Editorial

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The Technical Committee 215 (TC 215) of the International Society for Soil Mechanics and Geotechnical Engineering is pleased to publish this special issue in the broader area of environmental geotechnics and soil behavior. This special issue was originally envisioned as an opportunity to publish case histories presented at the 9th International Congress on Environmental Geotechnics, held in Chania, Crete, on June 25-28, 2023. A public announcement and call for papers for this special issue were made, and the topics of the issue were expanded to include papers related to soil behavior issues associated with the built environment. In this context, the issue comprises four papers that present four case histories.

The Okine et al. (2025) paper assesses the field-collected leakage rate across a landfill bottom lining system, which consists of a Geomembrane and a Geosynthetic Clay Liner, against leakage estimation equations. The observed leakages were higher than the theoretical equations, indicating that eighty-eight to ninety-eight percent of the liquids pumped from the leakage detection system LDS was due to groundwater intrusion from outside of the landfill.

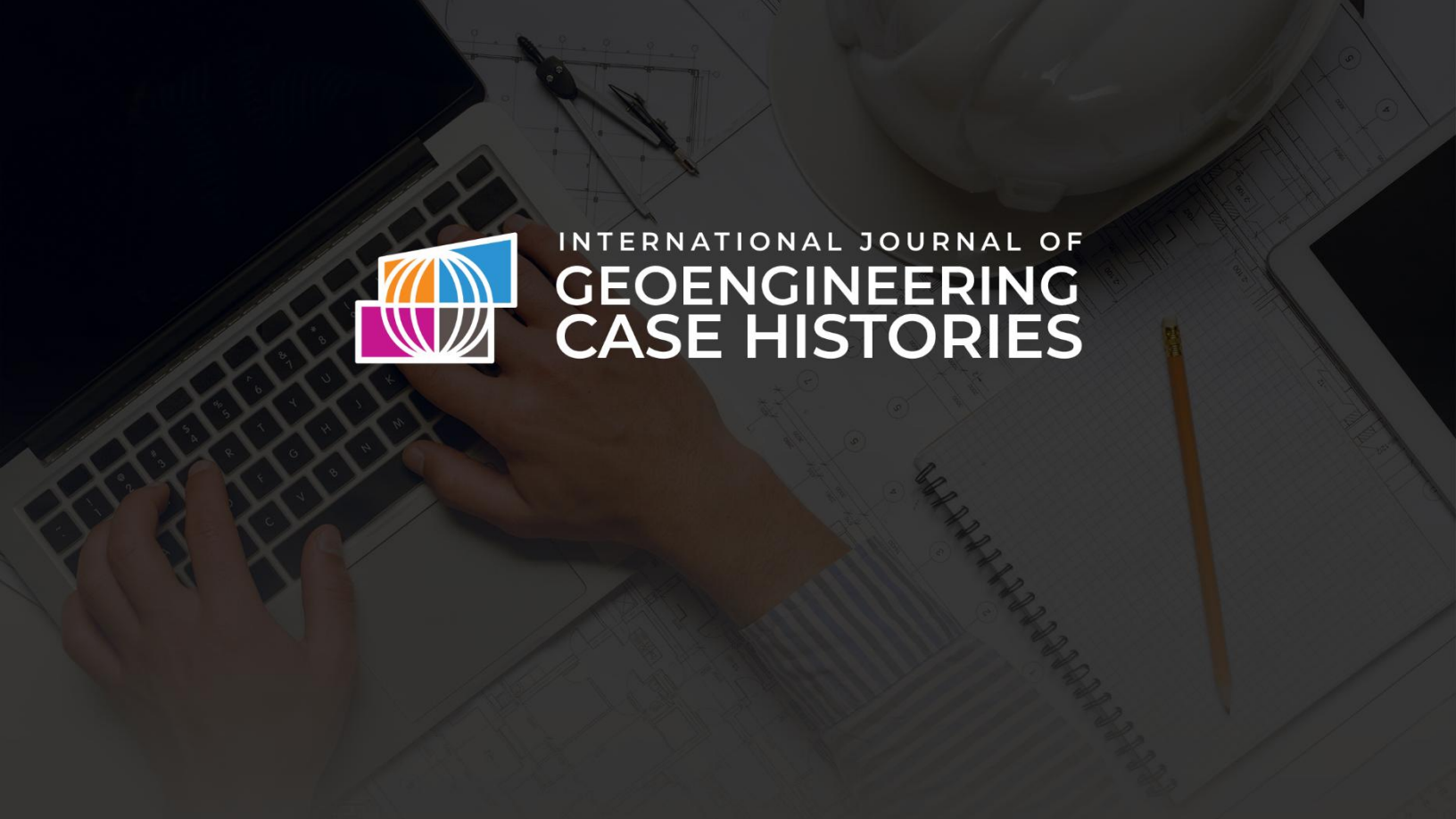
The Valenzuela et al. (2025) paper describes a phytotechnological program that considers technologies based on the use of plants on tailings deposits as an innovative solution to mitigate the emission of particulate material, minimize wind erosion, and improve environmental conditions and safety at the Huasco Pellets Plant (HPP), located 5 km southwest of Huasco and 700 km north of Santiago de Chile. The Filtered Tailings Deposit (FTD) project, with a storage capacity of 14.6 million tonnes of tailings, includes the coverage of the tailings with granular material, soil, and vegetation during the progressive closure to integrate the FTD into the landscape following closure and to control particulate matter emissions from the FTD during the operation, closure, and post-closure stages of the facility. Important challenges for the completion of the phytotechnological program are identified and include the governance of the project, the consideration of the FTD closure plan from the early parts of the operation, the effective communication with the community, as well as regulations and guidelines for the rehabilitation of mining sites, and the vulnerability of biological systems.

Giles (2025) describes the instrumentation on the Pont de Pierre of the Bordeaux bridge in France. The bridge was built between 1810 and 1821, and several piers of the bridge have suffered excessive settlements. Six of the piers were reinforced with micropiles, and the settlement measurements before and after reinforcement are presented and analysed using two complementary models (Hydrostatic Season Time and Bayesian Dynamic Linear Model) to highlight the benefits of the work and analyse the effect of external stresses on the structure.

Briaud et al. (2025) focus on the earth pressure on retaining walls due to swelling soils, particularly soils that are inundated. Well-documented case histories and numerical simulations using unsaturated soil mechanics principles are presented. It is found that the inundation time is a major influencing factor. The concept of the 100-year inundation period is developed as a design inundation time. For long periods of inundation, the pressure diagram becomes higher near the top of the wall, and a shallow anchor is recommended to resist the pressure on the wall.

We would like to acknowledge all the authors who made this first Special Issue of TC 215 possible. TC 215 is the global learned technical committee of the ISSMGE dedicated to advancing the state of the art and practice in environmental geotechnics. TC 215 comprises members from around the world, including engineers, researchers, academics, and industry professionals, with a mission to provide a forum for all ISSMGE members interested in environmental geotechnics to exchange ideas, address issues, enhance understanding, propose developments, and report advances in this area.

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