Case Study

Rotherham Interchange MSCP

Rotherham Interchange, including the MSCP above, was constructed in the late 1960s. The interchange is the main hub for bus services in the Rotherham area. The car park provides 638 spaces over eight split levels. The car park decks are constructed of pre-stressed T beams with an in-situ topping.

Location
Rotherham, UK

Completed
March 2019

Client
South Yorkshire Passenger Transport Executive

Structure
Multi Storey Car Park

The Problem Identified

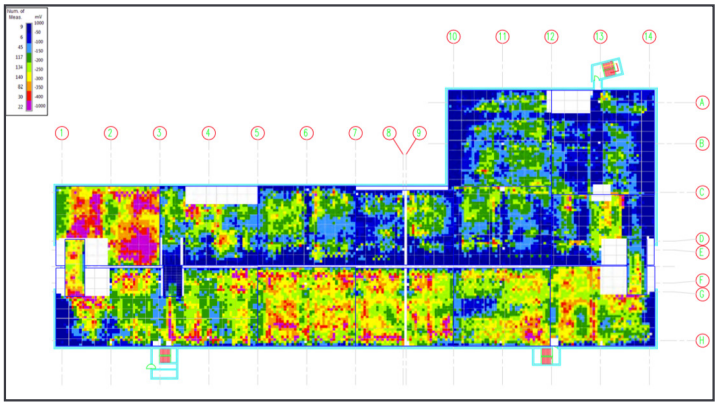
The concrete elements in the structure were experiencing significant levels of corrosion induced degradation. Extensive spalling had occurred to the decks, largely associated with cracks in the in-situ topping along day joints where water, contaminated with de-icing salts, had permeated the slabs and initiated reinforcement corrosion.

The Solution Developed

A comprehensive survey was undertaken by CPT using half-cell potential mapping to identify areas requiring corrosion protection and a design was prepared to provide a 15-year corrosion control design life.

PatchGuard galvanic anodes were installed into drilled holes around the perimeter of concrete patch repairs at 400mm centres so that the anodes are located in the host concrete and not the patch repair material, enhancing the delivery of protective current to the steel at most risk of corrosion.

In addition, PatchGuard Connect Galvanic Anodes were installed in a 450mm grid configuration to areas of sound concrete identified as being at significant risk of corrosion. Whilst standard PatchGuard anodes are individually connected to the reinforcement, PatchGuard Connect anodes are wired together in series. Both types of anode sacrificially corrode and generate cathodic reactions on the reinforcing steel which prevent corrosion initiation. Corrosion of the anode is non-expansive and does not negatively impact the structure.



Half-cell potential mapping

Breakout of the car park decks

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

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Rotherham Interchange MSCP, Rotherham, UK

The Benefits Provided

The PatchGuard/PatchGuard Connect system is maintenance free and offers long term corrosion protection to the reinforcing steel. The installed system will counter on-going corrosion and prevent concrete delamination. This is critical as a new deck waterproofing system has been installed and any spalling would cause premature failure of the system along with comprising the structural integrity of the decks.

Installation of anodes

CPT Products Used

PatchGuard™

PatchGuard Connect

DuoCrete PG Mortar

Certificate Number 10159
ISO 9001, ISO 14001

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