7. On the Coupled Stress Flow Analysis using the Liquefaction Analysis Result under the Undrained Condition

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Recently, a number of FEM liquefaction analyses based on the effective stress method have been carried out even in a practical way. Many programs, however, assume the undrained condition. It is impossible to evaluate the deformation of the ground due to the migration of the pore water pressure under the undrained condition. In this study, we came up with the procedure for the coupled stress flow analysis using the liquefaction analysis result under the undrained condition (by FLIP).

Firstly, this procedure was applied to the one dimensional liquefaction problem and the effectiveness of this procedure was verified.

Secondly, the effectiveness of the gravel drain was evaluated as the two dimensional liquefaction problem. It was found that this procedure is able to evaluate the migration of the pore water pressure.

Key words : liquefaction , coupled stress flow analysis , excess pore water pressure, gravel drain