

Brent Knoll 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 2020 – March 2021

Regional groundwater levels rose sharply in mid-Autumn following above average rainfall in October 2020; the October rainfall total for the Wessex region was 171mm, which represents 147% of the long-term average (LTA). Groundwater levels peaked in late December with levels similar to those experience in the winter of 2015/16. Overall, the groundwater remained high throughout the winter of 20/21, however, did not reach the extremes of 2019/20 following a much milder February. The average annual rainfall for the preceding 6 months has been below average at 90% the LTA.

The groundwater in Brent Knoll did not reach critical levels and the sewer was able to cope, therefore no mitigation works were carried out by Wessex Water in this part of the catchment.

Action Plan

Annual activity

- Review existing asset and operational data and produce an Infiltration Reduction Report.
- Continued monitoring of telemetry.
- Investigate and review Annual Infiltration Reduction Update.
- Promote a multiple agency approach to managing situations during high groundwater levels.

Completed to date

- Put in place a procedure for recording, investigating and resolving incidents.
- Reviewed existing borehole data.
- Pro-active inspection of public sewers. Identify infiltration using CCTV.
- Sewer and manhole sealing of the public system where proven to be cost effective.
- Communication with other authorities during times of elevated groundwater levels.
- Undertake pro-active inspection of public sewers and identify any infiltration using CCTV.
- Review historic telemetry and rainfall records.
- Appraisal of flooding incidents.
- Considered construction of local boreholes and installation of web-based auto logging telemetry to monitor groundwater levels.
- Liaised with the Environment Agency with regards to their groundwater warning modelling and service.

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Length of sewer inspected (m)	-	329	8345	-	89	-
Length of sewer sealed (m)	-	-	30	-	8	-

Short term

- Continued sewer and manhole sealing of the public system where proven to be cost effective.
- Commission pump station surveys and asset update, where necessary.
- Undertake pro-active inspection of sewers using Electroscan where appropriate.

Medium term

- Undertake further infiltration sealing where cost effective, targeting work according to study findings.
- Existing highway outfalls to be inspected and if necessary cleared of any build-up of silt.
- Where areas of infiltration in private drainage systems are found, pass information on to the Council for further action.
- Review long term options for monitoring and improving data collection for example Event Duration Monitoring.

Long term

- Identify road gullies and other impermeable area connected into the foul sewers and remove them where cost effective.
- Routine review of telemetry; compare with borehole data, local watercourse data, rainfall data and customer incidents to assess residual levels of infiltration.
- Review existing boreholes in the area (possibly including data from the Environment Agency).
- Construct observation boreholes and install web-based auto logging telemetry to monitor groundwater levels if deemed cost effective.
- Consider sustainable solutions such as above ground attenuation.
- Monitor and regulate surface water disposal to prevent surface water to foul misconnections.

Current Performance

This graph compares operational incidents with groundwater level (measured at Barcombe Farm borehole) and the flow at Forge House pumping station. Data from the pumping station is recorded from 24th October 2017 onwards. In 2012, 2014 and 2016 incidents caused by inadequate hydraulic capacity in the sewers are associated with an increase in groundwater level due intense rainfall in the region. There have not been any incidents reported in 2020/21 in the catchment that are attributed to inadequate hydraulic capacity or blockages, despite relatively high rainfall this winter.

