

HASTINGS WASTEWATER OUTFALL SYSTEM – MAXIMUM LIFE VS MINIMUM SPEND

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ABSTRACT

Hastings Wastewater Treatment Plant discharges treated effluent to the Hawke Bay via a 3km long 1m diameter concrete outfall pipeline and a 300m fibreglass diffuser constructed in the early 1980's. This outfall is a critical element of the treatment plant with historical beach discharges and short outfalls no longer acceptable to the community other than in an emergency situation.

Shortly after its commissioning, there were issues with the outfall system and several significant repairs were required. This paper outlines the historic issues and repairs to the outfall system, but also the condition investigations, rehabilitation carried out recently and the works that are planned to maximise the life of the overall asset whilst minimising the expenditure.

To avoid overflows to the beach or within the plant, the outfall is required to remain operational at all times, other than for short duration shutdowns that can be accommodated with storage in the main inland trunk sewers conveying wastewater to the plant. Additionally, the pipeline alignment is partly above but mainly below sea level. Both these factors make any condition investigation, repair or renewal works difficult and potentially expensive.

This paper will describe the components of the outfall system, the specific and tailored condition investigations advanced, including laser and sonar profiling, pipe cores, ultrasonic wall thickness measurements and dive inspection reports.

A recent innovative external FRP pipe repair method for a short land based section of highly corroded concrete pipe was developed to allow the outfall to remain operational, whilst working in with the timing of low tide and minimum treatment plant flows to allow works to be completed. Repairs to a section of steel pipe and the full replacement of the ocean diffuser are detailed in the paper.

The recently optimised approach to investment in repairs and the planned targeted renewal of outfall components is expected to have significantly extended the economic life of the outfall system.

KEYWORDS

Ocean Outfalls, Diffuser Replacement, External pipe repair, Condition assessment