Primrose Drive, Melksham 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. Two pollution incidents at Primrose Drive Sewage Pumping Station (SPS) attributed to inadequate capacity following heavy rainfall were reported in October 2021. The pollutions were reported to the EA through the usual process. The river level measured at River Semington has been used as an indication of the catchment's groundwater levels, the river level was notably high around the time of the incidents reaching the level above which the river is likely to flood.

Action Plan

Annual activity

- Review asset and operational data and update annual reports.
- Continue monitoring system performance using telemetry, rainfall records and local groundwater levels.
- Communicate with other authorities during times of elevated groundwater levels and promote a multiple agency approach.

Completed to date

- Procedure for recording, investigating and resolving incidents in place.
- Undertook proactive inspection using CCTV of vulnerable sewers.
- Sewage pumping station surveys completed, and assets updated where necessary.
- Analysed inspection data to identify infiltration.
- Analysed flows in the sewers using flow surveys and modelling.
- Undertook infiltration sealing where cost effective.
- Identified areas of infiltration in private drainage.
- Reviewed existing boreholes in the area.
- Reviewed telemetry and compared it with data collected from the area to assess residual levels of infiltration.
- Wessex Water infiltration video added to website.
- Improved pass forward flow at the pumping station.
- Liaised with the Environment Agency about their groundwater warning service.

- Initiated monitoring of local watercourses to indicate local groundwater levels and inform Operational Mitigation Action Plan.

	2015-20	**2020-21**	**2021-22**
Length of sewer inspected (m)	4,523	1,110	3,065
Length of sewer sealed (m)	-	10	287

Short term

- Undertake rehabilitation work based on the survey findings where cost beneficial.
- Investigate watercourse monitoring in the local area.
- Analyse flows in the sewers using flow surveys and modelling where appropriate.
- Further infiltration sealing according to study findings.
- Use of machine learning and rainfall forecasting to predict flows in sewers.

Medium term

- Identify road gullies and other impermeable areas connected into the foul sewers and remove them where cost effective.
- Commission pump station surveys where necessary.
- Investigate the use of Artificial Intelligence to code CCTV footage, increase survey efficiency and help identify defects and hotspots.

Long term

- 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

This graph shows incidents against river level (as measured at Semington) and the telemetry at Primrose Drive SPS. Sewer sealing has taken place in 2021. Two incidents attributed to inadequate capacity were reported in October 2021 following heavy rain, the wet well level at the SPS was high at the times of these incidents with the pumps responding well.

Primrose Drive Incidents vs. Semington vs. 15810 Primrose Drive SPS