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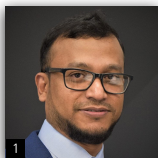
Editorial

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Editorial

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On behalf of the Editorial Board, we welcome our readers to *Geotechnical Research*, one of the first gold open access journals for geotechnical engineering, by the Institution of Civil Engineers (ICE). Like most of the other open access journals, the author/s has/have to pay a publication charge for publishing in *Geotechnical Research*; however, it maximises the impact of publications in a wide range of topics, allowing an unlimited article length, which is often required for fundamental and elaborate research outputs in geotechnical engineering. *Geotechnical Research* also offers a range of discounts for disadvantaged groups of researchers, particularly researchers from International Network for the Availability of Scientific Publications (INASP) countries. Such a discount policy aims to partially eliminate an economic barrier for disseminating research output from developing countries. Despite this, we have seen a steady increase in contributions from around the world, particularly the regions of Asia Pacific, the Arabian Peninsula, Europe and North America.

The importance of geotechnical engineering is becoming more visible to the general community and will continue to grow as the availability of suitable soil sites for construction continues to decrease with increasing civil infrastructure demands. Therefore, the need for soil/ground improvement along with efficient foundation systems and extension of soil mechanics/modelling is growing in the profession. Previous issues of *Geotechnical Research* in 2020 have published several contributions on soil improvement/soil–structure interaction (Ahsan *et al.*, 2020; Ge *et al.*, 2020; Guo *et al.*, 2020; Shiau and Hassan, 2020; Xu *et al.*, 2020; Zhang, 2020) and laboratory testing/model development (Al-Jabban *et al.*, 2020; Li *et al.*, 2020; O’Kelly and Nogal, 2020; Osman *et al.*, 2020) along with other topics.

The fourth issue of volume 7 (2020) includes five articles that are also focused on ground improvement and data analysis. Ciardi *et al.* (2020) evaluated the effectiveness of colloidal silica (CS) as a treatment agent for ground against liquefaction resistance of sandy soils. Their CS solution was a mixture of distilled water, sodium chloride (NaCl) and MasterRoc® MP 325 (BASF SE) which has about 15% stable aqueous dispersion of silica (SiO₂) particles with size ranging from 2 nm up to 100 nm. Using direct shear, cyclic

triaxial, hydraulic conductivity and oedometer tests for CS contents of 0, 2 and 5% (by weight), they recommended 2% CS is effective and has the capability of reducing the liquefaction potential of sand.

To stabilise weak subgrade soils in an expressway construction site in Ningbo, China, Feng *et al.* (2020) used various proportions of cement, lime, fly ash and gypsum to improve unconfined compressive strength (UCS). The influences of the four stabilisers were investigated through quantitative and grey correlation analysis. The importance of both quantitative and grey correlation analysis was acknowledged, and it was concluded that while cement is the most effective stabiliser for fine soil, the addition of gypsum can further increase the UCS of the soil.

Sandstone, sandstone–gatch (sandstone mixed with gatch) and sandstone–gypsum (sandstone mixed with gypsum) were used by Xie *et al.* (2020) to improve the cover layer of the aeolian sand in the MBR Solar Park Phase IV project in Dubai. Along with benefits for compaction effort and moisture content, sandstone–gatch/gypsum had a higher California bearing ratio (CBR), of 20%, than only 9% for aeolian sand or sandstone alone. Xie *et al.* also found that the sandstone–gatch layer had the strongest wind erosion resistance, while sandstone–gypsum had moderate and sandstone had the weakest wind erosion resistance. They suggested that the findings of their study can be applied to similar desert areas on the Arabian Peninsula and in North Africa.

Guo *et al.* (2020) evaluated the effectiveness of a composite assembled supporting structure for an excavation pit for the Niukouyu foundation in Zhengzhou, China by using the finite element method (FEM). The composite structure consists of cement–steel piles with a length of 15.5 m and a diameter of 0.6 m, steel beams, a steel panel and polymer grout. They found that the composite supporting structure can effectively control the deformations of the excavation. They also found that FEM was useful for global sensitivity analysis to identify the relative importance of soil parameters (elastic stiffness and shear strength) on the system behaviour, where the elastic modulus of soil dominated the supporting structure responses and the soil shear strength played an insignificant role in determining the system behaviour.

The attenuation of vibration over distance from deep vibro-techniques and their effect on nearby structures was evaluated by Weng *et al.* (2020). They compared field data, a regression model and some standard codes of practice for admissible vibrations. They found that the estimate of ground vibration levels can be obtained from the empirical relations of vibrator energy and distance.

REFERENCES

- Ahsan MK, Barman DC, Shaikh M and Maqsood Z (2020) Influence of salinity exposure on the mechanical properties of cement-treated sand. *Geotechnical Research* 7(3): 161–172, <https://doi.org/10.1680/jgere.20.00013>.
- Al-Jabban W, Laue J, Knutsson S and Al-Ansari N (2020) Briefing: Common laboratory procedures to prepare and cure stabilised soil specimens: a short review. *Geotechnical Research* 7(1): 3–10, <https://doi.org/10.1680/jgere.19.00035>.
- Ciardi G, Bardotti R, Vannucchi G and Madiati C (2020) Effects of high-diluted colloidal silica grouting on the behaviour of liquefiable sand. *Geotechnical Research* 7(4): 193–208, <https://doi.org/10.1680/jgere.20.00010>.
- Feng M, Liu S, Wang J and Hu Y (2020) Influence of stabilisers on the unconfined compressive strength of a fine soil. *Geotechnical Research* 7(4): 209–217, <https://doi.org/10.1680/jgere.20.00030>.
- Ge J, Tan Y, Zhou Z *et al.* (2020) Study on characteristics of pile–net composite foundation at 500 kV substation in China. *Geotechnical Research* 7(3): 153–160, <https://doi.org/10.1680/jgere.20.00012>.
- Guo C, Wang R, Lin P and Wang F (2020) Numerical analyses of a prefabricated retaining system for foundation pits in silt soils. *Geotechnical Research* 7(3): 173–190, <https://doi.org/10.1680/jgere.20.00015>.
- Guo C, Ye J, Zhao C and Wang F (2020) Mechanical and deformation characteristics of composite assembled supporting structure. *Geotechnical Research* 7(4): 230–243, <https://doi.org/10.1680/jgere.20.00040>.
- Li W, O’Kelly BC, Yang M *et al.* (2020) Briefing: Specific gravity of solids relationship with ignition loss for peaty soils. *Geotechnical Research* 7(3): 134–145, <https://doi.org/10.1680/jgere.20.00019>.
- O’Kelly BC and Nogal M (2020) Determination of soil permeability coefficient following an updated grading entropy method. *Geotechnical Research* 7(1): 58–70, <https://doi.org/10.1680/jgere.19.00036>.
- Osman AS, Birchall TJ and Rouainia M (2020) A simple model for tertiary creep in geomaterials. *Geotechnical Research* 7(1): 26–39, <https://doi.org/10.1680/jgere.19.00025>.
- Shiau J and Hassan MM (2020) Undrained stability of active and passive trapdoors. *Geotechnical Research* 7(1): 40–48, <https://doi.org/10.1680/jgere.19.00033>.
- Weng LK, Yohannes MM and Chong W (2020) Data analysis and prediction of ground vibrations due to deep vibro-techniques. *Geotechnical Research* 7(4): 244–257, <https://doi.org/10.1680/jgere.20.00016>.
- Xie X, Zhu H, Xiao J *et al.* (2020) Treatments to improve the aeolian sand foundation in solar park construction. *Geotechnical Research* 7(4): 218–229, <https://doi.org/10.1680/jgere.20.00041>.
- Xu X, Fall M, Alainachi I and Fang K (2020) Characterisation of fibre-reinforced backfill/rock interface through direct shear tests. *Geotechnical Research* 7(1): 11–25, <https://doi.org/10.1680/jgere.19.00029>.
- Zhang Q (2020) Deformation analysis of deep foundation pit excavation in China under time–space effect. *Geotechnical Research* 7(3): 146–152, <https://doi.org/10.1680/jgere.20.00009>.