

Effect of Filter Paper Technique in Measuring Hydraulic Capacity of Unsaturated Expansive Soil

Authors : Kenechi Kurtis Onochie

Abstract : This paper shows the use of filter paper technique in the measurement of matric suction of unsaturated expansive soil around the Haspolat region of Lefkosa, North Cyprus in order to establish the soil water characteristics curve (SWCC) or soil water retention curve (SWRC). The dry filter paper approach which is standardized by ASTM, 2003, D 5298-03 in which the filter paper is initially dry was adopted. The Whatman No. 42 filter paper was used in the matric suction measurement. The maximum dry density of the soil was obtained as 2.66 kg/cm³ and the optimum moisture content as 21%. The soil was discovered to have high air entry value of 1847.46 kPa indicating finer particles and 25% hydraulic capacity using filter paper technique. The filter paper technique proved to be very useful for measuring the hydraulic capacity of unsaturated expansive soil.

Keywords : SWCC, matric suction, filter paper, expansive soil

Conference Title : ICCEE 2019 : International Conference on Civil and Environmental Engineering

Conference Location : Miami, United States

Conference Dates : March 11-12, 2019