IOWADOT

**SPECIAL PROVISIONS
FOR
RIPRAP SHORE PROTECTION**

**Des Moines County
EDP-0977(653)--7Y-29**

**Effective Date
June 15, 2021**

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

155060.01   DESCRIPTION.

A. Summary.
Special provision includes riprap shore protection.

B. Quality Assurance.

1. The Contractor shall establish and maintain quality control for all Work performed at the quarry and job site to assure compliance with the specifications.   A written quality control plan shall be submitted to the Engineer for approval prior to material production.

2. The Contractor shall provide a quarry inspector for the stone source. The inspector's responsibilities shall be to ensure that all stone meets the quality and gradation specifications.

3. A visual test shall be made at the quarry for elongation, cracks, deterioration, and other defects visible to the naked eye on at least 2/3 of the surface area of the stone.   Ten percent of the stone checked for cracks shall be wetted and re-inspected for minute cracks to determine if they would be detrimental to the stone quality and if additional inspections are necessary on all stone.   Stones with cracks that are detrimental to a long lasting product shall not be shipped to the Project site.

4. Visual inspections shall be conducted by the Engineer on a periodic basis.   If at any time the stone quality changes such that the requirements of the specifications are not achieved, this shall be cause for rejection.

5. The Contractor shall conduct bi-weekly stone gradations.   Gradations shall be conducted by taking a random sample of stone equal to at least 30 times the average stone weight, weighing each individual piece and recording in table format such that a gradation curve may be assembled.

6. The Engineer and the Contracting Authority reserve the right to inspect the quarry operations at any time to check for compliance to the specifications.

7. The Contractor shall exercise care in the transportation of all stone materials to prevent cracking, splitting, spalling, etc. that would otherwise lead to rejection at the job site.

8. The Contractor shall handle and store bedding material to ensure that stockpiles are not contaminated with other soils and materials, and to limit the segregation of material sizes.

9. The Contractor shall handle and store geotextile in accordance with the manufacturer's recommendations.

155060.02   MATERIALS.

A. **Riprap.**

1. Materials shall meet requirements of Article 4130.01 of the Standard Specifications.

2. All materials to be furnished shall meet all requirements in this section of the specifications. The Contracting Authority or the Engineer, at any time during the contract, may reject materials at the source or at the job site for failure to meet the specified requirements. Materials that have been delivered to the Project site and are rejected, whether in stockpile or in place in the structure, shall be removed from the Project site at the Contractor's expense.

	Rock Size Table						
	Riprap Type	D15 (in)	D50(in)	D85(in)	W15(lbs)	W50(lbs)	W85(lbs)
Toe of boat ramp	Type 1	13.2	18.0	26.4	223	557	1838
Sheet pile Scour Stone	Type 2	22	24	26	980	1320	1640

B. **Geotextile.**
Shall be Embankment erosion control geotextile per Article 4196.01, B, 3 of the Standard Specifications.

155060.03   CONSTRUCTION.

A. **Bedding Stone Placement.**
Bedding material shall be placed and spread free of mounds, dips, and windrows, and then graded to elevations and thicknesses shown on the plans.

B. **Riprap Placement.**

1. The rock shall be placed by equipment on the surfaces and to the depths specified.   The riprap shall be constructed to the full course thickness in one operation and in such a manner as to avoid serious displacement of the underlying materials.   The rock shall be delivered and placed in a manner that will ensure that the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks and spalls filling the voids between the larger rocks.

2. Riprap shall be placed in a manner to prevent damage to structures and bedding spread over the geotextile fabric.   Hand placing may be required to the extent necessary to prevent damage to the permanent works but will not be a separate pay item.

C. Selectively Placed Riprap.
Where specifically required on the plans, the stone shall be placed individually or in small lots by hand or other select methods.   This placement will be both above and below water and will primarily be used as a chinking stone to close large voids in existing armor stone.   All stone shall be within the gradation limits of this special provision; however, stone does not have to be well graded.   Stone sizes should be such that voids in the existing armor stone shall be filled such that all stone is firmly in contact with adjacent stone and remaining voids are less than 6 inches across.

D. Geotextile Placement.

1. Placement of geotextile shall conform to manufacturer's requirements to assure a continuous layer unbroken by rips, tears, punctures, or other physical damage from placement of the fabric or placement of materials over the fabric.

2. Seams between individual pieces of geotextile shall be joined or overlapped to provide a continuous layer.   To the maximum extent possible, seams should be joined in the shop. Fabric shall be overlapped at a minimum of 18 inches at all longitudinal joints and a minimum of 36 inches at all transverse joints.

155060.04   METHOD OF MEASUREMENT.
The areas of Riprap, of the types specified, will be measured by the Engineer to the number of tons placed to achieve the design intent or shoreline stabilization and protection.

155060.05   BASIS OF PAYMENT.
Payment for Riprap, of the types specified, will be for the measured quantity at the contract unit price per ton.   The geotextile fabric placed beneath the riprap will be incidental to this bid item.