
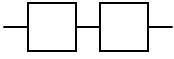
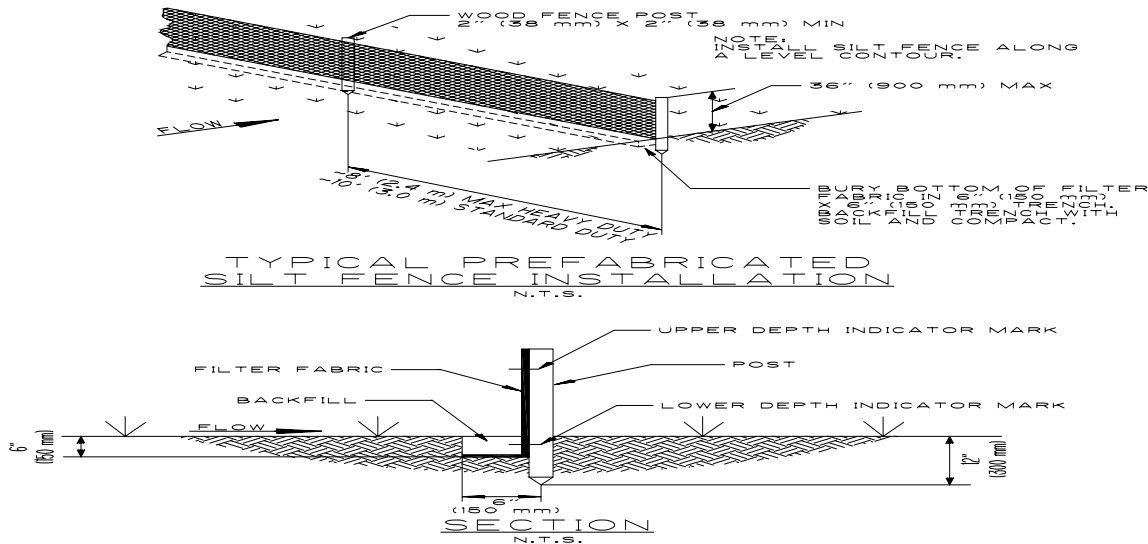


Oak Park Conservancy District Stormwater Best Management Practices (BMPs) Sediment Management Practices (SMPs)		SMP-02
Activity: Silt Fence		
PLANNING CONSIDERATIONS: Design Life: 6 months Acreage Needed: Minimal Estimated Unit Cost: \$1 - \$8 per LF Monthly Maintenance: 100% of Installation		
		SF
	Target Pollutants	
	Significant ♦ Partial ♦ Low or Unknown ◇ Sediment ♦ Heavy Metals ◇ Nutrients ◇ Oxygen Demanding Substances ◇ Toxic Materials ◇ Oil & Grease ◇ Bacteria & Viruses ◇ Floatable Materials ◇ Construction Waste ◇	
Description	To detain sediment-laden water, silt fences are used to promote deposit behind the fence before it can reach the non-construction site area. These fences are made of filter fabric that has been entrenched, attached to support poles and on occasion supported by a wire fence. This temporary sediment barrier does not stop sediment from entering the water ways, but it does slow it down enough to settle out of the runoff water.	
Suitable Applications	<ul style="list-style-type: none"> ➤ Phase construction should allow silt fencing along the downstream perimeter, below the toe of a cleared slope, upstream of sediment traps or basins, along streams and channels and around temporary spoil areas. ➤ Across swales with catchments less than 1 acre and below other small cleared areas. 	
Approach	<ul style="list-style-type: none"> ➤ Installed with 0.25 area draining to every 100-feet of silt fence. ➤ Used for downstream perimeter control. ➤ Use in areas where sheet flow occurs. ➤ Areas of level contour to prevent water from ponding more than 1.5 feet at any point. ➤ Maximum slope perpendicular to the fence line should be 1:1. ➤ Select filter fabric which retains 85% of the soil, by weight, based on sieve analysis but is not finer than an equivalent opening size of 70. ➤ Heavy duty prefabricated silt fence should be selected based on slope and time criteria. 	

Activity: Silt Fence



Installation Procedures

- Silt fences are typically installed with $\frac{1}{4}$ area draining to every 100-foot (31.4 m) of silt fence. They are designed to function under a 10-year storm event and may be operated for as long as 5 to 8 months. Silt fences are designed to pond water behind them, so it is crucial that they are sufficiently anchored and follow contours. Silt fences that are not entrenched and follow contours can result in worsened erosion.
- Silt fences may be used for downstream perimeter control, placed upstream of the point(s) of discharge of sheet flow from a site. They may also be used as interior controls below disturbed areas where runoff may occur in the form of sheet and rill erosion, and perpendicular to minor swales or ditch lines for up to one acre contributing drainage areas. Silt fences are generally ineffective in locations where the flow is concentrated and are only applicable for sheet or overland flows.
- Use principally in areas where sheet flow occurs.
- Install along a level contour, so water does not pond more than 1.5 feet (0.5 m) at any point.
- The maximum slope perpendicular to the fence line should be 1:1.
- No more than 0.25 acre (0.1 ha) per 100 ft. (31.4 m), or 0.5 cfs ($1.4 \times 10^{-2} \text{ m}^3/\text{s}$) of concentrated flow should drain to any point along the silt fence.
- Turn ends of fence uphill to prevent scour from wash around.
- Provide area behind the fence for runoff to pond and sediment to settle (Approx. 1200 sq. ft. (111.5 m^2) per acre (0.4 ha) draining to the silt fence).
- Select filter fabric that retains 85% of the soil, by weight, based on sieve analysis, but is not finer than an equivalent opening size of 70.

Activity: Silt Fence

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Installation Procedures (Continued)

Select standard duty or heavy duty prefabricated silt fence based on criteria shown below:

Standard Duty Silt Fence

- Slope of area draining to fence is 4:1 (H:V) or less.
- Use is generally limited to less than five months.
- Area draining to fence produces low sediment loads.
- Use prefabricated standard duty silt fence.

Heavy Duty Silt Fence

- Slope of area draining to fence is 1:1 (H:V) or less.
- Use generally limited to eight months. Longer periods may require fabric replacement.
- Area draining to fence produces moderate sediment loads.
- Use prefabricated heavy-duty silt fence. Heavy duty silt fences typically have the following physical characteristics:
 - (1) Fence fabric has greater tensile strength than other fabric types available from manufacturer.
 - (2) Fence fabric has a greater permittivity than other fabric types available from manufacturer.
 - (3) Fence fabric may be reinforced with a backing or additional support to increase fabric strength.
 - (4) Posts may be spaced closer together than other premanufactured silt fence types available from manufacturer.
- Most manufactured silt fencing has a colored band that indicates the depth of trenching required. If the lower colored band is visible then the silt fence is not trenched deep enough.
- Install silt fence along a level contour, with the last 6 ft (1.9 m) of fence turned up slope. Except for the ends, the difference in elevation between the highest and lowest point along the top of the silt fence shall not exceed one-third the fence height.
- Posts should be spaced a maximum of 6 feet (1.9 m) apart and driven securely into the ground a minimum of 30 inches (0.8 m).
- A trench should be excavated approximately 8 inches (20.3 cm) wide and 12 inches (30.5 cm) deep along the line of posts and upslope from the barrier.
- When standard strength filter fabric is used, a wire mesh support fence should be fastened securely to the upslope side of the posts using heavy-duty wire staples at least 1 inch (2.5 cm) long, tie wires or hog rings. The wire should extend into the trench a minimum of 4 inches (10.2 cm).

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Installation Procedures (Continued)	<ul style="list-style-type: none"> ➤ The standard strength filter fabric should be stapled or wired to the fence, and 40 inches (102 cm) of the fabric should extend into the trench. When extra-strength filter fabric and closer post spacing are used, the wire mesh support fence may be eliminated and the filter fabric stapled or wired directly to the posts. ➤ Avoid the use of joints. The filter fabric should be purchased in a continuous roll, then cut to the length of the barrier. When joints are necessary, filter cloth should be spliced together only at a support post, with a minimum 6-inch (15.2-cm) overlap, and both ends securely fastened to the post. ➤ The trench should be backfilled with compacted native material. <p style="margin-left: 40px;"><i>Generally, silt fencing should be used in conjunction with erosion source controls up slope to provide effective control.</i></p>
Maintenance	<ul style="list-style-type: none"> ➤ Inspect after every rainfall. ➤ Repair fence when damaged. ➤ Sediment height not to exceed 1/3 height of the fence. ➤ Perform required maintenance before a storm event. ➤ Remove fence when it is no longer needed and perform required maintenance to restore the site to its normal condition.
Inspection Checklist	<ul style="list-style-type: none"> <input type="checkbox"/> Silt fence follows a contour. <input type="checkbox"/> The last 6 feet of the silt fence is turned uphill and secured to the post. <input type="checkbox"/> Color band of the anchor trench is visible. <input type="checkbox"/> Accumulated sediment does not exceed 1/3 height of the fence. <input type="checkbox"/> If washaround or underwash occurs then fence should be reset.