

SPENCER
Rail

INDUSTRY LEADING RAIL ENGINEERING SOLUTIONS

OVER 30 YEARS
OF EXPERIENCE IN
DEPOTS, STATIONS
AND INFRASTRUCTURE
PROJECTS



Bridge

Build

Civil

Design

M&E Services

Rail

SPENCER
British Engineering

WE ARE SPENCER GROUP - RAIL ENGINEERING



J Bennett

Joe Bennett
Operations Director
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We are pleased to be able to introduce this snapshot of Spencer Group's rail capabilities. Our dedicated professional multi-disciplined rail team provide innovative, integrated solutions for our clients, which are delivered to industry-leading safety standards. Our business model enables clients to tap into our turnkey, in-house design and build capability, whilst benefitting from our provision of value-engineered solutions for Property, Civils, Track, Depot and Control Centre projects throughout the UK.

Our award-winning team works collaboratively with a wide range of clients, including Network Rail, Train Operating Companies, Freight Operating Companies, Private Clients, and Government, Local and Regional Authorities. We value the opportunity for early contractor involvement taking projects through their whole lifecycle from feasibility, planning and design, to implementation and maintenance, with experience of working across all GRIP stages.

Throughout this brochure you will see definitive evidence of our business values of top-class performance coupled with visionary engineering thinking, a collaborative approach and the desire to make a difference to the communities in which we work. We hope we can bring these values to your project in the future.

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CAPABILITY AND EXPERTISE: NEW-BUILD AND REFURBISHMENT/MAINTENANCE OF THE FOLLOWING:

MAJOR INFRASTRUCTURE PROJECTS | STATIONS | DEPOTS & SIDINGS | CONTROL CENTRES | LINESIDE STRUCTURES & INFRASTRUCTURE

SERVICES

ECI & FEASIBILITY | DESIGN | PROJECT MANAGEMENT | CIVIL ENGINEERING | MECHANICAL & ELECTRICAL | FIXED DEPOT PLANT | OLE
ELECTRICAL, CONTROL & INSTRUMENTATION | ELECTRIFICATION & POWER | RAIL SYSTEMS | SIGNALLING & TELECOMS | PERMANENT WAY

DELIVERY OF PROJECTS



Richard Watson

Richard Watson
Project Director
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Our teams of highly skilled and experienced industry professionals have been at the very forefront of successfully delivering multi-disciplinary rail projects for over three decades. These have ranged from major rail enhancements and capital delivery assignments through to refurbishment and extensions to existing operating depots, and the construction of control centres across the UK.



Simon Bethell

Simon Bethell
Pre-Construction Director
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Spencer Group often assumes the role of Principal Designer and Principal Contractor. Clients trust us to manage risk, design, cost/value and performance. They come to us in the knowledge that we have a world-class reputation and demonstrable track record in delivering major, potentially disruptive works, whilst maintaining a live, safe working environment whether we are working on a station, depot or the track itself. Each project is supported by our team of experienced CEMs and discipline-specific CREs, who bring their extensive knowledge of industry specific standards and legislation to ensure compliance at all stages.

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EARLY CONTRACTOR INVOLVEMENT



Twells

Tony Wells
Project Director
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Spencer Group are passionate in seeking out the most efficient and effective value-added solutions for our clients at the pre-contract stage. This is the most critical stage of any project. By developing the optimum design solutions, to deliver the safest and best commercial and programme outcomes for our clients, we can remain at the very forefront of our industry by and well ahead of our peers.

It is crucial to ensure that innovation, robust cost optioneering, buildability, and engineering ingenuity are all optimised at the design stage. This is something we have developed particular skills for over decades of managing this delivery model concept, along with our own designers and the client's consultants.

Most of our national clients are increasingly striving for enhanced value at lower cost and at the appropriate quality. We have honed our Early Contractor Involvement (ECI) services and processes to do just that by developing a range of early conceptual designs coupled with a selection of cost options and buildability analyses. This provides our clients with the power to explore and seek out the best and most fitting final design solution, which exactly suits their needs and requirements. Our in-house design and delivery models allow us to take projects from inception to completion which provides the optimum single-source option for our clients.

By integrating and pooling the talents and experience of our Civils, Structural, M&E and ECI, design engineering and construction professionals we are able to create truly innovative award-winning solutions.

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IN-HOUSE DESIGN TEAM



T Hopkins

Tony Hopkins
Engineering Manager
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Few contractors in the UK have dedicated multi-disciplinary in-house design capabilities whereby complex projects can significantly benefit from a bespoke, integrated design philosophy. My focus at Spencer Group is to direct and drive our dedicated design team in a direction which explores all potential engineering options and technologies available.

Huge benefits are borne through the efficiencies of internal collaboration between our design engineers, across all disciplines, with our construction teams, as well as our client teams, stakeholders and supply chain in order to facilitate overall ownership of the design development process.

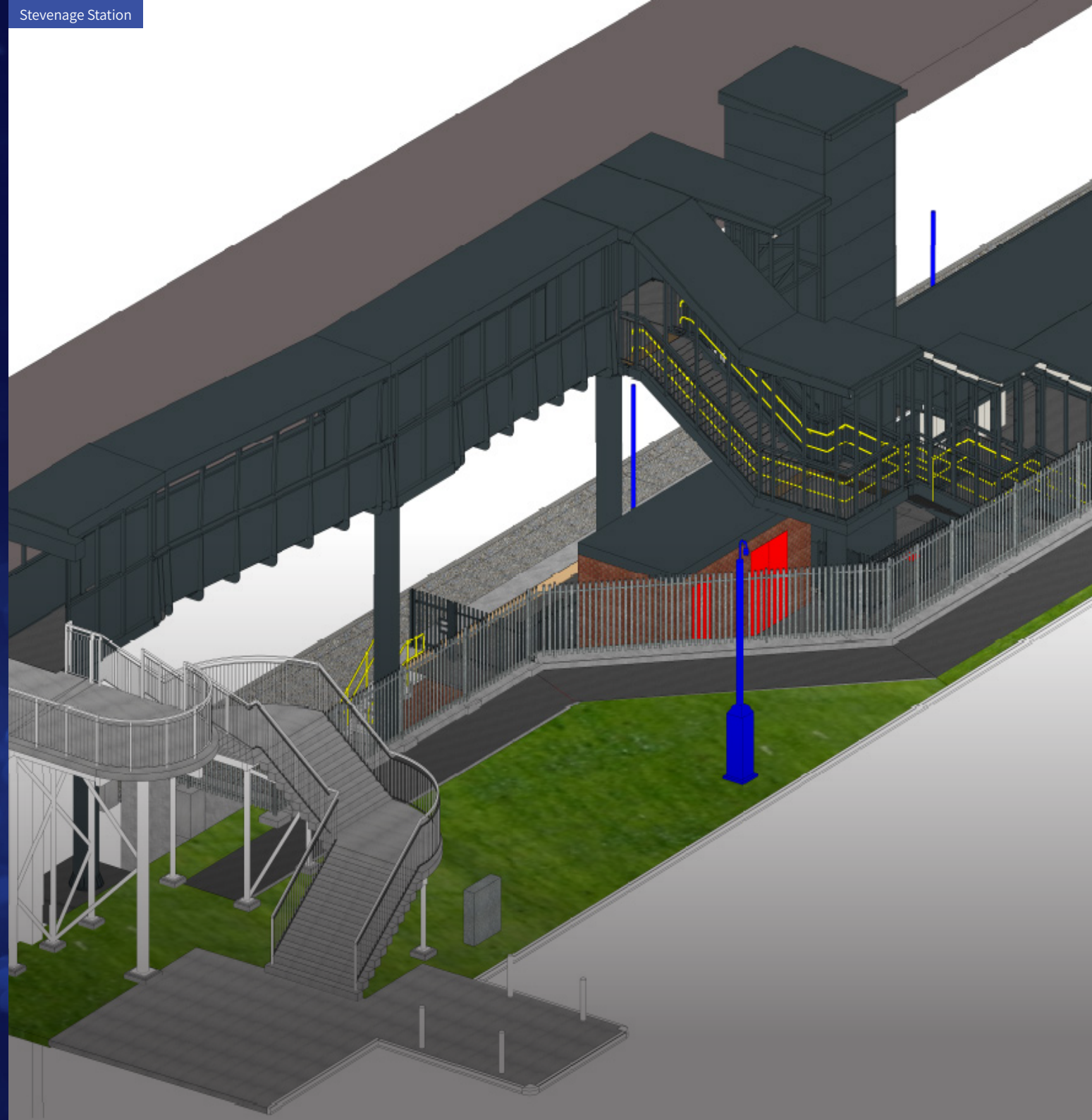


G Robson

Gary Robson
Engineering Manager - Design
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Permanent works design is implemented in a BIM compliant, common data environment, making the sharing of information and hand-back as smooth as possible. We place equal importance on temporary works, developing the most efficient, buildable and appropriate temporary works designs at pre-construction stage to ensure they are compatible with and can, wherever possible, become part of the permanent works design.

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LARGE MULTI-DISCIPLINARY PROJECTS

We have over 30 years of experience delivering large-scale, multidisciplinary rail projects for some of the most vital parts of the UK's rail infrastructure. Spencer Group have the combined expertise in civil, building, electrical, OLE, and P-way engineering to handle the demands of any project from design to delivery and handback. Our in-house possession planning capability combined with our knowledgeable design and construction teams allows us to carry out complex and sensitive works under time constraints with minimal disruption to the operational railway, associated infrastructure, travelling public and the communities in which we work. We have an established supply chain with whom we collaborate to ensure that we provide innovative, value-engineered solutions for our clients.

Stevenage Turnback Facility



Cambridge Sidings



Ipswich Chord



Gravesend Station



East Kent Phase 2





PROJECT DETAILS

Client	Network Rail
Start Date	August 2018
End Date	August 2020
Duration	24 months
Location	Stevenage

KEY STATS

127M NEW 127 METRE PLATFORM

1 COMPLETED 1 YEAR AHEAD OF SCHEDULE

1.6 MILES OF ELECTRIFIED TURNBACK LINE

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CO.UK

STEVENAGE TURNBACK FACILITY

A two-year project, Stevenage Turnback Facility was a complex scheme involving civil, structural, M&E, P-way and OLE elements. We worked in collaboration with Network Rail, Govia Thameslink Railway and other project stakeholders to successfully deliver the scope of works twelve months ahead of the planned completion date.

PROJECT SCOPE

Spencer Group were appointed as the Principal Contractor and Principal Designer to extend the existing Down Hertford Loop into Stevenage Station and provide a turnback facility serviced by a new single platform sufficient for a 6-car set based on Class 717 coach lengths.

The scope of works included over a mile of new plain line P-way with a switches and crossings unit connection into the East Coast Main Line, along with associated new OLE structures and equipment, signalling, lineside cable troughing, bonding, electrification and power, M&E, retail telecoms services and associated

civil and structural engineering activities, such as earthworks to embankments, piling, drainage, RC works and structures. The scheme also included the design and construction of a new station entrance, stairs and lift.

Within the station and passenger areas, we designed and constructed a new 127m turnback platform to accommodate a 6-car set Class 717 vehicle, including a 5-metre safe distance between the train and the buffer stop. In addition, 41m of passive provision was made for the future extension of the platform to accommodate 8-car sets.

PROJECT OUTCOME

The project was achieved by removing risks early through our 'Safe by Design' process. To prevent slippage of the programme, we erected two new portal structures for OLE at the southern end of the site. This activity had to be completed within a 72-hour blockade. To de-risk the task, we brought in a large mobile road crane and built large supporting bases to ensure the works could be achieved in the available window of 24 hours.

The completed project facilitates faster and more frequent commuting services between Hertford and Stevenage.

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PROJECT DETAILS

Client	Govia Thameslink Railway
Start Date	July 2018
End Date	September 2020
Duration	27 months
Location	Cambridge

KEY STATS



CAMBRIDGE SIDINGS

At Cambridge we worked with Govia Thameslink Railway to increase stabling facilities at one of the busiest stations, part of the £7bn Thameslink Programme which is delivering substantial service benefits for hundreds of thousands of commuters and other travellers on the network.

PROJECT SCOPE

The project involved increasing the stabling capacity from 64 to 96 coaches by removing and remodelling existing and new P-Way sidings to Roads 4, 5, 6, 7, 7A & 7B, complete with OHLE diversions and installations to support faster Class 700 rolling stock.

M&E works included the provision of a new DNO supply with multiple feeds for eight new signals and twelve modified signals, as well as troughing routes, cabling and LOC/signal connections. Works associated with the provision of the CET system,

comprised drainage, connections, a pump house and a new concrete apron. We installed new sanding facilities, sand vessels and pipework, and new track and site drainage. The existing train wash plant, other facilities and offices were removed, and a new wash facility and welfare buildings were constructed. We also undertook strengthening works to Mill Road Bridge strengthening works.

PROJECT OUTCOME

The programme of works was successfully completed on time to allow the servicing and cleaning of trains to meet the new timetable change. Spencer Group worked closely with GTR to minimise all disruption to the regular depot activities and have minimal impact on the movement of trains around the depot.

The works have facilitated faster and more frequent trains from Cambridge, through London and on to the south coast.



STATIONS & ACCESS FOR ALL / STEP FREE ACCESS

Spencer Group has a proud history of innovation and excellence in the delivery of a broad range of station and interchange projects, ranging from local station's through to large, city-centre transport hubs. We have experience of a wide range of works including sensitive restoration and re-construction, strengthening and improvements, and new-build projects, creating modern stations fit for the twenty-first century.

In addition, we understand the importance of compliance with legislation surrounding accessibility and have worked on a number of access for all schemes, where we have provided step-free access throughout the stations, implementing the combined knowledge of our rail and bridges teams. We are also committed to managing projects in partnership with all stakeholders to ensure that work is carried out whilst the station is still operational, with as little disruption as possible to the normal day-to-day running of the facilities.





PROJECT DETAILS

Client	Network Rail
Start Date	November 2014
End Date	June 2016
Duration	20 months
Location	Bradford

KEY STATS

2

LIFTS

2

PLATFORMS

62K

62,000 MAN HOURS
WORKED IN TOTAL

KIRKSTALL FORGE STATION

Kirkstall Forge Station, Bradford, was part of the wider West Yorkshire Rail Growth Package, an integrated package of rail enhancements in the Leeds City Region. Kirkstall Forge was one of two brand new stations Spencer Group built on the Bradford Forster Square – Leeds route. Apperley Bridge, the other station, was built and commissioned by Spencer Group 7 months earlier.

PROJECT SCOPE

The full scope of works involved the design and build of a brand new station, incorporating the following:

- A new access road off Abbey Road, A65
- A pick-up and drop-off point for cars and buses
- A 200 space car park
- 2 passenger platforms, new OLE structures, under track duct
- Artisan AFA overbridge with lifts and staircases
- CCTV and public address system
- Passenger information displays
- Bicycle parking and shelters
- Ramp facilities throughout
- One of the first projects to be completed in line with the Common Safety Methods (CSM)

PROJECT OUTCOME

At detailed design stage it became clear that significant track realignment was required in order to deliver standard-compliant platforms, and so a staged approach to construction was undertaken. Involved was a maximum 200mm lift and 150mm slew over a 700m section of line, alongside relocation of a pair of insulated block joints and associated location cabinet, as well as existing OLE stanchions and TOWS. Upon completion, Kirkstall Forge station

was recognised by the area's transport authority as its 'model scheme' to develop the 'access to the North' initiative. The station is part of a new development comprising 1,050 new homes, 300,000 square feet of office space and 100,000 square feet of retail, leisure and community space.



PROJECT DETAILS

Client	Network Rail
Start Date	September 2013
End Date	April 2016
Duration	31 months
Location	Rochester

KEY STATS

300M

SECTION OF 17M LONG
SHEET PILES INSTALLED

ZERO

DISRUPTION TO
EXISTING SERVICES

96HR

BLOCKADE UTILISED FOR
THE INSTALLATION OF A
SUBWAY BUILT 'OFF LINE',
ADJACENT TO THE EXISTING
RAIL EMBANKMENT

ROCHESTER STATION

The £145m East Kent Phase II programme saw the upgrading of a 33-mile stretch of East Kent's railway network, last renewed in 1959. The new £26 million facility at Rochester, which replaced the old Victorian station a mile away, was built around an operational railway, close to the town centre.

PROJECT SCOPE

The project included the construction of three platforms, each long enough to accommodate the new 12-car sets, a new canopy, and construction and fit-out of the new Rochester station building. The station is of modern design, incorporating the latest high specification finishes, including M&E and telecoms for PA, CCTV, and CIS monitors with ticket gating.

To the rear of the new building, one of the biggest challenges on the project was the construction of an 850-tonne pedestrian subway. It was built 'off line', adjacent to the existing rail embankment, then installed during a 96-hour blockade over the Easter period.

PROJECT OUTCOME

The construction of the new station provided a modern facility, which is bright and fully step-free, offering a pleasurable passenger experience. The station and its underpass are key to a new 1,500 home development in the area, as they allow residents to take a quick stroll between the riverside and town centre or easily catch a train to London, only 35 minutes away.

This project was described as an industry model for collaborative working and won three industry awards: Best Collaboration at the 2014 Network Rail Partnership Awards, Most Interesting Major Infrastructure Project at the Rail Expo Awards, and Engineering Innovation from the Institute of Civil Engineers, both in 2015.



DEPOTS & SIDINGS

Depots play a strategic role in keeping the rail network on the move. With a growing range of successful projects behind us, our in-house designers and engineers have the knowledge and skills to deliver complex engineering solutions tailored to our clients' requirements, from the enhancement of existing facilities to the design and build of new depots. We seek to understand the operational needs of each depot and work with their staff to ensure the optimal functioning of the depot throughout our works. Our experience spans all elements of depot working including CET, fuelling and AdBlue systems, train wash, HVAC, fume extraction, wheel lathes, maintenance/inspection facilities, depot protection, lighting, sanding, under frame cleaning facilities, lifting cranes, bogie drops, access solutions, including walkways and gantries, as well as depot accommodation and welfare. Our works aim to enhance our client's asset by providing a modern, safe and efficient working environment built for the next generation of rail transport.

As a contractor on the Fixed Depot Plant Framework, we are pleased to collaborate with Network Rail, Train Operating Companies and Freight Operating Companies to provide plant supporting a twenty-first century rail network.

Our depot Design & Build experience extends to the following:

- Depot New-Build
- Operational Depot Extensions and remodelling
- Depot Rail Systems
- Fixed Depot Plant
- Depot Access
- Depot Accommodation

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Etches Park Depot



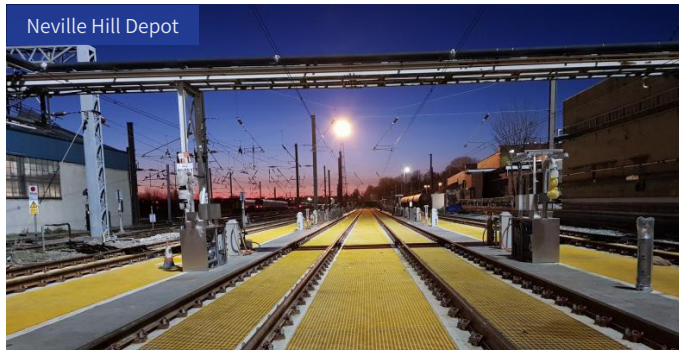
Penzance Depot



Craigtinny Depot



Neville Hill Depot



Ardwick Depot





PROJECT DETAILS

Client	GWR
Start Date	July 2016
End Date	January 2018
Duration	15 months
Location	Penzance

KEY STATS

1

BREEAM “VERY GOOD”
STATUS

0

ZERO UNPLANNED
DISRUPTION TO DEPOT
OPERATIONS

1

COLLABORATIVE
RELATIONSHIP WITH GWR

PENZANCE DEPOT

Great Western Railway (GWR) required the redevelopment and expansion of the existing Penzance Depot to accommodate the transition of rolling stock from Old Oak Common as part of the High-Speed Rail 2 programme of works.

PROJECT SCOPE

Spencer Group proposed an alternative solution in order to deliver the design and construction of a 132m x 15m new Train Care Depot encompassing the refurbishment of the existing High-Speed Train shed as part of one whole facility, through incorporating the old shed within the new building using an innovative envelope and cantilever steelwork design. We constructed a taller portal frame shed, designed to enable installation of the new building's roof sheeting without disrupting the original shed below.

A moveable encapsulation shield was used to remove the old High-Speed Train shed asbestos roof and wall sheeting, whilst maintaining the 24-hour operational requirements of the depot and ensuring the asbestos was contained. Furthermore, Spencer Group removed the structural steel rafters from the old shed, connecting the old columns to the new cantilevered portal rafters.

PROJECT OUTCOME

The original contract was due to be completed in April 2018, however due to the early transition of rolling stock from Old Oak Common, we were instructed to accelerate the contract by 17 weeks. Through a strong collaborative working relationship between Spencer Group, GWR and the Depot team, we achieved every project milestone, completing it to the accelerated programme with no impact to depot operations.

As a result of this success, we received the GWR Collaboration Award.



PROJECT DETAILS

Client	East Midlands Trains
Start Date	November 2008
End Date	January 2010
Duration	14 months
Location	Derby

KEY STATS

400M² WORKSHOP AREA

2.4KM PLAIN LINE TRACK

2,800M² OFFICE AND WELFARE FACILITIES

ETCHES PARK DEPOT

The design and construction of Etches Park rail depot facility incorporated a 400m² storage/workshop area with office and staff welfare facilities, and a new wheel lathe building, to provide routine servicing for rolling stock.

PROJECT SCOPE

The scheme involved the installation of 2.4km of new plain line track, 6 switch and crossing units, plus one tandem turnout. The workshop/storage shed was a new covered three-road, 7-car set length building, with two through roads, and one buffer stop road, including service pits on two roads. One of the key requirements for this project was to complete the new wheel lathe facility prior to the construction of the main depot building.

The project also incorporated the construction of a new two-storey office and welfare facility for depot staff, as well as the installation of a new 2 x 70m concrete track slab, associated CET and fuelling equipment.

PROJECT OUTCOME

To achieve the completion of the new wheel lathe facility, Spencer Group altered programme logic and sequencing, accelerating the programme to a 24-hour-a-day, 7-days-a-week work pattern. This enabled the wheel lathe to open on schedule and operate whilst the remainder of the depot was being constructed.

The 2800m² office and welfare facility created a 'professional place of work' (Tim Shoveller, East Midlands Trains MD) for staff, with numerous energy efficiency features leading it to achieve a BREEAM rating of 'Very Good', helping to keep East Midlands Trains environmental goals on target.



PROJECT DETAILS

Client	Network Rail
Start Date	November 2016
End Date	January 2018
Duration	14 months
Location	Leeds

KEY STATS



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NEVILLE HILL DEPOT

Spencer Group worked in collaboration with Network Rail and Hitachi on the upgrade of eight Light Maintenance Depots (LMDs) to design and build improved maintenance and servicing facilities at existing East Coast Depots for Hitachi Europe. Neville Hill in Leeds required a full refurbishment of the depot ready for the arrival of the new fleet of Super Express Trains.

PROJECT SCOPE

As part of the IEP Depot framework, Neville Hill involved the design and build of four new rail roads to accommodate the new Hitachi Class 800 biofuel trains. The works included constructing incorporated trenches and service troughs, installing new AdBlue and Fuel Dispensers with the associated pipework, connecting new and amended drainage (including a new vacuum pumping main chamber), building a new AdBlue pump house and fitting additional lighting. The works had to be carried out sequentially with the other 5 depots on the add programme of works, to ensure works did not overrun and affect the commencement of the other sites.

The scope also included the provision of temporary fuelling facilities within one of the existing maintenance sheds. This work was completed as part of the enabling works, which also included the installation of a temporary OLE isolation switch to allow the main sidings work to be completed effectively without significantly impacting the depot operations by maintaining the bypass road for shunting operations as only one depot on the East Coast Main Line can be closed at any one time. We created and maintained a detailed programme of the entire framework to ensure works do not overrun and affect other sites.

PROJECT OUTCOME

Hitachi, Network Rail and Spencer Group formed a close relationship throughout the works, resulting in a smooth and successful delivery. We minimised our impact on the local area throughout, with zero noise complaints during the works despite the residential area surrounding the depot. Spencer Group provided a shuttle bus to the site due to limited local parking, to ensure that disruption from additional depot traffic was minimal.

Steffan Thrower, Hitachi, stated: "The quality and safety of the work Spencer Group carry out has been excellent throughout, and I'd like to pass on my personal thanks to the hard efforts of your project team". Spencer Group successfully interfaced with depot staff and stakeholders for the duration of the works to deliver the upgraded depot for the arrival of the new trains.

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PROJECT DETAILS

Client	Network Rail
Start Date	January 2018
End Date	November 2018
Duration	11 months
Location	London

KEY STATS

1

INSTALLATION OF AN
ELEVATED WALKWAY

1

NEW AZUMA SHORE
SUPPLY SYSTEM

1ST

FIRST RETRACTABLE
OVERHEAD SYSTEM IN THE
UK FOR NETWORK RAIL

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CO.UK

BOUNDS GREEN DEPOT

Spencer Group were appointed by Network Rail to deliver the upgrade of Bounds Green Depot in order to accommodate the new IEP Azuma Trains. This was the last phase of the IEP Programmed Works which involved delivering upgrades across 5 other depots and the design and construction of the first retractable overhead system to be installed for Network Rail in the UK.

PROJECT SCOPE

The Design and installation scope of works at Bounds Green included the installation of an elevated access walkway. Removal and replacement of associated high level lighting and heating services. Modification of Depot Protection Systems to allow for the installation of an interlocking System. Modification works to the OLE on Road 11 including the installation of a retractable OLE conductor beam and associated works. Alterations to the door aperture to cater for the new OLE alignment and structures. Provision of a new runway beam with 2 powered trolleys and chain hoists, each with a capacity of 1.5t over Road 11. Provision of a separate runway beam for the attachment of man-safe fall arrest equipment.

In order to successfully deliver the works, we collaborated with the depot operators to conduct progressive possessions across the rail lines, whilst maintaining the operation of the remaining lines, with 3 trains scheduled to enter the depot each day. In order to minimise disruption, we installed hoardings within the depot to separate our works from the operational lines. We overcame a number of issues during the works.

For example, once work began on site, we found that cables were not located where the Clients surveys had identified. We therefore, worked collaboratively with the depot operators to safely identify these cables. Throughout the project we worked

closely with Network Rail to propose alternative and innovative methods to improve efficiency and reduce disruption to the operational depot. This included utilising an alternative method in order to remove large sections of the RC slabs rather than breaking it up in an enclosed and habited environment.

PROJECT OUTCOME

The project involved the installation of a retractable arm and associated structures, the first of its kind for Network Rail. We therefore, maintained a close relationship with the Client's representatives to ensure they were continually updated on progress, the design for engineering

assurance and construction methods to ensure the smooth transition of Entry Into Service and handover.

The Project Manager therefore, held regular meetings with Network Rail and circulated all information on current works and project milestones to ensure a 'one team approach' throughout. As a result, Spencer Group received high praise from Network Rail for our successful delivery and collaborative approach to work.

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PROJECT DETAILS

Client	GWR/DfT
Start Date	September 2015
End Date	August 2017
Duration	24 months
Location	Reading

KEY STATS

6

ARTICULATED TRUCK LOADS OF
WHEEL LATHE COMPONENTS

90%

DIVERSION OF WASTE
FROM LANDFILL

1ST

WHEEL LATHE DANOBAT
INSTALLED IN UK

READING TRAIN CARE DEPOT

The Reading Train Care Depot wheel lathe facility was commissioned by First Great Western in order to serve the changing requirements of the Thames Valley fleet, as part of the Department for Transport's electrification programme. Spencer Group took on the challenge of designing and building the scheme while keeping the facility fully operational for the duration of the contract.

PROJECT SCOPE

The works involve extending the existing train shed to create space for the new wheel lathe facility, P-Way was extended to allow trains to access the wheel lathe facility and the depot's existing carriage wash plant room was relocated with all components (steel frame, cladding and equipment) being re-used as it was fouling the alignment of the embedded concrete track slab.

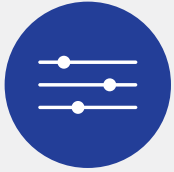
Office / training rooms and welfare accommodation are located within the extension for the depot staff. Once the wheel lathe building was weather-tight and the overhead gantry crane commissioned, Spencer assisted the wheel lathe manufacturer (Danobat) to transport their components into the wheel lathe pit for them to assemble the lathe.

PROJECT OUTCOME

Spencer Group found an existing high-pressure gas main and HV electricity cables directly in the way of foundations for a new retaining wall. This wall formed the boundary of the access road we were to construct to maintain a vehicle route to the West end of the Depot.

This required the site team and design team to review the programme and come up with an alternative access route and delivery strategy to commence construction of the wheel lathe building.

Once services diversions were complete the project took off and was delivered to a challenging programme, scheduled to mitigate further delays and serve the demands of the Client and DfT to ensure the project was completed by end of August 2017.



CONTROL CENTRES

Since building the first UK signalling control centre in 2006, Spencer Group have delivered a series of these state-of-the-art complex buildings, developing industry-leading capabilities in both design and construction. We are leading the way with these turnkey projects, having successfully delivered more than any other UK contractor.

Our single integrated, in-house team, of design and construction engineers are able to explore and maximise the efficiencies of off-site fabrication and modularisation. We understand how to manage the challenges of brownfield sites and seek to deliver finished buildings that achieve the highest possible BREEAM rating, using systems such as rainwater harvesting and renewable energy. Our Derby Control Centre Project provided Network Rail with their greenest project to date, achieving a 'very good' rating, the best possible rating for any operational critical facility at that time.

Three Bridges Control Centre



Thames Valley Signalling Centre



West Scotland Signalling Centre





PROJECT DETAILS

Client	Network Rail
Start Date	October 2011
End Date	October 2013
Duration	24 months
Location	West Sussex

KEY STATS

72M
X
53M

DESIGN AND BUILD PACKAGE

7560M²

OVERALL SQUARE
FLOOR AREA

2

11KV / 33KV POWER SUPPLIES,
GENERATOR BACKED VIA UPS

THREE BRIDGES CONTROL CENTRE

A new rail operating centre was required at Three Bridges in Crawley, as part of Network Rail's commitment to replace over 800 signalling boxes and it represented the first 'second generation' control centre to be built in the UK. Spencer Group were commissioned to deliver the project from GRIP stages 5 to 8.

PROJECT SCOPE

The project involved the clearance of the original Tilgate railway sidings followed by the construction of a new three-storey building, which comprised of pile and ground beam substructure, steel superstructure, precast concrete floors and blast enhanced curtain walling, with GRC cladding forming the external envelope.

Spencer Group were responsible for the detailed design, fit-out and testing of the signalling control centre, in addition to the temporary works, general civil

works, installation of an access road and associated services. The building design incorporated a glazed entrance atrium, with a corridor light well running the full length of the building. The team installed a multiple-level electrical distribution system with UPS back-up, providing power redundancy to maximise system resilience for signalling, ECO and route control systems. State of the art security systems were incorporated to manage and maximise the safety of personnel in and around the building.

PROJECT OUTCOME

Spencer Group site teams overcame significant project constraints, delivering the project within a tight and land-locked site, with only one access point under the Horsham line, as well as working in close proximity to the local community school and playground. Through close collaboration with key stakeholders, including Balfour Beatty, the adjacent Thameslink Depot and the local public, we successfully completed the project without any unplanned disruption.

The building achieved a BREEAM 'Very Good' rating, demonstrating our commitment to the sustainability of the project.



PROJECT DETAILS

Client	Network Rail
Value	£15m
Location	Derby

KEY STATS

"VERY
GOOD"

BREEAM "VERY
GOOD" STATUS

1ST

1ST OF ITS KIND IN THE UK

5-8

GRIP STAGES 5-8

THESPENCERGROUP.
CO.UK

DERBY CONTROL CENTRE

Spencer Group were appointed by Network Rail to deliver the design and construction of a rail control centre in Derby. We transformed the land from a derelict, brownfield site to a modern facility to control the signalling and operations of the East Midlands rail network, providing an improved service for rail users.

PROJECT SCOPE

Our unique turnkey approach to designing and delivering complex multi-disciplined M&E projects enabled us to deploy lessons learnt from previous projects, to provide a world-class facility for Network Rail.

Spencer Group were responsible for delivering Network Rail's "greenest building to date", achieving a BREEAM rating of "Very Good" which was the best rating achieved for an operationally critical facility at the time of completion. The project incorporated renewable energy technologies wherever possible such as reducing the glazed area and the use of body tinted glazing to minimise solar gain and reduce cooling requirements.

The regeneration of the derelict brown field site required the safe disposal of asbestos and hydrocarbons and all construction materials utilised were easily recyclable e.g. PFA based concrete.

Spencer Group worked closely with Network Rail to provide a failsafe electrical distribution system providing four levels of back-up - comprising of normal mains supply, standby generator, uninterruptible power supplies and a secondary standby generator facility, ensuring efficiency and reliability across the control centre.

PROJECT OUTCOME

The East Midlands Control Centre (EMCC) building was the first of its kind in the UK and was built to a modular design, enabling Network Rail to provide modern facilities at an efficient cost. It is Network Rail's greenest building to date, incorporating solar water heating to reduce carbon emissions and rainwater harvesting to save a million litres of water every year.

Ruth Kelly, Secretary of State for Transport and Ian McAllister, Chairman of Network Rail commented: "This impressive new control centre will provide a better service for many thousands of passengers in the East Midlands." We are exceptionally proud of our new East Midlands Control Centre".

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E&P AND M&E SERVICES

Our multi-skilled and widely experienced Electrification & Plant, and M&E professionals have been at the forefront of key innovative projects for three decades, from major rail maintenance projects and signalling control centre work, to state-of-the-art depot extensions and new station schemes.

Our in-house designers work alongside their colleagues from other disciplines to ensure integrated designs are produced that fully capture the client requirements. We provide E&P and M&E services across all elements of the rail infrastructure from lineside buildings to control centres, depots and stations. We follow each project through to commissioning, providing the operation and maintenance manuals for all our client's assets.

Etches Park Depot



Penzance Depot



Thames Valley Signalling Centre



Three Bridges Control Centre



Stevenage Turnback Facility





PROJECT DETAILS

Client	Network Rail
Start Date	November 2016
End Date	January 2018
Duration	14 months
Location	Leeds

KEY STATS

1

TEMPORARY
FUELLING STATION

5000

LITRE ADBLUE
STORAGE TANK

14

NEW FUEL POINTS

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NEVILLE HILL DEPOT - RAIL SYSTEMS

Spencer Group worked in collaboration with Network Rail and Hitachi on the upgrade of eight Light Maintenance Depots (LMDs) to design and build improved maintenance and servicing facilities at existing East Coast Depots for Hitachi Europe. Neville Hill in Leeds required a full refurbishment of the depot ready for the arrival of the new fleet of Super Express Trains.

PROJECT SCOPE

As part of the IEP Depot framework, Neville Hill involved the design and build of four new rail roads to accommodate the new Hitachi 800 biofuel trains. The works included constructing incorporated trenches and troughs, installing new AdBlue and Fuel Dispensers with the associated pipework, connecting new and amended drainage (including a new vacuum pumping main chamber), building a new AdBlue pump house and fitting additional lighting.

The works had to be carried out sequentially with the other 6 depots on the framework as only one depot on the East Coast Main Line can be closed at any one time. Spencer's have created a detailed programme of the entire framework to ensure works do not overrun and affect other sites.

PROJECT OUTCOME

Hitachi, Network Rail and Spencer Group formed a close relationship throughout the works, resulting in a smooth and successful delivery. We minimised our impact on the local area throughout, with zero noise complaints during the works despite the residential area surrounding the depot. Spencer Group provided a shuttle bus to the site due to limited local parking, to ensure that disruption from additional depot traffic was minimal.

Steffan Thrower, Hitachi, stated: "The quality and safety of the work Spencer Group carry out has been excellent throughout, and I'd like to pass on my personal thanks to the hard efforts of your project team". Spencer Group successfully interfaced with depot staff and stakeholders for the duration of the works to deliver the upgraded depot for the arrival of the new trains.

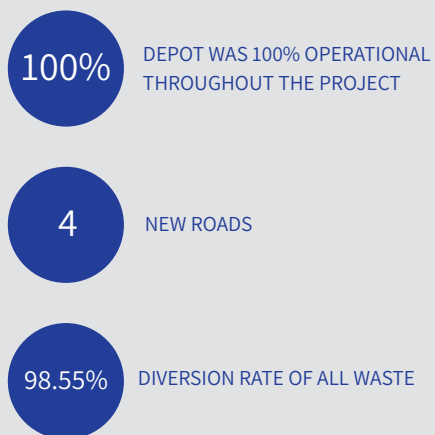
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PROJECT DETAILS

Client	East Midlands Trains
Start Date	January 2018
End Date	February 2019
Duration	56 weeks
Location	Derby

KEY STATS



ETCHES PARK DEPOT

Spencer Group were appointed by East Midlands Trains to deliver the design and construction of a new underframe cleaning facility as an extension to the existing maintenance facility. The works included all associated surveys required for full design, clearance on existing P-Way, lighting gantries, and 2 offices, followed by the installation of the new shed, carriage wash and associated p-way.

PROJECT SCOPE

As part of the design development Spencer Group undertook visual, intrusive and ground surveys, all coordinated with Virgin Trains East Coast to ensure that depot activities were not disrupted.

Site set-up and site clearance included the removal of p-way in 3 locations, and the modifications of an existing lighting gantry which spans roads 1,2 and 3 and required with a temporary works design to enable the support column to be removed while remaining supported.

Alongside the installation of the new underframe cleaning facility facility Spencer Group also removed 2 existing roads and installed 6 new ones, alongside new drivers' walkways, drainage, lighting columns and all associated M&E.

PROJECT OUTCOME

Spencer Group successfully installed an underframe wash slab and steel portal frame with cladded envelope and roller shutter doors adjacent to the maintenance building, alongside all associated p-way. A thrust boring technique was used to drive drainage under the existing tracks, while temporary barriers were used to prevent dust and debris spreading into the existing shed.

All the works were coordinated around the operational depot, with no unplanned disruptions to depot works or employees.



BRIDGES

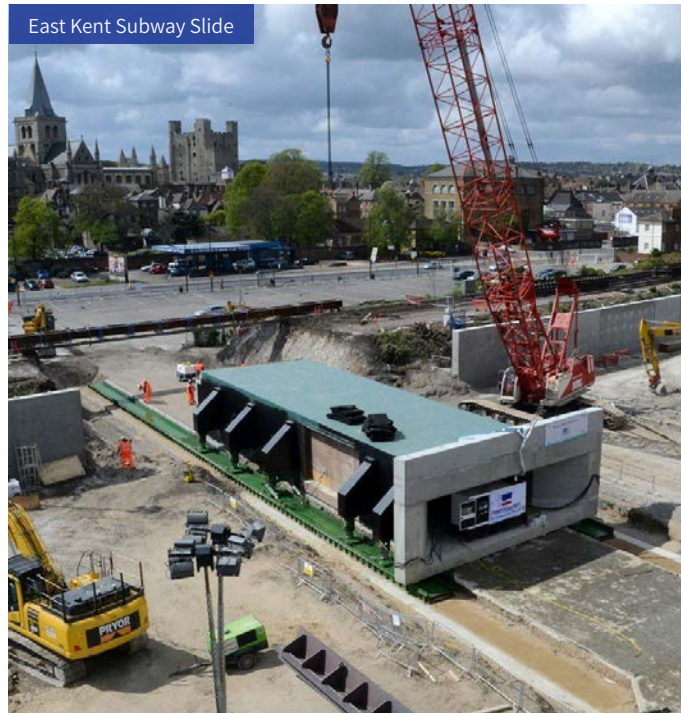
Spencer Group have been designing and delivering all types of rail bridge projects, both underbridges and overbridges for over three decades. We undertake renewal, refurbishment and new build projects, including those that require possession planning, which we carry out in-house. We also have a particular specialism in refurbishing historic and heritage bridge structures of any size and complexity. Our engineers are able to advise clients on the precautions and processes involved in working on aged and listed structures, and we are UK leaders in the development of bespoke access facilities for executing these schemes in a timely and safe manner, often working at height and over water.

Where bridge work necessitates temporary diversion of the overhead line, signalling and telecoms, and Permanent Way modification, our rail team oversee our specialist supply chain partners, managing all aspects of safety, design, delivery, commissioning and handover.

Ipswich Chord



East Kent Subway Slide



Gilberdyke Slipper Bridge



Aldwarke Bridge





PROJECT DETAILS

Client	Network Rail
Start Date	August 2012
End Date	March 2014
Duration	20 months
Location	Ipswich

KEY STATS

4

NEW BRIDGES IN TOTAL

413M

RETAINING WALL

2

NEW EMBANKMENTS

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IPSWICH CHORD BRIDGE 404

The Ipswich Chord is a new 1.2km double track railway providing essential connection between the East Suffolk Line and the Great Eastern Line. The Chord forms part of the strategic freight network between Ipswich and Peterborough. Spencer Group was commissioned by Network Rail for the design and construction phase of the project.

PROJECT SCOPE

The team was faced with access difficulties to a site hemmed in by rail, river and urban development; and in successfully gaining the support of local landowners and users for the permanent and temporary work.

Working alongside a live railway required a significant disruptive possession regime including a 5-day blockade over Christmas 2013. This required an intricate plan of staged construction and testing to maintain operational performance without comprising site safety.

Spencer Group enjoyed a full collaborative relationship with Network Rail and also formed an effective alliance with lead designer, Arup. This created an ideal platform for finding joint solutions to problems on-site, resolving commercial issues and managing risk.

PROJECT OUTCOME

Bridge 404, a two-track rail over water bridge was replaced during the Christmas blockade, one of four bridges in this project. This was achieved in just 52 hours through use of precast units.

Despite the extreme complexities of the project and some of the worst winter storms on record, the work was completed on time and to budget with no complaints. The Ipswich Chord will cut journey times by at least 30 minutes and the increased capacity on the railway will mean 750,00 fewer lorries on the road.

This will be huge relief for commuters on the congested A14 and will make a significant contribution to meeting carbon reduction targets.

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PROJECT DETAILS

Client	Network Rail
Start Date	December 2012
End Date	April 2016
Duration	41 months
Location	Rochester

KEY STATS

2

INDUSTRY AWARDS WON

850

TONNE SUBWAY SLIDE

96

HOUR EASTER BLOCKADE

EAST KENT PHASE 2

Spencer Group were awarded the contract to undertake all civils works on this £150m track remodelling project alongside Network Rail, Atkins and Balfour Beatty. East Kent Phase 2 was completed and accessible to passengers in spring 2016, delivering operational savings within the project area and improved network integration with other modes of transport.

PROJECT SCOPE

This project was part of a £150m BS11000 collaborative alliance between Spencer Group, Atkins, Balfour Beatty and Network Rail. Spencer Group were awarded the contract to undertake all civils works on this track remodelling project. This included the creation of a new station, subway and multi-storey car park at Rochester, new 12 car platforms at Strood and a new 12 car bay platform at Rainham, embankment widening including new contiguous piled retaining walls at

Rochester and embankment and track monitoring. We also established a new project village for the project team, where we co-located with our collaborative partners for the duration of the project delivery.

PROJECT OUTCOME

One of the biggest challenges on this project was the installation of the new subway at Rochester. The 850T, 28m long, 7.6m wide and 4.0m high subway was slid 36m into place on a bed of nitrogen gas during a 96 hour Easter blockade. This method (building the subway off line and adjacent to the embankment before sliding it into place) was used to minimise interruption to the network, and it was the first time this specialist technique was employed in the UK.

This project was described as an industry model for collaborative working and won two industry awards: Best Collaboration at the 2014 Network Rail Partnership Awards and Engineering Innovation from the Institute of Civil Engineers in 2015.



CAR PARKS

Whilst car parks are not always viewed as the most significant element of a rail project, we pride ourselves on delivering the same high-quality, value-engineered solutions that we deliver on all other projects. Car parks are often required to be constructed in very busy urban environments where there are significant safety critical interfaces with the general public and where working space is at a premium. We minimise these interfaces through careful design and planning, employing years of traffic management expertise in ensuring a safe working and safe high street environment.

Rochester Medway Car Park



Apperley Bridge Car Park



Three Bridges Control Centre Car Park



Broxbourne Car Park



Rochester Station Car Park





PROJECT DETAILS

Client	Medway Council
Start Date	June 2015
End Date	January 2016
Duration	7 months
Location	Rochester

KEY STATS

1,700M²

OF GOLD CLADDING
USED ON THE EXTERIOR
OF THE CAR PARK

327

PARKING SPACES CREATED

0

DANGEROUS OCCURRENCES
REPORTED

ROCHESTER MEDWAY CAR PARK

Spencer Group won the design-and-build contract to build a 300-space car park adjacent to the new Rochester Station in June 2015. We were already on site constructing the new station for Network Rail and so were well-placed to assist the council's plans for the new car park facility, utilising our civil engineering expertise to supplement the ongoing rail project and demonstrate our flexibility.

PROJECT SCOPE

Spencer's aim for the project was to make the completed building accessible to people of all ages and abilities, and the installation of two lifts has helped to achieve this. The building is 90m long, 30m wide and up to 10m high, allowing for a coherent layout and clutter-free design. Spencer's designers co-ordinated design input from a number of external consultants and specialist contractors, including an award-winning architect who produced the initial concept design.

Work started on site in June 2015 with the diversion of services and in September, 150 continuous-flight-auger piles were installed by Spencer's supply partner, Bachy Soletanche. The project was completed in time for the 'Sweeps' Festival, an important client objective.

PROJECT OUTCOME

The car park provides a high-quality structure at the gateway to the development area, whilst meeting the logistical demands of this new cultural hub. Spencer achieved the aims of the local council whilst also constructing a large scale rail project next-door, demonstrating our skill at handling multiple complex projects in several disciplines.

Richard Hicks, Director for Regeneration, Culture, Environment and Transformation said: "The new Rochester Riverside car park meets a need for more parking in the area, which is long overdue. It is well placed in the heart of Rochester, with shops, restaurants, tourist attractions – and the new railway station just a stone's throw away."



PROJECT DETAILS

Client	Network Rail
Start Date	August 2014
End Date	December 2015
Duration	16 months
Location	Bradford

KEY STATS

300 300 SPACE CAR PARK

2 A 2 PLATFORM STATION
CREATED AFTER BEING
CLOSED SINCE 1965

2016 SHORTLISTED FOR
STATION OF THE YEAR 2016

THESPENCERGROUP.
CO.UK

APPERLEY BRIDGE CAR PARK

Apperley Bridge Station, Bradford, was part of the wider West Yorkshire Rail Growth Package, an integrated package of rail enhancements in the Leeds City Region. Apperley Bridge was one of two brand new stations Spencer Group built on the Bradford Forster Square – Leeds route.

PROJECT SCOPE

This was a design and build contract for a new station, the former station at Apperley Bridge having closed in 1965. A 2-platform station was created, with a 300-space car park adjacent and ramp facilities throughout to make it fully accessible.

The project also included a new access road from Apperley Lane, a pick-up and drop off point, secure bicycle parking and shelters, CCTV surveillance, passenger information displays, and a public address system.

Hoarding was erected alongside the railway line to maintain normal service during the works, and the station's first train departed on Sunday 13th December 2015.

PROJECT OUTCOME

The station and its car park provide an important facility for the residents of Apperley Bridge and the surrounding community, creating a key link between the cities of Bradford and Leeds, allowing residents to access both by train, rather than car or bus. The car park is vital for commuters to both cities providing a real alternative to driving, as well as providing a boost to the local economy with the improved access.

The station was shortlisted for Station of the Year at the 2016 National Transport Awards, with former transport secretary Patrick McLoughlin praising Spencer Group for our efforts. He stated the importance of the new station in 'helping to connect businesses and communities, create jobs, and make it easier for people to get around'.

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