

# 邊坡應力與破壞潛能彈性解之概算

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**關鍵詞：**邊坡穩定、應力分析、破壞潛能

## 摘要

本研究以基本彈力公式配合疊加概念建立邊坡穩定之概略分析方法，除提供邊坡的破壞區域外，亦顯示邊坡內部各點的應力分佈情形。研究模式係將邊坡外側虛擬土方之等值向上荷重置於水平地表，利用應力疊加模擬該地表開挖後之應力變化。由本研究與其它的分析解比較顯示，本研究所得應力分佈趨勢與其它方法大致相似。在破壞潛能方面，本研究可概估邊坡內不同區域的安定性，其最小安全係數較極限平衡法所得者為低，但以臨界滑動面之平均安全係數言之，觀察結果將相當類似。

## AN APPROXIMATE ANALYSIS FOR STRESS AND FAILURE POTENTIAL OF EARTH SLOPES

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**Key words :** slope stability, stress analysis, failure potential.

## ABSTRACT

An approximate analysis for stress and failure of earth slopes is proposed. To simulate the stress variation along the slope, elastic stress influence from the presumable uplift pressure acting on a level ground is superimposed to the stress state of the ground. Stability condition of the slope is verified by comparing the mobilized Mohr's circle with the presumable failure envelope for material points along the slope. It is found that the stress variation obtained is similar to the previous solutions. The results are closest to other solutions in the case where the Poisson's ratio is relatively large. The failure potential of the slope obtained is more conservative in comparison with the one from limit equilibrium analysis. The averaged stability of that critical plane from the proposed method is compatible with the conventional solution.