



**At JN Bentley,
because we **care**
about what we do,
we do it better.**

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Looking ahead

Our business maintains three primary delivery vehicles, utilising a 'right company for the opportunity' approach. **JN Bentley** provides civil engineering contracting services, together with mechanical and electrical expertise; our **Mott MacDonald Bentley (MMB)** joint venture offers fully-integrated civil engineering feasibility, design, construction and commissioning services; and our **JBA Bentley** joint venture delivers fully-integrated water and environmental engineering, feasibility, design, construction and commissioning services. Regardless of who is delivering the work, our approach and values remain the same.



A year of impressive growth

2017 was a year of impressive growth for our business. We surpassed 1,400 employees and £250m turnover for the very first time, and strengthened our bond with Mott MacDonald.

Growth alone doesn't mean instant improvement. In any walk of life, it takes time for new people to familiarise themselves with their new surroundings and for new teams to start performing. It is for these reasons that 2017 felt an intense twelve months for many of us, but this is a dynamic that will pass and for which we will be stronger.

Employee numbers rose significantly last year. The fresh knowledge, skills and expertise that new people bring to the business are invaluable, and I was pleased to see existing employees supporting new faces as they settled in.

Our diverse blend of young people working alongside more experienced heads brings real energy, dynamism and intellect to the business. I am especially proud of our track-record of building a talent pipeline; the new apprenticeship programme is a great example of this because it supports employees at all levels, from those just starting out to those developing their careers.

As well as welcoming the new, it's important to thank those long-serving members of staff who retired or moved to pastures new in 2017 – best wishes to them all.

Financially it was a good year and the business is in a good place. It was a real challenge keeping up with resource demands across our sites, with utilisation of both people and plant very high. That said, we did encounter some more commercially-testing contracts and it is from these we need to learn, use hindsight, and improve next time.

I believe that we became complacent on health and safety last year; this is simply not acceptable. I hope that the roll-out of our refreshed Health & Safety Strategy in November acted as a stark reminder to us all of the standards and behaviours we expect. The roll-outs also refreshed our approach to occupational ill-health and again we need to ensure this important area is fully addressed.

It's true that when we care about each other we stay safe and healthy, so let's get back to taking responsibility and looking out for one another. I urge you all to do this from today: achieving zero injuries and instances of occupational ill-health is possible, as we've proved in the past.

I believe there is opportunity to improve environmental performance too. We must all be more environmentally-aware around site, and instil in our designs the virtues of PAS 2080 to provide our clients with low-carbon solutions.

With 200+ sites running at any one time, it's impossible to reference every project we've delivered in my review of the

year, so I've cherry-picked a few from across our operational areas. What I was impressed with across all sites I visited were the standards of professionalism: sites were tidier than ever and work areas meticulously planned.

At Woodgate Hill, after a difficult 2016, our work in 2017 was nothing short of brilliant and helped re-build our relationship with client **United Utilities**.

Our large projects at Preston, Blackpool (also United Utilities) and Five Fords (**Dŵr Cymru Welsh Water**) made excellent progress in 2017, and I know works advanced well on our **Severn Trent Water** site at Hanchurch (I've only seen photos of the new crane so far – a site visit is overdue!).

Given the demanding timescales, Rivelin (**Yorkshire Water**) proved a hard slog for everyone. It has certainly not been an easy scheme but the team has been stoic in its approach and this is admirable.

I was delighted that the efforts of the Grafham team who, working alongside **Anglian Water** and Mott MacDonald, received a number of different awards in 2017. This included the Carbon Reduction Project of the Year prize at the British Construction Industry Awards – the 'blue ribbon' awards in our industry.

Our new co-located premises at Seaham give us a fantastic new office to collaborate with **Northumbrian Water**, and it's always a delight to visit our team in Wales; I've had some excellent feedback from a director at Dŵr Cymru Welsh Water who really appreciates our efforts.

It was brilliant to re-engage with **Rolls-Royce** and **Procter & Gamble**, two of our long-standing clients in the commercial building sector. In the **Coal Authority** we have another long-standing client and it was great to see excellent work carried out to support their programme of mine water remediation.

Our joint venture with JBA, JBA Bentley, continued to go from strength-to-strength. The team and workload is growing and we have a real understanding of the needs of the **Environment Agency**. This means we're now a highly-respected member of their supply chain, and someone on whom they can rely – demonstrated by impressive standings in recent KPIs.

We took on an enormous amount of learning on our schemes with **National Grid**, learning that we must capture and use to keep improving. It is always challenging getting to grips with a new client – think back to where JBA Bentley was two years ago and use this as proof that your hard work will pay off.

Our company has doubled in size in just two years and is flourishing.

Every one of our clients is operating in as challenging an environment as I can ever remember, especially those in the water sector. As we move into 2018 it is important to keep working with this in mind, whilst staying safe, delivering quality, and giving them value for money.

Our new IT system, Xpedeon, continued to be rolled-out in 2017. Implementing any new system takes time and can add to that feeling of pressure – issues need ironing-out and users must be prepared to spend time learning. Whilst the implementation of Xpedeon hasn't been without its headaches, the benefits will move our business forward and believe me, the roll-out has been far smoother than that of its predecessor, CMS, 17 years ago.

Yammer, our internal social media channel, was a hive of activity last year. The number of positive updates and stories I saw posted on a daily basis was very pleasing, even if I had to reign in some of my own 'Yorkshire wit' for fear of recrimination!

We are looking to diversify what our business can offer by exploring new sectors, building on relationships that Mott MacDonald already has with potential new clients. In 2017, we actually turned down opportunities to focus on delivering quality projects for our existing clients – an enviable position for any business to be in. We will continue to explore these opportunities in 2018, and take those that are right for us.

2018 itself will be a year of consolidation and improvement. We must follow-through on the commitments we all made at the Health & Safety Strategy roll-out and remain respectful of our clients and the challenges that they are up against. Keep in mind that construction remains the biggest team game in the world and that if we continue to all work hard we will be successful and enjoy coming into work every day. That will see our business continue to go from strength-to-strength.

I hope you enjoy reading the Annual Review and wish everyone the best for the year ahead.



Paul Bentley
Managing Director, JN Bentley



Growth and profitability far exceeding that of the wider UK economy

2017 was a year of unprecedented growth for our business.



Revenue increased by 53% to £257m (on top of a 26% increase in 2016), which represents an average of £5m per week for the whole year. The number of people we employ grew drastically too, up 40% to over 1,400. This workforce is based at offices and sites at more locations across the UK than at any time in the company's history.

Such growth and profitability far exceeds that of the wider UK economy and is just reward for the tremendous efforts of everyone over the past twelve months.

The bulk of our work (84%) continues to be delivered in the water and wastewater sector with six of the UK's largest water and sewerage companies (WASCs).

Managed in five-year 'AMP' cycles, 2017-18 represents the traditional peak of the AMP for these six clients, accounting for the record increase in turnover that we have witnessed. Included in this is our framework with Northumbrian Water which, after establishing itself in 2016, grew significantly in 2017.

Following delays to the start of some of the AMP schemes we expect the peak to continue into 2018 and our budget for that year is set at £253m of which almost 70% was already secured by November 2017.

Our contract with the Environment Agency (EA) exceeded forecast in 2017, testament to how the JBA Bentley team has become a trusted, 'go to' member of the EA's supply chain. We expanded our offering in the gas sector with National Grid, and returned to the commercial building arena with Rolls-Royce and Procter & Gamble - both firms with

whom we enjoy relationships dating back many years. Maintaining a diverse offering across a variety of sectors will only stand us in good financial stead for the future.

Plant and machinery represents an important revenue stream for the business; levels of utilisation were maintained at an impressive 95% in 2017. It is important we continue to invest in this infrastructure - over 140 significant items of plant and machinery were added to the fleet in the last year, including two brand-new 80T crawler cranes. We also continued our rolling replacement (and expansion) of our van fleet to meet the continued increase in activity levels on site.

The roll-out of our new IT system continued in 2017, which included a migration of our procurement and accounts payable systems. Whilst not without its challenges, we look forward to enjoying the efficiencies Xpedeon will deliver in 2018 as more of our core IT systems are migrated.

To 2018, where we forecast we will maintain our level of 2017 turnover. 70% of this revenue is already secured across our portfolio of clients. It remains to be seen whether Brexit will have a more obvious impact on our business as we move closer towards the exit date, and this is something we will continue to monitor closely in 2018 too.

Helen Thompson
Head of Finance,
JN Bentley

- Water and wastewater ■
- Environment ■
- Utilities ■
- Commercial ■
- Other ■
- Highways ■

2017 in numbers

1,500



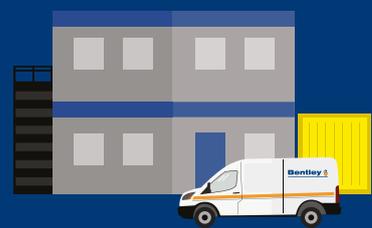
Over 500 people joined JN Bentley, taking employee numbers to nearly **1,500** for the first time in our history

23



The industry and our clients recognised our efforts with **23** award wins, commendations and shortlistings

200+



We worked from **10** offices locations and had upward of **200** live construction sites operating across the UK at any one time

£98K



The business and our employees donated **£98K** to good causes, as well as hours of skills, time and expertise

33,500



£1m and **33,500** hours were invested in training to upskill and develop our people in all roles

ZERO



Our Health & Safety Vision is to achieve **zero** injuries and prevent occupational ill-health

98%



We diverted **98%** of the waste we generated from landfill by pro-actively following the waste hierarchy

141



Colleagues made **141** nominations into our Be Recognised Awards - our way of saying 'thank you'

£8.5M



£8.5m was invested in our plant and vehicle fleet, including the purchase of two brand-new 80T crawler cranes

16,374



16,374 orders were placed with suppliers, with **£5m** in efficiencies generated across materials, plant and subcontract buying

63



We expanded our apprenticeship offering and now have **63** colleagues enrolled on a variety of courses

293



Our wellbeing prize draws made winners of **293** employees, all of whom used their winnings to enhance their wellbeing

In the news



◀ A record-breaking year

2017 was a record-breaking year for JN Bentley. We surpassed £250m turnover for the first time in our 46-year history, and now directly employ nearly 1,500 talented people, in all roles from back-office support to front-line operations.

A global reach ▶

There was a day when JN Bentley vans were only ever spotted within Yorkshire: not anymore. Our geographical spread is wider than ever – as far north as Scotland, south as Ilchester, west as Haverfordwest and east as Great Yarmouth. In 2017 we moved to new office premises in Durham and Peterborough, and teamed up with our Mott MacDonald colleagues in India. We have a growing dedicated MMB resource in our Global Design Centre in Mumbai who are providing valuable design input into projects with our clients in the water sector.



◀ Apprenticeships: You're hired

We have a proud history of apprenticeships at JN Bentley – many colleagues in supervisory roles were apprentices once upon a time. In 2017 we massively increased our apprenticeship offering to ensure we keep bringing more people into and up through the business. We exhibited at National Apprenticeship Shows around the country and welcomed 47 new apprentices onto the books. A further 16 employees enrolled on higher-apprenticeships too.

◀ Giving a bit back

The nature of construction and engineering means we're often working in the heart of the community. Our people like to give a bit back to these communities, whether fundraising for charity, working with local groups, or partnering with schools, colleges and universities to open students' eyes to our industry and what it has to offer.



◀ And the winner is...

We don't do what we do to win awards, but it's nice to receive recognition when we do things well. In 2017 we picked up 23 client and industry award wins, commendations and shortlistings for everything from reducing carbon to great health and safety.



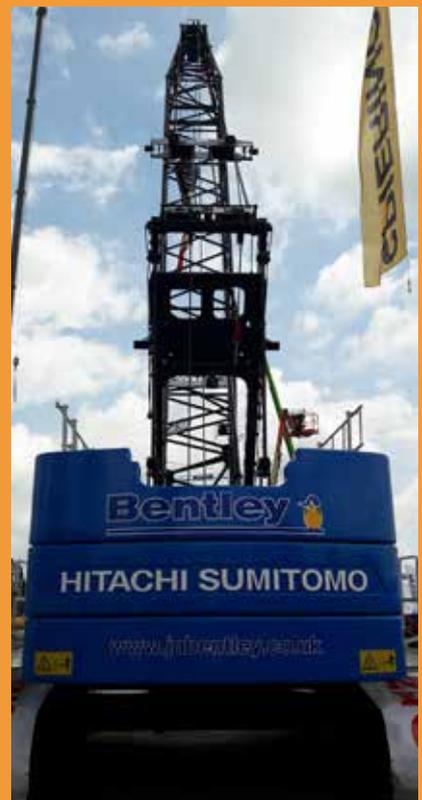
◀ Flying high

Our Cost & Efficiency Strategy challenges colleagues to reduce costs and improve efficiency. One way we achieve this is through great innovation: finding new ways to solve our clients' problems. This means embracing digital engineering and being at the forefront of the latest technology. We have BIM experts across all frameworks, use virtual reality in design and construction to help teams visualise the build, and fly drones to gather photogrammetry then used to create composite images, 3D models and detailed as-built records.



◀ A safety evolution

Our people must go home safe and well at the end of the day, which means we care passionately about health and safety. In 2017 we rolled-out our refreshed Health & Safety Strategy to every single employee, plus key client and supply chain contacts. At the centre of the refreshed strategy is our vision: to achieve zero injuries and prevent occupational ill-health.



Centralised procurement ▶

Our 40-strong procurement team work closely together in head office to equip our sites with the right materials, plant and subcontract expertise at the right time. We invested £8.5m in our plant and vehicle fleet in 2017 to increase productivity, improve environmental performance, and continue to meet the needs of our clients. Investment included two brand-new 80T crawler cranes that have since been deployed to projects across the UK, expertly driven by our in-house plant operatives.



Delivery

At the heart of what we do is the delivery of first-class civil engineering and construction projects.

Because we care about the delivery of our projects, in 2017 despite experiencing a major increase in turnover and size of workforce we still maintained our success and profitability.

With upward of 200 live sites running at any one time, our geographical reach is now broader than ever before; at the end of the year operational sites could be found as far north as Scotland, south as Somerset, west as Haverfordwest and east as Great Yarmouth. Combining broader geography with growth means a bigger team and we have welcomed more than 500 new faces to the business throughout the year, bringing with them their skills and expertise adding to our operational competence. All of this was

underpinned every step of the way by our invaluable support functions who continue to secure the right mix of new work, recruit new people, co-ordinate training and development, engage with suppliers and pay the bills, all administered in-house.

Through our growth we have continued to demonstrate that we care.

We care for our clients | Our clients know and appreciate that we're willing to go that extra mile in our delivery. Throughout the year we have seen numerous examples of people going above and beyond for our clients, displaying personal commitment to achieving challenging deadlines and

regulatory outputs and being there to support during emergency situations. This care for our clients often sets us apart from our competition.

We care for our people | We believe strongly in a direct-delivery model; in 2017 we carried out over 60% of work on projects using our in-house resources, resulting in high quality outcomes because our people take great pride in delivery. Direct-delivery also means we can give opportunities to people and invest heavily in their development. Whilst we have recruited at all levels during the year we always look to promote from within and in 2017, a significant number of people stepped up into more senior positions. Whether it



Sustainability means different things but for us, the word care defines our sustainable approach to delivery.

be Operative to Lead Hand, or Contracts Manager to Operations Manager, it is always pleasing to see people develop and grow with the business.

But coming to work isn't just about delivering projects, we all spend a large proportion of our lives at work and it's really important to us that our people have a positive experience and some fun at the same time, be it through volunteering, wellbeing programmes or socials.

We take care in our work to stay safe - there is nothing more important to us than people going home fit and well. We re-affirmed this in 2017 through the launch of our refreshed Health & Safety Strategy to employees, clients, suppliers

and our colleagues in Mott MacDonald. Relentless focus on the elements of this Strategy will deliver our goal of achieving zero injuries and instances of occupational ill-health - something we know is a realistic ambition - and the hard work will continue in 2018 and beyond.

We care about the bottom line | Our Cost & Efficiency Strategy is all about collective effort and making small savings across the board: we all have a part to play when it comes to efficient delivery. The Strategy maintained its momentum in 2017, challenging employees to be passionate about reducing waste and driving efficiencies. Its aim is to save 5p in every £1 we

spend by finding new, innovative ways to solve old problems, and becoming more efficient in the way we work.

Sustainability means different things but for us, the word care defines our sustainable approach to delivery.

Richard Risdon
Director, JN Bentley

An integrated approach

MMB is a key member of Anglian Water's Integrated Main Works Capital @one Alliance. The @one Alliance is a collaborative organisation of consultants and contractors working together to deliver 800 schemes worth £1.2bn as part of Anglian Water's AMP6 capital investment programme.

MMB carried out design and construction work on above and below ground assets across the region in 2017, and are proud to be helping to drive safety improvements through our presence on the collaborative Health and Safety Team.

Facilitating major growth ▶

Highways England's £1.5bn upgrade of the A14 between Huntingdon and Cambridge is one of the largest infrastructure projects in the UK, vital for continued growth and prosperity in the East of England.

To facilitate the upgrade, we are diverting over 20km of services, decommissioning old assets and connecting new pipelines to existing – all whilst maintaining the performance of the network. Key to the project is a 570m diversion of the Grafham trunk main, a 14km main serving over 106,000 customers. The existing section of main, over which a number of new roundabouts, flyovers and slip roads are to be built, is being decommissioned and replaced by new twin pipes, placed inside concrete sleeves where it runs directly under the new carriageway.



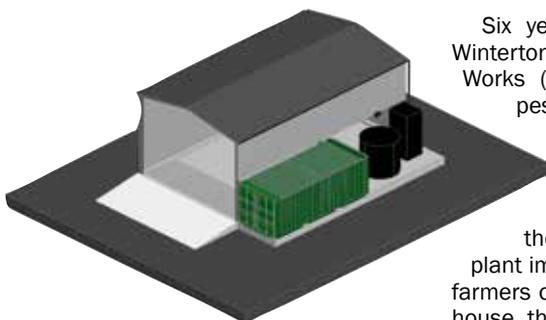
Project: A14 Diversions | Location: Cambs | Expertise: Pipelines, maintaining supply

◀ A new catchment strategy

Six years ago, an aquifer serving Winterton Holmes Water Treatment Works (WTW) was contaminated by pesticides, forcing the works to be taken out of supply. To bring the site back into service, an innovative 'catchment strategy' was agreed with the DWI that will see the existing plant improved and provide the seven farmers on the aquifer with facilities to house their pesticide equipment and prevent further contamination.

The solution has provided a 'win win' outcome for all parties: the need to construct a costly transfer pipeline has been eliminated (reducing baseline carbon by 83% when compared with the original solution) and the local landowners will receive valuable new facilities.

Project: Winterton Holmes WTW
Location: Scunthorpe, North Lincs
Expertise: Catchment strategy, carbon reduction, groundwater management



Multi-award winner

2017 brought to a close one of the largest projects we have ever delivered.

The Grafham Resilience scheme provides added resilience to the water supply to Northampton, Huntingdon, Bedford and Milton Keynes. We constructed a new 40ML storage reservoir, new pumping station, pipelines and inline package booster stations at 15 sites across the region.

The project won the Carbon Reduction Project of the Year Award at the prestigious British Construction Industry Awards for its innovative approach to minimising environmental impact. By reusing existing assets as opposed to constructing new, we made capex savings of over £30m, and reduced embodied carbon by 61% against the original solution.

The scheme was also shortlisted in the Civil Engineering Project of the Year (£10m to £50m) category, won three awards at the Institution of Civil Engineers (ICE) East of England Merit Awards, two awards at Anglian Water's Supplier Awards, won the 'Capital Project Management Award' at the Utility Week Awards, and was highly commended for Project Achievement at the Institute of Asset Management (IAM) Awards.



61%

By reusing existing assets, as opposed to constructing new, we reduced embodied carbon by 61% against the original solution.



Photo credit: Anglian Water

Built from a standing start

MMB is three years into its first ever alliance agreement with Dŵr Cymru Welsh Water. From a standing-start in 2014, there are now 230 people working on MMB water and wastewater projects across Wales, many of whom have been employed locally. Since the start of the AMP we have delivered twice the workload originally forecast and in 2017 passed one million safe hours worked in Wales without a reportable (RIDDOR) incident.

A solution for North Wales

MMB is delivering the £56.2m North Wales Sludge Strategy that will deliver both opex savings and enable the business to meet the Biosolids Assurance Standards from June 2018.

The strategy includes construction of a £37m Advanced Anaerobic Digestion (AAD) Plant at Five Fords Wastewater Treatment Works (WwTW), and a £19.2m investment to decommission and convert satellite wastewater sludge processing sites to export dewatered biosolids for processing through AAD at Five Fords.

This will centralise the treatment of all biosolids from the wastewater treatment processes in North Wales.

AAD recovers a higher biogas yield by utilising a thermal hydrolysis process, resulting in a reduced volume and higher quality biosolids product for final export to land.

Through innovative thinking, MMB challenged initial proposals for two AAD plants in North Wales, the team opting instead for a single AAD plant, reducing capital investment by £15m and whole life costs by £40m.

Project: North Wales Sludge Strategy and Five Fords AAD

Location: Wrexham, North Wales

Expertise: Civil engineering, procurement-led design, standard products, innovation



Critical tests and upgrades

We managed a programme of tests and upgrades on critical telemetry alarms at 1,800 sewage pumping station sites across Wales. We surveyed each site to identify and then rectify any issues by modifying control setpoint or wiring in and testing new control circuits. We worked closely with our client to produce a dedicated electrical safety procedure for the scheme to radically improve the control of electrical safety and of documentation being issued to subcontractors involved in the works.



◀ Avoiding buried services

To cater for future population growth, we have increased the capacity of the treatment works at Newport Nash by constructing a new 35m diameter primary settlement tank, 300m rising main and strain press, and upgraded the pumping station.

Finding a suitable route for the new rising main amongst many buried services on a heavily-developed operational site was challenging. Despite encountering additional services during the excavation that were not originally identified on drawings, the team worked in accordance with our Operational Safety Standards to safely deliver the project and keep the treatment works operational throughout.

Project: Newport Nash Growth Scheme

Location: Newport, South Wales

Expertise: Works on an operational site, direct delivery

Smart digital workflows | We have developed an innovative digital workflow that captures granular component information at an early stage within the project lifecycle before making it available for output to our design, construction, and commissioning teams. The data informs things like 3D Revit models and inspection and test plans. We've developed an app to make data entry as easy as possible on site, greatly reducing the administrative burden. In 2017 we used this on projects at Aberystwyth and Cowbridge, and plan on rolling out the innovation further in 2018.



▲ Good neighbours

Tasked with laying a 5km gravity sewer through built-up areas and sensitive woodland, as well as replacing an existing wastewater treatment works in challenging topography close to residents' properties, consideration for the local community was critical on the Hook and Johnston Growth Scheme.

We attended community consultation events to allay concerns of residents, and maintained dialogue throughout so they were always up-to-date on progress.

85% of the pipeline was directionally-drilled, which massively reduced the

impact on the local area, and pre-cast concrete panel manufactured off-site were scheduled for delivery times that avoided clashes with the school run.

Any excavated material we cannot reuse on the project will be used to develop an adjacent field into a wild-flower meadow to support the local habitat.

Project: Hook and Johnston Growth

Location: Haverfordwest, Pembrokeshire

Expertise: Community liaison, pipelines, off-site manufacture

New beginnings in the North East

After 12 years at Meadowfield, our team in the North East moved to new co-located premises at Seaham, County Durham in 2017. The new office is home to over 200 staff from Northumbrian Water and their six AMP6 contract partners, including MMB. Over the last 12 months we have built on our successful start to AMP6, delivering water and wastewater schemes across two frameworks in both treatment and infrastructure.

“The move to bring all of our framework partners together at Seaham has been really successful. We’ve had lots of positive feedback not only from MMB and our other contract partners, but from operational staff too. Having everyone together under one roof is helping them to speak to the right people and generally get more done.”

John McGovern – Head of Asset Delivery, Northumbrian Water Group





◀ Ensuring compliance

Water companies must comply with legislation designed to return eel stocks to sustainable levels. In 2017 we made progress on a batch of four schemes installing purpose-built fish exclusion, fish recovery and return screens at existing pumping stations in the North East.

Tasked with investigation, project definition, design and construction of the works across several locations, we have introduced our client to new screen technology, moving away from maintenance-heavy chain-driven traditional systems. Using interchangeable plastic screens with no moving parts below the water line, the new approach reduces operation and maintenance requirements.

Working with key stakeholders including the Environment Agency, we've helped Northumbrian Water become one of the first water companies to achieve compliance on a large abstraction works following the introduction of the new regulations.

Project: Eel Regulations

Location: North East

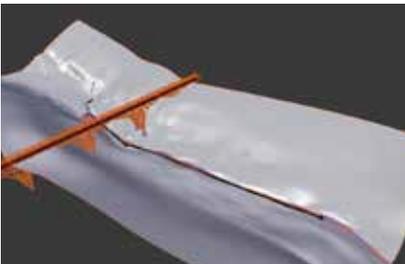
Expertise: Stakeholder co-ordination, collaborative planning, structural design, temporary works



7 We received recognition in seven of ten categories at **Northumbrian Water's Going the Extra Mile (GEM) Awards** including winning the Health, Safety and Wellbeing Award. The annual GEM Awards acknowledge achievements of the full Northumbrian Water supplier list over the past 12 months.

▼ Digital efficiencies

A combined sewer needed repairing after it collapsed into a watercourse in a largely inaccessible area of ancient woodland.



To accurately model the complex environment, a point cloud survey was used to create a detailed ground profile. Once rendered, this gave us a digital 3D visualisation of the woodland that we used to challenge the original scope and eliminate a need to construct two pumping stations. Our gravity solution reduced capital expenditure by 60% and operational expenditure to almost negligible levels.

The digital model was also used to explain our plans to stakeholders including the client and local environmental group, and was invaluable when briefing our site teams about the hazards on site.

Project: Pelaw Woods Sewer Rehab

Location: Durham

Expertise: Wastewater networks

Improving key assets

Both Whittle Dene and Warkworth WTW play an important role in supplying clean water to Tyneside. We're modifying existing rapid gravity filters at both sites to allow for the removal of manganese using single-stage filtration, using a process the first of its kind for Northumbrian Water.

Strong collaboration with our client's operational teams has been critical to maintaining their customers' water supply whilst works have progressed. This has helped us understand Northumbrian Water's needs and reduce original programme for filter refurbishment by 30%, despite other capital works in the area restricting our access to certain assets.

Project: Whittle Dene and Warkworth Water Treatment Works

Location: Northumberland

Expertise: Maintaining supply, close collaboration with client ops teams

▼ At **East Tanfield and Pegswood Sewage Treatment Works** we installed Nitrifying Submerged Aerated Filters (NSAF) to ensure our client met new consent standards. Our team took their learning from East Tanfield forward to Pegswood to improve the installation of pre-cast concrete units.



A close partnership | MMB is playing a key role in different partnership working groups within the framework. **Run2Lean** is based upon the principles of our own Cost & Efficiency Strategy and the **Run2Academy** offers students on-the-job learning opportunities for young people in the region.

The **Health, Safety and Environment Framework Forum** shares best practice to continually improve performance, and has scooped a number of awards for its innovative approach, including the Constructing Excellence National Award for Health, Safety and Wellbeing.

A firmly established team

2017 was our eighth year working in partnership with Severn Trent Water. The MMB team is firmly established in the region and has developed into a mature, capable and high-performing unit – so much so that the client trusts us to mobilise quickly if they need a fast response. We delivered a variety of projects together in 2017, primarily from our base at Shifnal, Shropshire.

Heart of the community ▶

To cater for population growth and bolster the resilience of the water supply in the local area, we constructed a new 5.5ML distribution service reservoir and 3.7km pipeline at Cowleigh.

The project saw us working in the heart of Malvern town centre and through a protected Area of Outstanding Natural Beauty (AONB). We liaised closely with the community and chose materials sympathetic to the surrounds. For example, plastic Molecor pipes were

used for the first time on a large Severn Trent Water infra project, reducing mechanical lifts and use of power tools.

During the works, the team safely crossed 400 known services – and uncovered a further 125 uncharted pipes and cables buried in the ground.

Project: Cowleigh and Lower Wyche
Location: Worcestershire
Expertise: Pipelines, customer liaison, pressure testing, traffic management



M&E

MMB is delivering a programme of mechanical and electrical survey work focusing on existing chlorination and ICA equipment at over 100 sites. This involves surveying instrumentation, control panels and the chlorination processes to identify the need for improvements.



◀ Challenging the norm

We refurbished a small water treatment works at Acton Burnell, challenging traditional approaches to drive efficiencies. We eliminated the need to purchase adjacent land on which to house the new equipment by incorporating storm treatment into our solution, and installing the first vertical tertiary/storm reed bed at any site in the Severn Trent Water region.

When a ground investigation report highlighted poor ground conditions and

a high water table, we challenged the conventional design, proposing to construct an above-ground RBC (rotating biological contactor). This reduced the amount of groundworks, eliminating shoring and groundwater pumping and the risks associated with these costly activities.

Project: Acton Burnell RBCs
Location: Shrewsbury
Expertise: Innovative approach

On call | MMB prides itself on being able to mobilise at short notice to answer calls for help from our clients. We were the 'go to' team for Severn Trent Water when they suffered a major burst to a distribution supply main supplying Cowleigh Reservoir. Assisting our client's Mains Repair Team, supported by our supply chain who answered our own call for assistance, we worked through the night to ensure customer supplies were restored with minimum disruption.

A Severn Trent Water first ▶

We installed the first Bluewater Bio FilterClear plant for Severn Trent Water at Codsall Sewage Treatment Works (STW) to ensure the site met new phosphorus permit levels. This innovative tertiary solids removal (TSR) technology comprises a number of pressurised filter vessels arranged

around a central pipework gallery, and generated significant cost savings. Codsall is one of the first examples of its use for phosphorus removal in the UK.

Project: Codsall STW Quality
Location: Wolverhampton
Expertise: New technology



▲ Benefiting from experience

To increase storage capacity and ensure the reliability of water supply to over 100,000 Severn Trent Water customers, we're constructing a new 42ML service reservoir.

The project is the beneficiary of learning taken from similar projects we have engineered across the UK, and is making use of MMB's own 'Best Practice' guide. 1,650 pre-cast concrete elements are being installed as part of the build; we have

worked closely with the supply chain to develop a special fabricated mesh to significantly reduce costs when compared with a traditional approach. This also removed over 750,000 hand ties in fixing the base steel - making construction safer and more efficient.

Project: Hanchurch Service Reservoir
Location: Stoke-on-Trent
Expertise: Off-site construction, supply chain engagement, precast concrete installation

Renewable installation

The sewage treatment works at Minworth, Birmingham, serves a population equivalent of 1.75m and is an important source of renewable energy generation for our client.

We constructed the civil and ancillary works associated with the installation of two new combined heat and power

(CHP) units, including extensive mechanical and electrical works, plus commissioning. A direct interface with another contractor working at Minworth meant close liaison was vital to maintaining safety.

3D models and virtual reality walk-through technology helped co-ordinate

activities and keep the site teams safe at all times.

Project: Minworth CHP
Location: Birmingham
Expertise: M&E engineering and commissioning, temporary works, close interface with other contractors

Our busiest year yet

One of four Construction Delivery Partners working closely with United Utilities to deliver their AMP6 Capital Programme, 2017 was MMB's busiest ever year in the North West of England. Based at offices near Blackburn, under the framework we undertake both infrastructure and non-infrastructure design and construction projects on water and wastewater assets across the region.

We do like to work beside the seaside

To improve bathing water quality along the Fylde coastline we are increasing the capacity of the sewerage network and reducing the volume of surface water entering the sewer system. This includes the construction of a 4,000m³ detention tank, 20,000m³ of attenuation basin storage, and 6,000m of new pipework

– all part of a new Sustainable Drainage System (SuDS).

To improve safety and drive efficiencies, we have utilised existing assets where possible, rather than construct new. For example, we used existing storm pumps to fill the new detention tank, rather than use a gravity flow over a weir. This meant we

could reduce the depth of the tank, reducing cost and minimising our work in challenging geotechnical and hydrogeological ground conditions.

Project: Blackpool South SuDS

Location: Blackpool, Lancashire

Expertise: Work in an urban environment, use of existing assets



20%

A review of the catchment study and network model reduced the volume of the storm tank by over 20%, reducing costs by £800,000



Improved performance

To improve the performance of existing assets and ensure compliance with the Shellfish Waters Directive, we designed and constructed 51,000m³ of additional storage at Preston WwTW.

The two-cell storm tank incorporates a flushing gate system for automated tank cleansing, which reduces the whole life cost of the asset. The system stores storm water in compartments at the end of each tank; gates can then be opened to release the water, utilising its stored potential energy to flush and cleanse the base of the tank.

Project: Preston Storm Tanks
Location: Preston, Lancashire
Expertise: Innovation, civil engineering



Peak performance

We are improving the wastewater treatment works at Whaley Bridge to increase capacity and ensure our client meets stringent ammonia consents as part of the Water Framework Directive.

We're constructing a new 4,500m³ storm tank, upgrading the inlet works and using attached growth hydrolysis reactors (Hybrid Activated Sludge – known as HYBACS® units) to augment

the existing activated sludge plant. HYBACS® proved cost-effective means of increasing activated sludge treatment capacity without building a new aeration and settlement plant.

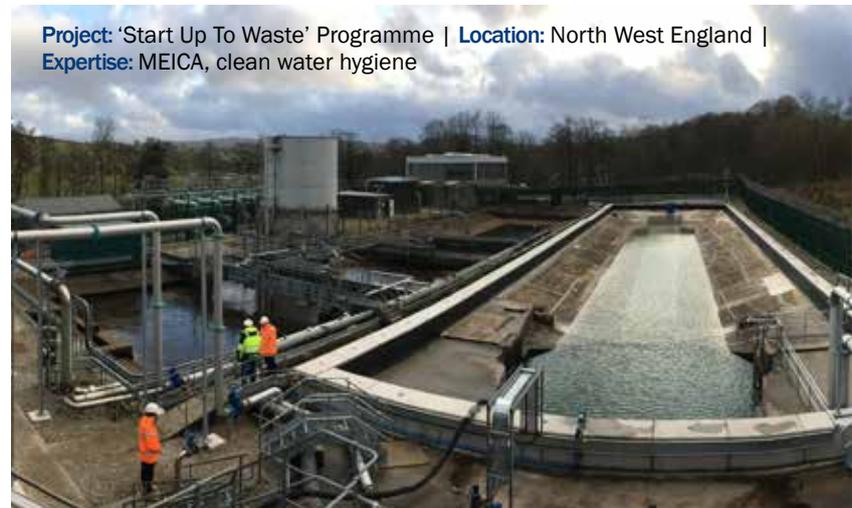
Site is bisected by a public footpath, and the existing plant has been upgraded, extended and added to many times over the years, restricting our working area.

Project: Whaley Bridge WwTW Upgrade | **Location:** High Peak, Peak District |
Expertise: Provision of HYBACS® units, public interface

Compliance is king

To ensure only the highest quality of water enters supply, we assisted United Utilities on a programme of 'Shutdown and Start Up To Waste' projects. We worked across 14 different sites, designing, constructing, and commissioning facilities that automate the process before diverting flows back into supply once compliant.

Delivered in close collaboration with our client's Project and Operational Technology Teams, the programme demonstrated our MEICA capability and ability to undertake sensitive connections to clean water mains – all whilst meeting strict DWI compliance commitments.



Project: 'Start Up To Waste' Programme | **Location:** North West England |
Expertise: MEICA, clean water hygiene

As part of United Utilities' largest ever roofing job, we optimised the existing service reservoir to make it 'smart'. During a 16 week shutdown we worked 40,000 man hours installing a giant intelligent membrane that can pinpoint specific leaks in order to protect the 47,000m² roof of **Woodgate Hill Service Reservoir**, Greater Manchester.



Continued growth in Yorkshire

Yorkshire Water remains one of our longest-standing clients: we've worked together ever since MMB's formation back in 1999, and together as JN Bentley for many years prior. 2017 was our biggest year yet as over 300 people worked to deliver a significant volume of work – over £50m – across three frameworks, all whilst maintaining the highest of standards.



Impounding reservoirs

Impounding reservoirs store water prior to it being treated and supplied as drinking water to the end user. They give us the opportunity to work in some of the most picturesque locations across the UK. Our works focus on improving the safety of these assets, many of which were built over 100 years ago.

At **Graincliffe Reservoir**, we upgraded the main spillway that protects the reservoir embankment from flood erosion and safely diverts away excess water. We also upgraded the valve tower, installing new decking, ladders and handrailing to create what our client described as a "model valve tower".

Walls in the upper spillway were shored and supported to allow our plant

to safely track down the embankment adjacent to the spillway. We used a tracked spider crane to safely track down the narrow culvert, and lift and install the shoring to the transition walls.

Digital modelling is reducing safety risks and generating significant savings on a scheme at **Gouthwaite Reservoir**, set for summer 2018 completion (pictured). As part of the construction of a new spillway at the 116 year-old site, we've produced a 4D model with integrated programme that gives site teams and other stakeholders



a real picture of what we are building.

Project: Impounding Reservoirs Batch
Location: Across Yorkshire
Expertise: Working/tracking on slopes, temporary works, working near services, 4D modelling

Temporary works

We rehabilitated 600m of sewage rising main, crossing the M62 motorway and connecting into the existing live main in a traffic-sensitive area of Wakefield.

We utilised an MMB standard product – a pre-fabricated washout chamber – to reduce construction time and improve safety: the product eradicated confined space working, and significantly reduced the amount of manual handling and lifting activities needed on site.

The project extolled the virtues of integrated full design and construction, which meant the temporary works weren't an afterthought. The design of the permanent works fully considered the temporary works requirements (including additional T-pipes and sacrificial valves and temporary bypass connection points) which contributed to the safe, timely delivery of the project.

Project: Ardsley Falls

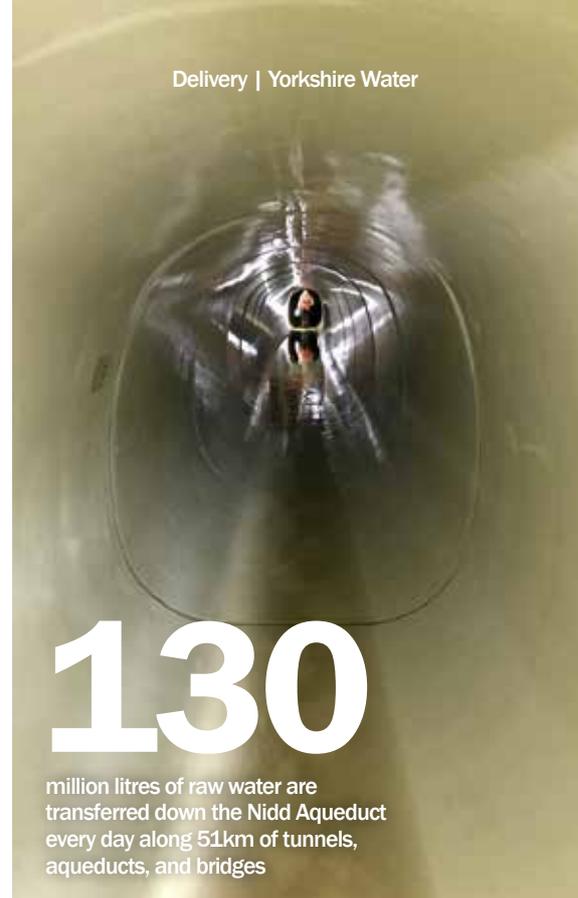
Location: Wakefield, West Yorkshire

Expertise: Temporary works, standard products, working near buried services

► We installed 52m of structural GRP lining and a further 44m of stainless steel bracing at a section of the **Nidd Aqueduct** to ensure the security of water supplies to 300,000 properties in Bradford and the surrounding area for years to come.

Standard products | A standard product is a 'standard design' – a component that is designed once but installed many times. They can expedite every stage of a project lifecycle and improve safety because construction teams become familiar with the installation process, and the units are often manufactured off-site in controlled conditions.

MMB now has its own suite of 15 standard products, as well as working closely with our clients to install their own – such as a new sodium hypochlorite dosing skid which we are set to install on a number of OSEC schemes across Yorkshire in 2018.



130

million litres of raw water are transferred down the Nidd Aqueduct every day along 51km of tunnels, aqueducts, and bridges

▼ In-house innovation contributes to success

We have two fully-trained SUA (small unmanned aircraft – more commonly known as drone) pilots on our books, giving us the capability to carry out SUA photogrammetry surveys in-house. This ensures we meet our exacting requirements first time at a much-reduced cost to our client.

SUA photogrammetry is helping us create composite images, 3D models and detailed as-built records, generating efficiencies in both design and construction. The material also provides an important visual aid for site teams when writing and communicating risk assessments.

Pictured is one of our pilots on site at **Rivelin**, where we are constructing a buried clarifier plant to improve the water treatment process for 250,000 customers. Here, our pilots set out

several ground control points around site before using the drone to accurately measure the volume of a remaining spoil heap and estimate the final topography of the site.

The work of the drone pilots – together with a team on site at its peak numbering in excess of 115 direct workers, subcontractors and client representatives – contributed to us hitting a key milestone in December 2017 to put new flat bottom clarifiers into operation.



Stewards of the environment

2017 saw JBA Bentley further strengthen its standing with the Environment Agency (EA). We topped the KPI table for health, safety and environmental performance, and secured places on two Programme Delivery Units (PDUs) – integrated client/supplier teams who will work together to help the EA achieve its target of reducing flood risk to over 300,000 homes by 2021. We also moved into modern new premises in Peterborough having outgrown our original office in the area.

▼ A flagship scheme

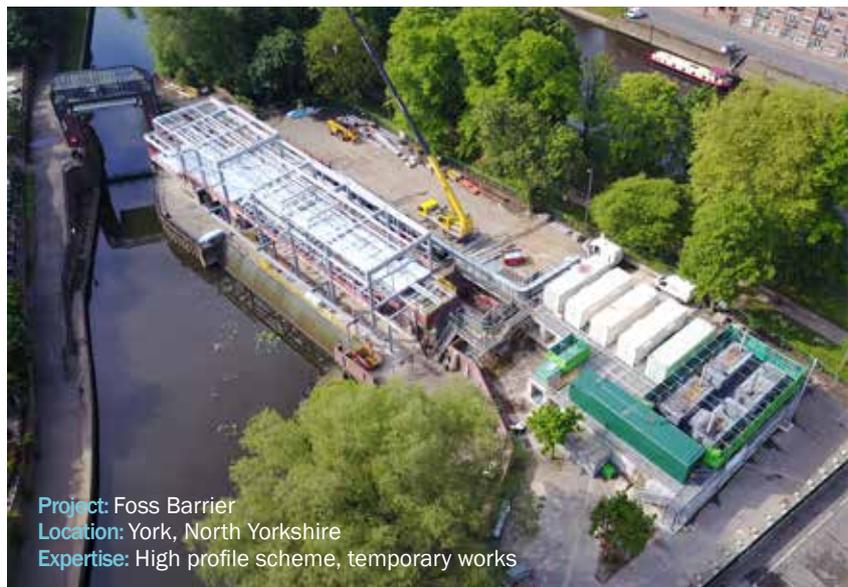
The Foss Barrier forms an important part of the flood defences of York, protecting over 1,800 properties. Since unprecedented levels of flooding in December 2015, we've been working closely with the EA and CH2M (permanent works designer) to first develop a solution to provide immediate

flood protection, and then implement permanent works to increase pumping capacity by 55%.

We have installed eight new pumps, each weighing 6.5 tonnes, and constructed a building to house the new electrical components safely above the highest previous flood level.

To expedite resilience, we built a temporary raised platform which meant the new, larger pumps could be operational prior to any works starting on the main building itself. This ensured constant, enhanced flood protection whilst the new permanent solution was built off-line.

Asset Refurbishment Programme of Works (ARPW) | One of the biggest challenges facing the EA is how it efficiently and effectively manages and maintains existing assets. We continued the delivery of ARPW in 2017, which does just this by providing longevity to assets. We understand that demonstrating value for money is key for our client, so have shifted the current asset management approach from 'find and fix' to 'predict and prevent'. We have been helping the EA prevent failures before they occur, integrating asset management with cost forecasting and achieving certainty on maintenance and residual life through wise spending.



Project: Foss Barrier
Location: York, North Yorkshire
Expertise: High profile scheme, temporary works

JBA Bentley has secured a place on two Programme Delivery Units (PDUs), integrated teams of delivery partners working together to deliver shared outcomes. The focus is on accelerating the capital programme to hit the EA's target of reducing flood risk to over 300,000 homes by 2021. By directly allocating work and involving delivery partners early, the PDU mechanism has already optimised the forward programme and is expected to reduce time and cost by 15%. **"The JBA Bentley collaborative JV allows us to share our expertise and relationships within the industry. We look forward to working on these exciting projects within the PDU teams, in addition to our work within the WEM framework."** Tony Moran, Technical Director, JBA Bentley

Project: Ulverston Town Beck Flood Alleviation Scheme
Location: Ulverston, Cumbria
Expertise: Customer engagement, innovative materials



▲ Alleviating flood risk in the heart of a Cumbrian town

We provided 1 in 100-year flood protection to over 500 properties in Ulverston by raising existing defences and refurbishing long culverts running through the busy market town.

Extensive culverting of the town's beck has taken place over many years; some sections date back to the 1900s. As a result, the culvert takes many forms of construction, and even more shapes

and sizes, making it virtually impossible to check the condition of the culvert soffits running under the main roads.

This prompted original designs to earmark the soffits for replacement, but given the urban setting, and the fact the roads contain many of Ulverston's services, doing so would be disruptive, present a safety risk, and be extremely expensive.

We proposed the use of glass reinforced plastic (GRP) segmental lining units, an innovative approach that we demonstrated could achieve an improved outcome.

This repair technique reduced disruption in the town, reduced the construction programme by 10 weeks, and avoided over £125,000 of major service diversions.

Important environmental protection

We're in our third consecutive framework with the Coal Authority, the first of which was awarded back in 2004. The current 'Confluence' framework focuses on protecting the environment from the legacy of coal and metal mining. Once decommissioned, old mines fill with water which, when released into the environment, can be full of contaminants.

Mine water treatment ►

Mine water treatment schemes (MWTS) aerate and settle out contaminants in mine water using cascades, lagoons and reed beds, before discharging safely to the watercourse.

We refurbished the MWTS at Silkstone to improve its performance. Existing ochre was removed from the reed bed before repairs made to gabion baskets; new inlet, outlet and weirs constructed; and the existing liner replaced with Concrete Canvas.

The ochre was too wet to be safely removed by wagon, and too thick to be removed cost-effectively by tanker.

To combat this, we trialled an agent that instantly stiffened the ochre and enabled it to be safely loaded into a wagon for removal.

Project: Silkstone Mine Water Treatment Scheme Refurbishment

Location: Barnsley, South Yorkshire

Expertise: Environmental engineering, managing constrained access



Many former mines are located in picturesque locations, and often protected monuments themselves - this makes extensive liaison with the likes of Natural England, EA, Historic England and planning authorities a major part of most projects.

▼ Packaged to deliver efficiencies

When the impact of abandoned metal mines on the River Nent needed managing, we packaged three schemes together to make the process more efficient. Materials were shared

between the sites, and the amount of manpower needed to manage and deliver the works significantly reduced.

The check weir and dredging works were delivered to capture river sediment

polluted by metals and limit its transportation downstream; at Foreshield the works prevent further erosion to the river embankment to prevent the river spilling into the mine shaft and adding to the contaminated waters below.

Projects: Nentsberry Check Weir - A new stone weir with fish pass.

Nenthead Dredging - Removal of contaminated sediment from within 12 existing check weirs.

Foreshield Shaft - Rebuild of 100m of gabion wall - delivered in-house to drive further efficiencies.

Location: North Pennines

Expertise: Direct delivery, environmental engineering



On the Grid

Our portfolio of work with National Grid demonstrates the increasing diversity of our operations, both from a sector as well as geographical perspective. Projects involve mechanical, electrical and civil engineering across National Grid's UK assets, as far north as Scotland and far south as Exeter.

The **Valves and Civils Campaign** tasked us with the feasibility, design and construction of repairs and refurbishment works on a range of assets at 17 sites in the west of the UK. Working closely with our Mott MacDonald colleagues in Hinckley, works included actuator upgrades, site pipework painting and civils.

We brought our water sector experience to the gas arena when designing pumping station

improvements at **Bathgate** and **Alrewas**; our knowledge of installations and the supply chain was pivotal in leaving our client with much improved assets that were more efficient to operate and maintain.

The **Carnforth Asset Health project** is the single largest project we've undertaken with National Grid and represents a significant step-up in the scale of projects we are delivering together.

We designed and then delivered modifications to the existing compressor station by replacing large 36" valves, actuators and control cabinets, painting and delivering associated civil and remedial works.

At **Keadby**, the site of an SSE gas-fired power station, we completed a 'high priority' boiler house and valve control system replacements within a very tight outage period to meet the requirements of the power station.



Project: National Grid works | **Location:** UK-wide | **Expertise:** Mechanical, electrical and civil engineering, geographical diversity, cross-sector expertise

We extended our gas sector client list in 2017 with the addition of gas distribution network operator **Cadent Gas**, with whom we delivered our first project together near Stockport in the North West of England.

The renewal of a historic relationship

We have enjoyed a long-standing relationship with prestigious client, Rolls-Royce, having first worked together back in the 1980s. Since then we have delivered over 100 design-and-build and commission-only projects together, ranging from small external works to the construction of new multi-million-pound facilities. In 2017 we renewed our historic relationship by securing a new three-year contract.

The new 'Intermediate Project Framework' sees us maintaining, extending, refurbishing, and constructing new facilities at sites across the UK.

JN Bentley is one of four partners on the framework. Projects are varied and multi-disciplined – everything from major civils, new builds, refurbishments to offices and production lines and machinery moves. We've been allocated 24 schemes at the time of writing, including new car parks, an access road, machines moves, office refurbishment, resurfacing, service yards and a high-voltage switchgear upgrade.

The framework is being managed by JN Bentley, utilising resources across our operating regions, with our colleagues in Mott MacDonald providing design services.

Project: Rolls-Royce Intermediate Project Framework
Location: UK-wide
Expertise: Civil engineering, building, refurbishment, machine/plant moves



“We’re delighted to be back on site teaming up with a firm synonymous with quality and world-class performance.”

Darren Ramsay
Operations Director, JN Bentley

Back on site with P&G

We continue to work closely with Procter & Gamble (P&G), a client with whom our relationship dates back to the early 2000s.



Project: Warehouse Extension | Location: Manchester | Expertise: Soil stabilisation, commercial building

Our relationship thrives because P&G know that we understand their top priorities on any project: maintaining safety and ensuring their busy day-to-day operational activities are not interrupted by construction works.

In 2017 we began a £3m extension to an existing facility we built for P&G at their **Manchester** site in 2009. Pictured above is the soil stabilisation process, where 1200m³ of excavated and screened material is being mixed with cement to form a new piling platform. This process is eliminating the cost of both taking spoil off site and importing new stone onto site.



◀ In 2017 we added a 41m extension to a 300m-long elevated enclosure that transports pallets across P&G’s London site – a structure we first built in 2014.



When we care about each other, we stay safe

2017 was the busiest year in JN Bentley's history and saw the launch of our refreshed Health & Safety Strategy.

Our Health & Safety Vision is to achieve ZERO injuries and prevent occupational ill-health



With JN Bentley having doubled in size in recent years, it was essential that our refreshed Health & Safety Strategy helped bring all personnel into our world-class safety culture and, crucially, established a means by which new colleagues felt able to bring their knowledge and experience to help develop and improve that culture still further.

The refreshed Strategy is built on six elements: strategy, communication, targets, compliance, leadership, and learning. It contains updated Operational Safety Standards (OSS) and accompanying visuals, and the development of OSS 'extracts' to help our standards become embedded. We've changed our 10 Golden Rules, and developed new Personal Safety Responsibilities. Couple these with new initiatives like 'Thumbs Up' and we have established the tools that provide the route map to achieving our vision for ZERO injuries and the prevention of occupational ill-health.

We've incorporated these tools into our new 'Care' manual. Why a 'Care' manual? Because 'care' is at the heart of everything we do, never more so than when it comes to safety: when we care about each other, we stay safe.

2017 finished positively with a period of over 1.7 million hours worked without a reportable injury but we recognise there is much still to do before we eradicate injuries from our workplace.

The injuries we saw on our projects fell into two distinct areas. Most minor (first aid) injuries were to hands, generally where people undertaking routine tasks suffered cuts and bruises that were relatively easily preventable

through better planning and adherence to our rules on PPE.

Most of our more significant injuries were to feet or ankles and, disappointingly, two reportable injuries were sustained by contractors working within the exclusion zone of excavators. Whilst serious injury was avoided, both incidents were most certainly preventable.

One innovation introduced last year was the work done around buried service avoidance. We now have specially trained 'Gurus' in all regions who are there to assist the avoidance process; all Site Engineers have received bespoke training to support the site teams, and all Lead Hands have improved cable avoidance equipment and the training to use it. Coupled with podcasts and posters and a working group to review developments we will continue to make big improvements in this area in 2018.

Occupational health was added to our vision for health and safety last year, and remains a top priority for our teams; supporting the growing workforce has been a major area of focus for the QES team.

Record hours, more new people than ever before, and record numbers of positive interventions helped us maintain a stable AFR (reportable injury frequency rate) in 2017, but we are not finished just yet. We face new challenges working in new fields with new clients but we are relentless in our pursuit of zero injuries. Not getting hurt or being harmed at work is the expectation we have for everyone.

As an organisation that cares we will face up to these challenges and protect our workers and anyone else directly affected by our activities.

John Greenwood
H&S Director, JN Bentley

Year	Hours Worked	Near Misses		First Aid Injuries	Medical Treatment/ Lost Time Injuries (< 3 Days)	RIDDOR-Reportable	AFR*
		Unsafe Acts/ Conditions	High Potential				
2013	2,120,650	7,475	23	94	8	3	0.14
2014	2,215,675	9,516	14	49	6	4	0.18
2015	3,118,626	14,149	10	65	6	3	0.10
2016	3,373,664	20,359	25	55	10	3	0.09
2017	4,745,605	31,359	75	90	13	7	0.15

*RIDDOR-Reportable injury frequency rate (per 100,000 hours)

Minimise our impact; reduce the potential for harm; enhance wherever we can

Civil engineering and construction must always give due consideration to its environmental impact.

At JN Bentley our aim is to minimise our environmental impact; investigate ways in which we can further reduce the potential for environmental harm; and, importantly, enhance the environment wherever we can.

Environmental impact covers everything from where projects are located and the choice of materials, to the tools used in construction and choice of power supply, to practical responsibilities such as minimising waste and preventing construction-related pollution or ecological harm.

With that in mind 2017 was a year where we bolstered the environmental support given to our operational colleagues. Through internal and external recruitment, new QES Advisors with environmental responsibilities joined the team. The environmental remit is so wide-reaching that having experts with varied expertise is critical to improving performance.

A new round of improved environmental awareness training was formulated and delivered in all regions, further increasing our knowledge and the awareness of environmental best-practice in all our teams.

This increased awareness manifested itself in another year-on-year increase in interventions where our site and office teams prevented environmental harm by reporting potentially unsafe situations and taking immediate corrective action. Our previous record (2016) was 3,483; in 2017 the number increased to 5,747 interventions that have prevented harm to the environment. This 65% increase

65%

Environmental incident reporting increased by 65% in 2017 - another year of improvement and another year in which awareness has increased around JN Bentley

clearly indicates that our culture continues to head in the right direction.

A further indication of the culture in our business for first-class environmental performance was a step-up in environmental site inspection rate, which increased by 88% on the previous 12 months.

The evidence from site inspections and positive intervention reports have helped us identify targets for future improvement.

2018 will be a year where we focus on waste. An in-depth guidance document on our waste process was developed in 2017, which will form the basis for driving improvement across JN Bentley and with our valued suppliers: we recognise waste management as a key challenge not only to ourselves but also to the wider construction industry and its associated trades.

As part of the **Asset Refurbishment Programme of Works (ARPW)** with the Environment Agency, we improved the capacity of a bridge over the sea outfall at Buck Beck, Cleethorpes.



Our performance

Waste management | In 2017 we diverted 98% of the waste we generated from landfill, hitting our company target to divert > 90%. We achieved this by pro-actively following the waste hierarchy, where we first look to minimise the amount of waste produced, before reusing and recycling materials on site where possible.

Pollution prevention | Preventing pollution and harmful environmental



incidents is of paramount importance. By encouraging colleagues to correct and report all environmental incidents, we increase environmental awareness and gather valuable data to help such incidents from happening again. The number of reports logged in 2017 was 5,747, a 65% increase on the previous 12 months.

Energy and emissions | The measurement of energy consumption and its associated emissions is one way we actively monitor our impact on the environment. Illustrated in the table

below is our performance for 2017, where we measured all operational fuels at a company level before normalising them against turnover to take into account another year of significant growth. The figures are largely

dictated by work type, but we continue to influence performance through investment in efficient plant such as hybrid excavators, and by pioneering innovative design that reduces energy use in construction and in operation.

T Carbon/£M Turnover	2013	2014	2015	2016	2017
Gas Oil	43.80	33.53	30.85	28.75	28.83
Diesel	21.58	23.11	16.09	13.28	8.98
Petrol	0.87	1.12	1.43	1.32	0.99
Natural Gas	0.57	0.25	0.29	0.12	0.15
Electricity	1.21	2.1	1.96	2.24	1.24
Totals	68.03	60.11	50.62	45.71	40.19

People

Our people are really involved in shaping the direction of the business.

We care about our people and want them to be happy. We do this by providing a positive, enjoyable, and challenging workplace that develops skills and enables people to thrive.

2017 was an exciting year of milestones for JN Bentley as nearly 600 new people joined the business to help deliver an increasing workload with clients across the UK. New people bring with them a wealth of experience, energy, and fresh ideas, and are really helping to shape the direction of the business. We also massively increased our apprenticeship offering, established the Bentley Academy to oversee career development, and revamped our employee recognition programme – our way of saying ‘thank you’.

Involving our people in the way JN Bentley operates is very important to us. This takes many different forms, from mentoring new employees to help welcome them to life at JN Bentley, to providing valuable feedback on future company decisions. Now employing nearly 1,500 people, the opportunities for involvement as we move into 2018 have never been greater.

In 2018 we must all work hard to support our new colleagues as they settle in, especially when it comes to health and safety: the roll-out of the refreshed Health & Safety Strategy in November showed us all how happy, engaged people are at the centre of a safe workplace. 2018 will also see the business report on gender pay for the first time, and see more of our site-based workforce equipped with tablet computers as new apps are added to our IT system, Xpedeon. After a really positive twelve months, it will also be exciting to see how our networks on Yammer develop as our people share more great information and learning than ever before.

Judith Jeffery
HR Director, JN Bentley

Joining the team

We recruited close to 600 people in 2017 across all roles, ranging from experienced colleagues looking for a new opportunity, to school leavers getting their first foot on the career ladder.

To source the right people, our recruiters work closely with operations and support teams, using different methods to encourage both parties to get to know one another – whether this be informal interviews or assessment

centres that showcase both teamworking and problem-solving.

Once on board, we like involvement to be two-way. New colleagues share with us their fresh ideas, and existing employees play a key role in helping our people settle in, showing them the ropes, ‘buddying-up’ and mentoring them through structured Personal Induction Plans (PIPs) specific to their role in the business.

“Since I joined JN Bentley I’ve received lots of support. I enjoy the work and am offered help when needed.”



Daniel Barker, Apprentice Quantity Surveyor

Training and development

“It’s been great to have a mentor on hand who is always happy to make time to support me through my development.”

Alice Holleworth, Civil Engineer

We offer a whole range of training and development opportunities. Hands-on, practical training coupled with courses in personal impact and leadership equips our large, directly-employed workforce with the skills and qualifications they need to work safely and effectively on site.

Cable strikes being one of our industry’s biggest hazards meant that utilities avoidance training remained a key area of focus in 2017. 189 site-based employees attended specific training last year, and we have a group of ‘Gurus’ who attended an additional five-day course in utility



mapping. The Gurus provide coverage across our operational regions and are our ‘go to’ people when it comes to supporting the safe mapping of services on site.

We run development schemes for civil, mechanical and electrical engineers, quantity surveyors and procurement professionals, each of which ties in with the development objectives of its respective professional body: the Institution of Civil Engineers (ICE); Institution of Engineering and Technology (IET); Chartered Institution of Civil Engineering Surveyors (ICES); and Chartered Institute of Procurement and Supply (CIPS).



“The M&E development scheme helps you meet all the attributes needed for chartership - I’m keen to encourage other females to follow.”

Aimee Hindle, Electrical Design Engineer

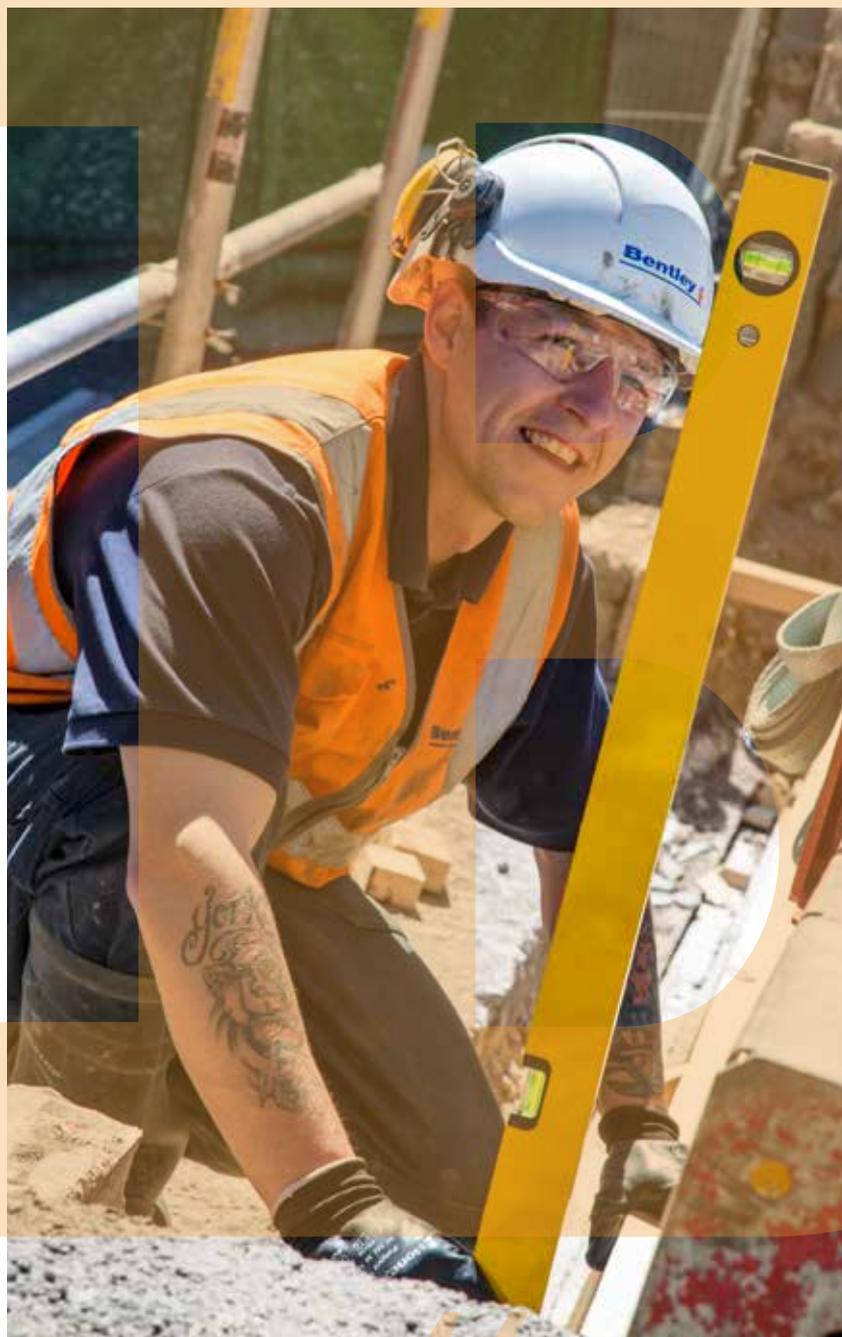
Client collaboration

We love collaborating with our clients to deliver great people-based initiatives. **Inspire Professional Excellence (IPE)** is a collaborative group of all stakeholders within the Welsh Water Capital Delivery Alliance that hosts professional development opportunities to colleagues working towards chartership. IPE not only fosters professional excellence but drives efficiencies for our client by encouraging the sharing of new ideas.

◀ In the North East we’ve teamed up with fellow contract partners as part of the **Run2Academy**, which offers students on-the-job learning, including 12-week paid undergraduate placements for students working towards qualifications in engineering or the built environment.

BENTLEY **B** ACADEMY

The **Bentley Academy** was launched in 2017 to oversee career development at JN Bentley. The aims of the Academy are to support apprenticeships and upskill colleagues to become more accomplished performers by placing them on a structured pathway and providing the right training, development and experience opportunities.



Apprenticeships

We revamped our apprenticeship offering in 2017; we now have 63 people enrolled on apprenticeship courses – more than at any time in JN Bentley’s 46-year history.

We currently offer apprenticeships in a variety of subjects, including general construction operations, civil engineering, construction management, accounting, business administration, and electrical & electronic engineering.

Written in close collaboration with the industry, the new apprenticeships are more relevant and practical than ever, and see candidates closely supported by their JN Bentley mentors as they work towards qualification and beyond. The aim of our increased apprenticeship offering is to bring more people into and then up through the business.



“I’m enjoying getting stuck in on site, working with my new team. Everyone is really supportive.”

Matthew Ridal, Apprentice General Construction Operative

External training provider **Learning Skills Partnership (LSP)** have been instrumental in helping us get the new apprenticeships established and are now doing a great job in getting our apprentices trained up.



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colleagues passed professional qualifications with us in 2017 - and over 100 more are enrolled and progressing through their courses in 2018 and beyond

“The experience I’m getting is giving me insight into all areas of the business, developing my knowledge and experience and making me a more rounded engineer.”



Nasar Adam, Civil Engineer



“After my placement year, JN Bentley sponsored me through my final year at university before I returned fulltime. They’re now helping me achieve my chartership in Procurement and Supply.”

Anna Gill, Buyer and former Placement Student



Our employee consultation forum, **Be Heard**, gives employees the opportunity to shape key company decisions. Elected employees meet periodically to be consulted on key issues, before going away and gathering feedback from their colleagues. The whole workforce is represented on the ‘Be Heard’ forum, across all regions.

“As a Be Heard Rep it’s my job to gather feedback and raise points in our meetings. Be Heard is good as it gives people in the business a voice.”

Rob Peach, Joiner and Be Heard Rep

“The five-day utility mapping training was really practical, and geared me up to work as one of our new services ‘Gurus’.”

Scott Mashiter, Civil Engineer and Services Guru



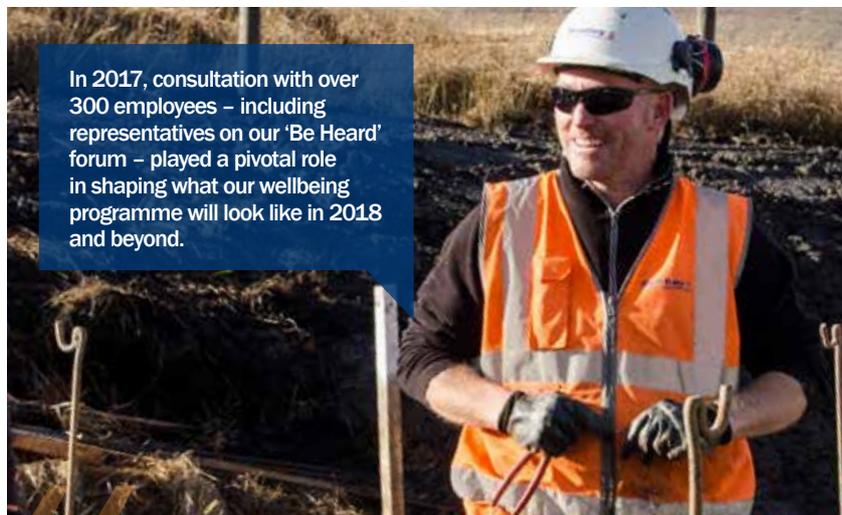
Happy people

Having happy people is at the core of JN Bentley, which means the health, happiness and wellbeing of employees is really important to us. Our wellbeing programme seeks to support and inform our workforce, providing them with a wealth of tools and information.

A quarterly prize draw gives all employees the opportunity to win a share of a £25,000 wellbeing prize pot, and via a brand new online benefits portal, employees have at their fingertips information on the benefits available to them – including a health cash plan and discounts at major high street retailers. In 2018 our benefits package will become ‘flexible’, enabling employees to tailor their package to best meet their own specific needs.



Simon Emmott, General Foreman



In 2017, consultation with over 300 employees – including representatives on our ‘Be Heard’ forum – played a pivotal role in shaping what our wellbeing programme will look like in 2018 and beyond.

“The wellbeing prize draw is great because it creates a bit of interest on site, and you’ve got a good chance of winning.”

Saying ‘thank you’

We think it is really important to say ‘thank you’ and recognise and reward the outstanding efforts of our employees. In 2017, following feedback from the workforce and ‘Be Heard’, we revamped our internal employee recognition programme. ‘Be Recognised’ encourages colleagues to nominate their peers who show that extra bit of care and have gone that extra mile, giving them a chance of winning a monthly prize. In December, our Board of Directors convened to choose their three overall winners for the year – one for each of our key values.

£2,500

Each of the three overall winners scooped a prize worth £2,500.



Keeping people safe

Mark Jones, Martin Jones and Arwell Rees Davies | Site Gang – The team (above) has set the standard for service avoidance. They engaged in design development and studiously followed our safety standards to avoid every single buried service during works on a heavily congested site. **Nominated by Michael Davies, Operations Manager**

Happy people

Lucy Spencer | Recruitment Team Leader – Employing over 500 people in 12 months is no mean feat: Lucy’s skills were instrumental in our business achieving this. She made our recruitment process more effective and helped attract talented people to JN Bentley. **Nominated by David Curry and Tom Lewis, Operations Managers**

Looking after the money

Amelia Winslade | Project Leader – We add real value for our clients when we think a bit differently and propose solutions that are more cost and carbon-effective. Amelia did just that by making a passionate case for changes to an original design that will reduce costs by £900,000. **Nominated by Nick Lister, Operations Manager**

JN Bentley in the community

The nature of the work we deliver as engineers takes us into the heart of different communities every day. It's our aim to give a bit back to these communities by offering our skills, time and expertise to make a difference and leave positive, lasting legacies.

Our community strategy is three-fold: We partner with schools, colleges and universities; lend skills, time and expertise to help with local projects; and support charitable giving and fundraising.

Educational partnerships | We have a proud history of recruiting talented people straight from school, college and university. We wouldn't have such a strong track-record without important, long-standing links with the education sector.

There is much-publicised skills shortage in our industry; our partnerships in education open students' eyes to world of construction and engineering, and promote the science, technology, engineering

and maths (STEM) agenda. Events also allow us to showcase JN Bentley as a great place to come and work. Projects provide existing employees with new experiences, and are a valuable opportunity for professional development as they work towards chartership and other qualifications.

Community projects | We like to support community projects close to where our colleagues live and work. Community groups can really benefit from the skills, time and expertise we have on offer – and building positive relationships with residents and local groups is critical to the success of many of our projects given the nature of our industry. We often team up with our clients to maximise community benefit too.

Charitable giving and fundraising | We're a generous bunch at JN Bentley, full of people who are up for a challenge and a laugh along the way. We support employees' efforts inside and outside of work by matching funds raised for charity up to £100. We supported a whole range of different activities and events in 2017, from marathon running to open water swimming to the growing of elaborate facial hair.

We also work closely with our clients to support the work of WaterAid – a charity that resonates with us given such a large proportion of our work is in the water industry.





JN Bentley is a long-standing member of Business in the Community – a business-led charity aiming to create healthy communities with successful businesses at their heart.

Promoting STEM subjects is important to us. We have a number of engineers registered as STEM Ambassadors, and we partner with the Engineering Development Trust to run the **Engineering Education Scheme**. In 2017, colleagues in the Midlands and Wales set sixth-form students a 'real life' brief linked to one of our schemes to challenge their engineering, teamwork, problem solving and communication skills. We also exhibited in the **STEM Innovation Hub at the RAF Cosford Air Show**, and ran **Water Week at Skipton Girls' High School**, a specialist Engineering and STEM Academy.



Considerate Constructors Scheme (CCS) aims to improve the image of construction. It asks projects to commit to a Code of Considerate Practice and then receive visits to assess appearance, environment, safety and other key areas. In 2017, our JBA Bentley team out performed the Code of Considerate Practice and were presented with a 'Performance Beyond Compliance' certificate for their achievement.



£98k
donated to good causes in 2017

Activity		2017 (£)
Charitable Donations (philanthropic giving, sponsorship, gifts in kind, etc.)	Company Donations (WaterAid)	62,545
	Company Donations (Other)	5,714
	Employee Donations (Other)	8,594
Fundraising	Employee Fundraising	17,282
	Company Matching	3,800



◀ Seven willing JN Bentley Engineers, Lead Hands and Operatives worked with 58 civil engineering students from the University of Leeds as part of the **Constructionarium** project. The students built three scaled down versions of iconic structures, including the Ravenspurn Oil Platform (pictured), with our team assisting in all areas of construction, including planning, setting out, steel fixing and concreting. The week was a great experience for the students and the JN Bentley team.



Constructionarium was a really successful experience that we all enjoyed. At the end of the five days both the students and our staff had gained better knowledge of working in different environments and situations." *Jody Belcher, Lead Hand*

Looking ahead

We are now in the middle of the five-year AMP6 period (2015-20), and are experiencing the increased workload that we have been planning for.



The outlook for the company continues to be very positive, bringing many rewarding engineering projects for teams across our operational areas.

In 2014 turnover was £115m; in 2017 it was in excess of £250m – a 30% year-on-year growth rate. As we go forward into 2018 we are expecting this exceptional rate of growth to subside, and have set a 2018 revenue budget of £253m - similar to the 2017 out-turn. £175m (70%) of this budget is already secured, with further work expected through direct allocation within existing frameworks. Whilst down slightly from this time last year, it still represents an enviable position to be in.

In the water sector, our frameworks with Anglian Water, Dŵr Cymru Welsh Water, Northumbrian Water, Severn Trent Water, United Utilities, and Yorkshire Water make by far the biggest contribution to this 2018 forward order book.

Large schemes at Five Fords near Wrexham (with Dŵr Cymru Welsh Water) and at Blackpool (with United Utilities) continue. In Yorkshire we expect to start work on a new wastewater treatment works at Stocksbridge, following the completion of our work at Rivelin Water Treatment works near Sheffield - Yorkshire Water is one client where we still expect to see continued growth in 2018.

In the environment sector, JBA Bentley's work for the Environment Agency should settle at £25-£30m/year. Having been successful in securing 'Programme Delivery Unit' places in the Yorkshire and Anglian regions, we will start to see a pipeline of projects aimed at protecting properties from flooding. A further £5m of revenue should be added through the national Confluence framework work with the Coal Authority.

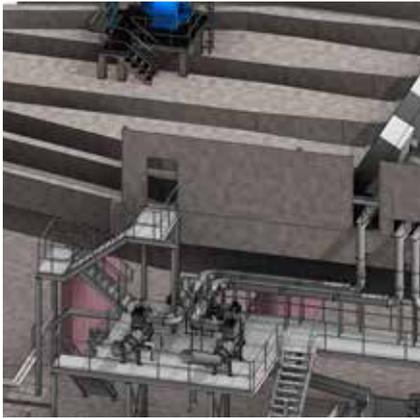
Away from water and environment our new framework with Rolls-Royce will ramp up quickly in 2018. This will see us back on sites in Derby and Barnoldswick, as well as at other Rolls-Royce premises across the UK. We are currently pricing multiple projects that represent a healthy pipeline of civil, building, mechanical and electrical work.

At times during 2017 our National Grid work has proven to be challenging, but this work provides us with an opportunity to diversify, and build new skills. We continue to bid similar work across the UK.

When we are busy it is sometimes difficult to look ahead, but that is exactly what we need to do, with bidding now starting for new AMP7 frameworks with Severn Trent Water and Yorkshire Water, as well as the replacement of our Environment Agency WEM framework - to be known as the New Generation Supplier Arrangements. Whilst we are exceptionally well positioned to extend these client relationships we must avoid complacency and be at our very best for our clients to continue placing their trust in us. Without doubt we must continue to be innovative, efficient and safe.

Overall, the outlook for the company continues to be very positive, bringing many rewarding engineering projects for teams across our operational areas.

Steve Tetlow
Bidding & Strategy
Director, JN Bentley



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