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Characteristic Behavior of Bucket Foundations

Author: Amin Barari, Department of Civil Engineering, The Faculty of Engineering and Science, Aalborg University, Aalborg, Denmark

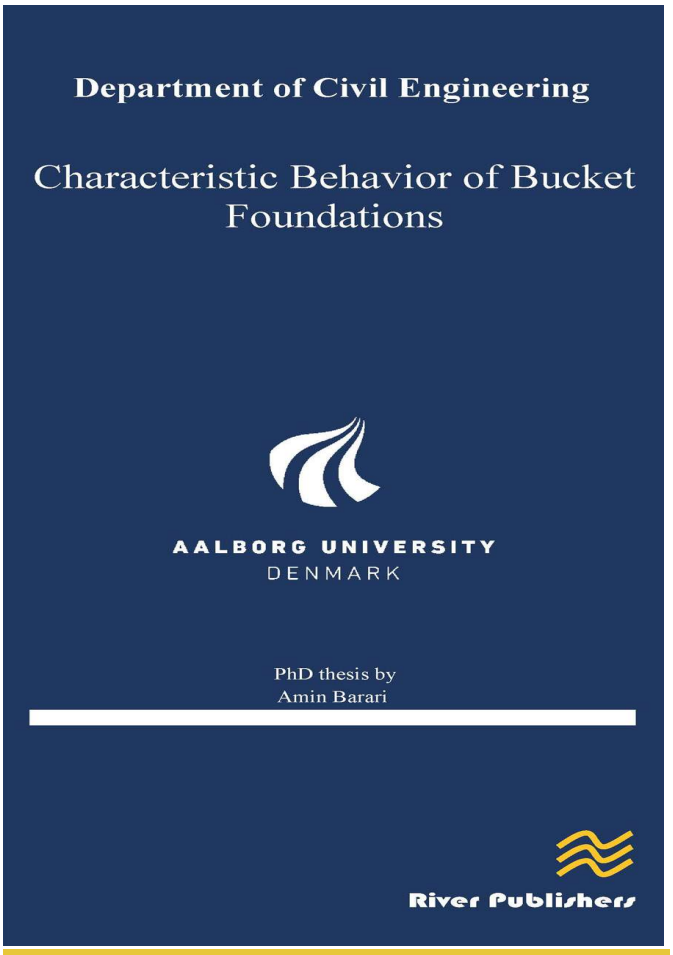
The world is currently facing serious problems brought about by oil dependence. Reducing oil consumption provides an opportunity to increase competitiveness,technological development, and progress. Wind energy is currently the most cost-competitive form of renewable energy, and there are strong political and industrial forces (particularly in northern Europe) supporting the development of the offshore wind industry.

The overall aim of the research presented in this thesis was to improve the design of offshore wind turbine foundations. The work was divided into two main researchefforts: geotechnical engineering experiments to gain insight into the behavior of offshore bucket foundations, and development of methods to improve the study of infiltration intounsaturated soils, an important problem in geo-environmental engineering. The outcomes of the research have the potential to directly or indirectly reduce the risks and costsrelated to offshore geotechnics.

The thesis examines:

1.Characteristic Behavior of Bucket Foundations
2. Modeling of Water Flow through Porous Media

The outcomes of each of the research contributions are summarized in four research articles, either directly or indirectly, and will assist in increasing the economic feasibilityof future offshore projects.



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