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Study on the parameter selection of Peck formula for the twin-track tunnel in the sandy-pebble stratum

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Based on the monitoring data of ground settlement caused by metro excavation in stratum of sand and pebbles, the measured data from a typical transverse section were used to undertake displacement reverse analysis. This was achieved by using the Peck formula under normal working conditions of shield tunnelling to get the width coefficient (i) and loss ratio of the overlying stratum. The physical and mechanical relationship among the width coefficient, loss ratio of overlying stratum and burial depth of tunnel were analyzed to study the ranges of parameters. The prediction formula of ground settlement which suits for parallel double shield excavation in sand-pebble stratum was developed using the superposition theory under normal working conditions. The research results can provide reference data for large-scale metro construction in similar stratum in other districts in the future.

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