

**Description** A silt fence is a temporary sediment barrier consisting of a filter fabric stretched and attached to supporting posts. Wire fence backing is necessary with several types of filter fabric commonly used. Silt fences assist in sediment control by retaining some of the eroded soil particles and slowing the runoff velocity to allow particle settling.

- Applications**
- Silt fences can be used near the perimeter of a disturbed area to intercept sediment while allowing water to percolate through. The fences should remain in place until the disturbed area is permanently stabilized.
  - Silt fences can also be used along the toe of fills, on the downhill side of large through-cut areas, along streams, and at natural drainage areas to reduce the quantity of sediment and to dissipate flow velocities to downstream areas.
  - Also use at grade breaks on cut/fill slopes and above interceptor dikes.
  - The silt fence should be constructed after the cutting and slashing of trees and before excavating haul roads, fill benches, or any soil disturbing construction activity in the drainage areas.

**Limitations**

Drainage area – 1 ac./100 ft	Maximum slope – 33%
Minimum bedrock depth – 2 ft	Minimum water table – 2 ft
NRCS soil type - ABCD	Freeze/thaw – good
Drainage/flood control – no	

Silt fences should not be used where there is a concentration of water in a channel or drainageway or where soil conditions prevent the minimum fabric toe-in depth or minimum depth for installation of support posts. If concentrated flow occurs after installation, take corrective action by placing rock berms or other corrective measures in the areas of concentrated flow.

- Targeted Pollutants** Sediment
- Design Parameters**
- Maximum allowable slope lengths contributing runoff to a silt fence are listed in Table 36-1 below.
  - Maximum drainage area for overland flow to a silt fence should not exceed 0.5 ac. per 100 ft of fence.
  - Design computations are not required. All silt fences should be placed as close to the contour as possible, and the area below the fence should be undisturbed or stabilized.
  - A detail of the silt fence should be shown on the plan, and contain the following minimum requirements:
    - ✓ The type, size, and spacing of fence posts
    - ✓ The size of woven wire support fences
    - ✓ The type of filter cloth used
    - ✓ The method of anchoring the filter cloth

- ✓ The method of fastening the filter cloth to the fencing support
- Where ends of filter fabric come together, they should be overlapped, folded and stapled to prevent sediment bypass.
- Materials:
  - ✓ Silt Fence Fabric: The fabric should meet the specifications in Table 36-2 below, unless otherwise approved by the appropriate erosion and sediment control plan approval authority. Such approval does not constitute statewide acceptance. Statewide acceptability depends on in-field and/or laboratory observations and evaluations.
  - ✓ Fence Posts (for fabricated units): The length should be a minimum of 36 in. long. Wood posts will be of sound quality hardwood with a minimum cross sectional area of 3.0 square in.. Steel posts will be standard “T” and “U” section weighing not less than 1 pound per linear ft.
  - ✓ Wire Fence (for fabricated units): Wire fencing should be a minimum 14.25 gage with a maximum 6 in. mesh opening, or as approved.
  - ✓ Prefabricated Units: Envirofence or approved equal may be used in lieu of the above method providing the unit is installed per manufacturer’s instructions.

## Construction Guidelines

- Posts should be spaced 10 ft apart when a wire mesh support fence is used and no more than 6.5 ft apart when using extra-strength filter fabric (without a wire fence). The posts should extend at least 16 in. into the ground.
- If standard strength filter fabric is to be used, fasten the optional wire mesh support fence to the upslope side of the posts using heavy duty wire staples, tie wires, or hog rings. Extend the wire mesh support to the bottom of the trench. The filter fabric should then be stapled or wired to the fence.
- Extra strength filter fabric does not require a wire mesh support fence. Staple or wire the filter fabric directly to the posts.
- Do not attach filter fabric to trees.
- Where joints in the fabric are required, splice it together only at a support post, with a minimum 6 in. overlap, and securely seal the joint.
- Embedded filter fabric should extend in a flap that is anchored by backfill, to prevent fabric from pulling out of ground.

## Maintenance

Silt fences should be inspected periodically for damage (such as tearing by wind, animals, or equipment) and for the amount of sediment that has accumulated. Remove the sediment when it reaches one-half the height of the silt fence. In situations where access is available, machinery can be used.

Otherwise, the silt should be removed manually. The following are key elements to remember:

- The sediment deposits should be removed when heavy rain or high water is anticipated.
- The sediment deposits should be placed in an area where there is little danger of erosion.

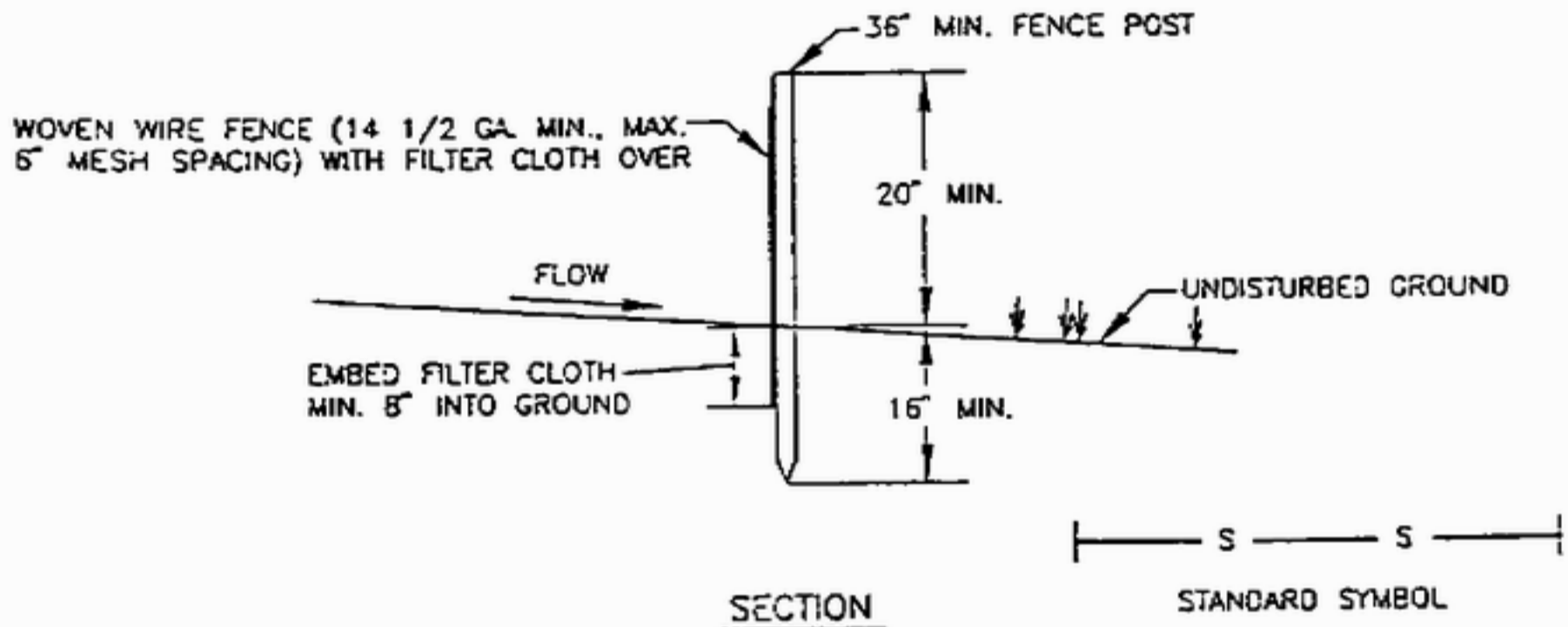
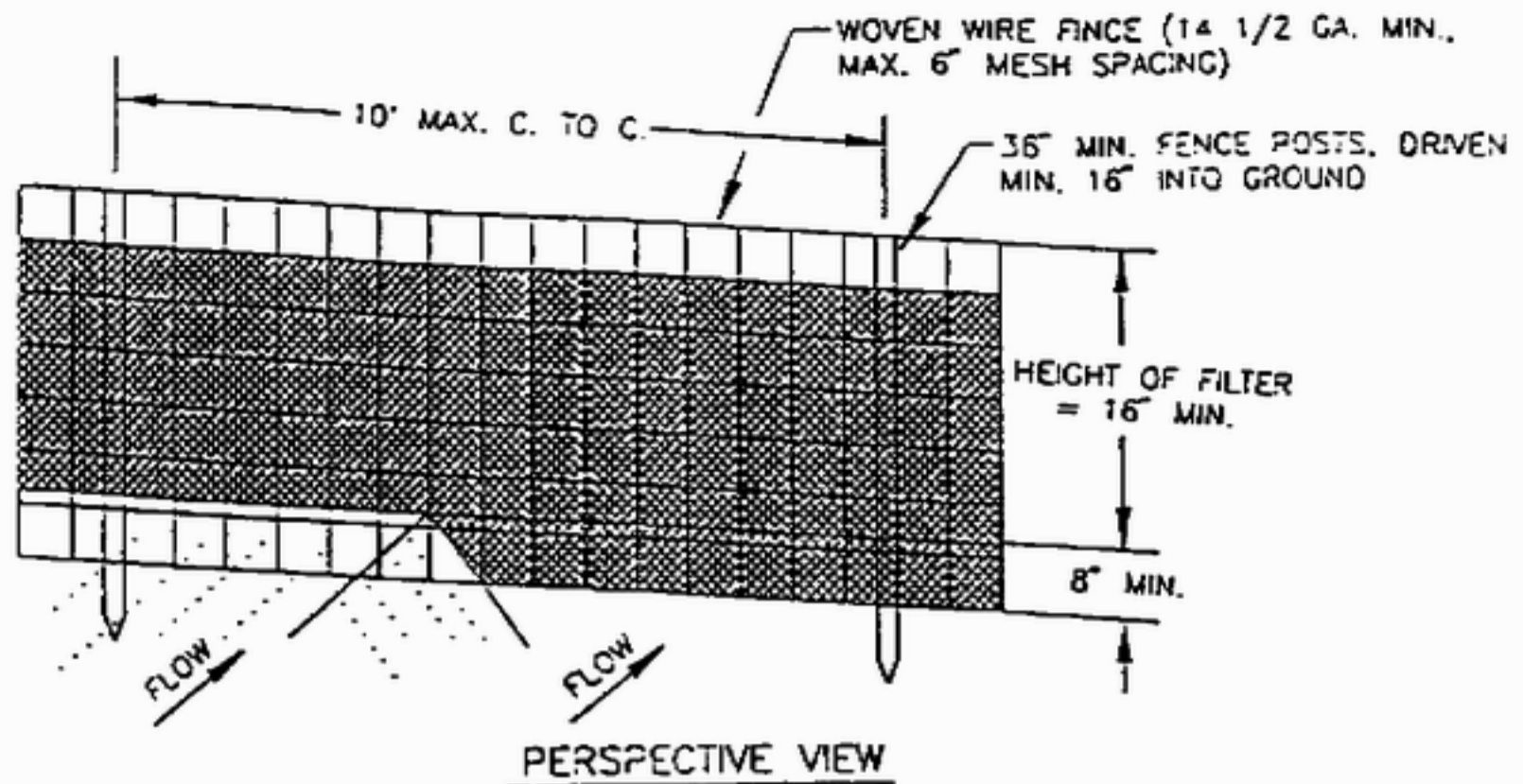
- The silt fence should not be removed until adequate vegetative growth ensures no further erosion of the slopes. Generally, the fabric is cut at ground level, the wire and posts are removed, then the sediment is spread, seeded, and protected (mulched) immediately.

Table 36-1. Maximum Allowable Slope Lengths

Slope Steepness	Maximum Slope Length (Feet)
2:1	50
3:1	75
4:1	125
5:1	175
Flatter than 5:1	200

Table 36-2. Filter Fabric Specifications

Fabric Properties	Value	Minimum Acceptable Test Method
Grab Tensile Strength (lbs)	90	ASTM D1682
Elongation at Failure (%)	50	ASTM D1682
Mullen Burst Strength (PSI)	190	ASTM D3786
Puncture Strength (lbs)	40	ASTM D751 (modified)
Equivalent Opening Size	40-80	US Std Sieve CW-02215
Ultraviolet Radiation Stability %	90	ASTM-G-26



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1 WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.</li> <li>2 FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24 INCHES AT TOP AND MID-SECTION.</li> <li>3 WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6 INCHES AND FOLDED.</li> <li>4 MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.</li> </ol> | <p>POSTS: STEEL, EITHER "T" OR "U" TYPE OR Z HARWOOD.</p> <p>FENCE: WOVEN WIRE, 14 GAGE, 6" MAX. MESH OPENING.</p> <p>FILTER CLOTH: FILTER X, MIRAFI 100X, STABIUNKA T140N OR APPROVED EQUAL</p> <p>PREFABRICATED UNIT: GEOFAB, ENVIROFENCE OR APPROVED EQUAL</p> |
|---|---|

U.S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

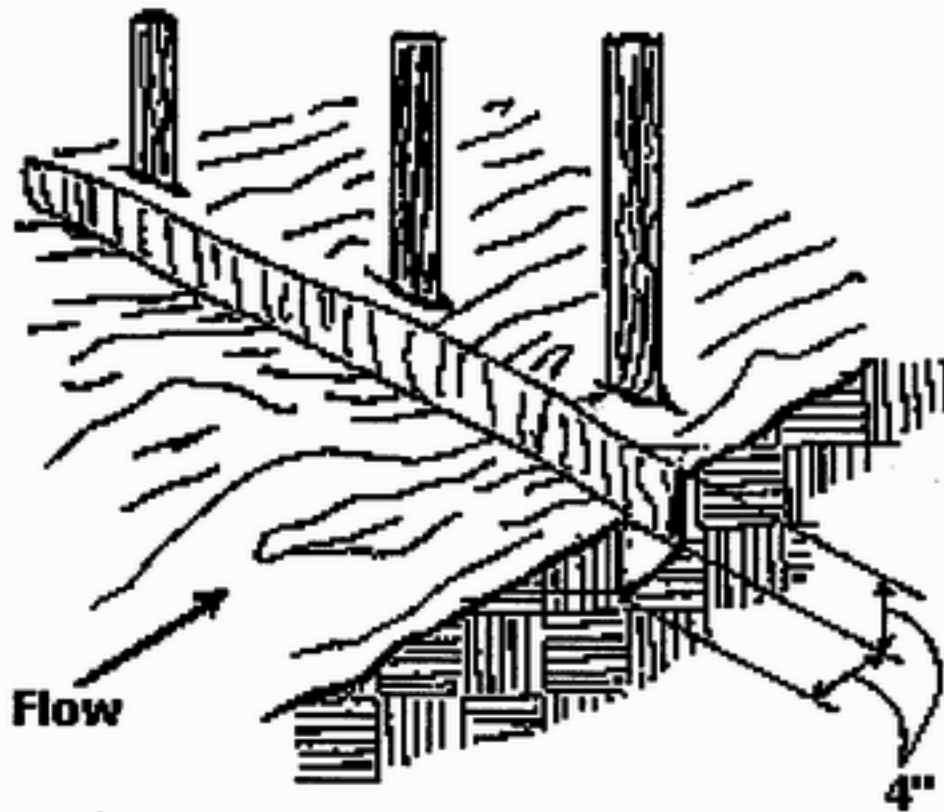
TOOTHMAN-ORTON ENGINEERING COMPANY  
BOISE, IDAHO                      McCALL, IDAHO

SILT FENCE

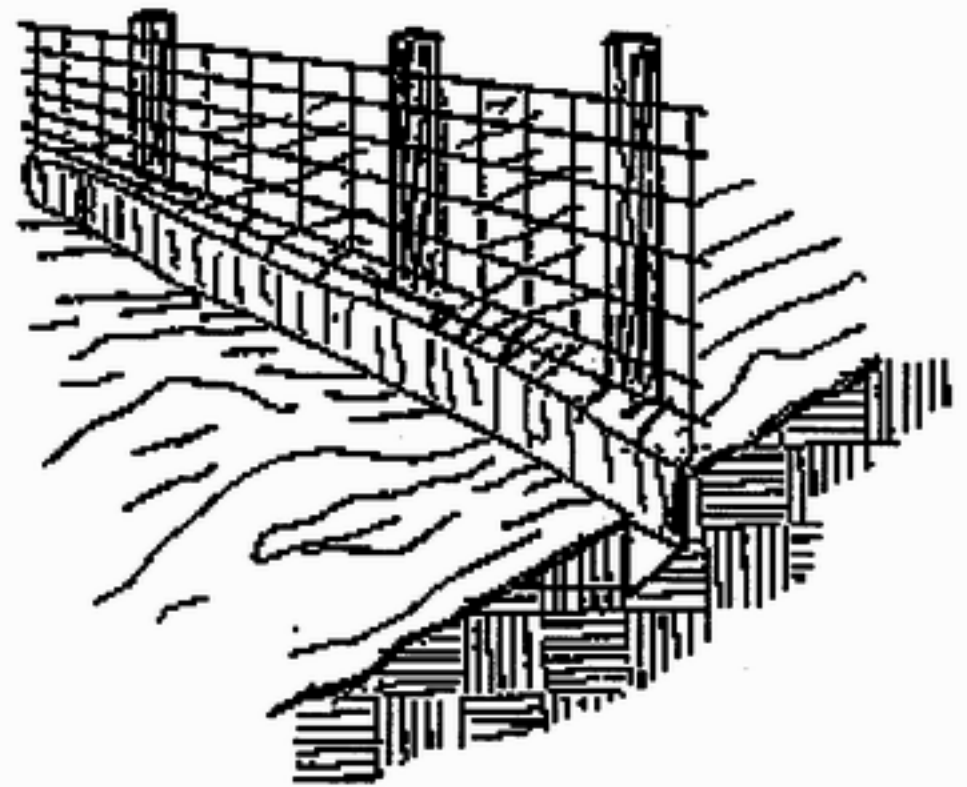
STANDARD  
DRAWING

SF-1

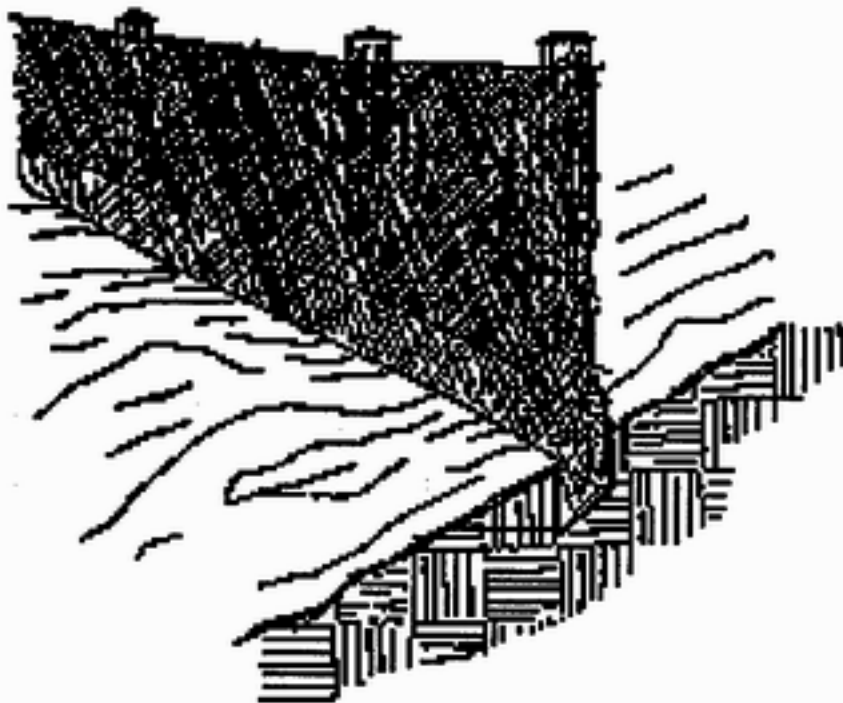
**1. Set Posts and Excavate a 4" x 4" Trench upslope along the line of the posts.**



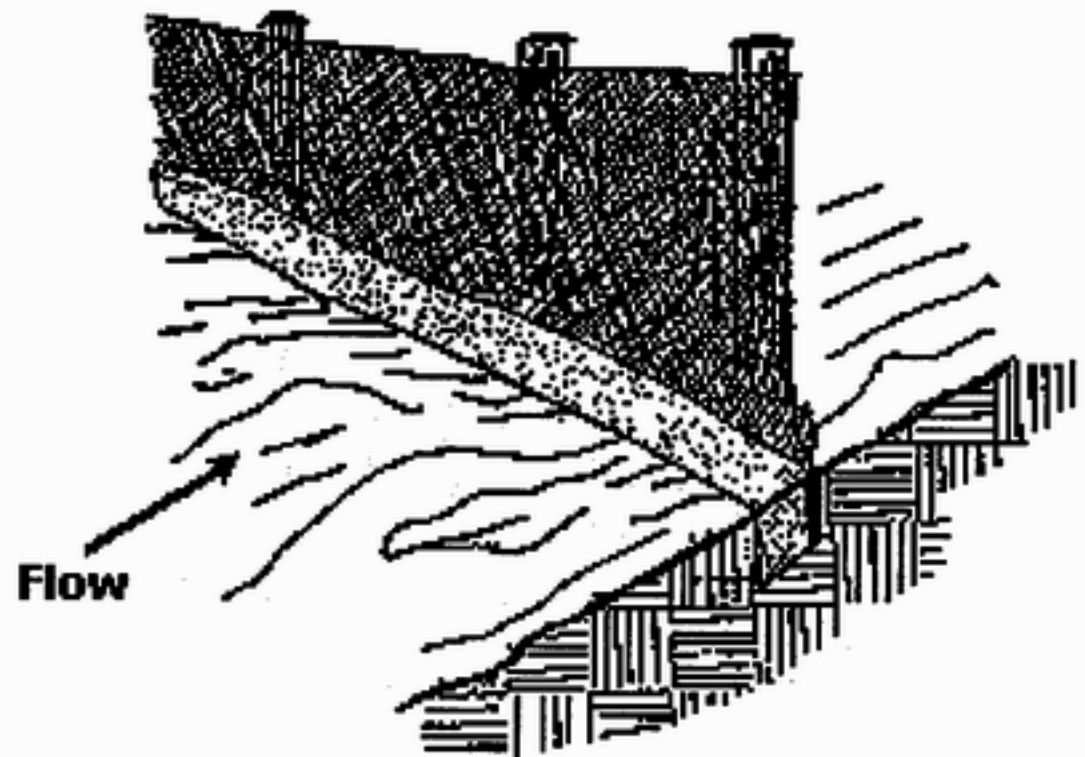
**2. Staple Wire Fencing to the Posts.**



**3. Attach the Filter Fabric to the Wire Fence and Extend it into the Trench.**



**4. Backfill and Compact the Excavated Soil**



**Extension of Fabric and Wire into the Trench**

