



TICKENHAM RIVERSIDE DEVELOPMENT  
DESIGN REPORT  
SUPPORTING PLANNING APPLICATION  
SEPTEMBER 2001



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## PREFACE

This report has been produced on behalf of D.D.S.F Ltd. to support a full planning application for the proposed redevelopment of the Twickenham Swimming Pool Site on the Twickenham riverside embankment.

The current design aims to fully address all the issues listed in the development brief that was prepared for the site by LBRuT and local amenity societies, with whom there has been ongoing consultation throughout the design development process. The resulting proposals should be viewed as a team effort, with valuable contributions being made by all those who have put in the time and effort to scrutinise, question and refine the various proposals put forward for the site.

Whilst it is never possible to satisfy every ones aspirations, we believe that the perseverance and efforts of both LBRuT and local people have resulted in a scheme for the site that is superior in both content and appearance to any that have gone before, and a development that promises to be a real community asset for residents and visitors alike.

## 1.0 BACKGROUND

- 1.1 Other than the recent application for the demolition and landscaping of the former swimming pool site, the last substantial application on the site was for a Marks and Spencers Store, car parking, community centre and housing. This application was granted planning permission but was called in by the Secretary of State and was the subject of a public enquiry.

The inspector overturned the permission on the principle grounds that:



- The uses proposed for the site were not consistent with the UDP, which sought a maintenance of leisure uses on the site.
- The form and massing of the proposals did not respond to or enhance the character of the conservation area or its riverside setting.
- The proposals did not adequately deal with the traffic and parking generated by the development.
- The pedestrian link across the service road gave rise to concerns regarding pedestrian safety.

- 1.2 Following the public enquiry. LBRuT examined a number of alternative strategies for the site before holding an Architect/ Developer competition for the site in 1996.

- 1.3 The selected Architect/Developer partnership Alsop Zogolovich /First Premise Ltd proposed a new Arts Theatre and low level commercial development facing the River.

The failure of an Arts Lottery Bid for the Arts Theatre gave rise to a revised scheme for the site that increased the quantum of commercial and residential accommodation in order to fund the Arts Theatre without the need for Arts Lottery money.

The scheme was received with hostility by the public who felt that the revised scheme failed to respond to or enhance the character or scale of the area.

- 1.4 In response to the evident opposition to the proposals LBRuT invited local amenity societies to develop an appropriate brief for the site. After much consultation over a period of 18 months, two possible Development Briefs were agreed with the local groups as possible options for the site and ratified by LBRuT Resources Committee.

- 1.5 In July 2000 LBRuT invited the reserve team, Meedhurst Project management/Richmond Upon Thames College/St George Plc to prepare a scheme. The Council accepted the reserve team's proposal in October 2000 that D.D.S.F Ltd, the adjacent landowner, should become the preferred developer. In October 2000 London Borough Richmond upon Thames and D.D.S.F Ltd. selected MacCormac Jamieson Prichard from a short list of architects suggested by members of the local amenity societies.
- 1.6 Between October 2000 and the end of January 2001 D.D.S.F Ltd., MacCormac Jamieson Prichard and London Borough of Richmond Upon Thames consulted extensively with all interested local groups on the design proposals through every stage of their development, including two public exhibitions, and a public meeting (see Appendix A)
- 1.7 In February 2001, two schemes were presented to LBRuT Resources Committee in response to the two options outlined in the agreed Development Briefs. The LBRuT Resources Committee approved Option A on the grounds of the commercial unviability of Option B.
- 1.8 The current proposals represent the development of the Option A proposals ratified at the time.

## 2.0 THE SITE

- 2.1 The application site lies between King Street and the River Thames and includes the former swimming pool site and the public toilets (Area A) the Car Park on Water Lane which forms part of the demise of the King Street commercial properties (Area B), and No 15 King Street (Area C).
- 2.2 The application also seeks planning permission to carry out environmental improvements to the area of the River Embankment immediately in front of the site and to Water Lane, Wharf Lane and the service road (Area D).
- 2.3 These improvements, whilst highly desirable and consistent with the aims and ambitions stated for the new development, are not functionally required to allow the proposals on the site to operate. In order to implement the environmental improvements proposed, the pedestrianisation of the western Embankment, and changes to the CPZ order for the area will be required. The works to this area will be conditioned on receiving the requisite approvals, and identifying necessary funding
- 2.4 The freehold for Area A is owned by LBRuT.

2.5 The freehold for area B & C is owned by D.D.S.F Ltd. with a number of leasehold interests. Area D is designated public highway.

### 3.0 BRIEF

3.1 The agreed development brief for the site (See Appendix B) has the following principle objectives:

- To create a lively mixed use development that responds to its sensitive riverside location whilst enhancing connections with the Town Centre and the river.
- To revitalise Twickenham Town Centre.
- To create a physical and visual link between King Street and the River.
- To implement environmental improvements to the Embankment Area generally.
- To provide a 25m swimming pool on the site that will offer community use during off peak hours.
- To provide a three screen Arts Cinema, one screen of which will double up as a community Art facility with defined periods of community use.
- To provide public open space to offer opportunities for external performances, markets etc.
- To provide restaurants/ retail space to act as a draw to the development and to help fund the community benefits of the scheme.



3.2 The uses and areas sought in the original brief are as follows:

<b>Element</b>	<b>Brief October 2001 SQ.M</b>	<b>SQ.FT</b>
<b>Residential</b>	(2042)	21980
<b>Retail</b>	(2997)	32260
<b>Health &amp; Fitness</b>	(3310)	35628
<b>Cinema</b>	(802)	8632
<b>Public WC's</b>	(80)	865
<b>Totals</b>	(9231)	99365
<b>B'ment Car Park</b>	-	-
<b>Totals</b>	-	-
<b>Piazza(s)</b>	(820)	8826
<b>Total Floor Area above Grade</b>	(6027)	64874

3.3 The uses and areas arising from the design development process were as follows:

<b>Element</b>	<b>February 2001 SQ.M</b>	<b>SQ.FT</b>
<b>Residential</b>	(3595)	38696
<b>Retail</b>	(1976)	21269
<b>Health &amp; Fitness</b>	(3304)	35563
<b>Cinema</b>	(1481)	15941
<b>Public WC's</b>	(80)	865
<b>Totals</b>	(10436)	112334
<b>B'ment Car Park</b>	(1940)	20881
<b>Totals</b>	(12376)	133215
<b>Piazza(s)</b>	(1095)	11775
<b>Total Floor Area above Grade</b>	(5956)	64109

3.4 The changes between these proposals and the brief were largely due to accommodating tenant requirements on the limited footprint of the site, which is too small to accommodate the aspirations for both retail areas and public open space stated in the brief. The Councils brief was amended by the Resources Committee dated 12 February 2001.

3.4 The uses and areas of the current scheme are as follows:

Element	September 2001 SQ.M	SQ.FT
Residential	(4,183)	45,025
Retail	(1945)	20935
Health & Fitness	(3157)	33982
Cinema	(2103)	22636
Public WC's	(70)	753
<b>Totals</b>	(11,388)	122,578
B'ment Car Park	(1727)	18589
<b>Totals</b>	(12873)	138563
HV Substn & LV	(58)	624
Piazza(s)	(1260)	13562
<b>Total Floor Area above Grade</b>	(6,264)	67,425

Oct	Feb
2042	3595
2997	1976
3310	3304
802	1481
80	80
<u>9231</u>	<u>1940</u>
—	10436
	1940
	12376
820	1095
6027	5956

3.6 The minor changes to the schedule arise due to detail design development and viability studies.

## 4.0 DESIGN PROPOSALS

### 4.1 CONTEXT

- 4.1.1 The Site is viewed as a vital component of the Twickenham Embankment, which runs from Champions Wharf to the east and Wharf Lane to the west.
- 4.1.2 The Twickenham Embankment in turn forms part of the stretch of the Thames Riverside running from Richmond to the east through to Randor Gardens to the west.
- 4.1.3 At present the section of the embankment to the west of Water Lane does not contribute to the character or vitality found to the east. There is a sense that the embankment ends at Water Lane, an impression reinforced by the presence of the broad steps that drop into the river at the end of Water lane, the Eel Pie Island Bridge, the intensive car parking that currently dominates the western Embankment, and the long blank wall of the disused Swimming Pool.
- 4.1.4 An essential ingredient in our approach to the redevelopment of the site is to revive the western section of the Embankment to make it an extension of the eastern Embankment, and an appropriate termination to the riverside walk from Richmond to Twickenham.
- 4.1.5 The site needs to respond to its history and context both immediate, in terms of the Twickenham Embankment and general, in terms of its riverside setting.
- 4.1.6 One source of inspiration taken from this context is terracing, a manipulation of riverside topography to deal with changing ground levels and a means to provide flood defences to riverside settlements. Such terracing can be founded in Richmond, York House, The Church Yard, not to mention the river embankment and the site itself, which in until the mid 19<sup>th</sup> Century formed the garden of Richmond House with a raised terrace wall facing the river.

In 1797 Edward Ironside (1797, 78) described the property thus:

*'In the middle of the town is a large house called Richmond the front of which faces the Thames, with a pleasing garden and extensive terrace guarded by handsome iron rails. The other front is to the street, but has a high wall, at each end of which is a porters lodge. Within is a good court-yard.*

The existing ground level of the swimming pool site, up to 1.8m above the embankment level, is a legacy of the historic levelling which would have formed a level platform and protected Richmond House Gardens from flooding.

- 4.1.7 Another source of inspiration is the structure and hierarchy of space as you pass through from the wide expanses of the river to the lower tiers of the embankment, a territory of the its days as a working quay, to the varied series of spaces which open off the embankment, such as Champions Wharf, the area at the end of Church Lane, the garden to the Ferry Arms, the small parking court lined with terraced houses, the private gardens at the end of Bell Lane, or the open space at the end of Water Lane. Off these more intimate spaces run lanes and alley ways, leading back to Church Lane - the historic centre of Twickenham Village.
- 4.1.8 This structure of spaces from the river, via a the side lanes, embankment, form string of varied intimate spaces with connections back to the town, is fundamental to the structure of the proposed redevelopment of the bath site.
- 4.1.9 This structure can be seen in the physical grain to the existing Embankment, with lanes and alleys flanked by buildings running back from the River.
- 4.1.10 The prevalent architectural, historical or vernacular theme of the area is variety. The historical development of the embankment has evolved over the last 500 years and adapted from semi rural riverside, to working quay, to residential/leisure amenity. This evolution was never confined by the traditional urban structures of the Market Square or high street or residential terrace. Its evolution was reactive, responding to the demands made by the community on the river.
- 4.1.11 In this way there is a symmetry between the Embankment and Eel Pie Island. While the development of the island is largely 20<sup>th</sup> Century, it developed the role formerly played by the Embankment area. A working area bordering the river that has grown up with leisure and residential neighbours to become the unique riverside haven it is today.
- 4.1.12 Just as the seemingly makeshift housing and lightweight boat sheds are a characteristic of Eel Pie Island, so the timber sidings on the Georgian House at the end of Bell Lane, or the white stucco regency terrace on Ferry Lane seem to exemplify the idiosyncratic nature of historic Twickenham Embankment. This is not an area for stereotypes and norms, but of variety and eccentricity as if fashion and jetset collected on the changing tides of the river.

## 4.2 USES

- 4.2.1 The uses designated in the brief are consistent with the aspirations of the UDP Policy T1 "to provide a broad range of leisure activities for the community and increased opportunities to enjoy the River".
- 4.2.2 The scheme provides an Arts Cinema, Health and Fitness Club and Swimming Pool. These are largely accommodated in below ground accommodation to minimise the blank elevations which are often the result of these more introverted leisure activities.
- 4.2.3 The principle ground level is given over to public open space and to A1 and A3 units. The aim will be to attract Café, Bar and Restaurant users that will open onto and animate edges of the development, especially onto the river frontage. This is consistent with policy of RL.1. Thames Landscape Strategy. It is hoped that small niche retailers will be attracted to the developments, especially to units off the pedestrian link to King Street.
- 4.2.4 The A1/A3 space has been designed to provide flexibility in layout to allow it to adapt and change to suit changing market demands. This will ensure a continuing vitality and avoid obsolescence and decline.
- 4.2.5 The public WC's have been replaced by modern clean facilities located on the embankment and off the new pedestrian link.
- 4.2.6 The residential accommodation maximises the potential of the site within the massing permitted by the scale of the surrounding buildings. It meets the requirements of the UDP to provide 25% small units, and will provide a 24 hours presence on the site, overlooking to the surrounding area and enhancing the sense of ownership and security of the areas around the site.
- 4.2.7 The public space on the site is defined as a series of intimate spaces off a raised terrace that overlooks the Embankment and the river beyond. These spaces provide an opportunity for engagement with the surrounding retail/restaurant uses, and a venue for small scale informal performances such as those found in Covent Garden. They could also host small art and crafts markets like the linear art market on the railings of Hyde Park in Bayswater, or the numerous street markets that can be found in the narrow streets of East London
- 4.2.8 Subject to agreement on the proposed amendments to the CPZ (See Section 4.4 below) the environmental improvements to the western Embankment will compliment these proposals by providing a new and unique riverside setting for Twickenham. Pedestrian priority and the relocation

of the parking provide the opportunity for larger theatrical events during the Twickenham festival, larger markets such as the farmers or French markets, currently held in Holly Lane car park, or other events or displays.

- 4.2.9 The existing Seeboard substation located on the site is to be retained. The exact location will be subject to further negotiation.

### **4.3 DESIGN & MASSING:**

- 4.3.1 The design has been inspired by the context of the Twickenham embankment (See 4.1) and by its riverside setting.
- 4.3.2 The principal ground level of the site has been raised above the existing Embankment level, making reference to the terrace walls associated with the site and the area. This raises the ground level above flood level, but also mediates the 3m fall between King Street and the Embankment.
- 4.3.3 The terrace wall is highly articulated with windows to the swimming pool and health and fitness centre, stairs and ramps from the Embankment level, and seats and litterbins built into the structure.
- 4.3.4 The wall will be massive in character defined by large reconstituted stone elements making reference to its durable protective role.
- 4.3.5 Above the terraced base, which forms a raised ground plane, the development is defined by a series of 2 & 3 storey linear blocks that allude to the boat house tradition, with their exposed frame and lightweight timber infill, their strong roof line and gables fronting onto the river.
- 4.3.6 The linear blocks define the massing of the site, embracing the retail floor print and reducing its perceived bulk. The stepping of the blocks in plan and section offer a changing silhouette and break the scale of the development into elements that reflect the domestic scale of the residential use.
- 4.3.7 The roofs of the retail units between the linear blocks of residential accommodation are treated as another terrace, this time a garden terrace which will provide a view for the residential units overlooking them, provide a new ecological habitat on the site, and soften the profile of the development when viewed from Eel Pie Island.

- 4.3.8 The orientation of the blocks respects to the grain of lanes and alleys running back off the Embankment to Church Road and King Street. The new pedestrian route follows the grain and is conceived as another lane, treating the site into blocks more in keeping with the scale of historic pattern.
- 4.3.9 The orientation of the blocks also limits the impact of the development onto the river, maintaining a degree of visual permeability through the site to the canopies of the retained mature trees at the back of the site.
- 4.3.10 Much of the Embankment is bordered by the terrace wall with single storey retail set back beyond areas of public space. At various points the linear blocks step forward and engage with the terrace walls forming gable features which are cut away at second floor level to reveal the underside of the barrel-vaulted roof, which, lined with timber, will resemble huge upturned boats.
- 4.3.11 This contrast in scales provides a rhythmic variety that will enhance and animate the site when viewed from a distance, and complement the character of the Eastern Embankment and Bell Pig Island.
- 4.3.12 The scale of the development drops to two storeys onto Water Lane to respect the scale of the street.
- 4.3.13 The structure of the public space follows the structure and hierarchy observed in the eastern Embankment. A variety of spaces open off the linear terrace which follow the line of the Embankment below. Water Lane, the new pedestrian axis and Wharf Lane in turn run off these spaces back to King Street.
- 4.3.14 The continuation of this structure along with the enhanced activity brought to Wharf Lane by the entrance to the cinema and the restaurant/retail unit on the corner of the development, draw life to the western end of the embankment and provide a suitable termination to the riverside walk from Richmond.

#### 4.4. TRAFFIC AND PARKING

- 4.4.1 The details of the traffic and parking along with the Green Transport Plan are contained in the separate Traffic Impact Assessment prepared by WS Atkins. However we provide a summary of the issues addressed:



- 4.4.2 The road layout is being amended to extend the service road to Water lane to provide improved access, and avoid service vehicles having to cross the Embankment as is currently the case. Junctions have been designed to accommodate 12m fixed axle vehicles and 16.5m articulated vehicles.
- 4.4.3 On site parking is provided at one space per residential unit and 19 spaces to replace the current provision on Water Lane. 4no. disabled parking spaces are designated within the on site car park.
- 4.4.3 On site bicycle parking is provided at a rate of 1 per residential unit in the car park and 16 for the retail/restaurant use, equivalent to 1 per 75m<sup>2</sup> net area.
- 4.4.4 An additional 32 bicycle parking spaces are provided for on the Embankment.
- 4.4.5 Visitor parking demands for the A1/A3 development can be accommodated in existing public off street car parks in the town centre. Comprehensive signage on approach roads to Twickenham Town Centre to direct visitors to off street parking will be to provided.
- 4.4.6 3No. Loading Bays are provided along the service road to allow for servicing the King Street properties and the new development. These have been kept as remote from the new pedestrian link as possible to minimise their negative impact.
- 4.4.7 The service road, whilst flush with the pedestrian route, will be distinguished with tactile paving and bollards to identify the vehicular route. The number of vehicle movements on the service road is not considered incompatible with providing a safe and effective pedestrian link.
- 4.4.8 The success of the proposed development will disrupt existing parking arrangements in the Embankment area. Increased visitors demand will limit the availability of spaces for residential and business users, especially in the evenings and weekends.
- 4.4.9 This factor combined with a desire to remove parking from the western embankment to allow for environmental improvements has lead to a proposal to:
- a) Prohibit visitor parking in the Embankment area except for disabled visitors, and visitors with residents or businesses visitor permits.
  - b) To designate all parking on Water Lane, Wharf Lane, and the Western Embankment as resident/business/disabled parking.

- c) To open the car park under the civic centre during weekends and evenings, and make preferential arrangements for local recreational Clubs on Eel Pie Island.
- d) To provide dedicated residents parking bays in Flood Lane Car Park.
- e) To provide designated loading bays for the residents and business's of Eel Pie Island at the end of Water lane.

4.4.10 It is intended that the implementation of these proposal will best safeguard the amenity for the local residents, business and recreational clubs, whilst minimising inconvenience to visitors to the development and to Twickenham in general.

4.4.11 Disabled parking facilities to the area will be improved.

4.4.12 Following further studies these changes will be put forward as an amendment to the CPZ order for the Embankment area and, subject to approval, will be implemented prior to the development of the site. It is hoped that the Embankment can be used during the construction phases to minimise disruption to surrounding areas.

4.4.13 Some minor areas of stopping up are required to deliver the scheme, and the extension of the service road to Water Lane is to be put up for adoption. These will be subject of an application through the Highway Acts.

## 4.5 LANDSCAPE

4.5.1 The hard and soft landscaping proposals can be split into three areas:

- a) On site hard landscaping.
- b) Hard and soft landscaping to residential terraces.
- c) Environmental improvements to the Embankment, Water Lane, Wharf Lane, and the Service Road.

4.5.2 The on site hard landscaping extends the grain of the site in bands of yorkstone paving banded by granite sets.

4.5.3 The central band defines the pedestrian link to King Street. The service road will be defined with textured paving stainless steel bollards and yorkstone sets on the carriageway.

- 4.5.4 Lighting will be related to the buildings on the development site.
- 4.5.5 The connection with King Street is being formed by removing the shop units and flats to No. 15 King Street. Existing leasehold arrangements preclude the inclusion of the neighbouring units at this stage of planning, but the long term aim will be to make these available as a frontages onto the pedestrian link as they become available.
- 4.5.6 Defined by a canopy onto Kings Street and by high levels of lighting it will act as a beacon and provide a safe pedestrian environment. It is proposed that small kiosks will line up the sides to provide animation along the route.

Also it is hoped that the link will be subject of an artistic collaboration with the aim of creating a lively, light and engaging space that will attract people into the new development. This will be inspired by riverside themes and may include a light feature in the paving defining the link to the river frontage.

- 4.5.7 The Landscape terraces above the retail accommodation are not open to the public due to the loss of territorial distinction that would arise. Loss of security for residential occupiers and increased maintenance liability would be the result. The landscaping to these terraces will be largely soft landscaping in seat height raised beds separated by yorkstone paths.
- 4.5.8 The planting will be selected to maximise its ecological value and encourage biodiversity.
- 4.5.9 The environmental improvements to the Embankment, Water Lane, Wharf Lane and the service road, include refurbishing the existing Embankment wall and railings, new paving to the Embankment and concrete sets to the road ways. Raised planters around existing retained trees will be rebuilt to form sculptural boat like elements, and access to the river opened up as much as possible. This combined with new lighting and street furniture will help create a place with real quality and character, one worthy of its setting. These proposals are subject to amendments to the CPZ and identifying the requisite funding. *opposite*
- 4.5.10 New signage will be proposed around the site with the aim of instigating a wider signage strategy in the town centre from town centre car parks to the Embankment area.
- 4.5.11 Power points will be provided to support events both on the embankment and the spaces on the raised terrace. These will be located in positions above flood levels.

4.5.12 Subject to further feasibility studies a new river pontoon is proposed to connect the new Embankment to the river. This will be subject of a separate planning application.

#### **4.6 DISABLED ACCESS**

4.6.1 The proposals have been designed with reference to "Design for Maximum Access" design guidelines produced by LBRuT and the Disability Discrimination Act 1995.

4.6.2 Accessibility is fundamental to the proposals, from the distribution of disabled parking spaces around the site, to the provision of ramped access from all approaches to the site, Water Lane, Wharf Lane and the Embankment.

4.6.3 Beyond the statutory requirements for restaurants to have disabled facilities, the resited public WC's will have monitored disabled facilities.

4.6.4 All steps will have handrails, landings, textured paving and distinctive nosings and all ramps designed to meet Building Regulations.

4.6.5 Any site signage will have raised or embossed letters supplemented by braille panels.

#### **5.0 ENVIRONMENTAL IMPACT AND SUSTAINABILITY**

##### **5.1 TREE SURVEY**

5.1.1 A survey of the trees on the site has been carried out (See Appendix C).

5.1.2 The recommendations of the report identify 5 trees that on the northern boundary of the site which are worthy of retention.

5.1.3 These trees are being retained as part of the development proposal, 6 other trees are identified as being diseased or in poor condition will be felled.

5.1.4 Basement construction is generally 5m from the centre of the trees in accordance with guidance contained in the British Standards.

5.1.5 Due to changes in ground level some of the retained trees will need to be set in raised planters. The exact size of these will be determined on the basis of further site investigation.

5.1.6 It is proposed to retain all the larger trees on the Embankment, although some thinning of the trees at the western end is required to avoid overcrowding and ensure the future health of the group. As such it is proposed to remove two of the five horse chestnut trees in this group.

## **5.2 ECOLOGICAL SURVEY**

5.2.1 An ecological survey of the site has been carried out (see Appendix D)

5.2.2 Other than retention of the existing trees (See 5.1); the report does not identify any other impediment to the development.

5.2.3 The suggestions contained in Section 3.0 "Preliminary assessment of impacts and mitigation proposals" will form part of the detail design and implementation strategy. Specifically this will involve:

- a) The provision of a variety of nesting opportunities for birds.
- b) The provision of bat roosting sites.
- c) The choice of planting in the garden terraces that will encourage local ecology.

## **5.3 NOISE**

5.3.1 The impact of noise pollution is a growing concern for urban communities and its resolution a vital ingredient to the success of mixed use development such as this.

5.3.2 Specific controls will be defined:

- a) To prevent noise breakout from (and between) cinemas.
- b) To prevent noise breakout from retail restaurant uses to residential accommodation above.
- c) To reinforce statutory requirements to control noise breakout between residential units.

- d) Plant noise will be attenuated to ensure it is within acceptable limits.

#### **5.4 LIGHT AND SECURITY**

- 5.4.1 Light pollution is a feature of mixed use urban projects, where excessive lighting levels can disturb neighbouring properties and distract from the nighttime character of a place.
- 5.4.2 The lighting levels on the Embankment need to provide a level of illumination that will provide a sense of security whilst avoiding too much light spillage onto the river.
- 5.4.3 The use of low levels of feature lighting to perimeter walls and trees can provide a sense of security without the needs for high levels of lighting. It also provides the opportunity to create a sense of drama or occasion for events.
- 5.4.4 Careful consideration has been given to the creation of a secure environment, based on the principles described in "Security by Design" produced by LBRuT in association with the police. Appropriately lit public spaces, careful landscaping, and overlooking to common areas promote the principles of clear territorial distinctions and natural surveillance.

#### **5.5 FLOODING**

- 5.5.1 The 100 year flood level is about 800mm above the Embankment level.
- 5.5.2 The footprint of the development does not alter the capacity of the Embankment when it floods. There is no intention to raise the existing ground levels of the Embankment.
- 5.5.3 Tanked basement construction will be taken above flood levels to protect the basement uses from flooding.
- 5.5.1 The principal ground level is above flood level.

## 5.6 ARCHAEOLOGY

5.6.1 An archaeological desktop survey was carried out by MOLAS and reviewed by English Heritage (See Appendix E).

5.6.2 English Heritage was satisfied with the conclusions of the report, and it is anticipated that some site investigations will be carried out prior to starting the construction works.

## 5.7 SUSTAINABLE DEVELOPMENT

5.7.1 This development aims to be a model of sustainable development.

5.7.2 The sustainability of a development can be viewed in three areas.

- Sustainability in planning.
- Sustainability in construction
- Sustainability in use.

5.7.3 The development meets many criteria for sustainability in planning terms:

- a) It reuses a redundant "brownfield" site.
- b) It is in the heart of a vital urban community for whom it is currently a wasted asset.
- c) It is served by good public transport links thus minimising reliance on private transport.
- d) It is served by the existing infrastructure of roads and utilities.
- e) The leisure and residential uses proposed for the site have an active local catchment reducing reliance on transport.
- f) The level of development maximises the potential of the site within the constraints imposed by its sensitive location.

CPD ?

5.7.5 The construction of buildings always has an impact on the environment, be it in terms of cutting down trees or quarrying for aggregate, use of energy in making materials, or in terms of the pollution due to transporting materials over large distances, or in the disposal of waste material.

5.7.5 This development will seek to minimise this impact, primarily through providing a building that will enjoy a long life by providing an adaptable framework wrapped in a low maintenance envelope that uses natural materials, that will be durable and will age gracefully. This will minimise the life cycle costs of the development being considered.

5.7.6 Other specific proposals included:

- a) Site crushing and reuse of demolition material from existing buildings on the site.
- b) Use of recycled and subsequent recycling of steel shutters.
- c) Recycling arising from excavating basements such as reuse of clay for toppings for methane sites.
- d) Shredding and recycling of green vegetation and topsoil.
- e) Use of recycled or local aggregate and local batching plant in sourcing concrete
- f) Specification materials from recycled sources where possible.
- g) Use of FSC registered timber.
- h) Exclusion on CFCs and HCFCs.
- i) Specification of material from a local source where possible.
- j) Implement a minimum waste strategy during construction.
- k) Specify recyclable material to minimise long term waste.

*use of new  
2. timber?*

5.7.7 The energy used in construction is dwarfed by the energy expended in the use of the building. Minimising energy required to run and operate a building (especially if this designed to last) will minimise the impact on the environment both in terms of use of natural resources but also in terms of minimising green house emissions.



5.7.8 The specific measures proposed for the development are:

- a) Super insulation to residential units using cellulose based recycled insulation ('U' value below .25 for wall and below .2 for roofs.
- b) A "green roof" on the garden terrace areas.
- c) Low levels of air infiltration.
- d) Maximise natural light.
- e) Insulating glazing systems in thermally broken frames.
- f) Use of gas fired condensing boilers in residential units.
- g) Adoption of a minimum plant strategy for retail/ leisure/ cinema development:
  - Through assisted natural venting of car park.
  - Use of thermal mass of basement levels to reduce cooling loads.
  - Provision of heat recovery to air handling units.
  - Use of waste heat from chillers to heat pool.
  - Use of ozone filtration to pool to reduce chemical waste.
- h) In conjunction with LBRuT to provide waste recycling provision for all refuse.

## 6.0 CONCLUSION

6.1 The proposed development aims to provide a suitable mixed use framework on the site that will allow future generations to continue to adopt, and adapt the riverside environment in ways that are not currently envisaged.

The evident charm of the Twickenham Embankment and Eel Pie Island is their close association with the River, which has brought both change and continuity. The current proposals give the Swimming Pool site an opportunity to form part of this process again, and add to the richness and variety of the riverside experience.