure record. C&D Landfill, Inc. shall maintain these records indefinitely.

**TABLE 9B
POST-CLOSURE MONITORING AND MAINTENANCE SCHEDULE**

Activity	Frequency Yrs. 1 - 5	Frequency Yrs. 6-15	Frequency Yrs. 16-30
General - Inspect access gates, locks, fences, signs, site security	Quarterly	Quarterly	Quarterly
Maintain access roads, monitoring well access	As needed	As needed	As needed
Final Cover Systems/Stability - Inspect cap and slope cover for erosion, sloughing, bare spots in vegetation, make corrections as needed (1)	Quarterly	Semi-Annually	Annually
Storm Water/Erosion Control Systems - Inspect drainage swales, pipe drains, and sediment basin for erosion, excess sedimentation (1)	Quarterly	Semi-Annually	Annually
Mow cover vegetation and remove thatch	Semi-Annually	Annually	None (2)
Inspect vegetation cover and remove trees	Annually	Annually	Annually
Landfill Gas Monitoring	Quarterly (3)	Quarterly (3)	Quarterly (3)
Ground Water Monitoring System - Check well head security, visibility	Semi-Annually	Semi-Annually	Semi-Annually
Ground Water Monitoring (4)	Semi-Annually	Semi-Annually	Semi-Annually

Notes:

1. Inspect after every major storm event, i.e., 25-year 24-hour design storm
2. Dependent on vegetation type, periodic mowing may be required
3. The Solid Waste Section may be petitioned for discontinuation of gas monitoring if no detections occur in gas sampling locations or on-site buildings
4. See current Ground Water Sampling and Analysis Plan

9.3.2 Responsible Party Contact

C&D Landfill, Inc.
Mr. Judson Whitehurst, Owner
Mr. Wayne Bell, General Manager
C&D Landfill, Inc.
802 Recycling Lane
Greenville, North Carolina 27834

Tel 252-752-8274
Fax 252-752-9016

9.3.3 Planned Uses of Property

Currently, there is no planned use for the landfill area following closure. The closed facility will be seeded with grass to prevent erosion. Any post-closure use of the property considered in the future will not disturb the integrity of the final cover or the function of the monitoring systems unless necessary (and to be accompanied by repairs or upgrades). Future uses shall not increase the potential threat to human health and the environment.

9.3.4 Post-Closure Cost Estimate

The following cost estimate is considered suitable for the **Financial Assurance** requirements. Refer to the 30-year cost projection (see **Section 11.0**).

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	\$7,700.00	\$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)	\$ 640,625
2.	Projected Post-Closure Costs (see Table 9C)	
		\$35,375 x 30 years = \$1,061,250
	TOTAL CLOSURE/POST-CLOSURE COST	\$1,701,875

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**).