

Electrical Resistivity Tomography at Construction Sites in Northeast Thailand with Implications for Building Foundation Design

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Presenter: Danastri LP Tampubolon

Advisor: Prof. Jia- Jyun Dong

Co- Advisor: Prof. Ping- Yu Chang

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Abstract

A good understanding of the subsurface geological conditions at proposed construction sites is a fundamental requirement to design appropriate building foundations. In this study, the 2D electrical resistivity tomography (ERT) method was used to characterize the subsurface geology at three active construction sites located on or near exposed bedrock in northeast Thailand. The resistivity tomograms proved useful for determining the thickness of intact bedrock overlying a potentially weaker weathered rock of variable saturation. The wide-area information provided by the ERT method should be helpful to foundation design engineers assuming they have confidence in the geophysical results. Geophysics was also useful to guide suitable locations for ongoing geotechnical tests at a given construction site especially if difficult ground conditions exist.

Keywords: ERT, bedrock, building foundation, Northeast Thailand

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Rungroj Arjwech¹ and Mark E. Everett²

¹Department of Geotechnology, Faculty of Technology, Khon Kaen University, Khon Kaen, 123 Moo 16 Mittapap Rd., Nai-Muang, Muang District, Khon Kaen, 40002, Thailand

²Department of Geology and Geophysics, Texas A&M University, College Station, Texas, 77843-3115, USA,

Email: rungroj@kku.ac.th

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A good understanding of the subsurface geological conditions at proposed construction sites is a fundamental requirement to design appropriate building foundations. In this study, the 2D electrical resistivity tomography (ERT) method was used to characterize the subsurface geology at three active construction sites located on or near exposed bedrock in northeast Thailand. The resistivity tomograms proved useful for determining the thickness of intact bedrock overlying a potentially weaker weathered rock of variable saturation. The wide-area information provided by the ERT method should be helpful to foundation design engineers assuming they have confidence in the geophysical results. Geophysics was also useful to guide suitable locations for ongoing geotechnical tests at a given construction site especially if difficult ground conditions exist.