

sediment control

Silt fences, or temporary sediment control fences, often are the most visible form of erosion or sediment control on a construction site. Used properly, silt fences can limit the transport of eroded soil from disturbed areas.

A silt fence is not an erosion control device; it is a sediment control device. As soil particles become dislodged due to human activity, rain, wind and/or other natural forces, they become sediment or “silt.” Silt fences are designed to control this sediment.



function

While a silt fence may be viewed as a filtering device, it is probably better described as an energy dissipater. It is a vertical permeable interceptor designed to slow runoff and allow settling of soil particles from sediment-laden water. Even though the silt fence fabric (geotextile) does allow water passage while retaining most soil particles, the sediment actually settles out of the water before it reaches the fence.

A silt fence is intended for non-concentrated water such as sheet flow. It is not intended for concentrated flows of channels or swales.

Silt fences are either pre-assembled (into a ready-to-install unit) or assembled in the field. Tractors with special attachments can slice a narrow trench in the soil and insert a fabric into the trench in a simultaneous operation.

The geotextile, posts, fastening method, post spacing and reinforcement can be specified using industry-accepted test methods. Silt fence installation procedures also are readily available.

environmental impact

Sediment in stormwater is a pollutant. Other pollutants such as fertilizers, pesticides, oil and grease make stormwater runoff our most common cause of water pollution. In the United States, the Environmental Protection Agency has created the National Pollutant Discharge Elimination System. This permit program controls water pollution by regulation point sources that discharge pollutants in the waters of the United States. Failure to comply with these regulations can result in work stoppage and fines.

components and construction

Silt fences have become popular over the last 25 years. They typically consist of a geotextile fastened to wooden or metal posts. Support metal wire or plastic mesh placed between the fabric and the posts provide reinforcement in the event of heavy sediment loads. A support rope, or tension cord, may be used at the top of the fence to straighten the posts and strengthen the fence. The geotextile height is commonly 2 to 3.5 feet; the post height is commonly 3 to 5 feet. The geotextile should be placed in a trench to prevent water flow from running under the fabric.

design life and maintenance

A silt fence should remain in place until sediment flow no longer exists or is being addressed by other means (i.e., new vegetation). Design life could be a few months or well over one year. Maintenance is essential for long-term performance, particularly after storms. It may be necessary to “muck out” heavy accumulations of sediment to create capacity for additional sediment.



summary

If appropriately specified, placed and maintained, a silt fence can be an extremely effective sedimentation control device. It is a viable tool that can be used in an effort to protect the environment using proper erosion and sediment control procedures.

for more information



To find out how geosynthetics can provide engineering solutions, contact

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