



Tyne Rivers Trust

River Don Obstructions – Detailed Design for Site Two

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FIRST DRAFT

Don Improvement Project, Obstructions Site Two: The Dene, Weir 2

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Site two, The Dene, comprises two structures side by side on the riverbed: a weir and a pipe. The pipe is upstream of the concrete weir which has a small gap through which low flows can pass when not blocked by debris. This obstruction was classified as a high priority by the Environment Agency and the Don Obstructions Optioneering Report (January 2018) highlighted weir removal as the preferred option for this site.



Figure 1: An image of Site 2, the second weir at The Dene.

It was thought that the pipe carried sewage from the houses at The Dene across to the main sewage pipe on the left bank of the river. However, since the optioneering report was completed in January 2018, Northumbria Water have completed a pipe survey in the area and have concluded that the pipe does not carry either sewage or clean water to the houses in The Dene (see Figures 2 and 3).



Figure 2: The results of a pipe survey carried out in February by Northumbria Water showing that the sewage from the Dene is carried across the river in a pipe underneath a footbridge (pipe indicated in yellow).

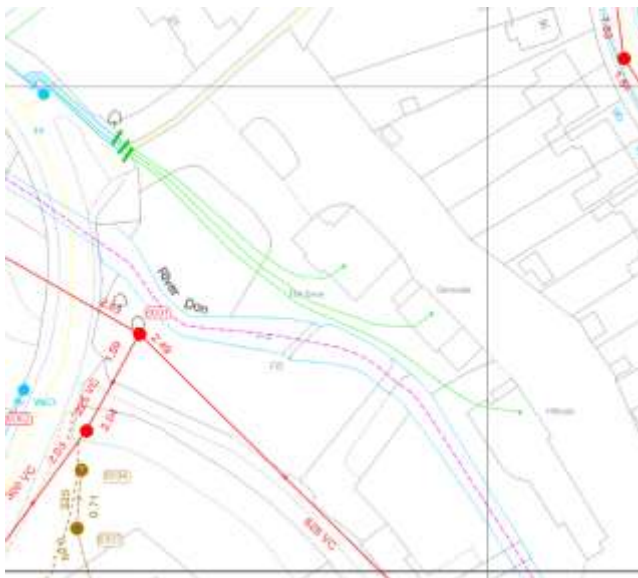


Figure 3: A Northumbria Water map showing the route, along the right bank, of the clean water pipes to The Dene.

The discovery that the pipe crossing element of this obstruction is disused, makes the preferred solution: to remove the weir, cheaper, easier and more feasible. Further investigations have also revealed that the weir immediately upstream of the disused pipe, is not integral to the walls, but was a later addition (Figure 4).



Figure 4: This image shows the two structures comprising site 2, the black circle highlights where the weir has been joined to the bank walls at one side.

The fact that the weir has been added after the bank walls were constructed means that removing it is unlikely to cause damage to the bank walls, which are in reasonable condition at this location. The pipe and the weir can therefore both be carefully dismantled with the consent of the land owner and the obstruction removed.

Easement Design

Method Statement: Removal

- Establishment of site compound.
- Placing of straw bales downstream of the working area.
- All work will be carried out in the wet.
- Operatives with waders and life jackets will carefully break up the concrete weir.
- The arising material will be loaded into a digger bucket and removed from the river bed.
- Care will be taken to cut the steel pipe with cutting saw and removed.
- All waste material will be removed and recycled in the correct manor.
- Removal of the straw bales.
- Ground reinstated and site demobilised.

Maintenance

Maintenance of the proposed works could comprise 2 potential elements: (1) carrying out electrofishing prior to the works being completed; (2) checking the efficacy of the works and carrying out electrofishing after completion. The electrofishing would ideally be carried out by a single TRT member of staff with volunteers, which would have a total cost per day of £396.

Some discussion on the requirement for encouraging a mobile low flow channel post works has occurred but it is likely that the gravels would redistribute naturally without the requirement for intervention. This assumption is based upon the evidence that this has already happened slightly upstream of Site 2.

Costings

Table 1: List of activities and estimated costs for mitigation work at Site Two, The Dene, South Tyneside.

Activity	Estimated cost (£)
Site preparation	500
RA MS	300
Plant and Equipment	2100
Material Disposal	400
Labour	800
EA Permit	125
Maintenance	792
Total	5017

Site Access

Site Access is achieved most easily through a gate on the left bank of the river directly from Hedworth Lane (NZ 33617 63047). This route is shown marked in red on Figure 5.



Figure 5: Access from a gate on Hedworth Lane to the obstruction at Site 2.

Consent requirements

The River Don is classified as a main river along its entire length and therefore a bespoke permit from the Environment Agency would be required for any works carried out to this culvert.

Land Ownership

The land is owned by Ron Larsen (07976 287347) who has been helpful but has not yet given permission for the removal of obstruction 2. This work will need to be discussed with him at the same time as the issues at site 3.

Environmental Considerations

The modifications made to the river at this site make the presence of *Arvicola amphibious* (Water Voles) very unlikely.

Location

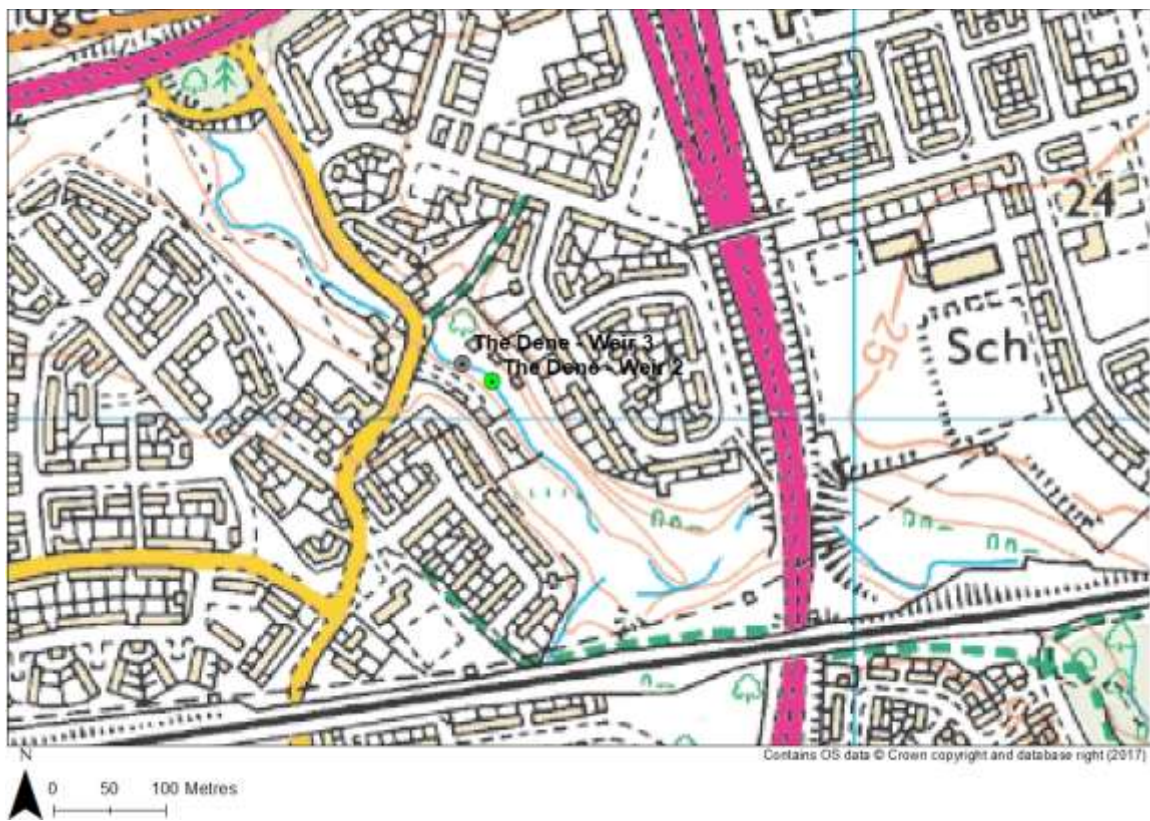


Figure 6: Map showing the location of Site 2: The Dene in green, with nearby other fish passage obstructions in grey.