A theoretical examination of the settlements induced by tunnelling: Four case histories

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Abstract:
A theoretically based procedure for predicting and designing for settlement above tunnels constructed in soft ground is outlined. The application of this theoretical technique is discussed and its range of applicability is examined by consideration of four case histories which encompass a wide range of soil conditions and construction techniques. This technique is then used as the basis of a design approach which is described in the paper. It is suggested that this procedure will provide a convenient means of estimating settlement induced by tunnelling in many different soil deposits provided that reasonable construction procedures are adopted.

Keywords: The GAP Parameter; Lower Market Street -BART Subway System; San Francisco Bay Mud: a soft, plastic normally consolidated clay; Manuel Gonzalez Tunnel - Mexico City; Frankfurt Subway - Germany; Washington Metro - Array C, Lafayette Park, Washington D.C.