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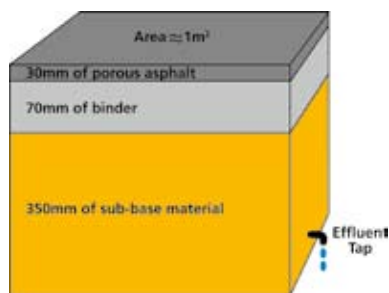
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Introduction

The SuDS Applied Research Group at Coventry University was asked by Tarmac to investigate the effects of surface gradient on the amount of surface run-off water from TarmacDry porous asphalt under heavy rainfall conditions. The main findings from the study are summarised here.

Methodology

The test porous asphalt surface used was part of 1m² test rig, the basic structure of which is shown in the adjacent figure. The surface gradient was set by raising one side of the rig using a hydraulic jack. The gradients tested were approximately 0, 1 in 80, 1 in 40, 1 in 20 and 1 in 10.

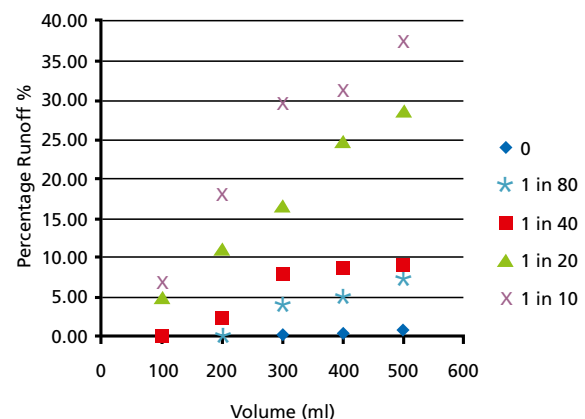


Areas of 0.2 x 0.5 m (0.1 m²) were marked off on the porous asphalt surface and isolated so that any run-off water could be collected and measured. Fixed volumes (100, 200, 300, 400 or 500 ml) were poured on to the upper end of each slope from a watering can fitted with a rose head. The rate of addition using this method was roughly 50 ml/s.

At each gradient, tests with each volume were carried out in at least duplicate. The run-off that was collected from the lower end of the slopes was measured using a graduated measuring cylinder. Prior to all run-off experiments each of the areas were wetted with 500 ml of water in order to provide consistent starting conditions.

Results and Discussion

It can be seen from a graph of the results that as would be expected there is an increase in the amount of run-off with gradient and with volume of water added.



Two extra facts should be noted. First that the flow rate on is equivalent to a rainfall intensity of 1800mm/hour. Second that the surfaces tested have been used in experiments where street dust was loaded on to them, and thus fresh unclogged porous asphalt surfaces should perform even better.