

ITEM # 0210306 A - TURBIDITY CONTROL CURTAINS

Description:

This work consists of furnishing, constructing, installing, maintaining, and ultimately removing a turbidity curtain from the Connecticut River to minimize the drift of suspended sediment in the river. Construction of the turbidity curtains shall be as indicated and as directed by the Engineer.

Submit the following in accordance with Form 816 Article 1.20-1.05.02 and NOTICE TO CONTRACTOR – SUBMITTALS.

1. Product Data: the manufacturer's drawings and technical specifications to the Engineer for approval.

Materials:

A. Curtain: The curtain shall be a synthetic material coated with suitable elastomeric or polymeric compound and have a high resistance to weathering, hydrocarbons, fresh and salt water, and temperature extremes. The material shall have a tensile strength of not less than 200 lb (890 N) when measured lengthwise or crosswise. Seams, if required, shall be either vulcanized welded or sewn and shall develop the full strength of the material.

B. Flotation Units: Flotation units shall be flexible, buoyant units contained in a flotation sleeve or collar attached to the turbidity curtain. Buoyancy provided by the flotation units shall be sufficient to support the required width of the turbidity curtain and maintain a freeboard of at least 3" (75 mm) above the water surface level.

C. Load Lines: Load lines shall be fabricated into the top and bottom of the turbidity curtain. The top load line shall consist of woven webbing or vinyl sheathed steel cable and shall have a minimum breaking strength of 10,000 lb (44.6 kN). The bottom loadline shall consist of a 3" (6 mm) galvanized steel chain incorporated into the bottom hem of the turbidity curtain to act as ballast. The load lines shall have suitable devices which develop the full breaking strength for connecting to load lines in adjacent sections.

D. Fasteners: Fasteners shall be either 5/8" (16 mm) long brass or copper staples, or 17 gage (1.37 mm) galvanized or aluminized steel tie wires long enough to securely attach the fabric to the posts.

E. Anchors: Anchors shall be standard marine type boat anchors. The Contractor shall use Danforth type anchors for sandy bottoms, or kedge or mushroom type anchors for mud bottoms. The size, weight, and overall number of the anchors shall be sufficient to hold the turbidity curtain in its intended location. Alternate anchoring methods such as heavy concrete weights, driven pilings, or stakes may be used if approved, prior to use, by the Engineer. Such alternative materials shall be sufficient for holding Turbidity Control Curtains in place.

F. Rope: Rope shall be polypropylene, 5/8" (16 mm) diameter, with a minimum breaking strength of 800 lb (3.6 kN).

Construction Methods:

A. General:

1. When assembling and installing a turbidity curtain, the Contractor shall follow the directions of the turbidity curtain manufacturer.
2. Unless otherwise directed by the Engineer, the Contractor shall begin installation at high tide from a shoreline anchorage and work along with the current in a downstream direction.
3. The turbidity curtain shall form a continuous vertical and horizontal barrier to suspended sediment. The bottom of the turbidity curtain shall rest in contact with the bottom of the river for the entire length of the turbidity curtain. The top of the turbidity curtain shall extend above the water surface with at least a 3" (75 mm) freeboard for all stages of water levels.
4. All construction activities which generate any sediment or turbidity into the river shall be contained within the turbidity curtain.

B. Installation of Floating Turbidity Curtain:

1. The turbidity curtain shall be floated into position, attached to the anchor lines, and then unfurled.
2. The Contractor shall securely attach curtain panel ends together using rope lashings. The top lashing shall be securely tied to the anchor line.
3. The Contractor shall place the anchors such that the turbidity curtain remains in the Plan location and none of the flotation devices are pulled under the water surface. If directed by the Engineer, the Contractor shall supply and place additional anchorage.

C. Maintenance of Turbidity Curtain:

1. Throughout the Project construction period, the Contractor shall maintain the turbidity curtain so that no sediment caused by the Project enters the river beyond the turbidity curtain.
2. All turbidity curtain damaged prior to installation, during installation, or during the life of the Contract shall be repaired or replaced to the satisfaction of the Engineer.

D. Removal of Turbidity Curtain:

1. The turbidity curtain shall remain in place until the Project is complete and the turbidity has settled to no more than what existed prior to the start of construction.
2. When directed by the Engineer, the turbidity curtain shall be furled in place, then released from its anchors and towed out of the water. The turbidity curtain and all materials incidental to the construction of the turbidity curtain shall be removed in such a manner as to minimize turbidity to adjacent waters.
3. The turbidity curtain and related components shall become the property of the Contractor and shall be removed from the Project.

Method of Measurement:

The quantity of floating and staked turbidity curtain will be measured, from edge to edge of the turbidity curtain along the support cable, as the actual number of linear feet of turbidity curtain placed and accepted.

Basis of Payment:

The quantity of floating turbidity curtain will be paid for at the Contract unit price per linear foot of curtain. Price and payment will constitute full compensation for furnishing, assembling, installing, maintaining, and removing the turbidity curtain and all materials incidental to the construction and installation of the turbidity curtain, and for all labor, tools, equipment, and incidentals required to complete the work.