



Ryde St Johns Road Station Footbridge

Frankham Consultancy Group were commissioned to carry out the design of the new main span footbridge at Ryde St Johns Road Station.

Client:
Octavius Infrastructure Ltd

Services:
Infrastructure Engineering

Start and End Dates:
January 2023 - July 2023

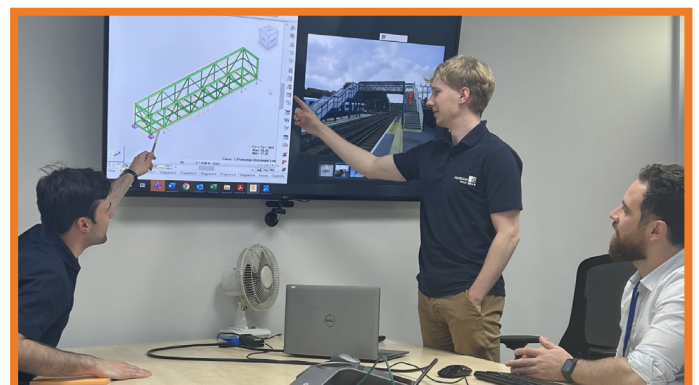
Overview

The in-house activities undertaken by Frankham for the project included:

- Structural inspection
- Topographical survey
- Detailed design and specification in accordance with Network Rail and Eurocode standards
- CAT2 check
- The preparation of Form A and B assurance forms, which included detailed design drawings, designer's risk assessment and in-house CRE(D) sign off

Innovation & Added Value

In addition to the traditional 2D or 3D CAD deliverables that we generally undertake as part of our measured survey services on projects, we also provided point cloud data in a viewable and interactive format as added value. In this instance, the point cloud data provided on this scheme was used as a valuable tool for making early decisions.



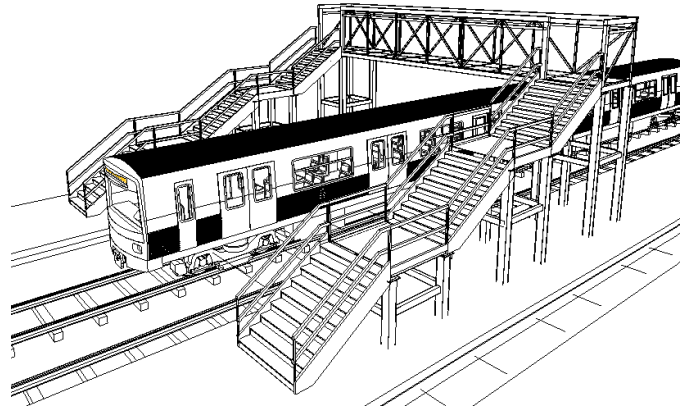
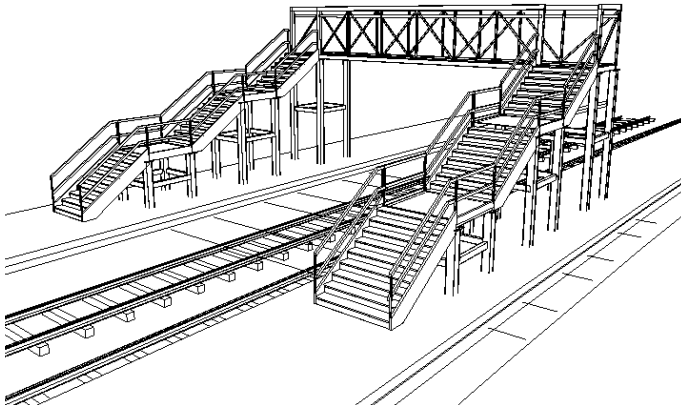
The viewable format allowed for virtual navigation of the worksite, allowing those who had not been on-site to get a close-up view and interaction of the complete structure as well as eliminating the need for further on-site visits.

Cont.

Innovation & Added Value *Cont.*

This is particularly beneficial in the rail industry, where access to the site may be restricted. The data was easily shared and viewed during virtual meetings with project teams, also enabling broad measurements and the creation of mark-ups in a collaborative environment.

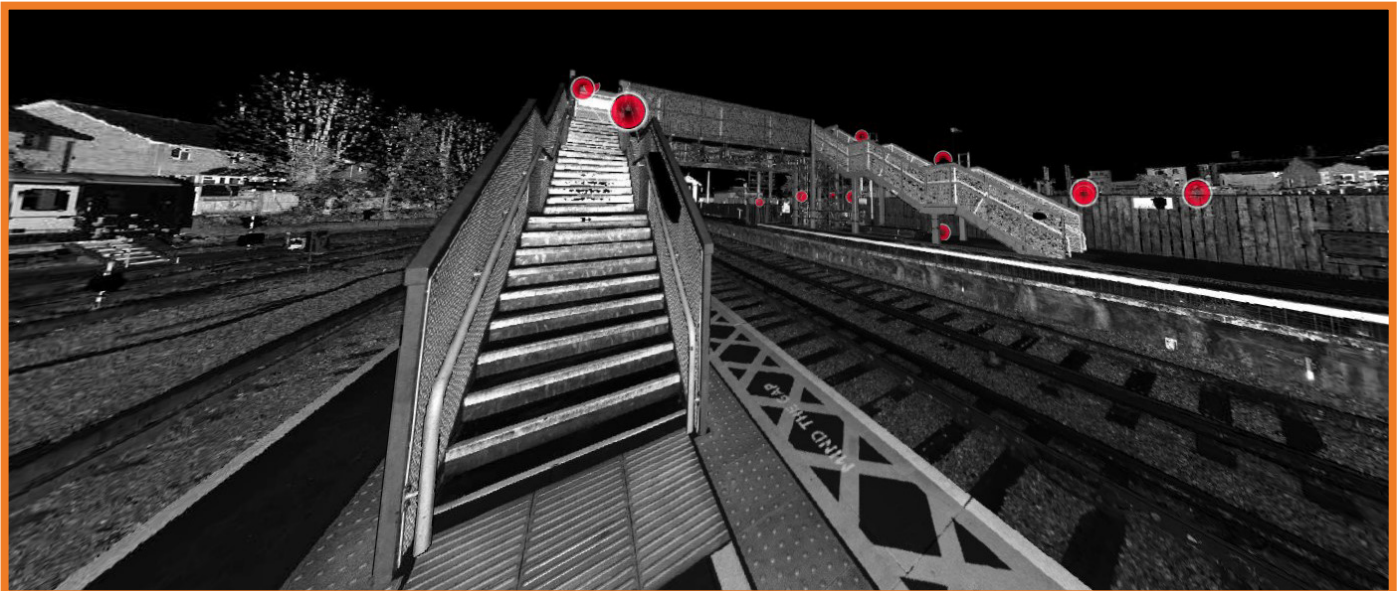
The design of the footbridge was refined and enhanced using a structural analysis programme - Autodesk Robot. Autodesk Robot was used to model the footbridge and apply the various combination of loads, to get an instant understanding of how different structural elements would perform under various conditions.



Sustainability

The redesign of the main span was integral to the footbridge's asset management strategy. By selectively replacing only the main span, we adhered to sustainable asset management principles, minimising material usage and waste. This targeted approach not only reduced the environmental impact of construction but also extended the bridge's lifespan by addressing specific issues,

thus delaying the necessity for complete replacement. Moreover, it proved to be cost-effective by concentrating resources on critical areas for improvement, in alignment with economic sustainability principles of asset management.



Challenges

One of the challenges faced was ensuring the footbridge main span realigned on installation with the existing trestle supports. By utilising the topographical survey and site measurements, we were able to accurately line up the new main span with existing bearing points.

Tolerance was provided through the design and use of slotted holes. These allowed for flexibility in the alignment during assembly, countering any minor discrepancies with the dimensions and any minor errors during fabrication.