

FINANCIAL ASSURANCE FOR CLOSURE

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FINANCIAL ASSURANCE

- The S.C. Solid Waste Policy and Management Act of 1991 requires that all permitted landfills have a financial assurance mechanism in place to ensure that funds are available at the time of closure to cover closure costs and post-closure care costs that may be required.

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FINANCIAL ASSURANCE CRITERIA.

- Class One landfills
 - except landfills owned and operated by local government or a region comprised of local governments, State or Federal government.
- Class Two landfills
 - except landfills owned and operated by local government or a region comprised of local governments, State or Federal government.
- Class Three landfills
 - except landfills owned and operated by State or Federal government entities whose debts and liabilities are the debts and liabilities of the State or the United States.

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CLASS ONE LANDFILLS FINAL COVER SYSTEMS

- Apply a minimum two-foot thick final earth cover
 - at least a 1%, but not greater than 4% surface slope, graded to promote positive drainage.
 - The side slope cover shall not exceed three horizontal feet to one vertical foot, i.e., a 3:1 slope;
- Seed the finished surface of the filled area with native grasses or other suitable ground cover to establish and maintain into the second growing season a 75% or greater permanent vegetative cover with no substantial bare spots.

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CLASS TWO LANDFILLS FINAL COVER SYSTEMS

- A two foot thick final earth cover
 - at least a 3% but not greater than 5% surface slope, graded to promote positive drainage.
 - The side slope cover shall not exceed three horizontal feet to one vertical foot, i.e., a 3:1 slope.
- The storm water conveyance system for the landfill shall be designed to ensure that the system is capable of handling a 24-hour, 25-year storm event during the active life and post-closure period of the landfill.
- The finished surface of the disposal area shall be seeded with native grasses or other suitable ground cover
- Alternate final cover designs may be submitted for Department review and approval.

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CLASS THREE LANDFILLS FINAL COVER SYSTEMS

- Per 258.60(a), the cap system shall be designed and constructed to:
 - 1) have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than 1×10^{-5} cm/sec, whichever is less,
 - 2) minimize infiltration through the closed MSWLF by the use of an infiltration layer that contains a minimum eighteen (18) inches of earthen material
 - 3) minimize erosion of the final cover by the use of an erosion layer that contains a minimum one (1) foot of earthen material that is capable of sustaining native plant growth.
 - 4) Have a storm water conveyance system for the landfill cap designed to ensure that the hydraulic head at any point does not exceed one (1) foot for a 24-hour period as the result of a 24-hour, 25-year storm event on all areas that have received final cover.

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CLASS THREE LANDFILLS FINAL COVER SYSTEMS

- Per 258.60(b), The Department may approve an alternative final cover design that includes:
 - 1) An infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in paragraphs a.(1) and a.(2) of this section, and
 - 2) An erosion layer that provides equivalent protection from wind and water erosion as the erosion layer specified in a.(3) of this section.



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CLASS THREE LANDFILLS FINAL COVER SYSTEMS

- Per 258.60(k), All facilities constructed with **liner systems** in accordance with this regulation shall install a final cover system which consists, of at a minimum:
 - (1) a gas management layer or layers, or other gas management design, as necessary;
 - (2) eighteen (18) inches of soil with a maximum permeability of 1×10^{-5} centimeters per second, and
 - (3) a 20-mil flexible membrane liner with a maximum permeability equal to or less than the bottom liner system, if HDPE is used as the FML, then a sixty (60) mil thickness is required;
 - (4) a drainage layer; and,
 - (5) a minimum of two (2) feet of soil capable of supporting native vegetation.



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CLASS THREE LANDFILLS FINAL COVER SYSTEMS

- Per 258.60(m): The erosion layer shall be designed to maintain vegetative growth over the landfill by seeding with native grasses or other suitable cover. A 75% or greater vegetative ground cover with no substantial bare spots shall be established and maintained throughout the post-closure period.

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CLASS THREE LANDFILLS FINAL COVER SYSTEMS

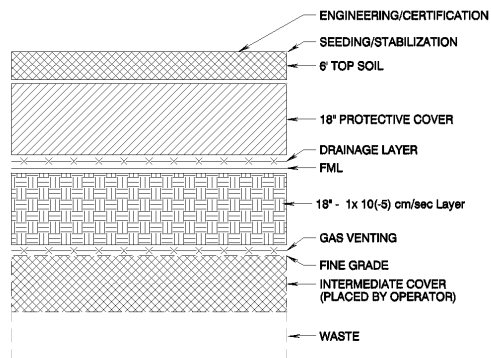
- Per 258.60(o), The Department may, on a case by case basis, approve other landfill closure designs, provided there is adequate information to demonstrate that the proposed design meets or exceeds the environmental and public health protection standards outlined in Subparts B, D and E of this regulation.

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CLASS THREE LANDFILLS FINAL COVER SYSTEMS

TYPICAL CAP SYSTEM PERMITTED IN THE CAROLINAS



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- The permittee shall have a **detailed written estimate**, in current dollars, of the **cost of hiring a third party** to close the **largest area of the landfill ever requiring a final cover at any time during the active life** in accordance with the closure plan.

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FINANCIAL ASSURANCE FOR CLOSURE

- 1) The cost estimate shall equal the cost of closing the largest area of the landfill ever requiring a final cover at any time during the active life when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan.
- 2) During the active life of the landfill, the permittee shall annually adjust the closure cost estimate for inflation.
- 3) The permittee shall increase the closure cost estimate and the amount of financial assurance provided if changes to the closure plan or landfill conditions increase the maximum cost of closure at any time during the remaining active life.
- 4) The permittee may reduce the closure cost estimate and the amount of financial assurance provided for proper closure if the cost estimate exceeds the maximum cost of closure at any time during the remaining life of the landfill.

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COST OF HIRING A THIRD PARTY

- Who is doing the hiring?
- Who is being hired as part of the “third party”?
 - Design Engineer?
 - Contractor?
 - CQA Engineer?

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LARGEST AREA & MOST EXPENSIVE

- “Unclosed” permitted areas?
- “Unclosed” constructed areas?
- “Unclosed” constructed areas containing waste?
- When the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan.

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LINE ITEMS FOR DETAILED WRITTEN ESTIMATE

- 1) Bid Documents Preparation, Bidding, Evaluation, Award.
- 2) Bonds, Insurance, Mobilization.
- 3) Surface Preparation, Surveys, etc.
- 4) Gas Management System.
- 5) Low-perm Liner System.
- 6) Erosion Layer and Stabilization.
- 7) Stormwater Conveyance System.
- 8) CQA documentation.

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APPROVED FINANCIAL MECHANISMS

- a. Trust Fund
- b. Surety Bond
- c. Letter of Credit
- d. Insurance
- e. Corporate Financial Test
- f. Local Government Financial Test
- g. Local Government Guarantee
- h. State Approved Mechanism
- i. Certificates of Deposit
- j. Use of Multiple Financial Mechanisms