

**Designing for Aquatic Organism Passage at Road-Stream Crossings
???, Virginia (4 - 8 March 2024)**

Course Objectives

Provide engineers, biologists, hydrologists, and other engaged disciplines the necessary skills to design road-stream crossing structures that will accommodate aquatic organism passage, provide for more natural channel function, and maximize the long-term stability of the structure. The primary design approach is stream simulation.

Monday, 4 March

8:30	Welcome and Introductions •	TBD
8:40	1. Course structure and objectives	Mark Weinhold
9:00	2. Why ecological continuity at road-stream crossings is important	Craig Roghair
9:45	3. History of road-stream crossing design approaches and a simple stream simulation example	Mark Weinhold
10:30	Break	
10:40	4. Fluvial processes and channel characteristics important in stream simulation design	Dan Cenderelli
12:10	Lunch	
1:10	5a. Site assessment: Field measurements and interpretations • Site maps, channel planform characteristics, longitudinal profiles	Dan Cenderelli
2:10	Break	
2:20	5a. Site assessment: Field measurements and interpretations • Site maps, channel planform characteristics, longitudinal profiles (cont.)	Dan Cenderelli
3:10	Break	
3:20	<i>Exercise 5a. Introduction to exercise and data: Schafer Tributary. Interpreting geomorphic site assessment data: Channel planform and longitudinal profile</i>	Dan Cenderelli All instructors
5:30	Adjourn	

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Tuesday, 5 March

8:00	5b. Stream simulation design <ul style="list-style-type: none">• Reference reach concept, project alignment and profile, site suitability for stream simulation• <i>Exercise 5b. Design project profile and alignment</i>	Mark Weinhold All instructors
9:45	Break	
9:55	5b. Stream simulation design (cont.) <ul style="list-style-type: none">• Reference reach concept, project alignment and profile, site suitability for stream simulation• <i>Exercise 5b. Design project profile and alignment</i>	Mark Weinhold All instructors
11:10	Break	
11:20	6a. Site assessment: Field measurements and interpretations <ul style="list-style-type: none">• Channel cross sections and channel-bed sediments	Dan Cenderelli
12:30	Lunch	
1:30	<i>Exercise 6a. Interpreting geomorphic site assessment data: Channel cross sections and bed material interpretations</i>	Dan Cenderelli All instructors
2:40	Break	
2:50	6b. Stream simulation design <i>Exercise 6b. Design bed mix, key features, bed/bank margins</i>	Erica Borum
4:00	Break	
4:10	6b. Stream simulation design (cont.) <i>Exercise 6b. Design bed mix, key features, bed/bank margins (cont.)</i>	Erica Borum All instructors
5:00	Adjourn	

Wednesday, 6 March

8:00-5:00	Field Trip	All instructors
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Thursday, 7 March

8:00	7. Structure selection and design considerations	Erica Borum
9:00	<i>Exercise 7. Structure type selection</i>	Erica Borum All instructors
9:50	Break	
10:00	8. Flood hydrology, discharge estimates, and culvert capacity	Mark Weinhold
11:00	Break	
11:10	9. Sediment entrainment and bed mobility/stability analysis	Mark Weinhold
12:00	Lunch	
1:00	<i>Exercise 9: Bed mobility/stability analysis</i>	Mark Weinhold All instructors
2:15	Break	
2:25	10. Final design and contract preparation	Erica Borum
3:20	<i>Exercise 10. Final design bed material specifications</i>	Erica Borum All instructors
3:50	Break	
4:00	11. Construction	Erica Borum
5:00	Adjourn	

Friday, 8 March

8:00	12. Monitoring	Dan Cenderelli
8:30	13. Lessons learned from a few case studies	Mark Weinhold
9:00	Break	
9:15	<i>Schafer Tributary Exercise: Group presentations and discussion</i>	Dan Cenderelli All instructors
12:45	Wrap-up	
1:00	Adjourn	