

### **15A NCAC 13B .1620 ENGINEERING PLAN**

(a) Purpose. The engineering plan incorporates the detailed plans and specifications relative to the design and performance of the landfill's containment and environmental control systems. This plan sets forth the design parameters and construction requirements for the components of the landfill's systems and establishes the responsibilities of the design engineer. The engineered components are described in Rule .1624 of this Section. As required under Rule .1617 of this Section, the owner or operator shall submit an engineering plan which meets the requirements of this Rule.

(b) Responsibilities of the design engineer. The engineering plan shall be prepared by a Professional Engineer licensed to practice engineering in accordance with G.S. 89C and the Administrative Rules developed thereunder. The plan shall meet the requirements of this Rule; the design engineer shall incorporate a statement certifying this fact and bearing his or her seal of registration.

(c) Scope. An engineering plan shall be prepared for a phase of development not to exceed approximately five years of operating capacity, consistent with the development phases and design criteria defined in the facility plan. The original and subsequent plans must incorporate the design of leachate management and other environmental control facilities. The engineering plan shall contain a report and a set of drawings which consistently represent the engineering design.

(d) An engineering report must contain:

- (1) An analysis of the facility design that conforms to:
  - (A) The standards for the foundation and the base liner system set forth in Rule .1624 of this Section;
  - (B) The standards for the cap system set forth in Paragraph (c) of Rule .1627 of this Section; and
  - (C) The standards for the leachate storage facilities set forth in Rule .1680 of this Section.
- (2) A summary of the facility design that includes:
  - (A) A discussion of the analytical methods used to evaluate the design;
  - (B) Definition of the critical conditions evaluated and assumptions made;
  - (C) A list of technical references used in the evaluation; and
  - (D) Completion of any applicable location restriction demonstrations in accordance with Rule .1622 of this Section.
- (3) A description of the materials and construction practices that conforms to the requirements set forth in Rule .1624 of this Section, and is consistent with the analysis of the facility design prepared in accordance with this Part.
- (4) A copy of the Design Hydrogeologic Report prepared in accordance with Paragraph (b) of Rule .1623.

(e) Engineering drawings must clearly illustrate:

- (1) Existing conditions: site topography, features, existing disposal areas, roads, buildings;
- (2) Grading plans: proposed limits of excavation, subgrade elevations, boring locations, intermediate grading for partial construction;
- (3) Base liner system: grades for top of composite liner, slopes, anchor configuration, liner penetration locations and details;
- (4) Leachate collection system: base elevations, piping system grade and inverts, cleanouts, valves, sumps, top of protective cover elevations, and details;
- (5) Stormwater segregation system: location and detail of features;
- (6) Cap system: base and top elevations, landfill gas collection, infiltration barrier, surface water removal, protective and vegetative cover, and details;
- (7) Temporary and permanent sedimentation and erosion control plans;
- (8) Vertical separation requirements incorporating boring locations, cross sections, the maps prepared in accordance with Rule .1623 (b)(2)(E) and (F) of this Section, and the grading plans; and
- (9) Additional engineering features and details.

*History Note:* Authority G.S. 130A-294;  
Eff. October 9, 1993.