



# Seaton Mill Aquazoom Hydropower Scheme

## Initial Method Statement

Prepared By: Renewables First

## Summary

This document outlines the proposed activities required for the installation of a temporary bund structure to enable modification of the right bank of the River Derwent at Seaton Mill. The purpose of the works is to create a new channel in the right bank to allow abstraction of water for a hydropower scheme. The detailed design stage will ensure that all risks of flooding are mitigated during installation and construction. However, a general description of the works is provided in this document.

## General description of works

The works consist of the following:

- Enabling works to establish compound, access through Seaton Mill and crane pad if required
- Temporary bunding / sheet piling to enable amendment to existing channel, to create intake and outfall structures
- Installation of a concrete channel within the existing bank leading to the proposed turbine basin and onto the outfall to re-join the watercourse
- Installation of fixed bar intake trash screens and sluice gates
- Installation of turbines within the turbine basins
- Installation of walkway / cover over turbine basin and then mounting of the generator
- Installation of control panel onto walkway or adjacent bank
- Buried electrical cabling

The scheme will be constructed within the existing bank and as such will have a very limited impact on flow passing through the River Derwent. The final method statement will be subject to sign-off by representatives of the Local Planning Authority and Environment Agency.

## Location and access

There are location and site plans accompanied with this application. The following locations and access routes will be of interest:

- The intake will be located at OS grid reference NY 02095 29625 and will be accessed through existing access off Fernbank Lane reference NY 02048 29574.
- The turbine basin and outfall will be located at NY 02095 29615 and NY 02105 29615.
- Access for construction of the hydropower channels will be via upgraded existing tracks

The following drawings should be read in conjunction with this section:

- *Site Layout Plan*

## Duration of Works

It is estimated that the work will take up to two to four months to complete depending on weather and ground conditions. Severe weather conditions may further delay construction.

## Method Statement

<b>1</b>	<b>Site preparation</b>
1.1	A Construction Management Plan will be completed in conjunction with the Principle Contractor and Principle Designer which will include a site access / traffic management section and submitted to the Local Authority. Any preconstruction conditions will be discharged including any ecological clerk of works duties.
1.2	Local residents will be engaged and notified as to construction details prior to works beginning.
1.3	Site compounds will be set up adjacent to the proposed scheme. These incorporate storage areas for materials delivered to site and sufficient space for construction vehicles to turn
1.4	The required safety signs, fencing and signals will be installed as and when required
1.5	The existing access to site will be modified where required to allow access.
1.6	Any footpath affect would be temporarily diverted if required.
1.7	Where ground conditions are unsuitable for construction vehicles, temporary geotextile track will be laid. When the relevant construction vehicles are no longer required, the track will be removed.
1.8	If works exposes any drainage lines, temporary channels or clay barriers may need to be utilised to prevent the channels from becoming the drainage route.
1.9	A crane may be required to unload and lift the components into place. Temporary stabilisation or crane pads may be utilised where required.
<b>2</b>	<b>Hydraulic channels and turbine mounting structures</b>
2.1	Appropriate notice will be given to the Environment Agency before construction commences. The works involve creation of new channel and the installation of intake screens within the existing bank.
2.2	Sheet piling or 1 tonne aggregate bags will be utilised to divert flow from the intake and outfall locations. This temporary flow diversion works in order to create a dry working area. The flow will be diverted away from the working area and along the river channel. Any water or rainwater in the dry area will be pumped out and discharged over to the nearest bank through a silt trap to allow any contaminated material or silt to be settled out before water re-enters the watercourse.
2.3	A new channel will be cleared and excavated to allow the new structure to be constructed. Any material or spoil will be transported and disposed of off-site.
2.4	Excavation of the existing bank to create the intake and outfall locations will take place.
2.5	A blinding layer will be poured to ensure flat surface is achieved for installation of apron
2.6	Pre-fabricated concrete channel is proposed and will be lifted into place within the newly created channel.

2.7	Where poured concrete is required, Rebar will be set into bedrock or existing structure. Formwork will be aligned according to the detailed design of the superstructure. This will be formed around the mesh installed.
2.8	Concrete will be poured into formwork when the rebar is in place. This will be left to cure for at least 3 days where the weather forecast shows that heavy rain is not forecast to prevent washout occurring and the consequent contamination of the river.
2.9	Formwork will be removed.
2.10	The above steps will be repeated for separate sections of the structure.
2.11	Once all works complete – remove all temporary sheet piling.
<b>3</b>	<b>Turbine basin and generator</b>
3.1	A turbine basin will be created at the end of the intake channel.
3.2	Excavation within the dry working area will be required to reduce levels.
3.3	Where required blinding concrete will be laid to ensure a smooth flat surface for construction of the powerhouse and to form a secure bond with the foundation.
3.4	Pre-fabricated concrete structure will be utilised and lifted into place. Where this is not practical, formwork will be placed for the wall footings and floor sump.
3.5	Reinforcement will be placed and tied where appropriate.
3.6	Concrete will be poured into formwork when the rebar is in place. This will be left to cure for at least 3 days where the weather forecast shows that heavy rain is not forecast to prevent washout occurring and the consequent contamination of the river.
3.7	Impermeable waterproof membrane will be installed to avoid leakage throughout the structure.
3.8	A cover over the basins will be installed including a walkway which will house the generator.
<b>4</b>	<b>Grid connection and control system</b>
4.1	The grid connection will be confirmed with the local DNO but most likely a buried cable to point of connection within Seaton Mill.
4.2	The control system will be wired up to the turbine and generator and will be set above the walkway or on the adjacent bank, above flood levels.