

Project Report / February 2021

Concrete Repair of Sewage Treatment Plant - “Quanthof” Refurbishes Sludge Storage Basin I

Sewage sludge is produced during the wastewater treatment in sewage treatment plants. The so-called excess sludge is temporarily stored in sludge storage basins in order to ensure continuity of time for subsequent dewatering.

The “Quanthof” sewage treatment plant in the town of Salzhemmendorf in the German Weserbergland region of Lower Saxony had the first of its 2 sludge storage basins refurbished at the end of 2020 after many years of operation. Together with the specialised applicator, it was decided to use the certified StoCretec protection and repair systems for municipal sewage treatment plants.

After a detailed status analysis, the specialised applicator prepared the substrate inside the basin using high-pressure blasting. In this process, low-strength coatings and sludge accumulations are thoroughly removed. The exposed steel reinforcement received permanent and proven corrosion protection using a two-layer coating with StoCrete TK to protect against possible renewed corrosion.

The specialists applied the sulphate-resistant bonding agent StoCrete TH 250 to deeper concrete breakouts. It acts as an adhesive bond between the existing concrete substrate and the following layer of StoCrete TG 252 repair mortar.

StoCretec sulphate-resistant mortars up to XWW3

StoCrete TG 252 is tested as a concrete repair mortar (PCC / RM) for highly aggressive sulphate-contaminated wastewater according to DIN 19573:2016-03 for a layer thicknesses of 6 - 30 millimetres. To make cleaning of the basin easier, it was given a fine-structured surface finish with the StoCrete TF 250 fairing coat with a layer thickness of 2 - 5 millimetres.

The StoCretec mortars applied are characterised by an optimised mortar structure. The complete mineral StoCretec mortar range for municipal sewage treatment plants formulated with the same highly chemically resistant special cement. This means that the mortars have a high level of resistance up to exposure class XWW3. Thus they are ideal for the permanent repair of concrete components in municipal sewage treatment plants.

OS 5b system StoCrete FB surface protection – resistant to permanent wet conditions!

The Quanthof sludge storage basin additionally received StoCrete FB surface protection in the entire upper cap area. StoCrete FB is ideal for both permanently wet and water-changing zones. It offers reliable protection against carbonation of the coated surfaces. The product is crack-bridging and water-resistant. These properties combined in one product offer outstanding advantages.

StoCrete FB is a tank and basin waterproofing product with German general building inspection test certificate. It meets the water exposure class W2-B in accordance with DIN 18535 and the requirements for a

surface protection system OS 5b in accordance with the DAfStb* Guideline - Protection and Repair of Concrete Components - and possesses the performance characteristics according to EN 1504-2.

The tested surface protection system prevents water, as well as de-icing salts dissolved in it and carbon dioxide from penetrating the concrete. Chloride and carbonation-induced corrosion of the steel reinforcement is prevented. Surfaces coated with StoCrete FB are also less prone to soiling and are easier to clean. The mineral coating StoCrete FB is not only suitable for basin caps, but also for coating floor and wall surfaces in storm overflow basins. It is quick and easy to apply and it is fully resistant after seven days. This reduces downtime and the associated costs.

Coating for Supplementary Protection of the Exterior Walls

Finally, the specialists coated the outer walls of the sludge storage basin with 2 layers of StoCryl V 100. The tested StoCretec surface protection system prevents the absorption of water and harmful substances into the concrete, has a CO₂-retarding effect and is permeable to water vapour. The coating can also be applied quickly using the airless spray method.

Who & What

Project:	Sludge storage basin I, sewage treatment plant Quanthof, DE	
Investor:	AWP GmbH, Paderborn, DE	
Applicator:	Die Bauwerkssanierer Sascha Müchler GmbH, Blomberg, DE	
Realisation:	11/2020	
Systems/Products:	<i>Concrete repair</i>	
	Corrosion protection	StoCrete TK
	Bonding agent	StoCrete TH 250
	Repair mortar	StoCrete TG 252
	Fairing coat	StoCrete TF 250

Surface protection cap area

Coating	StoCrete FB
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Surface protection outer walls

Coating	StoCryl V 100 white
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*DAfStb – Deutscher Ausschuss für Stahlbeton e.V. = German Committee for Reinforced Concrete

(Photos: Die Bausanierer Sascha Müchler GmbH, DE)



