

**Vale hydro tasks 03 November 2023 upgrade the turbine and raise the water level**

aims: to upgrade improve the prototype hydro generator (shirley) for further experimentation

specifically we want to increase the water flow rate and water pressure

proposed modifications we will try:

1. increase the inlet pipe diameter from 100mm to 150mm (4" to 6") this could more than double the volume flow rate
2. increase the water pressure by raising the water level about 1 metre using a temporary dam or weir. This would more than double the fall / pressure

if we can double the flow rate and also double the fall we increase the potential for power generation by approx 4 times

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1) upgrading the inlet pipe diameter;

>> the existing turbine with 100mm inlet and outlet diameter



>> we have a selection of 150mm pipe fittings we can use



>> plan is to replace the 100mm fittings with 150mm fittings





2) raise the water level with a removable dam upstream here;





the dam can be fixed to the concrete on the nearside bank. For the far side we will need to fix a concret post or similar into the river bed, here;



we can search fro something suitable, and if not we can buy a concret fence post or lintel from the local building supllies (benchmark or mossley home improvements)



we will need to obtain 150mm pipe to get the water from the dam to the turbine which will be located at the existing weir, the existing pipe we have been using is 100 mm dia

