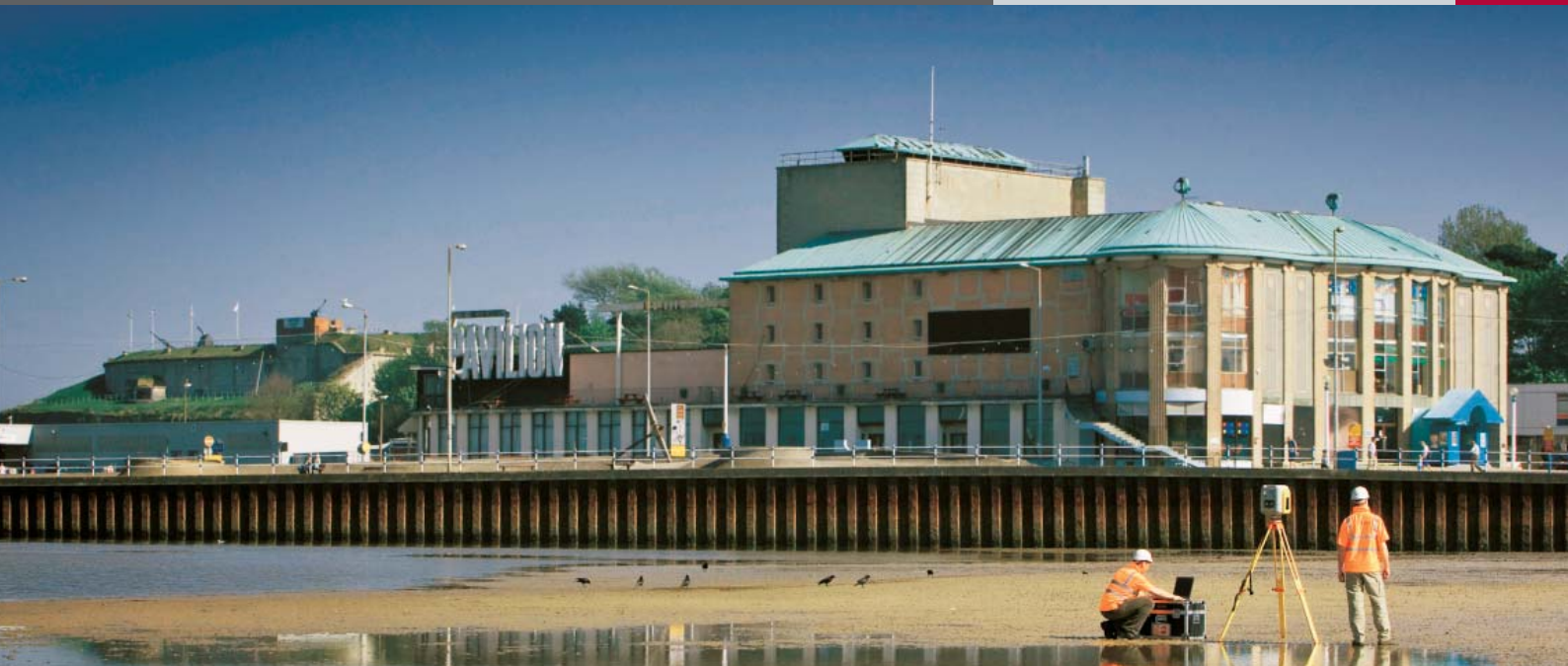


# Case Study

**Customer:**  
Team Surveys

**Project:**  
Scanning the Olympic Sailing Site

**Solution:**  
Trimble GX 3D Scanner & Trimble  
Realworks



## ‘Reality’ in the design office

Ideal for restoration and regeneration projects – have 3D laser scanners finally earned their place in the surveying portfolio?

Not so long ago, 3D laser scanning was regarded as a new technology unlikely to provide a return on investment for any company unless it regularly undertook specialist work such as complex detail surveys, for example, as-built surveys of oil rigs or chemical plants, or the recording of fine detail on historical buildings. However recent software and hardware advances in scanner technology mean that the benefits of 3D scanning can not only open up new business opportunities for survey companies, but also make them faster and more efficient in existing areas of work where they were previously using traditional survey instruments.

Trimble’s European Application Manager – Spatial Imaging, Alfredo Lorenzo, explains, “The Trimble GX is the most portable scanner on the market and our recent developments to the RealWorks Survey office software mean that workflows are no longer unfamiliar – now they replicate many total station techniques. These are

two major factors that mean surveyors are taking a fresh look at the advantages a 3D scanner can bring to their business on any job, from large-scale construction projects to complex as-built surveys.”

Alfredo continues, “3D scanning is particularly productive when it comes to projects involving regeneration of an area or the restoration of existing buildings. Today, most engineering and architecture companies use advanced software applications to design and simulate future buildings and assess their impact on the surrounding environment. These software packages are fully 3D capable and are very powerful. However, there remains the problem of bringing the existing environment, or current state of the site, into them.

The GX Laser Scanner can be a powerful tool when it comes to providing 3D information of this current status. Providing fast measurements of 3D point clouds that

▲ Weymouth Pavilion

describe the scenes and surrounding buildings, the GX can scan up to 5,000 points per second compared to 5 seconds per point using a traditional total station.

With proper processing in RealWorks Survey, this database of 3D point clouds

“The GX Laser Scanner can be a powerful tool when it comes to providing 3D information”

can be transformed into generic deliverables such as 2D profiles and cross sections, volume calculations, Digital Terrain Models and full

3D models, all of which can then be used as reliable information regarding the current status in the design applications. The large amount of data collected also cuts down the need for expensive rework because the original scan rather than the site can be revisited for any missing data.

Conversely, a 3D model of the future building or surrounding environment can be brought into RealWorks to analyze how well it would interact with the as-built information

Continued overleaf ►

provided by the point cloud in the 3D database.

Of course there are many pros: "as-built information" from laser scanning is better than outdated 2D-drawings; data collection is fast, accurate and extensive; there is lots of flexibility in processing the point cloud database in different ways depending on the project state, etc... However, one of the cons is that laser scanning is still considered a relatively young technology and whilst field time is greatly reduced, 3D information sometimes needs additional manpower that small projects may not be able to withstand in terms of cost."

IOC president Jacques Rogge has clearly indicated that the 2012 London Olympic Games would be less dependent on huge building projects than Beijing and instead would use existing and temporary venues stating, "London has made regeneration a priority." An ideal example of this precedent is the current redevelopment of the sailing venue in Weymouth.

**Plain Sailing! - Trimble 3D Scanner increases productivity on Olympic Sailing Site.**

Tired buildings... an unsightly car park... derelict land. Weymouth and Portland Borough Council recognized that the Weymouth Pavilion and Ferry Terminal was a major asset going to waste and have embarked on an extensive redevelopment programme which will turn the site into a visitor destination for the future and a venue for the 2012 Olympic Games sailing events. However before work could begin, the appointed development company, Howard Holdings, required an accurate 'model' of parts of the existing site.

This prestigious project was awarded to St Austell based Team Surveys\*, the largest multi disciplined land surveyors in the West Country\*. "We needed to collect data for the production of detailed elevations of the existing Pavilion Building, a 3D model of the auditorium,

cross-sections through the auditorium and street scene elevations of surrounding buildings and features", explained Team Surveys Managing Director, Andrew Cooke. "We also needed to rapidly collect data for one or two unusual items in our specification including an elevation of a 'tree line' behind the site area. On an extensive and varied site like this, we need to be productive and accurate and therefore

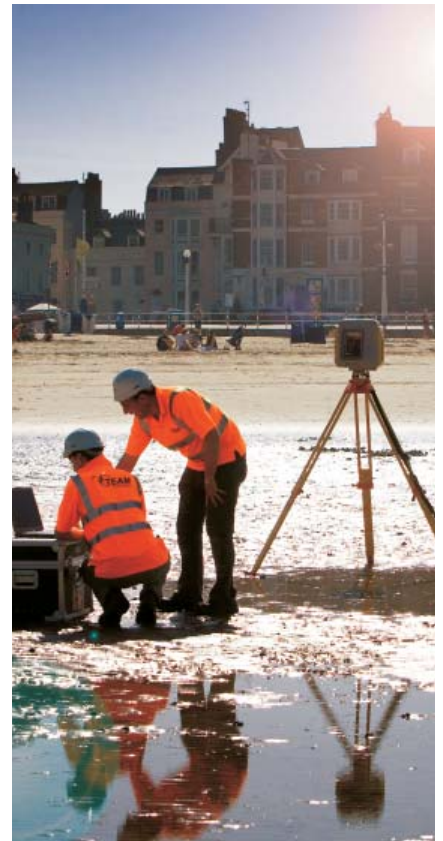
immediately contacted **KOREC** to hire a Trimble GX 3D scanner."

The Trimble GX 3D scanner can quickly catch millions of co-ordinates for recording sub-centimeter, photo-realistic job details. On this job, the scanned data was collected from existing survey control which Team Surveys had already established during a full topographical survey of the site in 2006. The point cloud data was used to produce traditional 2D elevations and sections as well as a 3D model of the internal of the Pavilion Building and also sections of surrounding areas.

Andrew continues, "The Trimble GX helped us to collect this sectional data very quickly - normally it would be difficult or even impossible to collect without the use of expensive access equipment. Choosing a scanner allowed us to complete the job in a fraction of the time on site that more traditional methods would have taken. Not only was it easy to use - we weren't delayed by the need for several days training beforehand - but the dual compensator allowed us to set-up in a similar way to using a Total Station. We simply entered the station co-ordinates and then checked reference co-ordinates in the field, eliminating the need to register the scanned data in the office."

Team Surveys Partner Paul Williams adds, "Using the scanning software on site was very straightforward but you do need a good surveying background just to make sure you don't miss anything that's perhaps out of sight behind a parked car and to avoid curious on-lookers standing in the way! The office work was equally straightforward. We used the scan data to output a pointcloud for autocad which is where we created the 2D elevations. The job went exactly to plan with the scanner delivering everything we needed for our specification all backed up by a speedy, no nonsense approach and competitive hire rates from **KOREC**."

\* Team Surveys merged with SUMO Services, who are also a significant Trimble equipment user, in March 2008 ■ ■



▲ Paul Williams and Jamie Stephens of Team Surveys prepare to scan the front of Weymouth Pavilion with the Trimble GX 3D scanner

## GX 3D Scanner

The Trimble® GX 3D Scanner for Spatial Imaging captures millions of coordinates very quickly. Record sub-centimeter, photo-realistic detail of every job to produce enhanced deliverables for colleagues and clients.

The Trimble GX is ideal for users in surveying, and in the geospatial industry, and for applications such as:

- Monitoring the evolution of a work site
- As-built diagnostics
- Historic restorations
- Crime scene forensics



## Contact us:

Please do get in touch for further information on any of the products or services mentioned in Synchronize, a demonstration, support or just a chat about your requirements.

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