

Tips for Stream Stabilization Projects



Booklet Sponsored By:

Hamilton County
Soil and Water Conservation District
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Urbanizing Watersheds Can Cause Soil Erosion Problems

Streams and ditches in urbanizing watersheds often change to meet the new stormwater flows. The flows are more frequent and rise quicker because of the increased impervious surface. It's not uncommon for these urban streams to go through an adjustment period as the stream bed accommodates the increased flow volume. During this adjustment period the streambanks can erode, the bottom may down cut and trees or other vegetation may be lost. The following recommendations will help maintain your stream:

- ◆ Downed trees should be removed quickly as they may cause additional erosion. Also, it is likely that more debris will be caught on the downed trees causing a much larger and expensive project.
- ◆ Trees should be removed that are leaning or are undercut and will likely fall in the future. By cutting the tree before it falls you can do the work when it's convenient instead of as an emergency operation. Perhaps more important, by cutting the tree you can keep the root ball in place and prevent a large divot from occurring when the falling tree pulls the roots out of the ground.

The following items should be addressed early and quickly to avoid large expensive repairs;

- ◆ Tall slopes along a stream magnify erosion problems.
- ◆ Sandy or gravelly soils are difficult to stabilize.
- ◆ Protecting the base of the streambank is most critical. Erosion at the bottom of the slope will cause instability for the rest of the slope.

References:

The Hamilton County SWCD web site has several examples of streambank stabilization. www.hamiltonswcd.org

http://www.dnr.state.oh.us/water/pubs/fs_st/streamfs/tabid/4178/Default.aspx

[http://www.dcr.virginia.gov/soil & water/documents/streamguide.pdf](http://www.dcr.virginia.gov/soil%20&%20water/documents/streamguide.pdf)

Streambank Erosion Is A Common Problem Where Land Use Changes Quickly



Streambank Erosion can be difficult and expensive to correct. The taller the bank the more difficult the project.



A Coir Log can be used to prevent additional erosion and stabilize the streambanks. These coconut fiber logs come in diameters of 8" to 24".

**Soft Armor Techniques That Rely On The Use
Of Grass, Shrubs and Trees to Reinforce the
Soil- Provide Long Term Stabilization and
Maintain or Improve the Riparian Habitat**



Soil Terraces with riprap toe can reclaim an eroded bank and re-establish vegetation on the slopes.



Grading and re-vegetating the channel banks and protecting them with erosion control blanket is often the least expensive option where it is appropriate.

Hard Armor Practices My Be Needed to Prevent Bank Erosion



Concrete Ajacks are installed for toe stabilization and erosion control blankets are used for stabilizing the earth slope.



Riprap limestone is used to stabilize the soil and prevent future soil erosion. Properly sizing the stone and sloping the banks are both very important to make this practice work.



Inter-locking concrete blocks provide a tough liner for ditches. The holes in the blocks will support the growth of grass or other plants.



Gabion rock baskets can be stacked to create a very stable erosion resistant wall.

Many Types of Erosion Control Practices Exist to Fit a Variety of Different Situations



This stone barb helps direct the flow away from the stream bank. Significant design experience is needed to install these practices.



This concrete filled fabric channel liner is a heavy duty practice to prevent soil erosion and channel movement.

Soil and Water Conservation District Services

- ◆ Your local Soil and Water Conservation District (SWCD) assists landowners with bank erosion and corrective stabilization practices. An onsite evaluation can be completed to review topography, soils, watershed and permitting requirements.
- ◆ The SWCD can provide you with a list of local contractors and suppliers of special products.
- ◆ The SWCD does not provide construction plans for stream stabilization projects.. Qualified consultants may need to be hired.

Permits

-You may have to obtain a permit(s) to work in or near a stream.

- All construction within the easement of a county regulated drain will need approval from the county surveyor and/or drainage board. The Hamilton County web site at www.co.hamilton.in.us has online GIS mapping. The maps show all of the regulated drains in the county. Consult the Hamilton County Surveyor's Office for additional information or to verify the location of their easement. 317-776-8495
- Department of Natural Resources - Division of Water: All work performed in the 100 year floodway requires a "Construction in the Floodway Permit". Division of Water can be contacted at 317-232-4160 or 1- 877-928-3755 or by website at www.in.gov/dnr/water
- Indiana Department of Environmental Management - Office of Water Quality: Construction that involves fill, dredge or excavation in a water body requires a Section 401 Water Quality certification. IDEM can be contacted at: 1-800-451-6027 or <http://www.in.gov/idem/permits/water/index.html>
- U.S. Corps of Engineers: A section 404 permit is required to fill, dredge or excavate in a water body. Contact at 1-502-315-6733 or www.lrl.usace.army.mil/
- Utilities that are present will need to be identified, located and easements respected. Call before you dig 1-800-382-5544.

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