

	<b>Bowling Green, Kentucky</b> <b>Stormwater Best Management Practices (BMPs)</b> <b>Sediment Management Practices (SMPs)</b>	<b>SMP-02</b>																		
	<b>Activity: Silt Fence (SF)</b>																			
<b>PLANNING CONSIDERATIONS:</b>  <b>Design Life:</b> 6 months  <b>Acreage Needed:</b> Minimal  <b>Estimated Unit Cost:</b> Low  <b>Monthly Maintenance:</b> 100% of Installation	 <table border="1" data-bbox="412 810 1211 991"> <thead> <tr> <th colspan="3">Target Pollutants</th></tr> <tr> <th>Significant ♦</th><th>Partial ♦</th><th>Low or Unknown ♦</th></tr> </thead> <tbody> <tr> <td>Sediment ♦</td><td>Heavy Metals ♦</td><td>Nutrients ♦</td></tr> <tr> <td>Oil &amp; Grease ♦</td><td>Bacteria &amp; Viruses ♦</td><td>Oxygen Demanding Substances ♦</td></tr> <tr> <td></td><td>Floatable Materials ♦</td><td>Toxic Materials ♦</td></tr> <tr> <td></td><td></td><td>Construction Waste ♦</td></tr> </tbody> </table>	Target Pollutants			Significant ♦	Partial ♦	Low or Unknown ♦	Sediment ♦	Heavy Metals ♦	Nutrients ♦	Oil & Grease ♦	Bacteria & Viruses ♦	Oxygen Demanding Substances ♦		Floatable Materials ♦	Toxic Materials ♦			Construction Waste ♦	  <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>SF</b> </div>
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<b>Description</b>  <b>Suitable Applications</b>  <b>Approach</b>	<p>To detain sediment-laden water, silt fences are used to promote silt deposition behind the fence. These fences are made of filter fabric that has been entrenched, attached to support poles and occasionally supported by a wire fence. Silt fence is intended as a temporary sediment barrier and requires routine maintenance</p> <p>➤ Silt fence should be used in area accepting sheet flow conditions.</p> <p>➤ Silt fence should <b>not</b> be used in ditch lines, streams, or other areas of concentrated flows.</p> <p>➤ Silt fencing can be used 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.</p> <p>➤ <b>Light Duty Silt Fence (SF-LD)</b> Type A silt fence is 36" in height. This type silt fence can be used on project lasting 6 months or greater.</p> <p>➤ <b>Heavy Duty Silt Fence (SF-HD)</b> Type C silt fence is 36" in height and has wire reinforcement. This type silt fence should be used when high velocities are encountered. Table SPD-02-01 on pg. SMP-02-02.</p>																			

**Design Criteria** The design criteria for silt fence is as follows:

- Silt fencing should be installed along the contour. It should not be installed up and down slopes unless accompanied by measures such as “J” Hooks or other methods.
- The length of silt fence is determined by the amount of run-off area. The minimum area should not exceed 0.25 acre per 100 linear feet of silt fence.
- Spacing of silt fence is variable depending on the slope of land draining to the fence. See [Table SMP-02-01](#) for spacing requirements.

**Table SMP-02-01**  
**Silt Fence Spacing on Sloping Sites**

Slope Angle	Soil Type		
	Silty	Clays	Sandy
Very Steep (1:1)	50 ft.	75 ft.	100 ft.
Steep (2:1)	75 ft.	100 ft.	125 ft.
Moderate (4:1)	100 ft.	125 ft.	150 ft.
Slight (10:1)	125 ft.	150 ft.	200 ft.

**Installation Procedures**

Silt fence installation procedure is as follows:

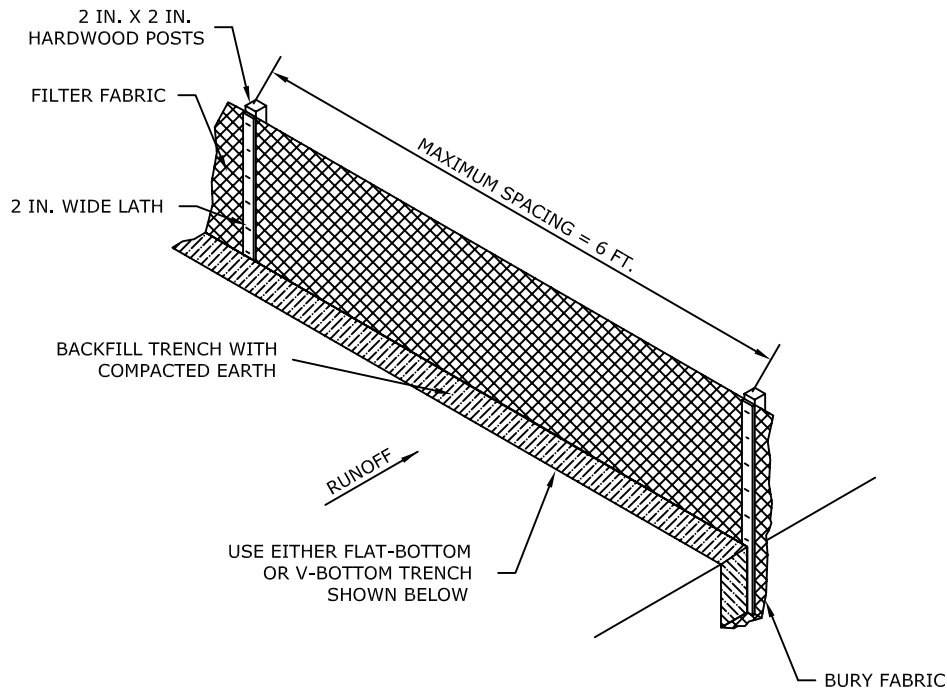
- Secure suitable fence materials meeting requirement set herein.
- Stake or mark silt fence location.
- Trench (6" by 6") along proposed location.
- Place fence in the trench (most fence products have a colored line indicating the depth of burial). Drive post with spacing as specified by silt fence type. Attach fence material to post as specified.
- Backfill and compact trench anchoring fence material.
- When required fence splicing should be conducted as be the method contained herein.
- Silt fence should turn up hill six feet at ends (at least 1 foot raise in elevation).

**Maintenance**

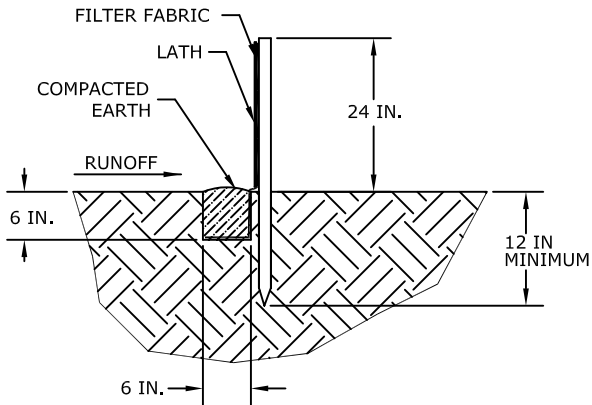
- Inspect after every rainfall.
- Repair/replace fence when damaged or deteriorated.
- Sediment height not to exceed one-half the height of the fence.
- Perform required maintenance before a storm event.
- Remove fence when vegetation is established.

**Inspection Checklist**

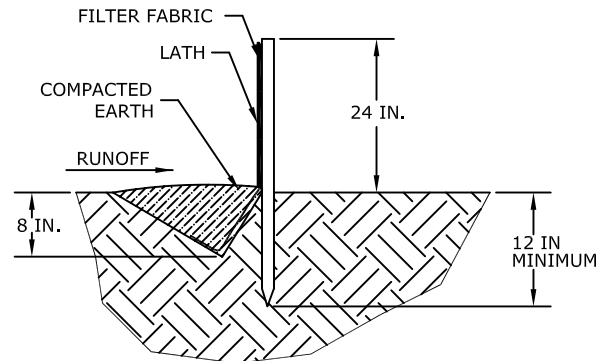
- ☐ Silt fence has proper placement.
- ☐ The last 6 feet of the silt fence is turned uphill and secured to the post.
- ☐ Color band of the anchor trench is not visible.
- ☐ Accumulated sediment does not exceed one half the height of the fence.
- ☐ If washaround or underwash occurs then fence should be reset.



SILT FENCE INSTALLATION



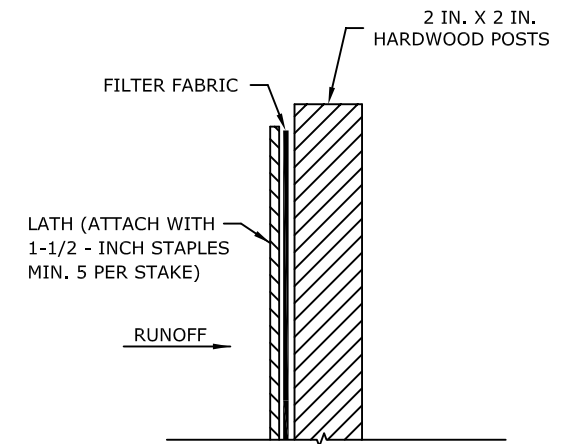
FLAT BOTTOM TRENCH SECTION



V-SHAPED TRENCH SECTION

MATERIAL SPECIFICATION

SPECIFICATION	LIGHT DUTY SILT FENCE (SF-LD)
MIN. TENSEL STRENGTH (LBS) ASTM D-4632	WARP - 120 FILL - 100
MAX. ELONGATION (%) ASTM D-4632	40
APPARENT OPENING SIZE MAX. SIEVE SIZE (ASTM D-4751)	#30
MAX. FLOW RATE (GAL/MIN/SF) GDT - 87	25
ULTRAVIOLENT STABILITY ASTM D-4632 AFTER 300 HOURS PER ASTM D-4355	80
MIN. BURSTING STRESS (PSI) ASTM D-3786	WARP - 120 FILL - 100
MIN. FABRIC WIDTH (IN)	36 IN.



FABRIC ATTACHMENT DETAIL



**City of Bowling Green**

Public Works Planning and Design  
1011 College Street  
Bowling Green, Kentucky 42101

**SILT FENCE  
LIGHT DUTY (SF-LD)**

STANDARD DRAWING NO. **SMP-02-01**

APPROVED BY: \_\_\_\_\_ DIRECTOR OF ENGINEERING \_\_\_\_\_ DATE \_\_\_\_\_

*SOURCE: LOUISVILLE MSD & TDEC*

## SILT FENCE (LIGHT DUTY)

### Installation:

The fence should be placed across the slope along a line of uniform elevation (perpendicular to the direction of flow). The fence should be located at least 10-feet from the toe of steep slopes to provide sediment storage and access for maintenance and cleanout.

A flat-bottom trench approximately 4-Inches wide and 8-Inches deep, or a V-shaped trench 8-Inches deep should be excavated. On the downslope side of the trench, drive the 2-In. X 2-In. wood posts at least 18-Inches Into the ground, spacing them no further. than 6-feet apart.

Posts should be Installed, with 1- to 2-Inches of the post protruding above the top of the fabric and no more than 3-feet of the post should protrude above the ground. The minimum fence height (height of filter fabric above grade) shall be 18-Inches. The maximum fence height (height of filter fabric above grade) shall be 24-Inches.

The filter fabric should be purchased in a continuous roll and cut to the length of the barrier to avoid the use of joints. When joints are necessary, filter cloth should be wrapped together only at a support post with both ends securely fastened to the post, with a minimum 6-Inch overlap.

Extra-strength filter cloth (50 pounds / linear Inch minimum tensile strength) should be used. A 2-Inch wide lathe shall be stapled over the filter fabric to securely fasten It the to the upslope side of the posts. The staples used should be 1.5-Inch heavy-duty wire staples spaced a maximum of 8-Inches apart. Place the bottom 12-Inches of the filter fabric Into the 8-Inch deep trench, extending the remaining 4-Inches towards the up-slope side of the trench and backfill the trench with soil or gravel and compact.

### Inspection and Maintenance:

Inspect slit fence every seven (7) calendar days and within 24-hours after each rainfall event that produces 1/2-Inches or more of precipitation. Check for areas where runoff has eroded a channel beneath the fence, or where the fence was caused to sag or collapse by runoff overtopping the fence.

If the fence fabric tears, begins to decompose, or In any way becomes Ineffective, replace the affected section of fence Immediately. Sediment must be removed when It reaches approximately 1/3 the height of the fence, especially if heavy rains are expected.

Silt fence should be removed within 30 days after final site stabilization is achieved or after temporary BMPs are no longer needed. Trapped sediment should be removed or stabilized on site. Disturbed areas resulting from fence removal shall be permanently stabilized.

*SOURCE: LOUISVILLE MSD & TDEC*



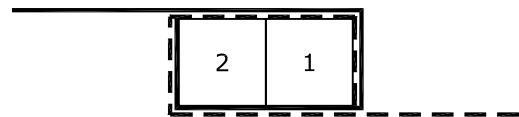
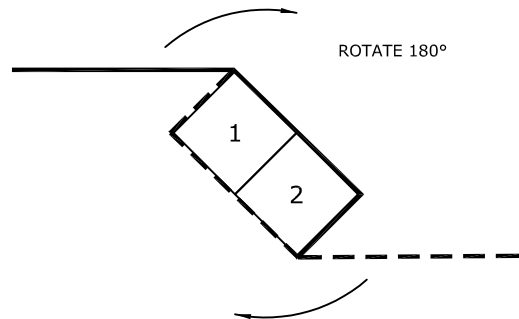
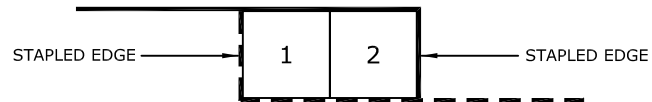
## City of Bowling Green

Public Works Planning and Design  
1011 College Street  
Bowling Green, Kentucky 42101

## SILT FENCE INSTALLATION LIGHT DUTY

STANDARD DRAWING NO. **SMP-02-02**

APPROVED BY: \_\_\_\_\_ DATE \_\_\_\_\_  
DIRECTOR OF ENGINEERING



FENCE SPLICING DETAIL

MATERIAL SPECIFICATION

SPECIFICATION	LIGHT DUTY SILT FENCE (SF-LD)	HEAVY DUTY SILT FENCE (SF-HD)
MIN. TENSEL STRENGTH (LBS) ASTM D-4632	WARP - 120 FILL - 100	WARP - 260 FILL - 180
MAX. ELONGATION (%) ASTM D-4632	40	40
APPARENT OPENING SIZE MAX. SIEVE SIZE (ASTM D-4751)	#30	#30
MAX. FLOW RATE (GAL/MIN/SF) GDT - 87	25	70
ULTRAVIOLENT STABILITY ASTM D-4632 AFTER 300 HOURS PER ASTM D-4355	80	80
MIN. BURSTING STRESS (PSI) ASTM D-3786	WARP - 120 FILL - 100	WARP - 260 FILL - 180
MIN. FABRIC WIDTH (IN)	36 IN.	36 IN.



**City of Bowling Green**

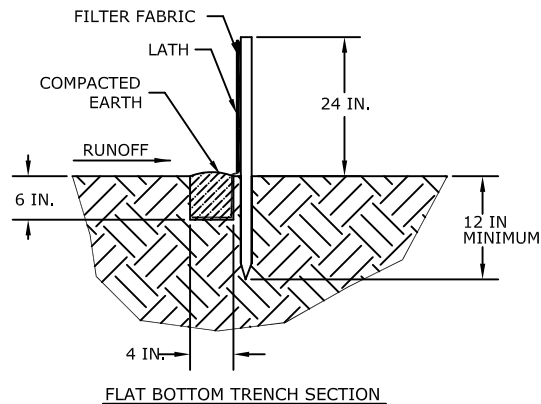
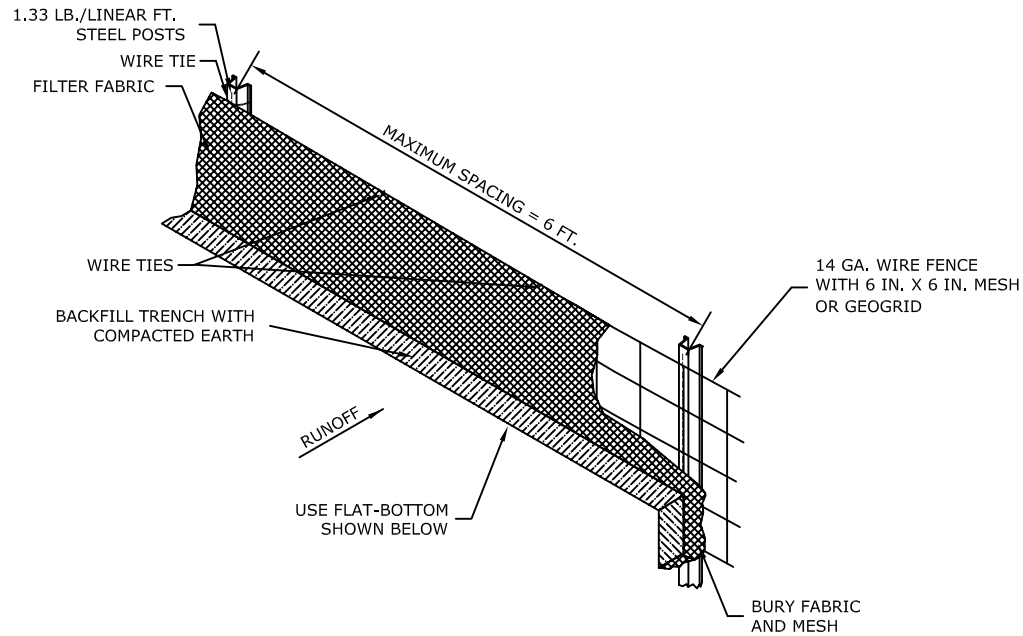
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1011 College Street  
Bowling Green, Kentucky 42101

**SILT FENCE  
MISC DETAILS**

STANDARD DRAWING NO. **SMP-02-03**

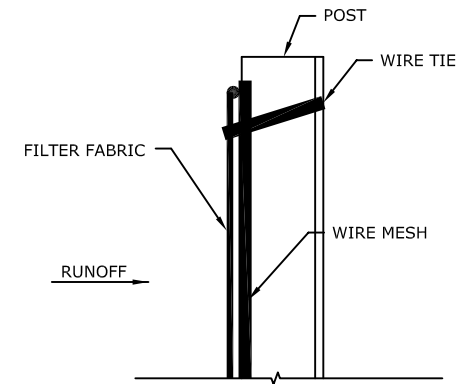
APPROVED BY: \_\_\_\_\_  
DIRECTOR OF ENGINEERING DATE

*SOURCE: LOUISVILLE MSD & TDEC*



#### MATERIAL SPECIFICATION

SPECIFICATION	HEAVY DUTY SILT FENCE (SF-HD)
MIN. TENSEL STRENGTH (LBS) ASTM D-4632	WARP - 260 FILL - 180
MAX. ELONGATION (%) ASTM D-4632	40
APPARENT OPENING SIZE MAX. SIEVE SIZE (ASTM D-4751)	#30
MAX. FLOW RATE (GAL/MIN/SF) GDT - 87	70
ULTRAVIOLET STABILITY ASTM D-4632 AFTER 300 HOURS PER ASTM D-4355	80
MIN. BURSTING STRESS (PSI) ASTM D-3786	WARP - 260 FILL - 180
MIN. FABRIC WIDTH (IN)	36 IN.



FABRIC ATTACHMENT DETAIL



## City of Bowling Green

Public Works Planning and Design  
1011 College Street  
Bowling Green, Kentucky 42101

### SILT FENCE HEAVY DUTY (SF-HD)

STANDARD DRAWING NO. SMP-02-04

APPROVED BY: \_\_\_\_\_  
DIRECTOR OF ENGINEERING

DATE

SOURCE: LOUISVILLE MSD & TDEC

## REINFORCED SILT FENCE

### Installation:

The fence should be placed across the slope along a line of uniform elevation (perpendicular to the direction of flow). The fence should be located at least 10-feet from the toe of steep slopes to provide sediment storage and access for maintenance and cleanout.

A flat-bottom trench approximately 4-inches wide and 8-inches deep, or a V-shaped trench 8-inches deep should be excavated. On the downslope side of the trench, drive the 1.33 lb./linear foot steel posts at least 12-inches into the ground, spacing them no further than 6-feet apart.

Posts should be installed, with 1- to 2-inches of the post protruding above the top of the fabric and no more than 3-feet of the post should protrude above the ground. The minimum fence height (height of filter fabric) above grade shall be 18-inches. The maximum fence height (height of filter fabric) above grade shall be 24-inches.

Fasten the 6-inch by 6-inch 14 gage wire mesh to the upslope side of the posts using heavy duty wire staples at least 1-Inch long, tie wires or hog rings. Extend the mesh a-inches into the trench.

The filter fabric should be purchased in a continuous roll and cut to the length of the barrier to avoid the use of joints. When joints are necessary, filter cloth should be wrapped together only at a support post with both ends securely fastened to the post, with a minimum a-Inch overlap.

Extra-strength filter cloth (50 pounds / linear inch minimum tensile strength) should be used. Use plastic wire ties to attach the fabric to the post and wire. Extend 12-inches of the fabric into the trench.

Place the bottom 12-inches of the filter fabric into the 8-inch deep trench, extending the remaining 4-inches towards the up-slope side of the trench and backfill the trench with soil or gravel and compact.

### Inspection and Maintenance:

Inspect slit fence every seven (7) calendar days and within 24-hours after each rainfall event that produces \_-Inches or more of precipitation. Check for areas where runoff has eroded a channel beneath the fence, or where the fence was caused to sag or collapse by runoff overtopping the fence.

If the fence fabric tears, begins to decompose, or in any way becomes Ineffective, replace the affected section of fence immediately.

Sediment must be removed when it reaches approximately 1/3 the height of the fence, especially if heavy rains are expected. Reinforced slit fence should be removed within 30 days after final site stabilization is achieved or after temporary BMPs are no longer needed. Trapped sediment should be removed or stabilized on site. Disturbed areas resulting from fence removal shall be permanently stabilized.



## City of Bowling Green

Public Works Planning and Design  
1011 College Street  
Bowling Green, Kentucky 42101

## SILT FENCE INSTALLATION HEAVY DUTY

STANDARD DRAWING NO. **SMP-02-05**

APPROVED BY: \_\_\_\_\_ DATE \_\_\_\_\_  
DIRECTOR OF ENGINEERING

*SOURCE: LOUISVILLE MSD & TDEC*