

14/3732/FUL  
Teddington Weir  
Teddington Lock  
Hampton Wick

Hampton Wick Ward  
Contact Officer:  
Derek Tanner

[http://www2.richmond.gov.uk/PlanData2/Planning\\_CaseNo.aspx?strCASENO=14/3732/FUL](http://www2.richmond.gov.uk/PlanData2/Planning_CaseNo.aspx?strCASENO=14/3732/FUL)



**Proposal:** Demolition of a section of the weir and installation of 3 reverse engineered archimedean screw tubines to generate hydro electricity. New Fish and Eel passes, sluice gate, cable routes to substation. Adapt maintenance access to that section of weir; plant room to be constructed on walkway.

**Applicant:** Mr Stephen Jarvis, Ham Hydro CIC

**Application received:** 02.09.2014

**Strategic Policy:**

National Planning Policy Framework.

Planning practice guidance for renewable and low carbon energy July 2013

**Main development plan policies:**

NPPF

The London Plan:

5.7 Renewable energy Strategic

5.12 Flood Risk Management

7.4 Local character

7.8 Heritage Assets

7.16 Reducing and Managing Noise

7.17 Metropolitan Open Land

7.19 Biodiversity and access to nature

7.24 Blue Ribbon Network

7.29 The River Thames



Local Development Framework Core Strategy Policies 2009:

CP1 Sustainable Development  
CP2 Reducing Carbon Emissions  
CP3 Climate Change – adapting to the effects  
CP4 Biodiversity

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Policy DM SD 2 Renewable Energy and Decentralised Energy  
Policy DM HD 1 Conservation Areas - designation, protection and enhancement  
Policy DM HD7 Views and Vistas  
Policy DM OS 11 Thames Policy Area  
Policy DM DC 4 Trees and Landscape  
Policy DM OS 2 Metropolitan Open  
Policy DM OS 5 Biodiversity and new development  
Policy DM SD 9 Protecting Water Resources and Infrastructure  
Policy DM SD 6 Flood Risk  
Policy DM DC1 Design Quality  
Policy DM DC4 Trees and Landscape

Other

Thames Landscape Strategy

**SUMMARY OF APPLICATION:**

The original report is set out in appendix 'A'.

The application was considered by the planning committee at its meeting of the 15<sup>th</sup> April where it was **RESOLVED** that consideration of this item be deferred to a future meeting of the committee for the following reason:

“The committee did not feel that enough information was presented in the proposed noise mitigation scheme, as alluded to in proposed condition NS02.”

Further information has been submitted for consideration. This is considered to reinforce the original recommendation.

There has been no other material change in circumstances or substantive new issue raised since the meeting of the 15<sup>th</sup> April.

**RECOMMENDATION: PERMISSION**

**Minutes on the item from the 15<sup>th</sup> April committee:**

The Development Control Officer introduced the item and made amendments to the report as set out in the published addendum. In addition to the content of the addendum, the Development Control Officer reported receipt of a further piece of late correspondence which raised concerns about the proposed hydroelectric technology being obsolete. It called for this to be addressed before the matter was considered by the Planning Committee.

The committee heard representations against the application from Mrs C Nisson (local resident), Donald Bell (residents' association representative), Lacy Curtis-Ward (a neighbour adjoining the site), Ian McNuff (a neighbour adjoining the site) and John Previte (local resident).

The committee heard representations in favour of the application from Alban Thurston (director of another community energy co-operative), Rob Gray (local resident), Chas Warlow (the applicant), Steve Jarvis (the applicant) and Jono Adams (the applicant).



Councillor Penelope Frost, Councillor Gareth Evans, Councillor Stephen Knight and Councillor Tony Arbour spoke as interested councillors.

The committee considered the points raised by speakers and information provided by officers in conjunction with the report.

Members considered a range of matters during their deliberations including the location and ecology of the application site. The committee was not minded to approve the application based on the officer report and recommendation. The appearance of the proposed installation was considered and this was deemed to be an insufficient reason for refusing the application. Concerns about future flooding were also considered and dismissed as a reason for refusal by the committee, particularly as the Environment Agency had stated that the proposed hydroelectric installation would not increase the flood risk in the area.

The committee considered whether there was enough information being provided about the proposed noise mitigation scheme. It was noted that this application affected a sensitive area where there was already a relatively noisy industrial installation (weir). This, in the committee's opinion, made judging whether the proposed turbines would add to the noise in the area, when measured at various distances and positions, more difficult. It was ultimately decided that there was not enough information to approve or reject the application on noise grounds at this stage.

RESOLVED that consideration of this item be deferred to a future meeting of the committee for the following reason:

"The committee did not feel that enough information was presented in the proposed noise mitigation scheme, as alluded to in proposed condition NS02."

**Further consideration:**

Consideration of the additional information is a direct continuation of the business that was commenced on 15 April 2015. The matter will therefore be picked up at the point where proceedings previously ceased. The additional information provided by the applicant, in direct response to Members' concerns, along with further representations is now a matter for the committee to consider and vote upon.

**Details of applicant's additional information:**

Two additional reports received. Noise impact assessment (rev a) together with a non-technical summary & review (rev a)

The new information includes;

- New background survey from the Teddington Studios location
- Reference to other schemes which have applied a similar assessment methodology.
- New noise model of the existing situation without the scheme and the situation with the mitigate scheme.

The assessment has now applied worst case scenario for underlying background noise levels and increased the character penalty of the noise as there has been a new version of BS4142 issued since the initial report was produced. They have also applied internal residential standards to hotel room receptor positions and the residential receptor level to position MP2.close to Hotel main building.

The applicant's conclusions are summarised as follows;

- a. Results from previous baseline sound surveys are valid and representative of the existing sound climate at and around the site for the proposed hydro scheme.
- b. The methodology applied to the noise assessments (both previous and current) is the



only practical method available.

c. Review of the available noise source data show, that the data from the Romney Weir scheme provide the highest levels, thus aiding the worst case approach.

d. The uncertainty calculated for the current noise impact assessment indicates that results are reliable.

e. Results from the new noise impact show that the proposed hydro scheme including mitigation measures comply with local authority requirements, and that the long term impact compared to the existing situation can be considered as minor.

#### **Further representations:**

Members have been separately sent information from both the applicants and parties opposed to the proposal, including video links to other Hydro plant. These have been either forwarded or copied to officers. Matters, which are not directly pertinent to the specific issue members deferred the item on, are not being commented on in this supplementary report.

A further re-consultation by e-mail and post was carried out requesting comments on the submission of the additional noise reports. The responses are summarised below.

At the time of writing the report:

36 letters of support have been received considering the further information demonstrates any concerns over noise have been adequately addressed and that this beneficial community scheme should now be allowed to go ahead.

39 letters of objection have been received including from the Teddington Society, Lensbury and the prospective purchasers of the Teddington Studio site. The latter two submitted specialist reports on the applicants reports.

Dr Tania Mathias MP has written to support residents and the Teddington Society who are against the application commenting independent assessment is needed of the sound effects of a Hydro scheme. Furthermore the timing of the Hydro scheme is premature as the new EA River Thames Scheme proposals regarding flooding have not - as yet - had full public consultation nor independent expert review, and the Teddington weir is a major part of these new flood risk proposals. This is not the time to add a structure at this critical tidal-fluvial part of the Thames.

Several letters reiterated the wider objections already considered by the planning committee. On the matter of the additional noise reports the general consensus was that the additional evidence is flawed, unreliable and not robust, underestimates likely noise levels. Methodology inappropriate, base line surveys wrongly located, misleading, contains calculation errors and inconsistencies. Assessment of noise impact on Lensbury questioned. Mitigation measures inadequate and unachievable. Proposed conditions are insufficient to safe guard local residents and Lensbury. Council's own consultant recommendations are not fully taken up. If approved stricter conditions should be imposed along with definitive measures for enforcement.



## **The Environmental Health Officer:**

### **National Planning Policy Framework (NPPF) 2012- Pollution Control Requirements.**

- To prevent unacceptable risks from pollution new development must be appropriate for its location and the effects of pollution on the amenity mitigated to an acceptable level.
- Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
- Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;

### **Environmental Protection Issues**

There is potential for loss of amenity to existing local residents and commercial businesses due the following environmental pollution issues;

- Noise from the operation of the hydro power scheme both in terms of hydrodynamic noise and mechanical noise.
- Noise from the construction of the hydro power scheme.

### **Existing Hydropower Schemes in the UK**

The Environment Agency has informed the LA that there are approximately 200 hydro powers schemes operating in the UK. Fifty of these operational schemes use archimedean screw technology. Many of these schemes will have been scrutinised at the planning application stage and have been approved subject to compliance with noise control conditions which typically apply both external and internal noise level requirements.

We understand that one archimedean screw type scheme located on the River Torrs has been the subject of a noise abatement notice in 2010. We have been informed that this was due to design and river flow issues and that with the installation of a flow switch which ceases the operation of the screw during certain conditions that the abatement notice has been complied with.

### **Updated Noise Assessment by Peter Brett Associates**

Following the decision by the planning committee in April 2015 further information was requested from the applicant relating to noise emission and mitigation issues concerning the scheme.

The updated report has included the following information;

- Non-Technical Summary Report
- Background noise survey at Teddington Studios location
- Reference to other hydro schemes which have used similar assessment methodology
- More stringent penalties applied to discreet elements of noise emissions following recent update of BS4142: Methods for rating and assessing industrial and commercial sound
- Application of uncertainty budget
- Further detail on tidal conditions when the hydro scheme will not operate.
- New noise modelling undertaken of the existing ambient noise situation and the proposed situation with the effect of the hydro scheme, taking account the amended noise source data.

The report reasserts the previous position that noise emissions from the hydro eclectic scheme can be mitigated and minimised so as to comply with the Local Authority & NPPF requirements.

### **Commercial Environmental Health Response**

Having considered the information provided in the both the initial and subsequent acoustic reports the Commercial EH Department considers that noise emissions from the operation of the hydro power scheme can be mitigated and minimised so as not to cause adverse impacts



on the health and/or quality of life of occupiers of residential and/or commercial premises in the vicinity of the proposed hydro power scheme and therefore will comply in principal with National Planning Policy and Guideline requirements and as such the scheme is acceptable subject to compliance with the noise control conditions detailed below.

**Professional comment:**

There is little evidence that the residents views either for or against the proposal have changed. The views of applicant's technical experts and those of the experts opposing the proposal are also as diverse as ever. This is not altogether surprising as calculating uncertainties with a view to either justifying or resisting this scheme will almost inevitably come to different conclusions with little likelihood of a consensus being reached. Officer's advice having considered the additional information and response nevertheless remains that the imposition of the conditions as proposed, contrary to what opponents are suggesting, should give sufficient certainty to members to agree the recommendation. They are considered to be both restrictive and enforceable. Members are advised to focus more on the proposed conditions, for which they have the authority to enforce, and to take a view as to whether they believe the noise level limits stipulated, which are definitive, are sufficient to safeguard amenity. If they are of the view they are, as officers do, or that additional conditions should nevertheless be imposed, the expectation would be that permission is granted.

**Recommendation**

I therefore recommend that the application for planning permission be **APPROVED** subject to the following conditions and informatives as set out below

**Standard Conditions:**

- AT01 - Development begun within 3 years
- DV48 - Decision details
- BD12 - Details - Materials to be approved
- DV28 - External illumination
- LT13 - Protect major Roots - Root Treatment

**Non standard conditions:**

- NS01:** Noise levels

The sound energy level from the operation of the hydro power scheme when assessed at representative residential and commercial noise sensitive premises and/or locations or when measured elsewhere and calculated to the said locations, shall not exceed the limit levels detailed in the table below. The measured or calculated external sound energy levels shall be determined in accordance with the latest British Standard 4142 Methods for rating and assessing industrial and commercial sound (currently 2014). The measured or calculated internal sound energy levels shall be determined in accordance with the latest British Standard 8233 Guidance on sound insulation and noise reduction for buildings (currently 2014). The hydro power scheme shall not be operated unless these provisions are met



**Table 1: External & internal Noise Limit levels**

Receptor	Location	External BS4142 Criteria	Internal	
			BS8233 Criteria	
			Day 07.00-23.00	Night 23.00-07.00
MP1	Lensbury Hotel by Riverside Pavilion & Guest Rooms	Rating Level minus Background Level no greater than +5	35dB(A) $L_{Aeq,15hour}$	30dB(A) $L_{Aeq,9hour}$
MP2	Lensbury Hotel by External Conference Marquee	Rating Level minus Background Level no greater than +5	na	na
MP3	Lensbury Hotel by External Conference Centre Patio	Rating Level minus Background Level no greater than +5	na	na
MP4	Burnell Avenue	Rating Level minus Background Level no greater than -5	35dB(A) $L_{Aeq,15hour}$	30dB(A) $L_{Aeq,9hour}$
MP5	Lensbury Hotel Garden Area	Rating Level minus Background Level no greater than +5	na	na
MP6	Teddington Studio Site	Rating Level minus Background Level no greater than -5	35dB(A) $L_{Aeq,15hour}$	30dB(A) $L_{Aeq,9hour}$

Reason: To safeguard the amenities enjoyed by occupiers of neighbouring property.

#### NS02 - Proposed Mitigation Scheme

Prior to construction of the hydro power scheme to which the application refers, full details of the proposed noise mitigation scheme for both hydrodynamic and mechanical noise control, including; drawings, noise attenuation specification, noise predictions and calculations shall be submitted to and approved in writing by the local planning authority. The scheme shall be retained thereafter as approved.

Reason: To safeguard the amenities enjoyed by occupiers of neighbouring property.

#### NS03 - Commissioning Test

Before the first commercial use of the HydroPower Scheme to which the application refers, an acoustic commissioning test and report shall be undertaken within 2 weeks of mechanical commissioning in order to demonstrate if condition NS01 above has been achieved. The results of the test shall be submitted to and approved in writing by the Local Planning Authority. The hydro power scheme may not be operated unless these provisions are met

Reason: To safeguard the amenities enjoyed by occupiers of neighbouring property.

#### NS04 - Construction Method Statement.

Prior to commencement of the development, a construction method statement (CMS) for the ground works, demolition and construction phases of the development site shall be submitted to and approved in writing by the Council. Details shall include control measures for noise and vibration, including working hours and dust control. Approved details shall be implemented throughout the project period.



The CMS should include an acoustic report undertaken by a suitably qualified and experienced consultant and include all the information below; The following information must be supplied as part of the CMS

Baseline Noise Assessment – undertaken for a least 24-72hours under typical conditions. If weekend /evening working is required the background survey must contain relevant data for these times.

Piling- Where piling forms part of the construction process, a low vibration method must be utilised wherever possible. Predictions for vibrations levels at sensitive receptors must be included and demonstrate that target levels detailed in BS5288 for prevention of cosmetic structural damage can be achieved.( Annex B BS5288 2009 Part 2).

Vibration Monitoring - All Piling activities undertaken near sensitive receptors must include continuous vibration monitoring (see 5.) and must include audible and visual alarms.

Noise Predictions and Significance Effects - Predictions should be included for each phase of the demolition, and construction, and an assessment of the significance effect must be included (Annex E BS5288 2009 Part 1). Where predictions indicate that the significance effect will be triggered, mitigation must be indicated. Where appropriate noise modelling should be undertaken to enable predictions to be undertaken for each phase and to illustrate the noise contour

Noise Monitoring – Periodic noise and vibration monitoring must be undertaken for the duration of the demolition and construction phases which may result in a significant impact.

Reason: To safeguard the amenities enjoyed by occupiers of neighbouring property

**NS05 - Electricity supply line**

That details of the route of the electricity supply line and its method of construction, together with any new substation, shall be submitted to and agreed in writing by the Local Planning Authority. **Reason:** To safeguard the visual amenity of the riverside and minimise impact on the existing vegetation and riverside habitats.

**NS06 - Foundations**

Any works using penetrative methods, including piling or any other foundation designs, shall not be permitted other than with the prior express written consent of the local planning authority, which may be given for those parts of the site where it has been demonstrated that there is no resultant unacceptable risk to groundwater. The development shall be carried out in accordance with the approved details. **Reason:** The use of penetrative methods at this site could result in risks to the underlying principal aquifer from, for example, pollution / turbidity, risk of mobilising contamination, drilling through different aquifers and creating preferential pathways. Thus it should be demonstrated that any proposed penetrative methods will not result in the contamination of groundwater.

**NS07 - Groundwater**

No development shall take place until a Preliminary Risk Assessment for the site that quantifies the risks to groundwater quality that the scheme could present and provides sufficient mitigation measures to ensure any risks to groundwater quality are acceptable has been submitted to and approved, in writing by the local planning authority. The Preliminary Risk Assessment must consider the risks to controlled waters during all phases of development - the construction and finished site, and ensure that all activities are considered and pollution prevention measures reviewed. Any mitigation measures within the assessment shall



subsequently be implemented in accordance with the approved details before the commencement of the operation of the scheme. **Reason:** To ensure adequate mitigation is provided for the protection of groundwater

**NS08** - construction of foundations

No material start shall take place on the development hereby approved until written details of the proposed equipment used and method of constructing the foundations have been submitted to and approved by the Local Planning Authority. The details shall demonstrate that the equipment and methodology used would minimise nuisance to neighbouring properties. The development shall be implemented in accordance with the details so approved. **Reason:** To protect the amenity of neighbouring occupiers and the area generally.

**NS09** - Bat roosting/emergence surveys

In the year preceding major construction works bat roosting/emergence surveys shall be carried out and appropriate mitigation adopted if bats are found to be present at the Gauging Station. Such surveys and any necessary mitigation measures are to be agreed in writing by the Local Planning Authority. **Reason:** In the interest of safeguarding protected species.

**NS10** - Ground clearance

Prior to any ground clearance the out a walkover survey shall be carried out and appropriate steps are to be agreed in writing by the Local Planning Authority, to protect any nesting birds; hibernating hedgehogs; reptiles, hazel dormice, and water voles found in the immediate vicinity of the site accessible to the applicants **Reason:** In the interest of nature conservation.

**NS11** - Trash Screen.

Prior to commencement of the development details of the trash screen shall be submitted to and approved in writing by the LPA together with details of its management including contact details of persons responsible for its maintenance and clearance of debris. **Reason:** In the interest of the amenity of the riverside.

**Standard Informatives:**

National Planning Policy Framework Informative

**Non standard Informatives:**

**NI01** - Impoundment licence

An impoundment licence will be needed by the applicant from the Environment Agency for this scheme to consider water resources and related environmental impacts and there will need to be an operating agreement between the Environment Agency and the operators to ensure flood risk and navigation duties are not affected.

**NI02** - Water Resources Act 1991

Under the terms of the Water Resources Act 1991, and the Thames Region Land Drainage Byelaws, prior written consent of the Environment Agency is required for any proposed works or structures, in, under, over or within 8 metres of the top of the bank of the fluvial Thames and 16 metres from the tidal Thames designated a 'main river'

**NI03** - Prior to construction of the development the applicants are advised to agree with the Environment Agency the minimum flow rate (to safe guard fish) the hydropower scheme will be allowed to operate.



## APPENDIX A

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**Applicant:** Mr Stephen Jarvis, Ham Hydro CIC

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Policy DM SD 6 Flood Risk  
Policy DM DC1 Design Quality  
Policy DM DC4 Trees and Landscape

Other

Thames Landscape Strategy

**SUMMARY OF APPLICATION:**

The proposal has been considered in the light of the Development Plan, comments from statutory consultees and third parties. It has been concluded that, subject to conditions to protect environmental (including biodiversity) and local concerns, including wider heritage assets and noise and disturbance, there is not sufficient or significant harm to interests of acknowledged importance caused by the development that justifies withholding planning permission.

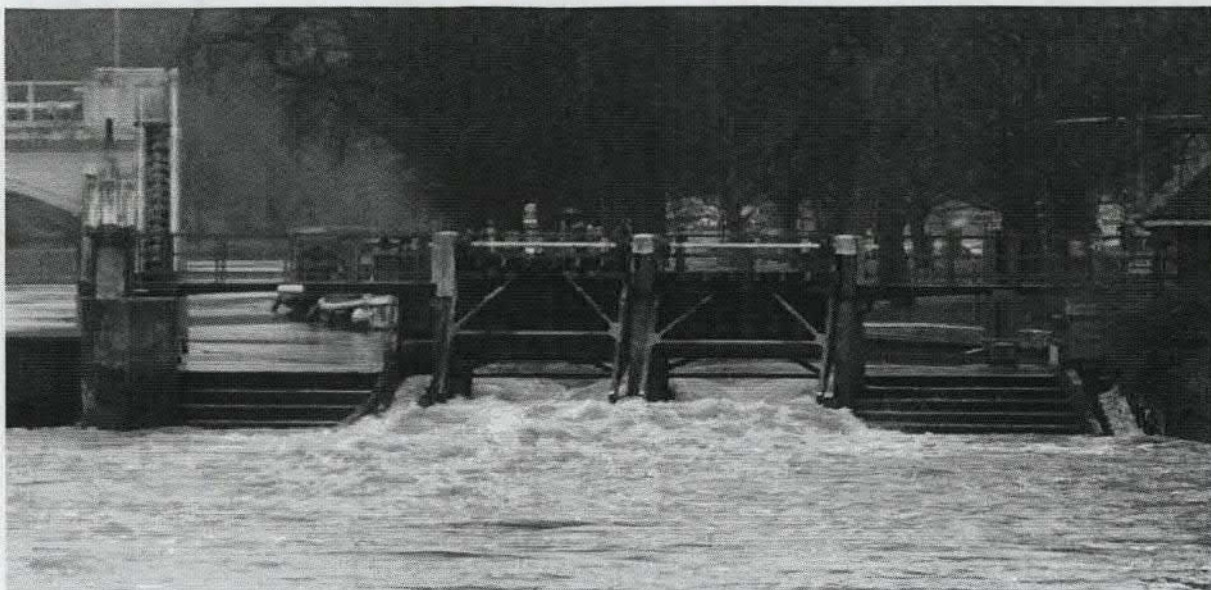
The proposal has not been found to cause an increase in flood risk irrespective of whether or not proposed strategic flood risk schemes go ahead.

**RECOMMENDATION: PERMISSION**

**Site, history and proposal:**

1. Teddington Weir is the largest weir on the Thames, comprising a combination of fixed crest weir sections and moveable gates. The weir is approximately 7.7km downstream of Molesey Lock and 5.1km upstream of Richmond Lock). It represents the normal tidal limit of the River). At Richmond Lock a tidal barrier system is operated whereby moveable weir gates are put in place to retain a minimum tidal level in the reach between there and Teddington Lock over the low tide period and opened to allow free tidal flow for about two hours before and two hours after high tide. Thus the River Thames on the seaward side of Teddington Weir is semi-tidal, with the tidal influence experienced for about four hours on each tide.





**▲ Existing section of the weir viewed from the west**

2. The River Thames is designated Metropolitan Open Land (MOL) and as such Core Strategy policy CP 10, DMP policy DM OS 2 apply. In addition, the site is within the Teddington Lock Conservation Area, designated as Other Site of Nature Importance and falls within the Thames Policy Area as well as high risk flood zone. The local character of the area is clearly formed by the river and its extensive riverside infrastructure, including the weir and lock.
3. The Surrey side is prominently open while the Middlesex bank comprises the verdant and sylvan grounds of the Lensbury Club, the former Teddington Studios (soon to be redeveloped) and the Anglers Public House from where Teddington footbridges (Grade II listed) follow on from Ferry Road.
4. The original proposal ref. 11/3908/FUL was withdrawn to allow a resubmission which includes an eel pass, the opportunity was also taken to refine the design principally by removing a cover over the whole with individual covers to gear housing which reflect the design of the Thames barrier.
5. As before the proposed development would comprise three Archimedean screws, each with a diameter of four metres and with four blades, operating within an inclined concrete trough with a top invert level of 2.55m AOD. The maximum generating capacity will be just under 500kW. Each will be fed through a trash screen, via a sluice gate that can be closed fully when necessary for maintenance purposes to stop any flow passing through the screws. Alongside the Teddington Bank, a Larinier fish pass will be constructed. An eel pass is also to be provided on the other side of the weir. Between the screws and the roller shutter structure, there will be a flood protection channel controlled by a sluice gate approximately 3m wide. Above the screws will be a walkway and the electrical generating equipment, with a plant room located above the flood protection channel. A trash screen is also proposed upstream. The structure will be predominantly concrete both raw and painted white, blue engineering bricks will be used facing Lensbury, metal work will be grey and silver. Semi circular Perspex hoods will cover screws. The scheme is fully described in the submitted design and access statement and visual impact statement.



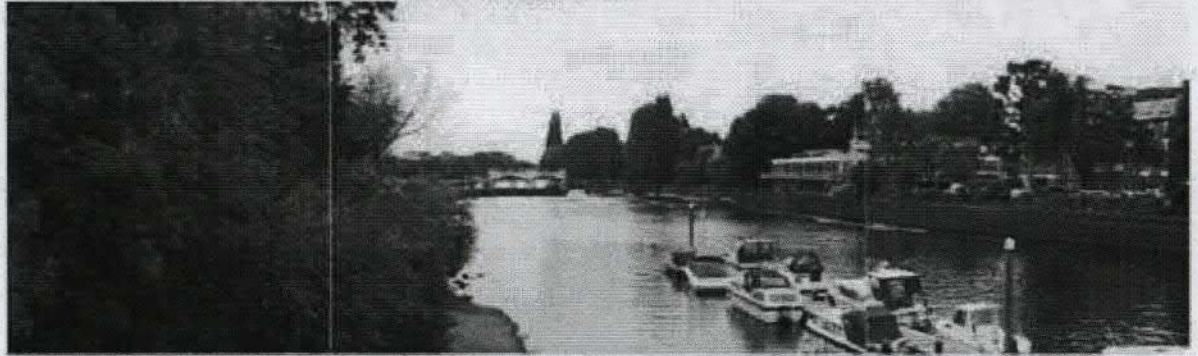
**View from the Ham Bank: Before construction**



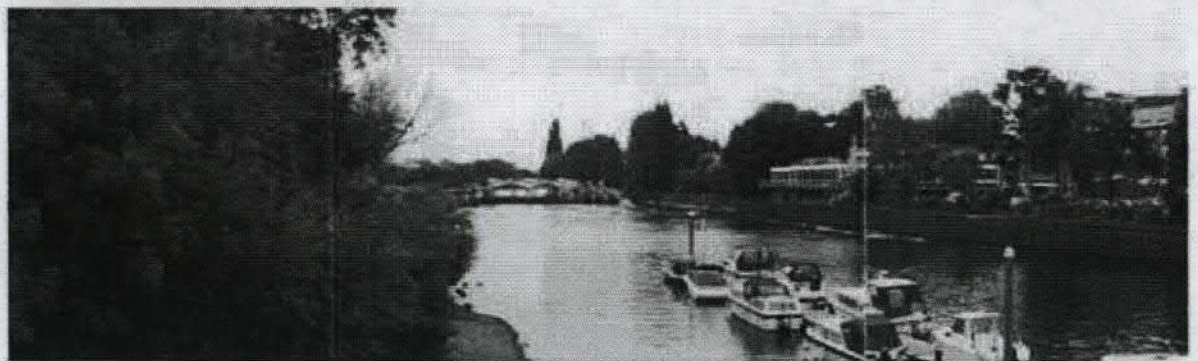
**View from the Ham Bank: After Construction**



**View from Teddington Bridge: Before construction**



**View from Teddington Bridge: After Construction**



6. **HAM HYDRO CIC – Statement of Consultation prior to original submission:**  
St Mary's Parish Hall (February 2014)  
Scared Heart Catholic Church Hall (Dec2013)  
Published articles in Local press (throughout 2012 – 2014)



Meetings with the Teddington Society, Lensbury and RNLI (May 2014)  
 Presentation to Richmond & Twickenham UN Association (21 October 2010)  
 Public meeting held at St John's Ambulance Hall, Teddington 30 September 2011  
 Festival held at Kew Gardens. August 2011 – a Ham Hydro representative gave a Q&A session  
 Grey Court School, Ham June 2011: Public meeting  
 Presentation given to Richmond Society (19 May 2011)  
 Stall at Ham Fair (11 June 2011)  
 Stall at Ham House 'Sow and Grow' event (29 May 2011)  
 Stall at Richmond May Fair (14 May 2011)  
 Consultation with Thames River Users Group, tidal Thames section (5 May 2011)

#### **Strategic Policy Background:**

##### The Climate Change Act 2008

7. The Act makes it the duty of the Secretary of State to ensure that the net UK carbon account for all six Kyoto greenhouse gases for the year 2050 is at least 80% lower than the 1990 baseline, toward avoiding dangerous climate change.

##### National Planning Policy Framework:

The presumption in favour of sustainable development,  
 Achieving sustainable development,

8. International and national bodies have set out broad principles of sustainable development. Resolution 42/187 of the United Nations General Assembly defined sustainable development as meeting the needs of the present without compromising the ability of future generations to meet their own needs. The UK Sustainable Development Strategy *Securing the Future* set out five 'guiding principles' of sustainable development: living within the planet's environmental limits; ensuring a strong, healthy and just society; achieving a sustainable economy; promoting good governance; and using sound science responsibly.

##### Planning practice guidance for renewable and low carbon energy July 2013:-

9. Local planning authorities are responsible for renewable and low carbon energy development of 50 megawatts or less installed capacity (under the Town and Country Planning Act 1990).

(Ham Hydro is less than 0.5MW)

'Planning practice guidance for renewable and low carbon energy' was issued by the Department for Communities and Local Government replacing the cancelled 'Planning for renewable energy: a companion guide to PPS22'. This places new emphasis that delivering new renewable and low-carbon energy infrastructure should not 'override environmental protections and the planning concerns of local communities'

10. Planning applications for hydropower should normally be accompanied by a Flood Risk Assessment. Early engagement with the local planning authority and the Environment Agency will help to identify the potential planning issues, which are likely to be highly specific to the location. Advice on environmental protection for new hydropower schemes has been published by the Environment Agency and states a sustainable hydropower scheme builds environmental protection into the location, design and operation of the scheme. Key features include:

A turbine and screening arrangement that protects fish,  
 maintaining or improving fish passage within a water body,  
 sufficient flow in any depleted reach to maintain or improve the ecology of the water body so it is more likely to comply with relevant directives,  
 A design that avoids impairing flood management structures or adversely affecting land drainage.



11. Environment Agency good practice guidance for hydropower schemes recommends a checklist covering the following areas:  
Water resources and hydro morphology  
Conservation  
Chemical and physio-chemical elements  
Fisheries and biodiversity  
Managing the risk of flood  
Navigation  
(The checklist has been completed as part of the overall proposal)

**Public and other representations:**

Environment Agency

12. The Environment Agency (EA) is a regulator that approves the use of water resources and helps to protect the environment as well as being a statutory consultee within the town planning process that provides advice to councils on environmental impacts of proposed developments. They are also the navigation authority in this area and the landowner of the weir.
13. The EA are aware that there are some local concerns e.g. visual impacts and a number of objections to this application, and state that some of which are on issues outside their remit as a statutory consultee. Their role do not seek to provide justifications for the design choices made by the applicant, but rather to advise on whether submitted designs are acceptable. The EA state they are satisfied that the application addresses all of the concerns within their remit subject to the requested planning conditions and having reviewed the information submitted raise **no objection** to the proposed development.
14. Further details in relation to fish and biodiversity, flood risk management and groundwater protection conditions are set out in the professional comments below.
15. DEFRA: No representation made.
16. GLA (Biodiversity): No representation made.

Port of London Authority:

17. The Harbour Master would like assurances that flow rates in the future will not be driven by the need to generate electricity over priorities on navigation of the lower river. The Environment Manager would be concerned if the flow rate altered significantly as a result of the proposed development or it was to be pulsed  
(The EA have separately confirmed with the PLA they will safeguard navigation).

Representations in Support:

18. In the order of 235 letters/representations have been received, including ones from both the Borough's MP's (prior to the dissolution of parliament). Zac Goldsmith and Vincent Cable

The general consensus is that this is a highly sustainable form of development which will benefit the local community without causing harm to the local character or local amenity. Rather than prejudice biodiversity interests, the provision of the fish and passes will more than compensate for the anticipated minimal harm to fish.

The proposal has an imaginative design and should be welcomed as an asset to the Borough as a visitor attraction.



Objections to the proposal are being exaggerated, not all Lensbury members are opposed to the proposal indeed some support it.

Representations opposed:

19. In the order of 467 letters of objection have been received including those from Councillors Roberts and Evans who both share many of the concerns expressed by residents.

- The majority on the first application predominantly came from the angling community represented by the Anglers Trust and Thames Anglers Conservancy who made very detailed and specific objection. They disagree a separate Environmental Impact Assessment was not necessary.
- The applicant's survey and re survey work, studies and findings are both questioned and disputed. The river conditions during the survey work were atypical further research is necessary, not all species have been taken into account.
- Biodiversity interests would be compromised.
- It is suggested the scheme is not viable and could become a 'white elephant', the generating capacity is questioned moreover there is a conflict of interest as the Environment Agency are both 'judge and jury' in a scheme they are promoting along the whole of the Thames.
- The impact should be considered cumulatively rather than individually.
- Concern is expressed over impartiality given the EA are promoting the scheme which has also received public funding.
- There is concern over the practicality of construction and likely disturbance over a considerable period, possible conflict with navigation and safety of riverside users, accumulation of and clearance of trash.
- There is considerably concern over the impact on flooding, especially following the recent floods.
- Whilst the Teddington Society accepted the principle of renewable energy and would support an alternative location with better designed equipment they were opposed to this particular location and type of equipment being proposed. The matter of local flooding is of particular concern and they feel a decision should not be given until such time as the outcome of the River Thames scheme is known.

The Lensbury Club:

20. Objections have been made in particular to the visual impact of the proposal and impacts and on noise pollution which, apart from other objections mentioned above, is a particular concern to the Lensbury Club as they believe it could have a substantial impact on its Hotel and Conference business. The Lensbury is an important leisure and business asset to the Borough, part of its success is due to its attractive riverside location which includes designated heritage assets namely; the conservation area; the two Listed Footbridges; the Boat Yard, together with their settings; and the non-designated heritage asset is the Lensbury Club (Building of Townscape Merit in part) and its grounds and wider setting (MOL). These Heritage assets and their setting are considered to have a much wider public benefit. The nature and form of proposal would have a significant adverse impact on these both in visual terms and noise pollution; ecological interests and flood risk. They consider the application lacks clarity, fails to meet necessary statutory requirements and lacks adequate supportive justification.

21. The Lensbury have commissioned separate reports covering Visual and heritage objections; Aquatic and fisheries objections as well non marine ecology issues; Noise objections and Flood risk objections. These they believe demonstrate that the proposal is ill conceived and should be refused. Their conclusions/summaries are set out below:

- Visual and Heritage



- There is insufficient and misleading information submitted in support of the planning application.
- The application documents are generally predicated without reference to the NPPF, and therefore questionably invalid.
- There is no demonstration of sufficient understanding of significance of the site and its context.
- The applicant has failed to assess properly the significance and heritage values of the conservation area and the designated and non-designated heritage assets within it.
- The development proposal has not been informed by an understanding of the significance of heritage assets: their evidential, historical, aesthetic and communal value.
- The proposal causes "less than substantial harm" to the character and settings of heritage assets, both designated and non-designated.
- The proposal causes "less-than-substantial harm" by the demolition of part of the existing weir structure, which has not been properly assessed as to its contribution to the appearance and character of the Conservation Area.
- The new hydro structure does not make a positive contribution to character and local distinctiveness; there is no demonstration that the proposal preserves or enhances the Conservation Area or the setting of the designated and undesignated heritage assets.
- The proposal will have detrimental impact on the enjoyment, use and interpretation of the significance of the Lensbury and its grounds.
- The proposal involves the demolition of non-designated heritage assets within the conservation area that is part of the existing sluice but also obscures from key views the existing distinctive arched structure to the roller sluices. The views from the grounds and setting of the Lensbury Club, itself a non-designated heritage asset, are detrimentally affected by the new structure.
- The rural and domestic scale of the present views are transformed into an industrial landscape which dominates the views.
- Additionally, the grounds of the Lensbury Club, which are used for functions and generally by members, will be affected detrimentally by the noise and visual impact of the proposed scheme.
- The new structure prevents the appreciation of the nature of the heritage assets, which include views across the Thames to the leafy expanse of the opposite bank, which is expressive of the spatial qualities and topographical character of the river.
- The turbine development is within the setting of designated heritage assets, although not properly represented in the selected CGI views, and there are other views from and incorporating those assets which would be affected by similarly adverse impacts from the proposal.
- There is no acceptable exposition of balancing benefits that have been provided by the applicants in order to balance such highly adverse impact.

## 22. Ecology

- The benefit towards climate change is challenged.
- Lack of evidence base, a full assessment of the impact of fish, hydropower location is based upon structural integrity rather than ecology.
- No cumulative effect of the hydropower scheme on the River Thames has been undertaken
- Given the level of uncertainty with the impact upon flooding and with Teddington Weir pool then planning approval should not be approved until an Environmental Impact Assessment with a full geomorphology fluvial assessment is completed as well as demonstrating it is capable of meeting relevant EC legislation/directives together with meeting the EA's own guidance criteria.
- The London Borough of Richmond upon Thames should be challenged with their planning decision to allow THHCL Hydro to continue with the scheme without a full Environmental Impact Assessment (EIA).



- Furthermore, the Environment Agency (EA) has a conflict of interest with allowing the scheme to proceed without consideration to the cumulative effects of hydropower schemes on the River Thames and the impact upon eels.
  - The impartiality of the EA should also be questioned given that they will not only receive revenue from the scheme but will also allow a reduction in the existing flood defence at Teddington Weir.
  - Insufficient survey data on non marine species has been carried out for the Local Planning Authority to determine the planning application, unless further justification is provided as to why such further surveys have not been undertaken
23. Noise
- Consistent and systematic failure to adequately assess the potential noise impact from the construction and operation of the proposed installation.
24. Noise Data – The noise levels calculated by Peter Brett Associates (PBA) and the resultant noise assessment have been made using measurement data from a hydro turbine installation at Romney Weir, Windsor. The validity of the assessment and all resultant recommendations are based entirely on the assumption that the proposed Teddington Weir scheme is the same as the existing installation at Romney Weir (with the exception of a different number of turbine screws). However, there is no reason to suggest that the noise levels produced at Romney Weir will be representative of those produced by the Ham Hydro equipment. The PBA assessment goes on to highlight some of the many differences between the two schemes (size of the equipment, construction of encasement, screw design, flow rates on site and tidal conditions amongst other factors) which mean that this assumption is simply not valid. Without appropriate data for noise levels produced by a proposed piece of equipment there is simply no way of assessing the impact of noise from that equipment on the surrounding receptors.
25. Uncertainty budget – The local authority (LBRuT) have suggested that the noise assessment should allow a +/- 10 dB uncertainty budget to allow for variations in noise measurements at Romney Weir, the difference in topography between the sites and efficacy of the proposed mitigation. LBRuT and Professor Kang put forward this assumption with the caveat that the “transportation of results of from Romney to Teddington is still rather problematic”. The uncertainty budget has been used in PBA assessment as an allowance for fundamental differences in noise generation mechanisms between the two schemes as opposed to the normal uncertainty seen in the calculation of known noise sources as we understand was the intention.
26. Scheme drawings - With the exception of one drawing, the submitted drawings do not show the screw canopies and gearbox enclosures that the PBA report states will be required. In the single instance where these measures are shown, the gearbox enclosures and screw canopies do not meet the PBA recommendations. This infers that the applicant does not intend to implement the noise mitigation measures recommended by their acoustic consultant.
27. Mitigation measures – Even if the noise mitigation measures were adopted as proposed by PBA the Lensbury consider that the efficacy of these measures is greatly over-estimated with the PBA calculations. This means that the noise levels predicted in all of the PBA calculations and models will significantly under-estimate the noise levels at Teddington Weir.
28. Assessment criteria – The local authority (LBRuT) have proposed criteria for maximum acceptable noise levels at the nearby residential and commercial receptors. Lensbury includes extensive hotel accommodation and they consider that the criteria for residential receptors should be applied to these premises. People using the Lensbury premises for



residential purposes are entitled to the same protection as residents in the surrounding private houses and gardens. There is no difference in planning or environmental law in the protection against noise provided to permanent or temporary residents. Purely in terms of environmental assessment, the noise impact on an individual guest over short stay may be considered to be smaller than the effect on a permanent resident, but the cumulative noise impact on consecutive guests is equivalent to that of a permanent resident. Allowing a less stringent criterion for impact of noise on the Lensbury's guests could have a significant and measurable effect on the club's business.

29. Assessment locations – Irrespective of the selection of appropriate noise criteria, the PBA noise impact assessment fails to assess the impact of noise from the proposed development on areas immediately surrounding the proposed development site. These amenity areas include Lensbury's Wine Bar building and gardens where the supplied noise contour plots show that noise levels will be at their greatest.
30. Proposed noise conditions – with regard to the adoption of noise limits within a planning condition, it is not clear what additional action could be taken if the proposed scheme were granted permission and noise levels found to exceed the noise condition. Even if such action were taken it would take many months, perhaps years, to implement and during this time residents would be subject to excessive noise levels. Fundamentally noisy operations cannot be controlled simply by imposing noise conditions which may not be achievable.
31. Noise abatement – Lensbury understand that LBRuT have proposed to control noise from the development with the adoption of appropriate noise conditions on the basis that the Romney Weir installation "operates without causing a problem". They understand that noise problems with another similar installation at New Mills in Derbyshire has been served with a noise abatement notice which requires the device to be turned off during certain periods of the day. This is, strangely enough, not referred to in PBA's assessment.
32. Calculation errors and inconsistencies – There are significant inconsistencies between the modelling and calculation results, calculation errors and incorrect technical statements which call the overall quality of the noise assessment into question.
33. Construction noise assessment – The construction methodology does not assess the impact of construction noise and vibration on the surrounding receptors.
34. Flood risk - flooding at Teddington
  - Flooding at Teddington can be caused by high tides or high river (fluvial) flows. When high fluvial flows occur, the water levels are affected by tidal conditions.
  - Tidal flooding of riverside areas occurs regularly along the Teddington side of the river adjacent to Teddington weir and is not considered to be a problem. Flooding from very high tides is prevented by closure of the Thames Barrier.
  - Fluvial flooding is the main cause of flooding and there is an extensive area at risk during the 100-year flood, as indicated on the Environment Agency flood map.
  - Smaller fluvial floods affect local areas including Trowlock and Thames Ditton islands upriver of Teddington.
35. Impact of the hydropower scheme on flooding
  - The impact of the scheme on tidal flooding is considered to be negligible whereas the impact of the scheme on the estimated 50 and 100-year fluvial flood flows is an increase in upriver water levels of about 0.02m based on the results from a hydraulic model.



- The impact of the scheme on the estimated 10 and 25-year fluvial flood flows is an increase in upriver water levels of about 0.01m. Trowlock and Thames Ditton islands are affected by floods with a return period of about 5 years or greater.
- Two fluvial climate change scenarios have been modelled. The effect of the scheme on a "best estimate" 100-year event in 2107 is an increase in upriver water levels of about 0.02m, and the effect on an "upper end estimate" is an increase of about 0.03m.
- The predicted water level increases are based on assumptions about how the scheme would operate. In particular, it was assumed that there would be no flow through the turbines under flood conditions. This assumption was made because it is not known from the information available how the scheme would operate under flood conditions when very high flow velocities would occur and blockage of the screens could be rapid. The same assumption was made in the Flood Risk Assessment for the scheme carried out on behalf of Ham Hydro.
- More information would be needed on the hydraulic performance of the scheme if a more detailed analysis is required.
- Whilst these increases are small, mitigation of the increases would normally be required, particularly in this sensitive area. Mitigation measures could include increases to the capacity of Teddington weir and/or the adjacent floodplain.
- No mitigation measures are included in the documents reviewed for the scheme apart from the suggestion in the FRA that changes could be mitigated by changes to weir operation. This would not apply in large fluvial floods when the weir gates are likely to be fully open.
- The River Thames Scheme (Datchet to Teddington) includes improvements to the flood flow capacity of Teddington weir including the construction of new flood gates. It is understood that these improvements are intended to mitigate the impacts of water level increases caused by the Scheme, and do not provide mitigation for the hydropower scheme.

36. Design of the hydropower scheme

- The proposed hydropower scheme is located in an environmentally sensitive area adjacent to a hotel and conference centre. Access to the site is along the full length of Teddington weir.
- An alternative location is suggested at the other end of Teddington weir (subject to navigation assessment).
- The hydropower scheme would affect river flow patterns in the vicinity of Teddington weir and directed towards the river bank and there is a concern that erosion of the river bed could occur that may damage the banks.
- It is recommended that the impacts of flows through the scheme on local flow velocities and potential erosion is studied in further detail.
- The design of the trash screen for the hydropower scheme does not comply with Environment Agency recommended designs because the screen slopes are too steep and the cleaning arrangements are unsatisfactory and it does not appear possible to clean the screens during high river flows, when the largest amount of trash is likely to accumulate.
- There does not appear to be an area for the storage of trash or facilities for removing trash from the site. The accumulation, handling and disposal of trash will be an important issue in this sensitive area. As the adjacent land is private, trash may have to be removed by boat which might not be possible under high flow conditions.

**Environmental Impact Assessment**

37. Prior to the submission of the previous application, the applicant sent a request to the Council to provide a screening opinion in order to determine whether an EIA would be required with any subsequent planning application and it was subsequently confirmed that the Council was of the view that it would be not required in this case.



38. This was because the application did not automatically trigger the need for an Environmental Impact Assessment and the submission itself was below that needed for a scoping opinion. One was given nevertheless advising it was not a requirement as sufficient information would form part of the planning application as well as being required to meet the Water Framework Directive.

**Professional comments:**

39. This proposal has unusually received extensive comment, both strong local support and opposition, with specialist technical reports disagreeing and challenging the other.
40. For the development to proceed the need for planning permission is just one of many regulatory requirements to be met, most of these, including compliance with the Water Framework Directive, will be administered by the Environment Agency. Ongoing liaison with the Environment Agency has taken place to ensure the ability of the scheme to be compliant. It is not necessary that all these regulatory requirements have to be in place before a planning decision can be given. Where appropriate, other legislative requirements will have to be met such as The Conservation of Habitats and Species Regulations 2010 and The Wildlife and Countryside Act 1981.
41. In broader planning terms 'the concept' is clearly in line with National Policy. More locally the London Mayor seeks to increase the proportion of energy generated from renewable sources, and expects that the projections for installed renewable energy capacity outlined in the Climate Change Mitigation and Energy Strategy and in supplementary planning guidance will be achieved in London. All renewable energy systems should be located and designed to minimise any potential adverse impacts on biodiversity, the natural environment and historical assets, and to avoid any adverse impacts on air quality. The Council's Development Framework is also consistent with these objectives as well as seeking to safeguard local amenity.

Locational Designations:

42. The River Thames is designated Metropolitan Open Land (MOL) and as such Core Strategy policy CP 10, DMP policy DM OS 2 apply. In addition, the site is within the Teddington Lock Conservation Area, designated as Other Site of Nature Importance and falls within the Thames Policy Area as well as high risk flood zone (flood zone3).
43. Teddington Weir is a prominent structure within the River Thames and the existing landscape, recognised within the Thames Landscape Strategy along with the lock and footbridge as the main focus of activity and interest in this reach. The section of the weir to be used for the hydro power scheme was constructed in 1991-92. The proposal is to construct a hydropower installation (three Archimedean screw turbines) within the existing Teddington weir to generate electricity. This requires the demolition of this section of the weir (consisting of two fixed crest weirs, two radial gates and two fish passes)
44. From a MOL perspective, this proposal is considered to be a replacement structure, whereby one engineering solution is replaced by another one. The overall scale of the structure is comparable with the adjoining large roller sluice gates. The screws will be mainly below the top of the river wall, whilst the shafts will extend up to a higher level (above the projected maximum flood level), where the generator platform and walkway will be situated.
45. In line with MOL policies, there is a presumption against inappropriate development, and building development is generally unacceptable. MOL policies however recognise that there may be exceptional cases where appropriate development, such as "small scale



structures", is acceptable. Whilst not in itself a small structure, this proposal is for a replacement structure of an existing engineering component within the wider context of the weir, it does not involve a change of use as such and is functionally linked to the river, it is considered that this proposal is in line with MOL policies.

46. The proposals clearly have a visual impact on a sensitive section of the riverside, with views from and to listed structures, particularly the footbridge.
47. The overall scale is within that of the lock structures generally and the arches incorporated into the design and general indication of materials relate it visually to the existing main structure. As such it is not considered that the visual impact is generally negative. In the key view from the footbridge the turbines would add an element of visual interest and its overall design again is seen to be in character with the operational infrastructure which itself forms a key characteristic of the riverside conservation area. As a consequence it is not considered to compromise heritage assets, registered or otherwise, within their immediate or wider context, as has been suggested or the objectives set out in the Thames Landscape Strategy.
48. The need for an acceptable exposition of balancing benefits in order to balance such highly adverse impact would only arise if the premise that there was such a highly adverse impact was accepted. The proposal is seen as acceptable in its own rights and not dependent on a required level of 'green' measures or alternative benefits.

Renewable Energy:

49. Policy DM SD 2 supports the maximisation of opportunities for the micro-generation of renewable energy, in particular, the policy encourages local opportunities to contribute towards decentralised energy supply from renewable and low-carbon technologies where there is no over-riding adverse local impact. This hydropower scheme would generate electricity from renewable energy sources (Peak Power 492 kW and total annual production
50. 1.9 million kW/h) and would be the biggest renewable energy source in this borough and the Council's policies in relation to climate change and renewable energy highly support such a development, provided that any local impacts, e.g. on biodiversity and amenity, are appropriately mitigated.
51. Concern has been expressed regarding the benefits of the development not reaching or reducing carbon emissions and dependency on non-renewable sources of energy for local residents and businesses. While this remains to be seen, the withholding of permission on this basis would not be sustainable.
52. With respect to objections received, the acceptability of the proposal in planning terms is not dependent on whether or not the scheme will generate sufficient electricity, the nature of its financing or its viability which is a commercial decision for the applicants. Nor should an application be refused because more technically advanced equipment may exist.

Impact on biodiversity:

53. Clearly, such is the nature of the development, matters pertaining to biodiversity will be a key consideration. In terms of its impact on the land this is likely to be relatively limited nevertheless conditions are being imposed to safeguard nature conservation interests.



54. Whilst no bats were found to be nesting in the existing structures further emergence surveys are being sought in the year preceding development together with restrictions on lighting as the River Thames corridor is an acknowledged feeding area for bats. A condition is recommended requiring a survey prior to commencement of works as recommended by the EA. Other conditions are recommended to safeguard riverside habitats and protection of nearby trees which are subject of a preservation order. It is however not considered the laying of a power cable on the river bank should cause any serious issues.
55. The impact on aquatic species has been the subject of in depth investigation and reports on the findings. The applicants contend any risk to fish and other species will be minimal and any harm will be more than compensated by the provision of a fish pass to EU standards where the existing smaller fish passes do not comply. The Angling community disagrees and has raised detailed concerns over the findings and methodology. Consideration of these highly specialised matters is not one the Council has any specialist knowledge on and as such is relying on the Environment Agency (EA) as the appropriate authority who does.
56. Both the applicant's findings and the concerns raised on them has been the subject of discussion between the parties and further research and survey work has been carried out. The advice given to the Council following consideration by the EA is that they are now supportive of the proposal subject to conditions which have been included below. In particular they have advised that they will not grant a licence unless the Hands Off Flow (HoF) (the flow below which the hydropower scheme will not be allowed to operate) has been agreed at a level to ensure there would not be negative environmental impacts. The EA advice to the LPA has been further challenged however The EA has reaffirmed its advice that, given the information submitted, the proposed hydropower scheme can be built and operated such that there will be no negative impacts on the environment, including on fish and fish habitat as well as on the depressed river mussel.
57. The EA maintain their satisfaction with the surveys submitted which adequately assess the potential impact on fish and biodiversity and that the Fish and Eel passes as proposed provide mitigation is still relevant following the floods of 2013 -2014.
58. The guidance for fish pass design requires the fish pass to be positioned at the 'head' of the weirpool as this is the most efficient and effective location. The hydropower proposal will replace the existing fish passes with a larger multi-species design more suitable for the River Thames.
59. Impacts from development on the river habitat are included as part of the River Basin Management Plan, Thames River Basin District - December 2009 and the applicant has carried out a Water Framework Directive (WFD) assessment as part of the planning application.
60. The WFD requires any impact on the river habitat to be mitigated for and is included within their River Basin Management plan. The EA acknowledge that poorly designed hydropower schemes can have an adverse impact on the local environment, especially on the ecology of a river and the fish population. Some hydropower schemes can reduce flows within a watercourse and have the potential to increase flood risk or affect land drainage. We objectively assess all applications to look at potential impacts before granting any permission for a scheme to be installed.
61. The EA have considered the impacts on water resources, water quality, flow distribution, river habitat and fish passage and how they will be affected by the proposed hydropower development and confirm that that they have no concerns and that the design in



conjunction with the required water resources licence will protect the existing environment.

Impact on amenity:

62. Concern has been expressed over the ability for construction to take place without causing noise and disruption. As with all development sites they are sites they are subject to the Control of Pollution Act 1974 additionally a condition is proposed requiring a construction method statement. The applicants have outlined how it is to be constructed with access from the river rather than by road.
63. The NPPF 2012 sets out in relation to Pollution Control Requirements the following:
  - To prevent unacceptable risks from pollution new development must be appropriate for its location and the effects of pollution on the amenity mitigated to an acceptable level.
  - Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
  - Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;
64. Noise has been raised as a particular concern and the Council's environmental health officers recognise that there is potential for loss of amenity to existing local residents and commercial businesses due pollution issues from noise from the operation of the hydro power scheme both in terms of hydrodynamic noise and mechanical noise and noise from the construction of the hydro power scheme.
65. The applicants own noise assessments in both submissions have been challenged in terms of their accuracy and methodology. As the Council has not had any direct experience of noise generation from such turbines and the effectiveness of measures to mitigate potential noise nuisance an independent consultant was employed to review the applicant's submission in consultation with the Council's Environmental Health Officer.
66. The conclusion on the initial report was that in terms of the methodology used to determine the source sound pressure level and frequency spectrum for the proposed hydro scheme, more systematic analysis would be needed. Various parts of the sound source should be analysed and for each part some theoretical rather than only empirical discussions could be made. The existing data should be examined in more detail and the use of three points to predict the sound power level of the planned installation should be further justified.
67. The estimation of the sound pressure level at the receivers was oversimplified and more factors would need to be considered. It was recommended that carrying out a systematic examination of relevant factors and then using noise mapping software or other more accurate tools to estimate the noise level at receivers.
68. In terms of proposed noise mitigation scheme, more detailed analysis is needed. The estimation of target values is oversimplified and some important issues of the proposed semi-enclosure should be discussed. Other options, like barriers, could be explored in a strategic way.
69. Tidal variation of background noise levels should be examined more carefully, based on the data available already for this project, and it is also suggested to search for other relevant data.
70. Having regard to the above comments the applicants commissioned a further noise impact investigation in liaison with the Council's Environmental Health Officer, which has



had regard to the Romney Weir Hydropower Scheme recently becoming operational. A further Noise Assessment was submitted which concluded 'With the proposed mitigation comprised of acoustic panels with sound absorptive material surrounding the gearbox the permitted rating level is expected to be met at all of the identified noise-sensitive receptors in the vicinity of the Teddington Weir hydropower scheme for all but a small proportion of the time'.

71. Notwithstanding the differing views of Lensbury consultants and others, the Environmental Health Officer is satisfied adequate mitigation to achieve satisfactory noise levels overall is achievable and conditions are proposed to require specific details together with a pre-commissioning test to ensure the required levels have been achieved prior to the scheme becoming operational. In addition to the potential for noise impact and future measurement and monitoring, the development approved at Teddington Studios, to the north west and adjoining the Lensbury Club (reference 14/0914/FUL) has been considered.

Flooding:

72. The concern over this matter has risen considerably since the submission of the first application and this is clearly as a result of the serious flooding in the area in early 2014.
73. The Environment Agency have been advised of the various reports and concerns raised over the matter of potential increase in risk of flooding and have considered them before responding as a statutory consultee. Whilst understanding the concern residents have over any proposal that might increase the risk of flooding the Council would nevertheless be expected to accept their formal advice.
74. The EA reviewed the Flood Risk Assessment (FRA) dated 30 May 2013 and are satisfied that the applicant has adequately assessed and addressed flood risk arising from the proposal. The scheme has been designed to take account of the 1 in 100 year plus climate change flood level which is in line with National Planning Policy and our standard criteria for assessing flood risk.
75. The modelling used by the applicant for the FRA is the Environment Agency's River Thames (Lower) Reach 4 2010 model. A series of different flows for different flood events have been modelled including a run taking into account the impacts of climate change. There have been no changes or updates to this model since 2010. The modelling used is therefore still the best available information for the FRA.
76. The level of flooding experienced last winter was not outside of any previously recorded range of flow or level for the River Thames. The return period recorded on the River Thames in February 2014 at Kingston upstream of Teddington showed the event was a 15-20 year return and they do not consider the 2013-2014 flooding requires an update to the FRA.
77. The River Thames Scheme is a partnership Scheme which will reduce flood risk in communities close to the River Thames between Datchet and Shepperton. The partnership is between the Environment Agency, the 7 Local Councils along the route and Defra. The Scheme consists of large scale engineering work to construct a flood channel in three sections, widening of the Desborough Cut and improvements to three weirs, including Teddington Weir.
78. The River Thames Scheme team is currently working on greater detailed design of the works to Teddington weir. The EA do not consider that there is any conflict between the River Thames Scheme and the proposed hydropower scheme both being installed on the



weir as they liaise with the Teddington & Ham Hydro community group as they develop their plans to ensure opportunities to work together are identified.

79. At this stage they are satisfied that the hydropower proposals will not prevent the River Thames Scheme works to Teddington Weir and the section of the weir where hydropower is proposed does not form part of the solution for the River Thames Scheme (Datchet to Teddington) where this section of weir may not provide sufficient space for the proposed additional flow capacity required at Teddington.
80. The Thames Estuary 2100 (TE2100) plan sets out the strategic direction for managing flood risk in the Thames estuary to the end of the century and beyond. It sets out how the EA will continue to protect 1.25 million people and £200 billion worth of property from tidal flood risk. The TE2100 levels have been produced for extreme events whereas levels used for a hydropower scheme are based on modelled levels for events up to and including the 1 in 100 year plus allowance for climate change. The probability of the River Thames reaching the levels modelled by TE2100 is in excess of a 1 in a 1000 chance of flooding in any year. All schemes whether they are hydropower or for flood alleviation have to consider flood risk and are required to demonstrate that there will be no detriment, through all flood events. In this case the EA are satisfied that the development has done so.
81. The main flood mitigation measure included within the scheme is the provision of the flood prevention (or protection) channel. This is shown in drawing L(PA)003 (revision 2) which is shown on both page 15 and in appendix B of the FRA. This is an essential part of the scheme.
82. The EA are therefore satisfied having reviewed the information submitted that the application has demonstrated that there will be no increase in flood risk or impact on strategic flood risk schemes based on the best available data.

Other issues:

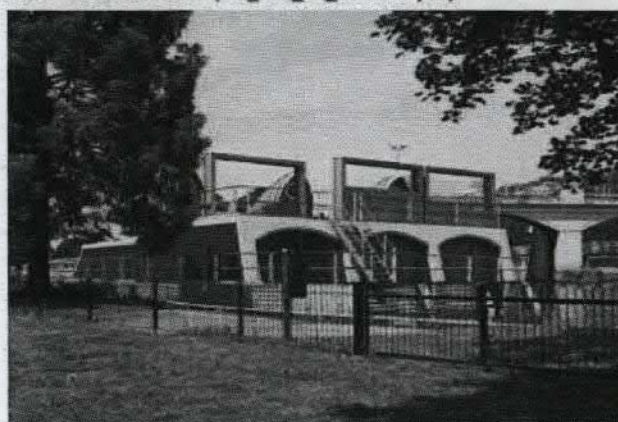
83. With regard to groundwater protection, no information has been submitted to demonstrate that risks to groundwater quality have been considered. Ideally, a Preliminary Risk Assessment determining the risks to groundwater quality and providing appropriate mitigation would be submitted prior to planning approval. However, given the sensitivity of the underlying aquifer and the types of works envisaged, the EA recommend conditions to protect the quality of groundwater.
84. The operation of the plant and health and safety matters are covered by separate legislation, its operation should not diminish the enjoyment of river users and users of the Thames Path indeed, as has been suggested, it could become an additional attraction.



Before – Standard View (HH\_050\_00\_Lensbury01)



After – Standard View (HH\_050\_71\_Lensbury01)



85. The particular impacts of noise and visual intrusion on Lensbury is clearly of significant concern to them and there is empathy with this, particularly where there is conflicting technical advice.
86. Whilst scepticism has been expressed over the effectiveness of the proposed noise condition permission is being recommended on the basis that the hydroplant can only be operational once it has been demonstrated it is, as a matter of fact, capable of operating within the required constraints of the condition. It is recognised that as Lensbury backs directly onto the site of the hydroplant its presence as a larger structure will without doubt be noticeable, as to whether or not it is visually unacceptable is a subjective matter however it is not considered sufficient to sustain a ground for refusal. Views, including those over private land are not protected by planning legislation and whilst impact on outlook is a material matter, given the expanse of river frontage the Lensbury Club (including the sports fields to the south east) enjoy (approximately 420m) it is not considered this proposal presents a dominant and intrusive form of development when viewed from the grounds. Likewise the potential impact on Lensbury as a business is not considered to be so great as to prejudice its continued success in the Borough.

#### **Recommendation**

I therefore recommend that the application for planning permission be **APPROVED** subject to the following conditions and informatives.

#### **Standard Conditions:**

- AT01 - Development begun within 3 years
- DV48 - Decision details
- BD12 - Details - Materials to be approved



DV28 - External illumination  
 LT13 - Protect major Roots - Root Treatment

**Non standard conditions:**

**NS01:** Noise levels

The sound energy level from the operation of the hydro power scheme when assessed at representative residential and commercial noise sensitive premises and/or locations or when measured elsewhere and calculated to the said locations, shall not exceed the limit levels detailed in the table below. The measured or calculated external sound energy levels shall be determined in accordance with the latest British Standard 4142 Methods for rating and assessing industrial and commercial sound (currently 2014). The measured or calculated internal sound energy levels shall be determined in accordance with the latest British Standard 8233 Guidance on sound insulation and noise reduction for buildings (currently 2014). The hydro power scheme shall not be operated unless these provisions are met

**Table 1: External & internal Noise Limit levels**

Receptor	Location	External BS4142 Criteria	Internal BS8233 Criteria	
			Day 07.00-23.00	Night 23.00-07.00
MP1	Lensbury Hotel by Riverside Pavilion & Guest Rooms	Rating Level minus Background Level no greater than +5	35dB(A) LAeq,15hour	30dB(A) LAeq,9hour
MP2	Lensbury Hotel by External Conference Marquee	Rating Level minus Background Level no greater than +5	na	na
MP3	Lensbury Hotel by External Conference Centre Patio	Rating Level minus Background Level no greater than +5	na	na
MP4	Burnell Avenue	Rating Level minus Background Level no greater than -5	35dB(A) LAeq,15hour	30dB(A) LAeq,9hour
MP5	Lensbury Hotel Garden Area	Rating Level minus Background Level no greater than +5	na	na
MP6	Teddington Studio Site	Rating Level minus Background Level no greater than -5	35dB(A) LAeq,15hour	30dB(A) LAeq,9hour

Reason: To safeguard the amenities enjoyed by occupiers of neighbouring property.

**NS02 - Proposed Mitigation Scheme**

Prior to construction of the hydro power scheme to which the application refers, full details of the proposed noise mitigation scheme for both hydrodynamic and mechanical noise control, including; drawings, noise attenuation specification, noise predictions and calculations shall be submitted to and approved in writing by the local planning authority. The scheme shall be retained thereafter as approved.

Reason: To safeguard the amenities enjoyed by occupiers of neighbouring property.

**NS03 - Commissioning Test**



Before the first commercial use of the HydroPower Scheme to which the application refers, an acoustic commissioning test and report shall be undertaken within 2 weeks of mechanical commissioning in order to demonstrate if condition NS01 above has been achieved. The results of the test shall be submitted to and approved in writing by the Local Planning Authority. The hydro power scheme may not be operated unless these provisions are met

Reason: To safeguard the amenities enjoyed by occupiers of neighbouring property.

**NS04 - Construction Method Statement.**

Prior to commencement of the development, a construction method statement (CMS) for the ground works, demolition and construction phases of the development site shall be submitted to and approved in writing by the Council. Details shall include control measures for noise and vibration, including working hours and dust control. Approved details shall be implemented throughout the project period.

The CMS should include an acoustic report undertaken by a suitably qualified and experienced consultant and include all the information below; The following information must be supplied as part of the CMS

Baseline Noise Assessment – undertaken for a least 24-72hours under typical conditions. If weekend /evening working is required the background survey must contain relevant data for these times.

Piling- Where piling forms part of the construction process, a low vibration method must be utilised wherever possible. Predictions for vibrations levels at sensitive receptors must be included and demonstrate that target levels detailed in BS5288 for prevention of cosmetic structural damage can be achieved.( Annex B BS5288 2009 Part 2).

Vibration Monitoring - All Piling activities undertaken near sensitive receptors must include continuous vibration monitoring (see 5.) and must include audible and visual alarms.

Noise Predictions and Significance Effects - Predictions should be included for each phase of the demolition, and construction, and an assessment of the significance effect must be included (Annex E BS5288 2009 Part 1). Where predictions indicate that the significance effect will be triggered, mitigation must be indicated. Where appropriate noise modelling should be undertaken to enable predictions to be undertaken for each phase and to illustrate the noise contour

Noise Monitoring – Periodic noise and vibration monitoring must be undertaken for the duration of the demolition and construction phases which may result in a significant impact.

Reason: To safeguard the amenities enjoyed by occupiers of neighbouring property

**NS05 - Electricity supply line**

That details of the route of the electricity supply line and its method of construction, together with any new substation, shall be submitted to and agreed in writing by the Local Planning Authority. **Reason:** To safeguard the visual amenity of the riverside and minimise impact on the existing vegetation and riverside habitats.

**NS06 - Foundations**

Any works using penetrative methods, including piling or any other foundation designs, shall not be permitted other than with the prior express written consent of



the local planning authority, which may be given for those parts of the site where it has been demonstrated that there is no resultant unacceptable risk to groundwater. The development shall be carried out in accordance with the approved details. **Reason:** The use of penetrative methods at this site could result in risks to the underlying principal aquifer from, for example, pollution / turbidity, risk of mobilising contamination, drilling through different aquifers and creating preferential pathways. Thus it should be demonstrated that any proposed penetrative methods will not result in the contamination of groundwater.

- NS07 - Groundwater**  
No development shall take place until a Preliminary Risk Assessment for the site that quantifies the risks to groundwater quality that the scheme could present and provides sufficient mitigation measures to ensure any risks to groundwater quality are acceptable has been submitted to and approved, in writing by the local planning authority. The Preliminary Risk Assessment must consider the risks to controlled waters during all phases of development - the construction and finished site, and ensure that all activities are considered and pollution prevention measures reviewed. Any mitigation measures within the assessment shall subsequently be implemented in accordance with the approved details before the commencement of the operation of the scheme. **Reason:** To ensure adequate mitigation is provided for the protection of groundwater
- NS08 - construction of foundations**  
No material start shall take place on the development hereby approved until written details of the proposed equipment used and method of constructing the foundations have been submitted to and approved by the Local Planning Authority. The details shall demonstrate that the equipment and methodology used would minimise nuisance to neighbouring properties. The development shall be implemented in accordance with the details so approved. **Reason:** To protect the amenity of neighbouring occupiers and the area generally.
- NS09 - Bat roosting/emergence surveys**  
In the year preceding major construction works bat roosting/emergence surveys shall be carried out and appropriate mitigation adopted if bats are found to be present at the Gauging Station. Such surveys and any necessary mitigation measures are to be agreed in writing by the Local Planning Authority. **Reason:** In the interest of safeguarding protected species.
- NS10 - Ground clearance**  
Prior to any ground clearance the out a walkover survey shall be carried out and appropriate steps are to be agreed in writing by the Local Planning Authority, to protect any nesting birds; hibernating hedgehogs; reptiles, hazel dormice, and water voles found in the immediate vicinity of the site accessible to the applicants **Reason:** In the interest of nature conservation.
- NS11 - Trash Screen.**  
Prior to commencement of the development details of the trash screen shall be submitted to and approved in writing by the LPA together with details of its management including contact details of persons responsible for its maintenance and clearance of debris. **Reason:** In the interest of the amenity of the riverside.

#### **Standard Informatives:**

National Planning Policy Framework Informative

#### **Non standard Informatives:**

- NI01 - Impoundment licence**  
An impoundment licence will be needed by the applicant from the Environment Agency for this scheme to consider water resources and related environmental



impacts and there will need to be an operating agreement between the Environment Agency and the operators to ensure flood risk and navigation duties are not affected.

NI02 - Water Resources Act 1991

Under the terms of the Water Resources Act 1991, and the Thames Region Land Drainage Byelaws, prior written consent of the Environment Agency is required for any proposed works or structures, in, under, over or within 8 metres of the top of the bank of the fluvial Thames and 16 metres from the tidal Thames designated a 'main river'

NI03 - Prior to construction of the development the applicants are advised to agree with the Environment Agency the minimum flow rate (to safe guard fish) the hydropower scheme will be allowed to operate.