

Background and updates on the River Aire

Everyone in Gargrave has no doubt observed the Middle Green stepping stones lying toppled in the river and the section of wall collapsed next to the Northern Powergrid substation. Many will have also seen the gabions along Mill Lane, installed by Highways to protect the riverbank but which have slid away and are partly in the river. Pipes that cross the river have also been exposed. These damages are consequences of the failure and subsequent removal of a weir located near the entrance to Mill Lane. The weir was breached when the river flooded after heavy rainfall in February 2022 and was removed the following year after permits and planning permission were obtained.

The weir was constructed prior to the 1880s to feed water to a mill leat, and over the intervening years a considerable amount of sediment became trapped behind it. Sediment deposits extended for some distance upstream due to the lower energy conditions in the impoundment created by the weir. After the weir breach, flow rates increased and the river began to move sediment downstream. Sediment was thickest just behind the weir where 1.5 metres had accumulated, and this washed out soon after weir removal. Sediment further upstream was removed progressively over the next few years. The point in the river where sediment starts to be washed away is referred to as the 'knick-point' or 'head-cut' and it has now moved upstream as far as the Roman ford. Sediment removal has changed the slope and base level of the riverbed, and water flow has been subtly reoriented to erode different parts of the riverbank. The Roman ford is currently acting as a dam to prevent further sediment removal and bed lowering, however its toe is being undercut and there is a risk that it could fail, which could further change the river's flow pattern.

Conditions within the Upper Aire catchment play a significant role in the river's 'flashiness' (water levels that rise rapidly) and tendency to flood. Rainfall runs off quickly from the steep hillsides in the upper elevations, especially in winter when the peat soils of the moors are typically saturated. Gully erosion is a problem in some moorlands that also contributes to runoff. Soils in areas other than moorlands tend to be clayey, and rainfall does not infiltrate as quickly as in coarser soils. Some soils are also compacted from agricultural practices and livestock. Tree cover that would help slow runoff is lacking, only about 5 percent of the catchment is forested. Also, the river has been straightened in places, causing it to flow faster, and the riverbed is lower than it was in pre-industrial times. Some of these factors are inherent because of topography and elevation, but others are related to human uses and the industrial past. These are issues beyond the control of the village, but groups such as the Aire Rivers Trust, the Upper Aire Project, and the Yorkshire Wildlife Trust are working toward correcting problems created by past uses. Sadly, winter rainfall has been increasing in amount and intensity, and could create more problems in the future.

Gargrave Parish Council has been working to find a solution for the damages along the stretch of river adjacent to the greens, where it is a riparian owner. Obstacles of funding as well as process requirements mean that there is not a speedy resolution. The River Aire is classed as a 'salmonid river' because it connects to the Ouse where salmon have been observed in recent years, and there is a possibility that salmon could reoccupy the Aire. No work can be done in a salmonid river from 1 October through 31 May, leaving only four months of the year for undertaking stabilisation and repairs. Furthermore, the Environment Agency does not allow concrete to be poured in the river unless a containment system is put in place to prevent silt movement. Due to the expense of containment, replacing the fallen wall with a similar one is likely not an option. The stepping stones are important to the village and have been a focus of discussions since immediately after they began to tip over in August 2023. After pursuing several possible options, the Council decided that a more comprehensive look at the river was needed to also address the gabions, and subsequently from the wall collapse of September 2025. A report was commissioned from JBA Consulting Ltd. prior to the wall collapse, and was presented to the Council at the January 2026 meeting (a slideshow presentation is included with minutes on the Council's website).

The Parish Council is now proceeding with plans to stabilise the area of wall collapse, to prevent further damage until such time as funding can be raised to plan and construct a long-term option. Funds may not be sufficient, but bids will also be taken on stabilising the Roman ford. The stepping stones will be removed during the coming summer and stored until such time as the riverbed is stable

and they can be placed back. The gabions are still under discussion as it is unclear what entity is in charge. Yorkshire Water has taken responsibility for the exposed pipes, which are said to be stable and are being monitored. Northern Powergrid has constructed a temporary substation which will protect the power supply until such time as it can be routed through other substations in the village. The Council has formed a River Aire Project working group to allow more time and expertise to be focused on these issues.

Historically, the river channel through Gargrave has been straightened and the bed was already downcut to some extent prior to weir removal. Soils information indicates that river deposits underlie most of the village on the north side of the river, indicating that this is the area where it formerly meandered. If left to itself, the river could possibly reclaim old channels to the north of its current route, but this cannot be allowed to happen. There may be possibilities for widening the river in the future to slow its flow. Changing the shape of riverbanks and the riverbed could direct more of the flow towards the Middle Green on the south side, thus limiting damage to the north bank and nearby infrastructure but taking space away from the green. These are topics that will be discussed over the next year and beyond, and the public will be consulted at various points during the planning process. Members of the public are welcome to attend parish council meetings where reports and recommendations from the River Aire Project working group will be presented.

On behalf of the River Aire Project working group of Gargrave Parish Council,
Jayne Dunlop (Clerk) & Eunice Padley (working group member).
12th May 2026