Sydling St Nicholas 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 in Sydling St Nicholas reached critical levels in winter 2023/24. In response, the Operational Mitigation Action Plan (OMAP) was instigated for three periods over the winter to protect public health and prevent properties from flooding due to inadequate hydraulic capacity (IHC) of the sewer network.

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
Updated the catchment hydraulic model.
Inspected public sewer network to identify points of infiltration.
Inspected private gullies, drains or manholes to identify points of infiltration.
Sealed sewers and manholes to prevent groundwater infiltration.
Investigated nature-based solutions in the catchment.

Completed (cont.)
Highway outfalls inspected and cleared of silt build-up
Undertook remedical works at a property-level.
Implemented a scheme to address capacity issues in the sewer network.
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.
Identify road gullies and other impermeable areas that are connected into the foul sewers.
Inspect private gullies, drains, and manholes where applicable.
Install permanent flow meters at key pumping stations to continuously record pump performance.
Infiltration sealing of sewers and manholes, where deemed cost-effective, targeting work according to study findings.
Investigate nature-based solutions in the catchment.

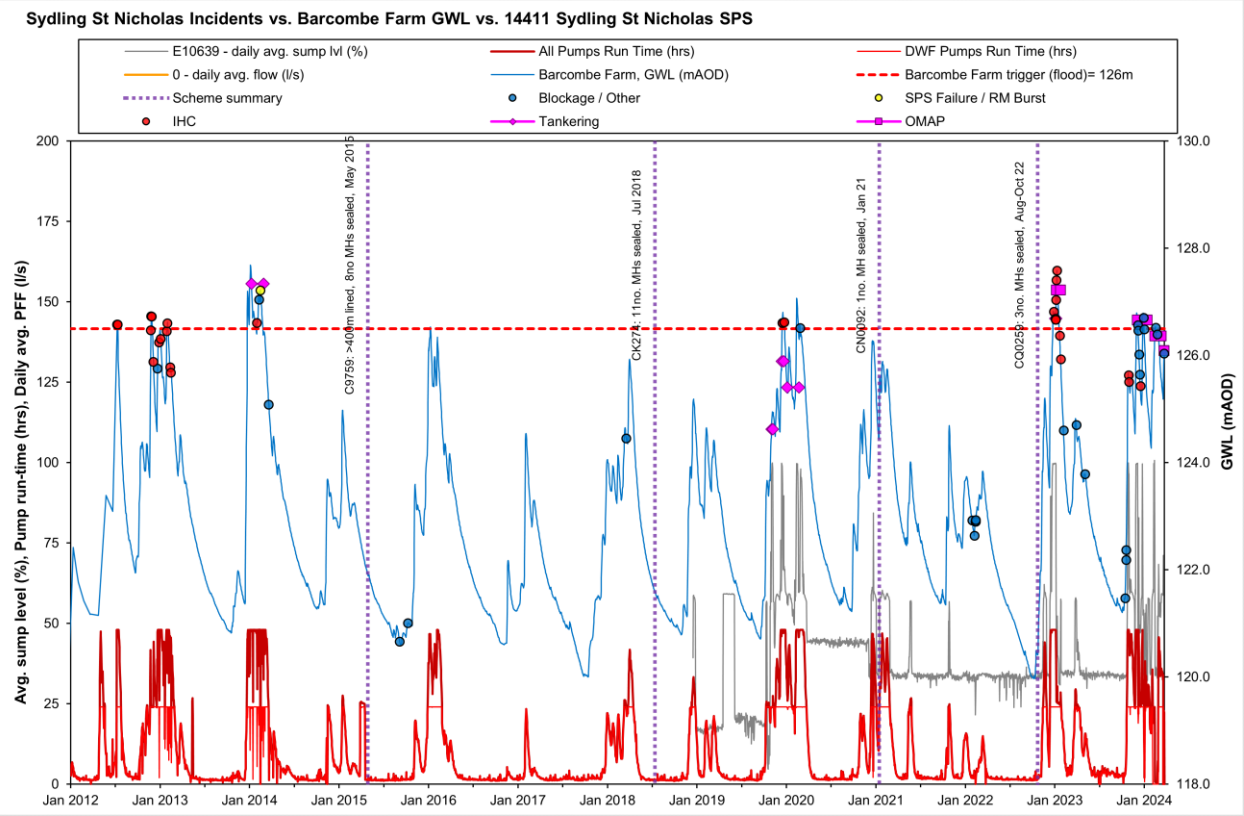
Long Term
Implement a scheme to address capacity issues in the sewer network.
Consider sustainable solutions to rainwater management, for example above-ground attenuation and property-level interventions.

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

This graph compares operational incidents with the telemetry at Sydling St Nicholas Sewage Pumping Station (SPS) and groundwater at Barcombe Farm.

There is a clear correlation between pump run times and groundwater level indicating the impact that infiltration has on the local network. Sewer lining and manhole sealing has had a positive effect, as the number of incidents attributed to IHC have reduced (eg. compare 2013 & 2015). However, there remains the need for the Operational Mitigation Action Plan (OMAP) during very high groundwater levels, as evident during the winters of 2019/20, 2022/23 & 2023/24, when the network became inundated.



Inspection and sealing since 2011

	2011-20	2020-21	2021-22	2022-23	2023-24
Length of sewer inspected (m)	4,410	1,439	-	-	374
Length of sewer sealed (m)	422	-	-	-	370