Eaglesfield

Infiltration Reduction Plan

Last Updated: December 2025

United Utilities

Water for the North West

Executive summary

Eaglesfield in Cumbria is currently in the monitor stage (see Figure 1) to address infiltration and reduce spills at the Eaglesfield WwTW Storm Tank Overflow (017570037ST). A desktop assessment concluded that infiltration is likely, although most probably rainfall induced, and reducing groundwater infiltration would not reduce spill frequency at Eaglesfield WwTW Storm Tank Overflow. CCTV surveys have been undertaken and have confirmed infiltration to the sewer network. To resolve the identified infiltration, remedial works were completed in April 2025.

As groundwater infiltration has been found but is yet to be confirmed as a leading cause of spills to environment, interventions have been assessed and completed to address the localised infiltration which was identified at the survey stage.

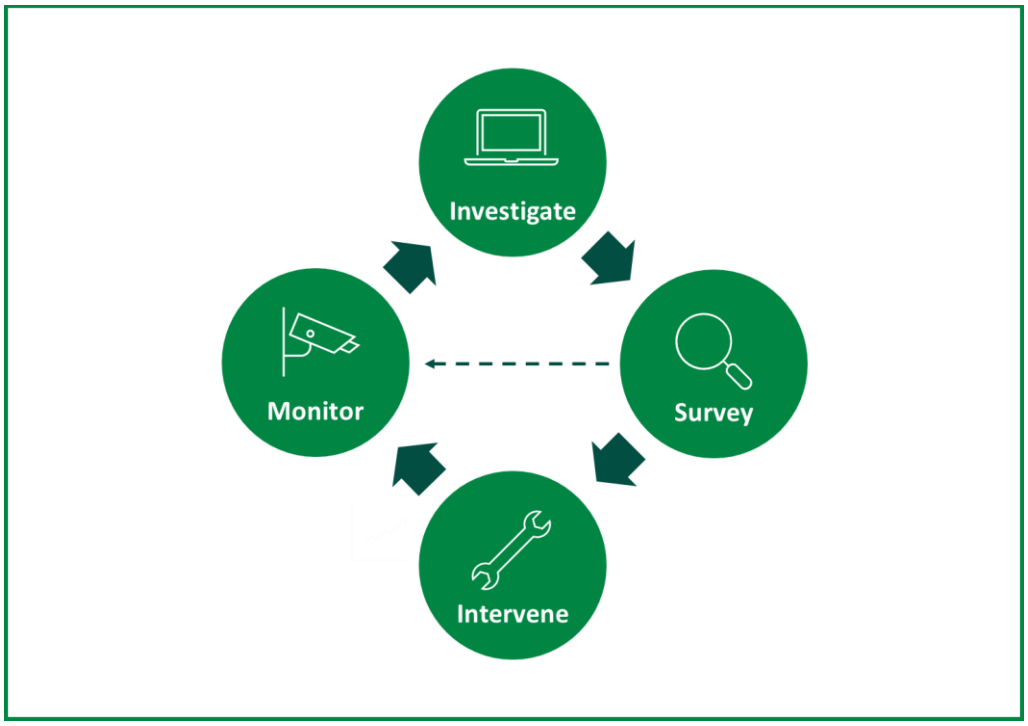

Figure 1: Iterative process to investigate, identify and address groundwater infiltration

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 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 Eaglesfield drainage area and its associated overflow, the Eaglesfield WwTW Storm Tank Overflow. In 2022, 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.

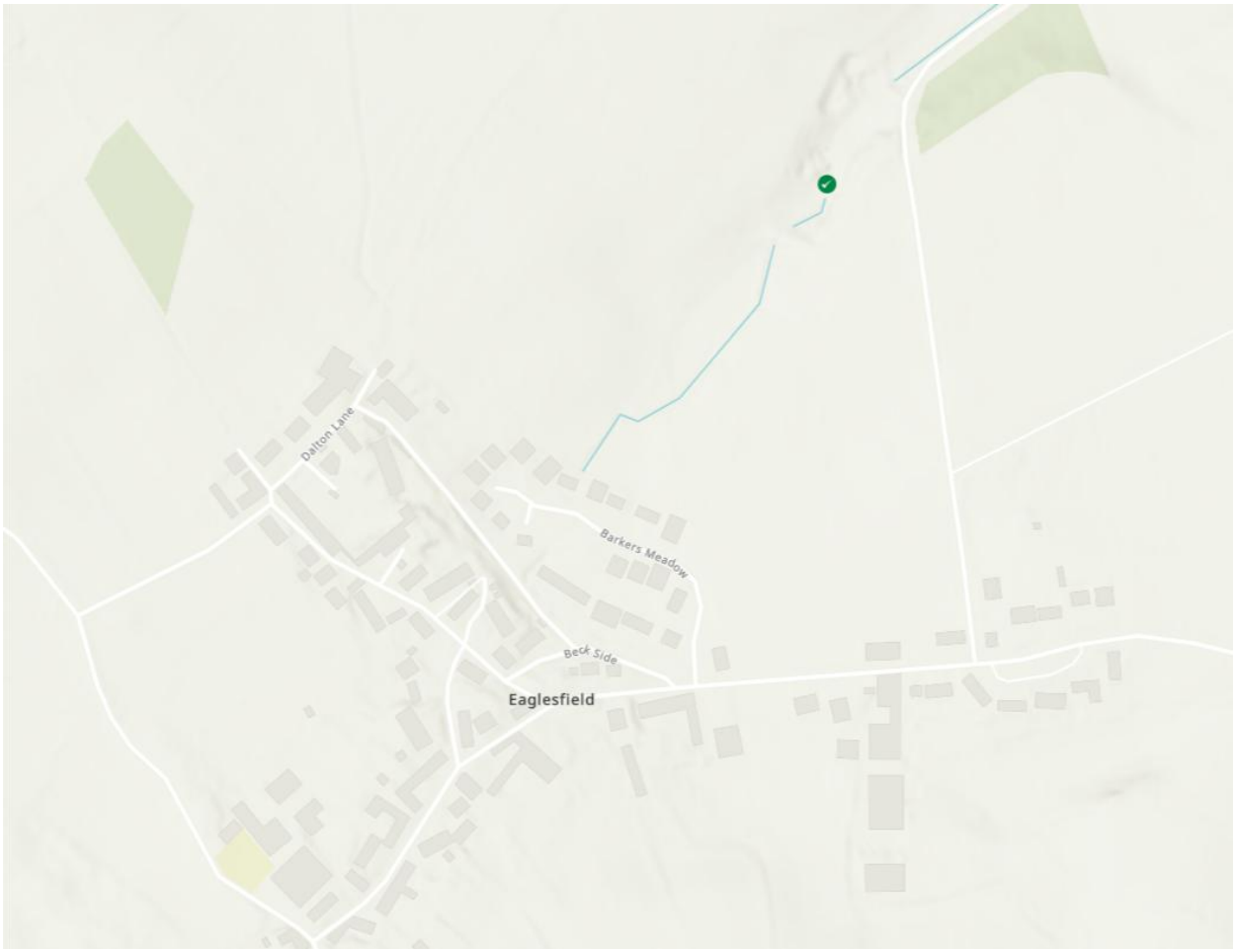

Figure 2: United Utilities – Better Rivers – Storm Overflow Map ((October 2024). The green dot marks the Eaglesfield WwTW Storm Tank Overflow.

Eaglesfield is a small village just outside the Lake District National Park boundary, southeast of Cockermouth. Surrounding Eaglesfield are scenic landscapes with the River Derwent flowing nearby to the north.

Investigate

A 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 infiltration is likely in the catchment, however, it is more probable that this is infiltration driven by rainfall. The assessment also indicated that spills may be partly driven by

rural runoff and identified areas of the catchment where public sewers run next to waterbodies or cross watercourses.

From these findings, it was recommended that CCTV surveys be completed to identify potential infiltration sources. The CCTV survey should also identify if there is infiltration of watercourses into the sewer, where pipes cross them.

The spill analysis suggested that reducing groundwater infiltration would not be significant enough to reduce spill frequency at Eaglesfield Wastewater Treatment Works Storm Tank Overflow.

Survey

As recommended, 645m of CCTV surveys were completed in Winter 2024. The CCTV surveys were reviewed by an engineer and assessed using Artificial Intelligence to rapidly identify and locate points of infiltration requiring remedial works. Running and seeping infiltration were discovered entering the pipe via multiple joints along the length of the sewer. We investigated the suspected source of the infiltration and believe it to be entering from a watercourse running adjacent to the sewer length. Point infiltration was also identified at a manhole.

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

Intervention

Remedial works were completed in April 2025. 92m of the sewer network has been sealed to prevent infiltration via defects in the network caused by wear and tear and ground movement over time. Remedials works also included grout injection to seal point infiltration at the manhole.

Next steps

Further remedial work is planned for Winter 2025/26. The site will then follow the iterative process displayed in Figure 1 to monitor the efficacy of the completed remedial works and identify new points of infiltration, should they arise.