

The Canadian
Geotechnical Society



La Société Canadienne
de Géotechnique

CGS Luncheon Presentation

Lateral Force-Displacement Response of Buried Pipes in Slopes

Presented by:

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University of Manitoba

Presentation Abstract:

The horizontal soil-pipe interaction in slopes is characterized in this research program for inclusion in pipeline guidelines. For this purpose, a series of full-scale experiments were conducted at the Advanced Soil-Pipe Interaction Research (ASPIRe™) testing facility at the University of British Columbia, Vancouver, BC, Canada. The experimental data indicated that the soil load is an increasing function of the slope grade for soil springs inside the landslide boundaries and a decreasing function of the slope grade for soil springs outside the landslide boundaries. The lateral force-displacement responses of pipes installed below sloping ground were presented and compared to those arising from the level ground condition. The experimental results suggest that the values of the horizontal bearing capacity factor can be two-fold higher than those estimated using pipeline guidelines. A finite element model was calibrated against the experimental data and was implemented in an extensive parametric study to extend the results to deep embedment conditions for loose, medium and dense sands. The horizontal bearing capacity factors are presented in dimensionless graphs as a function of the slope grade and pipe burial depth, which can be used in pipeline guidelines as a benchmark for the design.

About the Presenters:

Mohammad Katebi received his Ph.D. in Geotechnical Engineering from the University of Manitoba. He also has a Master's Degree specializing in Geotechnical Engineering from the University of Tehran (Iran) and a B.Sc. from the University of Guilan (Iran). He has published one journal and three conference papers on the topic of soil-pipe interaction.

Mohammed also has two years of experience in the design and construction of soil nail walls (Tehran, Iran). Recently, he joined Golder Associates (Calgary) as a Junior Geotechnical Engineer.

Date: Tuesday, February 9, 2021

Time: Presentation at 12:00 PM

Registration Fee: Free Event!

Location: MS Teams Meeting

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- This event qualifies for 1 Professional Development Hour. The event is classified as 'Informal Activity' under EGM's CPD Program.
- Please note that if you are unable to attend, someone else can be sent in your place. We are accepting walk-ins depending on seating availability.
- If you wish to be added to the mailing list, please send an email to cgs.manitoba@gmail.com