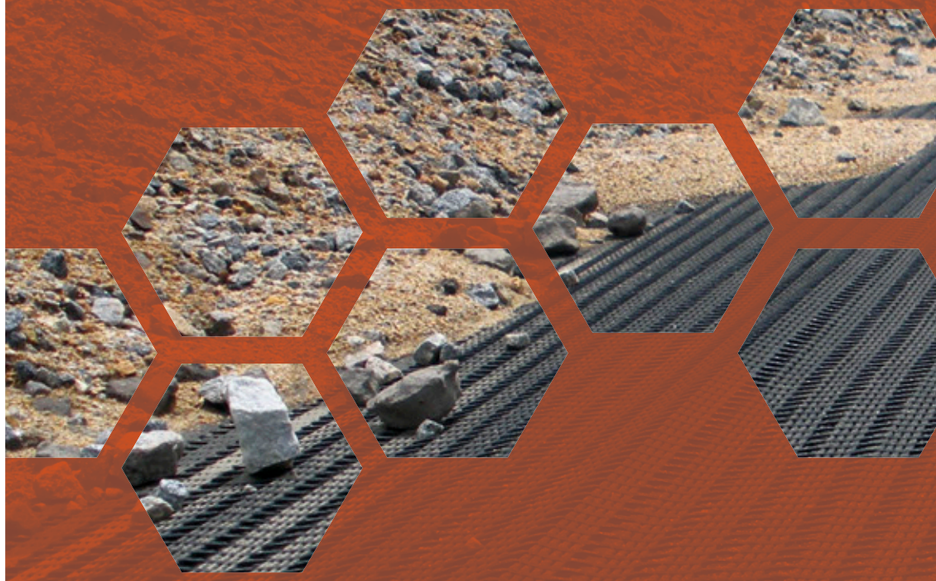
Embankment construction projects on very soft soil often give rise to serious problems. This volume on geotechnics and soft soil engineering therefore treats all phases of the design and construction process exhaustively, from the first investigation step to the monitoring of constructed work. The book presents the development concepts necessary for the project stages and discusses in great detail construction methods, displacement estimations, stability analyses, monitoring, and various other aspects involved. Extensive attention is furthermore paid to the application of geosynthetics as a tool to improve the stability of soft soils and embankments. Including various tables and practical data for many geographical areas in the world, this reference volume is essential reading for engineers and researchers in geotechnical engineering, construction, and related disciplines.



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Design and Performance of Embankments on
Very Soft Soils

Márcio de Souza Almeida &
Maria Esther Soares Marques

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Table of contents

Preface

Even if it is an important topic in geotechnical engineering, embankments on soft or very soft soils have been the subject of few books and, to my knowledge, none recently published. This book "Design and Performance of embankments on Very Soft Soils" is thus very welcome.

The authors, Márcio Almeida and Esther Marques, have a long experience with soft soils and embankments. Indeed both did their Ph.D. on related topics. They also have an excellent knowledge of advanced soil mechanics and of new technologies for both characterizing soft soil deposits and solving settlement or stability problems, as well as field monitoring and interpretation. The book reflects this state-of-the-art knowledge. Soils are described using modern concepts of yielding and yield curves; sampling quality is considered; the use and interpretation of DMT, T-bar and piezocone soundings are described. Technologies for reducing and/or accelerating settlements and for improving stability are also described. In particular, emphasis is put on "embankments on pile-like elements" and on "vacuum preloading" with which the authors have very good experience.

With this book in English, in addition to the general technical aspects previously mentioned, Professors Márcio Almeida and Esther Marques offer the geotechnical community the remarkable and unique Brazilian experience with embankments on very soft organic soils. Very nice contribution!

Serge Leroueil,
July 2013

About the authors

Márcio Almeida earned his Civil Engineering degree at the Federal University of Rio de Janeiro, in 1974 and obtained his MSc at COPPE/UFRJ in 1977 when he joined COPPE as Assistant Lecturer. Marcio got his PhD from the University of Cambridge, UK in 1984. Then he returned to UFRJ and in 1994 became Professor of Geotechnical Engineering. His postdoc was at Italy (ISMES) and NGI, Norway in the early 1990s and he was also visiting researcher at the universities of Oxford, Western Australia and ETH, Zurich. He is currently one of the leading researchers of the National Institute of Science and Technology – Rehabilitation of Slopes and Plains (INCT-REAGEO). He has been the Director of COPPE's MBA "Post-Graduate Program in Environment" since 1998. He has published numerous articles in journals and conferences in Brazil and abroad and has supervised over 60 doctoral and master dissertations. He received the Terzaghi and Jose Machado awards from the Brazilian Association of Soil Mechanics and Geotechnical Engineering (ABMS). His experience ranges from soft clay engineering, environmental and marine geotechnics, site investigation, physical and numerical modeling as well as extensive experience in geotechnical consulting.

Esther Marques holds a degree in Civil Engineering – emphasis in Soil Mechanics, from Federal University of Rio de Janeiro. She obtained her MA and PhD in Civil Engineering from COPPE/UFRJ, with researches conducted at Université Laval, Canada. She worked at Tecnosolo and Serla and was a researcher at COPPE/UFRJ from 2001 to 2007. She is currently an associated professor at the Military Institute of Engineering, where she teaches undergraduate and graduate Transportation Engineering and Defence Engineering. She has experience in Civil Engineering with emphasis in Soil Mechanics, working mainly with the following: laboratory testing, field-testing, instrumentation, soft soils behavior, embankments on soft soils and environmental geotechnics.