

ANALYSIS OF DEFORMATION AND LONG-TERM STABILITY AT THE WIRI REGION OF THE LOCAL HIGHWAY 999 IN KOREA

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Heaving of road and subsidence of slope took place at the Wiri region of the local highway 999 in Korea after heavy rain in the next year of construction. Although state government had performed remedial treatments by reducing the angle and the height of the slope, deformation had never stopped. Therefore, we have investigated the cause of deformation and the measure for long-term stability. Study area consists of the Cretaceous shale, siltstone and sandstone and two faults were found. The major deformation occurred by sliding of rock mass along one fault after heavy rain because not only the pore pressure at the fault plane and the unit weight of sliding mass increased, but did the shear strength of saturated fault clay become very low. Numerical simulations using limit equilibrium model(Stabl), finite difference model(Flac) and finite element model(Phase2) were performed for eight cross sections. Although safety factors are above 1.7 during the dry season, they become below 1.0 when groundwater level rises to surface. The maximum displacement was about 15 - 30 cm. To get a long-term stability, the following measures were suggested. 1) to maintain groundwater level at 24 m below the surface, or 2) to reduce the height of slope to 9 m from the present level.