

**830 - SLOPE PROTECTION**

**SECTION 830**

**SLOPE PROTECTION**

**830.1 DESCRIPTION**

Construct slope protection on bridge berms, fill slopes and channel banks as shown in the Contract Documents.

**BID ITEMS**

- Bedding for Slope Protection
- Slope Protection (\*) (\*\*) (\*\*\*)
- Slope Protection (Gabion)
- Slope Protection (Special)
- Geotextile Fabric
- \*Type: aggregate, shot rock or riprap stone
- \*\*Thickness
- \*\*\*Grouted, when specified

**UNITS**

- Cubic Yard
- Cubic Yard
- Cubic Yard
- Cubic Yard
- Square Yard

**830.2 MATERIALS**

Provide materials that comply with the applicable requirements.

Grout .....	<b>DIVISION 400</b>
Aggregate that complies with Stone for Aggregate Ditch Lining .....	<b>DIVISION 1100</b>
Stone .....	<b>DIVISION 1100</b>
Bedding that complies with Type III Stone for Filter Course .....	<b>DIVISION 1100</b>
Type 2 Liquid Membrane-Forming Compound .....	<b>DIVISION 1400</b>
Geotextile Fabric .....	<b>DIVISION 1700</b>

Unless prohibited in the Contract Documents, and when approved by the Engineer, the Contractor may use concrete rubble entirely or in combination with the material designated in the Contract Documents. If concrete rubble is substituted for the aggregate or stone designated in the Contract Documents, the Engineer will waive the quality requirements, and will determine compliance with the gradation requirements by visual inspection. Provide concrete rubble that is broken concrete from existing structures. Remove asphalt overlays and patches on the deck of the structure before the concrete is rubblized. Cut off and remove all protruding reinforcing steel in the concrete rubble.

The maximum dimension of the slope protection or concrete rubble in any direction shall not exceed the thickness shown in the Contract Documents. Large flat pieces of concrete rubble are prohibited.

**830.3 CONSTRUCTION REQUIREMENTS**

Construct the bridge berms, fill slopes and channels to the lines and grades shown in the Contract Documents. Prepare for the slope protection by undercutting the finished berms, slopes and channels to the depth necessary for the slope protection. After the slope protection is completed, backfill and compact around the structure.

Construct the slope protection to the lines and grades shown in the Contract Documents. A tolerance of +6 inches from the slope lines and grades is allowed.

Underlay the slope protection with geotextile fabric at the locations designated in the Contract Documents. Provide the Engineer with a copy of the manufacturer’s recommendation. Install and secure the geotextile fabric as recommended by the manufacturer.

Replace any geotextile fabric damaged or displaced during construction.

Place the bedding for the slope protection at the locations designated in the Contract Documents. Place the bedding in its full course thickness in one operation, using methods of placement that will not segregate the material. The finished surface of the bedding shall be uniform. Compaction of the bedding is not required.

Place the slope protection the full course thickness in one operation. Do not use methods of placing the rocks that will segregate the various sizes of rocks. Do not use heavy equipment (working upon the slope

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protection) to the spread the rocks. Do not place oversized rocks on the slopes. Place the slope protection to produce a reasonably well-graded mass of rocks with a minimum amount of voids. The finished slope protection shall be free of pockets of small rocks and clusters of larger rocks. Rearrange individual rocks (by hand or mechanical equipment) to the extent necessary to obtain a reasonably well-graded distribution of rock sizes.

When designated in the Contract Documents, pour concrete grout over the slope protection to fill all the voids. Apply Type 2 liquid membrane-forming compound as the curing medium. Apply the curing medium immediately after the concrete surface is finished, and before the set takes place. Maintain the cure for 7 days. In cold weather, maintain the concrete temperature above 32°F for the first 4 days of the 7 day cure period

### **830.4 MEASUREMENT AND PAYMENT**

The Engineer will measure the bedding for slope protection and slope protection by the cubic yard. The Engineer will measure the geotextile fabric by the square yard to the limits of the bedding for slope protection.

Payment for "Bedding for Slope Protection", "Slope Protection" and "Geotextile Fabric" at the contract unit prices is full compensation for the specified work.