



# Directory of services

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The image shows a vast, empty industrial or warehouse space. The floor is a dark, polished concrete. The walls and ceiling are supported by a grid of thick, dark concrete pillars. The lighting is dramatic, with bright light coming from the right side, creating strong shadows and highlights. In the far distance on the right, a person wearing a blue hard hat, an orange safety vest, and dark clothing is standing, looking towards the left. The overall atmosphere is one of scale and emptiness.



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# We enhance assets and the environment to deliver sustainable outcomes for people and our planet.

Specialising in sustainable water asset management solutions, our direct-delivery services offer exceptional value outcomes in the potable water, wastewater and environment sectors.

With over 40 years' experience, we are a trusted partner with water companies across the UK, operating more than 36 frameworks delivering what we promise. Guided by strong values and extensive expertise, our purpose is to enhance assets and the environment to deliver sustainable outcomes.



# Introduction



# Sectors overview

## Water

### Water sustains life.

Improving network resilience and longevity is vital in ensuring everyone can access safe and reliable drinking water despite rising demand and ongoing water scarcity.

Delivering sustainable asset solutions for all stages of the potable water cycle, our specialist services support the resilience and continued functionality of the drinking water network.

Our expertise in potable water infrastructure extends from impounding raw water reservoirs and abstraction, through to treatment, storage facilities and service reservoirs. From ROV inspections, cleaning with our proprietary PM100 and maintenance, to refreshment, construction design and asset creation, our experienced engineers utilise their specialist knowledge of the latest regulations, technologies and methods to provide innovative solutions that address present and future challenges.

# Wastewater

## The wastewater network is under unprecedented pressure.

The impact of climate change and urban expansion means effective wastewater management is vital to protect the health of communities and the environment.

Our sustainable maintenance, asset enhancement and infrastructure creation programmes for conventional and nature-based wastewater treatment systems help our clients confront contemporary challenges.

Our work ensures that wastewater assets maintain maximum resilience so that processing systems continue to perform optimally. From settlement and storm tanks to biological treatments such as reed beds, we assist our clients to create and maintain resilient systems that effectively process sewage and address storm overflows. Partnering with our clients, we develop innovative, sustainable solutions that contribute to a cleaner, healthier future for all.

# Environment

## Our environment is hurting.

Action is crucial to mitigate adverse effects caused by climate change. More than decarbonisation alone, a whole-catchment approach must be adopted.

Our nature-based solutions support ecosystems, protect people, and enhance the quality and resilience of water resources – all with the aim of creating a better, more sustainable environment. Whether the task is habitat creation, river restoration, fish rescue or community safeguarding, our environmental programmes are designed to work with nature, not against it.

Our team of environmental specialists are dedicated to helping clients achieve their goals in a way that is kind to our planet and promotes sustainability. Our green engineering programmes and nature-based solutions help restore biodiversity and mitigate the impacts of flooding and drought. From natural food management to river restoration and wetland creation, our projects safeguard resources and protect communities from the extreme weather events associated with climate change.

# Consult

We work with our clients at the early stages to co-create innovative, sustainable, and cost-effective solutions across every stage of their operations. By combining industry expertise with cutting-edge technology, we gain a deep understanding of each challenge to deliver solutions that are practical, efficient, and future-ready.



# Maintain

We deliver timely, robust maintenance that keeps built and natural assets performing at their best. By addressing issues quickly and efficiently, we protect asset longevity, prevent costly failures, and minimise environmental impact. From water and wastewater infrastructure to environmental assets, our routine services ensure systems remain reliable and resilient.



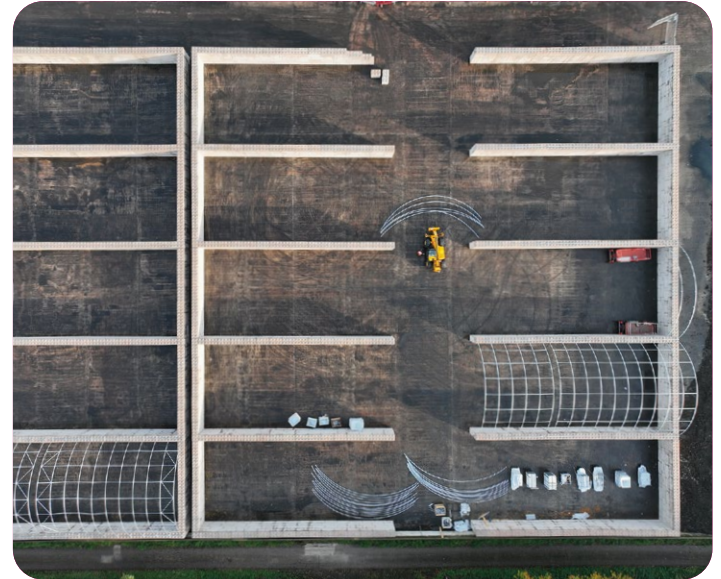
# Enhance

Our philosophy is to enable more pound in the ground – restoring and maximising the potential of existing assets and reducing the need to build new. Our innovative enhancement programmes modernise ageing infrastructure, improve natural systems, and restore functionality, saving time and money while supporting environmental sustainability and long-term resource security.



# Create

We design, engineer, and build new assets that meet tomorrow's challenges today. By delivering smart, sustainable solutions, we enhance network resilience, protect natural resources, and support long-term operational and environmental success.



**Enhanced  
robotics**  
and cleaning  
capabilities





## Specialist cleaning

We provide an industry-leading, regulation 31-compliant PM100 cleaning system that dissolves biofouling and disinfects assets through a safe, low pressure, cleaning technology process. This system eliminates hydrocarbons and harmful bacteria, and is up to 75% faster than traditional methods.

## ROV inspections and underwater cleaning

We have a drinking water regulation-compliant fleet of robotic underwater vehicles that enable reservoir cleaning and inspections without interrupting supply or affecting water quality. This service significantly reduces costly drain downs and the need to remove assets from service at critical times of the year.

## Confined space drone




















Our high-tech confined space drone is designed to support detailed inspections in areas where manned entry is impractical or unsafe – such as high-risk confined spaces, GPS-denied zones, pitch-dark areas, and structurally compromised environments – keeping workers out of harm's way while significantly shortening inspection timeframes.

# Water

Delivering sustainable asset solutions for all stages of the potable water cycle, our specialist services support the resilience and continued functionality of the drinking water network.

Our expertise in potable water infrastructure extends from raw water assets such as impounding reservoirs to abstraction, treatment and storage facilities. From maintenance and refurbishment to construction design and asset creation, our experienced engineers utilise their specialist knowledge of the latest regulations, technologies and methods to provide innovative solutions that address present and future challenges.

# Water assets and infrastructure

-  Water towers
-  Slow sand filters
-  Pipe bridges
-  Distribution service reservoirs
-  Rapid gravity filters
-  Pipework
-  Impounding reservoirs
-  Raw water storage tanks
-  Emergency shower units
-  Contact tanks
-  Surge vessels
-  Aqueducts
-  Granular activated carbon (GAC) tanks
-  Pumping stations
-  Access steps & platforms
-  Water treatment works
-  Dams and weirs
-  Spillways
-  Drainage

# Consult

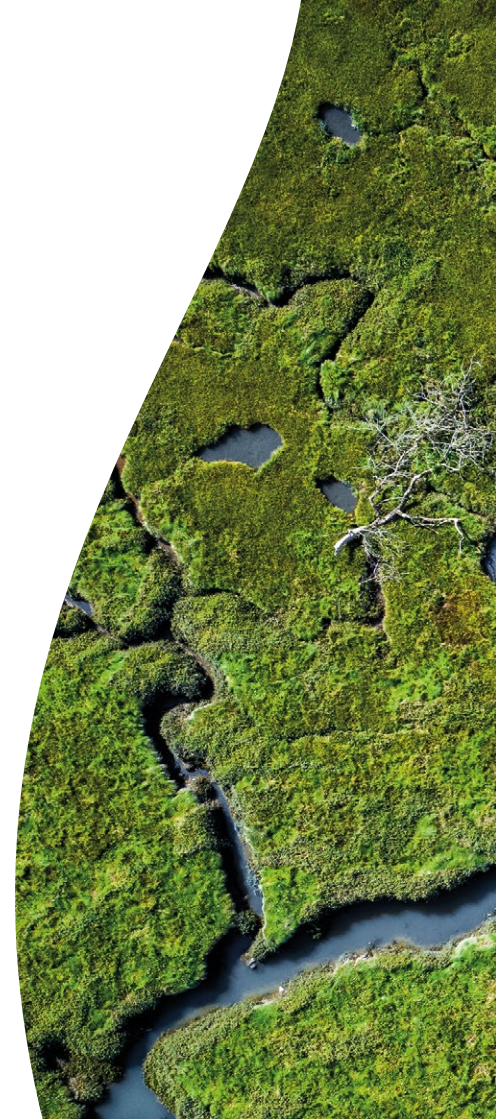
Our collaborative approach harnesses the collective knowledge of our clients and expert engineers to co-create innovative, sustainable and cost-effective solutions throughout all stages of the potable water cycle. Supported by industry-leading techniques and cutting-edge technology, we're able to fully understand the challenges our clients face to identify the best solution to any problem.

## Providing an end-to-end service


Our team of highly skilled specialist engineers combine extensive expertise with industry-leading inspection techniques and advanced technology to fully understand clients' water asset needs.

## Delivering innovative and pioneering outcomes

We are experts in sustainability. We use our detailed understanding of asset health, water regulations and client requirements to inform feasibility assessments and identify the most sustainable, safe and efficient solution to any problem.







**Water asset**  
consultation  
services

## Asset condition surveys, investigation & inspection

Using both visual and technology-assisted methods, our expert engineers provide detailed assessments of potable water assets to identify defects, assess risk, and deliver practical recommendations for the most efficient and sustainable management solution.

## Drone bathymetry surveys

Our drone bathymetry surveys use sonar to visualise difficult-to-access areas such as water bodies where boats are not allowed. The highly repeatable survey method can be re-run in future to make accurate comparisons.

## Drone & confined space surveys

Our specialist confined space drone surveys hard-to-access or dangerous locations to accurately inform solutions planning. Our approach captures high-resolution real-time footage to deliver detailed inspections while minimising costs and keeping workers safe.

## Carbon removal strategy

We help clients develop carbon removal and reduction strategies for potable water operations. We provide guidance on carbon accounting, emissions reduction pathways, and sustainable practices, supporting net-zero ambitions while maintaining operational efficiency.

## LiDAR & laser structural condition surveys

LiDAR (light detection and ranging) and laser scans create precise, high-resolution 3D models of potable water structures. The surveys allow highly accurate condition assessments and structural analyses to inform long-term asset management and optimise capital investment.

## ROV underwater investigation & inspection

Remotely operated vehicles (ROVs) enable safe underwater inspections of submerged service reservoirs, water towers, and other drinking water infrastructure. Our technology eliminates the need to empty tanks and provides valuable data on water quality.

# Case study

## **Spillway repair solution** Design and construction

## In summary

- Construction works on a reservoir that provides sole supply of water for 54,000 customers in a SSSI area.
- Perished gabion baskets at end of spillway undermined the reservoir's structural integrity, and the degraded gabion mattress created the consequential risk of dam erosion.

**100** year's extended lifespan.

**200,000** cubic metre storage reservoir.

## The need

A long term, robust solution was needed, which was aesthetically appropriate for the SSI location and could resist extreme weather drivers, without damaging or removing surrounding ecosystems

## The solution

A wall consisting of thick concrete was designed and built with a base slab shape to provide endurance against constant, heavy water flow and a plunge pool to dissipate the energy from weiring water


## The benefits

- Design and build solution addressed the effects of climate change.
- Restored the structural integrity and safety of the spillway.
- Delivered on time and within budget.
- Provided ongoing erosion protection to the spillway and riverbed below, with limited carbon usage and community relations intact.



**Maintain**





Our timely and robust clean water infrastructure maintenance ensures assets continue to operate optimally, protecting their longevity and avoiding environmentally harmful and costly interventions. From abstraction and treatment to storage and distribution, our routine asset maintenance services address issues promptly to avoid system failures while causing minimal disruption to the asset's operation and the surrounding environment.

## **Protecting assets and enabling efficiency**

Our routine maintenance and repair services address issues promptly and efficiently to prevent system failures and costly emergencies while causing minimal disruption to the water supply network and the surrounding environment.

## **Assuring safety and performance**

We're experts in Regulation 31 applications. Our market-leading programmes maintain the safe condition, operability and reliability of potable water assets. From abstraction to distribution, our regulation-compliant maintenance programmes keep systems operating safely and at peak performance.

# Water asset **maintenance** services

## **Asset chlorination & dechlorination**

Our chlorination and dechlorination services maintain potable water safety and protect the environment. Using precise dosing and strict monitoring procedures, we uphold water quality to safeguard public and environmental health.

## **Corrosion protection**

Our corrosion protection combines surface preparation, Regulation-31 coating application and stringent inspections to ensure critical assets continue to perform optimally. We carefully select the most appropriate methods and products to guarantee compliance and reliability.

## **Specialist chemical cleaning**

Our specialist Panton McLeod PM88 cleaning dissolves biofilm, scale, and sediment and disinfects potable water infrastructure. By restoring hygiene, our cleaning programmes reduce water contamination risk while prolonging the operational efficiency of assets.

## **ROV underwater cleaning**

Remotely operated vehicle (ROV) underwater cleaning provides a cost-effective, alternative to traditional methods. Our zero-turbidity, drinking-water compliant ROVs cover up to 250m per day, eliminating asset downtime and contamination risk.

## Distribution service reservoir cleaning & repair

Our specialist teams deliver a variety of both advanced PM and high-pressure water jetting. The most appropriate method is selected for the specific asset needs and followed up with expert inspections and repairs.

Service reservoir repair works include:

- Internal and external wall repairs
- Concrete crack repairs
- Rendering
- Joint sealing and overbanding
- Brick repairs and re-pointing
- Local welding on steel-sided tanks

For localised ingress prevention, our teams use carefully selected cementitious repair mortars, epoxy sealants and high-performance Regulation 31-approved coatings. Surfaces are prepared with abrasive blasting, and interventions undergo rigorous testing throughout the application curing procedure to guarantee compliance with the instruction for use document and Regulation 31.

## Why choose us?

We are the UK's largest installer of **Regulation 31-approved** coatings for potable water assets.

Our quality inspection & testing plan system (QITPS) confirms strict compliance with manufacturer's instructions for use (IFUs) and provides assurance that assets are expertly protected to maintain reliable public safety.

Our industry-leading, low-pressure PM cleaning systems are a fast, safe, and cost-effective way to remove biofouling, disinfect surfaces, and prevent system failures.

Proven to clean up to **75% faster** than traditional methods, the technology offers an efficient solution for restoring tank hygiene and filter performance. Cleaning hundreds of treated water assets each year, our team have the experience to support even the most challenging projects.

## Pipework cleaning & repair

Pipework cleaning and repairs maintain pipe longevity, flow efficiency and water quality. By repairing leaks, removing rust and applying protection against future corrosion, our service improves system safety and prevents catastrophic failures.

## Asset leak prevention & repair

Our teams identify vulnerabilities in assets and deliver targeted repairs to seal areas of potential ingress. Wall and roof crack repairs, membrane application and hatch re-sealing. We schedule delivery to ensure minimal disruption, working on live assets where possible.

## Water tower cleaning & repair

Cleaning of water towers helps safeguard structural integrity and water hygiene. Our interventions remove sediment and biofilm, provide comprehensive asset inspections, and include any necessary remedial works.

## Raw water tank desilting

Raw water tank desilting removes accumulated sediment and restores tanks to their full storage capacity and operational efficiency. Our services enhance flow efficiency and asset reliability while safeguarding downstream water quality.

# Why choose us?

We are leading specialists in water asset services.

Our long-established expertise allows us to deliver innovative, low-carbon solutions that respond to operational challenges without compromising long-term environmental goals. By combining technical excellence with practical experience, we help clients achieve resilient, efficient and future-ready outcomes.

Our reputation is built on operational excellence and right-first-time delivery. With expert in-house teams overseeing every stage of the process, we maintain the highest standards of quality, safety and performance. Trusted by major UK water utilities, we bring a proven track record of successful delivery alongside a culture of innovation, continuous improvement and sustained investment.



# Case study

## ROV Spot Sampling

Stonbury company Panton McLeod demonstrates the importance of utilising technology that enables the assessment of water quality within the body of clean treated water service reservoirs.

## In summary

- Our client requested a water quality assessment of their live service reservoir after detecting bacteriological deterioration following an installation of a new compliance sample point tap.
- Panton McLeod was employed to conduct a Remote Operated Vehicle (ROV) scope, sampling all areas at varying depths of the tank over a selection of times during a 24 hour period.
- The scope identified areas of low turnover water and informed changes to improve water quality.

60

samples obtained by the end of the scope.

0

Coliform bacteria detected.

## The need

DWI regulations stipulate that water companies must provide good wholesome water to customers and must therefore undertake regular sampling to monitor water quality. Our client required a method to assess the water quality throughout the body of the service reservoir, not just at outlet pipes.

The method had to be able to collect samples of water at various locations and depths within the main body of the reservoir without mixing or disturbing the water. This would facilitate an accurate assessment of water quality and confirm that the location of a new compliance sample point was representative of the water in the reservoir.

## The solution

To identify areas of the tank where water movement was low and therefore carried the highest potential risk of bacterial growth and low chlorine levels, our client enlisted Panton McLeod to conduct an ROV spot sample survey. After identifying sampling locations within the tank, the ROV abstracted water from these various points in the tank to enable sampling and analysis for bacteria, turbidity and chlorine throughout a 24-hour period.

The results of the ROV survey revealed there were no coliforms detected in any of the samples. Low chlorine levels and elevated plate counts for bacteria were identified in some areas of the tank – while these were harmless bacteria, the numbers signified a deterioration in water quality and concluded low turnover in that area. The information helped our client to make necessary adjustments to water flow dynamics within the tank and identify long term investment.

## The benefits

- ROV spot sampling enabled the monitoring of water from hard-to-reach areas within a live tank; a highly effective way to assess the quality of drinking water in the reservoir as it's being supplied to consumers.
- The method avoided the need to drain the tank to gain insights about areas of low water turnover and potential water quality deterioration, allowing our client to consider improvements while the reservoir remained operational.

# Enhance

We help clients upgrade and maximise their existing potable water assets, reducing the need to build new. Our asset enhancement programmes save our clients time and money by modernising ageing and obsolete infrastructure and restoring optimum functionality, to achieve goals while preserving the environment and future water security.

## Enhancing with innovation

We strive to find innovative ways to repurpose existing infrastructure and breathe new life into ageing assets. From refurbishing existing assets to repurposing obsolete facilities, our bespoke enhancement programmes cost a fraction of building new, reduce asset downtime, and achieve goals without compromising the environment or future water security.

## Enhancing water assets, sustainably

Every project we deliver is planned with quality, safety and sustainability in mind. From spillway restorations to service reservoir refurbishments, we use only the most sustainable, regulation-approved products, materials and methods.







Water asset  
**enhancement**  
services

## Access refurbishment & upgrade

Our comprehensive access refurbishment and upgrade services improve safety and compliance. Hatches, ladders, hand railings and concrete and steel steps are made bespoke to ensure reliable entry for routine maintenance and emergency interventions.

## Baffle curtain modification & installation

Our baffle curtain modifications optimise flow dynamics within reservoirs. We redesign and install new baffle systems to enhance mixing efficiency, eliminate stagnation zones and support water quality.

## Concrete, brick & stone structure refurbishment

We refurbish concrete, brick, and stone structures to restore their integrity and performance. Our skilled teams repair cracks and surface damage to walls, floors, soffits, upstands and drainage to prevent ingress and future deterioration.

## Degraded steel & concrete surface repair & reinforcement

We apply targeted repairs, protective coatings and reinforcements to degraded steel and concrete surfaces to reduce deterioration and risk of asset failure, improve safety, and extend operational lifespan.

## Flow dynamic enhancements

By redesigning inlet and outlet configurations, modifying internal structures, and improving circulation patterns, we optimise water flow dynamics to support consistent water quality.

## Hatch refurbishment

Our access cover and hatch refurbishments include upstand repairs, hatch replacements and hatch re-bedding to restore secure, watertight access points and safe access while ensuring minimal disruption to services.

## Impounding reservoir works

Our comprehensive impounding reservoir works maintain safety, structural integrity, and reliable water storage. Services include inspection and refurbishment of small dams, spillways and wave walls, and associated access structures.

## Membrane repair & leak sealing

Our liquid and sheet membrane solutions protect potable water assets from contamination and extend their longevity. Our experts help clients select the right solution based on time, cost and sustainability factors.

## Overbanding & concrete joint repair

Following rigorous inspections our expert engineers identify areas of potential ingress or reduced concrete integrity and deliver comprehensive repairs and leak-sealing.

## Pipework recoating, repair & realignment

Our pipework services address corrosion, leaks, and alignment issues to extend their flow efficiency and operational reliability and lifespan.

## Reservoir embankment stabilisation

We undertake minor improvements to major earthworks to ensure reservoir embankments maintain structural integrity and to reduce the risk of catastrophic failure.

## Re-waterproofing of storage & treatment assets

Services include concrete repairs, overbanding, coating application and membrane installation to protect water storage assets from contamination, safeguard water quality and increase asset lifespans. Each solution is tailored to our client, their asset, and environmental requirements.

## Roof refurbishment

We're equipped to refurbish or replace a variety of roofing types including steel, concrete and GRP across a wide range of asset types. We provide the necessary waterproofing to enable assets to stand up to operational demands.

## Spillway repair & refurbishment

Our spillway programmes ensure impounding reservoirs maintain regulatory compliance. From minor mortar repairs to extensive stone and brickwork re-bedding, our work restores structural integrity while helping to prevent future erosion.

## Structural reinforcement and waterproofing

From minor repairs to section replacement or re-building, our concrete, steel and brick repairs to tank walls and roofing protect the integrity of critical infrastructure and extend operational reliability.

## Surge vessel regulation compliance works

Surge vessel upgrade works ensure pressure vessels remain safe from system failure and meet evolving regulatory standards. Our refurbishments save thousands when compared to replacement and avoid the challenges associated with removal and installation of vessels into vessel housing.

## Water tower refurbishment

We carry out full water tower refurbishments to maintain structural integrity, water quality, and regulatory compliance. Our interventions include structural repair, re-waterproofing, protective coating application and necessary access improvements.

## Waterproof membrane installation

We tailor our membrane solutions to the needs of our clients and their assets. For cost-saving, shorter-term solutions we offer flexible membrane solutions and for full refurbishments designed for long-term resilience we install advanced liquid membrane systems.



## Tank & reservoir refurbishment

We deliver comprehensive refurbishment programmes to restore asset functionality, compliance, and longevity. We consult with our clients to identify their key priorities and deliver comprehensive works to restore assets without replacing them.

Full refurbishment schemes include:

- Cleaning
- Inspection
- Concrete repairs
- Overbanding
- Re-coating
- Roof membrane replacement
- Drainage improvement
- Pipework and valves
- Civils and landscaping
- Embankment stabilisation
- Hatch and upstand replacement or installation
- Access upgrades
- Handrails and safety features

## Why choose us?

We've been trusted by the water industry for over 40 years to deliver specialist reservoir life extension solutions.

Holding frameworks with most of the UK's water companies, we're best known for our commitment to driving best practice and innovation. From targeted repairs to major refurbishments, our programmes add years to the lives of service reservoirs while reducing costs to clients and the environment.

- **Commitment to best practice:** We're setting the benchmark for safety, quality and compliance across every project.
- **Agile and responsive:** We mobilise quickly and adapt to our clients' operational needs.
- **Whole-life asset approach:** We care about extending asset life, not just fixing today's problem.
- **Reducing whole-life operating costs:** We deliver smarter solutions that lower long-term expenditure.

# Case study

## Aqueduct repairs (Liner installation)

Budget-conscious, timely and low-carbon solution was required to address a leaking aqueduct

### The need

- Regular flooding within a residential area was being caused by egress from a nearby aqueduct.
- The proposed client plan to replace the pipeline was over budget, time-consuming and carbon intensive.

### The solution

We proposed the use of a large section of DWI approved high density polyethylene (HDPE) liner to be fitted within the damaged pipe, negating the need for its replacement and provided long-lasting resistance to corrosion and abrasion

### The benefits

- Risk of leaking from aqueduct addressed and eradicated.
- Removed consequential flooding hazard to community.
- Maximised budget whilst limiting carbon and time on site.
- Improved community relations.



Create





Our climate is changing and the demand for drinking water is continually increasing, driving the need to enhance water network resilience. When necessary, we have the capability to design, engineer and build new assets to meet present and future challenges in a smart and sustainable way.

## **Leading the way, sustainably**

From small-scale bespoke solutions such as hatches to large-scale distribution reservoir builds, our created assets are delivered smartly using recycled materials and low-carbon techniques to reduce waste and environmental impact.

## **Creating more than assets**

Our carbon-conscious builds and green engineering programmes aim to alleviate the challenges of climate change and freshwater scarcity, delivering improvements for the environment and securing affordable prices for consumers.

# Water asset creation services

## **Access fabrication & installation**

We design, fabricate, and install access solutions for all potable water assets, ensuring safe, reliable and compliant entry. Access solutions include bespoke hatches, ladders, platforms, metal and concrete steps, walkways, gravel paths, handrailing and gates.

## **Concrete & steel staircase installation**

We deliver custom concrete and steel staircases to provide durable, safe, and compliant access to clean water infrastructure. Our engineers pride themselves on their exceptional attention to detail and delivering solutions for even the most challenging sites.

## **Concrete base installation**

Our teams are experts in installing custom concrete bases for tanks, reservoirs and other structures. Our base solutions guarantee stability, structural integrity, and long-term durability under operational loads.

## Distribution service reservoir & tank construction

We deliver the full construction of distribution service reservoirs and storage tanks. Our reservoir creation programmes cover concrete and steel, round and square tanks, designed optimally to fit the operational requirements, site footprint and existing infrastructure.

## Dividing wall installation

Reservoir and tank dividing walls improve structural integrity and flow management. We supply steel, concrete and brick structures to alter internal layout to improve flow dynamics, increase structural integrity, and enable tank extension works.

## Drainage & ducting installation

Proper drainage prevents flooding and protects potable water assets from risk of ingress. We deliver small installations to large scale tank perimeter drainage, including necessary excavation works, pipe installation, connections to existing pipework and reinstatement.

## Why choose us?

Our asset creation programmes combine engineering expertise with efficient and environmentally friendly delivery practices.

From small storage tanks to large-scale distribution service reservoirs, our construction programmes are timely, cost-effective and sustainable.

- **Full life-cycle specialists:** We design and build new potable water assets from concept through to commissioning.
- **Agile, direct-delivery model:** We provide rapid mobilisation, streamlined decision-making and greater programme control.
- **Highly trained, multi-skilled teams:** Offering expertise across water asset design, construction and engineering.
- **Uncompromising compliance standards:** We have specialist knowledge of regulations and industry requirements.
- **Proven delivery record:** Over four decades successfully building service reservoirs and water storage assets across the UK.

## Excavation & groundworks

Our excavation and groundwork services prepare sites for infrastructure installation. We ensure accurate, safe, and efficient preparation for tanks and pipework while prioritising environmental considerations and waste reduction.

## Flexible liner installation

Our flexible liners provide durable water containment offering a faster and more cost-effective alternative to liquid membrane systems to protect water quality, meet regulatory standards and extend asset lifespan by several years.

## General fabrication

We deliver high-quality, bespoke components for all potable water asset needs. From hatches to access, our skilled engineers provide innovative solutions to any problem.

## Pipework installation

We install pipework in a range of potable water systems, undertaking detailed surveys to ensure new pipes feed seamlessly into existing infrastructure.





# Case study

## Slow sand filter programme - Innovation

## In summary

A cost effective and environmentally friendly refurbishment strategy was required to prolong the lifespan and extend the maintenance cycle of thirty-two slow sand filters (SSF's) by 2028. Twenty-five percent of the programme is already complete.

**67,000**

reduced carbon concrete blocks installed per bed.

**389**

tonnes of embodied carbon saved so far (approx. 95% reduction).

## The need

- Original SSF concrete floors were over 40 years old.
- Deterioration was impacting the assets' functionality and water quality.

## The solution

- Removal of existing floors.
- Installation of over 67,000 innovative concrete blocks per floor.
- Specifically designed blocks for use on this scheme (co-designed with the manufacturer).

## The benefits

- Consistent filtration performance realised across the slow sand filter beds.
- Installation of the bricks was a European first.
- The porous concrete blocks:
  - Reduce installation time by 25%
  - Are 30% cheaper than traditional methods
  - Enable the possibility of patch repairs - enhanced longevity
  - Provide reduced levels of embodied lifecycle carbon
  - Offer increased durability
  - Filter 3% more litres per second compared to the original method



An aerial photograph of a wastewater treatment facility. The image shows several rectangular basins. One central basin is filled with brown, turbid water. Surrounding this and other basins are large areas of reedbeds, which are densely packed with tall, dry, brown reeds. The basins are separated by concrete or stone walls, some of which have green-painted sections. The overall scene is a mix of natural vegetation and industrial infrastructure.

# Wastewater

Our sustainable maintenance, asset enhancement and infrastructure creation programmes for conventional and nature-based wastewater treatment systems help our clients confront contemporary challenges.

Our work ensures that wastewater assets maintain maximum resilience so that processing systems continue to perform optimally. From settlement and storm tanks to biological treatments such as reedbeds, we assist our clients to create and maintain resilient systems that effectively process sewage and address storm overflows. Partnering with our clients, we develop innovative, sustainable solutions that contribute to a cleaner, healthier future for all.

# Wastewater assets and infrastructure



Storm tanks



Sludge tanks



Holding tanks



Combined sewer overflow



Settlement tanks



Treatment tanks



Reedbeds



Lagoons



Trickling filters



Outfalls



Filter tanks



Wet wells



Artificial wetlands



Bio-filters



Septic tanks



Drainage



Access steps & platforms



Storm lakes



Digesters

# Consult

Our collaborative approach harnesses the collective knowledge of our clients and expert engineers to co-create innovative, low-carbon and cost-effective solutions throughout all stages of the wastewater treatment process. Supported by industry-leading techniques and cutting-edge technology, we're able to fully understand the challenges our clients face to identify the best solution to any problem.

## **Providing advanced understanding**

Our team of specialist engineers combine extensive expertise with industry-leading techniques and cutting-edge technology to fully understand clients' wastewater asset needs.

## **Delivering efficient and sustainable outcomes**

We use our detailed understanding of asset health and client requirements to inform feasibility assessments and optioneering. Together with our clients, we identify the optimal design and programming to guarantee the most sustainable, cost-effective and efficient solution.





STANTON  
PRECAST

2000mm dia



stanton

# Wastewater asset **consultation** services

## **Bathymetric sonar surveys & 3D modelling**

Bathymetry surveys use sonar to visualise unsafe or difficult-to-access areas such as sludge lagoons. The highly repeatable survey method can be re-run in future to make accurate comparisons.

## **Condition surveys, investigation & inspections**

Using both visual and technology-assisted methods, our expert engineers provide detailed assessments of wastewater assets to identify defects, assess risk, and deliver practical recommendations for the most efficient and sustainable management solution.

## **Drone & confined space surveys**

Our specialist confined space drone surveys hard-to-access or dangerous locations to accurately inform solutions planning. Our approach captures high-resolution real-time footage to deliver detailed inspections while minimising costs and keeping workers safe.

## Laser scan structural condition surveys

Laser scans create precise, high-resolution 3D models of wastewater structures. The laser scan survey allows detailed condition assessment and structural analysis to inform long-term asset management and optimise capital investment.

## ROV underwater investigation & inspections

Remotely Operated Vehicles (ROVs) enable safe underwater inspections of submerged storm tanks, treatment tanks, and other wastewater infrastructure. This technology eliminates the need to empty tanks and provides valuable data on water quality.

## Carbon reduction strategy

We work with our clients from the early stages to identify ways to reduce embodied carbon in their asset refurbishment, modification or creation projects. Using the Carbon Curve to inform decisions, our expert engineers help find the most sustainable infrastructure solution.

## Why choose us?

We care about sustainability and combine this with a long-standing reputation for driving innovation.

Our early contractor involvement (ECI) allows engineers to engage with clients from survey and design stages to help inform ways to deliver infrastructure maintenance, enhancement or creation schemes that drive down embodied and operational carbon.

- **Sustainability-led delivery:** We embed environmental responsibility into every stage of design and construction.
- **Innovation-driven solutions:** Our team challenges conventional approaches to improve performance and efficiency while reducing embodied carbon.
- **Early contractor involvement (ECI):** We collaborate with our clients from survey and concept stages to shape smarter, more sustainable solutions.
- **Whole-life infrastructure thinking:** Our programmes balance performance, resilience and long-term sustainability from day one.

# Case study

## Converting existing storm tank into holding tank

## In summary

Repurposing storage on site, with the design and build of a new storm tank and turning the existing storm tank into a secondary holding tank.

**£500,000**

savings made with proposed alternative solution.

**100%**

landfill avoidance of waste materials.

**1<sup>st</sup>**

new opportunity for desludging capability.

## The need

- Client's initial plan was to demolish redundant storm tanks, leave existing primary storm tank decommissioned but in situ and build the replacement - programme exceeded budget.
- New storm tank required to provide additional capacity ensuring EA compliance due to failures.
- Risk of ingress contamination and microbial growth.
- Reduced structural performance.

## The solution

- Alternative solution proposed build of new primary storm tank, with existing to become a secondary holding tank, enabling primary tank to be regularly de-sludged and maintained.
- Design and build of new storm tank.
- Associated works for turning secondary tank into holding tank.
- Increased capacity by 34 cubic metres - from 196 to 230 cubic metres.

## The benefits

- Significant cost savings compared to original, client-proposed scheme.
- Eradication of ingress risk through repairs.
- Asset compliance and improved water quality.
- Minimised waste by repurposing site materials for new wildlife habitat.
- Additional storage capacity created.



# Maintain





Our timely and robust wastewater infrastructure maintenance ensures assets continue to operate optimally, protecting their longevity and avoiding environmentally harmful and costly interventions. From concrete treatment tanks to reedbeds, our routine maintenance services address issues promptly to avoid system failures while causing minimal disruption to the asset's operation and the surrounding environment.

## **Protecting assets and enabling resilience**

Our routine maintenance and repair services address issues promptly and efficiently to prevent system failures and costly emergencies while causing minimal disruption to the wastewater processing site and the surrounding environment.

## **Ensuring long-lasting performance**

We are experts in sustainability. Our environment-conscious programmes maintain the safe condition, reliability and operability of wastewater assets without compromising the future. By optimising performance and resilience, we help reduce spills and pollution incidents, protecting our rivers, habitats and the communities that depend on them. From storm tanks to reedbeds, our sustainable maintenance programmes keep systems operating at peak performance, responsibly and sustainably.



Wastewater  
asset  
**maintenance**  
services

## Corrosion protection

Combining surface preparation with the application of specialist coatings, we protect assets against the harsh wastewater environment. We select appropriate methods and products and combine with stringent testing to guarantee reliability and compliance.

## De-sludging

Sludge tank desilting removes accumulated sediment and restores tanks to full storage capacity and operational efficiency. Our teams follow rigorous safety and environmental procedures to protect staff and discharge water quality.

## Flap valve repair

We deliver timely and robust repairs to a vast range of flap valve types, offering bespoke fabrication services for unique configurations.

## Liner repair

Our specialist teams are experienced in inspecting, fitting and replacing tank and lagoon liners. We'll assess liner condition and cost options with our client, offering patch repair or full replacement outcomes.

## Outfall location & repair

Our teams are experienced at locating outfall structures and complete the necessary remedial works to ensure they remain safe and regulation compliant.

## Tank cleaning

Our teams are equipped to use high-pressure water jetting (HPWJ) to safely remove residue from wastewater assets, enabling accurate inspections and repairs.

## Tank leak prevention & repair

Our teams identify vulnerabilities in brick, concrete and steel structures, delivering targeted repairs to seal potential ingress points. We schedule delivery to ensure minimal disruption, working on live assets where possible.

# Case study

## Reedbed refurbishment

## In summary

Sustainable refurbishment of a reedbed located near one of UK's largest wetland nature reserves in the South of England. The reserve supports a nationally important wildfowl habitat, plus freshwater and saltwater habitats.

**320**

square meters of reedbed refurbished.

**2600**

*Phragmitis australis*  
reeds planted.

**95%**

Phosphate removal.

## The need

- Full environmental assessment required.
- Overflowing bed due to blockages and clogging silt.
- Reduced performance and limited carbon sequestration.
- Risk of water contamination and loose media affecting nearby nature reserves and specialist water habitats.

## The solution

- Removal of existing reeds and overgrown vegetation.
- Excavation of existing silt and sand layers.
- Installation of gravel media and Phragmites Australis specialist reeds.
- Re-purposing of existing control devices, pipework and chambers.

## The benefits

- Optimised solution to reduce nitrogen and phosphorus.
- Mitigated risks to nearby environments and habitats.
- Maximised carbon sequestration and biodiversity enrichment.
- Reduction in waste and associated carbon by reusing reclaimed onsite materials.



# Enhance

We help clients upgrade and maximise their existing infrastructure, reducing the need to build new. Our innovative wastewater asset enhancement programmes support clients in tackling the impacts of climate change – increasing resilience, mitigating flash flooding and preventing pollution spills into the wider catchment. By modernising ageing and obsolete assets, we save time and cost while ensuring infrastructure complies with evolving regulatory standards and is robust enough to stand the test of time.

## Transforming Britain's wastewater infrastructure

We strive to find innovative ways to breathe new life into existing infrastructure to expand our clients' sewage processing capacity. From refurbishing existing assets to repurposing obsolete facilities, our tailored enhancement programmes cost a fraction of building new, reduce asset downtime, and achieve goals without compromising the environment.

## Enhancing biological solutions

Our expert enhancement programmes extend beyond traditional, grey-box infrastructure. Our reedbed and artificial wetland refurbishment services increase site sustainability, improve effluent quality and promote optimal wastewater processing.





# Wastewater asset **enhancement** services

## **Access refurbishment & upgrade**

Our comprehensive access refurbishment and upgrade services improve safety and compliance. Hatches, ladders, hand railings and concrete and steel steps are bespoke manufactured to ensure reliable entry for routine maintenance and emergency interventions.

## **Brick & concrete repairs**

We provide minor and extensive repairs to brick and concrete structures, including concrete structural reinforcement, crack repair and rendering, and brick mortar repairs, re-pointing and re-setting.

## **Lagoon liner repair & replacement**

Our specialist teams carry out comprehensive assessments of tank and lagoon liner conditions and work closely with clients to review cost-effective repair options. Depending on the findings, we can provide targeted patch repairs or undertake full liner replacement.

## **Protective coating application**

Our specialist coating application protects assets against the corrosive wastewater environment. We select appropriate preparation, methods and products and combine with stringent testing to guarantee reliability and compliance.

## Pipework recoating

Regular external and internal pipework maintenance extends longevity and helps prevent system failures. We clean and prepare surfaces before applying specialist anti-corrosion coatings under strictly monitored conditions and testing integrity for a right-first-time result.

## Reedbed refurbishment

Reedbeds require regular maintenance to function optimally. We assess reed bed health, remove excess sludge, repair liners, and depending on condition, plant or re-plant reeds. All programmes are delivered with sustainability and waste reduction in mind.

## Storage & treatment tank refurbishment

We deliver comprehensive refurbishment of storage and treatment tanks to restore functionality and extend asset life. This typically includes cleaning and inspection, structural wall and roof repairs and lining or coating replacement, tailoring our approach to client goals.

## Why choose us?

As experts in asset life extension for over 40 years, we're trusted by water companies to deliver refurbishment programmes that breathe life into aging assets.

Our interventions range from adding years to an existing asset to bringing dilapidated or redundant assets back into service. As client's face pressure to increase wastewater site capacity, our infrastructure enhancement schemes provide a fast, sustainable, and cost-effective solution.

- **Sustainable solutions:** Our asset life extension projects reduce the need for carbon-intensive new builds.
- **Cost-effective investment:** By maximising existing infrastructure, we lower capital and whole-life costs.
- **Fast delivery:** Efficient refurbishments of existing assets cuts months off programme timeframes.

## Storage & treatment tank re-waterproofing

Services include concrete repairs, coating application and liner or membrane installation to protect wastewater assets from degradation. Each solution is tailored to our client, their asset, and environmental requirements.

## Stone repairs & re-bedding

Our specialist engineers are experienced in stone masonry and are equipped to deliver repairs, re-bedding, and stone replacement using traditional and modern techniques, restoring structural stability and aesthetic quality.

## Storm tank modifications

Modifying and extending tanks to meet regulatory compliance and increase storage during storm events. We assess site capacity and design feasibility to identify best-value, sustainable solutions before building with minimal operational disruption.

## Why choose us?

Our storm tank programmes ensure clients adhere to minimum storage requirements and avoid overflows.

We engage with clients from survey and design stages to assess current asset capacity and calculate the most cost-efficient, low-carbon design, utilising existing infrastructure before building new.

- **Solving tomorrow's problems:** Our stormwater storage solutions future-proof treatment works against climate change, increasing demand and evolving regulations.
- **Cost-efficient delivery:** We identify the most effective solution to meet precise volume requirements without unnecessary spend.
- **Optimising existing infrastructure:** We'll always maximise current assets before considering building new ones.
- **Low-carbon design approach:** We use the Carbon Curve to inform smarter solutions and reduce emissions during build and operation.

# Case study

## Refurbishment of treatment tanks

**£2.5m**

saved by avoiding unnecessary rebuild.

**389**

tonnes of embodied carbon saved.  
(approx. 95% reduction)

**550**

tonnes of waste saved.

## In summary

Internal and external refurbishment works to six primary, humus and filter tanks within a wastewater treatment facility.

### The need

- Tanks unfit for purpose - action from EA to remedy
- Affecting production capabilities and ferric dosing upgrade
- Leaking effluent into wider site and localised foul drain
- Significant health and safety risks on site

### The benefits

- Significant cost and carbon savings
- Extended asset lifespan by over ten years
- Enabled ferric dosing upgrade
- EA compliant
- Delivery schedule reduced by 9 months

### The solution

- Comprehensive, low carbon refurbishment works
- Live working to enable continued operation
- Membrane system to withstand corrosive conditions

# Create





Our climate is changing, and the UK's wastewater network is under increasing pressure. Flash floods and extreme weather events are overwhelming our system, leading to pollution spills that impact communities and the environment. When necessary, we design, engineer and build new assets that are smart, robust and sustainable – meeting today's demands and tomorrow's uncertainties.

## **Creating change, sustainably**

From small-scale modifications to large-scale tank builds, our created assets are delivered smartly using low-carbon methods such as off-site construction to reduce their environmental impact.

## **Employing nature's services**

Our nature-based solutions including reedbeds and artificial wetlands offer effective biological treatment while enhancing climate change resilience, protecting water quality, and helping clients achieve biodiversity net gain (BNG) and carbon targets.

# Wastewater asset **creation** services

## **Access fabrication & installation**

We design, fabricate, and install access solutions for all wastewater assets, ensuring safe, reliable and compliant entry. Access solutions include bespoke ladders, platforms, metal and concrete steps, walkways, gravel paths, handrailing and gates.

## **MEICA installation**

Provision of specialist mechanical, electrical, instrumentation, control, and automation (MEICA) installations for treatment facilities. From design to commissioning, we deliver fully integrated, compliant, and high-performance systems.

## **Reedbed construction**

Our expert teams design and build reedbed systems to meet environmental and regulatory requirements. We ensure correct bed grading, liner installation, and planting for efficient, sustainable wastewater treatment.

## **Storage tank construction**

We construct storage tanks to exacting standards, from foundation preparation to full structural completion. Assessing each project with our client, we select materials and methods that meet client's goals and increase sustainability.

## Tank foundations

Our teams are experts in installing custom foundations for tanks and other structures. Our solutions guarantee stability, structural integrity, and long-term durability under operational loads.

## Treatment asset construction

We deliver complete construction of wastewater treatment assets, including tanks, reed beds, and ancillary structures. Our teams manage all stages from design and civil works to installation and commissioning to ensure reliable, compliant, and long-lasting performance.

## Storm tank construction & extension

We design and build new storm tanks or extend existing ones to improve capacity and maintain compliance. Our teams manage all aspects, including excavation, structural works, lining, and final commissioning, with minimal disruption to site operations.

## Why choose us?

Our asset creation programmes combine engineering expertise with efficient and environmentally friendly delivery practices.

From small wastewater storage tanks to large process tanks and treatment structures, our construction programmes are timely, cost-effective and sustainable.

Working with clients from the earliest stages, we identify designs, materials and construction methods that reduce lifecycle costs, cut carbon emissions and ensure new wastewater assets integrate smoothly with existing infrastructure.

# Environment



Our nature-based solutions support ecosystems, protect people, and enhance the quality and resilience of water resources – all with the aim of creating a better, more sustainable environment. Whether the task is habitat creation or community safeguarding, our environmental programmes are designed to work with nature, not against it.

Our team of environmental specialists are dedicated to helping clients achieve their goals in a way that is kind to our planet and promotes sustainability. Our green engineering programmes and nature-based solutions help restore biodiversity and mitigate the impacts of flooding and drought. From natural food management to river restoration and wetland creation, our projects safeguard resources and protect communities from the extreme weather events associated with climate change.

## Environment assets and infrastructure

-  Channels, culverts, embankments & bridges
-  Weirs
-  Watercourses
-  Fish & eel passes & fish counters
-  Wetlands
-  Aqueducts
-  Flood defences & sea outflow
-  Sustainable drainage systems (SuDS)
-  Access steps & platforms
-  Gabion baskets
-  Invasive species management
-  Badger sets
-  Lagoons, lakes, ponds, parks, rivers & streams
-  Groundwork
-  Boardwalks
-  Gauging & hydrometric stations
-  Tree management
-  Sluice gates
-  Constructed wetlands

# Consult

Our collaborative approach harnesses the collective knowledge of our clients and expert engineers to co-create innovative, sustainable and cost-effective solutions throughout the catchment. Supported by industry-leading techniques and cutting-edge technology, we understand the specific environmental requirements and the challenges our clients face, enabling us to identify the best solution for both built and natural assets.

## Understanding the problem

Our team of highly skilled, specialist engineers combine extensive expertise with industry-leading techniques and technology to fully understand clients' needs.

## Delivering sustainable solutions

Our detailed understanding informs innovative solutions that deliver low-carbon outcomes and increase environmental sustainability. For projects varying from fish passes to the restoration of chalk streams, we provide expert feasibility assessments to identify the optimal design and programming.





# Environment asset **consultation** services

## Culvert inspections

Using visual assessments and advanced tools, our engineers perform thorough inspections of culverts to assess structural integrity and identify maintenance needs.

## Ecological consultancy

Our expert guidance on habitat protection and environmental impact mitigation during infrastructure planning supports clients in meeting regulatory requirements while promoting sustainable project delivery and biodiversity net gain.

## Fish surveys

Our fisheries team are equipped to conduct fish population and aquatic ecology surveys to help assess watercourse health. Our passionate and experienced team ensure compliance with environmental and local ecosystem safeguarding practices.

## Flood embankment surveys

We carry out detailed surveys of flood embankments to evaluate their condition and resilience. Our assessments help identify risks and inform maintenance or upgrade strategies to reduce flood risk.

## Hydrological surveys

Hydrological surveys analyse catchment hydrodynamics to support water resource management and infrastructure design. The data we collect informs decision-making and facilitates sustainable outcomes.

## River surveys

Our river surveys assess channel morphology, water quality and ecological health to inform designs for flood risk management (FRM) and restoration projects.

## ROV & confined space inspections

Our specialist confined space drones survey hard-to-access environmental assets to inform solutions planning. Our approach captures high-resolution real-time footage to deliver detailed inspections while minimising costs and keeping workers safe.

## Sonar & bathymetric surveys

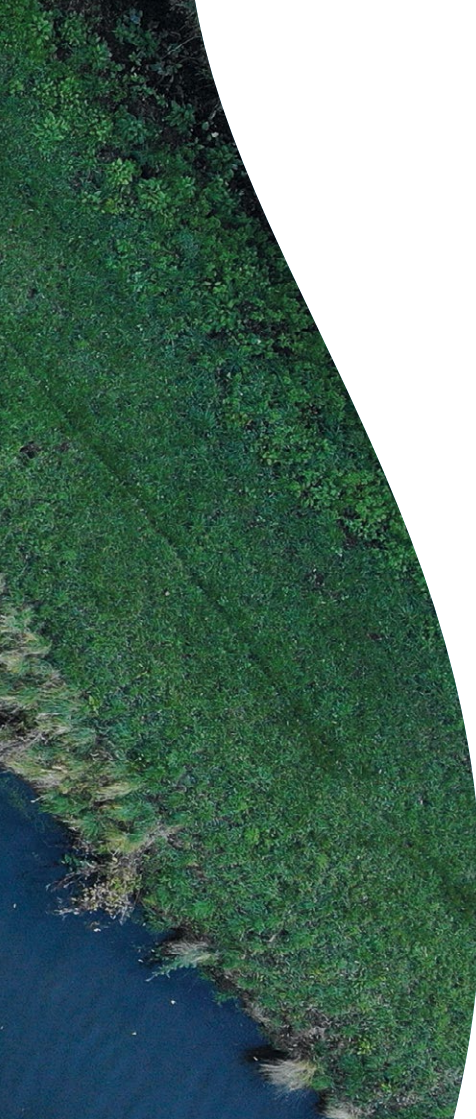
Our sonar and bathymetric surveys map underwater terrain precision, enabling us to capture data from hard-to-access areas like ponds, lakes and canals. Surveys aid in asset management, dredging projects, and environmental monitoring, reducing costs and risks to operatives.

## Water quality sampling

We conduct regular water quality sampling and analysis to monitor the chemical and biological status of waterbodies. The data informs management planning and regulatory compliance activities.

**Maintain**





Our timely and robust environmental asset maintenance ensures built and natural assets continue to operate optimally, protecting their longevity and avoiding environmentally harmful and costly interventions. Our routine services throughout the catchment address issues promptly to avoid system failures while causing minimal disruption to the asset's operation and the surrounding environment.

## Maintaining environmental assets

From trash screen clearances to fish pass repairs, our routine maintenance services address issues promptly, preventing failures and costly emergencies while causing minimal disruption to the asset's operation and the surrounding environment.

## Protecting natural capital

Our catchment-wide projects help maintain a balanced ecosystem. From invasive species management to channel clearances, our sustainable programmes keep natural systems functioning in a safe and effective way.

# Environment asset maintenance services

## Badger netting

Our badger netting services protect watercourse banks from burrowing animals to maintain their stability. We ensure compliance with ecology permits, safely re-locating badgers to artificial setts over several weeks.

## Channel clearance

Channel clearance works remove debris, fallen trees, sediment, and overgrown vegetation. Our comprehensive programmes eliminate blockages, improve water conveyance and reduce flood risk.

## Fish rescue

Our fisheries team have extensive experience in conducting safe, efficient fish rescues to allow environmental management and infrastructure projects to take place without delay and with minimal disruption to the local environment.

## Grass cutting

Regular grass cutting discourages animal burrowing on critical embankments and maintains safety around water and environmental assets. Our teams undertake large-scale projects on annual maintenance regime programmes.

# Why choose us?

Our specialist environmental teams are passionate about protecting the planet and the life it supports.

Highly experienced in fish capture and release and fully **Swiftwater trained**, they provide assurance that works in and around watercourses are carried out safely and efficiently.

Our teams have the capability to mobilise for both routine and emergency responses to support environmental and infrastructure management. Whether undertaking routine vegetation maintenance or responding to emergency flood conditions, our conscientious team can be relied upon.

## Grounds maintenance

Comprehensive grounds maintenance includes grass cutting, hedge management, litter removal and hazard inspections to ensure operational and public sites remain safe, tidy and accessible.

## Hydrometric station maintenance

We provide a range of maintenance solutions for hydrometric stations, including building and telemetry infrastructure. Our programmes are completed timely, and with minimal disruption to support accurate and reliable data collection for water flow and level monitoring.

## Invasive non-native species (INNS) removal

Our expert teams identify and remove invasive non-native species using both mechanical and chemical measures to protect native biodiversity. Strategies are matched to the environment and weed type for maximum efficacy and compliance with environmental regulations.

## Pond & canal de-silting

Our de-silting operations to restore pond and canal capacity, maintain operability of submerged infrastructure, and reduce the risk of flooding while improving water quality and habitats for aquatic life.

## Pond maintenance

Pond and lake maintenance is important to promote ecological health. Services include desilting, vegetation management, and algae control using sustainable, environmentally friendly methods such as barely straw baling to inhibit growth.

## Telemetry maintenance

We maintain the infrastructure that supports telemetry systems at gauging stations, such as housing and kiosks, ducting and MEICA to support accurate watercourse monitoring.

## Tree felling & trimming

We supply certified arborists to deliver safe near-watercourse felling during our tree and hedge management programmes. Our trimming and felling services maintain safety around watercourses and help prevent dangerous embankment collapse or falling trees.

## Vegetation clearance

Clearing overgrown vegetation improves access, reduces blockage risks, and maintains clear watercourse margins to ensure compliance and operational safety. We use battery powered tools where possible to increase sustainability.

## Water feature maintenance

We provide specialist maintenance that keeps water features and decorative ponds looking and operating at their best. Interventions include aquatic weed control, pump system maintenance and cleaning.

## Weed control

Weed control in and around watercourses reduces flood risk. We assist clients in managing non-native and overgrown native weeds from within and around watercourses, using a range of methods to suit the environment and type of vegetation.

## Wrack & trash screen clearance

Our trash and wrack screen maintenance programmes involve locating, inspecting and removing debris from trash screens to prevent blockages. If screens are damaged, we're equipped to supply bespoke replacements.



# Case study

## Flood mitigation works

We completed flood mitigation works on an 800-metre stretch of river to improve flood resilience and enhance biodiversity.

## In summary

- Historic flooding and reduced channel capacity highlighted the need for targeted flood mitigation along a stretch of river.
- Vegetation clearance, ecological supervision, fencing, hedge planting and silt removal were delivered to restore performance and resilience.
- Sustainable measures, including solar-powered water supply for livestock and biodiversity net gain planting, were incorporated into the programme.

**800**

metres of riverbank maintained.

**200**

cubic metres of silt removed from below the road bridge.

**5000**

native hedge whips planted in biodegradable guards.

## The need

Following significant flooding over several years, a stretch of riverbank had matured with little maintenance, reducing both attenuation and conveyance of floodwater.

The Environment Agency required a programme of flood mitigation measures to restore channel capacity, slow water above the village, and move it downstream swiftly, while also delivering environmental improvements.

## The solution

We began with an initial vegetation cut along the 800-metre stretch. This was carried out from the shallow watercourse to avoid in-channel working once the salmonid spawning season began.

Vegetation was cleared from the channel bed to the top of the banks and around in-channel structures including headwalls, bridges and flood walls. Trees under 200mm in diameter were also removed.

Due to the sensitive nature of the works, an Ecological Clerk of the Works (ECoW) was engaged to oversee all activities. Following a toolbox talk to the site team, the ECoW supervised works including a precautionary bat survey, where smaller trees were soft felled for inspection.

Larger trees were retained, and hedge cutting on the bank top was also carried out under ecological supervision.

To address poached cattle drinking areas that were damaging spawning gravels, fencing was reinstated and a solar-powered system installed to pump water from the river to troughs, meeting landowner requirements. The protected areas were planted with around 5,000 native hedge whips in biodegradable guards to achieve biodiversity net gain.

Finally, a silt berm below the road bridge, which had been causing a significant blockage, was removed. A small machine was mobilised to excavate around 200m<sup>3</sup> of silt, which was placed on the opposite bank and allowed to naturally vegetate.

The Environment Agency provided excellent feedback on the teams engagement with the local community and environmental mitigation measures

## The benefits

- Restores flood capacity and resilience along a stretch of river with a history of flooding.
- Protects sensitive species through ecological oversight and precautionary surveys.
- Enhances biodiversity by planting 5,000 native hedge whips and creating protected areas.
- Provides sustainable farming solutions with solar-powered water supply for livestock.

# Enhance

We deliver specialist environmental solutions throughout catchments to restore natural habitats and rehabilitating aging and obsolete environmental infrastructure. Our innovative environmental asset enhancement programmes save our clients time and money by achieving goals while preserving the environment and future water security.

## Restoring Britain's ecosystems

From wetland creation to river restoration, our nature-based programmes rebuild natural assets and reinstate the ecological processes that foster a healthy environment for people and wildlife.

## Letting nature work for us

By enhancing habitats, we restore biodiversity and the ecosystem services of water purification, flood and drought protection, and carbon sequestration.







Environment  
asset  
**enhancement**  
services

## **Bridge & walkway refurbishment**

We refurbish bridges and walkways to restore their structural integrity and safe access. Our expert engineers are equipped to tackle small vehicle bridges, foot bridges, decking, surfaces and handrails.

## **Dam & weir repair**

We specialise in repairing small dams and weirs using stone, brick, and concrete, blending repairs seamlessly with the environment. Our teams ensure structural stability while ensuring we manage water levels and protect downstream assets safely and sustainably.

## **Dam & weir removal**

Dam and weir removal projects are carefully planned and executed to restore river connectivity, natural morphology and habitat. Our teams manage ecology and flow controls to ensure safe removal with minimal environmental impact.

## **Emergency & scheduled riverbank stabilisation**

We provide both emergency response and planned riverbank stabilisation to address erosion, structural weakness and subsidence. Using appropriate engineering techniques and promoting green engineering wherever possible, our solutions support long-term resilience.

## **Fish & eel pass refurbishment**

Our fish and eel pass refurbishment services improve passage efficiency and ensure compliance with ecological requirements. Works include structural repairs, flow optimisation and debris management to support the safe migration of fish and eels.

## **River restoration**

We restore rivers to a more natural state, creating healthier habitats, richer biodiversity, and stronger flood resilience. From small in-river features to large geomorphology projects, our tailored interventions help watercourses thrive for people and wildlife alike.

## Flood embankment stabilisation

We strengthen vulnerable embankments to reduce erosion and failure risk. Our targeted interventions include retaining walls, stone riprap, sheet piling, underpinning, and hybrid green solutions such as coir matting and geotextile bags. Sustainable solutions are always prioritised.

## Lagoon & harbour de-silting

Lagoon and harbour sediment removal restores capacity, improves water quality, and keeps submerged assets such as flood gates and telemetry functioning efficiently. We tailor methods for the environment and carefully monitor water quality throughout our programmes.

## Pond, lake and lagoon liner repair & replacement

We reinstate water retention across ponds, lakes and lagoons, working with a variety of liner systems. Our durable solutions are delivered with minimal downtime, low environmental impact, and careful consideration for surrounding habitats.

## Water feature refurbishment

We refurbish water features and ornamental assets to restore appearance, performance and reliability. Services include structural repairs, lining works, pump system upgrades and cleaning to ensure long-term operation and visual appeal.

## Why choose us?

We have extensive experience in river restoration, delivering one of the UK's largest weir removal schemes and dozens of other vital projects to restore Chalk streams and rivers in the north of England.

Our programmes range from small-scale improvements like the addition of leaky dams to slow the flow of watercourses, to large-scale channel reprofiling and flood plain creation.

Environmental protection is our top priority, with measures such as fish rescues, channel bypasses and plant management all carefully controlled to minimise risk to ecology.



# Case study

## Natural flood management and habitat restoration

We installed four 'leaky dams' using surplus local materials to slow peak flows, improve water quality and create new habitats in a protected upland river.

## In summary

- Natural flood defences were installed on a National Park to support both biodiversity and flow control.
- Surplus local materials were used to build four 'leaky dams', reducing cost and environmental impact.
- The structures now provide long-term habitat benefits while helping manage peak flows.

4

large woody structures installed.

1

upland river enhanced.

100%

natural materials used.

## The need

The client sought to enhance biodiversity and manage peak flows in an upland river within a protected National Park.

'Leaky dams' were identified as a sustainable solution to slow water conveyance, support fish migration, and improve spawning conditions.

## The solution

Our team installed four large woody structures using surplus oversized stone from a local quarry and a mix of logs and root plates from wind-blown trees on neighbouring farmland.

Using a spider excavator, the team placed the logs and stone with care to maximise flow diversity and habitat creation.

Each dam was designed to slow water during high flow events and maintain migratory pathways during dry periods, with additional benefits including the creation of eddies and pools to support spawning fish.

The project has provided a sustainable natural flood management solution that works with nature to enhance biodiversity and provide long-lasting environmental benefits.

## The benefits

- Creates sustainable, nature-based flood defences in sensitive locations
- Improves river habitats and supports fish migration and spawning
- Reduces reliance on hard engineering and supports circular material use



# Create





Our climate is changing, and the demand for water resources is continually increasing, making the protection and restoration of ecosystems more critical than ever. We have the capability to design, engineer, and build both grey and green assets within the water environment, enhancing catchment resilience, optimising environmental potential, and improving ecological health in a smart, sustainable way.

## Building sustainably

From fabricated solutions like fish counters to green engineering projects like leaky dams, our created assets are built smartly using recycled materials and low-carbon methods to reduce their environmental impact.

## Creating a resilient environment

Our nature-based solutions and green asset creation programmes prioritise whole-catchment thinking, restoring water ecosystems to enhance climate change resilience, protect water quality, and secure sustainable access to water resources for people and wildlife.

# Environment **asset creation** services

## **Access fabrication & installation**

We design, fabricate, and install bespoke access solutions – including gates, steps, and boardwalks – to provide safe access to watercourses and environmental assets. Each installation is built to maximise durability and minimise ecological impact.

## **Bridge construction**

Our bridge building programmes provide safe, durable crossings over rivers and streams. Our teams are fully trained in watercourse safety and work carefully to protect the environment, focusing on carbon reduction techniques, ecological protection and waste re-use.

## **Constructed wetland creation**

Wetlands improve water quality, create valuable habitats, and help manage flooding. Our teams deliver sustainable constructed wetland systems, tailored to each site's available footprint, individual hydrology and biodiversity.

## **Flood protection asset construction**

Our flood protection construction projects include embankments, walls, and other infrastructure to reduce flood risk. Prioritising green engineering, we deliver resilient and sustainable solutions that protect communities while respecting the surrounding environment.

# Why choose us?

Our team delivers both gravity-fed and pumped systems, installed in-river or overland, using specialist tiles that resist debris build-up and reduce maintenance.

We take an innovative approach to supporting fish and eel migration around assets, tailoring each project to site constraints and adapting our designs and construction methods. Every project is considerate of the surrounding environment and delivered to achieve biodiversity net gain.

## Fish & eel pass installation

We design and install fish and eel passes that help aquatic species move safely past river obstacles. Our systems, both gravity-fed and pumped, are tailored to each site and built to reduce blockages, minimise maintenance, and support smooth migration.

## Gauging station equipment installation

Our gauging station and telemetry infrastructure helps clients monitor flows. Our work includes kiosks and housing, telemetry arms and mounts, ducting, and other MEICA support elements to ensure reliable, ongoing data collection.

## Habitat creation

Habitat works support thriving ecosystems. Through the considerate delivery of wetlands, river restoration, tree planting, and other habitat creation projects, we promote long-term ecological health that benefits both nature and people.

## Headwall construction

We construct headwalls for culverts, drainage, and outlets to improve flow control, prevent erosion, and maintain structural integrity. Prioritising environmental protection and tailoring delivery for our clients' requirements, we ensure safe, efficient and sustainable outcomes.

## Monitoring equipment installations

Our knowledgeable engineers install environmental monitoring stations, sample kiosks, flow gauges, telemetry equipment and supporting MEICA infrastructure to help our clients gather reliable hydrological data.

## Natural flood management creation

Our natural flood management programmes include channel modifications such as leaky dam creation, tree planting and floodplain creation. These solutions reduce flood risk while enhancing habitat, soil health, and water quality.

## River re-meandering

River re-meandering projects restore natural channel shape and flow dynamics to reduce erosion and flood risk and improve biodiversity, water quality and climate resilience. Our teams are experienced at in-channel construction and conscientious about safety.

## Why choose us?

Our specialist environmental teams are dedicated to protecting sensitive environments and the species they support.

They put sustainability at the heart of every project, prioritising the re-use of materials such as aggregates and woody debris to minimise material removal from site.

Highly experienced in techniques such as fish rescue, channel bypass, and in-river construction and fully Swiftwater trained, our teams provide assurance of safe, efficient and sustainable outcomes.



# Case study

## Reconnection a river with a new fish pass

We installed a two-flight fish pass on a weir to restore fish migration routes and refurbish heritage assets at a Grade II listed pump house.

## In summary

- The site was identified as a significant barrier to fish migration at the site of a Grade II listed pumping station
- Construction involved a new two-flight Larinier fish pass, refurbishment of sluice gates and a bar screen, and removal of historic equipment for heritage display
- The project was completed with heritage preservation in mind and reconnected a river for the first time in 210 years

**2** flights of Larinier fish pass constructed.

**3** new mechanical assets installed, including 2 sluice gates and 1 bar screen.

**210** The amount of years since fish have been able to migrate on the stretch of river.

## The need

The weir restricted the movement of migratory fish along a stretch of river, preventing access to upstream habitats.

The Grade II listed pumping station on the site also required refurbishment to safeguard its heritage and maintain operational resilience. A combined solution was needed to improve biodiversity and protect the historic structure.

## The solution

Before works began, trees close to the listed structure were removed and the area was drained down. The existing bar screen, sluice gates and walkways were dismantled, and silt and debris were cleared to provide safe access.

One of the early 20th-century turbines was removed to create access to the two-storey undercroft and tailrace. The turbine has been preserved for inclusion in a future heritage exhibition, and through careful design, two of the three pumps can still be used once refurbished as part of a future project.

New reinforced concrete walls and floors were built beneath the pumping station to form the fish pass channel. Fabricated baffles were installed to create alternating flows, enabling fish to ascend past the weir.

The programme was briefly slowed by flooding in the region caused by storms, though these only caused minor delays and the project still reached completion on time.

Alongside the fish pass, a new bar screen and sluice gates were installed within a steel frame, with steel walkways and handrails to ensure safe future access.

A small area of Himalayan balsam was identified on site. Around 4m<sup>2</sup> of growth was lifted out, correctly disposed of and recorded, with follow-up monitoring planned through the summer months.

Following completion, the cofferdam was removed and the river reconnected through the new pass for the first time in 210 years.

## The benefits

- Restores fish passage along a river, reconnecting the upper and lower reaches for the first time in 210 years.
- Supports biodiversity by improving access to upstream habitats.
- Provides safe access for future inspections and maintenance.
- Protects industrial heritage at a Grade II listed pumping station.

Why you can  
**trust us**



**Trusted by the UK water industry:** We have worked with almost all UK water companies since their privatisation.

**Regulator and industry expertise:** Our experience with the Environment Agency gives us insight from both sides – the regulator and those being regulated.

**Expert direct-delivery engineers:** Our highly skilled engineers ensure quality and reliability in every project we deliver.

**Decades of experience:** We have a proven track-record of delivering safe, reliable, and sustainable water solutions for over 40 years.

**Industry recognition:** Commended by the Drinking Water Inspectorate (DWI) for setting the industry benchmark, we've built a reputation on quality, safety and innovation.

**Rigorous quality standards:** Our trusted reputation comes from strict adherence to manufacturer's instructions, accredited quality standards and consistent in-house monitoring, testing, and date-recording processes.

**Largest installer of DWI-approved products:** We're the UK's leading installer of Regulation 31-approved products.

**Innovation through collaboration:** We work with manufacturers to improve product quality and application based on real-world constraints and industry experience.

**Verified environmental, quality, and safety standards:** External verification confirms our compliance with internationally recognised standards in environmental management, quality, and occupational health and safety.

**Leading-edge technology:** Our partnership with Panton McLeod provides access to industry-leading technology solutions.

**Unbeatable value:** Our dedication to asset life extension and sustainable solutions means we deliver the highest value long-term outcomes.

**Uncompromising commitment:** We never compromise on water quality, safety, or environmental protection.

**Sustainability focused:** We're specialists in delivering sustainable infrastructure and environmental solutions that protect our planet and the people and life that inhabits it.

# Speak to our experts

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