

## Meare 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. Both Turnbridge and Westhay sewage pumping stations (SPSs) required tankering on 30th October 2021. There were three incidents of flooding reported across both catchments on this day due to inadequate hydraulic capacity (IHC). There were no other incidents reported during 2021/22. The wet well level and pump run times at the SPSs were generally lower than previous years following sealing carried out in 2019/20 and 2020/21, however, river levels (an indicator of groundwater levels) also remained relatively low. No CCTV or sealing work was undertaken.

### Action Plan

#### Annual activity

- Review data, update reports and meet with stakeholders for an annual update and to share findings.
- Continued monitoring of telemetry.
- Review historic and current telemetry and rainfall records and update.
- Continue customer engagement through public meetings, making Infiltration Reduction Summary available and Wessex Water infiltration [video](#) added to website.
- Promotion of multiple agency approach through regular meetings with Lead Local Flood Authority and other risk authorities where appropriate.
- Review existing regional borehole data (possibly including data from the Environment Agency).
- Undertake a review of sewers as set out in Sewerage Risk Management pro-active maintenance Manual (6 monthly routine jetting of vulnerable sewers to maximise capacity).

#### Completed to date

- Wessex have put in place a procedure for recording, investigating and resolving incidents.
- Appraisal of flooding incidents.
- Risk modelling of Wessex Water Assets to plan which catchments require proactive surveys as set out in Sewerage Risk Management Manual
- Undertaken pro-active inspection of public sewers to identify any infiltration using CCTV.
- Carried out significant infiltration sealing of sewer and manholes where deemed cost-effective, targeting work according to study findings.
- Liaised with the Environment Agency with regards to their ground water warning modelling and service

- Reviewed long term options for monitoring and improving data collection for example Event Duration Monitoring.
- Analysed flows in the sewers, using historic and current telemetry, rainfall, flow surveys and modelling where appropriate.
- Investigated watercourse monitoring in the local area as a possible indicator of groundwater levels and trigger levels for Operational Mitigation Action Plan (OMAP).
- Liaise with the Environment Agency regarding their groundwater warning modelling and service.
- Considered construction of local boreholes and installation of web-based auto logging telemetry to monitor groundwater levels.
- Commissioned pump station survey and asset update.
- Raised awareness about mechanisms of sewer overloading and need for risk-based approach for improvements.

	2015-20	2020-21	2021-22
<b>Length of sewer inspected (m)</b>	10,892	-	-
<b>Length of sewer sealed (m)</b>	1,011	247	-

#### Short term

- Add OMAP layer to Drainage and Wastewater Management Plan Hub for Risk Management Authorities.
- Investigate the use of Artificial Intelligence to code CCTV footage, increase survey efficiency and help identify defects and hotspots.
- Use of machine learning and rainfall forecasting to predict flows in sewers.

#### Medium term

- Continued infiltration sealing where cost effective, targeting work according to study findings.
- Undertake pro-active inspection of public sewers as set out in Sewerage Risk Management Manual. Identify infiltration using CCTV.
- Commission pump station surveys where necessary.
- Identify road gullies and other impermeable areas connected into the foul sewers and remove them where cost effective.

#### Long term

- CCTV and targeted infiltration studies according to analysis from previous surveys of s105a sewers.
- 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.
- Inspection of private gullies, drains, and manholes.
- Remedial works of private assets.
- Monitor and regulate surface water deposal to prevent foul sewer infiltration.
- Consider sustainable solutions.

## Current Performance

The graphs below show incidents against river level (as measured at Fenny Castle River gauge) and the flow at Turnbridge and Westhay SPSs. The wet well level in both SPSs shows a clear correlation with rainfall, in fact during the winter months it is visible that the wet well is full during intense and long storm event. The inadequate hydraulic capacity (IHC) incidents recorded are associated with high level of rainfall, wet well levels and raising of the river level, except for the first two IHC recorded in 2012 (June and September), where the river level was low. Pump run times increase during winter, with the river level, and show evidence of infiltration in both catchments. However, since sealing was carried out in 2019/20 and 2020/21, pump run times and wet well levels have been lower on average. Additionally, Westhay has only experienced one incident of IHC since 2019.

