Press Information

METALOCK REPAIRS PROVIDE SAFE PARAPETS FOR LISTED RAIL BRIDGE AT CODSALL

Broken cast iron lips that hold parapet panels in place on a Grade II listed railway bridge at Codsall in South Staffordshire have been repaired by Metalock Engineering using its Metalocking cast iron repair technology. Dating back to 1848, the bridge carries the former Didcot to Chester line and also forms part of the platform spanning Station Road at Codsall.

The parapets comprise cast iron uprights at 2 metre centres that extend down into the back of the platform and have bolt connections to the cast iron parapet beams. Between the uprights are 1.8 metre wide cast iron panels which slot between the lips down the edges of the uprights. Capping pieces are bolted to the tops of the uprights.

A parapet inspection in 2001 revealed that some of the cast iron lips retaining the parapet panels were breaking away due to age and possibly vibration – the track is rated for 70mph. Clamping plates were put in place to retain the cast iron lips as a temporary expedient. The scheme was project managed by Birse Rail who engaged Jilland Engineering to carry out waterproofing, grit blasting, ironwork repairs and painting. Having had previous experience of the Metalocking technique, Jilland contacted Metalock Engineering who, following its own survey, put forward proposals for repair of nearly 2 metres of cracks and breaks. Parts of the lips on all ten uprights needed repair as did three fractured parapet copings.

The coping fractures were hand dressed and clamped to prevent movement prior to being metalocked back together. The upstand lips were not as simple, as these required specially designed 10mm thick steel inserts to replace the broken areas. Damaged sections were hand dressed to a uniform shape to accept rectangular inserts ranging in length from 250mm to 700mm long with tails on one long edge to assist in location.

The Metalock process is accepted as a method of repairing cracked and broken castings across a wide range of industries. One of the main advantages of the process is that it is heat free and can be carried out in-situ or one of the company's workshops. Apertures are jig drilled across the crack to accept multi-dumbell shaped keys manufactured from a ductile high tensile nickel alloy. The keys are peened into the apertures to become integral with the parent metal. Holes are then drilled and tapped along the line of the fracture and filled with studs, each one positioned to overlap its neighbour. This combination of keys and studs produces a rigid and pressure tight repair and final peening and hand dressing completes the operation. Once the repair has been dressed, a primer applied and finish painted it is practically undetectable.

On completion of this successful repair the bridge was repainted and as the Metalock stitching technique provides a long term solution to cracked and broken cast iron elements, the Codsall Bridge will continue to carry trains and protect passengers on the platforms with safe parapets for many years to come.

Metalock Engineering provided the answer to the broken cast iron retaining lips by stitching in specially designed 10mm thick steel inserts following dressing to a uniform shape.

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