

**Performance Improvement Technology of Existing Railway Viaducts
Using Concrete-Filled Tubular Columns**

Masamichi SAITO Hisashi UEMURA Manabu IKEDA
Ichiro SUGIMOTO Nozomu TANIGUCHI Teruhiko YODA

Existing railway RC viaducts have such problems as material deterioration and seismic performance. Furthermore, there is a large demand for utilization of the space under the viaducts. In this study, the authors proposed an improvement method of various performances such as durability, seismic performance and space utilization, by means of replacing multiple existing columns with a concrete-filled tubular (CFT) column. Through trial design using frame analysis, the applicability of the proposed method was discussed. By loading tests of the connection between the CFT column and the existing RC beam, the structural performance of the connection was obtained. Based on these results, it was clarified that the seismic performance of the viaduct can be improved simultaneously with widening the space under the viaduct.