

River Chor Aqueduct



Overview

A fibre-reinforced polymer composite aqueduct replacement for a cast iron structure over the railway in Chorley, Lancashire.

Details

Location	Chorley, Lancashire, UK
Description	Replacement of an existing cast iron aqueduct over the railway with a new FRP aqueduct. Infilling arch side spans with lightweight concrete and masonry cladding.
Client	Network Rail
Date of project	August 2014
Where FRP composites are used and why	FRP was used mainly due to its light weight, low maintenance and ease of installation in a difficult access location. On this project the initial cost and the whole life cost of the FRP solution were the most favourable of all of the materials considered.
Specific design details	The aqueduct is 38m long, 2m wide and 1.3m high with a clear span over railway of 10m with a design life of 120 years. The aqueduct was fabricated and installed in 3 sections and vacuum resin infused together on site to form one structure.
Type of composite used	The aqueduct was fabricated by vacuum resin infusion using Ashland Derakane Momentum epoxy vinyl ester resin and Maxguard Gel Coat with structural foam core and glass fibre reinforcement.
Performance in service	The aqueduct is 38m long, 2m wide and 1.3m high with a clear span over railway of 10m with a design life of 120 years. The aqueduct was fabricated and installed in 3 sections and vacuum resin infused together on site to form one structure.
Project partners	Principal Contractor - J Murphy and Sons Limited FRP Designer and Fabricator - Delft Infra Composites Lead Design Partner - Jacobs Independent Design Checker - Optima Projects

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