Oak Park Conservancy District
Stormwater Best Management Practices (BMPs)
Stormwater Pollution Prevention (SPPs)

SPP-08

Activity: Channel Lining

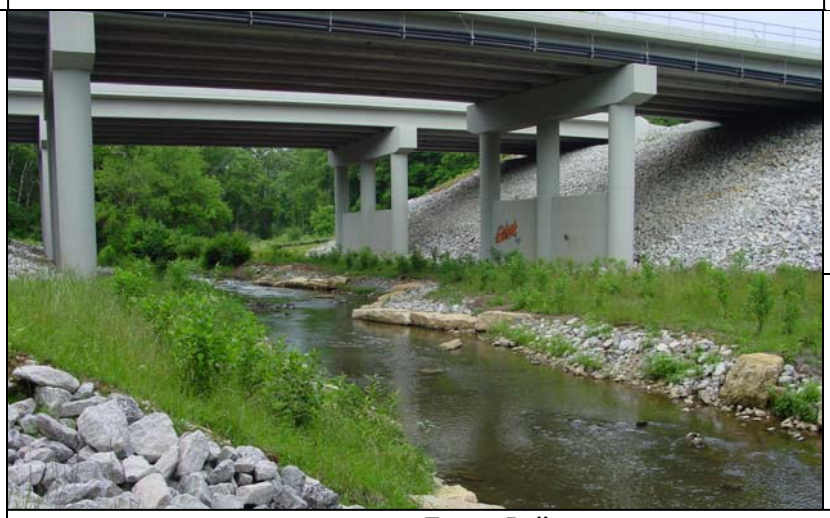
PLANNING CONSIDERATIONS:

Design Life: Permanent

Acreage Needed: Minimal

Estimated Unit Cost: Varies on design and materials

Monthly Maintenance: Minimal



[redacted] **CL** [redacted]

CL

Target Pollutants

Significant ♦	Partial ◈	Low or Unknown ◊

Sediment ♦ Heavy Metals ◊ Nutrients ◊ Oxygen Demanding Substances ◊ Toxic Materials ◊
Oil& Grease ◊ Bacteria & Viruses ◊ Floatable Materials ◊ Construction Waste ◊

Description

Channel lining is the artificial surfacing of bed, banks, shore or embankments to resist erosion or scour.

Suitable Applications

- Soft (geotextiles) channel lining can be used to support permanent vegetative growth in a drainage way or as protection prior to placement of a permanent protective layer.
- Permanent (hard or soft) channel lining can be used when an ordinary seeding and mulch application would not be expected to withstand the force of channel flow.
- Permanent lining can only be applied in dry-weather channels (having flow most the year) with expressed permission from IDEM.

Installation Procedures

- These systems should be designed by a licensed professional civil engineer.
- The following materials are applicable for soft (or "green") channel linings. Generally, these types of practices are not applied in dry-weather streams (have water flowing most of the year). These practices are most often effective in wet-weather conveyances (only have flow when it rains).
  - Excelsior
  - Jute mats and cells
  - Wood fiber mats and cells
  - Geosynthetic mats or cells
  - Brushlayering

Activity: Channel Lining

Installation Procedures (Continued)

- The following "hard" materials are applicable for permanently lining channels.
  - Pre-cast concrete block ("woven" or individually placed)
  - Rip rap
  - Cast-in-place concrete
  - Gabions
  - Sacked concrete
  - Soil cement
  - Air blown mortar
- Rip rap, cast-in-place concrete, and pre-cast concrete blocks should only be utilized with expressed permission from the Engineering Department.
- Application of the net and matting materials above is described in the Nets and Mats (EPP-09), and Geotextiles (EPP-10) BMPs.
- Brushlayering applications are discussed in detail in SMP-05: Brush or Rock Filter.
- Riprap installation is detailed in SMP-09: Riprap.

Maintenance

- Soft (or "green") channel linings should be inspected monthly for the first year after construction, quarterly through the second year after construction and biannually (twice per year) thereafter.
- Hard channel linings should be inspected monthly for the first year after construction and annually thereafter.
- If net or matting materials are damaged, repair or replace immediately.
- Any spaces left bare in riprap or brushlayering applications due to erosion or scouring are to be repaired and replaced with their respective lining materials.

Inspection Checklist

- ❑ Hard (concrete, rip rap, etc.) permanent channel linings often result in prevention of habitat establishment.
- ❑ Inadequate coverage results in erosion, washout, and poor plant establishment.
- ❑ If the channel grade and liner are not appropriate for the amount of runoff, channel bottom erosion may result.
- ❑ If the channel slope is too steep or riprap is too small, displacement may occur.
- ❑ Riprap may block channel resulting in erosion along the edge.