

CASE STUDY



Respond | Report | Repair

Project: SUA station survey
Client: Network Rail LNW Route

Sector: Rail
Location: Wilmslow



THE CHALLENGE

UKDN Waterflow (LG) Ltd was commissioned by the works delivery co-ordinator to conduct an SUA (small unmanned aircraft) survey of Wilmslow Station, in Cheshire.

The SUA was flown above the station at heights above 20 metres to capture HD images and HD video of platforms 1, 2 and 3 roof canopies, adjoining buildings and designated walking routes into the station.

A scope of works document was created by Network Rail and sent through to the SUA Manager at UKDN Waterflow (LG).

THE SOLUTION

The UKDN Waterflow SUA flight team formulated a flight plan to capture the imagery and video. Full documentation was completed by the SUA manager and submitted to the Network Rail air operations team:

- Risk assessment
- Pre-site survey document
- Method statement
- Flight notification form

The SUA flight team included a controller of site safety (COSS) who was responsible for maintaining effective communication between station staff, line signallers and the flight team. The line signaller was updated during the flight and notified when the survey was completed. A robust recovery plan was in place in the unlikely event of the SUA failing.

“A key challenge was obtaining permission from Manchester Airport air traffic control as the station was within an SUA flight restriction zone. However, thanks to our precise planning, we were able to deconflict our flight to the satisfaction of air traffic controllers before attending.”

Dominic Turner | SUA Manager, UKDN Waterflow (LG)

THE CUSTOMER

UKDN Waterflow (LG) is a PCL (Principal Contractor Licence) contractor for Network Rail, the public body that owns and manages most of the rail network in England, Scotland and Wales. Network Rail directly manages 20,000 miles of track, 40,000 bridges and tunnels, and 19 of the UK's busiest railway stations.



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We are UKDN Waterflow (LG) Ltd

We are part of Lanes Group plc, the UK's largest independent supplier of specialist drainage and structure maintenance solutions.

We have two operational hubs, in Birmingham and Slough, Berkshire, and 10 depots delivering a national clean water and drainage maintenance and engineering service.



CASE STUDY CONT.

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IMPLEMENTATION

The project was completed within a single site shift. The SUA flight team, a UKDN Waterflow (LG) SUA operator and COSS, first walked the site. They carried out an on-site risk assessment and survey to identify potential flight hazards and obstructions.

British Transport Police and air traffic controller based at Manchester Airport were notified. A suitable and safe take-off and landing area for the SUA was identified. Pre-flight checklists were completed.

During the flight, more than 60 images were recorded during the flight which were downloaded to the SUA mobile command centre.

The flight team conducted a post flight de-brief then returned to UKDN Waterflow (LG)'s offices in Slough.

The SUA data was processed and analysed, A survey report and accompanying data was then sent digitally to Network Rail.

RESULTS

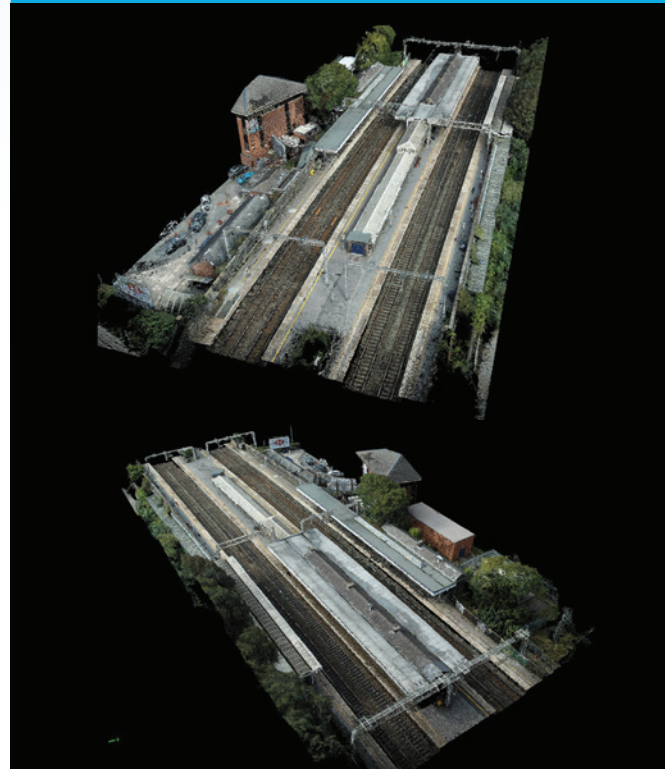
- Results
- The SUA survey was completed safely
- Survey report was sent promptly to Network Rail
- Passenger services and station operations were not affected

BENEFITS OF SUA SURVEYS

- Improved safety by reducing working at height
- Survey completed during live passenger service
- No disruption to passengers
- Data immediately available for analysis
- Survey completed in less time, reducing costs
- Improved data and photographic evidence

ALWAYS IN PLACE

- Public liability insurance
- Flight competency certificate for each SUA pilot
- CAA-certified permission for commercial flights
- Approved operations manuals and operations policies
- Experienced pilots: each maintains flight hours



Picture captions

Front page: Two images of the station recorded by the SUA. Image resolution is so good that engineers can see items as small as screw heads.

This page: Two point clouds created from the digital images recorded by the SUA. Other forms of data that can be created include 3D mesh and ortho-rectified images (see fact file panel below).









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SMALL UNMANNED VEHICLE (SUA) FACT FILE

	Data captured Still images HD video		Max flying height	120m
	Data processing creates <ul style="list-style-type: none">• Point clouds• Ortho-rectified images• Digital terrain models• Digital surface models• 3D mesh• 3D fly throughs		Max SUA flight from pilot	500m
			SUAs available for different tasks	4
			Productivity gain using an SUA	50%+

