Editorial

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This Special Issue of the International Journal of Geoengineering Case Histories includes five papers presenting case histories related to projects carried out in Greece and Cyprus. The papers are extended versions of papers submitted to the 7th Hellenic Conference on Geotechnical Engineering, held in Athens, Greece, on 5-7 November 2014 and included in the proceedings of that conference. All papers have been subjected to review, following the pertinent procedures of this Journal.

The first paper, by **Platis et al.**, describes the use of a reinforced earth embankment for the final containment of an uncontrolled landfill, in the island of Syros, in order to minimize the quantity of the required earth fill and the extent of the footprint of the embankment. A combination of gabions and geogrids was used for the construction of the embankment. The design principles are presented, as well as the method of analysis, the geotechnical parameters assigned to the materials used, the results of the analyses and the final configuration of the works. The method is proposed as an expedient and cost-effective solution for the permanent closure of solid waste landfill, increasing the capacity of the landfill and avoiding excessive waste excavation for the grading of the final closure slopes. The method has been applied successfully also in other similar cases in Greece.

The next two papers refer to the investigation, study and rehabilitation of two landslides, in Cyprus and Greece:

Alexandris et al., present a well documented case of a landslide in weathered marl, which took place close to the village of Pissouri in Cyprus. The slide involved a soil mass of approximately 80,000 m^3, displaced a section of a country road and destroyed three newly built houses. The authors present a comprehensive account of the geological setting and the climatic conditions, as well as of the hydrogeological regime associated with the landslide. Based on the results of site investigations with exploratory borings and post-failure monitoring, the slip surface was located. Back analyses with rational estimates of pore water pressures were then carried out. These, combined with the results of laboratory tests, allowed the assessment of the shear strength along the slip surface and provided the input for the design of the remedial measures. Various alternative stabilization strategies were examined, from a technical, economical and environmental point of view and are presented in the paper, together with the final solution, which combined drainage, stabilization piles and toe buttress fill.

An interesting case of a large-scale landslide in an open pit coal mine in Northern Greece is reported by **Prountzopoulos et al**. The slide took place in weathered marl of lacustrine origin, underlain by formations of more competent marl. It involved a total volume of soil of more than 500,000 m^3 and displaced a local road by several meters horizontally and vertically. The slide was attributed to a number of factors, namely the existence of a distinct weak surface at the interface of the weathered marl with the underlying competent marl, the clayey nature and the sensitivity of the marl to environmental agents, the action of water, the large slope height and a temporary two year interruption of maintenance works of the greater area, which allowed for a failure mechanism to develop. The authors give a detailed description of the landslide and the sequence of events. Due to pressure for stabilization action, the available time was very limited and the project conditions did not allow for a timely and adequate geotechnical investigation. Therefore, the study of the landslide was based on: (a) few already existing geotechnical data, (b) experience and evaluation results from similar cases in the broader area, (c) in-situ observations of the response of geomaterials and the characteristics of the landslide and (d) experience from similar phenomena reported in the literature. The critical geotechnical and groundwater parameters were approached by parametric

Reference: Pachakis, M., Bardanis, M., and Tsatsanifos, C. (2016). Editorial. International Journal of Geoengineering Case Histories, http://casehistories.geoengineer.org, Vol.4, Issue 1, p. i - iii. doi: 10.4417/IJGCH-04-01-00.

back analyses on more than one sections, the results of which are presented, and conservative assumptions were made for the design of the remedial measures. Due to the size and location of the slide (inside a coal mine), these measures were limited to rearrangement and deposition of soil masses, i.e. placement of stabilizing berms, made of mine spoils consisting of marl, taking also into account the need for the extent of the exploitation of the mine.

The paper by **Chatzigogos et al.**, deals with the phenomenon of hydroconsolidation, i.e. the collapse of an unstable soil structure under constant loading upon wetting. The authors present the case of a building in the historic centre of Thessaloniki, which suffered differential settlements, due to a rise of the groundwater level as a result of the construction of diaphragm walls for a nearby metro station under construction. The building was founded on a soil layer, referred as "historic fill", which is a heterogeneous soil formation, 2-13m thick, formed by anthropogenic activity. The soil is classified as SM-CL (USCS), is partly saturated, with a high void ratio in the range 0.7-1.1 and is susceptible to hydroconsolidation. The area was investigated with exploratory boreholes, the groundwater levels were observed in piezometers, and settlements were measured at the corners of the affected building. A series of laboratory consolidation tests was carried out, to determine the volume change of the soil during wetting under constant load. For stress values above 95 kPa, a volume decrease was invariably observed, attributed to a collapse of the soil structure. Based on the laboratory results, the expected deformations for the estimated local vertical stress were calculated and were found to be comparable with the in-situ measured ones. Differential settlements were attributed to the variable thickness of the studied soil layer under the building.

In the last paper, **Alexandris et al.** give a detailed account of the procedures for rock mass characterization, ground behaviour assessment and support design, for the design of the Trikokkia railway tunnel, on the Kalambaka-Kozani line, in central Greece. The tunnel is 5,000 m long and runs through molassic formations (medium strength massive sandstones with siltstone interbeds), the specific properties of which govern the design. Modes of failure resulting from rock overstressing, gravitational modes of failure controlled by discontinuities, as well as mixed modes of failure were taken into account, by considering rock mass strength and deformability properties as well as rock mass structural patterns. The ground characterization process used available empirical rock mass characterization indices (GSI,RMI) and the rock mass structure was assessed by the generation of discrete fracture networks (UDEC software), compatible with joint statistics, as well as by hand sketching of each rock mass class. The identification of different rock mass behavior types and the corresponding design of support measures was based on relations that compare rock mass strength and deformability with in-situ stress state, as well as on the rock mass structure characteristics, associated with structurally controlled failure modes, assisted by wedge stability calculations.

The guest editors would like to express our appreciation to the authors of the papers for their efforts and the quality of their contributions and to the reviewers for their thorough reviews and their efforts towards enhancing the quality of the papers. We also thank the Manager of the journal, the Editor-in-Chief and the journal Administrators for their assistance, encouragement and coordination.

We hope you enjoy reading these articles.

Table of Contents

Alexandris, A., Abarioti, M., and Griva, I. K. (2016). Rock Mass Characterization and Assessment of Ground Behavior for the Trikokkia Railway Tunnel in Central Greece. International Journal of Geoengineering Case Histories, Volume 4, Issue 1, pp. 57-77, doi: 10.4417/IJGCH-04-01-05

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