



LINCOLN EASTERN BYPASS LEB RAILWAY BRIDGE



CLIENT

Lincolnshire County Council/Network Rail

LOCATION

Lincoln

MAIN CONTRACTOR

Bam Nuttall

COMPLETED

October 2017

TONNAGE

620



clevelandbridge.com



The project was part of the new Lincoln Eastern Bypass, a 7.5km new road designed to improve infrastructure, minimise congestion and encourage economic growth for the city. Cleveland Bridge were engaged early to ensure the optimum solution was developed.

Project scope

Cleveland Bridge was chosen by Bam Nuttall to fabricate and trial assemble a critical rail bridge for their end clients, Lincolnshire County Council and Network Rail. They were chosen ahead of competition based upon a broad range of criteria including their approach to collaborative working, past performance and cutting edge product quality.

The scope of work comprised replacing an existing rail bridge with a new one, having a longer span to carry the rail line over the new dual carriageway. The new bypass was under construction simultaneously, so involved collaborating closely with all partners to ensure we met BAM Nuttall's Beyond Zero objectives.



Solution

Having worked previously with Bam Nuttall on several successful projects, Cleveland Bridge supplied a fabrication and assembly package, which involved our engineering, project management and site services departments. The structural steelwork provided was weathering grade steel, all to comply with BS EN 1090-2 for execution class EXC3. The bridge had a total span of over 44m and was 9m wide, the total weight was over 620 tonnes.

All bolts used were TCB weathering grade to improve the finished aesthetic of the bridge.

As with all of our work, the health and safety of our staff and subcontractors is paramount and all our processes are designed to remove hazards where possible and practicable, reducing residual risks. We also worked tirelessly to ensure we reduced the amount of waste produced and kept all logistics movements to a minimum.

Outcomes

In our substantial operational facility we were able to offer the client trial assembly, in order that we could check connections, alignment and fit, reducing the amount of time spent on site and remedial work. This increased cost effectiveness, and ensured a high quality project outcome.

Additionally as part of the requirement to significantly reduce site time, our scope included both the waterproofing and concrete works at our facility. This had a positive effect on the schedules and was very well received by the client.

Bridge girders were welded to form 40m (100Te) lengths, which were then delivered to site as one piece.

This created complicated planning for transportation, as it necessitated road closures and the required police access permissions. However, this method improved installation speed and accuracy, whilst reducing the requirement for on-site services and works such as welding. Decking was laid diagonally, to address the complexities of the camber.

The scope also included designing and supplying temporary bracing for supporting the steelwork during site assembly. Our design worked in conjunction with the precast concrete blocks supplied by our client.

