Seminar on Foundation and Retaining Wall Design: 17th Nov 2014

Reported by Ir. Yee Yew Weng, Secretary General, MGS

Prof. Dr. Roger Frank and Prof. Dr. Brian Simpson conducted a 1-day seminar on Foundation and Retaining Wall Design at the Professor Chin Fung Kee Auditorium, Wisma IEM. The seminar was attended by about 60 engineers. Prof. Frank began the first part of his presentation on the topic, "Pressuremeter Testing and Foundation Design". The speaker introduced how the design of shallow and deep foundations is done using data from the Menard Pressure Meter (MPM). Some experimental long duration monitoring of shallow foundations and instrumented pile tests results under different ground conditions in France were shown. Questions from the audience regarding applicability of MPM to embankments and group action of piles were raised before the session was adjourned for tea break.

The second session of the workshop on Retaining Walls under the theme of "What can go Wrong?!" was given by Prof. Simpson. Different modes of failure of retaining walls were explained and illustrated with the help of actual cases studies and with reference to Eurocode 7. The speaker pointed out that usually problem arises not because of erroneous calculation, but because something was forgotten during the design process. He reminded engineers that they should not forget fundamentals of engineering design: visiting the site; making to-scale drawings of the problem; and reviewing available data. He explained in detail the investigation of the Nicolle Highway collapse (Singapore), and emphasized the importance of communication (especially documented).

After lunch, Prof. Frank spoke on "The New French Standard for the Application of Eurocode 7 to Deep Foundations". He expounded on the design guides set out in the new French Standard for deep foundations (NF P94 – 262, 2012), where design parameters are set out using accrued data from actual pile tests. He demonstrated how Pressure Meter Test (PMT) and Cone Penetration Test (CPT) results can be used in accordance to Eurocode 7 to arrive at optimal design.

The last session of the workshop on "Retaining Structures - Getting it Right" was given by Prof. Simpson. Continuing from his morning session, Prof. Simpson suggested ways to avoid pitfalls in retaining wall design. He explained systematically how Eurocode 7 can guide the designer. He touched on the new revisions in Eurocode 7 with respect to ground anchors and reminded that the anchor goes through a "life" of constant stress changes from installation to long term performance. The audience asked many questions, especially regarding the use of numerical analysis in accordance with Eurocode 7 in the design of retaining walls. Prof. Simpson made reference to his paper presented at the 18SEAGC.

The workshop concluded with certificates of appreciation being presented to the speakers by MGS.

Photos taken during foundation & retaining wall design seminar at Professor Chin Fung Kee Auditorium