Evaluating Multiple Mechanisms & Structural Forces in Slope Stabilization

CIVIL • ENVIRONMENTAL • MANUFACTURING • MINING • OIL & GAS • POWER GENERATION

PROJECT DESCRIPTION

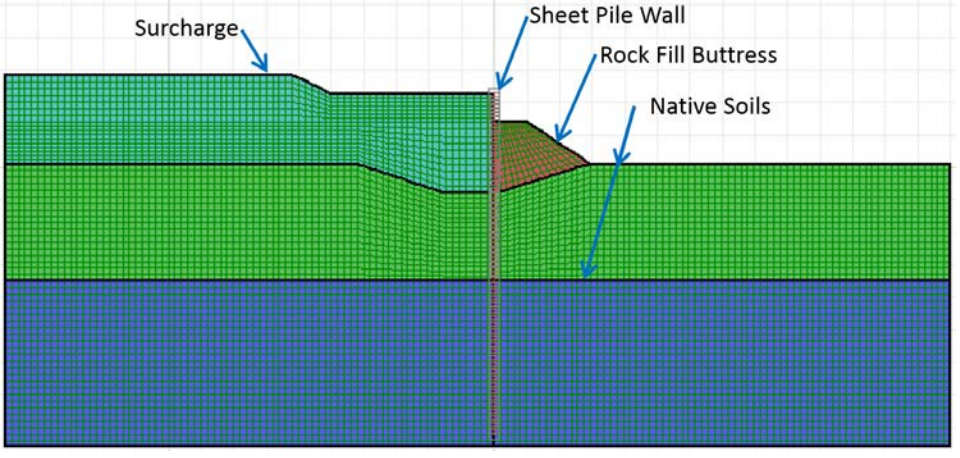
Confidential Client

FLAC3D™

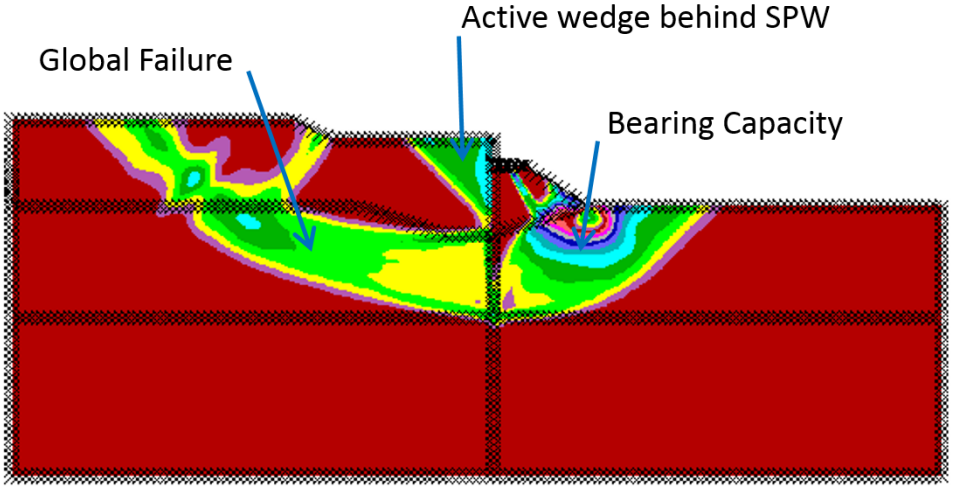
FLAC®

Unlike slope stability analysis software based on the limit equilibrium method, Itasca's numerical modeling software (*FLAC*, *FLAC3D*) is capable of predicting multiple interacting failure mechanisms and produces the structural forces in the stabilization features. These capabilities are critical to developing engineering judgment and in designing remedial measures.

A simple 2D slope stability example illustrates these benefits. In the example, a sheet pile wall is used to retain the surcharge fill placed to accelerate consolidation of underlying layers. As the fill is placed, excessive deformation of the sheet pile wall suggests that the piles are inadequate to retain the fill, so a rock fill buttress is placed and additional surcharge fill was placed. Excessive deformations continue and *FLAC* is used to predict behaviors.



The *FLAC* analysis predicted three interacting failure mechanisms, illustrated below: 1) a shallow active failure wedge developed behind the sheet pile wall; 2) the rockfill buttress experienced bearing capacity failure; and 3) a deep global failure occurred.



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