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EDITORIAL

Special Issue on "Analysis, Design, Construction and Performance of Buried Structures"

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Buried structures (e.g., pipes, culverts and tunnels) play an important role in the economic growth and quality of life around the world. These structures are generally used to transport essential fluids and natural resources in addition to serving as integral components of the transportation networks. Significant research has been done over the past few decades to understand the response of these structures to applied loading in both the short and long terms and predict their service life under extreme operating and environmental conditions.

This Special Issue of the International Journal of Geosynthetics and Ground Engineering aims to provide the readers with selected contributions that are broadly within the area of underground structures, namely pipelines [1–3], tunnels and buried bridges [4, 5], culverts [6], and buried wave barriers [7]. The contributions came from both the practicing engineers and the researchers to provide insights into the current state of practice as well as the recent developments in analytical solutions, numerical modeling and data analysis. The Guest Editors hope that the readers of this issue would find this collection of topics useful.

The *first article* by Akhtar and Li [1] deals with a simplified approach to analyze the buried pipes in frozen ground. Finite element analysis has been used to investigate the frozen soil-pipe interaction under different temperatures. This study shows that the thermally induced plastic strain can have significant effects on the uplift resistance of pipes buried in frozen clay material. The *second article* by Bao and Zhou [2] focuses on examining the impact of corrosion anomaly on burst capacity of corroded pipelines. The accuracies of different burst capacity models have been assessed and compared for different classes of anomalies. Pipeline corrosion criteria model has been recommended for non-general classes of anomalies with specific mean of burst capacity ratios. The *third article* by Almheiri et al. [3] presents an approach to predict the failure of water distribution systems under climatic variations based on data collected from two cities in Canada. The proposed model is found to be effective in providing the failure prediction of water main for several months ahead.

The *fourth article* by Wadi et al. [4] investigates the performance of 18-m span soil-steel composite bridge using numerical modeling in preparations for a full-scale field test. It is found that the failure load is reduced when the structure is loaded in an asymmetrical manner. The *fifth article* by Peng et al. [5] proposes a new mechanical model for joints of immersed tunnels considering the effect of joint differential settlement. The *sixth article* by Lin et al. [6] examines the application of acoustic emission technology as a health-monitoring tool to understand the leakage behavior of utility tunnels during sealing test. The last article in this Special Issue by Moussa and El Naggar [7] compares the use of open and buried trenches in mitigating the unfavorable vibrations from a machine foundation subjected to the sinusoidal harmonic load. The study shows that the open trenches are generally more favorable as a wave barrier.

The editors of this Special Issue are deeply indebted to the authors for their preparation of the high-quality papers and to the reviewers for their timely reviews. We would also like to sincerely thank Dr Sanjay Kumar Shukla, Editor-in-Chief, for his strong support throughout the development of this Special Issue.

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