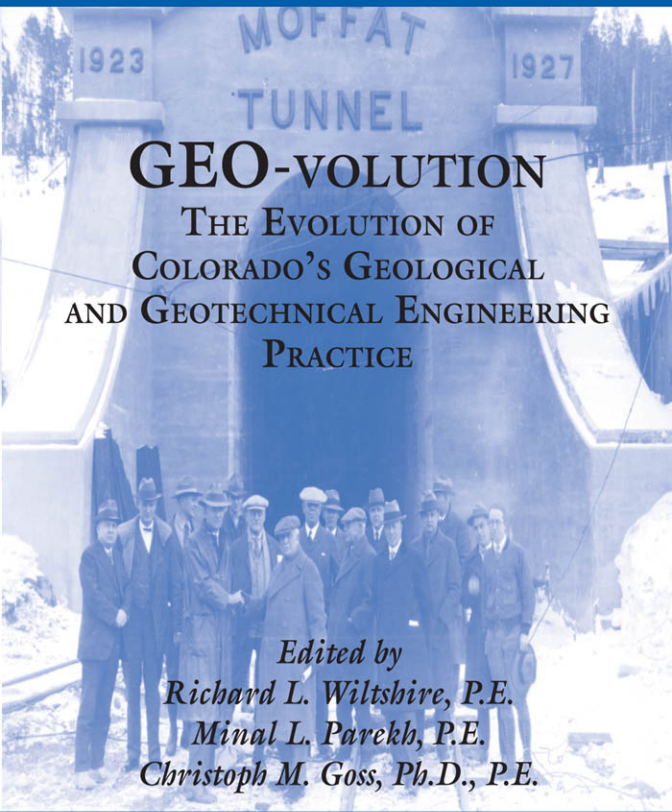
GEOTECHNICAL PRACTICE PUBLICATION NO. 4



GEO-VOLUTION

THE EVOLUTION OF COLORADO'S GEOLOGICAL AND GEOTECHNICAL ENGINEERING PRACTICE

Edited by
Richard L. Wiltshire, P.E.
Minal L. Parekh, P.E.
Christoph M. Goss, Ph.D., P.E.

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PROCEEDINGS OF THE 2006 BIENNIAL GEOTECHNICAL SEMINAR

November 10, 2006
Denver, Colorado

SPONSORED BY
The Geotechnical Group of the Colorado Section of
the American Society of Civil Engineers
Rocky Mountain Section of the Association of Environmental and
Engineering Geologists
Colorado Association of Geotechnical Engineers

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Preface

A civil engineering historian would suggest that geotechnical and geological engineering in Colorado began about 1,250 years ago, during the development of the first of Mesa Verde's prehistoric reservoirs. The theme for the 2006 Biennial Geotechnical Seminar is "GEO-volution: The Evolution of Colorado's Geological and Geotechnical Engineering Practice." The theme was chosen to focus on Colorado's storied past, the difficult engineering challenges overcome by its early population, the current state of local geotechnical and geological engineering practice, and ideas that will carry our practice into the future. The seminar papers presented in this publication provide perspectives on Colorado's unique geology, on geotechnical and geological engineering for the challenging ground conditions present in Colorado, on emerging trends in the local engineering practice, and on current solutions to Colorado's diverse geo-problems.

Since 1984, the Geotechnical Group of ASCE's Colorado Section has organized a biennial series of seminars, in collaboration with the Rocky Mountain Section of the Association of Environmental and Engineering Geologists and the Colorado Association of Geotechnical Engineers. The seminars have been attended by as many as 270 civil/geotechnical engineers, engineering geologists, geologists, and other geo-professionals in the Colorado region. The seminars have been held at area universities or hotels and offer the opportunity for sharing ideas and experiences among Colorado's diverse geo-disciplines. We look forward to participating in Geo-Denver 2007.

The GEO-volution Steering Committee has been working to organize the 2006 Biennial Geotechnical Seminar and this accompanying publication since February 2005. The Steering Committee members included Lois Boxill, Mark Brooks, Tom Chapel, Dr. Christoph Goss, Tom Holben, Leslie Jansen, Dr. Bill McCarron, Minal Parekh, Rebecca Roland, Mark Vessely, Chris Wienecke, and Richard Wiltshire.

Richard L. Wiltshire, Minal L. Parekh, and Christoph M. Goss

Acknowledgments

The GEO-volution Steering Committee wishes to thank all of the authors and reviewers of the papers presented herein as Geotechnical Practice Publication No. 4. The authors have spent many hours preparing and revising the papers which will be presented at the 2006 Biennial Colorado Geotechnical Seminar on November 10, 2006. These papers have been reviewed by geo-professionals in the Denver area who volunteered their time in order to improve the quality of this publication as a representation of our local practice. Their thoughtful and timely reviews are greatly appreciated. The GEO-volution Steering Committee also thanks the Geo-Institute's Committee on Technical Publications for working within the constraints of our schedule. Thanks also to Donna Dickert of ASCE's Book Production Department for her assistance in the production of this publication.

Contents

Colorado Geology

Geology of Colorado and Major Prehistoric Events 1
John L. Lufkin

Colorado Earthquakes and Active Faults 18
Wayne A. Charlie, Raymond J. Battalora, Thomas J. Siller, Donald O. Doehring, and John W. van de Lindt

Spectral Reflectance as a Rapid Technique for Field-Determination of Soil Engineering Properties 33
Alexander F. H. Goetz, Harold W. Olsen, David C. Noe, James R. Koehler, Jessica P. Humble, Julia Fuschino, Eric L. Johnson, and Brody J. Johnson

Colorado Challenging Ground

Evolution of Foundation Design for Expansive Soils 62
John D. Nelson, Daniel D. Overton, and Kuo-Chieh Chao

Performance of Square Shaft Helical Pier Foundations in Swelling Soils 76
John S. Pack

Characteristics and Susceptibility of Collapsible Soils in Colorado: Results of a Statewide Study 86
Jonathan L. White

Building Above Natural Subsurface Cavities 99
William H. Koechlein and Robert James Irish

Planetary Geotechnical Techniques

Geotechnical Techniques Used in Planetary Exploration 109
Howard A. Perko

Colorado's Emerging Trends—Stability and Foundations

Mine Stability Mapping 120
Collin L. Stewart and Ry E. Stone

LRFD and Drilled Shaft Design in Colorado 132
Mark J. Vessely and Hsing-Cheng Liu

Evolution of Mechanically Stabilized Earth Wall Design to Incorporate Permanent Shoring 149
K. F. Morrison, F. E. Harrison, and S. A. Anderson

Colorado Waters Resources—Reservoirs

Gravel Pit Reservoirs—Colorado's Water Storage Solution 158
Don W. Deere, Colby J. Hayden, and Glen G. Church

Subsidence Predictions of Porosity Storage Water Reservoirs **174**
Paul G. Ivancie and Stanley R. Peters

Angled Pressure Relief Wells Improve Stability at Spinney Mountain Dam **195**
Bill McCormick, Gary Linden, Ted Hartfelder, and Rich Tocher

Indexes

Subject Index **213**

Author Index **215**