

Frome 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 during the preceding winter, groundwater levels rose again in May 2021 with a monthly rainfall 66% above the long-term average (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. Spring Gardens pumping station was able to cope and no incidents due to inadequate hydraulic capacity (IHC) were reported during this period. The sump level reached peaks of approximately 15%. showing an improvement on previous years, although groundwater/river levels were not as high.

Action Plan

Annual activity

- Review asset and operational data and update annual reports.
- Continue monitoring system performance using telemetry.
- Promotion of multiple agency approach. Regular meetings with LLFA and other risk authorities where appropriate.

Completed to date

- Reviewed and analysed flows in the sewers, historic telemetry, rainfall and borehole data and used hydraulic modelling where required.
- Reviewed existing boreholes.
- Proactively inspected vulnerable sewers, assessed and surveyed the pumping stations and updated records where necessary.
- Analysis of inspection data to identify infiltration.
- Commissioned pump station survey and asset update.
- Appraised incidents of sewer and surface water flooding.
- Carried out significant infiltration sealing of sewer and manholes where deemed cost-effective, targeting work according to study findings.
- Raised awareness about mechanisms of sewer overloading and need for risk-based approach for improvements.
- Liaised with the Environment Agency with regards to their groundwater warning modelling and service.

- Monitored local watercourse data and groundwater levels during periods of inundation to inform Operational Mitigation Action Plans.

	2015-2020	2020-2021	2021-2022
Length of sewer inspected (m)	3464.72	-	-
Length of sewer sealed (m)	501.5	-	-

Short term

- Use of machine learning and rainfall forecasting to predict flows in sewers.
- Add Operational Management Action Plan layer to Drainage and Wastewater Management Plan Hub for Risk Management Authorities.

Medium term

- Investigate the use of Artificial Intelligence to code CCTV footage, increase survey efficiency and help identify defects and hotspots.
- Targeted infiltration studies and CCTV informed by analysis of previous surveys where cost beneficial.
- Infiltration sealing of sewer and manholes where deemed cost-effective.
- Commission a further pump station survey for Spring Garden SPS.

Long term

- Inspect and remediate private drainage networks where appropriate.
- Investigate options for surface water separation if cost beneficial.
- Monitor and regulate surface water disposal to prevent misconnection of surface water and foul sewers.

Current Performance

The graph below shows incidents against river level (as measured at Frome Rodden river gauge), and the flow at Frome Water Recycling Centre. Post 2014, there have been only three incidents reported due to blockages in the Spring Gardens SPS catchment. The wet well levels in 2019 and 2020 show continued infiltration despite the sealing in 2017. River levels have not reached the highs experienced in 2014 therefore mitigation measures and this action plan remain in place.

