

Targeted Constituents

● Significant Benefit		◐ Partial Benefit		○ Low or Unknown Benefit	
● Sediment	○ Heavy Metals	○ Floatable Materials	○ Oxygen Demanding Substances		
○ Nutrients	○ Toxic Materials	○ Oil & Grease	○ Bacteria & Viruses	○ Construction Wastes	

Description A floating sediment curtain is used within a stream, river or lake as a last line of defense to capture sediment and silt. It can also be used in a sediment basin or a settling pond to ensure adequate capture of sediment and silt. A floating sediment curtain will significantly reduce sediment in critical areas such as streams, rivers, and aquatic habitats.

- Suitable Applications**
- Adjacent to banks where construction, grading or excavation will take place up to the edge of water or within the body of water.
 - Within a temporary sediment basin or a settling pond to assist in capture of sediment and silt.
 - For dredging projects.

Approach A floating sediment curtain is made from a heavy geotextile fabric, typically 16 to 20 ounces per square yard, with sufficient properties to capture most types of silt and sediment. Floatation is often achieved by styrofoam or other very light material that will not degrade in water. Geotextile panels are reinforced and sewn to include the floatation material, chains, hooks, and other connection equipment as needed. Geotextile fabric should have ultraviolet inhibitors and adequate strength to match the application without failing.

Any type of construction or project that takes place within “Waters of the State” is regulated by the Tennessee Department of Environment and Conservation (TDEC). The usual definition for Waters of the State is any blue-line stream which is shown on a USGS quadrangle map, or any point downstream from where the blue-line stream begins, including lakes, ponds, and wetlands. See TDEC website for additional information on requirements for an Aquatic Resource Alteration Permit (ARAP), which must be obtained prior to construction, clearing, grading, or any other disturbance near a body of water.

<http://www.state.tn.us/environment/permits/>

Floating sediment curtains are not intended for use across flowing streams or rivers. Although this may appear to be the easiest way to anchor a floating curtain, it is not designed to filter large quantities of flowing water nor can it resist the large forces involved. Floating sediment curtains should not be placed across navigation channels, streams with fish or other migrating aquatic life, or recreational streams.

Floating sediment curtains are commercially available with adequate sizes and strengths for almost any application. Follow manufacturer’s recommendations and design guidelines when using these products. In most instances, installation will require boats

and anchoring hardware for which an experienced subcontractor is recommended.

Design Considerations

Curtains should generally extend from the water surface to the bottom of channel, with a reasonable effort to match the bottom profile of channel. Typically allow 10% extra depth for curtain, and fold the extra depth towards the land side of the curtain. Allow 10% extra length to allow for some curtain flexibility, anchoring points, current, etc.

The choice of whether to use a pervious material (geotextile filter fabric) or an impervious material (nylon reinforced vinyl) depends on the type of silt or sediment expected. A pervious material will allow small amounts of water to pass through, but is generally insufficient to allow a moving stream to pass through.

Curtain joints (as shown in Figure ES-27-1) are typically 50 to 100 feet apart, which allows for flexible deployment choices, easier storage, and reduced stress on the fabric. The alternate connection detail is for situations which have moving water or other stresses, or to assist in anchoring. In general, the curtain should be anchored or staked at every joint using built-in fasteners and loops.

The floating sediment curtain should generally be made of bright colors for visibility, such as yellow or orange, or the curtain should have buoys or floats attached to increase visibility. The floating sediment curtain should have at least 3" freeboard above the water surface. The type and size of buoyant material should be computed to offset the weight of curtain, including the fabric, ropes, chains and other fasteners used.

Maintenance

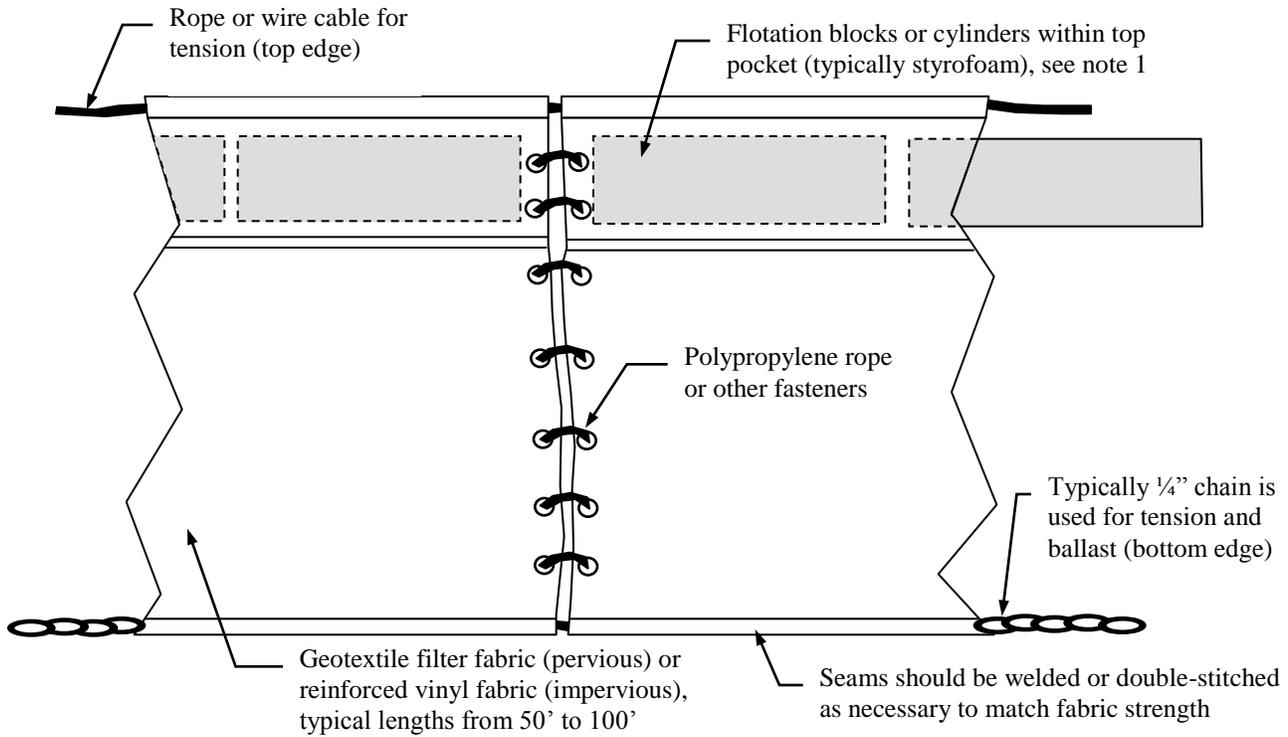
- Inspect floating sediment curtain daily to verify that silt and sediment are not bypassing the curtain. Repair or replace curtain as necessary, using materials and methods recommended by the geotextile manufacturer.
- In shallow areas, trapped sediment can be more easily removed than in deep waters. If the curtain has some excess length, it may be possible to carefully raise the bottom edge by swinging it slowly upstream and raising it. Otherwise, equipment with appropriate bucket attachments can be used. It may be less harmful to leave sediments in place rather than to dredge and remove them.

Limitations

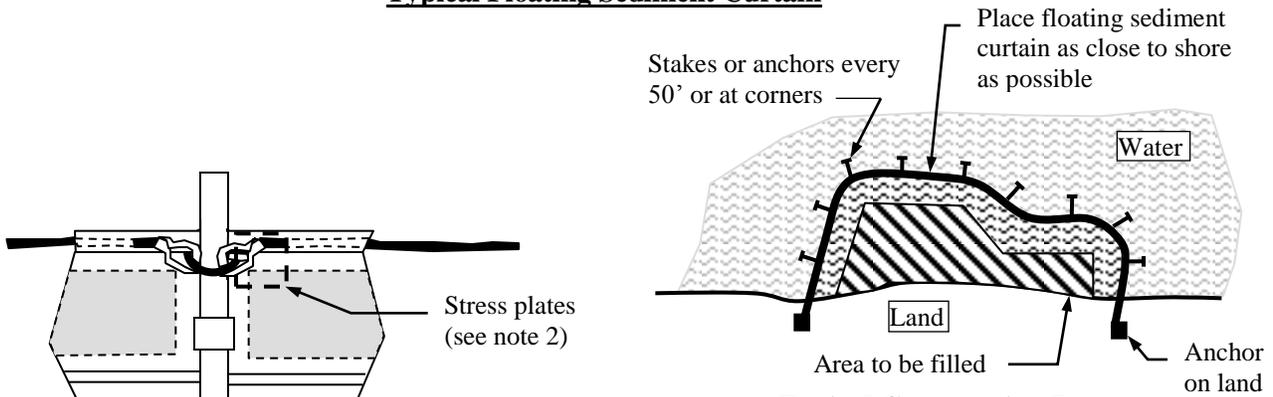
- A floating sediment curtain is the last line of defense in controlling sediment. Use silt fence or straw bale barriers up to the edge of water. Silt fence can be installed in shallow water less than 1' deep, and may be adequate to replace a floating sediment curtain for some situations.
- Usually requires design and installation by experienced subcontractor. Floating sediment curtains are manufactured commercially and are highly recommended.
- Floating sediment curtains are not intended for petroleum spills, chemical spills, or other instances of floating liquids. Use an absorbent boom specifically made to capture the type of spilled liquid.

References

45, 115, 141 (see BMP Manual Chapter 10 for list)



Typical Floating Sediment Curtain



Typical Construction Layout

Notes:

1. Typical styrofoam block size ranges from 4" x 4" up to 12" x 12". Size and buoyancy requirements depend on weight and length of curtain.
2. Stress plates may be attached to the fabric and cable in situations with flowing water, high winds, or other strong loads.

NOT TO SCALE

Alternate Connection Detail

**Figure ES-27-1
Floating Sediment Curtain**