



## The Edithvale Integrated Stormwater Solution

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### **Biography:**

*Mr. Jeanne Rossouw is a registered Profession Technologist, originally from Port Elizabeth, South Africa. He has more than ten years of experience in project management and the design of civil infrastructure. In addition to his industry experience, Jeanne has five years of academic experience lecturing design and management subjects in the Department of Civil Engineering at the Nelson Mandela University. As a result of his experience in urban stormwater management and master planning, he was appointed to the position of Drainage Design Engineer at the City of Kingston after relocating to Melbourne in 2018. In his current role, Jeanne provides strategic and technical support for drainage projects under the Council's flood mitigation and capital works programs.*

The award-winning Edithvale Integrated Stormwater Solution is a unique, environmentally sustainable project that combines much-needed flood protection with a system that stores, treats and recycles around 10 million litres of stormwater each year.

Major constraints had to be overcome for the project to be viable. From an environmental point of view, the most significant concern was contamination of the nearby wetland by acid sulphate soils during construction. From a design perspective, flat grades and low ground levels relative to sea level made it clear that a traditional gravity system would not be suitable. Furthermore, space for storage and treatment of stormwater was problematic due to the level of development within the catchment area and high groundwater levels. Finally, funding for the project would need to be secured. The combination of these factors created a problem that had been “too hard” and “too expensive” for Council and Melbourne Water engineers for almost 50 years.

Ultimately, an innovative solution was found that addressed each of the major constraints. The drainage system was upgraded to provide storage within the pipe network, mitigating the effects of storms up to the 20% AEP event. The solution relies on a combination of pumps and hydraulic head to drain the system. The design makes it possible to surcharge up to 1.8m<sup>3</sup>/s of stormwater into the linear drainage reserve adjacent to the wetland. Furthermore, a 1100m<sup>2</sup> landscaped bio-retention and water quality treatment system treats and stores up to 1.2 million litres of clean water for re-use in the sports precinct and community centre. All of the design and construction processes were informed by extensive environmental investigations, mitigating any negative impacts on the abutting Edithvale-Seaford wetland.

Funding challenges were overcome by integrating treatment and storage within the design, a staged construction program and financial support from Melbourne Water and the Victoria State government via DELWP.

This project confirmed that it is feasible, cost-effective and environmentally sustainable to combine flood protection measures with the harvesting of stormwater from large pipes, treatment within a Council reserve and the reuse of treated water to reduce potable water demands.