Analysis of engineering land subsidence effects caused by shield construction for tunnels

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Abstract Based on analysis of the mechanism of engineering land subsidence induced by shield construction for tunnels, the regularities and relationships of shield depth, formation loss rate, shield radius, soil properties and the impact scope of land subsidence, the largest settlement amount, were studied individually and thoroughly with the numerical analysis and mathematical fitting method. Moreover, quantitative relations among them were derived. Finally, a case study of shield construction was analysed and verified.

Key words engineering land subsidence; shield depth; shield radius; formation loss rate; soil properties; width coefficient