

# **Sustainability & Environmental Management Report 2021-22**

July 2023

[www.jbagroup.co.uk](http://www.jbagroup.co.uk)

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## Carbon Footprint

JBA is committed to championing sustainability and has made The Ten Principles of the UN Global Compact part of its culture and operations. We have a Group-wide objective to be a Net Zero carbon emissions business.

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# Contents

<b>1</b>	<b>About JBA Group</b>	<b>2</b>
1.1	Who we are	2
1.2	What we do	3
1.3	Our culture	3
1.4	Our policies	4
<b>2</b>	<b>Our contribution to the UN Sustainable Development Goals</b>	<b>5</b>
2.1	Sustainable Development Goals	5
2.2	How we contribute	5
<b>3</b>	<b>Performance against our environmental management objectives</b>	<b>8</b>
3.1	EMS Key Action: Assess and report JBA Group carbon emissions and emissions reduction measures	8
3.2	EMS Key Action: Improve the environmental and sustainability performance of our work for clients	19
3.3	EMS Key Action: Influence our stakeholders to deliver best practices and outcomes for the environment and sustainability	26
<b>4</b>	<b>Sustainability achievements beyond our EMS Key Actions</b>	<b>37</b>
4.1	Sustainable operations	37
4.2	JBA community	40
<b>5</b>	<b>Environmental objectives and actions for the year ahead</b>	<b>42</b>

## List of Figures

Figure 1: Core services provided by JBA Group companies	3
Figure 2: JBA Group carbon footprint 2021-22	9
Figure 3: JBA Group science-based net zero emissions reduction target	11
Figure 4: Per capita paper consumption at our offices and across the JBA Group	14
Figure 5: Per capita business waste at each JBA office and across the JBA Group	15
Figure 6: Per capita energy use at each monitored office and across the JBA Group	17

Figure 7: Per capita GHG emissions from business travel at each JBA office	19
Figure 8: View of the River Humber near South Ferriby	22
Figure 9: Restored calaminarian grassland at Garrigill	23
Figure 10: Construction of the Lincoln Defences project	24
Figure 11: JBA Consulting e-learning portal	25
Figure 12: Aerial image of the Riverlands Project site on the Holnicote Estate	26
Figure 13: Design proposals for the living shoreline	27
Figure 14: Green-blue infrastructure corridor under construction in 2022	28
Figure 15: Habitat map of the Port Clarence project area	29
Figure 16: Study findings summarising the benefits identified for the Great Ouse catchment	30
Figure 17: Montrose dune system	31
Figure 18: Study site in the John Oxley Reserve	32
Figure 19: Drilling of a groundwater abstraction borehole at The Cairn	33
Figure 20: Mapping of environmental opportunities at Chas Moss	34

## List of Tables

Table 1: Summary of the performance of the JBA Group in 2021-22	1
Table 2: JBA Group core business objectives	4
Table 3: Central aims of our Sustainability & Environmental Management policy	4
Table 4: UN SDGs of most relevance to the work undertaken by the JBA Group	6
Table 5: JBA Group GHG emissions (tCO <sub>2</sub> e) 2021-22	10
Table 6: JBA Carbon Cutting Priorities to meet our net zero objective	12
Table 7: Paper use (in kg) at our offices in 2021-22	14
Table 8: Waste generation and disposal at our offices in 2021-22	15
Table 9: Water consumption at our offices in 2021-22	16
Table 10: Energy consumption at our offices in 2021-22	16
Table 11: Business travel across all relevant modes of transport in 2021-22	18
Table 12: Environmental objectives, key actions and intended outcomes for 2022-23	42

## Abbreviations

BNG .....	Biodiversity Net Gain
CEEQUAL .....	Sustainability rating scheme for infrastructure projects
CIEEM.....	Chartered Institute of Ecology and Environmental Management
CO <sub>2</sub> e.....	Carbon dioxide (CO <sub>2</sub> ) equivalent
CSR .....	Corporate Social Responsibility
Defra .....	Department for Environment, Food and Rural Affairs
EA .....	Environment Agency
EDI .....	Equality, Diversity, and Inclusion
EIA .....	Environmental Impact Assessment
EMS .....	Environmental Management System
FCERM .....	Flood & Coastal Erosion Risk Management
FTE .....	Full time equivalent
GHG .....	Greenhouse gas
IEMA .....	Institute of Environmental Management and Assessment
ISO.....	International Standards Organisation
JBA .....	JBA Group Limited
JBAB .....	JBA Bentley
JBP .....	Jeremy Benn Pacific
KWh .....	Kilowatt hours
MMA.....	Mekong Modelling Associates
NFM .....	Natural Flood Management
QMS.....	Quality Management System
SBTi .....	Science Based Targets initiative
SDG .....	Sustainable Development Goal
STEM .....	Science, Technology, Engineering, and Maths
UN .....	United Nations
WFD.....	Water Framework Directive
WWNP .....	Working With Natural Processes

# JBA sustainability in 2021-22 at a glance

Table 1: Summary of the performance of the JBA Group in 2021-22

People and culture	Environmental performance	Services
Average no. of employees* 888 (+119)	Business miles travelled 1,443,596 (+69%)	No. of new external projects 1,504 (+21)
Average FTE employees* 799 (+99)	Measured energy consumed in our offices 848,197 (+3.2%)	No. of clients commissioning new external projects** 830 (+220)
No. of new graduates 45 (-10)	Measured office energy from renewable sources 75% (+6%)	No. of internal project quality audits undertaken 82 (+30)
Employee gender split* 57.9 / 42.1 (% male / female)	Paper consumption 906kg (+2.5%)	No. of approved suppliers 484 (-43)
Gender split (Associate Director level & above)* 77.1 / 22.9 (% male / female)	% waste recycled 46% (-31%)	% approved sole trader and SME suppliers 85.6% (+11.4%)
Gender split (divisional managers)* 84.2 / 15.8 (% male / female)	No. of environmental incidents, near misses or observations reported 37 (+14)	% suppliers given Good or Exceptional scores for environmental performance 98% (-2%)
Hours of formal training completed 17,340 hours (+1,070 hours)	Carbon footprint 3,847 tCO <sub>2</sub> e	No. of industry environmental awards 4 (+2)
No. of chartered professionals 173 (+15)	Per capita carbon footprint (market-based) 4.71 tCO <sub>2</sub> e	No. of live internal R&D projects 21
No. of employees qualifying for low carbon commuting environmental reward 214	No. of internal office environmental audits conducted 24 (+13)	No. of permanent apprenticeships 29 (+6)

Comparison with 2020-21 year shown in brackets where applicable; \*as of 31 October 2022; \*\*different regions within national public sector clients counted as separate clients.

# 1 About JBA Group

## 1.1 Who we are

JBA is an environmental, engineering, and risk management group focused on helping improve the environment, business, and infrastructure. We started operating in 1995 with the purpose of creating a specialist consultancy offering an inter-disciplinary approach to our clients. In 2011, JBA restructured to form a new group of companies, the **JBA Group**, enabling us to focus on our specialist skills and expertise. Since then, the JBA Group has continued to expand and thrive, and today consists of 10 businesses employing over 880 staff in 24 offices in the UK, Ireland, Romania, Australia, Singapore, and Cambodia.



**JBA Consulting** is the original multi-disciplinary consulting business established by Jeremy Benn in 1995. It has grown to be one of Europe's leading specialists in environmental engineering and management, delivering major studies for national governments and international and national bodies including the European Investment Bank, European Commission, Defra, Environment Agency (EA), and Network Rail. JBA Consulting has formed several subsidiary companies, including JBA Isle of Man, JBA Pacific, located in Brisbane, Australia, and **JBA Bentley** (JBAB), a joint venture with the contractor JN Bentley providing integrated engineering design and build services to the EA as a framework supplier on its Flood and Coastal Erosion Risk Management (FCERM) Central Hub frameworks.



Established in 2011, **JBA Risk Management** is a global leader in flood risk management. Known as The Flood People®, their flood maps, catastrophe models and analytics are used by some of the world's largest insurers, reinsurers, financial institutions, property companies, and governments. They're experts in translating complex, scientific data to provide cutting-edge flood risk intelligence. JBA Risk Management has formed several subsidiary companies in Singapore and California, USA, enabling it to offer services at a global scale and deliver projects in Europe, Central and South-East Asia, Africa, and South America.



**JBA Consulting Engineers & Scientists (Ireland)** was established in 2007 and is a leading flood management, environmental, water, and engineering consultancy. Operating nationwide from its offices in Limerick and Dublin, as well as in Northern Ireland, the rest of the UK and internationally, the company has a growing presence in Eastern Europe, through its subsidiary company **JBA Consult Europe**, based in Bucharest, Romania.



**Jeremy Benn Pacific** (JBP) was formed in 2016 with a focus on increasing community resilience to natural disasters – floods, cyclones, typhoons, storm tides, and erosion. The company works throughout Australia, the Pacific, and world-wide, delivering projects for local authorities, government departments, and international agencies including the World Bank and Asian Development Bank.





**Mekong Modelling Associates** (MMA) is JBA Group's operating company in Cambodia. Based in Phnom Penh, MMA delivers a range of climate change adaptation and transboundary flood risk and water management projects for public and private sector clients throughout SE Asia.



In 2011, JBA Group created the independent charity, **JBA Trust**, with the purpose to support research and the development of knowledge and skills in environmental risk management, and in the water environment in particular.

Working with leading academic researchers, NGOs, other charities, and the JBA Group companies, the Trust provides training and education in schools and supports post-graduate education through placements, internships, and financial bursaries

## 1.2 What we do

JBA Group is a family of companies, respected by our clients for providing expertise in flood risk management and modelling, engineering, and environmental and water management. We are scientists, engineers, hydrologists, environmental and risk managers, surveyors, ecologists, archaeologists, landscape architects, project managers, software developers, mathematicians, modellers, economists, and more.



Figure 1: Core services provided by JBA Group companies

## 1.3 Our culture

Our culture drives our business objectives, our behaviours, and the quality of the services we deliver. It's our core aim to have a positive impact on our staff, client, suppliers, and the local communities and environments in which we work. To achieve this, we've set Group-wide objectives and we continually measure our progress against these objectives.



Table 2: JBA Group core business objectives

✓	We are committed to providing high quality services that meet or exceed the expectations of our clients.
✓	We proactively manage the health, safety, and welfare of JBA employees, suppliers, and visitors across all areas of our business activities, and we require our suppliers and partners to do the same.
✓	We comply with the highest relevant and ethical standards and maintain our systems to minimise the occurrence and impact of any security incidents.
✓	We continuously strive to improve our environmental performance and reduce the environmental impacts of our business.
✓	We use our consumer power to reward suppliers who support our objectives, share our business values, and deliver excellence.

## 1.4 Our policies

Our policies define how we operate, our aims, and how we apply our business values, objectives, and behaviours. Our policies set our expectations, help ensure legal compliance, demonstrate our responsibilities, and keep us accountable. Our [Sustainability and Environmental Management](#) policy sets out our commitment to integrate the principles of sustainability in our practices, operations, and business planning. It commits us to applying a principles-based approach to business, incorporating [The Ten Principles of the UN Global Compact](#) and promoting the [UN Sustainable Development Goals](#) (SDGs).

Table 3: Central aims of our Sustainability & Environmental Management policy

✓	Taking all reasonable measures to minimise the environmental impacts of our operations and activities and ensuring our use of natural resources is sustainable and environmentally responsible.
✓	Working progressively to improve the sustainability of our business practices and being fully accountable for the environmental impacts of our operations.
✓	Effectively engaging with our staff, clients, and suppliers to promote environmental sustainability and proactively sharing good practices.
✓	Taking meaningful action to minimise our climate impacts, with the objective of being a net zero GHG emissions business.
✓	Adopting a circular economy model and promoting the principles of a circular economy in our services and in the goods and services we use.
✓	Applying sustainability as a positive choice and prioritising suppliers who support our sustainability objectives.
✓	Complying with all legislation, standards, statutory and other obligations, and best practices relevant to our activities in the jurisdictions in which we operate.
✓	Continually improving our Environmental Management System (EMS) so that, as a minimum, it satisfies the requirements of the ISO-14001 standard.

## 2 Our contribution to the UN Sustainable Development Goals



### 2.1 Sustainable Development Goals

Launched by the United Nations (UN) in 2015, the 17 [Sustainable Development Goals](#) (SDGs) and 169 associated targets form a framework through which society can achieve a “*better and more sustainable future for all*”. These inter-linked goals include a breadth of social, economic, and environmental themes, including water, energy, climate, poverty, equality, education, industry, and health and wellbeing, and define the global sustainable development priorities and aspirations for 2030.

Our Sustainability and Environmental Management Policy sets out our commitment to integrate the principles of sustainability in our practices, operations, and business planning. It commits us to applying a principles-based approach to business, incorporating The Ten Principles of the UN Global Compact, and actively promoting the SDGs.

The SDGs define a common framework of action and encourage businesses to “*reduce their negative impacts while enhancing their positive contribution to the sustainable development agenda*.” The UN recognises that not all 17 SDGs are equally relevant to a company and the extent that a company can contribute to each goal depends on a wide range of factors. Whilst we support all of the SDGs and seek ways to contribute to as many as possible, several of the goals are more directly relevant to the work we do. We focus on these goals more often because we can most directly influence the positive and negative impacts our business activities have on these SDGs.

### 2.2 How we contribute

Through our operations and project-related activities that we deliver on behalf of clients, we contribute directly to several typically of the UN goals as summarised in Table 4. Section 3.3 showcases a small selection of the projects we’ve delivered during the past year and highlights how these projects have contributed to the SDGs.

Table 4: UN SDGs of most relevance to the work undertaken by the JBA Group

	<p><b>Good health and wellbeing</b> – The principal aim of this goal, to “<i>ensure healthy lives and promote well-being for all</i>”, is central to how we operate. We aim to create “<i>a safe and healthy working environment</i>” and we measure our progress against this objective through our ISO-45001 certified Health &amp; Safety Management standard. We understand that work can have a big impact on staff wellbeing and this can affect their health. We take a proactive approach so that working with JBA is a positive influence on the wellbeing of all staff, and we help staff achieve a healthy work/life balance.</p>
	<p><b>Gender equality</b> – Providing equal opportunities to all is important to us. We want all of our staff members to be able to contribute to the best of their capacity, and we believe we can achieve this if everyone is included, respected, valued, and supported. Over the past few years, we’ve made important changes to strengthen our policies and practices to promote gender equality and the empowerment of women. We’ve sought to improve our understanding of the obstacles to progression for women and to take action to address any such obstacles in JBA. We promote female innovators and we actively support initiatives such as <a href="#">International Women's Day</a> and <a href="#">Women in FCERM</a>.</p>
	<p><b>Clean water and sanitation</b> – Much of the work we do is directly related to sustainable water management. We are experts in flood risk, water supply and resources, reservoir management, and river and wetland habitat restoration, with the quality of our work recognised internationally. We work extensively for the EA, local flood risk authorities, water supply companies, and Internal Drainage Boards (IDBs), supporting their flood risk and water management programmes through our integrated engineering, modelling, and environmental project teams. Our work focuses on increasing resilience, promoting sustainable water supply and management, reducing pollution, and protecting and enhancing water-related ecosystems.</p>
	<p><b>Industry, innovation and infrastructure</b> – We contribute to the delivery of major public flood defence, water management, and transportation projects in the UK and internationally. We’ve been a national framework consultant to the EA since 1999 and the only consultant appointed to national flood management frameworks in each of the UK devolved administrations, Isle of Man, and Republic of Ireland. Our work helps improve quality of life by reducing flood risk and improving water management and quality.</p>
	<p><b>Sustainable cities and communities</b> – As a specialist in flood risk, water resources, and environmental management, the goal to “<i>Make cities and human settlements inclusive, safe, resilient and sustainable</i>” is embedded across our business. Our project teams support clients to develop sustainable solutions that increase community and environmental resilience, promote inclusivity and safety, and protect cultural and natural heritage.</p>



**Climate action** – We recognise that we’re in a climate and ecological emergency and the need to take meaningful action to minimise our climate impacts. We published our first carbon emissions reduction plan in 2007 and have held ISO-14001 certification since 2009, with the aim to continually reduce our carbon emissions. We’ve a Group-wide objective to achieve net zero GHG emissions and have committed to setting science-based emissions reduction targets through the [Science Based Targets initiative](#) (SBTi), aligned with what is needed to limit global warming to 1.5°C. We published our [Net Zero Route Map](#) in Spring 2022, setting out the actions we will take to achieve this objective.



**Life below water** – the health of marine ecosystems is fundamental to human society and achieving sustainable marine resource use is a key target of the SDGs. Coastal risk management is a core service we provide, and our multi-disciplinary teams of specialist coastal engineers and environmental scientists deliver high-profile coastal and maritime projects both nationally and internationally. We’re increasingly applying nature-based solutions to increase community resilience to climate change and flood risk, which work with nature and natural processes to achieve both societal and environmental benefits.



**Life on land** – Natural capital constitutes the various elements of the natural world, including soils, water, and all living things. When viewing the world through a natural capital lens, nature is seen as an asset that delivers benefits to society. The natural capital lens helps us identify our fundamental dependencies on the natural world and also helps us to see nature as a benefit rather than an obstacle to development. Our work helps our clients understand the value of natural assets and the dependencies and impacts they have on natural capital, and we actively promote ways they can work with nature to maximise the benefits.

Within our operations, we take all reasonable measures to minimise our environmental impacts and we aim to ensure our use of natural resources is sustainable and environmentally responsible. We work progressively to improve the sustainability of our business practices and are fully accountable for the impacts of our operations.

## 3 Performance against our environmental management objectives

### 3.1 EMS Key Action: Assess and report JBA Group carbon emissions and emissions reduction measures

It's our ambition to achieve net zero greenhouse gas (GHG) emissions across the JBA Group by 2040 (see Section 3.1.3 for more information on our net zero objective). We're committed to measuring and publicly disclosing our emissions. This includes all relevant emissions, including our direct and indirect (within JBA's 'value chain') emissions.


We've calculated the full JBA Group carbon footprint for our 2021-22 year. This represents the 'base year' for the purposes of our net zero GHG emissions objective and associated science-based emissions reduction targets. We apply the operational control approach to our footprint assessment, meaning that we account for 100% of the emissions from operations over which we have operational control. The assessment includes emissions from all companies within the JBA Group.

For measuring and reporting on our GHGs, we follow best practice methodologies set out by the [Greenhouse Gas Protocol](#). Our assessment utilises available data and applies published methodologies where estimation has been required. Data limitations influenced many aspects of the assessment, requiring estimations with varying confidence levels. Substantial estimation was required for several significant emissions sources, including emissions from the goods and services we purchased and emissions from employee commuting and homeworking.


In-line with good practice, the 2021-22 footprint assessment is not considered to be 'final' and we'll continually review and refine the assessment as required in the future to take account of improved data quality and better assessment tools and methodologies.

#### 3.1.1 Assessment method


Wherever possible, the assessment has followed recognised good practice guidance – [GHG Protocol Corporate Standard](#) and [GHG Protocol Corporate Value Chain \(Scope 3\) Standard](#). The assessment considered a wide range of emissions sources organised under three groups or 'scopes':

- 
-  Scope 1: Emissions from the consumption of office gas and pool car fuel

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  -  Scope 2: Emissions from the generation of electricity consumed in our offices

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  -  Scope 3: All other emissions not directly controlled by JBA

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Scope 2 emissions were assessed using both the 'market-based' and 'location-based' methods. The 'market-based' method takes account of the lower GHG emissions from the



renewable electricity supply to several JBA offices, whilst the 'location-based' method applies UK grid-average emissions to all office electricity consumed. Both footprint estimates are reported here.

All relevant Scope 3 categories were assessed, including emissions from use of sub-consultants, purchased office supplies, company assets, business travel, overnight accommodation and subsistence, waste disposal, and staff commuting and homeworking. Staff commuting emissions were based on office average emissions estimated from responses to a staff survey undertaken in October-November 2022.

UK emissions conversion factors were typically used to assess emissions from non-UK JBA operations due to lack of readily available overseas conversion factors.

### 3.1.2 Results summary

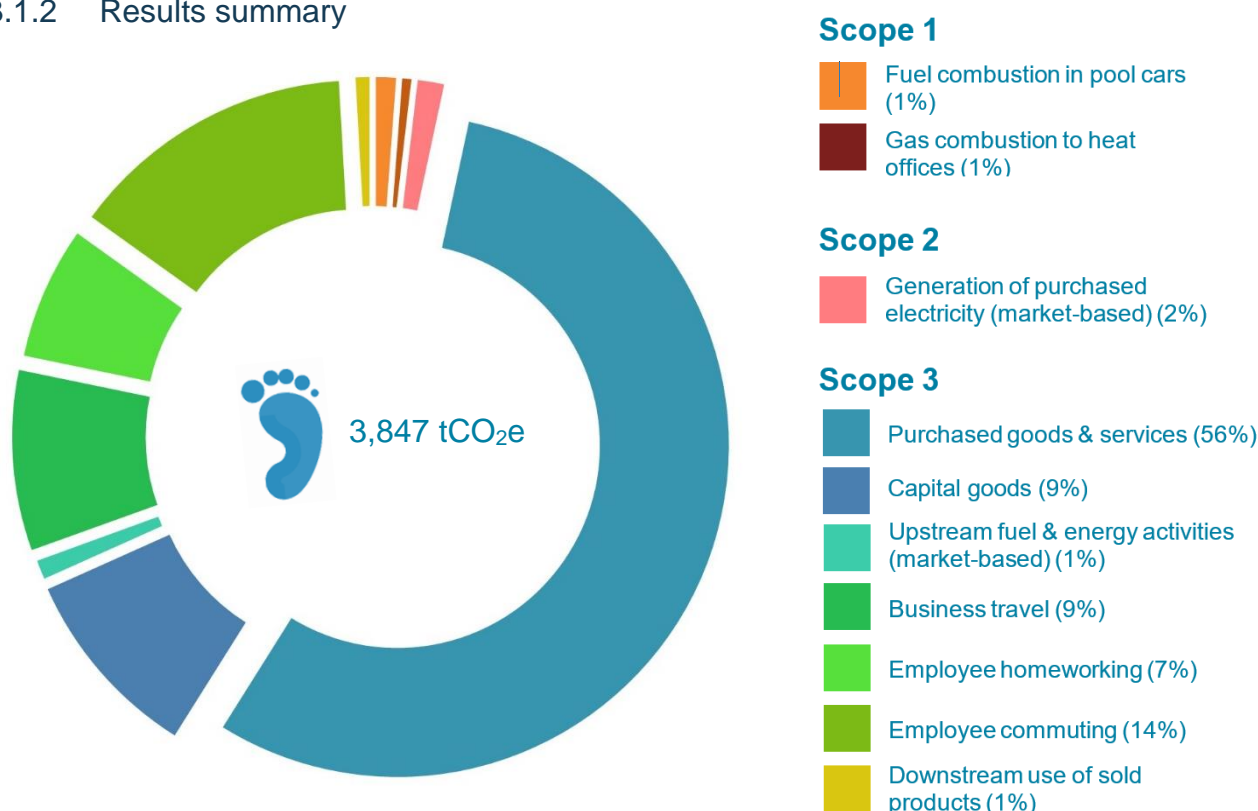


Figure 2: JBA Group carbon footprint 2021-22

Scope 1 emissions from the combustion of diesel in our pool cars and gas in our offices for heating accounted for 1.9% of our carbon footprint in 2021-22. Scope 2 emissions from the generation of electricity consumed at our offices represented approximately 1.5% of our footprint using the market-based method and 4.5% using the location-based method.

In relation to our Scope 3 emissions, emissions from goods and services we purchased accounted for around 56% of our total carbon footprint. Other significant Scope 3 emissions sources included employee commuting (14.2%), purchased capital goods (9.4%), business travel (8.7%), and employee homeworking (6.7%).

The main emissions sources within the purchased goods and services category were from use of sub-consultants (65.2%), office supplies (7.7%), IT software (6.7%), accommodation and food (4.7%), and insurance (1.5%). The main sources of emissions from Scope 3 business travel comprised private cars (39.8%), hire cars (29.7%), air travel (24.2%), and public transport (5.7%).

Table 5: JBA Group GHG emissions (tCO<sub>2</sub>e) 2021-22

Scope	Emissions category	Emissions source	Emissions (tCO <sub>2</sub> e)
Scope 1	Direct GHG emissions	Fuel combustion in JBA vehicles	46.0
Scope 1	Direct GHG emissions	Gas combustion in JBA offices	25.4
Scope 2	Electricity GHG emissions	Purchased electricity (market-based)	57.8
Scope 2	<i>Electricity GHG emissions</i>	<i>Purchased electricity (location-based)</i>	<i>186.2</i>
Scope 3	Other indirect emissions	Purchased goods & services	2,137.9
Scope 3	Other indirect emissions	Purchased capital goods	360.4
Scope 3	Other indirect emissions	Fuel & energy activities (market-based)	44.3
Scope 3	Other indirect emissions	<i>Fuel &amp; energy activities (location-based)</i>	<i>76.3</i>
Scope 3	Other indirect emissions	Waste disposal	1.7
Scope 3	Other indirect emissions	Water treatment & disposal	0.6
Scope 3	Other indirect emissions	<i>Business travel: hire car</i>	<i>99.5</i>
Scope 3	Other indirect emissions	<i>Business travel: private car</i>	<i>133.6</i>
Scope 3	Other indirect emissions	<i>Business travel: taxi</i>	<i>1.9</i>
Scope 3	Other indirect emissions	<i>Business travel: train</i>	<i>18.0</i>
Scope 3	Other indirect emissions	<i>Business travel: bus/coach</i>	<i>0.3</i>
Scope 3	Other indirect emissions	<i>Business travel: aeroplane</i>	<i>81.3</i>
Scope 3	Other indirect emissions	Business travel (combined)	335.5
Scope 3	Other indirect emissions	Employee homeworking	256.5
Scope 3	Other indirect emissions	Employee commuting	546.5
Scope 3	Other indirect emissions	Downstream use of sold products	34.4
Scope 3	Other indirect emissions	Removal of emissions double-counting*	197.5
<b>Total</b>	<b>Total emissions</b>	<b>Market-based</b>	<b>3,847</b>
<i>Total</i>	<i>Total emissions</i>	<i>Location-based</i>	<i>4,008</i>
<b>Total</b>	<b>Total per capita emissions</b>	<b>Per capita emissions</b>	<b>4.71</b>

\* These emissions are from work undertaken by one JBA operating company for another JBA operating company and have already been accounted for in the footprint assessment.



### 3.1.3 JBA Group Net Zero Objective

We're committed to taking meaningful action to minimise our climate impacts and have a group-wide objective to be a net zero greenhouse gas emissions business by 2040 at the latest. Our goal now is to reduce our emissions as far and as fast as we reasonably can and get as close to zero emissions as possible.

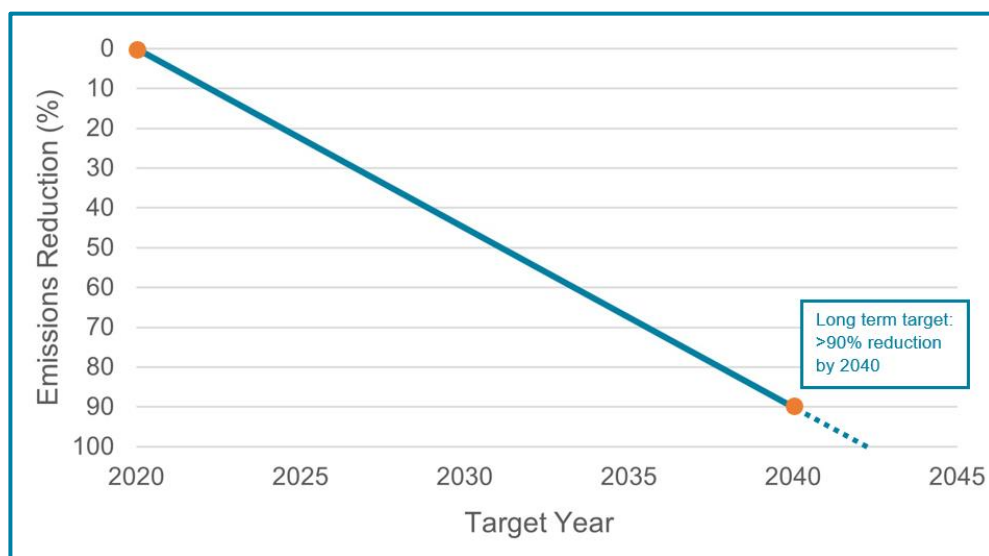


Figure 3: JBA Group science-based net zero emissions reduction target

To ensure our approach is robust, we've committed to establishing a science-based net zero emissions reduction target with the SBTi. Joining the SBTi helps ensure that our approach to reducing our emissions is aligned with what climate science says is needed to keep global warming below 1.5°C.

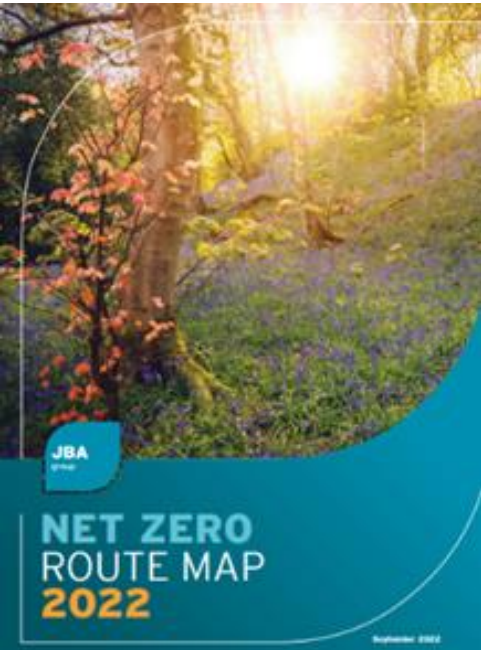
To meet the SBTi criteria, we need to cut our emissions by at least 90% by 2050 compared to our 2021-22 baseline year. However, we've set ourselves a more ambitious target: to reduce emissions by at least 90% by 2040 at the latest. Our net zero target is:

*"JBA Group is committed to achieving its science-based GHG emissions reduction target aligned with limiting global warming to 1.5°C and will achieve Net Zero GHG emissions no later than 2040."*

To help us achieve it, we've developed a set of near-term science-based targets, aimed at making deep cuts in our emissions by 2030. Our near-term targets are:

- JBA commits to reduce absolute scope 1 and 2 GHG emissions 90% by 2030 from a 2021-22 base year.
- JBA commits to reduce absolute scope 3 emissions from business travel 65% by 2030 from a 2021-22 base year.
- JBA commits to reduce absolute scope 3 emissions from employee commuting 50% by 2030 from a 2021-22 base year.
- JBA commits that 75% of its suppliers by spend covering purchased goods and services and capital goods will have science-based targets by 2027.

### 3.1.4 Net Zero Route Map



In September 2022, we published our JBA Group Net Zero Route Map, which sets out the actions we'll take to help achieve our ambitious objective to become a net zero GHG emissions business.

The Route Map and supporting Action Plan include a broad, integrated suite of actions – new procedures, initiatives, and investigations – that target all aspects of our business and operations, focussing on 10 key 'Carbon Cutting Priorities' that represent the key steps we need to take to reach net zero.

Cutting our emissions to zero will require everyone at JBA to work differently, making low carbon a positive choice that informs everything we do. This will include actions focused on supporting our staff to adopt low-carbon thinking and behaviours, embedding carbon reduction in our business planning and decision-

making, reducing waste and emissions from our offices, business travel, and staff homeworking and commuting, cutting emissions from the goods and services we buy, encouraging and supporting our suppliers to decarbonise, and embedding low carbon in the projects we deliver for our clients.

Our Route Map and Action Plan are important steps on our journey to net zero. However, we know we don't yet have all the solutions, so our Route Map is flexible. We'll continuously refine and expand our Action Plan as needed to ensure our efforts stay on track. We also want to learn from what others are doing, tapping into good ideas and new practices, whilst communicating what we're doing so others can learn from us.

Table 6: JBA Carbon Cutting Priorities to meet our net zero objective

	<p><b>Cultivate a carbon conscious culture</b></p>	<p>We will provide new information, guidance, tools, and procedures to help staff embed low carbon thinking in their daily decision-making and will make low carbon a top priority for all our operations and business planning.</p>
	<p><b>Powered by renewable energy</b></p>	<p>We will collaborate with our landlords to agree 100% renewable energy contracts for all of our offices.</p>



#### Energy efficient offices

We will minimise our energy use, increase the energy efficiency of our office spaces, and seek opportunities to generate our own energy.



#### Buy less and buy better

We will minimise what we buy and ensure that what we do buy is more sustainable, prioritising products with a low environmental and climate impact and products that meet circular economy principles, minimising waste and the use of raw materials, energy, and other resources.



#### Cut carbon from our supply chains

We will encourage and support our suppliers to set their own science-based emissions reduction targets and will prioritise suppliers who are committed to taking meaningful action to minimise their climate impacts.



#### Prioritise low carbon business services

We will choose business service providers – including insurance, financial, telecoms, IT equipment, and couriers – who have robust science-based emission reduction targets.



#### Zero waste offices

We will take steps to minimise the waste we produce, by buying less and buying better, and will recycle everything that remains so that we achieve zero waste to landfill at all of our offices.



#### Ultra-low emissions travel

We will put in place a range of new initiatives so that our land-based business travel is by public transport or ultra-low emissions vehicles and will take steps to further discourage air travel.



#### Cut carbon from commuting and agile working

We will provide practical advice, guidance, and other support to help staff to reduce emissions from commuting and agile working.



#### Deliver low carbon projects

We will further embed low carbon thinking in our projects, prioritising local delivery, promoting low carbon and circular economy design principles, and encouraging low carbon innovation.

### 3.1.5 Monitor and report paper use, business waste, water use, metered energy use, and business travel

#### Office paper consumption

Table 7: Paper use (in kg) at our offices in 2021-22

JBA year	Virgin paper	Recycled paper	Total paper	Paper per capita	Change per capita	Recycled paper
2018-19	559	3,021	3,581	6.05	-23.4%	84.4%
2019-20	235	1,366	1,600	2.67	-55.9%	85.3%
2020-21	133	751	884	1.45	-45.7%	85.0%
2021-22	173	733	906	1.23	-15.2%	81.0%



In 2021-22, paper use increased very slightly (+2.5%) compared to our previous year. However, paper use remains substantially lower than earlier years. For example, paper use in 2021-22 was 47% lower than in 2019-20, representing a decrease of almost 700kg of paper. Our per capita paper use fell from 1.45kg per person in 2020-21 to 1.23kg last year, a reduction of almost 15%. This builds on reductions achieved in previous years: 10 years ago, our paper use was 14kg per person.

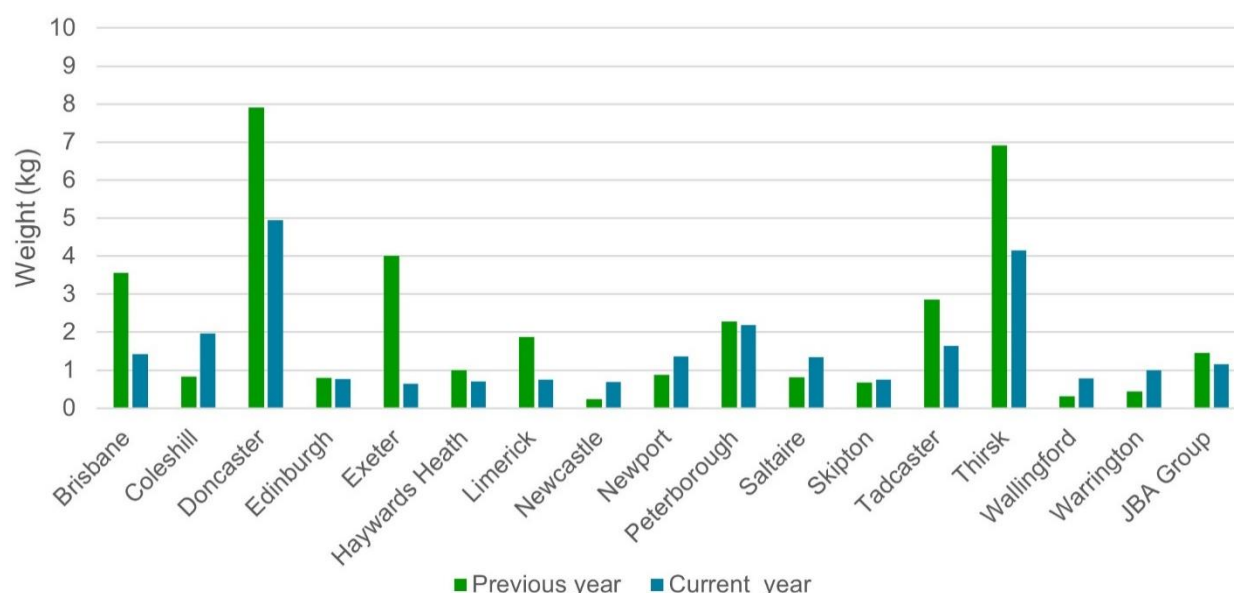


Figure 4: Per capita paper consumption at our offices and across the JBA Group

Figure 4 shows per capita paper use for the last two years at the offices where we can measure this. This shows the wide variation in paper use at our offices, reflecting different client requirements and types of projects we undertake. We encourage our clients to consider electronic documents only and updated our Terms & Conditions to reflect this.

## Business waste

Table 8: Waste generation and disposal at our offices in 2021-22

	Total	Total	Landfill	Landfill	Recycle	Recycle	Recycle
Year	Total (kg)	Per capita (kg)	Total (kg)	Per capita (kg)	Total (kg)	Per capita (kg)	Total (%)
2018-19	15,508	26.17	5,687	9.60	9,821	16.57	63%
2019-20	8,202	13.70	2,903	4.85	5,300	8.85	65%
2020-21	9,786	15.33	2,245	3.51	7,541	11.81	77%
2021-22	6,648	9.41	3,565	5.05	3,082	4.36	46%



We're able to monitor and record the waste we produce at most of our offices. We estimate our waste using a set of conversion factors devised several years ago based on the average weight of different waste types and different waste containers. This allows for comparisons between offices and years.

In 2021-22, our offices produced around 32% less waste than the previous year. This decrease is also reflected in our per capita value, which fell by almost 40%. This decrease was primarily due to abnormally high waste generation the previous year, driven by major refurbishment of one of our offices. However, the amount of waste we sent to landfill increased by almost 60% in 2021-22 and the proportion of recycled waste was at its lowest for several years, highlighting the need to renew our focus on promoting waste reduction and recycling across our offices.

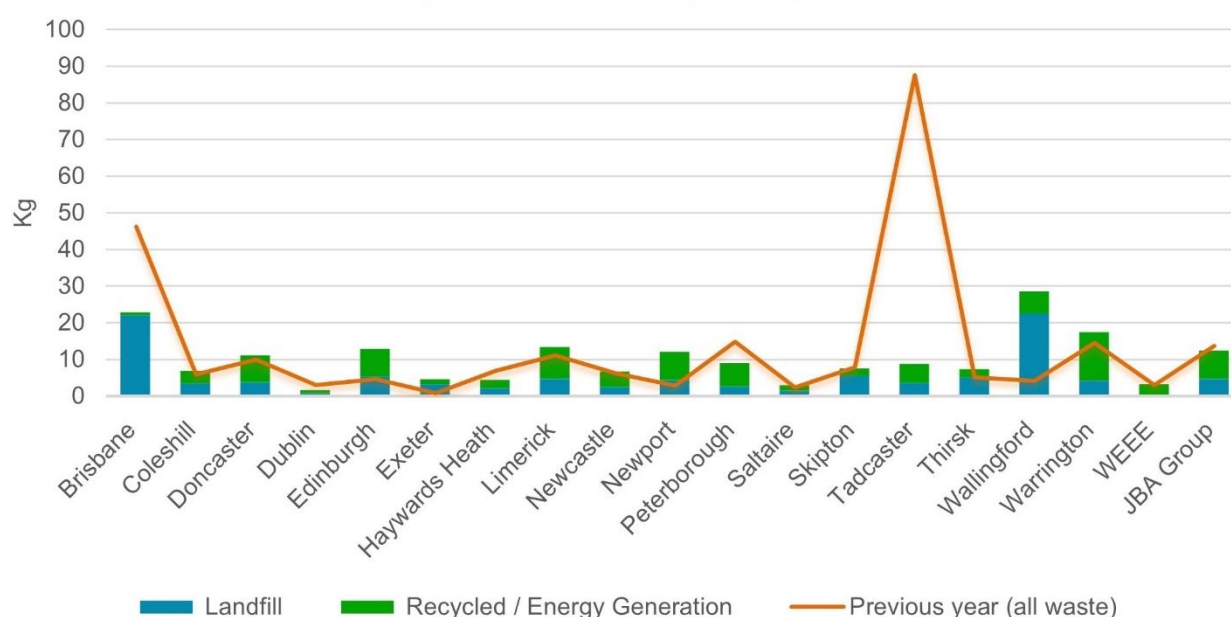


Figure 5: Per capita business waste at each JBA office and across the JBA Group

## Water consumption

Table 9: Water consumption at our offices in 2021-22

	2021-22	2020-21	2019-20	2018-19
Total water consumption (litres)	240,000	541,000	400,000	557,000
Per capita water consumption (litres)	1,880	4,412	4,530	6,202



We monitor water consumption at our offices where our water use is separately metered. Currently, this is only possible at our Doncaster, Edinburgh, Newport, and Tadcaster offices. The amount of water consumed in 2021-22 was substantially lower than that used in 2020-21, whilst per capita water use was also much lower, representing only 42% of the previous year's consumption. This significant fall in water consumption is largely due to abnormally high meter readings last year at one of our offices, which was due to a long-term leakage issue.

## Energy consumption

Table 10: Energy consumption at our offices in 2021-22

	2021-22	2020-21	2019-20	2018-19
No. offices directly monitored	11	11	14	14
No. offices with renewable electricity	7	6	7	7
Renewable electricity used (kWh)	635,235	568,667	525,089	779,751
Non-renewable electricity used (kWh)	165,617	186,618	247,941	310,492
Total electricity used (kWh)	784,008	755,285	773,029	1,090,243
Per capita electricity used (kWh)	1,266	1,381	1,718	2,434
Total gas used (kWh)	64,189	66,407	94,025	134,465
Per capita gas used (kWh)	809	874	930	1,293



We calculate our energy use at locations where JBA energy consumption is metered separately to that of other occupants. In 2021-22, we were able to directly monitor our energy consumption at 11 JBA offices. Seven of these offices benefit from a renewable electricity tariff and around 87% of our staff are based in these monitored offices.

In 2021-22, total electricity consumption at these monitored offices increased slightly (4.5%) compared to the previous year. However, per capita electricity consumption reduced (8%) compared to our 2020-21 year.



Total gas consumption at these offices reduced by 3% in 2021-22 compared to our previous year and this reduction was also reflected in our per capita figures, which showed a 4.5% decrease compared to the previous year.

By far the largest form of office energy is electricity and so it is important that we concentrate our efforts on managing our electricity consumption. Where we control the electricity contract for our office, we purchase electricity from certified 100% renewable sources. In 2021-22, this accounted for 81% of the electricity used at our monitored offices, an increase of 6% compared with the previous year. We purchased electricity from renewable sources for our offices at Doncaster, Limerick, Newport, Peterborough, Saltaire, Skipton, and Tadcaster.

Figure 6 compares the per capita energy consumption for both our 2021-22 and 2020-21 years at offices where JBA energy consumption can be directly monitored.

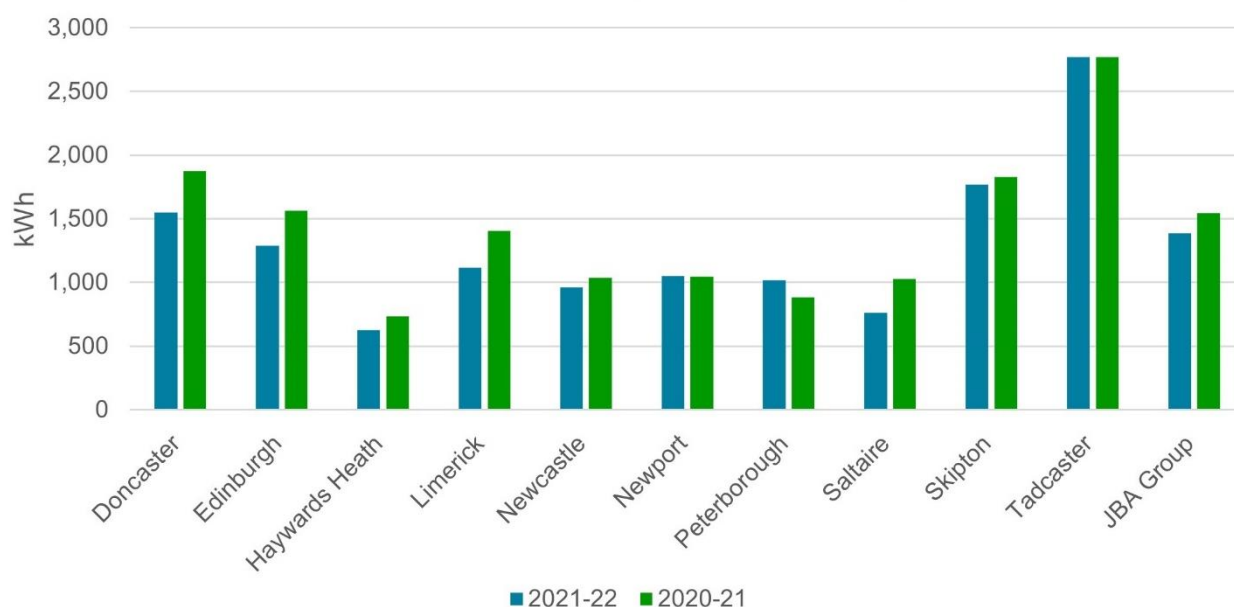


Figure 6: Per capita energy use at each monitored office and across the JBA Group

### Business travel



Table 11 provides a summary of annual business travel for the 2021-22 year and the previous three years using all relevant modes of transport. It shows that the overall number of miles travelled increased substantially in 2021-22. In 2021-22, JBA staff travelled approximately 68% more miles than in 2020-21; however, the number of miles travelled remained significantly lower (-40%) than in our 2018-19 year (the last full pre-Covid year and our peak year in terms of mileage travelled).



Table 11: Business travel across all relevant modes of transport in 2021-22

Transport mode	Miles 2021-22	Miles 2020-21	Miles 2019-20	Miles 2018-19
Hire Car	303,948	257,143	163,624	145,309
Rail	251,772	64,709	261,872	614,027
Bus/Coach	3,048	1,384	1,362	8,962
Taxi	4,517	1,264	5,138	12,060
Aeroplane	258,031	15,328	285,039	740,843
Pool/Company car (electric)	26,966	1,161	167	0
Pool/Company car (diesel)	206,360	143,728	155,096	226,246
Private car	385,023	368,927	275,799	330,046
Bicycle	20	168	62	127
Motorbike	0	20	65	194
Ferry	3,911	1,287	1,096	4,141
<b>Total</b>	<b>1,443,596</b>	<b>855,119</b>	<b>1,149,320</b>	<b>2,081,955</b>

Key points to note within these figures:

- Use of public transport (rail and bus/coach) has increased very significantly (+380%) in the last year.
- Air travel has also increased very significantly (+1,720%) in the last year, although air miles remain substantially below the miles travelled in 2018-19.
- The number of miles travelled in all forms of car transport increased last year. Total car mileage in 2021-22 was 922,297 miles, 150,000 miles more (+20%) than the previous year and significantly larger (+31%) than in 2018-19.
- Private car mileage exceeded both hire car and pool car mileage and is the largest private mileage value recorded since we started monitoring in 2009.
- The miles travelled by our pool car fleet also increased substantially (+60%) in the last year and is now similar to 2018-19 values.
- In 2021-22 we travelled almost 27,000 miles using our fully electric vehicles (EVs) located at our Skipton, Haywards Heath, Peterborough, and Newport offices; the majority of these miles were powered by renewable electricity.
- On a per capita basis, the number of miles travelled increased from 1,247 miles per person in 2020-21 to 1,863 miles per person in 2021-22, which represents an increase of around 49%; however, this figure remains substantially lower than the 3,510 miles per person travelled in 2018-19.

Figure 7 shows the per capita GHG emissions from business travel (all modes of transport) at each of our offices.

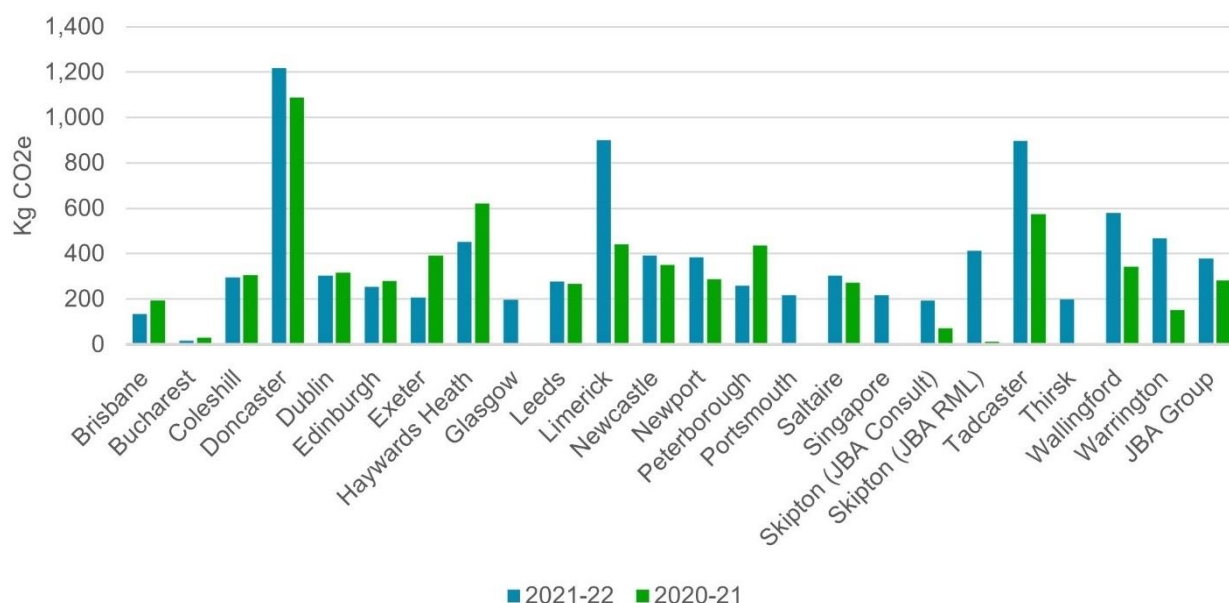


Figure 7: Per capita GHG emissions from business travel at each JBA office

We're committed to:

- Rigorously promoting our Travel Hierarchy guidance to minimise business travel and encourage the use of more sustainable modes of transport for essential travel;
- Making maximum use of virtual meetings and methods of communication;
- Supporting agile and flexible working; and
- Encouraging our clients to minimise project travel requirements.

### 3.2 EMS Key Action: Improve the environmental and sustainability performance of our work for clients

We work with many prominent clients across a wide range of service areas. We think and act like partners, not simply advisors, and we share our clients' aspirations and objectives. We have a responsibility to support our clients and help them improve their sustainability performance and we do this through the quality of the services and solutions we deliver.

This section provides a selection of examples of how we ensure we deliver high quality and help our clients to protect and enhance the environment.

### 3.2.1 Quality service delivery



The number and breadth of clients we work with continues to grow. In 2021-22, we delivered project work on behalf of over 830 clients across the JBA Group. This figure considers different regions or departments within national public sector organisations, such as the EA, as separate clients because their work is often independent and is commissioned through differing means. The number of new external projects we were commissioned to deliver again exceeded over 1,500 across the JBA Group.

To ensure we deliver consistent high-quality work for our clients, we maintain a Quality Management System (QMS) certified to the ISO 9001:2015 standard. Our QMS supports continual improvement in the efficiency and effectiveness of our operations to help us provide a service that meets or exceeds the expectations of our clients and interested parties and conforms to applicable statutory or regulatory requirements.

Our QMS is supported by a range of objectives and actions and we measure, monitor, and report on our performance against these objectives and actions each year. Our overarching quality objective is *“Consistent provision of high quality services, satisfied clients and a profitable, sustainable business.”*

We monitor our performance using a variety of means and we request client feedback each month against a range of key performance indicators (KPIs) and analyse responses received. We also regularly undertake internal project audits to review the operation and implementation of our QMS processes, and in 2021-22 we undertook 69 internal audits, 17 more than the previous year. Any non-conformities or improvement opportunities were translated into actions that were then monitored to ensure corrections were made, where necessary, or lessons learned for the future.

### 3.2.2 Environmental management accreditations

#### ISO-14001



We have been certified to ISO-14001 and its predecessor standards since 2008. This certification was renewed in 2022 following a successful external recertification audit. It confirms that our Environmental Management System (EMS) helps to enhance our environmental performance, fulfil our compliance obligations, and achieve our environmental objectives.

To help us ensure our EMS is achieving its intended outcomes and meeting our requirements, we undertook 24 internal EMS audits during 2022-23, 13 more than the previous year. These audits focused on the environmental performance of our offices and sought to test whether our EMS is effectively implemented, compliant with the ISO standard and other requirements, and is readily understood and applied throughout JBA.

The audit process is particularly important for identifying new opportunities to improve the environmental performance of our offices and contribute to our sustainability objectives. Many of these are recorded on our 'Sustainable Actions and Good Ideas Log', with priority actions then implemented across JBA

## Environmental Impact Assessments



Since 2018, JBA Consulting has been accredited with the Institute of Environmental Management and Assessment (IEMA) as an EIA Quality Mark organisation. The EIA Quality Mark is a scheme that enables organisations that lead the coordination of statutory EIAs in the UK to make a commitment to excellence in their EIA activities and have this independently reviewed. Our EIA teams support IEMA with best practice

case studies and provide training to the wider profession, as well as develop a suite of internal courses.

For projects requiring a statutory EIA, there is a legal requirement that the 'likely significant environmental effects' are reported by competent experts. Our Register of EIA Competent Experts identifies our EIA Coordinators and EIA Topic Specialists who have the depth of knowledge and experience required to produce and technically review EIA assessments.

2021-22 was a busy year for our EIA teams, who worked on several high profile statutory EIAs during this period. This included work on behalf of the Isles of Scilly Council to coordinate the EIA for proposed sea defence works on the islands of St Agnes, Bryher, and St Martin's as part of its ongoing Climate Adaptation Scilly project.

## Ecological Services



JBA Consulting has held Registered Practice accreditation with the Chartered Institute of Ecology and Environmental Management (CIEEM) since April 2020. CIEEM is the leading professional body representing ecologists and environmental managers across the UK and Ireland. It seeks to promote the highest standards of professional practice within the industry.

Registered Practices are champions of high professional standards and deliver the best outcomes for biodiversity. They're ambassadors in their field, helping to raise the profile of the profession by sharing expertise and supporting others to do more for our natural world.

Registered Practices are at the forefront of the environmental management profession. This is reflected in the busy and successful year our ecology teams had providing ecological survey and assessment advice to a wide range of clients.

## CEEQUAL

CEEQUAL is an evidence-based sustainability assessment, rating and awards scheme delivered by the Building Research Institute (BRE). Applying CEEQUAL improves the

quality and sustainable design and construction of civil engineering, infrastructure, landscaping, and public realm projects.

In 2021-22, we increased the number of CEEQUAL Assessors in JBA to five. The CEEQUAL team continued to support the EA by applying CEEQUAL to improve the sustainability of a range of large-scale coastal and fluvial flood risk management projects in the Southeast Hub on the Collaborative Development Framework (CDF). Working closely with EA staff, our Assessors coordinated the assessment process, identified and documented the evidence-base needed to support the CEEQUAL certification process, and liaised with BRE to ensure this work meets its rigorous evaluation and award requirements.

### 3.2.3 Recognising good practice

#### Constructing Excellence in Yorkshire and Humber (CEYH) 2022



Figure 8: View of the River Humber near South Ferriby

The JBA Bentley team based in Leeds were presented with the Highly Commended Award for Civil Engineering Project of the Year at the Constructing Excellence in Yorkshire and Humber (CEYH) Awards in July 2022 for the Witheringham Ings to South Ferriby Flood Alleviation Scheme. The aim of this EA project is to protect a total of 150 residential properties – plus a large CEMEX cement factory – from future potential tidal flooding from the River Humber. The area is both archaeologically and ecologically sensitive and is recognised as one of the most important estuaries in Europe for wildlife. Therefore, key to the success of this project was the close collaborative working between the JBA Bentley team and specialists at Natural England and Historic England, which was vital to ensure the work was carried out in such a way as to prevent disturbance to the local environment.





### CIEEM Awards 2022

In June 2022, JBA Consulting was shortlisted for two awards at the Chartered Institute of Ecology and Environmental Management (CIEEM) awards. This included Consultancy of the Year (medium) category and the Best Practice award for our work on small-scale mitigation for calaminarian grasslands in the North Pennine Moor mines, in partnership with JN Bentley Ltd, The Coal Authority, and the EA.



Figure 9: Restored calaminarian grassland at Garrigill

We've been working with the Coal Authority and the EA since 2017 on improving the ecological condition of several rivers in the North Pennines and reducing the impact of pollution from abandoned historic metal mines. The calaminarian grassland across the area contains rare species tolerant of high levels of heavy metal contamination. JBA Consulting's ecologists, working closely with JN Bentley engineers, the Coal Authority, and EA teams, supported the development of a design that retained the natural character of the area whilst maximising the areas of calaminarian grassland preserved. Annual monitoring of the calaminarian grassland has showed positive results and the project has successfully created new areas for the expansion of this rare and precious habitat to support local plants and wildlife.

### Institution of Civil Engineers East Midlands Merit Awards

In June 2022, JBA Bentley's Lincoln Defences team won best Medium Project Award 2022 at the Institution of Civil Engineers (ICE) East Midlands Merit Awards. The Lincoln Defences is a project to undertake a major upgrade of a system of walls, embankments, and water control structures that form the city's flood defences. The construction of the scheme was a challenging project, working in a constrained urban environment over a 3-year period and delivered through the Covid pandemic. Notwithstanding these challenges, as a result of this project, over 4,000 residential properties have now benefited from improved flood protection against a 1-in-100 year flood event.



Figure 10:  
Construction  
of the  
Lincoln  
Defences  
project

### Flood & Coast Excellence Awards 2022

JBA scored a double win at the Environment Agency's 2022 Flood & Coast Excellence Awards, with JBA Consulting winning the Climate Resilience Places category for the South West Property Flood Resilience Pathfinder project and JBAB winning the Low Carbon construction award for its Bentley Ings Pumping Station project.

*"The entire project team and everyone who worked on the South-West PFR Pathfinder are delighted to have won the Climate Resilient Places Award at this evening's Flood and Coast ceremony. It was a perfect illustration of effective collaboration and a one team partnership approach. And despite having to work remotely for much of the two years due to Covid, our award, I believe, recognises how all the outputs such as the BeFloodReady website and Climate Change Centre have provided the legacy that Defra and Environment Agency sought from the start. And our Aardman Animations 'Missy Tale' film provides a brilliant and engaging way to raise awareness of flood risk, highlighting how Property Flood Resilience can enable communities to adapt, respond and recover, enhancing their resilience to the impacts of climate change." [JBA Project Director, Peter May]*

#### 3.2.4 Environmental training

Throughout 2021-22, we continued to maintain, expand, and develop our suite of environmental e-learning modules. These are available to all JBA employees and are designed to raise awareness of environmental management risks and techniques, covering a broad range of sustainability and environmental topics including climate resilience, natural capital, catchment management, ecology, and waste management.



Staff learning was further supported through our programme of lunchtime training webinars, led by technical specialists in JBA, covering diverse topics including biodiversity net gain, remote sensing, biosecurity, stakeholder engagement, climate change modelling, invertebrate identification, natural capital assessment, and tree protection.

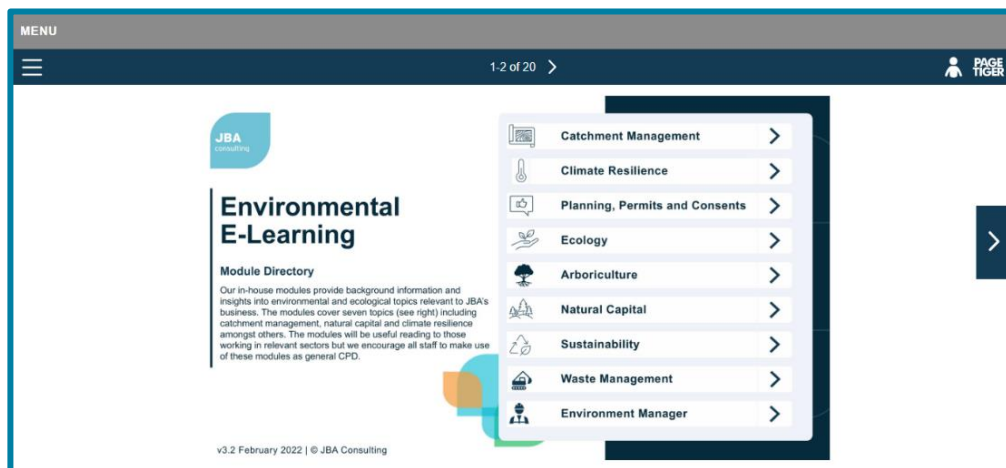


Figure 11:  
JBA  
Consulting e-  
learning portal

### 3.2.5 Reporting environmental incidents, near misses and observations, and disseminating lessons learnt

Our EMS includes formal procedures for recording environmental incidents, near misses, and reporting lessons learnt. It is also part of our IEMA accredited EIA process. We have designated reporting responsibilities for environmental incidents and mechanisms to investigate incidents, capture lessons, disseminate actions, and monitor improvements. We disseminate Key Learning Points from improvement notes to all staff across JBA and feed back into staff training and appraisal requirements, setting aims for new projects and improvement notices to suppliers.

In 2021-22, JBA staff reported 37 environmental incidents, near misses, or observations relating to our offices, service provision, and onsite activities. All reports were reviewed and, where appropriate, investigated further in accordance with our incident investigation process. Twenty-six of the reports were observations, which often led to corrective actions to reduce any risk of a future adverse impact, whilst others led to improved outcomes. In addition, eight reports were following a near-miss event, where adverse impacts could have occurred. Eleven of the observations related to our office-based activities, whilst 15 were focused on site-based or travel-related activities.

### 3.3 EMS Key Action: Influence our stakeholders to deliver best practices and outcomes for the environment and sustainability



River Aller at Selworthy River Restoration, Somerset



Figure 12: Aerial image of the Riverlands Project site on the Holnicote Estate

The Riverlands Project, led by the National Trust in partnership with the EA and Natural Resources Wales is an ambitious, long-term project that seeks to improve the health of our rivers. As part of the Riverlands Porlock Vale project, two projects are being delivered on the Holnicote Estate to restore natural processes.

The National Trust are piloting a pioneering approach to river restoration in the catchment of the River Aller. The first of its type in the UK, this phase of the project is seeking to revert a tributary of the River Aller to its original course and allow natural processes to develop. There are multiple anticipated benefits of this approach, including ecosystem restoration, habitat creation, and making space for water storage on the water table. There are some emerging studies that also suggest that fully connected, stream-wetland systems that function naturally can bring about greater carbon sequestration.

The project, which has been in development since 2020, has involved a variety of JBA's services and expertise, with our Geomorphology, Ecology, Heritage, Engineering, Modelling, GIS, and Landscape teams all involved at various stages of the project design.



SUSTAINABLE  
DEVELOPMENT  
GOALS

## Living Shorelines, Brisbane

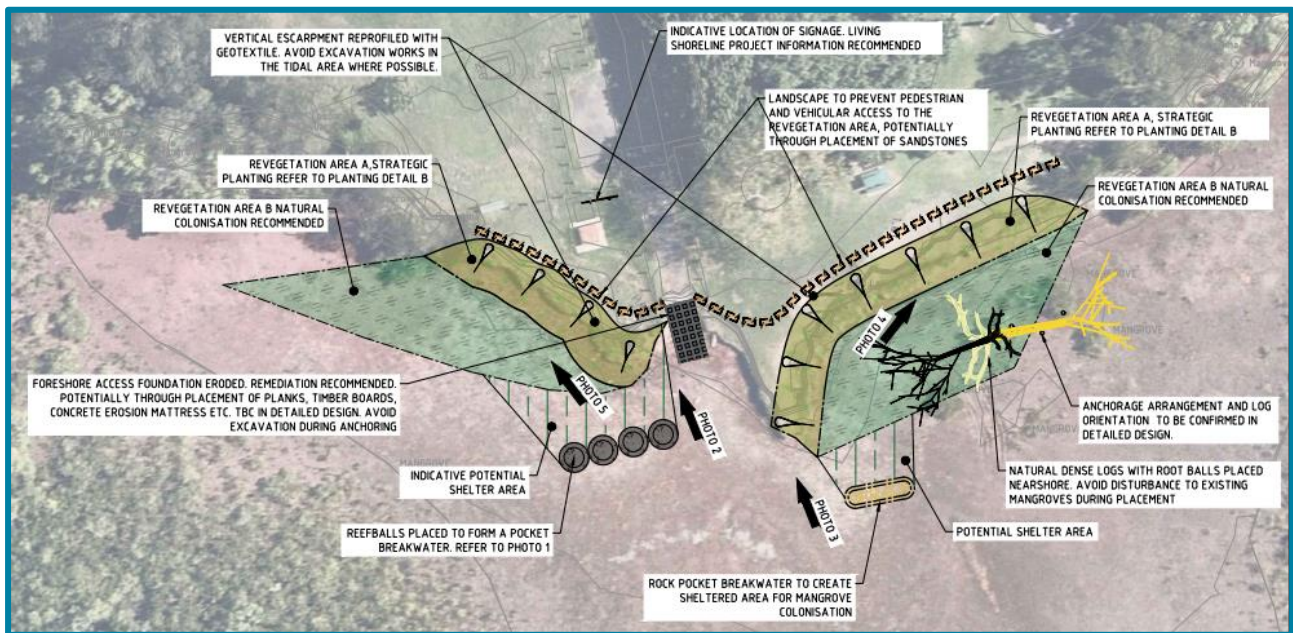


Figure 13: Design proposals for the living shoreline

Redland City Council commissioned JBP to undertake a concept design to establish a pilot 'living shoreline' at two coastal sites near Brisbane, Australia. Traditional coastal protection structures have significant costs and often have adverse impacts on the landscape and wildlife. Living shorelines on the other hand can provide an opportunity to achieve multiple benefits – such as shoreline stabilisation and increased resiliency to wave and tidal impacts – through the use of nature-based solutions that incorporate engineered and natural elements. However, there are limited case studies on the effectiveness of living shorelines and a lack of design guidelines for their implementation. This project focused on bridging this gap through these new pilot projects.

JBP led the options appraisal process focused on maintaining and improving the natural characteristics and habitats of the sites. Therefore, the project sought to trial as many different materials and arrangements as possible, so that each one of them could be tested to benefit future guidelines for all future living shoreline projects in the area. Options investigated during the design process included artificial reefs, mangrove establishment, living seawalls, piling and logjams, oyster reefs, and bank regrading and revegetation. Each option was systematically investigated – subject to a design process, certification and planning checks – with the most suitable option incorporated into the final designs.





## Designing green-blue infrastructure at Baltic Quarter, Gateshead



Figure 14: Green-blue infrastructure corridor under construction in 2022

JBA was appointed by Gateshead Council to support the planned redevelopment of the Baltic Quarter in central Gateshead by designing a green-blue infrastructure corridor through the site, linking to the wider urban green infrastructure network and integrating with surface water management. The corridor will be multi-functional, providing soft landscape drainage features with sustainable drainage capacity, multi-user active travel links, and high-quality landscape design with trees and vegetation to mitigate air quality and noise issues, providing a green backdrop to the road and surrounding development.

The design included informal recreational spaces for use by residents and workers in the Baltic Quarter – providing breakout and lunchtime space for office workers, green space for residents, and a pleasant green corridor for pedestrians and cyclists using the through routes. Flexibility was built into the design to accommodate the design of future building development adjacent to the corridor. Therefore, the corridor will be both attractive in the short term and able to accommodate these potential changes in future, setting a precedent for the quality and intention of future landscape design for the site.

By creating a distinctive, integrated backbone of green and blue infrastructure, the proposals create a benchmark standard for developments of this kind.



## Tees Tideland Port Clarence project, Stockton-on-Tees

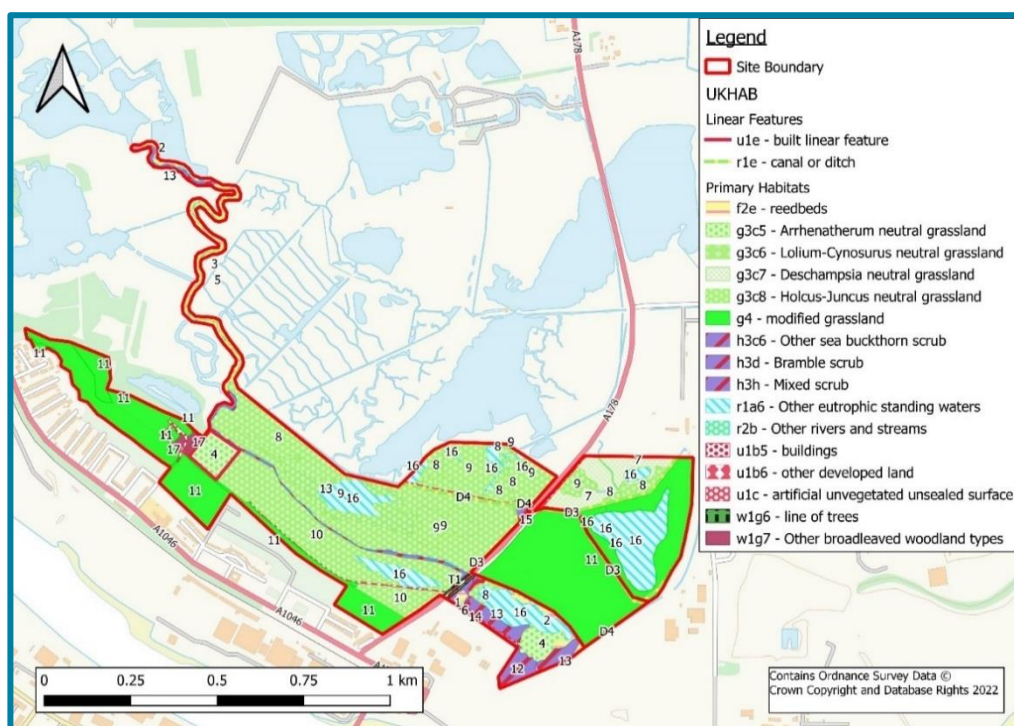


Figure 15:  
Habitat map of the Port Clarence project area

Stockton Borough Council commissioned JBA Consulting to produce an ecological appraisal, including an assessment of potential Biodiversity Net Gain (BNG), to support development of its flood risk management project at Port Clarence near Stockton-on-Tees. The aim of BNG is to encourage developers to provide an increase in appropriate natural habitat and ecological features over and above that affected by a given development. This involves metrics to determine a baseline score and calculating how much new or restored habitat is required to deliver net gain.

The Port Clarence project was intended to be used as a demonstrator site for flood and environmental improvements, with the aim of gaining flood resilience/biodiversity credits and selling these credits on the market. The income received would then be used to fund other habitat creation projects and support local flood resilience measures.

JBA's Flood Modelling Team began by exploring the idea of opening up the long culvert near the mouth of Holme Fleet, with subsequent habitat assessment to analyse and determine the likelihood of saltmarsh colonisation upstream of the railway line.

JBA's Ecology Team then completed an initial site walkover, mapping habitats and reporting on wider ecological constraints, which were entered into the Biodiversity Net



Gain Metric to establish the current arbitrary value of the site's biodiversity. Our ecologists then investigated options to improve the site's condition and biodiversity credits in partnership with the RSPB (a key landowner), the EA, and Stockton Borough Council. Particular care was taken to ensure that this habitat improvement did not conflict with the management of the network of designated wildlife sites present in the Tess Estuary area. The assessment predicted a BNG score of 7.79% could be achieved – although the overall BNG is expected to be much greater in practice – by allowing the existing neutral grassland habitat to revert to inter-tidal saltmarsh.



## Environment Agency Navigation Benefits Assessment, England

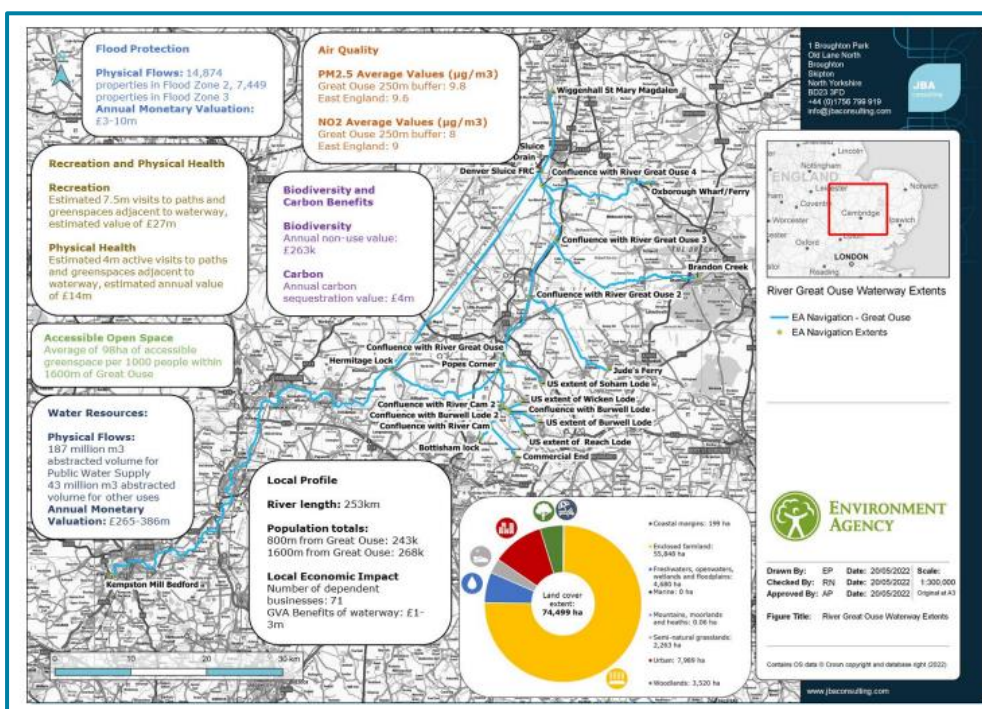


Figure 16: Study findings summarising the benefits identified for the Great Ouse catchment

JBA was commissioned by the EA to undertake an assessment of the benefits provided by six inland navigable waterways located across England. The assessment required a place-based analysis to assess the social and geographical features of the waterways and an assessment of their socio-economic and natural capital benefits, including recreation, physical health, flood protection, water resources, biodiversity, and carbon sequestration.

The place-based assessment was a valuable process in revealing the importance of the waterways for the surrounding communities in terms of heritage, landscape, recreation, and supporting local economies. In particular, the analysis revealed the importance of the

waterways in supporting access to recreational greenspace. The assessment then analysed the benefits provided in the waterways' current states and the physical flows that generate these benefits. The outputs from this marked a starting point for future investigations into options to maximise the social and natural capital benefits available.

The project showcased our skills in spatial analysis, natural capital, and socio-economic analysis to quantify the benefits associated with watercourses, the beneficiaries of water users, and the wider community benefits, to support options appraisal processes and the development of business cases and funding bids.



### Montrose Dune Management, Montrose



Figure 17:  
Montrose  
dune system

The dune system at Montrose, Scotland, provides valuable natural flood protection to the local community and economy, including the adjacent golf course. The dune habitat is eroding rapidly, with sections vulnerable to storm impacts, overwashing, and flooding. JBA was commissioned by Angus Council to develop the design of a reprofiled section of dune, to support their sustainable management ambitions.

After carrying out an assessment on the vulnerability of the dune system to an extreme storm event, we developed the design of a new dune and beach profile. The proposed design profile was identified based on testing under extreme conditions, economic appraisals for the cost of realisation, and buildability constraints. The design aimed to



provide a 1 in 200-year standard of protection against overwash, with additional recharge acting as sacrificial material to allow for additional stabilisation measures to establish.

Additional measures aimed to increase dune resilience through vegetation planting, thatching, and fencing, which sought to both reduce sediment loss and to enhance the overall environment, habitat, and biodiversity value of the dune system.



#### John Oxley Reserve Bank Stabilisation Project, Brisbane



Figure 18:  
Study site in  
the John Oxley  
Reserve

John Oxley Reserve in Murrumba Downs is a publicly used sports and recreational ground, owned and managed by the Moreton Bay Regional Council. Due to its location next to a large bend in the North Pine River, the area is experiencing substantial erosion.

JBA was engaged by the council to develop a bank stabilisation project to help protect the Reserve. This included in-situ field measurements of boat wake-waves, analysis of wind, wave, and current loads, concept design of nature-based and hard protection options, geotechnical analysis, stakeholder workshops, and coordination of permits and approvals.

The final detailed design included multiple fish-friendly rock fillet structures, incorporating reef balls and associated mangrove planting to protect the waterway banks. This approach achieved the main objective of the project, to avoid use of hard protection structures and instead use an approach that promotes the natural processes of revegetation and sediment deposition from the tidal cycle to protect and repair the affected bankside area.

This project was then showcased at the IPWEAQ Annual National Conference 2022 in Brisbane, using a 3D printed model of the design to explain the concept, which generated a lot of interest from the participants.



### Speyside distillery groundwater supply, Grantown-on-Spey, Scotland



Figure 19: Drilling of a groundwater abstraction borehole at The Cairn

Over the past few years, JBA has assisted numerous existing and new Scottish distilleries in developing water supply solutions. Gordon & MacPhail's new Speyside distillery, The Cairn, required a cooling water supply and they asked JBA to assist with developing and licensing an array of groundwater abstraction boreholes to provide this. Careful design was required to achieve the abstraction whilst promoting environmental best practice.

We successfully coordinated the feasibility assessment, design and construction, testing, and licensing of the groundwater abstraction boreholes at The Cairn. Work was carefully planned in terms of the materials and drilling techniques used to avoid impact on other water users, as well as designated ecological features in the adjacent River Spey. Whilst the boreholes abstract water from the underlying sands and gravels, the water source is in fact indirectly from the river. However, we were able to demonstrate that the impacts on river flows would be negligible, even in low flow conditions, and that the use of boreholes to abstract the water, rather than a direct surface water intake from the river, negated the risk of sediment disturbance in the river.

By fully understanding the hydrogeological and regulatory processes, we were able to provide a large and sustainable groundwater supply, which avoided the need to mitigate against potential impacts that may have arisen from an alternative surface water supply.



## Chat Moss Landscape Partnership Vision, Greater Manchester

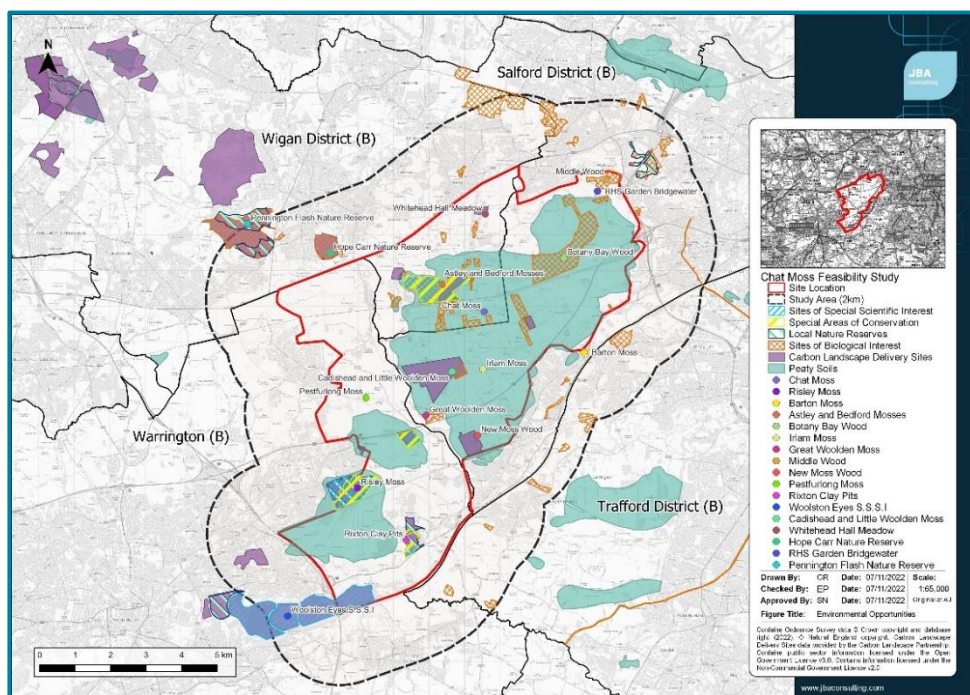


Figure 20:  
Mapping of  
environmental  
opportunities at  
Chas Moss

During 2022, we worked closely with the Chat Moss Heritage Partnership to support the development of a long-term vision and strategy for Chat Moss, a degraded peatland located on the edge of Manchester, historically used for peat extraction and farming. Once one of the largest lowland raised bogs in England, much of it has been destroyed or degraded, leaving only small, isolated areas protected as wildlife reserves. However, as the largest green space outside the centre of Manchester, Chat Moss represents an important social, environmental, and heritage resource for local communities and wildlife.

The area now suffers from a lack of cohesive identity and is threatened by commercial development. Chat Moss needed a vision that joined-up its remaining areas to form a cohesive programme of potential activities and destinations for a visitor day out. We worked with the Heritage Partnership to help identify and map the many assets and opportunities within Chat Moss, with view to creating a regional heritage park.

As 'heritage' means different things for different people, we hosted an engagement workshop for local stakeholders. This allowed local people to put forward their views on what they believed to be the important heritage of the area. This information informed a draft vision for the mosslands, incorporating issues including land management change, carbon sequestration, water level management, landowner engagement, accessibility, and



joining up opportunities and assets through heritage trails and online mapping. Through this, we identified actions, policy points, governance structures, and funding sources.

Our work helps give the Partnership a base on which to build a coherent identity for the area, which will shape the nature of community projects such as heritage and ecology trails, guided walks, oral and community history projects, and wetland restoration activities.



### Farlington Marshes FCERM Scheme Outline Business Case, Hampshire



Figure 21: View of Farlington Marshes

JBA has been supporting the EA and Portsmouth City Council in the investigation of options to manage flood risk at Farlington Marshes in Hampshire. This is an important, complex site comprising several protected marine, freshwater, and terrestrial habitats that are being compromised by a rapidly deteriorating coastal embankment.

During 2022, we undertook an assessment to establish the benefits of flood and coastal erosion protection to Farlington Marshes. The benefit assessment included analysis of potential breach losses, landward infrastructure and properties, land compensation costs avoided, and the natural capital benefits retained by maintaining the current defence line.

A Natural Capital Approach sought to understand how the natural assets in the marshes provide different services and benefits to visitors and the local community. Taking a natural capital approach to developing and choosing options for the future of the marsh was critical to a holistic understanding of the true value of the site and provided an opportunity to maximise the potential benefits of protecting and enhancing current assets.

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Each option delayed the breach risk, altering the timing of some impacts and benefits:

- Delayed breaching extends recreational, physical, and mental wellbeing benefits;
- Volunteering and educational benefits are retained for longer;
- Retention of favourable habitats with higher pollutant removal potential for a longer period before breaching results in a higher net benefit; and
- Carbon sequestration decreases as a result of habitat changes under a breach scenario.

The project is an example of the ability of JBA to quantify environmental and social benefits of this important natural habitat, which enabled the business case to establish the wider benefits of the scheme and to distinguish between options, ensuring that the most sustainable option was taken forward.



## 4 Sustainability achievements beyond our EMS Key Actions

### 4.1 Sustainable operations

The sustainability of our operations is central to our business philosophy and we're committed to minimising the environmental impacts of our operations and activities – including reducing our GHG emissions to net zero. We've successfully developed a reputation as a leading supplier of sustainability advice, and sustainability considerations inform our decision-making across all of our operations, services, and business activities.

In this section we highlight some of the sustainability-related improvements and initiatives we've put in place over the past year.



#### Office energy supplies

We've monitored our office energy consumption since we first gained ISO-14001 certification in 2009 and have sought to put in place measures to reduce the energy we use and the environmental impacts of our energy use. A key way to reduce our impacts is to purchase energy from renewable sources. Where we have control of the electricity contracts for our offices, we purchase certified 100% renewable electricity, whilst at our other offices, we've actively sought to influence the building management company to switch to renewable electricity. Seven of our offices – comprising our offices in Doncaster, Limerick, Newport, Peterborough, Saltaire, Skipton, and Tadcaster – benefited from renewable electricity in 2021-22.

We operate EV pool cars at three of these offices, which already benefit from EV car chargers, meaning that business travel using these cars has the potential to be zero emissions. We'll work hard during 2022-23 to increase the number of offices that benefit from a renewable energy supply – this includes both electricity and gas supplies – with the aim that all of our offices are powered with renewable energy within the next few years.



#### Low carbon business travel

The JBA Travel Hierarchy guides our staff to think carefully about the environmental impacts of any business travel they undertake. We've used this tool to guide our business travel decisions for many years. During the period between mid-2020 and late 2021 we established a temporary Travel Hierarchy to respond to the needs of the Covid-19 pandemic. This meant we prioritised the use of cars over public transport to enable Covid-secure essential travel. However, in October 2021 we were able to remove many of these restrictions and published a refreshed Travel Hierarchy. The lowest carbon and safest option is no travel at all and this is reflected in core message of our new Travel Hierarchy: *"Only travel when absolutely necessary"*.

For essential travel, the hierarchy is clear that active travel – walking and cycling – must be considered first. Public transport is first choice for longer journeys. However, if public transport is not feasible and driving is the only option, the Travel Hierarchy promotes EV use over other forms of car travel. EVs have zero tailpipe emissions and their environmental footprint is much lower than a petrol/diesel car.



Emissions from our business travel represent a sizeable chunk of the JBA carbon footprint and reducing our travel-related emissions is an important step towards reaching net zero. To help us meet our goal, we have invested in expanding our EV pool car fleet to replace several of our diesel pool cars, taking our number of EV pool cars to nine. The new cars can all travel well over 200 miles on a single charge, meaning most car journeys we make should be readily achievable in an EV. To support staff to use our EV

pool cars and to help employees to make the switch to an EV at home, we're progressing the installation of EV chargers at all of our offices during 2022-23.



### Encouraging low carbon commuting

To support our net zero ambition, we encourage JBA staff to use low carbon transport when commuting. We've had an Environmental Reward Scheme since 2007, which rewards staff who regularly use low carbon means to commute to work. Under the new scheme, staff can gain a daily reward each day that they travel to/from their normal place of work using one of a defined set of low carbon modes of transport. Every journey could contribute towards our carbon footprint and so our new reward scheme makes every journey count. In 2021-22, 214 colleagues from across JBA gained a reward under the scheme.

As a significant component of our carbon footprint, we recognise that other measures are needed to support our objective to reduce GHG emissions from private car use, from both commuting and business travel. To help cut emissions, we introduced an EV salary sacrifice scheme in partnership with Octopus EV Ltd, open to all permanent employees.



### Enhancing the sustainability of our supply chain

We take all reasonable measures to minimise the environmental impacts of our business and ensure our use of natural resources is sustainable and environmentally responsible. This extends to our supply chain and we recognise the important contribution our suppliers make to the success of JBA.

We aim to develop positive and lasting relationships with our suppliers and support our suppliers to achieve the highest legal, ethical, and environmental standards. We champion use of micro-businesses, small and medium-sized suppliers (SMEs), and local suppliers as appropriate, recognising the benefits this provides to the communities in which we

15-002 Sustainability and Environmental Management Report

Revision: 1.1

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operate. In 2021-22, 484 suppliers had 'Approved Supplier' status, of which almost 86% were SMEs or sole trader businesses.

We continued to strengthen our supplier approval process, to better align it with our net zero ambition and wider sustainability objectives. Our new process provides more detailed information on the sustainability credentials and performance of our suppliers, including information on sustainability accreditations, carbon emissions reduction targets, and wider actions to reduce their resource use and the environmental impacts of their resource use.

We also established a 'Premium Supplier' status, which recognises suppliers with the strongest credentials in relation to sustainability and other important aspects including health and safety, information security, and quality of service. These changes support our project managers to make more informed choices when commissioning a supplier to work on our behalf. This in turn directly contributes to our EMS objectives and net zero carbon targets, promoting suppliers whose sustainability objectives align with our own.



### IMS Sustainability Hub

We've continued to develop and expand the Sustainability Hub on our IMS intranet site to provide a helpful source of information and guidance that all our staff can use to explore individual, project, and corporate sustainability matters. This included a new Net Zero resource, which contains information about our Net Zero objective and targets, and the actions we're taking to reduce our carbon emissions.

We maintained our 'Sustainable Actions and Good Ideas Log', which is an employee initiative that enables us to record the local sustainability actions we've undertaken and post new ideas on ways we could improve our sustainability performance further.

We also introduced a new Carbon Pledge initiative, through which we encouraged everyone at JBA to commit to making one or more significant actions to reduce their carbon emissions and contribute to our net zero objective.



### Sustainability Champions

Our office Sustainability Champions group work with colleagues to make our offices and everyday working practices more sustainable. The Sustainability Champions also help us to promote good practices more widely, so a positive initiative in one office can be readily applied elsewhere. This included producing our first Sustainability Newsletter, which sought to highlight some of the sustainability initiatives and activities taking place across the JBA Group, to share information and help raise awareness, and to provide some inspiration so that we can all contribute to sustainability at JBA.



### Agile working

Our Agile Working framework continues to provide employees with more choice over how and when they work, helping to enhance work-life balance and wellbeing. Our investment in IT systems and hardware, continued focus on health and safety, and enhanced IMS processes has allowed JBA to rapidly change from a largely

15-002 Sustainability and Environmental Management Report

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office-based business model to blended working, with working from home in part or in full the way of choice for many JBA colleagues.

Agile working has enabled us to continually improve the way we work and to increase flexibility. It has also created opportunities to attract new staff from a wide and diverse pool and has helped us to reduce the impacts of our business and operations, contributing to our net zero target and wider sustainability objectives.

## 4.2 JBA community



### JBA staff numbers

The number of permanent staff employed at JBA has steadily increased year-on-year for the past 10 years. In 2021-22, the average number of employees increased to 888 – this included both full time and part time staff – whilst the average number of full time equivalent (FTE) employees across the JBA Group was 799 in 2021-22, an increase in 99 FTE employees compared with the previous year.



### Gender balance within JBA

The overall gender split within the JBA Group as of 31 October 2022 was 57.9 / 42.1 (% male / female), which showed a small increase (2%) in the proportion of female employees compared with the previous year. Notwithstanding this, we recognise the need to further promote gender equality within JBA and over the past several years we've made a range of important changes to strengthen our policies and practices to promote gender equality and the empowerment of women.



### JBA graduate scheme

JBA operates a flourishing Graduate Scheme across several of its operating companies. Our scheme is a two-year programme aimed at providing our graduates with a comprehensive foundation for their future career with us. It provides them with the opportunity to learn about different facets of our business, to work with a wide range of staff, and to try different disciplines first-hand.

The experiences they gain during these graduate years support them to develop, focus, and build a successful career. On successful completion of the scheme, staff then follow our Development and Training Programme, tailored towards their specialist disciplines and future ambitions, which is also designed to directly support them to achieve membership of a chartered institution.

2021-22 was another busy year for our Graduate Scheme, with 45 new graduates joining JBA across our four graduate disciplines – engineering, environmental management, water management, and software and systems development.

## Apprenticeships with JBA



JBA Consulting offers a wide array of apprenticeship opportunities across the company. Our apprentices include people joining as new recruits or existing employees wanting to upskill, and the company offers apprenticeships from Level 3 (advanced) up to Level 7 (higher/degree) in a variety of disciplines including flood risk management, software development, business administration, IT, and civil engineering. We consider our apprenticeship programme as a valuable and effective way to grow the talent across JBA and develop motivated and skilled staff members that make an important contribution to the JBA community.

In 2021-22, we increased the number of apprenticeship places available, employing 29 permanent apprentices, an increase of six places from the previous year.



## Research and development

Innovation is part of JBA's culture; it enables us to use the latest technical knowledge to develop new products and services for our clients, setting us apart from other consultancies and diversifying what we offer. For many years, we've made a significant investment in R&D and business innovation, implementing a variety of initiatives to stimulate innovation across the business. This includes partnership projects with the JBA Trust and independent projects undertaken across a broad range of topics.

In 2021-22, we commissioned 21 internal R&D projects. This included the development of a new office sign-in app, which allowed us to better measure the carbon footprint of employee commuting to the office. We'll use this data to improve the accuracy of our carbon footprint assessment and support the development of new initiatives that will support employees to cut their carbon footprint.

## Charitable grants and in-kind contributions



In 2021-22, we continued to support a wide range of events to raise awareness and promote knowledge and learning about risks in the water environment, particularly through the JBA Trust.

The JBA Trust supports and promotes scientific research, education, and training in the fields of environmental risk and resource management, with a particular focus on water. It works with leading academic researchers and other charities to create opportunities for research-based placements and to support students and courses in higher education.

The JBA Group works closely with JBA Trust, providing opportunities for staff across JBA to contribute to the Trust's projects and initiatives, such as in October 2022, when JBA employees supported the Trust to deliver careers advice at a careers fair at Ermysted Grammar School in Skipton, North Yorkshire, where they talked to students about their career journeys and highlighted the types of careers available in the flood risk management.



## 5 Environmental objectives and actions for the year ahead

For 2022-23, we've again set ourselves objectives and actions to help us achieve our sustainability and environmental management goals. We will continue to monitor our performance against these objectives and will report our progress in on annual Sustainability and Environmental Management Report, which we will publish on our websites.

Our overriding environmental objective has been refined to make it more ambitious and more directly aligned with the core aim of our Sustainability and Environmental Management policy. This objective is supported by a range of key actions and for 2022-23, these actions have been expanded to make them more holistic

Table 12: Environmental objectives, key actions and intended outcomes for 2022-23

Objective	Key actions	Outcome
Reduce our environmental and climate impacts and have a positive impact on local communities and environments.	<p>Assess and report JBA Group carbon emissions and emissions reduction measures.</p> <p>Measure and report our social value and our contribution to the UN Sustainable Development Goals (SDGs).</p> <p>Improve the environmental and sustainability performance of our work for clients.</p> <p>Influence our stakeholders to deliver best practices and outcomes for the environment and sustainability.</p>	<p>Recognition as a sustainable and environmentally and socially responsible business.</p> <p>Reduction in carbon emissions in-line with our science-based targets.</p> <p>Legal compliance.</p> <p>Certification to ISO-14001:2015 and EIA Quality Mark.</p>

## Operating Companies registered in:

Australia  
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Singapore  
United Kingdom  
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ISO 45001:2018

