Special Guest Lecture by:
Dr. Barry R. Christopher, Ph.D., P.E.
Independent Geotechnical Engineering Consultant
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Date: Monday October 23 & 30, 2006
Time: 8:00 to 10:00 am
Location: Sustainable Education Building, Room 122

TOPIC
"Geotechnics and Pavement Drainage"

ABSTRACT
Water in pavement systems is one of the principal causes of pavement distress. It is well known that improved roadway drainage extends the life of a roadway system, primarily through controlling the impact of water on the performance of geotechnical features (i.e., the subgrade and unbound pavement base/subbase layers). Modern roadways incorporating good drainage have been predicted to have a design life of up to three times that of un-drained pavement sections (Cedergrin, 1987 and 1988). Current roadway design (e.g. AASHTO, 1993 and US Army, 1992) recognizes the benefits of drainage and uses drainage factors that enable designers to take advantage of good versus poor drainage. However, a vast majority of roadways are still designed without due consideration for drainage, many of which are most likely under designed. This presentation will review the effects of drainage on the life and serviceability of roads and the design of alternate drainage features that can be used to improve the efficiency and effectiveness of roadway drainage. The assessment of environmental factors to quantify the benefits of drainage along with the current state of the practice in performance evaluation of drainable pavement systems will be covered.

BIOGRAPHY
Dr. Christopher is an independent geotechnical engineering consultant specializing in: reinforced soil and other ground improvement technologies; geosynthetics application and design; and, geotechnical/geosynthetics testing and instrumentation. He has authored numerous technical papers on these subjects including six design manuals for the U.S. Federal Highway Administration (FHWA), for example, Geosynthetic Design and Construction Guidelines and Geotechnical Aspects of Pavements, a textbook on Geosynthetic Engineering and three National Cooperative Highway Research Program syntheses including Pavement Subsurface Drainage Systems, Maintenance of Highway Edgedrains and Geosynthetic Reinforcements in Roadway Sections. He teaches training courses for the FHWA and the private sector on both geosynthetics and pavement systems and is currently involved in two FHWA sponsored research projects on the development of mechanistic design models for geosynthetic reinforced pavements. Dr. Christopher has over 30 years of geotechnical engineering experience and is a registered Professional Engineer in six U.S. states. In his current geotechnical consulting practice, he has been extensively involved in the evaluation of drainage in pavements, performing field research on the performance of drainage in pavements on projects with the Maine DOT and the University of Wisconsin for the Wisconsin DOT. He has consulted on geosynthetics applications on a number of pavement system designs for roadways and runways including for example the Duluth Airport, O'Hare International and the Denver Airport. He has a BSCE from the University of North Carolina at Charlotte, a MSCE from Northwestern University, and a Ph.D. from Purdue University. He has chaired several national and international professional committees and continues to be active on a number of committees including the ASTM, TRB and the North American and International geosynthetic societies (NAGS/IGS).