

**REGISTRATION FORM**  
**“WATERSHED AND STREAM INVESTIGATION,**  
**ANALYSIS, AND DESIGN WORKSHOP**

This free workshop is sponsored by the U.S. Army Corps of Engineers Water Operations  
Technical Support (WOTS) Program, and the Buffalo District, Auburn Field Office

**TIME:** September 21, (starts at 8:00 am) until September 23<sup>rd</sup>, 2004 (ends at 5:00 pm).

**PLACE:** The conference room at the Natural Resource Center, 7413 County House Road, Auburn, NY 13021. Phone 315-255-1384.

**ACCOMODATIONS:** Please make your own reservations at the Holiday Inn in (315-253-4531) Auburn, NY. There are 25 rooms available at the Holiday Inn on Route 34 (75 North Street), Auburn, New York. The government rate is \$55.00/night. The rooms are reserved under U.S. Army Corps of Engineers (CODE: COE). The hotel is located at the corner of Route 34 and Route(s) 5 and 20. You can register at 315-253-4531 or visit their website at <http://www.hiauburn.com/>

**DIRECTIONS:** To Hotel and Natural Resource Center, see attached maps.

**INSTRUCTORS:** Dave Derrick, Research Hydraulic Engineer with the Corps of Engineer’s Engineering Research and Development Center’s Coastal & Hydraulics Laboratory (ERDC-CHL), and the inimitable Dr. Rich Fischer, Research Biologist, ERDC-Environmental Lab.

This workshop is limited to the first 45 people who register.

The objectives of this workshop are to introduce the methodology and procedures for initiating, planning, analyzing, and ultimately designing long-term sustainable river and stream stabilization/restoration projects. Innovative, environmentally sensitive, and cost-effective approaches to channel restoration will be discussed. Several comprehensive case studies will also be presented. See enclosed draft agenda for details. A field trip to a local stream site will be conducted (transportation will not be provided). Rain gear, appropriate field clothes, and knee or hip boots are recommended for the field trip. In early September, registered participants will be e-mailed instructions on how to download all class word slide notes from a dedicated FTP site. Participants can print out the class notes and bring those to class.

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**I would like to register for this workshop:**

NAME: \_\_\_\_\_

E-MAIL: \_\_\_\_\_

AGENCY: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

Please return this form to SANDIE DORAN AT FAX 315-255-1492 by August 31, 2004. Any questions, please email [Sandra.l.doran@usace.army.mil](mailto:Sandra.l.doran@usace.army.mil).

# **STREAM INVESTIGATION, STABILIZATION & RESTORATION WORKSHOP**

(WITH AN EMPHASIS ON AQUATIC & RIPARIAN REHABILITATION)

**SPONSORED BY:** THE U.S. ARMY CORPS OF ENGINEERS BUFFALO DISTRICT AND THE WATER OPERATION TECHNICAL SUPPORT PROGRAM (WOTS)

<http://www.wes.army.mil/el/wots/wots.html>

**WORKSHOP INSTRUCTORS:** Dave Derrick, Research Hydraulic Engineer with the Corps of Engineer's Engineering Research and Development Center's Coastal & Hydraulics Laboratory (ERDC-CHL) and the inimitable Dr. Rich Fischer, Research Biologist, ERDC-Environmental Laboratory

**DATES:** Tuesday-Thursday, September 21-23, 2004

**FIELD TRIP SITE:** Yawger Brook, Town of Springport, Cayuga County, New York; scheduled for the afternoon of September 23<sup>rd</sup>. Maps will be provided during class.

**TO REGISTER CONTACT:** SANDIE DORAN AT 315-255-1384 or by email at [Sandra.l.doran@usace.army.mil](mailto:Sandra.l.doran@usace.army.mil) by **August 31, 2004**.

**CLASSROOM:** U.S. ARMY CORPS OF ENGINEERS, AUBURN FIELD OFFICE, NATURAL RESOURCE CENTER, 7413 COUNTY HOUSE ROAD, AUBURN, NEW YORK 315-255-8090

**CLASS NOTES:** All word slides will be available on an FTP site for downloading and printing. Directions to the FTP site will be provided to all registered attendees two weeks prior to the class.

## **WORKSHOP OVERVIEW AND GOALS**

- \* Provide a consistent philosophy of bank stabilization design, with an emphasis on understanding the stream as a complex inter-related system, and understanding both local and system-wide processes and problems.
- \* Provide a short course in riparian area importance, function, threats, management, and restoration techniques
- \* Provide an understanding of how hydraulic and environmental considerations are usually complimentary in nature,
- \* Provide an overview of the concepts of grade control and the Channel Evolution Model (CEM)
- \* Provide instruction in developing appropriate project goals
- \* Teach bank protection methods (effects on stream energy and flow, & applicability and constraints), and how to choose the appropriate method or combination of techniques
- \* Clarify the importance of project constructability, monitoring, and maintenance

## **WORKSHOP OVERVIEW AND GOALS (continued)**

- \* Teach students how to read a stream (with instruction in field equipment needs and safety), and how to perform a comprehensive analysis of a streambank erosion problem.
- \* Reinforce classroom lectures by performing in-the-field site analyses, understand the role of project goals in the development of conceptual flow analyses, & design stabilization plans that relate to the project performance goals.
- \* How to design riparian buffer strips for various functions
- \* Why riparian zones are important landscape components
- \* Types of buffer strips in different landscapes
- \* How riparian buffer strip width influences various ecological functions
- \* Available regional and national programs for buffer strip establishment

## **AGENDA**

### **DAY 1 – TUESDAY Sept. 21, 2004 – Classroom all day -Derrick**

8:00-8:15 Instructor Introduction and Overview of Workshop Schedule

8:15-9:00 The Philosophy of Restoration (Goal and Function Based Design, & Maintenance and Monitoring)-Derrick

#### **Session 1: STREAMBED STABILIZATION**

9:00-10:30 The Channel Evolution Model (CEM), Grade Control, and Newbury Rocked Riffles-Derrick

#### **Session 2: STREAMBANK PROTECTION & STABILIZATION METHODS**

10:30-12:00 The Importance of the Riparian Buffer Zone - Plus Innovative Ideas to Restore Function to Aquatic and Terrestrial Areas with an emphasis on the Eighteen Mile Creek Project, Newfane, New York-Derrick

#### **12:00-1:00 LUNCH**

1:00-1:30 Innovative Ideas (continued)

1:30-3:30 Bioengineering Philosophy and Methods for Streambank Protection Using Native Plants (with break)-Derrick

3:30-5:00 Indirect, Discontinuous, and Redirective 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-Derrick

**DAY 2 – WEDNESDAY Sept. 22, 2004 – Classroom all day - Derrick**

**SESSION 2: STREAMBANK PROTECTION & STABILIZATION METHODS (continued)**

- 8:00-8:15 Announcements and Housekeeping  
8:15-10:00 Indirect, Discontinuous, and Redirective Methods (continued)  
10:00-11:30 Resistive and Continuous Bank Stabilization Methods-Derrick  
11:30-12:30 LUNCH

**DAY 2 – WEDNESDAY Sept. 22, 2004 – (continued)**

- 12:30-1:30 Proprietary Methods (grouped by function)-Derrick  
1:30-1:45 How to Choose a Bank Protection Method-Derrick  
1:45-2:15 Permits & Construction-Derrick  
2:15-3:45 How to Conduct a Field Investigation of a Streambank Erosion Problem-Derrick  
    a. Fundamentals of Fluvial Geomorphology  
    b. How to Read a Stream  
3:45-4:15 Review (Dave's Design Considerations, 47 Ways to Stay out of Trouble)-Derrick  
4:15-5:00 Preview of Field Trip Sites, & Discuss Field Clothes and Equipment for Tomorrow – hip boots, cameras, etc.

**DAY 3 – THURSDAY September 23, 2004 - Classroom AM, field site investigation PM**

**SESSION 3: IMPORTANCE, FUNCTIONS, & MANAGEMENT OF THE RIPARIAN BUFFER ZONE-Dr. Rich Fischer**

- 8:00-8:15 Announcements and Housekeeping  
  
8:15-9:45 Importance of Stream and Riparian Corridors  
    - Why is quality important?  
    - Ecological and Physical Functions  
    - Importance to birds, mammals, and herpetofauna  
  
9:45-11:45 Riparian Buffer Strips and Corridors  
    - Importance  
    - Types of Buffer Strips and how they function  
    - Selecting the type of buffer strip for objective  
    - Regional/National Programs to fund riparian projects  
    - Management techniques for various functions in riparian areas  
  
11:45-12:00 Questions/Answer Session  
  
12:00-1:00 LUNCH

**FIELD INVESTIGATION-“Every stream is a classroom” – Doran, Fischer, and Derrick**

- 1:00-1:45 Travel to Yawger Brook (field site map provided during class)  
1:45-4:00 Field Trip: Analysis of Yawger Brook, Cayuga County, NY  
    a.) Development of project performance goals (function based)  
    b.) Analysis of existing, historical, and future flow and erosion processes and conditions  
    c.) Flow analysis of project (satisfies project goals?)  
    d.) Analyze overall effects of chosen design on the stream system and riparian corridor  
4:45-5:00 Wrap-Up Design Analysis and Miscellaneous Questions and Wrap-up Workshop