



DEPARTMENT OF CIVIL ENGINEERING

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Ground improvements over the sea: An overview with focus on the gaps between design, construction, and computer simulation

Dr. Chao LI

Deputy Technical Manager

China Harbour Engineering Company Limited (CHEC), Hong Kong

Date: June 28, 2019 (Friday)

Time: 2:30 p.m. - 4:00 p.m.

Venue: Room 612B, 6/F Haking Wong Building, The University of Hong Kong

Abstract

The talk focuses on application of ground improvement techniques for non-dredge reclamations works. Such ground improvement works although has been widely applied, are normally associated with dredging of soft soils. Associated with non-dredge seawall, there are new challenges and the required understanding of interaction between in-situ soils and the ground improvement element (such as Deep Cement Mixing, Stone Columns etc). Based on recent application of ground improvement works in Hong Kong, this talk seeks to give an introduction of the current design and analytical methods. It then focuses on the gap between analysis, design, and construction. In Hong Kong, traditional practice and over-conservative approach has hindered a proper understanding of the performance of ground improvement works and has further led to even higher level of conservatism. A multi-scale view point is taken to explain the discrepancies between theoretical predictions and construction monitoring records. Suggestions are also given to academics who wish to bridge the gap and contribute to sustainable development of Hong Kong civil engineering industry. With a common goal of improving understanding and linking theory and reality, this talk seeks to give a comprehensive review of why the practice has not been satisfactory and what can be done to improve them. A combined effort from academia, the industry and the government will be necessary to achieve more economical and robust reclamation works for Hong Kong.

About the Speaker

Dr. LI Chao received his Bachelor of Engineering from Tsinghua University, MSc and PhD from Stanford University in computational geomechanics. He has 21 years' post-graduate experience in geotechnical engineering, advanced finite element analysis, seismic design as well as detailed engineering design, design review and optimization for both permanent and temporary civil engineering works. While working as a designer, he had frequently worked as a main analyst, an independent checker and an expert reviewer for the key elements of multiple large-scale infrastructure projects worldwide, including the World Trade Center Transportation Hub Project and the Fulton Transit Center Project in New York City (USA), Hong Kong-Zhuhai-Macao Bridge Link Project (Man-Made Island Part) in China, Port Said East Container Terminal Project in Egypt, Padma Multipurpose Bridge Project in Bangladesh, the West Kowloon Terminal Project, the Hong Kong Boundary Crossing Facilities Project and the Hong Kong Link Road Project, and Tuen Mun Chek Lap Kok Link (TMCLKL) Project in Hong Kong. Since he moved on to the Contractor side, he has frequently engaged in various projects including the third runway project for HKIA, HATS2A project, HKBCF-Reclamation Works Project. In these projects he has managed a design and technical team to address various technical issues. In CHEC, he has managed the design and technical works for HKBCF Reclamation Works, as well as the Integrated Waste Manage Facilities – Phase 1 works. He is also advising on technical issues for other major infrastructure works as well as tendering works by CHEC.

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