Grasmere

Infiltration Reduction Plan

Last Updated: January 2026

United Utilities

Water for the North West

Executive summary

Grasmere in Cumbria is currently in the investigation stage (see Figure 1) to address infiltration and reduce spills at the Grasmere Wastewater Treatment Works Storm Overflow (17370027SO). An initial desktop assessment found indication of infiltration in the area. Cleaning and CCTV surveys will be planned in for 2026.

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.

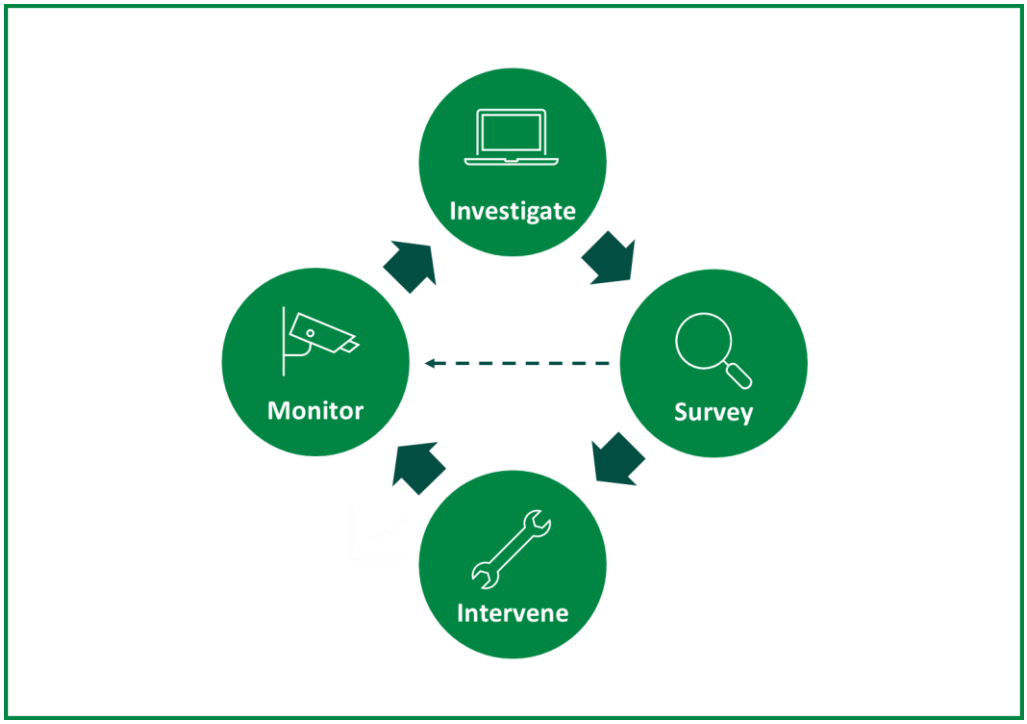

Figure 1: Iterative process to investigate, identify and address groundwater infiltration

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 Grasmere drainage area and its associated overflow, Grasmere Wastewater Treatment Works Storm Overflow (17370027SO). In 2024, 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.

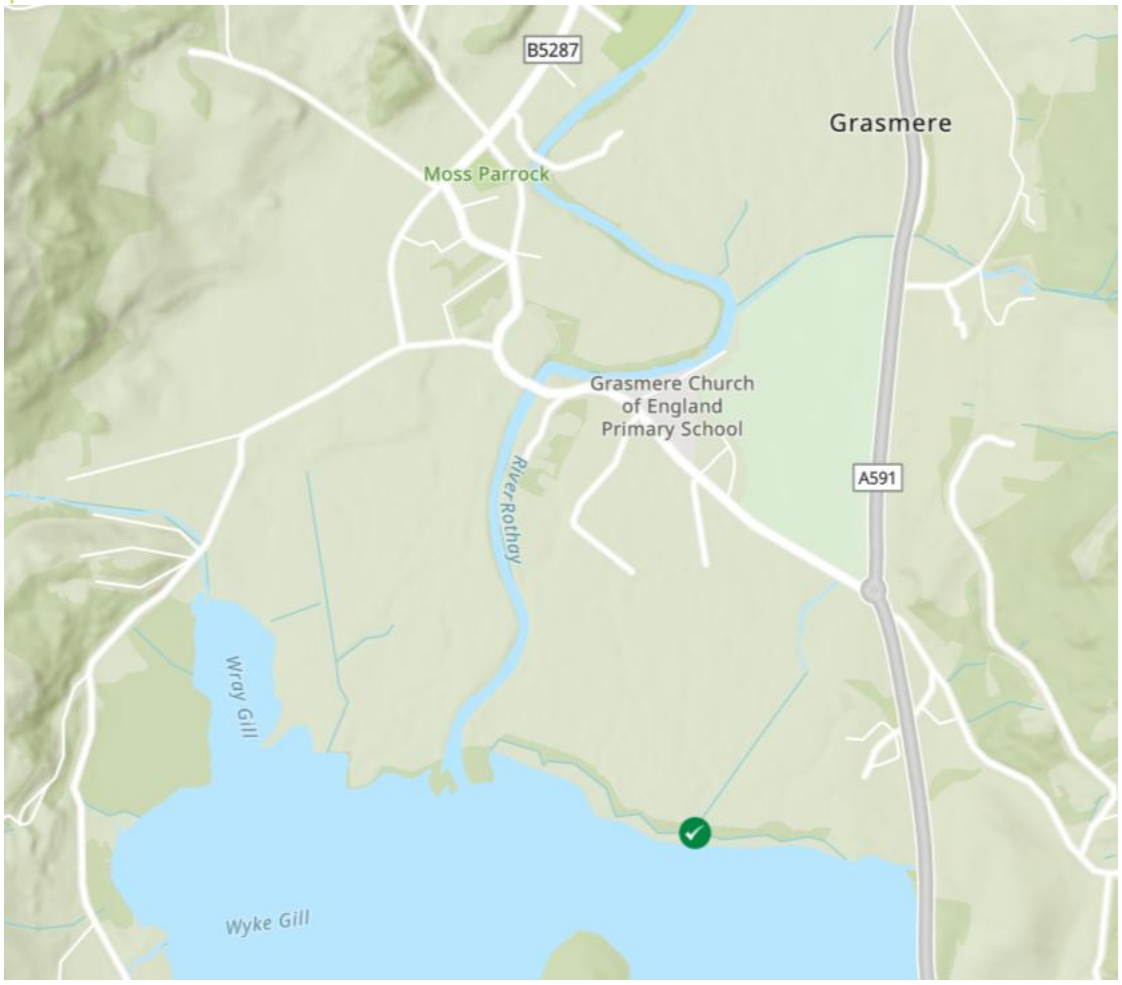

Figure 2: United Utilities – Better Rivers – Storm Overflow Map (January 2026). The green dot marks the Grasmere Wastewater Treatment Works Storm Overflow

Grasmere lies in the heart of the Lake District, nestled within a glacially carved valley. The village sits approximately 62m above sea level, surrounded by rugged fells including Helm Crag to the north-west and the Fairfield Horseshoe ridge to the east. The terrain is a mix of steep uplands and low-lying meadows, shaped by post-glacial processes and fluvial erosion.

The River Rothay flows through the valley, feeding and draining Grasmere Lake. The lake's outflow continues into Rydal Water and eventually into Windermere, forming part of a larger interconnected watershed.

The landscape supports a mosaic of habitats: upland heath, deciduous woodland, and grassland. Historically, the valley floor has been used for grazing and small-scale agriculture, while the surrounding slopes remain largely uncultivated due to their steepness and thin soils.

Investigation

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 desktop assessment found multiple indicators of infiltration that did not appear to be caused by rainfall. It also indicated a level of baseflow in the area.

The assessment found that some sewers run adjacent to or through rivers and watercourses; sometimes flow from these watercourses can enter the sewer network.

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

Next steps

Grasmere is currently in the investigation stage of identifying and addressing infiltration. The site will follow the iterative process displayed in Figure 1 to confirm whether significant groundwater infiltration is present and, if so, address it.