OUR DRAINAGE AND WASTEWATER MANAGEMENT PLAN

NORTHUMBRIAN WATER *living water*

Foreword

Thank you for reading our first Drainage and Wastewater Management Plan (DWMP).

This is a critical document as we aim to make sure our region's drainage and wastewater system remains reliable and resilient for the years ahead, ready to meet challenges including changes to our climate and population growth. The DWMP represents a step change in our planning for the future and it will form an important part of our business plan submission for the next regulatory periodic review covering 2025-30. It also integrates with our Long-Term Delivery Strategy (LTDS), due to be published in June 2023, which brings together our long-term planning processes across our business, including the DWMP.

As we have developed this plan, we have recognised there has been a cultural shift among many stakeholders and customers, and a renewed interest in our local environment. We welcome this. The water environment is not only critical to our business, but a major factor in making our communities great places in which to live and work.

We often ask our customers to play their part in taking care of it, such as through committing to 'Bin The Wipe' to avoid blockages that can lead to pollution. However, we understand that our customers also expect us to continually improve our own processes and services.

We are committed to building on our strong environmental performance. In the North East of England, 32 out of 34 bathing waters are classed as excellent or good and we have overseen dramatic reductions in pollution in the past decade with zero serious pollutions in 2022. This performance has underpinned our achievement of a 4-star performance, the highest possible, in the Environment Agency's latest Environmental Performance Assessment (EPA).

In 2022, we published A Vision for our Coasts and Rivers, containing nine ambitious pledges to contribute to further improvement of our water environment to benefit local communities.

In April this year, we published an update on progress demonstrating that we are on track to meet all of these pledges, including a 20% reduction in average spills from storm overflows by 2025.

> **We are committed to building on our strong environmental performance.**

Our DWMP includes detail on how we will meet the requirements of the Government's Storm Overflow Discharge Reduction Plan (SODRP), which sets limits on the number of times overflows can discharge to rivers and bathing waters.

We are one of many organisations and individuals with the potential to influence river water quality. A joined-up approach through which stakeholders can collaborate towards our shared objectives will therefore be essential to realise improvements. We have engaged extensively through the development of this plan and are excited about the opportunities identified for partnership working that can deliver multiple benefits for our communities.

This final plan has been produced following a period of consultation on the draft DWMP (dDWMP) which we published last year. The comments we received were of great benefit as we seek to meet our customers' and stakeholders' expectations – including on how we appropriately balance future investment with maintaining affordable bills for customers.

We would like to thank all those who have participated in this process, especially members of the Strategic Planning Group, and those who attended the many stakeholder and customer workshops we have held in the last few years. We intend to build on the successful collaboration already taking place to deliver the interventions that have been identified in the final plan, while making sure we achieve best value for customers and the environment.

We have learned a lot through the development of this, our first DWMP, and we will take this learning into future planning cycles. Thank you for taking the time to read and engage with our plan, and I look forward to working with you as we take this forward.

Richard

Richard Warneford, Wastewater Director

Introduction

We provide water and wastewater services to 2.7 million people in the North East of England.

The role we have in providing you with such an essential service is one we take very seriously. We rely on the environment around us for our raw material (water) and we work hard to make sure it's clean, clear, and great tasting.

We're responsible for taking wastewater away from homes and businesses, and treating it, so it can be safely returned to the natural environment such as rivers and seas.

We're proud of our environmental track record. In the North East, 32 out of 34 bathing waters are classed as excellent or good. The Environment Agency (EA) rates us as four star (it's highest assessment), and we've been industry leading in reducing pollution in the last few years, something our customers tell us is very important to them.

In 2022, we published A Vision For Our Coasts And Rivers, containing nine ambitious pledges to contribute to further improvement of our water environment to benefit local communities. Earlier this year, we published an update showing we are on track to meet each of these pledges. You can read this **here**.

We are only one of many organisations that are responsible for drainage, preventing flooding and protecting the environment and whose operations can influence river and bathing water quality.

> **We're proud of our environmental track record.**

Introduction (cont'd)

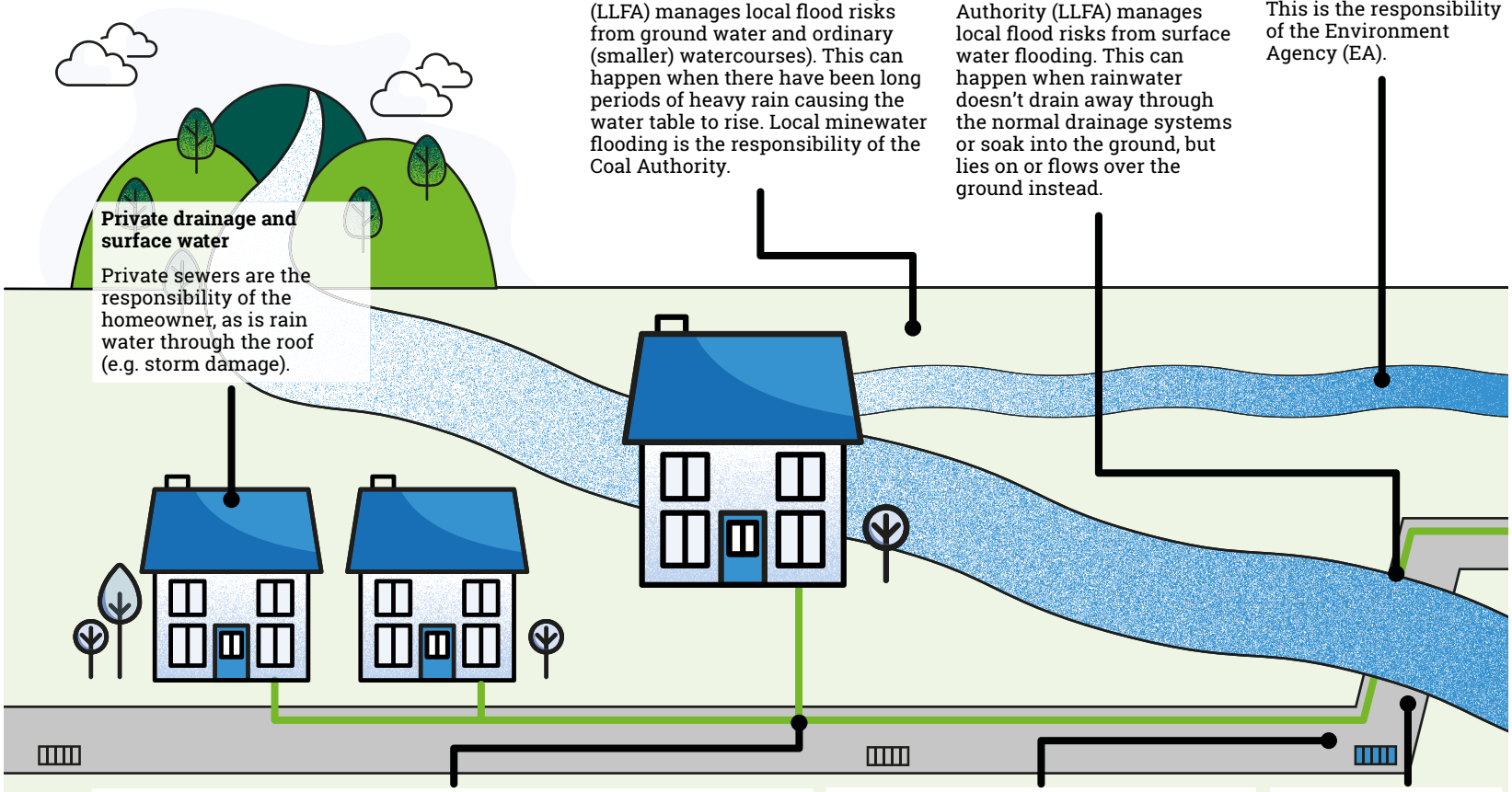
We are specifically responsible for the **wastewater system**, which includes things like drains, manholes, pumping stations, and storm overflows, as well as treatment works and SuDs (sustainable drainage systems).

We recognise there are others who can have an impact, often a greater impact than we can, on the quality of rivers and beaches.

With this in mind, we lead and support partnership activity that can collaboratively develop the best and most innovative solutions.

We all need to work together to make sure everyone can continue to enjoy the natural environment for years to come.

Drainage: who is responsible?



Groundwater flooding

The Lead Local Flood Authority (LLFA) manages local flood risks from ground water and ordinary (smaller) watercourses). This can happen when there have been long periods of heavy rain causing the water table to rise. Local minewater flooding is the responsibility of the Coal Authority.

Surface water flooding

The Lead Local Flood Authority (LLFA) manages local flood risks from surface water flooding. This can happen when rainwater doesn't drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead.

Main river and coastal flooding

This is the responsibility of the Environment Agency (EA).

Private drainage and surface water

Private sewers are the responsibility of the homeowner, as is rain water through the roof (e.g. storm damage).

Public sewers and utility pipes

We are specifically responsible for the wastewater system, which includes things like drains, manholes, pumping stations, and storm overflows, as well as treatment works and SuDs (sustainable drainage systems) that we install or adopt.

Highway gullies and drains

The local highways authority and unitary / county councils have the lead responsibility for providing and managing highway roads, footpaths, drains and gullies.

Major roads and motorway drainage

The Highway Authority is Highways England.

What is a Drainage and Wastewater Management Plan (DWMP)?

When you flush the toilet, you probably don't think about the system that transports sewage away from your home or business. And when it rains, you might not consider how rainwater drains away, particularly during heavy storms. But we do.

And our care and respect for our natural environment goes far beyond any legal requirements. We work constantly to protect and enhance your local coasts, rivers, and watercourses.

Population growth and changes to our climate are presenting big challenges for the water industry. We want to make sure our drainage and wastewater system will be able to cope in the future. We call this long-term resilience.

A resilient system will continue to treat and dispose of wastewater effectively despite the pressures the future decades bring.

1950 =

253m flushes a day!

2023 =

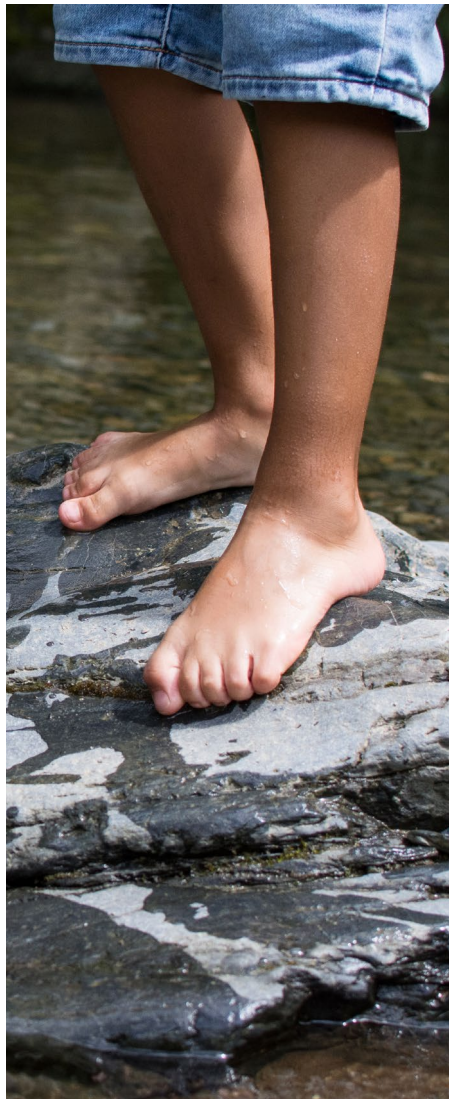
345m flushes a day!

Figures based on UK population.

> **Our DWMP outlines the level of investment needed to make sure the drainage and wastewater system can cope in the future.**

The Government requires us to plan for the next 25 years. We've chosen to look ahead 40 years, which is the same long-term planning period we consider for the rest of our business operations, for example, our Water Resources Management Plan (which looks at how we can make sure there will be enough water in the future).

Our DWMP outlines the level of investment (money) needed to make sure the drainage and wastewater system can cope in the future. We must be careful to work at a pace that is affordable to our customers, and fair to our communities, while seeking the highest environmental performance.



Why is a DWMP useful?

While we can't predict the future, we can plan for certain scenarios. Our long-term plan will show how we plan to manage the risks to our network from a range of different or uncertain future pressures. These include:

Flooding

An effective sewerage system must be able to handle sewage and rainwater, to reduce the risk of flooding to our homes and communities. You can help us by only flushing toilet paper, pee, and poo and by putting other items, such as wet wipes, nappies, and period products, in the bin to prevent blockages forming in the sewer network.

Our ambitious goal is to eradicate sewer flooding in the home as a result of our assets and operations.

Environment

Because there is less green space, a growing population and climate change, there's more risk of pollution in our rivers and beaches. We are not in full control of the volume, or even the items added to our flows, but we work hard to engage the public to prevent fly tipping, misconnections, and flushing items they shouldn't.

Our ambitious goals are to demonstrate leadership in catchment management to enhance natural capital and deliver net gain for biodiversity, and to have the best rivers and beaches in the country.

Compliance

Our regulators set rules to make sure our sewage treatment works can handle demand, without having a negative impact on the local environment.

Our ambitious goal is to have zero pollutions as a result of our assets and operations.

Our long-term plan will show how we plan to manage the risks to our network from a range of different or uncertain future pressures.

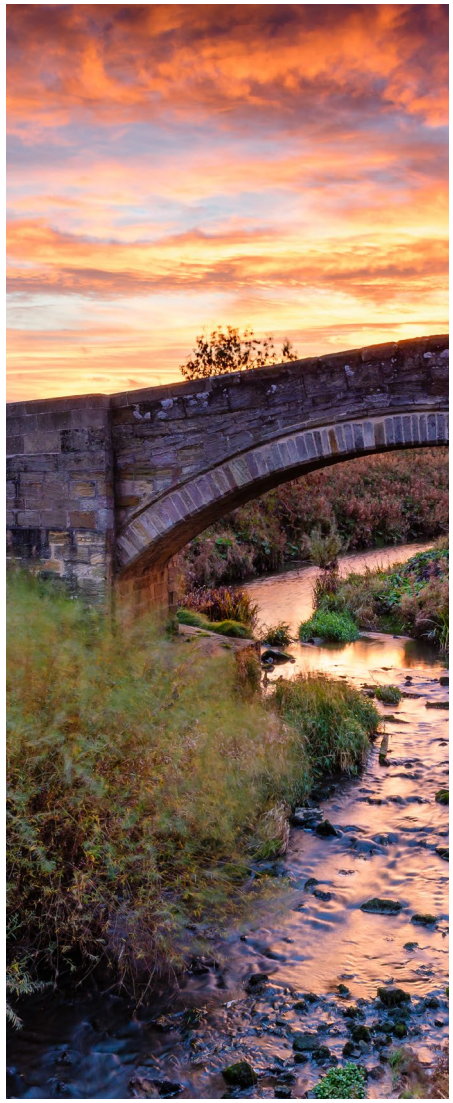
How we developed our DWMP

Our Drainage and Wastewater Management Plan covers Northumberland, Tyneside, Wearside, Rural Tyne, Wear, Teesdale and Teesside.

We have spent the last two years investigating:

- The scale of the problems.
- The timing of the problems.
- The costs and benefits.

We analyse data along with modelling and surveys to find the potential challenges and risks to identify which area is most at risk.



What are storm overflows and why are they important?

Many of our sewers carry a combination of wastewater from homes and businesses, and rainwater. At times of heavy rainfall, this can mean that the pipes can reach full capacity. The risk from this is that this combination of rainwater, wastewater and other items flushed into the network can be forced back into customers' homes.

Therefore, storm overflows (SOs) act as a relief valve, releasing this heavily diluted mix – mostly rainwater – to the environment and protecting homes from sewer flooding. The Environment Agency permits how and when we can use SOs.

The frequency of discharges from SOs has increased over time because of climate change, population growth and changes in behaviours – in particular, increased use of plastics such as wet wipes being put into the system and causing blockages.

This plan tackles SOs as a priority and our DWMP sets out how we will meet the targets in the Government's Storm Overflow Discharge Reduction Plan (SODRP), which are to reduce discharges and eliminate harm to the environment.

We are already investing more than £80 million towards reducing our reliance on and use of SOs between 2020 and 2025. In 2022 we saw reductions of around 20% in spills per overflow and 40% in the average duration of spills compared to 2021.

Click **here** to view a short animation that explains how storm overflows work.

> **We are already investing more than £80 million towards reducing our reliance on and use of SOs between 2020 and 2025.**

Treating wastewater

To treat wastewater at our sites, we combine physical, biological and sometimes chemical processes to deliver the highest quality final effluent, which is then returned to the environment.

We use screens to remove unflushable item such as wet wipes, sanitary products and cotton buds, and settle out any grit washed off from the highways.

The waste moves into primary settlement tanks where organic solids are removed as they settle to the bottom of the tank, leaving a sludge. Biological processes then purify the rest of the soluble pollutant content of the sewage.

Depending on the location a tertiary treatment process may be required where chemicals and filtration processes are used to remove further nutrients, and at some of our sites near bathing waters we also treat the cleaned-up effluent with ultraviolet light to deal with any pathogens and viruses that remain.

We use the remaining sludge to create energy at our green power stations at our sites at Bran Sands on Teesside and Howdon on Tyneside. We were the first, and remain the only, water company to recycle 100% of our sewage sludge to create green power in this way.

Our treatment works have to comply with permits that specify the amount and the quality of the final effluent that is discharged. We will need to continue to meet changing environmental standards over the nutrients that go back into the water environment from our works.

We were the first, and remain the only, water company to recycle 100% of our sewage sludge to create green power.

Managing our network and tackling sewer flooding

Our network is complex – we manage over 400 wastewater treatment works, 30,000km of sewers, more than 1,000 sewage pumping stations and more than a million manholes across North East England.

When there is a blockage or problem in the system, we will do our best to divert flows to other parts of the network where we can. However, this is not always possible and in these circumstances the risks of sewer flooding to a home or business, or even a pollution incident become higher.

Many flooding problems can be prevented if we all follow some simple guidelines and not flush anything other than pee, poo and toilet paper down our toilets.

Even items described as ‘flushable’ such as wipes, nappies or pads should not be flushed, as they don’t break down in the sewerage system and can cause blockages.

Fats, oils, and grease shouldn’t be poured down your plug hole, as when they cool, they harden inside the sewer and cause blockages.

Flooding from sewers is extremely distressing and we work hard to reduce the risk from happening, but we can’t always prevent it.

> **Flooding from sewers is extremely distressing and we work hard to reduce the risk from happening.**

Our Plan

Our DWMP sets out our preferred plan that will achieve the following benefits for our communities and environment:

Flooding

Sewer flooding is very distressing to our customers and we have an ambitious plan to reduce this. Our plan will see a reduction from 15,787 properties at risk from a 1 in 20 year storm, to 6,315 by 2050. As we deliver this, we will continue to work with partners including the Environment Agency and local authorities, through our award winning Northumbria Integrated Drainage Partnership approach.

Environment

Our plan will meet the targets of the Storm Overflows Discharge Reduction Plan. We will improve 1,017 storm overflows to achieve this and we will prioritise them in line with the guidance we have received from the Environment Agency. Improvements will be a combination of building storage tanks and green infrastructure - a more natural way of returning rainwater to the environment such as by directing surface water to ponds and swales. We will also improve screening on 849 SOs to help minimise the impact of spills.

Compliance

We work closely with the Environment Agency to meet the tighter targets that are being set for river water quality. We will make sure all our sewage treatment works continue to operate in compliance with permits for the volume of effluent treated, and the quality of discharges. This means making investigations and improvements to 51 sites for phosphorous, 15 for biological oxygen demand and 30 for ammonia, as well as 11 for volume.

As well as making improvements at treatment works themselves, we will help improve water quality through nature-based solutions that create additional environmental benefits including restoring a saltmarsh and native oyster grounds.

What our plan will achieve:

	2025	2030	2035	2040	2045	2050
Pollution incidents per 10,000km of sewer	19.50	13.65	10.92	10.92	10.92	10.92
Compliance at sewage treatment works	97.99%	99.01%	99.01%	TBC*	TBC*	TBC*
Storm overflows spilling more than 10 times per year	963	831	708	481	253	0
Internal sewer flooding incidents per 10,000 properties connected to sewers	1.23	1.18	1.05	0.95	0.79	0.57

* Forecasts will updated in future plans based on changes in permit conditions

You can see what this means in your area **here**.

The capital cost of our plan is:

- **£1,614m in the period 2025-2030**
- **£2,457m in the period 2030-2045**
- **£647m in the period 2045-2060**

Because of the huge investments that we need to make, we will need to borrow more money, our shareholders will have to put in more money and customers will have to pay more money in bills. Bills will start to increase from 2025. By 2060 we expect our DWMP would mean customers' annual wastewater bills will increase by £166 from the current bill of £187. However, changes in annual bills are also affected by other factors – including inflation and how well we deliver our services.

We will consult further on the impact on bills across our water and wastewater services in the next few months as we finalise our Long-Term Delivery Strategy and Regulatory Business Plan for 2025-30.

Next steps

Every five years we write a Business Plan and submit it to our regulator, Ofwat. It decides what charges we can collect from customer bills and what level of service we must provide customers with, in return.

The DWMP forms part of our Business Plan for 2025-30 and we need to submit this to Ofwat in October 2023.

Ofwat reviews our plans and gives us its final determination in December 2024.

We begin carrying out the plans we set out in the DWMP in April 2025.

NORTHUMBRIAN WATER *living water*

nwl.co.uk/dwmp
May 2023