

下穿大型铁路站场的地铁车站施工对线路变形影响的监测分析

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摘要 受南京铁路站场的制约, 地铁南京站主体结构被分割为南侧明挖区、过站区和北侧明挖区等三个部分, 过站区在既有南京铁路站场下方, 其结构型式为双线分离式隧道, 隧道跨度大、埋深浅、线间距小, 采用暗挖矿山法构筑。在既有铁路线下修建地铁车站, 必须严格控制线路沉降。通过在地表线路和便梁支墩上布置沉降测点并跟踪施工进度进行监测, 探讨地铁过站隧道施工对地表线路变形的影响。监测结果表明: 铁路线路加固措施和过站隧道施工方案是合理可靠的。同时也通过对监测数据的分析, 提出关于类似工程施工的一些建议。

关键词 [地铁隧道工程; 下穿既有铁路站场; 矿山法; 线路沉降监测](#)

分类号

MONITOR AND ANALYSIS OF RAILWAY LINE SETTLEMENT CAUSED BY CONSTRUCTION OF SUBWAY TUNNELS BENEATH A CLUSTER OF EXISTING RAILWAY LINES IN THE NANJING RAILWAY STATION

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Abstract

Constrained by the Nanjing railway station, the Nanjing subway station of Nanjing metro No.1 is subdivided into three parts as following: (1) the southern cutting part; (2) the northern cutting part; and (3) the connecting tunnels part. The connecting tunnels as a part of main structure for the Nanjing subway station are just beneath a cluster of existing railway lines of the Nanjing railway station, which includes two separated tunnels. The connecting tunnels constructed with mining method have the features of large span, shallow coverage, and little distance between the two lines. Railway line settlement must be restricted to insure the safety of railway lines during construction. A large numbers of settlement points are placed on the railway roadbed and the beam support foundation. The railway roadbed settlement induced by tunnels construction is discussed and the settlement monitored results indicate that the rail reinforcement method and the connecting tunnels construction technique are reliable. At the same time, with the analysis of settlement data, some suggestions on similar engineering construction are presented.

Key words [subway tunnel engineering; beneath a cluster of existing railway lines; mining method; monitor of railway line settlement](#)

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