SEP Rail Services

Measuring, Modelling and Monitoring the UK's Railways

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Contents

A message from our Managing Director

SEP Rail Services was founded with one goal in mind - a single-minded vision to become the UK's leading multi-disciplinary rail group. A pretty ambitious challenge, for sure, but one we're well on our way to completing.

Since then that focus has changed... Our reputation now firmly established, we've shifted our attention away from rapid growth and towards consolidation, discovering new and ever more innovative ways of delivering even greater value to our clients.

To me, this business has always been about quality, integrity and partnership. And I believe this comes across, not only in the standard of our work, but also in the level of client satisfaction and repeat business we receive. But none of this, not one of our successes, would've been possible without the hard work and dedication of the truly gifted people who make up our team.

To those interested in working with SEP Rail Services, my door is always open.

I can't wait to see what the future holds!

Rikki Morrow

MANAGING DIRECTOR

SEP Rail Services

Our clients *love* working with us. Why? Well...

Having worked with SEP Rail for a number of months now, I honestly couldn't be happier with the work they've carried out. Their approach and attitude have been second to none with no request being too much trouble. They have been an asset to what is a high profile and high pressure project and I look forward to working with them again in the future.

ARWYN ROGERS
CONSTRUCTION MANAGER, AMEY
GREAT WESTERN ELECTRIFICATION PROGRAMME

The Survey team at Colas Rail have continually turned to SEP Rail Services as one of our key suppliers to aid the delivery of our large work bank of topographical surveys for both our S&C and Plain Line renewals. Working in a high-pressure industry, the SEP team are adaptable to change and contribute safe and economic solutions to many of our mobilisation challenges. SEP compliment a working environment that encourages the development of the teams together so we can strive for continual improvement.

MATT FINCH
PRODUCTION MANAGER, SOUTH RAIL SYSTEMS ALLIANCE / COLAS RAIL

On behalf of everyone at the Pro Rail Services, I would like to thank SEP Rail Services for all for the effort, professionalism and safety conscious demonstrated during the tight schedule of work. Alongside our own staff, the SEP staff worked efficiently and safe to ensure a successful deployment, thank you to all involved.

STEVE PINKNEY
PERMANENT WAY DIRECTOR, PRO RAIL SERVICES

SEP Rail Engineering have been invaluable to XYZ Rail & Civils by providing a first class engineering support and delivery service to our rail projects. From CEM and CRE cover to onsite technical support, they have been professional and thorough throughout. Nothing has been too much trouble and we value the openness and honestly that they bring. The level of detail and expertise has been exceptional and we look forward to continuing to work with them in the future.

BEN HAMILTON
PROGRAMME MANAGER, XYZ RAIL AND CIVILS

SEP Rail Services have worked for QTS on a number of occasions in the LNW CAM framework and the Western Region, carrying out emergency track monitoring and topographical surveys. We have been consistently impressed with their reaction times to emergency situations and to the standard that the work is carried out to. We would feel confident entrusting them again with work on our behalf in the future.

LISA MCGHEE
MARKETING MANAGER, QTS GROUP

Osborne worked with SEP Rail over the last 7 months on a number of GIs, topographical surveys, flood risk assessments, UTX capacity checks and our engagement so far couldn't have been better! Rikki, Ellie and the overall SEP team have been not only exceptional professionals, but also great and trusted communicators who work always to the highest standard. Amongst other things, SEP have provided throughout this involvement great and to the point reporting, which enable better visibility and control at the project level, extremely quick turnaround on deliverables, always ahead of the programme, as well as short mobilisation periods on every request with short notice to satisfy project requirements. Keep the good work SEP Team and it is our pleasure working with you.

CHRISTOS ZANTIS
DEVELOPMENT MANAGER, OSBORNE

Rikki (SEP Rail MD) is a delivery machine. He was the driving force behind Colas Rails Survey team expansion growing a relatively small part of the business in to a circa £5m turnover business unit. I believe Rikki had the ability to grow the delivery capability of his team because he is respected by the people that he has worked with and they are happy to join him wherever he is. He is delivery focused and will do his utmost not to let his customers down.

DAVID VAMPLEW
PROJECT MANAGER, HIGH SPEED TWO (HS2) LTD

Just wanted to say we were very pleased with your de-veg team this week at Castlethorpe. As this is a project alpha scheme we weren't able to undertake a site walkout of all the vegetation so it was a bit of an unknown... your team showed a great attitude on site to get the works completed on time where others may have not. Will definitely be looking to use them again. Please pass on my thanks to the lads.

CARL MATTHIAS
ASSISTANT PROJECT MANAGER, J. MURPHY & SONS

Tony Jones

HEAD OF OPERATIONS

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A time-served railway professional with a wealth of operational and planning knowledge, Tony has been part of the UK's rail sector for over 25 years.

James Wheatley

HEAD OF DELIVERY

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A truly talented individual, James is SEP Rail Services' Head of Delivery, overseeing the processing and delivery of all current and future rail projects.

Dominic Keegans

HEAD OF SURVEY

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A highly accomplished surveyor and manager, Dominic is responsible our field operations, ensuring works are carried out according to our clients' expectations.

Graham Dunning

HEAD OF PLANNING

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Leading the firm's in-house planning department, Graham's 20 years of rail experience and analytical nature make him a major asset to clients and colleagues alike.

Sevim O'Connor

FINANCE AND COMMERCIAL MANAGER

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Organised and hardworking, Sevim is responsible for all commercial and financial matters, developing processes and driving efficiency within the business.

James Dietz

OPERATIONS MANAGER

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A long-standing member of the SEP Rail Services team, James supports Head of Operations, Tony Jones, handing the day-to-day running of the survey department.

Tim Hayes

OPERATIONS MANAGER

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A skilled surveyor and highly regarded manager, Tim works alongside his colleague, James Dietz, managing the day-to-day operations of the firm's survey department.

Chris Lyon

DELIVERY MANAGER

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Bringing decades of site and delivery experience to the table, as our Delivery Manager, Chris manages the processing and delivery of all of our railway surveys.

Ben Gumbrell

UTILITIES MANAGER

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A seasoned utility surveyor with a vast amount of both operational and technical knowledge, Ben heads up our utility surveying and subsurface scanning department.

Andrew Oliver

MANAGING DIRECTOR - SEP CULANT

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Heading up specialist access and vegetation management firm, SEP Culant, Andy is a hugely experienced rope access specialist and a passionate advocate of safety and innovation

The UK’s fastest growing independent rail group, we support contractors, consultants and more, measuring, modelling and monitoring the nation’s railways.

HOW CAN WE HELP?

Working hand in hand with our clients and partners, we’ve built our reputation upon the quality, reliability and flexibility of our service, developing innovative solutions to complex problems whilst making tomorrow’s railway a better place. From initial surveys and investigations, to hand over and monitoring, we support our clients throughout the full life-cycle of their projects, providing the support and data they need to make truly informed decisions.

The result? The safe, efficient and compliant outcome our clients expect, saving time and money in the process.

VISION, MISSION AND VALUES

An ambitious but ethical business, we’re guided, not only by a strategic vision, but also by a firm set of values that help determine who as well as what we are.

Our vision? To become the UK’s leading multi-disciplinary rail group, the firm that people aspire to be a part of, be they employees, partners or clients.

Our mission? The following commitments explain just how we hope to realise that vision.

WHY CHOOSE US?

01 Thanks to our ‘one stop shop’ business model, you no longer have to chop and change between multiple firms. Now, all of your survey, design and engineering requirements can be managed by one group.

02 We’ve filled our ranks with the most experienced, knowledgeable and capable professionals in the rail industry. Our continuous training and development programmes ensure they stay at the top of their game.

03 From the moment you make contact to the second your project is delivered, our team will deal with you efficiently, proactively and politely. We promise to treat you with the respect and consideration you deserve.

04 Each and every year, we deliver countless rail projects for clients throughout the UK, adding significant value to their schemes. It’s no wonder that we’ve built a reputation for delivering on our promises.

05 We form genuinely meaningful relationships with our clients built upon a foundation of trust. With over 80% of our work being based upon repeat business, we must be doing something right.

06 A truly forward-thinking organisation, we take the wellbeing of our team incredibly seriously, providing both physical and mental health support programmes as well as a family-friendly benefits scheme.

07 We’re constantly investing in the very latest survey technology and software. The result? Continual improvements in innovation and performance, delivering better data, faster and more cost-effectively than ever before.

08 From Network Rail infrastructure to the London Underground and DLR, our teams travel the length and breadth of the country, measuring, designing and engineering the nation’s railways.

We will...

- Place the safety, health and happiness of our team above all else, especially profit.
- Never stop investing in our people, putting their personal growth ahead of the company’s.
- Remain a truly ethical business, treating all stakeholders with fairness and integrity.
- Stay at the forefront of innovation, investigating and embracing new techniques and technology.
- Treat all of our stakeholders with the utmost respect and consideration.
- Never stop in our quest for improvements in the quality and accuracy of our deliverables.
- Seek out new partnerships and alliances to add even greater value to our clients’ projects.

Railway Track Surveys

From simple plain line to detailed S&C, every year our RISQS approved team surveys hundreds of miles of railway track for some of the rail industry's most recognisable firms.

A dedicated rail specialist and the fastest growing company of its type in the UK, our growth is in no small part down to the hard work and integrity of our team. Whilst the accuracy of our track surveys is obviously critical, it's these two values that help define who we are as a business. With over 80% of our workload being based upon repeat business, we must be doing something right...

CLIENTS AND PROJECTS

From primary rail contractors and design consultants to tier two contractors and smaller firms, we form long-standing and truly meaningful relationships with our clients, delivering precision railway track surveys on time and on budget. Just a fraction of those our team have been instrumental in delivering, notable track surveys have included...

- Great Western Electrification Project
- Midland Metro Alliance
- Merseyrail
- S&C Southern Alliance
- Anglia, Kent and Sussex Plain Line Surveys
- High Speed 2 (HS2) Construction and Enabling Works
- CAF Gauging Project
- TransPennine Route Upgrade
- Nexus Metro

EQUIPMENT

Part of the SEP group, we've benefitted from a close working relationship with our friends at SEP Geospatial. Thanks to this partnership, we're able to guarantee that our team have access to the very latest survey technology at a moment's notice.

Whether that means a 0.5" robotic total station or a cutting edge HDS laser scanner, our unrivalled access to brand new equipment ensures our surveyors always come properly equipped.

Furthermore, by staying at the forefront of innovation when it comes to the techniques we employ, we're often able to improve safety and performance, all without increasing costs for the client.

THE TEAM

Headed up by Rikki Morrow, formerly of Corus and Colas Rail, our team boasts a number of time-served delivery and survey managers. All seasoned professionals, they've spent years adding value to some of the nation's highest profile railway track survey projects.

At any one time, they manage a substantial team of rail surveyors and processing specialists, as well as a variety of approved suppliers and subcontractors. All field personnel are PTS / OLEC1 / ICI qualified, also attaining COSS and SWL certifications, whilst all delivery surveyors have a minimum of ten years' experience in their field.

CERTIFICATIONS HELD

- Personal Track Safety (PTS AC/DC)
- Overhead Line Equipment Construction (OLEC1)
- Industry Common Induction (ICI)
- Controller of Site Safety (COSS)
- Safe Work Leader 1 (SWL1)
- Safe Work Leader 2 (SWL2)

KEY EQUIPMENT

- Trimble S9 0.5" robotic total station
- Trimble GEDO IMS track measuring trolley
- Spectra Precision SP80 GNSS / GPS receiver
- Leica LS10 digital level
- Trimble TX8 laser scanner
- Trimble SX10 3D laser scanning total station
- Trimble TSC7 data logger

Trimble GEDO IMS Track Measuring Trolley

Remaining firmly at the forefront of survey technology, thanks to our relationship with our partners at SEP Geospatial, we're able to deploy the very latest innovations within the industry.

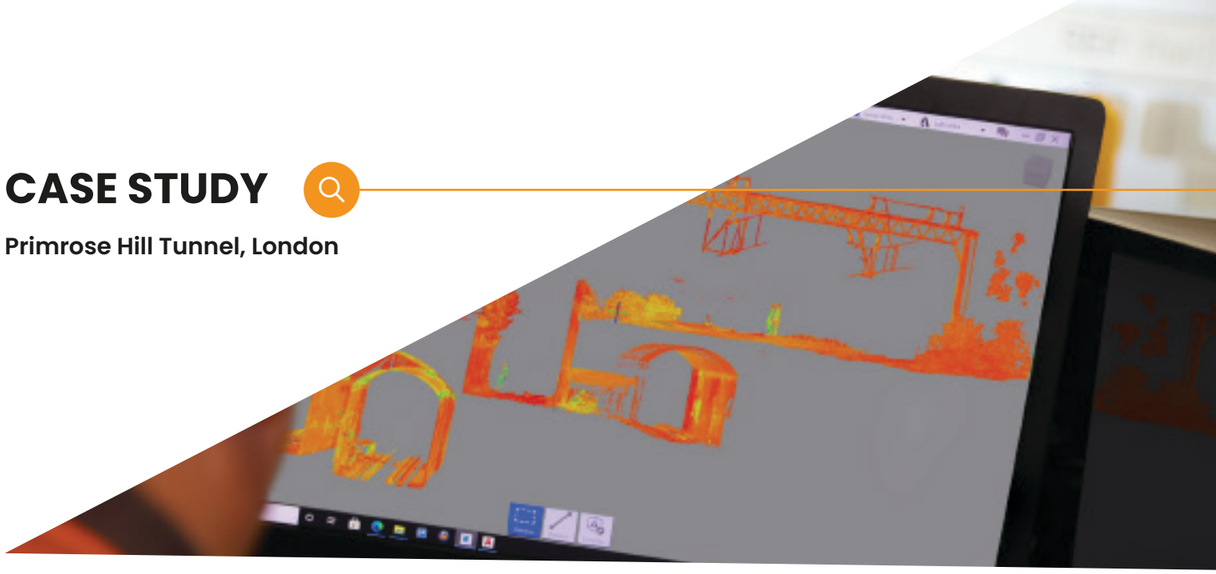
Complementing our fleet of cutting edge 0.5" Trimble S9 total stations, we're also one of a small number of companies in the UK to have invested in the revolutionary Trimble GEDO IMS system.

The ultimate flexible and lightweight railway measurement system, the GEDO IMS employs a 'capture all' technique, making use of an Inertial Measurement Unit combined with both geodetic sensors and an ultra-high-speed laser scanner (the Trimble TX8). The system is capable of a range of methodologies for surveying and documenting assets within the railway environment.

We believe the introduction of the GEDO IMS to be revolutionary for the rail surveying environment. The speed and flexibility of the data capture combined with the ability to validate data will ultimately reduce the requirement for track access / 'boots on ballast' and provide added benefits to future projects.

CASE STUDY

Primrose Hill Tunnel, London



Working alongside our sister firm, SEP Rail Design, a team of surveyors headed to London, visiting the eastern section of Primrose Hill tunnels, located on the West Coast Main Line, just 1.5miles from Euston. An extremely complex site, these tunnels carry a number lines, snaking their way beneath the Victorian and Regency splendour of Primrose Hill.

Seeking to understand whether a new HV cable route would affect clearances to rolling stock, our client initially requested a conventional clearance survey. Given the location and the difficulties securing access, however, we suggested the Trimble GEDO IMS – a far more advanced, cutting-edge solution.

During a single possession, the 3-man team surveyed more than 1km of track, performing structure gauging across 3 separate tunnels. The addition of 2 no. Trimble TX8 laser scanners then ensured that any off-track elements were captured to exactly the same level of detail.

Geo-referenced with prism scanning globes and targets, the static scan information was then merged with GEDO Scan data to provide a comprehensive 3D scan cloud of the entire area.

The result? In less than 5h we collected over 4 billion survey points, the deliverables produced including 2D elevations and sections, 3D plan drawings and wireframes, 3D solid models and 100s of structure gauging profiles.

Not only did this approach deliver a staggering productivity boost, the 'capture all' technique also allowed our design partners to produce various design iterations without the need to revisit site.

- The multi-sensor trolley system captures track position, cant and gauge in a single operation.
- No requirement for a total station during data capture, thus increasing productivity and reducing disruption on site.
- Rapid initialisation of equipment resulting in reduced down time and a dramatically improved data capture rate.
- Continuous high-resolution data collection for flexible analysis with GEDO Scan software.
- Internal quality control carried out in real time within the measurement process whilst still on site.
- The production of a point cloud as a by-product allows further features to be inspected, extracted and modelled in the future without returning to site.
- The 'capture all' survey method reduces or eliminates the need for costly return visits to site, making vast quantities of high-resolution data available for other elements of your projects.

Topographical Surveys

From depots and platforms to embankments, car parks and more, our experienced and professional land surveyors deliver precision topographical surveys of the UK's rail network in accordance with Network Rail Standard NR/L2/TRK/3100.

At the heart of almost every construction or civil engineering project, a topographic survey is usually procured at the earliest stages of a job, providing information vital to both design and construction teams as well as a variety of other stakeholders.

CLIENTS AND PROJECTS

Supplying accurate and user-friendly deliverables on demand, it's no surprise that we've rapidly become the 'go to' provider of topographic surveys to the nation's rail industry. From stations and embankments to access roads and depots, our team have worked on some of the largest and most recognisable rail projects of the past decade, including...

- Great Western Electrification Project
- Midland Metro Alliance
- Merseyrail
- S&C Southern Alliance
- Anglia, Kent and Sussex Plain Line Surveys
- High Speed 2 (HS2) Construction and Enabling Works
- CAF Gauging Project
- TransPennine Route Upgrade
- Nexus Metro

EQUIPMENT

Part of the SEP group, we've benefitted from a close working relationship with our friends at SEP Geospatial. Thanks to this partnership, we're able to guarantee that our team have access to the very latest survey technology at a moment's notice.

Whether that means a 0.5" robotic total station or a cutting edge HDS laser scanner, our unrivalled access to brand new equipment ensures our surveyors always come properly equipped.

Furthermore, by staying at the forefront of innovation when it comes to the techniques we employ, we're often able to improve safety and performance, all without increasing costs for the client.

PRECISION

Not simply valuable in isolation, a precision topographical survey can also be used to complement the results of other pre-construction works. From accurately plotting the findings of utility mapping or CCTV surveys to mapping the position of boreholes, a well-considered topo survey can be enhanced to provide significant added value to the majority of rail engineering projects.

Using the very latest survey equipment and backed up by a time-served delivery team, our surveyors hold all certifications necessary for working throughout the nation's railway infrastructure.

CERTIFICATIONS HELD

- Personal Track Safety (PTS AC/DC)
- Overhead Line Equipment Construction (OLEC1)
- Industry Common Induction (ICI)
- Controller of Site Safety (COSS)
- Safe Work Leader 1 (SWL1)
- Safe Work Leader 2 (SWL2)

KEY EQUIPMENT

- Trimble S9 0.5" robotic total station
- Trimble GEDO IMS track measuring trolley
- Spectra Precision SP80 GNSS / GPS receiver
- Leica LS10 digital level
- Trimble TX8 laser scanner
- Trimble SX10 3D laser scanning total station
- Timble TSC7 data logger

UAV Surveys

In areas of limited access or situations where time is of the essence, it may not always be possible to employ conventional methods of surveying.

With this in mind, we've developed an airborne survey solution, allowing us to carry out sub-5mm UAV surveys whilst needing dramatically reduced access to the railway infrastructure.

Thanks to their ability to cover a vast area in a fraction of the time of more traditional methodologies, our heavy-duty six and eight rotor platforms lead to dramatic improvements in on-site productivity, thus ensuring that clients receive their deliverables, not just on time, but often ahead of schedule.

What's more, being operated predominantly from a position of safety (bar the installation of ground control etc.), they can often be operated during high traffic periods, reducing the need for possessions, line blocks and safety critical staff.

CAPTURE MORE, FASTER

When paired with cutting-edge drone technology, our Phase One XF IQ3 100 megapixel cameras allow us to capture more data, more quickly and in greater detail than almost any other system on the market. Indeed, we're one of only a handful of railway surveying companies whose UAV-captured data meets Network Rail's Band 1, sub 5mm specification.

KEY EQUIPMENT

- Matrice 600 Pro, 6-rotor UAV with Ronin-MX gimbal and A3 Pro flight controller
- Altura Zenith ATX8, 8-rotor UAV with Altura Cardan gimbal and Altura ground control system
- Phase One XF IQ3 100MP camera system
- Hasselblad HD6-100c 100MP CMOS camera

Gauge Clearance Surveys

Working to Network Rail Standard NR/L2/TRK/3203 and supported by our sister firm, SEP Rail Design, we use cutting-edge laser measurement equipment and software to deliver the profile and clearance information your projects so desperately need.

Whenever changes are being made to track, surrounding infrastructure or rolling stock, design consultants and railway contractors must ensure there is adequate clearance for trains to pass safely.

GAUGING SURVEYS

By using the very latest **LaserSweep** and **Abtus RouteScan** instruments, our specialist gauging teams can produce supremely accurate profiles of all manner of structures, from tunnels and platforms to bridges and OLE gantries.

For more complex structures, we can combine one of our **Trimble GEDO** track measuring trolleys with an HDS 3D laser scanner, producing detailed models to aid in the design process, also collecting valuable cant, gauge and geometry information. Where required, a calibrated platform gauge will be used for platform gauging and lower sector structures.

GAUGING PROFILES

Using **Structure Survey Editor**, our delivery team can accurately determine the distance between trains and surrounding structures, supplying profiles in .SCO format (or tailored gauging reports) for use by design engineers. Critical to ensure that designs remain compliant once constructed, the structure profiles generated thanks to our gauge clearance surveys prevent clashes between trains and potential obstacles occurring.

Not solely for design purposes, we can also carry out post-construction gauging surveys to verify the as-built position of various key elements.

OLE Surveys

The UK's fastest growing railway surveying company, SEP Rail Services is also one of just a handful with significant experience of working with overhead line equipment.

From height and stagger surveys and HDS surveys of infrastructure to utility mapping and control network installation, our OLE surveys are essential for any client seeking to undertake track or civils design works (including platforms and over bridges) on or adjacent to OLE routes.

Working in accordance with best practice and the relevant Network Rail Standard (NR/L2/TRK/3100 MOD 05), we use the very latest in survey technology to collect vital data relating to overhead line equipment.

What's more, by exploiting the capabilities of our cutting edge 3D laser scanners, it's often possible to capture the information required at speed and, potentially, without actually needing to access the track.

Control Networks

All projects, regardless of size or complexity, require the development of a reliable control grid to guarantee that all design and construction works relate to the same coordinate system.

An accurate control network is the underpinning foundation of any survey. Put simply, if your control network is of poor quality, all survey, setting out, implementation and verification works that utilise that network will be of similarly poor quality.

The impact that a substandard control network can have on both project cost and programme cannot be overestimated. Using a variety of techniques and based upon a local grid, Ordnance Survey coordinates or Snake Grid, we can install fully-verified control stations and networks to millimetre accuracy, providing both you and your client with the utmost confidence in any survey data produced.

NOTABLE PROJECTS

As one of the UK's most respected rail surveying firms, it's no surprise that we have a wealth of experience when it comes to OLE surveys.

Just a small selection of the electrification projects our team have worked on, the following should help illustrate our capability in this area...

ELECTRIFICATION PROJECTS

- Great Western Electrification Project
- Midland Metro Alliance
- Merseyrail
- S&C Southern Alliance
- Anglia, Kent and Sussex Plain Line Surveys
- High Speed 2 (HS2) Construction and Enabling Works
- CAF Gauging Project
- TransPennine Route Upgrade
- Nexus Metro

CONTROL NETWORK PROCESSING SOFTWARE

- n4ce
- Star*Net
- Terramodel
- Trimble Business Centre

CONTROL NETWORK INSTALLATION

Whilst robust control is obviously essential for the survey itself, it must also be fit for purpose for any engineering works that follow. With vast amounts of experience planning and building complex control networks (including primary, secondary and tertiary control points) our team use the very latest GNSS / GPS receivers, 0.5" robotic total stations and precise digital levels to ensure both performance and compliance with Network Rail's NR/L2/TRK/3100 survey standard.

Utility Mapping Surveys

Every time your team breaks ground, there's a risk of striking a utility. Our utility mapping specialists use the very latest technology to mitigate your risk on site, keeping you, your team and your clients safe.

Indeed, by working in accordance with PAS128 and Network Rail Standard NR/L2/TRK/3100, not only do we keep your projects on track, we also keep you compliant in the eyes of both your client and the regulator.

UTILITY SURVEYS

With up-to-date statutory record drawings having first been procured and consulted, professional utility surveyors will use EML (electromagnetic location) and GPR (ground penetrating radar) to accurately locate and map utilities and/or structures beneath your site.

Using either robotic total stations or GNSS / GPS receivers, the lateral position of all findings will then be captured and, when combined with both depth and diameter information, plotted onto a new or existing topographical survey. If applicable, any GPR data will also be post-processed and analysed before comprehensive and user-friendly reports are produced.

WHAT CAN WE DETECT AND MAP?

- Electricity cables
- Gas pipes
- Water pipes
- Drainage systems (clean and foul)
- Telecommunications cables (including fibre optics)
- Foundations
- Pile caps
- Voids (including inspection pits and basements)
- Railway track
- Other obstructions

NETWORK RAIL APPROVED SURVEY EQUIPMENT

- Proceq GS800 GPR
- Radiodetection RD8000 / Vivax Metrotech vLoc3-Pro receiver
- Radiodetection TX-10 / Vivax Metrotech Loc3 Series 25-watt transmitter
- Trimble 0.5" S9 robotic total station
- Trimble TSC7 data logger
- Spectra Precision SP80 GNSS / GPS receiver

UTILITY SURVEY BENEFITS

Here's just a handful of the potential benefits that could be reaped by carrying out a thorough utility mapping survey…

- Minimise the chance of a harmful and costly utility strike
- Protect your team, other site users and/or the public from serious injury or worse
- Keep your projects on program and on budget
- Excavate with confidence, safe in the knowledge that all due diligence has been carried out
- Safeguard your business' reputation
- Have access to accurate, up-to-date records – a snapshot in time of buried services on your site
- Reduce inconvenience to other stakeholders (other site users/trades, road users, businesses etc.)
- Remain compliant as stipulated by HSE and EA regulations

WHY CARRY OUT A UTILITY MAPPING SURVEY?

The benefits mentioned above aside, there are legal and regulatory reasons why carrying out a GPR survey is a good idea.

Organisations have a legal obligation to protect their employees, the public and all other stakeholders who could potentially be affected by their work. Indeed, the Health and Safety Executive (HSE) deems an appropriate level of utility mapping activity to be a mandatory precursor to any excavation.

Should you experience a service strike after choosing not to carry out a survey, therefore, you could be facing…

- A substantial insurance claim
- Financial loss due to program slippage, compensation payments, fines, insurance excess and increased premiums
- Reputational damage and a loss of confidence
- Criminal charges (gross negligence, manslaughter or corporate manslaughter being the worst)

EQUIPMENT

When carrying out utility surveys be they on or off the railway, we only ever use Network Rail approved survey equipment.

From the seemingly humble (but incredibly powerful) cable avoidance tool to the very latest Stepped-frequency Continuous-Wave GPR , we firmly believe in using the right tool, for the right job, in the right way.

Measured Building Surveys

Using the very latest technology, our measured building survey teams deliver accurate, intuitive plans and models of your structures, all in accordance with Network Rail standards.

DELIVERABLES

- Floor and roof plans
- Sections
- Elevations
- Registered point clouds
- Three dimensional BIM models

In the context of the rail sector, a measured building survey could best be described as a dimensional survey of the internal and/or external areas of a building or civils structure.

Such structures could range from station or depot buildings to bridges or tunnels. The end result can range from floor plans to fully-rendered, three dimensional Revit models.

ACCURATE, DETAILED SURVEYS

Depending upon the project specification, a wide variety of structural and architectural elements can be included within a measured building survey.

These can range from simple walls, window and door openings to fenestration, masonry details, light fittings and more. Regardless of the elements captured, however, all drawings will include floor levels, heights and annotations as appropriate.

- Trimble S9 0.5” robotic total station
- Trimble TX8 laser scanner
- Trimble SX10 3D laser scanning total station
- Trimble TSC7 data logger
- Handheld, Bluetooth-enabled laser measuring equipment
- Touchscreen field computers installed with MBS software

Railway Track Monitoring

One of the UK’s leading providers of railway track monitoring, SEP Rail Services offers both manual and automated monitoring systems that alert you immediately should any undue track movement occur.

What may appear to be insignificant changes in twist, cant or settlement can lead to disaster should they not be detected and resolved in time. Working in accordance with Network Rail Standards NR/L2/TRK/3100 and NR/L2/CIV/177, therefore, we operate throughout the country, delivering high-accuracy, cost-effective track monitoring data direct to your inbox.

Working with some of the UK’s most recognisable firms, we pride ourselves on the flexibility, responsiveness and accuracy of our track monitoring services. Thanks in part to these qualities, over 70% of our monitoring works is based upon repeat business. Whilst the automated or ‘remote’ systems we supply require considerably less human intervention, the principles under which they operate remain the same. The following process describes our standard methodology for installing and maintaining a conventional, manual track monitoring regime...

- A track monitoring plan (TMP) can be developed and submitted to the client for submission.
- Once suitable targets have been selected, we’ll attach them to the web of the rail at 3m intervals.
- Following installation, baseline readings are taken, against which all future readings – and potential movements – are compared.
- During engineering works, the track is regularly monitored with any undue readings being reported and acted upon in accordance with the TMP.
- Standard practice then demands that monitoring continues following completion of the work for a specified period, even if no movement has previously been recorded.
- Once the final round of measurements has been taken, the targets are removed from the track.

Structural Monitoring

Employing the very latest in structural monitoring technology, we deliver the essential data your projects need, direct to our cutting edge monitoring portal, your mobile phone or inbox. In doing so, we help you to keep your team safe and your projects firmly on track.

Building bespoke structural monitoring systems, we work with both consultants and contractors alike, providing monitoring systems tailored to the demands of each individual project. Whether manual or automated, physical or optical, these systems provide highly accurate information on a variety of factors affecting your structures, supplying the data your teams need to make properly informed decisions.

CONTINUOUS MONITORING

Perhaps best described as the continuous monitoring of forces exerting an influence upon a structure, structural monitoring can provide a temporary or permanent source of critical data, helping our clients to...

- Preempt and thus prevent potentially harmful forces from causing damage
- Mitigate existing problems from becoming far more serious and expensive
- Make adjustments to the construction process in real time, using live monitoring data to determine the effects of potentially harmful practices (e.g. heavy goods traffic, the use of piling or heavy machinery etc.)
- Protect your team, other site users and the public

WHAT CAN WE MONITOR?

- Displacement
- Inclination
- Rotation
- Temperature
- Vibration and noise
- Crack monitoring
- Load
- Strain

WHY DO YOU NEED **STRUCTURAL MONITORING?**

Whilst many projects contractually require you to carry out a program of monitoring, this should not be your primary consideration.

Even the slightest adverse movement or excess force could potentially have a detrimental affect upon your structures or even neighbouring properties. Seemingly minor structural damage can sometimes lead to...

- Unexpected repair bills
- Expensive insurance excess payments and elevated future premiums
- Legal bills
- Reputational issues
- Damaged third party relationships
- Programme slippage and more

FAST RESPONSE TIMES

With relevant information, provided on time and via the right medium (text, email etc.), you and your stakeholders can respond quickly should problems arise, with minimal impact upon your project.

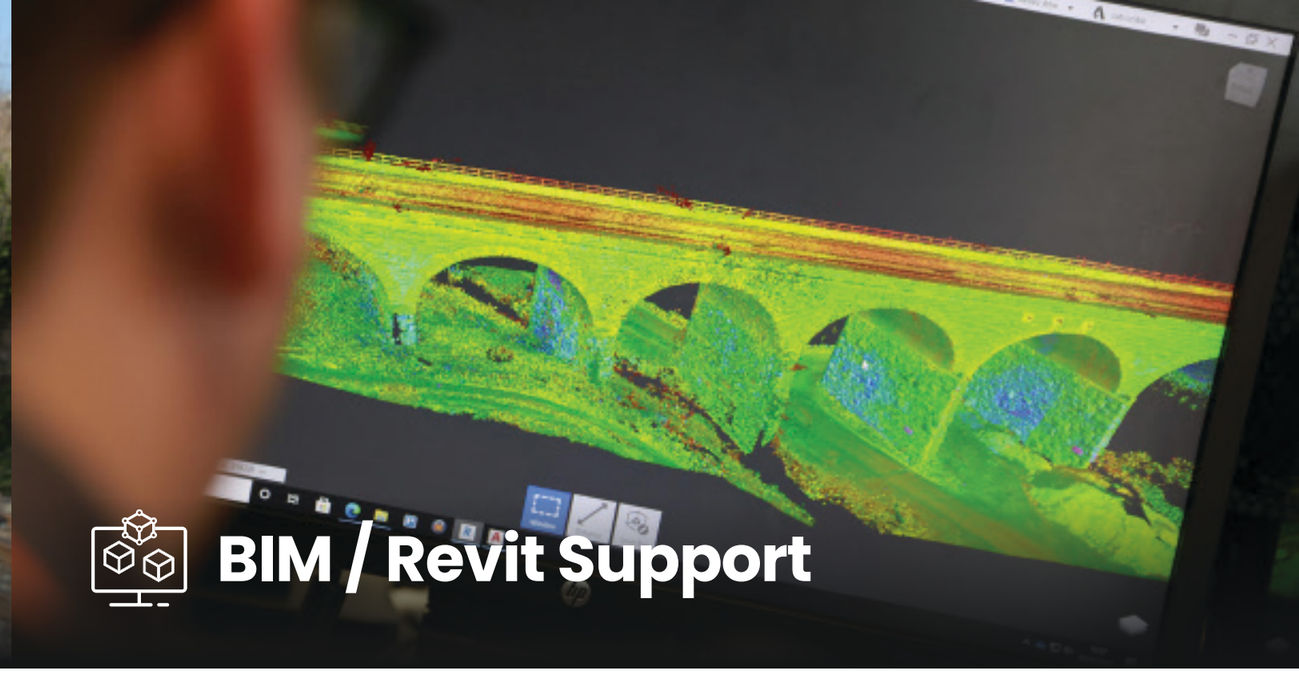
Access Planning

As with all of our clients, we strongly believe that every staff member must return home safely after each and every shift. From our perspective, this begins with detailed planning and preparation.

Holding RISQS product code C.C.3.4.2.7 (Safe System of Work Planning), our in-house planning team have a firm appreciation for all facets of railway planning and operations. Thanks to this, we can offer a fully compliant and professional service in line with Network Rail's Planning Delivery Safe Work Process (PDSW).

With decades of combined experience, our Sentinel-trained team work across a variety of safety critical competencies, having a thorough understanding of NR/L2/OHS/019. Practically unique in our field, we're able to both plan and execute all works internally. The capabilities outlined below can be tailored to suit your project's individual requirements:

- In-house planning team consisting of COSS/SWL1/ES/SWL2
- Plan, input and manage worksite applications via the Network Rail Possession Planning System (PPS), arranging short term access using the Network Rail Green Zone Access System (GZAC)
- Attendance at all long and short-term Network Rail planning meetings
- Production of Safe Work Packs (SWP), Work Package Plans (WPP) and site-specific Task Briefings (TBS) and RAMS documents
- AC and DC isolation planning
- ALO coordinating, planning, Responsible Manager (RM) and assurance
- Daily secondment planning for clients
- Sentinel approved Person in Charge (PIC) and Responsible Managers (RM) for verification and authorisation of Safe Work Packs
- Competent in various planning packages including P6 and Microsoft Project



BIM / Revit Support

As demand for BIM-compliant projects increases, so does the pressure on surveying firms to deliver. Our BIM team supports other firms, either complementing their existing teams or becoming their BIM department altogether.

Using the very latest software and technology, we digitise and model point clouds according to your project's specification. Whilst we can work with existing point clouds, our own HDS team capture high quality data using our fleet of 3D laser scanners. Unlike more traditional methods, HDS allows us to collect vast quantities of data in a short time frame, reducing time on site and eliminating the need for costly revisits.

Once captured, our modelling team export the data, processing it using cutting-edge BIM software to produce incredibly detailed 3D models of your structures or assets. What's more, thanks to the amount of data available and the flexibility of our software, we can also extract more traditional deliverables such as elevations, floor plans and sections with ease.

SCAN TO BIM PROJECTS:

- Railway and civil engineering
- Refurbishment and renovation
- Demolition
- Facilities upgrades or maintenance (including M&E, HVAC, lift installation etc.)
- Heritage
- Master plan and visual impact assessments

BIM SOFTWARE

- Trimble RealWorks
- Trimble Business Centre
- Revit
- n4ce
- AutoCAD
- Descartes

We work for a broad array of clients throughout the railway, civils and construction industries, supplementing their existing BIM resource wherever necessary. Indeed, our point cloud modelling (or scan to BIM) services are perfect for any organisation requiring a 3D model for design or verification purposes.

CCTV Drainage Surveys

From initial inspection to diagnosis, jetting and repairs, our specialist drainage team provides a 24/7 CCTV drainage survey service to the rail, construction and civils sectors.

Our CCTV drainage technology is by far the most efficient way of assessing drainage issues with disruption and inconvenience kept to an absolute minimum. We also provide a range of complementary services, supplying the information and confidence you need to make better-informed decisions about your projects. Whilst not an exhaustive list, these services include...

- CCTV float surveys
- CCTV manual entry surveys
- Pre and post adoption surveys
- Detailed manhole surveys
- Sonar surveys
- Drain cleaning
- Drainage connectivity surveys
- Maintenance service plans
- High pressure water jetting
- Drainage mapping and tracing

EQUIPMENT AND REPORTING

Working at the forefront of the nation's drainage surveying industry, we invest heavily in the very latest technology. From mobile drainage and jet vac units to crawlers, cameras and root cutters, these tools allow our dedicated CCTV drainage team to work faster, safer and more cost-effectively than ever before.

Thanks also to this new technology, we're able to dramatically enhance the quality of our deliverables with simple, user-friendly reports being accompanied by cinema-quality, WinCan footage and a fully marked-up site drawing. The traffic light system (RAG) used by our drainage team is ideal for seasoned professionals and newcomers alike, providing sufficient details whilst, at the same, drawing their attention to those areas of genuine concern.

Ground Investigation

Our specialist drilling teams and geotechnical engineers add value to your railway projects, from initial consultation and desktop investigations to testing, the production of factual reports and, ultimately, recommendations.

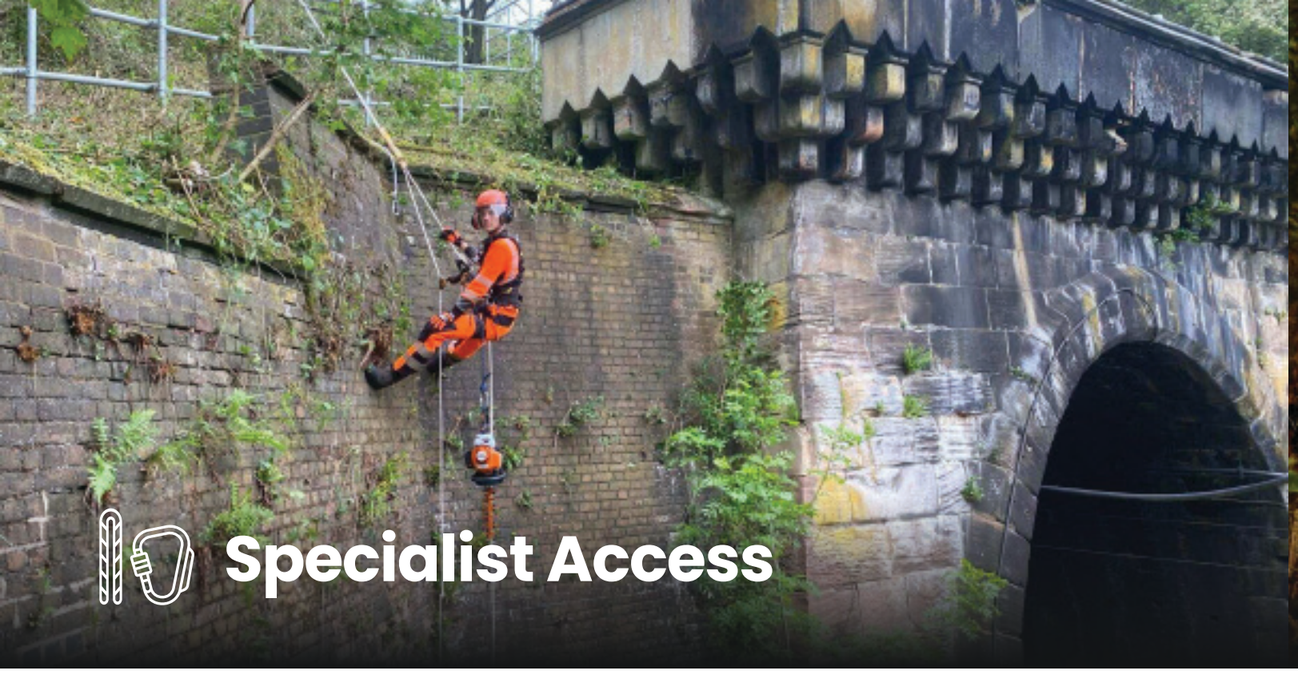
Designed to ascertain ground conditions in advance of design and construction, our site investigation services help your team to predict, expose and thus mitigate risk, keeping your projects on track and your stakeholders on board.

Indeed, operating throughout the country, our professional geotechnical engineers and drilling teams provide specialist ground investigation support to some of the rail sector's largest and most recognisable projects.

To keep both your organisation and its projects safe and compliant, we offer a comprehensive and complementary range of ground investigation services to the UK's rail sector...

GROUND INVESTIGATION SERVICES

- Phase 1 desktop studies
- Factual reporting
- Logging
- Laboratory testing of samples (UKAS)
- In situ testing
- Cable percussive and rotary drilled boreholes
- Window sampling and probing
- Trial pitting and trenching
- Geotechnical monitoring services
- Structural coring
- Health and safety supervision



Specialist Access

A multi-disciplinary provider of inspection and maintenance services, we deliver a wide range of non-destructive testing and inspection services to the UK's rail industry.

City & Guilds-qualified, members of the Industrial Rope Access Trade Association and holders of the CCNSG Passport, our entire team are also trained in first aid as well as holding up-to-date PTS and CSCS qualifications.

INSPECTING, ASSESSING AND SUPPORTING

Using IRATA-approved industrial access methods, we support some of UK's most prominent rail contractors, accurately inspecting and assessing both structures and plant, supporting third-party organisations to aid the repair and maintenance process safely and cost effectively.

HOW CAN WE HELP?

- Surveys (CUI inspections, debris at height, dropped object, etc.)
- Cladding
- Industrial cleaning
- Tank cleaning and painting
- Non-destructive testing (NDT) inspections
- Confined space works
- Painting
- Thermal imaging and gas detection
- Blasting
- De-stuct works
- Rigging and lifting
- Work positioning nets

Vegetation Management

Bringing decades of experience to the table, our time-served arborists and vegetation management operatives support the leading names in rail, undertaking both major and minor tree and vegetation projects throughout the UK.

LANTRA and NPTC qualified and operating under robust safe systems of work, where necessary they're also supported by our in-house IRATA-certified rope access teams, performing their work in otherwise hazardous or inaccessible environments.

SAFE AND RESPONSIBLE

There are more than 10 million trees within 60 metres of the UK's rail network and, whilst many of these are actually on private land, they still have the potential to impact the safe running of the railway.

Every autumn, your average mature tree sheds an incredible 10-50,000 leaves, many of which will drop or be blown onto railway lines causing significant delays and disruption to rail users. Furthermore, in the event of severe weather, such trees can pose a risk to the infrastructure itself, damaging signalling or OLE equipment and, potentially, blocking the line itself.

Not only can our vegetation management teams clear safe passage and working areas, our arborists can also help minimise the impact of trees upon rail users and the infrastructure.

THE SURVEY ASSOCIATION

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SSIP SAFETY SCHEMES IN PROCUREMENT