

WILD TROUT TRUST



A walkover habitat assessment

Thunker Beck, Horncastle, Lincs

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Rob Mungovan rmungovan@wildtrout.org tel. 07876 257058

Key findings:

- The Thunker Beck has been straightened and canalised leaving a harsh environment that conveys water downstream at a rapid rate. Habitat could be improved by slowing the flow and increasing channel roughness (by retaining more wood in-channel).
- Where woody material has been retained in-channel the Thunker Beck has started to re-meander. This naturally provides coarse sediment to the channel resulting in depth diversity and with pool habitats providing valuable refuge areas.
- The presence of tufa dams is indicative of habitat stability. The best trout habitat was found where the channel was most stable (and remained largely unmaintained).
- It is also crucial that flood flows are re-connected to the Thunker Beck's floodplain. Historical realignment and straightening have led to many of the problems that the Thunker experiences today (i.e. rapid downstream movement of floodwater and low flow in summer). Consideration should be given to the value of realigning the Beck to its original course.
- Two significant barriers along the Thunker Beck have been identified (one near its lower end, the other downstream of the improved reach). If free passage for fish were available up the Thunker, together with good quality holding pools, it could represent an important trout nursery stream for the River Waring.
- The Thunker Beck has the capacity to support a breeding population of trout with fish of various age classes seen. However, the Beck is clearly stressed in terms of its trout population and repeated low-flow years could see trout lost. Habitat improvement works could improve the Beck's resilience for its trout population and provide flood risk protection to downstream communities.

1.0 Introduction

This report is the output of a visit requested by the East Mercia Rivers Trust (EMRT) following habitat improvement work at Marham on the Hill in May 2024. The purpose was to walk up the Thunker Beck from the River Waring in Horncastle to observe general habitat condition and record barriers to fish movement. The visit was made by Rob Mungovan of the Wild Trout Trust on 9th August 2024, accompanied by the Head of Partnerships of EMRT. Comments in this report are based on observations made that day.

Normal convention is applied throughout the report with respect to bank identification, i.e. the banks are designated left bank or right bank whilst looking downstream. "what3words" was used to identify specific locations in the field and has been shared to EMRT, that convention is carried forward in this report.

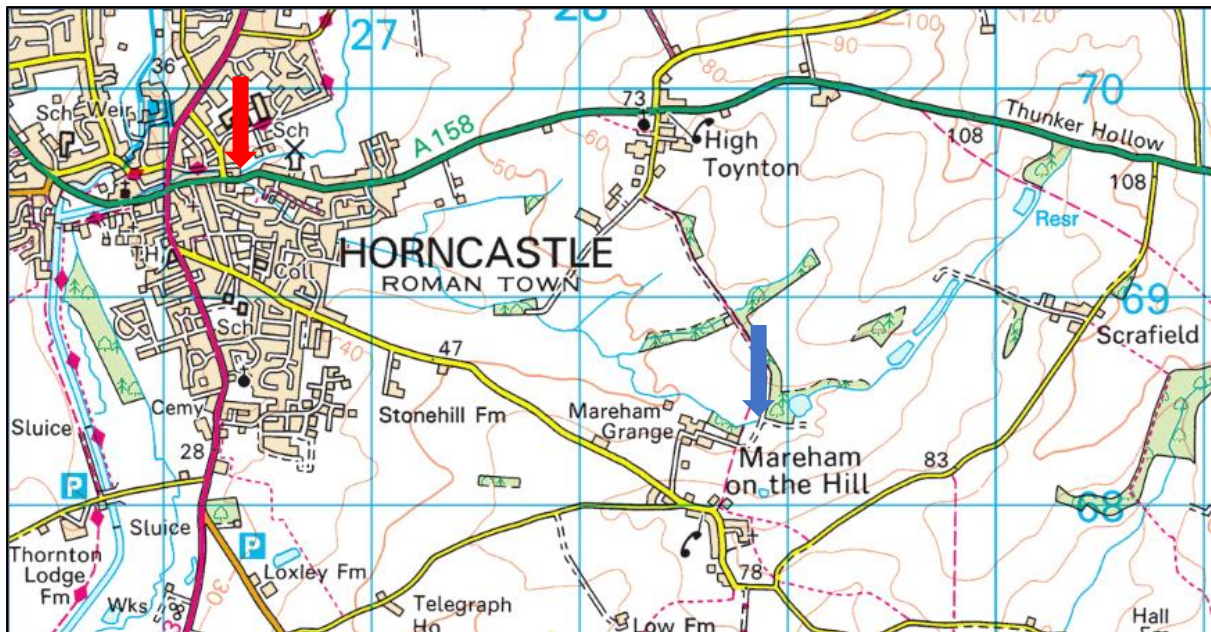
2.0 Catchment Overview

The Thunker Beck is a short watercourse at ~4km and consequently has a relatively small catchment which is formed over Upper Jurassic and Lower Cretaceous chalks at the western edge of the Lincolnshire Wolds Area of Outstanding Natural Beauty. With a fall from 108m AOD to 29m AOD, the Thunker is a steep gradient watercourse which can be flashy in nature, and in October 2023 contributed flooding to Horncastle ([EA-Presentation-L.pdf](#) (horncastletowncouncil.co.uk)). The Thunker is classified as an Ordinary Watercourse (non-Main River).

Unusually, Thunker Beck has not been assigned an ID number under the Water Framework Directive (WFD) classification. The nearest WFD watercourse is the River Waring, parameters for which are shown over the page. The classification of "moderate" for fish is supported by the presence of dace and brown trout. No further comment is made upon the other parameters as the Waring was not assessed in any detail.

Classification Item	2019	2022
Ecological	Moderate	Poor
Biological quality elements	Moderate	Poor
Fish	Moderate	Moderate
Invertebrates	High	High
Macrophytes and Phytobenthos Combined	Moderate	Poor
Macrophytes Sub Element	Moderate	Poor
Physico-chemical quality elements	High	Good
Ammonia (Phys-Chem)	High	High
Biochemical Oxygen Demand (BOD)		High
Dissolved oxygen	High	High
Phosphate	High	Good
Temperature	High	High
pH	High	High
Hydromorphological Supporting Elements	Supports good	Supports good
Hydrological Regime	Supports good	Supports good
Morphology	Supports good	Supports good
Chemical	Fail	Does not require assessment
Priority hazardous substances	Fail	Does not require assessment

Table 1 – River Waring, WFD classification. Data from [Waring | Catchment Data Explorer](#) | [Catchment Data Explorer](#)



Map 1 – The location of the Thunker Beck through Mareham on the Hill to the River Waring. Red arrow is downstream limit, blue arrow is upper limit of visit. © Ordnance Survey.

3.0 Habitat Assessment

The visit started in Horncastle at the first obvious barrier to fish movement; an Environment Agency (EA) gauging station on the River Waring (pic1). Encouragingly, a large shoal of fish was observed above the structure. The shoal was dominated by large dace, some possible roach and 10+ trout (to ~0.2m). Some fish were also observed below the gauging station.

A crude, but relative to Thunker Beck, habitat assessment of specific locations for trout habitat value is given for each picture location. Values are assigned ranging from “poor”, “adequate” to “good”.

Flow in the Thunker was worryingly low given the record volumes of rainfall in the preceding winter and spring. But given that brown trout are present, fish are assumed to have migrated upstream and successfully spawned. The challenge to trout is retaining a population in the Thunker given barriers, poor habitat and low flows. The flashy discharge makes the Thunker a challenging environment to live in if cover from high flows (such as within deep pools or amongst woody cover) cannot be found. High flows have caused downstream flooding illustrating the need to slow the flow within the Thunker to protect the community of Horncastle.



Pic 1 – The EA’s River Waring gauging station presents a drop of $\sim 0.2\text{m}$ over a smooth concrete flume $\sim 0.7\text{m}$ wide. The structure is considered passable to adult trout (at the time of visit), but dace would probably not pass due to the turbulent water and high velocity. The large number (30+) of dace upstream of the structure probably migrated in the spring when river flow was higher, and the structure was drowned out. The fish may now be trapped in a reach of river with very poor habitat (///trading.aunts.however). Inset picture shows a brown trout. Trout habitat is poor.



Pic 2 – Note the exceptionally poor physical habitat of the River Waring, yet fish are present. In addition to structures, poor physical habitat can present a barrier to fish migration. For example, high water temperatures and poor water quality will affect fish distribution. Note the next barrier present beyond the bridge (///majority.fats.ringside). Trout habitat is very poor.



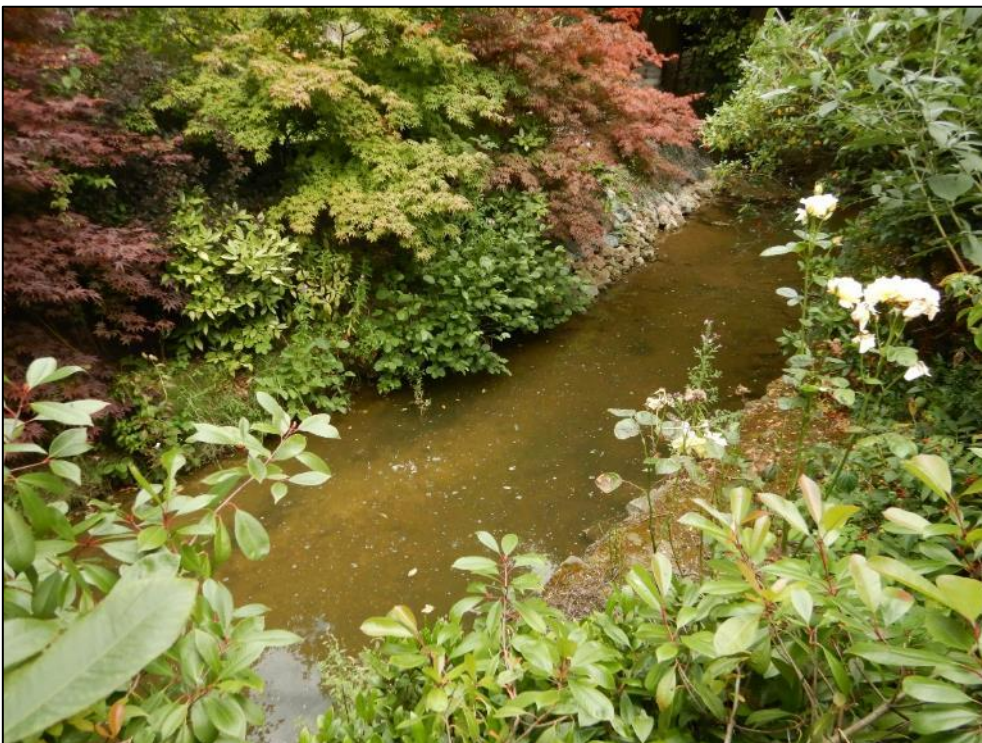
Pic 3 – The 2nd weir observed on the Waring with a drop $\sim 0.5\text{m}$ over $\sim 4\text{m}$ width. With no notch to focus the flow, the water is spread thinly (in places with none) across the weir with minimal depth downstream, making it impossible for fish to traverse in low to medium flow ([///submerged.blaring.digs](http://submerged.blaring.digs)). This structure is a significant barrier to fish migration. Trout habitat is very poor.



Pic 4 – The same structure as shown in pic 3 but viewed from above. A concrete spillway $\sim 4\text{m}$ length makes it even harder for fish to traverse. In low water the depth is too low, and in higher flows the water velocity over the spillway may force fish back ([///submerged.blaring.digs](http://submerged.blaring.digs)). This structure is a significant barrier to fish migration. Trout habitat is poor.



Pic 5 – It was pleasing to observe a gravel bar/riffle in the Waring which would support a greater diversity of aquatic invertebrates than silted parts. More invertebrates could support greater numbers of fish (///snowstorm.bowhead.really). Trout habitat is good.



Pic 6 – It was pleasing to observe 2x >0.25m brown trout in the Waring in a pool downstream of the confluence with the with the Thunker (//stands.taxed.blushes). Trout habitat is good.



Pic 7 – The Thunker as it emerges beneath East Street. Note the abundant gravel presenting spawning opportunities for trout (///excavate.requiring.stove). Otter spraints are present (insert picture). Good trout habitat is afforded by the downstream pool in the Waring, the Thunker is too shallow.



Pic 8 – The East Street bridge presents no barrier to fish movement. The abundant gravel retained a shallow pool against the left bank. Stone turning revealed *Agapetus* species caddis, many bullhead and signal crayfish (///lived.reefs.exporters). Trout habitat is poor due to shallow depth, but fish may reside beneath the bridge.



Pic 9 – A trout was seen taking cover at the base of the ash tree. The shallow pool and tree roots clearly provide cover for trout in the lower part of the Thunker (///mocking.attention.boasted). Signal crayfish found. Trout habitat is good.



Pic 10 – The Thunker is ~2m wide with an emerging pool and riffle sequence formed from gravel and limestone pieces. The shallow depth naturally inhibits the passage of fish in low flows but once flow increases fish are free to move. Trout habitat is poor due to shallow depth.



Pic 11 – The remains of a possible ornamental weir/cascade present a partial barrier to fish in low flows. Adjustment/removal of the remaining blocks would improve fish passage and potentially release gravel accumulated upstream. Willow moss is present along with bullhead and *Gammarus* sp. shrimp (///edicts.anchorman.petted). Trout habitat is adequate where water depth is retained.



Pic 12 – Good pool habitat is present at the base of sycamore with a depth ~ 0.5 m. Several trout (~ 0.15 m) seen. Signal crayfish seen feeding (///absorbing.sprayer.bootleg). Trout habitat is good.



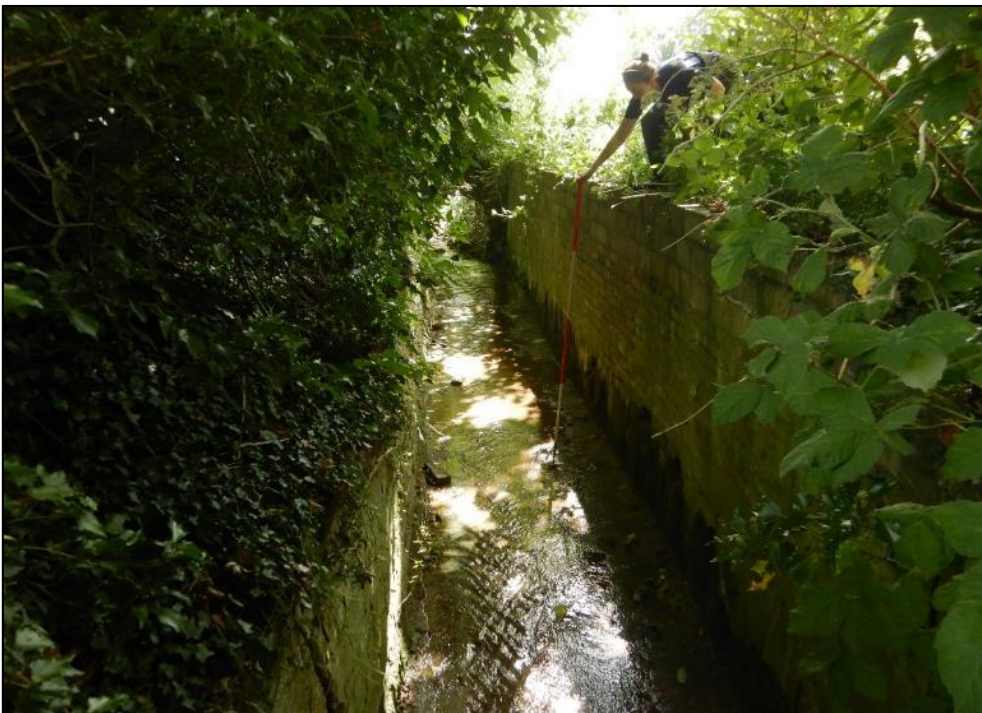
Pic 13 – A brick rubble weir presents a partial barrier to fish movement, but also provides habitat for many bullhead. Several bricks were moved on the day to focus flow to the left of the picture (///disclose.bucks.sometimes). Trout habitat is adequate in upstream pool.



Pic 14 – A silted pool near private gardens was not fully accessed. If the pool was clear of silt, it would present fish holding habitat, no fish were observed. An appropriately located flow deflector could encourage cleansing of the pool (///lodge.forced.workroom). Adequate trout habitat where water depth above silt allows (but tidy gardens may limit fish-holding habitat).



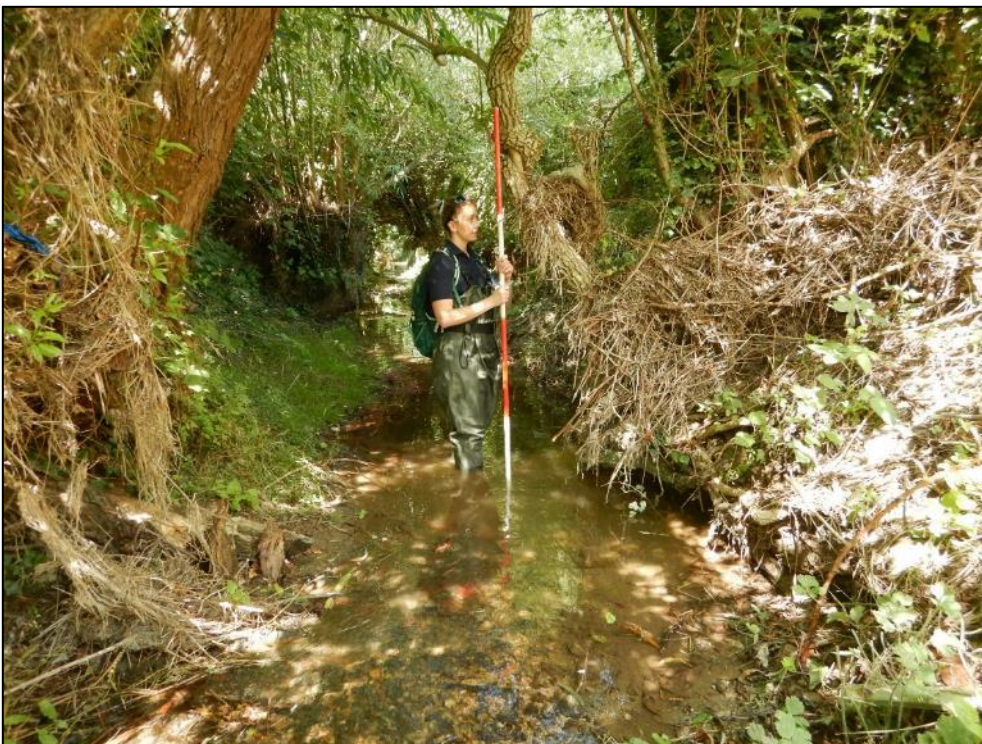
Pic 15 – A round brick culvert presents a significant barrier (with a shallow depth, smooth bed and no resting points) to the upstream movement of all fish species. The head drop from the culvert is $\sim 0.2\text{m}$ and may be drowned out before water velocities become prohibitive to the swimming abilities of fish. The pool beneath ($\sim 0.5\text{m}$) presents a resting opportunity for fish about to traverse the culvert (which is $>5\text{m}$ length). The recent construction of gabion walling degrades the habitat and suggests a high energy environment when flow is elevated (///stared.slang.suggested). Adequate trout habitat afforded by depth of pool.



Pic 16 – Immediately upstream of the brick culvert (pic 15) the channel is constrained by concrete walling and a concrete bed with the width narrowing to $\sim 1.5\text{m}$. This reach very inhospitable to fish, and as water velocity increases it will be harder for fish to move through (///nourished.diplomats.agreeing). Poor trout habitat.



Pic 17 – The natural channel bedform presents little holding habitat for adult trout but might just support juvenile fish. Low flows restrict fish passage but does not completely prevent it. Bullhead are present beneath cobbles. Stones are encrusted with tufa suggesting stability of habitat and, together with cobbles on the bed, a lack of dredging of this reach. Woody material was absent from channel bed (///copycat.mailboxes.fittingly). Poor trout habitat due to shallow depth.



Pic 18 – The channel contained habitat suitable to support (juvenile) trout mainly due to trailing woody material. Note the first evidence of flood wrack caught on adjacent trees and shrubs (///scuba.lifestyle.thrusters). Adequate trout habitat.



Pic 19 – The approach to Maltby Way presents free passage and potential trout habitat (///picturing.words.stump). Adequate trout habitat.



Pic 20 – The bridge at Maltby Way retains a natural channel bed beneath all arches but low-flow is a restrictive factor on fish passage (see below) (///looked.unspoiled.reliving). Poor trout habitat.



Pic 21 – The middle arch retained a natural gravel bed but is over-capacity (width ~2m by ~0.7m high) for normal flow, and at the time of visit conveyed no flow. This is clearly not passable for fish and provides no riverine habitat at low flow (///looked.unspoiled.reliving).



Pic 22 – The right-hand culvert (~0.7m diameter) has been set low to retain water and is partially silted-up but fish passage is still possible (///looked.unspoiled.reliving). Trout habitat is poor.



Pic 23 – The left-hand culvert (~0.7m diameter) has been set low to retain water and is almost totally silted-up making fish passage almost impossible on the day of visit (///looked.unspoiled.reliving). Trout habitat is not present.



Pic 24 – Within the housing estate of Maltby Way an engineered flood storage area complete with drain-down pipes is present. During the recent floods the storage area had clearly been full. In theory it could be possible to excavate more earth from the storage area to hold more water BUT the main objective should be to reduce the volume of water that comes down the Thunker before it reaches built-up areas (///described.sunflower.district). Trout habitat is adequate.



Pic 25 – Young of year (YoY) trout (~6cm) seen in the poor pool habitat. Although far from optimal habitat, it demonstrates that adult trout have migrated up the Thunker in winter 23/24 (the author is assuming that they were not present during the drought of 2022) and have successfully spawned (///couriers.isolating.surely). Trout habitat is adequate.



Pic 26 – YoY trout seen feeding in small pool habitat in addition to an adult trout (>0.25m) (///glimmers.strongman.mugs). Trout habitat is adequate.



Pic 27 – An adult trout (>0.25m) took shelter beneath the dislodged concrete foundations (red arrow) of the Banovallum Gardens bridge (///freedom.laminated.public). Trout habitat is adequate.



Pic 28 – Nutrient enrichment was detected from a surface water discharge. Signs of sewage fungus were apparent (red oval), whilst not causing a problem at the time of visit this enrichment (probably due to a mis-connected washing machine) may become lethal during extreme low-flow periods in combination with hot temperatures (///freedom.laminated.public). Trout habitat is poor.



Pic 29 – The first obvious water vole burrow noted. Water voles were present at Mareham on the Hill in May 2024 (///shaves.immediate.smoking).



Pic 30 – Siltation and algae noted on bed, possible deterioration in water quality may influence trout distribution. Concerningly one dead bullhead seen, together with live signal crayfish and *Gammarus* (///bunkers.nanny.animals). Poor trout habitat.



Pic 31 – 4x YoY trout seen with a larger trout (~0.2m) using small pool with depth (~0.2m). Alder roots retain the pool's form and provide cover (///lonely.nappy.coconuts). Good trout habitat (in miniature) but limited in extent.



Pic 32 – The channel has been over-deepened at this location and consequently is dominated by bur reed due to an abundance of soft sediment. YoY trout seen as well as a large signal crayfish (///scrap.kidney.defected). Adequate trout habitat.



Pic 33 – The first juvenile minnow seen in shallow ($\sim 0.15\text{m}$) depth with a width $\sim 1\text{m}$. Water vole food pile observed. Gravel dominates the bed once again ([///twit.courts.bashed](http://twit.courts.bashed)). Adequate trout habitat.



Pic 34 – Depth $\sim 0.1\text{m}$ could possibly harbour YoY trout but channel disturbance by surveyors would have prevented them being seen. Juvenile minnows observed as well as water vole food piles. Bed scour has created depth by removing gravel to expose chalk ([///damp.doctors.redouble](http://damp.doctors.redouble)). Adequate trout habitat.



Pic 35 – Gravel bed (with tufa deposits) could provide trout spawning habitat. Stickleback seen in deeper water. Very shallow depth could prevent adult fish movement in low flows. Tall marginal vegetation engulfing channel helps to shade it (///rods.threaded.easy). No trout habitat due to shallow depth.



Pic 36 – Gravel bar fixed by tufa creates shallow water, preventing most fish from traversing the location on the time of visit. Increased flow would allow fish movement. Upstream of shallows a small pool presented habitat for YoY trout, juvenile minnows and stickleback (///desk.aliens.professes). Adequate trout habitat where depth increases.



Pic 37 – At ///bedroom.subject.wand the channel was exited due to bramble preventing movement. No further in-channel assessment possible for the next ~150m



Pic 38 – 3x adult trout (~0.25m) observed in deeper pool (>0.5m) with trees holding bank firm allowing scour to be focussed in central channel (///midwinter.poem.fatherly). Good trout habitat.

NB – from this point the channel bed was not walked, observations were made as spot-checks where vegetation allowed access. Stickleback were seen at ///control.bloomers.activates. Bullhead were found at ///worms.divisible.footpath.



Pic 39 – An excellent natural pool creates a riverine form in stark contrast to the ditch-like watercourse downstream. The Thunker exhibits channel stability, with a tufa dam presenting a natural step appearance (inset picture shows tufa encrusting willow roots and moss). Whilst the tufa dam is a natural barrier to fish movement in low flows the depth (~0.6m) and width of the pool (~2.5m) provides excellent sanctuary for fish. Many YoY trout were observed together with 3x adult trout. A small rise in flow would enable trout to overcome the ~0.2m head drop. Bullhead were found upstream of the tufa dam (///tinned.flattens.regrading). Good trout habitat.



Pic 40 – Upstream of the tufa dam the channel continues to show habitat stability with graded gravel bars providing important habitat diversity, potential trout spawning habitat and adaptation to flow variation (low flows are focussed on one side of the channel) (///cobble.misfits.should). Good trout habitat.



Pic 41 – 2x YoY trout seen taking shelter beneath willow roots. Note upstream eroding left bank is enabling the Thunker to meander and supplies coarse sediment (gravel and cobbles) allowing important natural channel restoration ([///faced.topic.plums](#)). Good trout habitat.



Pic 42 – 2x YoY trout seen in pool created where fallen willow pushes high flows against bed. Depth $\sim 0.6\text{m}$, channel width $\sim 1.5\text{m}$. This fallen, but stable, willow represents an excellent example of Natural Flood Management (NFM) which in addition to slowing the downstream movement of water will cause water to spill-out to the floodplain, lessening flood peaks to the downstream community and making the Thunker a less challenging environment for fish ([///roughness.connects.chop](#)). Good trout habitat.



Pic 43 – Farm access culvert set below existing bed level presents no barrier to fish movements. Water vole feeding signs observed on flag iris (///loaded.strongman.turntable). Poor trout habitat.



Pic 44 – Another plunge pool (~0.7m depth, ~3m width) from tufa forming over willow roots (indicating channel stability) focussing flow to the side of the pool and promoting scour. The restriction posed by the willow tree in combination with the drop presents further NFM, benefitting downstream communities and biodiversity. No fish were observed (///corded.reckoned.topic). Good trout habitat.



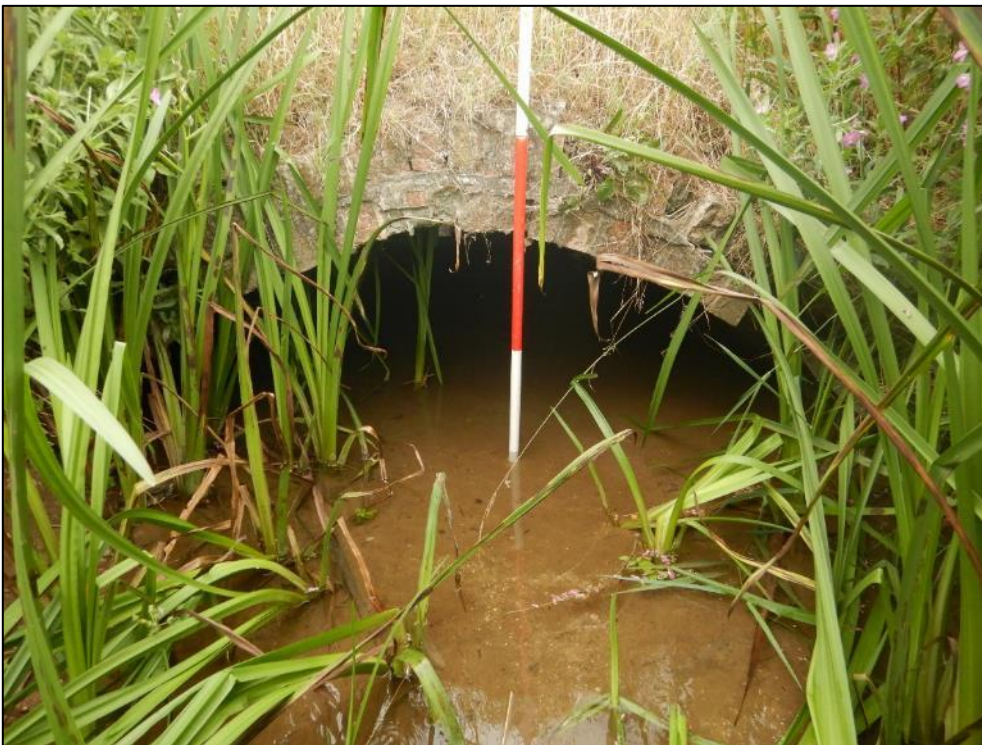
Pic 45 – The base flow appears much reduced from this point upstream. The shallow depth would hinder fish movements but in higher flow they would be free to move. An old otter spraint was found amongst the tree roots (inset picture) (///trickster.training.indoor). Poor trout habitat due to limited depth.



Pic 46 – Log jam provides excellent NFM, and subsequent downstream ‘pool’ shows less evidence of scour as the log jam has defused the flow as opposed to funnelling it. No fish observed (///ends.bloomers.ecologist). Good trout habitat.



Pic 47 – Evidence of the impoundment (or water retention) provided by the log jam (pic 46) is apparent by the silted channel. Juvenile stickleback were observed (///shaves.recap.formal). Poor trout habitat.



Pic 48 – Brick arch bridge is passable but is significantly silted due to downstream impoundment. ~0.05m of open water above 0.2m of silt. Juvenile stickleback seen (///exams.haircuts.elect). Poor trout habitat.



Pic 49 – Brick arch bridge is passable with clean gravel beneath. No bullhead found beneath stones, no otter spraint found (///exams.haircuts.elect). Good trout habitat.



Pic 50 – ~3m deep incised channel with silt smothering bed leaving ~0.1m depth of open water. Many juvenile stickleback seen plus 1 signal crayfish (///zooms.tadpole.purified). Poor trout habitat.



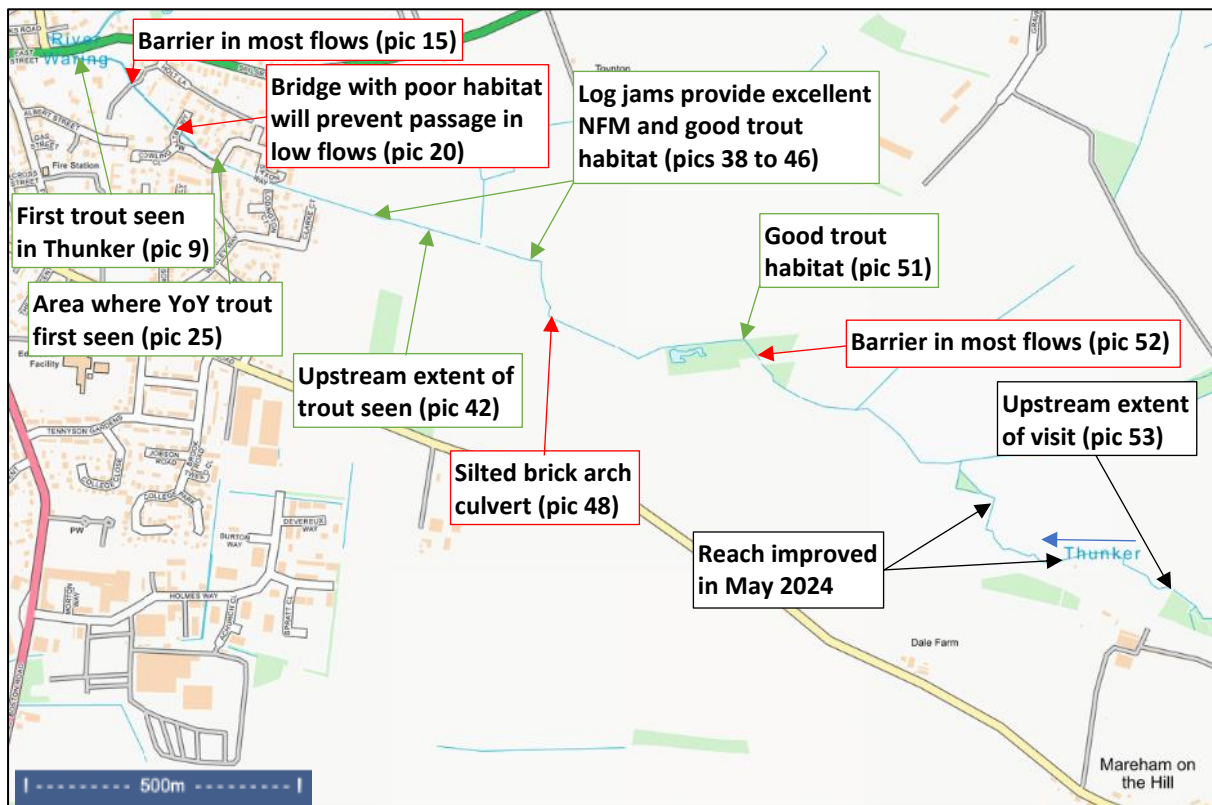
Pic 51 – Pool depth present on the outside of meander could provide cover for fish but none were seen. Tree roots hold bank firm allowing steep grade to evolve which supplies coarse sediment as it erodes (///twitching.chatting.opposite). Good trout habitat.



Pic 52 – Concrete culvert (0.7m diameter) creates a rapid flow into pool (0.9m depth, see inset). The shallow depth through culvert makes passage very hard in low flows. A drop $\sim 0.15\text{m}$ occurs at the downstream end, also hindering passage. High flow would then make passage challenging as water velocity pushes fish back down the culvert. The pool is capable of holding trout but none were seen (///resonated.aside.ambitions). Trout habitat good in the pool but this culvert is likely to limit the upstream movement of trout to the reach enhanced in May 2024.



Pic 53 – Concrete culvert pipe (0.7m diameter) passable on day of visit but would become more challenging in high flows. The pool downstream is ~0.5m deep and is where trout (along with minnows in May 2024) had been seen in the past. This location is above the point of recent improvement work so the walkover ended (///sometimes.magma.clarifies). Good trout habitat in the pool (inset picture).



Map 2 – Key findings of the walkover

4.0 Summary

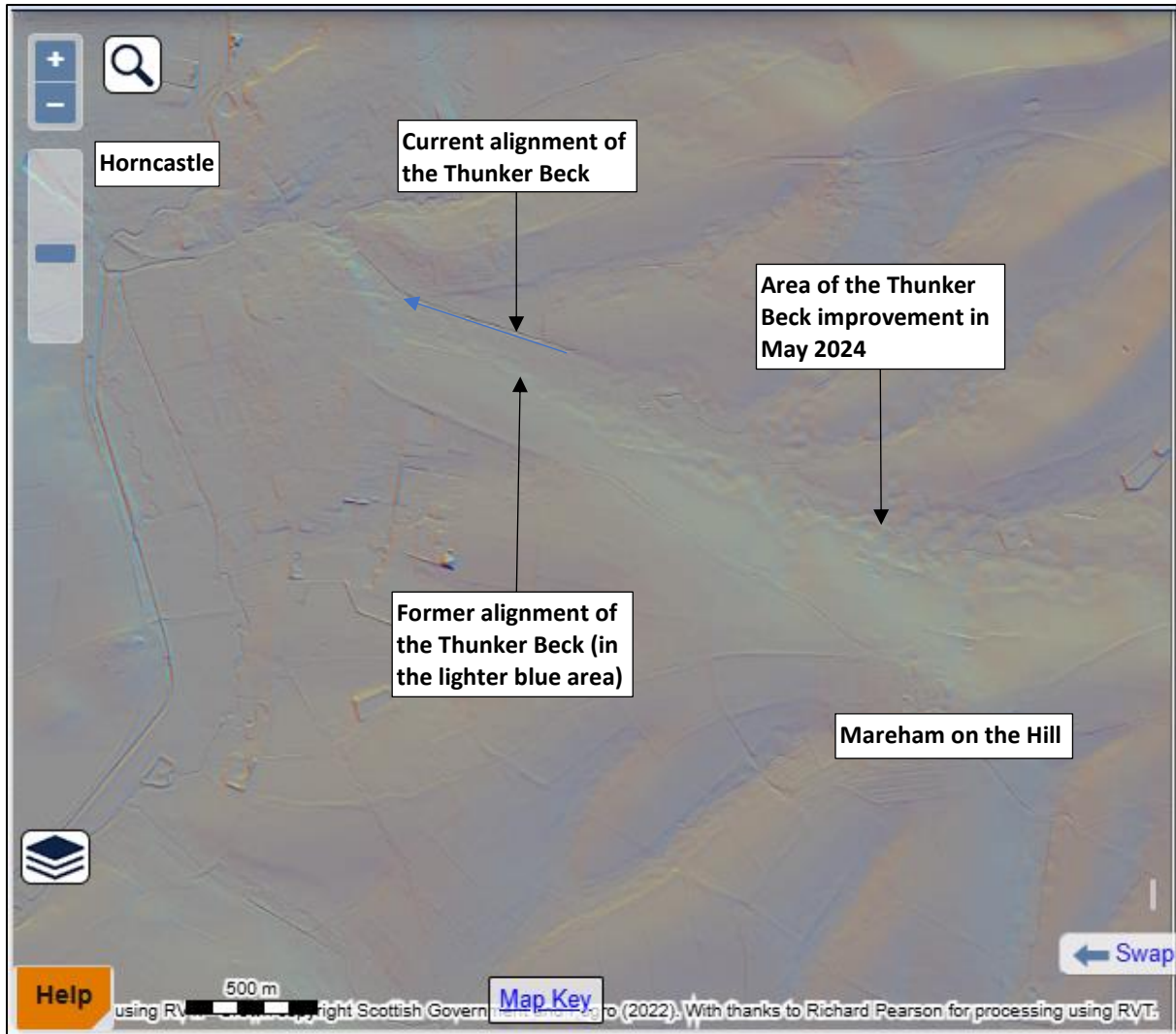
The Thunker has been straightened and canalised in the past with many reaches exhibiting channel incision leaving a harsh environment that passes water downstream at a rapid rate. Habitat potential could be vastly improved by slowing the flow, re-meandering and increasing channel roughness. Examples of NFM were seen during the visit, and these illustrate the value of retaining fallen wood (and trees) within the channel.

Where large woody material (LWM) has been retained in-channel the Thunker has started to re-meander, resulting in channel depth diversity and stability of riparian habitats. Stability of habitat is important for biodiversity, often resulting in a less harsh environment to live in and greater habitat diversity.

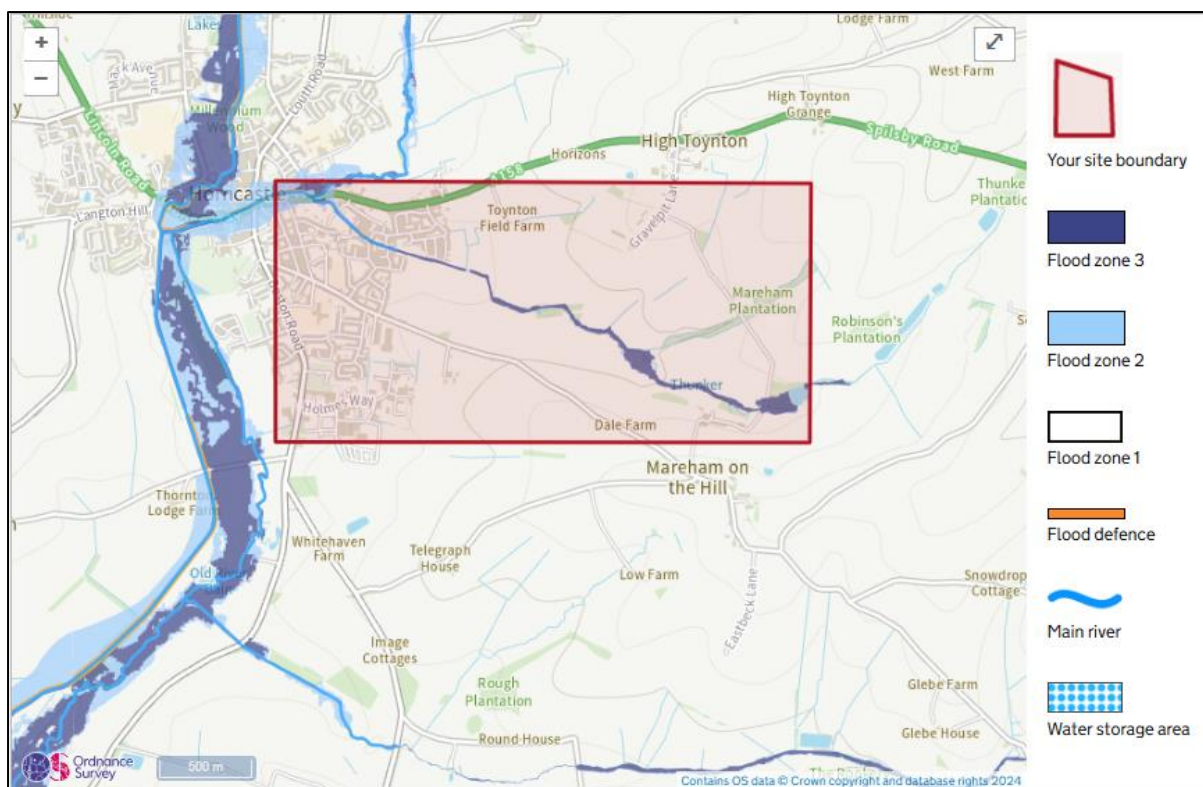
The presence of tufa dams is indicative of habitat stability, and the fact that some of the best trout habitat seen was in close association with such features is not coincidental. With the Thunker experiencing low flows in most summers, the presence of deeper water habitat in pools is possibly the only way that fish will make it through the summer months.

The Thunker requires more LWM, securely retained in-channel, to initiate bed scour and lateral movement to bring about a naturally occurring pool and riffle sequence that will enable it to mitigate high energy flows. These features could be created through carefully felled or placed trees. Further tree planting is also required.

It is also crucial that flood flows are re-connected to the Thunker's floodplain. Map 3 (below) shows the former channel alignment being some distance south of the current route within farmland (which has been cultivated for ~200 years). Map 4 (below) shows the very narrow floodplain of the current Thunker Beck alignment. There is little opportunity for the Thunker to hold water on the land, consequentially flood water is moved downstream at a rapid rate. Only in the vicinity of Mareham on the Hill is any width of floodplain shown. Historical realignment and straightening have led to many of the problems that the Thunker experiences today (i.e. rapid downstream movement of floodwater and low flow in summer). Only by realigning the Beck and creating a floodplain for it can significant biodiversity gains and flood risk protection be achieved.



Map 3 – LIDAR mapping to show historic valley of Thunker Beck (source [Side by side georeferenced maps viewer - Map images - National Library of Scotland \(nls.uk\)](#) LIDAR DTM 50cm-1m.)



Map 4 – The floodplain of the Thunker Beck (Source: [Flood risk information for this location - Flood map for planning - GOV.UK \(flood-map-for-planning.service.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/364812/flood_risk_information_for_this_location_-_flood_map_for_planning.pdf))

Two significant barriers along the Thunker have been identified (one near its lower end, the other before the improved reach is met). If free passage for fish were available up the Thunker, together with good quality holding pools, it could represent an important trout nursery stream for the River Waring.

It was very pleasing to observe trout of varying age classes, and illustrates the tenacity of trout to colonise headwater streams, even when habitat is far from optimal. But whether trout could colonise the upper Thunker remains unclear given the identified barriers and the fact that flow velocities through certain structures may have to be just right at the time they are faced by fish. Predation of fish at impassable barriers is a real threat to the Thunker's trout population as they try to move upstream to spawn.

The presence of various fish species in the Waring and trout in the Thunker illustrate that at the time of visit water quality was acceptable. But the signs of nutrient enrichment show the vulnerability of the watercourse, and given that a long hot period was experienced after the visit, some trout may have perished as flow diminished through August. The re-connection of the floods flows to the floodplain may allow water to be held in the ground for longer to be released slowly, supporting summer flows and increasing the Thunker's natural resilience. Whilst reducing flood risk to downstream communities.

5.0 Making it Happen

It is often a legal requirement that works to an Ordinary Watercourse require (land drainage) consent from the Lead Local Flood Authority prior to their undertaking.

The Wild Trout Trust can provide further assistance in the following ways:

- Working-up a Project Proposal report.
- Assisting with the preparation and submission of documents to apply for land drainage consent.
- Running training days to demonstrate the techniques described in this report.
- Management and/or development of a project to undertake the more extensive channel restoration works highlighted in this report.

We have produced a 70-minute DVD called 'Rivers: Working for Wild Trout' which graphically illustrates the challenges of managing river habitat for wild trout, with examples of good and poor habitat and practical demonstrations of habitat improvement. Additional sections of film cover key topics in greater depth, such as woody material, enhancing fish stocks and managing invasive species.

The DVD is available to buy for £10.00 from our website shop www.wildtrout.org/shop/products/rivers-working-for-wild-trout-dvd or by calling the WTT office on 02392 570985.

The WTT website library has a wide range of materials in video and PDF format on habitat management and improvement:

www.wildtrout.org/content/library

6.0 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.

7.0 Disclaimer

This report is produced for guidance; no liability or responsibility for any loss or damage can be accepted by the Wild Trout Trust as a result of any other person, company or organisation acting, or refraining from acting, upon guidance made in this report.

Legal permissions may be required before commencing work on site. These are not limited to landowner permissions but may also involve regulatory authorities such as the EA, Lead Local Flood Authority and any other relevant bodies (e.g. Natural England and Forestry Commission) 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 rivers.