

**SECTION 07130****BENTONITE WATERPROOFING AND SEALER****07130.01 GENERAL****A. Description**

Bentonite waterproofing and sealer shall include, but not necessarily be limited to, the furnishing and placing granular bentonite, and bentonite panels, tubes, and gel where indicated and in accordance with the Contract Documents.

**B. Related Work Included Elsewhere**

1. Structure excavation; Section 02220.
2. Trench excavation, backfill, and compaction; Section 02250.
3. Sanitary sewer manhole installation; Section 02562.
4. Cast-in-place concrete structures; Section 03300.
5. Precast concrete utility structures; Section 03400.

**C. Quality Assurance**

1. Inspection

The Engineer will inspect all materials before and/or after installation to ensure compliance with the Contract Documents. Leakage past the bentonite waterproofing and sealer shall be repaired by the Contractor at no additional cost to the County.

2. Containers

Bentonite materials shall be delivered and stored in manufacturer's sealed containers. Prematurely hydrated bentonite in any form, and damaged and underweight panels and tubes, will be rejected.

**D. Submittals**

1. Shop Drawings

Shop drawings shall be submitted as specified in the "General Provisions" for all bentonite materials furnished. The shop drawings shall include general product information, and storage, handling, and installation procedures.

**2. Certificates of Compliance**

Certificates of compliance shall be submitted in accordance with the "General Provisions" for all bentonite materials stating that the materials meet the requirements specified in Section 07130.02.

**07130.02 MATERIALS****A. Materials Furnished by the County**

The County will not furnish any materials for bentonite waterproofing and sealer.

**B. Contractor's Options**

None.

**C. Detailed Material Requirements****1. Bentonite**

- a. Granular: Free flowing, high swelling, Wyoming type; not less than 90% montmorillonite and not more than 10% either unaltered volcanic ash or other native sediments.
- b. Panels: Bentonite sealed between biodegradable kraft paper, distributed within the panel at a ratio of one pound of dry waterproofing per square foot of panel, satisfying the following permeability test rating under 60 feet of static head water pressure:  
  
8 to 78 minutes: 0.0000001 feet per hour.  
  
78 to 122 minutes: 0.0000002 feet per hour.  
  
122 to 172 minutes: 0.0000001 feet per hour.  
  
172 to 1324 minutes: 0.0000005 feet per hour.
- c. Tubes: Bentonite contained within biodegradable kraft paper containers, each container being 24 inches long by 1 1/4 inches square.
- d. Gel: Worked penetration range of 225 to 275 when tested in accordance with ASTM D 217; containing 10% by weight controlled hydrated bentonite having a pH of not less than 8.8; containing no free water; having a residual swell of not more than 5%; sealed in plastic-line containers.

2. Protection Board

Protection board shall meet the requirements of FSS LLL-B-810, Type II, solid for concrete protection: perforated with 1/8 to 1/4 inch holes uniformly centered on nominal 1 inch centers for permanent backfill protection.

3. Polyethylene Sheet

Polyethylene sheet shall meet the requirements of AASHTO M 171, ASTM C 171 minimum 4 mils thick.

4. Kraft Paper

Kraft paper shall be completely water soluble and anaerobically biodegradable kraft paper or kraft board.

5. Plastic for Tubes

Plastic for tubes shall be completely water soluble polyvinyl alcohol type.

### **07130.03 EXECUTION**

#### **A. Preparation**

1. All surfaces against which waterproofing is to be placed shall be clean and free from loose materials. The Contractor shall inspect surfaces to be waterproofed and remedy defects before starting waterproofing work.
2. The water level shall be maintained below the surface being waterproofed until completion of curing is required; and until concrete has been poured if concrete is to be poured against waterproofing. Bentonite panels and loose bentonite may be placed on damp surfaces, but not in flooded areas.
3. All concrete surfaces to be waterproofed shall be wire brushed and broom cleaned to firm unspalled surface, free from loose materials, laitance, debris, release agents, and other sharp or deleterious contaminants. Surfaces to receive bentonite board membrane-water proofing shall be free from protruding tie wires, sharp protrusions, and voids. Horizontal concrete surfaces shall be wood float finished.

#### **B. Installation**

1. Installation of granular bentonite waterproofing around pipe penetrations at sanitary sewer manholes and other structures shall be in accordance with the Plans and/or Standard Details.
2. Installation of bentonite panels, tubes, or gel shall be in accordance with the waterproofing manufacturer's written instructions.

**07130.04 METHOD OF MEASUREMENT**

Bentonite waterproofing and sealer will not be measured.

**07130.05 BASIS OF PAYMENT**

Bentonite waterproofing and sealer will not be paid for as separate items, but are considered incidental to other items of work. Payment will be included in other related items of work and will constitute full compensation for all labor, equipment, tools, and incidentals necessary to complete the installation as specified and accepted by the Engineer.