

Abstract

In the framework of Risk Management of geotechnical projects this thesis entitled “Monitoring the risk of retaining structures with instrumental records” is intended to monitor the behavior of geotechnical structures using instrumental measurements and particularly of underground structures with open excavation and retaining.

Risks can occur at any stage of the life cycle of a project. However, it is not possible to completely eliminate them. Therefore, the primary goal is not to attempt to eliminate them, but to manage them.

Particularly in geotechnical engineering, the limited predictability of soil behavior and the errors in the mechanical properties, the loads and the calculation methods require the use of monitoring for recording the critical parameters.

The thesis highlights the value of the Risk Management process in Project Management and particularly how an instrumental monitoring system contributes to reducing the uncertainties in soil behavior during construction and operation of a retaining structure.

The thesis in its chapters outlines all stages of Risk Management, presents information for instrumental monitoring in geotechnical projects and analyses all the available instruments, their installation and operation method.

The general presentation concludes by analyzing three geotechnical projects of deep excavation with retaining structure in order to highlight three indicative instrumentations. The soil characteristics of the area, the construction stages, the retaining structure, the instrumentation and its results are described.

Keywords:

- Risk Management • Retaining structure • Monitoring of geotechnical projects • Instrumentation •