

Soil Sensibility Characterization of Granular Soils Due to Suffusion

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Abstract : This paper studies the characterization of soil sensibility due to suffusion process by carrying out a series of one-dimensional downward seepage flow tests realized with an erodimeter. Tests were performed under controlled hydraulic gradient in sandy gravel soils. We propose the analysis based on energy induced by the seepage flow to characterize the hydraulic loading and the cumulative eroded dry mass to characterize the soil response. With this approach, the effect of hydraulic loading histories and initial fines contents to soil sensibility are presented. It is found that for given soils, erosion coefficients are different if tests are performed under different hydraulic loading histories. For given initial fines fraction contents, the sensibility may be grouped in the same classification. The lower fines content soils tend to require larger flow energy to the onset of erosion. These results demonstrate that this approach is effective to characterize suffusion sensibility for granular soils.

Keywords : erodimeter, sandy gravel, suffusion, water seepage energy

Conference Title : ICCSGE 2015 : International Conference on Concrete, Structural and Geotechnical Engineering

Conference Location : Prague, Czechia

Conference Dates : March 23-24, 2015