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Summary

The purpose of this book is to introduce up to date knowledge of how to investigate organic soil as well as predict the deformation and stability of embankment constructed on organic subsoil.

Embankments on organic soils are most often constructed for roads or for flood control dikes. There are dams for water retention as well as waste tailings dams founded on organic soils. In recent years temporary embankments have been utilized to preload the soft subsoil, including organic subsoil and in this way improving the bearing capacity before the structure is built. Such procedures are used not only for easily adjustable structures like e.g. coal yards but also for buildings.

When an embankment is erected directly on soft organic soil layers, both stability and settlement problems will generally arise. The load increase and geotechnical properties of soft soil together with schedule of construction (available construction time) and acceptable future settlements are the important factors that govern the choice of construction method.

Organic soil occurs in many forms and with varying thickness. Due to this, the problems differ from site to site and the construction methods must be adopted to the conditions in each specific case.

The progress in understanding the behaviour of organic soils under load as well as in utilization of new techniques and materials makes it possible to undertake successfully projects which could not be performed a couple of years ago.

This textbook presents the experience gained by the authors from practical consulting work and from research projects. A research co-operation has been going on between the Swedish Geotechnical Institute and the McGill University in Montreal as well as the Warsaw Agricultural University.

The textbook consists of two parts. The first part is dedicated to the field and laboratory testing and the second part to describe the general behaviour of organic soils under loading and methods of design calculations. The first part of the textbook thus presents:

- Classification of organic soils.
- Field tests.
- Laboratory testing.
- Selection of geotechnical parameters.

Based on these properties different calculation methods are presented in the second part of the textbook. The methods are applicable to perform:

- Deformation analysis,
- Consolidation prediction,
- Stability analysis.

The second part of this textbook is written in such a way that it shall be possible for a designer/contractor to pass over the basic chapters in part one.