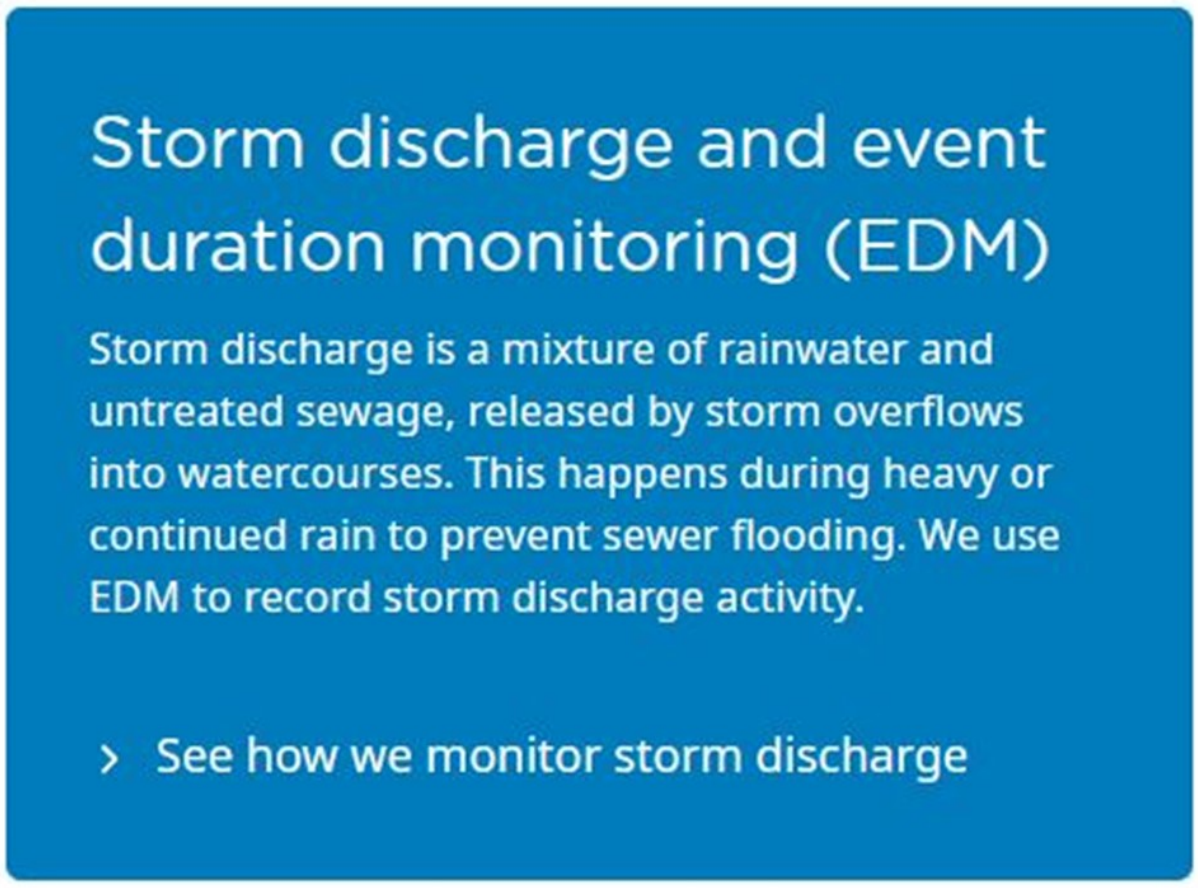
UPGRADE TO MORTIMER SEWAGE WORKS



At Mortimer Sewage Works storm discharges into Foudry Brook occur most frequently between September and May with fewer (but some) in the summer. The Parish Council has been investigating since early 2022.

Environment Agency EDM Storm Overflow Reports for Thames Water - Calendar Years 2023 (top) and 2022

Rank by hours (700 sites)	Site	Received by	Hours	Spills
1	FAIRFORD STW	RIVER COLN	3391.00	162
2	MORTIMER (STRATFIELD MORTIMER) W	Foudry Brook	3304.25	150
3	STEWKLEY WASTEWATER TREATMENT	HARDWICK BROOK	3166.25	162
4	CLANFIELD WWTW	HALFACRE BROOK	3156.00	150
5	CIRENCESTER WWTW	SHORNCOTE DITCH	2870.75	165
6	BURGHFIELD WWTW	CLAY HILL BROOK	2861.00	132
26	SILCHESTER WWTW	SILCHESTER BROOK	2067.00	112
153	READING SEWAGE TREATMENT WORKS	FOUDRY BROOK	289.75	24

Rank by hours (700 sites)	Site	Received by	Hours	Spills
1	STEWKLEY WASTEWATER TREATME	HARDWICK BROOK	1931.44	107
2	MORTIMER (STRATFIELD MORTIMER)	Foudry Brook	1641.82	84
3	SOUTH LEIGH WWTW	Limb Brook	1482.69	74
4	WINGRAVE WASTEWATER TREATMEI	TRIBUTARY OF ROWSHAM BR(	1433.53	89
5	SILCHESTER WWTW	SICHESTER BROOK	1239.36	74
10	BURGHFIELD WWTW	Clay Hill Brook	1130.91	56
161	READING SEWAGE TREATMENT WOR	FOUDRY BROOK	81.55	10

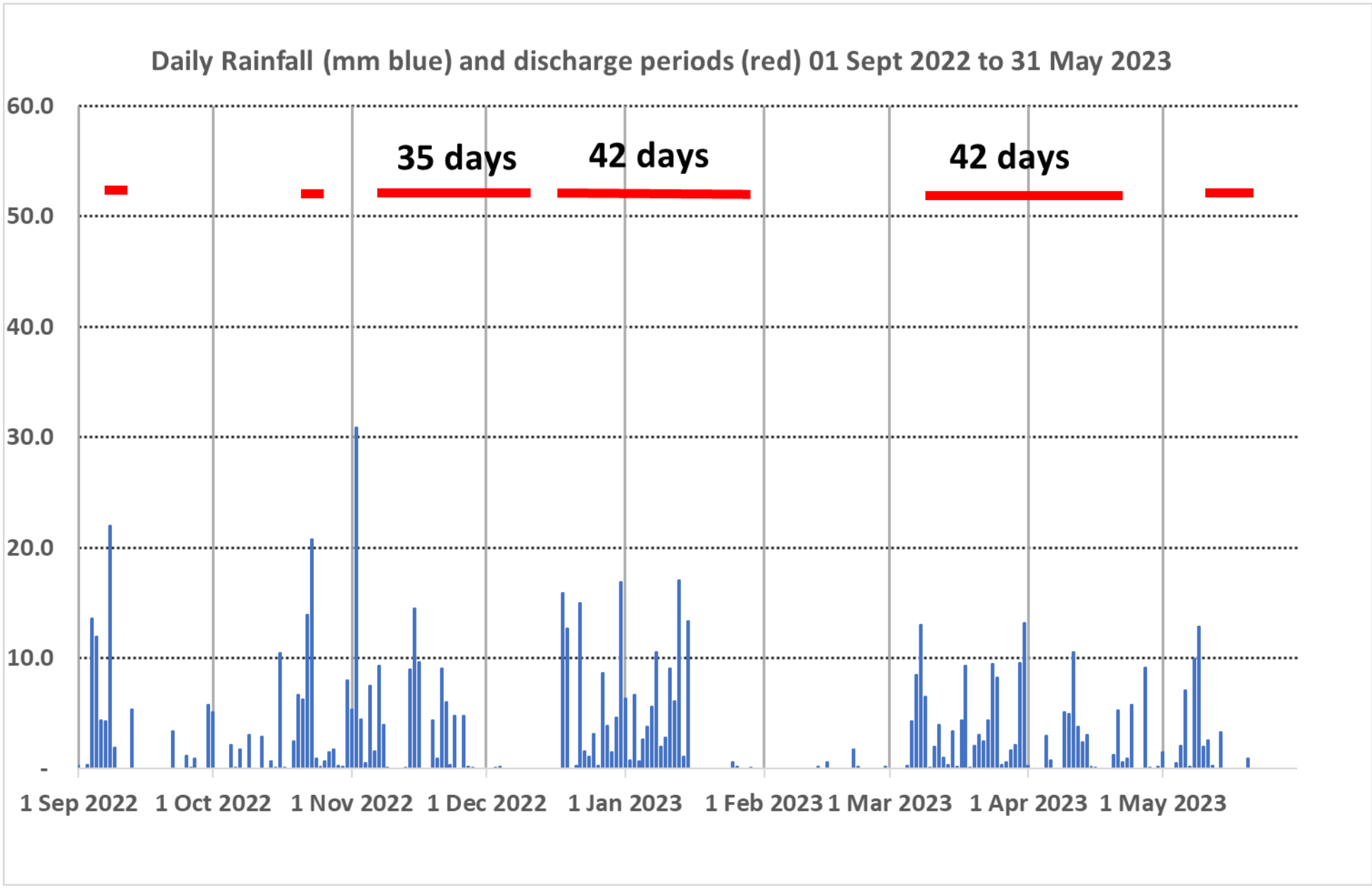
In both years Mortimer had the second longest hours of discharge out of 700 discharge sites in the Thames Water area.

2023 was wetter than 2022 and had more hours of discharge.

3304 hours is equivalent to 137.7 days

Discharges are triggered by rainfall but typically have lasted for long periods.

A very dry February in 2023 meant no discharges then.



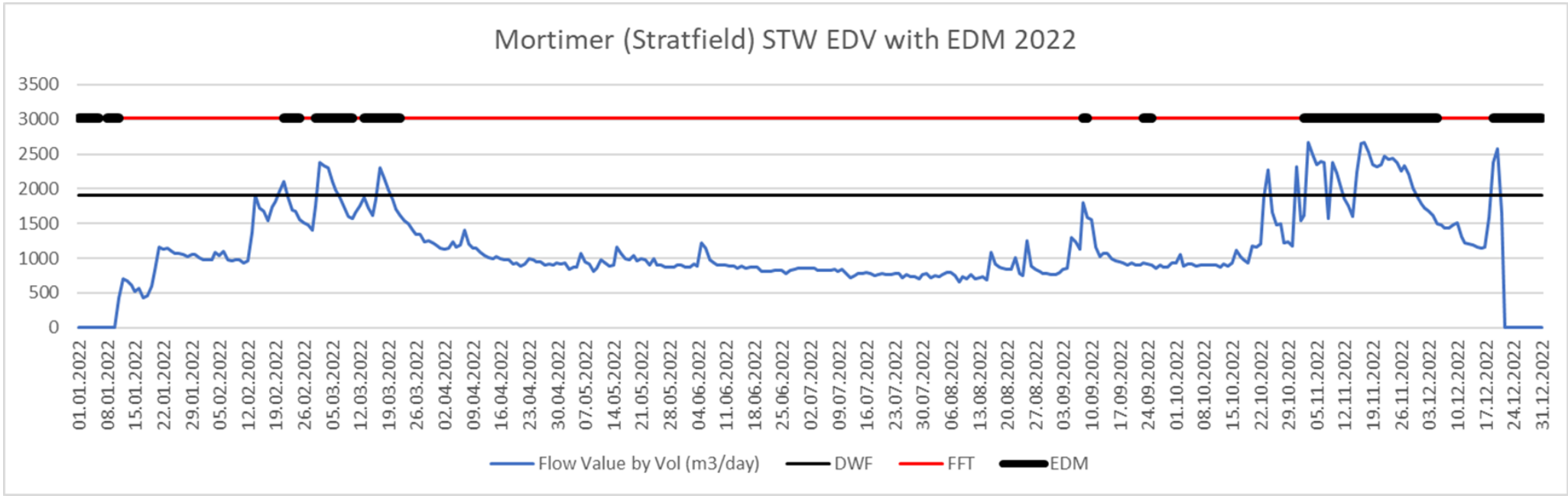
Storm discharges should pass through a screen (6 mm by 6 mm mesh) to remove large items, but the discharges do contain untreated sewage.

To some extent we are fortunate with our geography and we have not had raw sewage on our streets as has happened recently in other parts of West Berkshire.

Photo 27th March 2024, 200m downstream of the discharge point

The Parish Council obtained various data sets back to 2019 from Thames Water and carried out several analyses. One example:

Daily flows of treated sewage for 2022 (Geoff Tombs of Windrush Against Sewage Pollution)



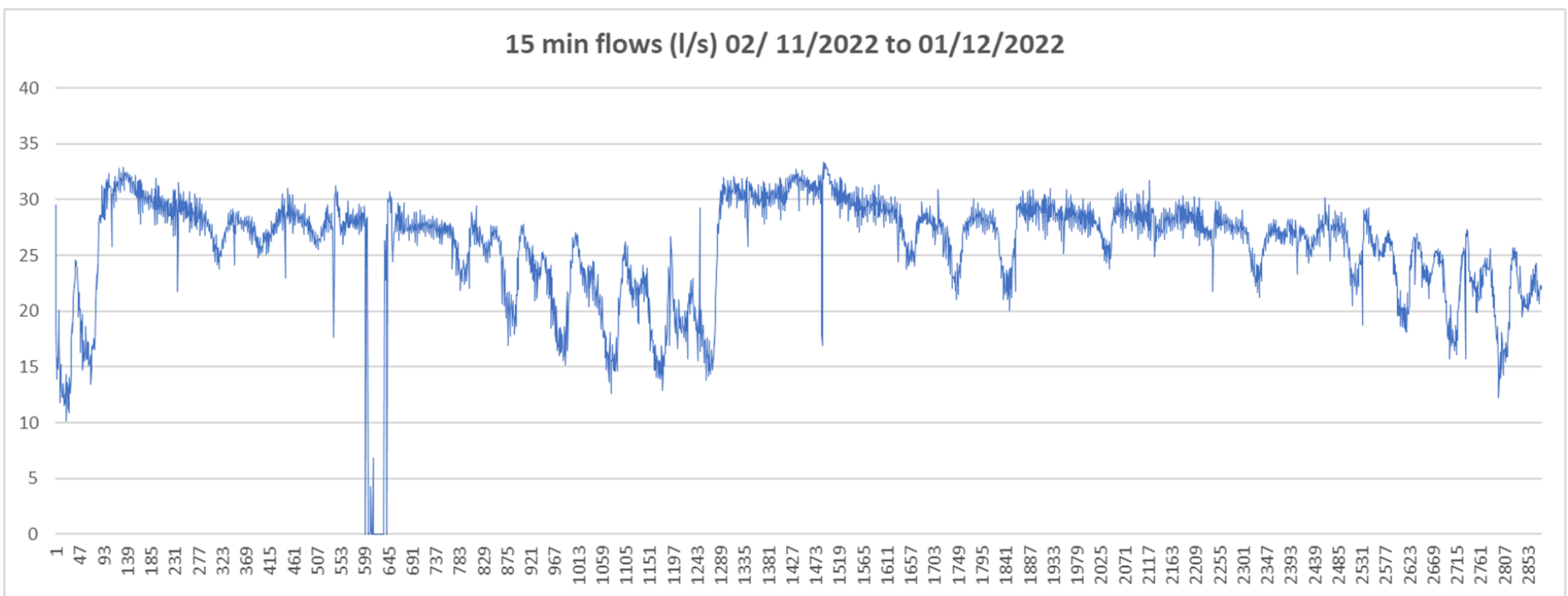
Blue is flow rate of treated sewage. The pumps or measurement appear not to working at beginning of Jan as flow was zero from 22/12/21 to 10/01/22. Much could have been discharged as overflow as this was a relatively dry time.

Red line is Flow to Full Treatment (FFT). This is the amount that a treatment works must be able to treat each day (3000 m^3/day or 35 l/s).

Black blobs on the red line are when storm discharges occurred (EDM data).

Storm discharges should only occur when FFT has been reached, so all the discharges in 2022 appear to be breaking the environmental permit for the works. The largest flow was in November (see below).

The 15 minute flows for November 2022 suggest that the works cannot reach the maximum consented capacity of 35 litres/sec.



The Parish Council sent an Environmental Information Request (EIR) to Thames Water in April 2024 with results of our analyses and asked many questions. The first response was inadequate and we requested a review which was received in September 2024 and provided much more information.

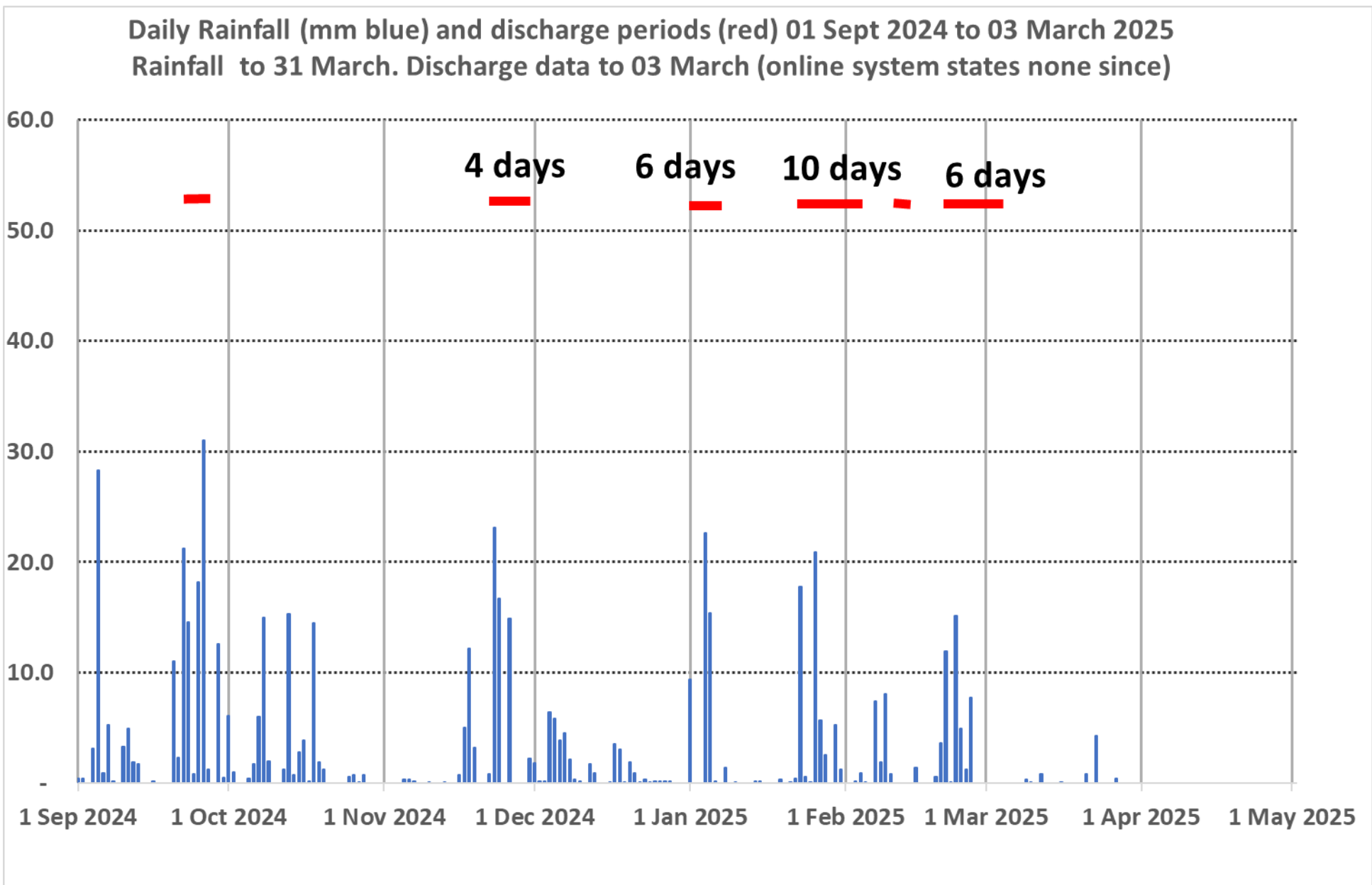
Thames Water announced in January 2023 that an upgrade to Mortimer STW should be completed by December 2023. It was finally completed in Spring 2025.

The statistics for storm discharges at Mortimer in 2024 were much improved.

Environment Agency EDM Storm Overflow Report for Calendar Year 2024 for Thames Water

Rank by hours (700 sites)	Site	Received by	Hours	Spills
1	South Moreton STW	Mill Brook	5353	261
60	SILCHESTER WWTW	SILCHESTER BROOK	1685	97
61	BURGHFIELD WWTW	Clay Hill Brook	1639	96
139	MORTIMER (STRATFIELD MORTIMER) WW	Foudry Brook	673	63
142	READING SEWAGE TREATMENT WORKS	FOUDRY BROOK	654	47

Note that the upgrade was not completed until Spring 2025.



The upgrade was designed to both reduce the storm discharges and to improve the overall performance of the site. Technical details are rather complex but included:

Replace the FFT flume, install an automated penstock (controls flow to full treatment), install new sensor to measure flow, install new pumps, replace the storm return pumps and a new system to control them, refurbish and relocate the EDM sensor etc.

Thames Water arranged a tour of the works for six Parish Council representatives on 20th May.

Our overall impression was that the work has been extensive and all looked in excellent condition.

The photographs and text below are not a complete guide to the treatment process or the works. The purpose is to show the main features of the upgrade.

The inlet to the treatment works.

The big tube contains an augur which extracts solid material such as wet wipes, cotton buds and tissues from the sewage.

The solid material is shredded and taken out of the flow. This includes tissues and wet wipes which should not be flushed down the loo. Only toilet paper should be flushed.

New monitoring equipment .

That on the left records the height of the flow and logs when flow is spilled to the storm storage tank.

That on the right measures flows including flow to treatment.

Primary settling tank.

Sludge sinks to the bottom and is pumped away from the centre.

Water slowly flows over the edge to go to secondary treatment

Secondary treatment.

Good bacteria break down bad bacteria and other organisms.

New pumping equipment.

The storm discharge storage tank. When storage is full and incoming flow is greater than the rate of treatment sewage is diverted to this tank. When possible it is returned to the incoming flow. New pumps will speed this return.

But if the tank is full sewage is released through a screen directly to Foudry Brook and the EDM sensor records. That is new and has been relocated. CCTV camera also installed. Tank holds 384 m^3 and has been cleaned.

The upgrade has cost more than £1m.

The new design and monitoring and control equipment should reduce storm discharges and give much more reliable service.

The Dry Weather Flow (DWF) is the average daily flow during a period without rain. The consented value is 1904 m^3 but in recent years actual values have been less than 1000 m^3. You can see this on the graph for 2022 where the black line is the consented DWF and the blue line the actual flow. Thus, the works has adequate capacity to deal with sewage in dry periods.

The consented FFT remains at 35 l/s or 3000 m^3 /day. If the new equipment can reliably maintain this as necessary it should be able to cope with all but the most extreme rainfalls.

In recent years daily rainfall of about 20 mm (3/4 inch) has usually been enough to trigger a storm discharge, especially if in a period of several rainy days. In our opinion, this has been because the works was unable to work at the consented level.

Hopefully we will have far fewer storm discharges in the future.

The question does remain: Why has rainfall had such an impact on starting storm discharges?

The Parish Council wrote to the Environment Agency (EA) in April 2024.

We asked whether defective equipment identified by EA in March 2023 had been repaired by Thames Water. The answer was yes.

EA also said that Thames Water had plans for improvements at the site, but these had not yet been started.

EA also said:

"Additionally, Mortimer sewage works is in a groundwater impacted area, meaning that the foul sewers within the catchment are receiving excessive amounts of groundwater infiltration that arrives at the sewage works unnecessarily. The local Land & Water Officer also intends to work with Thames Water during 2024 to locate significant sources of groundwater. These may be defects in the Thames Water sewer network that require repair and relining or potentially sources of water ingress from flooded private land or groundwater from private domestic sewers that are not the property of Thames Water."
It is expected that the Parish Council will follow this up with the EA.

Surface water enters foul sewers through bad joints in the sewage pipes and defective manhole covers.

But there may also be cross connections where the surface water system has been wrongly connected to the foul sewage system, particularly on older properties. That should never happen. Rainfall should not enter the foul system by any means, for example an overflowing rain butt should not go into the kitchen drain.

We agreed with Thames Water that we would promote two messages:

The only things that should be flushed down the loo are Pee, Poo and Paper. Paper is toilet paper – not tissues, wet wipes, cotton buds etc.

Please try to ensure that any surface water / rainfall does not enter the sewer system.

Many thanks to Dr Stephen Burt FRMetS for rainfall data and Stewart Child for technical expertise.

Mike Dennett July 2025