

Erosion & Sediment Control Workshop

## Managing Construction Sites at Stream Crossings and High Quality Waters

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## Stream Diversions



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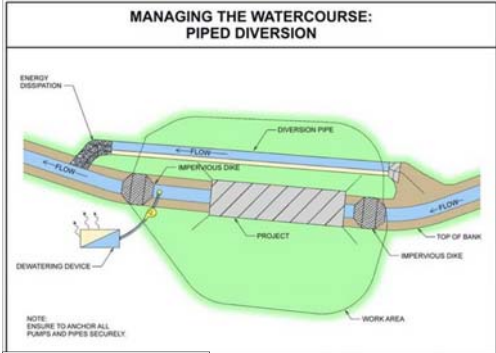
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### MANAGING THE WATERCOURSE: PIPED DIVERSION



NOTE: ENSURE TO ANCHOR ALL PUMPS AND PIPES SECURELY.

BMPs FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES

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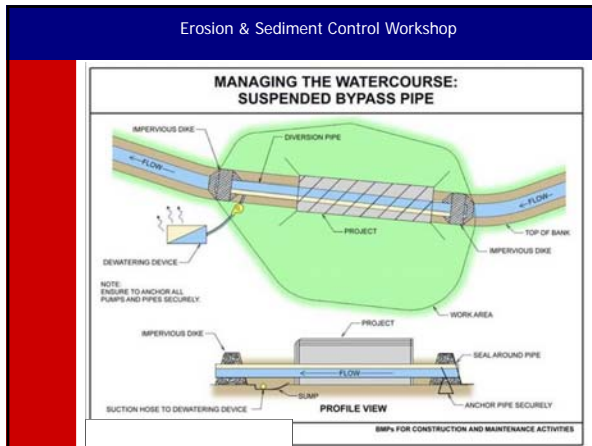
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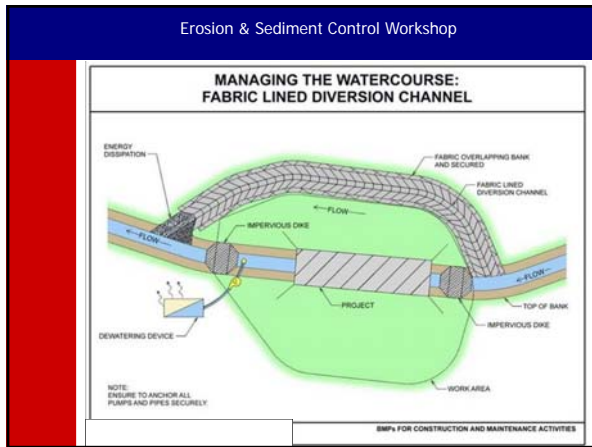
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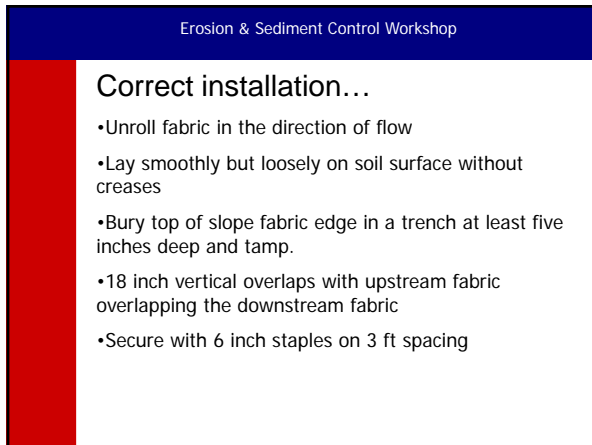
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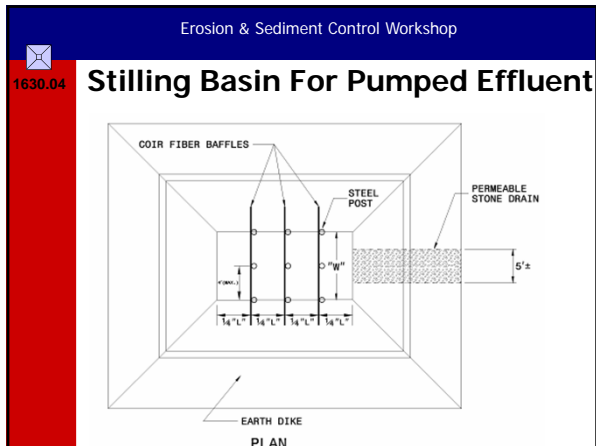
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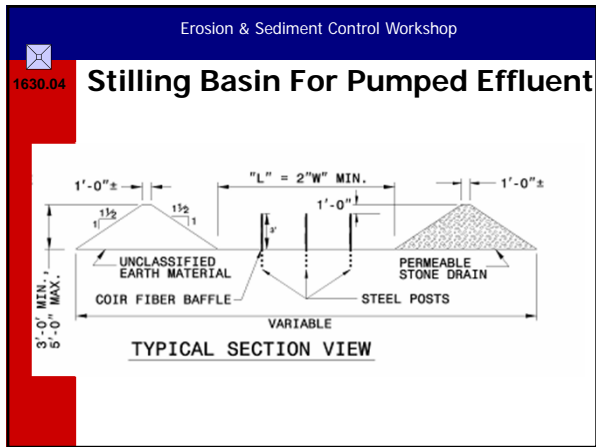
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1630.04 **Stilling Basin For Pumped Effluent**

- **Problem**
  - Protect inlet

Two photographs showing erosion. The left photo shows a deep, eroded channel in the soil. The right photo shows a stream with a muddy, eroded bank and a log in the water.

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### Special Stilling Basin

- Geotextile bag that settles sediment from pumped water
- Used in areas of limited space
- Must be placed on LEVEL stone pad



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### Special Stilling Basin

- **Concerns**
  - Pumping flow may be restricted due to size of bag
  - Bags placed on sloped ground will "roll"
  - When stone pad is not used, water flow is restricted
  - Must dispose of bag once full of sediment—Use lift straps



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### Special Stilling Basin

- **Removal Difficulties**



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## On-Site Stream Relocation



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## On-site Stream Relocation

- Special Case but Located on Most Projects
- Requires Specialized Permitting
- Unique Details and Special Provisions
- Requires Specialized Equipment
- Case Studies to Demonstrate Construction Techniques

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## Stream Relocation Permitting

- Stream relocation requires specialized permitting
  - ACOE 404
- Questions should be directed to Environmental Permitting Office

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### On-site Stream Relocation

- **Components**
  - Channel
  - Floodplain
  - Structures
  - Vegetation

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### Channel Grading Detail

TYPICAL PLAN

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### Channel Grading Detail

TYPICAL RIFFLE WITH BANKFULL BENCH

TYPICAL POOL WITH BANKFULL BENCH

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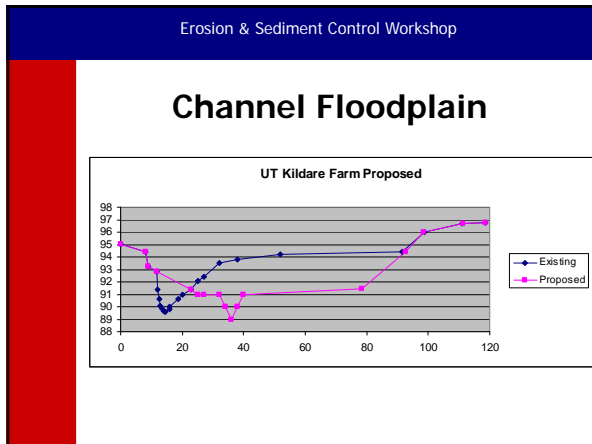
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- Erosion & Sediment Control Workshop
- ### Channel Floodplain
- Flat area along the stream channel
  - Most critical component to the relocation
  - Should be evenly graded to avoid concentrating flood water and overland flow

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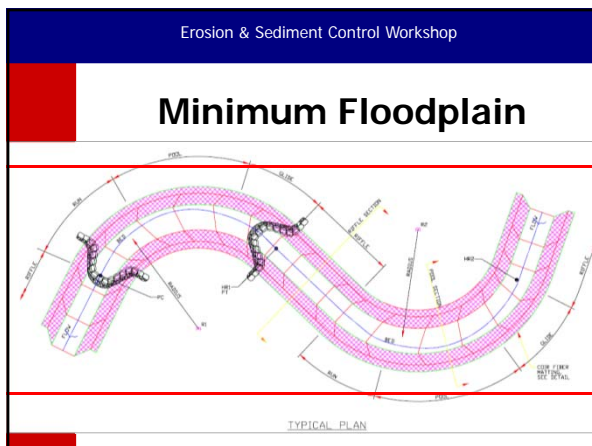
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### Typical On-site Stream Relocation Structures

- Root Wads
- Rock Cross Vane
- Constructed Riffle
- Single Rock/Log Vane
- Coir Matting (Coconut Matting)

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### Cross Vane

Figure 3. Cross vane, root wad and other stream structures. From: The Cross Vane, Root Wad and Other Stream Structures - Their Description, Design and Application for Stream Stabilization and Flow Restoration, D. L. Ruggins, P.E.

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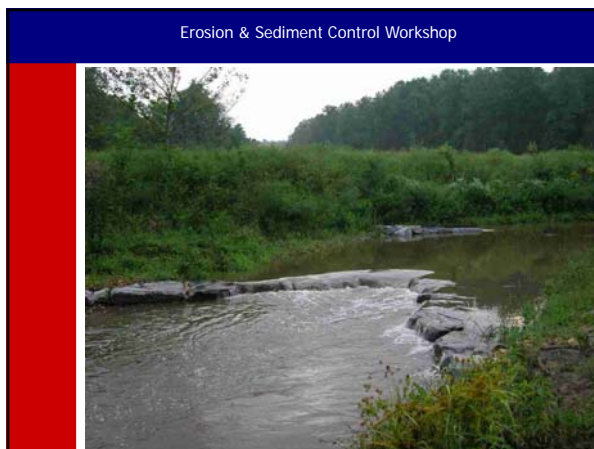
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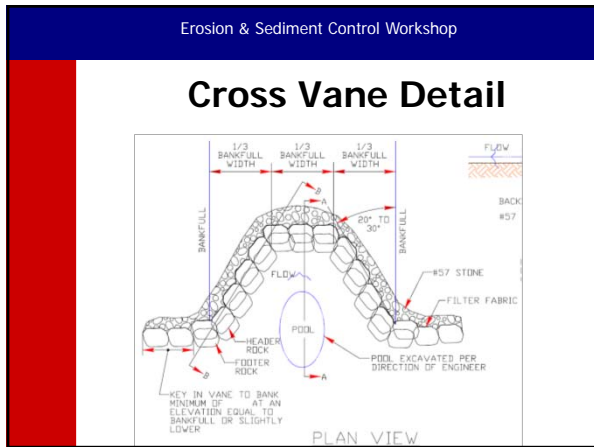
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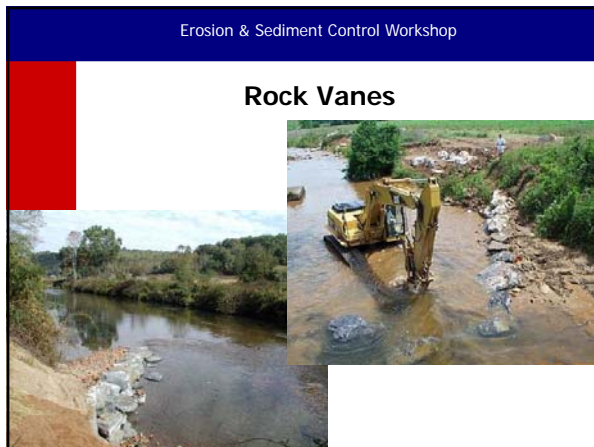
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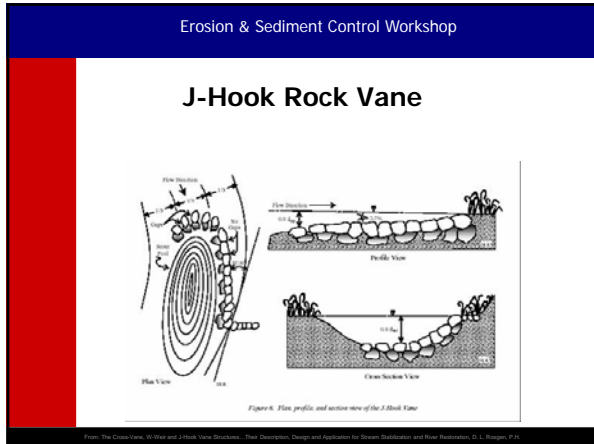
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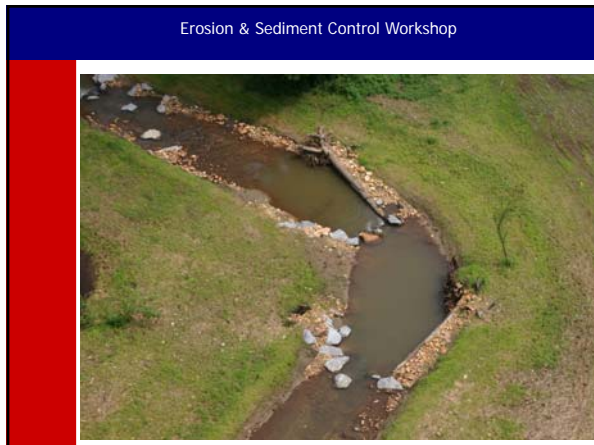
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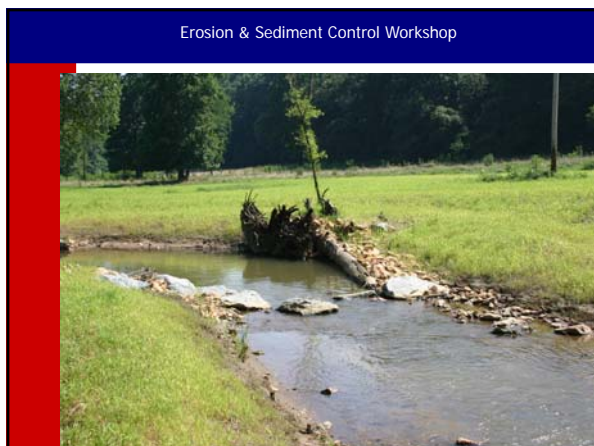
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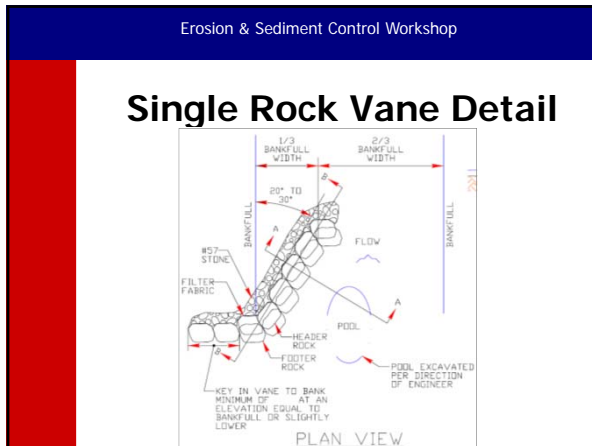
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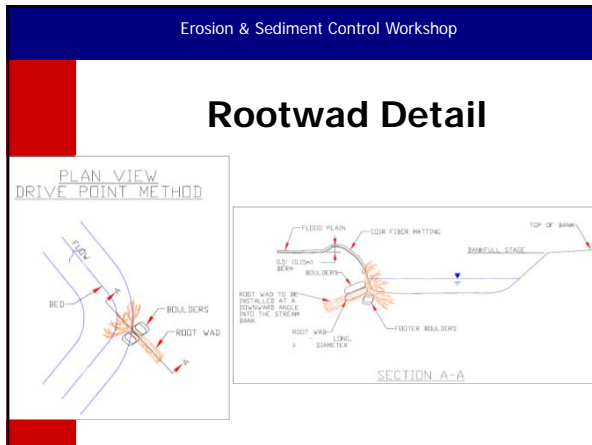
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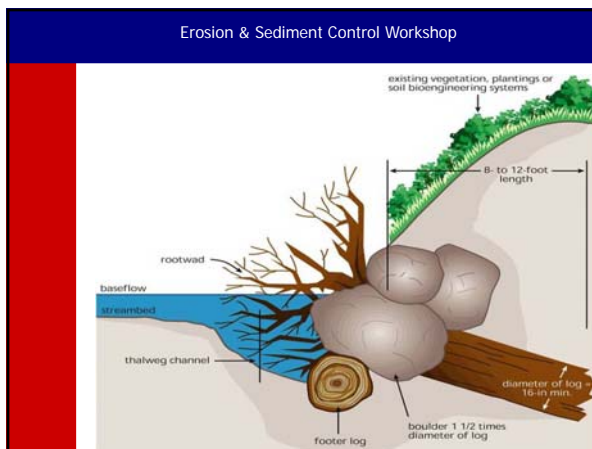
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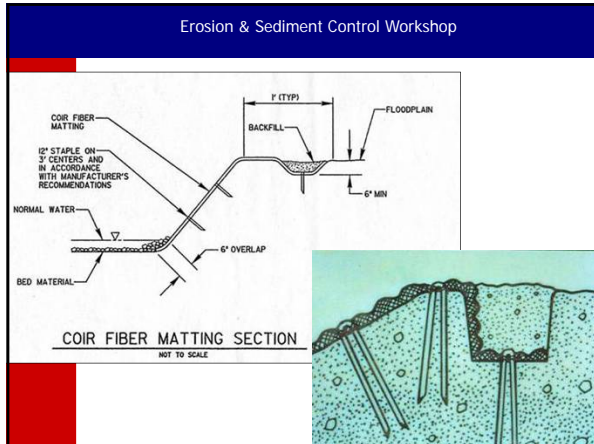
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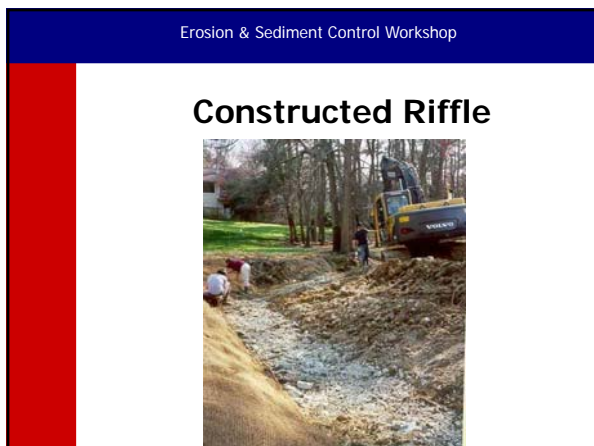
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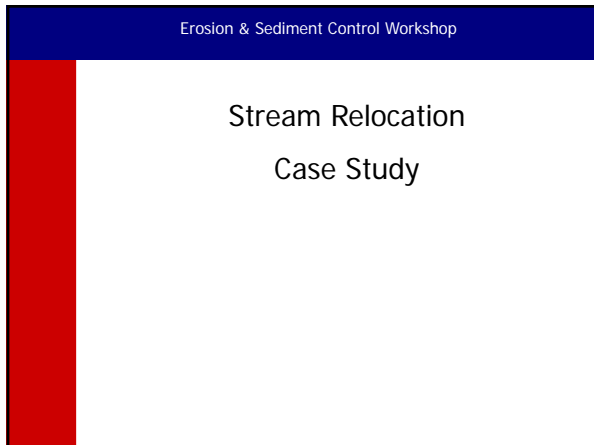
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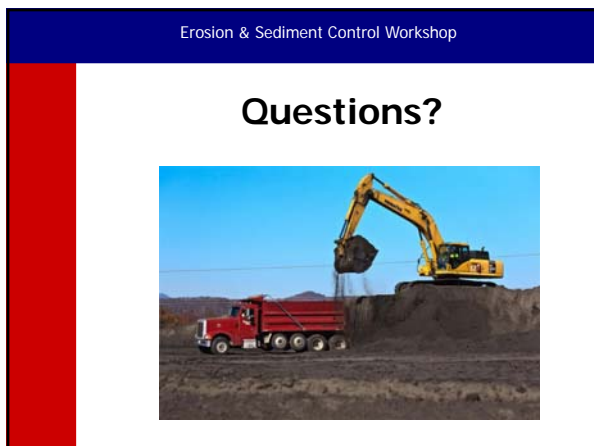
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