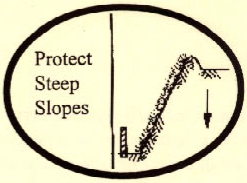
10 Pipe Slope Drain



DESCRIPTION/GOALS

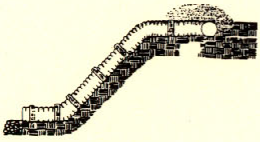
Pipe slope drains are flexible pipes that direct flow from an upslope dike or berm, past a disturbed slope. The runoff that flows in the pipe can either be offsite "clean" runoff or sediment-laden flow from an active construction area. Piping flow past the unstabilized slope eliminates the potential for erosion. Pipe slope drains can provide a relatively inexpensive solution to the problem of protecting steep slopes.

TECHNIQUES

The basic technique to installing pipe slope drains is relatively simple. A plastic pipe is installed at the "low spot" of a berm or dike. This runoff then flows through the pipe past the disturbed slope. If off-site runoff flows through the pipe, it can be diverted to the stormwater conveyance system or even to a stream, depending on the upslope land use. If, on the other hand, sediment laden runoff from a disturbed upslope portion of the construction site flows through the pipe, it should be directed to a sediment basin or trap further treatment.

LIMITATIONS/CHALLENGES

The major limitation to the use of pipe slope drains is drainage area. Each 30" pipe can only handle the runoff from a five acre drainage area (MDE, 1994). When runoff from construction activity is carried in the pipe, a downslope sediment trap or basin may be required. In some cases, especially on small construction sites, it may be difficult to locate this device without disturbing construction activity.



Source: Illinois Urban Manual
Illinois Environmental Protection Agency

APPROXIMATE COST: $5 -$6/lf

EFFECTIVENESS

	Low	Mod	High
Erosion/ Sediment Control			✓
Long-Term Pollutant Reduction		✓	
Habitat / Stream Protection		✓	

EASE OF APPLICATION

	Difficult	Average	Easy
Installation			✓
Maintenance			✓

LIMITATIONS

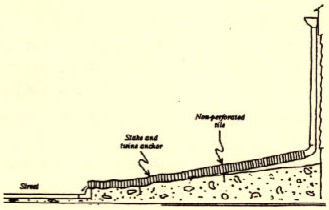
- Very small sites
- Sites with no room for a basin or trap below the disturbed slope

Innovations/Improvements

One adaptation to the pipe slope drain system is the use of a flexible pipe with a small diameter connected to gutter pipes of newly built houses or townhouses. Concentrated flow from rooftops is diverted past newly seeded or unstabilized lawn to a stabilized area downhill (often the street), lowering the potential for erosion. Unlike runoff from construction sites, runoff from rooftops can be piped directly to the street or to a catch basin inlet. These pipe drains do not require berms, dikes or a settling device. They also solve a more limited problem than traditional pipe slope drains: that of roof runoff contributing to erosion potential.

References

Maryland Department of the Environment (MDE), 1994. Maryland Standards and Specifications for Soil Erosion and Sediment Control. Baltimore, Maryland. 140 pp.



Source: **Erosion Control for the Home Builder - Indiana Department of Natural Resources**