Wookey 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 2023 – March 2024

Regional Summary

The Wessex region experienced incredibly wet weather across 2023-24, with higher-than-average rainfall in nine months during the period. February 2024 was both the warmest on record and the wettest in 30 years, with the 12-month sequence to the end of February being the wettest since our records began in 1911.

Groundwater levels rose rapidly during the autumn, and whilst drier weather in January 2024 provided a brief reprieve, levels remained high for the majority of the winter.

Warmest February on record for England and Wales - Met Office

Local Summary

Groundwater levels reached critical levels in the Wookey catchment resulting in multiple incidents of flooding attributed to inadequate hydraulic capacity (IHC) reported. Telemetry at Wookey Water Recycling Centre (WRC) shows a strong correlation with groundwater levels indicating infiltration is still affecting the catchment.

Action Plan

Annual Activity
Review asset and operational data and update annual reports.
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.
Undertake pro-active cleaning (jetting) of sewers to maximise capacity.
Proactive inspections and maintenance of sewerage assets.

Completed
Used machine learning to predict flows in sewers and proactively identify blockages and other issues.
Installed permanent flow meters at key pumping stations to continuously record pump performance.
Reviewed incidents of sewer flooding.
Implemented a scheme to address capacity issues in the sewer network.
Inspected public sewer network to identify points of infiltration.
Sealed sewers and manholes to prevent groundwater infiltration.

Completed (cont.)
Undertaken pumping station or flow surveys to analyse flows in sewers.
Investigated nature-based solutions in the catchment.
Inspected private gullies, drains or manholes to identify points of infiltration.
Upgraded pumping stations where appropriate, to improve the reliability and performance of the site.
Installed sealed covers on manhole chambers vulnerable to overland flow or river water entering through the cover.

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.
Infiltration sealing of sewers and manholes, where deemed cost-effective, targeting work according to study findings.
Implement a scheme to improve the local water recycling centre (WRC).

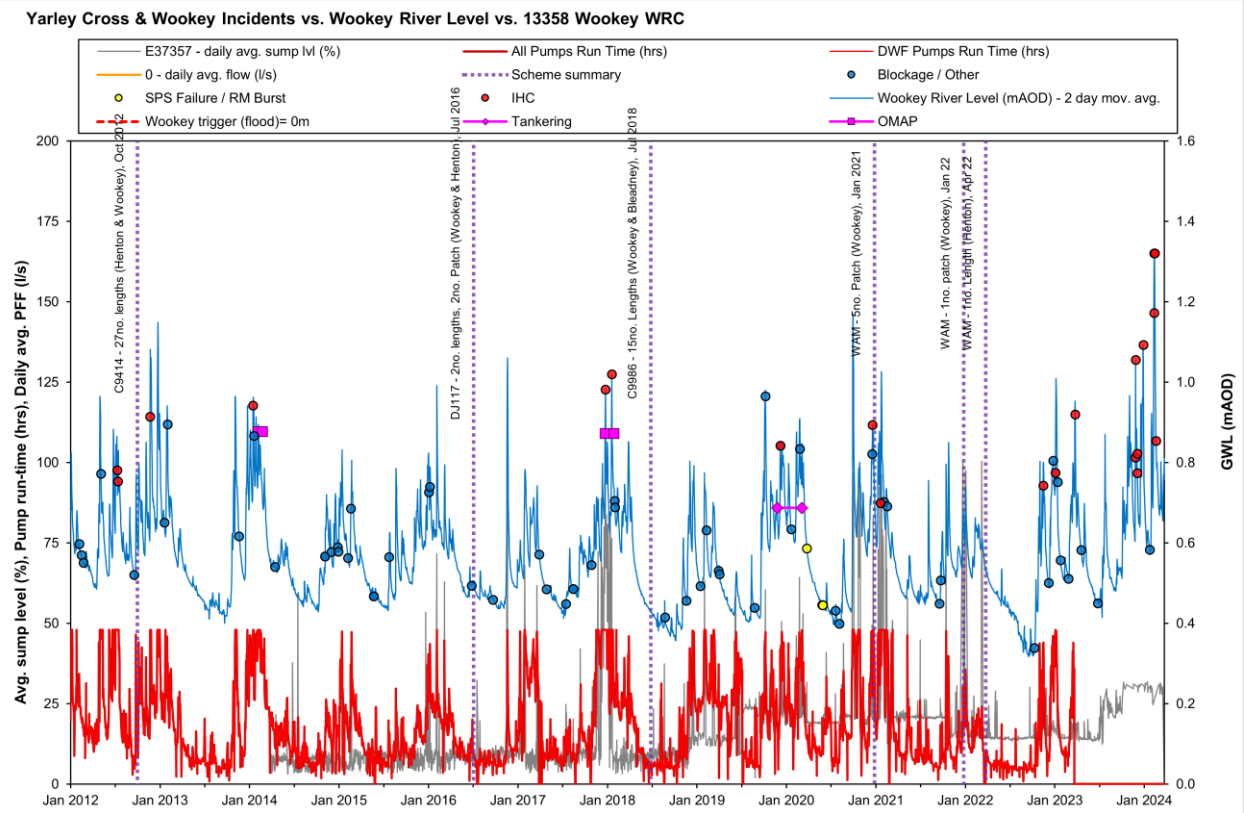
Medium Term
Analyse flows in sewers using pumping station surveys, flow surveys and/or hydraulic modelling.
Investigate nature-based solutions in the catchment.

Long Term
Identify road gullies and other impermeable areas that are connected into the foul sewers.
Inspect private gullies, drains, and manholes where applicable.
Consider sustainable solutions to rainwater management, for example above-ground attenuation 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

The graph below displays the incidents against river levels (as measured Wookey) and the inflow at Wookey Water Recycling Centre (WRC). Infiltration sealing in 2014, 2016, and 2017/18 appeared to help reduce incidents due to inadequate hydraulic capacity (IHC). Mitigation action prevented flooding during the winter of 2019/20, when groundwater levels were higher than 2013/14. However, infiltration remains still an issue in the catchment, with further incidents attributed to IHC recorded between 2020 and 2024. Telemetry data also still shows a correlation between river levels (an indicator of groundwater levels) and inflow to Wookey WRC.



Inspection and sealing since 2011

	2011-20	2020-21	2021-22	2022-23	2023-24
Length of sewer inspected (m)	13,475	6,573	-	7,162	-
Length of sewer sealed (m)	3,260	56	5	1,085	12