Mapping a Busy Road and Railway Intersection



Company	SKANSKA
Country	UK
Job Type	Mapping an A14 highway junctio
Project Date	February 2017
Project Size	7 acres (170m x170m)
Drone	Falcon 8
Flight Altitude	75m (246ft) & 130m (426ft)
Accuracy	Better than 2cm (0.065ft)
DatuSurvey [™] Savings	1 field hour + 1 office day

As part of the UK's A14 improvement scheme, <u>Datumate</u> was required to map a busy A14 highway junction including a highway intersection and a railway line. Traditional total station usage posed harsh accessibility issues and safety hazards due to the busy highway and the passing trains. The complex mapping included multiple infrastructure layers (bridge, road and railway line) as well as an accurate snapshot of the surrounding buildings and mapping of existing cracks to avoid future damage claims during road reconstruction work.

(This case study is brought to you by Datumate)





The A14 highway junction

The A14 road and railway intersection.

Traditional total station usage poses harsh accessibility issues and safety hazards due to the busy highway and the passing trains. Traditional measurements also cause huge traffic blocks during the measurements process.

A Falcon 8 drone with a 36 megapixel Sony A7R camera was used for highresolution imaging. The aerial photography was then processed using <u>DatuSurvey</u> Enterprise photogrammetry software.

Data acquisition

A Falcon 8 drone was used for quick, precise and easy image capturing. A total of 142 images were taken – from various

heights.

First flight took images from the height of 80m for:

- Capturing and documenting more details
- Identifying smaller objectsMore precise and detailed 3D model

A14 road & railway intersection case study

Project facts.



- Covering a larger area
- Achieving a sub-2cm mapping accuracy •

A total of 142 images were taken using oblique angles.



Control point.

Four permanent ground control points were placed in the area, enabling area georeferencing capture at any given time, without a need for professional surveyor equipment.

DatuSurvey Enterprise outputs

The drone's imagery was analysed and processed using DatuSurvey Enterprise photogrammetry software to quickly generate a detailed CAD model of the area, textured 3D model and true orthophoto.



True orthophoto.

A point file, including names, codes, descriptions and coordinates of all new points, was generated. Overall, more than 450 new points were drafted directly on to the images.

The measurement accuracy of all the points was better than 2 cm (0.065ft) in 3D coordinates.



DatuSurvey Enterprise

Textured 3D model.

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DatuSurvey Enterprise savings

DatuSurveyTM Enterprise Savings.



Polygon map.

About Skanska

Skanska is one of the world's leading project development and construction groups. Skanska, a publicly traded company (Nasdaq Stockholm: SKA B), was established in 1887 with multiple companies in the Nordic region, Europe and North America.

Skanska UK, one of the UK's top contractors with more than 5,400 employees, maintains major roads and highways in a number of regions in the UK.

DatuSurvey Enterprise benefits

For more information on the benefits offered by DatuSurvey Enterprise click on the image below. Watch also the video of the challenging A14 road and railway intersection project.





https://www.gim-international.com/case-study/mapping-an-a14-road-and-railway-intersection