

# CASE STUDY

SEVERN VALLEY RAILWAY, 2018

## PROJECT SUMMARY

LandScope Engineering worked alongside Severn Valley Railway (SVR) to acquire mobile mapping data along a stretch of their 16-mile heritage railway line which runs from Bridgnorth to Kidderminster. In addition, LandScope acquired terrestrial scanning data of a viaduct where the track crosses the River Stour. Integrating mobile and static point clouds, coloured by the photography, presented the opportunity for SVR to utilise the exceptionally detailed 3D datasets for a variety of purposes including; site visualisation, asset inventory, rail inspection, condition assessment and 3D modelling.

## RESOURCES



### DATA ACQUISITION

Topcon IP-S3 Mobile Mapping System  
Trimble SX10 Scanning Total Station

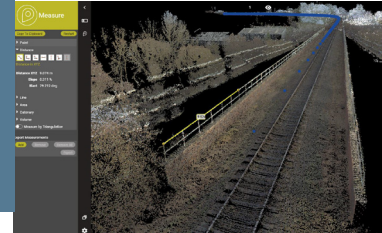


### SOFTWARE

Orbit 3DM Content Manager  
Orbit 3DM Cloud  
Autodesk Navisworks  
Topcon Magnet Collage



Rail Mounted Mobile Mapping



SVR Data in Orbit 3DM Cloud



## PROJECT PHASES

- 1 DATA ACQUISITION  
Rail mounted IP-S3 mobile mapping acquisition and Trimble SX10 campaign.
- 2 PROCESSING  
LiDAR and imagery post processing, registration and cleaning.
- 3 3DM CLOUD  
3D modelling, fly through video creation and data upload to online mapping platform - 3DM Cloud.
- 4 DELIVERY  
Presentation of data resources to Severn Valley Railway.

## THE DETAIL

Using a number of elements of LandScope's Infrastructure Asset Management service, autoMAP, we were able to:

- Configure and deploy the Topcon IP-S3 mobile mapping system for data acquisition on the rail thus enabling the collection of high-density LiDAR and 360° high resolution imagery covering the tracks, line side areas, embankments (up to a range of 100m) and tunnels.
- Complement the model with close-range high-density Trimble SX10 3D scan data and site imagery, scanning the underneath and the face of a viaduct in need of a condition assessment.
- Create a compelling model by matching the underside point cloud data to the top-side mobile mapping LiDAR. This enables full visualisation of the both the track and the viaduct in a measurement domain providing true context and capability to accurately map and measure any potential defects.
- Import data to Orbit 3D Mapping Cloud for easy access and visualisation across the SVR team.

The level of detail within the model and the capabilities of the data were fully demonstrated to SVR including how, in an extremely effective way, the 3D datasets and imagery provide the evidence required to feed into structured maintenance programmes.