

1114 - STONE FOR RIPRAP, DITCH LINING AND OTHER MISCELLANEOUS USES

SECTION 1114

STONE FOR RIPRAP, DITCH LINING AND OTHER MISCELLANEOUS USES

1114.1 DESCRIPTION

This specification covers stone for the following uses:

- Riprap
- Aggregate Ditch Lining (D₅₀)
- Filter Course
- Flumes, Flume Drains and Slope Drains
- Tree Wells or Cribs
- Shot Rock
- Granular Drainage Blanket

1114.2 REQUIREMENTS

a. Stone for Riprap.

(1) Class. Provide the class for installation as specified in the Contract Documents.

(2) Quality.

- Specific Gravity (S.S.D.), min. (KT-6, Procedure I) 2.30
- Soundness, minimum (KTMR-21) 0.85
- Wear, maximum (KTMR-25) 45%

(3) Product Control.

- Deleterious Substances. Provide stone for riprap that is free from earth, soapstone, shale, shale-like or other easily disintegrated material that decrease the durability of the material after placement.
- Size. The class requirements are given in **TABLE 1114-1**.

TABLE 1114-1: STONE FOR RIPRAP*											
Class	Percent Heavier Than										
	8 ton	4 ton	2 ton	1 ton	½ ton	¼ ton	250 lbs	200 lbs	100 lbs	75 lbs	5 lbs
Heavy Series											
8 Ton	50+	95+									
4 Ton	0	50+	95+								
2 Ton		0	50+	95+							
1 Ton			0	50+	95+						
½ Ton				0	50+	95+					
¼ Ton					0	50+				90+	
Light Series											
Facing								0		50+	90+
Light 24"						0		50+			90+
Light 18"							0		50+		90+

*Percent of total sample weight composed of pieces heavier than the indicated weight

b. Stone for Aggregate Ditch Lining (D₅₀).

(1) Type. Provide the size of ditch lining aggregate as specified in the Contract Documents.

(2) Quality.

- Specific Gravity (S.S.D.), min. (KT-6, Procedure I) 2.40
- Soundness, minimum (KTMR-21) 0.85
- Wear, maximum (KTMR-25) 45%
- Absorption, maximum, (KT-6 Procedure I) 6.0%

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(3) Product Control.

- Deleterious Substances. Provide stone for aggregate ditch lining that is free from earth, chert, cracks, seams, soapstone and shale or other easily disintegrated materials.
- Size. Provide D₅₀ as listed in **TABLE 1114-2**.

TABLE 1114-2: STONE FOR AGGREGATE DITCH LINING (D₅₀)												
Size D₅₀	Max. Size	Percent Retained on Sieve Size (Minimum)										
Inch	Inch	8"	6 ½"	6"	5"	4"	3"	2 ½"	2"	1 ½"	1"	½"
1	2										50	85
2	4							15*	50		85	
3	6					15*	50			85		
4	8				15*	50			85			
5	10		15*		50			85				
6	12	15*		50			85					

*Suggested

c. Stone for Filter Course.

(1) Composition. Provide either singly or in combination, crushed stone or gravel for filter course material as specified in the Contract Documents.

(2) Quality.

- Specific Gravity (S.S.D.), min. (KT-6, Procedure I) 2.30
- Soundness, minimum (KTMR-21) 0.85
- Wear, maximum (KTMR-25) 45%

(3) Product Control.

- Size. Filter course material of Type I, Type II or Type III is listed in **TABLE 1114-3**.

TABLE 1114-3: STONE FOR FILTER COURSE										
Material	Percent Retained on Sieve Size									
	6"	5"	4"	3"	2"	1"	½"	3/8"	No. 4	
Type I		0	0-5		10-40	25-60		55-85	70-95	
Type II			0	0-5			50-90			
Type III	0	5-25			40-60			75-95		

d. Stone for Flumes, Flume Drains and Slope Drains.

(1) Quality.

- Soundness, minimum (KTMR-21) 0.85

(2) Product Control.

- Deleterious Substances. Provide stone that is free from soapstone, shale, shale-like or other easily disintegrated material.
- Size Requirements. Provide stone for flumes, flume drains and slope drains as shown in the Contract Documents or as required by the Engineer.

e. Stone for Tree Wells or Cribs. Stone may be set aside during excavation on the project or obtained from nearby deposits. If stone is not available, use salvaged, durable concrete blocks from old structures or other materials approved by the Engineer.

f. Stone for Shot Rock.

(1) Quality.

- Soundness, minimum (KTMR-21) 0.85
- Wear, maximum (KTMR-25) 45%

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(2) Product Control.

- Deleterious Substances. Provide stone for shot rock that is free from injurious quantities of clay and soapstone.
- Size. Shot rock shall be quarry run with no more than 10 percent larger than 10 feet in circumference measured in any direction and not more than 10 percent passing the 1 inch sieve as determined by visual inspection. The maximum size of the shot rock will be limited by the thickness of the rock to be placed, as shown on the Contract Documents.

g. Granular Drainage Blanket

(1) Quality

- Soundness, minimum 0.85
- Wear, maximum 50%
- Absorption, maximum 4.0%
- Specific Gravity (dry), minimum (by KT-6 Proc. 1) 2.20

(2) Product Control.

- Deleterious Substances. Stone for these types of construction shall be free from soapstone, shale, shale-like or other easily disintegrated material.
- Size Requirements. Provide aggregate for granular drainage blankets that complies with **TABLE 1114-4**.

TABLE 1114-4: AGGREGATE FOR GRANULAR DRAINAGE BLANKETS		
Sieve Size	4 in	No. 10
Percent Retained	0	95-100

1114.3 TEST METHODS

Test aggregates according to the applicable provisions of **SECTION 1115**.

1114.4 PREQUALIFICATION

Prequalify aggregate sources according to **subsection 1101.4**.

1114.5 BASIS OF ACCEPTANCE

a. Aggregates covered by this subsection, except stone for tree wells and cribs, are accepted based on the procedures described in **subsection 1101.5**.

b. Stone for tree wells or cribs are acceptable based on visual inspection by the Engineer.