

# St Mary Bourne Infiltration Reduction Plan Summary – Draft 10/4/24

## Introduction

At times of high groundwater, the sewerage system serving St Mary Bourne can become overwhelmed by groundwater leaking into the pipes. The water finds its way into all sewers both public and privately owned, where the joints between pipes are not watertight, this process is known as infiltration. In extreme circumstances where groundwater reaches the surface and flooding occurs, this water can enter the sewers through manhole covers and covers on inspection chambers which are also not watertight, this process is known as inundation.

The sewerage system in St Mary Bourne can become overwhelmed by these groundwater related flows. This was particularly acute in the wet winter of 2013/14 and since that winter Southern Water created an infiltration reduction plan which was approved by the Environment Agency. This is a live plan and is updated to describe work completed and work planned to manage the groundwater flows and ensure a sewerage service is available to customers.

The full plan is currently being discussed with the Environment agency this document is a summary of that plan. This provides an update on the historic and current groundwater situation (at end March 2024) what mitigation actions were taken and a summary of our action plan to prevent flooding due to groundwater infiltration of our sewer network.

## Groundwater levels

The level of groundwater impacting the St Mary Bourne area is recorded at a groundwater borehole maintained by the Environment Agency. Figure 1 shows the historic borehole data from 2015. The graph shows that groundwater levels fluctuate between around 92 mAOD in late summer when groundwater levels are typically at their lowest and 127 mAOD in late winter following wet autumn and winter periods. An average winter level is around 115 mAOD, intervention to manage sewer flows by tankering is not normally required where the groundwater level is below 118 mAOD. The winter 2023/24 period is the highest groundwater level recorded and is classed as exceptionally high by the Environment Agency.

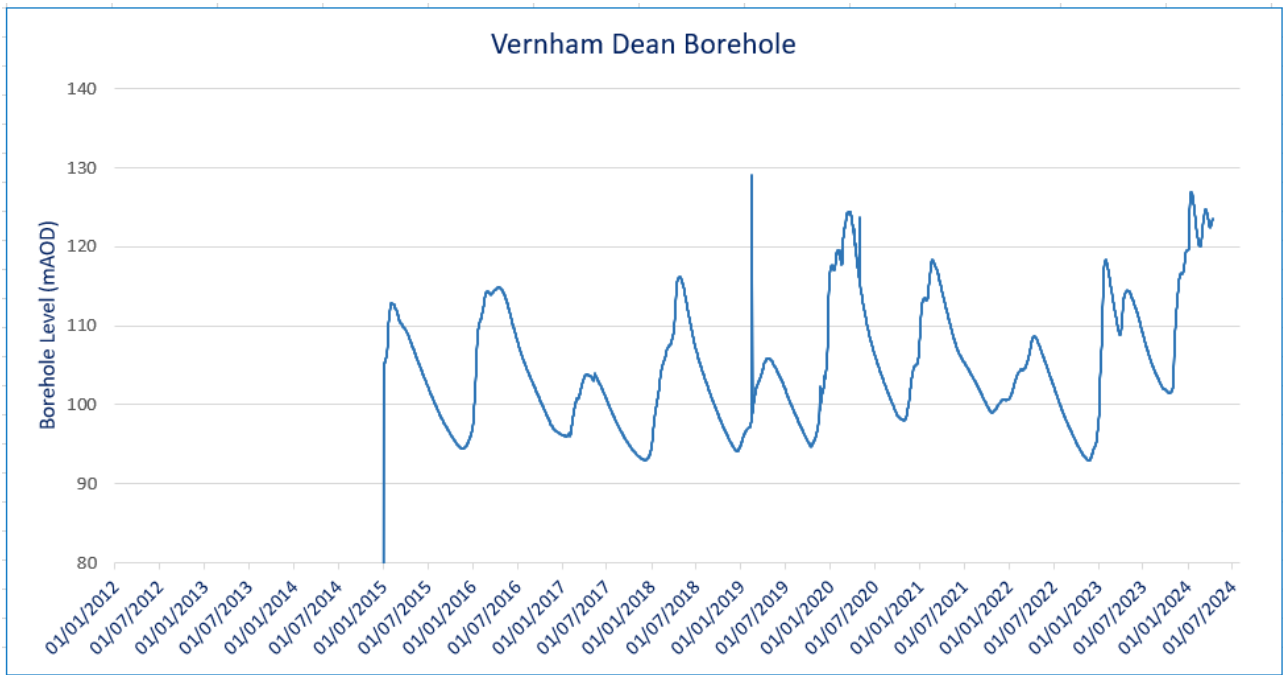


Figure 1

### Our operational interventions

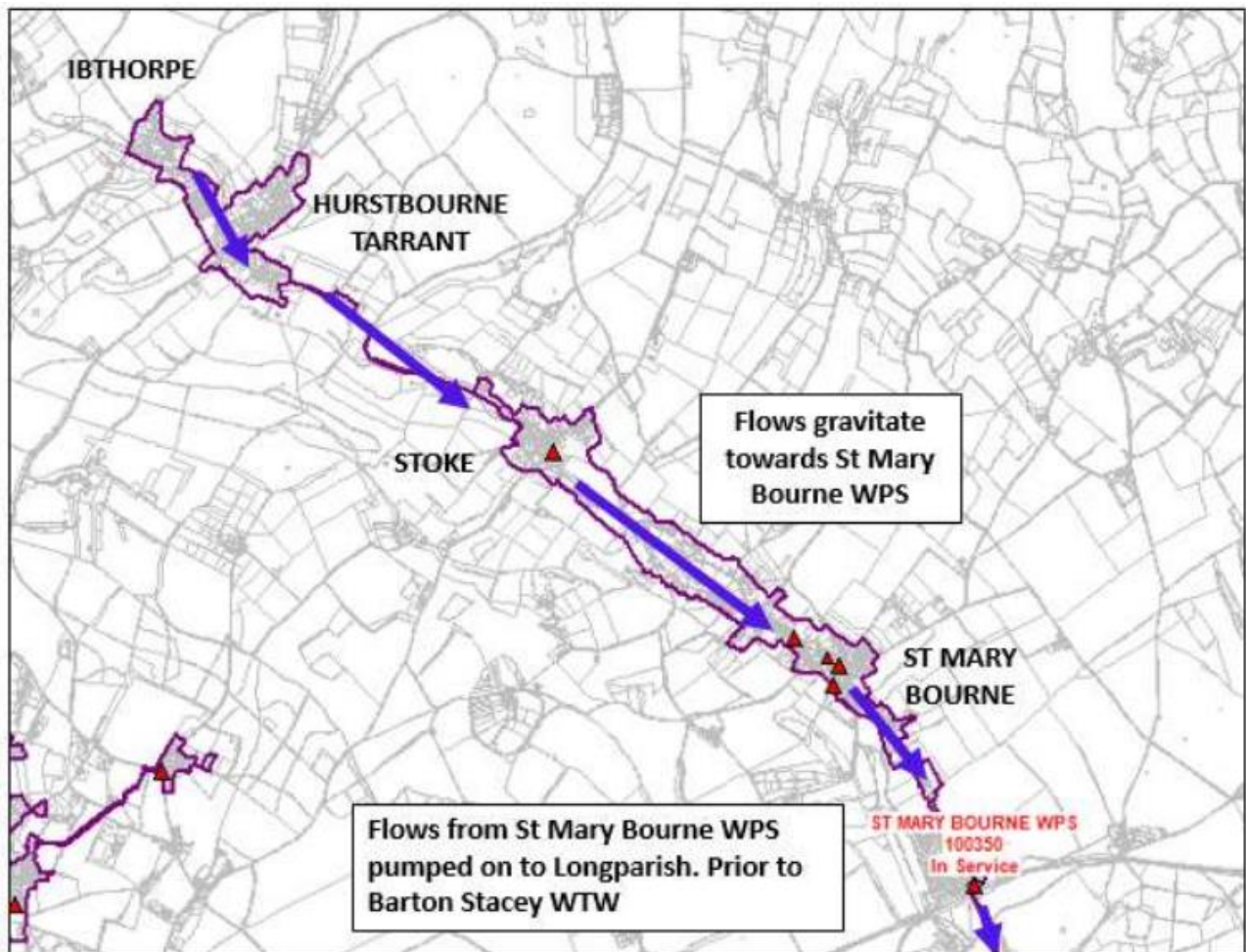
Table 1 below summarises the times when groundwater levels have caused an issue with the sewerage service and interventions have been required to manage the level in the sewers.

Year	Peak groundwater level (mAOD)	Tankering required
2013/14	Data not available	Yes
2014/15	113	No
2015/16	115	No
2016/17	103	No
2017/18	117	No
2018/19	105	No
2019/20	125	Yes
2020/21	118	Yes
2021/22	109	No
2022/23	118	Yes
2023/24	127	Yes

Table 1

## Actions taken to reduce infiltration.

Since 2013 we have undertaken surveys and sewer sealing work in the sewerage system draining to the pumping station serving St Mary Bourne and villages upstream. Figure 2 shows the area draining to St Mary Bourne pumping station. The sewerage system affecting St Mary Bourne includes the villages of Ibthorpe, Hurstbourne Tarrant and Stoke. Figure 2



Figures 3 – 5 below show the work we have done prior to April 2024 to address infiltration in the public sewers. On these plans the key to colours is:

- Red – sewers surveyed and sealed (10.6 km)
- Orange - sewers surveyed and sealing planned (0.8 km)
- Green – sewers to be surveyed (3.4 km)

From these plans it can be seen that the majority of the public sewers have been surveyed and leaking joints have been or are currently sealed where required. As infiltration is still an issue it is likely that the leaks in private drains now need to be addressed.

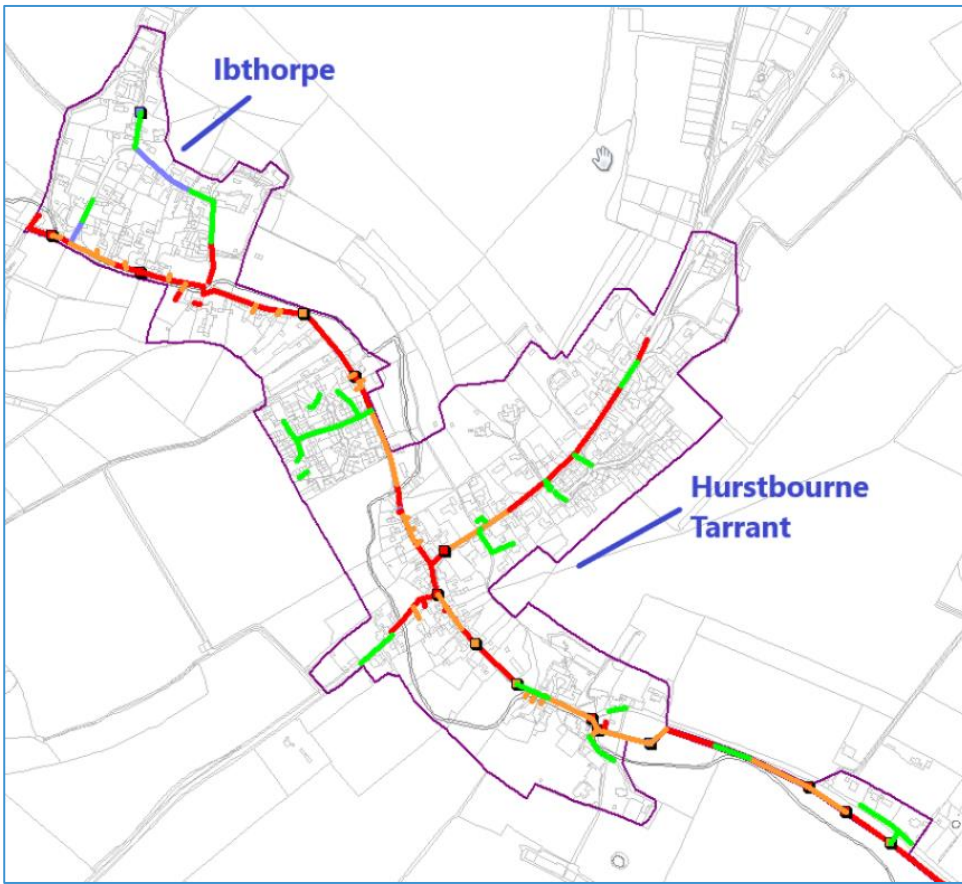


Figure 3 – Ibthorpe and Hurstbourne Tarrant

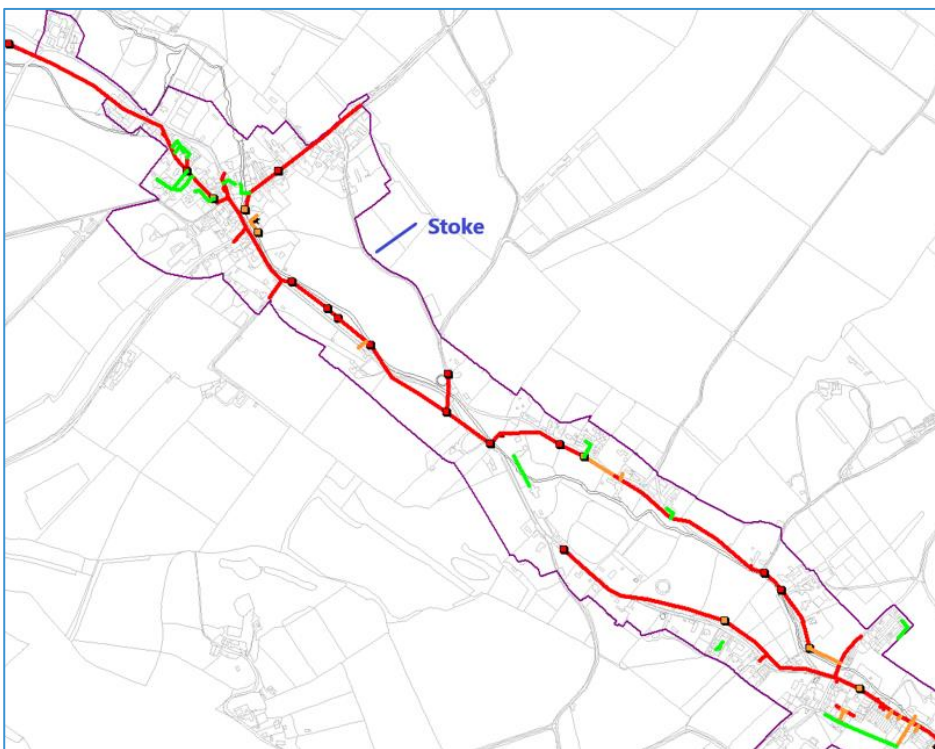


Figure 4 – Stoke

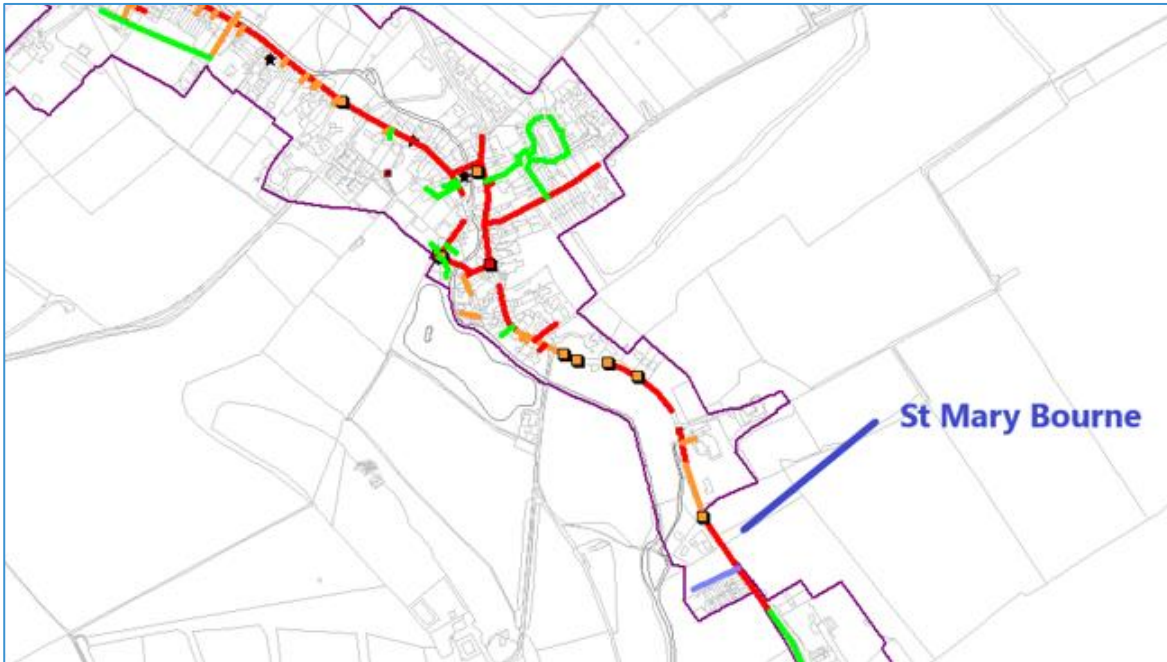


Figure 5 – St Mary Bourne

### Actions proposed

During the next 12 months (April 2024 – March 2025) we will undertake three actions:

1. we will complete the sealing of public sewers where leaks have been found (these are shown in orange on figures 3-5)
2. we will survey the sewers in green in Figures 3-5 to identify any other leaks on the public system
3. we will undertake surveys to gain a better understanding of the private sewer systems and to determine whether they are leaking. Where this is found to be the case we will discuss sewer sealing proposals with the property owners.

In addition we will undertake the following items:

Item	Who to deliver	When
Piping through Gangbridge Lane	Ops	Summer 2024
Addressing belly in sewer south of village	E&C	Summer 2024
Sealing of rider sewer to Holdaway WPS	E&C (HIT)	Summer 2024
Lining of laterals from 4 properties to Holdaway	E&C (HIT)	Summer 2024
Agreement to not pump basements to sewer	Ops	Summer 2024
Install pumped AFD at Applegate	Ops	Summer 2024
Extend RM from Bourneside by 9m to rider sewer	Ops	Summer 2024
Connect 1 property to rider sewer	Ops	Summer 2024
End seals on existing liners (assume 10)	E&C (HIT)	Summer 2024
Leaking of wet well structure at Holdaway - investigate	E&C (HIT)	Summer 2024
Leaking of wet well structure at Holdaway – seal if required	E&C (HIT)	Summer 2024
Redirecting Holdaway Cottage rising main	E&C	Autumn 2024
Extend rising main from Prosen House	E&C	Summer 2025