

CURTAIN/BOOM DEPLOYMENT

Preparation

This is a basic guide to installing the barriers. It is in no way comprehensive and is limited to generic information as each site is unique along with contractor ability and equipment.

Several sections of Elastec/American Marine Silt Curtain/Boom can be attached together to create the total length of Silt Curtain/Boom required for the application.

It is very important to prepare the site where the Silt Curtain/Boom will be installed – normally this is done by reviewing the site plan and site walk. Careful assessment of all the hydrodynamic conditions should be considered i.e. waves, wind, current, tidal variance, maintenance, staging area for deployment and safety.

Tide Slides (if being utilized)

Install I-Beam of suitable size in appropriate locations. Take into consideration loading on Silt Curtain/Boom and ease of maintenance.

Install Tide Slide by sliding it over the face of the beam and allowing it to float freely (the end of the Silt Curtain/Boom connector will connect to this when towed into place).

Silt Curtain/Boom Deployment

- 1) Position bundled Silt Curtain/Boom sections at deployment site.
- 2) Attach tow bridle rope to boom end connector and secure with toggle pin.
- 3) Cut Silt Curtain/Boom section bundle tying straps and pull or float Silt Curtain/Boom into water.
- 4) Repeat steps for succeeding Silt Curtain/Boom sections.
- 5) Connect Silt Curtain/Boom section end connectors and secure with attached toggle pin.
- 6) Once all Silt Curtain/Boom is in water tow to shore connection/anchor points.

Slide connector into shore anchor bridle or tide slide, insert toggle pin. Repeat on opposing side.

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Silt Curtain/Boom Anchoring

Each section of Silt Curtain/Boom contains two (2) anchoring points at the connector. These are eye-bolts. In anchoring a section of Silt Curtain/Boom it is best to place and set the anchors before attaching the Silt Curtain/Boom to them. In tidal or other conditions where the Silt Curtain/Boom may be subject to loading from either side it is best to anchor the Silt Curtain/Boom from both sides so that a wind or current change cannot allow the Silt Curtain/Boom to override the anchors or pull them free.

Silt Curtain/Boom Maintenance

A scheduled visual inspection is required to determine if all components are working as intended, is recommended. Special attention needs to be given to all load carrying components (i.e. cables, shackles anchors and connectors). These should be attached correctly and free of build-up to function as intended. Periodic re-tensioning of the cables and anchors may be required and GPS readings should be taken if it is not able to visually determine correct location.

Scheduled cleaning is desirable to ensure that the barriers maintain their integrity. All marine growth (algae, etc) should be brushed off with stiff PVC bristled broom or pressure washers by divers (if in water).

Sections can be removed and swapped out with spare section (should they be purchased) to enable cleaning on shore if so desired. When water elevation change occurs, adjustments may need to be made to anchor and mooring lines, to ensure they do not get submerged and which may lead to failure.

Maintenance of these systems is paramount as excessive marine growth, if not removed, will cause system damage over extended periods. Each site has unique conditions and a schedule of maintenance can only be determined by either installing a test section on site to monitor prior to purchase and then determine exact growth under the conditions present or by inspections on installed barriers once they are fully deployed.

The manufacturer recommends following all installation recommendations, ,maintenance, and emergency handling instruction to achieve best use and results from this system.

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Cleaning and Preparation of Surfaces

1. Three methods are recommended for cleaning and preparation of Silt Curtain/Boom surfaces prior to repair. The three methods are:

- A. High pressure water cleaning - 1300 psi max
- B. Scrubbing with commercially available detergent
- C. Steam cleaning

NOTE: Dependent of the condition and severity of the soiled area, the three methods can be used singly or in combination.

A. High Pressure Water Cleaning

- 1) Apply high pressure water to the soiled area of the boom without concentrating full pressure (1300 psi) for long periods of time (maximum of 5 minutes) to any one spot on the Silt Curtain/Boom fabric. Caution: Concentrating high pressure water in one spot for long periods of time may result in damage to the fabric and flotation.
- 2) Use a long handle brush to assist the water pressure in cleaning the Silt Curtain/Boom fabric.
- 3) Allow the Silt Curtain/Boom fabric to dry after cleaning.

B. Scrubbing With Commercially Available Detergent

NOTE: The Silt Curtain/Boom fabric manufacturer recommends Proctor and Gamble “Dawn” detergent as the commercially available cleaning agent.

- 1) Prior to detergent scrubbing, wash Silt Curtain/Boom with clean water to remove surface dirt and debris.
- 2) Using a bucket or container, mix detergent solution in accordance with the manufacturer’s label instructions.
- 3) Apply detergent solution to Silt Curtain/Boom fabric soiled area and scrub with long handle brush.
- 4) Rinse scrubbed area with clean water.
- 5) Allow Permafence fabric to dry after cleaning.

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C. Steam Cleaning

1) Use a commercial steam cleaner to remove dirt and debris from boom/curtain fabric and hardware.

CAUTION: Wand of steam cleaner should be kept in constant motion to avoid damage to curtain/boom fabric with high heat concentration (180 F at 80 psi).

2) Allow PVC fabric to dry after cleaning.

The following is an example of *typical equipment*, services and materials that *may be* needed for installation- this is by no means comprehensive and only a guide;

Prior to equipment arrival anchor points are to be identified and set as sturdy termination points for the boom /curtain ends. These should be capable of holding horizontal load of equal to the TENSION CABLE load, plus a minimum safety factor of 1.2. This is something that owner engineers can design and have put in place by contractors.

Anchors to be made or available prior to our arrival if not purchased from us. This will save on time and owner money due to delays.

Minimum of 6 Personnel (3 each with experience in using heavy construction equipment (crane, forklift, workboat, welding, etc) and preferably with marine construction experience. The remaining 3 should be proficient in using hand tools like wrenches, ratchets, etc for general laboring.

Once the goods arrive on site one will need a small crane or forklift to move the bundles of 15-meter lengths around and the anchors to the workboat/s. Each section weighs about 1000 lbs (dry weight) to a prepared staging area that is flat and suitable to work on- a parking lot area, boat ramp or similar is fine right next to the water.

Equipment typically required by contractor/owner)

2 -way radios 1 for each boat, and 1 on shore for communication.

Hand tools, like adjustable wrenches, work knife, Cable cutters, etc.

2 each work boats (preferably one with a flat bottom and the other with a V-hull), Minimum 21' Long, 8 feet wide, stable, with minimum 90 HP motor on the back. Equipped with a strong centrally located towing point. The flat bottom boat should be capable of handling at least 1 anchor (more is preferred as it speeds installation) at a time and be equipped with a small derrick crane to raise/lower the anchor blocks into place- this depends on anchor size.

Safety equipment for all personnel- gloves, work vests, hard hats

First Aid box

Access to drinking water and ablution facilities

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