

**Estimation Method of Load Acting on Segmental Lining under Excavation considering Contact between
Shield and Segment**

Kiwamu TSUNO Takashi NAKAYAMA Shinji YAKITA

This paper proposes a method of estimating the cracks caused by the contact between the shield machine and the segments during excavation work, which are often observed in shield tunnels. A two-dimensional contact analysis method is developed to obtain the distribution of the load caused by the contact between the shield machine and the segments to enable us to know the influence of the tail seal stiffness on the load distribution. The location of cracks, as well as the stress on the segment, is calculated based on the 3-dimensional FEM by inputting the acting force calculated by the contact analysis. The influence of the stiffness at the shield tail part, the jack pattern, the ground reaction coefficient and others is clarified based on a parameter study assuming the actual railway shield tunnels.