



Unlocking the superpowers of street trees: Green-Blue infrastructure for healthy streets & waterways

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Biography:

Jarrold is a civil engineer with a passion for developing interdisciplinary designs and solutions across the water industry, particularly in Water Sensitive Urban Design and Integrated Water Management. Jarrold's interests also extend to interdisciplinary urban design and the development of green infrastructure across the urban environment.

Jarrold has a broad interest in the international development of water sensitive design principles and spent six months living and studying at the Technical University of Denmark, Copenhagen. Through this experience, Jarrold has developed skills managing diverse teams and the varying role of water within the urban context. Through his work with E2Designlab, Jarrold has developed experience working with design and strategy projects within Australia.

What does an air-conditioner, water filter, air filter, solar panel, bird feeder and rainwater tank all have in common? Apart from items that might be found around the suburban home, they represent the potential powers of the ultimate streetscape superheroes: Green-Blue street trees.

Intuitively, we know 'standard' street trees are a force for good, providing shade, habitat and street amenity. But what if they could do more? What if they could help us address the growing climatic challenges of extreme heat, intense rainfalls, stressed waterways, and prolonged droughts? Green-Blue trees harness the established principles of WSUD to provide enhanced cooling via evapotranspiration, a reduction in nuisance flooding from stormwater detention, improved runoff water quality from stormwater treatment, and greater biodiversity by growing larger, faster and living longer. But how do we transform 'Clark Kent' street trees into Superman?

The recipe for success involves several factors:

- Appropriate treatment to catchment area ratio (TCAR)
- Adequate drainage
- Soil volume to support trees to maturity
- Tailored soil permeability and nutrition
- Extended detention volume
- Connection to deep soil moisture
- Appropriate species selection

Pilot projects are demonstrating the viability of Green-Blue trees, but to go truly mainstream, Green-Blue principles must be embedded into routine Council renewal programs. This involves tying supporting processes into the fabric of infrastructure planning, design, construction and maintenance. In retrofit scenarios, this can be achieved by developing simple, easy-to-apply tools to quickly assess the potential for a Green-Blue response. Standard typologies provide guidance for developing site-contextual designs and economic frameworks can offer justification for investment. Internal buy-in is also critical. The process must involve all parties, from design to delivery. New



developments also stand to benefit; creating lush streetscapes that achieve urban greening objectives while reducing the size of end-of-line stormwater treatment assets.