

Orcheston and Shrewton 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

Following the extremely wet weather, groundwater reached critical levels in late December resulting in reports of flooding due to inadequate hydraulic capacity in the area served by all three pumping stations. The operational mitigation action plan (OMAP) was instigated at Stonehenge Park Sewage Pumping Station (SPS) from January through May 2024, and tankering was required at in Shrewton between the start of December 2023 and mid-March 2024.

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.

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

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

Proactive inspections and maintenance of sewerage assets.

Completed

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

Implemented a scheme to improve the local water recycling centre (WRC).

Updated the catchment hydraulic model.

Inspected public sewer network to identify points of infiltration.

Completed (cont.)

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

Sealed sewers and manholes to prevent groundwater infiltration.

Investigated nature-based solutions in the catchment.

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

Reviewed incidents of sewer flooding.

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

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.

Investigate nature-based solutions in the catchment.

Medium Term

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

Install sealed covers on manhole chambers vulnerable to overland flow or river water entering through the cover.

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.

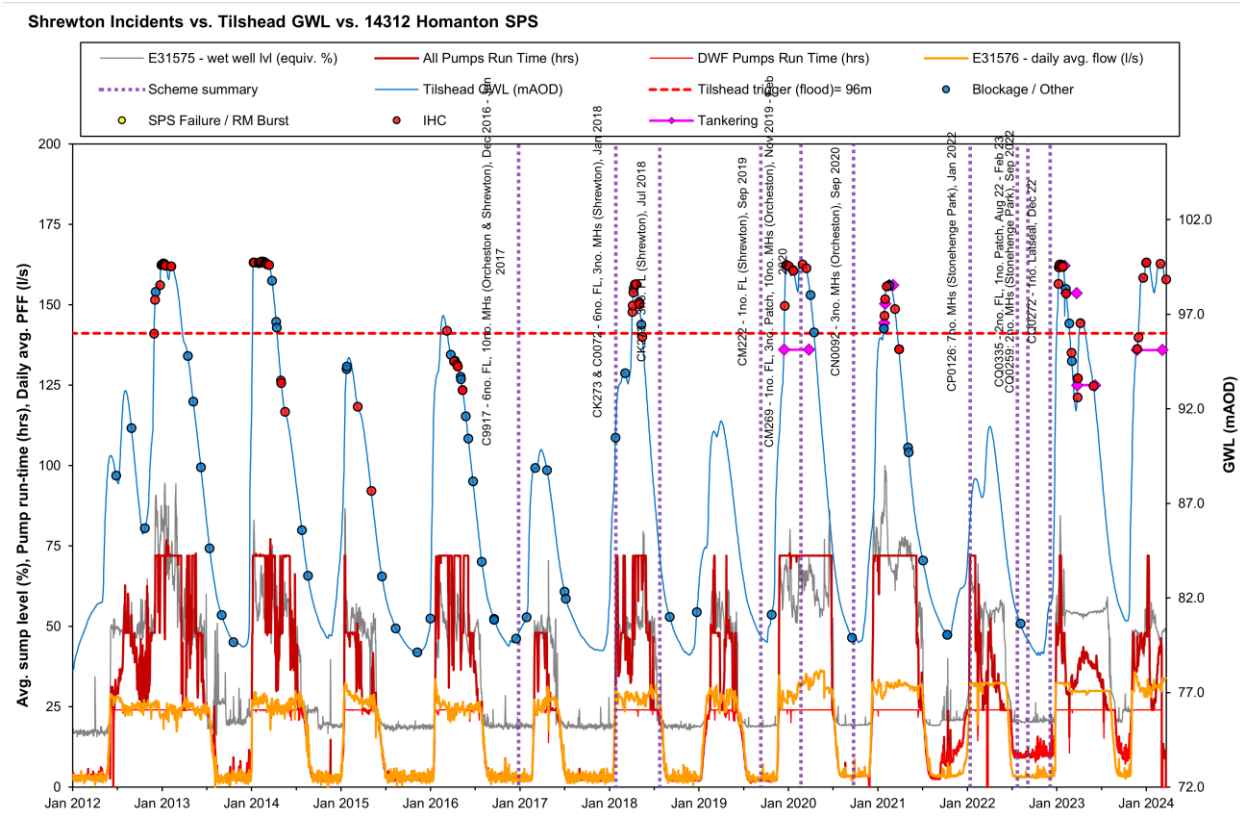
When Necessary

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 compares operational incidents with the flow at Homanton Sewage Pumping Station (SPS) and groundwater at Tilshead. There is a clear correlation between high groundwater levels, pump run times, wet well levels and incidents attributed to IHC. However, the groundwater level at which these incidents have occurred has increased over time, demonstrating that the sealing works have had a positive impact on the catchment. The reduction in the number of incidents reported (particularly in Orcheston) also demonstrates this.



Inspection and sealing since 2011

	2011-20	2020-21	2021-22	2022-23	2023-24
Length of sewer inspected (m)	7,028	1,894	3,756	627	634
Length of sewer sealed (m)	866	-	-	283	665