

## MANCHESTER VICTORIA STATION SURVEY

- *using 3D Laser Scanning*



We were asked by Morgan Sindall to price for the survey and 3D model of a section of Manchester Victoria station including the roof and supporting structural elements which were going to be refurbished as part of a major programme of work.

The station was opened in 1844 and is a Grade 11 listed building. Originally built in block in Italianate manner, it is now 2 storeys (since 1909) and 7 bays wide, with square-headed doorways to left and right, arcaded windows to both floors of the centre and other windows with architraves and cornices.



We set out the control grid inside the station using an EDM and this was then transferred outside and tied into OS coordinates using GPS.

We utilised our Faro laser scanner to capture dimensional data for the interior walls and features and the Riegl scanner to capture the roof and structural elements that were too distant for the Faro to scan. It was important to capture all of the important architectural features to a high resolution as the pointcloud data would be used as a record in the event that these were damaged during the refurbishment.

Photograph of Manchester Victoria Station Concourse and image taken from the pointcloud data

Detailed notes and photographs were taken to assist in the production of the 3D model in AutoCAD

Once all the scanning was completed the individual scans were registered together to produce an overall pointcloud of the required area of the building referenced to OS coordinates.

From this overall pointcloud we produced a 3D model in **AutoCAD** and this was used as the starting point for the refurbishment of the building.

The Faro scanner is ideal for these applications as it captures 1,000,000 points per second and takes 5 minutes per scan. The Riegl was ideal for longer range scans up to 300m but has now been largely superseded by our new Leica P20 scanner.

