



South West
Water

Storm overflows

Event and duration monitoring 2021

Being open and transparent



southwestwater.co.uk



new
deal

River and sea health – being open about our performance and our ambition.

Our purpose outlines our commitment to delivering for our customers, our communities and our environment across our region.

Bringing water to life – supporting the lives of people and the places they love for generations to come.

Our 2,900 people and continued investment in our network will deliver the step change we all want to see in improving water quality.

This document accompanies our Annual Return for 2021. It explains what storm discharges are, how we monitor them, the environmental context for the South West, how we use overflow data to inform investments and sets out our future plans.

This document covers the following:

- Our region
- A summary
- What are storm overflows
- What is event and duration monitoring (EDM)
- Drainage responsibilities
- What we are doing for the future.

Introduction

Over the past few months, we have been listening to our customers, to politicians and regulators, to campaigners and the media to discuss the UK's sewerage system, the way it operates and the use of storm overflows and their impact on the UK's waterways.

It is true we do have a challenge. Our region has a vast network of pipes over 19,000 km long, the equivalent length from here to Australia. Each year, we balance investment to maintain it, to make sure that sewage doesn't flood homes, businesses and gardens whilst at the same time, ensuring quality drinking water is there when you need it, whenever you turn on the tap.

We know we have a vital role to play in making our streams and rivers, and the ocean they flow into, clean and free from pollution. Spill levels from our sewerage system are at an unacceptable high, whatever the causes, and we need to do more to change this. The more we're learning as we monitor what's happening on our networks and in our rivers, the more we're discovering about the design of a Victorian sewerage system here and across the UK, and its limitations in today's society.

We want you to keep working with us. The recent enquiry into river quality, acknowledged that the health of our rivers is far more than just a sewage problem and that a great deal of progress had been made in cleaning up and monitoring Bathing Waters to ensure they are fit for bathing. We now need to do the same for our rivers.

Our progress on monitoring

We do continue to increase investment in the region's infrastructure as part of **our ongoing commitment** to protecting and enhancing the natural environment.

This includes a significant programme to reduce usage and improve monitoring of storm overflows across our region. The majority of storm overflows now have monitoring in place and we are installing monitors on the remainder by the end of 2023.

In 2021 we installed an additional 135 monitors. With this enhanced measurement, the information shows across the region spill duration is down and the average number of spills has reduced c.10% compared with 2020, and we plan to bring this down further. We also have industry leading EDM operability with monitors measuring spills at 95%.

We already share data with our partners and are looking for ways to increase transparency and access to this. This data is also used to help target investment to ensure that we are making the improvements which protect our rivers and coastal waters. Through creating additional wastewater treatment and stormwater storage capacity, water quality continues to improve in the South West. **We are also working on and developing more sustainable solutions that support the environment and provide longer term solutions.**

This shows we are already taking action, installing hundreds of monitors on our rivers and investing in technology and innovative solutions, we will learn much more about river health.

OUR REGION

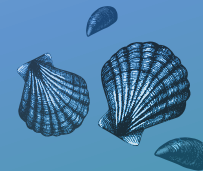
South West Water is the water and wastewater service provider for Cornwall, Devon and parts of Dorset and Somerset. We also provide water services to Bournemouth Water customers in parts of Dorset, Hampshire and Wiltshire. More recently, with support from our existing customers and agreement with Government, we have taken on the responsibility for water and wastewater services on the Isles of Scilly.



OUR AREA

DID YOU KNOW?

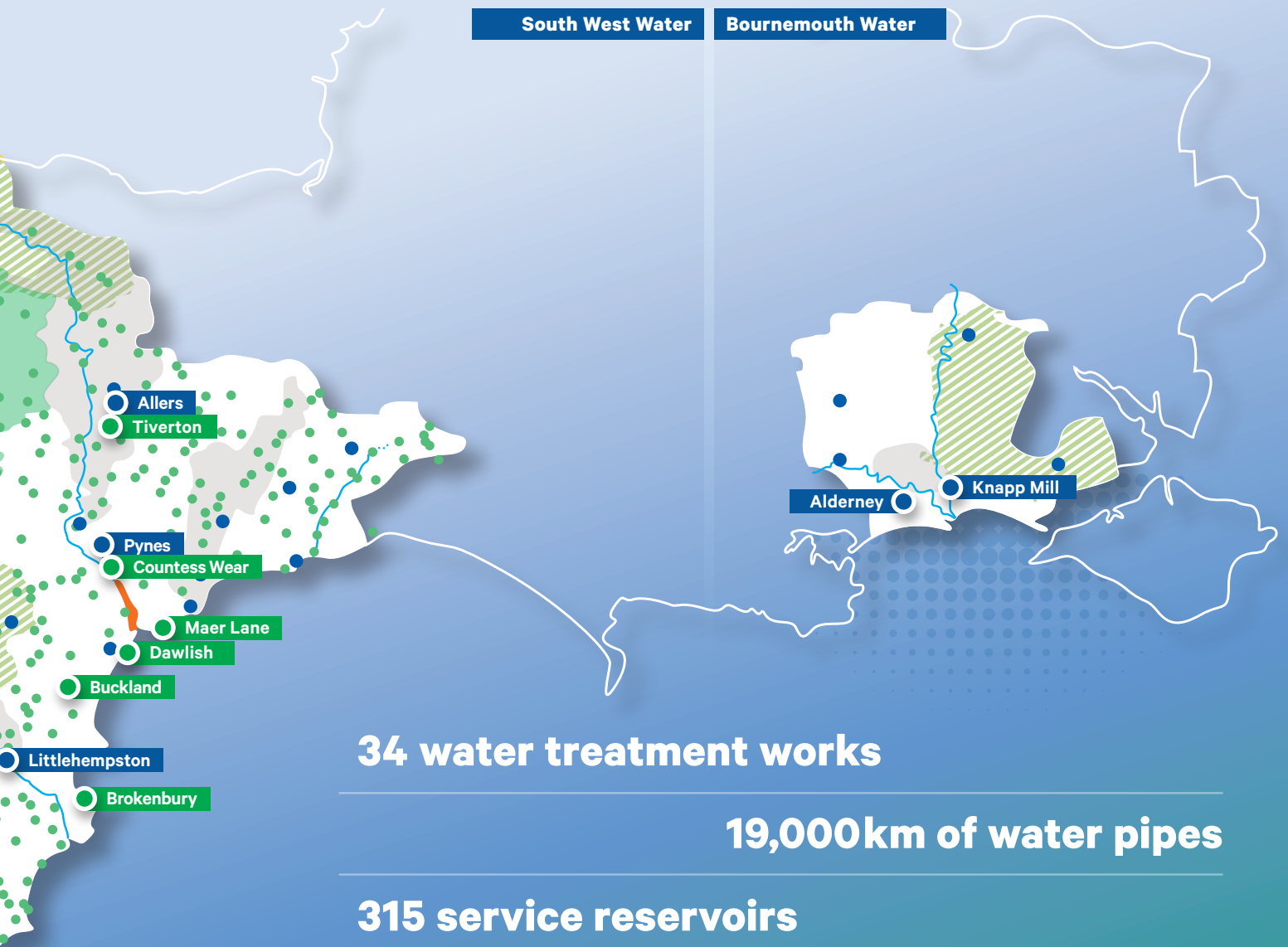
2.2million resident population equivalent (over 1 million customers) and **10million** visitors to our area each year



25 designated Shellfish Waters

34% of all the designated Bathing Waters in England





34 water treatment works

19,000km of water pipes

315 service reservoirs

268 water pumping stations

A sewerage network over
17,500km
in length

**1,220
wastewater
pumping stations**

– to move wastewater through our network and on to treatment works

**653
wastewater
treatment works**

– using a diverse range of processes and technologies

Provision of ultra violet disinfection or membrane filtration at
more than 65 wastewater sites
to protect Bathing and Shellfish Waters to the highest standards

SUMMARY

We are taking steps to reduce our impact on river quality.

This is an important discussion as there's nothing more important than water – it's essential for life, health and the planet.

We have a 19,000km system of combined sewage and surface water a sewerage system developed over many years, to take not just sewage but also rainwater from roads and fields. In periods of intense and heavy rain, the sewers can become overloaded and so to avoid sewage backing up into your homes and businesses we have a safety release mechanism or overflow to make sure we don't flood bathrooms and businesses.

We have maintained and improved this system, and now is the time for a step change to transform it.

- We want the same thing – to improve water quality. We will build on the success of coastal investment and for the first time ever, 100% of our regions' Bathing Waters achieved stringent bathing water standards, up from c.28% in 1991 and we intend to keep it this way. We recognise that we must go further and not only build on this progress while also tackling our impact on river water quality.

We now need to resolve the legacy of combined storm overflows with further investment in our infrastructure, harnessing nature based solutions and through partnership work.

• We will reduce our own impact on river health by one third by 2025.

- We have a focused Pollution Incident Reduction Plan, and alongside the use of innovative technology, we have reduced by pollutions by approximately one half, in 2021.
- We have restored and protected over 91,000 hectares of land in the region through our **Upstream Thinking** programme founded in 2006. This is our catchment management initiative that works with the agriculture industry to prevent pollution incidents, which contributes one-third of the water quality impact. This includes working with 1,700 farms and providing grants to farmers to invest in their own infrastructure to improve river quality.
- Poor river quality is caused by a range of factors and contributions, where river pollution from valued regional industries such as farming and mining, together with urban run-off is also increasing. This means continued partnership work is essential.
- 70% of pollutions happen in the network, the majority caused by blockages. Use of wet wipes creates 4,500 blockages annually – we remove 450 tonnes of rag each year, enough to fill 30 double decker buses.

- We're a region that sees huge population swings through the year, and we know the population in the South West has increased by 20% in the last 30 years. Tourism is up by 50% in the last 15 years putting further pressure on our network.
- We have installed Event Duration Monitors (EDM) on over 75% of river overflows and we target 100% by the end of 2023.
- We have improved over 298 stormwater overflows to Bathing Waters and 382 to Shellfish Waters since 1989, by adding more than 222,100 cubic metres of additional stormwater storage built at a cost of over £100million. This work was targeted at those storm overflows which were having an adverse effect on bathing or Shellfish Waters, or the environmental quality of rivers. We have also invested significantly to install EDMs on our intermittent discharges.
- Partnerships are key to progress, by working together.

South West Water has a vital role to play; but so too does everyone who lives and works in the region. We are installing monitors all along the Rivers Dart and Tavy to understand how we achieve the region's first Bathing Waters.

We'll continue working with farmers, landowners and partners right across the region to further develop more sustainable nature-based solutions.

- Our EDM data for 2021 shows a reduction in the duration of spills compared to 2020. We have increased the number of monitors across our network by 135 from 1,095 in 2020 to 1,230 in 2021. This increase in monitoring will in some circumstances inevitably create more data on spills as we extend our monitoring network. However, even with this increase in the number of monitors, the total duration of spills fell from 375,359 in 2020 to 354,286 hours in 2021, a reduction of 21,073 hours

Our 2021 EDM data can be found at this address: southwestwater.co.uk/edm-return-2021

SOUTH WEST FACTS

DID YOU KNOW?

We have invested **£9bn** to improve water and wastewater infrastructure over the last 30 years

There are **860 miles of coastline** in the South West



COMBINED STORM OVERFLOWS

We continue to increase investment in the region's infrastructure as part of our continued commitment to protecting and enhancing the natural environment. This includes a significant programme to reduce usage and improve monitoring of storm overflows across our region.

Combined storm overflows are designed to release excess storm water into rivers and seas when a prolonged rainfall occurs. This helps prevent the risk of sewage backing up, preventing homes and public spaces being flooded by allowing a controlled release.

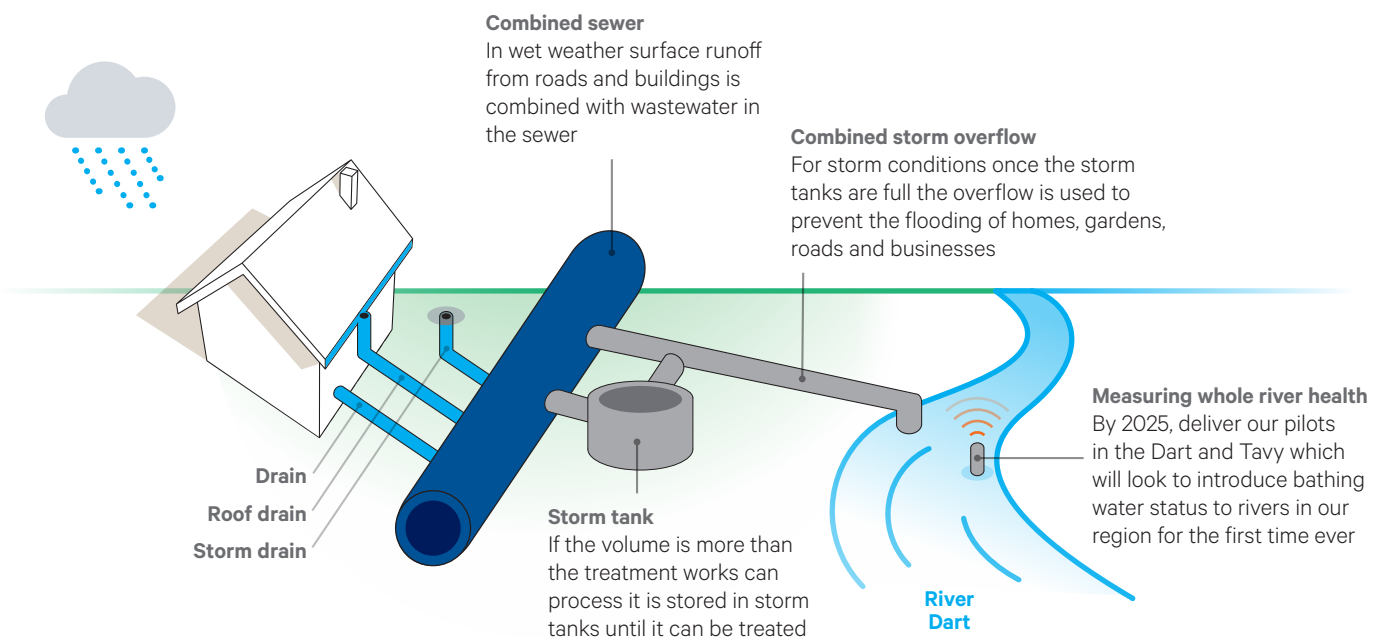
Here's what we are doing

We are committed to reducing our impact on rivers by one third by 2025. We have installed Event Duration Monitors (EDM) on over 75% of river overflows and are on target to achieve 100% on all by the end of 2023 – ahead of the regulatory timeline.

Here's how you can help

We can all do something to limit the impact of storm overflow including:

- 1 Only flush the three Ps: poo, paper and pee.**
Sanitary items, such as wet wipes, do not break down properly in our sewers and cause blockages.
- 2 Do not put FOGs (fats, oils and grease) down the sink.**
Instead, allow them to cool and scrape them into the bin so that they don't solidify in your pipes.
- 3 Install a water butt to collect rainwater.**
This water can be used to maintain your garden during summer and will also reduce the volume of water going down the drain.



EVENT DURATION MONITORING

The main driver of storm overflow operation is weather.

Climate change continues to contribute to the challenge.

To understand this better we work with meteorological consultants to obtain a more granular view of weather impacts on our combined network and use it as part of our overflow assessments with the Environment Agency.

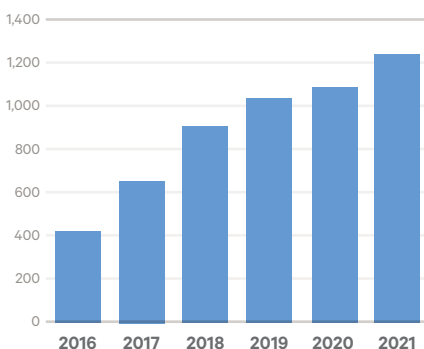
The 2021 EDM data

During 2021 there has been continued focus on rolling out further deployment of Event Duration Monitors (EDMs) ahead of regulatory deadlines. By 31 December 2021 a further 135 EDMs had been installed bringing the total of EDMs to 1,230. A further 135 are planned for delivery by 31 December 2023 which completes the roll out of all EDMs across all of our storm overflow and emergency overflow assets.

Overall spill numbers recorded from our EDMs at storm overflow and emergency overflows are summarised below.

Storm overflow and emergency overflow data	2020	2021	Difference
Number of overflows in return	1,095	1,230	+135
Number of spills	42,051	42,867	+816
Average number of spills	38.4	35.2	-3.2
Duration of spills (hours)	375,359	354,286	-21,073
Average duration of spills (hours)	9	8	-1
Operability	91%	96%	+5%

Reportable EDMs
(number per reporting year)



The main driver of storm overflow operation continues to be weather and the vast majority of spills do not have any measurable impact on the environment. In 2021 there were 13 spills from storm overflows resulting in a Category 3 (minor) pollution compared to 35 in 2020.

Whilst the overall number of spills has increased marginally the average number of spills taking place at our sites has reduced by c.4 from 38 to 35 per asset. Similarly the average duration of spills has reduced from nine hours to eight hours.

Winter 2020/21 was wetter than average, with a dry April followed by the fifth wettest May on record. Summer 2021 saw a mixture of dry weather but also very stormy weather resulting in higher than average rainfall in July. The autumn saw a very wet period during October and November, with Storm Arwen having a major impact in our operating region.

DID YOU KNOW?

Reducing spills is our priority.

Inevitably with the increase in deployment of 135 new EDMs the total number of spills has increased, albeit marginally, from 42,051 hours in 2020 to 42,867 in 2021. Three of the new EDMs (Broadhempston wastewater treatment works, Hatherleigh wastewater treatment works and Pyworthy wastewater treatment works) are some of the highest spillers in the recorded data (748 spills between them in 2021 compared to 0 in 2020).

These new EDM sites are being investigated as a matter of urgency alongside other frequent spilling assets. Many of the frequently spilling assets already have investigations planned as part of our legislative investment programme agreed with regulators to address any environmental impact. Any new frequent spilling sites that do not have investment planned are investigated as a matter of urgency and investment scheduled to address any issues.

Reducing the number of spills from each of our storm overflows and emergency overflows is our primary focus, both for our teams and our Board. We have a dedicated storm overflow task force and their role is to work on reducing both the amount of spills from our assets and any impact to the environment. We have also developed plans to investigate and address our top spilling sites.

DATA REPORTING

EDM data provides valuable information that helps South West Water to understand the sewer performance and helps the Environment Agency to ensure that sewerage systems are compliant.

EDM data also improves the visibility of the performance of the sewerage network for our customers and stakeholders.

Summarised reports are consistently produced by South West Water, and provided to the Environment Agency on an annual basis (and seasonally for Bathing Waters) with the date/time duration of each overflow. Written reports on individual events are also provided at the request of the Environment Agency.

All overflows are included in the annual return which covers the period 1 January 2021 to 31 December 2021 inclusive and is submitted by the end of February 2022.

Overflows that have the potential to affect Bathing Waters also have a seasonal return each year covering the period 1 May to 30 September inclusive, submitted by 31 October. The data from this return can be used to help determine Bathing Water classifications.

For Shellfish Waters the annual written report is sent to the Local Food Authority (LFA) and the Environmental Health Officer (EHO). In some cases notifications of overflows affecting Shellfish Waters are required and made to the LFA, EHO and Environment Agency within 24 hours to help protect the quality of shellfish.



Our 2021 EDM data can be found at this address:
southwestwater.co.uk/edm-return-2021

DRAINAGE RESPONSIBILITIES

Multiple factors affect our network and that's why partnership working is so important.

Private drainage, highways drainage, rural run-off and river flooding all contribute to overloading our network and systems.

As well as rainfall, groundwater infiltration is a factor. There are times and locations where groundwater levels can become higher than sewers causing groundwater to enter the sewer. In the South West this can also occur in coastal areas due to sea water infiltration (tidal ingress). As a result of tidal ingress some storm overflows operate for longer periods, due to sea water flowing in and out past the monitor with the rise and fall of the tide.

Storm overflows can discharge through misuse of the system. Wet wipes make up more than 90% of the material causing sewers to block. We do all have a part to play in improving how we use our sewer system.

To help customers and businesses understand the contribution they can make, we work in our communities and proactively engage with our customers via the **'Love Your Loo'** and **'Think Sink'** campaigns to raise awareness. We actively encourage everyone to love their loo by only flushing pee, paper and poo. Inappropriately flushing baby wipes, hygiene wipes, cleaning wipes, cleansing pads and sanitary products contribute to 8,500 blocked sewers a year, which costs about £4.5million a year and adds to bills. The 'Think Sink' campaign targets businesses, reminding food service establishments of their responsibilities regarding the proper disposal of fat, oil, grease (FOG) and food waste.

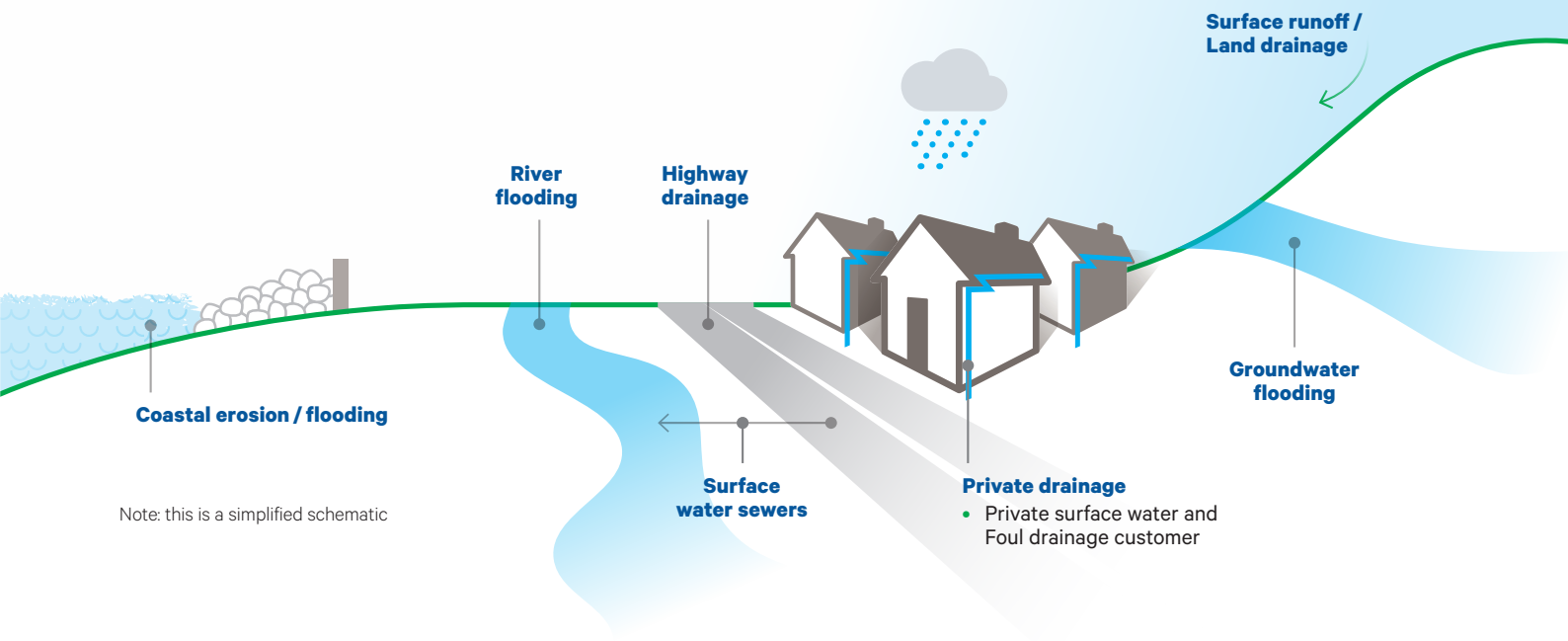
By keeping our sewers free of wet wipes and other sanitary products as well as ensuring fats, oils and grease are not poured down the sink, we can help reduce the frequency of storm overflows operating.



CCTV survey showing fat build up in a sewer

Find out more here:

southwestwater.co.uk/loveyourloo
southwestwater.co.uk/thinksink



Note: this is a simplified schematic

Flooding responsibilities are set out below.

Location	Description	Responsibility
Surface runoff / Land drainage	Landowners are responsible for their land drainage and should not cause problems for neighbours	<ul style="list-style-type: none"> • Lead Local Flood Authorities • Land owners
Highways	Surface water on roads, highways and pavements, blocked road drains/gullies and overgrown verges	<ul style="list-style-type: none"> • Highways Authorities • Highways England/Welsh Government • Transport for London
Groundwater	Waterlogged ground when water pools on the surface	<ul style="list-style-type: none"> • Lead Local Flood Authorities • Landowner
Rivers and watercourses	Water draining into rivers and streams from nearby land	<ul style="list-style-type: none"> • Lead Local Flood Authorities • Environment Agency/Natural Resources Wales • Riparian Owners • Landowner
Coastal / Tidal	Rough seas, high tides or storm inundation on lower land	<ul style="list-style-type: none"> • Local Authorities • Environment Agency • Natural Resources Wales
Surface water sewers	Most properties, including flows from gutters and roads drain rainfall to public sewers. Highway drainage is provided for rainfall onto the highway but in reality also includes water from fields/other properties that finds its way onto the highway	<ul style="list-style-type: none"> • Water and wastewater companies • Local Authorities • Housing Associations • Private land owners • Highway Authorities
Public sewers	Sewer flooding from manholes and covers	<ul style="list-style-type: none"> • Water and wastewater companies
Private sewers	Flooding from cesspits/septic tanks, toilets or internal drains	<ul style="list-style-type: none"> • Homeowner

WHAT WE ARE DOING FOR THE FUTURE

Our programme for 2020-2025 (AMP7) includes:

- A £500m programme in wastewater improvements
- This includes £325m investment over the next two years to deliver the step change we all want to see
- This investment will support the delivery of our new set of commitments, which outlines how we will look after our seas and rivers in the South West.

Our commitments include:

- **Reducing by one third, our impact on rivers**
- **Helping everyone to enjoy our 860 miles of coastline** by achieving bathing water quality standards all year around
- On our bathing waters, **we will target no more than 10 spills, by 2025**
- **We will target zero serious pollutions by 2025**
- **We will achieve the region's first ever river bathing waters** using learnings from our pilots on the Rivers Dart and Tavy
- **We will plant a quarter of a million trees** to support river health and help tackle climate change.

Further to this:

- **We will continue to work with our regulators on legislative change**, campaigning for a ban on wet wipes, and championing the removal of the automatic right to connect to our network, by new building and housing developers.
- **Our 'Downstream Thinking' catchment management programme will help reduce sewer flooding risk and storm overflow discharges** through the application of sustainable drainage schemes and wider landscape management.
- **We will work with partners who are key to resolving catchment drainage issues** and we will develop Drainage and Wastewater Management Plans for our whole region to create more joined up solutions.
- **We have put in place a new EDM and flow team**, and enhanced performance monitoring to review overflow numbers and quickly identify potential problems and issues.
- **We are trialling a new software system and service** called Meniscus that allows EDM data to be used proactively to identify issues on the wastewater network.

We welcome the Government's consultation on the future approach to managing and reducing the impact of storm overflows which provides further clarity on the outcomes and the timelines in which to achieve these. We will respond to this consultation in due course.



