

GROUTED ROCK RIPRAP

1. APPLICABILITY

Construction Specification 62 is applicable to the placement of grouted rock riprap on channel slopes and other designated areas.

2. MATERIAL SPECIFICATIONS

Material Specifications 521, 522, 523, 531, 532, 533, 534, and 592 together with Construction Specification 31, 32 and 95 are complementary to Construction Specification 62.

3. ITEMS TO BE INCLUDED IN CONSTRUCTION SPECIFICATIONS AND DRAWINGS

- a. Complete plans and cross-sections clearly defining the grouted rock riprap requirements.
- b. Pay limits, where applicable.
- c. Gradation of rock.
- d. Gradation of filter or bedding materials, if used.
- e. Location of weep holes and pipe material for weep holes, if used.
- f. Placement tolerances.
- g. Design of grout mix together with the slump range and amount of air content.
- h. Type of cement.
- i. Type of admixtures, if any.
- j. Gradation of coarse aggregate.
- k. Designate equipment-placed or hand-placed rock.
- l. Designate if grout is to be placed or pumped.
- m. Method of measurement and payment.

4. DISCUSSION OF METHODS

a. Section 4, Placement of Rock Riprap

- (1) Method 1 is intended for use when rock placement operations that may cause some displacement of the filter or bedding materials is not critical. Access to the site for dumping by hauling and placing equipment is reasonable.

(2) Method 2 is intended for sites with limited access by hauling and placement equipment. This method should be considered when using geotextile filter materials and sharp angular rock so puncture of the geotextile can be minimized. Hand-placed operations should be considered on steeper slopes.

b. Section 12, Measurement and Payment

(1) Method 1 is intended for use when the volume of riprap and grout, together with the filter or bedding material when used, is computed as one quantity and paid for at the contract unit price for grouted rock riprap.

(2) Method 2 is intended for use when the volume of riprap, the volume of filter or bedding, the volume of concrete grout, and the area of geotextile are computed and paid as separate items.

(3) Method 3 is intended for use when the actual weight of rock and filter/bedding materials delivered is determined and paid to the nearest 0.1 ton, the grout volume is determined and paid to the nearest 0.1 cubic yard from batch volumes delivered, and the geotextile is determined and paid to the nearest square yard.

When specifications are prepared using electronic procedures and all but one method are deleted for use in the contract specification, delete, "All Methods The following provisions apply to all methods of measurement and payment." and left justify the remaining text.