

SPECIAL SPECIFICATION**5912****Floating Turbidity Barrier**

1. **Description.** Supply, install, maintain, and remove floating turbidity barrier (FTB) to minimize transport and accomplish the isolation of contaminated materials disturbed as a result of bridge construction operations. This Item shall govern for the furnishing of all labor, equipment and materials necessary to complete this work at the locations as shown on the plans, or as approved by the Engineer. The FTB shall be manufactured in accordance with the following specification. The barrier and installation shall be sufficient for a tidal flow condition where the velocity of flow may reach 5 feet per second (or a current of approximately 3 knots).
2. **Materials.** The FTB supplied shall be a standard manufactured product. All materials shall be corrosion resistant. Materials at the water surface shall not degenerate when exposed to sunlight, oils, and petroleum products. The manufacturer shall supply a certification that the product supplied meets the requirements of this specification.

The floating turbidity barrier consists of a PVC coated nylon section and a geosynthetic barrier/curtain section, load line, mooring lines, adjustment lines and tie-downs, floatation, ballast, anchors, mooring buoys, and lighted buoys.

- A. **Turbidity Barrier/Curtain.** The turbidity barrier/curtain geosynthetics shall have the following properties:
 - The top section shall consist of an 18-22 oz. PVC coated nylon fabric. It shall be a bright yellow or orange color to be easily seen.
 - The bottom section shall consist of a geosynthetic having a filtration Apparent Opening Size (AOS) of 0.220 mm maximum for non-woven geotextiles, and AOS of 0.425 mm maximum for woven textiles, when tested in accordance with ASTM D 4751-99a.
 - Be a non-woven or woven material such that the opening size cannot be enlarged under pressure or by being snagged.
 - The turbidity barrier/curtain shall have a minimum grab strength of 300 psi when tested in accordance with ASTM D 4632-91.
- B. **Floatation.** Turbidity barrier/curtain floatation material shall be a closed cell solid foam material which has sufficient buoyancy to provide the curtain with continuous support, and a minimum of 6 inches freeboard. The sections of floatation shall be installed such that they can not move along inside the sleeve and the space between sections shall not be more than twice the thickness of the floatation material.

- C. **Load Lines.** Load lines shall be minimum 5/16 in. vinyl coated galvanized aircraft cable with 9800 lb. breaking strength. The load line shall have galvanized connectors with tool free disconnect.
 - D. **Mooring Lines.** Adjustment lines shall be minimum 1/2 in. nylon rope.
 - E. **Adjustment Lines and Tie Downs.** Adjustment lines and tie down lines shall be minimum 1/2 in. nylon rope.
 - F. **Ballast.** Ballast shall be minimum 5/16 in. galvanized steel chain.
 - G. **Anchors.** Turbidity barrier/curtain anchors shall have a sufficient mass and be spaced to secure the barrier as recommended by the manufacturer depending on the current velocities.
 - H. **Mooring Buoys.** Mooring buoys shall have provisions for the mooring line to be securely attached and be sufficiently buoyant to remain afloat under normal load conditions.
 - I. **Lighted Buoy.** Lighted buoy's shall be manufactured self-contained buoys with automatic flashing lights (on at dusk, off at dawn) installed at 40 ft. on center with a minimum of three lighted buoys along the navigable channel.
3. **Construction.** Construction methods, workmanship, equipment and materials used shall conform to industry standards, as specified in the plans or as directed by the Engineer. Coordinate placement of the barrier with the bridge construction contractor prior to commencement of any work that could impact the area of concern. Ensure that the type of barrier used and the deployment and maintenance of the barrier will minimize dispersion and/or transport of contaminated materials from the isolated operations area. The barrier shall have sufficient ballast to anchor the barrier along the channel bottom, as approved by the Engineer. Minimize disturbance of the channel bottom in placement, maintenance and removal operations.

Maintain FTB in place until bridge construction operations have progressed to the point where no further disturbance of contaminated material is anticipated. Inspect FTB for integrity at a minimum of once per month. Respond to maintenance requests by the Engineer within the time frame shown on the plans. Upon approval by the Engineer, remove and dispose of barrier and all associated appurtenances in accordance with applicable regulations. Treat removed turbidity barriers and appurtenances as contaminated materials and dispose of them in accordance with applicable regulations.

- 4. **Measurement.** Measurement of this item will either be by lump sum or by the linear foot of barrier installed, removed and disposed of.
- 5. **Payment.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Floating Turbidity Barrier (Install, Remove and Dispose)" or "Floating Turbidity Barrier (Install)" and "Floating Turbidity Barrier (Remove and Dispose)." As shown in the plans, required maintenance will either be subsidiary to the pertinent bid items or be paid for by force account in accordance with Item 4.2 of the Standard Specifications.

This price shall be full compensation for all materials, tools, equipment, labor and all incidentals, including installation, inspections, and adjustments as needed during operation, removal, and disposal.