Item	Section
Coir Fiber Mat	1060-14

1638-3 CONSTRUCTION METHODS

Construct stilling basins at the locations shown in the plans and at other locations as directed.

Construct earth embankment with a permeable stone drain in a rectangular form adjacent to the stream and culvert following the applicable requirements of Section 235. The maximum height allowed for earth dikes is 5 ft. Excavate below the natural ground for greater depths of basins.

Install coir fiber baffles in accordance with Section 1640 and as directed.

1638-4 MAINTENANCE AND REMOVAL

Maintain the stilling basins, coir fiber baffles and remove and dispose of silt accumulations at the stilling basins in accordance with Section 1630.

Remove the stilling basins as the project nears completion, or at such time the Engineer deems the device to be no longer useful. Prepare a seed bed and seed and mulch the area after removal of the stilling basin in accordance with Section 1660.

1638-5 MEASUREMENT AND PAYMENT

Stilling Basin quantities will be measured and paid in cubic yards, in place and computed by the average-end-method for the actual number of cubic yards of basin capacity. The measurements will be the internal measurements of the basin measured up to the top of the permeable stone drain. Materials used to construct the basin that originates from another payment item (i.e. unclassified excavation, borrow excavation) will not be deducted from the volume of that original pay item.

Stone for Erosion Control, Class ____ will be measured and paid in accordance with Section 1610.

Sediment Control Stone will be measured and paid in accordance with Section 1610.

Coir Fiber Baffle will be measured and paid in accordance with Section 1640.

Payment will be made under:

Pay Item	Pay Unit
Stilling Basins	Cubic Yard

SECTION 1639
SPECIAL STILLING BASIN

1639-1 DESCRIPTION

Furnish, place and remove special stilling basins as directed. The special stilling basin can be used to filter pumped water during construction of drilled piers, footing excavation or culvert construction. The special stilling basin can be used for sediment storage at the outlet of temporary slope drain pipes.

1639-2 MATERIALS

Refer to Division 10.

Item	Section
Geotextile for Drainage, Type 2	1056
Sediment Control Stone, Standard Size No. 5 or 57	1005

Use geotextile and sediment control stone that is clean and without debris.

Use a special stilling basin that is a water permeable geotextile bag that traps sand, silt and fines as sediment-laden water is pumped into it, or as runoff flows into it through the temporary slope drain pipe(s).

Provide special stilling basin of a bag constructed to a minimum size of 10 ft x 15 ft made from a nonwoven geotextile. Provide a sewn-in 8" (maximum) spout for receiving pump discharge. Sew the bag seams with a double needle machine using a high strength thread. The seams shall have a minimum wide width strength of 60 lb/in in accordance with ASTM D4884.

Construct the bag with a geotextile stabilized to provide resistance to UV degradation meeting Table 1639-1.

TABLE 1639-1
GEOTEXTILE PROPERTIES

Property	Minimum Requirement	Test Method
Weight	8.0 oz/yd	ASTM D3776
Grab tensile	200.0 lb	ASTM D4632
Puncture	130.0 lb	ASTM D4833
Flow rate	80.0 gal/min/sf	ASTM D4491
Permittivity	1.2 1/sec	ASTM D4491
UV Resistance	70.0%	ASTM D4355

1639-3 CONSTRUCTION METHODS

Install the special stilling basin(s), geotextile and stone in accordance with *Roadway Standard Drawings* No. 1630.06 and at locations in the plans and as directed. Place the special stilling basin(s) on level ground.

Construct the special stilling basin(s) such that it is portable and can be used adjacent to each drilled pier, footing and/or culvert, as required by the project commitments. Temporary slope drain pipe(s) or pump discharge hoses will be attached to the special stilling basin(s) to divert runoff or pumped effluent directly into the special stilling basin(s). The special stilling basin may be cut to allow slope drain pipe to be inserted if needed and tied off tightly. The remaining sleeve or spout of the bag, if present, may be used to connect more than one special stilling basin in series as directed. If not used in this manner, the sleeve shall be tied off tightly to allow the bag to contain the effluent and force it to filter through the sides of the special stilling basin. Place the special stilling basin(s) so the incoming runoff or pumped effluent flows into and through it without causing erosion to adjacent slopes or streambanks. In areas of turbidity and water quality concern, place the special stilling basin(s) up grade and direct its runoff into a sediment control measure before being allowed to discharge into jurisdictional waters.

Replace and dispose of the special stilling basin(s) when it is 3/4 full of sediment or when it is impractical for the bag to filter the sediment out at a reasonable flow rate. Prior approval from the Engineer shall be received before removal and replacement.

Provide a sufficient quantity of bags to contain silt from pumped effluent during construction of drilled piers, footing excavation and culvert construction. A sufficient quantity of special stilling basins shall be provided to contain sediment from temporary slope drain runoff.

1639-4 MEASUREMENT AND PAYMENT

Special Stilling Basin will be measured and paid as the actual number of bags used during temporary slope drain installation, drilled pier construction, footing excavation or culvert construction as specified and accepted.

Geotextile for Drainage will be measured and paid in accordance with Article 876-4.

Sediment Control Stone will be measured and paid in accordance with Section 1610.

Such price and payment will be full compensation for all work covered by this section, including but not limited to, furnishing all materials, placing and maintaining the special stilling basin(s) and removal and disposal of silt accumulations and bag.

Payment will be made under:

Pay Item	Pay Unit
Special Stilling Basins	Each

SECTION 1640
COIR FIBER BAFFLE

1640-1 DESCRIPTION

Furnish material, install and maintain coir fiber baffles according to the details in the plans or in locations as directed. Install coir fiber baffles in silt basins and sediment dams at drainage outlets. Work includes providing all materials, placing, securing, excavating and backfilling of coir fiber baffles.

1640-2 MATERIALS

(A) Coir Fiber Mat

Provide matting to meet Table 1640-1.

TABLE 1640-1
COIR FIBER MAT PROPERTIES

Property	Requirement
Composition	100% coconut fiber (coir) twine woven into high strength matrix
Thickness	0.30" minimum
Tensile Strength	1348 x 626 lb/ft minimum
Elongation	34% x 38% maximum
Flexibility (mg-cm)	65030 x 29590
Flow Velocity	Observed 11 ft/sec
Weight	20 oz/sy
Size	6.6 x 164 ft (120 sy)
“C” Factor	0.002
Open Area (measured)	50%

(B) Staples

Provide staples made of 0.125 in. diameter new steel wire formed into a U-shape not less than 12" in length with a throat of 1" in width.

(C) Posts

Provide steel posts at least 5 ft in length, approximately 1 3/8" wide measured parallel to the fence and have a minimum weight of 1.25 lb/ft of length. Equip the post with an anchor plate having a minimum area of 14.0 sq.in. and of the self-fastener angle steel type to have a means of retaining wire and coir fiber mat in the desired position without displacement.

(D) Wire

Provide 9-gauge high tension wire strand of variable lengths.

(E) Attachment Device

Provide No. 9 staple with at least 1 1/2" length or other approved attachment device.