Cite this article
Jefferson I (2022)
Editorial.
Proceedings of the Institution of Civil Engineers – Ground Improvement **175(2)**: 95–96,
https://doi.org/10.1680/jgrim.2022.175.2.95

Ground Improvement

ice Publishing

Editorial

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It is with great pleasure that I, on behalf of the Editorial Advisory Board, welcome you to the second edition of this year's *Ground Improvement* journal. As we all know there are an ever-growing number of challenges facing engineers, taking us beyond traditional areas into concerns about sustainability issues, including carbon dioxide emissions and their impacts on climate change – all of which is working towards ever-stretching government targets and drives towards Net Zero. In addition, a key component of this is reuse and recycling of waste materials across several sectors, not least construction.

As a key part of major construction works, the ground improvement sector has an important part to play in addressing these issues. Thus, through appropriate ground improvement works, engineers can and will better utilise the ground (a key component of any construction project), helping to reduce the associated carbon dioxide footprint, and reduce/reuse waste streams as highlighted in the previous issue (Heitor, 2022). This is occurring at a time when many countries are facing significant challenges with their existing infrastructure. Add in other factors such as changing population demographics and infrastructure uses, it is vital to ensure that our ground treatments are resilient to whatever the future may hold (Mitchell and Kelly, 2013).

The six papers in this issue highlight these aspects associated with ground improvement approaches and essentially sit broadly within three themes, namely: treatment using waste materials; electrokinetic treatment; and more traditional cement stabilisation.

Taking the theme of use of waste materials, Okankwo (2022) examined the use of palm kernel shells (waste product of the palm oil industry) in an ash form to treat notoriously challenging lateritic soils. This research focusses on the treatment and behaviour in the context of earthworks and from this work, provided a range of critical state soil parameters of the post-treated materials. Continuing this theme, Bahadori *et al.* (2022) presented work that examined treatment of another challenging ground material – peat – but this time using fly ash and volcanic ash as two sources of pozzolanic materials. Again, this work was related to compaction and earthwork activities. Both papers in turn extend the work presented in the previous issue (Heitor, 2022).

The next two papers in this edition deal with a field that has been resurgent in recent years; namely, electro-kinetic stabilisation used as a ground improvement technique. Estabragh *et al.* (2022) examined electro-kinetic stabilisation and electro-osmotic treatment of a clay soil. Their work demonstrated the improvements achieved and the potential of such approaches as a viable treatment process. Continuing this theme, Gargano *et al.* (2022) showed how, through case studies, electro-kinetic dewatering of dredged slurry materials is controlled, the key soil parameters and design set up, and how these influence the success achievable with this approach.

Finally, looking at more traditional cementitious approaches, Liu *et al.* (2022) examined the effect of cement content and surcharge pressure on the drying–wetting durability of stabilised materials. They investigated three different cement contents and five surcharge pressures on clayey dredged materials, demonstrating how cement content had a significant effect of drying–wetting durability. The final paper in this issue by Paniagua *et al.* (2022) continues this theme by drawing on a large laboratory database of 424 samples from across 26 sites to assess the impact on sensitive Norwegian clays soils (sensitivities between 5 and >100) when stabilised with lime, cement and cement kiln dust. From these data, several aspects were seen, including observations from more advanced laboratory testing on samples taken from stabilised columns in the field that highlight the anisotropic behaviour of the stabilised clays and the increase in strength with in situ stresses.

I hope that you find these papers useful, stimulating and informative and that they spark debate on further developments of the role of ground improvements across several areas, not least supporting drives towards Net Zero. On behalf of the Editorial Panel, may I take this opportunity to thank all our various contributors for their valuable input. In addition, can I actively encourage our readers to discuss these papers to help further shape our understanding and development of current and future ground improvement processes. Finally, if you have any issues or comments related to the journal more generally, the Editorial Panel is always pleased to receive any feedback you may wish to provide – thank you.

REFERENCES

Bahadori H, Hasheminezhad A and Mohamadi asl S (2022) Stabilisation of Urmia Lake peat using natural and artificial pozzolans. *Proceedings of the Institution of Civil Engineers – Ground Improvement* **175(2)**: 104–113, https://doi.org/10.1680/jgrim.19.00024.

Estabragh AR, Moghadas M, Javadi AA and Abdollahi J (2022) Stabilisation of a clay soil by ion injection using an electrical field. *Proceedings of the Institution of Civil Engineers – Ground Improvement* **175(2)**: 114–126, https://doi.org/10.1680/jgrim.19.00088.

Gargano S, Lirer S and Flora A (2022) Relative relevance of factors affecting the electrokinetic dewatering of soft clayey soils. *Proceedings of the Institution of Civil Engineers – Ground Improvement* **175(2)**: 127–138, https://doi.org/10.1680/jgrim.20.00023.

Heitor A (2022) Editorial. *Proceedings of the Institution of Civil Engineers – Ground Improvement* **175(1)**: 1–2, https://doi.org/10.1680/jgrim.2022.175.1.

Mitchell JK and Kelly R (2013) Addressing some current challenges in ground improvement. *Proceedings of the Institution of Civil Engineers – Ground Improvement* **166(3)**: 127–137, http://dx.doi.org/10.1680/grim.12.00030.

Liu W, Li W and Sun X (2022) Investigation of drying–wetting durability of cement-stabilised clayey soil. *Proceedings of the Institution of Civil Engineers – Ground Improvement* **175(2)**: 139–149, https://doi.org/10.1680/jgrim.20.00024.

Okonkwo UN (2022) Critical state of compacted lateritic soil and palm kernel shell ash for earth embankments. *Proceedings of the Institution of Civil Engineers – Ground Improvement* **175(2)**: 97–103, https://doi.org/10.1680/jgrim.19.00005.

Paniagua P, Bache BK, Karlsrud K and Lund AK (2022) Strength and stiffness of laboratory-mixed specimens of stabilised Norwegian clays. *Proceedings of the Institution of Civil Engineers – Ground Improvement* **175(2)**: 150–163, https://doi.org/10.1680/jgrim.19.00051.

Rogers CDF (2012) The role of ground improvement. In *ICE Manual of Geotechnical Engineering* (Burland J, Chapman T, Skinner H and Brown M (eds)). Thomas Telford, London, UK, Vol. 1, pp. 271–280.