

# WATER QUALITY RESEARCH

“The project is the largest and most ambitious laboratory simulation of its kind in the world, and will set the standard for future water quantity and quality design” Dr Stephen J Coupe

Our own testing with Abertay University concluded that up to 94% of heavy metals are removed from effluent as it passes through a sub-base, and UK SuDS expert Bob Bray is regularly quoted as saying that permeable paving provides “a controlled flow of clean water”.

However, confusion still surrounds water quality in permeable pavements.

- How does this cleaning process work?
- Now that Marshalls Piora sub-bases are shallower than the BS, does it make them less effective at removing pollutants?
- Can anything be done to maximise the cleansing potential of Marshalls sub-base designs?

As water quality becomes increasingly important to meet planning requirements, we have embarked on an ambitious testing programme with Coventry University to understand exactly how our Piora systems improve the water that flows through them.

This involved constructing 13 rigs, weighing in at over a tonne each, and transporting them to a lab in Coventry University’s technology park where they are subjected to a range of simulated rainfall events. The combination of rigs allows us to compare different sub-base depths and compositions, and also to monitor the long term effect of different layers within the sub-base. Probes have been inserted to monitor microbial activity at different depths.

*Work is still ongoing... but what have we learned so far?*

- *Structural depth has not been shown to be a detectable contributor to water cleansing. Therefore, Marshalls rationalised sub-base designs are as effective as the deeper (and more expensive) BS designs at cleansing water.*
- *Both the shallowest and deepest Marshalls Piora designs which include MT120 Filtration Textile produce the cleanest water of all the designs tested.*
- *Marshalls MT120 Filtration Textile performs better at cleaning chemical impurities from water than a leading competitor filtration layer.*



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