Ingleton

Infiltration Reduction Plan

Last Updated: January 2026

United Utilities

Water for the North West

Executive Summary

Ingleton is currently in the survey stage to address infiltration and reduce spills at the Ingleton Wastewater Treatment Works Storm Tank Overflow (017260005ST). An initial desktop assessment concluded that groundwater infiltration was likely. The first stage of CCTV surveys found no indication of active infiltration, and a second stage of surveys is currently underway.

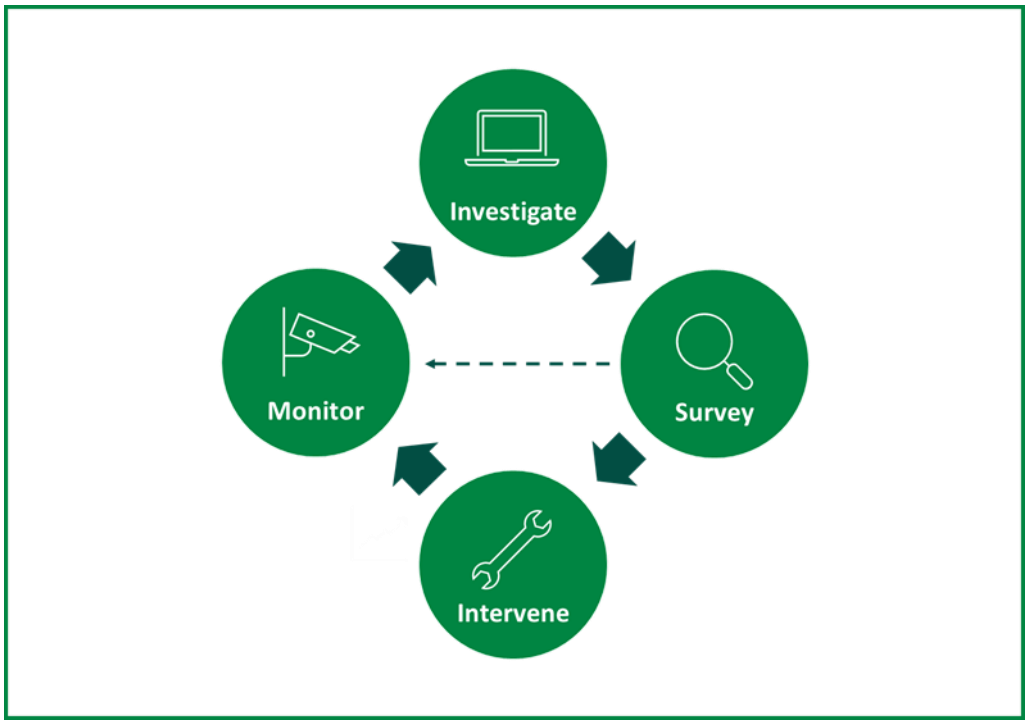

Figure 1: Iterative process to investigate, identify and address groundwater infiltration

Context

Sometimes, water can enter our wastewater pipes for which they were not designed to receive. One source of these additional flows can be groundwater infiltration which can occur through pipe defects, leaky joints, or issues with manholes. Extra water in the network can cause the sewer capacity to be exceeded, leading to sewer flooding or contributing to storm overflow activations.

As part of our ongoing work to maintain an effective network and achieve Better Rivers for the North West, our Infiltration Reduction Plans demonstrate our efforts to date and next steps to address infiltration and inflows in the catchment. This plan covers the Ingleton drainage area and its associated overflow, Ingleton Wastewater Treatment Works Storm Tank Overflow (017260005ST). In 2023, infiltration was identified as a potential leading cause of the storm overflow discharging. The purpose of this plan is to capture the process to investigate, identify and address significant groundwater infiltration.

If groundwater infiltration is found to be a leading cause of spills, interventions will be undertaken, and this Infiltration Reduction Plan will be updated accordingly. If not, we will continue to monitor the network to identify any new points of infiltration, should they arise.

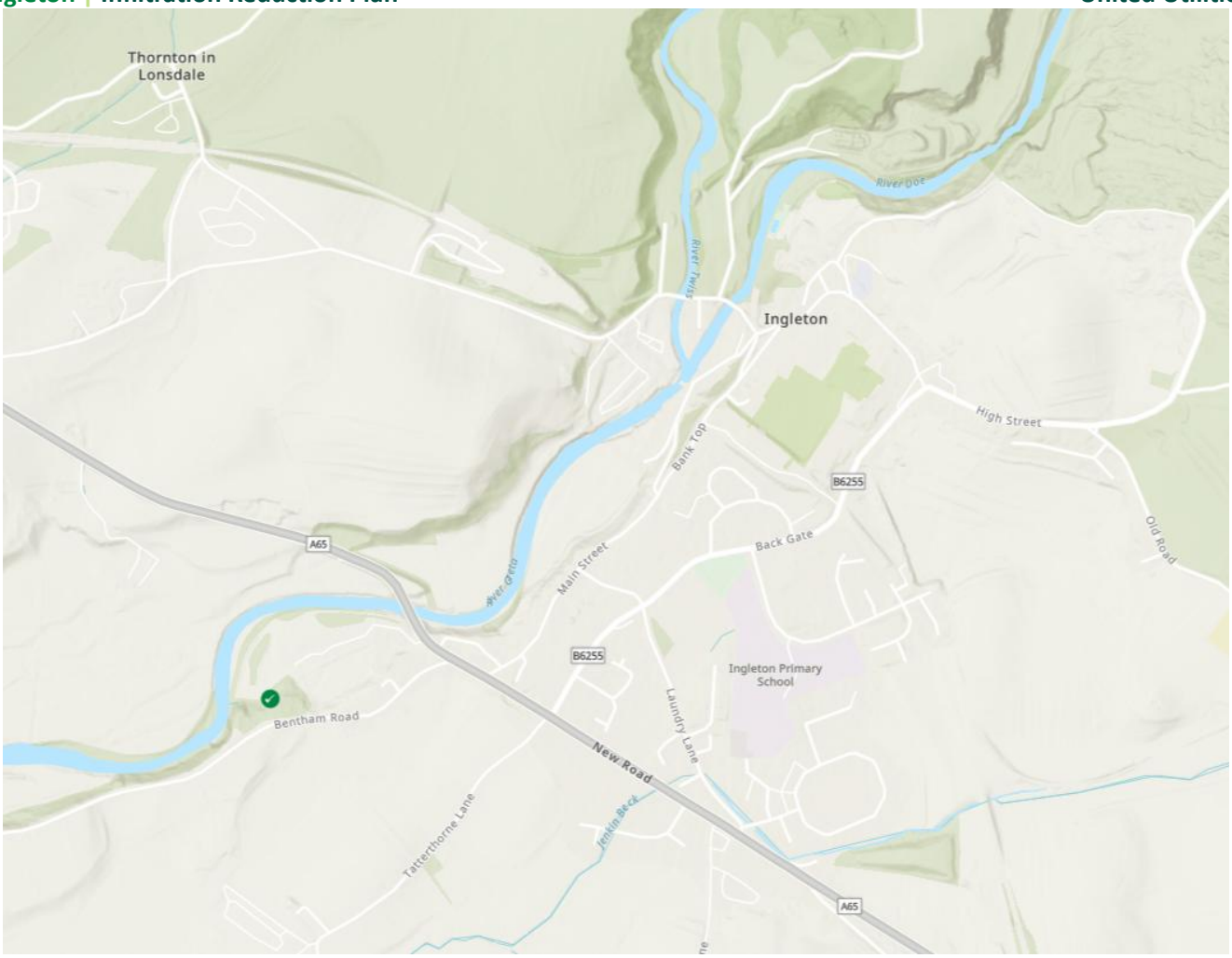

Figure 2: United Utilities – Better Rivers – Storm Overflow Map (November 2024). The green dot marks the Ingleton Wastewater Treatment Works Storm Overflow

Ingleton is situated 17 miles from Kendal and Lancaster. It sits at the foot of Ingleborough and is surrounded by limestone countryside. Ingleton lies along the meeting point of where the River Doe and the River Twiss join to form the River Greta.

Investigate

An initial desktop study was undertaken using available data to understand the extent of infiltration in the sewer network of the drainage catchment. The following data (where available) was analysed to determine the scale and location of potential infiltration:

- Relevant flow and depth data
- Operational information
- MCERTS data
- Hydraulic models of the catchment
- River levels
- Groundwater (borehole) data
- Spill analysis
- Topographical and sewer maps

The assessment concluded that significant groundwater infiltration was likely. However, there was also indication of a very slow response runoff. Monitoring at the storm tank indicated ingress from high

groundwater levels in the catchment; a level of base infiltration in the system that remains high in the winter could be due to rural runoff or groundwater infiltration due to soil saturation.

The assessment highlighted areas in the catchment where the sewer crosses the river or runs close to bodies of water. It may be that flow from these watercourses can enter the sewer system through structural defects. The assessment also found that there were fields that fell towards the catchment, notably towards the combined sewer. There could be rural runoff from these fields that drains to the combined sewer.

From these findings, it was recommended that CCTV surveys be completed to see if there was infiltration from the watercourse into the sewer. The CCTV survey should also identify if there is land drainage connected into the sewer, which would be assessed for removal.

Survey

As recommended, 545m of CCTV surveys were completed in November 2024. The surveys found evidence of historic infiltration but no presence of active infiltration. Therefore, no interventions were recommended to prevent infiltration in the network.

Checks were carried out on all lateral connections; none are suspected of receiving flows not bound to receive.

A second stage of surveys is currently underway.

Next Steps

Ingleton is currently in the survey stage of identifying and addressing infiltration (see Figure 1). Interventions will then be assessed to see if they are required. The site will then continue to follow the iterative process displayed in Figure 1 to identify any new points of infiltration, should they arise.