

Wookey 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 2019 – March 2020

Following above average rainfall in June, the summer of 2019 was relatively dry. However, in late Autumn 2019 regional groundwater levels rose sharply and remained high throughout the winter, reaching the highest levels since 2014. February 2020 was particularly wet with 151mm of regional rainfall equating to 228% of the monthly average, as well as the average annual rainfall for the preceding 12 months being 122% of the long-term average.

Action Plan

Annual activity

- Pro-active maintenance of vulnerable sewers including 6 monthly routine jetting.
- Monitoring of system performance using telemetry.
- Review data, update reports and meet with stakeholders for an annual update and to share findings.
- Promote a multiple agency approach to managing solutions during high groundwater levels.

Completed to date

- Reviewed existing asset and operational data, infiltration reduction report produced.
- Procedure for recording, investigating and resolving incidents in place.
- Proactive inspection using CCTV of vulnerable public sewers.
- Analysis of inspection data to identify infiltration.
- Analysed flows in sewers using flow survey and modelling.
- Commissioned pump station survey and asset update.
- Appraised incidents of sewer and surface water flooding.
- Reviewed historic telemetry and rainfall records.
- Carried out 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.
- Routine review of telemetry compared with borehole, watercourse, rainfall data and customer incidents to assess infiltration levels.
- Reviewed long term options for monitoring and improving data collection.
- Installed event duration monitors at key points in the catchment.
- Installed a flow monitor and pressure transducer at Bleadney Mill sewage pumping station (SPS).

	2015-16	2016-17	2017-18	2018-19	2019-20
Length of sewer inspected (m)	3,365.93	239.75	4,503.03	1,667	1,308

Length of sewer sealed (m)	-	239.75	-	1,287	-
-----------------------------------	---	--------	---	-------	---

Short term

- Monitor flows and review the effectiveness of recent rehabilitation work.

Medium term

- CCTV and targeted infiltration studies according to analysis from previous surveys of s105a sewers.
- Continued sewer and manhole sealing of the public system where proven to be cost effective based on proactive inspections.

Long term

- Inspect and remediate where appropriate private drainage networks.
- Monitor and regulate surface water disposal to prevent misconnection of surface water and foul sewers
- Inspection of private gullies, drains and manholes.

Current Performance

This graph shows incidents against groundwater level (as measured at Barcombe Farm borehole) and the flow at Wookey Water Recycling Centre (WRC). There is a strong correlation between flow into Wookey WRC and groundwater, however sealing in 2014 and 2016 appeared to help reduce incidents due to inadequate hydraulic capacity (IHC) until 2017/18 where multiple incidents were recorded. Sealing took place in 2018 and since then there has only been one IHC incident in 2019 despite groundwater being at the highest since 2014. This suggests that the sealing work has partially improved the response to infiltration within this catchment. However, it should be noted that telemetry data still shows a significant correlation between groundwater level, rainfall and a rise in Wookey WRC inlet sump and inflow.

