

# Special Provision to Item 432

## Riprap



Item 432, "Riprap" of the Standard Specifications is amended with respect to the clauses cited below. No other clauses or requirements of this Item are waived or changed.

Section 432.2.3.4, "Protection." Tables 1 & 2 are amended and Table 3 is replaced with the following.

Table 1  
In-Place Protection Riprap Gradation Requirements

Size	Maximum Size (lb.)	90% Size <sup>1</sup> (lb.)	50% Size <sup>2</sup> (lb.)	8% Size <sup>3</sup> Minimum (lb.)
36 in.	4,400	2,200-3,900	800-1,700	140

1. Defined as that size such that 10% of the total riprap stone, by weight, is larger and 90% is smaller.
2. Defined as that size such that 50% of the total riprap stone, by weight, is larger and 50% is smaller.
3. Defined as that size such that 92% of the total riprap stone, by weight, is larger and 8% is smaller.

Table 2  
Protection Riprap Stone Size<sup>1</sup>

Size	Dmax (in.)	D90 (in.)	D50 (in.)	D8 (in.)
36 in.	38.56	30.61-37.04	21.85-28.09	12.22

1. Based on a Specific Gravity of 2.5 and using the following equation for the intermediate axis diameter  

$$D = 12 \cdot \{W / (Gs \cdot 62.4 \cdot 0.85)\}^{1/3}$$

where:

D = intermediate axis diameter in in.;

W = weight of stone in lbs.;

Gs = Specific Gravity of stone.

**Note**—If the Specific Gravity of the stone is different than 2.5, then the above equation can be used to determine the appropriate size using the actual Specific Gravity.

Table 3  
Protection Riprap Bedding Material Gradation Requirements

Sieve Size (Sq. Mesh)	% by Weight Passing
6"	100
4"	75-35
3"	60-45
2"	0-15