Salfords Sidings

Client:
- Network Rail S&C South Alliance

WHAT'S THE STORY?

Following a successful trial of the new Vogel R3D high-accuracy drone survey system at Network Rail's Grange Sidings site in Stoke-on-Trent, Plowman Craven was commissioned to conduct a live survey job at Salfords Sidings in Surrey.

The purpose of the survey was to enable design work for S&C (Switches and Crossings) replacement at one of the busiest stretches of railway in the country. Located to the south of London, both the Thameslink and Gatwick Express 24-hour passenger services run through this 500m stretch, making access for traditional survey work extremely difficult.

The site included four tracks, sidings and four S&C.

AT A GLANCE:
- UAV survey for Network Rail
- No track access or possession needed
- Delivery of 3D point cloud and orthophoto
- Accurate to +/-5mm—NR Band 1 accuracy
- Surveys conducted, processed and delivered in 4 weeks

How did we do it?

A survey control network was created, with a survey grid related to the OS National Grid and Datum. Survey Control and UAV control was established in the cess (the bit at the side of the track).

Flying at a working height of 25m, our UAV team – comprising a pilot and a surveyor - then flew our Vogel R3D system over the live railway. The flight was conducted from a position of safety in a designated green zone with a site warden attendance. No track access or possession was required.

The Vogel R3D system consists of an industry-leading UAV platform and 100-megapixel camera that enables us to take hundreds of overlapping high-resolution images that can be used to create a wide range of image and data-based deliverables.

Two days were spent establishing the survey and UAV controls, with a further two days spent flying in order to capture the required imagery. With processing taking a further two weeks, the entire project took just four weeks to complete.
What did we deliver?

We provided Network Rail with a 3D Topographic Survey showing all permanent way features. We also delivered a range of enhanced deliverables including:

- **Orthophoto** – true-to-scale, high-resolution image with all distortions removed so that measurement can be taken and overlaid with CAD drawings
- **TruView Global** – similar to Google Street View, enabling users to take a virtual tour
- **3D point cloud** – for use in CAD packages by designers, enabling the production of BIM (Building Information Modelling) deliverables

The survey met Network Rail Band 1 accuracy requirements (+/- 5mm). Verified by independent check points and laser profiles of the rails.