Gurney Slade 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

The groundwater reached critical levels and the sewers were unable to cope, resulting in one reported incident which was attributed to inadequate hydraulic capacity (IHC).

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.
Investigate nature-based solutions in the catchment.

Completed
Installed permanent flow meters at key pumping stations to continuously record pump performance.
Reviewed incidents of sewer flooding.
Used machine learning to predict flows in sewers and proactively identify blockages and other issues.
Inspected public sewer network to identify points of infiltration.
Undertaken pumping station or flow surveys to analyse flows in sewers.

Completed (cont.)

Sealed sewers and manholes to prevent groundwater infiltration.

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

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

Updated the catchment hydraulic model.

Short Term

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

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

Medium Term

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

Long Term

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

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

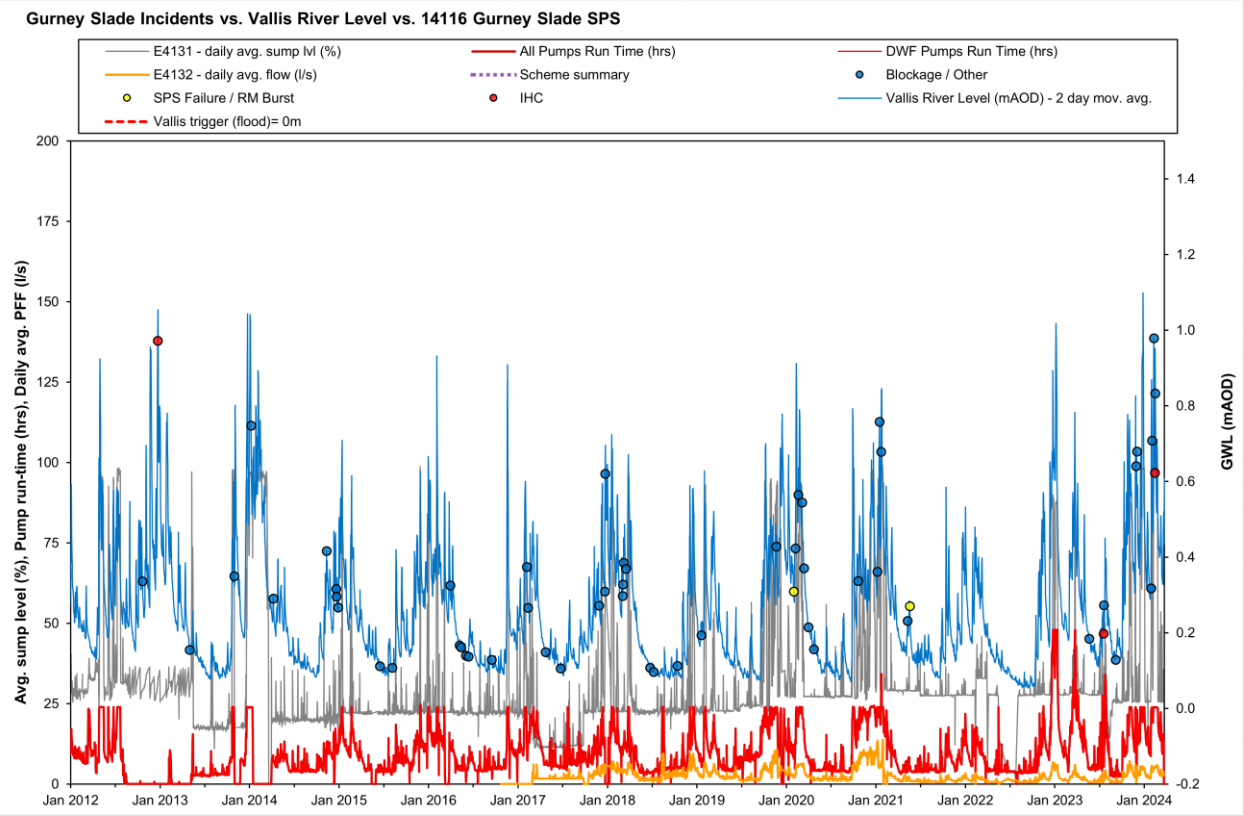
Implement emergency tankering procedure for preventing restricted toilet use and sewer flooding during high groundwater periods, in order to protect public health.

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.

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

Current Performance

This graph shows incidents against River Level (as measured at Vallis River Gauge) and the flow at Gurney Slade Sewage Pumping Station. Incidents caused by inadequate hydraulic capacity occurred when river levels have been high, although one inadequate hydraulic capacity incident occurred during the summer of 2023 when levels did not reach critical levels. Pump run time had been high and active for a prolonged period when river level has been high, suggesting groundwater inundation to be the main cause of flooding in Gurney Slade.



Inspection and sealing since 2011

	2011-20	2020-21	2021-22	2022-23	2023-24
Length of sewer inspected (m)	3,408	-	-	-	-
Length of sewer sealed (m)	183	-	6	-	-