



# CENTER FOR INFRASTRUCTURE ENGINEERING STUDIES

**GeoMO 2005 Design of Retaining Walls**

**By**

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**UTC  
ETT137**

**University Transportation Center Program at**

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**Technical Report Documentation Page**

1. Report No. <b>UTC ETT137</b>		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle <b>GeoMO 2005 Design of Retaining Walls</b>				5. Report Date <b>December 2005</b>	
				6. Performing Organization Code	
7. Author/s <b>Richard W. Stephenson</b>				8. Performing Organization Report No. <b>00001393</b>	
9. Performing Organization Name and Address <b>Center for Infrastructure Engineering Studies/UTC program University of Missouri - Rolla 223 Engineering Research Lab Rolla, MO 65409</b>				10. Work Unit No. (TRAIS)	
				11. Contract or Grant No. <b>DTRS98-G-0021</b>	
12. Sponsoring Organization Name and Address <b>U.S. Department of Transportation Research and Special Programs Administration 400 7<sup>th</sup> Street, SW Washington, DC 20590-0001</b>				13. Type of Report and Period Covered <b>Final</b>	
				14. Sponsoring Agency Code	
15. Supplementary Notes					
16. Abstract <b>One day seminar given by one of the leading authorities on foundation design for transportation structures and Reliability Based Design.</b>					
17. Key Words <b>Seminar, Technology transfer, foundations, retaining walls, mechanically stabilized walls, flexible retaining walls</b>			18. Distribution Statement <b>No restrictions. This document is available to the public through the National Technical Information Service, Springfield, Virginia 22161.</b>		
19. Security Classification (of this report) <b>unclassified</b>		20. Security Classification (of this page) <b>unclassified</b>		21. No. Of Pages	22. Price

## GeoMO 2005 Design of Retaining Walls

Theme: DESIGN AND PERFORMANCE OF TIED-BACK AND MECHANICALLY STABILIZED WALLS

Date: May 20, 2005

Professional Development Hours: Individuals attending the program will receive a certificate documenting 6.0 hours of Professional Development.

Attendees: 70 Professionals

### The Subject and Workshop

Earth retaining walls are a common component of both horizontal and vertical construction. These structures have the distinction of being the first to be analyzed using mechanics (Coulomb). Although rigid retaining walls are still being used, flexible retaining walls including tied-back and mechanically stabilized walls are becoming more and more popular. In this workshop current design and analysis practices of both tied-back (flexible) and mechanically stabilized walls (MSE) will be presented. Design examples and case studies will be presented. Factors resulting in poor performance of these structures will also be reviewed.

### The Lecturers

Alan Macnab is Business Development Officer for Condon-Johnson & Assoc., Inc. Condon-Johnson & Associates are geotechnical contractors with special expertise in shoring, sheet-piling, soil nailing, drilled shafts and stone columns. Macnab's entire career has been spent with earth retention construction companies. He has been involved in the construction of earth retention and deep foundation projects since 1973 throughout North America. His roles in construction have included work in operations, supervision, estimating, marketing, and claims, including executive positions in both Canada and the United States. He has held the Presidency of ADSC, and the President of the Geo-Institute, ASCE. He is a frequent speaker on issues involved in these specialties to engineering, academic and supervisory personnel and has written extensively on these topics. Alan is the author of the Earth Retention Systems Handbook, McGraw-Hill, 2002.

Barry R. Christopher, Ph.D., P.E. is an independent geotechnical engineering consultant specializing in reinforced soil and other ground improvement technologies, geo-environmental containment system design, geosynthetic application and design, and geotechnical/geosynthetic testing and instrumentation. He has a BSCE from U.N.C. Charlotte, a MSCE from Northwestern University, and a Ph.D. from Purdue University. He is a registered Professional Engineer in six states and has over 25 years of experience in geotechnical and geosynthetics engineering. He has authored over 70 technical papers, many of which are on reinforced soil technology, six design manuals for U.S. federal agencies, including the FHWA Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, Design and Construction Guidelines, and recently a textbook on geosynthetics (Geosynthetics Engineering, Holtz, Christopher and Berg, BiTech, 1997). Dr. Christopher was the principal investigator (1985-1990) for the FHWA research study on "Behavior of Reinforced Soil," and has designed, supervised the construction and instrumented

numerous reinforced soil structures. He is currently the co-principal in the FHWA/NHI workshops on Geosynthetics Engineering, Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, Geotechnical Instrumentation, and Subsurface Investigation. He is also the co-technical director and a principal consultant for the HITEC Earth Retaining Structures review program. His professional service activities include chair of several national and international professional committees and he is currently active in ASTM, ASCE, IGS, NAGS, the GeoCouncil, ISO and TRB.



Alan McNab



Dr. Barry Christopher