

## Fife Avenue Bridge Remediation



<b>Client</b>	City of Mitcham
<b>Location</b>	Adelaide, SA
<b>Value</b>	\$0.1 million
<b>Duration</b>	July 2019

### Project Overview

Fife Street Bridge is a road bridge in the Adelaide suburb of Torrens Park that crosses Brownhill Creek. The bridge was first constructed in 1936 and had suffered severe deterioration over time. Design consultants WGA acting on behalf of the City of Mitcham council had recently assessed the bridge and determined it required urgent concrete remediation works to prolong its structural design life.

Large areas of the bridge were experiencing spalling, a condition where water gets into the concrete and causes it peel, pop out and flake. This also causes oxidation of the reinforcement which over time had become exposed in some areas. The deterioration had significantly reduced the load carrying capacity of the bridge.

As the bridge was over a creek, environmental considerations were critical for the project, and the repair methodology had to ensure that there were no impacts on the health of the waterway during the works. The City of Mitcham engaged Ballestrin Construction Services to complete the remediation works, based in part on their methodology to achieve zero environmental impacts.

## Scope of Work

The Fife Avenue Bridge remediation works were conducted in accordance with the recommended patching specification supplied by WGA and the Council's assessment report.

After the concrete areas to be remediated were identified and marked out, the area around the damaged concrete was cut with an air cutter to ensure good bonding of the repair mortar. The area of spalling concrete was then removed to a depth of 10mm behind the existing reinforcement and the surface was 'scabbled' to provide a good adhesive surface. This area was then thoroughly cleaned of laitance and corrosion of the steel. Any reinforcement that had significantly deteriorated was removed and replaced.

The substrate and reinforcement were then primed to prevent further oxidation and repair mortar was applied in layers to build up the surface. After the mortar had cured for 72 hours a waterproof coating was applied to the repaired surface and a 200mm area around the repair works to ensure that the remediated concrete was protected from future water ingress.

Workforce peaked at six and the works were completed within the short delivery time frame. Affected residents received letter drops in advance of the works. There were nil complaints received for the duration of the works.

## Safety Performance

As works were undertaken in the winter months – there was no time to wait for the dry summer season to complete the works due to the state of the deterioration – therefore the weather was closely monitored at all times during the works. The main risk was sudden flooding. For the majority of the works the water level was around 100-150mm, but if the water level began to rise works were stopped until the levels again subsided.

The other major risk to the project was road traffic passing over the bridge. City of Mitcham had already implemented axle load limits on the bridge and a temporary speed restriction was put in place for the duration of the works. Propping was also provided to the underside of the bridge to ensure a safe working environment.

Safe work method statements and detailed project work health and safety and environmental plans were developed for the project and approved by the client before any works commenced. Detailed attention to both public and workforce safety ensured all works were completed without incident. At completion of the works, the speed restrictions were removed.

## Environmental Performance

As the site was in an active creek a number of controls were put in place to protect the native environment.

Before works commenced silt fences were established both upstream and downstream to protect the site from any debris entering the work zone from upstream and to catch any laitance and debris produced by the works. Geofabric was placed on the base of the creek to collect any falling debris to stop them getting caught in the creek bed.

At the conclusion of the works a vac truck removed all debris caught in the silt fences and the geofabric. This left the

site as pristine as when works commenced with nil adverse environmental impacts.

