Case Study

Whiteadder Bridge

Whiteadder Bridge carries the B6461 over a tributary flowing into the River Tweed. The bridge deck joints had been leaking for some time depositing chloride contaminated rain water onto the large piers and abutments supporting the structure.

Location
Berwick, UK

Client
Northumberland County Council

Completed
April 2007

Structure
Single Carriageway Bridge Over Estuary

The Problem Identified

Substantial areas of spalling/loose concrete were visible along with salt deposits in certain areas. In addition to the main substructure, specific areas of the underside of the bridge deck had had been contaminated with significant levels of chloride salts.

The Solution Developed

CPT designed a DuoGuard™ 500 hybrid anode system to halt ongoing corrosion and prevent further damage to the contaminated piers and abutments. Using an external power source, an impressed current was applied to stop active corrosion and render the steel passive. The anodes were then disconnected from the power source to self-generate a galvanic current, sufficient to maintain steel passivity and control corrosion.

CPT also supplied a bespoke monitoring system, allowing the performance of the corrosion control system to be checked and supervised.

The Benefits Provided

Corrosion related deterioration of Whiteadder Bridge has been halted. After the initial power up period using an external power source the DuoGuard system is self-powered thus minimising future maintenance requirements and associated life costs.

With the use of a solar panel and modem communication, data from the DuoGuard installation can be downloaded at any time and measurements can be instigated without the need to travel to site.

Visible spalling and loose concrete

Finished pier 10 years after installation

CPT Products Used

DuoGuard™ 500

MN15 Reference Electrode

DuoCrete SD Mortar

Remote Monitoring System

ISO 9001
Cert No. 10159

Concrete Preservation Technologies

1 Palmer Business Court, Manor House Road, Nottingham, UK, NG10 1LZ
+44 (0) 115 9724 238 | general@cp-tech.co.uk | cp-tech.co.uk