



TAHOE AREA STREAM INVESTIGATION, STABILIZATION & DESIGN WORKSHOP

***WITH AN EMPHASIS ON INNOVATIVE APPROACHES TO
STREAM STABILIZATION AND RESTORATION***

June 3-5, 2008

**Tahoe Environmental Research Center
291 Country Club Drive, Room 139
Incline Village, Nevada 89451**

WORKSHOP OVERVIEW AND GOALS

Develop a philosophy of bank stabilization design that emphasizes an understanding of the stream as a complex inter-related system that encompasses both local and system-wide processes and problems.

Apply the concepts of grade control and the Channel Evolution Model (CEM).

Get tips on how to develop appropriate project goals.

Learn about innovative bank protection methods and how to choose the appropriate method or combination of techniques.

Discuss the importance of project constructability, monitoring, and maintenance

Learn how to read a stream and analyze a streambank erosion problem with an experienced practitioner.

Perform a series of in-the-field site analyses, understanding the role of project goals in the development of conceptual flow analyses, and designing stabilization plans that relate to the project performance goals.

Receive a CD of useful handouts, visuals, and a comprehensive glossary.

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AGENDA

DAY 1

Tuesday, June 3, 2008

- 9:00 - 9:20 Student and Teacher Introductions
- 9:20 - 10:15 The Philosophy of Restoration (Goal and Function Based Design), Project Planning, Monitoring, & How Streams Dissipate Energy
- 10:15 - 10:30 **BREAK**
- 10:30 - 12:00 The Channel Evolution Model (CEM) & Environmental Grade Control
- 12:00 - 1:00 **LUNCH**
- 1:00 - 2:00 CASE STUDY - Putting it All Together – The McKinstry Creek Complete Channel and Floodplain Realignment Project
- 2:00 - 2:30 Onondaga Creek @ Nichol Road Br.-2,700 Poles Planted in 6 hrs
- 2:30 - 3:00 Onondaga Creek-Viffles, Riffles, TCS, SSBW, etc.
- 3:00 - 3:15 **BREAK**
- 3:15 - 3:45 Chautauqua Creek Ice Damage Reduction project with SSBW
- 3:45 - 5:00 LPSTP & LFSTP-From PROSPECT-add stone size and filters

DAY 2

Wednesday, April 2, 2008

- 9:00 - 9:10 Announcements and Housekeeping
- 9:10 - 9:45 Elton Creek DS of Freedom 7 Bridge
- 9:45 - 10:30 Redirective, Indirect, & Discontinuous Methods: Retards, Permeable Dikes, Jacks, Vane Dikes, Impermeable Structures Normal to Flow (Transverse Dikes, Contraction Dikes, Spur Dikes Both High & Low and Short & Long) L-Head & T-Head Dikes, Downstream Angled Structures, Upstream Angled Structures (Rock Vanes), the Bendway Weir, and Combinations of Redirective and Resistive Methods (with break).
- 10:15 - 10:30 **BREAK**
- 10:30 - 12:00 Bioengineering Philosophy and Methods for Streambank Protection Using Native Plants
- 12:00 - 1:00 **LUNCH**
- 1:00 - 1:45 Recently Developed Innovative Techniques to Restore Function to Aquatic and Terrestrial Areas
- 1:45 - 2:45 THE ABRUPT PLANFORM MODIFIERS - Five methods to replicate small radius 90 degree bends, impinging flow situations, and bends that exit into the middle of the next bend (no crossing in between) {Regular, Wrong-Way and Twin Spin Boil-Up Pools; Angle Slams and Grand Slams}.

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- 2:45 - 3:00 How to Choose a Bank Protection Method
- 3:00 - 3:30 Project Construction
- 3:30 - 4:45 How to Conduct a Field Investigation of a Streambank Erosion Problem
- a. Fundamentals of Fluvial Geomorphology
 - b. How to Read a Stream
 - c. Field Equipment & Safety
- 4:45 - 5:00 Review (Dave's Top 10, 46 Ways to Stay out of Trouble)

DAY 3 Thursday, April 3, 2008

- 9:00 - 4:30 Field Trip: Site Analyses of Stream Sites
- Development of project performance goals (function based)
 - Analysis of existing, historical, and future flow and erosion processes and conditions
 - Flow visualization of proposed project (based on project goals)
 - Development of several stream stabilization conceptual designs
 - Analyze overall effects of conceptual design on the stream system and riparian corridor
- Site 1
- Site 2
- Site 3
- 4:30 - 5:00 Wrap-Up Workshop