Sutton Benger 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 reached critical levels in the Sutton Benger catchment during the winter of 2023/24, leading to multiple incidents of flooding, attributed to Inadequate Hydraulic Capacity (IHC). Foxham was particularly effected, becoming inundated with groundwater for prolonged periods.

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

Completed
Used machine learning to predict flows in sewers and proactively identify blockages and other issues.
Used specialist cameras to visually monitor critical assets.
Updated the catchment hydraulic model.
Reviewed incidents of sewer flooding.
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.

Short Term

Undertake review of incidents of sewer flooding suspected to be affected by groundwater infiltration.

Medium 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.

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

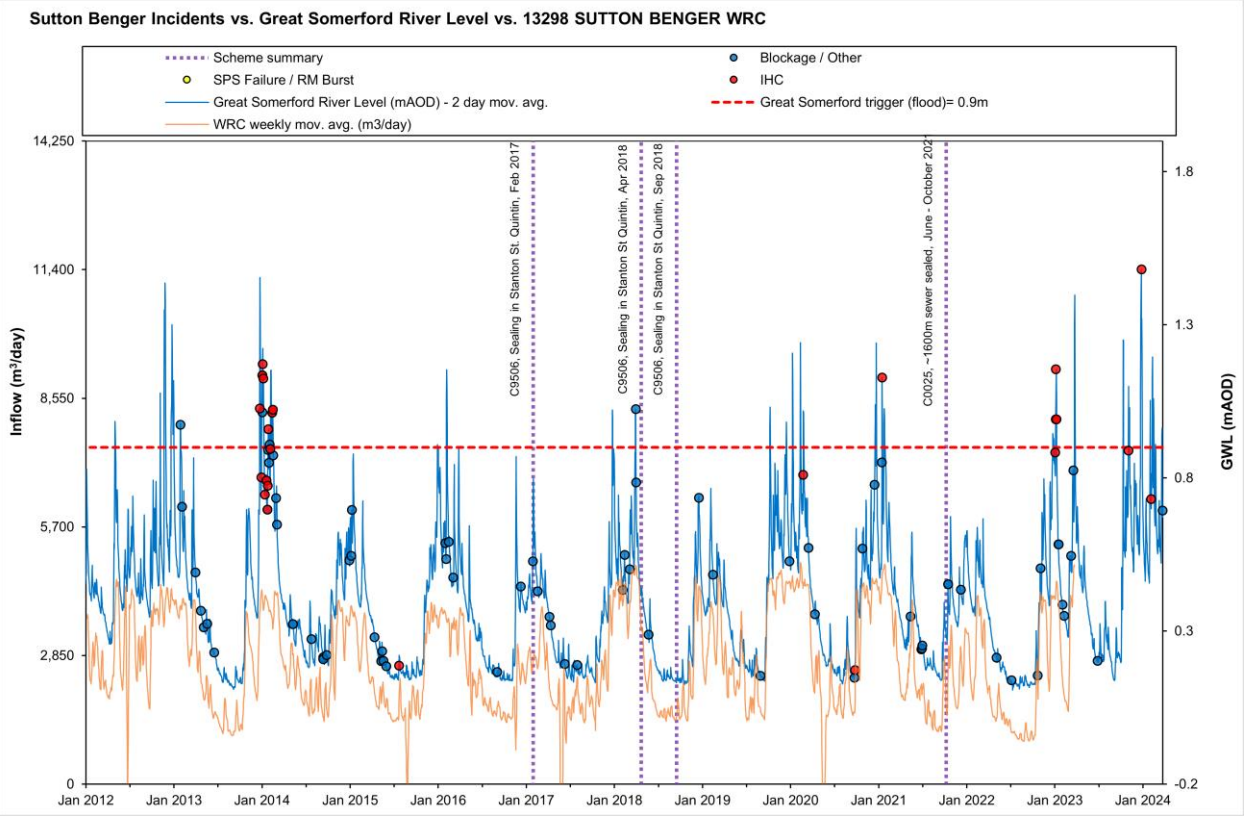
Implement emergency tankering procedure for preventing restricted toilet use and sewer flooding during high groundwater periods, in order to protect public health.

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.

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

Current Performance

The graph below shows incidents against regional river level (as measured at Great Somerford river gauge) and the flow at Sutton Benger Water Recycling Centre (WRC). Prior to the sealing in 2017 and 2018 to prevent infiltration, there was a strong correlation between groundwater level and inflow into the WRC. Post lining, this relationship has remained unchanged. Whilst inflow to the works have remained high, incidents attributed to inadequate hydraulic capacity have significantly reduced. The infiltration sealing works in 2017/18 and 2021 appear to have been effective, though some issues remain. Inflows to Sutton Benger WRC are elevated above 2014 levels; this is believed to be due to a change in the operation of the WRC. It is planned to fit a flow meter at the WRC inlet pumping station, which will help Wessex Water better understand its performance.



Inspection and sealing since 2011

	2011-20	2020-21	2021-22	2022-23	2023-24
Length of sewer inspected (m)	4,389	2,906	7,433	2,604	2,008
Length of sewer sealed (m)	210	-	1,364	14	15