

INTISARI

Permeabilitas tanah merupakan sifat tanah yang penting diketahui, khususnya dalam penentuan sistem drainase. Saat ini belum terdapat standar pengujian permeabilitas lapangan, sehingga uji permeabilitas harus dilakukan di laboratorium. Pengembangan alat uji permeabilitas lapangan masih sangat diperlukan guna mempermudah kerja. Salah satu prosedur yang sedang dikembangkan adalah *constant discharge*, alat uji permeabilitas tanah kondisi *saturated* dan *unsaturated*. Hasil uji *constant discharge* belum dapat merepresentasikan hasil uji laboratorium sehingga dianggap belum valid dan memerlukan perbaikan metode kerja.

Perbaikan metode pengujian dilakukan dalam penelitian ini. Perbaikan difokuskan pada faktor geometrik yang diterapkan dalam pengujian. Pengujian *constant discharge* yang awalnya menggunakan metode tabung isi material diubah menjadi tabung kosong. Perubahan ini berpengaruh pada posisi sampel uji. Monitor kejenuhan tanah menggunakan *volumetric water content* yang dicatat alat *Decagon Devices* selama pengujian. Pengujian dilakukan di Halaman 1 Candi Prambanan, pada lokasi tersebut terjadi genangan air setelah hujan sehingga perlu perbaikan drainase.

Sebagai validasi alat uji lapangan, hasil uji dibandingkan dengan hasil uji laboratorium. Hasil uji lapangan dan laboratorium memiliki selisih rata-rata adalah $3,33 \times 10^{-4}$ cm/detik. Secara keseluruhan didapatkan bahwa nilai $k_{\text{laboratorium}} > k_{\text{lapangan}}$. Hasil uji metode tabung kosong menghasilkan data yang lebih akurat. Perbaikan metode pengujian menjadikan *constant discharge* semakin efektif.

Kata Kunci: daya serap, *volumetric water content*, tanah jenuh

ABSTRACT

Soil permeability is an important soil characteristic which is needed to be known, especially for determining the drainage system. There is not any standard of insitu permeability test yet, therefore permeability should be examined in the laboratory. The development of the insitu permeability test is still needed to make the work easier. One of the developing procedures is constant discharge, a test for soil permeability in saturated and unsaturated condition. The result of constant discharge has not yet represented the laboratory result, therefore, it is counted as unvalid result and needs an improvement in the working method.

The method is being improved in this research. The improvement focuses on the shape factor applied in the test. The constant discharge test which begins with the using of a filled material tube method, is changed into an empty tube. This change affects to the position of sample. The soil saturation monitor uses volumetric water content counted by Decagon Devices during the test. The test conducted at the Yard 1 of Prambanan Temple, in which the water puddle appeared after the rain, so that it needs an improvement for drainage.

As the validation of the insitu test, using the new method, the test result is compared to the laboratory test result. The insitu and laboratory test result has an average difference of 3.33×10^{-4} cm/second. It can be concluded that the result shows the value of $k_{\text{laboratory}} > k_{\text{insitu}}$. The test result shows that the empty tube method produces more accurate data. The improvement of the test method makes the constant discharge more effective.

Keywords: permeability, volumetric water content, saturated soil