

**829 - RIPRAP**

**SECTION 829**

**RIPRAP**

**829.1 DESCRIPTION**

Construct the designated type of riprap as shown in the Contract Documents.

**BID ITEM**

Riprap (\*) (\*\*)

\*Type: light stone, grouted light stone, heavy stone, grouted heavy stone, or reinforced concrete

\*\*Thickness of reinforced concrete riprap

**UNITS**

Square Yard

**829.2 MATERIALS**

Provide materials that comply with the applicable requirements.

Concrete and Grout .....	<b>SECTIONS 401 &amp; 402</b>
Aggregates for Concrete Not On Grade .....	<b>SECTION 1102</b>
Stone .....	<b>DIVISION 1100</b>
Type 2 Liquid Membrane-Forming Compound .....	<b>DIVISION 1400</b>
Type B Preformed Expansion Joint Filler .....	<b>DIVISION 1500</b>
Reinforcing Steel .....	<b>DIVISION 1600</b>
Welded Steel Wire Fabric .....	<b>DIVISION 1600</b>

**829.3 CONSTRUCTION REQUIREMENTS**

**a. General.** Grade the locations where the riprap is to be placed as shown in the Contract Documents. Prepare for the riprap by undercutting to the depth required for the riprap. After the riprap is completed, backfill and compact around the structure.

**b. Reinforced Concrete Riprap.** After the steel reinforcement is in place, place the concrete starting at the lower end and progressing to the upper end of the riprap. Use Grade 3.0 concrete, unless shown otherwise in the Contract Documents. Uniformly consolidate the concrete without voids.

Finish the concrete surface with a wooden float, followed by a light brooming. Do not walk on the concrete surface during placement.

Apply Type 2 liquid membrane-forming compound as 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.

**c. Stone Riprap and Grouted Stone Riprap.** Place the riprap stones on edge with the bedding plane at right angles to the slope. Place the stones with ends and sides abutting, as much as the size and shape of the stones will allow. Fill the larger spaces between stones with spalls. The finished riprap shall have an even and uniform surface that complies with the Contract Documents.

When designated in the Contract Documents, fill the spaces between the stones with concrete grout. Brush the grout into the spaces until all voids are filled.

Cure the concrete grout according to the requirements for reinforced concrete riprap **subsection 829.3b**.

**829.4 MEASUREMENT AND PAYMENT**

The Engineer will measure reinforced concrete riprap, stone riprap and grouted stone riprap by the square yard, measured along the finished surfaces.

Payment for "Riprap" at the contract unit price is full compensation for the specified work.