

A collage of 20 images showcasing various activities at Bentley Environmental. The images include: a group of staff in orange safety gear; a person using a tablet in a field; an aerial view of a water treatment site; a large green storage tank; a man in safety gear by a fence; a blue pipeline; a large blue pipe; a yellow Bentley container; a Bentley van; two people working on a laptop; two workers in safety gear using a tool; a thumbs up sign on a red car; a group of staff in safety gear; two people at a computer; a 3D model of a water treatment plant; a person using a tablet to view a 3D model; a man writing on a document; two workers in safety gear; a modern building; and a worker operating a large blue machine.

Welcome

Welcome to our review of 2021, a year unlike any other we've experienced – except for 2020! Another year older, another year wiser, perhaps?



The money

It was another challenging 12 months across the industry as we all grappled with the pandemic and the delays and change it continues to bring. The news was full of construction companies struggling and reporting losses – significant losses in some cases.

Thankfully, our approach to managing the finances at the beginning of the pandemic saw us **weather the storm**, resulting in us posting wholly acceptable figures for the year. This meant we were able to catch up with general pay increases for all colleagues and return to paying our twice-annual bonus, albeit at a lower percentage than we would like. **Rewarding the efforts of employees and sharing in our success** is really important to the business.

As turnover contracted, we took the opportunity to consolidate. I sense that everyone in our organisation wants to be here and projects are being delivered well. I see us coming out of Covid in **better shape** than when we went in.

The overall Mott MacDonald Group has performed very well during Covid, and their understanding and support for us - the contracting part of the business - have been **unrelenting**.

Our people

We can all agree that Covid has changed the way we work forever, particularly for those based in offices. Gone are the days of 9-5; Covid accelerated our move to an **agile** workplace and it's pleasing to see many of you benefiting from our agile working guidelines, finding a happier work/life balance. We are now exploring how to make this work for our sites as well.

Video calls meant I spoke to more people across the business than ever before in 2021, something I was concerned I might lose as we grew as an organisation. Digital technology is only going to grow. We're probably **further along the digital curve** than a lot of others, but we feel we could do even more.

My virtual conversations give me a good understanding of how people

are feeling – but nothing can replace a proper in-person visit to site. It was great to get back out there more as the restrictions around Covid reduced in the summer. Let's not miss a trick when it comes to the important role this face-to-face interaction still plays, be it building rapport, team-working or helping new starters.

Safety

Safety was a double-edged sword for us in 2021. We further embedded our 'I Care' behavioural safety programme and once again ended the year with a **safety record comparable with anyone in the industry**. Our All Injury Frequency Rate is at its lowest since the launch of our initial Health & Safety Strategy back in 2008, although our reportable injury frequency rate (AFR) did increase slightly from 2020.

What was stark was the disparity between directly employed colleagues and subcontractors. We are responsible for subcontractors when we are working together and as such must take collective responsibility for engaging them in the way we do safety. This is currently our biggest barrier to achieving zero injuries: overcome it (and I'm confident we will) and we make **zero injuries** a genuine possibility.

Our clients

Since the beginning of AMP7, in 2020, we remained a reliable, dependable supplier to the water sector and have **strengthened our market position**.

The regulator, Ofwat, continues to make affordability a huge challenge for our clients, so I'm pleased with how we have shown empathy with their situation and worked hard to provide the most effective solutions possible. Our **Quality, Cost & Efficiency Strategy** has helped us be the best we can be and following the Excellence agenda will also help. My overriding goal is to make sure we are absolutely **THE BEST** in the water industry. Most clients still like us but let's be the stand-out supplier by doing excellent work time and time again.

I feel that the business is in a good place with itself. What do I mean by this? We have good people delivering good work in an environment that promotes enjoyment and progression. This all bodes well for 2022 and beyond.

As I touched on earlier, the projects we are delivering we are delivering well and we are securing work – none less than the Lincoln to Grantham pipeline, one of our **largest ever**.

Outside of water, our relationship with the Environment Agency went from strength-to-strength last year and the **JBA Bentley team is flourishing**. Elsewhere our presence continued to grow: we secured places on frameworks with local authorities as well as strengthening ties with the likes of the Coal Authority and Magnox. As you'll read in the review, we delivered some really exciting projects in 2021.

All our clients are now talking about **carbon**. We're doing lots of great work in this space but need to develop a common language and understanding. By focusing on measuring carbon, we will be able to get to where we are with safety and money. This is part of a wider agenda – delivering better **social outcomes**. Group are delivering strongly here, and we need to play our part, by getting more wired in to the true purpose of the projects we are delivering, and by connecting with the communities in which we work.

Close

I'll finish by saying I feel that the business is in a good place with itself. What do I mean by this? I mean that **we have good people delivering good work in an environment that promotes enjoyment and progression**. We grew enormously between 2016 and 2019, so by consolidating ourselves in 2021 we regained control of the things important to us – which all bodes well for 2022 and beyond.

Thank you for your efforts throughout the year. I hope you enjoy reflecting on your achievements in this annual review.

Paul Bentley
Managing Director

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2021

Highlights

Another somewhat unique year for us all but we still enjoyed many successes and celebrations. Here are just a few of the highlights...



Breaking new ground

The first pipe was laid on Anglian Water's Strategic Pipeline Alliance - a £400m programme creating up to 500km of interconnecting pipelines to secure water supplies across the region. We also started on our very first site with client Thames Water, a run to waste scheme at Speen in Buckinghamshire. [Learn all about our clients on page 12-31.](#)

Wellbeing in the workplace

We continued to provide colleagues with wellbeing support. We were grateful to those that shared their personal experiences and to our network of Wellbeing Champions and new Mental Health First Aiders, a group established in 2021 to answer crisis calls of those in need of urgent mental health support. [Read more on page 8-9.](#)

A drive for excellence

Our Early Career Professionals (ECPs) network was fully established with the appointment of operations and design unit leads. The network connects young professionals across geographical and client boundaries as they support each other in their work, careers and development. [ECPs are a key part of our Excellence agenda - more on page 37.](#)

In the community

We love engaging with communities near our sites and offices, donating skills, time and expertise to support local projects that really make a difference. This included the Shifnal team who spent two days refurbishing the village's award-winning sensory gardens. [Read about sustainability and social value on page 32-33.](#)

Safety engagement

Our health and safety vision is to achieve ZERO injuries and prevent occupational ill-health. We proudly maintained industry-leading levels of safety engagement as over 39,000 positive interventions were made by colleagues and suppliers, with behavioural coaching training driving further improvement. [Read about safety on page 10-11.](#)

Embedding digital

Our digital transformation continued with pace. But none of the tech can function without skilled people so in 2021 we strengthened our network of digital champions and launched the digital delivery hub, a one-stop information shop for all things digital. Next up is a Group-led digital literacy programme. [Read all about digital on page 36.](#)

Investing in early careers

Investing in early careers has long been a big part of our business and we were delighted to see 24 apprentices pass their Level 3, 4 and 5 qualifications in 2021. We also welcomed 10 new apprentices into the team, taking us to a total of 99 studying across 18 different courses. [Read more about our people on page 8-9.](#)

Adding to our accolades

Repeat business is the recognition that we're looking for - but it's nice to pick up an award or two along the way. A highlight was wins at the prestigious British Construction Industry Awards for our tidal defence project at Great Yarmouth and Anglian Water's Strategic Pipeline Alliance. [Check out the full awards roster on page 38.](#)

A journey to net zero

We made net zero carbon commitments, coinciding with the UK hosting COP26. We were also certified as a carbon neutral business after meeting the internationally recognised PAS 2060, externally accredited by the Carbon Trust. We are one of the very first organisations in our sector to do so. [Read all about our carbon approach on page 35.](#)

99

apprentices on the books - working towards qualifications in everything from civil engineering to IT.

26

award wins, commendations and shortlistings from prestigious external bodies and organisations.

27

wellbeing champions are in place, supporting wellbeing at work and raising awareness of positive initiatives.

1.25

We finished the year with an All Injury Frequency Rate of 1.25 - a record low. The number of people injured on our sites reduced by 45%.

2,048

conversations recorded on MMBC Connect - our brand new platform for performance and development all about continuous, meaningful employee/line manager conversations.

39,137

safety, health and environmental positive interventions made. Every intervention is a potential incident prevented.

1st

Right 1st Time was the key message at Quality, Cost & Efficiency (QC&E) Week. QC&E is our strategy for ensuring we add value for clients and thrive as an organisation.

0

We made commitments to become carbon net zero as our approach to carbon picked up more pace.

300

colleagues recognised through our internal Be Recognised Awards for going the extra mile.

99%

of waste was diverted from landfill - achieved by following the waste hierarchy of prevent-minimise-re-use-recycle.

The money

We have remained profitable since the start of the pandemic; our 2022 budget and business plan give us many reasons to be optimistic about the next 12 months.

Overall, 2021 was a mixed year in terms of our financial performance. Unlike many of our industry peers, we have remained profitable since the start of the pandemic, but profits are much reduced from their past levels.

As a consequence, in 2021 the JN Bentley bonus was limited to 1.00% in the summer and 1.25% in the winter. These were not the levels we have paid in the past and we want to return them to more normal levels in 2022.

Revenue at £244m was markedly reduced from both 2019 (28% lower) and 2020 (19% lower). Quarter 1 2020 represented our highest ever quarter of revenue at the tail-end of AMP6 in the water sector (the five-year period 2015 to 2020) and the corresponding quarter in 2021 was 33% lower. In line with this our headcount has reduced with the 2021 average 14% below that of 2020.

Overall revenue in 2021 was 16% under budget and across a number of our water sector clients, workload was significantly below our expectations. The tighter Covid restrictions at the start of the year did not help but fundamentally AMP7 work is being released to us, and the rest of the industry supply chain, much more slowly than had been expected as many clients tackle affordability challenges. The exceptions to this are Anglian Water - with whom we commenced the Strategic Pipeline Alliance - and Northumbrian Water - where we are now one of two key supply chain partners.

Positives

Despite the lower activity levels there are several clear positives to take from our financial performance in 2021.

The majority of our clients (including Environment Agency, Yorkshire Water, Northumbrian Water, Dŵr Cymru Welsh Water and Anglian Water) delivered margins at the upper end of what each of them has historically achieved. This was despite the lower volumes against which our framework management costs could be allocated and against a backdrop of costs of important Covid-impacted working practices. Within this group of clients there were only a few loss-making jobs.

Work commenced in earnest on our new framework with Thames Water and there are encouraging signs that, once mature, this will be another successful water customer with whom we can

deliver great projects and achieve our target margin. Whilst this has not yet reached profitability due to the start-up nature of our operations, Thames Water have been very supportive throughout.

Benchmarking work we have done confirms that amongst our peer group we are the only operator in the sector who has remained consistently profitable over the past five years.

For the first time we submitted an HMRC 'Research and Development (R&D) Expenditure Credit' (RDEC) claim, going back as far as 2019 to do this. The exercise identified a rich vein of our R&D activity against which we can claim a tax credit; we will be getting refunds for both of these years as a result.

Challenges

Notwithstanding the above positives, we have faced some difficult headwinds that have affected our profitability and cash generation.

At lower volumes it is harder, regardless of the framework, to make money. It also affected our plant contribution. Plant utilisation levels, particularly in the middle part of the year, were much lower than they should have been but hard work and collaboration with project teams meant we tackled this and mitigated some of the impact.

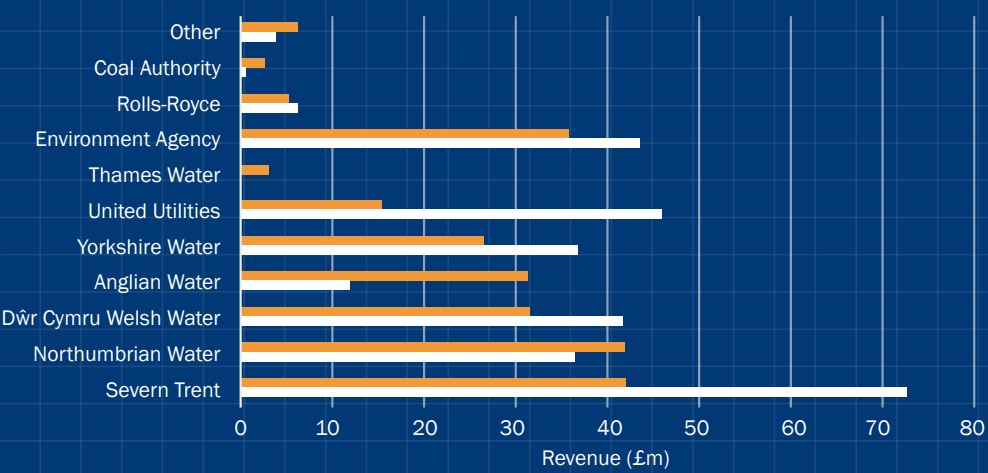
Our work with United Utilities continued to be loss making in 2021 as we closed out some challenging AMP6 projects and reset our expectations of how much work we wish to deliver through AMP7. A lot of hard work went into managing down the level of losses that could have arisen.

Our work with Severn Trent also suffered some losses in 2021. The primary factor was late costs on some of the more challenging projects delivered towards the end of the AMP. Whilst this meant our final AMP6 position for Severn Trent wasn't as strong as we expected 12 months ago, we still delivered a good level of profit over the full term of the AMP period.

All successful businesses must be cash generative and our cash position tightened during the second half of 2021. Weaker profitability did not help this position, but we were also affected

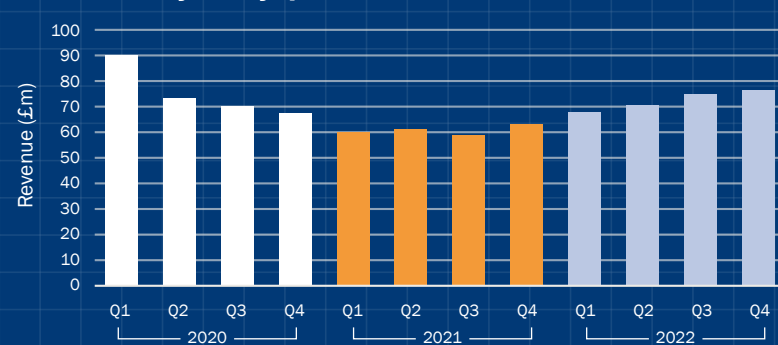
2021 performance

Revenue by client



Total revenue at £244m was reduced from 2020; the tighter Covid restrictions at the start of 2021 did not help but fundamentally AMP7 work is being released much more slowly than expected, with the exception of Anglian Water and Northumbrian Water.

Revenue analysed by quarter



Quarter 1 2020 represented our highest ever quarter of revenue; the corresponding quarter in 2021 was 33% lower. Our 2022 budget and business plan give us many reasons to be optimistic and we have set our budget for the year at £285m - a 17% increase on 2021.

by some recent VAT changes applied to the construction industry, extended payment terms at some customers, and contractual entitlement for some monies for which there is earned value not falling due until 2022. We closed out the year in a stronger position and this has continued during the early part of 2022.

2022

Our 2022 budget and business plan give us many reasons to be optimistic about the next 12 months.

A meaningful amount of AMP7 work is visible. We have set our budget at £285m - a 17% increase on 2021 - and now believe we can outperform against this position. There is a real willingness from clients to make up for year 1 and year 2 expenditure shortfalls. The main constraining factor will be our own resource availability.

These factors mean we can start to be more selective with our bidding, focusing efforts in the areas where we can add most value for our clients.

We are taking far fewer 'problem' projects into 2022 than we were into 2021. And those we do have, we now have the processes in place to effectively manage them.

We are expecting to benefit further from future R&D and resultant RDEC claims and HMRC's two year 'super-

deduction' scheme. Launched in response to the pandemic, super-deduction means that investment in new and efficient plant and machinery will come with tax benefits.

In December we announced our intention to include all employees in MMBC (Mott MacDonald as well as JN Bentley) within the bonus scheme from January 2022. Alignment for all colleagues is an important final step in creating a single identity that will drive further success for the organisation as we strive for the same objectives.

Working with the procurement team we are committed to being fair payers to our supply chain and we are targeting further improvements in 2022 with particular focus on our smallest suppliers, those with fewer than 50 employees.

In conclusion, after a difficult couple of years, we see more reasons for optimism and with the right level of resource we should be capable of delivering marked improvements in both revenue and profits.

Jonathan Rhodes
Finance Director

Information technology



Xpedeon is our bespoke, in-house ERP system. Its

financial and commercial processes developed further in 2021:

- Launching new automated functionality for raising client applications and certifications for payment, monthly 'Commercial Valuations' and a 'Cost To Complete' forecasting tool. We now have automated end-to-end contract accounting and billing processes driven by the monthly routines of our quantity surveyors.
- Establishing single Region financial reporting for all MMBC activity
- Building our own digital forms, including inspection and testing.

Learn more about digital on page 36.

Our IT team focused heavily on

building resilience into processes and networks. This included new disaster recovery procedures, information security

processes capable of ISO 27001 certification, supporting remote working and IT health-checks.

Secure. Digital. You.

Our people

Happy people who enjoy coming to work and feel valued and recognised for their contribution, take pride in what they do and perform at their best. Whilst the pandemic continued to affect our people in 2021, we did return to something looking more like normality as restrictions were eased in the summer. This enabled us to press on with important topics on our people agenda and see more faces back in our offices and out on sites.

An agile workplace

Agile working was embraced by office staff. Rolled out in time for the gradual relaxation of Covid restrictions, our new agile working guidance supported managers and staff in finding a healthy balance of office and home working.

Whilst we adapted fantastically well when the pandemic forced a wholesale switch from office to homeworking, we never lost sight of the **value of meeting face-to-face**. That's why our guidance defines home working as 'focus time', and offices as hubs for collaboration, teamworking and creativity. We reconfigured offices to add more large spaces that enable teams and working groups to come together. It was a joy to see them being used in all sorts of creative ways.

Phase 2 of our guidance is now in development as we engage with site teams to look at how an agile workplace could work for them.

Getting connected

We launched our new approach to performance and development conversations, **MMBC Connect**. A web-based platform developed with Clear Review, MMBC Connect is all about continuous, meaningful employee/line manager conversations that are future-focused and driven by agile goals. The aim is to enable colleagues to perform at their best. We've started setting unit-wide goals to nurture improved team working and since its roll-out in May 2021, our people have held 2,048 conversations on the platform. In 2022 we'll continue to trial new areas of the platform and look to expand its usage further.

Treading new ground with Thames

Having secured work with Thames Water for the first time, 2021 was spent **building an MMB team in the region**. Thank you to those colleagues who have supported the business and taken the opportunity to move: as well as bringing with you your skills you're also helping to embed our safety culture in the new region. Blending this experience with new recruits is the recipe we're looking for and with Thames set to be our **largest growth area** in the next few years, joining the team brings with it great opportunities for further personal and professional development, growth and progression.

Wellbeing

Our health and wellbeing programme continued to provide information and resources to support colleagues. We shared content on a wide variety of topics, from suicide to stress, the

menopause to Movember. Personal stories from colleagues played an important role in helping to break down the stigma of talking.

We grew the **support** available: our network of wellbeing champions increased in size, we shared new wellbeing toolbox talks, and introduced our Mental Health First Aiders – colleagues trained to listen and guide others in need of urgent mental health support.

Apprenticeships

We've championed apprenticeships for many years and continue to reap the benefits of this route into employment and higher qualifications. In 2021 we had **99 colleagues enrolled**

on 18 different apprenticeships at level 3 to level 6; courses included civil engineering, IT, construction health and safety and business administration.

The role of the mentor can't be underestimated – sharing their experience and guiding apprentices through their courses, in addition to their other project work!

Our focus on professional development remained strong – well

done to all 15 colleagues who passed courses in 2021. This included Tomas Cruz who achieved chartership with the ICE, Zoe Bassett who achieved chartership with CIWEM, and Jake Pollard who passed his management qualifications with CIMA.

The MMBC region

Our people work as one 'MMBC' – a region within Mott MacDonald comprising all JN Bentley colleagues and those from Mott MacDonald delivering projects for MMB. The region aligns JNB and MM employees closely and in doing so supports our 'one team' ethos. In December we moved to incorporate MM employees into the JN Bentley profit-share bonus scheme, effective from 2022. This is important because it means everyone in MMBC will now **share the rewards** of making the region a success.

Judith Jeffery
HR Director



“My first year has been exciting, full of firsts - including the first time MMB has worked with Thames Water. The challenge of learning the ways of a new client has given common ground across the team, inviting collaboration, and keeping us close.

Betty | Project Leader



“I gave the depression and anxiety toolbox talk to the team on site - and afterwards someone approached me to say it had been like a lightbulb moment. We are working on getting him some support and he is in a much better, happier place.

Ronnie | General Foreman



Martha Smith and Selena Uttley became our first QES apprentices to pass the Construction H&S final exams.

“I love mentoring because I love to see people realise their talent. It gives me pride to see people grow in confidence and become successful – and it makes me a better manager as I see a different perspective.

Colin | Contracts Manager and mentor

Moving on up: Our policy is to promote from within where we can. In 2021, over 50 colleagues achieved a promotion with us – well done to you all.

Employee recognition

Saying “thank you” is important: our internal recognition scheme - Be Recognised - saw over 300 colleagues recognised across the business in 2021.



Civil engineers **Tom Addison** and **Ruth Watson** picked up accolades: Tom was named 'Apprentice of the Year' by Leeds College of Building and Ruth 'Most Promising Apprentice' by CECA Yorkshire & Humber.



“MMBC Connect helps people with continuous improvement; it's good to set goals and understand progress both for line manager and staff member.

Karen | Design Lead



“There is nothing better than just stopping and asking a question, rather than trying to get people by Teams. Team spirit, morale and general wellbeing is all positively impacted.

Sharon | Project Co-ordinator



“As a new starter at the beginning of my career, spending time in the office is a great way to get to know new people - people I wouldn't necessarily have contacted working from home. I definitely feel part of the family already.

Hannah | Communications and Media Assistant

Safety

There is nothing we care more about than making sure we all go home safe and well at the end of the working day. The standards and processes we developed and implemented have helped us to achieve industry leading health, safety and environmental performance.

Our vision for health and safety is to achieve **ZERO injuries and to prevent occupational ill-health**. Like any great vision it has stood the length of time. Why? Because it deliberately doesn't have a finish line, and instead demands continued improvement – a strive towards ZERO. Our vision stems from the belief that everyone has a right to come to work and return home unharmed.

Safety

In 2021, more of us realised that no one can be aware of all the hazards all of the time, so reaching zero is not something we can do on our own – it is only by **working as a team and caring for each other** that we will deliver our strategy and achieve our vision.

We now understand that good planning will reduce the chance

of an unplanned event but will never completely eliminate the risk because other things like our behaviours have an impact. Therefore, our goal is to work in a safe place **'Beyond Zero'** where we talk about the 'what ifs' and assume that something unplanned could happen. It is by making time for these 'Talk Safe' conversations that we will make sure we stay safe even when an unplanned event happens.

In August, we launched our 'Hands Clear?' campaign after seeing too many hand injuries – many minor, but some serious. In the three months following our campaign launch, we recorded ZERO hand injuries and continue to see promising levels of engagement and awareness from our teams.



We ended 2021 with a record low All Injury Frequency Rate (AIFR) of 1.25, a figure **23% lower** than 2020's previous record low of 1.63. This result is testament to the efforts of all our colleagues and the high levels of

We ended 2021 with a record low All Injury Frequency Rate (AIFR) - a result testament to the efforts of all colleagues and the high levels of engagement we have seen across the business.

engagement we have seen across the business.

Occupational health

We made some big changes to how we prevent occupational ill-health. We **improved the way we monitor individual occupational health** and streamlined our process for carrying out annual health assessments.

In 2022 we will introduce a new Occupational Health Standard for the management of occupational health to help our site teams understand how we manage potential health risks.

Jamie Fitton
QES Director

Journey to zero injuries

Building on our work in **coaching safety performance improvement**, 2022 will see us reinforce some new language and continue to coach members of our team to motivate and inspire others to overcome barriers, adapt to change and encourage innovation on our journey to zero injuries.



Left - Teams attended safety behavioural coaching training sessions - safely socially distanced in our offices. Above - Site teams received Bentley-branded snoods in the winter, - a safe face covering and a functional, visual reminder of our journey to zero injuries.



2021 performance

In 2021, our health and safety statistics showed a continuation of positive safety behaviours. Our AIFR (all injury frequency rate – the number of 'all injuries' per 100,000 hours worked) fell consecutively from January to December to 1.25 - the lowest rate since the launch of our initial Health & Safety Strategy back in 2008. We also saw:

- ▼57% Injuries requiring first aid
- ▼18% Medical treatment injuries resulting in lost time
- ▼32% Serious near misses
- ▼45% People injured working on our sites

Category	2017	2018	2019	2020	2021
Hours worked	4,475,605	5,307,422	5,240,281	5,100,597	3,673,706
Talk Safes/Made Safes*	31,359	47,637	58,744	44,683*	32,751
Serious near misses	75	66	44	37	25
First Aid Injuries	90	112	94	60	26
MTI/LTI	13	15	20	17	14
RIDDORs	7	7	4	7	6
AFR	0.15	0.13	0.08	0.14	0.16
All injury frequency rate	2.33	2.5	2.3	1.69	1.25
Total no. of injuries	110	134	118	84	46

*previously known as unsafe acts/unsafe conditions
+lower number due to change in reporting/classifications in 2020

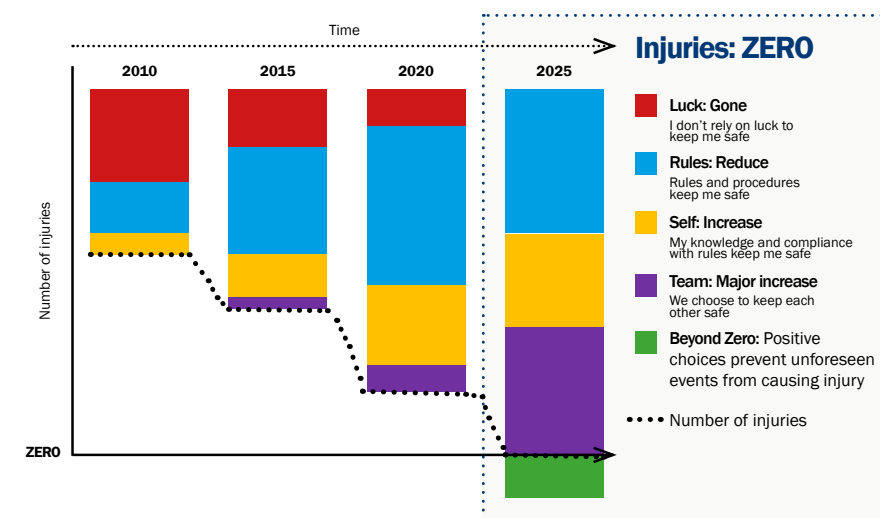
TALKSAFE

Our industry-leading levels of engagement remained prevalent. Our teams recorded 39,137 Safety, Health and Environmental Positive Interventions - 1,065 for every 100,000 hours worked. Moving to a new digital way of reporting has made it even quicker and easier for colleagues to record health and safety events and conversations (Talk Safes and Made Safes), and digitised processes like inspection and testing and permitting is improving levels of compliance and engagement too.

Positive safety culture

Although our safety performance for 2021 is something to be proud of, we need to continue to build positive associations for health and safety interactions. This will move us towards our goal, a place where we can reasonably expect injuries and harm to be prevented because we work **'Beyond Zero'** having established a safety zone where a loss of control does not result in someone getting hurt.

Safety is about all of us, and we are at our best when we take responsibility for our own and our teams' health and safety. Moving forward, we will continue to celebrate team and individual successes when things go well.



This graphic illustrates the evolution of our H&S Strategy, which has led to a decrease in the number of injuries. To achieve zero injuries and begin operating 'Beyond Zero', safety should be team led, with any reliance on luck eliminated. Operating with fewer rules, our increased knowledge of and compliance with safe behaviours, choosing to focus on others and making positive choices will keep us safe.

Our clients

At the heart of our organisation are our clients and the projects we deliver together.

Because we care about our clients, their customers, and the solutions we provide, we're awarded repeat-business. Clients appoint us to long-term frameworks and call on our services when deadlines are tight, when they need an emergency response, and when the work needs a team of people willing to go that extra mile.

In 2021 we delivered hundreds of projects across the UK in the water, environmental, industrial building, highways, gas and defence sectors. The following pages share just a small selection of these projects, showcasing the very best, most interesting and innovative work that JN Bentley, MMB and JBA Bentley have to offer.

Thames Water

A new client, a new region, and new opportunities

**AMP7 Non-Infrastructure
- Thames-wide**

**AMP7 Non-Infrastructure
- Thames-Valley**

**AMP7 Infrastructure -
Thames Valley**

MMB MOTT MACDONALD
BENTLEY

Securing places on the frameworks has presented us with a **multi-million pound programme** of varied water and wastewater non-infrastructure and infrastructure projects to deliver, during AMP7 (2020-2025), with the potential for an extension into AMP8 thereafter.

2021 was spent **building the MMB team** in the Thames Valley, as we moved into co-located premises in Reading. It also saw us kick-off our first project on site, a run to waste scheme at Speen in Buckinghamshire, as well as make progress on a series of other exciting work fronts:

Banbury and Aylesbury STW

Projects to upgrade both assets and meet predicted population growth in the area. Banbury will see

In 2020, MMB was appointed to frameworks with Thames Water for the very first time, expanding our portfolio of UK water and sewerage company clients to seven.

As a partner on three Thames Water AMP7 frameworks, we're excited to be playing an important role in improving clean and wastewater services to 15 million customers, as well as improving the environment.

the installation of a new 500kW CHP engine and optimisation of the biogas system; at Aylesbury we will install a new sludge dewatering and cake storage system, and biogas storage system.

Phosphorous reduction

We're delivering a series of 21 P reduction projects as part of the Water Industry National Environment Programme (WINEP). Upgrading small rural works to those serving 40,000 customers, the scale of the programme presents an opportunity to realise major efficiencies in design, procurement, construction and commissioning – working in collaboration with MMB frameworks elsewhere.

Infrastructure

In 2021 we progressed £10m-worth of infrastructure schemes, and in 2022 will begin on site at Charvil - a £1.5m first-time sewerage scheme connecting 12 properties into the Thames Water system.

On each and every project we are **blending our wealth of MMB experience with fresh ideas from our new local recruits**, with the aim of driving efficiencies for Thames Water and their customers.

In 2021 we moved into co-located premises in Reading, on the banks of the River Thames

MMB and Thames Water in numbers

15m

customers are served
by Thames Water

7

Thames Water takes
the number of MMB
water sector clients to
seven

70+

MMB colleagues
already working
on Thames Water
projects

17

contracts signed,
worth a total of
£38 million



Anglian Water

Alliancing in action

AMP7 @one Alliance partner
AMP7 Strategic Pipeline Alliance (SPA) partner

MMB MOTT MACDONALD
BENTLEY

Anglian Water is responsible for providing water and water recycling services to almost seven million customers across a larger geographical area than any other English supplier.

Having begun working together as JN Bentley in the 2000s, we have collaborated as MMB as part of the progressive @one Alliance since 2015 and then the Strategic Pipeline Alliance (SPA) since 2020.

2021 saw our teams busy delivering critical projects across both alliances,

including laying the first pipes between Lincoln and Grantham – part of a £400m programme creating 500km of new interconnecting pipelines. Turnover as part of the @one Alliance is set to significantly increase in 2022 and we'll see more sites become operational within SPA over the next 12 months.

Diving into action

When a leak was discovered in a main outlet pipe at Wing Water Treatment Works, the @one Alliance was enlisted to undertake the repair. With 500,000 customers relying on the site for their water supply, the works could not be shut down nor the pipeline isolated for more than six hours at a time.

A traditional repair might need a two-week shutdown – so we brought in diving specialists to install an internal repair coupling by sealing the joint from the inside.

Over the course of four night shifts the work was successfully completed – all **without digging a single hole or interrupting customer supply**. The approach saw a 99% reduction in carbon compared to the excavation solution too.

Project: Wing Water Treatment Works Repairs
Location: Rutland
Expertise: Innovation; driving efficiency

A trip to the SPA

MMB is a key partner in Anglian Water's Strategic Pipeline Alliance (SPA) – a £400m programme creating up to 500km of interconnecting pipelines to secure water supplies across the region for generations to come. Part of Anglian Water's Resources Management Plan, a 25-year programme to make the East of England resilient to drought, SPA is one of the largest infrastructure programmes in the UK.



Lincoln to Grantham (L2G)

In 2021 we **broke ground on SPA for the very first time**, starting construction of a 35km pipeline from Lincoln to Grantham.

Key to SPA's success is a production mindset – in evidence on L2G as we make progress laying pipes on a single work-front from north to south. **Hygienic pipe management** is also at the heart of the scheme – the whole team is bought-in on its importance because getting the installation right first time will ultimately reduce the volume of water required to commission the pipes later. We're being supported by experts in our supply chain, including Serimax – whose softer welding technique seals joints without impacting the inner coating – and QEM Solutions – who are supporting water hygiene management.



35km

length of the L2G pipeline – 7.5km already installed

86m

installed every single day (on average)

5364

quality checks made of the steel pipe

3447

inspections of installation to support the hygienic install

Norwich to Wymondham (N2W)

We also began work on N2W, a 12.5km pipeline crossing a railway line and the A47. In line with SPA's approach of **Deliberately Delivering Differently**, the project is deploying an innovative pipe plough. Used for the very first time on a project of this type in the UK, we're benchmarking its performance against more traditional methods with a view to deploying it elsewhere on SPA. We already know it will save 200t of carbon on this scheme alone.

The scheme also has a requirement for a pumping station; through collaboration with Anglian Water's operational team, instead of constructing a new pumping station, we are reconfiguring some of the existing equipment to facilitate the reuse of the existing dry well structure.

Deliberately Delivering Differently | SPA is deliberately delivering differently, taking a production approach to unlock savings across materials, water, carbon, cost and time. This approach has seen us reduce the service reservoir capacity required by 58% and the length of total pipeline by 162km. The SPA team has also developed a catalogue containing 180 standard products.

Project: Anglian Water's Strategic Pipeline Alliance
Location: Across the Anglian region



Storming progress

To increase storm capacity at water recycling sites, the @one Alliance is delivering a portfolio of 100 schemes, installing solutions such as lagoons and tanks, right across the region.

By using a standard, repetitive approach with the focus on simple solutions being delivered directly, this is contributing towards **significant programme and cost efficiencies**. These efficiencies include:

- Targeting >90% schemes complete at least one year before obligation date

- 45% cost efficiency achieved on all smaller schemes
- 83% carbon efficiency against baseline
- 10% biodiversity net gain from existing baseline

Project: Storm Portfolio
Location: Across the Anglian region
Expertise: Batch delivery; higher volume-lower cost



Work at 57 sites is complete. The remainder will be finished during 2022 with the exception of a few larger schemes.



Lluest Wen

Dŵr Cymru Welsh Water

Established in Wales

AMP7 Capital Delivery Alliance Partner

MMB MOTT MACDONALD BENTLEY

We secured a place on our very first alliance with Dŵr Cymru Welsh Water in 2015, at the beginning of AMP6. Since then, our high-performing local teams have used their design-and-build expertise to deliver great projects across the length and breadth of the country.

In 2021, we delivered £32m of work together across both water and wastewater projects. AMP7 sees our teams delivering a range of schemes including a programme of work improving safety at impounding reservoirs

nationwide, such as Lluest Wen and Llyn Celyn. 2021 also saw the completion of a multi-award winning scheme at Bewdley Bank where we designed and built a new 34MI service reservoir.



Award winner

Bewdley Bank Service Reservoir

To increase the resilience of Hereford's water supply network, we designed and built a 34MI service reservoir at Bewdley Bank. The ICE in both the West Midlands and Wales recognised its excellence, awarding it both the Innovation and Designed in Wales Awards, respectively.

Judges in Wales were impressed with the **attention to detail** displayed on the project, together with its **strong sustainability focus** and an emphasis on landscape considerations, materials re-use, sustainable drainage and ecology.

[Read more in Water Projects Online](#)


Reservoir ready

We're proud to have brought our long history of reservoir experience to Wales having honed our skills first in Yorkshire and then the Midlands. AMP7 picked up where AMP6 left off with the dam safety programme as we continued to deliver a series of important projects across Wales.

Lluest Wen



New spillway at Lluest Wen

| We are up-sizing and replacing the existing spillway with a new reinforced concrete structure. Three miles from the nearest highway, the site is remote and has proved challenging throughout the winter months being on the top of a Welsh mountain.

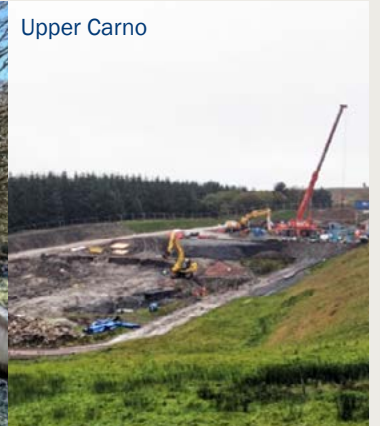
Ynysyfro



Spillway replacement at Ynysyfro

| In replacing the existing spillway, we emptied the reservoir to enable us to work safely on pipework within an upstream tunnel. Doing so avoided the need for the use of divers – a potentially more hazardous activity.

Upper Carno



Dam refurbishment at Upper Carno

| This major refurbishment includes trunk main diversions; valve tower overhaul; tunnel, scour and draw-down system replacement; a new spillway; and embankment slope slackening. The embankment material is being reused from our site at Pengarnddu.

New scour system at Usk

| We replaced existing scour pipes within the draw off tunnel, including constructing a new discharge chamber, flow control valves and automation. With some of the works delivered under Welsh Water 'gold command' by installing temporary siphons to maintain compensation flows to the river Usk, we removed the need to pump 24/7, saving c.260,000 litres of diesel and reducing maintenance costs.

Project: Reservoir Dam Safety Programme
Location: Across Wales



Impounding reservoirs



Engineering excellence

Doubling up at Dolgellau WwTW

Initially tasked with replacing the inlet screen coupled with a wash water booster system and MCC, our scope of work at Dolgellau suddenly increased when **our client required a fast response** to issues with the ASP.

Incorporating the emergency works into our existing project, work began on two fronts in tandem. With the emergency works directly affecting the turning of

flows as part of the main inlet works contract, the team carefully co-ordinated this significant logistical challenge – all whilst working within a confined site.

Project: Dolgellau Inlet Works

Location: North West Wales

Expertise: Fast response; confined site



Safeguarding supply

Off the back of completing work at Bewdley Bank, we began engineering a new service reservoir near Merthyr Tydfil. The existing reservoir at Pengarnddu is around 100 years old and undersized, so we are building a new partially buried 9.8MI structure from pre-cast and in-situ concrete to safeguard drinking water supplies to the area.

With another MMB site nearby, we seized the opportunity to **eliminate the disposal of excavated material**. We crushed and screened sandstone rock from the bulk excavation to form 10,000m³ of aggregate, transporting it to Upper Carno impounding reservoir to be used to slacken the embankment slope.

Project: Pengarnddu Service Reservoir | Location: Merthyr Tydfil | Expertise: Service reservoirs





Northumbrian Water

Strength-to-strength in the North East

AMP7 Treatment Framework partner

AMP7 Infrastructure Framework partner

MMB MOTT MACDONALD BENTLEY

We have enjoyed a near 20-year working relationship with Northumbrian Water, initially as JN Bentley undertaking construct-only projects, before engaging as MMB to bring our integrated design and build solutions offering across the North East of England.

Northumbrian Water remain an important client and our relationship continues to go from strength-to-strength. As MMB, we are currently appointed as a partner on both treatment and infrastructure frameworks, working on clean and

wastewater assets from co-located offices at Seaham and Northumbrian Water sites across the region. In 2021, we delivered £43m worth of work and will see a busy 2022 with lots to deliver in AMP7.

Accelerated delivery

When the original contractor had to step aside, we were asked by our client to pull together an MMB team to complete the design, installation and commissioning of a major water treatment facility upgrade, serving 800,000 customers on North Tyneside.

The upgrade includes a new Actiflo® water treatment plant – the **very first installed on a Northumbrian Water site**. It was critical this plant was commissioned and into supply as soon as possible – 24/7 working saw us achieve this in just

2.5 weeks when it usually takes three months.

To protect badger setts and vole habitats, we also installed a 1.8km overland discharge pipe – again fitted in double-quick time in just one week.

Project: Horsley WTW Upgrade
Location: Northumberland
Expertise: Quick response; accelerated delivery



A sustainable solution

The reed beds at Birtley sustainably co-treat mine water and sewage from nearby treatment works, as well as providing a sanctuary for local wildlife. To free up space for further treatment structures, we worked closely with Northumbrian Water and the Coal Authority to **refurbish three primary lagoons**, first installed in 2006.

Original plans would have seen

the beds excavated and new reeds planted throughout. Instead, we opted to transplant reeds from an existing bed, doing so at 3m centres so that the rhizomes would grow and fill the gaps. This not only eliminated costs associated with buying new reeds, but the cost of composting the old reeds too.

Project: Birtley Reed Beds Refurbishment
Location: Gateshead

 **Nature based solution**



Team challenge

With the market town of Rothbury growing, upgrades to the sewage treatment works were required to maintain high standards of treatment as well as increase storm storage capacity. This saw us undertake a raft of improvements, from refurbishment of the inlet works to installation of new flow measurement to ensure storm flows do not prematurely enter the storm tanks, ensuring compliance with WINEP U_IMP5 drivers. New radial flow primary tanks have been constructed and a full electrical refurbishment of the works is

to be undertaken.

Our **site team challenged original plans** to construct the primary settlement tanks using sheet piles and frames, instead proposing to safely construct them in an open cut excavation. This not only generated a significant cost saving, but it also reduced programme by two weeks.

Project: Rothbury STW Upgrade
Location: Northumberland
Expertise: Site efficiencies

National Underground Asset Register

We worked with Northumbrian Water to mark the next step in the delivery of the National Underground Asset Register (NUAR). The NUAR will provide a single, digital resource that accurately maps underground assets, helping reduce accidental damage to utilities and services, a problem costing the economy £2.4bn every year.

Our site at Mayfair Road in Darlington – where we installed a 500m rising main – was **one of the very first to be digitally mapped**.

The idea for the NUAR was first formed in the North East – borne out of a tent at Northumbrian Water's fabulous Innovation Festival.

This project will be potentially life-saving. NUAR will improve safety for our people and those working across the utility sector, as the risk of striking other people's assets will be reduced.

Tamsin Lishman | Northumbrian Water Asset Management Director





Our clients

Severn Trent

Severn Trent

A varied portfolio

AMP7 Design and Build Framework partner
AMP7 Civils Build-Only Framework partner
AMP7 MEICA Install Framework partner
AMP7 Distribution Service Reservoir Framework (Major Repairs)

MMB MOTT MACDONALD BENTLEY
Bentley

We are now in our third-consecutive five-year AMP period working with Severn Trent.

For AMP7 (2020-2025) MMB was appointed to a new design and build framework and JN Bentley named partner on civils 'build-only' MEICA install and service reservoir repair frameworks - giving us a varied portfolio of work with Severn Trent.

Appointment to the frameworks also opened up to us prospects across the whole of the Severn Trent geographical region for the very first time - all of which helped contribute to the delivery of £43m worth of work together in 2021.

AMP7 projects are well underway, with many large schemes on site, including at Stoke Bardolph where we are designing and building a new Advanced Anaerobic Digestion facility - a complex process job with lots of mechanical and electrical elements plus an interface with existing assets on a confined site.

Better quality, faster

In 2021 we continued to work on a range of projects to increase how much phosphorous (P) is removed from wastewater. Our projects benefited from **our standardised approach to 'P removal'**, using solutions from our Moata Intelligent Content digital library to deliver better quality, faster, for our clients.

One example was our work at Uttoxeter sewage treatment works, where we built an activated sludge plant configured

for enhanced biological phosphorous removal, with final settlement tanks and chemical dosing. By planning across all our 'P Removal' projects we were able to make savings through procurement, and embed lessons learnt in each project.

Project: P Removal Projects
Location: Staffordshire
Expertise: P removal, Standardisation



P removal at Wellesbourne STW

Getting it right first time

The new £42m Advanced Anaerobic Digestion facility at Stoke Bardolph turns sewage into biogas that is exported to the gas network and treats the remaining solids so that it meets the highest standards for use as a fertiliser.

The team applied our Quality, Cost and Efficiency Strategy to see how we could get things **Right 1st Time**, and - with a complex range of mechanical plant - Design for Manufacture and Assembly (DfMA) was the key.

Having key work packages and mechanical items built away from site meant that on-site demolition and civil work could progress at the same time. Packages were then delivered to site for **rapid installation**, compared to a traditional on-site approach with a lengthy assembly and installation period.

The boiler house is a great example of the benefits that DfMA brings. We worked with our expert supply chain to learn from previous projects we've delivered together. As a result, the boiler house was manufactured, fully assembled and tested off-site, before being separated into modules for delivery and installation at site. The modular design, including the electrical system, used innovative quick-fit connections between sections. Our approach **saved 26 weeks on site** compared to traditional construction.

Finalist

The project was a finalist at the British Construction Industry awards, for Industry Transformation and Innovation.



Project: Stoke Bardolph Thermal Hydrolysis Plant
Location: East Nottingham



Productisation



DfMA



Biogas

Nature based solution

Increasing biodiversity is really important to both Severn Trent and MMB. At Cinderford we've worked together to create a new wetland habitat with a series of interlinked ponds next to an existing sewage treatment works.

We used our expertise in nature based solutions to design the wetland, carefully choosing the shape of the ponds and the planting to **encourage a variety of species to flourish in the site**. We made sure we protected the existing biodiversity during the works by avoiding an area of high-status grassland and completing over a month of surveys and translocation of existing amphibians out of the working area.

Project: Cinderford
Location: Gloucestershire
Expertise: Nature based solution; biodiversity



Innovative repairs

Meriden service reservoir supplies customers in the Coventry area and needed repairs to its internal walls and roof to extend its operational life.

The concrete roof was constructed over 70 years ago, and the way it was built meant we were not able to put any significant weight on the roof. This ruled out a traditional repair where the earth over the roof would be removed, and repairs applied directly to the concrete surface. We worked with Severn Trent

to test different solutions, deciding to install a new impermeable barrier over the whole reservoir, including the existing grass overburden. This **innovative approach** ensured the work was completed rapidly, protecting water quality for customers.

Project: Meriden Service Reservoir
Location: Warwickshire
Expertise: Service reservoirs



United Utilities

A United front

AMP7 Design and Construct Framework Construction Delivery partner

MMB MOTT MACDONALD
BENTLEY

United Utilities provide water and wastewater services to more than three million homes and businesses in the north west of England.

MMB is currently one of four Construction Delivery Partners appointed to a design and construction framework that sees us carry out projects on infrastructure and non-infrastructure assets across the region.

2021 saw our project at Hallbank come to an end – a high-profile scheme

that involved replacing a 2.5km section of the Haweswater aqueduct – and significant progress made on AMP7 projects, including at Hodder Wastewater Treatment Works.

Award winner



Hallbank Tunnel

We brought to a close a high-profile project replacing a 2.5km section of the Haweswater Aqueduct – the backbone of United Utilities' network supplying water to 2.5 million customers every day.

The project, **praised for connecting the new pipes during a shutdown of less than eight days**, scooped the Pipeline Industries Guild Utility Project of the Year Award, was highly commended in the British Construction Industry Awards, a finalist at NCE TechFest Awards for Best Use of Technology: Site Productivity and shortlisted at the Ground Engineering Awards in the Sustainability category.

[Read more in Water Projects Online](#)



Top marks

We made significant progress on site at Hodder as we continued our upgrade of the water treatment works, including new rapid gravity filters, clean and dirty backwash tanks, lamella clarifiers and associated pipework.

As part of our annual Achilles UVDB accreditation for quality, environment, safety and CSR, the project was selected for audit, **scoring 100%**. The auditor paid special praise to the coordination of

trades on the site – crucial due to the number of activities being undertaken in relative close proximity within the confines of the existing treatment works.

We're also working within the confines of the Forest of Bowland **Area of Outstanding Natural Beauty (AONB)** and are landscaping the works in such a way as to minimise their visual impact.

Project: Hodder WTW Upgrade
Location: Ribble Valley



Environmental constraints



Engineering excellence

Achilles

UVDB

VERIFIED

Our teams at both Hodder WTW and Swinsty Impounding Reservoir scored 100% in external UVDB Verify audits by Achilles



Ribble batch

Our combined sewer overflow project at Hyndburn is one of five schemes improving the quality of river water across the Ribble Valley. Our solution at Hyndburn includes 7,500m³ storage utilised during storm events to reduce spills into the nearby river.

The additional storage contributes to **improving 600m of river length** as part of the Water Industry National Environment Programme (WINEP). The WINEP is the programme of work water companies in England are required to do to meet

their obligations from environmental legislation and UK government policy.

The project also delivered against water framework directive drivers to **improve water quality** of the River Hyndburn, Hyndburn Brook and White Ash Brook.

Project: Hyndburn 0005
Location: Accrington
Expertise: Environmental improvement

Batch thinking

We completed projects providing the facility to isolate five existing service reservoirs from the water network, allowing for inspection and maintenance whilst maintaining supply to customers. Although geographically diverse with the solutions varying significantly across the five sites, by **batching them together we achieved efficiencies** in the procurement of materials and subcontract packages, as well as streamlining management time.

Solutions at Warbreck, Winwick, Gorsehill, Malpas and Kerridge included pump control modifications, pipework improvements and cross-connections, connections into strategic mains, new header mains and the construction of a new 4MI reservoir.

Now complete, the service reservoirs have been added to a cyclic programme for inspection and cleaning in the future.

Project: Service Reservoir Isolations
Location: Across the UU region
Expertise: Service reservoir experience

[Read more in Water Projects Online](#)





Yorkshire Water

Our longest standing client

AMP7 Complex Civils Framework

AMP7 Complex MEICA Framework

AMP7 Infrastructure Networks Framework

AMP7 Minor Civils Framework

MMB MOTT MACDONALD BENTLEY

Bentley

Having been founded in the county and where our head office remains to this day, it will come as no surprise that Yorkshire Water is one of our longest-standing clients.

We began working together in the 1980s, first as JN Bentley and latterly as MMB, which was formed in 1999 as a design-and-build venture specifically to deliver an AMP3 Yorkshire Water framework.

Now four AMP cycles later, the relationship continues to go from strength to strength. AMP7 sees us work even more collaboratively with our client and fellow contract partners as

Yorkshire Water create their 'Partnership For Yorkshire', adopting the principles of Project 13. We delivered over £26m of work in 2021 across four frameworks which included a variety of works across complex and minor civils projects, complex MEICA works and infrastructure networks projects.

Sustainable solution

To improve water quality and support local biodiversity, we are constructing a Sustainable Drainage System (SuDS), additional highways drainage to separate surface water, and a flow control device near Leeds.

The SuDS includes a bioretention strip, incorporating rain gardens, which controls and conveys surface water into an existing watercourse. Gabion basket outfalls are also being constructed along the open watercourse.

The rain gardens will **increase**

biodiversity in the area, and along with new highways drainage nearby and installing a flow control device on the existing sewer network, will improve water quality in Roundhay ponds, supporting the native white clawed crayfish population.

Project: Roundhay SuDS and FCD
Location: Leeds
Expertise: Sustainable drainage system



Heritage improvements

We designed and constructed a new reinforced concrete spillway and raised the crest bridge to improve safety at Swinsty, one of Yorkshire Water's **most visited impounding reservoirs**.

Many existing structures were re-used to not only preserve the heritage of the reservoir, but drive carbon efficiencies too. The existing bridge was raised rather than replaced and original coping stones re-used for the new spillway walls. 8,500t of material from the

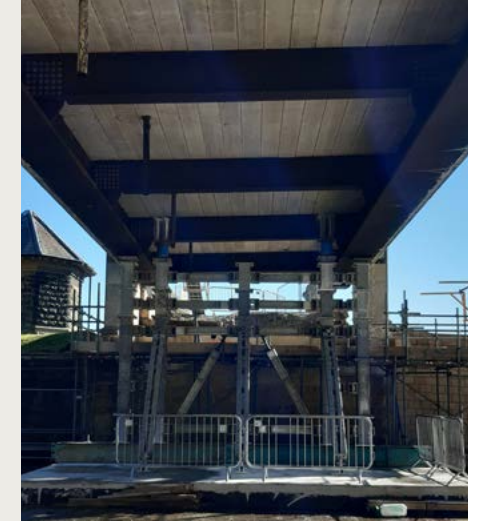
compound was re-used as engineered backfill. We also formed the spillway and bridge works of masonry-clad reinforced concrete, in-keeping with the **aesthetics of the local area**.

Challenging, interrelated temporary works were required to raise the 400t bridge 1.5m to facilitate the permanent works – including modifications to the abutments.

Project: Swinsty Reservoir
Location: North Yorkshire

 **Heritage works**

 **Reservoir spillways**



Odour control

In 2021 we began constructing two new 840m³ raw sludge tanks, a new 300m³ thickened sludge tank and an odour control unit to facilitate a new housing development. Concept designs originally required the construction of an earth retaining wall to resist loads imposed on the rear of the existing tanks, prior to their demolition. Our designers proposed to retain the existing pre-cast concrete wall units as formwork

for the new tank walls, thus removing requirements for a retaining wall altogether - generating **significant time and cost savings**.

Reuse of the existing tank RC bases and pipework resulted in minimal waste offsite, reduced vehicle emissions and reduced carbon content. We installed a concrete washout recycling unit to filter the washout water and remove waste aggregate for reuse.

I have been impressed by the team's ability to work with Yorkshire Water in a timely manner, ensuring progress and efficient design to time critical deadlines.

Mark Hewison | Yorkshire Water Project Manager

Project: Whitby Odour
Location: East Yorkshire
Expertise: Design challenge

Largest project yet

We completed a £34m project to upgrade Hull WwTW – a site serving a **population equivalent of 1 million people**. We constructed a new elevated inlet works for the preliminary treatment of raw sewage, new liquid import, cake import and rewetting, and dewatering facilities, plus refurbished the existing sludge treatment facility (STF).

The new dedicated flow to full treatment inlet works comprised elevated coarse screens, grit removal and fine screens, a return liquors pumping station and new odour control plant. To eliminate the need for high-level temporary works and to expedite construction, we incorporated the

temporary works into the permanent works design.

The STF refurbishment was undertaken whilst **maintaining full treatment capacity**, which required a phased approach to delivery, further restricted by high seasonal summer loading and high winter energy demand.

Project: Hull WwTW Upgrade
Location: East Yorkshire
Expertise: Large projects; complex commissioning; digital delivery



 **Award winner**

The upgrade of Hull WwTW was presented the prestigious CECA Yorkshire and Humber Project of the Year award.

Read more in Water Projects Online

Environment Agency

A focus on low carbon solutions

Flood and Coastal Risk Management (Central Hub) Framework partner

Marine and Coastal Framework partner

Legacy projects under Water and Environmental Management (WEM) Framework



2021 marked our ninth year working in partnership with the Environment Agency. Projects are delivered through JBA Bentley, our integrated design and build company specialising in environmental engineering and low carbon solutions.

JBA Bentley brings together the technical expertise of JBA Consulting with JN Bentley's civil engineering contracting experience.

Our work covers a broad geographical spread and an even wider variety of projects, incorporating flood defences in the form of embankments, walls, pumping stations, reservoir improvements, and

asset recovery. In 2021 we made progress on a number of schemes – some of which are 'legacy' projects from the WEM framework.

Protecting a city

Our flood defence work at Clementhorpe is the latest in a line of JBA Bentley projects within the York Flood Alleviation Scheme, which is lowering flood risk in central York, a city historically prone to flooding.

Clementhorpe is one of 18 flood 'cells' identified as vulnerable, with 135 homes at risk. Our solution includes a large bi-fold flood gate, smaller flip-up gate, seven flood walls, road raising, and an

underground seepage mitigation barrier constructed using 'deep soil mixing', designed to make the ground semi-impermeable. By using deep soil mixing, our solution is both sustainable and cost-efficient.

Project: Clementhorpe
Location: City of York
Expertise: Innovation

A 70% reduction in carbon helped our project at Great Yarmouth win Environment and Sustainability Initiative of the Year at the British Construction Industry Awards - more on p35.



All in alignment

As the Humber Estuary is a designated site of nature conservation, any habitat lost due to intervention must be compensated to preserve and protect the wildlife. In Summer 2021, JBA Bentley began the construction phase of a **planned managed realignment scheme** at Skeffling, which involves building a new embankment further inland and breaching the old embankment, to allow sea water through the breach to create intertidal habitats.

The new areas of saltmarsh and mudflat will provide **habitats and food for a variety of bird species** found within the estuary. Additional social benefits of the scheme include improved flood protection, opportunities to improve agricultural drainage, and opportunities



for industrial and economic growth in the Humber ports. Works started on site in the summer of 2021 and will continue through to late 2024; we're only on site

between spring and autumn due to important restrictions surrounding local habitats.

Project: Outstrays to Skeffling Managed Realignment
Location: Humber Estuary



Habitat creation



Environmental engineering



Flood alleviation

Flood risk within the Holderness Drain catchment is managed by three strategically placed pumping stations, all of which were approaching the end of their design life. One pump station at East Hull was categorised as failed.

By maximising the use of **3D technology**, and LiDAR to undertake investigations, we were able to develop a detailed flood model that allowed for a greater

understanding of flood mechanisms and spill locations across the catchment. Our **innovative solution** consisted of a flood storage area working holistically with an in-channel land drainage pumping station, enabling us to maximise flood protection, minimise land take and avoid disruption to local businesses and residents.

Project: Holderness Drain FAS | **Location:** East Yorkshire | **Expertise:** Digital; innovation

Award winner

Environmental best practice

At the River Sheaf in central Sheffield, we replaced an existing debris screen and manually operated grab with a new curved screen and **automated screen cleaning system** to reduce the risk of

localised flooding.

Opting for an automatic grab - instead of manual - will reduce the number of maintenance visits required, resulting in a carbon saving of 96%. The scheme

Through material re-use and hydraulic flood modelling, delivery of the project saved over 700t of CO2e

also provided the added benefit of increased fish movement capacity which had been limited by the existing weir. Through material re-use and hydraulic flood modelling, delivery of the project **saved over 700t of CO2e**, contributing to winning a silver apple in the 'Environmental Best Practice' category at the International Green Apple Awards.

Project: Sheaf screen
Location: South Yorkshire
Expertise: Low carbon; innovation

Coal Authority

17 not-out with the Coal Authority

In the seventeen consecutive years we have worked together, JN Bentley and the Coal Authority have tackled complex engineering problems together to treat mine water and improve the environment in mining areas right across the UK.



Polkemmet

From building new treatment facilities – including cascades, lagoons and reed beds – to structural repairs and refurbishment works, we’ve done it all.

In 2021 we continued to deliver projects on two lots under the Authority’s £72m Mine Water Treatment Civil Engineering, Refurbishment and Minor Works framework.

At **Polkemmet** in Scotland, we are making £3.5m of improvements to the existing mine water treatment scheme (MWTS). We are developing the site by building new settlement lagoons and aeration cascade, refurbishing reed beds and upgrading the pumping station to allow for the long-term control of mine water in the area.

Using the Moata Carbon Portal to monitor and manage carbon throughout the project, we are on track to achieve a **carbon saving of 39%** against the baseline. Contributors to this include a reduction in fill material in the lagoons, lowering each by 160mm, and the elimination of 200+ wagon movements by reusing site-won material.

At **Polkemmet**, where we are making improvements to the existing mine water treatment scheme, we are on track to achieve a carbon saving of 39% against the baseline.

When pipework collapsed, rendering an access track impassable, at **Whittle MWTS**, we were engaged to remove and replace the 450mm culvert which was buried 4m deep. Pace in project delivery was important as the access track was the sole vehicle access to the works’ pumping station. Full engagement from the site team in our 3 Levels of Planning process, including a full breakdown of day-by-day targets, saw us **reduce programme by 25%**, re-establishing access a full week early.

We improved the existing mine water treatment scheme at **Bullhouse** by building a new in-situ concrete aeration cascade and distribution channel. **Delivered largely in-house** by our own teams, we reduced carbon by securing the old cascade with a manhole cover and steel plate, rather than follow original plans to fill it with foam concrete.



Bullhouse

Industrial building

Industrial building expertise

We have worked with clients in industrial and manufacturing sectors for over 30 years. In 2021 we continued to deliver for our clients, on a complex range of projects UK wide.

Our expertise in the field is borne out of 100+ projects delivered with a select group of blue-chip clients since the 1980s. Our portfolio is diverse. It has seen us engaged in schemes across a **multitude of industrial sectors**, working with diligence to deliver right first time - be it constructing brand new facilities, moving large machinery, refurbishing existing premises or installing new car parks.

In 2021 we undertook **structural strengthening** works at a 1960s facility. The project included concrete, steel and carbon fibre wrapped column jackets, external bracing and roof upgrades, plus an internal refurbishment. Completed two weeks early, our client’s staff could return to the building ahead of schedule.

We progressed a **building refurbishment and mechanical and electrical installation** ready for new equipment and **repaired a first-floor concrete floor slab** by fixing under-slab reinforcing steel members to the floor and applying an epoxy to infill the cracks.

Projects in this sector often see us working in close proximity to on-going operations, on constrained sites. We communicate closely with our clients’ operational teams to **ensure a safe interface and minimise any disruption**. This means that production continues uninterrupted whilst we are on site.

Project details have been withheld in this article to maintain confidentiality.



Highways

Expanding our highways portfolio

We increased our highways engineering activity in 2021, completing schemes with local authority clients across the UK.

The North and Mid Wales Trunk Road Agent (NMWTRA)

NMWTRA is responsible for managing, maintaining and improving the strategic road network in North and Mid Wales on behalf of the Welsh Government. A partnership of eight local authorities, we are a contractor on a £60m framework.

In 2021 we delivered £1m worth of works across four projects. This included the installation of a 1km strengthened verge/emergency lane on the A5, delivered wholly at night under a road closure. We also removed and replaced two existing concrete and stone culverts running across the A5 at Hendre and constructed a new head wall and pipework in preparation for the main drainage improvements at Pant Glas. We also began a project installing cycle paths, footways and street lighting on the A494 to help form an active travel route for the general public.



Sunderland City Council

We undertook extensive **resurfacing work and repairs to six bridge decks on a dual carriageway** (pictured right) under a £1.6m scheme with Sunderland City Council, as part of the NEPO framework.

We also carried out white lining, installed signage and street lighting and built a 300m central reserve barrier system. To maximise efficiencies, we worked night shifts with contraflows to manage traffic flows, and because of our **direct-delivery model**, we were able to keep the same labour teams together across different phases of work – and reallocate them to other projects when our specialist subcontractors were on site. Successful delivery saw us rewarded with a client instruction to extend resurfacing.

Cumbria County Council

We also delivered a **highways project** with Cumbria County Council – with other projects now in design – and secured places on **new local authority frameworks** with both Lincolnshire County Council and North Yorkshire County Council, the latter as part of the Yorkshire Highways Alliance. This framework gives us opportunity to deliver civil engineering projects worth up to £500,000 across the county.



Our further expertise

Growth markets

2021 saw us continue to diversify our offering as our people delivered projects in the nuclear decommissioning, gas and defence sectors - bringing to the table valuable construction and engineering experience from different sectors.



Hard work rewarded

Magnox is responsible for the safe and secure clean-up of 12 nuclear sites owned by the Nuclear Decommissioning Authority.

2021 saw us make **huge progress on our very first project together**, upgrading two pumping stations to facilitate the controlled pumping of surface water to the nearby lake, under consent from site regulator Natural Resources Wales.

The project has seen us adapt to the 'nuclear way of working', with the team's performance from a quality, safety and relationship perspective leading to the **award of a second contract** together, a £3.7m sewage treatment works upgrade at the same location.



Gas sector experience

Cadent Gas owns and operates the largest gas distribution network in the UK, supplying 11 million homes and businesses across the North West and East of England, West Midlands and North London.

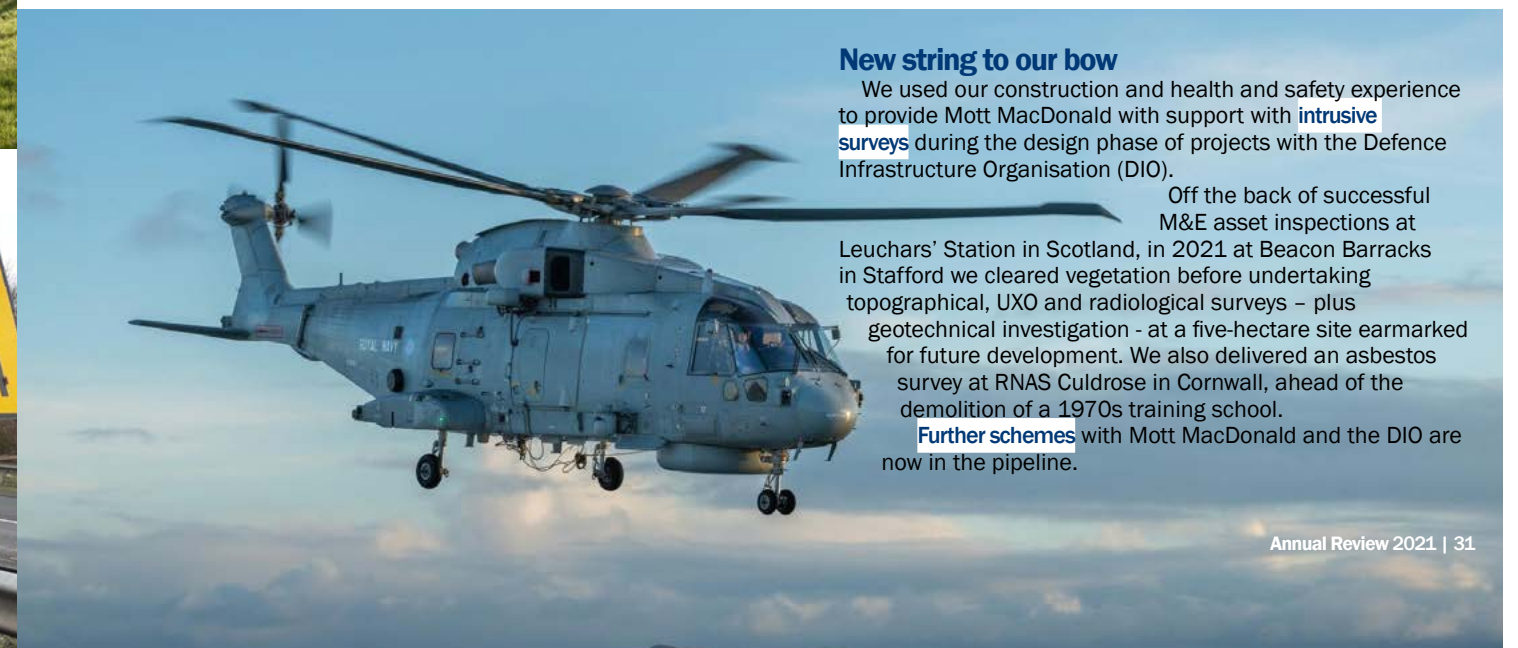
Having completed two batches of gas valve remediation, in 2021 we were asked to carry out **improvement works to cover and protect a vulnerable section of a high-pressure pipeline**. Situated largely within a stream, with an additional section running through agricultural land, we raised and re-profiled the waterbed, using Concrete Canvas to re-cover the pipe and protect it from damage.

New string to our bow

We used our construction and health and safety experience to provide Mott MacDonald with support with **intrusive surveys** during the design phase of projects with the Defence Infrastructure Organisation (DIO).

Off the back of successful M&E asset inspections at Leuchars' Station in Scotland, in 2021 at Beacon Barracks in Stafford we cleared vegetation before undertaking topographical, UXO and radiological surveys – plus geotechnical investigation – at a five-hectare site earmarked for future development. We also delivered an asbestos survey at RNAS Cudrose in Cornwall, ahead of the demolition of a 1970s training school.

Further schemes with Mott MacDonald and the DIO are now in the pipeline.



Sustainability and social value

Our Mott MacDonald Group purpose challenges us to improve society by considering **social outcomes** in everything we do. Of course, our projects often deliver essential services to the communities that we serve – water, sewerage and flood protection. But it's the 'how' that also matters. Our approach focuses on the 'social' and 'environmental' pillars of sustainability:

Social



People



Procurement with purpose



Communities

Environmental



Carbon reduction



Environmental enhancement



Pollution reduction

Social

We continued to recruit and train **apprentices** and provide **development opportunities** for graduates that link to membership of professional institutions. We welcomed 10 new apprentices into the business in 2021, enrolled another 3 existing employees onto apprenticeships, and plan to recruit a further 30+ in 2022. 24 colleagues completed their apprenticeship at Level 3 and above.

Other colleagues completed company development schemes, with some achieving chartered or incorporated status along the way, including with the Institution of Civil Engineers, Chartered Institution of Water & Environmental Management and Institution of Engineering & Technology. Others completed academic qualifications in procurement, communications, management, business and quantity surveying.

Learn more about our people on page 8-9.

The **charities** that our employees support are important to us – and don't forget, JN Bentley matches charitable funds raised by employees up to the value of £100! In 2021, 55 colleagues raised £25,000 for different charities - each having their totals topped up through the matching scheme.

In the early part of the pandemic we identified the members of our **supply chain** that were SMEs and accelerated all their payment terms from our standard (8th day of the second month following the month of the invoice) to 30 days. This helped greatly and was warmly welcomed by the suppliers.

It is important to engage with **local communities** – donating our skills, time and expertise to support



We promoted STEM as part of the Engineering Development Trust's Industrial Cadets Gold Project - looking into renewable energy on water and wastewater treatment sites with a group of local high school students.



Engaging the communities in which we work is important: 2021 was the Year of the Bench as seating was refurbished and donated in locations close to our sites and offices - including a memorial close to our site at Horsley in the North East.



JBA Bentley's flood protection project at South Ferris won an International Green Apple Award for Environmental Best Practice. It was praised for reusing material to save 10,000t of CO2e.

Our vision for sustainability is to be a responsible business that in collaboration with our clients makes positive and innovative contributions to society and the environment.

small improvement projects that really make a difference, be it community garden refurbishments or donations to local schools to help improve their facilities.

Environmental

Our commitment in 2021 to **net zero carbon** coincided with the UK hosting COP26. Having measured our carbon footprint and reported it publicly for over 10 years, last year we went one step further and obtained Carbon Trust certification to ISO 14064-3 for our 2020 footprint. Offsetting this carbon, we became carbon neutral in accordance with PAS 2060 for the very first time.

Learn more about our carbon approach on page 35.

We've been sharing some of our carbon successes with colleagues through weekly **Quality, Cost & Efficiency Learnings**. In June, the team on our United Utilities project at Hodder Water Treatment Works shared how they challenged the original design of the new reinforced concrete filter structure and reduced the amount of steel reinforcement required, saving 15t of CO₂e. This was supported by our Water Retaining Structures Practice that issued 'top tips' for reducing carbon in concrete structures.

Meet our Technical Practices on page 37.

We actively promote the **ecological enhancement** of our working areas where we can; our project with Severn Trent at Cinderford is an example of the importance of biodiversity. Pollution prevention and waste are two of our key environmental measures. Both demonstrated improvements in 2021 - improvements you can read about on p34.



55

Colleagues were busy raising money for a whole variety of good causes in 2021, 55 of them having their funds matched up to £100 by JN Bentley. This included events held in memory of much loved colleague Mark Davies. Well done to everyone involved.



Quality assurance

The transformation of our management systems continued in 2021 as we transitioned to our new Business Management System (BMS). **Leaner and more user-friendly**, the BMS makes it easy for colleagues to comply with the standards required. 60% complete, the transition will conclude in 2022.

Getting it right first time

We must deliver quality solutions in a cost and efficient way. Doing so ensures we add value for our clients and continue to thrive as an organisation. How do we achieve this? Through our **Quality, Cost & Efficiency Strategy** - a strategy reinvigorated in 2021 as we shone a brighter light on the importance of achieving right first time (R1T): the right level of quality at the right cost with maximum efficiency first time, every time.

Our inaugural QC&E Week communicated the **importance of the refreshed strategy** to colleagues across the business through site stand-downs, videos and live webinars. Together with highlighting **R1T**, the week covered five important themes:

1

Quality

Demonstrating to colleagues what good quality delivered R1T actually looks like through real life examples from our projects.

2

Opportunities and risks

Shifting emphasis onto realising opportunities, not just guarding against risk, using new tools like the O&R register and 'contract enhancement plan' collaborative team meetings.

3

Knowledge

Sharing technical knowledge and learning means we employ best practice, drive innovation and realise opportunities - doing so through Technical Practices, QC&E Learnings and knowledge shares.

4

Planning and programme

Highlighting the tools that help us accurately plan and programme projects and eliminate waste along the way. These include PACE boards and our important 3 Levels of Planning process.

5

Inspection & Testing

Promoting our newly digitised I&T process - more on page 36.

Our environment

Without care for the built and natural environment, we wouldn't have a sustainable business.

Thinking about the way we work, it's not just about minimising our impact on the environment, but reducing the potential for harm and enhancing our surroundings too.

We treat environmental management with the same rigour as we do health and safety: a suite of processes, standards and procedures on core areas are complemented with training courses and sharing of best practice so that our teams are equipped with the skills and knowledge they need.

Our colleagues are engaged and empowered to confidently challenge and make positive interventions to 'talk green' and 'make green' every day.

We measure three key areas of environmental performance: pollution prevention, waste, and energy and emissions.

TALK
GREEN

Pollution prevention is measured by the number of **positive interventions** we make. 2021 saw us maintain high levels of engagement with environmental event reporting. We recorded **6,386** 'talk green' and 'made green' positive interventions. Every intervention made is a potential pollution incident prevented - increasing engagement year-on-year will ensure we continue to protect the environments in which we work and prevent harm.

99%

Our waste management target is to direct **>90%** of the waste we generate from landfill, doing so by following the **waste hierarchy**: prevent-minimise-re-use-recycle. In 2021 we diverted over **99%** from landfill.

Energy consumption and associated emissions is a key area for demonstrating environmental impact. We do this by measuring our carbon data and in 2021 hit a key milestone on our journey to net zero by achieving certification as a **carbon neutral business** after meeting the internationally recognised PAS 2060, externally accredited by the Carbon Trust. Read all about our journey to net zero on [page 35](#).

We also achieved re-certification against **ISO 50001** for Energy Management for the design, construction and commissioning of building and civil, mechanical and electrical projects. First certified in 2019, we were one of the first design and build contractors in the world to achieve this. ISO 50001 has played a crucial role in helping us mould our strategy for energy and carbon and has helped us to prioritise areas for both financial saving and environmental betterment.



Environmental Best Practice

We scooped three International 'Environmental Best Practice' Green Apple Awards for low carbon environmental projects with the Environment Agency:

South Ferriby - flood protection scheme included close collaboration with Natural England to protect local ecology, part of a Site of Special Scientific Interest and Special Protection Area.

Bentley Ings Pumping Station - instead of constructing new, significant reuse of existing infrastructure reduced capital carbon by 60%.

Sheaf Screen - new low carbon debris screen reduces flood risk, with trees and hedgerows planted to support the local environment.



Our carbon commitments

More than 50% of UK carbon emissions are sourced directly or indirectly from infrastructure. The UK Government is targeting net zero carbon emissions by 2050, and our water sector clients committed to delivering a net zero road map by 2030. So, what are we doing to contribute?

2021 was a big year for carbon in our organisation. Driven by a carbon working group and our new carbon strategy, we made two commitments:

1 - to be Net Zero for our direct (scope 1 and 2) emissions by 2030.

2 - to be Net Zero across all our operations (scope 1, 2 and 3 emissions) by 2040.

We were also **certified as a carbon neutral business** after meeting the internationally recognised PAS 2060, externally accredited by the Carbon Trust. We are one of the very first organisations in our sector to do so. Whilst we achieved this through offsetting, in the future we intend to reduce what we offset by reducing our footprint through alternative, innovative means - such as being operationally 'green' and by developing low carbon solutions for our clients.

We've already been increasing our focus on **delivering low carbon solutions** and have achieved **PAS 2080 certification** for Carbon Management in Infrastructure, through Mott MacDonald. You'll be hearing more about PAS 2080 in

2022 as we increase our efforts, starting with design.

All electricity used within our offices was moved to green tariffs with REGO (Renewable Energy Guarantees of Origin) certification and we embarked on trials in important areas where the changes we make will have a major impact on reducing greenhouse gas emissions, including our offices, electrifying the car and van fleet, alternative fuels, site power and large plant.

We're proud of our efforts to date in supporting the UK to become carbon net zero by 2050 - but there's **lots more to do**. As our commitment dates move closer, we'll remain proactive, using the PAS 2080 framework to influence our decision making at every stage in our projects. We'll do all this with the help of our colleagues and in close collaboration with Mott MacDonald, our industry partners, and members of our supply chain.

To achieve our commitments, it will take a truly collective effort from colleagues to clients, supply chain to industry bodies. **Everyone needs to contribute.**



Award winners



We were recognised in **eight awards for carbon** - including the British Construction Industry Awards, for our tidal defence project at Great Yarmouth. Here we repaired and replaced flood defences protecting 4,500 properties, achieving a **70% carbon reduction** through careful planning, innovative design, material reuse and a local supply chain.

Our performance

In 2021, significant effort was put into having our carbon data independently verified - something achieved with verification from the Carbon Trust to ISO 14064-3 and PAS 2060 for all of our scope 1 and scope 2 operational carbon, along with the operational impact of home working and grey fleet (i.e. employee owned vehicles).

2021 was a year of lower turnover but we choose to retain our workforce to be ready for expected increase in 2022. Whilst this increased our carbon footprint per £1m turnover, we believe it is the right decision to retain our excellent teams and be ready to deliver carbon-efficient infrastructure for the years ahead.

T carbon/£m turnover		2017	2018	2019	2020	2021
Turnover (£m - JNB only)		257	310	312	280	244
Scope 1	3 Grey fleet (2020+)	n/a	n/a	n/a	5.54	5.49
	Gas oil	28.83	28.38	31.30	26.6	30.93
	Diesel	8.98	7.58	7.48	8.35	8.73
	Petrol	0.99	0.61	0.60	0.45	0.42
	Natural gas	0.15	0.07	0.07	0.11	0.14
2	Electricity	1.24	1.07	0.61	0.03	0.00
TOTAL		40.2	37.7	40.1	41.08	45.71

For the annual review, this data is normalised against turnover so the figures take into account the size of our organisation.

Digital delivery

Our digital transformation continued with pace in 2021 as we embedded tools and processes and built our own apps to improve the delivery of our projects.

Digital rehearsals

We expanded our use of digital rehearsals following their success on a high-profile scheme with United Utilities at the Haweswater Aqueduct. We trained staff in the use of technology such as Synchro and produced guidance to help project teams understand and implement the process. At Yorkshire Water's water treatment works at Embsay, a digital rehearsal at tender stage optimised the programme and presented our client with over **£100,000 of savings** prior to contract award.

Digital construction

As part of the Outstrays to Skeffling Managed Realignment scheme with the Environment Agency, we are creating a new wildlife habitat, the design of which requires a multitude of complex shapes at differing depths. Across a 70-hectare site, this would traditionally be very engineer-intensive but by embracing digital construction in the form of **intelligent dozers**, the team completed the work accurately, safely, and up to 30% faster. [Learn more about the project on p27.](#)

Inspection and testing

Our inspection and testing (I&T) process was digitised in 2021. New I&T record forms enable data to be recorded on tablets as the work is being done. Progress is measured and reported in **real time**, meaning we are more proactive in responding to any outstanding works.



“The new I&T process has saved me time when I have been on the job with my phone and also catching up when I have been away from site on my laptop.”

Joe | Site Engineer

Production delivery

Our industry-leading digital component library, **Moata Intelligent Content**, enables a production delivery approach, leading to more efficient, higher quality and safer projects in construction and then subsequent stages of the asset lifecycle. As part of the delivery of 100 phosphorus removal

projects across seven client frameworks, Moata reduced design costs by £103,000 in the first year alone.

BIM 360

The benefits of construction management software BIM 360 became evident, **reducing the time taken to produce as-builts on our project at Hull WwTW by 50%.**

The collaborative data environment provided by BIM 360 allows everyone involved in a project easy access to project data and allows for real-time interaction and problem solving. It's proving so valuable that we're rolling out BIM 360 on every new project.



Augmented reality



We explored the potential of augmented reality (AR). At Esholt Sewage Treatment Works, AR brought designs to life, helping us better understand site constraints and identify any potential design clashes early. Shared live over Microsoft Teams, it brought our **global community** of designers and supply chain to the workplace.

A blended workplace

Our agile workplace means we're now equipped for a blend of office, site and home working. Using Miro – a **virtual planning tool** – our team delivering UV schemes in the North East engaged suppliers and the client to save nine months on programme and £90,000 on target cost.



Award winner: Moata contributed to success at the British Construction Industry Awards, where Anglian Water's Strategic Pipeline Alliance (SPA) won Digital Initiative of the Year. Powered by Moata Geospatial, Land Management and Route Optimiser, SPA's digital solution was recognised as a digital driving force for the construction industry.



Excellence: Improving how we deliver projects

Excellence is all about improving how we deliver projects - in all aspects, from design to construction, procurement to commissioning and completion.

Project Leader Academy

The promotion of Excellence took some significant steps in the year. January saw the start of the Project Leader Academy – a programme of six modules delivered over a six-month period, with a curriculum designed and delivered in-house. With a staggered approach, **128 Project Leaders** have already started the academy, with four groups completing so far. The feedback has been 'excellent'!



Early Career Professionals

Our network of Early Career Professionals (ECPs) has matured with operations and design unit leads in place and knowledge sharing sessions **'by ECPs for ECPs'**. ECP Week in October included a great session on electrical design and installation delivered by graduate electrical engineer James Payne, an ECP member of the Electrical & ICA Practice. The concept was well received with one site engineer feeding back, "It's good to connect with people across the business".



A range of ECP initiatives have brought business benefits promoting Lessons for Learning (L4L), production delivery and P-removal projects and we now have a growing ECP sustainability network too, with ECP sustainability lead Betty Solomon-Assefa playing a key role in our carbon working group. [Learn more on p35.](#)

Technical Practices

Networking and knowledge sharing took place through our technical Practices. Monthly, themed **knowledge sharing** sessions were run throughout the year, with an increased focus on project start up and completion as key times to research what we've done before and to pass knowledge to the next project. We also increased our technical capability and efficiency with visual quality standards, standard details, and guidance documents.

Group-wide connections

Through our Practices and Technical Excellence Leader we have **connected across the Mott MacDonald Group and beyond**. Some of our designs have been used by Mott MacDonald teams as far away as New Zealand, demonstrating the value of standardisation and global sharing. We are collaborating on initiatives involving zero carbon, safety (DSEAR) and a forthcoming technical development platform.

P-removal

With phosphorous removal projects at wastewater treatment works becoming common, we have joined people up as one P-removal team to deliver repeat designs, buying gains and construction efficiencies. We are using Moata Intelligent Content (MIC) and Global Delivery Services (GDS) in India. A webinar took place during Excellence Week in February that explained our 'Production Delivery' approach – a 'Modern Method of Construction' as defined in the Government's Construction Playbook. [Check out examples of P-removal projects in action on p20.](#)



Awards



Repeat business is the recognition that we're looking for - but it's nice to pick up an award or two along the way. We were proud to receive external recognition from a host of prestigious organisations in 2021:

British Construction Industry Awards

- Environment and Sustainability Initiative of the Year - Winner - Great Yarmouth Tidal Defences Epoch 2
- Digital Initiative of the Year - Winner - Anglian Water's Strategic Pipeline Alliance - A Geospatial Digital Solution (MMB is a key partner in the Alliance)
- Utility Project of the Year - Highly Commended - Haweswater Aqueduct - Hallbank Tunnel Replacement Pipeline
- Carbon Net Zero Initiative of the Year - Finalist - Great Yarmouth Tidal Defences Epoch 2
- Upgrade and Renewal Project of the Year - Finalist - Bentley Ings Pumping Station
- Climate Resilience Project of the Year - Finalist - Bentley Ings Pumping Station

[Read more about Bentley Ings Pumping Station in Water Projects Online](#)

- Industry Transformation and Innovation Champion - Finalist - Stoke Bardolph Advanced Anaerobic Digestion Project

Institution of Civil Engineers (ICE)

- Wales - Designed in Wales Award - Winner - Bewdley Bank Service Reservoir
- West Midlands - Innovation Award - Winner - Bewdley Bank Service Reservoir
- Yorkshire & Humber - Centenary Award - Certificate of Excellence - Bentley Ings Pumping Station Refurbishment
- Yorkshire & Humber - Smeaton Award - Certificate of Commendation - Lindley Wood Impounding Reservoir

Civil Engineering Contractors Association (CECA)

- Yorkshire & Humber - Linda Grant H&S Award - Winner - Winterringham Ings to South Ferriby Flood Alleviation Scheme
- Yorkshire & Humber - Project of the Year - Winner - Hull Wastewater Treatment Works
- Yorkshire & Humber - Most Promising Apprentice Award - Winner - Ruth Watson, Higher Level Apprenticeship in Civil Engineering
- North East - Project of the Year under £5m - Winner - Riding Mill Raw Water Pumping Station Upgrade and Refurbishment
- North East - Project of the Year under £1m - Winner - Durham City Sewerage - Elvet Storage and Walkergate

Dŵr Cymru Welsh Water Health Safety and Wellbeing Awards

- Capital Projects and Capital Contractors H&S Award - Finalist - MMB: Service Avoidance - Unknown Becomes Known

International Green Apple Environment Awards

- Gold Winner - South Ferriby to Winterringham Flood Alleviation Scheme
- Gold Winner - Bentley Ings Pumping Station
- Silver Winner - Sheaf Screen

Constructing Excellence

- West Midlands - Highly Commended - People Development Award - People and Development Focus during Covid-19

Pipeline Industries Guild

- Winner - Utility Pipeline Project Award - Haweswater Aqueduct - Hallbank Tunnel Replacement Pipeline

Leeds College of Building | The BIG Awards

- Winner - Level 4 Apprentice of the Year - Tom Addison

NCE TechFest Awards

- Best Use of Technology: Site Productivity - Finalist - Haweswater Aqueduct - Hallbank Tunnel Replacement Pipeline

Ground Engineering Awards

- Sustainability Award - Shortlist - Haweswater Aqueduct - Hallbank Tunnel Replacement Pipeline



Water companies now have just over three years to complete their AMP7 programmes of work. Whilst during the last 18 months they have faced many challenges, including Covid, the inevitable upturn is finally starting to arrive.

However, after falling a little short of our 2021 revenue budget we have set a realistic **£285m for 2022**, about 17% up on our 2021 result. Our forward pipeline supports a forecast that already exceeds this budget, with 70% secured work and a further 20% likely to be allocated under our existing frameworks.

Forecasting growth

We are **forecasting growth** in nearly all our water frameworks. Thames Water stands out as the area where project pricing and design work undertaken in 2021 will strongly translate through to construction sites in 2022 and we will establish ourselves as an important supplier in the Thames Valley. No less impressive, we are also expecting growth of more than 25% in Northumbrian Water, Yorkshire Water and Anglian Water.

After having successfully delivered many large projects in AMP6, I was pleased to see us recently sign a **£30m+ contract with Severn Trent at Newthorpe sewage works**, near Nottingham. This work will be on site by the second half of 2022. We are tracking similar large water opportunities, as well as flood defence projects for the Environment Agency.

On a smaller scale, having delivered highway projects in Cumbria and Wales, and winning new frameworks in Lincolnshire and Yorkshire, I expect to see us **build our portfolio of highway civil engineering projects**. Successful delivery brings repeat business and shows prospective new clients what we can do.

Commitment to carbon

Our commitment in 2021 to net zero carbon coincided with the UK hosting COP26. Whilst the journey will not be a quick one, expect to see our Carbon Working Group co-ordinating actions across both support and operations to help **remove carbon from the way we work** and from the projects that we design and build. This will include phasing in the adoption of HVO fuel to replace red diesel.

Nature based solutions

Alongside climate change, loss of biodiversity is also receiving significant recognition, and **'biodiversity net gain'** requirements will feature in some of our future projects. We

have also been interested to see Ofwat reference 'nature based solutions' in their AMP8 forward guidance. Having started work on an 'integrated constructed wetland' at Cinderford in Gloucestershire we should expect to see more of this in 2022 and beyond – examples include wetlands, river restoration, and wastewater treatment processes that use fewer chemicals. These new and evolving approaches will require us to draw upon the knowledge and innovation that resides within our Practices.

Successful delivery brings repeat business and shows prospective new clients what we can do.

Digital construction

Whilst many of us are rapidly improving our digital skills, 2022 will see the MMBC Region engage with a Mott MacDonald Group led **digital literacy** programme aimed at ensuring no-one is left behind. We will add our own emphasis on this, focusing on digital construction. I hope to see sites making informed technology choices, thereby improving delivery efficiency.

All of this aligns with our **Mott MacDonald Group Purpose** – to improve society by considering social outcomes in everything we do, relentlessly focusing on excellence and digital innovation, transforming our clients' businesses, our communities and employee opportunities.

Once again, thank you for all your hard work, it's through great delivery that we can prove our value to clients and win future work.

S. Tetlow

Steve Tetlow
Bidding and Strategy Director



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