

**Riprap** will be paid for at the contract unit price. This price shall include furnishing and placing riprap, including welded wire fabric, mortar, or grout; excavation; and riprap bedding.

**Erosion control stone** will be measured in square yards of surface area or tons as specified for the class specified and will be paid for at the contract unit price per square yard or ton. This price shall include excavating and backfilling, furnishing and placing dry riprap.

These prices shall include Geotextile bedding material when not a separate pay item. The price bid shall include preparing the surface, furnishing and installing geotextile bedding material, overlaps, repair work and excavating and backfilling toe-ins.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Dry riprap (Class and depth)	Square yard or ton
Mortared riprap (Depth)	Square yard
Grouted riprap (Depth)	Square yard or ton
Stone riprap (Depth)	Square yard or ton
Dumped riprap (Type and depth)	Square yard or ton
Concrete riprap in bags	Cubic yard
Concrete slab riprap	Square yard
Erosion control riprap (Depth)	Square yard or ton
Erosion control stone (class, st'd)	Square yard or ton

## SECTION 415—CONCRETE SLOPE PROTECTION

### 415.01—Description.

This work shall consist of furnishing and installing precast concrete blocks in a bed of coarse sand or installing a concrete slab on embankments at or near bridge abutments as shown on the plans or as specified by the Engineer.

### 415.02—Materials.

- (a) **Precast concrete blocks** shall conform to the requirements of Section 222.
- (b) **Mortar** shall be nonshrinking and shall conform to the applicable requirements of Section 218.
- (c) **Foundation course** shall be Grading B sand conforming to the requirements of Section 202 or approved local material similar in nature.

- (d) **Concrete** shall be Class A3 conforming to the requirements of Section 217.
- (e) **Welded wire fabric** shall be No. 6 gage, 6 inches center to center each way, conforming to the requirements of Section 223.
- (f) **Herbicide** shall conform to the requirements of Section 244.

#### 415.03—Procedures.

- (a) **Precast Concrete Block Slope Protection:** The subgrade shall be constructed at the required distance below the finished surface of the slope. Soft sections and unsuitable material shall be removed and replaced. The subgrade shall be compacted and shaped to a smooth, uniform surface.

The foundation course shall be spread on the subgrade to a depth of 2 inches and treated with an approved highly insoluble soil sterilant. Material shall be in a dry form and have a maximum solubility rate of 250 parts per million. Material shall be uniformly applied at the maximum rate recommended by the manufacturer.

Blocks shall be bedded in the foundation course perpendicular to the finished surface in straight rows, with the longest dimension horizontal. Blocks shall be placed with continuous joints extending horizontally on the face of the slope and with broken (staggered) joints extending perpendicular thereto, up or down the slope. Blocks shall be rammed until the surface is firm and conforms to the finished slope. Joints shall be filled with mortar.

Cast-in-place edging for block slope protection shall be placed as specified in (b) herein.

- (b) **Concrete Slab Slope Protection:** The subgrade shall be prepared as for block slope protection. The cast-in-place concrete slab shall be 4 inches in thickness and shall be placed in accordance with the requirements of Section 414.03(i).

Except at railroad grade separations, the Contractor may provide a combination concrete slab and stone slope protection in lieu of the specified concrete slab slope protection. Protection shall be in accordance with the following:

1. Concrete portions, consisting of a paved ditch and a strip of concrete approximately 3 feet in width placed on the berm along the face of the abutment, shall be furnished as required for concrete slab slope protection. Stone shall be placed at a depth of 7 to 9 inches over the remaining area to be covered with slope protection.

2. The subgrade for concrete and stone shall be prepared in accordance with the requirements of Section 414.03(i). The portion of the slope to be protected with stone shall be treated with a herbicide in accordance with the requirements of (a) herein. Care shall be taken to confine application to areas designated for sterilization.
  
3. Stone shall be crushed gravel or stone conforming to the requirements of Section 205.02. Sizes furnished shall be not smaller than the sizes specified in Table II-5 for aggregate size No. 1, nor shall the pieces be larger than 8 inches in their greatest dimension. Stone shall be in a sufficient range of sizes to create a stable and reasonably uniform slope.

The condition of the subgrade and method of placing stone shall be such that pieces of stone in contact with the subgrade shall be partially embedded where practicable. Stone immediately adjacent to concrete shall not project more than 3 inches above the concrete.

Approved splash blocks connecting with the paved ditch shall be provided under downspouts draining onto the slope protection.

#### **415.04—Measurement and Payment.**

Concrete slope protection will be measured in square yards of surface area and will be paid for at the contract unit price per square yard. If limits are not shown on the plans, measurements will be from the outside edge to outside edge, including curb, and from the edge of slope protection at abutment to the bottom of the curtain wall or outside edge of the paved ditch as appropriate. This price shall include the foundation course and treatment.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Concrete block slope protection	Square yard
Concrete slab slope protection (Depth)	Square yard

## **SECTION 416—WATERPROOFING**

### **416.01—Description**

This work shall consist of furnishing and applying waterproofing material on concrete bridge decks or other surfaces as shown on the plans.