

Abstract

The simplified concept of the strength for short-term stability of unsaturated fine-grained soil, presented in Boháč et al. (2018), proposes the usage of a simple linear strength envelope for unsaturated soils. The assumptions for the applicability of this concept are the applicability of the critical state soil mechanics (CSSM), the applicability of the effective stress concept in unsaturated soils, and the applicability of ϕ_c' as their strength envelope characteristics. The article also discusses the possibility of estimating soil suction with a simplified expression $\chi = S_r$ using the effective stress concept in unsaturated soils. This thesis verifies the given parameters based on a set of laboratory experiments, and thus also the applicability of the stated concept. The applicability of the given simplification is also verified using laboratory experiments. The results of laboratory tests didn't confirm the general applicability of the assumptions and showed that the simplification $\chi = S_r$ is not applicable.