Silt fence is one of the cheapest and most effective ways to keep storm water sediment on a construction site. However, it needs to be installed and maintained properly to work as it was designed. A silt fence that is correctly designed and maintained can retain as much as eighteen inches of sediment on site.

A good installation begins with site selection. Silt fence is designed for sites down-gradient from the disturbed area. It will intercept sheet erosion and direct it to a holding pond where the sediment will settle out before water leaves the site. Having silt fence up-gradient of the disturbed area serves no purpose. Also, letting water run around the ends or under the bottom of the silt fence does not work.

Installation issues are the largest cause of silt fence failure. Twelve inches of the silt fence needs to be backfilled and compacted into a six-inch deep by six-inch wide trench. Lay the fabric in the bottom of the trench and toward the downhill side of the trench so twelve inches of the fabric will be buried when complete. Stakes should be placed two inches downhill of the trench in undisturbed soil. Stakes should be placed no more than ten feet apart and as close as four to six feet in areas where water collects. Splices in the fence should be wrapped together for added strength.

Maintenance is the real key to an effective silt fence. The better the fence is installed the less maintenance will be required. The silt fence needs to be inspected weekly to reattach loose fabric or replace washed out sections of soil. Once the silt fence is full of sediment it may be easier to replace the fence rather than trying to clean the sediment from around the fence. Remember that silt fence isn’t the only tool in the toolbox and does not work for all applications. But with proper placement, installation and maintenance it is an effective tool.
Common Silt Fence Failures

Common mistakes in silt fence use can be avoided with good installation and maintenance. Gaps at joints and holes dug under the fabric are two of the most common failures with silt fence as a stormwater Best Management Practice (BMP). Joints can be secured by wrapping the fabric around both stakes a few times and reinforced with wire. If joints are not secure, any pressure from wind, water or equipment can cause stress to the joint and result in failure. Holes allow stormwater to run under the fabric, negating and benefit the silt fence was intended to provide; fill in holes as soon as possible. Animals sometimes burrow under the fabric, but most of the time the hole is dug by a person unfamiliar with the purpose of the silt fence.

Large storms or runoff events can put a lot of stress on the silt fence BMP. Inspect stakes and look for signs of weakness to prevent fence failure. Also, large equipment and truck traffic has been known to ‘take out’ a fence or two. Be diligent about maintaining or replacing those BMPs according with the permit requirements. Each stormwater permit is unique and it is important to understand the expectations of the regulatory authority in maintaining stormwater BMPs throughout the project.

For more information on stormwater permitting:
http://deq.state.wy.us/wqd/WYPDES_Permitting/WYPDES_Storm_Water/stormwater.asp