

WILD TROUT TRUST

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The River North Wey

Venue: Lower Neatham Mill, GU34 4NP.



Advisory Visit, 26th June 2025

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Executive summary

- The North Wey supports wild trout and other species of fish.
- The river has been extensively modified for milling purposes. This section of river is heavily impounded for the mill at the downstream end.
- This has resulted in a fragmented habitat and put fragile isolated trout populations at risk in the event of pollution incidents.
- As the Mill is a Listed building it is unreasonable to expect that the sluices can be removed to improve flow.
- The Mill infrastructure is dated and needs repairing to enable water management.
- The main channel provides limited habitat value as it is artificial and perched, having been dug into the side of the flood plain, above the lowest point where it should flow naturally.
- There is the potential to create a new diverse main channel ,by passing the mill leat, which would restore the river's morphology and enable the movement of sediments and fish. Land ownership issues mean this is a longer term solution.
- There is an existing bypass channel which if carefully reinstated could provide a crucial link between up and downstream of the mill, enabling better fish migration.
- The Environment Agency (EA) already has a pot of money ear marked to carry out the requisite repairs.
- As the bypass channel has a steady but consistent gradient it will respond well to various habitat improvement works.

1.0 Introduction

1.1 The River:

The River North Wey

1.2 Venue location:

Lower Neatham Mill, Alton

1.3 Date and Conditions:

26th June 2025, dry and bright following a very dry spring.

1.4 Parties:

Nick Lawrence and David Oakley as Conservation Officers for the Wild Trout Trust, WTT, and Ade Bicknell, Francesca Taylor, Adam Hilliard of the EA, and the owner Andrew Blay.

1.5 Background

Andrew Blay had approached the EA for advice and suggestions for managing his section of the North Wey. Adrian Bicknell, EA in turn contacted the WTT for further assistance.

1.6 Map extract



Map 1 Extent of river inspected between red arrows

1.7 General

Comments in this report are based on observations made during the site visit. Normal convention is applied with respect to bank identification, i.e. left bank (LB) or right bank (RB) whilst looking downstream. Upstream and downstream references are abbreviated to u/s and d/s, respectively, for convenience. The Ordnance Survey National Grid Reference (NGR) system is used for identifying specific locations.

2.0 The River and Catchment

River	North Wey
Waterbody Name	River Wey and tributaries
Waterbody ID	GB106039017830
Management Catchment	Wey
River Basin District	Thames
Current Ecological status	Poor
Designations	Grade II listed buildings
U/S Grid ref	SU 73712 40543
D/S Grid ref	SU 73957 40774
Length of river inspected	0.4 km
Riverbanks inspected	Both sides, from the true left bank

Table 1 Overview of water body, source:

[North Wey \(Alton to Tilford\) | Catchment Data Explorer | Catchment Data Explorer](#)

2.1 Catchment Overview

Lower Neatham Mill lies on the northern branch of the River Wey, approximately thirteen miles upstream of its confluence with the southern branch at Tilford, Surrey.

The North Wey forms the upper northern arm of the Wey catchment. The river rises from the chalk aquifer in the Alton area and flows east and then south to join the South Wey at Tilford. The Wey is a tributary of the Thames, draining a catchment of 904 km² in Surrey, Hampshire and West Sussex. The river has been extensively modified for agricultural irrigation, milling and for flood defense purposes. The aquifer which forms the headwaters is heavily abstracted and the river receives substantial quantities of treated sewage effluent via Alton, Bentley and Farnham waste-water treatment works. Despite these and other pressures, the North Wey supports a good quality mixed fishery, which in part is due to the productive water chemistry but also the good quality habitat available on many sections.

As the North Wey rises from chalk springs via the Caker Stream it has many of the characteristics found in a true chalkstream, such as relatively stable flows, clear water and a range of plants such as water crowfoot (*Ranunculus* sp) and starwort (*Callitriche* sp) synonymous with a chalk river environment. The river is, however, heavily influenced by its local greensand geology and the large urban conurbation of Alton, located near the very source of the system. The net result is that the system responds more quickly to a heavy rainfall event than a typical Hampshire chalkstream.

The Wey supports a healthy wild trout stock, especially in those reaches where there is sufficient bed gradient to facilitate elevated flow velocities and water levels are not artificially held up by weirs or other impoundments.

3.0 Habitat Assessment

3.1 The River

The morphology of the river in the stretch inspected was generally poor, given the mill impoundment at the d/s end. The river was not following its original (paleo) course, having been relocated to the side of the river valley to provide a head of water for the Lower Neatham Mill. This relocation results in a perched channel and impounded river with little flow. In turn the low flows have enabled the river's silt load to be deposited, clogging the river bed, and building up to deep deposits in places. See Fig 2



Fig 2, demonstrating the deep layer of silt in mill leat, NGR SU 73943 40701

Although not measured, the head loss on the mill sluice must have been in the region of +/- 75cm, making this route an effectively complete barrier to fish migration. In addition to the main sluice there were several secondary sluices enabling further control of the flow. The main side sluice was evidently a more recent and better maintained structure. See Fig 3. The owner believed they only opened these gates in times of extreme flood to take the water pressure off the mill. Apart from the EA sluice much of the other mill infrastructure was dated and in poor repair.



Fig 3 the EA controlled sluice gates, NGR SU 73923 40701

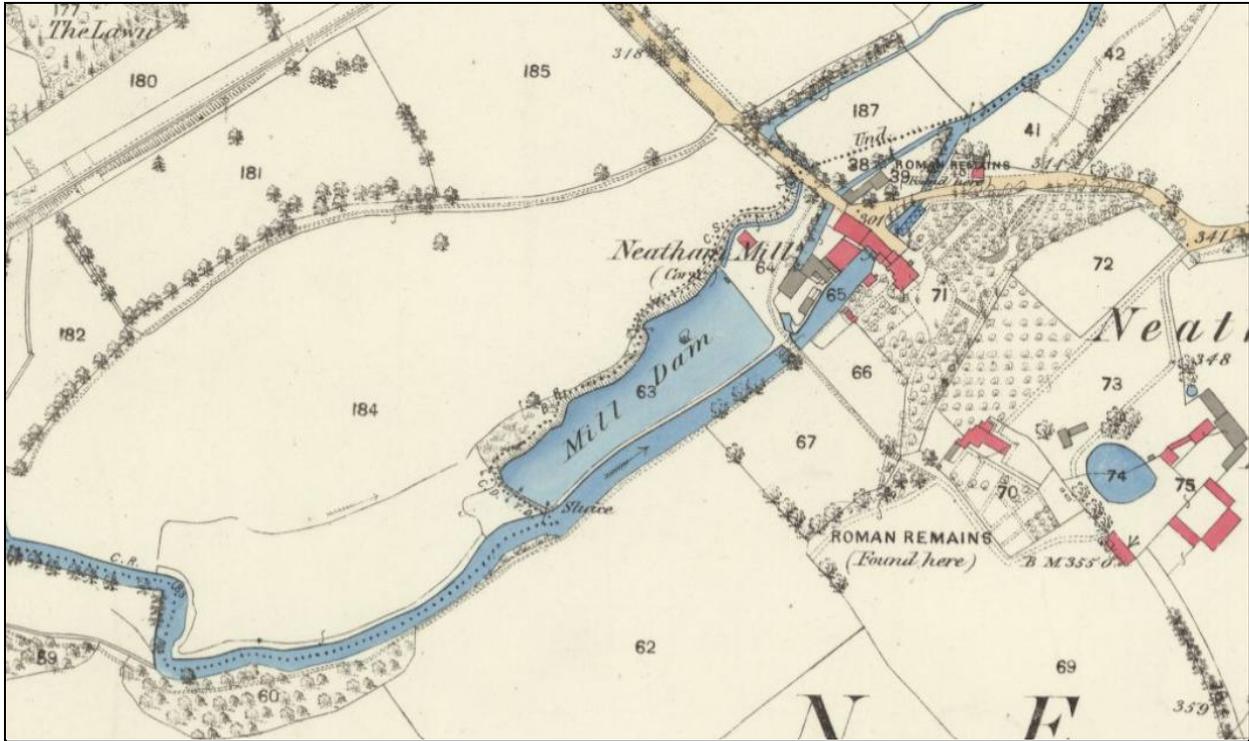
Flowing off the main channel were several bypass channels (BPC). Although probably more recently created than the mill leat, they still provided a welcome variety of ecological habitats. The main BPC had a good flow of water (even in the low flow conditions) and had a gravel bed for the majority of its length, with no major impoundments (apart from a small brick lip under one pedestrian bridge). The d/s end of the BPC, where it rejoined the main channel, ran through a trapezoidal concrete channel. Fig 4



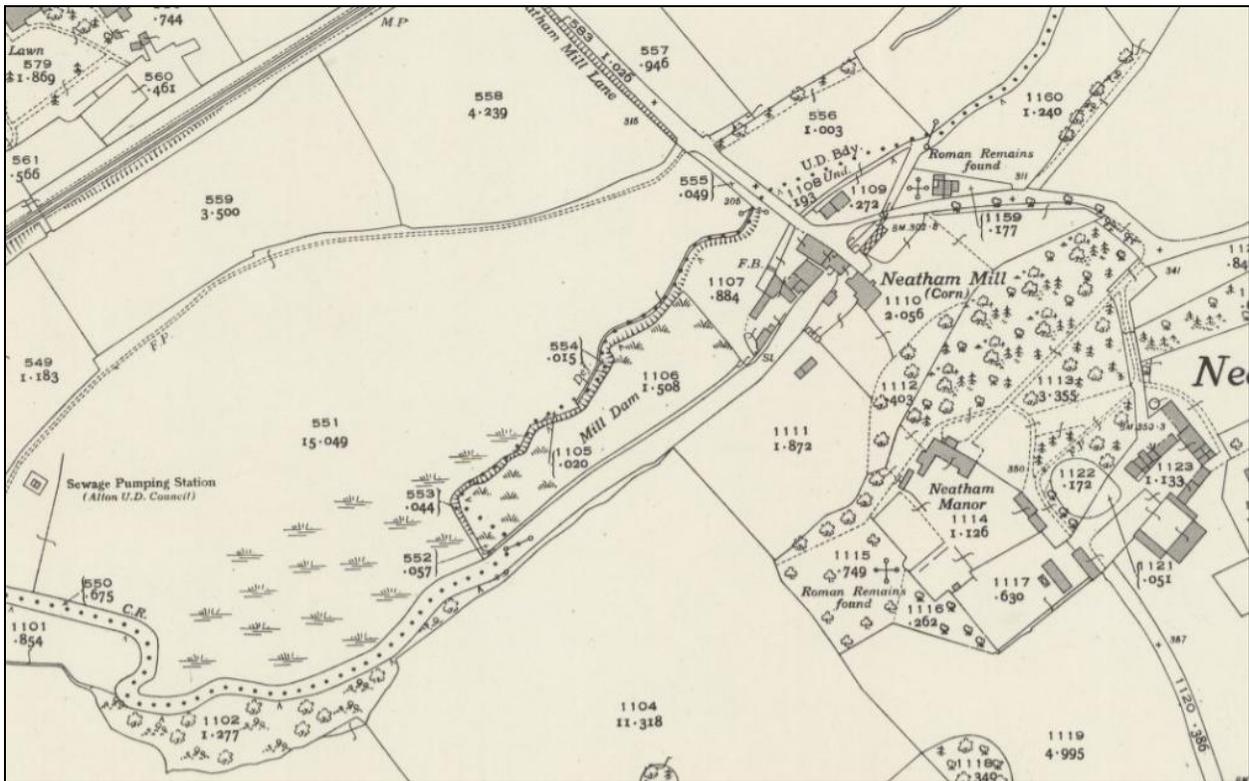
Fig 4 d/s end of the BPC. NGR SU 73957 40774

Here the stream's bed was smooth concrete, preventing the build up of any sediments and subsequent colonization by plants. The main BPC has a relatively constant and steady gradient which would enable fish passage in both directions.

In order to ascertain what alterations can be made to improve the current river habitat, we need to understand what has happened to the river in its past. The oldest available OS map is from 1871, see Map 2. It clearly shows a large mill lake, alongside the impounded leat. This feature is present on all subsequent OS editions up to 1946, see Map 3. Here the mill lake appears to be filling up with silt and becoming more of a marshy area. It is not present at all in later editions, only featuring as a residual pond and drainage system. See Map 1. This drainage system has subsequently been connected into the main river channel to form the BPCs, (not shown on the map). This implies the ground below the BPCs will be very silty and possibly made up. Also, the take offs are likely to be of a nonstandard construction see fig 5.



Map 2 OS extract from 1871

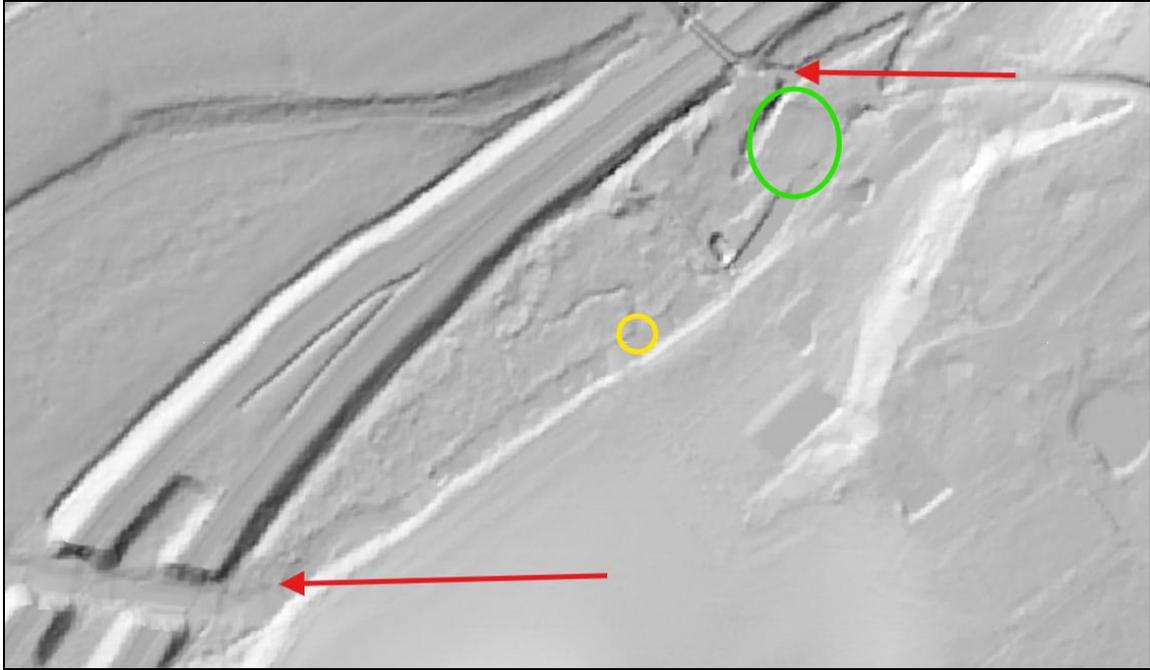


Map 3 OS extract from 1946

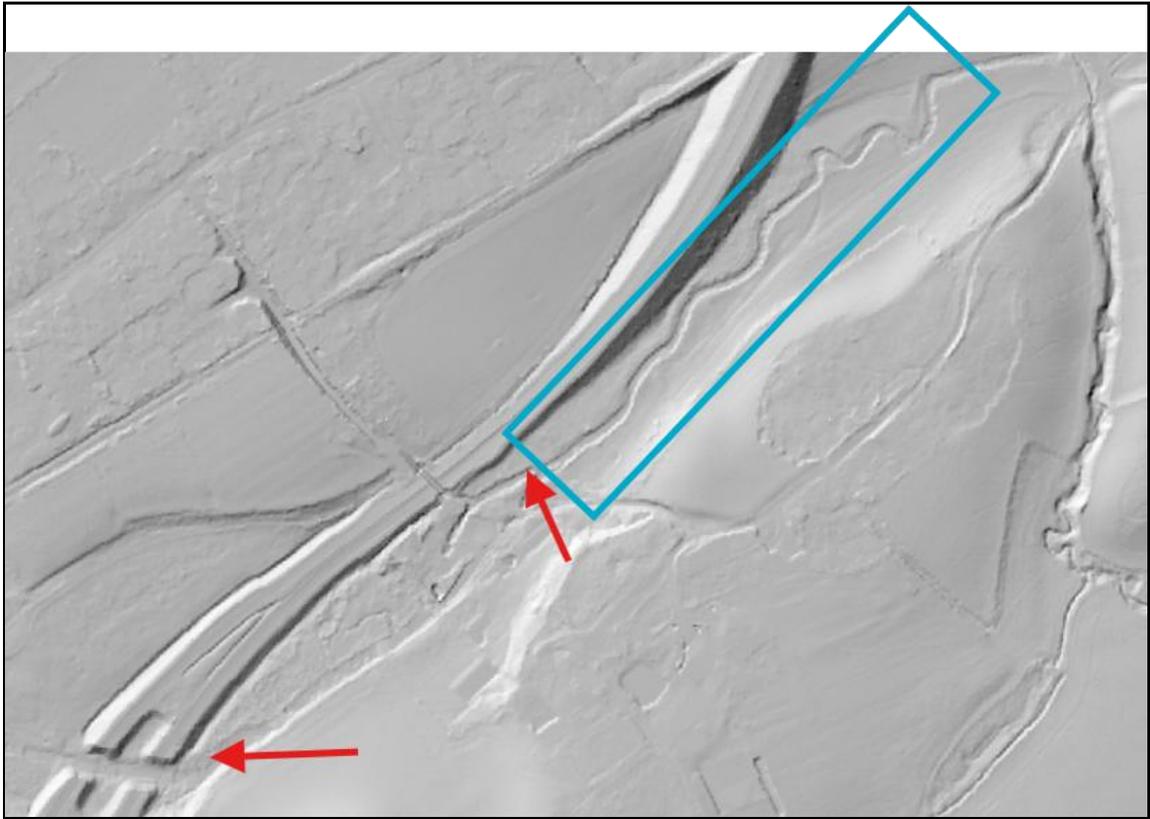


Fig 5 Take off for the BPC of a rather haphazard construction NGR SU 73907 40676

Ground penetrating radar images, Laser Imaging, Detection, and Ranging (LIDAR) of the area reveal very little detail, see Map 4. The poor imaging is probably due to the made-up nature of the ground, however the mill buildings are circled in green and the BPC off-take in yellow. A smaller scale plan of the area, see Map 5, demonstrates how clearly the river channel is visible d/s (the area within the blue line) due to the river being more natural, pools, riffles and glides with riverbanks to match, rather than a perched channel.

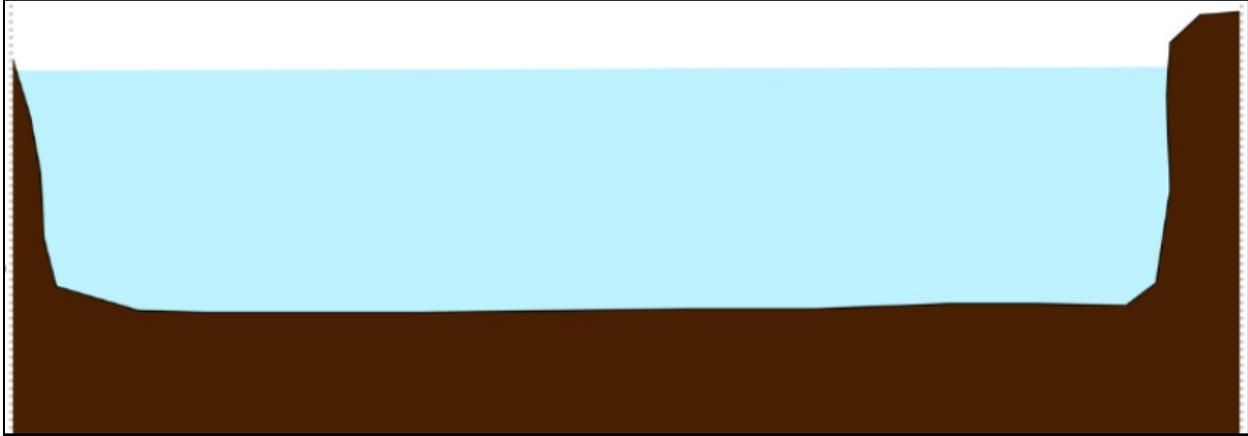


Map 4 LIDAR image of the area inspected.

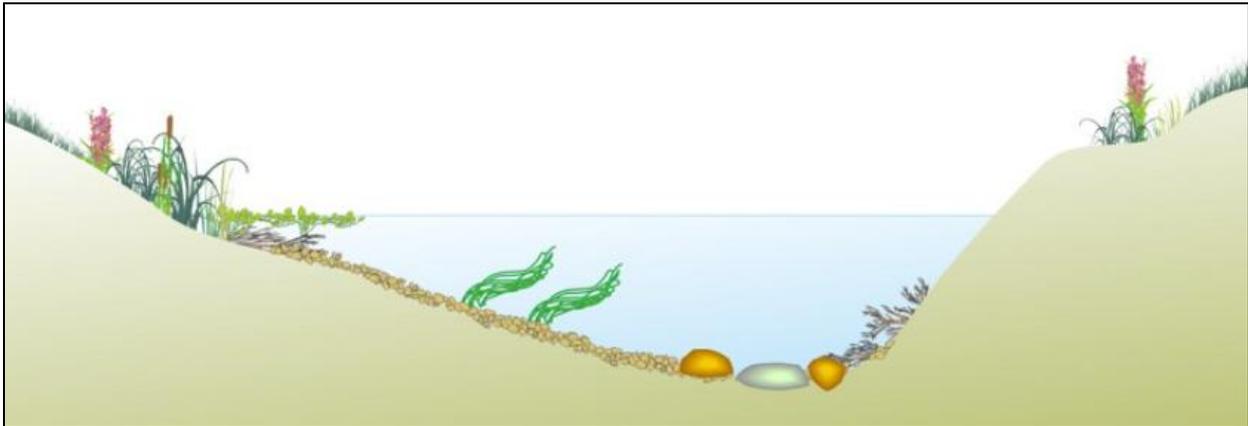


Map 5 LIDAR imagery of the wider area

The perched and artificially created channel has steeper, deeper banks, without the usual gradual sloped banks required to allow a healthy mix of riparian plants to establish. See Diagram 1. A cross section of a naturally flowing river is shown in Diagram 2. This would be achievable if the river were to be relocated.



Dia 1 Example of an artificial channel cross section showing sheer marginal edges, restricting plant diversity and physical diversity



Dia 2 A natural riverbed with varied cross section, providing numerous habitat niches.

3.2 Riparian Margins

The left bank was managed by the owner and regularly mown to create a grass path alongside a narrow strip of marginal growth by the river, see front page photograph. The right bank was in different ownership. At the d/s end, opposite the mill, the whole bank formed part of a garden. It was regularly mown and any marginal growth removed. See Fig 6



Fig 6 an intensively managed right bank. NGR SU 73966 40722

Further upstream, the ownership changes and the bank was left to grow wild, reverting from a good mix of marginal herbs, to a mix of native trees and shrubs. In places these have fallen into the river creating vital cover and habitat for fish and other creatures. Features such as these, in stream dead wood, trailing tree roots all need to be retained as essential diverse habitat, particularly vital for smaller fish and trout fry, offering protection from predators.



Fig 7 showing good quality habitat on the r/b NGR SU 73766 40565

3.3 Adjoining Land / Infrastructure

As referred to in 3.1 it is apparent that the adjoining land was once a mill pond which has become silted up over time. This land has subsequently been converted to garden utilizing the residual drainage system to create a pond and water channels. Towards the u/s end of the garden there is more tree cover. In parts of the garden there is potential for invasive non-native species (eg bamboo) to spread onto the wild. The BPC could be a suitable vector.

Running alongside the NW side of the garden there is a channel at the base of the A31 embankment. It is acting as a drain, keeping rain water away from the road. However as it at the deepest point of the floodplain, if the river were to breach its banks, it would form into a new main channel.

Although the EA sluices are in good working order, the main mill sluice is rotten and the water level is retained by just a retaining board slotted into place. Other issues with bank erosion around the mill were noted.

4.0 Recommendations

Given the main channel is artificial and heavily perched, there is little which can be done to improve its morphology. The existing overhanging willow and in-stream dead wood, should be retained for its habitat value. However given the minimal flow in the channel, there is little to be gained from introducing further material in an attempt to vary the flow and diversify the river bed. Similarly, any attempts at introducing gravel to the main channel may be futile given the quantities needed to displace the silt. Also this would raise the level of the river bed creating a potential future flooding issue.

If the silt is to be removed (which would be against WTT guidance) there are a couple of methods available. Firstly, draining the leat down, allowing the silt to dry out and then digging it out and removing from site. This approach will mean the leat will need to remain dry for a considerable time, (probably requiring a coffer dam and water pump) and the use of heavy machinery. The other approach, is to slowly agitate the silt from the river bed back into suspension, through increased water flow flushing it downstream. This method would require the mill sluice to be repaired, and careful ongoing management of the sluice levels. Care should be taken not to release too much silt in one go and only at appropriate times of year, avoiding spawning times, as the silt could easily clog riffles downstream. NB it must be accepted that without taking the leat offline, silt will continue to deposit in the leat on an ongoing basis.

Ideally all of the sluices would be removed (Listed Building Consent would be required to do this) to re-establish a more natural flow to the river, allowing up and down stream migration of any fish species, and a natural d/s movement of sediment. However as the main channel is artificially high, it would be difficult to improve its morphology, instead a new channel should

be cut through the adjoining land/woodland creating a more sinuous channel with gradual gradient down to below the mill, effectively bypassing all of the mill's infrastructure. (This has been achieved on other rivers, with substantial grant aid available, and the results are tremendous. See fig 8,) This ideal solution would require numerous land owning interests to join forces and agree a change in the river's route, and should be seen as a longer term aim. With the channel redirected the existing mill leat could be retained as a backwater. The new channel could start at NGR SU 73712 40543 as shown in Fig 9.



Fig 8. A photograph of a newly created channel with a natural sloping bed.



Fig 9 Start of new potential channel NGR SU 73712 40543

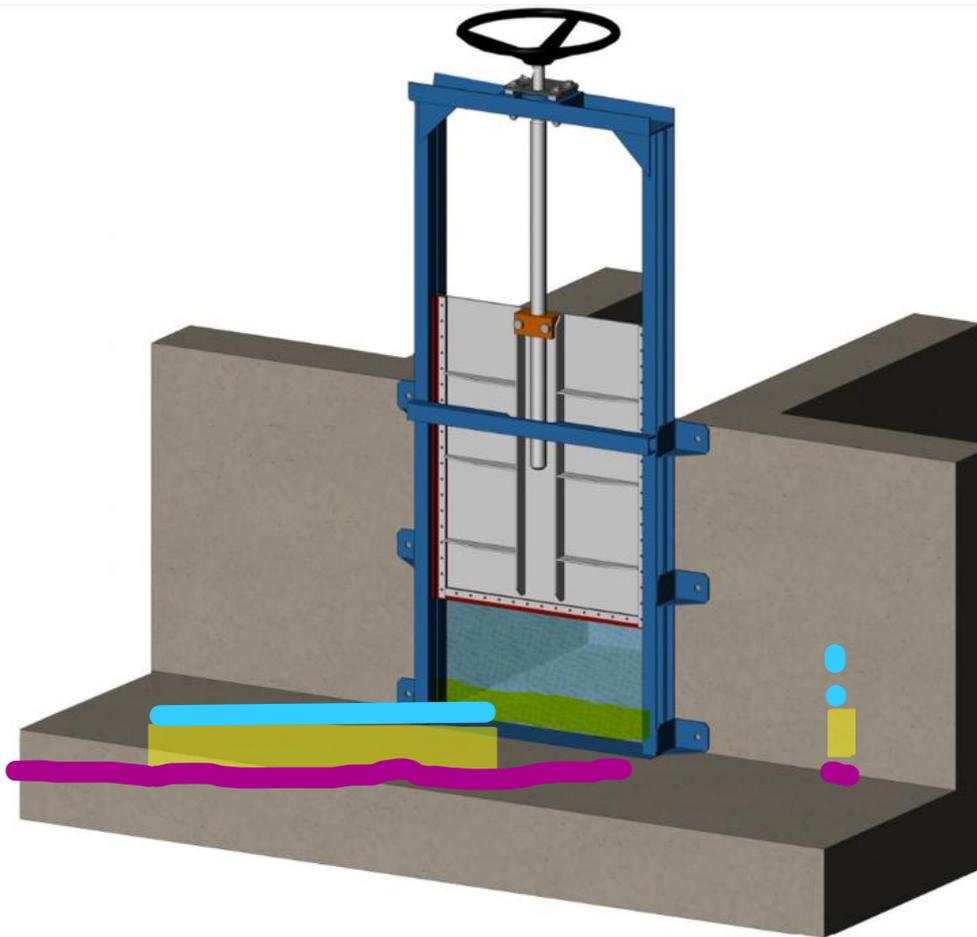
In the shorter term, the issue of impoundments hampering fish migration can be resolved in part by utilizing the existing BPC. The flow to the BPC could be improved and become more dependable by rebuilding the off take from the main channel at a slightly lower level, and at a less obtuse angle. Clearing the existing “mouth” at the off take by removing debris, and reforming it, utilising a geo-membrane held in place with large stones, always ensuring correct water levels are maintained.

With the increase in flow, the BPC may need some bank stabilization works, and there is potential in augmenting the existing gravel riffles with more stone. For the lower section of the BPC, installing a series of baffles of wood or stones on the concrete cill would create a variation in flow, aiding fish passage, and they would also enable some gravels to accumulate making a more natural environment. By creating a pinch point at the mouth of the BPC, it will speed up the flow, making it a more desirable route for the fish to follow upstream. See Fig 10



Fig 10, Stones retrospectively fitted to a concrete spill way to create diversity in flow

For this change in BPC depth, it is essential that the flow and levels in the main channel are controllable and measured. The main mill sluice is broken so can not effectively control the water depth. Also there is no means to determine the water level heights. Repairing the main sluice and reinstating it as a rising sluice gate see Dia 3, will enable control of the main river levels, which in turn affects the level in the BPC. With reference to Dia 3, the sluice gate is raised and lowered by turning the handle. As this is an under shot sluice system, more water is taken from the bed of the river which will in turn aid the movement of silt. The current system has effectively lost the whole of the sluice gate, and water is only retained by a fixed board shown yellow on the diagram.



Dia 3 An under shot, vertically rising, sluice gate

We need to establish river operating levels to ensure the BPC continues to flow at least at the minimum current level. Fixing depth gauges at both the mill sluice and BPC off take, will enable informed level control.

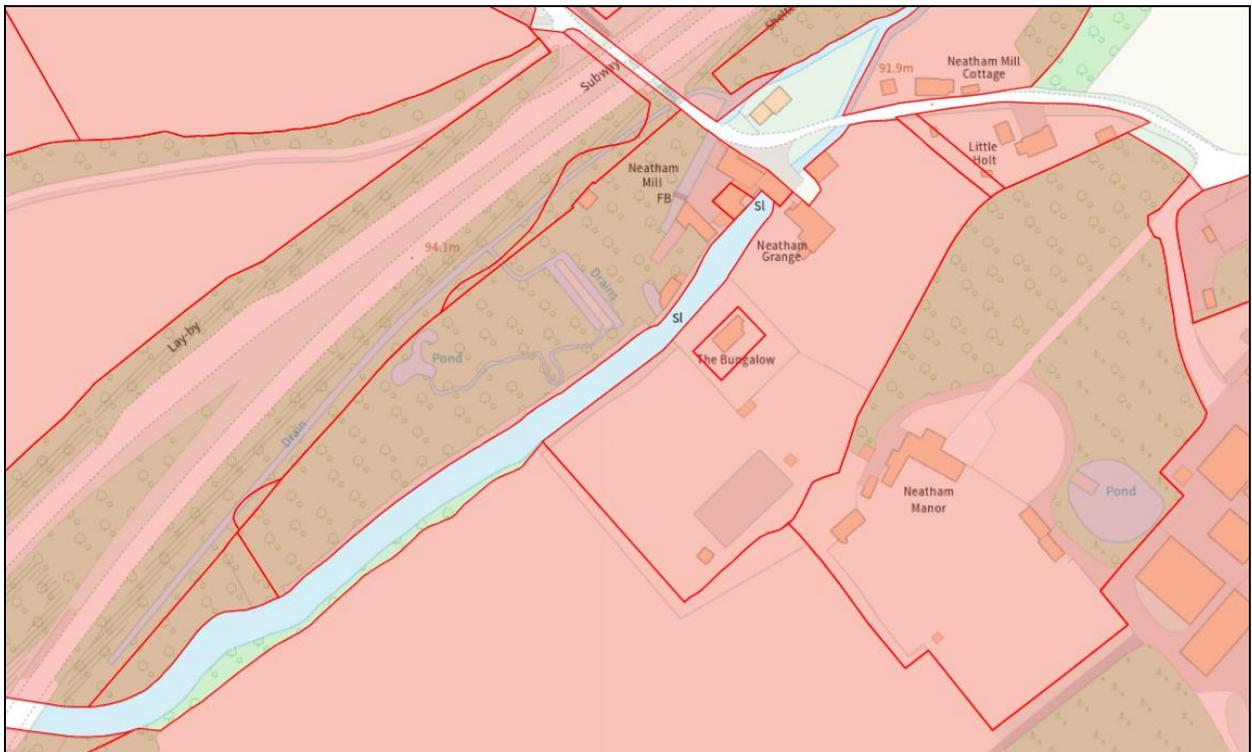
Establishing wider unmown margins along the river edge, ideally 3-4m wide, is another beneficial management practice. This will encourage deeper rooting plants to colonize, further reducing erosion of the banks. The plant mix could be enriched by introducing native herbaceous species as required, but still aiming to retain a scruffy margin to both protect from erosion and provide habitat. The non native and highly invasive Signal Crayfish unfortunately is a contributing factor as it digs burrows into river banks.

The other issue discussed was poaching. Given the majority of the river is in a private garden, hopefully this should be sufficient to deter children. This leaves the bridges on the public highway. It is not legal to fish from a bridge without consent (as is sometimes claimed). However, it is difficult to stop poaching if there aren't any signs stating the fishing is private. It also gives the owner a point of reference to show the wayward angler. Another method is to make the actual mechanics of fishing difficult from the bridges. Ideally by letting the trees grow

outwards blocking access, another method used by others is to string a barbed wire along the face of the bridge on both sides, approximately 30-40cm out and about 75cm from the top of the parapet. This will make landing any fish caught far harder and will hopefully foul fishing tackle.

5.0 Generic Issues

Whenever changes are planned to a water course it can have a visual impact on many other users, especially adjoining owners. A brief review of the registered titles of the area shows the riverbed remains unregistered, and there are several different adjoining ownerships. See Map 6. Careful engagement can often bring other parties on board with proposed changes.



Map 6 Registered Titles

It should also be noted that the Wey and EA BPC are registered as main river, see Map 7, therefore consent should be secured from the EA before carrying out certain works.



Map 6 EA Main River

6.0 Legal Requirements

All requisite legal consents and permissions must be sought before commencing work on site. These are not limited to landowner permissions but will also involve regulatory authorities such as the Environment Agency, local Councils and any other relevant bodies or stakeholders. Alongside permissions, risk assessment and adhering to health and safety legislation and guidance is also an essential component of any interventions or activities in and around your fishery.

7.0 Data Protection

WTT will process your data for membership/admin purposes as per our privacy policy. WTT relies on legitimate interest to send postal communications about our work and these may contain fundraising elements vital for raising awareness of our charitable nature. This interest does not override your right to stop postal/email/text communications at any time. You can do this by contacting the WTT office who can also supply a copy of your personal data held if required (office@wildtrout.org / Freepost WILD TROUT TRUST).

8.0 Acknowledgement

The WTT would like to thank the Environment Agency for supporting the advisory and practical visit programme in England, through a partnership funded using rod licence income.

9.0 Making it happen

The Environment Agency has already indicated that they have a dedicated fund set aside to refurbish and reconnect the BCP, in order to make this an effective route for fish migration. For this to be a workable solution there will also need to be repairs carried out to the mill sluices. The WTT is happy to bring together a Project Proposal to present to the EA and the owner in order to carry out habitat improvements to this stretch of river.

10.0 Disclaimer

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