# Long Sutton 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 Long Sutton reached higher levels in winter 2023/24 than winter 2012/13. The telemetry at Bennetts Orchard Sewage Pumping Station (SPS) shows that the pumps activity and the wet well level remain high over all of the winter months and several incidents due to inadequate hydraulic capacity (IHC) were reported in the catchment.

## Action Plan

| Annual Activity |
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| 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. |
| Install in-sewer monitors at key locations to better understand flows in the network. |
| 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. |
| Used specialist cameras to visually monitor critical assets. |
| Upgraded pumping stations where appropriate, to improve the reliability and performance of the site. |
| Updated the catchment hydraulic model. |
| Sealed sewers and manholes to prevent groundwater infiltration. |

| Completed (cont.) |
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| Inspected public sewer network to identify points of infiltration. |
| Reviewed incidents of sewer flooding. |
| Undertaken pumping station or flow surveys to analyse flows in sewers. |

| Short Term |
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| Use machine learning to predict flows in sewers and proactively identify blockages and other issues. |
| Infiltration sealing of sewers and manholes, where deemed cost-effective, targeting work according to study findings. |

| Medium Term |
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| Undertake pro-active inspection of public sewers and manholes using CCTV to identify points of infiltration. |
| Undertake review of incidents of sewer flooding suspected to be affected by groundwater infiltration. |

| Long Term |
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| Analyse flows in sewers using pumping station surveys, flow surveys and/or hydraulic modelling. |
| 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 |
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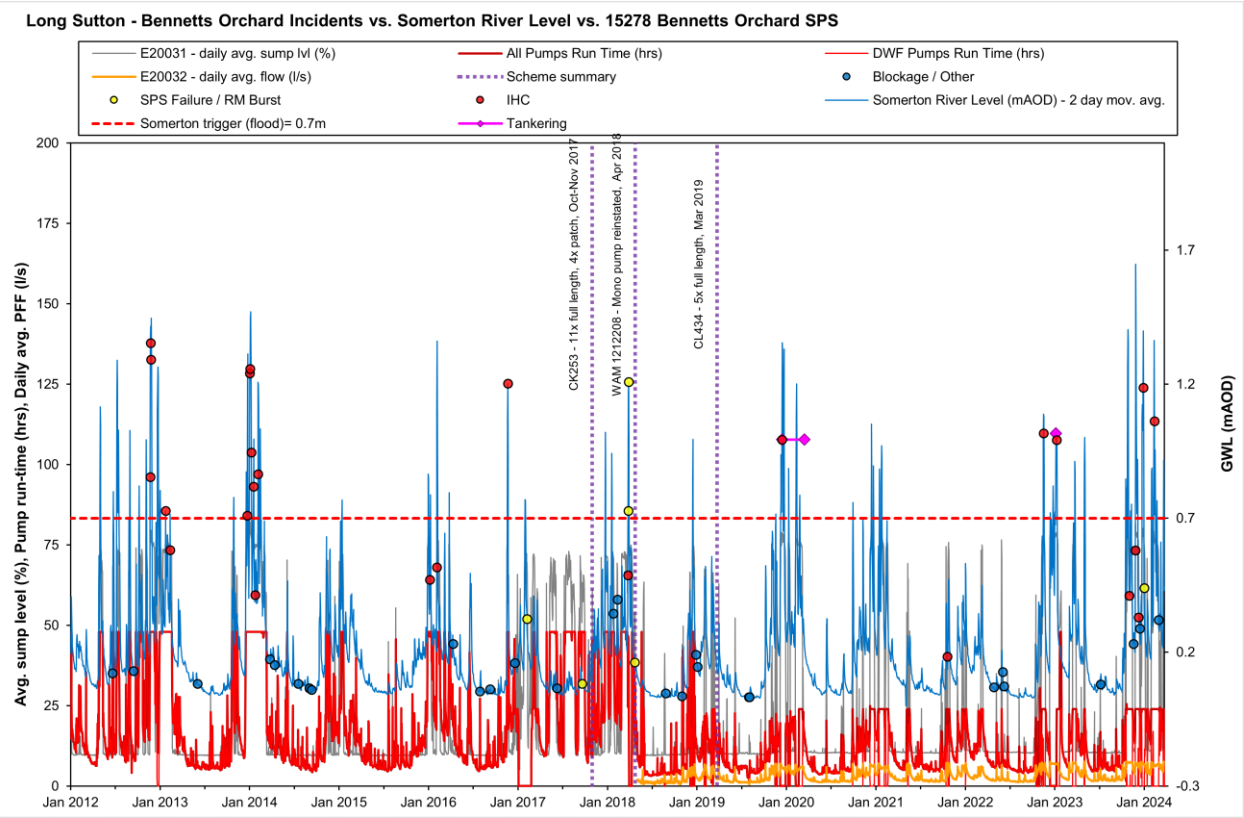
| Implement emergency tankering procedure for preventing restricted toilet use and sewer flooding during high groundwater periods, in order to protect public health. |
| Implement Operational Mitigation Action Plan (OMAP) for discharging excess flows to the environment as a last resort, when tankering would not prevent restricted toilet use or sewer flooding, and public health is at risk. |

## Current Performance

This graph shows incidents against Somerton River level and Bennetts Orchard Sewage Pumping Station (SPS) telemetry. Prior to the sewer sealing to prevent infiltration in 2018 there was a strong correlation between groundwater level and Bennetts Orchard Sewage Pumping Station pump run times and wet well level. Post sealing, the correlation between sump level and the rise in groundwater levels is still evident suggesting infiltration remains in the catchment. Although there was a significant reduction in the number of incidents reported attributed to inadequate hydraulic capacity (IHC) between 2018 and 2022, more incidents have started to be reported since 2021/22 when the groundwater is high or following significant rainfall events.



## Inspection and sealing since 2011

| | 2011-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 |
|---|---|---|---|---|---|
| **Length of sewer inspected (m)** | 10,973 | - | 213 | 2,468 | - |
| **Length of sewer sealed (m)** | 558 | - | - | - | - |