Streambank and Shoreline Bioengineered Stabilization

“Lessons Learned”

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V3 Companies
Typical Examples of Erosion

Loss of Property and/or Impacts to Utilities

Health & Safety Concerns
Typical Examples of Erosion

- Limited Habitat
- Water Quality Degradation
Typical Examples of Erosion

Undesirable Aesthetics

Decreased Functionality
General Project Approach

Determine the Contributing Factors

- Erosive Velocities
  - Function of Flow and/or Geometry
- Wave Action / Wind Fetch
- Lack of Vegetation and/or Hard Armoring
- Soil Conditions
- Natural or Manmade Obstructions / Diversions
- Wildlife and Human Impact
General Project Approach

Initial Design Considerations

- Project Budget
- Timeframe
- Permitting Considerations
- Existing Hydrologic & Hydraulic Conditions
- Sustainability
- Aesthetics
- Constructability
- Easements
- Utilities
- Maintenance Considerations
- Balance of Risk versus Benefits
  - Hard Armoring vs. Bioengineering
Existing Conditions
Who Is V3?

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Rock Vein & Riffle Construction
Soil Lift and Fiber Roll Installation

Soil Lift Installation

Fiber Roll Installation
Plant and Seed Installation

Seed, Live Stakes & Shrub Installation

Plant Plug Installation
Shortly After Planting
1-Year After Stabilization
2-Years After Stabilization
3-Years After Stabilization
4-Years After Stabilization
Lessons Learned

- Potential Improvements
  - ACOE / SWCD Permitting
  - Hard Armoring of Toe
  - Live Stake Installation Timing
  - Increase Height of Rock Vane
  - Better Use of Wetland Plugs

- What Worked Well
  - IDNR-OWR Permitting
  - Modified Soil Lifts
  - Riffle & Rock Vane (for most part)
  - Prairie Vegetation
  - Educational / Volunteer Opportunities
  - Met Grant Funding Requirements
Veterans Island – Fox River

Aesthetic & Recreational Improvements

Shoreline Protection
Veterans Island – Fox River

Sandbag Coffer Dam

Dewatering Challenges
Veterans Island – Fox River

Hard Armoring

Plantings
Lessons Learned

Challenges
- Dramatically Fluctuating Water Levels
- Unexpected Subgrade Conditions
- Staging in Floodplain

Solutions
- Adjust Project Schedule
- Utilize Trench Boxes
- Manage Deliveries for Same Day Install
Joint Plantings & Lunker Structures
Root Wads
Block Mattress & Vegetated Gabions
A-Jacks & Native Vegetation
Wetland Shrubs & Live Willow Stakes
Questions