

Church Road Bridge



Overview

Bridge deck replacement using glass- and carbon-fibre reinforced polymer pultrusions.

Details

Location	Frampton Cotterell, South Gloucestershire.
Description	Deck replacement using GFRP and CFRP pultrusions.
Client	South Gloucestershire Council.
Date of project	2014.
Where FRP composites are used and why	<p>Church Bridge spans a local river which dissects the community of Frampton Cotterell. No short diversions were possible hence one of the key objectives of this deck replacement was to minimise disruption and reduce impact on local residents.</p> <p>The ability to fabricate this structure off site was a key advantage which reduced programme and the lightweight nature of the structure aided installation. Within 48hrs vehicles were using the bridge!</p>
Specific design details	Bridge span = 8.5m Width 12.5m
Type of composite used	Main Deck - Fiberline Composites FBD600 Asset Sections in combination with Square GFRP Pultrusion and CFRP pultrusion (plate). Materials - GRP – E-glass fibre and isophthalic polyester resin & Carbon fibre pultruded plates in epoxy resin.
Performance in service	The structure has numerous embedded sensors. In collaboration with Dr Wendel Sebastian at the University of Bristol, the bridge was recently load tested and the data is being interpreted to inform future designs.
Project partners	Contractor – South Gloucestershire StreetCare Lead Designer – Atkins FRP Fabricator – CTS Bridges (sub-consultant Jacobs) FRP Manufacturer – Fiberline Composites
Client quote	<p><i>“This is a complex and innovative project and the council’s StreetCare team and the manufacturers, using the NCC’s specialised facilities, have been working hard to make sure that it’s delivered on time and within budget. When we came to look at options for replacing the redundant road bridge on Church Road we knew that one of the priorities for local people was to minimise the amount of the time that the road had to be closed. That’s one of the reasons why we chose this advanced technology, because by manufacturing the bridge off site we have been able to speed up the whole installation process. We will also benefit in the long term from the materials used in the new bridge which are more resistant to decay and corrosion than other materials and will require less maintenance, delivering excellent value for money”</i></p> <p>Councillor Brian Allinson, Chair of the council’s Planning, Transportation and Strategic Environment Committee</p>

Contact