Cholamet Mongkolsilp 2007: The Study of Seepage Behavior Underneath Cutoff Wall by Physical Model and Numerical Model. Master of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Associate Professor Korchoke Chantawarangul, Ph.D. 157 pages.

In this study , physical and numerical models are used for studying seepage behavior in porous media.The values of discharge and pressure head as calculated from numerical model and measured from physical model were compared . Finite difference method is employed in the numerical analysis and the numerical result were treated as reference. The hydraulic conditions encountered during the studies are steady state confine flow condition and isotropic porous media properties.

It is concluded that physical model is satisfactorily used to simulate the flow condition if the darcy law is valid. The seepage velocity measured close to the sheetpile region is greater than the calculated values based on laminar flow condition. The pressure heads closed to sheet pile tip from experiments and calculations deviate more than in other regions. The seepage velocities from numerical model and color testing is found that seepage velocities is not a constant value in the same flow line. The result from numerical model and color testing showed that the seepage velocities gradually increased from downstream upto the position beneath the sheetpile, after which it decreased in a symmetrical manner. The physical model yielded the discharge values being about 11% greater than that obtained using numerical model. From dimensional analysis,discharge from physical model can be used to predict the actual discharge of true scale . Relevant factors comprises of scale factor (N^2) , density and viscosity of liquid and intrincsic permeability of porous media

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