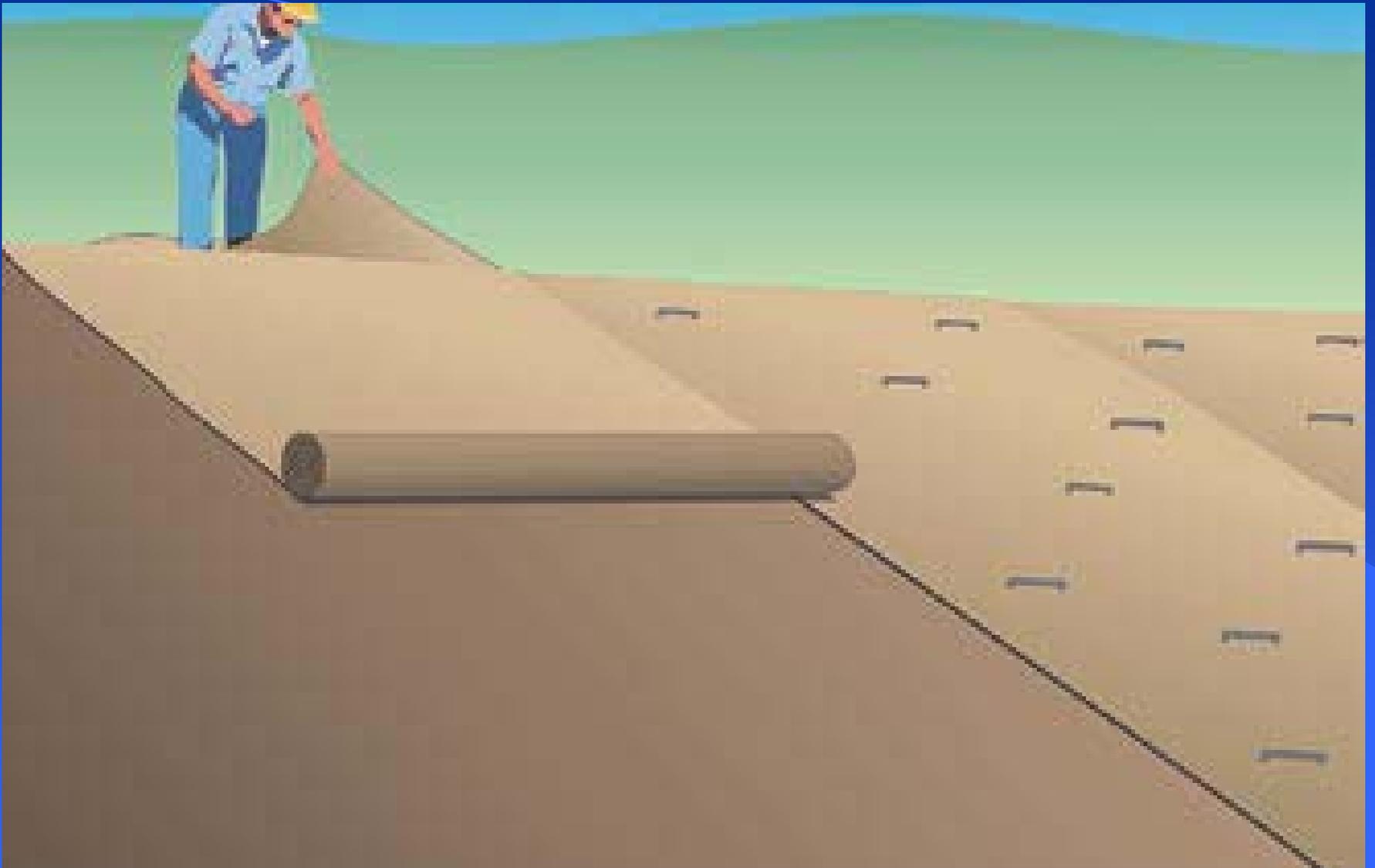
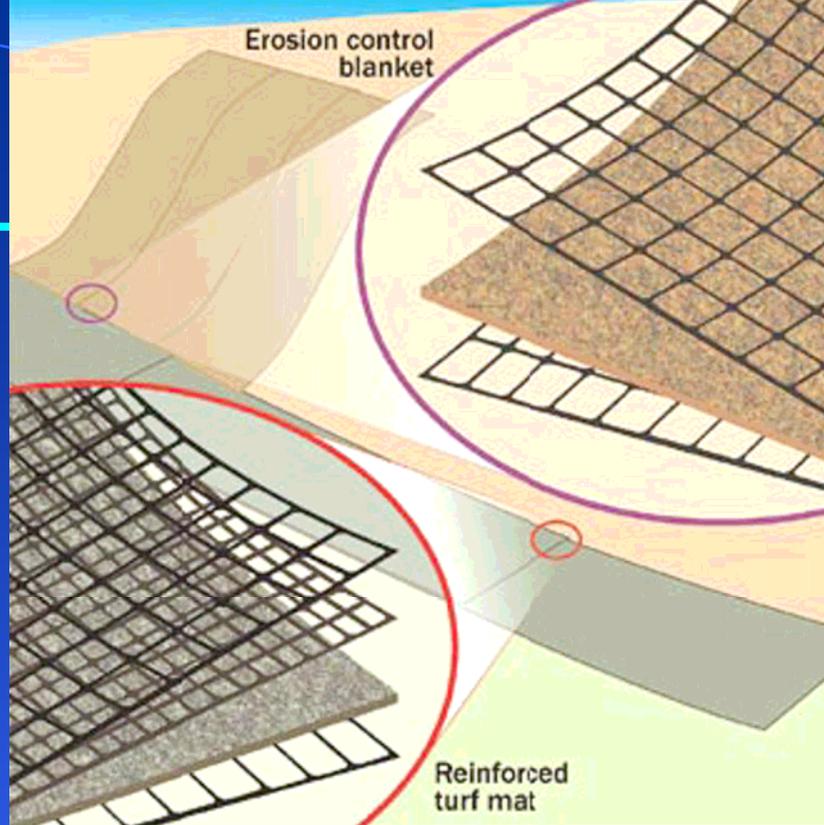




*Good slope protection with permanent rock cover. This slope could have been protected with erosion control blankets or mats and seeded for a “softer” look.*



*Install blankets and mats vertically on long slopes. Unroll from top of hill, staple as you unroll it. Do not stretch blankets.*



*Erosion control blankets are thinner and usually degrade quicker than turf reinforcement mats. Check manufacturer's product information for degradation rate (life span), slope limitations, and installation. Remember to apply seed, fertilizer, and lime before covering with blankets or mats*



*Very good installation of erosion control blanket in seeded ditch below well-mulched slope on highway project.*



*Blankets installed along stream banks or other short slopes can be laid horizontally. Install blankets vertically on longer slopes. Ensure 6 inch minimum overlap.*



*Excellent slope  
and bank  
protection for  
stream stabilization  
project.*

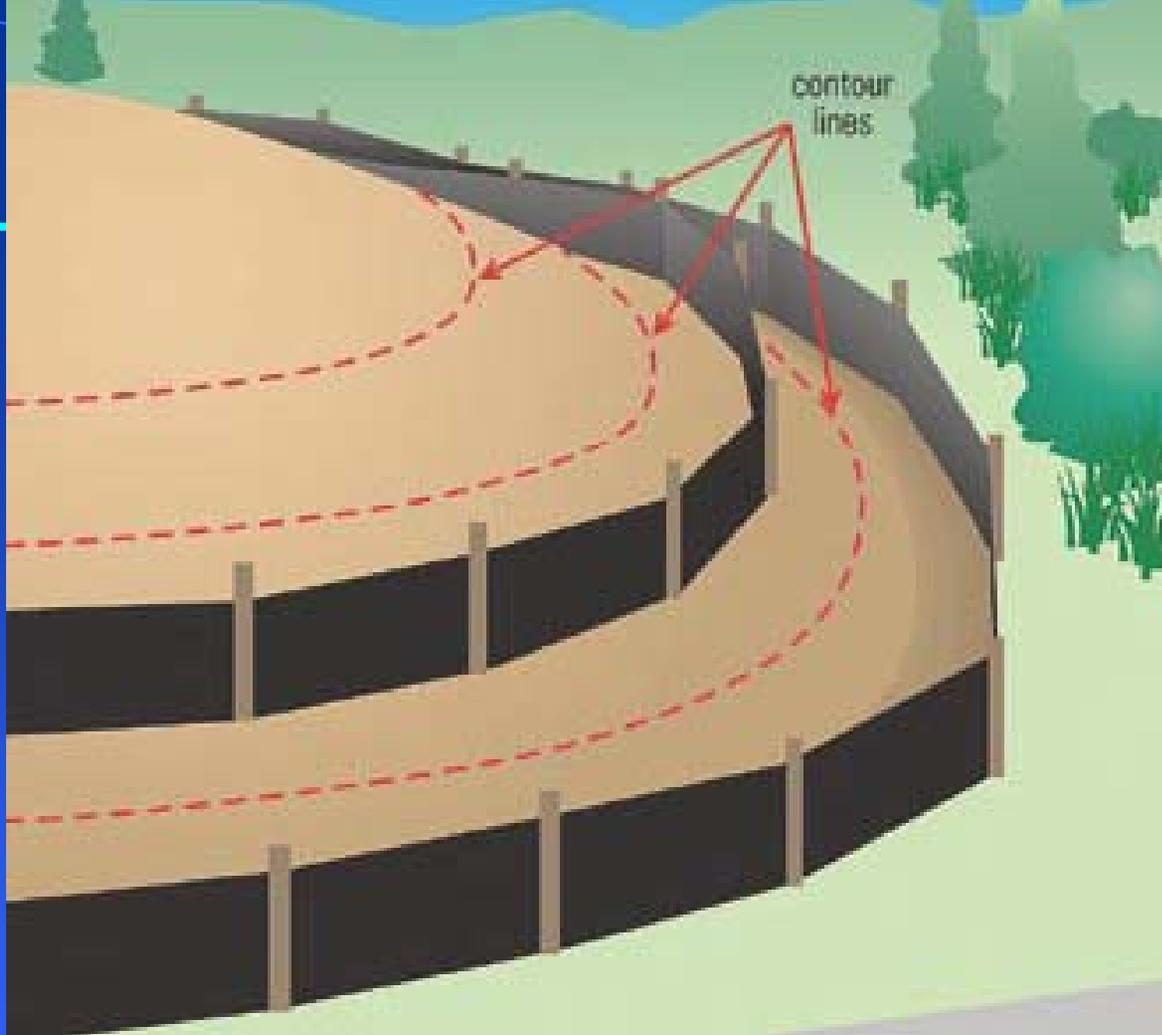
*Note that  
stream bottom  
is not lined, to  
preserve rock  
and gravel  
habitat.*

*Good application  
of erosion control  
blanket to stabilize  
shoulder and protect  
storm drain, but too  
few staples used  
along the top edge.  
Trench in top edge  
of blanket on steep  
slopes.*



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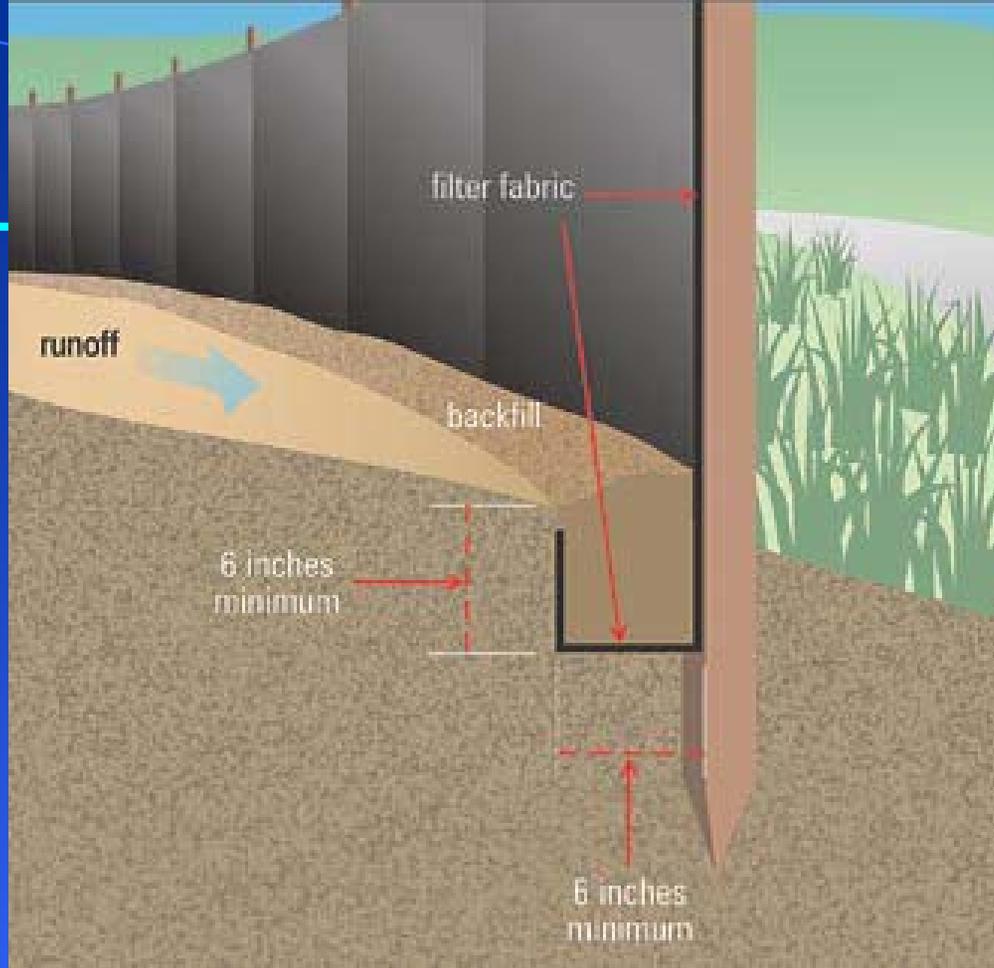
# Using Silt Fence and Other Sediment Barriers



*Silt fences should be installed on the contour below bare soil areas.*

*Use multiple fences on long slopes 60 to 80 feet apart. Remove accumulated*

*sediment before it reaches halfway up the fence.*



*Remember: stakes go on the downhill side. Dig trench first, install fence in downhill side of trench, tuck fabric into trench, then backfill on the uphill side (the side toward the bare soil area).*

*Use J-hooks to trap and  
pond muddy*

*runoff flowing along  
uphill side of silt*

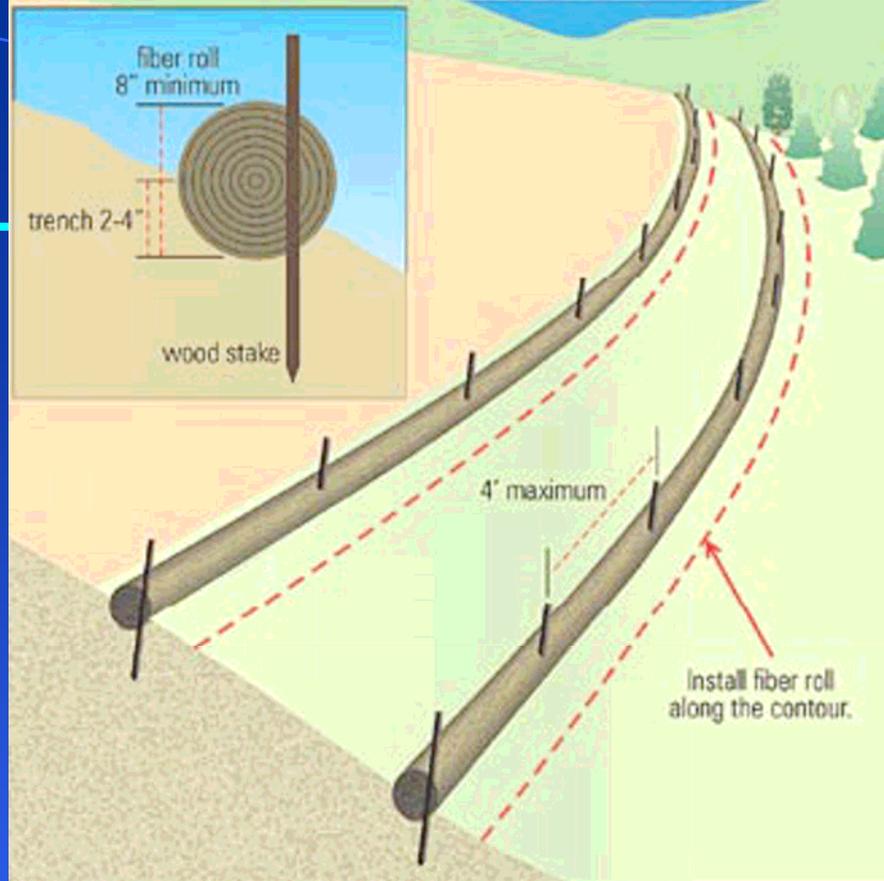
*fence. Turn ends of silt  
fence toward*

*the uphill side to  
prevent bypassing.*

*Use multiple J-hooks  
every 50 to 150*

*feet for heavier flows.*





Fiber rolls can be used to break up runoff flows on long slopes. Install on the contour and trench in slightly. Press rolls firmly into trench and stake down securely. Consult manufacturer's instructions for expected lifespan of product, slope limits, etc. As always, seed and mulch long slopes as soon as possible.



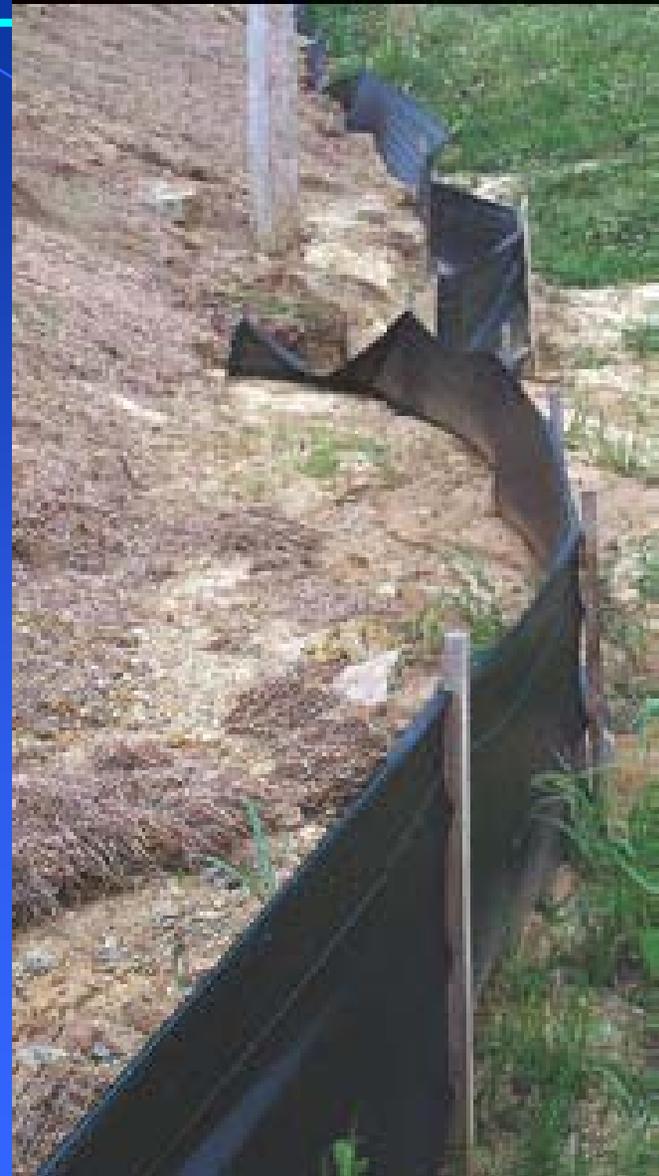
*Silt fences don't have to be on the property line. Placing them on slopes with the ends turned up to trap sheet flow provides better performance.*

*Stagger fence sections to ensure total coverage. Clean out before sediment reaches halfway up. Repair as needed, and remove when grass is well established.*



*Very good use of continuous “super” (reinforced) silt fence and shot rock sediment barrier (far side) to filter muddy runoff from commercial development site. Note that wire fencing is installed between the filter fabric and the posts.*

*Good use of J-hook in  
silt fence to trap sediment  
in water running  
along fence. Sediment  
must be removed before  
it reaches halfway  
to top of fence.*





*Good installation of silt fence at toe of slope. Do not pile soil or other material on silt fences! Also, if space is available move fence back from toe of slopes to allow room for sediment accumulation and maintenance.*

*Leaving a strip of vegetation between bare soil and fence also improves performance.*



*Very good installation of multiple silt fences on long slope. Turn ends of fencing uphill to prevent bypass. Leave silt fences up until grass is well established on all areas of the slope. Re-seed bare areas as soon as possible. Remove or spread accumulated sediment and remove silt fence after all grass is up.*



*Poor installation where silt fences are joined. Roll end stakes together before driving in to create an unbroken sediment barrier or lap curved sections to prevent bypasses. Leaving grass strip between silt fence and bare soil area is a good idea.*



*Poor installation of silt fencing, fair to good seeding. Silt fence must be trenched in along bottom.*



*Sediment barrier installed backwards. Silt fence fabric should face bare soil area. Stakes go on downhill side. Straw bales can be used to back up fence on downhill side, but not alone.*



*Very poor attention to silt fence maintenance. Fences and other sediment controls must be inspected and repaired weekly; activities should be logged.*



*Tractor mounted silt fence slicing devices cut a slit into the ground and push fabric in. Installation is quicker and performance is better than the open trench method, making this approach attractive for large sites.*



*Excellent example of J-hook installation to intercept muddy runoff flowing along silt fence. Good temporary seeding and mulching (right side).*



*Good application of silt fence to protect drop inlet (see Section 7).*

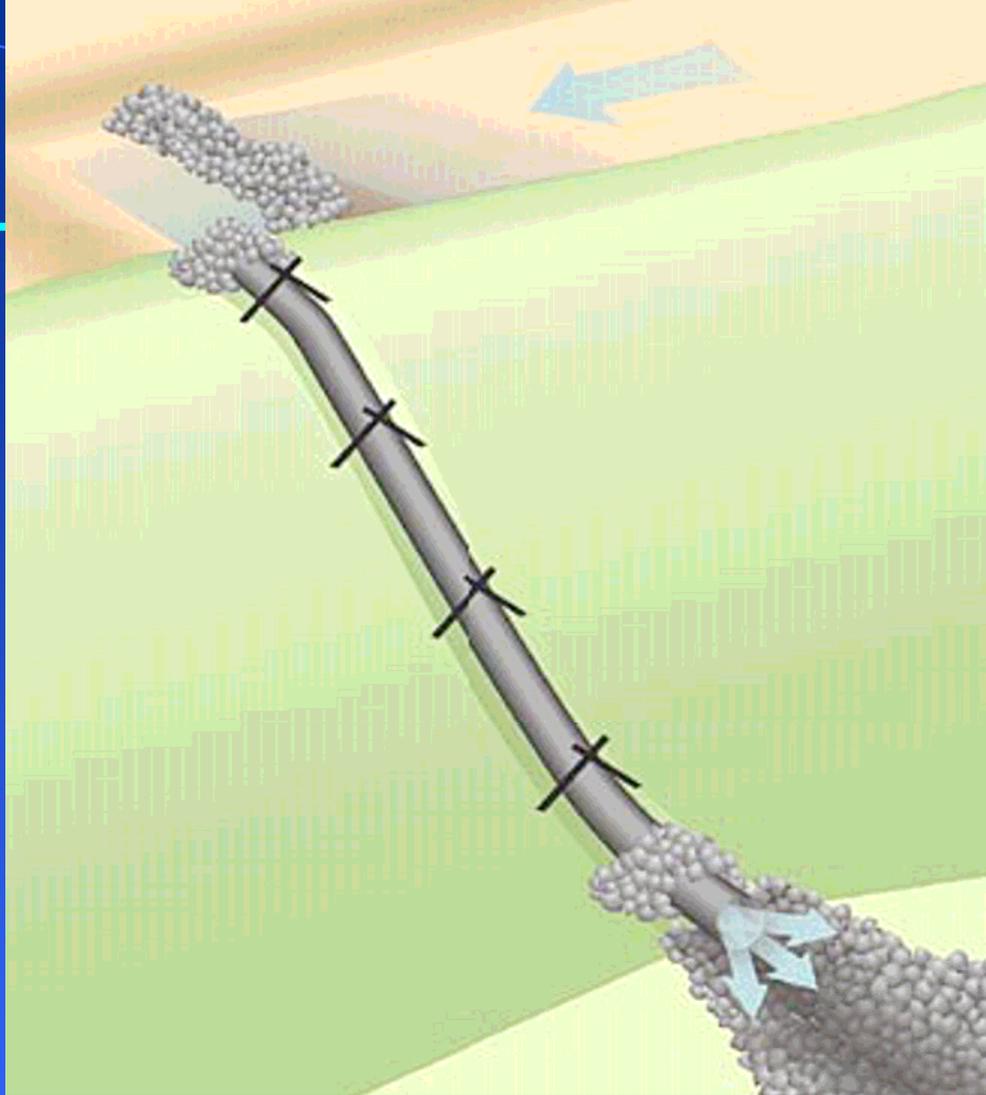
*Make sure fencing is trenched in and soil around fabric is compacted.*

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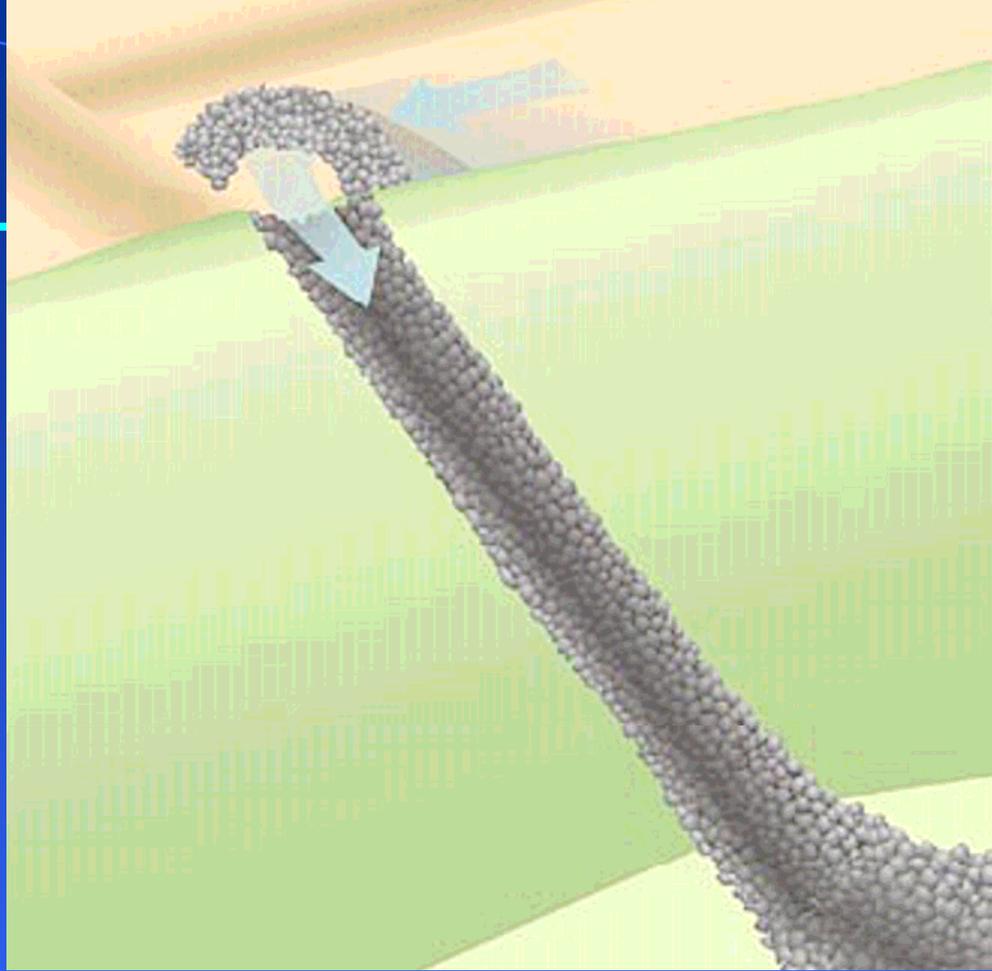
# Protecting Slopes to Prevent Gullies



*Tread-track slopes up and down hill to improve stability.*



*Temporary downdrain using plastic pipe. Stake down securely, and install where heavy flows need to be transported down highly erodible slopes. Note silt check dam in front of inlet.*



*Temporary or permanent dewatering using geotextile underliner and riprap. All slope drains must have flow dissipaters at the outlet to absorb high energy discharges, and silt checks at the inlet until grass is established.*



*Steep, long slopes need blankets or mats. Install blankets and mats up and down long slopes. For channels below slopes, install horizontally.*

*Don't forget to apply seed, lime, and fertilizer (if used) before installing blanket.*



*Excellent soil conditioning (dozer tracking) prior to seeding and strawblowing.*

*Seed and mulch provide cheap, excellent protection. Use blankets on slopes if they are steep or soils are poor.*



6/17/2002

*Excellent slope protection with seeding and erosion control blanket.*



*Very good application  
of rock lined downdrain  
channel to carry water  
down slope face. Use  
filter fabric under rock.  
Install multiple drains  
at appropriate spacing  
where flows are heavy.  
Install flow dissipaters at  
outlet to absorb energy  
of the discharge.*



*Very good use of 20-inch plastic slope drain pipes to convey water from roadway to lower channel. Note staking and rock anchoring at bottom of temporary slope drain pipes.*



*Good use of rock-filled, stacked gabion baskets to protect steep slope. Soil and bark mulch can be used in or over gabions and planted with live willow or hardwood cuttings to reduce “hardened” look.*



*Good use of engineered retaining wall to break up slope. Development site and customer preferences will dictate type of materials used.*



*Poor slope protection. Seed has washed away—blankets or mats should have been used. Channel lining is poor. Silt check dam has washed out; more silt checks are needed.*



*Very poor slope protection. For best results, prepare soil and apply seed with mulch or blanket immediately after reaching final grade.*

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# Protecting Culvert and Ditch Inlets and Outlets



*Excellent use of concrete blocks and #57 rock for ponding dam to protect inlet. Note 2"x 4" board through blocks for stabilization. Note galvanized fencing and filter fabric between block and rocks.*



*Very good design and installation of inlet protection ponding dam using concrete blocks and rock. Outlet pipe in background has a rock apron to dissipate flows.*

*Good application of silt fence frame to protect inlet.*



*Use wire fence backing to reinforce frame, or diagonal bracing across top of stakes. Make sure fence is trenched in to prevent bypasses or undercutting. Inspect and remove sediment*

*as necessary after each rain.*



*Very good application of mixed rock for culvert inlet ponding dam.*

*Mixing rock promotes better ponding, drainage, and settling of sediment.*



*Poor protection for drop inlet on concrete pad. Straw bales make good mulch but are not suited for inlet protection or silt check dams.*



*Poor placement of stone bag inlet dam; poor education of construction site drivers. Bags work well if used properly and maintained. Bags must form a dam around the inlet with no large gaps.*



*Poor placement and poor maintenance of stone bag inlet ponding dam. Accumulated sediment must be removed and dam should be repaired after each half-inch rain.*



*Straw bales have rotted and failed, with muddy runoff undercutting bales. Concrete apron and drop inlet grate are nearly covered in sediment.*

*Use straw for mulch only.*



*Good placement and construction of rock apron at high-flow culvert outlet. If flow from culvert enters a channel, make sure channel is lined with grass, and blankets or mats, if necessary, to prevent erosion.*



*Excellent placement and construction of rock apron to dissipate flows from culvert outlet. Area needs seeding and mulching.*



*Good silt fence installation, fair seeding and mulching on slopes. Poor placement and construction of flow dissipater apron at culvert outlet.*



*Poor rock apron placement and construction at culvert outlet; poor seeding and slope protection (right side).*

*Poor slope*

*protection, no  
rock apron or  
flow dissipater  
at culvert outlet.*

*Silt fence must  
not be used  
across ditches  
or channels; do  
not put sediment*

*traps at culvert outlets.*





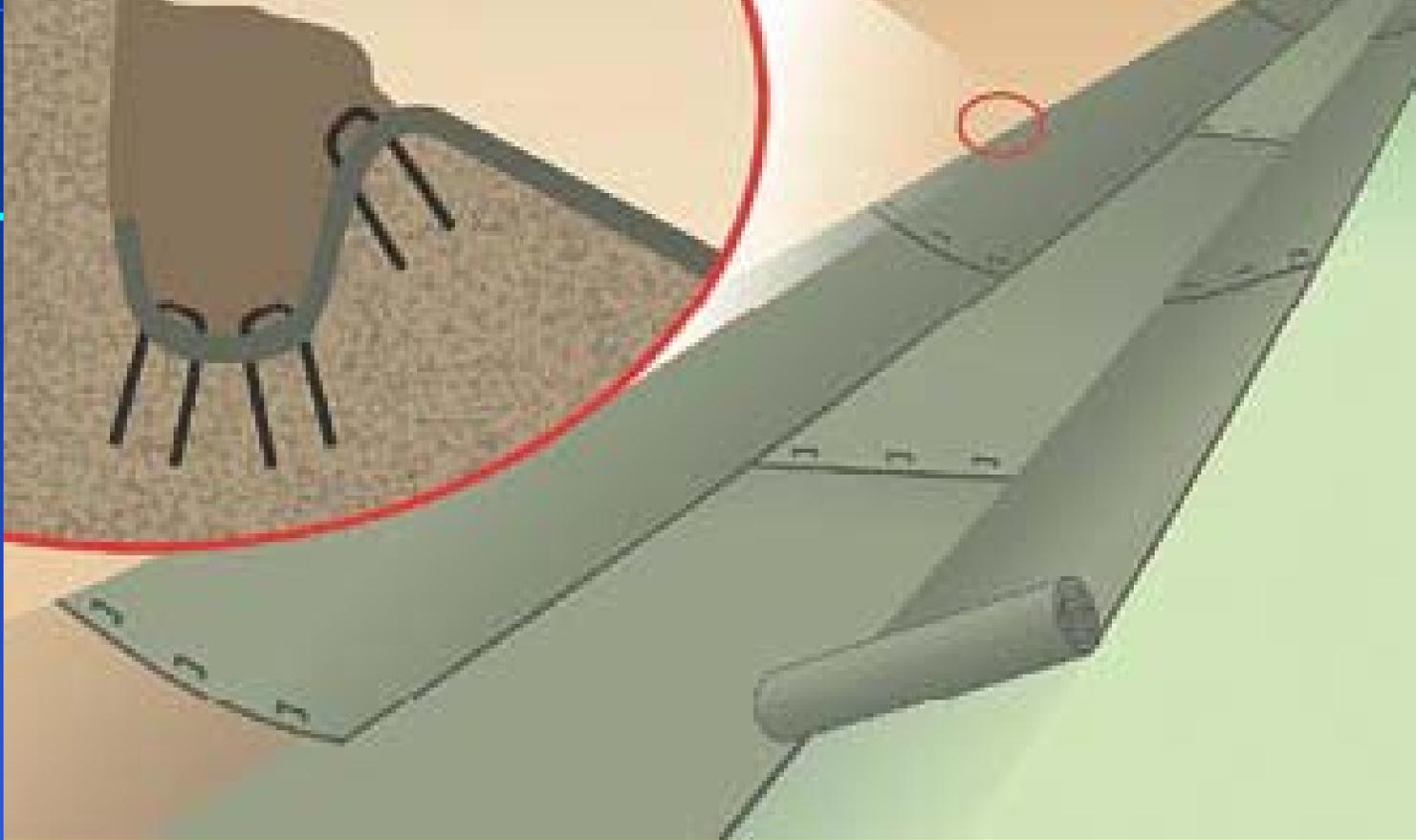
*Poor seed and mulch application, slopes badly eroding. No rock apron or flow dissipater at culvert outlet. Culverts clogged with sediment and rock.*

*Very poor outlet protection. No slope protection or seeding, no rock apron or flow dissipater at culvert outlet. Misapplication of silt fence across ditch. Flow bypass.*



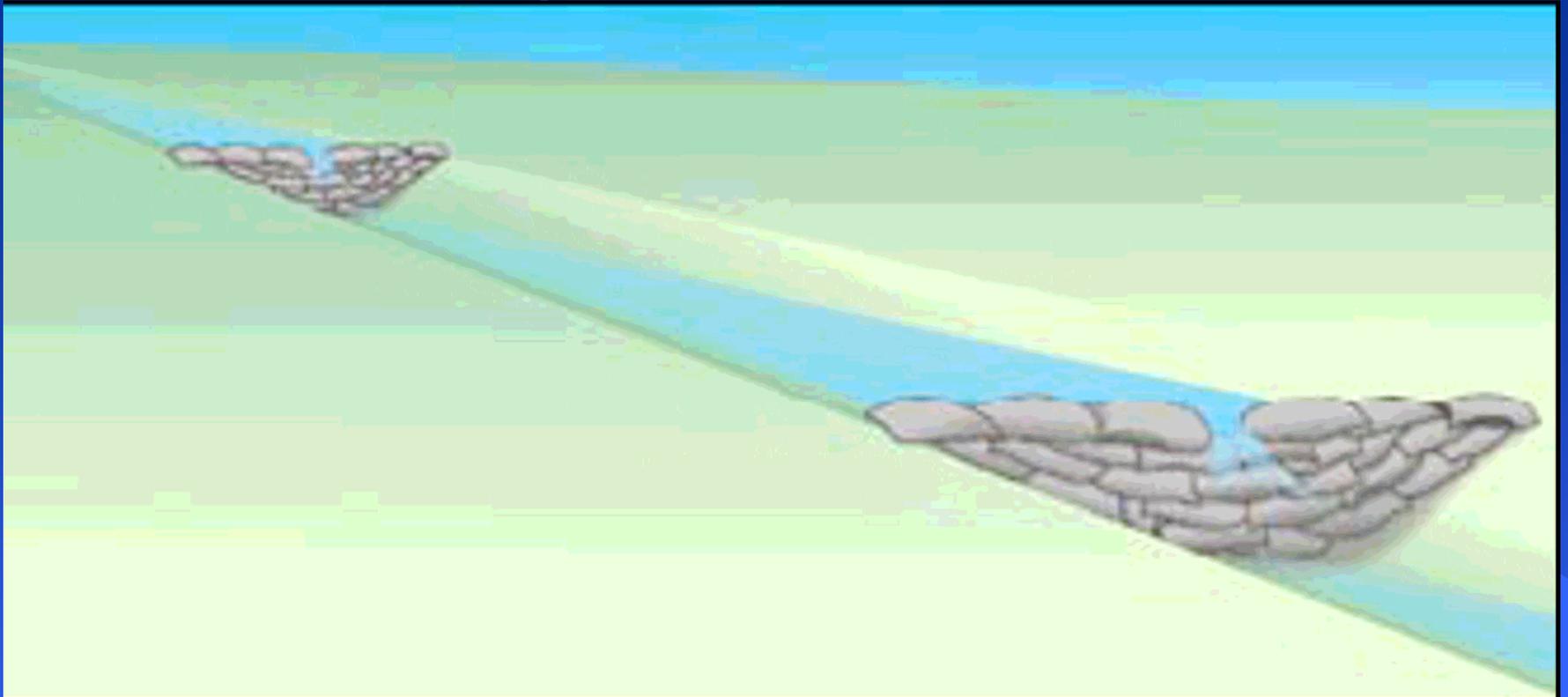
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# Stabilizing Ditches and Channels



*Lay in ditch blankets similar to roof shingles; start at the lowest part of the ditch, then work your way up. Uphill pieces lap over downhill sections.*

*Staple through both layers around edges. Trench, tuck, and tamp down ends at the top of the slope. Do not stretch blankets or mats.*



*Silt check dams of rock, stone-filled bags, or commercial products must be installed before uphill excavation or fill activities begin. Tied end of bag goes on downstream side.*



*Good construction of rip-rap lined ditches on road project. Good use of erosion blankets on slopes. Seed coverage on slopes is fair to poor.*



*Good installation of temporary rock silt checks. Remember to tie sides of silt check to upper banks. Middle section should be lower. Clean out sediment as it accumulates. Remove silt checks after site and channel are stabilized with vegetation.*



*Good placement and spacing of fiber-roll silt checks. Coconut fiber rolls and other commercial products can be used where ditch slopes do not exceed three percent.*



*Poor application of commercial silt check product. Check dam needs to be longer (tied into banks). More are needed, at correct spacing for channel slope. Area needs to be re-seeded; ditch may need blanket liner.*