GULL WING BRIDGE – NAV-1

Location: Lowestoft, Suffolk, England

Sector: Infrastructure

08700 767676

www.sunbeltrentals.co.uk/case-studies

SUNBELT® RENTALS

GULL WING BRIDGE - NAV-1

The Gull Wing Bridge is an innovative piece of infrastructure located in Lowestoft, being delivered by Suffolk County Council and built by Farrans Construction.

The bridge over Lake Lothing will provide a much-needed third crossing point, helping to reduce traffic congestion in the town, regenerate the area and attract new investment.

Once fully complete, the Gull Wing Bridge will be one of the largest bascule bridge engineering projects in the UK and will be 342m in length.

THE CHALLENGE

The first steel section of the bridge needed to be moved into position. Known as the North Approach Viaduct (NAV-1), this comprised the first section of the bridge for the northern approach which sits above the Railway line which runs to Lowestoft station. Weighing almost 1,500 tonnes and 60m long, the section originally arrived on a barge following a 32-hour crossing from Ghent in Belgium.

Two 16 wheeled SPMTs (Self-Propelled Modular Transporters) were used to transport the steel section into position. To do this, a temporary Trakway platform was required to enable safe transportation across the ground. The operation had been in planning for two years.

THE SOLUTION:

Our heavy-duty aluminium LION panel system was used to provide a temporary access platform for two 16 axled SPMTs to safely travel over.

By utilising the central cross plating design of the LION panel, panel rows could be staggered to create the desired configuration. A total of 704 LION panels were installed during a four phased build schedule.

The first three phases were assembled in advance of the Railway possession. The Trakway was installed on top of a prepared base of compacted stone. Phase 4 involved a complex installation and recovery process carried out within the total 52-hour weekend Railway possession (line closure), whereby we had a specific timed window of four hours to install 210 Trakway panels, linking the North and South side from the centre area. As Phase 4 was over the Railway lines, we worked closely with other sub-contractors who had to protect the existing Rail infrastructure by creating a base for the Trakway to be laid over. This consisted of compacted ballast, then a layer of timber bog mats.

The layers were precisely built up to leave 52mm gap (depth of a LION Panel) to enable the Trakway to join the earlier installed phases seamlessly. As the SPMTs are sensitive to ground deviation, any change in level or slight gradient could have caused them to auto stop.

THE RESULT

This was a complex Trakway installation which was carried out successfully, in accordance with the strict deadlines. Our Project Supervisor oversaw all works and collaboratively joined forces with key stakeholders and contractors working on-site to ensure the tasks were completed safely and on time.

The first three installation phases were carried out during standard working hours in the two weeks leading up to the main bridge move. For phase 4 we provided a total of six crews and worked within the allocated time windows. In addition to the crews following the Drivers' Hours Directive, we were classed as working 'on track', so we also had to follow the working hour rules stipulated by Network Rail which meant a minimum 12 hour rest before commencement of work and a minimum break of 12 hours between shifts.

For the installation we used three of the six crews for the four hour installation window, whereby we installed 210 Trakway panels in the timed window of 5.40am to 9.40am. For the recovery, our minimum task was to recover the 210 panels installed earlier in the day, but we actually completed the full removal of all 704 Trakway panels within a six hour window. The site was clear by 20:30 on the same day, which ensured other contractors could complete their tasks and the client could hand back the Railway to Network Rail ahead of schedule, ensuring the Railway line could re-open.

What a pleasure it was to have your team on site for the weekend of our NAV-1 move.

First class professionalism and organisation, from making sure everyone arrived with the correct PPE and skills card, right through to leaving the site clean and tidy once finished.

Jonathan Woodward,
Site Supervisor, Farrans Construction

This was a complex project involving the transportation of a steel bridge section weighing 1,450 tonnes and 55m long. We worked alongside all key stakeholders over a 3-month period to ensure that the solution provided enabled the SPMTs to move the bridge safely and efficiently.

The complex aspect involved linking the centre area of Trakway (over the Railway line) to the North and South areas of Trakway which had been installed ahead of the Railway possession works. Precise measurements and marking out led to the Trakway being joined together to create one continuous access platform.

Our site team experts, led by our Project Supervisor, used all of their skills and experience to safely deliver the access solution ahead of the strict time frames given for the installation and recovery of Trakway. This demonstrated our approach to collaborative working and showed great teamwork by all involved.

We are proud to have been involved with this project and look forward to working on more in the future.

Will Armitage,
Business Development Manager - Trakway