

Compton Dundon 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 2021 – March 2022

Winter groundwater levels across the region were relatively low, with peak levels comparable to the winters of 2014/15 and 2016/17. Following high groundwater levels in the preceding winter, groundwater levels rose again in May 2021 with a monthly rainfall 66% above the LTA (fourth highest UK May rainfall on record). This particularly affected areas in the north of the region. During the autumn, heavy rainfall in October (33% above the LTA) caused groundwater levels to rise. However, below-average rainfall between November 2021 and March 2022 meant that most catchments were not severely affected by infiltration. No flooding incidents were reported in the catchment, with Ham Lane Sewage Pumping Station (SPS) and Moor Close SPS coping well throughout the winter. No mitigation works were undertaken.

Action Plan

Annual activity

- Monitor the system's performance using telemetry.
- Review data, update reports and meet with stakeholders for an annual update and to share findings.
- Promote a multiple agency approach and communicate during periods of high groundwater levels.

Completed to date

- Procedure for recording, investigating and resolving incidents put in place.
- Analysed flows in the sewers, using historic and current telemetry, rainfall, flow surveys and modelling where appropriate.
- Undertook pro-active inspection of public sewers as set out in Sewerage Risk Management Manual and identified infiltration using CCTV.
- Sewer and manhole sealing of the public system where proven to be cost effective based on proactive inspections.
- Analysed inspection data to identify infiltration.
- SPS surveys completed, and assets updated where necessary appraisal of flooding incidents.
- Continued customer engagement about mechanisms of sewer overloading and the need for a risk-based approach to improvements.
- Monitored local watercourse data and groundwater levels during periods of inundation to inform Operational Mitigation Action Plans.
- Reviewed existing regional borehole data.
- Reviewed telemetry and compared with a variety of hydraulic factors to assess residual levels of infiltration.
- Wessex Water infiltration [video](#) added to website.

- Reviewed long term options for monitoring and improving data collection for example Event Duration Monitoring.
- Where areas of infiltration in private drainage systems are found, pass information on to the Council for further action. Wessex Water to consider funding private improvements.
- Liaise with the Environment Agency with regards to their groundwater warning modelling and service.
- Installed Meteor Cameras to monitor areas of high frequency maintenance and when Operational Management Action Plan (OMAP) is active.

	2015-20	2020-21	2021-22
Length of sewer inspected (m)	4778	-	-
Length of sewer sealed (m)	184	414	-

Short term

- Continue sewer and manhole sealing of the public system where proven to be cost effective based on proactive inspections.
- CCTV and targeted infiltration studies according to analysis from previous surveys and telemetry data.
- Use of machine learning and rainfall forecasting to predict flows in sewers
- Add OMAP layer to Drainage and Wastewater Management Plan Hub for Risk Management Authorities.
- Investigate the use of Artificial Intelligence to code CCTV, increase survey efficiency and help identify defects and hotspots.

Medium term

- Commission further pump station surveys where necessary.

Long term

- Inspect private gullies, drains and manholes.
- Monitor and regulate surface water disposal, to prevent surface water to foul misconnections.
- CCTV and targeted infiltration studies according to analysis from previous surveys of s105a sewers.

Current Performance

The graph below displays incidents against river levels (as measured at Somerton) and the telemetry at Ham Lane SPS. Prior to the sewer sealing, to prevent infiltration, there was a strong correlation between river levels (an indicator of groundwater levels) and the sump level at Ham Lane. Despite extensive sealing in the catchment, the correlation between elevated river levels and incidents attributed to inadequate hydraulic capacity (IHC) remains. Although no incidents were reported in 2021/22, the pumps at Ham Lane SPS continue to run for extended periods of time during high river levels indicating the catchment is still affected by infiltration, much of this may be via private laterals.

