TEDDINGTON & HAM HYDRO

Designed Safety Features

1 INTRODUCTION

This document forms part of a suite of documents relating to the application to install a turbine on the River Thames at Teddington Lock. The purpose of this document is to provide information to highlight safety features which have been included in the design. These items have either evolved during the design phase or have been included as a result of pre-application consultation with river users and other interested bodies. The document should be read in conjunction with other documents supporting the application but with particular reference to the Statement of Consultation and the technical drawings. This document does not fall within the scope of the Construction (Design and Management) Regulations: information under this act will be supplied as required during the Pre-construction and Construction phases of the project.

2 PRINCIPAL SAFETY FEATURES

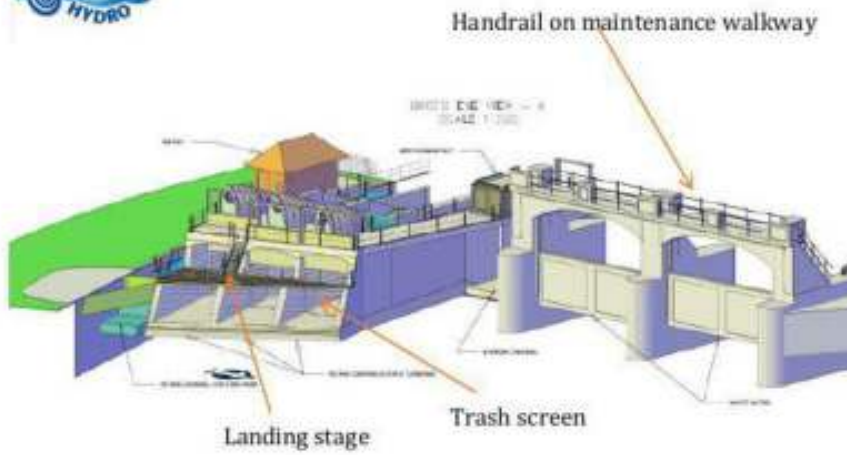
The safety features to be constructed within the overall project fall into two categories;

- safety features for maintenance purposes; and
- safety features for river users.

2.1 Safety features for maintenance purposes

Minor maintenance and repair items will be carried out by pedestrian access from the Lock Island. This is the existing island located in the Thames. The pedestrian route from Lock Island to the turbine will not be available to the public and a notice explaining that there is no public access along this route will be displayed. The route from the island to the turbine is along the existing weir walkway; a new section of walkway will be provided within the scheme to enable maintenance staff to gain access to the cleaning screens, turbines, generator covers and ancillary equipment. This walkway will be clearly identified, and have handrails to prevent possible falls into the water.

The walkway and its handrail is highlighted on the drawing below (extract of Bird's Eye Views of the scheme within the drawings section of our application):



For major maintenance, it is likely that access will be by river craft. The mooring point is designed to be accessible by normal river craft and is set on the landing stage close to the turbine (see diagram above). Space for the temporary storage of materials and equipment is available on the landing stage. Craft can be accommodated and held during maintenance operations at this landing stage at all stages of tide.

2.2 Safety Features for River Users

River users include canoeists, sailors, skiffers and rowers. In addition, anyone who is advertently in or on the water must be taken into consideration in the design of the scheme's safety features. Therefore, we have consulted extensively with organised river users and associated organisations. We have specifically set up a consultation River Users Group which includes representatives from Tamesis Sailing Club, Lensbury Watersports Centre, Lensbury Sailing Club, The Skiff Club (Teddington) Environment Agency and The Teddington Branch of the Royal National Lifeboat Institution (RNLI).The following features have been developed as a result of these discussions:

SIGNS: Signs warning river users of the potential danger of travelling closer to the Turbines will be displayed on the Lock Island and at points close and on the Turbines.

For River Bank users, signs will be displayed to show that there is no public access onto the turbine structure. These signs will be placed at all main entrances to the turbine, including on the access walkway adjacent to the Lensbury Club and the Lock Island

BOOM: Currently, there is a boom upstream of the weir. The Environment Agency is responsible for the installation and management of booms on the river and they plan to update what currently exists with the latest version of boom technology which will prevent any person getting into difficulty who has already passed 'Danger' signs from being carried towards the turbines. The position of this boom is expected to be in a similar position to where it is currently, i.e. approximately 10m upstream of the Turbines.

DESIGN OF WASTE CATCHING SCREEN (TRASH SCREEN): This Screen has a primary function to prevent floating debris from flowing into the turbine mechanism with the potential to damage and jam the rotation of the turbines. The screen has been designed so that, if all other safety measures fail and a person has been carried in the water past the Boom, the screen acts as a further line of defence to prevent a person being drawn into the turbine. The screens consist of a metal frame of vertical and horizontal bars, acting as a filter for the debris but also are robust and shaped so that a person can climb onto them from the water and so escape danger. The screen is highlighted in the drawing above. The River Users Group has highlighted the importance of the screen design being tested to confirm that a person in the water is able to get out of the water. We will work with the River Users Group, especially the RNLI to develop a testing schedule that will then feed into the detailed design.

IMPACT ON THE FLOW PROFILE OF THE RIVER: The River Users Group raised concerns that the scheme may materially impact the flow profile of the river such that it would affect their activity on the water and could provide a health and safety impact both to them and indeed others who may in the water. As a result THH commissioned a study (undertaken by Turnpenny Horsfield Associates) to analyse the river flow profile. The scope of this study was discussed with and agreed by the River Users Group. The results showed that the flow profile changes within the reach *"are expected to be minor (in the region of several tenths of a meter per second) and not discernible to a river user in any place in the river more than a few meters from the new structures."* Reflecting on the results, the River Users Group were comfortable that the flow profile of the river reach is not materially affected by the scheme and therefore there will be no impact to the way in which they undertake their respective activities on this river stretch.

Stephen Jarvis, Managing Director – Teddington and Ham Hydro Cooperative Limited
London, 1st September, 2014

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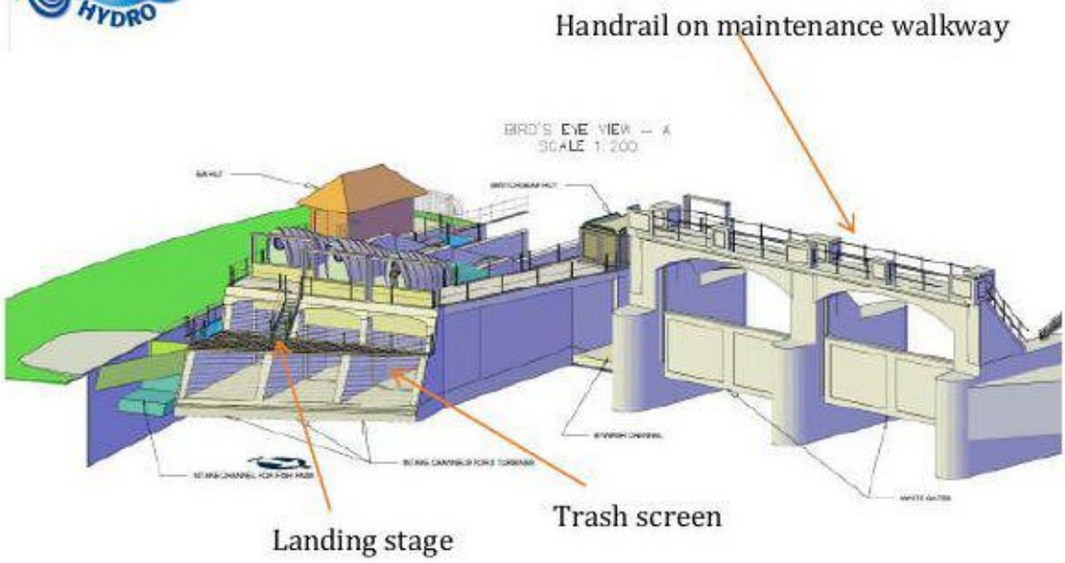

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