



**London Borough of Hounslow  
Strategic Flood Risk Assessment (SFRA)  
Level 2  
Brentford Area Action Plan (AAP)**

February 2007 (Final)



London Borough of Hounslow  
The Civic Centre  
Lampton Road  
Hounslow  
TW3 4DN



## Introduction

1. The London Borough of Hounslow is situated immediately to the east of Heathrow Airport, bounded by the River Thames, the River Crane and the River Brent to the south, east and west respectively.
2. The Borough covers an area of approximately 5,600 hectares and has a population of 212,344 (2001 Census). It is estimated that there are over 95,000 properties within the London Borough of Hounslow, and approximately 16,000 of these homes and businesses are potentially at risk of flooding in a 0.1% (1 in 1000 year) flood event. In accordance with PPS25, the London Borough of Hounslow commissioned a Strategic Flood Risk Assessment (SFRA) to inform the development of the Borough's emerging Core Strategy.
3. The Hounslow (Level 1) SFRA was published in October 2007, delineating the Borough into zones of low, medium and high risk in accordance with PPS25. The Level 1 SFRA also provides specific spatial planning and development control recommendations for future development (and regeneration) within the Borough.
4. Following completion of the Hounslow (Level 1) SFRA, a more detailed interrogation of emerging allocations defined within the Brentford Area Action Plan (AAP) has been carried out in accordance with the Practice Companion Guide to PPS25 (Draft, February 2007). **This report represents the Hounslow SFRA – Level 2 (Brentford AAP) and supports the allocation of sites within the Brentford AAP.**

## Implementation of the Strategic Flood Risk Assessment (SFRA)

5. The London Borough of Hounslow Strategic Flood Risk Assessment (SFRA) has been carried out to meet the requirements of PPS25, informing the development of the Borough's Local Development Framework (LDF). The implementation of the SFRA is underpinned by the execution (by the Council) of the Sequential and Exception Tests. For completeness, these are outlined below.

### The Sequential Test

6. The primary objective of PPS25 is to steer vulnerable development towards areas of lowest flood risk. PPS25 advocates a sequential approach that will guide the planning decision making process (i.e. the allocation of sites). In simple terms, this requires planners to seek to allocate sites for future development within areas of lowest flood risk in the initial instance. **Only if it can be demonstrated that there are no suitable sites within these areas should alternative sites (i.e. within areas that may potentially be at risk of flooding) be contemplated.** This is referred to as the Sequential Test.
7. As an integral part of the sequential approach, PPS25 stipulates permissible development types. This considers both the degree of flood risk posed to the site, and the likely vulnerability of the proposed development to damage (and indeed the risk to the lives of the site tenants) should a flood occur.
8. The PPS25 Sequential Test is depicted in Figure 3.1 of the Practice Guide Companion to PPS25 (Draft, February 2007) and Section 6.4.1 of this document.

### The Exception Test

9. Many towns within England are situated adjacent to rivers, and are at risk of flooding. The future sustainability of these communities relies heavily upon their ability to grow and prosper. PPS25 recognises that, in some districts, including the Borough of Hounslow, restricting residential development from areas designated as Zone 3a High Probability may heavily compromise the viability of existing communities within the Borough.

10. For this reason, PPS25 provides an Exception Test. Where a local planning authority has identified that there is a strong planning based argument for a development to proceed that does not meet the requirements of the Sequential Test, it will be necessary for the Council to demonstrate that the Exception Test can be satisfied.
11. For the Exception Test to be passed it must be demonstrated that:
  - *“...the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a SFRA where one has been prepared. If the DPD has reached the ‘submission’ stage, the benefits of the development should contribute to the Core Strategy’s Sustainability Appraisal;*
  - *the development should be on developable, previously developed land or if it is not on previously developed land, that there are no reasonable alternative sites on previously developed land; and*
  - *a FRA must demonstrate that the development will be safe, without increasing flood risk elsewhere, and where possible, will reduce flood risk overall.”*

### **Delineation of Flood Risk in Accordance with PPS25**

12. A proportion of the Borough is affected by flooding from the River Thames and its tributaries. Within the Hounslow (Level 1 SFRA) the spatial variation in flood risk across the Borough has been delineated into zones of ‘risk’ in accordance with PPS25, as summarised below:

#### **Zone 3b (Functional Floodplain)**

13. Areas subject to flooding up to (and including) once in every 20 years on average have been delineated. These areas have been sub-delineated on the basis of current land use, i.e. open space or currently undeveloped areas (i.e. ‘Zone 3b Functional Floodplain (Undeveloped)’) vs areas that are ‘previously developed’ (i.e. ‘Zone 3b Functional Floodplain (Developed)’). Within the context of the SFRA, ‘previously developed’ areas are solely existing buildings that are impermeable to floodwaters. The land surrounding these buildings are important flow paths and/or flood storage areas that must be retained.
14. It is important to recognise that all areas within Zone 3b are areas that are subject to relatively frequent flooding, and may be subject to fast flowing and/or deep water. Whilst it may be impractical to refuse all future regeneration within these areas, careful consideration must be given to future sustainability. A suite of spatial planning and development control policies have been developed accordingly.

#### **Zone 3a High Probability**

15. Areas subject to flooding up to (and including) once in every 100 years on average (i.e. Zone 3a High Probability) have been identified. Residential development should be avoided in these areas wherever possible. It is recognised however that there may be strong planning arguments as to why housing may be required in these areas.
16. To meet the requirements of the Exception Test therefore, it will be necessary for the Council to demonstrate that the development provides wider sustainability benefits to the community that outweigh flood risk. The Council must also demonstrate that the development is on developable, previously developed land or if it is not on previously developed land, that there are no reasonable alternative sites on previously developed land.

17. The SFRA has outlined specific development control conditions that should be placed upon development within Zone 3a High Probability to minimise the damage to property, the risk to life in case of flooding, and the need for sustainable drainage techniques (SUDS) to reduce runoff rates. It is essential that the developer carries out a detailed Flood Risk Assessment to consider the site-based constraints that flooding may place upon the proposed development.

### **Zone 2 Medium Probability**

18. Areas subject to flooding in events exceeding the 100 year event, and up to (and including) once in every 1000 years on average (i.e. Zone 2 Medium Probability) have been identified. Essential community services, including emergency services, should be avoided in these areas. There are generally no other restrictions placed upon future development in these areas, however it is important to ensure that the developer takes account of possible climate change impacts to avoid a possible increase in the risk of flooding in future years (achieved through completion of a simple Flood Risk Assessment).

### **Zone 1 Low Probability**

19. There are no restrictions placed on development within Zone 1 Low Probability (i.e. all remaining areas of the Borough). It is important to remember however that development within these areas, if not carefully managed, may exacerbate existing flooding and/or drainage problems downhill. It is necessary therefore to ensure that developers carry out a Surface Water Flood Risk Assessment. This should demonstrate that the proposed drainage system design will mitigate any possible increase in runoff that may occur from the site as a result of the proposed development.

### **Localised Flooding Issues**

20. In addition to fluvial (river) and tidal flooding, properties within the London Borough of Hounslow are also affected by a risk of flooding stemming from issues of a relatively localised nature. These include surcharging of the underground sewer system, the blockage of culverts and gullies resulting in overland flow, and surface water flooding. There is also a potential (albeit minimal) risk of groundwater flooding within the Borough.
21. Issues of this nature are unlikely to affect the allocation (or otherwise) of sites within the Borough. It is absolutely imperative however that future development does not exacerbate localised flooding problems. The implementation of sustainable urban drainage systems must be ensured, and careful consideration to overland flow routes (e.g. avoiding obstructing these) as part of the site design should be encouraged.

### **A Proactive Approach – Reduction in Flood Risk**

22. It is crucial to recognised that PPS25 considers not only the risk of flooding posed to new development. It also seeks to positively reduce the risk of flooding posed to existing properties within the Borough. It is strongly recommended that this principle be adopted as the underlying 'goal' for developers and Council development control teams within Hounslow.
23. Developers should be encouraged to demonstrate that their proposal will deliver a positive reduction in flood risk to the Borough, whether that be by reducing the frequency or severity of flooding (for example, through the introduction of SuDS), or by reducing the impact that flooding may have on the community (for example, through a reduction in the number of people within the site that may be at risk). This should be reflected through the inclusion of a positive statement within the detailed FRA that clearly and concisely summarised how this reduction in flood risk will be delivered.

## **Level 2 SFRA - Brentford AAP**

24. A more detailed assessment of flood risk of potential development sites in the BAAP (February 2007) has been undertaken, presented in Figure 9 and Appendix A.
25. The risk of flooding posed to (and by) the proposed development, should it be allocated, has been considered. Where possible at this stage, a cross check has been carried out between the proposed land use, and the vulnerability criteria provided by PPS25. This provides an indication of whether or not the Sequential Test must be applied to demonstrate the planning 'need' for a proposed site allocation.
26. An assessment of effective flood mitigation measures that will address the risk of flooding in a safe and sustainable manner throughout the lifetime of the development have been identified, to satisfy point (c) of the Exception Test.
27. It has been determined that three (3) sites to be taken forward as an outcome of the AAP are potentially at risk of flooding within the Brentford area, namely M3, M8 and RR1. At these locations, a more rigorous assessment of the hazard posed to property and life as a result of flooding has been carried out, providing the evidence base required for spatial planning decisions taken. These more detailed assessments are provided in Appendix B.

## **Conclusion**

28. The Level 2 (Brentford AAP) SFRA has been prepared to interrogate in further detail the potential risk of flooding associated with emerging allocations within the Brentford AAP. This report provides a crucial element of the evidence base to support the planning process.

## **APPENDIX A**

### **Review of PPS25 Constraints Brentford Area Action Plan (BAAP)**

## Overview

In accordance with PPS25, it is necessary for a local authority to adopt a sequential approach when allocating sites for future development. This is outlined in Section 6.4.1 of the SFRA, however in simple terms it must be demonstrated that sites for future development have been sought within the lowest flood risk zone (i.e. Zone 1 Low Probability). Only if it can be shown that suitable sites are not available within this zone can alternative sites be considered within the areas that are at greater risk of possible flooding.

The SFRA does not endeavour to address this aspect of the Sequential Test. It can however review emerging allocations, and in light of the delineated PPS25 flood zones, provide clear recommendations for permissible land uses (as defined by PPS25).

## The Adopted Approach




A review of emerging proposal sites has been undertaken as part of the SFRA process. Emerging sites as identified by the Council (Brentford Area Action Plan (BAAP) June 2007 – refer Figure 9) were overlaid onto the adopted PPS25 flood zones. The attached table, and summary sheets for those sites affected by flooding, summarises:

- the locality of each nominated site;
- the flood zone within which that site falls; and
- the restrictions that flood risk places upon the future development of the site.

It is highlighted that the SFRA has been developed in parallel to the 'live' planning process. Therefore, at the time of writing, the Council was able to provide emerging decisions taken with respect to specific sites that will influence the status of the allocation (e.g. exclusion and/or land use change on flood risk grounds).

## Interpretation of Proposal Sites Review (attached table)

The attached table has adopted a 'traffic light' system to mirror the decision matrix provided within PPS25 (Appendix D). The table should be interpreted in accordance with the following legend.

	Development type is permissible under PPS25. A site based FRA is required in accordance with Section 6.5 of the SFRA.
	Development type is permissible under PPS25, only if the Exception Test is passed. <b>It must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk.</b> A site based FRA is required in accordance with Section 6.5 of the SFRA. <b>All future development must be designed in accordance with the minimum requirements set out in Section 6.4 of the SFRA.</b>
	Development type is not permitted by PPS25.

NOTE: Where a site is only partially affected by flooding, the 'worst' (most constrained) flood zone has been highlighted in the matrix. Future development should be restricted to the area within the site that is least affected by flooding.

It is highlighted that, in some instances, sites are only partially affected by flooding. In these instances, the 'traffic lights' within the attached matrix reflect the most significant risk of flooding within the site. At these locations, future development may be permitted to proceed, however this should be restricted to the lowest risk areas of the site if at all possible.

ID	Location	Proposed Land Use	PPS25 Zone	Specific Comments	Permissible Land Use (PPS25 Sequential Test)				
					Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
BE1 (SEL1)	Gillette	Strategic Employment Location (Industrial Business park)	1	There are no pressing planning constraints placed upon this site by PPS25, however it is essential that sustainable drainage techniques are stipulated as a development control condition to reduce the runoff from the site (thereby not exacerbating existing localised drainage problems nearby).					
RR1	Ferry Wharf, Point Wharf, Soap House Creek	Water related uses including boat house, water related visitor centre and ancillary restaurant use and moorings	3b	This site is situated wholly within Zone 3b Functional Floodplain. Development must be restricted to water compatible uses or essential infrastructure.					
MDO1	'Brentford Diamond', Lionel Rd/ Chiswick High Road	This is a major site lying in the east of the area which offers significant potential to deliver a variety of uses within a land mark 'zero-carbon' area regeneration proposal. The Council would welcome the consideration of a new sports stadium with associated hotel, conference and entertainment facilities. Educational, community and health uses could also form part of a mixed-use scheme.	1	There are no pressing planning constraints placed upon this site by PPS25, however it is essential that sustainable drainage techniques are stipulated as a development control condition to reduce the runoff from the site (thereby not exacerbating existing localised drainage problems nearby).					
BE3 (LSIS1)	Lucozade Annexe, Great West Road	Locally significant Industrial site	1	There are no pressing planning constraints placed upon this site by PPS25, however it is essential that sustainable drainage techniques are stipulated as a development control condition to reduce the runoff from the site (thereby not exacerbating existing localised drainage problems nearby).					
BE2 (SEL2)	Commerce Road	Strategic Employment Location (Preferred Industrial location)	3a	The site is partially affected by Zone 3a High Probability. Development should be restricted to the non flood affected areas of the site if at all possible. Within Zone 3a, it will be necessary to demonstrate that there are no suitable alternative sites within Zone 1 before development can be considered at this location. Land uses should be restricted to 'less vulnerable' or 'water compatible' uses (i.e. excluding residential).					
M5	Albany Riverside (Waterman's plus adjoining commercial sites)	Mixed-use redevelopment of the site providing a range of residential accommodation catering for large and small households as well as a mix of tenures, and the provision of appropriate commercial uses	3a	Allocation deleted from Brentford AAP on flood risk grounds					
M4	Thames Water site, Kew Bridge Road	Mixed-use development, which maintains the open space on site as well as the buildings of historic interest and provides a range of residential and business accommodation	1	There are no pressing planning constraints placed upon this site by PPS25, however it is essential that sustainable drainage techniques are stipulated as a development control condition to reduce the runoff from the site (thereby not exacerbating existing localised drainage problems nearby).					
M8	Land South of the High Street	Retail development incorporating mixed uses, which could include social, community and entertainment facilities together with an element of other commercial uses appropriate to a town centre location and residential above	3b	A proportion of this site is situated within (i.e. on the river side) of the Thames Tidal Defences (TTD), and is subject to flooding, on average, once in every 20 years to a depth of approximately 0.5m. It is essential that any planned future redevelopment of this precinct is supported by a robust planning argument that clearly demonstrates the absence of any alternative suitable sites within a zone of lesser flood risk. Future regeneration of the precinct must actively reduce flood risk. This should be achieved through:  - a reduction in the vulnerability of the land use (i.e. steering residential development into areas of lesser risk within the site)  - a reduction in the building platform area  - the removal of buildings away from natural overland flood routes, reducing obstructions to the flow  - the provision of a dry access route for pedestrians (i.e. above the 100 year plus climate change flood level), and the development of a dedicated emergency response plan in case of flooding  - the integration of sustainable drainage techniques to reduce the rate and volume of runoff from the site  - the raising of floor levels & the introduction of flood proofing to minimise flood damages					
M3	Kew Bridge site, Kew Bridge Road	Mixed-use development for commercial, residential and water related uses	3b	This site is situated partially within Zone 3b Functional Floodplain, and is currently undeveloped. Future development within this zone must be restricted to water compatible uses or essential infrastructure. All development (including more vulnerable uses) must be restricted to Zone 1 Low Probability or Zone 2 Medium Probability.					
M6	Town Meadow Site, Pump Alley, off Brentford High Street	Conservation based scheme providing for a mix of residential accommodation and business uses	3a	This site falls within Zone 3a High Probability, however it is defended against flooding by the Thames Tidal Defences (TTD). From a planning perspective, the residual risk of flooding (due to the possibility of defence failure over the lifetime of the development) is an important consideration. It will be necessary to demonstrate a strong planning argument, that outweighs flood risk, if development is to be considered further at this location. Strict development control conditions must be adhered to for all future development (refer SFRA Section 6.4).					
M1	Former Alfa Laval site and Baltic Centre, Great West Road	Mixed-use development including commercial and a range of residential, accommodation, including affordable and family housing	1	There are no pressing planning constraints placed upon this site by PPS25, however it is essential that sustainable drainage techniques are stipulated as a development control condition to reduce the runoff from the site (thereby not exacerbating existing localised drainage problems nearby).					
M2	Wallis House, Great West Road	Mixed use development including commercial and a range of residential accommodation, in terms of size and tenure, and an appropriate re-use of the listed building	1	There are no pressing planning constraints placed upon this site by PPS25, however it is essential that sustainable drainage techniques are stipulated as a development control condition to reduce the runoff from the site (thereby not exacerbating existing localised drainage problems nearby).					
M7	Somerfield, High Street, Brentford	Mixed use development to include an appropriate replacement/ refurbished food store, town centre parking, improved bus stand facilities and an appropriate range of residential accommodation, particularly with regard to the need for affordable and family units, and commercial uses	1	There are no pressing planning constraints placed upon this site by PPS25, however it is essential that sustainable drainage techniques are stipulated as a development control condition to reduce the runoff from the site (thereby not exacerbating existing localised drainage problems nearby).					

## **APPENDIX B**

### **Detailed Assessment of Flood Risk** *(Emerging Allocations Affected by a Risk of Flooding)*

516000 517000 518000 519000

179000

179000

178000

178000

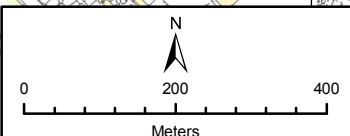
177000

177000

516000 517000 518000 519000

**Legend**

- LB Hounslow Boundary
- LBH Character Areas
- Main river centrelines
- Flood defences
- BAAP Proposed Sites
- Local Flooding
- Zone 2 Medium Probability
- Zone 3a High Probability
- Zone 3a Climate Change
- Zone 3a(i) High Risk in Breach
- Zone 3b Functional Floodplain



This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. 100019263 2007.

**JACOBS**

CLIENT: London Borough of Hounslow

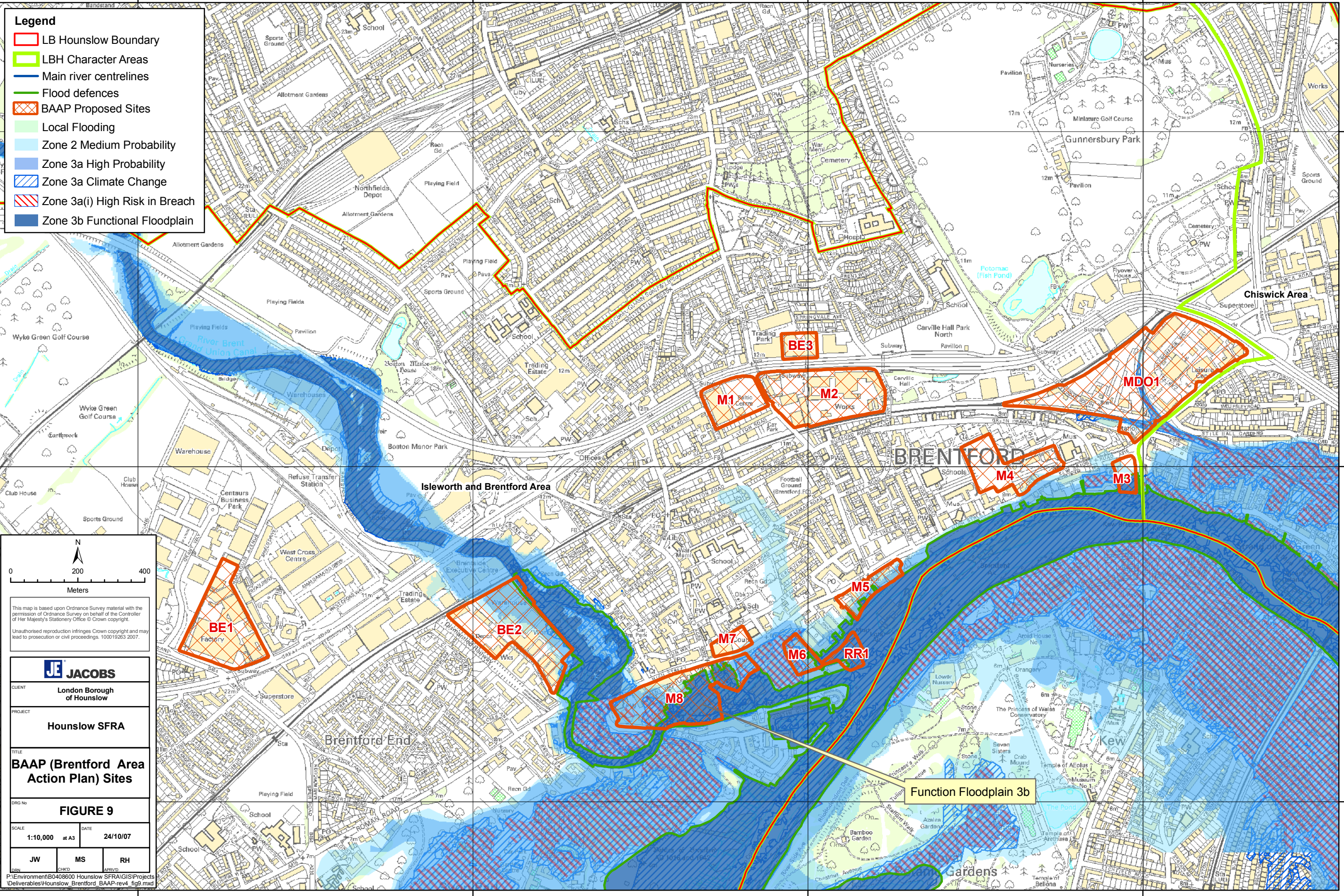
PROJECT: Hounslow SFRA

TITLE: BAAP (Brentford Area Action Plan) Sites

FIGURE 9

SCALE: 1:10,000	DATE: 24/10/07
JW	MS
MS	RH

P:\Environment\B0408600 Hounslow SFRA\GIS\Projects\Deliverables\Hounslow Brentford BAAP rev4 fig9.mxd



Function Floodplain 3b