

## Upavon Infiltration Reduction Plan Summary

This provides an update on the last year's groundwater situation, what mitigation actions, if any, were taken and a summary of our action plan to prevent flooding due to groundwater infiltration of our sewer network.

### April 2022 – March 2023

2022-23 was a year of extremes for the Wessex Water region. One of the driest summers since 1976 was followed by one of the wettest autumn-winters in the last 10 years. This caused groundwater levels to rise in mid-January to a level comparable with 2013/14, with many catchments suffering from groundwater inundation.

As the winter progressed, the driest February in 30 years enabled many sites to recover, before the wettest March since 1981 resulted in a sharp increase in groundwater levels. This late wet period particularly affected sites in the northern and eastern parts of the region.

Groundwater reached critical levels in the Upavon catchment resulting in three external flooding incidents attribute to inadequate hydraulic capacity (IHC), upstream of Andover Road SPS (14051). The Operational Mitigation Action Plan (OMAP) was not instigated during this period.

### Action Plan

#### Annual Activity

Review asset and operational data and update annual reports.

Continue to review latest industry research to find innovative technology and methods to detect and prevent groundwater ingress into sewers.

Continue monitoring system performance using telemetry, rainfall records and local groundwater levels to inform the operational response during high-groundwater periods, and to monitor changing infiltration levels in the catchment.

Use machine learning to predict flows in sewers and proactively identify blockages and other issues.

Respond to customer contacts ensuring they are recorded, investigated and resolved in line with procedure.

Risk modelling of Wessex Water sewer network to plan pro-active CCTV surveys.

Undertake pro-active cleaning (jetting) of sewers to maximise capacity.

Proactive inspections and maintenance of sewerage assets.

Monitor and regulate surface water from new developments, through planning and development consultation.

Continue wider customer engagement, including public meetings when applicable. Upload Infiltration Reduction Plans and groundwater impact video on the Wessex Water website LINK.

Engage in regular meetings with Lead Local Flood Authorities (LLFA) and other Risk Management Authorities where appropriate.

Liaise with the Environment Agency with regard to their groundwater warning service.

## Completed

Used Artificial Intelligence (AI) to code CCTV footage, increase survey efficiency and help identify defects and hotspots.

Installed permanent flow meters at key pumping stations to continuously record pump performance.

Implemented a scheme to address capacity issues in the sewer network.

Updated the catchment hydraulic model.

Shared long-term strategy with other Risk Management Authorities, for catchments where groundwater infiltration is an issue with other Risk Management Authorities.

Inspected public sewer network to identify points of infiltration.

Reviewed incidents of foul or surface water sewer flooding.

Undertaken pumping station or flow surveys to analyse flows in sewers.

Sealed sewers and manholes to prevent groundwater infiltration.

Communicated with other authorities during times of elevated groundwater levels and promoted a multiple agency approach.

## Short Term

Undertake pro-active inspection of public sewers and manholes using CCTV to identify points of infiltration.

Install in-sewer monitors at key locations to better understand flows in the network.

Undertake review of incidents of foul or surface water sewer flooding suspected to be affected by groundwater infiltration.

Upgrade pumping stations where appropriate, to improve the reliability and performance of the site.

## Medium Term

Analyse flows in sewers using pumping station surveys, flow surveys and/or hydraulic modelling.

Infiltration sealing of sewers and manholes, where deemed cost-effective, targeting work according to study findings.

## Long Term

Identify road gullies and other impermeable areas that are connected into the foul sewers and pass information on to the Council for further action.

Inspect private gullies, drains, and manholes where applicable. Where areas of infiltration in private drainage systems are found pass information on to the Council for further action.

Consider sustainable solutions to rainwater management for example above-ground attenuation, wetlands and property-level interventions.

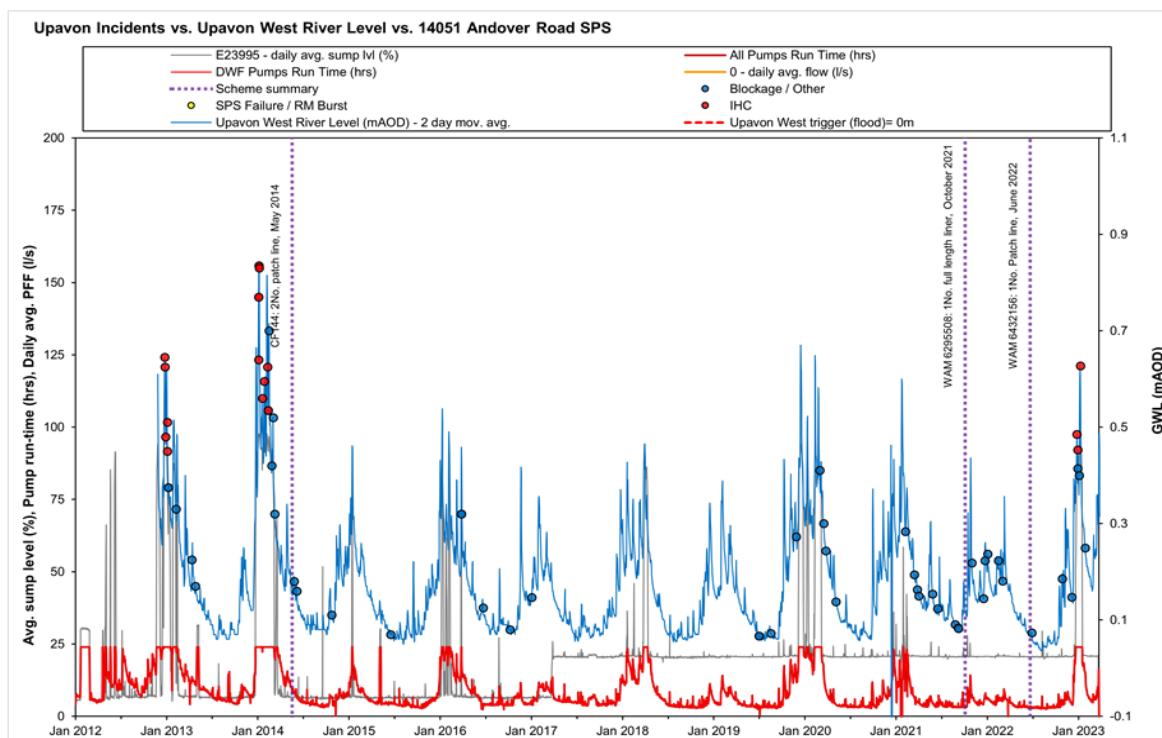
## When Necessary

Implement emergency tankering procedure for preventing restricted toilet use and sewer flooding during high groundwater periods, in order to protect public health.

Implement Operational Mitigation Action Plan (OMAP) for discharging excess flows to the environment as a last resort, when tankering would not prevent restricted toilet use or sewer flooding, and public health is at risk.

### Current Performance

Following sealing upstream of Andover Road in May 2014 and a flood alleviation scheme at North Newton in March 2015, there was a significant reduction in flooding incidents attributed to IHC. However, following extreme GWLs in 2019/2020 & 2022/23 further flooding attributed to IHC was reported. Extended pump run times at both Andover Road and North Newton during periods of high river levels indicates there is still groundwater infiltration in the catchment.



	2011-20	2020-21	2021-22	2022-23
Length of sewer inspected (m)	1562	-	2392	-
Length of sewer sealed (m)	2	-	25	11