

GLENFIELD INVICTA ENGINEERED SITE SOLUTIONS



**GLENFIELD INVICTA
ENGINEERED SITE
SOLUTIONS**







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WHO WE ARE

ON-SITE ENGINEERED SOLUTIONS FOR CRITICAL WATER INFRASTRUCTURE

Glenfield Invicta End-to-End Project Solutions deliver trusted, innovative market-leading valve and penstock engineering solutions that support critical UK Water, Wastewater, Hydropower and Non-Utility Infrastructure projects from concept to completion.

With over 170 years of engineering heritage, we have developed extensive expertise in delivering engineered valve and penstock solutions for complex water and infrastructure environments, supporting applications across clean water, wastewater, dams, reservoirs and hydropower.

Our fully integrated service model supports customers throughout the entire asset lifecycle - from initial survey

and design through to installation, commissioning, refurbishment and ongoing maintenance. This seamless and coordinated approach reduces interfaces, shortens programme timescales, lowers whole-life costs and minimises operational risk.

As part of the worldwide market leading AVK Group of companies, customers benefit from access to an extensive portfolio of high-quality valves, penstocks, fittings and engineered site solutions, backed by global manufacturing strength and local project delivery expertise.

Our multi-skilled project teams work collaboratively to deliver every project safely, efficiently and to the highest standards. Our Customer Charter underpins this commitment,

clearly defining the transparency, communication and service levels clients can expect at every stage. The result is delivery built on trust, accountability and continuous improvement.

Sustainability is central to our philosophy. We design and deliver long-lasting, innovative solutions that protect water resources, strengthen infrastructure resilience and support green energy initiatives such as hydropower. Through responsible operations and investment in local capability, we help safeguard communities and ensure the resilience of critical infrastructure for generations to come.

In addition, we continually invest in our service offerings. Glenfield



Invicta Engineering Site Solutions has the people, geographical footprint and systems to support optimised operational efficiency when meeting the needs of our customers.

Glenfield Invicta is committed to training the next generation of apprentices and engineers, we have recently invested over £2m in a 20,000 sq. ft. Learning Academy, which includes a purpose built visitor centre as well as an advanced manufacturing and distribution centre. We continually invest in our people, processes and technologies to remain at the forefront of the industry.

All products and solutions are fully compliant with UK, European and international standards - reflecting our uncompromising commitment to precision, innovation and performance.

THE TEAM WAS BRILLIANT FROM THEIR ATTENTION TO DETAIL, KEEPING THEIR COMMITMENTS, WORKING SAFELY WITHIN HAZARDOUS ENVIRONMENT AND ENSURING THAT THE NEW ASSETS FITTED PERFECTLY WELL ON SITE.

THE DEDICATION AND COMMITMENT MADE ON SITE, OUR CUSTOMERS AND OUR NETWORK SHALL SEE THE BENEFIT FOR MANY DECADES TO COME. THIS SHALL BE ONE OF THE MANY GLENFIELD INVICTA LEGACIES TO BENEFIT THE NEXT GENERATION.

ORGES MENA
PROJECT LEAD FOR THAMES WATER

ENGINEERING SOLUTIONS EVERYWHERE

- ▲ SERVICE CENTRE
- ◎ ENGINEERING PRESENCE



WHEREVER YOU ARE, SO ARE WE.

We understand the value of a prompt, punctual and reliable support, we have strategically located workshops and teams of on-site engineers available to help resolve any issues you may have throughout the UK.

Our services are backed up by technical experts who can draw on decades of our experience in the flow control industry to provide you with the right answers and solutions.



Our Site Solutions offering includes:

Valve, Penstock and Actuator supply, installation and maintenance.

- Extended warranty for products we supply and install
- Valve release
- Valve repacking
- Valve and penstock maintenance and refurbishment (in situ or Workshop overhaul)
- Actuator maintenance and refurbishment (in situ or Workshop overhaul)
- Workshop overhaul)
- Equipment health check & monitoring



Our service teams are qualified for the following operations:

- Confined space working
- Scottish Water Distribution Operations Maintenance Strategy (DOMS) Scheme
- CSCS
- Water hygiene – blue card
- First aid
- Safety harness
- Slinger/signaller
- Pasma
- All team supervisors hold an iosh in health and safety for middle management
- SSSTS & SMSTS trained personnel



OUR FOCUS IS DEVELOPING LONG-TERM PARTNERSHIPS ALLOWING US TO ADD GREATER VALUE.

MECHANICAL INSTALLATION

At Glenfield Invicta, we specialise in providing a comprehensive supply and installation service for valves. Our commitment to quality ensures that we recommend proven, industry leading valves from the AVK Group & third party manufacturers.

WHY CHOSE US?

▶ Cost Savings

By offering a single-source solution, we help our customers achieve considerable cost savings.

▶ Minimal Plant Shutdowns

Our efficient processes minimise disruptions during installation, ensuring smooth operations

▶ Reduced Site Programmes

We streamline project timelines, allowing you to meet deadlines effectively.

▶ Long-Term Solutions

Our focus extends beyond immediate needs, providing solutions that stand the test of time.

▶ Extended Warranties

We stand behind our products and Installation - offering extended warranties for your peace of mind on all supply installation packages.

Installation and Commissioning

Our installation teams consist of highly qualified and trained M&E engineers. Their expertise spans various disciplines, including the design and installation of both actuated and non-actuated valves and penstocks - we ensure a seamless project cycle.

Our “right first time” approach guarantees a high-quality installation, backed by a company you can trust.



The valve supply and replacement service offering includes:

- Site Surveys
- Design Input
- Ancillaries
- Supply and Installation
- Commissioning
- In-house Fabrication Service
- Confined Space
- Extended Warranties
- Service and Maintenance Contracts



We have earned a well-deserved reputation as the go-to provider for both actuated and non-actuated penstock supply and installation within the UK water industry.

Our reputation is built on two key principles:

Choosing the Right Solution

We meticulously select the most appropriate solution right from the inception stage.

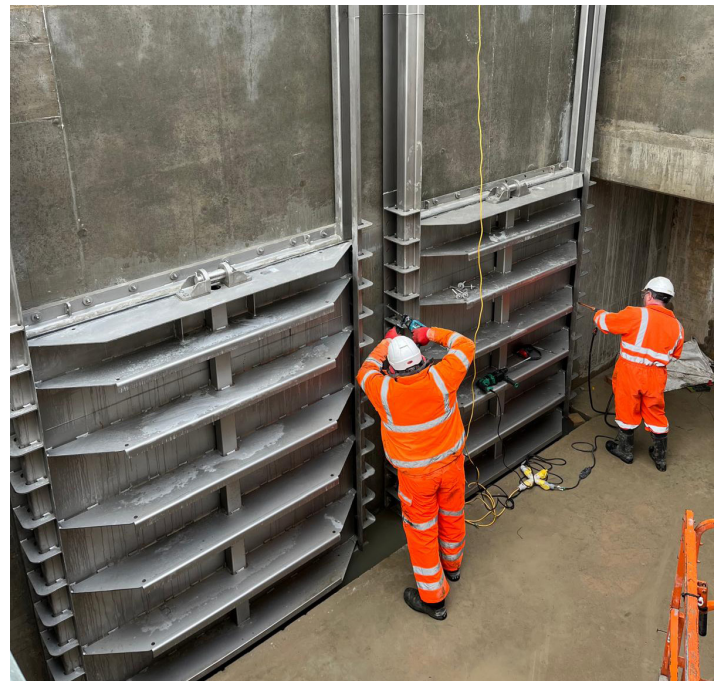
This ensures that our clients receive the best fit for their specific needs.

Correct Installation

Installing the right product correctly is crucial. Our focus on precision helps avoid costly delays and frustrating callbacks due to leakage or faulty operation.

- Design Input
- Site Audit
- Product Selection
- Commissioning
- Associated Ancillaries
- Installation and Actuation
- Testing
- Maintenance
- Extended Warranties

**GLENFIELD INVICTA:
YOUR TRUSTED PARTNER FOR
ENGINEERED SITE SOLUTIONS**



MECHANICAL

REFURBISHMENT: VALVES AND PENSTOCKS

Our Engineered Site Solutions team are experts in flow control, our experience and understanding ensures we have the capability to resolve any on-site issues, keeping our customers and their assets in full and optimum operation. Our after sales service solutions increase asset efficiency and reduce maintenance costs.

In addition to supplying new products and providing on-site maintenance and repair services for the complete AVK Group product range, we offer comprehensive valve refurbishment and pressure testing, to enhance the effectiveness and extend the operational life of your assets.

We provide FOC on-site survey and diagnostic report of existing valves, actuators and penstocks. Having access to both AVK and other manufacturers products allows us to source spares for many types of valves.



GATE VALVE REFURBISHMENT

Five gate valves with actuators all requiring a complete refurbishment, which had to be carried out while the valves were still 'in-situ' and within a very tight deadline.

Adding to the challenge, the valves had table "D" flanges because of their very tight installation conditions.

The work involved:

- Stripping down the valves
- Removal of the actuators
- New bonnet bolts
- New nuts/bolts
- Machined & replaced damaged spindle
- Machined new stem nut
- Installing manual gearboxes
- Shot Blasting
- Repainting
- Pressure Testing

The valves were also converted from electric to manual actuation to improve the ease of operation and increase effectiveness.



MECHANICAL

REFURBISHMENT: VALVES RELEASE

**WE'RE SO
CONFIDENT
IN OUR VALVE
RELEASE
FREEING
SERVICE THAT
WE OPERATE ON
A 'NO FIX – NO
FEE' BASIS AND
ONLY INVOICE
IF THE VALVE IS
SUCCESSFULLY
RELEASED.**

We are specialist in water management and leak detection, providing aftersales support to the UK's water companies and industrial customers for many years.

Utilising a state-of-the-art designed technology, Glenfield Invicta has developed solutions for every situation that allows our engineers to release seized valves, operate difficult to open valves and seat passing valves, where other systems fail.

Our valve-friendly solutions apply different levels of controlled torque to suit each situation and is monitored at all times by our engineers to ensure there is no damage to the valve during the freeing process.

Using a portable actuator or compression vibration tooling and bespoke specialised valve adaptation, we are able to apply forces in a way that operates the valve but does not cause lasting damage.

The systems are small, light and easily manoeuvrable into most installation and locations. It also enables for valves to be operated without being isolated, allowing for a fast and effective solution with zero downtime.

Features and benefits:

- Highly skilled team of OEM trained Engineers
- Process releases valves of any size, age, or level of seizure
- We guarantee to release your valve and restore it to working order





CASE STUDIES

DESIGN, FABRICATION AND INSTALLATION OF SUBMERGED DISCHARGE VALVES

BEWL RESERVOIR

Glenfield Invicta, an AVK company, specified, designed, fabricated and installed 3x Series 856 submerged discharge valves in Southern Water's Bewl Reservoir.

Each valve weighs 21 tonnes, measures 8.25m in length, with a 1600mm inlet bore and 1400mm outlet bore. They are the largest submerged discharge valves supplied by Glenfield Invicta since the 1960s.

Background

Completed in 1975, Bewl Reservoir on the Sussex/Kent border is the largest body of inland water in South East England.

Project Scope

As part of a £30m investment, Southern Water installed three hydraulic syphons within the 1800m dam wall to enable rapid, controlled drawdown. The syphons feed water down the 20m wall to three submerged discharge valves at its base.

Glenfield Invicta was appointed to specify, design, manufacture and install the valves.

Specification and Design

Operating flow and pressure conditions were provided by consulting engineers. To achieve rapid operation, linear hydraulic actuation was specified instead of rotational electrical actuation. Due to the scale and project specific requirements, each major component was individually designed and manufactured.



“IN TERMS OF DURABILITY, THESE VALVES LAST SEVERAL DECADES BEFORE REQUIRING SERVICE, MAINTENANCE, OR OVERHAUL.”

Jim McAllister
PROJECT MANAGER



Build and Test

Designed and assembled in Kilmarnock, the main body consists of a series of ductile iron castings and pipe sections. The valve outlet was fabricated in aluminium bronze. The cylindrical sleeve that is positional to control the valve is in stainless steel. All materials and coatings are WRAS approved.

With the client in attendance a factory acceptance was arranged and the valves were hydraulically tested in the workshop using a portable hydraulic unit to actuate the valves.

Valve Installation

Glenfield Invicta engineers completed on site installation, using integrated lifting eyes for safe positioning within the discharge chamber. The 3.7m long double acting hydraulic cylinders, supplied by Varley Hydraulics, were installed separately to prevent damage. The system, designed as a safety measure for extreme weather events, will be exercised annually. Final commissioning took place in April 2026.



PRECISION ENGINEERING: UNDERWATER PENSTOCK REPLACEMENT AT A DEPTH OF 24 METRES

Meticulous coordination, specialist diving expertise and careful engineering were central to the successful underwater replacement of a failed penstock at the Queen Mother Reservoir, a critical component of London's drinking water infrastructure.

Located four miles west of Heathrow and covering almost 2 km², the reservoir holds around 37 million cubic metres of water. When a 3.6m x 1.8m draw-off penstock failed in the closed position at a depth of 24 metres, emptying the reservoir was not an option. A safe and practical underwater solution was required.

"Emptying the reservoir, which holds around 37 million metres³ of water, simply wasn't an option," explains Glenfield Invicta's Engineering Services Manager for Dams, Reservoirs and Hydropower, Ken Ottley. "It was clear that the work would have to be carried out by divers, and that meant we needed a strategy that engineered out as much risk as possible."

"WATCHING ON THE MONITORS AS THE DIVERS WORKED WITH THERMAL LANCES TO REMOVE THE PENSTOCK WAS INCREDIBLE. IT WAS A TRUE DEMONSTRATION OF TEAMWORK, SKILL, AND COORDINATION"

Ken Ottley

ENGINEERING SERVICES MANAGER FOR DAMS, RESERVOIRS AND HYDROPOWER

Commissioned to survey and replace the unit, the team conducted a deep-water inspection and created a detailed 3D model to plan every stage. To simplify installation at depth and reduce diver exposure time, a bespoke backplate system was developed. This allowed the new penstock to be secured without complex underwater alignment in low visibility conditions.

A trial installation at 6 metres validated cutting, drilling and lifting procedures

before final works began. The reservoir level was temporarily lowered by 10 metres, extending safe dive time from 29 minutes at full depth to 98 minutes at 14 metres. The failed penstock was removed using thermal lances under live surface monitoring, before the replacement unit was installed and commissioned in October 2024.

"Watching on the monitors as the divers worked with thermal lances to remove the penstock was incredible. It was a true demonstration of teamwork, skill, and coordination," says Ottley.

The project demonstrates how detailed planning, risk reduction and engineering innovation can deliver critical infrastructure upgrades safely, even in highly challenging underwater environments.

Scan to read the full case study on our website.

[GLENFIELDINVICTA.CO.UK](https://www.glenfieldinvicta.co.uk)



DELIVERING REMOTE OPERATION AND SYSTEM RELIABILITY

LLYN BRENIG RESERVOIR, NORTH WALES

Project Overview

Our objective was to enhance the safety, reliability and resilience of the scour system and upgrade the emergency draw-off system, enabling remote operation.

Specific Requirements

This project was classified 'Gold Command' due to single point of isolation during repair works, we replaced the existing bulkhead gate and primary gate as well as supplying a new secondary gate.

The existing bulkhead gate was holding back 250 tons of water; therefore we supplied a bespoke large, fabricated bulkhead and roller gates (2800mm x 3900mm).

In addition a primary gate (2000mm x 2550mm) and a secondary gate (1800mm x 2550mm), all were manufactured in stainless steel and hydraulically operated.

Challenge

The tower itself was situated in the middle of the reservoir and all works had to be conducted whilst the reservoir remained fully operational. This involved a high level of risk and had to be carefully managed and coordinated.



BULKHEAD GATE BEING LOADED ONTO PONTON FOR TRANSPORTATION TO INTAKE TOWER



SECONDARY SCOUR GATE IN POSITION

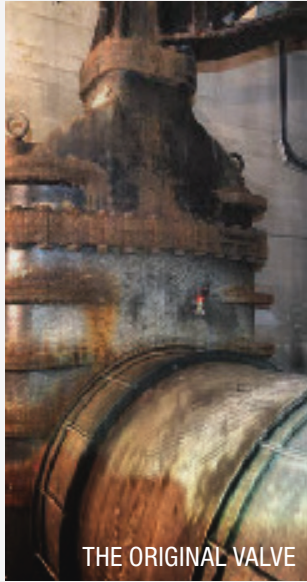


PRIMARY GATE & FRAME AT FAT INSPECTION



SPECIALIST LIFTING GEAR SUPPLIED FOR BULKHEAD GATE

RESTORING CRITICAL RESERVOIR DRAW-OFF VALVES AT KING GEORGE VI RESERVOIR



THE ORIGINAL VALVE

Lead Engineer on the Project Ken Ottley

"I am grateful for having had the opportunity to work on such an interesting and demanding project, and proud to have successfully completed it."

NEW STAINLESS STEEL
SPINDLE COMPLETE
WITH THRUST BEARING
ASSEMBLY

Project Overview

Thames Water engineers identified that two of the top draw-off valves had seized in the closed position and the spindles were rotating but there was no linear movement of the valve gates.

A camera survey was conducted to determine the root cause of the failure, this survey clearly showed that the threads had been 'stripped' from both the spindles and the pocket nuts.

The valves were originally designed to be manually opened and closed, but later were retrofitted with an actuator and gearbox arrangement, this arrangement, combined with other gearing on the valve appears to have contributed to excessively high operating torques for valves of this design.

Specific Requirements

Glenfield Invicta were commissioned to design and implement a solution that would restore the valves to full operational capacity, Barhale's civil engineering team was responsible for project managing the valve repair works.

The King George VI project exemplifies the scenarios where Glenfield Invicta's expertise and experience are crucial in tackling complex engineering challenges.

The success of this project hinged on the strong collaborative relationships fostered between our engineers and the Barhale, and Thames Water teams and demonstrates we can operate independently, or work as part of a multidisciplinary team.

The existing bulkhead gate was holding back 250 tons of water; therefore we supplied a bespoke large, fabricated bulkhead and roller gates (2800mm x 3900mm).

In addition a primary gate (2000mm x 2550mm) and a secondary gate (1800mm x 2550mm), all were manufactured in stainless steel and hydraulically operated.

Challenge

The outlet valve tower, located in the south of the reservoir, houses eight valves at four draw-off levels, these are 48" wedge gate valves which have been in place for over seventy years. The challenge was to refurbish the top draw-off valves and return the reservoir to a fully operational state and allow water to be drawn off from the top level.

The design of the tower meant that removing the spindles for detailed investigation and replacement would be challenging; these were almost 2.5m (96") long and 11.5cm (4.5") in diameter. A detailed programme of works was developed and agreed, with close attention paid, in particular, to the sequencing of the many of the steps required to remove and reinstall the spindles.

These challenges required comprehensive and thorough risk assessments and detailed method statements to ensure safety at every stage.



INCREASING DRAWDOWN CAPACITY AT CRAIG GOCH DAM

Craig Goch is a Grade 2* listed dam located 28 miles east of Aberystwyth. Built between 1897 and 1904, it supplies Birmingham via a 72 mile pipeline with a gradient of 1 in 2,300. Water takes more than two days to reach Frankley Reservoir.

Dŵr Cymru Welsh Water launched a three year upgrade programme. A key objective was to increase drawdown capacity to strengthen resilience during extreme weather events.

Glenfield Invicta specified, designed, fabricated, installed and commissioned a fixed cone discharge valve at the base of the 37m high dam wall, complete with an upstream DN900 AVK reservoir specification gate valve for isolation.

The existing masonry dam can act as a 390 foot waterfall during extreme rainfall, with water passing through thirteen segmental arches into the Pen y Garreg reservoir. The new valve connects to the integral outlet pipe and dissipates discharge energy to prevent scouring.

Greg Morris, Glenfield Invicta's Dams, Reservoirs and Hydro Manager, said: 'In most cases a fixed cone discharge



valve operates in atmospheric (open air) conditions. At Craig Goch, the location of the outlet pipe at the base of the dam wall, and the nature of the downstream ravine into which water was to be discharged, meant that the fixed cone discharge valve had to function effectively in all scenarios: submerged, semi-submerged and atmospheric.

Working with Orbinox, a design incorporating specially designed air inlets enabled operation in all conditions. Both valves were installed in a purpose built concrete chamber, with hydraulic controls located in the adjacent hydropower station turbine house. An air supply was established on the west bank to support discharge performance. Commissioning took place in temperatures as low as -7°C . Both the

gate valve and discharge valve were tested at incremental openings up to a maximum discharge rate of $6.3\text{m}^3/\text{s}$.

'Wet commissioning for this type of valve is always an exciting and nervy experience but it was fantastic to see the valves discharging large volumes of water into the downstream reservoirs. Both the gate valve and discharge valve were tested at several incremental open positions up to a maximum discharge rate of $6.3\text{m}^3/\text{s}$.

Craig Goch was a fascinating project to work on. I particularly valued the close collaboration with the client (DCWW) and the consultant/contractor (Mott MacDonald JN Bentley) which contributed hugely to a successful and rewarding experience.'

OVERCOMING THE CHALLENGES OF DRY DOCK REFURBISHMENT

Project Overview

The work was focused on refurbishing the Dry Dock, to increase the operational capacity and allow the shipyard to compete for global refurbishment contracts. The main contractor contacted us as Glenfield Invicta installed the existing valves many years ago our engineering team conducted an in-depth survey to find a solution to their problem.

Specific Requirements

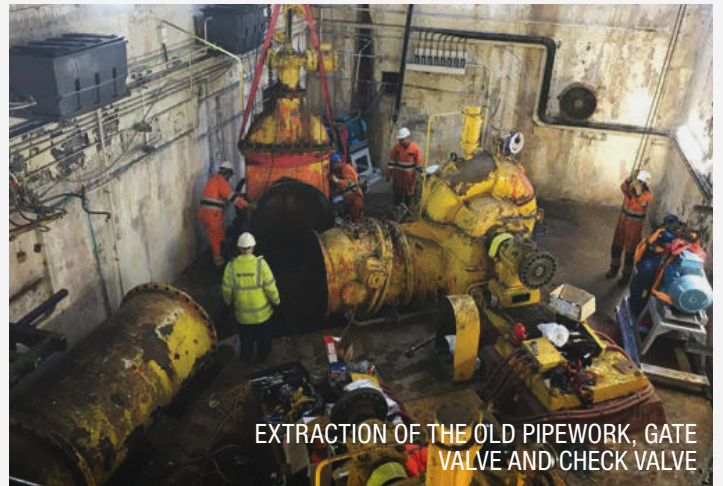
Our Engineering & Design Team conducted a comprehensive survey of the site and established that the valves and cast-iron pipework, which had been in service for almost a century, were beyond economical repair and we were commissioned to refurbish the pump discharge. The project required the removal of the existing steelwork access platform, valves and pipework and the supply and installation of a modern equivalent replacement.

After the cast iron pipework was removed from site it was reassembled and precise measurements taken to create a template, a duplicate carbon steel pipework system was then fabricated in sections. Many of the pipework fittings were custom made including a DN1500 to DN1000 reducing tee and a 40-degree bend.

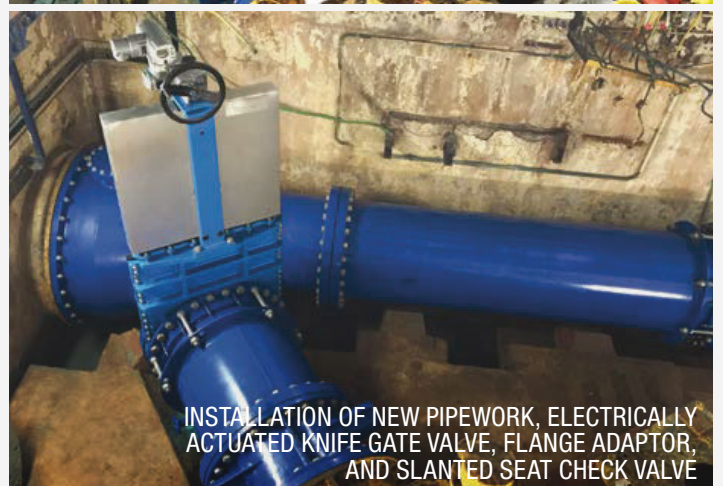
Challenge

The logistics of the project were far from straightforward, as the pumping station is 8m deep and in line with the base of the dock. The entry to the pumping station was via a 2.6m² access hatch at ground level, with materials having to leave and enter this way. Completion During site work, our engineers adhered to rigorous Health & Safety guidelines.

The entire team had successfully completed confined space training, and an emergency response team was readily available at all times.



EXTRACTION OF THE OLD PIPEWORK, GATE VALVE AND CHECK VALVE



INSTALLATION OF NEW PIPEWORK, ELECTRICALLY ACTUATED KNIFE GATE VALVE, FLANGE ADAPTOR, AND SLANTED SEAT CHECK VALVE



RESTORING CRITICAL RESERVOIR DRAW-OFF VALVES AT KING GEORGE VI RESERVOIR

Project Overview

This was part of a major £35m investment by the Environment Agency to upgrade Keadby Pumping Station, the pumping station drains excess water from three sources, collectively known as the “Three Rivers” into the River Trent, which in turn maintains sufficient water for irrigation of the fertile farmland upstream of the Three Rivers, and prevents excess water flowing into the Three Rivers during high tides and flood events.

Specific Requirements

The Scope of works was to design, supply, install and commission eighteen penstocks and twelve flap valves and associated control mechanisms as well as rebuilding the outfall headwall.

Flap valves

The flap valves were constructed from HDPE (High-density polyethylene) and feature neoprene seals. The valve aperture itself measures 1980mm x 1580mm and incorporated an innovative ‘fish-friendly’ spring damper system, comprising of eight individual stainless-steel springs that regulate valve closure. This system ensures that the flap valves remain open for a brief period as the tide rises, allowing fish and eels to migrate without obstruction. Our engineers



developed recommended the use of spring dampers due to their consistent long-term performance as well as ease of adjustment on-site.

Penstocks

We designed the penstocks which featured EPDM resilient elastomer seals and manufactured from stainless steel grade 316Ti—a titanium-stabilised austenitic stainless steel is highly resistant to corrosion. This makes it ideally suited for the brackish water environment in which the penstocks operate, with apertures measuring 1600mm x 2000mm and 1700mm x 1900mm. The twelve outfall



penstocks required vertical 8m-long extension spindles to connect them to Auma electric actuators, including built-in uninterruptible power supplies (UPS), positioned over a mesh floor for convenient access, 2m above the top of the chamber. These actuators fitted directly to the extended frames.

Challenge

The flap valves and the pumps were meticulously engineered to be ‘fish-friendly’, facilitating safe passage for fish and eels during their natural migration. The Environment Agency collaborated with a specialist to verify that the design of these components adhered to the requisite specifications.

Additionally, they underwent thorough Factory Acceptance Testing (FAT) to ensure their reliability and performance met the exacting standards.

ELECTRICAL INSTALLATION

REFURBISHMENT ACTUATOR AND CONTROLS

We supply high quality actuation solutions and have chosen Rotork and AUMA products as a key part of our portfolio.

Alongside equipment supply, we deliver comprehensive repair, maintenance, and life extension services for actuators and gearboxes.

For customers who benefit from regular servicing, we also offer planned maintenance agreements tailored to operational needs.

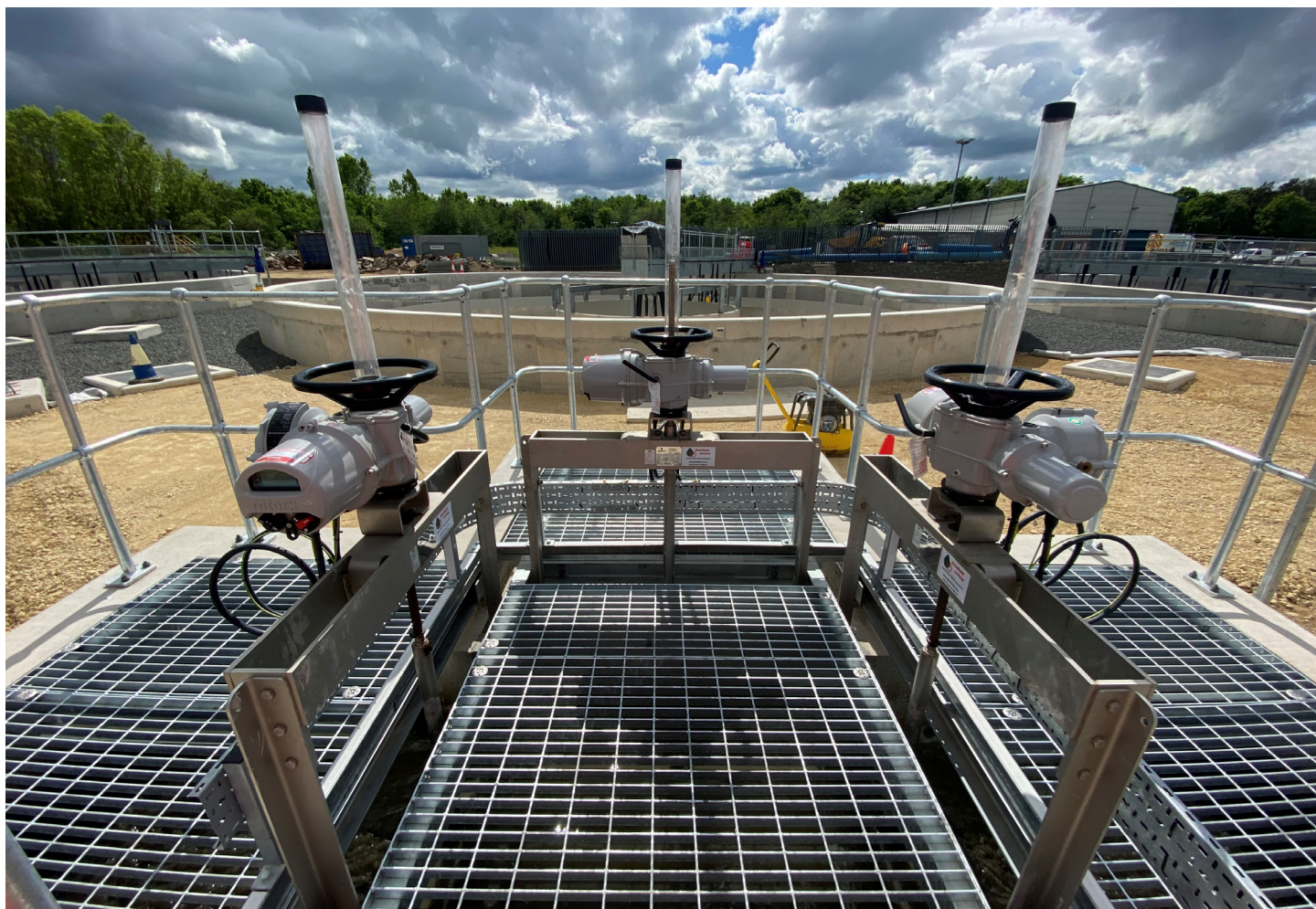
As part of the AVK Group, Glenfield Invicta provides the supply, installation, and maintenance of electrical, pneumatic, and hydraulic actuators.

Our experienced engineers use proven processes and carefully selected

equipment to ensure each project meets its technical requirements.

We carry out routine servicing on actuators and gearboxes from a wide range of manufacturers and across all ages of equipment. After every visit, customers receive a detailed condition report outlining the work completed and the current status of their assets.

Our Engineering Site Services team delivers both mechanical and electrical repairs across most major actuator and gearbox types, helping to maximise reliability and extend service life.



ELECTRICAL

REFURBISHMENT: ACTUATORS

Our knowledge & experience of valve, penstocks and actuators defines how we support the UK water utility companies to manage their business.

Many assets require more intensive attention as they get older, with more frequent inspection and replacing of components to help manage the risk of failure.

By understanding the health of an installed asset and its leading edge performance, our customers are able to focus their maintenance investment into assets of poor health and with the largest risk of failure, as well as plan a resilient and proactive service programme for both now and future operation.

The longer that healthy assets operate efficiently the more value they deliver to the customer and the environment. Being able to predict and minimise the risk of operational deterioration or complete asset failure is the key objective to drive down the level of reactive maintenance and unplanned outages by identifying potential issues before they occur.

Actuator & Gearbox Maintenance Repairs

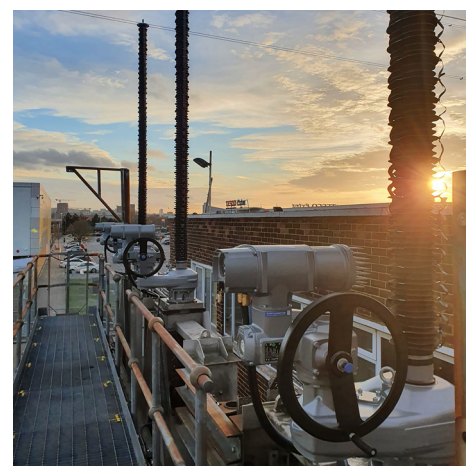
We specialise in the repair, maintenance and life extension of actuators and gearboxes. We offer service agreements for customers who require the benefits of planned maintenance. We will undertake to service equipment at regular intervals, regardless of make, manufacture or age. We supply a full condition report on the work done and the condition of the equipment.



Our Engineering Site Services team are all OEM trained and offer mechanical and electrical repairs to a wide range of equipment including actuators & gearboxes for most manufacturers. We provide a fast and efficient service maintaining efficiency and reliability whilst minimising equipment downtime. Work is carried out by an experienced team of engineers both in situ or at our workshops located throughout the UK.

Throughout the process of initial investigation to reinstallation customers are kept updated.

- Fault investigation
- Isolation & removal from service
- Workshop diagnostics
- Sourcing of components
- Workshop equipment repair
- Soak testing
- Functional checks
- Site installation
- Overhauling and refurbishment



SMART WATER & PRESSURE MANAGEMENT

Streamlining the Installation of Smart Water Valves on Your Network.

In today's world, the integration of smart technologies into our infrastructure is becoming increasingly vital. One area where this is particularly evident is in water management systems.

With concerns about water scarcity, leaks, and efficient resource allocation, there's a growing demand for solutions that offer real-time monitoring and control. Smart water valves and assets are at the forefront of this transformation, offering the ability to remotely manage water flow, detect leaks, and optimise usage. However, the installation process for these systems can often be complex and daunting. That's where our expertise comes in.

At Glenfield Invicta, we specialise in simplifying the installation of smart water valves and assets on your network. Our approach is centred on three key pillars: **expertise**, **efficiency**, and **reliability**.



EXPERTISE

Our team comprises experienced professionals who understand the intricacies of smart water technology inside and out.

From assessing your infrastructure to selecting the right valves and assets for your specific needs, we provide expert guidance every step of the way. Our knowledge extends beyond just installation; we also offer comprehensive training and support to ensure you get the most out of your smart water system.

EFFICIENCY

We understand that downtime can be costly and disruptive. That's why we prioritise efficiency in our installation process.

Through meticulous planning and streamlined procedures, we minimise disruption to your operations, ensuring a smooth transition to your new smart water system. Our team works swiftly and effectively, utilising the latest tools and techniques to get the job done efficiently without compromising on quality for your peace of mind.

RELIABILITY

When it comes to water management, reliability is paramount. You need to have full confidence that your smart water system will perform as expected, day in and day out. That's why we place a strong emphasis on reliability throughout the installation process.

From ensuring robust connections to conducting thorough testing and quality assurance checks, we leave no stone unturned in guaranteeing the reliability of your system. Moreover, we offer ongoing maintenance and support services to address any issues promptly and keep your system running smoothly in the long term.

In addition to our technical expertise, we also prioritise customer satisfaction. We understand that every project is unique, and we tailor our approach to meet your specific requirements and preferences. Whether you're upgrading an existing system or implementing a new one from scratch, we work closely with you to deliver results that exceed your expectations.

By choosing Glenfield Invicta for your smart water valve installation needs, you're not just investing in cutting-edge technology – you're investing in peace of mind.

Our commitment to expertise, efficiency, and reliability ensures that your smart water system is installed correctly the first time, giving you confidence in the integrity and performance of your infrastructure.

In conclusion, the installation of smart water valves and assets on your network doesn't have to be a daunting task. With the right partner by your side, it can be a seamless and hassle-free experience. At Glenfield Invicta, we have the expertise, efficiency, and reliability to make your smart water installation a success.

Contact us today to learn more about how we can help transform your water management system for the better.

✉ enquiries@glenfieldinvicta.co.uk



IDENTIFYING PRESSURE LOSS IN WATER NETWORKS WITH VIDI PRESSURE LOGGERS

Background

A UK water utility identified two areas where pressure management could be optimised:

- 200-01 & 200-06 (treated as a single area for this project)
- 204-02/10

Both areas are currently managed with Pressure Reducing Valves (PRVs) and modulators. These mechanisms require pressure increases during low-pressure periods. Resolving pressure loss issues in these zones could not only allow for further pressure optimisation but also generate operational savings, reduce stress on the network, and lower the likelihood of future bursts.

Challenge

The utility had a general awareness of headloss (pressure loss) issues and a rough idea of their locations from past investigations. The challenge was to pinpoint these areas more accurately to enable targeted interventions.

Approach

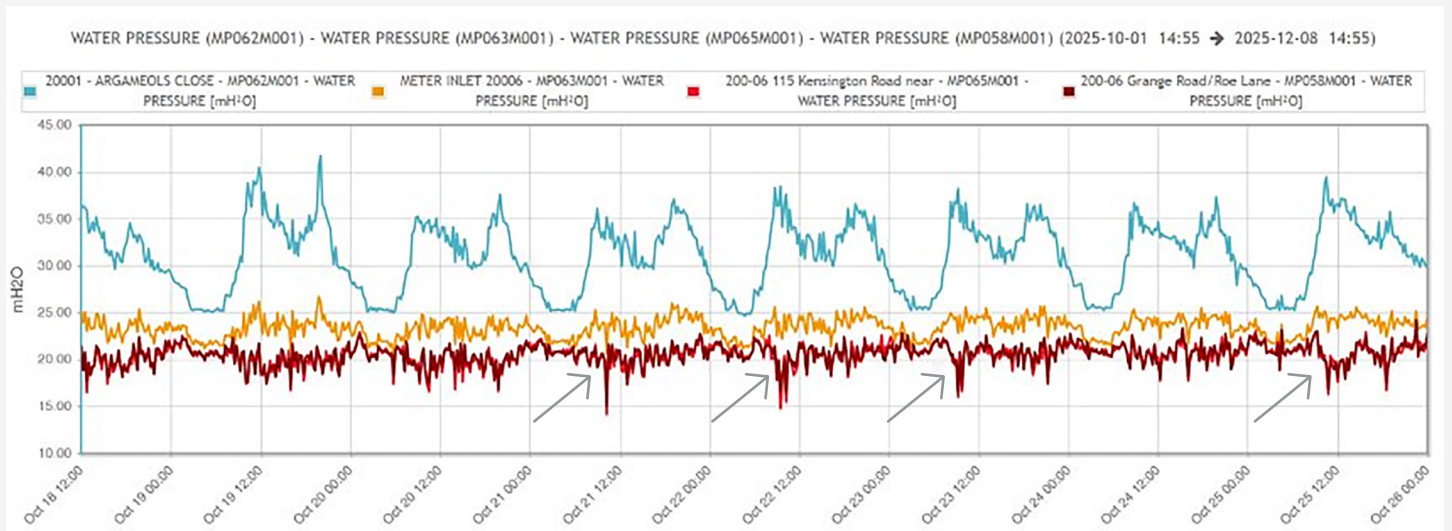
The project deployed Vidi Pressure loggers across the identified areas to gather detailed pressure data. By analysing this data, the exact locations and severity of headloss issues could be determined.

Results

Analysis of the Vidi Pressure data allowed for precise identification of headloss points. This information was shared with network staff, providing actionable insights for further investigation.

Next Steps

The utility will now investigate the identified sections to determine whether restrictions or other infrastructure issues are present. Findings from these investigations over the coming months will inform targeted improvements, optimising pressure





SMART WATER & PRESSURE MANAGEMENT

INTELLIGENT SOLUTIONS FOR SMARTER NETWORKS



REAL-TIME MONITORING | PRESSURE FLOW & CONTROL | DATA-DRIVEN

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Glenfield Invicta Ltd support this service by supplying engineers on a 24/7 call out service. We offer an Inspection, Measure and Caliper of the Pipework Service and complete diagnosis and offer a supply and Installation solution.



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- Repair Clamps
- Under Pressure Tee Clam
- Encapsulation Collars



At Glenfield Invicta, we pride ourselves on our technical knowledge, quality, and customer satisfaction.

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SUSTAINABILITY

AVK GROUP'S COMMITMENT TO SUSTAINABILITY

Glenfield Invicta is part the AVK Group, a family-owned business employing nearly 5,000 employees with over 100 production and sales companies globally.

As a major industrial group of companies with an international footprint and first-class reputation, AVK recognises and embraces its responsibilities to contribute to a sustainable future for our society. The UN's 17 Sustainable Development Goals (SDGs) guide global sustainable development until 2030. These goals acknowledge the interconnectedness of social, economic, and environmental progress. The AVK Group recognise our shared responsibility. SDGs 6 (clean water and sanitation) and 9 (Industry, Innovation, and Infrastructure) align closely with our business model, but we also engage with other goals strategically or through decentralised initiatives.



OUR ACTIVITIES

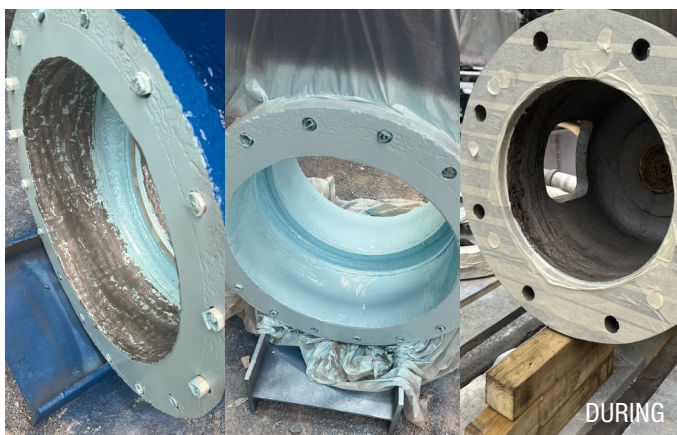
In today's world, sustainability is everyone's responsibility. Our ongoing commitment to optimising processes and production benefits our company, employees, customers, and the environment.

Traditionally, we have had a strong focus on innovation and development of new and optimised products of high quality and with a long lifetime and recyclability investments for the benefit of the company, our employees, customers, and the environment.

We recognise the environmental impact which is why we and all the production companies across the group are certified according to ISO 14001 in respect of environmental management.

REPAIR, REFURB & REUSE

We have the experience and expertise to assess the viability of repairing and refurbishing assets, which has a positive impact on your Carbon Footprint as well as protecting vital resources and the environment.



VALVE REFURBISHMENT CARBON SAVINGS

GLENHOVE AND GOWANBANK
PUMPING STATION

Issue

The scope of works for both schemes included the removal, refurbishment, and re-installation of 4 x DN900 and 4 x DN600 submerged discharge valves situated in chambers used to store treated drinking water.

Our approach

We presented the client with a comprehensive solution that outlined the significant cost, timescales, and the carbon savings to refurbish the eight valves compared to replacing them with new.

Potential Carbon Saving: ~154 Tonnes*



**This figure represents the carbon savings achieved by refurbishing existing valves instead of manufacturing new ones. The calculation is based on the Inventory of Carbon and Energy (ICE) Database, 2019.*

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