

Reading Sustainability Centre Hydropower Project

1. Introduction

This document has been prepared to confirm the choice of site location for the proposed hydropower generation scheme at Caversham Weir, Reading in relation to flood risk, in accordance with the requirements of the sequential test as defined in planning practice guidance *Flood Risk and Coastal Change*. The sequential test has been carried out to satisfy the Environment Agency's requirements in order to quantify the flood risk to the proposed development and to third party assets. The development has been designed in accordance with planning practice guidance *Flood Risk and Coastal Change* Table 3: Flood risk vulnerability and flood zone 'compatibility' so as not to increase flood risk elsewhere.

Planning practice guidance *Flood Risk and Coastal Change* states that the purpose of the sequential test is that: *Ultimately the local planning authority needs to be satisfied in all cases that the proposed development would be safe and not lead to increased flood risk elsewhere.*

The proposed site at Caversham Weir is within the River Thames and is located within Flood Zone 3b as shown in Figure 1 below, taken from the Reading Strategic Flood Risk Assessment (Level 1) 2009.

The location of a hydroelectric scheme is determined by the head of water being sufficient to generate a viable quantity of electricity and not causing an obstruction within the river. **The location for the proposed scheme was chosen because it has the highest head of water in the Reading area and because it is located on an existing structure.** The original consideration was to locate the turbines on the weir itself but the EA will not allow development on any of its assets. Thus, it was decided to locate the turbines next to the weir within the existing footpath structure.

Regarding the matter of not increasing flood risk elsewhere, this has already been addressed in the application in the submitted *Flood Risk Assessment*, which states that:

The proposal has been adjudged by the EA not to require flood risk modelling as part of their response to the licensing process. The scheme is water compatible.

The reasons for this are that there is no reduction in the flow capacity of the current weir complex. ...

The inclusion of two Archimedean Screws and fish pass increases the current flow control capability at Caversham Weir.

The entrance channel, the structure supporting the screws and the exist channel marginally increase the capacity of the flood plain.

The control hut for the turbines is above the 100 year plus climate change flood level.

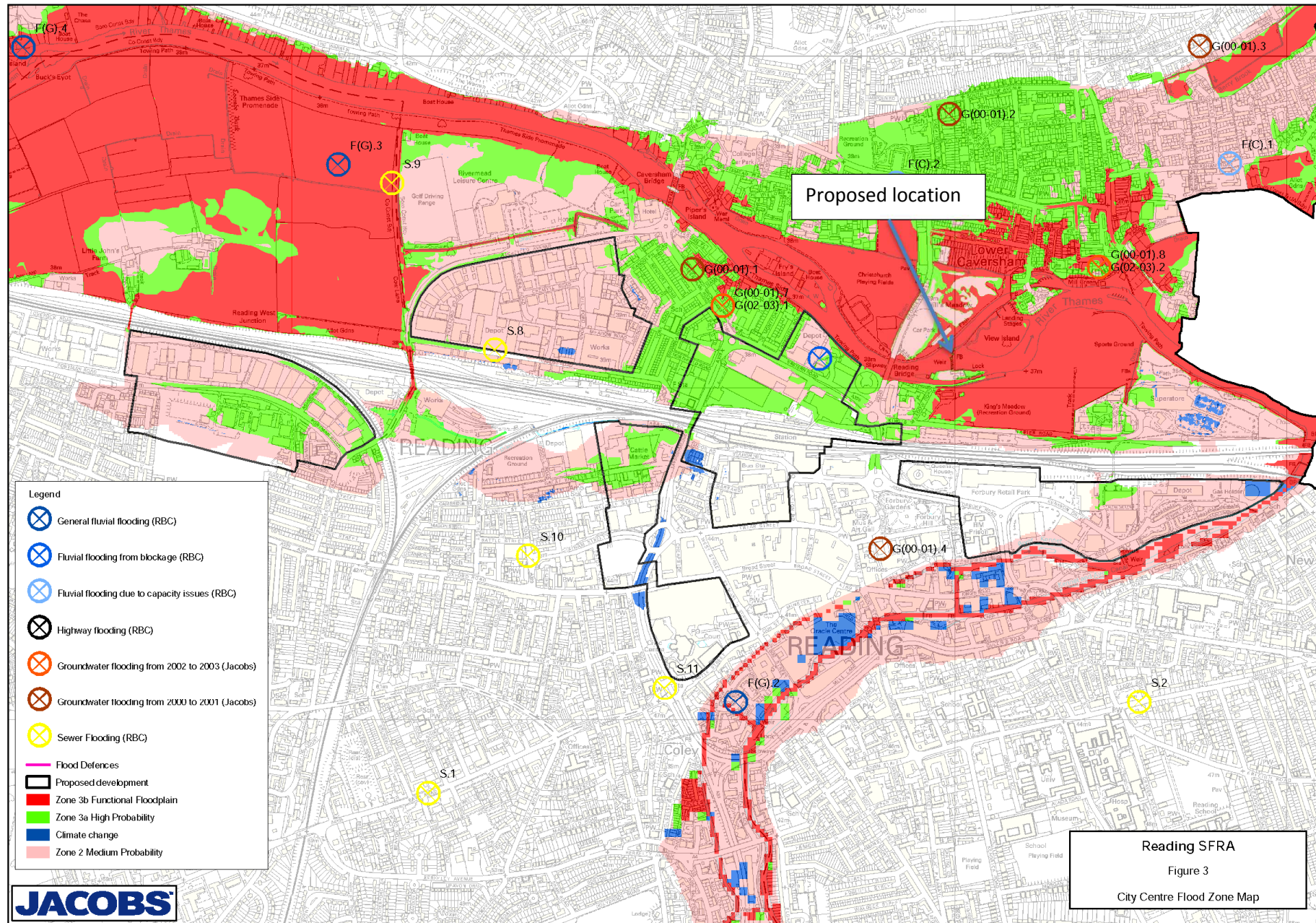


Figure 1: Flood Map from Reading Strategic Flood Risk Assessment with Location of the Proposed Hydro Scheme

1. Alternative locations

Consideration was given to digging a channel across View Island and locating the turbines within this channel, but this was ruled out as it would disrupt a public space. There is an existing spillway adjoining the housing development on the site of the former Caversham Mill but this space is too small for the proposed scheme.

Brief consideration was given to building on the south side of the river but this would impact on navigation and it would be very close to the lido and the flats adjacent to the EA site there.

Weirs on the Kennet in Reading are too small with insufficient head and flow to be useful for hydro power generation.

2. Conclusion

The character of the proposed scheme means that there are limited potential locations within the Reading area to site a hydro scheme. The site chosen has been done so because it is the most suitable location for generating electricity.

The planning practice guidance states that the intention of a sequential test is that:

Ultimately the local planning authority needs to be satisfied in all cases that the proposed development would be safe and not lead to increased flood risk elsewhere. (Permalink ID 7-034-20140306 Last updated 06 03 2014)

That the scheme will be safe in the event of flooding and will not lead to increased risk of flooding elsewhere has already been acknowledged by the EA at the pre-planning stage and we are currently applying for flood defence permits with them.