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SEISMIC PERFORMANCE OF EL-AZHAR EXISTING ROAD TUNNELS

Summary:

Recently strong earthquakes around the world caused serious disasters for tunnels. It shows the shortcoming of current design and construction procedures and the needs to develop the performance based guidelines for seismic design. The performance-based seismic design method has taken in the seismic design standards of buildings and bridges. However, underground structures still use working stress design method. There are lots of improvements needed to be done to upgrade the current design codes. The objective of this research is directed towards numerically investigating the seismic behaviour of El-Azhar existing road tunnels incorporating both kinematic and inertial interactions. For this purpose, 2D nonlinear dynamic analyses of soil–structure system are carried out with the aid of finite element software, PLAXIS 2D and results are presented. Based on the results, design considerations have been provided.

Keywords:

earthquakes, performance based seismic design, El-Azhar Existing Road Tunnels, PLAXIS 2D.

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