Temple Sowerby

Infiltration Reduction Plan

Last Updated: December 2025

United Utilities

Water for the North West

Executive summary

Temple Sowerby in Cumbria is currently in the investigation stage (see Figure 1) to address infiltration and reduce spills at the Temple Sowerby WwTW Storm Overflow (17670042SO). A desktop assessment concluded that there was a possibility of infiltration. The assessment highlighted some possible sources of infiltration, and CCTV surveys have been recommended as a result.

If groundwater infiltration is found to be a leading cause of spills, interventions will be recommended, and this Infiltration Reduction Plan will be updated accordingly. If not, this plan will end at the investigation/survey stage and next steps will be processed through other relevant workstreams.

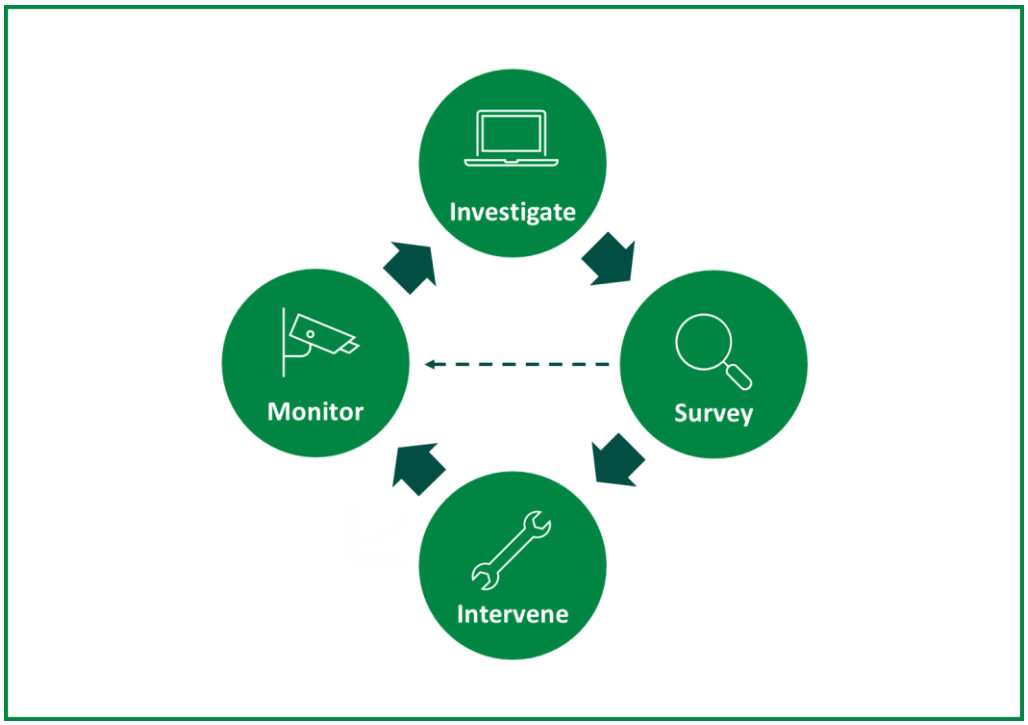

Figure 1: Iterative process to investigate, identify and address groundwater infiltration

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 Temple Sowerby drainage area and its associated overflow, the Temple Sowerby Wastewater Treatment Works Storm Overflow. In 2024, 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.

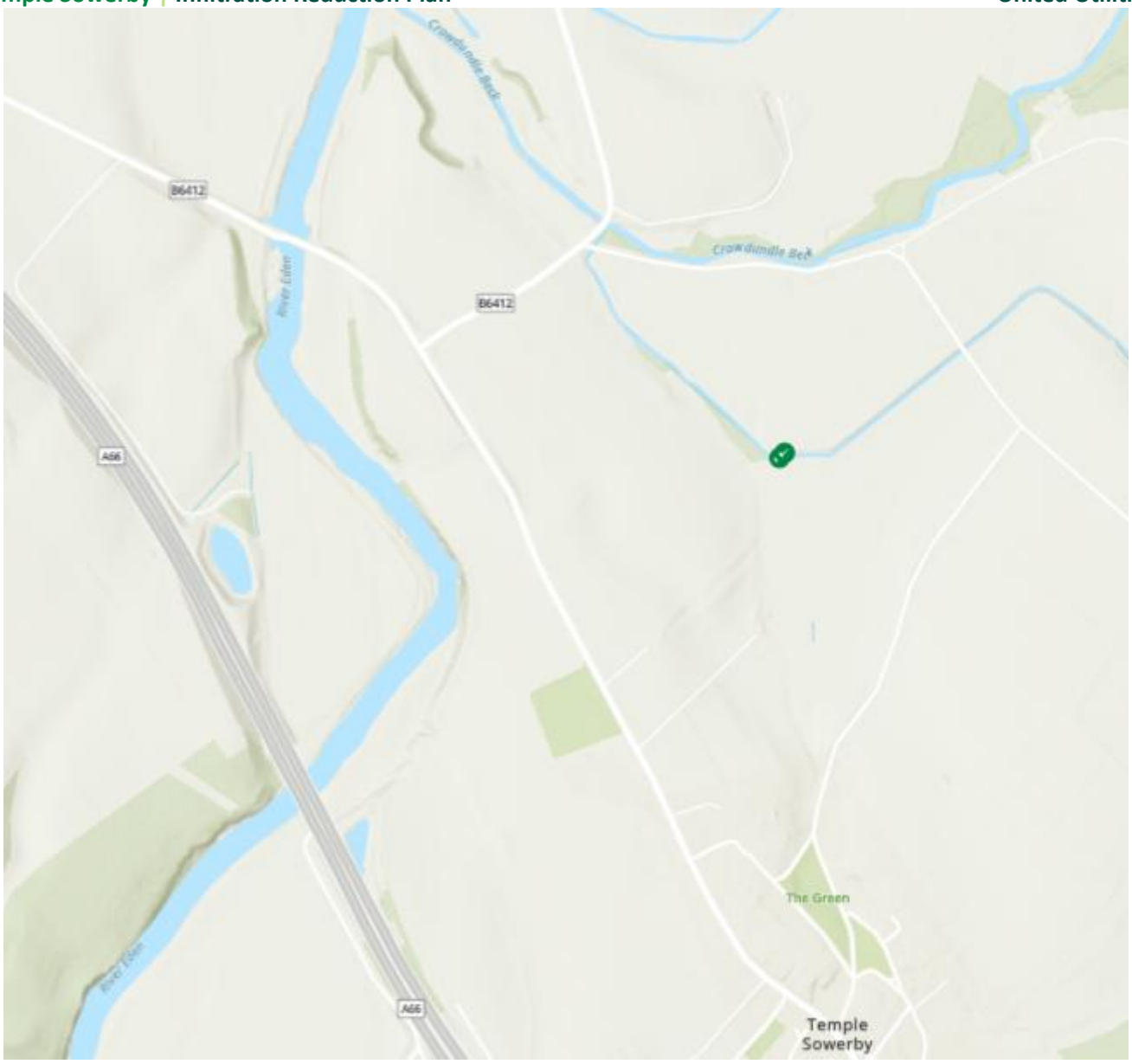

Figure 2: United Utilities – Better Rivers – Storm Overflow Map (October 2024). The green dot marks the Temple Sowerby Wastewater Treatment Works Storm Overflow.

Temple Sowerby is located in the Eden Valley of Cumbria, on a broad and relatively flat valley floor. It lies just east of Penrith and outside the Lake District National Park. The landscape is primarily agricultural, with improved pastures enclosed by hedgerows and dry stone walls. Scattered woodlands and mature trees line the village green and surrounding fields.

The village lies close to the River Eden and its tributary, Crowdundle Beck, which influences local drainage and soil moisture. The flat valley floor supports seasonal wetlands and small tributary streams.

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 desktop assessment indicated that infiltration may make up a proportion of flow. This could also have been affected by population growth in the area. The assessment also highlighted potential sources of infiltration in the local area, and recommended CCTV surveys be completed.

CCTV surveys can also identify if there is land drainage connected into the sewer, which would be assessed for removal.

Next steps

Temple Sowerby 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.