CASE STUDY

Triflex

Delivering solutions together.

WATERPROOFING AND PROTECTION

NEW STORAGE RESERVOIR ROOF

Authorised Contractor:
Concrete Repairs Ltd (CRL)

Area
4,500m²

Systems
Triflex ProTect®
Triflex ProDetail®

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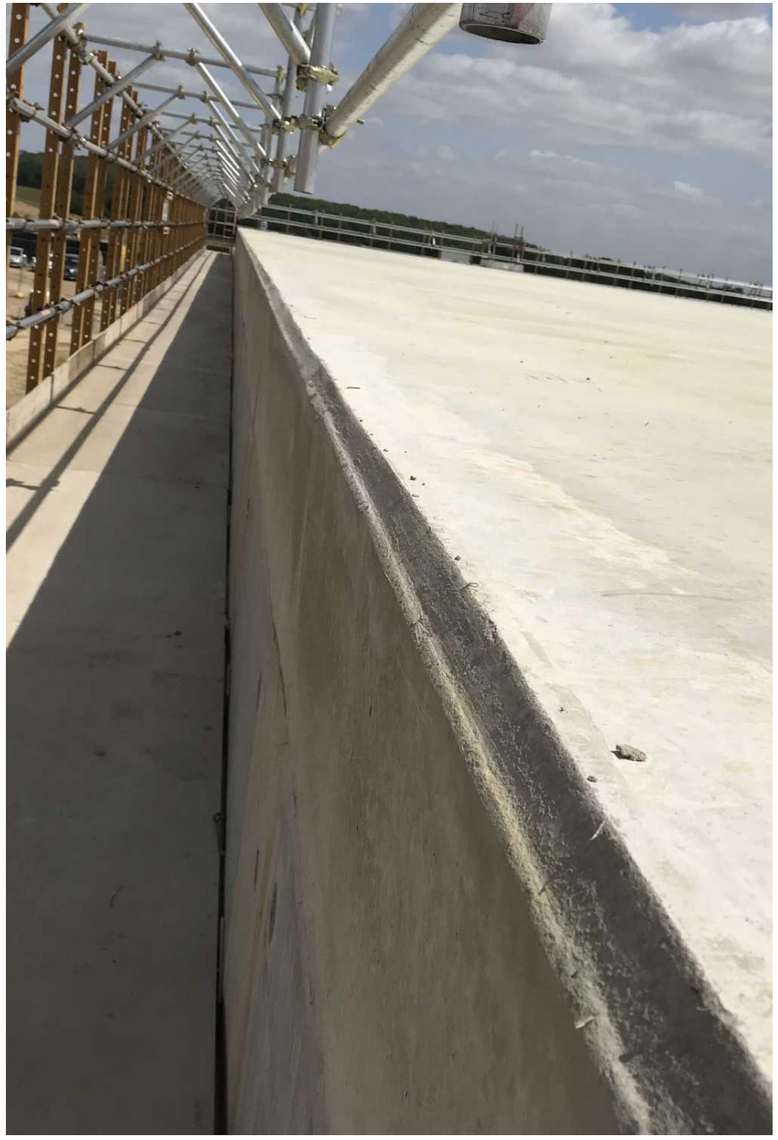
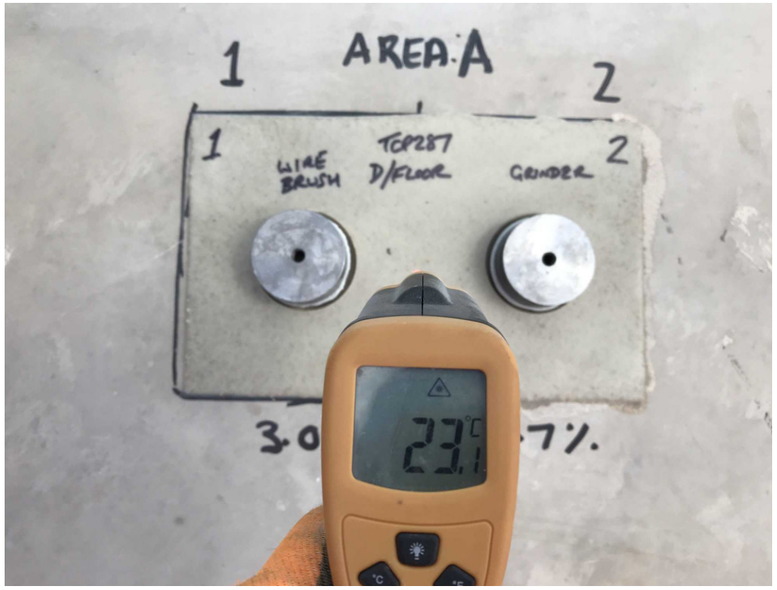
Introduction

As part of a water authority's long-term water resources management plan, a new water storage reservoir was constructed to increase the region's strategic potable water storage capacity. This investment in water infrastructure, which includes pipelines, pumping stations and storage reservoirs, is designed to strengthen the security and resilience of the regional water supply. With a capacity of approximately 20 million litres, the reservoir supports the continued growth of the local economy and contributes to regional prosperity.





The challenge

The 4,500m² in situ-cast concrete roof required a high performance waterproofing and protection solution to safeguard the newly built critical infrastructure. Because of the large surface area, the client sought to maintain a more stable thermal range across the roof than is typically achieved in older reservoirs. Maintaining consistent temperatures at structural deck level was essential to minimise thermal movement and reduce the risk of cracking.

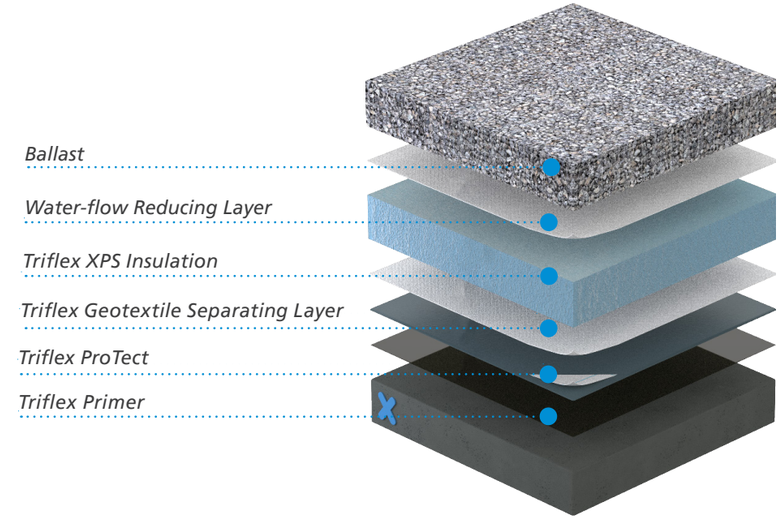
The concrete mix used in the roof included a specialist additive. Although Triflex waterproofing systems are compatible with a wide range of substrates, the Triflex technical team carried out on-site adhesive and cohesive strength tests. These tests confirm the compatibility of the primer and whether any additional substrate preparation would be required prior to overlay.

The solution

Working closely with Triflex authorised contractor, CRL, Triflex proposed an insulated inverted roof build-up to reduce thermal loading and protect the concrete structure. This approach was designed to mitigate the risk of thermal movement from fluctuating temperatures at structural deck level, which can cause cracking and compromise the integrity of water-retaining structures.

The system featured the BBA certified Triflex ProTect cold liquid-applied waterproofing membrane, with an expected service life in excess of 25 years. A geotextile separation and filtration layer was installed above the waterproofing membrane, followed by 50mm of extruded polystyrene (XPS) insulation to improve thermal performance. A water-flow reducing layer was then added, with a ballast layer placed on top to secure the insulation and provide additional protection. Before the geotextile membrane and the remainder of the build-up was installed, an electronic leak detection test was carried out on the fully reinforced Triflex ProTect. This non-invasive testing method provided assurance that the waterproofing layer was fully intact and free from defects. By identifying any potential breaches at this early stage, the works were able to proceed with confidence, knowing the integrity of the waterproofing system had been verified prior to the installation of insulation and ballast.

To ensure the ballast was restrained at the perimeter of the roof, a handrail and metal toe board construction was installed. This was done prior to installation of the separation layer, XPS insulation, water-flow reducing layer and ballast overburden, offering both structural containment and edge protection. The Triflex ProTect system was also installed on the vertical downstands of the reservoir roof, ensuring seamless waterproofing continuity between horizontal and vertical surfaces.



Performance and sustainability benefits

Fully reinforced, the Triflex ProTect system offers outstanding waterproofing protection with exceptional crack bridging capability. Both Triflex ProTect and Triflex ProDetail (used for detailing such as the perimeter downstand and access hatches) are certified to BS EN 1504-2 B4.2 (-20°C) dynamic crack bridging, under BS EN 1062-7 Method B, the highest classification. This allows the waterproofing membrane to accommodate movement in the substrate without compromising the waterproofing protection. This is particularly important for large concrete structures exposed to varying environmental conditions.

The improved thermal performance of the inverted roof build-up helps to stabilise the temperature of the concrete slab, reducing the risk of thermal-induced cracking and extending the lifespan of the structure. The system is also highly resistant to hydrolysis, making it ideal for long-term exposure to moisture and ensuring durability in demanding environments. In line with the client's sustainability goals, materials were delivered in Intermediate Bulk Containers (IBCs), significantly reducing packaging waste and supporting more efficient site logistics.

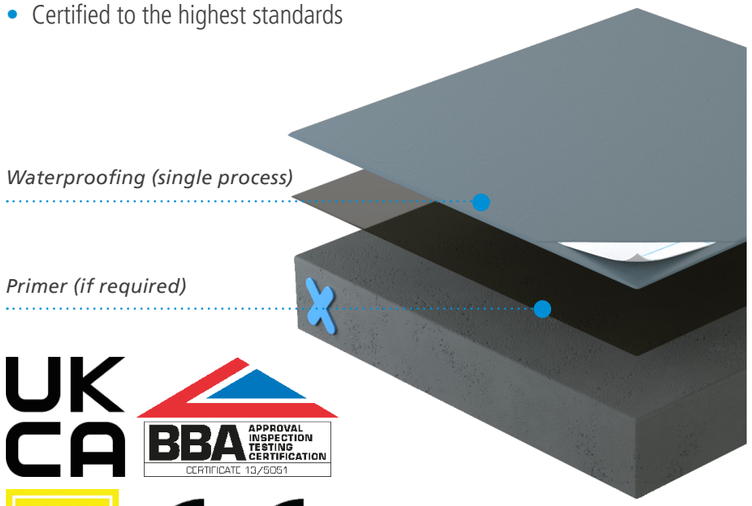
Proven confidence

The same Triflex solution had already been successfully installed on a nearby clean water service reservoir by CRL. Their proven track record and familiarity with the system gave the client added confidence in the approach. For the new reservoir project, CRL once again delivered the installation to an exceptional standard, ensuring full compliance with the specification and maintaining a high level of workmanship throughout. Their expertise, combined with Triflex's technical support and on-site testing, resulted in a high-quality, long-lasting solution that will protect this vital infrastructure for years to come.

System benefits

Triflex ProTect®

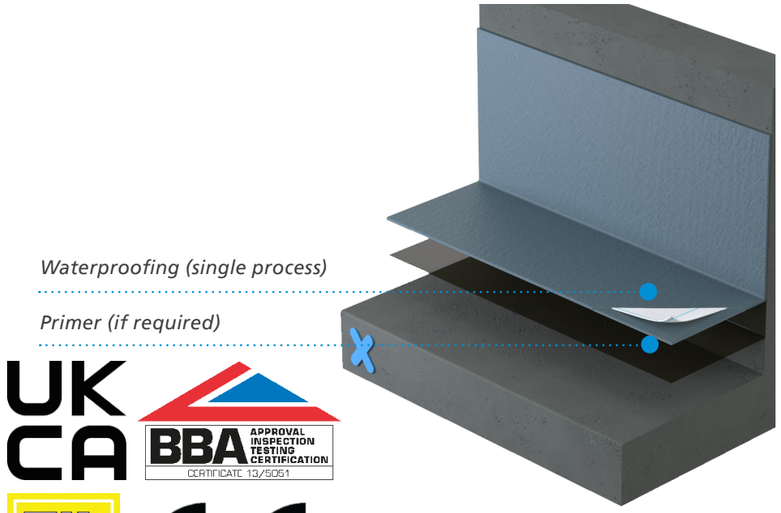
- Totally cold applied, with no risk from hot works
- Compatible with virtually all roof substrates
- Suitable for all roof build-ups and applications
- Exceptionally rapid curing / rainproof times, even at low temperatures
- Dynamic crack bridging, fully reinforced waterproofing ensures that high levels of movement and cracking can be accommodated
- Suitable for zero pitch, completely flat and pitched roofs
- Simple, single process waterproofing application, rapidly installed
- Hydrolysis (standing and ponding water) resistant
- Designed for foot traffic and provides exceptional puncture resistance
- Certified to the highest standards



System benefits

Triflex ProDetail®

- Waterproof down to the smallest detail
- Totally cold applied, with no risk from hot works
- Compatible with virtually all roof substrates
- Exceptionally rapid curing / rainproof times, even at low temperatures
- Fully reinforced waterproofing technology
- Simple, single process waterproofing application, rapidly installed
- Certified to the highest standards



Triflex

Delivering solutions together.

Triflex is the leading European specialist in cold liquid applied waterproofing, surfacing and marking resins. Our high-quality systems provide reliable and lasting waterproofing, surfacing, protection and markings for roofs, walkways, balconies, terraces, car parks, roads and infrastructure, including the water industry

We are a family owned and operated company that provides tailored solutions worldwide. From our production facilities based in Minden, Germany, we have been researching and developing solutions designed to protect and repair the built environment for more than 40 years.

From our UK and Ireland headquarters based in Stone, Staffordshire we pride ourselves on providing our clients with tailored solutions and exceptional levels of service and support throughout all stages of their project. From conducting in-depth site surveys to our comprehensive testing and off-site and on-site support, Triflex delivers the highest standards.

Triflex solutions are certified to the highest standards, ensuring peace of mind for years to come.

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