

London Clay permeability

From: David Whitaker
Sent: 22 September 2014 13:47
To: 'Simon Haslam'
Subject: RE: RBKC Basements hearings

Simon,

You asked if I could provide some likely values of the permeability of the London Clay. I have conferred with a couple of colleagues and we are agreed that there is little correlation between geological sub-divisions of the London Clay, which are made on the basis of palaeontology and sand content, among other things, and engineering properties including permeability. Fissuring close to the surface is likely to be the chief factor contributing to the observed permeability.

At depth, where effective stress is high due to the depth of cover, the permeability is usually quoted as being around 10^{-11} m/s. For example, the London Basin Groundwater Model used a figure of 5×10^{-6} m/d (5.8×10^{-11} m/s) for the vertical hydraulic conductivity (Mott MacDonald, 2003 quoted in EA report 60121 R1, June 2010).

Close to the surface the average hydraulic conductivity of fissured brown (London) clay is said to be as high as 10^{-7} m/s “or even higher in exceptional circumstances where fissuring is particularly prevalent (Water Resources Board, 1972, “The Hydrogeology of the London Basin”).

I’m not sure if that helps. I think it underlines the need to investigate each site, and not go by literature values – or a “rule of thumb”.

Regards

David

David Whitaker

Associate Hydrogeologist | Infrastructure London Group

ARUP

13 Fitzroy Street London W1T 4BQ United Kingdom

t +44 20 7636 1531 d +44 20 7755 3660 m +44 7467 940047

f +44 20 7755 2121

www.arup.com