

Construction Site Silt & Mud Control to Watercourses & Site Boundaries

Site Silt Fence Installation (Barratt Good practice Guide)

BDW to adhere with NRW/Environment Agency Code of Practice PPG5 Works in, Near or Liable to Affect Watercourses.

Surface water run-off must be controlled to prevent silt contamination of the existing site drainage. All earth stock piles will be sealed by using the back of the bucket and plant movement around site will be minimised as far as is reasonably practical.



A good placement for silt fence but the installation allowed runoff to funnel directly into the intake.

A proper silt fence installation is much more complex than people think – and more than manuals specify. In the past and in many areas today, silt fence is spoken about in one or two sentences and a couple of bullet points. Since it is rarely installed properly, people don't give it due credit nor understand its potential.

Properly installed silt fence is the most effective temporary sediment control device available. It can withstand concentrated flows (not to be confused with continuous flows), heavy winds, and potentially retain 18 inches of sediment – often times 10-20 tons of sediment per run of fence. It is relatively fast to install so it can go in on short notice, inexpensive, and the posts are recyclable.

However, it is somewhat better utilized for open construction and residential development sites than individual home lots under construction. For maximum effectiveness, any sediment retention device must filter sediment contained in runoff or pond water for deposition/sedimentation to occur, and that is harder to achieve on an individual lot with busy construction traffic.

And that is one of the two most common problems of silt fence: 1) improper placement where ponding cannot occur, and 2) installation issues such as lack of proper backfill and proper compaction.

A proper silt fence installation is like a log chain, if one link is broken, the whole system is ineffective. Silt fence installation has 6 links to be effective: placement, quantity, installation, compaction, posting, and attachment. You can not talk about effective silt fence without including all of the elements.

Placement refers to where and in what shape silt fence is placed on site. Remember, silt fence must pond and filter water! No matter how well it is installed, if water runs around the end(s), the silt fence is worthless. It must be placed where it will store water, with the ends higher than the some interior point - often times a 'smile' or J-hook shape is required to create a storage area. Long runs should be avoided, and broken up into smaller segments.

On-site adjustment is mandatory for an effective silt fence as slopes, etc. can't be anticipated on a desktop and designs may have to change to fit the site. A good contractor should have someone on the crew knowledgeable about sediment control to decide the proper placement of silt fence. The first goal is creating a storage area for runoff and filtration, the second is storing the greatest quantity of water without large overflows.

Quantity refers to area of control. A good rule of thumb is a maximum of 100 linear ft. per 10,000 sq. ft. of area. A one inch per hour rain event produces 6200 gallons of water on just 10,000 sq. ft., so for effective design, utilize multiple runs (smiles) to create multiple storage areas, which also reduce the flow velocities.



J-hooks create ponding area for sedimentation.

Mechanical installation does not excavate soil and leave the spoil dispersed, provides consistent and dependable silt fence installation, and reduces many labor-related installation problems.

Compaction refers to increasing the soil density. The research concluded there is a high correlation between silt fence efficacy and compaction. Installations with adequate compaction resisted washouts, and those with minimal compaction had poor performance. Compaction minimizes water saturating the soil, and thus stabilizes the installation. If trenching, the soil must be over back-filled and compacted with the wheel of a machine to achieve effective results.

Posting refers to proper post spacing and depth in the soil. Posts should be 4-5 ft. apart where water will concentrate, and 6-7 ft. in low stress areas or per the specifications. Posts should be as deep in the ground as the fabric is above the ground. Steel posts are easier to install to the proper depth and have a better life span than wood posts.



Multiple runs break the control area into manageable storage areas.

Attachment refers to properly securing the fabric to the post because it must support 18 inches of water and sediment. Three plastic ties or wire, installed diagonally within the top eight inches of a steel post perform well. Multiple staples or even a small lathe over the fabric is used to secure fabric to wood posts.

The most common problems with silt fence are:

- Improper installation – some vague attempt at trenching, or none at all, with little or no backfill, and thus no compaction.
- Posts 8-10 ft. apart and too shallow to stand up against a load and where the fabric is sagging only a few inches above the ground.

Water, especially in volume, is a tremendous force. Because silt fence is mechanically installed in the soil, and supported mechanically, it can detain hundreds of pounds of sediment and water – even a concentrated flow (contrary to general opinion).

Wire creates voluminous, expensive disposal costs thus causing greater environmental harm than benefit. The only reasonable excuse for wire (other than it is status quo) has been that construction people don't like to drive over it, so it doesn't seem to have much credibility from the bureaucratic side either.



Do not remove sediment. Build a new silt fence for full capacity.



A properly installed silt fence retaining runoff for sedimentation to occur.

It is much better to build a new run of silt fence above or below the existing one, and start fresh. If there is not room, the whole installation must be removed, graded out, and reinstalled.

A functioning sediment retention device should be retaining runoff and/or sediment after a rain event. Devices are not filtering if there is no evidence of sediment unless, of course, effective erosion control practices have been implemented upstream. The lack of sediment or ponding runoff is a sign of either poor effectiveness or good erosion control and the

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