

Buildability Statement for Conjure Alders



1. Background

The Wild Trout Trust are aiming to improve fish passage at a weir on the River Meden, in Nottinghamshire.

In order to improve fish passage the works to the weir at Conjure Alders involves the following key features:

- Offsite pre-fabrication of standard Low Cost Baffles (LCBs).
- Formation of RC slab to form 20% slope for LCBs and HDPE eel tiles.
- Localised & shallow breakout of existing concrete channel to allow HDPE eel tiles to meet the riverbed.
- Formation of RC concrete slope leading up to existing step.

To accommodate these works, it is recommended that the existing stop log slots are used to close of the flow. The nearby sluice gate can then be opened to allow flow to bypass the weir. A low-level sandbag / dumpy bag wall will be required at the downstream end of the weir to block downstream backwater effects. Finally, it is suggested that a small pump is installed at downstream end, within the sandbag wall, to drain any remaining water and create a dry working environment.

2. Design philosophy

The design has been developed on the basis of the following key assumptions:

- To create a hydraulically suitable slope to install the LCBs a concrete slope of 1:5 shall be formed. This will act as a ground bearing span that will butt onto the existing structure.

- The existing concrete channel will provide a suitable foundation and can be drilled and doweled into.
- The slab is provided with nominal A393 mesh as reinforcement. This provides the slab with the structural integrity to span soft spots under the channel that may appear up to 3m in length.
- The additional loads on the existing structure are small enough (< +15% characteristic permanent loadings) that they can be considered negligible.

3. Construction Sequence:

The design has been developed assuming the following construction sequence:

3.1 Setting-up of the site

- Access can be gained via Meadow Lane to the North of the site (true right bank). It is assumed that the contractor can produce a suitable method statement to transport heavy materials (such as wet concrete) to the site via this route.
- Adequate site compounds can be established on the true right bank.

3.2 Site clearance

- Though not heavily vegetated, the right bank will likely require some level of clearance to have free access to the site. Any heavy vegetation / tree removed will be replaced with similar approved.

3.3 Management of river flows, levels & groundwater

- The existing structure has stop log slots installed at the upstream end, which can be used to separate the weir from river flows. The downstream end creates a natural pinch point which is suitable to be blocked off via sandbags or dumpy bags to prevent backwater effects from entering the weir. It is recommended that a small pump is used to remove any remaining water ingress. A nearby sluice gate can also be used to divert flows down an alternative channel, removing the need for over pumping low river flows.

3.4 Installation of works

- The whole of Meadow Lane may not be suitable for access for concrete lorries. Therefore, dumpers may be needed to double hand and transport wet concrete from a suitable delivery area to the site proper. The contractor should establish suitable plant movement routes and pedestrian segregation. Onsite mixing may be an option, but this will be much more labour intensive.
- Once the slope is formed and cured, the baffles and tiles may be fitted.
- Baffles may require plant assistance to be lifted into place, depending on how the Contractor breaks up baffle lengths and whether the angle section is fitted prior to fitting the baffle to the concrete slope. The weight of the largest assembled prefabricated LCB components could be circa 65kg (based upon 35kg for the plastic baffle & 30kg for the Galvanised Steel Angle) based upon a standard 2.5m plastic baffle.

4. Achieving Design philosophy

- In order to achieve the design philosophy, it is necessary to form a concrete slab at a 20% gradient.
- The potential for soft spots is avoided by forming the slope on the existing concrete channel. The concrete slab is to form flush construction joint between the existing structures' vertical walls.