

What does stormwater management look like in a dense city-scape?

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I was recently asked to consider the retrofitting of SuDS in dense urban areas as part of the 'See Water Differently' event hosted by Wavin.

The event was held right in the City of London, so I was able to have a wander round before the event started. It struck me that in locations like that, where there is little space available at ground level, where the sub-surface services are like a spiders-web and where every square metre is worth thousands of pounds, conventional SuDS are not the solution to stormwater management.



The 'Walkie Talkie' building in the City of London. Image: Evening Standard

For the square mile that we were in for the evening, I'd be tempted to put the 'u' back in SuDS and think about the urban 'jungle' that we found ourselves in. This is not a habitat for wildlife, but a habitat for people, and our drainage design needs to recognise that. For this location, I'd 'divorce' the four pillars of SuDS and reinvent them all.

For water quantity, I would include above ground tanks everywhere. Tall skinny ones strapped to the side of buildings, short fat ones tucked away in dark corners and squat square ones on balconies. I'd control them centrally so that captured rainwater could be used for toilet flushing, laundry and urban cooling, and as a storm was forecast, I'd empty them carefully and perhaps not all at once! Done well, this could create 1000s of cubic metres of stored water for reuse, reduce peak flows and flatten the hydrograph so that surface water flooding was lessened.

For water quality, I'd have an army of road sweepers and gully suckers, removing pollutants every few weeks. As a storm was forecast, I'd deploy them all to clean the streets and empty the gully pots before the storm arrived. But the area drains to combined sewer and will ultimately end up in the super sewer, so water quality is not such a priority in this location as it would be in cities that drain to river.

For amenity, I'd have benches and sunshades and maybe I'd use some of my captured rainwater to create cooling water features too. And (I can't quite believe I'm saying this) I might have trees and shrubs in boxes and irrigate them with my rainwater. These provide

shade, beauty and cooling whilst avoiding excavation amongst the web of sub-surface services.

But for biodiversity, I might not even bother at street level. After all, this is a habitat for humans.

There are no shrubs or bushes for small birds to nest in. There are no soil surfaces for blackbirds to forage in. There is no damp, aerated soil for beetles, worms and fungi to thrive in. There is no sand, or wood, or gravel for solitary bees. There aren't thousands of flowers from March to October to sustain our flying insects, and there are no reliable sources of water. So a swale, or a tree-pit, or a raingarden will not create a meaningful habitat for wildlife; nothing will thrive there, and little will survive.

We must either commit to the creation of excellent habitat on every roof with hedges, meadows and pools, or we take the money earmarked for biodiversity and send it a few hundred yards to the East and invest in the existing green spaces in Shadwell, Stepney and Bethnall Green to make them bigger, bushier and altogether better as habitat for wildlife where nature can thrive alongside people, and the green spaces can really breath. Here, we can deliver really valuable retro-fit SuDS that bring together all four pillars, and that create meaningful habitats that satisfy the Lawton principles to help nature thrive, creating bigger, better, more joined up habitats.

As Biodiversity Net Gain matures, we must remember that a habitat for wildlife isn't a habitat unless it provides, or connects with, the needs of the creatures throughout their lifecycle. We must create entire ecosystems, from the soil to the sky, and not just green 'tokens' that tick a box.



Big, bushy SuDS with pools of water like this one contribute to the survival of vigorous populations of wildlife.