SIKA AT WORK
GUILDFORD NEW SEWAGE TREATMENT WORKS, SURREY

Products: Sika® WT-200 P, Sika® Viscocrete®-1000, Sika® Plastiment®-190

BUILDING TRUST

THE WEYSIDE URBAN VILLAGE
PROJECT BACKGROUND

The Weyside Urban Village project is a brownfield regeneration scheme initiated by Guildford Borough Council. To free up land for much-needed housing Guildford sewage treatment works needed to be relocated. By building the new sewage treatment works on a former landfill site, unsuitable for housing, the surrounding Green Belt will be preserved. When complete Weyside Urban Village will include up to 1,550 new homes with new spaces for community and employment.

Sika were engaged to assist in the development of **watertight concrete** for the primary settlement tank and activated sludge plant, working with main contractor, **BAM Enpure JV, and concrete provider, Heidelberg Materials**. **Sika® Watertight Concrete** was chosen for the work, with activity commencing in Q4 2023 and scheduled to be completed by Q4 2025.

Constrained by the presence of landfill, the project adopted an above ground approach, where the design allowed.

The need to place process tanks above ground generated considerable areas of visible, exposed tank surfaces, and placed even greater emphasis on the creation of watertight reinforced concrete structures that met the vigorous standards expected by Thames Water and the relevant regulators. BAM Enpure JV's delivery approach of using offsite manufacturing technology, where possible, also required any in situ concrete to complement the precast concrete product.

Sika® Watertight Concrete and precast concrete completed

SIKA SOLUTION
WATERTIGHT CONCRETE

The primary settlement tank and activated sludge plant were the focus for the waterproofing of this project and required Sika® Watertight Concrete to be used as a stitching concrete between 7-10m tall precast panels.

For the Guildford New Sewage Treatment Works project, **660m³ of concrete containing Sika® WT-200 P** was utilised for the Primary Settlement Tanks and the Activated Sludge Plant.

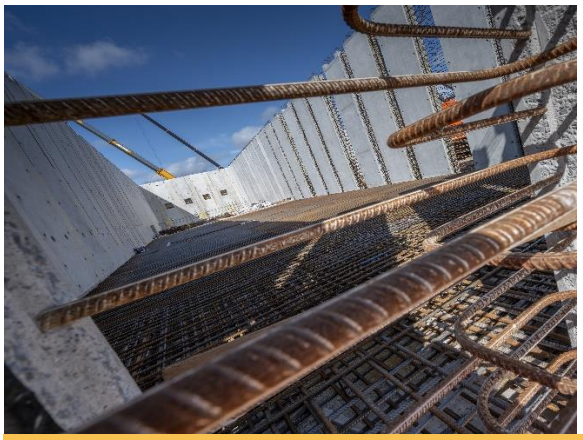
A combined water-resisting and crystalline waterproofing admixture used to reduce the permeability of concrete, Sika® WT-200 P enhances the self-healing abilities of the concrete and can be used in any watertight structure.

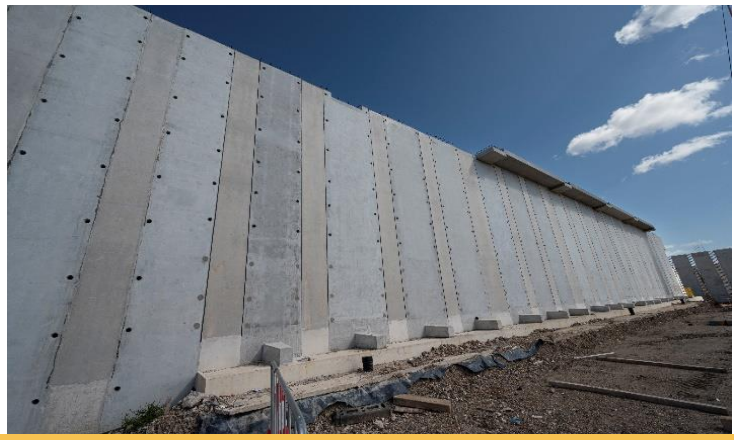
The crystalline waterproofing admixture solution consists of a mixture of active materials which form non-soluble products throughout the pore and capillary structure of the concrete and seal the concrete permanently against the ingress of water and other liquids.

The special formula and ingredients of Sika® WT-200 P enhances the self-healing properties of concrete and improves the ability to heal cracks. Sika® WT-200 P is able to waterproof concrete straight away and then, once complete, the product's self-healing properties are present.

10,000 litres of **Sika® ViscoCrete®-1000** and 6,600 litres of **Sika® Plastiment®-190** were also used in the overall concreting works. Sika® ViscoCrete®-1000 is a high range water reducing admixture utilising Sika's ViscoCrete® polycarboxylate technology. When used, water reduction up to **30%** can be obtained and the superplasticising action of the product allows for the production of increased slump and workability which improves efficiency of labour, thus reducing costs.

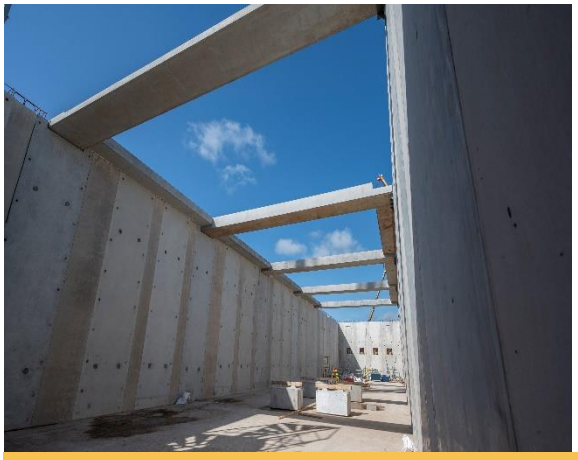
In addition, Sika® Plastiment®-190 is a liquid water reducing admixture, formulated from modified lignosulphonates. The use of Sika® Plastiment®-190 results in higher density, higher strength and reduced permeability. It means reduced shrinkage during curing and provides opportunities for cost improvement.

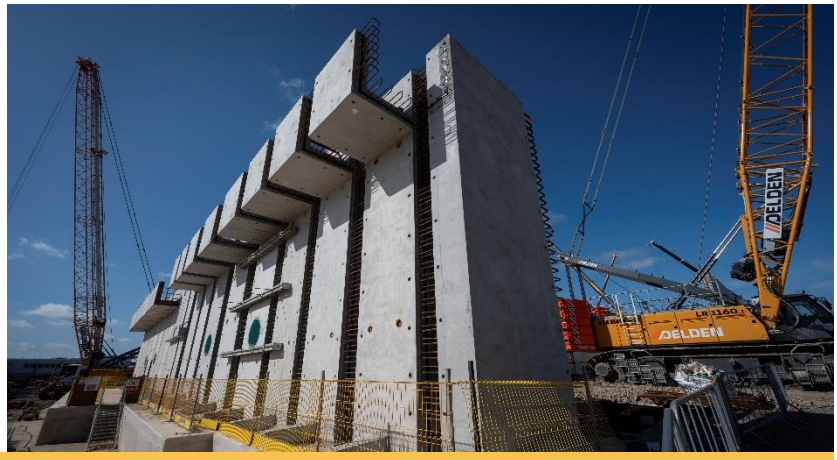




Sika® Watertight Concrete and precast concrete during construction

TRUSTED PARTNERS
COLLABORATIVE APPROACH





Sika® Watertight Concrete during construction

Working with trusted partners BAM Enpure JV and Heidelberg Materials for this project provided reassurance to Thames Water. Together, the businesses have an established relationship and were able to utilise Sika waterproofing products to complete a crucial part of the delivery of the Guilford STW Relocation Project.

Stephen Armfield, Key Account Business Development Manager, Sika, commented: "*The close working relationship Sika has with Heidelberg Materials, as their trusted partner, enables us to work closely with Heidelberg Materials' technical and commercial teams to provide the customer with exactly what is required. Through a series of productive meetings with Heidelberg Materials and BAM Enpure JV at early stages meant Sika could engage with the design and delivery teams to support them with the technical challenges in this project.*"

Richard Scott, Design Lead, BAM Enpure JV, said: *"Sika's concrete technology was adopted to provide watertightness assurance for our largest hydraulic tank structures. The process of mix design development, site trials, and ongoing site verification has enhanced the BEJV's technical offering to Thames Water.We're optimistic these initiatives emphasise our continuing focus on providing resilient infrastructure to the water industry.*

Chris Sharrod, Area Technical Manager, Heidelberg Materials, added:

"We have a strong relationship with Sika and their support from the beginning of the project was great. The relationship between Heidelberg Materials, Sika and BAM developed well, right from the first site meeting, resulting in constant communication. This meant each team was well coordinated and any issues could be resolved quickly. The admixtures from Sika worked well and helped Heidelberg provide a quality concrete which enabled bam to achieve an impressive finish."

PROJECT PARTICIPANTS

Owner: Guildford Borough Council
Main Contractor: BAM Enpure JV
Concrete Provider: Heidelberg Materials
Sika Team: Concrete

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