Editorial

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Welcome to the August issue of *Geotechnical Engineering*. In this issue we are yet again treated to a stimulating and diverse selection of papers, where, as always, there is plenty for the practitioner and researcher alike. A total of nine full papers are presented with topics ranging from seismic design through to index testing, with contributions being submitted from the global geotechnical engineering community.

The first paper, by Smith *et al.* (2013), concerns the development of an assessment procedure for risk to ground investigations from unexploded ordnance (UXO). The authors developed this procedure for the Crossrail project prior to the 2009 Construction Industry Research and Information Association (CIRIA) report C681 (Stone *et al.*, 2009) dealing with the same subject. The authors risk assessment methodology and procedures are consistent and compatible with those outlined in the CIRIA report. The paper therefore provides a generic framework for developing qualitative risk assessment of an unquantified risk.

The next three papers can be tentatively linked together through the theme of ground movements. Waddell (2013) presents a case study of creep settlement of an infilled quarry pit. Settlement of the fill was monitored for an extended period of up to 455 days. The observed creep movements were compared to predictions derived from a programme of laboratory tests conducted on a similar fill material. Such long-term studies are rarely undertaken are even more rarely reported in the literature, so it was particularly pleasing to see this contribution. The following paper, by Assadi Langroudi and Yasrobi (2013), continues with the theme of ground movement through the development of a modified odometer apparatus for the measurement of swelling pressure under conditions of controlled multilateral drainage. The ability of the apparatus to provide a more uniform moisture distribution within the sample results in higher swelling pressure being measured than those obtained in a conventional odometer. Implications relating this laboratory development to better predict swelling pressure and heave in the field will be welcomed by those practitioners designing foundation solutions in soils prone to such behaviour. More directly associated with ground movement is the following paper by Namazi and Mohamad (2013) dealing with potential damage assessment in buildings undergoing tilt. In this study the authors extend the well known approach presented by Burland *et al.* (1977) to structures experiencing tilt. They have applied their extended model to 18 case histories of tilted buildings and compared their predicted damage to that recorded. The approach seems encouraging.

For the next two papers the theme jumps to seismicity. Mutman

and Kavak (2013) present a study of liquefaction mitigation through low-pressure grouting. This paper also provides a link back to our first paper, the link being that associated with risk. As for the case of UXO, mitigation of liquefaction requires a quantitative assessment of the risk of liquefaction to be undertaken and mitigation measures developed in proportion to this risk. The authors illustrate that such mitigation can be economically effective through the use of low pressure grouting at a site in Turkey. The second seismic themed paper by Baziar *et al.* (2013) relates to the evaluation of the sliding stability of gravity retaining walls. The paper compares the simple pseudo-static approach to the more rigorous pseudo-dynamic method where the dynamic interaction of the backfill and wall is considered. The authors demonstrate that at relatively low levels of ground acceleration the pseudo-static and pseudo-dynamic approaches yield similar results, but at higher accelerations the pseudo-static approach becomes overly conservative.

The following paper by Moayed *et al.* (2013), presents 3-D numerical analyses of laterally loaded solid concrete piles embedded in soft clay, and subjected to a combination of lateral and vertical loading. The results of the numerical study suggests that the vertical loading leads to a slightly enhanced lateral capacity which the authors attribute to an increase in the pile rigidity.

Brueckner *et al.* (2013) continue with the subject of piles in clay but with a very different focus. They report a study investigating the interaction between buried concrete and the surrounding soil. More specifically they are concerned with the chemical interaction at the concrete/clay interface and the extent to which this interaction spreads into the adjacent soil. The extent of the soil affected by this chemical interaction may contribute the long term behaviour of the pile. The findings of the study indicate that the chemical interaction between the concrete and the soil remains highly localised and does not extend more than a few millimeters into the surrounding soil.

Our final paper of this issue concerns a laboratory assessment of the remoulded shear strength of fine grained soils at plastic and semi-solid states. The study reports a test programme where the conventional index parameters of a selection of fine grained soils are correlated with undrained strength through their liquidity index. A simple relationship between liquidity index and undrained shear strength is presented and appropriate parameters developed to match the author's data. This paper demonstrates how basic laboratory tests, especially index tests, can continue to provide useful guidance for preliminary design.

Reflecting on the range and depth of topics presented in this edition, it is clearly apparent that there is still much to understand and discover about the complex behaviour of the materials we chose to work with. I am sure that like me, you will all be looking forward to the next issue of *Geotechnical Engineering* to see how progress is being made.

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