

CIVIL ENGINEERING NEWS

ISSUE 1 - 2020



GRAHAM 



An insight into civil engineering at GRAHAM

Welcome to the first edition of “Civil Engineering News”.

We’ve produced this publication to articulate what we stand for as an award-winning contractor, and to enhance your understanding of our projects, sectors and people.

Having secured £300m+ of work across our key sectors over the past 12 months, our divisional growth is reflected in the exemplar projects which feature prominently throughout the pages of this issue.

Indeed, our high-profile portfolio includes nationally significant infrastructure schemes such as Crossrail (West Enhanced Stations Phase 2) and Tilbury2, while a GRAHAM proposal has been included in the shortlist of the Heathrow Expansion Logistics Hubs programme.

Our sectors

The highways sector, where our LEAN focus has delivered considerable cost savings to our partners, remains a priority for us, and we are delighted to have earned selection to Highways England’s Regional Delivery Partnership under Band A for schemes below £100m – a major highways improvement framework.

Applying this expertise, we continue to support the regeneration of the road network across a range of projects such as the Congleton Link Road (East Cheshire), Liverpool City Centre Connectivity (Merseyside) and the A6 Dualling Scheme (Randalstown to Castledawson – NI).

Similarly, we are at the forefront of the rail sector, and work in partnership with public and private sector clients to develop and modernise the system. It is a privilege to be on the inside track of Europe’s largest infrastructure project – Crossrail – having been appointed to construct and upgrade three railway stations as part of the new high frequency, high capacity railway for London and the south east.

We re-emphasise the core technical competency within our business. This is clearly on display in the challenging environs of the maritime sector, particularly in the construction of the new multi-million pound port terminal at Tilbury2 where, for example, we designed a bespoke floating piling gate which has produced substantial programme and cost benefits.

Looking forward, long-term partnerships with Highways England, NI Water, Dounreay Site Restoration Limited, BAE Systems and Liverpool City Council, plus multiple strategic frameworks, will provide a consistent pipeline of additional quality work.

Equally, with a strong track record in the Republic of Ireland, stretching as far back as 1914 with the construction of a Sea Plant Station in County Donegal, to the iconic modern day Dublin bridges (Rosie Hackett and Samuel Beckett), our aim is to continue delivering lasting impact.

Our people

Fundamentally, our people make us unique, and it is their expertise, hard work and ambition which differentiate us. Colleagues like ICE Vice President, Emer Murnaghan, or crane operator, Marty Ryan, (both featured in this edition) epitomise the high calibre of individual who are the backbone of our success.

As the first UK company to simultaneously achieve Investors in People Platinum and Wellbeing accreditations, we proactively create a working environment where everyone has ready access to the tools and knowledge to be fit, healthy and positive in what they do.

We are also actively cultivating a culture of Fairness, Inclusion & Respect where everyone feels valued and respected for their contribution.

I hope this publication provides an insight into why we are at the pinnacle of the civil engineering industry, and demonstrates how our work connects communities, builds a better future and transforms the places where we live, work and relax.

Leo Martin
GRAHAM Managing Director
Civil Engineering



RAIL

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On the *inside track* of Europe's largest infrastructure project

Crossrail

We are on the inside track of Europe's largest infrastructure project – Crossrail – having been appointed to construct and upgrade three railway stations as part of the new high frequency, high capacity railway for London and the south east.

To be known as the Elizabeth Line when services begin through central London in 2020, the new railway system will be fully integrated with the existing transport network.

It will stretch more than 60 miles from Reading and Heathrow in the west, through central tunnels across to Shenfield and Abbey Wood in the east. In order to improve journey times, ease congestion, and offer better connectivity for around 200 million passengers each year, many of the stations along the route require significant upgrading, including access for all and platform extension works.

We are in the process of constructing two completely new stations in West Ealing and Acton Mainline, and significantly remodelling Ealing Broadway.

Valued at £46m, all three schemes, located on the Great Western Main Line, fall under the Crossrail West Enhanced Stations Phase 2 programme.

Work, on behalf of Network Rail, began in May 2019 with completion scheduled for late 2020.





Nationally important infrastructure project

Commenting on the success, Bill Thicknes, GRAHAM Contracts Director, said:

"We are delighted to have been appointed to this nationally important infrastructure project that will help transform rail transport in London and the south.

"Our selection is recognition of the collaborative relationship which we have developed with Network Rail, and we are proud that our work on the Great Western Main Line will help to provide a step change in public transport for the people of Ealing."

"We are proud that our work on the Great Western Main Line will help to provide a step change in public transport for the people of Ealing."

Bill Thicknes
GRAHAM Contracts Director



Programme

We have been tasked with maintaining full service during the 18-month programme.

The West Ealing Station works involve the construction of a new station, interior fit-out, telecommunications, step free access between platforms and street level, and the provision of improved ticketing facilities.

The Acton Mainline Station is a duplicate new build station project.

The Ealing Broadway Station scheme involves the construction of a new curved canopy, new glass structures, a new entrance, and a ticket hall with capacity for 17 standard ticket gates and one wide gate.

It will also feature platform extensions to accommodate the new Elizabeth Line trains, four new lifts, improved staircases and new toilet facilities.



Portrush Train Station 'Open' for business

Featuring three upgraded platforms and modern facilities, the £5.6m station is now a contemporary gateway for Portrush, a seaside town in County Antrim, roughly 67 miles from Belfast.

Led by Translink, a government corporation which provides public transport for NI, the train station project was funded by the Department for Communities (£4.7m) and the Department for Infrastructure (£900k+).

Beginning in May 2018, we introduced a multi-phased construction programme, and erected a temporary station building, which ensured that the pre-existing passenger and rail services remained fully operational and functional throughout the duration of the project.

Among the core elements of the scheme were the construction of a new steel framed station building, the upgrading of three platforms and the extension of the permanent way for Platforms 1 and 2.

Importantly, the station can now accommodate six-car train sets to provide increased capacity.

Boundary works, environmental improvements, M&E, cladding, internal fit-out, landscaping and the general installation of modern facilities, including a new Public Address System, a Passenger Information System and corporate signage, were further aspects of the redevelopment.

Additionally, increased cycle storage was created in order to encourage active travel and "greener" tourism links.

Demonstrating the high standard of finish, no bolted connections are visible on the structural steelwork.

Aesthetically, the bright new frontage onto Eglinton Street has created a vibrant and welcoming sense of place for the town as a key gateway to the entire Causeway Coast.

This welcome extends much further than the optics and will be keenly felt by all passengers, particularly those with disabilities and their carers.

The new station building, which was designed and constructed to ensure high-quality disabled access,

Portfolio

GRAHAM has completed a broad portfolio of award-winning work within the rail sector, and previously partnered with Translink on its £15.6million Adelaide Depot upgrade.

Further examples of our national rail footprint include a 55m span, 515 tonne bridge structure over ten railway lines in South London (Tennison Road Bridge), slope stabilisation works in South Wales (Pontypridd Retaining Wall, Wales Route), the construction of a new railway station in the Midlands (Kenilworth Railway Station) and the completion of 1,200m of tram track, six structures and two tram stops (Edinburgh Trams Network).

Currently, we are completing a range of rail schemes across the UK, including the construction of two new stations in West Ealing and Acton Mainline, and the remodelling of Ealing Broadway, as part of Crossrail. Meanwhile, in August we handed over the Scarborough Train Care Facility.



includes a fully equipped wet room, with an adult-sized changing table, toilet and showering facilities, and a hoist. This 4 x 2.5m area is the first of its kind for a Translink station in Northern Ireland.

Also, for the first time on a Translink project, "High Street Environment and Conditions", as implemented on Network Rail projects throughout the UK, were adhered to.

Doran Consulting (Project Manager and Civil and Structural Engineers) and Gregory Architects (Designer) were key partners.

Collaboration

GRAHAM Project Manager, John Deery, believes collaboration was key to the success of the Portrush Train Station project.

"With such a detailed scope of works, and given the urgency of the project due to The Open (the 148th Open golf major took place in July 2019), working collaboratively with Translink, our consultants, designers and supply chain was central to delivering the station on time and on budget," said John. "At GRAHAM, we are an 'ISO 44001:2017 Collaborative Business Relationships' certified company, and we applied these principles to ensure Portrush was completed smoothly and ahead of schedule.

"There were challenges along the way, but close collaboration ensured that these were always resolved quickly and effectively. For example, to ensure we maintained the programme, we agreed to wrap and seal the new station building during the winter months to allow our supply chain and trades partners to work more effectively in dry conditions, protected from the worst ravages of the weather.

"Using BIM 360 Field, we also captured over 1,800 photos in just two months during the peak programme sequence. These were important for tracking progress and conducting efficient inspections, while digitised site diaries enhanced workflows on a daily basis, all components that helped to keep the programme timeline on track.

"Translink has expressed how 'proud' it is of the new station and this endorsement is very satisfying for everyone at GRAHAM, and reflective of the collaborative approach and hard work of our project team and partners."



Train care facility *signals transformation* in Scarborough rail travel

£3.9m
PROJECT VALUE

November 2018
PROJECT COMMENCED

August 2019
PROJECT COMPLETION

Scarborough Train Care Facility

In preparation for the introduction of a brand-new fleet of Nova trains to the network, we were appointed by train operator, TransPennine Express (TPE), to design and construct a new train care facility in Scarborough. Once phased into service, the longer Class 68 and MK5a trains will provide 700,000 extra seats per year for those travelling by rail to and from the North Yorkshire town. Procured as part of a Design and Build GRIP 4 to GRIP 8 scheme, the new facility provides refuelling, tanking, CET, interior carriage cleaning and stabling, welfare and storage facilities. Completed in August 2019, the Scarborough Train Care Facility will play an important role in “transforming” rail travel for customers in the region.

The brief

We were appointed as Principal Contractor and Principal Designer as part of a JCT Design & Build Amended Contract, which was awarded in two phases. The first, a Preconstruction Services Agreement, involved the completion of the GRIP 4 design with Tony Gee Partners before our Designer, HBPW, completed the GRIP 5 stage. The second phase comprised the construction of the works.

The challenges

Constrictive in nature, the existing site is an operational Network Rail sidings asset, used in part by West Coast Rail. As such, our works programme was fully integrated with Network Rail's main line and existing infrastructure. Similarly, we collaborated with Northern Power in the provision of a substation and the delivery of electrical power to the project.

The solution

With no existing train care facilities in Scarborough, this £3.9m project will help to significantly enhance the "passenger experience" of TPE's rail customers across the region. Following the completion of the new station's design (GRIP 5) over an 18-week period, we began construction works (GRIP 6 to GRIP 8) on 23 November 2018 before handing over in August 2019. Elements of our programme included the construction of fuelling facilities with bundled 80,000 litre tanks and access/egress for vehicular deliveries. New permanent way (Pway) works were also created to tie into the existing Pway, while a concrete servicing apron, including servicing facilities such as CET, fuelling points, water and power, was a further component of the project. In addition, the scope of works included a structural steel canopy, complete with drainage and lighting, security fencing and gates and a new office and welfare facility plus car park. A Network Rail access and storage facility, a sub-station to supply electricity to the depot and a shore supply to recharge trains were also part of the brief. Once fully operational, approximately 15 new jobs will be created to help manage the facility and service the trains.

"This major milestone represents an important step towards introducing brand new trains for those travelling to or from Scarborough and is great news for customers in the region."

Chris Nutton

Major Projects Director for TransPennine Express

Upgrading South East London's rail network

Bellenden and Westdown Bridges

As part of Network Rail's overall investment in key asset maintenance, we delivered crucial upgrades to South East London's rail network.

Essential bridge replacements and supplementary works were completed under abnormal track possessions at Bellenden Road Underbridge (Southwark) and Westdown Road Underbridge (Lewisham).

Both projects involved the replacement and reinstatement of two underbridges within a restricted 72-hour rail possession. The bridges carry National Rail, London Overground and Thameslink commuter services, as well as providing a busy thoroughfare for railway freight services.

The works involved the erection of heavy lift cranes, including a 350t crawler crane and a 500t mobile crane, on the roadways below each bridge location in advance

of the railway closures. Each project featured propping to restrain the existing vaulted arch abutments from potential overturning, the removal of tracks and ballast, the demolition of the existing bridge and the installation of the new superstructure decks.

In addition to the restricted 72-hour rail possession, the complexity of the works was made even more challenging by the severe weather conditions over a bank holiday weekend, with heavy thunder and lightning hampering crane lifts at critical times.

The team was also forced to resolve a number of issues as the project progressed including the support and protection of High Voltage and S&T cable routes.

The reinstatement and tamping of the tracks were completed before reopening to rail traffic.



Emer Murnaghan elected ICE Vice President

Our Head of Responsible Sustainable Business, Emer Murnaghan OBE, is currently undertaking a range of duties in her role as a Vice President of the Institution of Civil Engineers (ICE), an influential professional membership organisation that commands the attention of government and industry, both in the UK and internationally.

The prestigious organisation, which celebrates its 200th anniversary this year, has over 92,000 civil engineer members across the world.

On November 6th (2018), at One Great George Street in London (the home of Civil Engineering), Andrew Wylie, CEO COSTAIN, delivered his inaugural address as President for the 2018/2019 presidential term.

Two new Vice Presidents were also unveiled, namely Emer and Paul Sheffield. Emer has been appointed as VP UK Regions.

The newly elected VPs join current VPs: Kyle Clough, CK Mak, Ed McCann, Rachel Skinner and Dr Jane Smallman. Together they form the 2018/2019 Presidential Team working alongside President Andrew Wylie.

Speaking about her appointment, Emer said:

"I am extremely delighted to have been invited to join such a prestigious team and engage with the strategic thinkers and influencers across the infrastructure industry. It gives me great pride to represent GRAHAM as we continue to evolve and grow our reputation for delivering lasting impact."

'For She's a Jolly Good Fellow'

Emer was also awarded a prestigious fellowship by Presidential Invitation from Engineers Ireland, the professional body for engineers in Ireland.

With over 25,000 members from every discipline of engineering, Engineers Ireland is the voice of the engineering profession in Ireland.

Having represented the engineering profession since 1835, it is one of the oldest and largest professional bodies in Ireland.

Commenting on the achievement Emer said:

"I am absolutely thrilled to have been invited to become a Fellow of Engineers Ireland - it is a real honour. I love my job and I love engineering. I am passionate about creating infrastructure that has a positive legacy and which is sympathetic to the environment surrounding it and the people who use it.

"Engineers Ireland, and the Institution of Civil Engineers are highly respected networks for engaging with strategic thinkers and influencers across the infrastructure industry. I am so very proud to represent GRAHAM."



HIGHWAYS

An aerial photograph of a highway interchange, likely a roundabout or a complex junction, with multiple lanes and overpasses. The image is heavily overlaid with a semi-transparent green filter, which serves as the background for the text.

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GRAHAM has delivered the new Link Road in a collaborative, efficient and sustainable way, taking great care to minimise the impact of construction works on local stakeholders and the wider community.

Tim Lawton
Stockport Metropolitan Borough Council
Project Director

Travis Brow to A6 Link Road project





On the road
to success

Highways England Regional Delivery Partnership

In November 2018, we were awarded a place on Highways England's Regional Delivery Partnership under Band A for schemes below £100m.

This six-year partnership replaced the Collaborative Delivery Framework (CDF).

The GRAHAM team, including design partners Sweco and Fairhurst, will initially deliver three design and build projects that will improve Junctions 25 and 28 of the M25 and Junction 5 of the M2 as part of Highways England's major highways improvement schemes across the South East of England.

Strategic alignment

This appointment is further evidence of our collaborative approach, and coincides with the launch of our five-year Highways Strategy – a clear sign of our ambition to be recognised as an industry leader, not only in engineering and technological capacity but also in people development, safety, quality and the impact on the communities where we operate.

As an integral part of Highways England's supply chain, one of our strategic priorities is to continue developing this strong collaborative relationship.

Commenting on the Highways England Regional Delivery Partnership success, Highways Director, Dave Brown, said:

"We enjoy a very positive relationship with Highways England and are committed to working in partnership to ultimately deliver safely and provide value for money for the public. We are looking forward to undertaking a range of schemes as part of the Regional Delivery Partnership including the South East packages, and the team is optimistic about the journey ahead with Highways England who are one of our key clients.

"The enhancement works that we will deliver will significantly reduce congestion and add social value."

Design partners

John Owens, Operations and Programme Director at Sweco, one of GRAHAM's design partners on the Partnership, added:

"We have a strong relationship with GRAHAM, which has been developed over the past 20 years through jointly delivering a number of significant design and build projects. We look forward to continuing to build the relationship and applying our international design expertise to deliver highways enhancements across the East and South East."

OD East Packages P&Q

Meanwhile, in April 2019, Highways England awarded us with a major new package of works covering maintenance and improvements in the East of England.

These works, valued at almost £25m, comprise 84 maintenance and improvement work programmes including multiple surfacing, drainage, signage, bridge projects and concrete road repairs across the Eastern region, including A1, A11, A14, M11, M1, A5, A12, A120 and A47 roads.

Rob Cook, GRAHAM Regional Director, said:

"We have worked with Highways England on its Collaborative Delivery Framework since 2017, and have delivered many successful improvements to Britain's roads during this period. We're delighted to have been awarded this package.

"The mobilisation of the P&Q packages represents the next steps in our ongoing relationship with Highways England, and, as part of their customer focus strategy, we will be supporting and engaging with the local community throughout the programme of works."

GRAHAM and Highways England

Some of our recent collaborative successes in partnership with Highways England include:

- Delivering over 70 individual work programmes for Highways England as part of a major highways improvement scheme for OD East
- Completion of the award-winning A138 Chelmer Viaduct (£32m) – a strategic highways link in Chelmsford, Essex, which has increased transport capacity and significantly improved journeys for motorists, cyclists and pedestrians
- Working alongside Highways England to maximise efficiencies using a robust collaborative programme planning process
- Serving as an influential member of Highways England's Suppliers Diversity Forum (SDF) and project managing a successful inclusivity conference on behalf of Highways England
- Completion of a noise-reduction scheme along an 11.5 mile section of the M40

"We have a strong relationship with GRAHAM, which has been developed over the past 20 years through jointly delivering a number of significant design and build projects. We look forward to continuing to build the relationship and applying our international design expertise to deliver highways enhancements across the East and South East."

John Owens
Operations and Programme Director at Sweco



Collaborating with Highways England to help life-saving blood bikers

In collaboration with Highways England, regional blood bike groups, and traffic management contractors, we launched a pioneering initiative to help blood bikers reach their destinations during road closures and diversions in the East of England.

Blood bike groups are rapid response charities that provide medical transportation services to the National Health Service (NHS). They are represented by the Nationwide Association of Blood Bikes (NABB), an umbrella organisation of over 25 individual blood bike charities which cover most of the UK.

Despite playing a crucial role in the transportation and delivery of blood, plasma and breast milk to the NHS, the blood bike groups, as registered charities, were not in receipt of the direct communications sent out to emergency services during road closures and diversions.

As part of a major highways improvement scheme under way in the East of England, our site team organised a workshop, and invited blood bike groups serving Norfolk, Suffolk, Lincolnshire, Cambridgeshire and Northamptonshire to attend alongside representatives from Highways England and traffic management contractors.

We worked with Highways England and other stakeholders on the OD East of England Highways scheme to develop a strategy that enables the blood bikes to be identified and escorted through work sites when required.

The team also established a communications rollout so that the groups are informed of any upcoming closures or diversions.

Concluding the workshop, a Memorandum of Understanding was developed and agreed with all the attendees. Future meetings are scheduled to take place to ensure all of the agreements are adhered to.

Life-saving volunteers

Discussing the initiative, GRAHAM's Community & Stakeholder Officer, Jonathan Wright, said:

"We're proud to support the fantastic work of these volunteers who provide an amazing service to the NHS, and look forward to working with them during future schemes."

Following the success of the first workshop, future meetings have now been scheduled, with GRAHAM and Highways England reviewing plans to potentially roll the initiative out nationally.



A spokesperson for Highways England commented:

"Given, on rare occasions, the blood bike service can ride under blue lights, we decided it would be a prudent step to initiate some sort of MOU to ensure the service is notified of works, and also our workers and contractors are aware that this important organisation is seen as another blue light service to be afforded the necessary access through or around our works."

Stockport's '*single most important*' strategic highway connection

£8m
PROJECT VALUE

May 2017
PROJECT COMMENCED

July 2019
PROJECT COMPLETED



Travis Brow to A6 Link Road

Named as the "Project of the Year" at both the 2019 Civil Engineering Contractors Association (CECA) North West Awards and the 2019 Chartered Institution of Highways & Transportation (CIHT) North West Awards (see page 20), the Travis Brow to A6 Link Road project has created an important new strategic highway connection in Stockport. A core component of the Stockport Town Centre Access Plan (TCAP), one of Stockport Metropolitan Borough Council's "most ambitious" programmes, the Link Road has improved the efficiency and reliability of the town's highways network. Our work has been praised for meeting the key objectives of "achieving best value, minimising disruption and efficient delivery". Significantly, the implementation of an intelligent design solution enabled a two lane dual-carriageway to be formed through a single arch.

The brief

Awarded through Highways England's Collaborative Delivery Framework, the £8m project's brief was the delivery of a new classified link road approximately 390m in length, and retaining walls to carry the Link Road under a Grade II listed Stockport Viaduct, which dates back to the 1840s. New traffic signals, the creation of new shared use pedestrian, and cycle, paths, and a new cycling route were also deliverables of the scheme.

"Throughout delivery they (GRAHAM) have met all the key objectives of achieving best value, minimising disruption and efficient delivery, living up to the project's mission of 'we all succeed together'."

Tim Lawton
Project Director – Stockport Metropolitan Borough Council

The challenges

The horizontal and vertical alignment of the new multi-lane carriageway was constrained at either end of the circa 400m scheme, and further restricted by the requirement for a new signalised junction with the existing Travis Brow highway. In addition, the new carriageway bisected the Stockport Viaduct, with the alignment undercutting the pad foundations of the 1840s Grade II listed Viaduct, which carries the West Coast Main Line. Having been widened to accommodate four tracks in the 1880s, the Viaduct is founded at two significantly different levels featuring stepped profiles. To complicate matters further, the disused and partially infilled Wellington Road Railway Tunnel intersects the Viaduct at a skew through the same span as the proposed highway.

The solution

The total construction programme was approximately £8m with the geotechnical works valued at circa £3m. Innovation was required to support the exposed rock face beneath the Viaduct foundations, whilst also restricting movements to negligible levels during the construction phase, which was a key Network Rail requirement. Our intelligent solution utilised pre-stressed rock anchors, with a near vertical hard shotcrete facing. The retaining structure was then covered by mass concrete, to protect against vehicle impact and corrosion. The anchors were installed using a detailed construction sequence, employing vertical and horizontal excavation in distinct bays. In partnership with designers Mott MacDonald, we value engineered the original SMBC outline design, resulting in substantial cost savings through the replacement of 225m of retaining walls, equating to 60% of the project's original retaining walls.





GRAHAM wins prestigious *'Employability and Jobs Award'*

As part of a Joint Venture, we scooped the Employability and Jobs Award at Business in the Community's 2019 Responsible Business Awards.

More than 600 business people from across Northern Ireland attended the annual glittering gala dinner to see Northern Ireland's leading responsible companies recognised for outstanding contributions to their people, the planet, and the places where they operate.

The Employability and Jobs Award, sponsored by Belfast Harbour, was awarded to GRAHAM for our work in devising and delivering innovative employability and skills activities aimed at plugging a sector skills gap, with a focus on equal opportunities promotion and social inclusion.

As a result of collaboration, we successfully engaged females and the long-term unemployed in project activities, and the judges were particularly impressed by our engagement of inmates within HM Prison Maghaberry, through a careers event, and a pilot work trial.

The GRAHAM/Farrans JV is currently undertaking the A6 Randalstown to Castledawson Dualling Scheme.

Discussing the win, Gareth McLaverty, GRAHAM Contracts Manager, said:

"We are thrilled to have scooped the Employability and Jobs Award. At GRAHAM, we are committed to developing sector skills, and promoting equal opportunities and social inclusion. We have been implementing a range of programmes to build engagement with females and the long-term unemployed, including careers events and pilot projects.

"These initiatives have been very successful, and we intend to continue building upon the progress we have made."

Leading the way

Congratulating GRAHAM on the success, Kieran Harding, Business in the Community Managing Director, said:

"I would like to take this opportunity to congratulate each and every one of our winners, and those who were highly commended and shortlisted, for leading the way in responsible business practice.

"The standard of entries was phenomenally high, and I hope that the achievements of the companies recognised will inspire others on their responsible business journey.

"Business in the Community is proud to be celebrating our 30th anniversary in Northern Ireland, working with some of the most innovative and responsible businesses, and these annual awards are a way for us to showcase and thank those organisations across NI that are taking responsible business action."



Travis Brow Link Road scoops *Project of the Year* at CIHT North West Awards

Our Travis Brow Link Road project was commended by the Chartered Institution of Highways & Transportation (CIHT) at its North West Awards.



Described as “probably the single most important new strategic highway connection in Stockport”, the Travis Brow to A6 Link Road is an £8m project that will deliver a new classified Link Road approximately 390m long, and retaining walls that carry the Link Road under a Grade II listed Stockport Viaduct, which dates back to the 1840s.

The Link Road will significantly improve access to and around Stockport, to the M60, the rail station, and to key sites within the town centre. Offering an alternative route for vehicles travelling along the A6 Wellington Road to access Junction 1 of the M60 from Wellington Road North, it includes a series of highway improvement works along Travis Brow, George’s Road and Wellington Road North.

Intelligent design

Awarded through Highways England’s Collaborative Delivery Framework, a standout aspect of the project was GRAHAM’s intelligent design solution that enabled a two lane dual-carriageway to be formed through a single arch.

The CIHT North West Project of the Year Award is given to an outstanding project that demonstrates a contribution to the mobility of the community in the north west of England. The award was presented to GRAHAM at a black-tie event at the Park Royal Hotel in Stretton, Warrington.

On receiving the award, GRAHAM Managing Director - Civil Engineering, Leo Martin, said:

“We are delighted to see the Travis Brow Link Road named Project of the Year by the CIHT North West.

“The award is great recognition for our project team, which has worked tirelessly to provide a link road that will improve access, help reduce traffic congestion and improve the efficiency and reliability of Stockport’s highway network, bringing significant benefits for businesses, residents and visitors alike.

“Throughout the project we have strived for efficiency and sustainability in our delivery, taking particular care to minimise the impact of construction works on local stakeholders and the wider community.

“Thanks to the hard work of our team in collaboration with the client, Stockport Metropolitan Borough Council, we have succeeded in our key objectives of achieving best value, minimising disruption and efficient delivery, living up to the project’s mission of ‘we all succeed together’. Congratulations to all involved in this scheme on this fantastic achievement.”

A6 Dualling Scheme *unlocks strategic route*

A6 Randalstown to Castledawson Dualling Scheme

Notable for the achievement of 26% cost savings (£42m) at the Early Contractor Involvement (ECI) stage, we are responsible for the completion of the A6 Randalstown – Castledawson Dualling Scheme as part of a Joint Venture (JV). Valued at £135m, the four-and-a-half-year project involves the design and construction of 14.7km of dual carriageway through a predominantly rural landscape and the extension of the M22 north. As traffic levels continue to grow towards 20,000 vpd, this vital highways infrastructure project will improve road safety, reduce journey times and congestion on this strategically important North West transport corridor, connecting Belfast and Derry/Londonderry.

The brief

Under an NEC contract (Option E, B and C for Phase 1 and 2), the Department for Infrastructure (DfI) has tasked the GRAHAM JV to design and construct a dual carriageway from Randalstown to Toome and from Toome to Castledawson. The brief also included the provision to provide a dual carriageway (D2AP) standard road between the western end of the M22 Motorway at Randalstown and the Castledawson Roundabout.

£135m
PROJECT VALUE

October 2016
PROJECT COMMENCED

April 2021
SCHEDULED COMPLETION





The challenges

Poor ground conditions (peat), reclaimed ground and a number of known sites of cultural/heritage significance, have presented a complex risk to the project. Magnifying the challenge further, the alignment is within Whooper Swan feeding lands and in close proximity to Lough Beg and Lough Neagh (RAMSAR, ASSI and SPA), which, in accordance with the Environmental Statement, prohibited major earthworks and drainage works for six months of the year. To mitigate the risks associated with poor ground and ground water, we employed ground improvement techniques, including “dig and replace”, the installation of band drains and surcharging over 3km of the route.

The solution

Since breaking ground in summer 2017, significant progress has been made by the GRAHAM JV with work on 15 of 21 structures under way, six borrow pits are in operation, a considerable amount of earthworks are complete and the laying of pavement has commenced. The successful implementation of ECI on the A6 project has enabled our expert team to contribute to the development of the design, and provided us with the opportunity to consider construction issues at an early stage. Importantly, it also created the conditions for the delivery of significant cost savings, resulting from the exploitation of a range of efficiency avenues, including earthworks (securing borrow pits with local landowner agreements to win Class 2 material), drainage/culverts (VE opportunities in shortening/combining/straightening culverts), structures (designed as a family of structures, elimination of retaining walls) and programme (reduction of overall programme as a result of ECI logic development).

“The feedback from road users since the opening of the first stretch of new dual carriageway has already been extremely positive, with shorter, safer and more reliable journey times already experienced.”

Katrina Godfrey
Permanent Secretary at the Department for Infrastructure
(commenting on the first phase completion in September 2019)



Unlocking *Liverpool's waterfronts*

Northern Link Road, Liverpool City Centre Connectivity: Phase 2

As part of the Liverpool City Centre Connectivity Phase 2 programme, we are constructing the Northern Link Road – a new link road from Waterloo Road to the proposed new Isle of Man Ferry Terminal at the West Waterloo Docks.

The works programme consists of 500m of two-way carriageway, two roundabouts, widening of the existing canal bridge, retaining system works and the upgrade of the existing junction to signal controlled.

Surveys and preliminary works for the £7m+ scheme commenced in October 2018. The first phase of works is scheduled to be completed by summer 2019 to facilitate the commencement of the Ferry Terminal Contractor's operations.

As it is a sectional completion project, we will then apply the finishing touches to the road to ensure total resolution by spring 2020.

£7.2m
PROJECT VALUE

October 2018
ADVANCED WORKS COMMENCED

Spring 2020
SCHEDULED COMPLETION

Engineering *Liverpool's major routes*

City Centre Connectivity Scheme: Phase 1, Package 1-7

We are delivering a combination of seven enhancement schemes under the Liverpool City Centre Connectivity Scheme - Phase 1 to make the city centre easier to navigate for pedestrians, cyclists and motorists.

Awarded through Highways England's Collaborative Delivery Framework Lot 2, our focus is on re-engineering major routes from the city's commercial district through to the retail and knowledge districts.

The works commenced in January 2019, beginning with the widening of pavements, removal of bus layovers as well as tree planting, and new public realm features in Victoria Street, running from North John Street to the Queensway Tunnel.

£11.2m
PROJECT VALUE

January 2019
PROJECT COMMENCED

March 2020
SCHEDULED COMPLETION

"The beginning of Phase 1 at Victoria Street signals a new chapter for how we use our city centre, which, when fully completed, will open up some exciting opportunities in our public realm and will redefine how everyone from residents, workers, shoppers, students and tourists can enjoy exploring and discovering this amazing city."

Councillor James Noakes
Liverpool City Council's Cabinet Member for Highways



The Churchill Way Flyovers – deconstructing a ‘relic’ of the past

In collaboration with Amey Consulting, we devised an innovative dismantling methodology that has enabled the “hyper-sensitive” deconstruction of the Churchill Way Flyovers in Liverpool city centre.



Described as a complex process, “never before seen in the UK”, our intelligent solution will see the 50-year-old flawed flyovers come down in sections up to 25m in length.

The Churchill Way Flyovers consist of two separate roads linking Lime Street to Dale Street (South Flyover) and Tithebarn Street (North Flyover), running directly behind the city’s museums and galleries.

They were closed at the end of September 2018.

An engineering report received by Liverpool City Council in February 2019 revealed multiple, irreversible defects to the Flyovers, which originally opened in 1970.

Subsequently, it was agreed by the Council that their removal was the “only viable option”.

Our works programme has enabled the deconstruction to take place without the implementation of a three-month road closure on two major arterial roads that service Liverpool city centre and the Birkenhead (Queensway) Tunnel.

Complex

Discussing the £6.75m project, Stephen McFaul, GRAHAM Contracts Manager, said:

“The phased dismantling of the Flyovers is a highly complex process, and we believe that our innovative methodology represents the perfect solution for the city and the local community. Given the complexity of the project, close collaboration between ourselves, design engineers, the Council and other key stakeholders was required to ensure disruption was minimised.

“The solution was also devised to minimise vibrations to ensure the protection of local landmarks as well as wildlife that is housed at the Walker Art Gallery, Central Library and World Museum Liverpool – all of which are situated next to the South Flyover.”

Substantial work areas

We prepared three substantial work areas adjacent to the Flyovers, with the first phase of the dismantling beginning at the start of September.

Once the initial sections of the footbridge were removed, our focus switched to the removal of the Flyover structures – each of which exceed 240m in length.

This phase involved the utilisation of heavy machinery to facilitate the removal of individual spans in a pre-determined sequence.

Each span, weighing between 300 and 600 tonnes, will be temporarily supported, before being cut free and removed on a specialist transporter to a nearby compound at Fountenoy Street.

They will then be lowered to ground level, cut into smaller sections, removed off site and then crushed.

A total of 20 spans and supporting piers will be painstakingly removed over the four-month period.

Once the deconstruction is complete, alterations are scheduled to the highway layout around the Hunter Street, Byrom Street, Queensway Tunnel entrance to improve traffic and pedestrian movements.

Funding

Funding for the deconstruction has been provided by the Liverpool City Centre Connectivity (LCCC) Phase 1 Grant Fund Agreement, which is supported by a £38.4m grant from the Local Growth Fund, and £8.7m of city council match funding.

Praising our efforts, Mayor of Liverpool Joe Anderson, said:

“The Churchill Way Flyovers are a relic of a cancelled highways plan from half a century ago. This deconstruction is going to be a complex process – one never before seen in the UK. It cannot be done overnight, and a lot of thought has gone into the methodology to ensure the inconvenience to city centre traffic and surrounding buildings will be kept to a minimum.”

A120 Little Hadham Bypass and Flood Alleviation Scheme

In July 2019, we began work on the A120 Little Hadham Bypass and Flood Alleviation Scheme, which will help to support “growth” and improve the “quality of life” for the East Hertfordshire village and surrounding area.

Hertfordshire County Council and the Environment Agency have worked in partnership to develop the scheme. As part of the planned bypass, new road embankments along the River Ash and Albury Tributary will act as flood defences and significantly reduce flood risk.

The ambitious programme will also help to alleviate traffic congestion from The Ash traffic lights in Little Hadham, and provide more reliable journey times.

Planning permission was granted in January 2017, while the Bypass and Flood Alleviation Scheme orders were confirmed by Government in October 2018.

Dave Woodcock, GRAHAM Contracts Director, said:

“We are pleased to be reducing flood risk within Little Hadham, and will continue to work closely with Hertfordshire County Council and the Environment Agency to achieve the outcomes identified for the project.”

Phil Bibby, Cabinet Member for Highways and Environment at Hertfordshire County Council, said:

“We’re pleased to be working with GRAHAM to see the successful delivery of this important road scheme for Hertfordshire. The A120 is a vital link in Hertfordshire, and with traffic on the county’s roads predicted to increase up to 20% over the next 15 years, it’s important that we invest in improving the route. The Bypass and Flood Alleviation Scheme will help support the growth we’re expecting in the county while improving quality of life in the Little Hadham area.”



Improving the ‘quality of life’ in Little Hadham

‘Snailed it’

Over 200 Roman snails have been relocated to a specially created wildflower habitat in advance of works at our A120 Little Hadham Bypass project.

The *Helix Pomatia*, or more commonly known as Roman Snails or Escargot - a species of large, edible, air-breathing land snails - have been moved as part of a conservation exercise to protect the environment.

The new habitat involved seeding 12,000m² of wildflower annuals mix and site specific calcareous mix in a specific wildflower turf. The wildflower area was created within 36 hours but will take approximately nine weeks to fully establish itself.



Delivering *'economic and social regeneration'* to Congleton

Congleton Link Road

Construction of the Congleton Link Road, which will help to deliver "economic and social regeneration" to the town of Congleton, started on Monday 25th February.

To mark the occasion, a ceremonial sod cutting event was attended by GRAHAM Managing Director, Leo Martin, Cheshire East Council's Leader Councillor, Rachel Bailey, Minister of State for Transport, Jesse Norman, and Congleton MP, Fiona Bruce.

The project is seen as a major economic driver for the area, with the potential to create 3,000 jobs, 2,400 new homes and 20 hectares of new employment land to attract new businesses, all of which could deliver £13m into the local economy.

After a competitive procurement process, we were selected to complete the prestigious highways scheme that involves the construction of a much-needed 5.5km bypass.

It will involve significant change to the local landscape. To mitigate the impact, the council is planting over 10 hectares of woodland and shrubs including 381 new trees, 16km of hedgerows, 33 hectares of new grassland, while creating six new ecological ponds.

In the opening year, during rush hour, journeys across Congleton are expected to take about six minutes less than the current rate, and air quality assessments indicate that there will be substantial improvements throughout the town centre including Rood Hill and West Road.

The route for the link road will run to the north of the town, south of Eaton. It will link the A534 Sandbach Road, near its junction with Sandy Lane, to the A536 Macclesfield Road, near its junction with Moss Lane, and provide a new crossing at the River Dane.





It will also create improved road connections to both Congleton Business Park and Radnor Park Trading Estate. The scheme attracts strong local support – with calls for a bypass around the town stretching back over 30 years.

Commenting on the project, Steve Beattie, GRAHAM Contracts Director, said:

“We are delighted to be working in collaboration with Cheshire East Council to construct this important project that will bring economic and social regeneration to Congleton. Our experience in completing complex highways projects throughout the UK will be instrumental in ensuring the completion of the link road is to the very highest standard.”

Important road scheme

Cheshire East Council is contributing £24m towards the construction project, with the balance coming from central government and developer contributions.

Councillor Rachel Bailey said:

“This is the biggest capital project the council has ever done; and it is a credit to the strategic infrastructure team and all those involved that we have managed to deliver this scheme from just a concept in 2012 to where we are today, about to start work, just a few years later. This must be some sort of a record for a highways scheme, some of which can take 20 years to deliver.”

The road is due to open to traffic in 2020.

January 2019
PROJECT COMMENCED

Late 2020
SCHEDULED COMPLETION



Providing traffic *'Relief'* in Poynton

Poynton Relief Road

Continuing our relationship with Cheshire East Council, we were recently (September 2019) awarded the £26.5m Poynton Relief Road contract.

Beginning in October, our works programme involves the creation of a 3km long, two-way single carriageway road. We are also responsible for the upgrade of two off-site junctions at Adlington Crossroads and Bonis Hall Lane, both of which are situated along the A523 London Road.

Additional features include cycleway and footway facilities, two new accommodation overbridges, and balancing ponds for drainage.

As a central component of the South East Manchester Multi-Modal Strategy, the project will relieve the existing Poynton town traffic and improve connectivity between Macclesfield, Stockport, Manchester Airport and the wider area.

The scheme will also deliver a range of complementary measures on the A523 London Road to Macclesfield that address road safety and congestion while mitigating wider environmental impacts from the traffic.

The main project is scheduled for completion in August 2022, although we will undertake landscaping maintenance for five years up until 2027.

Commenting on the contract award, Alastair Lewis, GRAHAM Contracts Manager, said:

"We are delighted to have been awarded the Poynton Relief Road contract that, once complete, will deliver lasting impact to the people of Poynton and the wider area.

"At GRAHAM, relationships define our success, and this project is a continuation of our partnership with Cheshire East Council who we are working closely with on the completion of the Congleton Link Road. Preparations are well under way ahead of works commencing in October."

Innovation

As part of our bid proposal, we developed an innovative solution for the construction of a new bridge at Chester Road. With 14 statutory utility services present, our solution will significantly minimise the scope of service diversions, and, therefore, disruption to residents and stakeholders.

Creating an *Olympic* legacy

Carpenters Land Bridge

The London Legacy Development Corporation (LLDC) awarded GRAHAM a scheme to provide a new footbridge in Carpenter's Road, Stratford – Carpenters Land Bridge.

The footbridge will provide a link between the International Quarter and the former Olympic Games site, crossing the Network Rail and Dockland's Light Rail lines.

It forms part of the commitment given during the bidding process for the London 2012 Olympic Games.

Our civil engineering team will design and install a 66m long steel bridge, formed of a portal frame and bearings, a concrete cill beam and bearings within an existing retaining wall structure.

The team will also provide drainage works to the bridge's deck, bonding and lightning protection, and install a waterproofing system.

The project is under way and is scheduled to be completed in Spring 2020.

Andrew Henry, GRAHAM Contracts Manager, said: "We are pleased to have been chosen as the contractor to deliver the Carpenters Land Bridge on behalf of LLDC.

"Our vast experience of delivering similar schemes, and our excellent relationship and track record of

partnership working will ensure we are able to deliver the scheme effectively.

"When complete, the new bridge will provide a connection from the new East Bank to the International Quarter, providing residents with direct access to Stratford Waterfront and the hub of commercial activity in the area."

Andrew added:

"At GRAHAM we are committed to delivering projects that benefit the communities we serve. We are proud to be playing our part in the regeneration of this part of the capital and helping to create a lasting legacy following the historic 2012 Olympics."

Ambitious

Stratford Waterfront's Cultural and Education District is an ambitious project by LLDC. It will bring together some of the world's most exciting education and cultural organisations, including University College London, the London College of Fashion - University of the Arts London, Victoria and Albert Museum and Sadler's Wells.

The International Quarter is an ongoing business development project. The £2.4bn joint venture development between Lendlease and LCR, located in Stratford, will mix modern workspace, homes and a diverse selection of retailers surrounded by public realm works to form the new heart of East London.





Marathon man Marty's Stirling effort

GRAHAM colleague Marty Ryan discusses his weight loss journey and an exceptional performance at the Stirling Marathon

Marty Ryan lifts, moves, positions, and repositions heavy loads on a daily basis.

As a crane operator, the 48-year-old is responsible for transporting construction material from one place to another.

Currently, the Cork native is operating and managing a crawler crane as part of our Dounreay site restoration team to construct a new shielded Intermediate Level Waste Drum Store Extension and an Unshielded Waste Store Extension for shielded waste containers.

Having been a GRAHAM colleague since 2009, Marty has manipulated and manoeuvred hundreds of thousands of tonnes on projects up and down the UK, including the M80 Steps to Hags, Fife Wind Turbine, Lea Bridge and Tennyson Road Bridge.

But "shifting" one particular five-stone load stands out.

Equivalent to 32kg, it may seem insignificant compared to the quantities associated with his day job, but for Marty it represents a life changing figure.

That's because it is the amount of weight he has lost thanks to the implementation of a focussed healthy lifestyle and exercise regime.

Stereotypical

Having surpassed the 16 stone mark, regularly smoking 60+ cigarettes a day and "generally not looking after myself", Marty was your stereotypical male construction worker.



His sedentary role did not help matters.

Nor did his routine. Often on the road, the temptation to eat junk food was always there - quick and easy.

His days of hurling, playing Gaelic football and exercise were confined to history. Work was a convenient excuse, and after long hours on the job it seemed easier to put the feet up in front of the television.

As the years drifted on, his weight ballooned.

"I am five foot nine inches tall, so when I was up to 16 stone in weight it was very noticeable. I didn't feel good in myself. I wasn't exercising, I had a bad diet and I was smoking a lot," explained Marty.

"It was just a continuous cycle, and it was a difficult one to break."

Unremarkable

The catalyst for change was unremarkable.

Sitting in digs with other construction workers one evening, the land lady snapped and taunted the men to "get out, go for a walk and lose some weight".

While the others laughed off the remark, Marty took heed and followed the advice. A short walk eventually became part of his daily routine.

Gradually it morphed into a longer walk, and with "the bit between the teeth" Marty progressed to running and completing workouts in the gym.

The cycle had been broken, so much so that friends remarked that his "clothes were hanging off".

Patience

"It was a gradual process, and once I started to see results it just gave me the motivation to keep going," added Marty.

"There is no doubt that it was hard work. And, what I tell people is that it didn't happen overnight. It takes patience and dedication over years and years, but I am so thankful that I started the journey and have persevered.

"Taking that first step was the hardest thing and once I got over that hurdle, I became very focused, going to the gym regularly and running. Giving up the cigarettes was also important, and I haven't looked back since.

"Running, and fitness in general, have given me a big boost in my life. They help me blow off steam. I keep a picture of myself when I was 16 stone and unhealthy, and I swear every day that I'm not going back there every time I look at it."

Focus

As with any significant lifestyle change, there have been blips along the way. After all, old habits die hard.

Only last year, the crane operator began to put on a few kgs around his midriff, leaving him not feeling "right in myself".

With a renewed focus, Marty made the decision to sign-up for his first marathon – the Stirling Marathon 2019.

Showing his customary determination, he applied himself to a bespoke training programme that incorporated long runs of 22 miles, with recovery sometimes aided by quick dips in the Atlantic Ocean at Thurso to soothe his weary muscles.

Reluctantly, and following encouragement from his personal trainer, he also hit the weights room for the first time.

The blend of cardio and strength proved to be the perfect marriage as Marty recorded an exceptional debut time of 3 hours 7 minutes and 26 seconds for the 26.2mile test of endurance.

The performance, equating to a pace of just over seven minutes per mile, was good enough for 44th overall out of 5000+ competitors.

It also positioned Marty in eighth place in the Veteran 45 age group category.

Mental battle

"It was an amazing experience and I'm very proud of myself to have performed so well," said Marty who lives in the town of Greenock, situated within the west central Lowlands of Scotland.

"Running a marathon is not easy and from 20 miles to 24 miles it was a tough mental battle. But I proved I had the mental strength, and finishing so high up was a big surprise. It has provided me with a lot of confidence, and it has given me the motivation to improve and maybe do another marathon in the autumn."

Dedication

Now a lean 72kg, a world away from 100kg+, with a body fat percentage of 11.7%, Marty is a shining example of what can be achieved through hard work and dedication.

So, what advice would he give to anyone who is nervous about taking that first step towards a healthier lifestyle?

**"Go for it.
You won't regret it,"**

passionately stated Marty.

"I'm so much happier in myself. I'm in a good place. I would tell anyone, don't give up. It takes time, years even, but when you get that consistency you will notice the difference physically and even mentally. It doesn't get any easier, it's just that you get better.



"Look into the mirror, that's your only competition. You have to be willing to sacrifice things and listen to people who can give you advice. Of course, it's your own choice but from my perspective it's one of the best decisions I've ever made."



MARITIME

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Terminal

39. Ocean Terminal



**GRAHAM are experts
in what they do and
have demonstrated this
in their recent maritime
projects in Hull, Grimsby
and Folkestone.**



Charles Hammond
Chief Executive of Forth Ports Group
(owners of the Port of Tilbury)

Expanding the *'UK's fastest growing port'*

Tilbury2 Port Expansion, London

Categorised as a "Nationally Significant Infrastructure Project", we are delivering a new multi-million pound port terminal – Tilbury2. The Port of Tilbury, regarded as the UK's fastest growing port, provides "fast, modern distribution services" for the benefit of the "south east of England and beyond". Our construction programme, on land at the former Tilbury Power Station at the north bank of the River Thames, will create the "UK's largest unaccompanied freight ferry port" and the "country's biggest construction processing hub". In September 2018, we were awarded the contract for both the Terrestrial and Marine Packages of this extensive new development. The ECI Phase took place from October 2018 to March 2019, before works began immediately in March 2019. Both contracts are expected to be complete in June 2020.

The brief

Appointed Principal Contractor and Designer by Port of Tilbury London Ltd, this ICC Design and Build (fixed price) contract involves the creation of a new port terminal and associated facilities. Tilbury2 is central to the Port of Tilbury's wider £1bn investment programme.

The challenges

The ground conditions at the Port of Tilbury, combined with the area's industrial and historical heritage, have presented some minor challenges. Part of the site sits within an area that was once a coal fired power station, and we have uncovered below ground obstructions and contaminants. The site also comprises a patchwork of made and unmade ground, meaning that we have had to overcome significant alternating and adjacent zones of soft and hard ground. Finally, our programme is sensitively accounting for ancient peat beds and flora and fauna.

The solution

Our Tilbury2 development is facilitating the expansion of the Port of Tilbury and supporting its "local, regional and national economic growth". The Terrestrial contract incorporates a Roll-On/Roll-Off (RoRo), highways works, the relocation of the existing railhead (to accommodate freight trains of 75m), and a fixed structural steel bridge to the linkspan. Our Marine contract includes works within the tidal estuary beyond the existing sea wall/flood defences, including a floating pontoon, linkspan/articulated bridge, associated pilings and river bed preparation for the berth. In mid-March, a 250tn crawler crane completed the offloading of 800tn of sheet piles, materials required for the Construction Materials and Aggregates Terminal (CMAT) berth cut off wall. Demonstrating our innovative approach, the first sheet piles were installed in April using a GRAHAM designed, bespoke floating piling gate. To ensure our programme maximises the working area available, we are committed to working the Upstream RoRo and the CMAT berth simultaneously.





Outputs and benefits

- **Prestige:** The Port of Tilbury is London's major port, and its strategic location makes it a natural point for distribution with 18m people living within 75 miles
- **Productivity:** We are fully utilising the Saturday shift window throughout our programme, maximising the working time available to ensure our marine plant is working efficiently
- **Innovation:** We have introduced a GRAHAM designed, bespoke floating piling gate
- **Multiple fronts:** While we have supply chain plant working one structure, our self-delivery resource is working the other, therefore minimising interface between trades
- **Integration:** Both of the Terrestrial and Marine works' designs and testing and commissioning have been fully integrated, providing a robust whole site testing and commissioning programme



£106m
PROJECT VALUE

March 2019
PROJECT COMMENCED

June 2020
SCHEDULED COMPLETION

Concrete plans taking shape at Tilbury2

The first concrete pour in the construction of a new RoRo terminal at Tilbury2 took place on Friday 21st June 2019.

Tilbury2, a "Nationally Significant Infrastructure Project", involves the construction of a new multi-million pound port terminal on land at the former Tilbury Power Station at the north bank of the River Thames.

Once complete, the RoRo terminal area, covering 220,000m², the equivalent of over 30 football pitches, will operate freight ferries to Europe and facilitate the transportation of trailers and containers.

It will also accommodate a single storey, rail served warehouse, which will replace the existing "Maritime" terminal warehouse.

To ensure the successful completion of this initial phase, we have constructed a concrete batching plant on site.

This temporary facility will lead to a more efficient process and help to reduce construction traffic on the neighbouring public roads.

It is expected that concrete pouring of almost 400m³ per day (enough to cover 2000m²) will take place on a daily basis from June right through to January.

The Type 1 Aggregate used to create the concrete is specifically shipped into Tilbury from an energy neutral quarry in Norway.

One shipload of approximately 38,000 tonnes of the aggregate will be delivered monthly.

Incredibly, it takes 30 HGV lorries, working in tandem 24/7 over a 72-hour period, to offload each boat.

Progress

Paul Scott, GRAHAM Contracts Director, is delighted with the early progress on site.



"Tilbury2 is a major infrastructure project, and one of the most significant port schemes that we have ever undertaken at GRAHAM," said Paul, who is also overseeing the GRAHAM Victoria Terminal 2 programme at Belfast Harbour.



"This is a complex project on a vast scale, with a range of different elements. We are responsible for two sizeable packages (Terrestrial and Marine), and with a challenging 94-week programme we have to be very efficient throughout every phase.

"I'm particularly satisfied with the progress we have made since beginning on site in March 2019. The first concrete pour was another important milestone, and when you analyse the quantities of materials involved, you get a real sense of the magnitude of Tilbury2."

Innovation

In mid-March, our specially commissioned 250tn crawler crane completed the offloading of 800tn of sheet piles, materials required for the Construction Materials and Aggregates Terminal (CMAT) berth cut off wall (approximately 300m long).

Demonstrating our innovative approach, the first sheet piles were then installed in April using a GRAHAM designed, bespoke floating piling gate.

Our own pontoon sections were also used to build the gate.

"We used this floating piling gate for the first time on any project at Tilbury2, and it proved a real success. It meant that our team could work consistently throughout the day without stopping due to tidal factors," added Paul.

"It's another good example of great work by all involved in the design development and subsequent operation of this innovative solution.

"To ensure our programme maximises the working area available, we are also committed to working the Upstream RoRo and the CMAT berth simultaneously."

Future-proofing Belfast Harbour's port infrastructure



Victoria Terminal 2 – Belfast Harbour

Work is progressing smoothly at Belfast Harbour where we are redeveloping the Victoria Terminal 2 (VT2) as part of a £15m investment package that will “enhance connectivity to one of Northern Ireland’s key markets”.

VT2 services the strategically important Belfast-Liverpool route, and upon completion in early 2020 this maritime project will enable the terminal to handle the next generation of modern RoRo (Roll-On/Roll-Off) ferry vessels.

Overall, the scheme will sustain c.100 jobs through the construction and installation of new ramp infrastructure that will accommodate the berthing of Stena Line’s new E-Flexer ships.

The project is part of Belfast Harbour’s long-term investment strategy in port infrastructure. It follows a recent £1.5m investment that increased VT2’s landside capacity, and improved its entrance and accessibility in preparation for the arrival of the new vessels in early 2020.

Michael Robinson, Belfast Harbour – Port Director, said:

“The upgrade of the VT2 ferry terminal represents another significant investment by Belfast Harbour in Northern Ireland’s transport infrastructure and will provide best-in-class facilities for Northern Ireland’s importers and exporters.

“The project includes the design and construction of a new two-tier ramp that will make it faster to load and discharge traffic, improve customers’ experience, and enhance connectivity to one of Northern Ireland’s key markets. By supporting the introduction of larger vessels, the investment also future-proofs Belfast Harbour’s ferry facilities, and strengthens our long-term partnership with Stena Line.”

Major construction project

Thomas Craven, GRAHAM Contracts Manager, said:

“This major construction project will include new berthing infrastructure and the installation of a new double deck linkspan that will allow vehicles to drive simultaneously onto the ferry.

“The berthing facilities at VT2 need to be upgraded to accommodate new and bigger vessels. This project will create new berthing infrastructure and enable efficient vehicle access to ships.”

Freight capacity

VT2 currently handles more than 200,000 freight units annually on the Belfast-Liverpool route.

The new E-Flexer ships, which are currently under construction in China, and are due to enter into service in the Irish Sea in 2020 and 2021, will be substantially bigger than the ships currently on the route. They will enhance freight capacity by 40%.

At 215m long, the new ships will have a freight capacity of 3,100 lane metres, and space to carry 120 cars, and 1,000 passengers and crew. They will also utilise the most modern marine technology available and be the most sustainable vessels operating in the Irish Sea.



Port of Southampton Ocean Cruise Terminal

Anticipating the arrival of a new generation of Gala Class cruise vessels, we successfully completed the first phase of a multi-million-pound upgrade to the Port of Southampton's Ocean Cruise Terminal. Regarded as Europe's leading cruise turnaround port, the reopening of its largest terminal marked the commencement of the busy cruise season. Delivered within a challenging timeframe (October 2018 – March 2019), the phase one programme of modification works accommodated the increasing size of cruise ships at the berths, and additional passenger flows in the terminal building. Featuring our alternative design for the construction of new 150 tonne bollards on reinforced concrete, this scheme was a continuation of our long-term relationship with Associated British Ports (ABP).

The brief

ABP required a "light touch" scheme of improvements to aid passenger flows to, from and through the terminal. With cruise operator, Carnival UK, committed to bringing, and basing, its new vessels to/at the terminal, a range of modifications to the berths were also necessary to accommodate the size of the new ships.

OUTPUTS AND BENEFITS

- **Timely delivery:** We delivered on time, ensuring the cruise ships were operational on 22nd March 2019
- **Revised bollard solution:** Our alternative solution involved just one insitu concrete foundation block in front of the services corridor and only 1.5m deep excavation
- **Contaminated ground:** Unforeseen contamination was found, and we ensured over 150 loads of non-hazardous, non-inert material were disposed off site
- **Alternative foundation and pile layout:** We eliminated £100k of piles and clashes with buried structures
- **Roof modification:** We modified the roof deck to suit ABP's revised steelwork design for the canopy, resulting in cost savings
- **Grout leaking:** We designed a "sock" around the drill bar to contain the grout and prevent it leaking through the masonry dock into the backfill material

"The first phase upgrade at the Port of Southampton is an important infrastructure project that will help to support continued growth in the cruise sector. The technical competency and engineering excellence of our team facilitated a smooth process throughout the project."

Jim Armour
GRAHAM Contracts Manager

£5.9m
PROJECT VALUE

October 2018
PROJECT COMMENCED

March 2019
PROJECT COMPLETION

Plain sailing at Europe's leading cruise turnaround port



The challenges

With the Gala Class vessels arriving into service on 22nd March, we were faced with obvious time pressures in constructing the necessary capacity enhancement provisions. Indeed, every shift was scheduled around the tides, and all works were conducted between November 2018 and March 2019 when no cruise ships were operational at the terminal. To ensure the bollards (critical path items) were completed on time, we mobilised two teams to accelerate progress, split between night and day shifts to overcome the testing tidal conditions. Often, ten-hour drilling sessions to complete the bollards were undertaken to overcome obstructions.

The solution

Our modification programme of works involved infrastructure upgrades on the quayside with 18 new 150 tonne bollards, on reinforced concrete foundations secured by vertical and raking ground anchors, replacing the existing 50 tonne bollards. This solution was specifically chosen by ABP as it eliminated the need for substantial temporary works and excavations. We also collaborated closely with ABP in revising the designs to eliminate risk to the services corridor, moving from "two deep walls straddling the services corridor" to a single shallower wall on one side of the services. Demonstrating our maritime expertise, we developed a land-based methodology, utilising 12m long cantilevering work platforms that proved so effective during our £114m Green Port Hull project (Nov 2014 - Jan 2017). These adjustable platforms eliminated the need for costly barges and also allowed us to work on a quay wall height of up to 3m. Further key elements of the scheme included the construction of a new entrance lobby, the alteration of the terminal building to provide improved and additional vertical transition, and the expansion of the security X-ray area.

NUCLEAR AND ENERGY

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Substation
and Spittal
Substation



This project (Low Level Waste Repository) continues to be managed at the highest level, not only achieving an exceptional level in all five of the scheme's checklist sections, which in itself is an achievement, but also by being innovative.



Considerate Constructors Scheme (CCS) monitor commending LLWR's Engineering, Design and Construction Framework (EDCF) partnership with GRAHAM which won a Gold Award in the prestigious national scheme

Nuclear works programme in 'Store' at Dounreay

Dounreay Site Restoration Limited

We were appointed by Dounreay Site Restoration Ltd (DSRL) to construct a new shielded Intermediate Level Waste (ILW) Drum Store Extension and an Unshielded Waste Store Extension for shielded waste containers next to the existing Dounreay Cementation Plant (DCP) complex.

Valued in excess of £22m, the complex works programme on behalf of DSRL – the site license company contracted by Nuclear Decommissioning Authority (NDA) for the safe and secure clean up of the Dounreay nuclear site – began in October 2018.

Dounreay is Scotland's largest nuclear decommissioning project and is widely recognised as one of Europe's most challenging nuclear closure programmes.

The site belongs to NDA, a non-departmental public body of the UK Government.

The successful contract award followed a competitive tendering process involving several bidders, with the pre-construction phase taking 25 weeks while construction is scheduled for a duration of 125 weeks.

Continued transformation

Commenting on the successful contract award Steve Beattie, GRAHAM Contracts Director, said:

"Our knowledge of construction and delivery within a nuclear environment, combined with our experience in working with

stringent safety systems, will ensure that we deliver assurance in the installation and validation of electrical and control equipment on site.

"This is an important project on behalf of Dounreay Site Restoration Limited and will support the continued transformation of the Dounreay nuclear site into a safe, secure area. We have already established a strong partnership with Dounreay Site Restoration Limited, stretching back to early 2011, and will once again apply our collaborative approach and technical expertise to maximise the success of this project."

Long-term storage

The project will see an existing above ground waste store extended to house intermediate level waste that is expected to be processed and packaged as part of the site's clean up. Passively safe containers will be kept in long-term storage within the facility in accordance with Scottish Government policy.

DSRL Construction Director, David Hubbard, said:

"This contract represents an important step in the long-term management of the site's waste. It is just one of several contracts being awarded to ensure we continue to reduce hazards and make progress towards the site's interim end stage. The next few years will see us construct several new facilities to support the programme as well as starting to demolish a number of redundant structures."



Community development

Around 100 people are expected to work on the project throughout its duration, and we are committed to a series of community development initiatives, including work placements and the recruitment of trainee positions. This is part of DSRL's requirement for its supply chain partners to consider how they can support Caithness and North Sutherland's socio-economic agenda. We also plan to work with local training suppliers to develop the workforce involved in the project, particularly supporting some to achieve NVQ Level 2 and above qualifications.

Nuclear expertise

We have a deep understanding of the Dounreay site and have already successfully completed a Grout Plant Facility, and constructed two Low Level Waste Vaults involving the total excavation of 243,000m³ of rock.

Demonstrating our nuclear expertise further, we completed the regeneration of multiple, time-expired manufacturing and support facilities as part of an £80m Core Production Capability Regeneration Project at Rolls Royce's Nuclear Fuel Production Plant in Derby.

In addition, we are a strategic delivery partner of Low Level Waste Repository Limited (LLWR) as part of a four-year framework agreement, providing technical engineering, design and construction expertise at the UK's national low level radioactive waste disposal facility in West Cumbria.

£22.5m
PROJECT VALUE

January 2019
PROJECT COMMENCED

July 2021
SCHEDULED COMPLETION



The practical application of ISO 44001 in partnership with **LLWR**



After months of planning, meticulous preparation and a rigorous audit process, GRAHAM's commitment to collaborative working practices was formally recognised at the start of August 2018 following the award of ISO 44001 certification for Collaborative Business Relationships.

The independent, third-party endorsement has reinforced the privately-owned company's position as a leader in the UK construction market and positions us among a select group of UK contractors in receipt of the new generation international standard.

In essence, the ISO provides the infrastructure to underpin sustainable business relationships and harness the benefits of collaborative working.

But when you strip the words back, what does it really mean?

Strategic delivery

For those within our civil engineering division, the answer lies at the heart of its partnership with Low Level Waste Repository Ltd (LLWR) and its role as the strategic delivery partner in LLWR's single contractor Engineering, Design and Construction Framework (EDCF).

Since October 2014, we have completed a range of complex work packages under either NEC Option A, C or E conditions at the UK's only low-level radioactive waste disposal facility in Drigg, Cumbria.

In such a heavily regulated nuclear environment, close collaboration and robust communication are paramount.

And, in the view of GRAHAM Contracts Director, Steve Beattie, the demonstrable application of collaboration is explicitly clear at LLWR as evidenced in the establishment of "Joint EDCF objectives" and the creation of a "Joint Relationship Management Plan", which practically articulate the core principles behind ISO 44001.

Indeed, such is the focus of collaborative practice attached to the GRAHAM/LLWR partnership, the Drigg project was selected for evaluation and scrutinised as part of GRAHAM's successful ISO 44001 audit.

Defined collaborative practices

"In partnership with LLWR we are managing the delivery of a complex £30m framework, therefore close collaboration and the establishment of defined collaborative practices is fundamental to the success of each programme of work that we undertake," said Steve.

"It's even more important within the confines of a rigid nuclear environment that covers around 110 hectares. As a range of complex, and often interfacing programmes, take place simultaneously, we understand that the success of the framework is not merely dependent on the integration of processes and procedures.

"It's also dependent on our ability to manage, monitor and measure the developing relationship between ourselves, LLWR and the constituent elements of the EDCF team. We have implemented a range of collaborative practices at Drigg, which have helped to significantly promote and strengthen collaboration.

"To gain ISO 44001 certification is a tremendous achievement for everyone at GRAHAM. I'm especially proud that our work with LLWR has played such an important role in securing this international recognition."

Under three defined programmes of work, our "one team, one vision" approach, centred on effective collaboration with LLWR, who operate the site on behalf of the Nuclear Decommissioning Authority (NDA), has ensured the successful delivery of the framework's parameters.

The three defined programmes include a Security Enhancements Programme, a Repository Infrastructure Programme and a Repository Development Programme. Notable achievements include the completion of optimisation and closure works, the construction of three re-locatable storage enclosures and trench cap improvements.

Joint EDCF objectives and the key to collaboration

The integration of both GRAHAM's and LLWR's behaviours and expectations into a mutually agreed framework vision has enabled the partnership to realise a range of positive outcomes including the efficient execution of works and services, the rationalisation of functions and the streamlining of processes.

Some of the key joint objectives implemented consist of:

Senior Executives Responsible (SERs): The appointment of SERs arriving at six core principles for delivery, which has established a "seamless team" and "seamless transitions" between design and construction

Joint Relationship Management Plan (JRMP): The creation of a JRMP – merging two separate business cultures into one

Best person for the role principle: The appointment of suitably competent and experienced individuals for specific functions irrespective of employer

Lean and continuous improvement: The delivery of Lean, integrated programmes of work that provide cost and time certainty with no accidents

Right first time: All Non-Conformances (NCRs) closed out before handover

Legacy: A commitment to leave a lasting legacy for Drigg and the surrounding areas

Accountability: Given the mix of personnel from both organisations across functions and teams, a bespoke RACI matrix was developed to establish who is responsible, accountable and consulted

KPIs: Agreed, measured and monitored KPIs ensure all parties are focused on achieving all deliverables

Measurement: The collaborative culture is measured with assessment tools such as team effectiveness questionnaires, critical behaviours tools and a trust evaluation tool

Considerate Constructors Scheme Award

An additional measure of the success of the GRAHAM/LLWR partnership was exemplified in April 2018 when it reached the "pinnacle of considerate construction" following receipt of the Most Considerate Site Runners-Up Award at the Considerate Constructors Scheme's (CCS) National Site Awards.

The CCS National Site Awards recognise those sites registered with the Scheme that have raised the bar for considerate construction.



The LLWR EDCF was recognised as one of the very highest performing Gold Award winners in the £10m-£50m value banding category and nominated as one of only 23 Most Considerate Site Runners-Up as a result.

This was only the second time the LLWR EDCF had entered the scheme and the national recognition is, in Steve's opinion, further validation of the effective collaborative practices in place.

"After earning Bronze last year, to now receiving Gold along with the Most Considerate Site Runners-Up accolade highlights the efforts that have been made to achieve the very highest standards. We are now competing on a national level and this is testament to the hard work of all of the team," added Steve.

"The CCS award provides independent verification of our commitment to collaborative working, which has been crucial to the success of the EDCF. It is just one of many benefits that our collaborative approach has realised.

"Establishing a framework vision at an early stage solidified our joint purpose and established a standard of excellence to work towards.

"The 'Framework Execution Plan' has effectively combined both organisations into one team so that synergies can be realised and capitalised upon.

"We also optimised resources and reduced overheads, for example, by integrating an office where LLWR and GRAHAM staff work harmoniously, side by side.

Helping NI Water to deliver *'what matters'*

For decades, we have developed a positive working relationship with NI Water - the sole provider of water and sewerage services in Northern Ireland.

Currently, we are a trusted delivery partner on three primary frameworks, namely the IF019 Capital Delivery Framework – Lots 2, 3 & 4 (Dec 2013 – Dec 2019), the IF100 Water and Wastewater Infrastructure Major Works Framework (2017 – 2023), and the IF103 Service Reservoir and Trunk Mains Rehab Framework (appointed November 2018).

Capital Delivery Framework

The IF019 Capital Delivery Framework is a long-term strategic framework largely focused on the delivery of water and wastewater infrastructure, water and wastewater non-infrastructure, and base maintenance items of work.

Initially awarded on a four-year term, the quality of our project management, optioneering, solution development, design and construction led to our selection for a further two-year term, up to December 2019.

It is worth noting that our work at the Galgorm Wastewater Pumping Station, involving the design, construction, manufacture, supply, delivery to site, installation, testing and commissioning of the station, was honoured by the Construction Employers Federation with the 2018 "Transport and Utilities Infrastructure Award".

Presently, we are in the process of upgrading the Portaferry Road, Newtownards Wastewater Pumping Station (valued at circa £1.5m), and finalising the improvement of the Crumlin Town Wastewater Pumping Station (valued at circa £687k).

Water and Wastewater Infrastructure Major Works Framework

The IF100 Water and Wastewater Infrastructure Major Works Framework requires participants to design, construct, install, test and commission the civil, environmental, process, mechanical and electrical elements for new Wastewater Treatment Works. Additional areas of this framework's scope include the design, construction, installation, testing and commissioning, or refurbishment and extension, of service reservoirs, sea outfalls, combined storm overflows and pumping stations.

We are currently undertaking maintenance and improvement works to the Newry Treatment Works (Year 4 - works valued at circa £2.2m, and Year 5 - circa £1m).

Our upgrade works to Dunore Point Water Treatment Works (WTW), and the construction and commissioning of a new Solar Farm in County Antrim (referenced on page 48) were also undertaken as part of this framework.

Joined forces

Showcasing our partnership approach, in June 2019, we joined forces with teams from NI Water to help "Keep Northern Ireland Beautiful" by removing old tyres and litter around the Portaferry Road site.

Reflecting on our strategic partnership with NIW, PJ McCaffery, GRAHAM Contracts Director, said:



"We're proud of our strong working relationship with NI Water, and continue to deliver much-needed maintenance and improvement works at Newry and Portaferry Road. At GRAHAM, we understand the importance of delivering high quality works to critical infrastructure, and we will continue to work collaboratively, assisting NI Water in providing the highest standards of sewage and water treatment to the benefit of local communities and the environment."

Partnership

Historical examples of our long-running relationship with NI Water include the Belfast Sewers Programme, the Enniskillen Sewers Improvement Programme, and the Integrated Wastewater Framework.



Solar Farm on 'Point'

Dunore Point Water Treatment Works Solar Farm

We won the Sustainable Building Project of the Year Award at the Sustainable Ireland Awards (2018) for our construction of Dunore Point Water Treatment Works (WTW) Solar Farm in County Antrim.

The Sustainable Ireland Awards celebrate the achievements of individuals and organisations within the energy, environmental and waste management sectors across the island of Ireland.

NI Water (NIW) officially opened Dunore Point WTW Solar Farm in May 2018.

The major renewable energy project, which involved a complex programme of civil engineering work on a 33-acre site on the eastern shore of Lough Neagh, is capable of producing a peak output of 4.99 megawatts, and is expected to save over £0.5m annually in energy costs.

Our successful connection of the solar farm was delivered ten days ahead of programme.

Whilst the nature of the scheme was fundamentally "green", the judges recognised our site team, and the build process as "green" for the commitment to environmental protection during construction in a sensitive location, and under a tight programme.

Design

The design and procurement of the NIE Networks Control Building and NIW 33KV Substation commenced in early September 2017, with construction commencing in October 2017. Construction of the 32-acre Solar Farm commenced in Mid December 2017 and was complete by Monday 12th March 2018.

23,936 solar panels, delivered from China, were installed on the steel structures of the Solar Farm and were supported by 4,352 steel piles. In addition, two 15t 2,200 kva Transformers, imported from England, one 15t 1,800 Kva Transformer, imported from Germany, and a 33kv Containerised Substation, imported from England, were designed, built and installed as part of the project.

Environmental achievements

The project's environmental achievements include:

- Located adjacent to Lough Neagh, a designated ASSI, Ramsar Site and Special Protection Area, meant numerous ecological measures were introduced to protect the habitats and species unique to this area – including directional drilling and extensive silt fencing to reduce disturbance and minimise the risk of pollution
- All excavated spoil material beneficially reused within the project footprint
- Significant volumes of packaging from the solar panels, which were imported from Germany, were baled on site to efficiently transport the material for onward processing and recycling
- In conjunction with NI Water, we organised a competition for local schools, challenging them to "Save Water & Save Energy" for their local treatment plant. The winners were invited to the official opening
- Selected zones of the site boundary were suitable for sowing with wild flower mix which added to the aesthetics of the area and considerably benefited local insect ecology
- The site area had agricultural value, and when reinstated was estimated to retain 70% yield to allow for ongoing sheep grazing in conjunction with the operational site compared to pre-construction



Energising the North of Scotland's electricity network

Blackhillock Substation and Spittal Substation: Caithness-Moray HVDC Link, Scotland

As part of the wider £1.1bn Caithness Moray Shetland energy project, we constructed twin state-of-the-art High Voltage, Direct Current (HVDC) substations in Blackhillock (Moray) and Spittal (Caithness). Completed in January 2019, the duplicate facilities are key infrastructural components of a new HVDC 1200/800MW link, which connects the transmission network between Moray and Caithness. We were appointed by ABB (ASEA Brown Boveri) to undertake the associated civil, structural and building works.

The challenges

Both sites, situated in remote northern parts of Scotland, were contained within live, and operational, AC Electrical Power Distribution stations owned and operated by Scottish and Southern Energy (SSE). Therefore, it was critical that we fully complied with all planning consents as well as SSE and ABB policies and procedures. At Spittal the existing 132kV overhead lines had to remain fully operational throughout the duration of our programme. As expected in the Scottish Highlands, the weather was also a formidable foe, with blasts of snow commonplace throughout the months of December and January.

The solution

The Blackhillock and Spittal Substation construction projects, are supporting SSE's broader aims of transferring more power, more efficiently for the people of Scotland. Located in remote areas, either side of the Moray Firth, the sites are over four hours apart. Nevertheless, the facilities are almost identical and include a main converter building with a footprint of 6527m². A three-level Control Room, a Spare Parts Building and MVS Building are further elements of each site, in addition to a Valve Cooling Area and a 3500m² External Yard. 200 tonnes of steel were fabricated, galvanised and erected per week and approximately 620m³ of rock and 9,800m³ of earthworks were excavated and removed. Demonstrating the scale of the twin sites further, 800m³ of attenuation materials were installed and around 2200m³ of concrete were poured for the converter substation pad, foundations, cable trenches and transformers and over 800 tonnes of structural steelwork. Our programme began in February 2016 and concluded in January 2019.

OUTPUTS AND BENEFITS

- **Powering Northern Scotland:** Two separate projects but with the single aim of modernising Scotland's electricity network
- **Complex Construction:** We were trusted with completing all complex civil, structural and building works
- **Scope and Scale:** Approximately 620m³ of rock and 9800m³ of earth were excavated and removed
- **Steel Manipulation:** At different stages over 200 tonnes of steel were fabricated, galvanised and erected per week

"The Blackhillock Substation and Spittal Substation project is supporting the biggest renewal of the north of Scotland's electricity network in a generation. We are proud to have played our part in the delivery of this important scheme."

Alastair Lewis
GRAHAM Contracts Manager



Checking in to next stage of 'once in a generation' Heathrow expansion project

A GRAHAM proposal has been shortlisted to remain in the running to help deliver the "once in a generation" Heathrow expansion project.

The former Michelin Site in Silverwood Business Park, which once served as Michelin's main European manufacturing plant, has made it to the next stage of the process as it showcased a strong base of local support, demonstrated the area's thriving supply chain, convenient connectivity links, and the potential to tap into a skilled workforce.

The site has been selected from a longlist of 65, all of which were visited during a nationwide tour which concluded in the summer of 2018.

The longlisted locations were then all invited to take part in a pre-qualification questionnaire which helped to determine the sites best placed to be involved in the delivery of Britain's largest infrastructure project.

In the autumn, we will have the opportunity to pitch to the airport's bosses for our chance to become one of the final four construction centres, to be announced early next year, ahead of work starting in 2021.

The final four sites will become offsite construction centres that will help to deliver Britain's new runway, bringing jobs and economic opportunities to every corner of the country as Heathrow looks to construct as much of the expanded airport offsite as possible. This innovative approach will also help to make the project more affordable and sustainable – by transporting assembled components in consolidated loads.

Commenting on our progression to the next stage of the process, John McDonald, GRAHAM Group Corporate Development Director, said:

"We are delighted to have been selected to proceed to the next stage of the Heathrow Expansion Logistics Hub competition. We believe our well-structured consortium presents a unique offer, with the capacity to help realise Heathrow's vision to create the 'world's best connected' airport in line with its commitment to 'sustainable growth'.

"Coalescing around key partners, our solution offers a long-term strategic vision that could position Heathrow at the cutting edge of innovation and project delivery in modern methods of construction. We are looking forward to developing our proposal further in collaboration with Heathrow during the next phase of the process.

"This is a significant opportunity for us to help to boost productivity, create jobs, supply chain opportunities and leave a skills legacy for future generations in Northern Ireland."



Major infrastructure project

Heathrow will be the first major infrastructure project in the UK to pioneer the large-scale use of Logistics Hubs – aiming to build as much of the project offsite as possible.

The hubs will work by pre-assembling components offsite before transporting them in consolidated loads to Heathrow just as they are needed. This method will boost the project's efficiency and cut emissions by transporting components to site in fewer lorries. Research by WPI Economics revealed that integrating an offsite manufacturing supply chain into a major project has the potential to reduce the overall cost of the project by as much as 25% whilst speeding up delivery by up to 30%.



Good wellbeing is good for business

Michael Graham, GRAHAM Group Executive Chairman, discusses the innovative approaches that have positioned us as leaders within wellbeing

In today's society, we are facing a modern day "pandemic" of poor mental wellbeing. The statistics are shocking and speak for themselves.

In any year, one in four people will suffer from a mental wellbeing issue. That means that right now, you, a colleague or someone close to you is likely to be suffering, usually in silence. Suicide is the number one killer of men over 40 in the UK, and what's more the construction industry consistently ranks as the highest in the UK's mental ill-health league table, due to its traditional macho image of "manning up".

However, at GRAHAM we are working hard to change that trend. We believe that employers are in a unique position to positively influence mental wellbeing, and we want to open up the conversation, so that everyone knows that "it's okay not to be okay".

We want our industry to be a place where employees can feel comfortable talking about their issues, and where they can get support from their manager, fellow employees and wellbeing experts to get back to full health.

That's why we have become recognised as leaders within wellbeing through our innovative approaches that help to tackle these issues head on.

Furthermore, they are simple to understand and are adaptable to any size, or type of organisation.

Our mental wellbeing "service" includes:

- **A defined process:** We have established a bespoke mental health process, which outlines a step by step roadmap when an issue has been identified or has been raised
- **Manager awareness training:** Managers receive formal training that helps them to identify mental health issues, how to manage mental health on site and where to get help for affected employees

- **Mental Health First Aiders:** Selected staff across the business undertake additional externally accredited training, and are available to provide confidential, localised support
- **External support:** We are partnering with Health Assured and other specialist mental health partners. We are also active members of Mates in Mind
- **Communication:** We have developed innovative communication platforms to educate employees about mental wellbeing issues and to signpost them to the appropriate support. These include videos, internal social media, a dedicated wellbeing portal and a handy on the go APP
- **Simple initiatives:** From "Tools Down Friday" through to weekly five-a-side football for those working away from home, we aim to ensure no one is isolated which can easily sow the seeds for future problems
- **Confidential assistance:** We provide confidential assistance to employees through our external Employee Assistance Programme and make a Mental Health Specialist available for individualised counselling

However, mental wellbeing is more than just a series of direct initiatives. It's about good work and satisfying our deepest needs on why, how and where we work. So, we are focusing just as much on how we structure work, build teams and recognise and reward individuals.

On top of all of this, it's important to understand how the different facets of wellbeing - the physical, the psychological and the social - interact. We call this the "Holy Trinity" of wellbeing because focusing on one area directly influences the others, creating a "gestalt" effect that impacts people and the business.

As an example, we recently concluded our "100 Day Challenge" programme. The Challenge, which has already received the NI Health and Fitness

Innovation Award, required participants to be physically active for at least ten minutes every day and encouraged employees to focus on getting fit for summer.

Indeed, for one of our inspirational employees it played a major motivating role in helping to put his Type 2 diabetes into remission.

While the challenge was primarily focused on physical wellbeing, its team-based structure meant the creation of positive social connections between staff, with the physical exercise itself enhancing the mental wellbeing of employees.

Similarly, CONNECT PLUS, our innovative whole person development programme, has been designed to influence mental, physical and social wellbeing.

Based on cutting-edge research across performance, health and wellbeing, CONNECT PLUS has already produced eye-catching results, including reducing absence to 400% lower than the UK average, and employee turnover for participants falling to just 1%.

Fundamentally, we know that when a person has a balanced and healthy lifestyle, they feel great and reap the benefits in every aspect of their lives, including their work.

Against this backdrop, we often get asked the secrets of our success.

It really is quite simple:



We ensure that every activity is what employees need, and we use the “common voice” so that people understand what is available



Leadership is key – our leaders participate in our programmes and this commitment to “vulnerability” has been a catalyst for change



We ensure managers and employees are involved in the design of programmes through regular feedback and dialogue



We partner with experts who share our values and will challenge us to continuously improve



We focus on results at the individual, team and business level – there has to be a benefit for everyone

Overall, we have learnt a simple lesson on our journey – we don’t know it all. That’s why collaboration is key if we are going to develop a sea change around mental wellbeing.

It’s not just a problem for the construction industry. We need to open up the conversation, so, collectively as UK PLC, we get to grips with the issues, share innovation and develop programmes that ultimately will make work an environment where people can maximise their potential by having the right skills backed by the right mental wellbeing and resilience.

Fundamentally, we need to harness the power we hold as employers, working collectively so that we build on each other’s strengths to achieve success.

The reward for this collaboration will be a new work landscape that will be transformational for individuals, business and society.

In the end, the message is simple – good wellbeing is good for business.



The end of the line....

Thanks for reading this first edition of Civil Engineering News.
If you would like to know more about our projects, sectors and people,
please get in touch.



CIVIL ENGINEERING NEWS


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