STREAM RESTORATION

Residential Guide for Community Projects

What Causes Unstable Streams?

In urban areas, heavy rains that are not absorbed by impervious surfaces such as parking lots, streets, and compacted soils are carried through the storm sewer system and discharged into streams. This results in increased volume and speed at which stormwater is delivered to streams. Soil and vegetation once in place is eroded away due to higher and flashier stream flows. Stream beds and banks erode over time. Streams typically respond to these changes by either getting wider or deeper, or both. All of these changes result in flash flooding, streambank erosion, habitat degradation, and damage to property and infrastructure. When extreme conditions exist, your community may decide to use stream restoration methods to mitigate some of these impacts and restore stream health.



The Restoration Process

- » **Evaluation** If the stream is on public or private land, or does not lie within a jurisdiction, an engineering consultant may be hired to assess the stream using stream restoration guidance. The consultant will use the information gained in the assessment to create a preliminary design for the restoration project.
- » **Public Meetings** The design may be presented to the public at a town hall, open house, online meeting, or other public forum. This is the public's opportunity to provide feedback on the project design.
- » **Design Review and Permitting** The design will be augmented based on feedback, after which the plan would be reviewed and approved by the IDNR and US Army Corps of Engineers.
- » Property Access Most projects are conducted on public land. Projects in residential or commercial developments can typically be accessed via easements. However, sometimes a temporary easement needs to be arranged with a private landowner.
- » **Construction Process** Large restoration projects will be done in phases, typically from upstream to downstream. During construction erosion and sediment control practices will be used to protect the areas near the stream. Revegetation is used at the end of the project for final stabilization.

Tree Removal



Removed trees being used as root wads to protect the streambank.

Many projects will require strategic removal of trees. In some cases, trees must be removed for regrading, installation of erosion and sediment controls, and equipment access to the stream. Other situations require trees and shrubs to be removed because they are invasive and compete with more desired species, or for stabilization.

Removed trees may be used in some projects as root wads or logs to prevent bank toes from eroding as new plants establish.

WHAT TYPES OF STREAM RESTORATION PRACTICES COULD BE USED?

Grade Control Practices



Grade control refers to practices protect the streambed from getting lower and banks higher, both of which cause erosion.

Vegetative Restoration



Vegetative restoration provides streambank stability, natural beauty, and habitat while slowing the flow of water along the banks.

Riparian Buffers



Riparian buffers are areas of vegetation located adjacent to streambanks. They typically consist of native trees, shrubs and plants.

Streambank Toe Protection







Streambanks typical erode first from the bottom, which triggers a bank slump later. Protecting the toe can arrest future erosion from frequent high velocity flows.



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