

Project Profile

Tumby Bay Flood Mitigation Construction



Client	Southfront
Location	Tumby Bay, South Australia
Duration	January 2019 to August 2019
Contract	Lump Sum Construct Only
Cost	\$4.1 million

Project Overview

In February 2011, the township of Tumby Bay on Eyre Peninsula experienced a heavy rainfall event which resulted in flooding of several major streets and school ovals. The flooding event identified several major deficiencies in the stormwater drainage within the township.

The District Council of Tumby Bay undertook a stormwater management study in 2014 focused on protecting property from the risk of flooding and to help manage it in a safe and sustainable manner. The study identified that the existing swales for stormwater catchment were of insufficient grade and featured undulating surfaces, surface water was unable to drain from swales, and that groundwater levels were relatively high to the ground surface which prevented surface water to soak into the ground. Stagnant surface water also provided a breeding ground for mosquitos that had become a nuisance for local residents.

In September 2018, The District Council of Tumby Bay secured funding from the Federal Government and South Australian Government to undertake a stormwater management project, with the highest priority works being the upgrade of the North-South Swale to mitigate the possibility of flooding to 40 nearby properties. The Council appointed McMahon Services through a competitive tendering process as the contractors to undertake these works.

McMahon Services

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Scope of Work

“We look forward to seeing the final outcomes of this project which, as well as improving the stormwater management, will also provide improved township amenities and enhanced public open space.” – Damian Windsor, Works Manager, District Council of Tumby Bay (Port Lincoln Times, 19 March 2019)

Works included reshaping and re-levelling of drainage swale stretching 1.8km through the town for flood mitigation, excavating wetland retention basins for stormwater catchment, and constructing a flood levee on the northern side of the airport land near Lipson Road. Other works included the upgrade of Council culverts and underground stormwater drainage, and the construction of infiltration and bio retention rain gardens.

The project was delivered three stages. Stage 1 comprised swale upgrades between McCallum Road to Bratten Way and the construction of Mine Creek levee banks on Mine Creek Road, Mine Hill Road and Lipson Road. Stage 2 works delivered underground drainage and Stage 3 delivered infiltration basins and bio-retention basins.

Earthworks totalled 10,000m³ of swale construction and 10,000m³ of levee bank construction. Stormwater reinforced concrete pipe construction consisted of 352m of 375mm pipe, 26m of 450mm, 88m of 525mm and 52m of 600mm diameter pipe. Long run stormwater pipe also required the construction of bio retention ponds comprising of various filter layers for water quality treatment.

The swales passed beneath 11 roads requiring the replacement of the existing culverts, resulting in new larger culvert crossings between 10m to 15m in length per section of road. Lipson Road required the construction of a bridge comprising of four culvert cells and full road reinstatement works. Lipson Road and Bratten Way are Department of Planning, Transport and Infrastructure owned and maintained roads, and bridge and road repairs were to Department standards and specifications. Over 800m² of spray seal was laid and 70m of new road was constructed as part of the works.

Over 50,000 plants and grasses with an automated irrigation system improved the ecology and aesthetic qualities of the finished works.

Plant and equipment utilised on site included 35t excavator with GPS control for accurate levelling, PC130 and PC220 excavators, 140M grader also with GPS controls, 20kVA generator, semi-side tippers, 6t tipper 10t roller and a 1.5t roller. Workforce peaked at eight personnel who completed 12,500 work hours with nil lost time injuries, medical treatment injuries or environmental incidents. Local suppliers were used for material haulage, plant hire and additional excavation works.

The project team invested significant time with District Council of Tumby Bay working through various solutions to constructability issues with an aim of improving the overall assets. This led to several innovations and cost savings for the project.





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