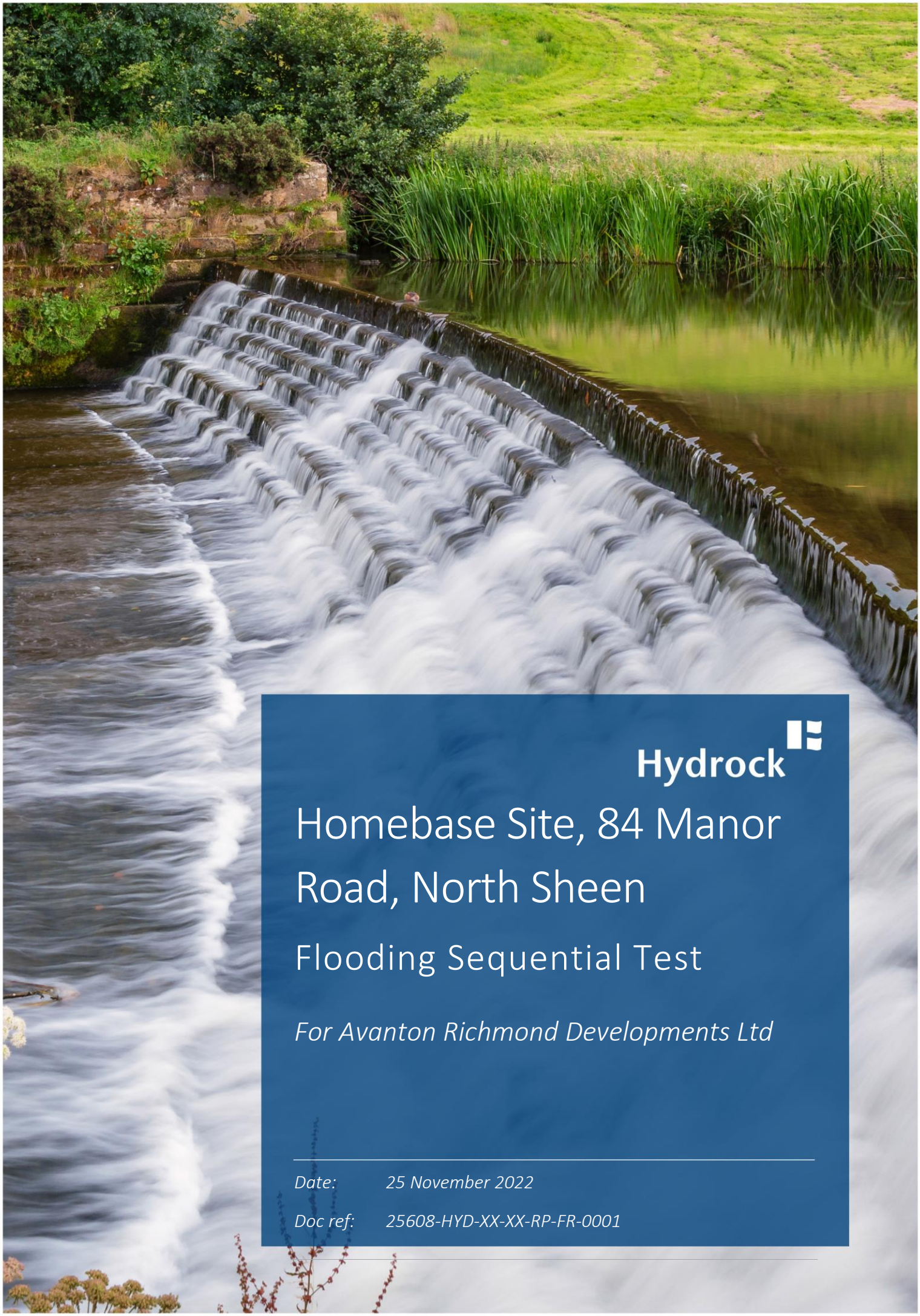

Hydrock

Homebase Site, 84 Manor Road, North Sheen

Flooding Sequential Test

For Avanton Richmond Developments Ltd

Date: *25 November 2022*

Doc ref: *25608-HYD-XX-XX-RP-FR-0001*

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1. INTRODUCTION

This report provides evidence on the Sequential Test, in relation to flood risk, in support of a planning application at the former Homebase Site, 84 Manor Road, North Sheen, Richmond.

The aim of the sequential test is to ensure that a sequential risk-based approach is followed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account. Where it is not possible to locate development in low-risk areas, the sequential test should compare reasonably available sites:

- Within medium risk areas; and
- Then, only where there are no reasonably available sites in low and medium risk areas, within high-risk areas.

This report has been prepared in conjunction with Homebase Site, 84 Manor Road, North Sheen Flood Risk Assessment (Doc Ref: 25608-HYD-XX-XX-RP-FR-0002) and the associated surface water modelling report (Doc ref: 25608-HYD-XX-XX-RP-FR-0003) as part of a planning application to comply with the requirements of the Richmond Borough Councils Strategic Flood Risk Assessment (2021).

The need to undertake this sequential test has arisen as a result of changes to policy and planning guidance since the application was submitted in 2019.

The Application was originally submitted on 14 February 2019 and the Development Plan for the Site at that time comprised of the following:

- National Planning Policy Framework (2019);
- London Plan (2016) (consolidated with amendments since (2011); and
- London Borough of Richmond upon Thames Local Plan (2018).

Relevant supplementary planning guidance also included the National Planning Policy Guidance for Flood Risk and Coastal Change (2014).

The National Planning Policy Framework was updated in 2021 and supersedes its 2019 version. The new London Plan was adopted on 02 March 2021 and supersedes the 2016 London Plan. LBRuT's Local Plan remains in place. Although it is noted that a Pre-Publication Draft Local Plan ('Emerging Local Plan') is currently out for consultation (Regulation 18 stage). It carries limited weight due to its early stages and as it is has not been considered at an examination in public.

There have also been two fundamental changes to supplementary planning guidance.

1. LBRuT published a Strategic Flood Risk Assessment (SRFA) in March 2021. Within the SRFA, there are a number of strategic policy recommendations for LBRuT. The key policy change which has a potential impact on the Site is the recommendation to consider implementing the 1 in 100-year surface water extent Flood Zone 3a (surface water) for the borough. This represents a much more onerous testing scenario than policy and guidance in place at the time of the Mayoral Hearing.
2. In August 2022, the National Planning Policy Guidance for Flood Risk and Coastal Change ('NPPG') was updated to bring it in line with the latest policy position on flood risk introduced in the updates to the NPPF in 2018 and 2021. The recommendations, again, require more testing scenarios than former policy and guidance in place at the time of the Mayoral Hearing.

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Therefore this sequential test has been prepared as a result of the changes to policy and planning guidance, to ensure the development is fully compliant with the current development plan.

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2. PLANNING POLICY AND GUIDANCE

The following policy documents have been identified as being of relevance in relation to this sequential test:

- NPPF (2021)
- NPPG (2022)
- London Plan (2021)
- Richmond Local Plan (2018)
- Richmond Local Housing Market Assessment (2021)
- Strategic Flood Risk Assessment Richmond Upon Thames (2021)
- Draft Richmond Local Plan (Regulation 18 consultation 2021)

2.1 NPPF (2021)

Paragraph 159 of the NPPF states that: Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.

Paragraph 161 goes on to state all plans should apply a sequential, risk-based approach to the location of development – taking into account all sources of flood risk and the current and future impacts of climate change – so as to avoid, where possible, flood risk to people and property. They should do this, and manage any residual risk, by:

- applying the sequential test and then, if necessary, the exception test as set out below;
- safeguarding land from development that is required, or likely to be required, for current or future flood management;
- using opportunities provided by new development and improvements in green and other infrastructure to reduce the causes and impacts of flooding, (making as much use as possible of natural flood management techniques as part of an integrated approach to flood risk management); and
- where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development, including housing, to more sustainable locations

Paragraph 162 states: The aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test. The sequential approach should be used in areas known to be at risk now or in the future from any form of flooding.

Paragraph 163 states if it is not possible for development to be located in areas with a lower risk of flooding (taking into account wider sustainable development objectives), the exception test may have to be applied. The need for the exception test will depend on the potential vulnerability of the site and of the development proposed, in line with the Flood Risk Vulnerability Classification.

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Paragraph 164 states: 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:

- the development would provide wider sustainability benefits to the community that outweigh the flood risk; and
- 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.

2.2 NPPG (2022)

Paragraph 24 of the NPPG (2022) states that: The Sequential Test ensures that a sequential, risk-based approach is followed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account. Where it is not possible to locate development in low-risk areas, the Sequential Test should go on to compare reasonably available sites:

- Within medium risk areas; and
- Then, only where there are no reasonably available sites in low and medium risk areas, within high-risk areas.

Paragraph 27 of the NPPG (2022) states The Sequential Test should be applied to 'Major' and 'Non-major development' proposed in areas at risk of flooding, but it will not be required where:

- The site has been allocated for development and subject to the test at the plan making stage (provided the proposed development is consistent with the use for which the site was allocated and provided there have been no significant changes to the known level of flood risk to the site, now or in the future which would have affected the outcome of the test).
- The site is in an area at low risk from all sources of flooding, unless the Strategic Flood Risk Assessment, or other information, indicates there may be a risk of flooding in the future.
- The application is for a development type that is exempt from the test, as specified in footnote 56 of the National Planning Policy Framework.

For individual planning applications subject to the Sequential Test, the area to apply the test will be defined by local circumstances relating to the catchment area for the type of development proposed. For some developments this may be clear, for example, the catchment area for a school. In other cases, it may be identified from other Plan policies. For example, where there are large areas in Flood Zones 2 and 3 (medium to high probability of flooding) and development is needed in those areas to sustain the existing community, sites outside them are unlikely to provide reasonable alternatives. Equally, a pragmatic approach needs to be taken where proposals involve comparatively small extensions to existing premises (relative to their existing size), where it may be impractical to accommodate the additional space in an alternative location.

For nationally or regionally important infrastructure the area of search to which the Sequential Test could be applied will be wider than the local planning authority boundary.

2.3 The London Plan (2021)

Policy SI12 Flood Risk Management states that:

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- A Current and expected flood risk from all sources across London should be managed in a sustainable and cost-effective way in collaboration with the Environment Agency, the Lead Local Flood Authorities, developers and infrastructure providers.
- B Development Plans should use the Mayor's Regional Flood Risk Appraisal and their Strategic Flood Risk Assessment as well as Local Flood Risk Management Strategies, where necessary, to identify areas where particular and cumulative flood risk issues exist and develop actions and policy approaches aimed at reducing these risks. Boroughs should cooperate and jointly address cross-boundary flood risk issues including with authorities outside London.
- C Development proposals should ensure that flood risk is minimised and mitigated, and that residual risk is addressed. This should include, where possible, making space for water and aiming for development to be set back from the banks of watercourses.
- D Developments Plans and development proposals should contribute to the delivery of the measures set out in Thames Estuary 2100 Plan. The Mayor will work with the Environment Agency and relevant local planning authorities, including authorities outside London, to safeguard an appropriate location for a new Thames Barrier. E Development proposals for utility services should be designed to remain operational under flood conditions and buildings should be designed for quick recovery following a flood.

2.4 Richmond upon Thames Local Plan (2018)

The following policies are relevant in relation to flood risk and the sequential test.

Policy LP 21

All developments should avoid, or minimise, contributing to all sources of flooding, including fluvial, tidal, surface water, groundwater and flooding from sewers, taking account of climate change and without increasing flood risk elsewhere. Development will be guided to areas of lower risk by applying the 'Sequential Test' as set out in national policy guidance, and where necessary, the 'Exception Test' will be applied. Unacceptable developments and land uses will be refused in line with national policy and guidance, the Council's Strategic Flood Risk Assessment (SFRA) and as outlined in the table below. In Flood Zones 2 and 3, all proposals on sites of 10 dwellings or more or 1000sqm of non-residential development or more, or on any other proposal where safe access/egress cannot be achieved, a Flood Emergency Plan must be submitted. Where a Flood Risk Assessment is required, on-site attenuation to alleviate fluvial and/or surface water flooding over and above the Environment Agency's floodplain compensation is required where feasible.

	Land uses and developments - restrictions	Sequential Test	Exception Test	Flood Risk Assessment
Zone 3b	The functional floodplain as identified in the Council's Strategic Flood Risk Assessment will be protected by not permitting any form of development on undeveloped sites unless it: • is for Water Compatible development; • is for essential utility infrastructure which has to be located in a flood risk area and no alternative locations are available and it can be demonstrated	Required for essential utility infrastructure	Required for essential utility infrastructure	Required for all development proposals

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	that the development would be safe, without increasing flood risk elsewhere and where possible would reduce flood risk overall. Redevelopment of existing developed sites will only be supported if there is no intensification of the land use and a net flood risk reduction is proposed; any restoration of the functional floodplain will be supported. Proposals for the change of use or conversion to a use with a higher vulnerability classification will not be permitted.			
Zone 3a	Land uses are restricted to Water Compatible, Less Vulnerable and More Vulnerable development. Highly Vulnerable developments will not be permitted. Self-contained residential basements and bedrooms at basement level will not be permitted.	Required for all developments unless exceptions outlined in the justification apply	Required for more vulnerable development	Required for all development proposals
Zone 2	No land use restrictions Self-contained residential basements and bedrooms at basement level will not be permitted	Required for all developments unless exceptions outlined in the justification apply	Required for highly vulnerable development	Required for all development proposals unless for change of use from water compatible to less vulnerable
Zone 1	No land use restrictions	Not applicable	Not applicable	A Drainage Statement is required for sites all major developments. Required for all other development proposals where there is evidence of a risk from other sources of flooding, including surface water, ground water and sewer flooding.

In terms of the sequential test paragraph 6.2.2 of the Local Plan states:

Future development in Zone 3a and Zone 2 will only be considered if the 'Sequential Test' has been applied in accordance with national policy and guidance. However, there will be some exceptions to this. The Sequential Test will not be required if it is not a major development and at least one of the following applies:

- It is a Local Plan proposal site that has already been sequentially tested, unless the use of the site being proposed is not in accordance with the allocations in the Local Plan.
- It is within a main centre boundary as identified within this Local Plan (Richmond, Twickenham, Teddington, Whitton and East Sheen).
- It is for residential development or a mixed use scheme and within the 400 metre buffer area identified within the Plan or surrounding the centres referred to above.
- Redevelopment of an existing single residential property.
- Conversions and change of use. 6.2.3

The Sequential Test will be required in all other cases.

The Council's bespoke approach to the Sequential Test recognises that relocating development from and around main centres (400 metres is considered to be walking distance from the centres) is not a realistic option and in order to sustain the continuing role of these centres, development can be used as a way to help manage and reduce flood risk in these areas

2.5 Richmond Local Housing Market Assessment (2021)

Richmond Local Housing Market Assessment was prepared in December 2021 which states that: The new London Plan was formally published on 2nd March 2021. The London Plan relies on the London-wide Strategic Housing Market Assessment ("SHMA") published in 2017 for its evidence of housing needs. The 2017 SHMA identified a need for 66,000 additional homes per annum over the period to 2041 and for the purposes of the Plan, London is considered as a single housing market area, with a series of complex and interlinked sub-markets.

On this basis, the London Plan makes clear that boroughs are not required to carry out their own housing needs assessments but must plan for and seek to deliver the housing targets in the London Plan.

The housing targets in the London Plan are not informed by the 2017 SHMA alone. A Strategic Housing Land Availability Assessment ("SHLAA") also prepared in 2017 was undertaken to establish the capacity of land suitable for residential development and intensification in each borough. As a result of the nature of London's land availability, the SHLAA does not attempt to identify capacity beyond 2029 and ten-year housing targets have therefore been established for every borough.

The new Local Plan for LBRuT will be required to be in general conformity with the new London Plan which seeks to prioritise building new homes and sets a housing target for LBRuT of 4,110 homes over the period to 2029 (equal to 411 homes per annum).

2.6 Strategic Flood Risk Assessment -Richmond Upon Thames

Richmond upon Thames Strategic Flood Risk Assessment was prepared in March 2021, with guidance in section 6.3 relating to the sequential test.

This states that: Implementation of a sequential, risk-based approach is vital in determining the suitability of a site for development with regards to flood risk.

The Sequential Test ensures that a sequential approach is followed to steer new development to areas with the lowest probability of flooding. For sites that require it, but have not undergone Sequential

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Testing as part of the site allocations identified in the London Borough of Richmond upon Thames' Local Plan, a site-specific Sequential Test is required. The search area and definition of reasonable available alternative sites must be determined in line with the guidance below and in consultation with the LPA. The scope is not limited to, but should include the following, and any scope should be shared with the LPA for review and agreement prior to the Test being undertaken.

- Search area : The default area should be the entire borough, reduced where justified by the functional requirements of the development or relevant objectives of the Local Plan.
- Reasonable available sites: These generally include sites that are suitable (those that can accommodate the requirements of the proposed development), developable and deliverable.

The proposed development site is located within the centre of Richmond upon Thames London Borough. The nearest neighbouring boroughs are Hounslow Borough situated 1.6km north east of the site and Wandsworth Borough 2.3km south east of the site.

Due to the location of the proposed development site, within the centre of the borough and as the site does not comprise regionally or nationally important infrastructure, only development sites within the borough have been considered.

2.6.1 Reasonable Available Sites

These generally include sites that are suitable (those that can accommodate the requirements of the proposed development), developable and deliverable. Sources of where these could be selected from include the following:

- List of sites prepared as part of the evidence base or background documents produced to inform the Local Plan, such as the London Borough of Richmond upon Thames' Monitoring Report and five-year housing land supply.
- Sites listed under a Local Authority's brownfield land register, which contains information on previously developed sites that are considered to be appropriate for residential development. This includes sites with and without planning permission.

2.7 Draft Richmond Local Plan (Regulation 18)

Whilst the Draft Richmond Local Plan carries no material weight at this time due to its early stages, an extract from the following policy is relevant to the Sequential test.

2.7.1 Policy 8. Flood risk and sustainable drainage (Strategic Policy)

3. All developments should avoid, or minimise, contributing to all sources of flooding, including fluvial, tidal, surface water, groundwater and flooding from sewers, taking account of climate change and without increasing flood risk elsewhere. Development will be guided to areas of lower risk by applying the 'Sequential Test' as set out in national policy guidance, and where necessary, the 'Exception Test' will be applied. Unacceptable developments and land uses will be refused in line with national policy and guidance, the Council's Strategic Flood Risk Assessment (SFRA) and as outlined in the table below.
4. To enable development, proposals must provide mitigation and resilience against flood risk, taking advice from the Lead Local Flood Authority (LLFA) as appropriate, and provide appropriate compensation to existing flood risk levels and volumes, addressing the predicted 1 in 100-year Risk of Flooding from Surface Water (RoFSW) mapped depths as a minimum.

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5. In Flood Zones 2 and 3, all proposals on sites of 10 dwellings or more or 1000sqm of non-residential development or more, areas at Risk of Flooding from Surface Water in a 1 in 100-year event or greater, or on any other proposal where safe access/egress cannot be achieved, a Flood Emergency Plan must be submitted.
6. Where a Flood Risk Assessment is required, on-site attenuation to alleviate fluvial and/or surface water flooding over and above the Environment Agency's floodplain compensation is required where feasible.
7. Where possible, land within major development sites should be safeguarded for potential flood mitigation use through the active consideration of predicted flood mapping from all sources.

Zone	Land Use and Development - restrictions	Sequential Test	Exception Test	Flood Risk Assessment
Zone 3b	The functional floodplain as identified in the Council's Strategic Flood Risk Assessment will be protected by not permitting any form of development on undeveloped sites unless it: • is for Water Compatible development; • is for essential utility infrastructure which has to be located in a flood risk area and no alternative locations are available and it can be demonstrated that the development would be safe, without increasing flood risk elsewhere and where possible would reduce flood risk overall. Redevelopment of existing developed sites will only be supported if there is no intensification of the land use and a net flood risk reduction is proposed; any restoration of the functional floodplain will be supported. Proposals for the change of use or conversion to a use with a higher vulnerability classification will not be permitted.	Required for essential utility infrastructure	Required for essential utility infrastructure	Required for all development proposals
Zone 3a and areas at Risk of Flooding from Surface Water in a	Land uses are restricted to Water Compatible, Less Vulnerable and More Vulnerable development. Highly Vulnerable developments will not be permitted.	Required for all developments unless exceptions outlined in the supporting text to this policy apply	Required for more vulnerable development	Required for all development proposals

1 in 100 year event.	Self-contained residential basements and bedrooms at basement level will not be permitted.			
Zone 2	No land use restrictions Self-contained residential basements and bedrooms at basement level will not be permitted.	Required for all developments unless exceptions outlined in the supporting text to this policy apply	Required for highly vulnerable development	Required for all development proposals unless for change of use from water compatible to less vulnerable
Zone 1	No land use restrictions	Not applicable	Not applicable	A drainage statement is required for sites all major developments. Required for all other development proposals where there is evidence of a risk from other sources of flooding, including surface water, ground water and sewer flooding

Policy 8 of the Draft London Borough of Richmond upon Thames Local Plan Regulation 18, 2021 also states "The Sequential Test will not be required if the proposed development: Is a site allocation in the Local Plan that has already been sequentially tested, unless the use of the site being proposed is not in accordance with the allocations in the Local Plan.", with this site being identified as Site Allocation 28 within the emerging Local Plan.

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3. BASELINE CONDITIONS

3.1 Proposed Development Site

The site is located at the Former Homebase, Manor Road, Richmond, TW9 1YB.

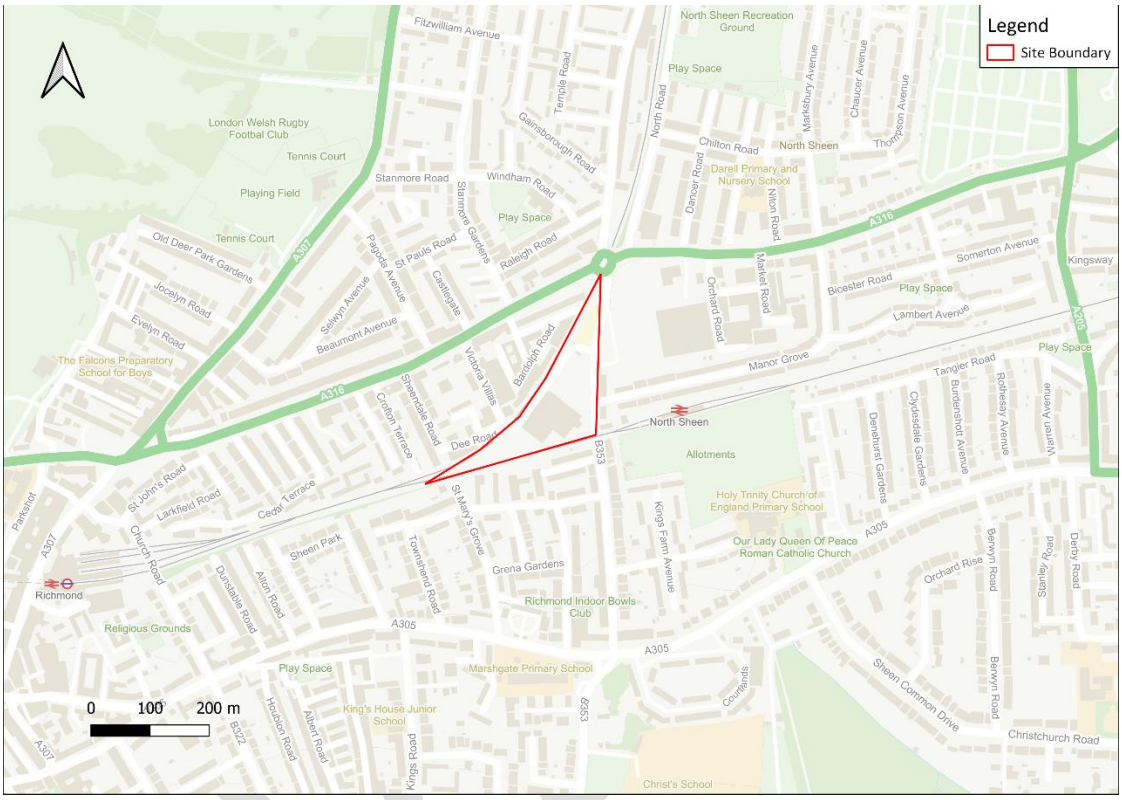

Figure 1: Former Homebase Site Location

3.2 Fluvial / Tidal Flood Risk

The closest main watercourse to the site is the River Thames which is situated 1.5km north west of the site flowing in an easterly direction.

The current Environment Agency (EA) Flood Zone Maps (Figure 2) shows the site to be entirely within Flood Zone 1 (Low Risk).

Figure 2: Former Homebase EA Flood Map for Planning

For reference, the Environment Agency Flood Zones are defined as follows:

- Flood Zone 1 (Low Risk) comprises land assessed as having a ≤0.1% AEP of fluvial or tidal flooding in any given year, equivalent to the ≥1,000yr return period flood event.
- Flood Zone 2 (Medium Risk) comprises land assessed as having a 0.1-1% AEP of fluvial flooding or 0.1-0.5% AEP of tidal flooding in any given year, equivalent to the 1,000-100yr return period flood event.
- Flood Zone 3 (High Risk) comprises land assessed as having a ≥1% AEP of fluvial flooding or ≥0.5% AEP tidal flooding in any given year, equivalent to the ≤100yr return period flood event.

3.3 Surface Water Flooding

The site is shown to predominantly at 'Low' risk of surface water flooding with area of very low risk in the north of the site and areas of medium to high risk in the south. Within the low risk scenario depths are between less than 300mm to 900mm.

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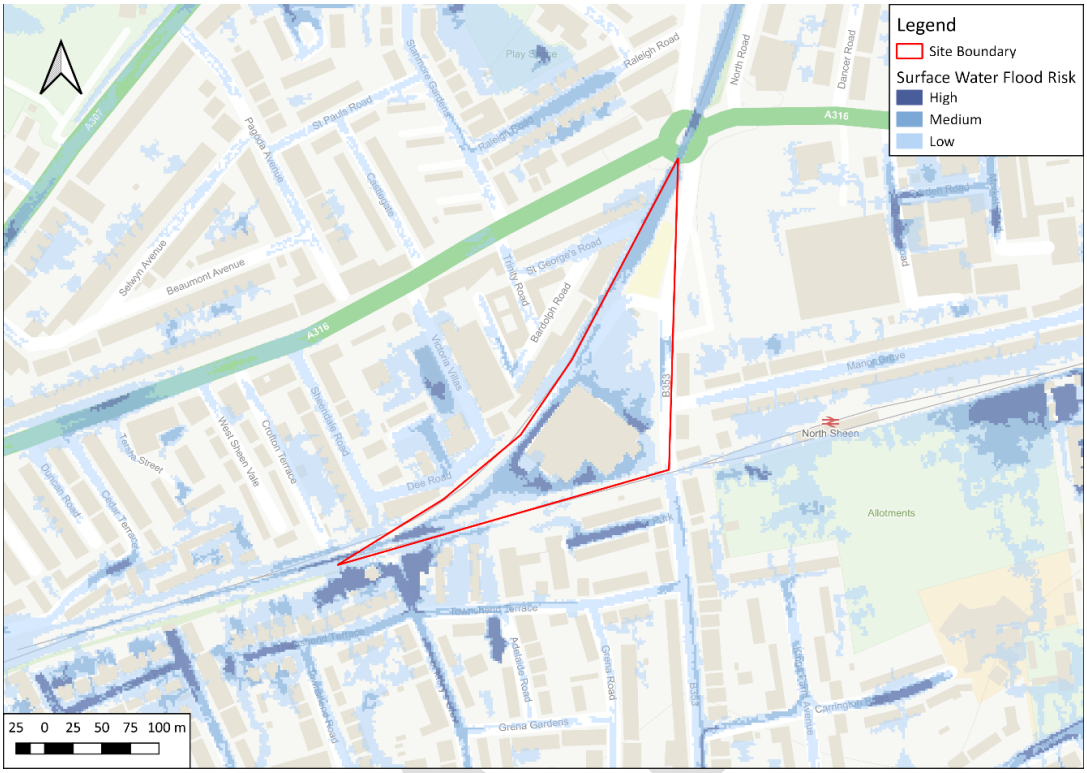

Figure 3: Former Homebase Surface Water Flood Map

It should be noted that the EA mapping does not take into account of existing positive drainage systems in the vicinity. The asset location search sewer map does not show any public sewer networks across the site, although there are a number of public sewers in the surrounding road network.

3.4 Groundwater Flooding

The Strategic Flood Risk Assessment for London Borough of Richmond shows the site to lie within an area that is 75% or more susceptible to groundwater flooding, with the GLA Drain London showing a increased potential for elevated groundwater due to permeable superficial deposits.

There are no borehole records (within the BGS database) which covers the actual site but a Neighbouring borehole, 20m north west of the site, undertaken in Feb 1999 (during the wet part of the year) showed groundwater strike at 3m bgl with a water rise to 2.7m bgl.

The SFRA shows that the site lies within a throughflow catchment area.

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Figure 4: Former Homebase, Groundwater Susceptibility Map

3.5 Infrastructure Flooding

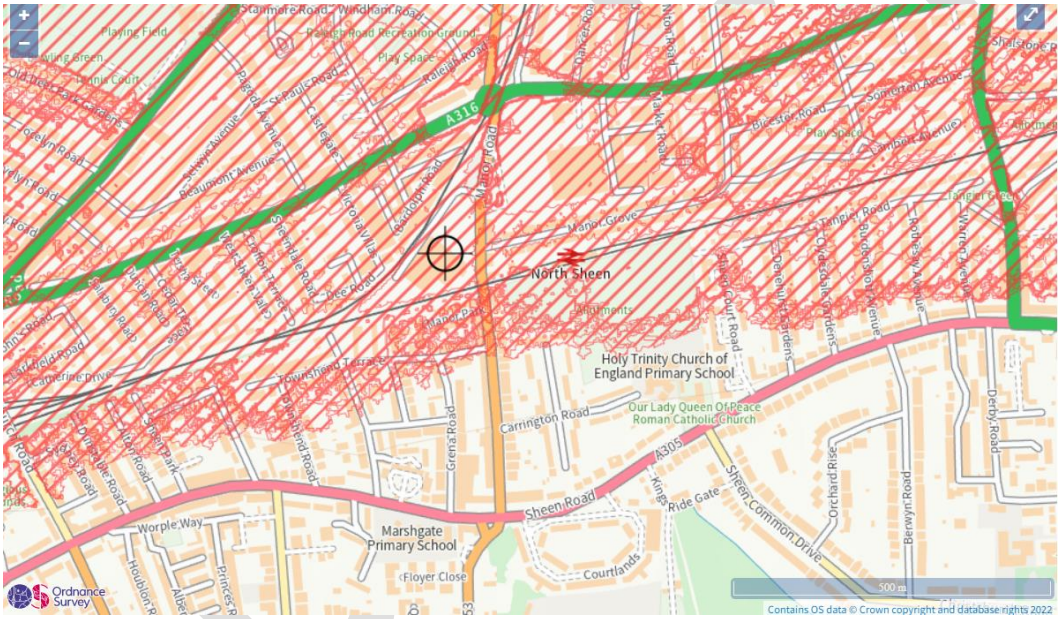

Figure 5: Former Homebase Reservoir Flooding

The proposed development site is at risk of flooding from reservoirs when there is also flooding from rivers, but not when river levels are normal.

Furthermore, the flooding records held by Thames Water indicate that there have been no incidents of flooding in the requested area as a result of surcharging public sewers.

3.6 Summary

Table 1: Former Homebase Flooding Summary

Site	Flood Zone	Surface Water Flooding	Low Risk (depth)	High Risk (depth)	Groundwater Flooding	Reservoir Flooding
Former Homebase site	FZ1	Very Low to high	300-900mm	A few isolated pockets with depths less than 300mm	Greater than 75%	Yes - when flooding from rivers

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4. ALTERNATIVE SITES

This section sets out the Sequential Test which considers a comprehensive list of alternative sites considered as reasonably available for residential development.

Paragraph 27 of the NPPG states: For individual planning applications subject to the Sequential Test, the area to apply the test will be defined by local circumstances relating to the catchment area for the type of development proposed. For some developments this may be clear, for example, the catchment area for a school. In other cases, it may be identified from other Plan policies. For example, where there are large areas in Flood Zones 2 and 3 (medium to high probability of flooding) and development is needed in those areas to sustain the existing community, sites outside them are unlikely to provide reasonable alternatives. Equally, a pragmatic approach needs to be taken where proposals involve comparatively small extensions to existing premises (relative to their existing size), where it may be impractical to accommodate the additional space in an alternative location.

For nationally or regionally important infrastructure the area of search to which the Sequential Test could be applied will be wider than the local planning authority boundary.

In this instance, the identification of alternative sites has been informed by a review of the Richmond Borough Local Plan, Monitoring Report and 5 Year Housing Land Supply. Potential sites within the neighbouring boroughs of Hounslow (1.6km to the north) and Wandsworth (2.2km to the east) have been considered, however, due to the location of the proposed development site being within the centre of the borough and not within proximity to a neighbouring borough, and the fact that the proposed development is not considered nationally or regionally important infrastructure it was not thought necessary to consider this further.

4.1 Richmond Borough Adopted Local Plan (2018)

All of the allocated sites within the adopted local plan were assessed to determine if they were a suitable alternative to the proposed development site, which should be included within the sequential test. Suitable alternatives were based on similar sized sites (approximately 2 ha) and those allocated for predominantly residential development.

Suitable sites from the adopted local plan are within the table below.

Table 2: Potential Alternative Sites within Adopted Local Plan

Site ID	Address	Comments
SA14	Kneller Hall, Whitton	Currently allocated for residential , employment and social infrastructure uses, therefore a comparable site
SA15	Ham Close, Ham	Planning application submitted April 2022- site is not available (app ref: 22/1442/FUL)
SA16	Cassel Hospital, Ham	Site Allocation SA16 allocates the site for social and community infrastructure uses (and potentially residential) should the hospital be declared surplus to requirements. At present the site is currently in use and not available for development.
SA20	Friars Lane Car Park	Site currently still being used as car park, therefore a comparable site
SA21	Sainsburys, Lower Richmond Road	Comparable Site

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SA24	Stag Brewery, Lower Richmond Road	Planning application submitted March 2022 (app ref 22/0900/OUT) therefore site is not available
SA26	Kew Biothane Plant	Planning application for residential was granted 2020 therefore site not available (app ref: 18/3310/FUL)

Out of the suitable sites identified the only three available to go forward as part of the sequential test are SA14, SA20 & SA21.

4.2 Local Plan Review

Richmond Borough Council are also undergoing a Local Plan Review, with a draft for consultation undertaken in December 2021. It is noted that as the report has not undergone an independent examination it does not hold weight, however due to the fact that it is the most up to date document in terms of proposed developments sites the sequential test has also considered potential sites within the Local Plan Review.

It should be noted that some of the sites within the Local Plan also appear within the Local Plan Review.

Table 3: Potential Alternative Sites from Pre-Publication Draft Local Plan

Site ID	Address	Size	Comments
5	Car park, Sainsburys, Uxbridge Road, Hampton	1.99	Comparable Site
18	Twickenham Riverside & Water Lane/ King St	1.06	Planning Application submitted August 2021 (App ref: 21/2758/FUL) - site is not available
20	Kneller Hall, Whitton		Draft allocation for residential, educational, employment and social infrastructure - comparable site
22	Ham Close, Ham		Planning application submitted April 2022- site is not available (app ref: 22/1442/FUL)
23	Cassel Hospital, Ham	3.97	Draft allocation for social and community infrastructure uses (and potentially residential) should the hospital be declared surplus to requirements. At present the site is currently in use and not available for development.
28	**Homebase, Manor Rd, East Sheen**	**1.84**	**THIS IS THE PROPOSED DEVELOPMENT SITE**
29	Sainsburys Lower Richmond Road	2.63	Comparable Site (this is site SA21 within LDP)
30	Kew Retail Park	3.91	This site is significantly larger than the Homebase site (twice as large) The site allocation requires the reprovision of retail, office and leisure floorspace. The ste is not considered a suitable site for the sequential assessment
31	Kew Biothane Plant	0.69	Already has planning for extra care housing scheme (site SA26 within LDP)
34	Stag Brewery, Lower Richmond Road		Planning application submitted March 2022 (app ref 22/0900/OUT) therefore site is not available

Three comparable sites to go forward for the sequential test are Site ID 5 (Sainsbury's Hampton) 20 (Kneller Hall) and 29 (Sainsburys Lower Road, Richmond), although it should be noted that 29 is SA21 within the Local Plan.

4.3 Brownfield Land Register

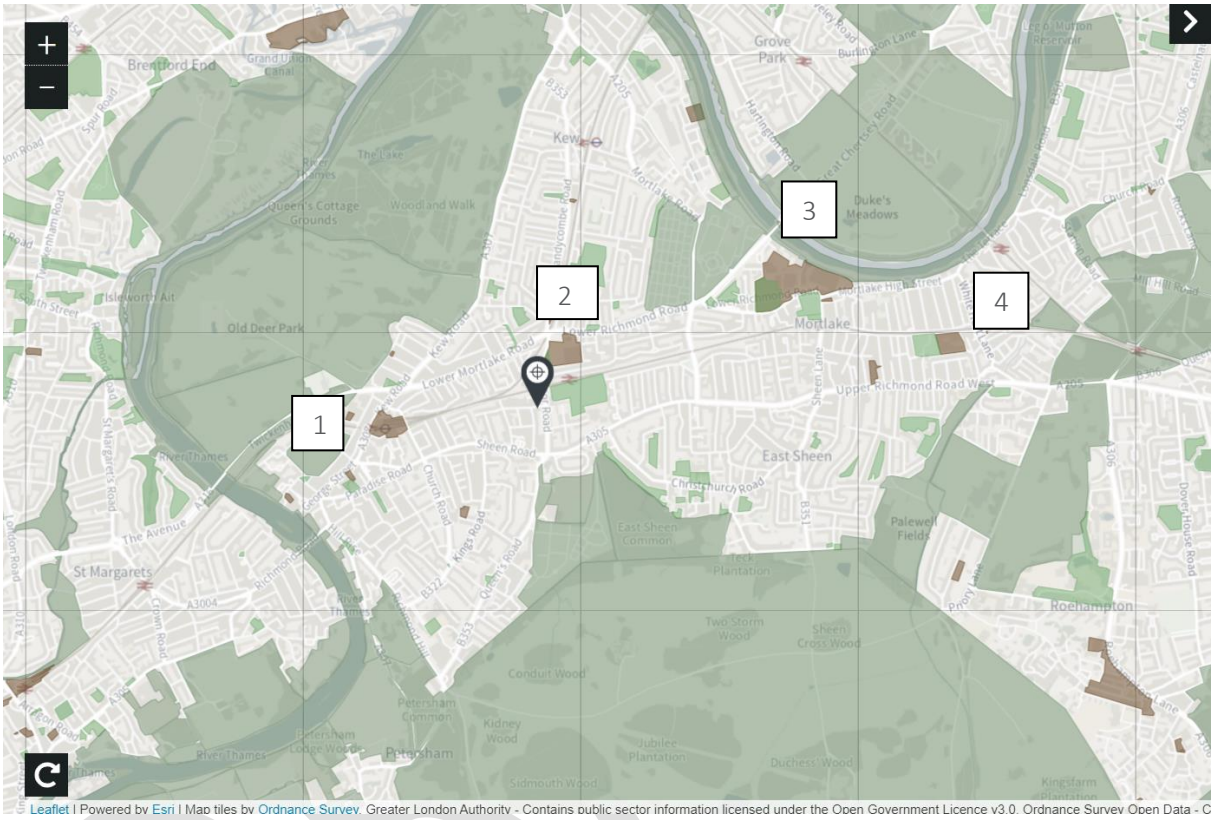

Figure 6: Brownfield Land Register

The search area for the Brownfield land register is for the borough of Richmond upon Thames only in line with the search area for the adopted local plan and local plan review.

The brownfield sites are identified in table 4 below.

Table 4: Brownfield Land Register table

	Address	Size	Min dwellings	Planning Permission	Comments
1	Richmond Station and above track, The Quadrant	1.96	17	No	Site allocated for mixed use to include improved transport interchange and appropriate main centre uses, therefore not comparable. Site Allocation SA19 in current Local Plan and allocation 24 in draft Local Plan

2	Sainsbury's, Manor Road/Lower Richmond Road	2.64	222	No	Comparable site. Allocation SA21 in current Local Plan and Allocation
3	Budweiser Stag Brewery, Mortlake	8.77	522	Pending	Allocation SA24 in current Local Plan and Allocation 34 in draft Local Plan
4	Barnes Hospital	1.44	43	Yes	Outline planning granted Sept 2020 for health centre /SEN and residential therefore site not available (app ref 18/3642/OUT)

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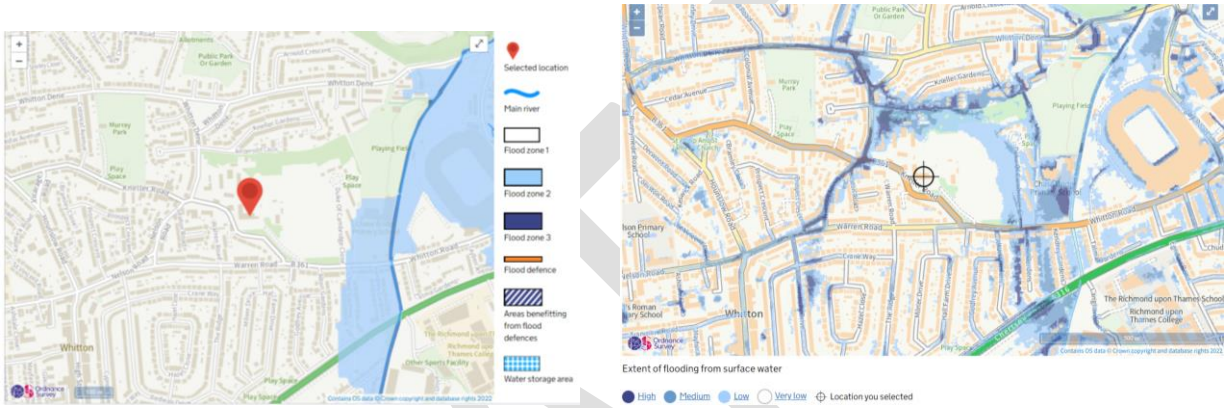
5. SEQUENTIAL TEST

The suitable alternative sites identified from Section 4 are:

- SA14 - Kneller Hall
- SA20 - Friars Lane Car Park
- SA21 - Sainsburys, Lower Richmond Road
- 5 - Car Park, Sainsburys, Uxbridge Road, Hampton

5.1 Kneller Hall, TW2 7DN



- Fluvial / Tidal: Site is predominantly located within Flood Zone 1 with a small section of the site in the south east corner within Flood Zone 2
- Surface Water: Site is partly at very low risk of surface water flooding with an area of Low risk- high risk along the northern and eastern boundaries of the site
- Groundwater: Site is in an area at greater than 75% risk of groundwater flooding
- Reservoir: The south eastern corner of the site is at risk of reservoir flooding when there is also flooding from rivers

5.2 Friars Lane Car Park, TW9 1NL

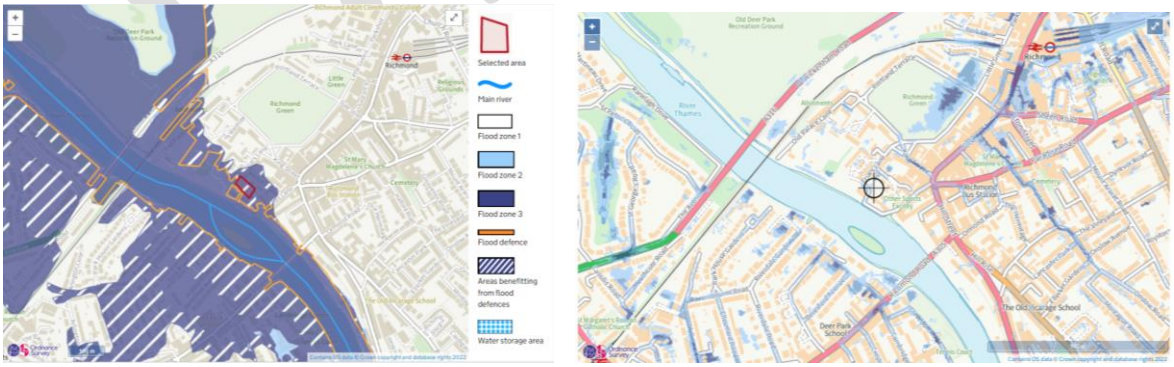


Figure 7: Friars Lane Fluvial / Tidal & Surface Water Flood Map

- **Fluvial / Tidal:** Site is located within Flood Zone 3, at high risk of fluvial / tidal flooding, although is in an area benefitting from flood defences.

- **Surface Water:** Site is predominantly at very low risk of surface water flooding, with some surface water flooding in the north east of the site, with depths less than 300mm in the low risk scenario.
- **Groundwater:** Site is within an area between 50- 75% susceptible to groundwater flooding. Borehole records within the vicinity of the site show geological strata but do not indicate if groundwater was encountered.
- **Reservoir:** The site is at risk of reservoir flooding when river levels are normal.

5.3 Sainsburys Lower Richmond Road, TW9 4LT

This site lies on the eastern border of the proposed development site.

5.3.1 Fluvial / Tidal Flood Risk

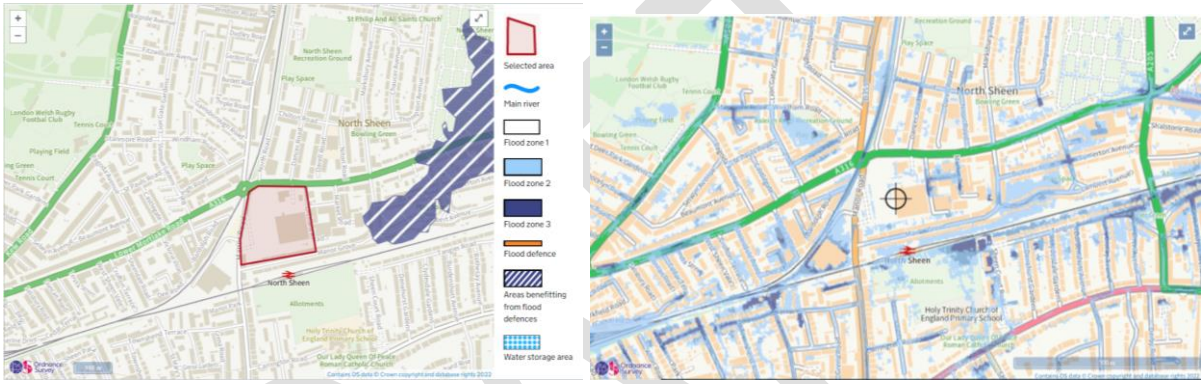


Figure 8: Sainsburys Lower Richmond Rd, Fluvial / Tidal & Surface Water Flood Risk

- **Fluvial / Tidal:** Site lies within Flood Zone 1, at low risk of fluvial and tidal flooding.
- **Surface Water:** Some surface water flooding across the site particularly in the southern section. Depths range from less than 300mm to 900mm in the low-risk scenario.
- **Groundwater Flooding**: Site is within an area 75% or more susceptibility to groundwater flooding. Borehole records for the site shows a water level of 1.5m bgl.
- **Reservoir Flooding**: Site lies within an area of reservoir flooding, when there is also flooding from rivers

5.4 Sainsburys, Uxbridge Road, Hampton, TW12 1AW

5.4.1 Fluvial / Tidal Flooding

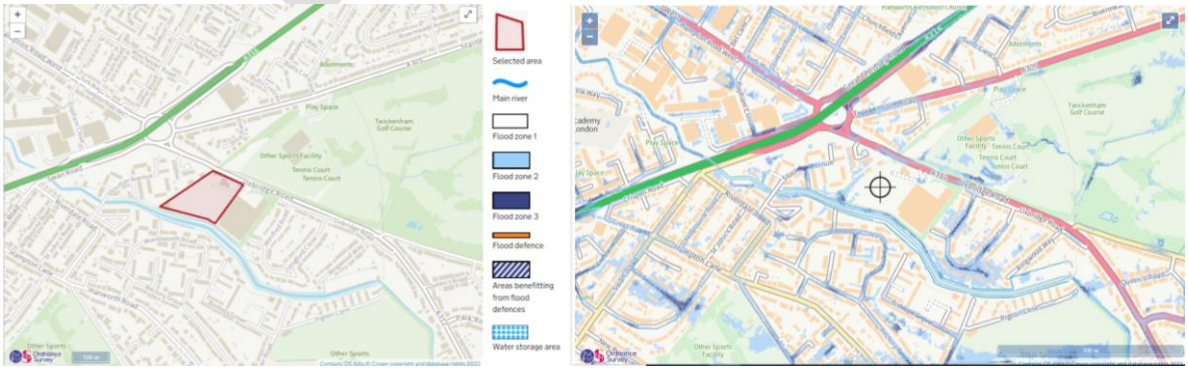


Figure 9: Sainsburys Uxbridge Road Fluvial / Tidal & Surface Water Flooding

- **Fluvial / Tidal:** Site is located within Flood Zone 1, at low risk of fluvial flooding. The Longford river lies directly along the southern boundary of the site, however this is not classified as a Main River and therefore the flood extents will not have been mapped by the EA.
- **Surface Water:** The site is at predominantly very low risk of surface water flooding, with some surface water flooding along the north west and south west boundaries of the site. These are depths of below 300mm in the low-risk scenario.
- **Groundwater Flooding:** The site lies within an area which has greater than 75% susceptibility to groundwater flooding. There are no borehole records within the vicinity of the site. The closest is approximately 400m north west of the site and shows groundwater strike at 2m bgl.
- **Reservoir Flooding:** The site does not lie within an area at risk of reservoir flooding.

5.5 Summary

Table 5: Flood Risk Summary of Alternative Sites

Site	Flood Zone	Surface Water Flooding	Groundwater Flooding	Reservoir Flooding
Kneller Hall	FZ1/ FZ2	From less than 300mm to 900mm depth	Greater than 75%.	Yes - when flooding from rivers
Homebase, Richmond	FZ1	From less than 300mm to 900mm depth	Greater than 75%. Borehole records show water depth of 2.7m bgl	Yes - when flooding from rivers
Friars Lane Car Park	FZ3	Very low to low. Depths less than 300mm	Between 50-75%. No data on groundwater level	Yes - when river levels are normal
Sainsburys Lower Richmond Road	FZ1	Low risk of surface water flooding - depths less than 300mm	Greater than 75%. Borehole records show water depth of 1.5m bgl	Yes - when flooding from rivers
Sainsburys, Hampton	FZ1	Predominantly very low risk of surface water flooding, with less than 300mm depth on north west and south west boundaries	Greater than 75%. Borehole records nearest to site shows groundwater strike at 2m bgl	No

5.6 Planning Analysis of Sequential Sites

5.6.1 Kneller Hall

This site is designated in the current and emerging Local Plans for residential, employment and social infrastructure uses. The draft allocation also includes educational uses.

The site has several constraints including listed buildings, Metropolitan Open Land, and is former public sector land.

As a result of these constraints, despite the site being 9.72ha, the actual developable area is limited and is not suitable of accommodating the proposed 453 homes at Manor Road.

5.6.2 Sainsburys Lower Richmond Road

The site has similar planning constraints as the Homebase site, falling outside of designated conservation areas, but within the setting of conservation areas, listed buildings and buildings of townscape merit. One of the key site allocation requires in the existing and draft Local Plan is that the existing retail floorspace must be retained and/or re-provided. The site is also adjacent to a Gas Valve Compound which may also result in offsetting requirements for residential development. There is also a requirement to deliver on site public open space.

Whilst the site is suitable for mixed use residential and retail development, there are a number of constraints which will need to be considered before the site can be brought forward for development.

Richmond's latest housing trajectory (2020/21) indicates that 250 homes could be delivered on the site. This demonstrates that as a result of the constraints identified, the site is not of a suitable scale to accommodate the proposed 453 homes proposed at Homebase Richmond.

5.6.3 Sainsburys Hampton

This is designated in the draft Local Plan for 100% on-site affordable housing. The requirements for the site outlines a strong policy expectation that a future development scheme coming forward should deliver 100% on-site affordable housing. The site is proposed for release from Metropolitan Open Land through the draft Local Plan Review. The exceptional circumstance to justify the MOL release is that the scheme should deliver 100% affordable housing.

Accordingly, at present the site is still designated MOL and would not be suitable for development unless Very Special Circumstances outweigh the harm to the Green Belt. The site would not be suitable to deliver the mix of private and affordable homes currently proposed at Manor Road (40% affordable housing).

5.7 Conclusion

Table 5 summarises the level of flood risk on each of the alternative sites identified and the proposed development site at Manor Road, Richmond. This table identifies that two of the alternative sites are at the same low risk of flooding from rivers and sea as the development site.

Out of the three remaining sites, all are at greater than 75% risk of groundwater flooding, although groundwater was encountered at a greater depth for the proposed site, suggesting it may be at a lower risk, two are at risk of reservoir flooding and all have some risk of surface water flooding at the site.

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In sequential terms the site at the lowest risk of flooding from all sources is Sainsburys Hampton, followed by Sainsburys Lower Richmond Road and then the proposed development site.

However, of the two sites neither are either immediately available or suitable, as identified within the planning analysis in section 5.6 above.

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6. POLICY JUSTIFICATION

6.1 Introduction

This section will look at the policy requirements in relation to the NPPF and NPPG, as set out in section 2 of this report.

The NPPF states the aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test. The sequential approach should be used in areas known to be at risk now or in the future from any form of flooding.

If it is not possible for development to be located in areas with a lower risk of flooding (taking into account wider sustainable development objectives), the exception test may have to be applied. The need for the exception test will depend on the potential vulnerability of the site and of the development proposed, in line with the Flood Risk Vulnerability Classification.

6.2 Site Justification

The sequential test has shown two sites within the borough and neighbouring boroughs which are also within Flood Zone 1, but have a lower risk of surface water flooding. Although these sites are sequentially preferable in flood risk terms they are not preferable in planning terms as constraints on both sites means they are not of a suitable scale to accommodate the proposed 453 homes.

Furthermore the Sainsburys site at Hampton is currently Metropolitan Open Land and would only be suitable for development if very Special Circumstances outweighed the harm to the green belt, which would not be the case with the proposed development.

The development is located in Flood Zone 1, the lowest probability of fluvial / tidal flooding, therefore the site is deemed to be sequentially preferable to all other sites within Richmond and neighbouring boroughs which are within Flood Zone 2 and 3.

Part of the existing site is assessed to be at risk of surface water flooding. Therefore, baseline and post development surface water flood risk modelling at the site was undertaken and results were compared to determine any impacts (see Hydrological and Hydraulic Modelling Report 25608-HYD-XX-XX-RP-FR-0003). The results of the modelling, as is predicted within EA Mapping, that the site is at risk of surface water flooding lying directly in the path of a surface water flow route. A post -development scenario has confirmed this surface water risk will be maintained and managed through lowering of ground levels with further mitigation measures provided.

Therefore, the requirements of the sequential test have been met.

Furthermore, the existing site is shown as 100% brownfield. The NPPF gives significant weighting on the use of brownfield sites to provide homes within existing settlements. However, it is noted this should not be at a detriment to existing users, through an increase to flood risk to offsite areas. Therefore, the flood risk has been appropriately assessed within the FRA with hydraulic modelling for the site carried out to appraise surface water flood risk.

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6.3 Wider Sustainability benefits

The NPPF defines sustainable development as 'economic, environmental and social progress'. The wider benefits of this scheme are set out below with reference to the three dimensions of sustainable development- economic, environmental and social.

6.3.1 Economic

In terms of the economic role, the development will deliver a number of wider benefits. First and foremost, the development will bring a derelict former commercial site back into active use, bringing inward investment, initial job growth to Richmond during the construction phase, as well as helping to deliver the 5yr housing land supply for the borough.

6.3.2 Environmental Role

In terms of the environmental role, the development will secure various improvements to the derelict site which detracts from the quality of the environment.

6.3.3 Social Role

In terms of the social role the development will provide much needed housing (see section 2.2) with the proposed development forming its own community.

6.3.4 Summary

In summary, the proposed development will deliver a range of wider sustainability benefits, which outweigh on-site flood risk.

6.4 Safe Development

Hydraulic modelling confirmed the site to lie directly in the path of a major surface water flow route in the existing scenario with predicted flooding shown to enter the site via the south west and southern boundaries and proceed to flow around existing developments and discharging offsite to the adjacent railway. The modelling indicated some flooding is also stored on the site around the existing developments with maximum depths up to 0.5m in places.

A post-development scenario was undertaken to confirm the potential risk to the site following the proposed residential and commercial development on site. Proposed building and landscaping finished levels were included within the modelling to align with various other disciplines. Through lowering of site levels, the existing flow route was maintained on site and where possible flows were "stored" in the public realm areas as is what occurs in the existing scenario.

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7. CONCLUSION

This report forms the basis of the sequential test in support of a planning application at 84 Manor Road, North Sheen, Richmond.

The aim of the sequential test is to ensure that a sequential risk-based approach is followed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account.

Whilst the site lies within Flood Zone 1 at Low risk of both fluvial and tidal flooding the Greater London Authority has requested a sequential test due to the risk of surface water flooding on the site.

The search area for the sequential test included the whole of the Local Borough of Richmond upon Thames and identified 4 comparable sites.

Of these comparable sites two were identified at lower risk of flooding from surface water (whilst still being at low risk of fluvial / tidal flooding), however further examination identified additional constraints on one of the sites meaning it was not of a suitable scale to accommodate the proposed 453 homes proposed at Homebase Richmond.

The remaining site was designated in the draft Local Plan for 100% on site-affordable housing and therefore the site would not be suitable to deliver the mix of private and affordable homes currently proposed at Manor Road (40% affordable housing).

Therefore, the proposed development site is the most appropriate site available for the development at the lowest risk of flooding.

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