



Client	Reselton Properties
Project	Stag Brewery, Mortlake: <ul style="list-style-type: none"> • Application A (22/0900/OUT); • Application B (22/0902/FUL)
Title	Flood Risk Assessment – Addendum for The Exception Test
Code	512/SP02
Author / Reviewer	Dr P Webster (Corylus) & Emma Jolley (Hoare Lee) Review by Phillip Duncan (Corylus)
Issued to	Waterman
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1 Background

This is an Addendum to the Flood Risk Assessment (FRA) issued for the above Site¹. It has been requested by the London Borough of Richmond upon Thames (LBRuT) in an email dated 3rd March 2023 seeking clarification as to how the components of the Exception Test as presented in the FRA meet paragraph 164 of the NPPF.

Paragraph 164 of the NPPF² states that:

The application of the exception test should be informed by a strategic or site-specific flood risk assessment, depending on whether it is being applied during plan production or at the application stage. To pass the exception test it should be demonstrated that:

- a) *the development would provide wider sustainability benefits to the community that outweigh the flood risk; and*
- b) *the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.*

This Addendum deals with:

- Sustainability Benefits in Section 2;
- Flood Risk Review in Section 3;
- Comment on flood resistance and resilience in Section 4 and
- Summary in Section 5.

¹ Stag Brewery, Mortlake: Flood Risk Assessment. For Reselton Properties. Report by Hydro-Logic Services through Corylus, February 2022 [Environmental Statement Appendix 12.1].

²

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

2 Wider Sustainability Benefits

The application has been developed to provide a holistic approach to sustainability. This Section summarises the key benefits that are being offered as part of the proposal. For more detail, please refer to the submitted Sustainability Statement³:

Ecological enhancement:

- A mixture of soft and hard landscaping is proposed throughout the Development. A mix of evergreen and deciduous trees are proposed across the Site, which includes up to 428 new trees and up to 99 individual and 3 tree groups retained. All residential courtyards on ground level would be enclosed with 1.5 m high hedge planting
- a minimum of 10 bat boxes would be incorporated in the Development located east of Ship Lane (note, number of bat boxes within the outline component of the Site would be determined following the reserved matters application);
- provision of 20 bird nesting boxes, including 5 bird boxes suitable for swifts and 15 for other bird types in the Development located east of Ship Lane in Development Area 1 (note, number of bird boxes within the outline component of the Site would be determined following the reserved matters application);
- a peregrine falcon nest box would be incorporated into the proposed Development on the roof of the Maltings (Building 4);
- use of native species, or species of benefit to wildlife throughout the Development. This would include littoral plant species in areas close to the river edge responding to existing riverside vegetation and native trees located in a grove in the community park south of the proposed school;
- incorporation of deadwood features within landscape areas, to provide opportunities for a range of invertebrates; and
- of biodiversity roofs, including a mix of green and brown roofs. Green roofs would include a wildflower and native grasses mix whilst brown roofs would incorporate photovoltaic (PV) panels in some areas and would be seeded with plant species collected from the Site or nearby, including log piles, slabs and twigs gathered from the local area. Where possible, the substrate depth would be varied to provide opportunities for small pools of water to collect on the roof.

³ -Sustainability Statement-Rev 02 REP-by Hoare Lee, 2310513-5A-20220210.

Site user wellbeing:

- Improve access to green infrastructure by providing green space throughout the Proposed Development.
- Enable people to live healthy and active lifestyles due to the provision of suitable cycle parking to encourage commuting by bike which is a low-carbon mode of transport;
- Allow staff/occupiers and visitors of all ages and stages of life to access the Proposed Development's non-residential areas by ensuring suitable access provisions.

Energy strategy:

- The proposed energy strategy follows a fabric first approach in accordance with the energy hierarchy.
- An all-electric heating strategy will be adopted to enable ongoing decarbonisation from the National Grid.
- Low carbon technologies such as Air Source Heat Pump (ASHP) and rooftop Photovoltaic (PV) panels have been incorporated to demonstrate significant reduction in carbon emissions compared to the Part L 2021 baseline.

Resource management:

- Elements of existing structure on the site will be repurposed to form part of the overall offering, reducing the overall embodied carbon associated with the Proposed Development.
- Specification of water fittings will ensure that potable water demand is lowered in line with the adopted planning policies and environmental certifications being sought (e.g. BREEAM).
- The submitted Site Waste Management Plan (SWMP) details the approach to demolition and excavation to ensure that waste generated during the construction stage will be diverted from landfill or reused on site where feasible.
- The Site has been developed to be climate resilient.

3 Flood Risk Review

This Section restates key aspects of the FRA to reaffirm that the development satisfies the requirements of the Exception Test in relation to flood risk. The cross-references in square brackets are to the appropriate Sections of Appendix 12.1 of the Environmental Statement.

These points confirm that the Site will be safe for its lifetime from flooding:

- i. **Flood levels** at the site result from a complex interaction of predominantly tidal factors and the operation of the Thames Barrier. The Environment Agency has provided the results of detailed hydraulic modelling from the TE2100 Study. The reference flood level for the site is 6.03 mAOD for 2100 which is consistent with the proposed usage which includes residential use [Section 3.3 and 3.5].
- ii. **Finished floor levels for the residential development** are at a minimum level of 7.03 mAOD throughout the Site. [Section 4.2.3]
- iii. **The Finished Floor Level for non-residential** use is predominantly at a level of 6.03 mAOD i.e. the reference flood level for 2100. However, the FFL for some buildings is below the reference flood level. These have been reviewed individually to ensure that the residual risk is appreciated in the design and to ensure that there is safe access to higher levels. [Section 4.2.3].
- iv. **The Finished Floor Level for the School** has been agreed with the Environment Agency at a level of 5.9 mAOD. This follows from a shorter design life for the School with a consequential reduction in the allowance for climate change.
- v. The site currently benefits from **tidal flood defences** along the river frontage. These are formed from the residual walls from historic buildings plus The Maltings, a building which is being retained. As part of the development, the tidal defences will be remodelled. The crest will be at, or above, the Environment Agency's recommended 2100 crest level of 6.70 mAOD, so there will be no need to increase the defences over this timescale. The risk of breach of the new defences is considered negligible, due to the landscaping of the site and backfilling on the landward side of the defences. A more open river frontage will be created in line with the aspirations of the Environment Agency. A small section of the tidal defences that are currently formed by Ship Lane will need to be raised in the future with the current proposal based on the raising of Ship Lane to create a passive defence. [Section 4.2.2].
- vi. **The Basement** is not for habitation and is solely for car/bike parking and plant with separate car parks under the parts of the Site, east and west of Ship Lane. There are two entry/exit ramps for the car park to the east of Ship Lane; that in Ship Lane will be located above the reference flood level, whilst that in Mortlake High Street will be protected by a self-activating flood barrier [Section 4.2.4]. The single entry/exit for the car park to the west of Ship Lane will be above the reference flood level.

- vii. **Safe access and egress** is provided within the site, where access is available to all residential property with at, or above the reference flood level for 2100 [Section 4.2.5 and Appendix G].
- viii. **The Residual Risks** are mainly due to the risk of breach of the tidal defences. This risk is negligible for current flood levels but will increase in line with projected increases in tidal flood levels. **Breach modelling** has been undertaken (Appendix D and Section 4.3.4). This has shown that there is a general reduction in flood extents and depths resulting from a breach following the development of the Site. Other risks have been assessed and are considered to be negligible [Section 4.4]. A maintenance programme of key drainage infrastructure should be put in place by Site Managers to ensure that residual risks are minimised.
- ix. **Flood risks during the period of construction** have been assessed and, with the adoption of standard site management practice, they should be of no practical consequence. It is anticipated that the construction of the basement will require dewatering of the excavation area [Section 4.5].

The following points confirm that the proposed development will not lead to an increase in flooding elsewhere:

- i. It has been confirmed by the Environment Agency that, since the area is affected by tidal flooding, there is no requirement to provide **Flood Storage Compensation** [Section C.1 and Section 4.3.2].
- ii. The **surface water drainage strategy** has been prepared under separate cover by Waterman IE. Part of the site would discharge on an unrestricted basis to the River Thames. The remainder would discharge to the Thames Water sewer, via attenuation storage that would lead to a 70% reduction below the existing rate of runoff. This satisfies the requirements of the NPPF and the London Plan [Section 4.3.3].
- iii. The proposed development is considered to have no significant influence on **groundwater levels** in the surrounding area. This follows from the hydraulic gradient being away from the River Thames [Section 4.3.5].

Flood risk reductions for the wider community are envisaged as follows:

- i. Under the conditions envisaged by the Flood Emergency Plan, the development would provide benefits to **the wider community** including the provision of emergency car parking; use of the proposed emergency access and use of the site as a refuge [Appendix F].
- ii. As noted in point ii above, the attenuation storage will lead to a **70% reduction** below the existing rate of runoff.

4 Flood Resilience and Flood Resistance

Further clarification has been sought from LBRuT in relation to the following:

- Flood resistance which are measures to exclude flood water from properties; and
- Flood resilience being the use of flood resistant materials in construction that can speed the recovery following a flood event.

This Section reviews the requirement for and use of such measures for the application.

The Site is currently protected by flood defences to a standard of 1 in 1,000 (0.1%) with the following description provided by the Environment Agency:

The design standard of protection of the flood defences in this area of the Thames is 0.1% AEP; they are designed to defend London up to a 1 in 1000 year tidal flood event. The defences are all raised, man-made and privately owned. It is the riparian owners' responsibility to ensure that they are maintained to a crest level of 5.94 m AODN (the Statutory Flood Defence Level in this reach of the Thames). We inspect them twice a year to ensure that they remain fit for purpose. The current condition grade for defences in the area is 2 (good), on a scale of 1 (very good) to 5 (very poor).

It is proposed that the defences will be raised in line with the requirements of the Environment Agency TE2100 strategy. As outlined in the FRA [Section 4.2.2], defences will be raised to a level of 6.70 mAOD to maintain the design standard up to 2100 based on current design assumptions.

The risk of overtopping of the defences is very small given the design standard plus freeboard provision. The negligible risk of overtopping does not warrant any additional flood resistance/resilience measures.

There is a risk that the defences may be breached and that such a breach may affect the Site. The likelihood of a breach along the river frontage is likely to be low given the condition of the defences and that they will be backfilled for much of the frontage. However, there remains a theoretical risk of breach at Bulls Alley, immediately east of the Site. The potential impacts of a breach at this location have been investigated through modelling and described in Appendix D of the FRA.

It is not possible to quantify the risk; though the risk can be mitigated through regular inspection and appropriate maintenance. The defences are accessible and subject to regular inspection which should highlight the need for any corrective action.

The practical risk of a breach is considered low and does not warrant any specific flood resilience measures.

However, some flood resistance measures are warranted in the unlikely event of a breach, as described in the FRA:

- Flood proof door for the sub-station in Building B10 (Flexible Use and sub-station) [Section 4.2.3, p56]; and
- Self-activating flood barrier for the basement car park entry from Mortlake High Street [Section 4.2.4, page 58].

5 Summary

This Addendum has reviewed the application of the Exception Test in respect of the proposed redevelopment of the Stag Brewery, Mortlake under Applications A and B.

- Section 2 summarises the key sustainability benefits that form part of the proposed scheme.
- Section 3 has confirmed that the Site can be developed safely over its lifetime, will not increase flood risk elsewhere and will offer some overall reduction in flood risk.
- Section 4 has described the flood risk context in relation to the requirements for flood resilient and resistant construction. Flood resistant measures are proposed at two locations whilst there are no recommendations for flood resilience due to the low risk of overtopping and breach of the defences.

It is thus concluded that the requirements of the Exception Test are passed.



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