



It's in our nature.

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Briefing Document for South West Water Amplify Framework

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Introduction

Following our presentation by Tom Grayling, we share with you this briefing document which provides more details about FiveRivers.

Founded in 1997, FiveRivers is a trusted consultancy and construction partner for water companies and tier 1s alike. Providing solutions to overcome the challenges that come with ecological and environment constraints to de-risk your programme.

We started working consistently for water companies at the start of AMP6 being awarded several river restoration design and build frameworks, followed with environmental monitoring services into AMP7, directly supporting Affinity Water, Anglian Water, Southern Water, Thames Water and most recently Pennon Group for fisheries.

We have positioned ourselves to support the water sector across all stages of projects, in doing so, we pride ourselves in delivering a high quality which is mirrored in our accreditations including ISO9001, 14001, 45001, UVBD certificated, ConstructionLine Gold, RoPSA Gold and NHSS18.



Our why:

We are not in the business of choosing between engineering and nature.

We are in the business of protecting nature - and we use whatever tools that requires.

Sometimes the right tool is a nature-based solution.

Sometimes it is a traditional civil engineering solution, such as a pumping station upgrade.

Sometimes it is a compliance strategy presented to the Planning Inspectorate.

The method is never the point. **Nature protection** is always the point.

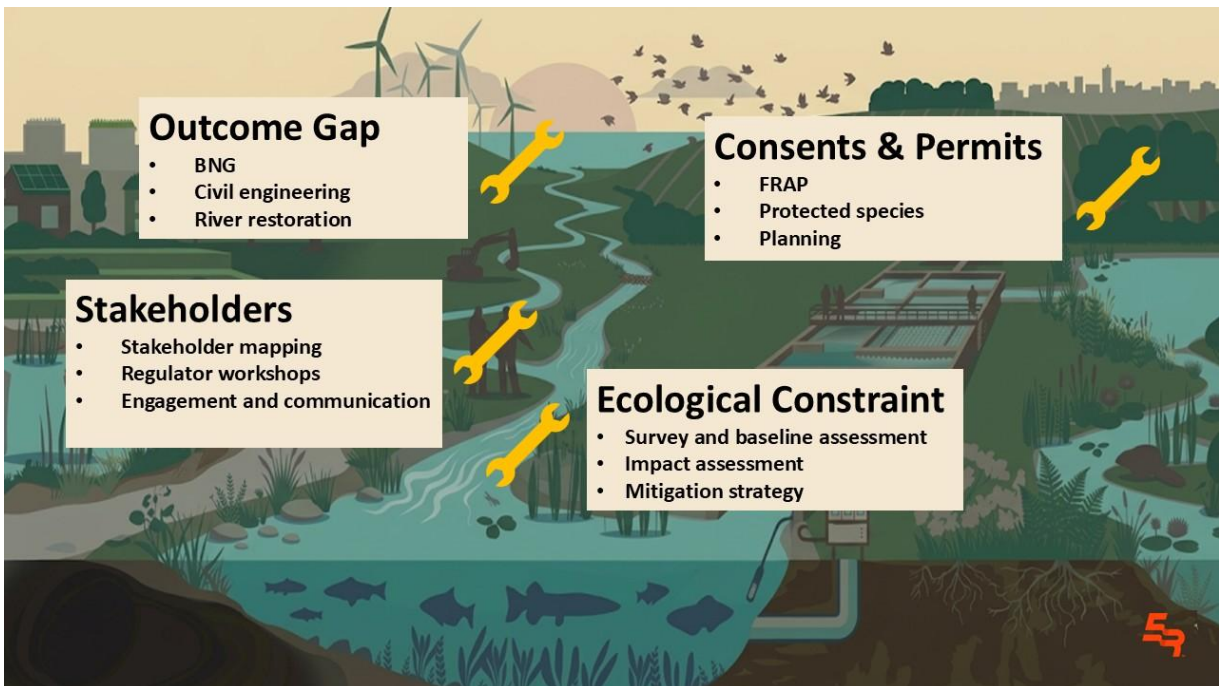
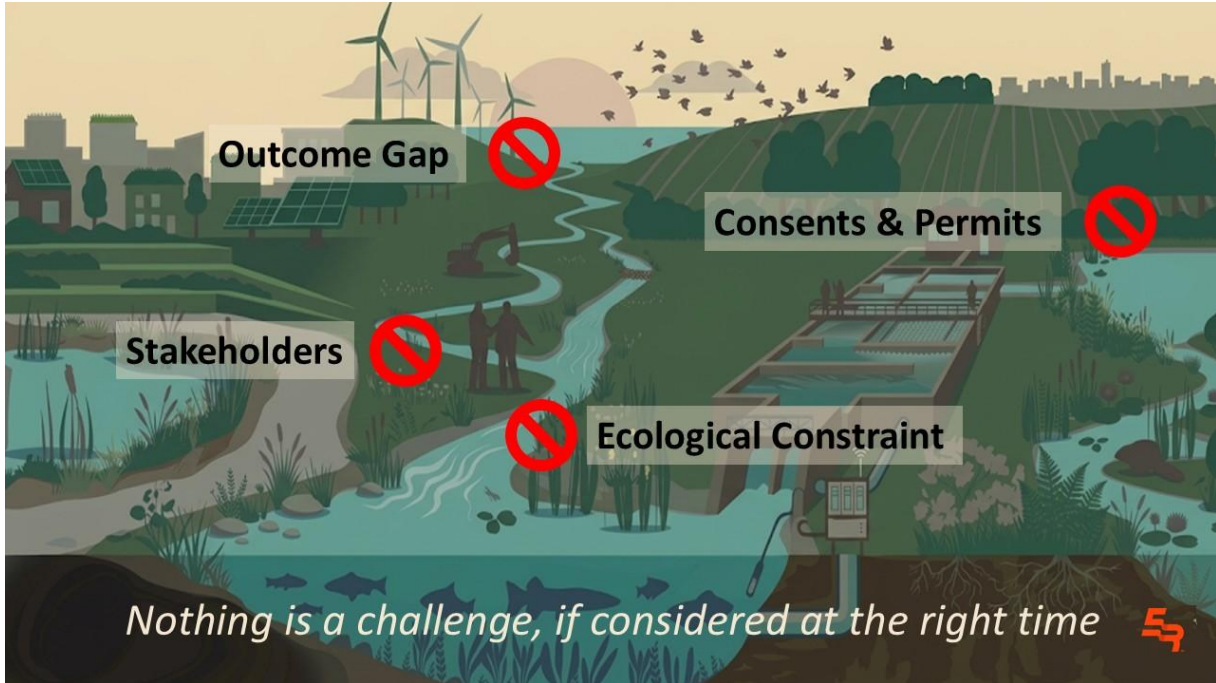
AMP8 for SWW:

- Reduction in storm overflows and pollution incidents, while improving river and bathing water quality
- Create supply resilience

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- Improving asset reliability and long-term performance
- Nature-based solutions and catchment management

Delivery challenges and the solutions:



Consultancy

Design

We provide a full suite of habitat improvement and ecological design services, from initial concept/scoping and topographic site surveys through to the production of reporting and detailed drawings in both 2D and 3D. We will always aim, where practicable, to work with natural processes in our ecological design works rather than trying to over-engineer more substantial solutions that are not sustainable in the long term. The ecological designs we create are bespoke, sympathetic to the on-site conditions and will always utilise site-won materials where possible.

Discovery & Scoping:	If you're unclear on what exactly you need, we can produce a scope by undertaking our discovery model to review current information and data, align this with the desired outcomes and recommend a next steps approach.
Feasibility & Optioneering:	Once a scope has been agreed, we undertake a high-level report on what's feasible and provide a longlist of options to be refined before outline and detailed details are produced.
Outline & Detailed Design:	We produce CAD 2D and 3D designs for river restoration, habitat creation, wetland creation, bypass channels and fish passage. It is often at this stage that we undertake stakeholder engagement.
WFD Assessments:	Identifies the hydromorphological, biological and physico-chemical quality of the water body (all ground and surface water, including rivers, lakes, transitional water and coastal waters), and focuses on ensuring good qualitative and quantitative health.
Early Contractor Involvement (ECI):	Using our extensive experience of construction, we provide ECI to ensure designs are buildable and constraints have been considered early on including access, protected species constraint windows and we provide budget construction costings too.
Permitting & Consents:	We ensure permits and consents are applied for and approved, whether that is providing supporting documentation or handling the application ourselves. This includes FRAPs, Land Drainage Consents, Permitted Development, and Planning.
Biodiversity Net Gain (BNG):	Offering the entire journey with BNG for terrestrial and watercourse: baseline surveys, production of a metric, calculations for the minimum 10% uplift, recommendation of on site or on-site mitigation, design of mitigation, implementation of mitigation and 30-year monitoring and maintenance.
Expert Witness:	Authoritative and unbiased environmental expert witness services to support regulatory compliance, and dispute resolution.
Geomorphology:	Specialists in fluvial geomorphology, specifically focusing on the way that rivers move and change over time. We understand how the flow of water interacts with sediment and how that, in turn, interacts with elements of the landscape.

Case Study:

FiveRivers were contracted to design and build, two multi-benefit wetlands to improve the quality of water entering the drinking water reservoir, whilst significantly enhancing wildlife and biodiversity. The scheme involved excavating two wetlands on the same site. A naturalised wetland was designed to capture course sediment and silt by connecting the Durleigh Brook back to its floodplain. The other, an engineered wetland, was designed to improve the quality of supply from the Bridgewater and Taunton Canal, and also recycled water from the water works with respect to sediment, nutrients and pesticides.



The design of the two wetlands will in the long term reduce sediment ingress into the reservoir and the resulting costs relating to the treatment of the raw water for supply.

To design multi-benefit wetlands with the appropriate retention times, trap contaminated silt in key areas to enable effective silt removal in the future. Incorporate all site won material within the scheme, to significantly reduce the requirement to import clay, gravels, and woody material. Innovative design and use of material enabled the project to be delivered on a tight budget.

Since completion, the scheme has been honoured by the Green Apple Environment awards for sustainable development receiving a gold award for 'habitat and diversity' and a bronze award for 'water management', highlighting global excellence in environmental best practices.

Website link - <https://five-rivers.com/case-study/durleigh-wetlands/>

Monitoring

Providing robust data to inform future schemes and monitor impacts. From one-off survey solutions to large-scale investigations.

Fish Rescue, Removals, Surveys & Translocation:

Using a combination of electric fishing and seine netting to safely capture and relocate fish species fully complying with the Environment Agency Guidelines. Fish are excellent indicators of a waterbody's health: analysis of species present and their abundance give an insight into the condition.

Aquatic Ecology:

Biological survey, analysis and reporting services for freshwater invertebrates, macrophytes (large plants) and diatoms (algae).

Water Quality:

Tailored to meet project-specific requirements, and can range from one-off water quality monitoring investigations following a pollution incident to catchment-scale water quality monitoring programmes over extended periods, including spot sampling, multi sonde and auto sampling instrumentation installation, telemetry and chem catchers.

Hydrometry & Telemetry:

Traditional spot sampling for water chemistry and flows provides an accurate snapshot, but large gaps in data remain between sampling visits. With the latest generation of continuous monitoring devices, FiveRivers can deliver real-time information to your phone or computer for 24 hours a day. A multitude of tools are used for monitoring,

including open channel flow meters, Acoustic Doppler Current Profilers (ADCPs) and telemetered loggers.

MoRPh5 / RCA Surveys:

We analyse the indicators highlighted through a river condition assessment (RCA) and advise on intervention measures that will lead to improved biodiversity on site.

Case Study:

FiveRivers delivered **14 long-term water quality investigations** in south-east England to assess the impact of water company wastewater discharges on waterbody status under Water Framework Directive (WFD) and on Sites of Special Scientific Interest (SSSI). During the two-year period, repeat visits to **127 unique locations**, 14 of which were located on two large surface water reservoirs were carried out for water quality spot-sampling and a further 69 locations for the collection of macroinvertebrate samples.

The waterbodies were identified as failing to achieve Good status under the WFD for a range of quality elements including Total Phosphorus (TP), Eutrophication, Reactive Phosphorus (RP) and Dissolved Oxygen (DO).

A targeted programme of investigative monitoring at strategic locations throughout each catchment was required to determine the cost and technical feasibility of water company measures to improve or prevent deterioration from the WFD water quality targets and the revised Common Standards Monitoring Guidance (rCSMG).

All field data was collected electronically using ArcGIS Survey123 with bespoke proforma, which was incredibly efficient, not only saving time for the surveyors, but also allowing the client to have real-time access to the data avoiding the need for processing.

The monitoring programme provided high-quality data required to model options and prioritise capital investments.



Testimonial – Catherine Jenkins, Mott MacDonald Project Manager

FiveRivers were excellent to work with. They understood the scope and requirements of our overall project. Any issues/changes were quickly communicated and dealt with, with minimal interruption to our overall programme. They were able to help with extra items such as door knocking to secure land access whilst already out on site and expedited lab data to meet our tight programme. It was also helpful that the team was able to log site visits and data straight onto our system which has saved time dealing with deliverables/data processing. Overall, really pleased with the work. It's been a year-long survey programme which has been delivered to scope, on time, and budget. We have everything we need to complete our investigations for our client.

Website link - <https://five-rivers.com/case-study/wastewater-investigations/>

Construction

River Restoration:	Installation of typical features such as riffles, berms, woody deflectors, creation of new channels, re-meandering, stage zero.
Wetlands:	The construction of naturalised or constructed wetlands on the back of sewage treatment works to water quality, to wetland scrapes and features for water storage.
Civil Engineering:	Reinforced concrete structures, foundations and substructures, water retaining and hydraulic structures, retaining walls, substation builds, sea walls and flood defences, deep excavations, earthworks, pipelines & drainage, structural retaining solutions, sheet piling, gabions, culverts & headwalls, pumping station construction.
Reedbeds:	From concept design through to construction and aftercare maintenance and refurbishment to ensure effective operation. Whether the reedbed is part of a wastewater treatment system, a nature reserve, or a sustainable drainage solution (SuDS).
Fish Passage:	From bypass channels to weir removal to technical (larinier) fish passage to non-technical (rock ramps).
Natural Flood Management:	Installation of leaky wood structures, floodplain restoration, offline storage creation, cross-slope / catchment and riparian woodland creation, soil and land management and the restoration of degraded headwater peatbogs and wetlands. Guided by CIRIA best practice (The natural flood management manual (C802F)).
Biodiversity Net Gain (BNG):	Implementation of the recommended mitigation and 30-year monitoring and maintenance programmes covering river restoration, habitat enhancement, restoration and creation.
Landscaping & Vegetation Clearance:	Enabling and preparatory works including tree, shrub and brash clearance. Soft landscaping covering seeding, hydroseeding, tree planting, boardwalks, interpretation boards and signage.

Case Study:

FiveRivers has successfully delivered a river restoration WINEP design and build contract on the River Cam in Essex. The River Cam is part of the 14 chalk streams across the Affinity Water catchment in which they must deliver Water Framework Directive (WFD) status improvements throughout their AMP.

We completed a catchment scale scoping stage in 2022 identifying suitable restoration and enhancement areas along the catchment, before a shortlisted optioneering report was completed, where the River Cam was split into suitable reaches.

During the construction phase, we utilised the innovate spider excavator to complete works due to the high embankments. The works completed included: bed raising through riffle installation, woody debris through hinged and pinned site won trees, bank regrading, spoil and brushwood berms. We were able to clean up and the historic dredgings to reinstate the riverbed to its natural condition.



Website link - <https://five-rivers.com/case-study/river-restoration-on-the-river-cam/>

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