

**Performance Verification Design Method of Plain Concrete Lining and Invert
Assuming Ground Displacement after Completion**

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There are various structures in railway systems. It is required that structures have the same level of performance and that their performance should be verified quantitatively. Therefore, we proposed a method for verifying the performance of plain concrete lining and invert, and made a trial design assuming a mountain tunnel receiving ground deformation after completion. In the trial design, we estimated residual displacement from displacement speed, and imposed the corresponding displacement to the lining and invert using an analysis method of reducing the strength of the ground. As a result, it was found that the performance can be verified by the proposed method and that the required performance can be satisfied by adopting strong invert structures against heaving, even when large residual displacement exists to some extent.