



Cleethorpes Road Overbridge Structural Strengthening and Refurbishment

 **VolkerLaser**



Utilising industry-leading innovative solutions, VolkerLaser provided vital refurbishment to this fundamental transport link, which sees over 20,000 vehicles pass over the structure every day.

Client	North East Lincolnshire Council / Cofely
Value	£1.7 million
Duration	September 2014 to June 2015

Services included	
Concrete repairs	Drainage works
Joint replacement	Bearing Replacement
Resurfacing	

Opening in 1968, Cleethorpes Road Overbridge is comprised of 17 twin concrete spans supported on concrete piers. During an initial inspection undertaken, considerable decay and dilapidation to the bridge was discovered, particularly to its elastomeric bridge bearings. In their current condition the bearings were constraining the movement of the bridge; it was therefore deemed necessary for a refurbishment to be undertaken in order to expand the lifespan of the structure and prevent expensive ongoing maintenance issues.

Situated on the busy A180 over the main Grimsby to Cleethorpes railway line, the bridge is a valuable infrastructure asset to local communities and businesses; providing essential access to the seaside town of Cleethorpes and the Grimsby Docks.

To ensure that the bridge remained open for the entirety of works, carefully planned contra flow traffic management arrangements were implemented on evenings; ensuring disruption to local residents and businesses was kept to an absolute minimum.

Traditionally when replacing bearings, extensive temporary works are required in order to enable the bridge deck to be lifted off the existing piers and abutments. However, when replacing the 512 no. bearings of Cleethorpes Road Overbridge, the geometrical arrangement of the tapered piers meant that the foundations were not directly beneath the bridge beams, so additional jacking foundations needed to be constructed. Excavating to do this and exposing the existing foundations to form a tie-in arrangement would have ran the risk of encountering unforeseen ground conditions and possibly require significant service diversions, all of which would have potentially been very expensive.

An alternative solution which allowed for the submission of a competitive tender, VolkerLaser had the innovative idea of constructing reinforced concrete corbels stitched to the existing piers from which to jack the bridge. A specialist temporary works designer was appointed in order to develop this idea into a robust scheme. The corbels were designed to provide support to the jacking system to lift the deck during the bearing replacement operation, thus eliminating the need for any works at ground level.

Through close liaison between our site team and the temporary works designer, VolkerLaser were able to find practical efficiencies by virtue of the repetitive nature of the innovative scheme in order to make further significant time and cost savings. Awarded on a target cost basis (NEC3, Option C), these additional cost savings benefitted both VolkerLaser and the client through the mechanism of the pain and gain share included within the contract. The client was able to divert these cost savings to provide further enhancement works to the structure, whilst still remaining below their original budget for the scheme.

Shortlisted for the IHE Team of the Year award at the Highways Magazine Excellence Awards, teamwork was essential on the project; collaborating with engineering consultants Cass Hayward, North East Lincolnshire's appointed consultants; Cofely GDF Suez and Parsons Brinckerhoff. Carrying traffic over the railway line, early dialogue with Network Rail in the early stages of the contract also ensured they were happy with working methods.

The project showcased VolkerLaser's structural capabilities, utilising in-house skills to deal with the corrosion of steel and repair through cathodic protection, carbon fibre wrapping as well as structural repair and brick stitching techniques. Continual communication and problem solving between designers, contractors, client and consultants ensured the contract's delivery within budget and time constraints.

