

Concrete Repairs and Waterproofing of Car Park

Grovelands Shopping Centre Car Park, Oxfordshire

Client

The Mid Counties Co-operative Ltd

Principal Contractor

Freyssinet Limited

Designer

Pennycuik Collins

Works Commenced

March 2018

Works Completed

June 2018

Damage to concrete was observed on the underside of a suspended car park roof slab at Grovelands Shopping Centre, Wantage in Oxfordshire.

The car park was built without any waterproofing membrane (Macadam had been applied straight onto the concrete deck). Cracks and defects had appeared on the structure, including exposed reinforcement and corrosion.

Freyssinet was instructed to undertake concrete repairs and waterproofing of the car park. The works were also to include the residential walkway and terraces that serve 31-41 Saville Way.

The scope of works included:

- Site set up
- Jet washing cleaning
- Concrete surface preparation
- Cathodic protection installation
- Concrete repairs
- Anti-carbonation paint
- Deck surface preparation (planning)
- Waterproofing of the deck (Triflex System)
- Walkways surface preparation (Pavement removal)
- Waterproofing of the walkways (Triflex system)

The Macadam was removed and defective concrete was repaired before the waterproofing works began. Waterproofing is a weather-dependent operation, and as such it took two weeks to complete around 1000 m² of waterproofing due to inclement conditions.

During the repair works, it was discovered that the cavity walls of the structure were built with minimal ties connecting the brickwork to the concrete walls. As a result, the brick wall had moved, causing cracks and defects on the coping stones.

The client, Pennycuik Collins, asked Freyssinet to fix the damage. Freyssinet's solution was to remove the defected coping stones and add ties on to the wall directly through the brickwork using the Twistfix system. Approximately 200 additional ties were inserted over a period of two days, successfully solving the problem and reassuring the client of the safety of the wall.

