Proceedings of the 8th International Conference on Civil Structural and Transportation Engineering (ICCSTE'23)
Canada – June 04-06, 2023
DOI: 10.11159/iccste23.006

The Role of Soil in Seismic Response of Bridges

Nawawi Chouw
University of Auckland, New Zealand

Abstract

Conventional seismic design often assumes that structures are fixed to a rigid support, even though the structures are supported by the ground. During earthquakes, the spreading seismic waves are modified by the development of soil along the wave path and the soil at the structural supports. As the structure responds to the incoming seismic waves, it interacts with the soil and generate waves in soil. Consequently, ignoring the soil can lead to an unreliable estimate of the structural response. The consequence of soil for the development of ground excitation and the response of bridges is addressed with multiple large-scale shake tables. To have resilient bridges, the incorporation of the effect of soil in the structural response is essential.