

4th June 2007

Ref: J2393hro

Mr Russell Whitaker
St Mary's University College
Twickenham

Dear Russell

**Level 1 Flood Risk Assessment:
Proposed sports development at St Mary's University College, Twickenham**

Thank you for your recent instruction to carry out a desktop assessment of flood risk issues for the proposed development at St Mary's University College. This letter details our findings.

The Planning Guidance for Development and Flood Risk has recently been revised with Planning Policy Statement 25 (DCLG, 2006) replacing Planning Policy Guidance 25 (DTLR, 2001). PPS25 requires assessment of the risk of a site being flooded, the impacts of the development on flood risk elsewhere in the catchment, and the impacts of flooding to the site. The Environment Agency will object to planning permission being granted if the development is deemed unacceptable on any of these issues. It is unlikely that an objection will be made in this instance, for the reasons explained below.

Sequential and exception tests

PPS25 includes a table to highlight whether particular types of development are appropriate in each flood zone. This is reproduced as Table 1 and attached to this letter. As non-residential leisure facilities, the proposed development would be classed as "Less Vulnerable". The majority is in Zone 1 ie outside any flood zones recognised by the Environment Agency. A small part of the development (less than one quarter of the 1,185 m² footprint) lies within Zone 2, indicating a risk of flooding from the River Thames with up to a 0.1% (1 in 1000) chance of occurring each year.

Table 1 shows that the development is therefore classed as "appropriate" at this location. The overall aim of decision-makers should be to steer new development away from Flood Zone 3, ideally to Flood Zone 1. Where there are no reasonably available sites in Flood Zone 1, then sites would be considered in Flood Zone 2. As the college grounds extend further into Zone 1, consideration should be given to relocating the development slightly to the west, thus placing it entirely outside of Zone 2. However, the area in question is minor and it may not be desirable to have the new build disconnected from the existing sports building.

Flood risk and mechanisms

The development lies on the periphery of the main River Thames floodplain, as shown in Figure 1. Flood defences along this reach of the River Thames protect part of the college grounds but not the area at risk from 0.1% annual probability events that extends to the new development. The River Thames in this area has a slow rate of rise, and flood depths at the edge of the floodplain are likely to be low. The northeastern corner of the new building is at risk from extreme flood events, but plans include several points of access on the side that lies furthest outside of Flood Zone 2, so evacuation routes are not an issue.

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Flow paths and floodplain storage

The development is not on the main flood flow path of the River Thames, and as only a small portion encroaches onto the floodplain, flow routes are unlikely to be affected. Similarly any loss of floodplain storage for extreme flood events will be negligible.

Runoff

The site of the proposed sports building is currently an area of clay Redgra used for car parking, bordered by trees to the south and grass to the north and west. Runoff will be reduced as a result of the development because the building footprint (1,185 m²) is smaller than the existing impermeable surface (4,416 m²), with the remainder being replaced by permeable surfaces. The area to the west of the new building will be planted with native trees and understorey vegetation (see Figure 2). Permeable materials will be used for the paths and car park, enabling infiltration of rainwater and reducing runoff. In addition, it is intended that a rainwater harvesting system be incorporated with the new building. There will therefore a reduced risk of flooding to the site and adjacent buildings with the development.

In summary, the proposed sports development is classed as 'appropriate' under PPS25 as it lies predominantly in Flood Zone 1 and partially into Flood Zone 2. Fluvial flood risk to the development is minor, and impacts on flood flow paths and floodplain storage are insignificant. Runoff from the site will be reduced as a result of the development.

If you have any queries or require additional information please get in touch.

Yours sincerely,

Helen Olsson
Senior Hydrologist

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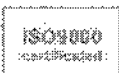
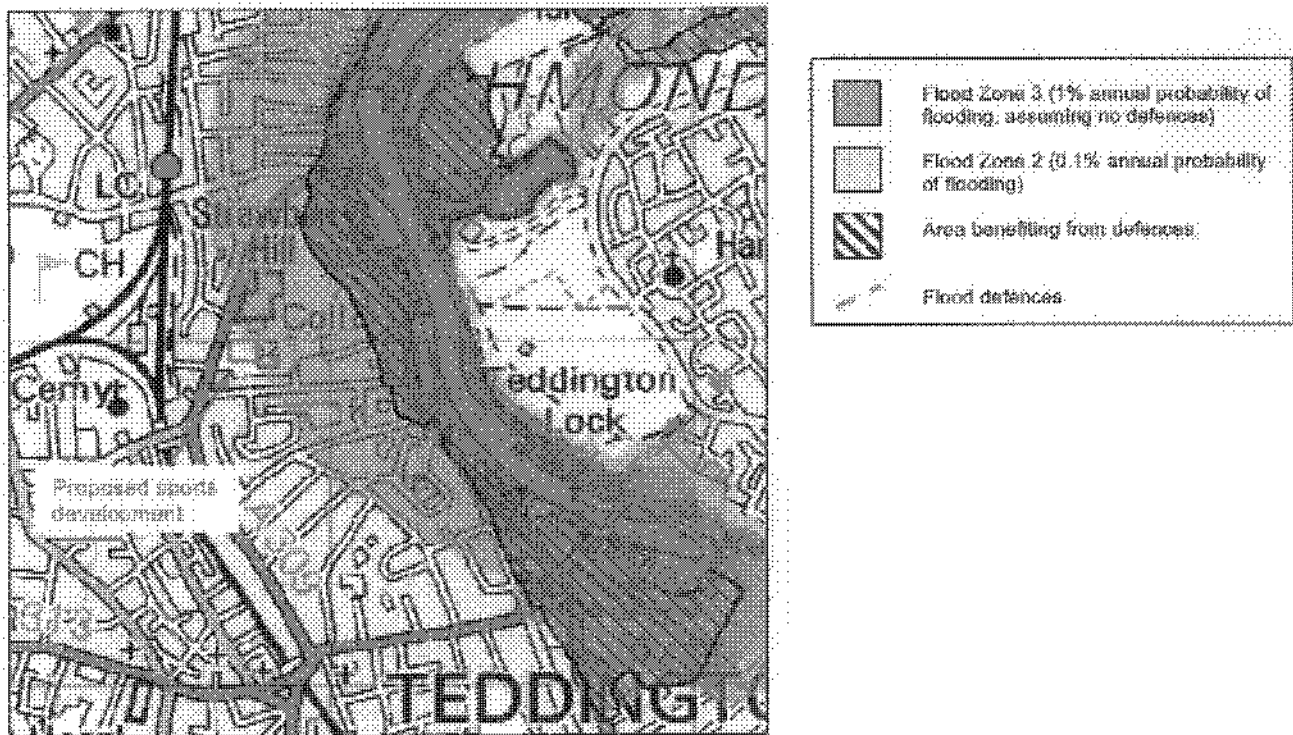
Table 1 Flood Risk Vulnerability and Flood Zone 'Compatibility'

Flood Zone	Definition	EI	WC	HV	MV	LV
1	$T > 1,000$	✓	✓	✓	✓	✓
2	$100 < T_{fluv} < 1,000$ $200 < T_{total} < 1,000$	✓	✓	Exc.	✓	✓
3a	$T_{fluv} < 100$ $T_{total} < 200$	Exc.	✓	X	Exc.	✓
3b (functional floodplain)	$T_{fluv} < 20$	Exc.	✓	X	X	X

Notes:

- | | | | |
|------|-------------------------------------|----|--------------------------|
| T | return period (fluv = fluvial) | EI | Essential infrastructure |
| ✓ | development is appropriate | WC | Water compatible |
| X | development should not be permitted | HV | Highly vulnerable |
| Exc. | exception test should be applied | MV | More vulnerable |
| | | LV | Less vulnerable |

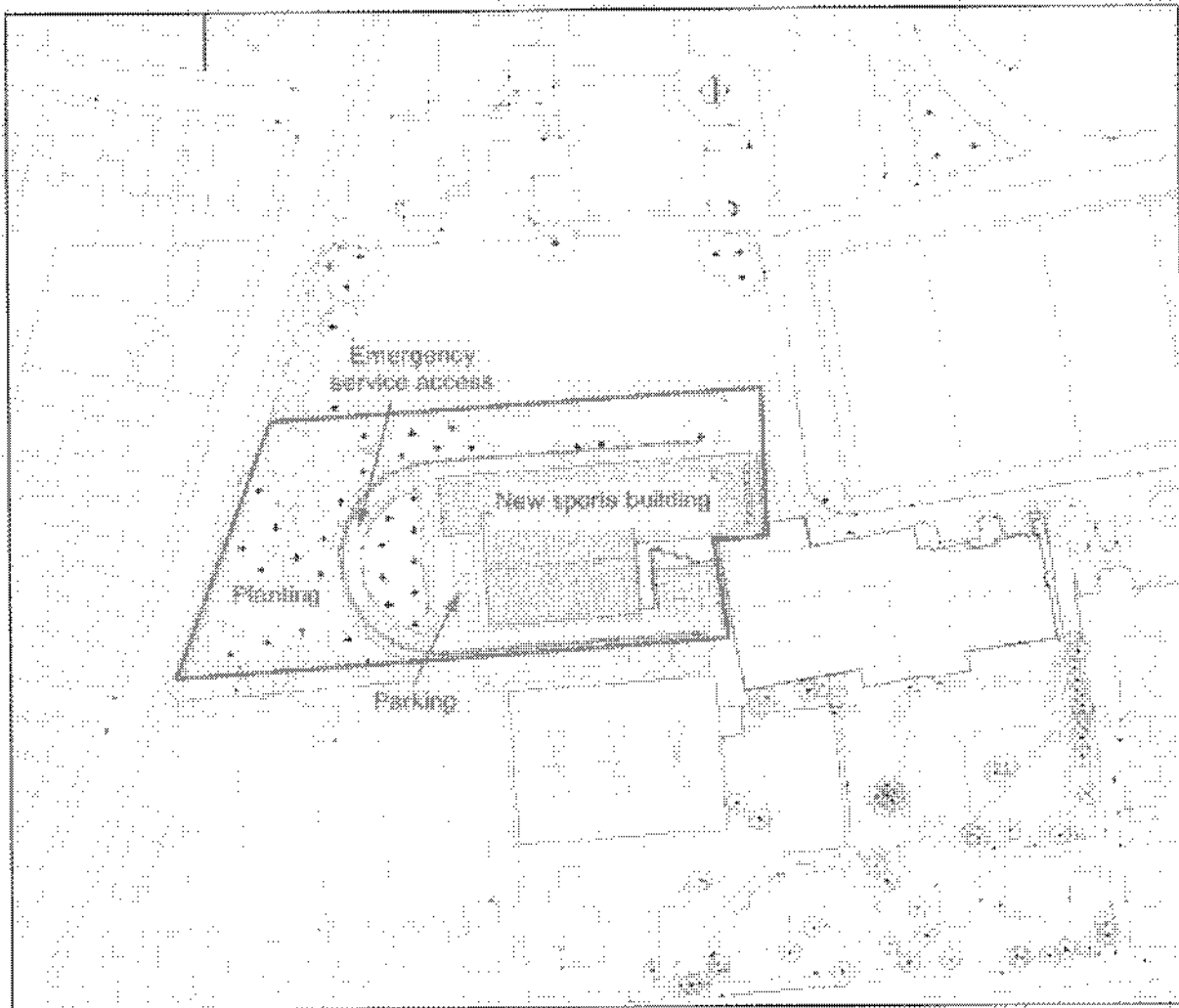
Figure 1 Flood Zone map (copyright Environment Agency)



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Figure 2 Development plan (Rivington Street Studio Architecture)



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