

STEMMING THE TIDE

A Strategic Approach to Infiltration & Inflow (I&I) Reduction in UK Catchments

ENVIRONMENTAL & WASTEWATER REPORT

JANUARY 2026

EXECUTIVE SUMMARY

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The "Invisible" Source of Spills

The UK water sector is facing a crisis of confidence. Public scrutiny regarding **Storm Overflow** discharges has reached a tipping point, and the Defra *Storm Overflows Discharge Reduction Plan* has mandated urgent action. The traditional engineering response—building massive concrete storage tanks to hold excess flow—is prohibitively expensive and carries a colossal carbon footprint.

However, network analysis reveals a critical inefficiency: a significant percentage of the "load" triggering these spills isn't sewage, and it isn't rainwater. It is **Infiltration**—groundwater forcing its way into aging assets through cracks, displaced joints, and permeable walls.

This whitepaper argues that the most strategic route to spill reduction is not capacity expansion, but **Asset Sealing**. By adopting a forensic approach to I&I (Infiltration & Inflow) reduction, Civil Connect enables Water Companies to "Keep the River Out of the Pipe," thereby keeping the sewage out of the river.

"We are treating millions of litres of clean groundwater every day. This is an ecological and financial waste."

40%

EST. GROUNDWATER LOAD IN WET CATCHMENTS

£0

CARBON COST OF WATER NOT PUMPED

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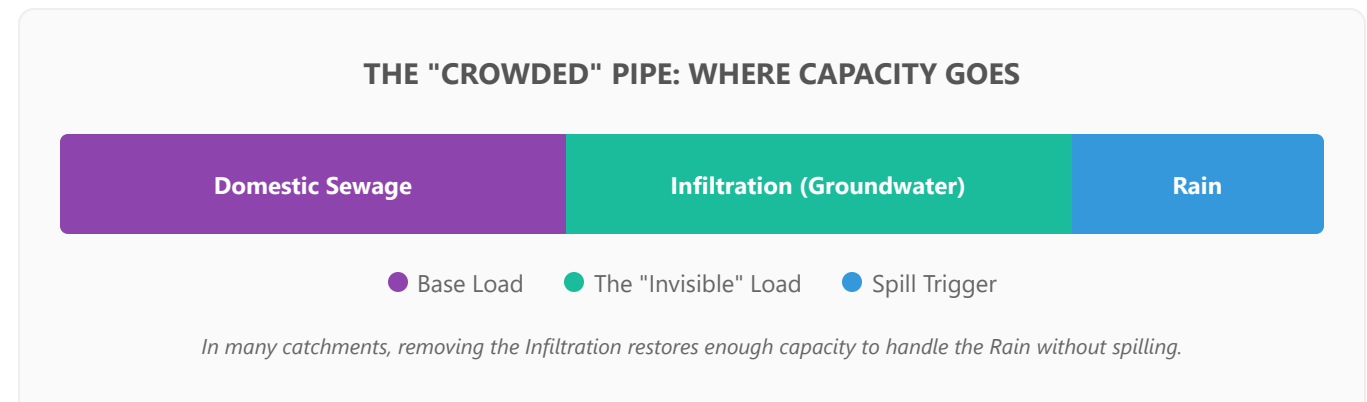
THE PROBLEM

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01. Understanding the Load

UK sewer networks are, on average, over 60 years old. As structural integrity degrades, they become porous. When the water table rises during winter (high groundwater), hydrostatic pressure forces clean water into the sewer network.

This **Infiltration** consumes the hydraulic capacity of the pipe. When a rain event occurs, the "headroom" in the pipe is already gone, occupied by groundwater. The result is an immediate spill, even during moderate rainfall.



The Double Cost

- Pumping Costs:** Energy is wasted pumping clean groundwater to the treatment works.
- Treatment Costs:** Chemicals and energy are used to treat water that was already clean.

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THE SOLUTION

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02. The Forensic Catchment Strategy

The solution is not to dig up the entire network. It is to perform surgical interventions on the worst-affected areas. Civil Connect employs a "Forensic Catchment Strategy" to identify and seal these ingress points.

1 Identification (Flow & Sonar)

We utilize flow monitors and night-time surveys (when domestic use is low) to identify lines with abnormally high flow rates. Sonar profiling identifies sediment beds that may hide infiltration points.

2 Verification (CCTV)

High-definition crawlers are deployed to locate specific defects: fractures, open joints, and "gushers" where groundwater is visibly entering the system.

3 Intervention (No-Dig Sealing)

Using Trenchless Technology, we seal the assets from the inside:

- Patch Lining:** For isolated fractures.
- Full Length UV CIPP:** For porous, degraded pipe lengths.
- Robotic Injection:** For sealing lateral connections (a common ingress point).

Strategic Outcome: By sealing the pipe, we restore hydraulic capacity. The "infiltration" bar on the chart disappears, creating room for the "Rain" bar. The result? **No Spill.**

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STRATEGIC VALUE

05

03. The River Protectors

For Water Companies, this strategy aligns perfectly with the Outcome Delivery Incentives (ODIs) of AMP6.

TOTEX

LOW COST VS STORAGE CONSTRUCTION

ESG

TANGIBLE ENVIRONMENTAL BENEFIT

The "Green" Narrative

Traditional concrete storage tanks have high embodied carbon. I&I reduction has a **negative** carbon impact over time, as it reduces the energy required for pumping and treatment. It is a win for the balance sheet and a win for the environment.

04. Conclusion

We cannot build our way out of the storm overflow crisis with concrete alone. We must optimize the assets we have. Civil Connect offers the forensic capability to identify where the river is entering your network, and the trenchless capability to stop it.

This is the most direct, cost-effective, and sustainable route to reducing spill frequency and protecting UK waterways.

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CIVIL CONNECT

Protect The Catchment.

Stop groundwater infiltration. Restore capacity. Reduce spills. Partner with Civil Connect.

Book a Forensic Survey

Identify your highest infiltration zones with our survey teams.

Contact Civil Connect

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References:

- Defra (2023), *Storm Overflows Discharge Reduction Plan*.
- Water UK (2024), *21st Century Drainage Programme*.
- Environment Agency, *Groundwater Protection Guides*.