



SIKA AT WORK

BONESTONE BRIDGE, EAST AYRSHIRE, SCOTLAND

REFURBISHMENT: Sika® Carbodur® and Sika® Galvashield Fusion

BUILDING TRUST



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SIKA CONCRETE REPAIR SYSTEM RESTORES STRUCTURAL INTEGRITY OF ESSENTIAL WINDFARM TRANSPORT LINK.

Sika supplied the carbon fibre reinforced polymer (CFRP) plate system to enhance the load carrying capacity of a bridge to ensure its suitability to transport exceptionally heavy materials being used to construct a nearby wind farm. Additionally, Sika provided a corrosion management system in order to extend the structure's lifespan.

Bonestone Bridge is a vital link for traffic destined for South Kyle, Scotland's newest onshore windfarm. Based in Dalemellington, East Ayrshire, the site will contain 50 wind turbines and associated infrastructure, bringing power to 170,000 homes and a further boost to the country's net-zero ambitions.



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Before preparatory work started on the £67million project, a refurbishment of Bonestone Bridge was necessary to make it suitable for the safe crossing of turbine-carrying vehicles to access the windfarm site. It led to it becoming the first project in Europe to combine the benefits of Sika's Galvashield Fusion anode system and its Carbodur® structural strengthening solution.

Bonestone Bridge's refurbishment was carried out by contractor Concrete Repairs Ltd over a 600m² area of the structure. The Sika Galvashield Fusion anodes system was used to protect and prolong the structural repairs. Hailed as a 'next generation' solution, Galvashield Fusion combines the power of impressed current cathodic protection with the maintenance-free performance of galvanic anodes. For its application, the anodes were inserted into holes drilled into Bonestone Bridge's concrete surface. In situ, they provide cathodic protection to the corroding reinforced steel, thus preventing further damage to the surrounding concrete.

Simple to apply – which bearing in mind the bridge's exposed location, helped installers overcome their greatest challenge – the anodes protect actively corroding steel for up to 30 years. This cost-effective benefit negates the need for future maintenance, whilst the system's environmental credence is proven due to it minimising the prolonged use of emission-heavy machinery.

Sika's Carbodur® system, which comprises carbon fibre reinforced polymer (CFRP) plates, provided the bridge's structural strengthening in order to increase its load capacity. Installed at spaced intervals to the underside of the structure, the plates support its ability to withstand the long-term stresses caused by passing traffic. Their other benefits include minimising deflection and crack width, and improving resistance to structural wear and tear. As with the Sika Galvashield Fusion anode system, Carbodur® CFRP plates are simple to install, resulting in a time and cost-effective installation which eliminates the need for future maintenance visits.

The Bonestone Bridge refurbishment was completed in December 2020 in line with the client's agreed two-month timeframe. By safeguarding a precious passage to Scotland's latest onshore renewable energy site, the dual benefits of Sika's total corrosion management system, and its Carbodur® structural strengthening solution, proved ideal for the sustainable, long-term renewal of ageing concrete infrastructure.

For further information call 0800 112 3863.