

Nene Bridge, Peterborough

Purpose-built formwork for unique pier reconstruction

Key Benefits:

Custom-made cleats realised
unique shape of piers

3D technology accelerated
the design process

Cleats were prefabricated
in smaller segments to
enable manual handling

"I involved PERI very early in the planning of this scheme. PERI offered a complete design service and from their previous experience proposed the CNC cleat boxes to form the complex shapes required. PERI have provided technical representation at meetings and have been very supportive in getting this scheme to fruition. The ability to take the scheme designer's 3D models and incorporate this into the formwork design has been invaluable in delivering the piers to the shape and function required. The drawings and instructions provided by PERI have made construction by the team on site swift and to a high standard."

Contracts Director, Bell Formwork
MARK BRISTOW

The project at a glance

Reconstructing a concrete bridge can prove more challenging than building one from start to finish. At Nene Bridge in Peterborough, the bearings had reached the end of their serviceable life and needed to be replaced. In order to replace the bearings, all piers had to be restructured to create a larger surface area that would support the jacking device. As the bridge is a major traffic route that carries the A1139 Frank Perkins Parkway over the River Nene, construction work was carried out alongside live traffic flowing above.

The PERI logo consists of the word "PERI" in a bold, red, sans-serif font. To the left of the text is a yellow L-shaped graphic element that frames the top and left sides of the letters. A registered trademark symbol (®) is located at the top right of the word.

Customer: Bell Formwork

Main Contractor: Skanska

Developer: Peterborough City Council

Project type: Infrastructure, Bridges

Products and Services: VARIO freeform formwork, PERI UP, 3D planning



What did the customer need?

Retaining the character and Y-shaped geometry of the bridge piers was an important consideration for the scheme. The new concrete surface had to resemble the existing multifaceted geometry and architectural function of the piers.

What was the challenge?

Due to the low clearance under the bridge, cranes were unable to operate to their full capacity.

To add to the complexity, all shutters had to be installed from behind, as the concrete was poured against the existing structure of the piers, thus reducing visibility and access to the formwork face. This made it difficult to match all joints and ties correctly.

How did we help?

To facilitate the positioning of cleat boxes in the absence of a crane, we built a single cleat so that it weighed no more than 70 kg, making it suitable for operatives to lift and assemble each one in-situ by hand. A single cleat offered two uses; it was installed on one pier before being reused in the same position on an adjacent pier.

We achieved the intricate shape of the piers using VARIO freeform formwork. It was the only solution that offered the flexibility and the required strength to withstand concrete pressures of up to 67.5 kN per sq m, in addition to realising the architectural detail.

We worked alongside our team in Germany to manufacture bespoke cleats consisting of plywood intersections for extra support. Each pier was encased with 100 sq m of cleat boxes that accurately formed the desired shape. We faced cleat boxes with 18mm-thick ply to ensure that a good finish to specification was created on the exposed surface.

To increase visibility and control during installation, we detailed a ply strip between VARIO GT24 girders and cleat boxes, which would not have been possible using steel panel formwork. Additionally, our steel walers enabled operatives to make continuous adjustments in order to tighten or align panel connections as required.

Contact us by email
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