

Gleaston / Little Urswick

Infiltration Reduction Plan

Last Updated: August 2026



Executive summary

The Gleaston / Little Urswick area in Cumbria is currently in the monitoring stage (see Figure 1) to address infiltration and reduce spills at the Gleaston Castle Combined Sewer Overflow (CSO). An initial desktop assessment concluded that flows are influenced by seasonal high groundwater levels, which are indicative of groundwater infiltration. CCTV surveys confirmed the presence of infiltration, and interventions to address this were completed in Spring/Summer 2025. Additional remedial works were completed in Spring/Summer 2026.

As groundwater infiltration has been found but is yet to be confirmed as a leading cause of spills to the environment, interventions have been completed to address the localised infiltration identified during various surveys. As more is known on the outcome of the interventions, this Infiltration Reduction Plan will be updated accordingly.



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 Gleaston drainage area and its associated overflow, Gleaston Castle CSO. In 2023, infiltration was identified as a potential leading cause of the overflow discharging. The purpose of this plan is to capture the process to investigate, identify and address significant groundwater infiltration.

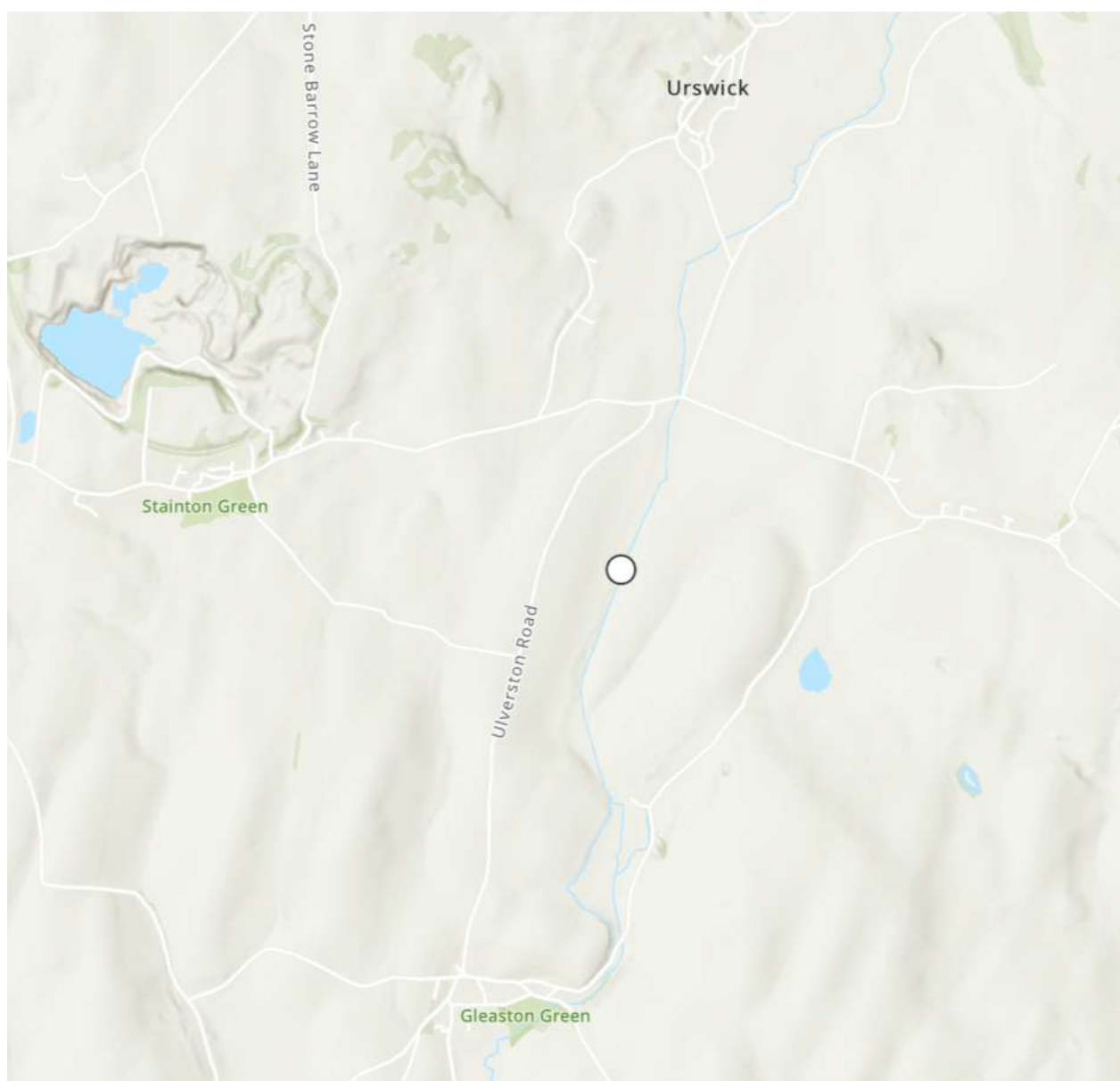


Figure 2: United Utilities – Better Rivers – Storm Overflow Map (February 2026). The blue dot marks Gleaston Castle CSO

Gleaston is a village in Furness in Cumbria, situated two kilometres from Newbiggin Beach. Gleaston Beck flows through the village into Deep Meadows Beck to the south.

Little Urswick is a village approximately two miles north of Gleaston. It sits less than a mile from Great Urswick, which is situated by Urswick Tarn. The tarn runs into Gleaston Beck.

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 possible in the catchment as MCERTS and monitoring device data indicated high winter groundwater levels that were likely influencing flows. Further observations also identified areas where sewers lay adjacent to or crossed local watercourses. Structural defects or connectivity between the watercourses and the sewers could be causes of infiltration.

The contribution of groundwater infiltration to spill frequency in the area could only be determined after further investigations.

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

Survey

Comprehensive CCTV surveying of the area has been completed.

Intervention

Interventions to address infiltration were completed in Spring/Summer 2025. This included relaying approximately 120m of the sewer network and replacing a manhole. The new lengths of sewer were laid in a material which will prevent further infiltration at this point. In addition, the new manhole was encased in concrete to add further protection against groundwater in the area.

Additional interventions to prevent infiltration were completed in Winter 2026. This involved lining 24m of sewer and sealing three manhole chambers.

Further remedial works have been completed in Spring/Summer 2026. This included lining 110m of sewer to seal the network and prevent infiltration.

Next steps

The Gleaston / Little Urswick area is in the monitoring stage of addressing infiltration (see Figure 1). We will continue to monitor the efficacy of the completed interventions and identify new points of infiltration, should they arise.