Experimental Analysis of Mechanism of Steady State Caused by Huge Earthquakes and Development of an Effective Stress Analysis Method for Sandy Soil

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When designing railway structures to withstand huge earthquake motions, it is necessary to evaluate the response of ground using effective stress analysis. It is known that the “steady state” occurs during large soil deformation. In this steady state, shear strain increases while stress remains constant. Currently, there have been few researches on the steady state mechanism under actual ground conditions. This study examined the behavior of sandy soil under large deformation conditions using elemental tests with Toyoura sand. Then, an effective stress analysis method which can reproduce the steady state behavior was proposed.