

عنوان مقاله:

Influence of Single Tunnel and Twin Tunnel on Collapse Pattern and Maximum Ground Movement

محل انتشار:

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خلاصه مقاله:

Particle Flow Code in Two Dimensions (PFC2D) was used in order to examine the influence of single tunnel and twin tunnel on the collapse pattern and maximum ground movement. Since first PFC was calibrated by the experiments, the results obtained were rendered by a uniaxial test. Further, a rectangular model with dimensions of 100 m × 100 m containing both the central tunnel and twin tunnel was built. The center of the single tunnel was placed 25 m under the ground surface, and its diameter changed from 10 m to 35 m with an increment of 5 m. The center of the twin tunnel was situated 25 m under the ground surface, and its diameter was changed from 10 m to 30 m with an increment of 5 m. For measurement of the vertical displacement, one measuring circle with a 2 m diameter was opted on the ground surface above the tunnel roof. The average of the vertical movement of discs covered in these circles was determined as a ground settlement. A confining pressure of 0.01 MPa was applied on the model. The uniaxial compression strength was 0.09 MPa; the results obtained depicted that the tunnel diameter controlled the extension of the collapse zone. Also the vertical displacement at the roof of the tunnel declined by decreasing the tunnel diameter. The ground settlement increased by increasing the tunnel diameter.

کلمات کلیدی:

Tunnel, PFC2D, Settlement

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