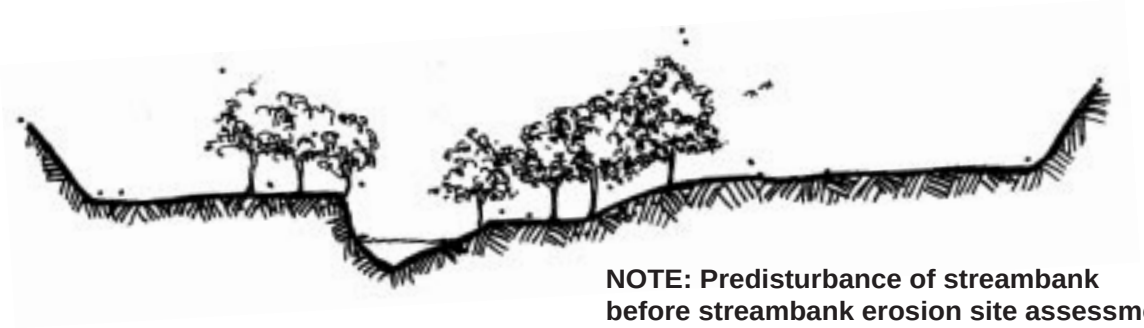
PRIMARY USE: Used for analysis of existing stream bank conditions related to a particular stream to predict the appropriate restoration method.
ADDITIONAL USES: Used for site assessment of future conditions.

STREAMBANK EROSION SITE ASSESSMENT

What is it? A process to assess the extent of erosion of a streambank and determine the applicability of streambed restoration methods.

Purpose

To prevent the uses of BMP techniques that may be irrelevant or damaging to a streambank area.



NOTE: Predisturbance of streambank before streambank erosion site assessment.

Native Stream Conditions
Section View

Limitations

Must make a site visit to define characteristics unique to the site. Therefore, every site must be treated differently.

Materials

Non-structural.

Installation

Site analysis should include soil, vegetation, and topography. Drainage routes and patterns should be carefully noted. Note extent and type of erosion: none, raindrop, sheet, gully, or channel. Sandy or silty soils have a high potential for erosion. Soil with high gravel content or a mixture including some organic matter will be less susceptible to erosion. Vegetation decreases the erodibility of the soil by increasing infiltration and decreasing water velocity. When assessing the topography, bank slope should be noted. Banks with a slope of less than 7 % over a maximum length of 300 feet (90 m) are low risk while banks having a 7-15 % slope over 150 feet (45 m) are at moderate risk. Banks with greater than a 15 % slope over 75 feet (23 m) are at high risk. As erosion progresses from raindrop to channel erosion, the stability of the bank decreases.

Source: Biotechnical Streambank Protection, for Illinois State Water Survey, Peoria, Illinois. In: National Conference on Urban Runoff Management: Enhancing Urban Watershed Management at the Local, County, and State Levels, March 30 to April 2, 1993.

STREAMBANK EROSION SITE ASSESSMENT

Additional Considerations:

The stream cross section should be determined by taking several vertical measurements in a path perpendicular to the stream flow. Analysis of the cross sectional area may show that the stream bank is already in recovery or is deteriorating. A stream showing a deep incision usually indicates a recent history of increased runoff upstream. This condition should be allowed to progress to the next stage (widening) before active measures are undertaken to restore the riparian zone.

The following questions should be asked when determining the applicability of willow bank post stabilization:

1. Does sunlight fall directly on the eroding bank? (Vegetation considerations)
2. Is bedrock close to the surface? (Vegetation considerations)
3. Are lenses of fine sand exposed in the eroding bank?
4. Is the stream channel stable upstream of the erosion site?
5. How deep is the stream along the eroding bank?
6. How wide is the stream channel at the erosion sites compared with stable channels upstream and downstream? (If the channel is wider at the erosion site, vegetation will not choke the stream channel and cause other erosion problems.)
7. Do you have a source of vegetation close to the site? (Native vegetation considerations)
8. Will the site be wet during dry summers?
9. Will there need to be any site protection methods? (Wildlife and humans may destroy new vegetation.)
10. Have debris jams forced flood water into the eroding bank? (Large debris jams must be removed according to guidelines established by the American Fisheries Society.)

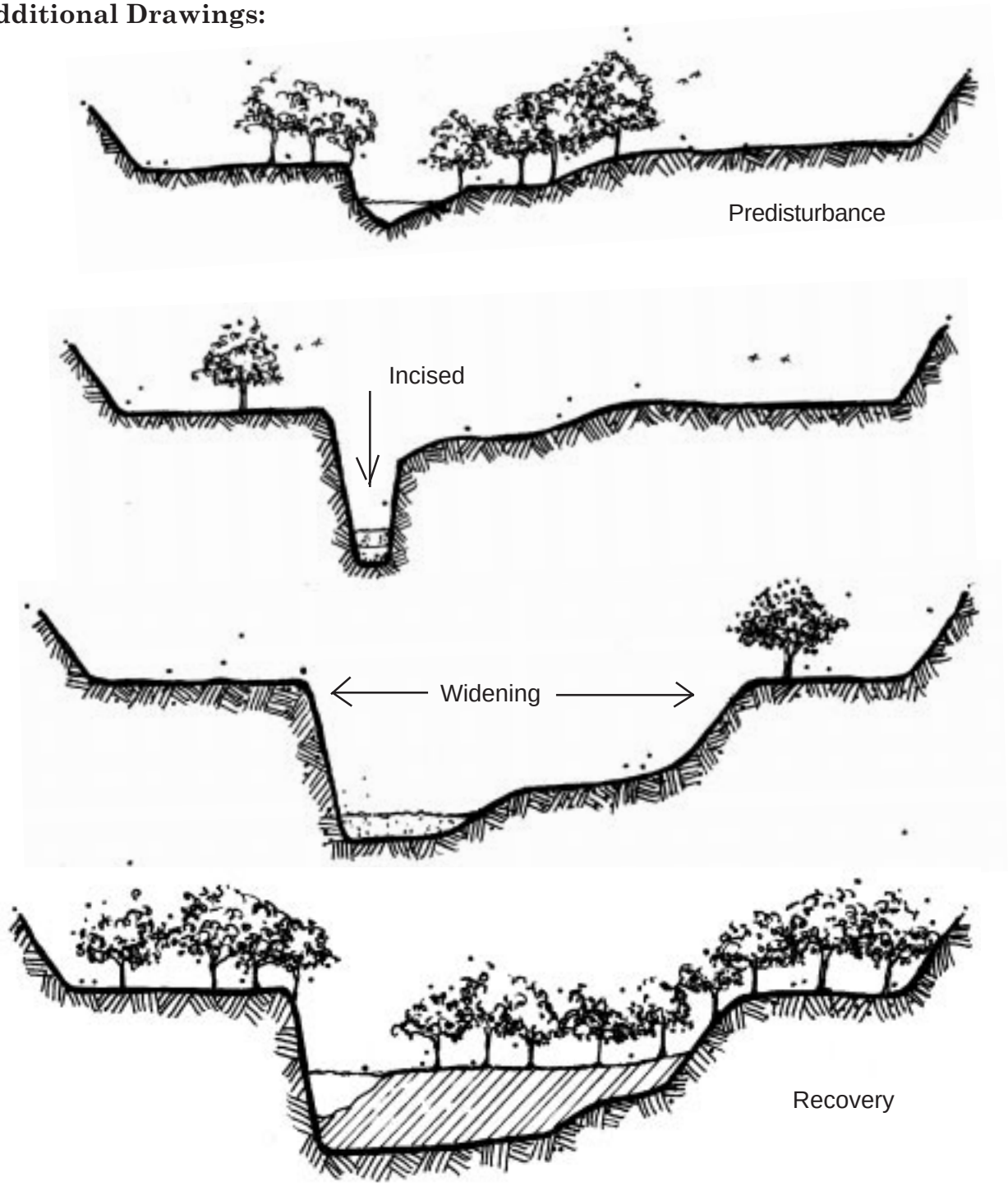
Succession to wooded or grass banks is speeded by additional trees or grass plantings with active site management if the landowner desires.

See next page for additional drawings.

Source: Biotechnical Streambank Protection, for Illinois State Water Survey, Peoria, Illinois. In: National Conference on Urban Runoff Management: Enhancing Urban Watershed Management at the Local, County, and State Levels, March 30 to April 2, 1993.

STREAMBANK EROSION SITE ASSESSMENT

Additional Drawings:



Incision and Recovery Process:
Vegetative bank stabilization may be applied during the widening phase
Section View

Source: Biotechnical Streambank Protection, for Illinois State Water Survey, Peoria, Illinois. In: National Conference on Urban Runoff Management: Enhancing Urban Watershed Management at the Local, County, and State Levels, March 30 to April 2, 1993.