

Railways

...*complete*
measurement solutions
for *total* peace of mind...



Plowman Craven

Railways

Nearly 200 years ago, it was Britain that led the world into the railway age. Now, after decades of neglect, there's been a new dawn as politicians, planners and enterprises in both the public and private sectors acknowledge the critical importance of rail in our national transport infrastructure.

Modernisation, extension of services and the introduction of new, ever-faster trains all call for **careful planning** and **accurate measuring** is at the heart of the process.

That's where Plowman Craven comes in. Working both above and below ground, the company's track record in the railway industry is formidable. Calling on over 40 years' experience, Plowman Craven combines time-proven traditional surveying techniques with the **latest hi-tech 3D laser-scanning technology**. This includes the production of accurate 2D plans and 3D models of subsurface infrastructure, with clash analysis studies that prevent inadvertent damage to neighbouring structures, whether at street or tunnel level.

"We have **invested massively** in

state-of-the-art equipment and operate a **continual upgrading programme** as new technology becomes available," comments Russell Haythorpe, Manager of the Hertfordshire based company's highly qualified Site Services team.

"We have an ongoing intensive training programme and half of our staff have been specially trained to carry out surveys on railways to the highest standards and are holders of the Personal Track Safety Certificates."

"They are **experienced at working** in the most **difficult conditions** to the tightest deadlines. Our recent work on the complete mapping of Tottenham Court Road Underground Station, for example, entailed crawling through narrow, dirty spaces in the early hours of the morning since the need to maintain an uninterrupted tube service for several hundred thousand commuters and other travellers each day meant that we could only work between the hours of 12.30am and 4.30am

"We measured every tunnel and every room, as well as the platforms, as far as the tunnel portals. Our work also took in the stairways, escalators and ventilated shafts and we had to trace and

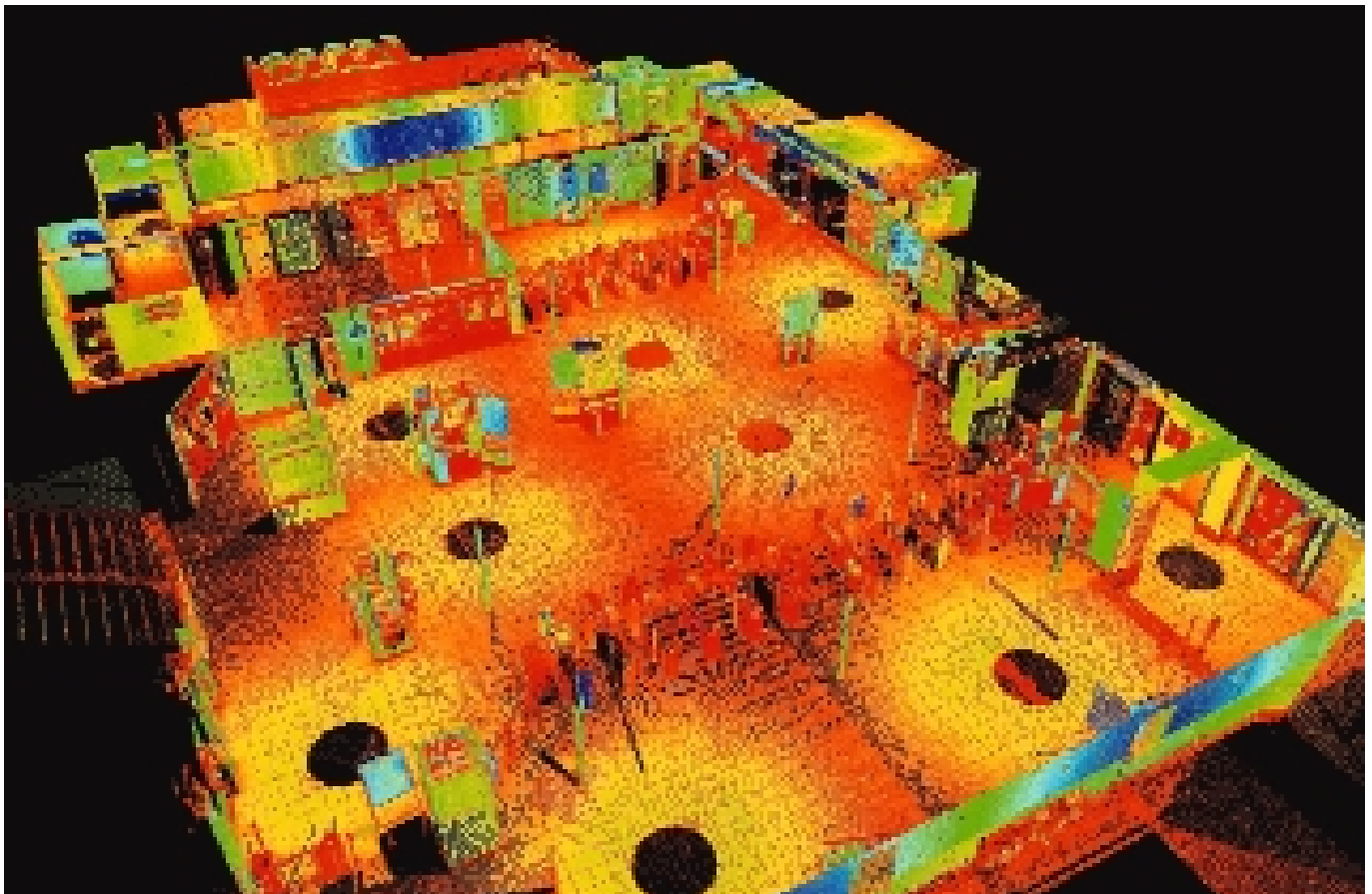


accurately record all the pipes and cables."

Having already mapped more than 150 stations on the London Underground network, Plowman Craven is eminently qualified to carry out such demanding work: "Our experience includes having surveyed many miles of disused tunnels as well as everything from ticket halls and escalators to offices and retail outlets," comments Russell.

Concurrently with their work on the multi-million Tottenham Court Road project, Plowman Craven's geomatics expertise has been taking a key role in the massive Kings Cross and St. Pancras re-development which, along with integrating the Channel rail link, also involves Crossrail and the Piccadilly, Circle, Hammersmith and City and Northern tube lines.

"It's a mammoth and complex project, involving not only the above and below ground railway services but hotel, retail, office and residential space," says Russell Haythorpe. Adding: "Getting the measurements right so the engineers know exactly where everything is located is critical. Our work enables the design team to **avoid costly mistakes** and can



also impact on the **future safety** of **millions of passengers**. It's a **big responsibility** – and we have a number of survey teams working on that project alone.”

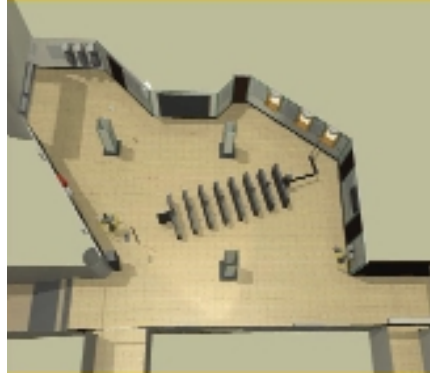
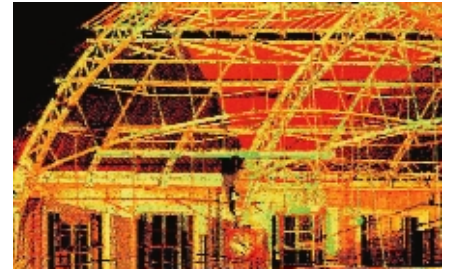
Work on mapping the integration of Crossrail within the existing environment is also being carried out by the company at Paddington Station.

Re-development work at White City, another massive mixed-use project – which includes retail space, a leisure complex, housing, offices and re-vamping of both overground and underground rail tracks, as well as a new station – has also been facilitated by Plowman Craven's surveying skills.

At Victoria Station Plowman Craven has carried out measurement work for architects charged with producing plans for better space utilisation.

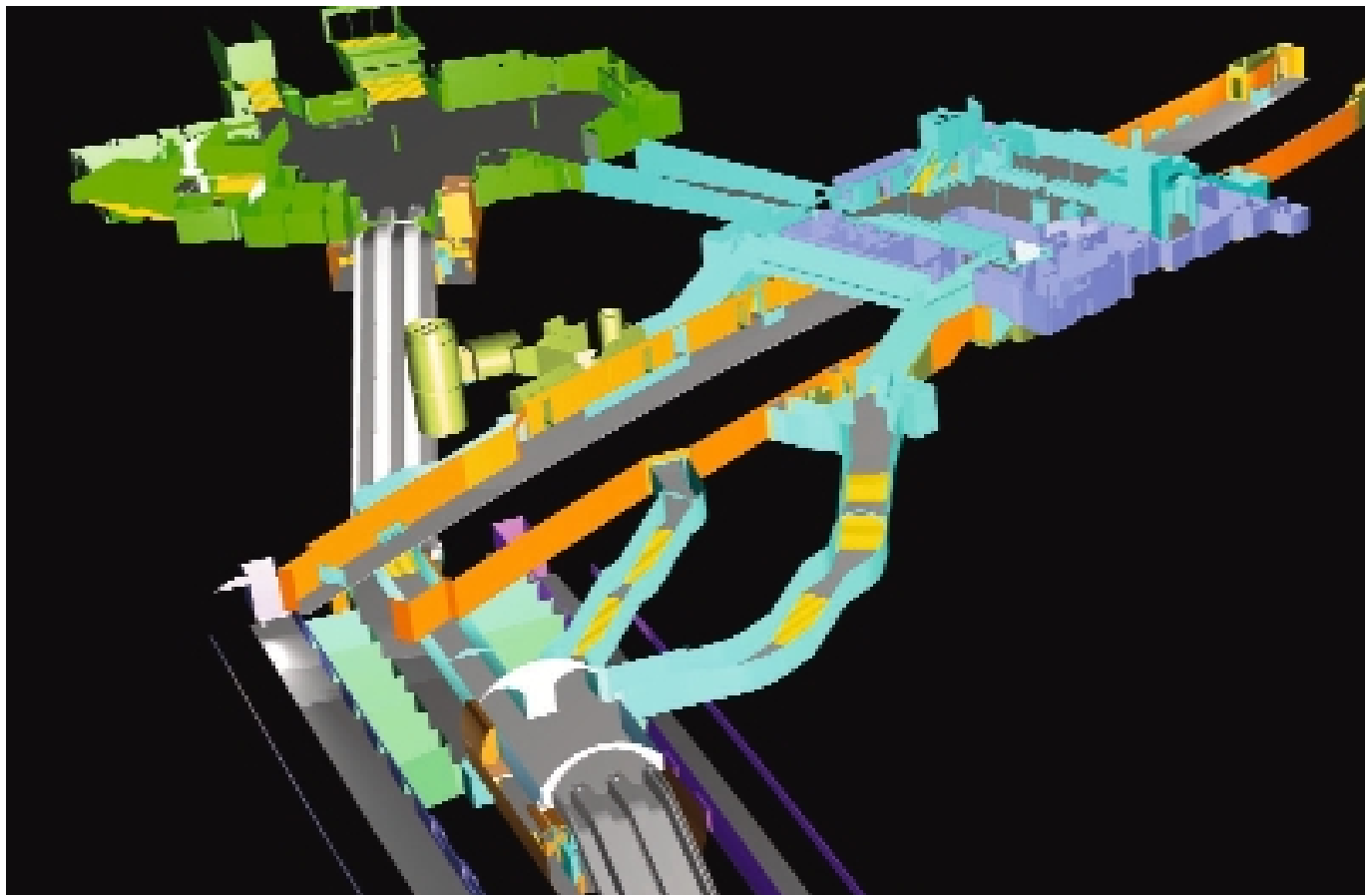
Plowman Craven has been working recently at Waterloo, London Bridge, Holborn, Stockwell, Swiss Cottage, South Kensington, Finchley, Oxford Circus and Euston tube stations.

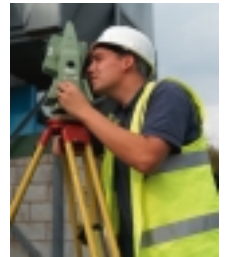
The company has also undertaken a range of work for Network Rail, including mapping the Shoreditch Tunnel and, using the latest GPS equipment, putting



in permanent ground markers for survey control along the key West Coast mainline route. Other railway clients have included Tube Lines and Union Rail. A recent project for Thames Water required the **accurate mapping** of the sewer network to enable planners to avoid routes conflicting with existing rail tunnels.

Plowman Craven offers rail operators a comprehensive range of services, including tunnel profiling, track gauging and surveys, confined space surveys, tunnel ring surveys and master-planning and asset management surveys.





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