

Belzona Rehabilitates Concrete Distribution Chambers in an Odour-Covered Inlet Channel

ID: 10338

Industry:	Water / Wastewater	Customer Location:	Yorkshire
Application:	TCC-Tanks and Chemical Containment Areas	Application Date:	April 2021
Substrate:	Concrete		
Products:	Belzona 2211 (MP Hi-Build Elastomer), Belzona 2911 (Elastomer QD Conditioner), Belzona 4131 (Magma-Screed), Belzona 5111 (Ceramic Cladding), Belzona 6111 (Liquid Anode)		

Problem

Two concrete distribution chambers within an inlet channel were exhibiting significant deterioration in the gas phase area following prolonged exposure to a corrosive wastewater environment. The chambers had been covered as part of an odour control strategy; however, deterioration of the concrete substrate had continued beneath the covers.

The damage had progressed to the point where the aggregate was exposed across multiple areas of the channel walls and surfaces. This level of degradation increased the risk of accelerated concrete loss, continued chemical attack, and reduced structural integrity if left untreated. Surveys identified an average substrate loss of approximately 20mm across both chambers, with repair depths extending up to 1.35m from the top surface of the chamber structure.

Due to operational requirements, only one channel could be drained at any given time, meaning the project had to be completed in two separate phases while maintaining continued asset operation.



The tanks were covered as part of an odour control strategy



Deterioration of the tanks had continued under the covers and required a repair solution



damaged areas were then rebuilt using a combination of bulkfill material and Belzona 4131 Magma Screed



The repairs provided a durable, chemically resistant repair capable of withstanding the harsh wastewater environment.

Application Situation

Two concrete distribution chambers within a covered inlet channel had suffered significant concrete deterioration due to prolonged

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exposure to corrosive wastewater gases. The damage had progressed to the point where aggregate was exposed, increasing the risk of further degradation and structural loss.

As only one channel could be isolated at a time, the project was delivered in two phases to maintain operational continuity. Each chamber was drained, cleaned, and prepared before being rebuilt using Belzona repair materials and subsequently protected with a high-performance coating system to restore structural integrity and provide long-term resistance to the aggressive wastewater environment.

Application Method

Following drainage and surface preparation, all weakened concrete and exposed aggregate were removed to create a sound substrate for repair. The damaged areas were then rebuilt using a combination of bulkfill material and Belzona 4131 Magma Screed, restoring the original concrete profile while providing excellent durability and chemical resistance.

Once the repairs were complete, the chamber surfaces were protected with Belzona Magma TX, forming a seamless barrier against future chemical attack and erosion in the wastewater environment. Additional options included refurbishing the steel handrails with the Belzona 6111/5111 coating system and restoring damaged expansion joints using Belzona 2211 and Belzona 2911 to maintain flexibility and long-term integrity.

Belzona Facts

Belzona 4131 Magma Screed restored the damaged concrete profile, providing a durable, chemically resistant repair capable of withstanding the harsh wastewater environment.

Belzona Magma TX formed a seamless protective barrier, helping to prevent future chemical attack and extending the service life of the chambers.

Belzona Bulkfill enabled efficient reinstatement of large areas of concrete loss while maintaining structural integrity and reducing repair costs.

Belzona's cold-applied systems allowed the repairs to be completed safely without hot works, minimising site risks and operational disruption.

The completed solution delivered a long-term, low-maintenance repair, reducing future deterioration, extending asset life, and improving the reliability of these critical wastewater assets.

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