United Utilities Water Limited
Green Recovery
Annual Progress Report
2023

United Utilities

Water for the North West

1. Green recovery overview

In July 2020, Defra, Ofwat, the Environment Agency (EA), the Drinking Water Inspectorate (DWI) and the Consumer Council for Water (CCW) invited water companies to identify ways to support the country's green economic recovery from the COVID-19 pandemic.

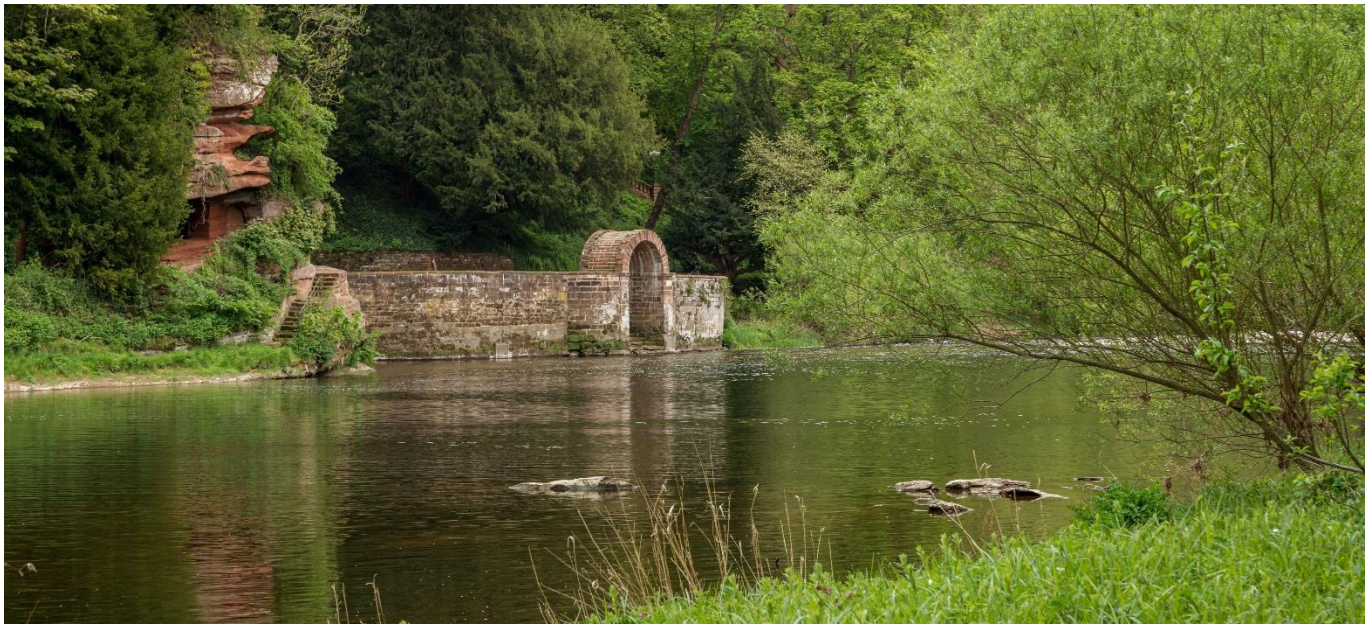
Defra and the regulators set out an ambition to build back greener from the pandemic: delivering lasting environmental improvements for current and future generations, whilst meeting the economic and social challenges England faces. This was known as 'Green recovery'.

Water companies were asked to bring forward new proposals and accelerate existing ones to deliver an innovative and more resilient future for customers, society and the environment.

Following submissions from companies in January 2021, Ofwat issued its final decisions in July 2021. We received endorsement to progress with total allowance of £64.402 million additional funding on top of our existing PR19 final determination. This funding incorporated a focus on three specific schemes.

Green recovery scheme	Funding
Accelerating partnerships to deliver natural solutions	£14.943 million to protect habitats, enhance raw water quality, improve drainage and reduce phosphorus
AMP8 WINEP investments at Bury	£44.060 million to provide additional wastewater storage to improve water quality in the Manchester Ship Canal
Tackling storm overflows	£5.399 million to help tackle storm overflows and improve river water quality

This report outlines the progress made in the last financial year on the individual delivery components of each of these three schemes and associated financial profile, the benefits realised through Green recovery activity under our AMP7 performance commitments and the future milestones in our plan.



2. Accelerating partnerships to deliver natural solutions

2.1 Scheme overview

As a water and sewerage undertaker the resilience of our services is intrinsically linked to the resilience of the ecosystems we depend upon. As a result of this we have a Catchment Systems Thinking (CaST) approach which seeks to ensure the health and efficiency of our services is optimised within the context of the resilience of the catchments in which they operate.

Our 'accelerating partnerships to deliver natural solutions' Green recovery scheme proposal focuses on delivering innovative nature-based solutions in three distinct geographic areas of the North West of England. Each one tackles issues that relate directly to our service and also offer the potential to deliver wider benefits to society and therefore offer up partnership potential. We aim to bring forward AMP 8 investment to deliver interventions identified as required through AMP7 investigations and also deliver innovative new ideas to tackle problems in these catchments. The learning we gain from delivering within these three areas will be applied to the rest of the North West as we plan for PR24 and shared with other companies to enable take up elsewhere. The three distinct areas which feature in our proposal are:

(i) **The River Eden catchment, Cumbria** – A largely rural catchment with extensive livestock farming other than for the city of Carlisle in the lower reaches. The catchment is also home to extensive stretches of river designated as Special Areas of Conservation.

(ii) **The Fylde coast, Lancashire** – A heavily urbanised coast featuring resorts such as Blackpool with agricultural land further inland.

(iii) **The River Irwell and wider Greater Manchester area** – The Irwell drains the northern half of Greater Manchester before it flows through Manchester city centre and eventually joins the Manchester Ship Canal. Other than moorland in the upper reaches it is a highly urbanised river system.

We aim to invest £14.9m on behalf of customers to deliver the following interventions which will enhance the health of ecosystems to deliver the following benefits to customers and wider society. We will also be targeting partnership contributions to allow us to deliver greater benefit to customers without increasing costs.

A breakdown of the costs and targeted benefits from each of the component elements of the 'accelerating partnerships to deliver natural solutions' Green recovery scheme is shown below.

Component	Description	Benefits
Catchment phosphorus	£1.1m investment in scaling up nutrient markets in the Upper Eden catchment to get a head start on improving protected habitats £1.8m investment in piloting approaches to addressing the challenge or agricultural and urban diffuse phosphorus in the Irwell	• 1,000kg/year of agricultural phosphorus load removed from each of the Irwell and Eden catchments • 65kg/year of urban pollution load removed from the Irwell catchment • Creation of green infrastructure • Removal of additional agricultural pollutants • Tackling the challenge of urban pollution and the additional pollutants this brings • Supporting local agricultural economies through challenging times
Catchment water quality management	£0.7m investment in catchment interventions to improve raw water quality from the Rivers Lune and Wyre which serve the Fylde coast	• 300 farms engaged with • 100 farms engaged with on-site in 121 visits • 40 farm plans and interventions delivered • Reduced agricultural pollution to water sources in E.coli, pesticides etc.
Peatland restoration	£2.3m investment in restoration of upland peat in Haweswater, Goyt Valley, Winter Hill, Longdendale, Barnacre and Grizedale catchments	• Restore 2,500 Ha of peatland • Reduced dissolved organic carbon and colour in raw water supplies • Reduced carbon loss and eventually increased sequestration • Reduced wildfire risk • Improved biodiversity • Reduced water flow from uplands reducing downstream flood risk
Sustainable drainage systems (SuDS) and natural flood management (NFM)	£9.1m investment in sustainable drainage and natural flood risk management schemes within the target areas of Eden, Fylde coast and Greater Manchester to reduce flood risk and mitigate the impact of climate change on storm overflow operation	• Flood risk reduced from properties in affected areas • Reduce storm overflow operation • Delivery of green infrastructure • Creation of amenity value and recreational spaces

The table below outlines the specific allowance for each component of this scheme and what the required output will be upon completion.

Component		Allowance (17/18 prices) (£m)	Unit	Component level at completion
Catchment phosphorus	Eden catchment phosphorus management - weight of phosphorus removed	1.091	Kg	1,091
	Irwell catchment phosphorus management - weight of phosphorus removed	1.819	Kg	1,065
Catchment water quality management	Number of farms engaged	0.723	Number	300
Peatland restoration		2.253	Ha	2,501
Number of SuDS and NFM solutions installed		9.057	Percentage (%)	100%
		14.943		

2.2 Investment profile

The planned spend for the accelerating partnerships to deliver natural solutions scheme is shown in the table below. The Green Recovery programme is not currently forecasting to overspend or underspend compared to submission. For ease of comparison, our planned and forecast cost profiles are therefore shown as percentages.

Component	% of allowance	Planned spend profile (%)			
		2021/22	2022/23	2023/24	2024/25
Catchment phosphorus	19%	10%	40%	40%	10%
Catchment water quality management	5%	10%	30%	30%	30%
Peatland restoration	15%	10%	20%	35%	35%
Sustainable drainage systems (SuDS) and natural flood management (NFM)	61%	10%	20%	60%	10%
Total	**100%**	**10%**	**25%**	**51%**	**14%**

The planned investment profile for the SuDS and catchment phosphorus programmes was set to deliver most of the expenditure and outputs in 2022/23 and 2023/24, with some expenditure in 2021/22 to set up the programme. For catchment water quality management and peatland restoration, expenditure in 2021/22 was also planned for setting up the programme then a relatively consistent level of expenditure planned across the rest of the AMP.

The current forecast spend for the accelerating partnerships to deliver natural solutions scheme is shown in the table below.

Actual and forecast spend profile (%)	2021/22	2022/23	2023/24	2024/25
Catchment phosphorus	0%	2%	86%	12%
Catchment water quality management	14%	11%	30%	45%
Peatland restoration	0%	8%	28%	64%
Sustainable drainage systems (SuDS) and natural flood management (NFM)	0%	1%	60%	39%
Total	**1%**	**3%**	**59%**	**38%**

The majority of spend incurred in 2022/23 related to programme preparation such as Farmscoper assessments (a catchment model which can be used to identify forecast phosphorus load contributions at both catchment scale and from individual farms and their farming activities) and Farm Walkovers, designing internal SuDs schemes and shortlisting partnership scheme proposals. A key part of delivering natural solutions is building strong relationships with partner organisations, so that in the long term we can deliver projects that provide benefits for customers, stakeholders and the environment. It is important that we undertake this activity in the right way, so that the benefits are maximised. This activity will also help inform our plans in the future but has required minimal expenditure in 2022/23.The forecast spend profile is therefore different to our planned spend profile. This is due to:

Project preparation – we have been focussed on completing preparatory works to identify appropriate areas that need to be targeted e.g. for the Catchment Phosphorus programme. Although we have spent less than our planned profile, the preparation undertaken means that we've been able to obtain an accurate list of viable locations, and partners have been able to use this information to put forward potential proposals.

New commercial agreements – there have been some issues with getting the new, complex commercial agreements in place with partners to allow us to spend the money. For all components, contracts are now either in place or commercial discussions are progressing. We don't anticipate this to have an impact on overall project delivery, and plan to complete the delivery of the programme within the AMP.

The table below describes the variance between the initial planned and current forecast spend profiles. The planned spend profile is based on 2017/18 prices. The actual and forecast spend profile is based on outturn prices, but has been allocated pro-rata to the FD allowance for ease of comparison.

Variance (%)	2021/22	2022/23	2023/24	2024/25
Planned spend profile	10%	25%	51%	14%
Actual and forecast spend profile	1%	3%	59%	38%
Variance	**-9%**	**-22%**	**8%**	**24%**

2.3 Delivery progress (Ofwat table A1.35)

In 2022/23 our main focus has been preparatory work for the delivery of outputs later in AMP7. In Ofwat table A1.35, outputs from this financial year are shown below. In line with the Ofwat final decision on Green recovery, Partnership funding will only be reported when 80 per cent or greater of the maximum allowance, £723,000, has been secured. As partnership funding is key to be able to achieve our natural solution objectives, we would not fund any activities through the partnership unless at least 80 per cent of the required partner contributions had already been secured. 80 per cent has been set to ensure that we can achieve the targets established at an efficient cost to customers but to also maximise delivery. Other delivery outputs are only reported when all underlying activities are complete. This is fully in line with our plan.

Description	Unit	Decimal places	2022/23 (outturn prices) £m
Kg rural phosphorus removed	Number	0	0
£m spent on rural phosphorus removal	£m	3	0.049
Kg urban phosphorus removed	Number	0	0
£m spent on urban phosphorus removal	£m	3	0.015
Number of farms engaged for catchment water quality.	Number	0	0
£m spent on farm engagement	£m	3	0.087
Partnership funding (not from UU) spent on catchment water quality improvements.	£m	3	0.000
Area of peatland restored	Ha	0	0
£m spent on peatland restoration	£m	3	0.217
Partnership funding (not from UU) spent on peatland restoration	£m	3	0.000
Number of installed SuDS solutions where the cost benefit ratio is either greater than the conventional solution, or where a conventional solution is not cost beneficial, and where the cost benefit ratio is 1.1 or above. This excludes any SuDS WINEP schemes which are covered through the existing PR19 natural capital ODI	Number	0	0
£m spent on marginal costs of moving to SuDS and new SuDS solutions where the conventional solution was not cost beneficial	£m	3	0.096

In section 2.4 below we set out details of our projected future milestones for delivery of these projects.

We have a strong track record of delivery through partnership working but the nature of partnerships means that there is some continued risk around project delivery. Given a reliance on partners being able to secure appropriate funding, provide technical input and align drivers and timescales, it is possible that third party action can delay or cease project development. Although we manage this carefully through diligent project management and partner communication, unforeseen activity can occur. We set out some examples of this in last year's report.

Despite such setbacks sometimes impacting partnership based solutions, we continue to believe that our natural solutions projects within our green recovery programme remain deliverable. We have set out below our current view of the future milestones we are working towards.

2.4 Future milestones

2.4.1 Catchment phosphorus

In 2022/23 the Eden catchment phosphorous project has been able to progress following the completion of a consolidation exercise, aligning outputs from Cumbria Habitats investigations as well as other key requirements, to produce a comprehensive list of wastewater treatment works within the Eden Catchment that have offsetting opportunities for Phosphorous reduction.

We have engaged the catchment host of the Eden catchment partnership, Eden Rivers Trust, who have completed a detailed Farmscoper assessment for these given sites, which in turn has produced a prioritised list of locations to commence individual farm assessments. These farm assessments are commencing in early 2023/24 and include landowner liaison, desktop surveys, walkover and written water management plans.

Following the completion of the assessments, the opportunities that arise will be reviewed and agreed, and appropriate solutions progressed to delivery. To manage the governance and delivery of these interventions a project steering group will be convened in early 2023/24 comprising United Utilities, Eden Rivers Trust and the Environment Agency to ensure delivery of interventions to an acceptable standard. Interventions will be progressed to delivery based on unit cost rate and feasibility. We will be using the Countryside Stewardship rates to compare the prices for each intervention.

In the Irwell catchment we have worked with the Irwell Catchment Partnership, the Catchment Based Approach (CaBA) partnership for this Operational Catchment to continue to develop the capacity and capability of the Irwell Catchment Nutrient Management Group. The aim of this group is to coordinate catchment learning and activity focussed on nutrient management in the Irwell catchment and using expertise across a range of key partners (including representatives from UU, EA, NE, Groundwork, Mersey Rivers Trust, Storm Water Shepherds and the LandApp) identify and prioritise catchment interventions for delivery in both rural and urban settings.

We have developed a partnership agreement with Groundwork Greater Manchester to fund farm advisory work in the Irwell catchment to identify, prioritise and support delivery of farm interventions. We have also established further agreements with Natural England Catchment Sensitive Farming (CSF) teams to support further delivery of interventions in rural catchments that have been identified through unfunded CSF routes. We are also working with the LandApp to identify innovative opportunities for interventions to deliver phosphorus removal at a catchment scale across the Irwell catchment, piloting new technology and engagement methods with farming communities.

In both the Eden and Irwell catchments we have undertaken a review with projects across the business with comparable objectives, looking to develop a streamlined programme of activity for nutrient reduction, taking a holistic approach, in line with our Catchment Systems Thinking (CaST) approach. The internal consolidation, review and streamlining activity with other projects is a vital step in the project to ensure we are maximising efficiencies, driving the greatest opportunity for the project and establishing the best possible foundation to take forward as we look to develop a detailed scope. This is in line with our plan and we are now in a position to progress to engage partners and develop a detailed scope which will ultimately drive delivery.

Year	Expected milestone	Updated Milestone Date
2022/23	Develop baseline understanding of 'available' P load in catchment. This will be developed in conjunction with partners, and will look to agree appropriate systems and data sets that can be utilised to model phosphorous reductions.	Complete – 2022/23
	Prioritise focus areas to develop a suite of farm, land management and drainage improvement plans to include potential specific interventions focussed on phosphorous removal and forecast on what interventions will deliver in terms of kg/yr phosphorous removal.	Complete – 2022/23
2023/24	Interventions detailed in drainage improvement plans, prioritised for delivery through multi agency steering group.	Improvement plans to be developed in 2023 and throughout 2023-25 delivery period
	Interventions will be verified against unit cost of phosphorous reduction and progressed to delivery once identified they are in line with modelled expectations.	Anticipated to commence in Quarter 2 of 2023/24 and throughout 2023-25 delivery period
	Interventions delivered and outputs are evidenced and logged. Report on forecast kg removed as per developed methodology and record on UU systems.	Anticipated to commence in Quarter 2 of 2023/24
2024/25	Continued delivery of interventions and review of benefits realisation and lessons learned on success of interventions.	Anticipated in 2024/25

2.4.2 Catchment water quality management

As described in the section above, no specific outputs have been completed this year. However, partnership funding has been identified with individual Rivers Trusts and will include a combination of other private and public grants where the objectives align with our Green recovery programme. Coordination of the funding and delivery of the activities will be undertaken by partner organisations. The number of farms engaged should be reported as zero unless greater than (or equal to) 80 per cent of £723,000 partnership funding has been secured. At year end 2022/23 the partnership funding secured is less than 80 per cent and therefore the performance is reported as zero. The reason for the partnership funding being less than 80 per cent is because the projects are still in their infancy and we do not expect the 80 per cent threshold to be met until 2024 at the earliest. The partners have a plan in place to ensure that the threshold will be met over the course of the project.

Lune – The Lune contract was signed in June 2022. Since signing the contract the Trust have begun to engage with farmers and draw in matched funding. We do not expect the 80 per cent funding target, nor the 150 farmers target, to be met before 2025.

Wyre – The Wyre contract was signed in November 2022. Since signing the contract the Trust have begun to engage with farmers and draw in matched funding. We do not expect the 80 per cent funding target, nor the 150 farmers target, to be met before 2025.

2.4.3 Peatland restoration

This year we have undertaken preparatory work for grant funding. A combination of government Nature for Climate funding and Countryside Stewardship funding has been identified as the most suitable route of matched funding. Applications for matched funding will be made via partner organisations. As described above in section 2.4.2, some of our partners are still working to secure this grant funding, meaning there currently remains an element of uncertainty for us in this area. There are also potential risks to mitigate on the complexity of commercial agreements and supply chain, which we are actively working on to ensure this project is successfully delivered. We do not expect the 80 per cent funding target nor the 2,501 hectares target to be met before 2025.

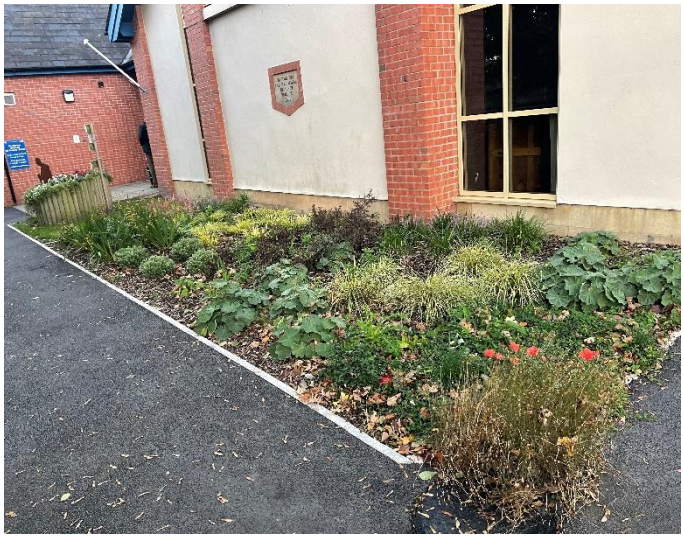
Site	Overview
Longdendale (Dove Stone)	At the time of making the Green Recovery Submission to Ofwat, the RSPB who are a tenant and partner at Longdendale, specifically the Dove Stone estate, submitted a bid to the nature for climate peatland restoration fund. The preparatory work had been completed as part of another project and all site surveys, habitat assessments and consents were in the process of being agreed with Natural England. Both funding elements were successful and have combined together to form a £1.6 million project which has received some publicity: manchestereveningnews.co.uk/news/greater-manchester-news/cash-boost-16m-ancient-peat-23635192 Work started on site in spring 2022 and will complete in 2024 delivering 900 hectares of restoration, which exceeds the original target of 500 hectares.
Barnacre Grizedale	This site is on the western edge of the Forest of Bowland Area of Outstanding Natural Beauty (AONB), and the organisation is supported by Lancashire County Council. Peatland officers have been funded through the Government's Green recovery funding, which has allowed resources to identify areas for peat restoration and work these into candidate sites for nature for climate funding. In the wider Bowland area, United Utilities has an existing AMP7 WINEP commitment to deliver peat restoration and these sites have been prioritised for the June 2022 funding round. The National Trust has coordinated the bid on behalf of the Great North Bog partnership (which includes the Forest of Bowland AONB and Cumbria Wildlife Trust amongst others). We will continue to work with partner organisations to develop plans for this area. At the time of making the Green Recovery Submission to Ofwat, it was anticipated that an area of privately owned land (Bleasdale Estate) would be targeted for peatland restoration, however through negotiations with the landowner, it became clear this year that they were not willing to go ahead with the restoration, despite agreeing to survey work and preliminary activities. This is due to a number of factors associated with the wider uncertainties in the agricultural sector. We have therefore identified the neighbouring Abbeystead Estate as the location for peatland restoration in this catchment. The land has been included in a bid for Nature for Climate funding, which will be announced in September 2023. If successful, the work will commence on site and deliver over a period of 18 months.
Haweswater	The Cumbria Peat Partnership are hosted by Cumbria Wildlife Trust (CWT) who have a history of delivering restoration work on other parts of the Haweswater site. A collaborative agreement was signed in May 2023. Peat restoration activity commenced ahead of this because CWT were able to draw on matched funding from Highways England and the Government's Green Recovery fund in advance of the allowance from United Utilities. Partners are acting at risk to ensure that the 2025 delivery date is met.
Winter Hill	At the time of making the Green Recovery Submission to Ofwat, Moors for the Future (the peat partnership covering the South Pennines area) expressed an interest as the delivery partner and agreed to include the area in their 2022 bid for Nature for Climate matched funding. However, they were unable to include the site due to unforeseen resource contraints and therefore we have spent the last year in disussions with other potential partner organisations. We have explored opportunities with the Woodland Trust (who own and manager the neighbouring estate), Lancashire Peat Partnership (part of Lancashire Wildlife Trust), and Stewardship options available through Natural England. At the time of writing this report it is anticipated that peat restoration across half of the area (Darwen Moor) will be funded through a Nature for Climate grant and the remaining area will be funded through Countryside Stewardship. We are working with Natural England and contractors to develop a scope of works for contractors to undertake this coming winter.
Goyt Valley	We have partnered with the National Trust to apply for Nature for Climate funding to restore peatland on the National Trust estate that covers the Kinder reservoir catchment. We have partnered with Moors for the Future to apply for Nature for Climate funding to restore peatland on the United Utilities estate in the Goyt Valley. We will learn if both bids have been successful in September 2023.

2.4.4 Sustainable drainage and natural flood management

2021/22 was spent investigating further the potential costs and benefits of different means of delivering these schemes to inform future targeting of investment.

This work has included:

- **Capabilities** – Developing our landscape framework, bringing on new suppliers builds further capability for the design and build of blue green infrastructure. We have learnt from previous projects, such as our SuDS for Schools project, to ensure a diverse skill set including landscape architecture and drainage engineers are available to competitively tender for regional projects. A further six companies have been added to the framework for this year, to support our ambitions through Green Recovery.
- **Data** – Outputs of new data that show us what types of SuDS are best to install where, in addition to supporting methodologies that add process to how the information can be extracted easily has been completed. This data helps support decision making and is an essential process that enables co-design of solution blends and styles. We aim to further develop and share this data with partners to enable the development of holistic and adaptive strategies that support the upcoming Price Review.
- **Framework** – We have secured Project Engineering Manager resources to manage this programme of work.



In 2022/23 our focus was approving and supplementing finance to several partnership organisations. We are working with partners to plan and develop SuDS and nature based storage solutions that benefit local communities and partnerships. Working in collaboration with external 3rd parties has enabled us to share knowledge outside of our organisation and learn from others how they are approaching SuDS schemes in their local areas. These types of schemes have driven benefits for our mutual customers whilst sharing the cost to deliver, providing efficiencies across the collaboration. As this approach starts to deliver tangible results we move to taking that understanding and focusing on our own internal data to identify opportunities for SuDS across Eden, Fylde and Irwell.

In addition to supporting projects being delivered by third parties, we have also worked with our local operational teams to understand where there is the potential to deliver SuDS and NFM projects in relevant catchments. This approach enables us to further understand how best to identify SuDS opportunities, and in the future will provide valuable information into what makes these types of scheme successful.

In 2023/24 we will focus on delivery, following the progress that has been made on financing partnership schemes. This means that we will be starting to deliver schemes via both external collaborative partnership approaches and our own internal process, as described above. This will inform our strategies on the most efficient route to delivering further opportunites under the Water Industry National Environment Pragramme (WINEP) and Drainage and Wastewater Management Plan (DWMP).

2.4.5 Summary

In Ofwat table 10E, a forecast of our delivery outputs are shown. Delivery outputs are only reported when all underlying activities are complete. This is fully in line with our plan. A copy of this table is shown below.

Name	Unit	2021/22		2022/23		2023/24		2024/25		2025/26	
		Component level to date	Percentage complete	Component level to date	Percentage complete	Component level to date	Percentage complete	Component level to date	Percentage complete	Component level to date	Percentage complete
Eden catchment phosphorus	Kg	0%	0%	0%	0%	275	25%	1,091	100%	-	-
Irwell catchment phosphorus	£m (%)	0	0%	0	0%	£0.450	25%	£1.819	100%	-	-
Number of farms engaged	Nr	0%	0%	0	0%	0	0%	300	100%	-	-
Peatland restoration	Ha	0%	0%	0	0%	0	0%	2,501	100%	-	-
Number of SuDS and NFM solutions installed	£m (%)	0%	0%	£0.096	1%	£2.056	23%	£9.057	100%	-	-

2.5 Performance commitment and additional benefits

The ‘catchment water quality management’ and ‘peatland restoration’ components of this scheme are not linked to any of our AMP7 performance commitments. Therefore their delivery will not provide additional performance or financial benefit in this area.

There is the potential for some of our ‘sustainable drainage and natural flood management’ activities to provide additional benefit under both our ‘hydraulic internal flood risk resilience’ and ‘hydraulic external flood risk resilience’ performance commitments. However in 2022/23, none of our activities delivered any benefit in this area, as reported in Ofwat table 10D.

Likewise, there is the potential for some of our ‘catchment phosphorus’ activities to provide additional benefit under our ‘enhancing natural capital for customers’ performance commitment. Again, none of our activities delivered any benefit in this area in 2022/23, as reported in Ofwat table 10D.

3. AMP8 WINEP investments at Bury

3.1 Scheme overview

The Manchester Ship Canal is a canalised river that finished construction in 1894. It canalised the natural river to allow for the transportation of raw supplies for manufacturing in the booming city of Manchester and transporting goods to the port of Liverpool. The Ship Canal has been an important transport link over the past 127 years and continues to be used to this day.

In more recent times the Ship Canal has been used for recreation. The turning basin area in Salford is a major area of development for Greater Manchester, providing key locations for the BBC, ITV and Lowry Theatre as well as water-front development focusing more interest in the canal and its water quality. The Manchester Ship Canal corridor in Salford and Trafford is a key focus area for growth in the North West and builds on the increased amenity value already delivered by improvements to UU's discharges over the last 30 years.

The need for the improvement schemes detailed in this document comes from the requirement to improve the dissolved oxygen in the canal that was originally required to comply with the statutory requirements of the Freshwater Fish Directive which were subsumed into the Water Framework Directive in 2013. As the canal is deep and slow moving, during the summer months flows are often low and water is held back in the canal to ensure there is sufficient water for ship navigation. This slow-moving water leads to a risk of low concentrations of dissolved oxygen that natural, flowing rivers enjoy. The low level of dissolved oxygen is a barrier to a thriving fish population and limits the migration of fish to the upstream rivers which cover a large urban area including virtually all of Greater Manchester.

The below confirmed AMP8 requirements will satisfy the statutory driver:

(i) WINEP reference 7UU200793 - Bury WwTW Storm Tanks WFD 99%ile intermittent standards for Dissolved Oxygen and Ammonia. WINEP regulatory date 31 March 2028.

(ii) WINEP reference 7UU200802 - Nuttall Hall Road CSO (BRY0002) WFD 99%ile intermittent standards for Dissolved Oxygen and Ammonia. WINEP regulatory date 31 August 2027.

Completion of the schemes at Bury WwTW storm tanks and Nuttall Hall Road CSO (BRY0002) have been modelled to contribute towards downstream improvements to dissolved oxygen in the Ship Canal and will also enable the River Irwell to meet ammonia and dissolved oxygen Water Framework Directive biological standards. Bringing these schemes forward to complete earlier is intended to benefit the environment sooner.

It has been recognised that improving the Ship Canal to meet Water Framework Directive compliance and support migratory fish cannot be achieved by United Utilities investment alone. The establishment of the Mersey Rivers Trust hosted Manchester Ship Canal Partnership Forum, with support from the Environment Agency and other key catchment stakeholders, is intended to codesign and co-deliver a long-term multi beneficial environmental improvement strategy for the Canal.

The accelerated completion of these schemes in Bury will result in an earlier improvement to the River Irwell, and are a stepping stone on the journey to the long-term strategy for the Manchester Ship Canal, which the Environment Agency and the Mersey Rivers Trust have signed up to.

The table below outlines the specific allowance for each component of this scheme and what the required output will be upon completion.

Component	Allowance (17/18 prices) (£m)	Unit	Component level at completion
Network storage installed at Nuttall Hall road	11.970	Percentage (%)	100%
Additional storm tank capacity installed at Bury WwTW	32.090	Percentage (%)	100%
	44.060		

3.2 Investment profile

The planned spend for this scheme is shown in the table below. The Green Recovery programme is not currently forecasting to overspend or underspend compared to submission. For ease of comparison, our planned and forecast cost profiles are therefore shown as percentages.

Component	% of allowance	Planned spend profile (%)			
		2021/22	2022/23	2023/24	2024/25
Network storage installed at Nuttall Hall road	27%	7%	8%	36%	50%
Additional storm tank capacity installed at Bury WwTW	73%	7%	8%	36%	50%
Total	**100%**	**7%**	**8%**	**36%**	**50%**

The planned investment profile for the WINEP investments at Bury was based on delivery of both schemes in AMP7, with the majority of expenditure expected in 2023/24 & 2024/25 to complete the solutions.

The current forecast spend for the Bury scheme is shown in the table below.

Forecast spend profile (%)	2021/22	2022/23	2023/24	2024/25	AMP8
Network storage at Nuttall Hall road	1%	8%	23%	46%	22%
Additional storm tank capacity at Bury WwTW	0%	2%	14%	29%	55%
Total	**1%**	**3%**	**16%**	**34%**	**46%**

Programme spend in 2022/23 relates to the 'outline design phase', focusing on site investigations and information collation to support development of high-level designs and the abstraction licence application. The forecast spend profile is different to our planned spend profile. This is because it is now anticipated that we may need to delay completion of the project until 2025/26, although we continue to look for opportunities to recover the position and bring spending back into the current AMP period. A commentary on development of the two schemes is set out below.

- **Nuttall Hall** – In developing the solution the UU project team looked at several locations to optimise the design solution and cost. This resulted in the requirement to build a solution on third party land. This land has now been purchased but negotatiations to secure the land as well as engagement with a number of key stakeholder groups to ensure a smooth planning application process has added some additional time into the schedule. Investigations also raised concerns of encountering rock and contaminated ground at the Nuttall Hall site and extensive geotechnical ground investigation and soil testing has been undertaken to manage this risk to aid project planning and writing the contract. The site footprint is

constrained, so similarly to Bury WwTW, the determination of the construction methodology, establishing the appropriate site investigation and the collation of information to support the abstraction licence has also been complex. It has taken time to develop this with the contractors and all designers to minimise difficulties and delays in the construction phase. As there are long-lead timescales for obtaining an abstraction licence, the project team have had to get this right first time to prevent subsequent delays. Due to the various complexities, the project award is anticipated in late 2023. We are continuing to do what we can to complete the project within AMP7, but there is a realistic risk of delay into AMP8.

- **Bury WwTW** – In developing the solution at Bury WwTW we have had to undertake many months of network modelling and hydraulic analysis. Completing this modelling and analysis has been fundamental to understanding all issues at the inlet works and potential solutions to resolve them. This has taken longer than anticipated and is reflected in the forecast spend profile. It has been a complex process to determine a construction methodology, due to undertaking site investigations and the collation of information to support the abstraction licence. This has taken time to develop with the contractors and designers to minimise difficulties and delays in the construction phase. As there are long-lead timescales for obtaining an abstraction licence, the project team have had to get this right first time to prevent subsequent delays. The site of the proposed storage tank has necessitated some removal of trees and consequently some loss of natural habitat. Accordingly we have engaged extensively with Bury Council to ensure that environmental Biodiversity Net Gain requirements have been satisfied. The revised delivery forecast reflects that whilst we are currently still working to complete the project within AMP7, there is a risk that some of the work will need to continue into AMP8. Similarly to Nutall Hall, site investigations also raised concerns of encountering rock and contaminated ground at Bury WwTW and extensive geotechnical ground investigation and soil testing has been undertaken to manage this risk to aid project planning and writing the contract.

For both projects, although there is now some risk that the final delivery will be delayed beyond the original timescales, the early commencement of work on the schemes means that in both cases we still anticipate delivering them sooner than if they had not been part of the green recovery process.

The table below describes the variance between the initial planned and current forecast spend profiles. The planned spend profile is based on 2017/18 prices. The actual and forecast spend profile is based on outturn prices, but has been allocated pro-rata to the FD allowance for ease of comparison.

Variance (%)	2021/22	2022/23	2023/24	2024/25	AMP8
Planned spend profile	7%	8%	36%	50%	-
Actual and forecast spend profile	1%	33%	16%	34%	46%
Variance	**-6%**	**-5%**	**-20%**	**-16%**	**46%**

3.3 Delivery progress (Ofwat table A1.37)

In 2022/23 our main focus has been preparatory work for the delivery of outputs later in AMP7. In Ofwat table A1.37, outputs from this financial year are shown below. Delivery outputs are only reported when all underlying activities are complete. This is fully in line with our plan.

Description	Unit	Decimal places	2022/23 (outturn prices) £m
Volume of storage provided in the network	m3	0	0
Spend on providing storage volume in the network	£m	3	1.061
Volume of additional storm tank provided at Bury wastewater treatment works	m3	0	0
Spend on providing storage volume in the network	£m	3	0.603

3.4 Future milestones

As described in the overview section, we were originally committed to the delivery of the two elements of this scheme by the regulatory dates (31 March 2028 for Bury Storm Tanks and 31 August 2027 for Nuttall Hall Road CSO). Through Green recovery, we now aim complete these schemes by 2025/26.

In Ofwat table 10E, a forecast of our delivery outputs are shown. Delivery outputs are only reported when all underlying activities are complete. This is fully in line with our plan. A copy of this table is shown below.

Name	Unit	2021/22		2022/23		2023/24		2024/25		2025/26	
		Component level to date	Percentage complete	Component level to date	Percentage complete	Component level to date	Percentage complete	Component level to date	Percentage complete	Component level to date	Percentage complete
Network storage installed at Nuttall road	%	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%
Additional storm tank capacity installed at Bury WwTW	%	0	0%	0	0%	0	0%	0%	0%	100%	100%

3.5 Performance commitment and additional benefits

This scheme is not linked to any of our AMP7 performance commitments. Therefore delivery of the scheme will not provide additional performance or financial benefit in this area.

4. Tackling storm overflows

4.1 Scheme overview

Since privatisation in 1990, United Utilities has made significant improvements at our storm overflows to reduce the incidence, volume and impact of spills to the environment. The Environment Act 2021 and Government's discharge reduction plan have brought in new legislation and duties on water companies to go beyond environmental impact and reduce the frequency of discharges from storm overflows to meet the long term target of 10 spills.

Storm overflows are an integral part of the sewage system, they act as a relief system in period of heavy or prolonged rainfall events to prevent flooding. In the North West we experience high levels of rainfall and this leads to higher levels of urban runoff than other regions of the country. We have a higher proportion of combined sewers than any other water company with over 54 per cent combined as a proportion of our legacy public sewers. This legacy means the risk of spills from these systems is higher as they respond quicker to a storm when compared to more separate systems.

Event duration monitors (EDMs) record when a discharge occurs, the majority of storm overflows have EDMs and 100% of these assets will be monitored by the end of 2023. Information from these monitors will be shared on a website in near-real time to allow anyone to view the data and performance from these assets.

Hydraulic models allow us to simulate the long term performance of our assets as a result of climate change and other factors which we can build into improvement plans. United Utilities continued investment in developing, enhancing and maintaining hydraulic models of our wastewater network means we now have coverage for 99 per cent of population in the region. Combining the data from our event monitors and models gives us the capability to understand the performance of our overflows and build a robust plan to reduce the impact and frequency of these discharges.

In 2021 United Utilities developed a 'Green recovery' scheme to place additional emphasis on storm overflows. This scheme consists of two components:

(i) Storm overflow assessment framework (SOAF) investigations

The SOAF was written by the Environment Agency as an assessment framework for compliance with the relevant legislation such as the Urban Wastewater Treatment Regulations (UWWTR). This framework supports companies in assessing the impact of storm overflows and identifying solutions to reducing spill frequency.

Any overflow reported to exceed the spill frequency thresholds as set out in Table 1 of the SOAF guidance document should be investigated. The thresholds are based on the number of years an event monitor has been installed and the average annual number of spills reported.

Since defining our AMP7 programme we have installed over 1,600 new EDMs and as a result we have significantly increased our monitoring capacity and knowledge of our systems. From this data we have identified 587 new sites that meet or exceed the SOAF spill thresholds for an investigation in AMP7. These additional investigations would otherwise be delivered in AMP8 under the EnvAct_INV4 WINEP driver.

Our Green Recovery proposal will deliver Stage 1 (Why is the storm overflow a high frequency spiller?) of the SOAF investigation on all 587 sites with 300 going forward onto Stage 2 (*Does the storm overflow cause an environmental impact?*) and Stage 3 screening (*Initial assessment of options for improvements*). This phased approach in the delivery is in recognition of lessons learned during the delivery of our AMP7 programme.

Revisions to the SOAF have been made by the Environment Agency following publication of Government's storm overflow discharge reduction plan, these revisions require companies to design to a lower spill frequency target in line with the long term plan to reduce discharges to 10 spills per annum by 2050. Any new sites that now meets the criteria for SOAF will be delivered in AMP8 under the EnvAct_INV4 WINEP driver.

(ii) Build three new integrated catchment models

Our integrated catchment models (ICMs) are a dynamic digital representation of a watercourses' catchment hydrology and water quality. These models are calibrated to real time data to represent the water quality impact of urban and diffuse rainfall runoff within the receiving watercourse. The urban contributing catchment is represented through our sewer network models that represent all overflows, surface water outfalls and wastewater treatment works contributions.

The ICMs are used to assess the water framework directive status of a watercourse and identify where there is non-compliance and its root cause. A significant advantage of the models is they can represent both dry weather and wet weather conditions and are able to replicate the impact of climate change. United Utilities has built ICMs for a significant portion of the region and these have been used to inform overflow and Wastewater Treatment Works (WwTW) needs for the multiple WINEPs. We have identified three river watersheds where we are seeking to expand our modelling coverage as they contain a high number of frequently spilling overflows.

The key to building an integrated catchment model is having suitable data for calibration. This requires capturing long term water quality trend data and sampling dry and wet weather events to replicate the impact of the overflows. As a minimum we collect a full summer period for each catchment. To deliver this extended ICM programme, planning started in late 2021 in order to facilitate surveys in 2022 and 2023. This allows time to build and calibrate the models for completion in 2025.

The table below outlines the specific allowance for each component of this scheme and what the required output will be upon completion.

Component	Allowance (17/18 prices) (£m)	Unit	Component level at completion
SOAF investigations	3.888	Percentage (%)	100%
Integrated catchment models - Sankey Brook and Wiza Beck	0.986	Number	2
Integrated catchment models - Upper Derwent	0.525	Number	1
	5.399		

4.2 Investment profile

The planned spend for the tackling storm overflows scheme is shown in the table below. The Green Recovery programme is not currently forecasting to overspend or underspend compared to submission. For ease of comparison, our planned and forecast cost profiles are therefore shown as percentages.

Component	% of allowance	Planned spend profile (%)			
		2021/22	2022/23	2023/24	2024/25
SOAF investigations	72%	-	-	51%	49%
Integrated catchment models - Sankey Brook, Wiza Beck and Upper Derwent	28%	-	-	51%	49%
Total	**100%**	**-**	**-**	**51%**	**49%**

The SOAF investigation planned spend profile is based on the investigation deliverables being expected in 2023/24 and 2024/25. The planned spend profile of the Integrated catchment models programme was based on the assumption that work in the three catchment areas would be completed predominantly across 2023/24 and 2024/25.

The current forecast spend for the tackling storm overflows scheme is shown in the table below.

Forecast spend profile (%)	2021/22	2022/23	2023/24	2024/25	AMP8
SOAF investigations	3%	12%	37%	48%	-
Integrated catchment models - Sankey Brook, Wiza Beck and Upper Derwent	1%	17%	33%	49%	-
Total	**3%**	**13%**	**36%**	**48%**	**-**

Spend incurred against this programme in 2022/23 is attributed to programme preparation activities:

- **SOAF Investigations** – following the stage 1 high level investigations completed in 2021/22, approximately 150 sites were taken forward for environmental surveys and the majority of these stage 2 surveys have been completed to date. Initial investigations have started for the remainder of the programme and we are on track to deliver the final reports in 2023/24 and 2024/25 as set out in our Green Recovery programme build.
  ICM models – 2022/23 spend is associated with completion of surveys at Sankey Brook and Upper Derwent. Due to weather events we were unable to record three dry and three wet weather scenarios within the sampling window. UUW will re-survey this site in 2023/24 alongside Wiza Beck. The three ICM models within the Green Recovery programme will be completed by March 2025.

The table below describes the variance between the initial planned and current forecast spend profiles. The planned spend profile is based on 2017/18 prices. The actual and forecast spend profile is based on outturn prices, but has been allocated pro-rata to the FD allowance for ease of comparison.

Variance (%)	2021/22	2022/23	2023/24	2024/25	AMP8
Planned spend profile	-	-	51%	49%	-
Actual and forecast spend profile	3%	13%	36%	48%	-
Variance	**3%**	**13%**	**-15%**	**-1%**	**-**

4.3 Delivery progress (Ofwat table A1.39)

In 2022/23 our main focus has been on preparatory work and environmental surveys for the delivery of outputs later in AMP7. In Ofwat table A1.39, outputs from this financial year are shown below. Delivery outputs are only reported when all underlying activities are complete. This is fully in line with our plan.

An investigation is considered complete following delivery of all relevant stages and sign-off. All SOAF investigations are ongoing and whilst several stages have been completed, they will only be counted within the reprting table when the final investigation is signed-off.

Description	Unit	Decimal places	2022/23 (outturn prices) £m
Number of SOAF investigations in year completed to Stage 1	Number	0	0
Totex spend on SOAF investigations to Stage 1	£m	3	0.394
Number of SOAF investigations in year completed to Stage 2	Number	0	0
Totex spend on SOAF investigations to Stage 2	£m	3	0.147
Number of SOAF investigations in year completed to Stage 3	Number	0	0
Totex spend on SOAF investigations to Stage 3	£m	3	0.000
Number of SOAF investigations in year completed to Stage 3b/4	Number	0	0
Totex spend on SOAF investigations to Stage 3b/4	£m	3	0.000

Please note that line 7 in Ofwat table 4T also contains £0.300m spend on Integrated Catchment Modelling (ICM). This is in addition to the £0.541m on SOAF investigations shown in the table above.

4.4 Future milestones

The future milestones of the SOAF activities are shown in the table below.

Milestone number	Milestone	Updated Milestone Date
1	Identification and shared sites in MSF template for 150 full SOAF investigations (Batch 2)	Complete – 2022/23
2	Environmental Impact Surveys complete for Batch 1 (150 sites)	Complete – 2022/23
3	Environmental Impact Surveys begin for Batch 2 (150 sites)	Complete – 2022/23
4	Completion of 287 Stage 1 only investigations	September 2023
5	Environmental Impact Surveys complete for Batch 2 (150 sites)	November 2023
6	Full Investigations Complete for Batch 1	March 2024
7	Full Investigations Complete for sites Batch 2	March 2025

For ICM we have taken the pragmatic decision to phase the work across the 3 catchments to ensure that we have the appropriate laboratory capacity and sampling availability to successfully deliver all the elements of the work required the end of AMP. The project milestones have therefore been amended to reflect this change.

In Ofwat table 10E, a forecast of our delivery outputs are shown. Delivery outputs are only reported when all underlying activities are complete. This is fully in line with our plan. A copy of this table is shown below.

Name	Unit	2021/22		2022/23		2023/24		2024/25	
		Component level to date	Percentage complete	Component level to date	Percentage complete	Component level to date	Percentage complete	Component level to date	Percentage complete
SOAF investigations	%	0%	0%	0%	0%	58%	58%	100%	100%
Integrated catchment models - Sankey Brook and Wiza Beck	Number	0	0%	0	0%	0	0%	2	100%
Integrated catchment models - Upper Derwent	Number	0	0%	0	0%	0	0%	1	100%

4.5 Performance commitment and additional benefits

This scheme is not linked to any of our AMP7 performance commitments. Therefore delivery of the scheme will not provide additional performance or financial benefit in this area.

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