

Hertsmere Local Plan

Development Plan Document

Site Allocations and Development Management Policies Plan

Flood Risk Sequential Test

November 2015



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1. Introduction

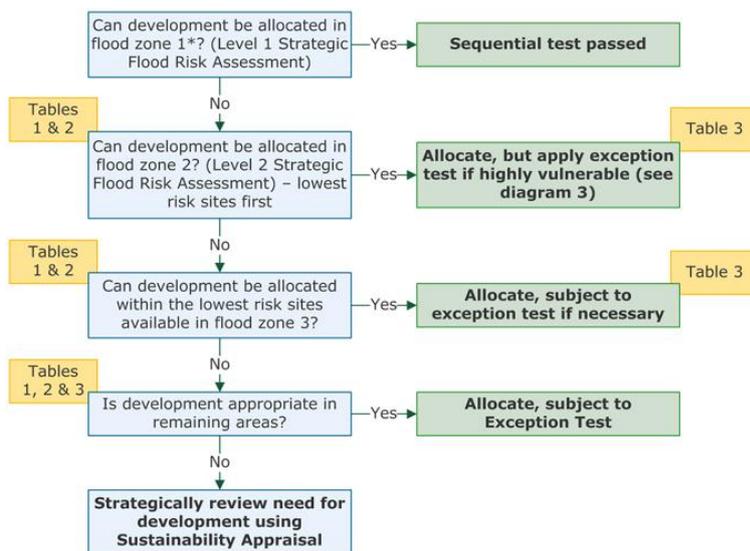
- 1.1 This document demonstrates how the site allocations in the SADM Policies Plan submission draft (published 31 July 2015) comply with the requirements of the National Planning Policy Framework (NPPF) and the national Planning Practice Guidance (PPG) with regard to flood risk.
- 1.2 The flood risk sequential test considers those sites which are within areas of flood risk, as established in the borough's Strategic Flood Risk Assessment (SFRA) and the most recent Environment Agency mapping. This mapping includes the Upper Colne Model (2010) and recent surface water flood maps which supersede the mapping in the SFRA. These changes do not have a material impact on the proposed site allocations in the SADM Policies Plan. The Plan has also been subject to Sustainability Appraisal (SA) which includes flood risk considerations. Some elements of the mapping used in the SFRA have been superseded by updated mapping from the Environment Agency, including the updated Upper Colne Model (2010) and recent surface water flood maps. The Environment Agency also proposes to publish revised climate change allowances for planning during Autumn 2015.
- 1.3 The sequential and exception tests follow the steps outlined in the PPG. They draw upon information gathered and detailed within the Borough's SFRA. The Level 1 SFRA divides the Borough into different flood zones – 1 (low risk), 2 (medium risk), 3a (high flood risk) and 3b (functional floodplain) as well as mapping other forms of flood risk.
- 1.4 The SADM Policies Plan submission draft 2015 together with the Strategic Flood Risk Assessment, Sustainability Appraisal and other consultation documents can be found on the Council's website at www.hertsmere.gov.uk/localplan.

Structure of this report

- 1.5 Sections 2 and 3 of the report describe the sequential and exception tests respectively and set out what these entail.
- 1.6 Appendix A sets out tables for the sites allocated through policies SADM1, SADM33 and SADM43 of the SADM Policies Plan which fall within Flood Zone 1.
- 1.7 Appendix B demonstrates the application of the sequential and exception tests to proposed site allocations which include land outside of Flood Zone 1.

2. The Sequential Test

2.1 The National Planning Policy Framework (NPPF) 2012 and national Planning Practice guidance (PPG) 2014 set out that the aim of the sequential test is to steer new development to areas with the lowest probability of flooding. Only where there are no reasonably available sites in Flood Zones 1 or 2 should the suitability of sites in Flood Zone 3 (areas with a high probability of river or sea flooding) be considered, taking into account the flood risk vulnerability of land uses and applying the exception test if required (See Table 2). Where sustainable development cannot be achieved through new development located entirely within areas with a low probability of flooding, the sequential test should be applied according to the diagram below:



2.2 Table 1 below lists the flood zones as defined in the PPG.

Table 1: Flood risk zones

Flood risk zones
<ul style="list-style-type: none"> • Flood Risk Zone 1 - low probability of flooding (less than a 1 in 1000 year/0.1% risk of flooding); • Flood Risk Zone 2 - medium probability of flooding (between 1 in 100 year/1.0% chance and 1 in 1000 year/0.1% chance of flooding); • Flood Risk Zone 3a - high probability of flooding (greater than 1 in 100 year/1.0% or greater chance of flooding); and • Flood Risk Zone 3b - functional flood plain.

2.3 The PPG also provides a flood risk vulnerability classification for land uses. Each use is classified as ‘essential infrastructure’; ‘highly vulnerable’; ‘more vulnerable’; ‘less vulnerable’; or ‘water-compatible’. The SADM Policies Plan submission draft proposes primarily ‘more vulnerable’ development in the form of housing, as well as some ‘less vulnerable’ uses (e.g. shops) within the mixed use town centre development sites in SADM43. The proposed allocations do not include any essential infrastructure, highly vulnerable or water compatible uses.

2.4 A flood risk vulnerability and flood zone compatibility matrix is also provided within the PPG. This shows the types of uses that are suitable in each flood zone, and where certain uses are acceptable subject to passing the exception test. This matrix is reproduced in Table 2 below.

Table 2: Flood risk vulnerability and flood zone ‘compatibility’

Flood Zones	Flood Risk Vulnerability Classification				
	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception test required	✓	✓	✓
Zone 3a †	Exception test required †	✗	Exception test required	✓	✓
Zone 3b *	Exception test required *	✗	✗	✗	✓ *

Key:
 ✓ Development is appropriate
 ✗ Development should not be permitted.

Notes:

- This table does not show the application of the [sequential test](#) which should be applied first to guide development to Flood Zone 1, then Zone 2, and then Zone 3; nor does it reflect the need to avoid flood risk from sources other than rivers and the sea;
- The sequential and [exception tests](#) do not need to be applied to [minor developments](#) and changes of use, except for a change of use to a caravan, camping or chalet site, or to a mobile home or park home site;
- Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts.

† In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

* In Flood Zone 3b (functional floodplain) essential infrastructure that has to be there and has passed the exception test, and water-compatible uses, should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows and not increase flood risk elsewhere.

2.5 The site allocations in the SADM Plan have been identified using the Strategic Housing Land Availability Assessment (SHLAA) 2010 and SHLAA Update 2011 which assessed the suitability and availability of sites. This assessment included whether sites were located within flood zones 2 or 3, alongside other key constraints including current policy designations, heritage designations and environmental conditions.

2.6 The SFRA included a preliminary review of areas of search for housing, and noted that several of these areas intersect with or are in close proximity to Flood Zone 3b Functional Floodplain as well as other sources of flooding. It also notes that in most cases there is a very small area of overlap between the site boundary and the area of flood risk, and so opportunities to reduce flood risk should be taken through the master planning process, such as setting aside low-lying waterside areas for recreation, amenity and environmental use.

2.7 The site allocations included in the SADM Policies Plan have been identified through the SHLAA process. This process has identified sites which are deliverable under the current policy constraints, in particular Green Belt policy, and has selected those sites which are considered to have a high likelihood of being brought forward within the plan period. Of the 12 sites allocated in SADM1, seven have planning permission at the time of writing (28 October 2015) indicating that the majority of the selected sites are deliverable within the first five

years of the plan period. The Planning Committee has resolved to grant permission for the redevelopment of one of two sites allocated in policy SADM33 Key Community Facilities, and planning permission has also been granted for mixed use development on part of the two sites allocated in SADM43.

- 2.8 Each of the site allocations included in the SADM Policies Plan submission draft, including those with planning permission, has been subject to the sequential test as set out in Appendix A.

3. The Exception Test

3.1 Paragraph 102 of the NPPF establishes the need for the exception test to be applied where it is not possible for sustainable development to be achieved wholly within areas with a lower probability of flooding.

3.2 For the exception test to be passed it must be demonstrated that:

- it must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a Strategic Flood Risk Assessment where one has been prepared; and
- a site-specific flood risk assessment must demonstrate that 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.

Both elements of the test will have to be passed for development to be allocated or permitted.

3.3 To fulfil the first part of the exception test, the sustainability appraisal for the SADM Policies Plan may provide evidence of wider sustainability benefits to the community. If a potential site allocation fails to score positively against the aims and objectives of the sustainability appraisal, or is not otherwise capable of demonstrating sustainability benefits, the local planning authority should consider whether the use of planning conditions and/or planning obligations could make it do so. Where this is not possible the exception test has not been satisfied and the allocation should not be made.

3.4 In fulfilling the second part of the test the wider safety issues need to be considered. A site-specific flood risk assessment will be required at the planning application stage in order to satisfy this part of the test.

3.5 The sequential test set out in Appendix A demonstrates that there are two sites allocated through SADM1 of the SADM Policies Plan where the exception test is required. The assessments for each of these sites are set out in separate tables covering both the sequential and exception tests.

4. Conclusion

- 4.1 This report concludes that the vast majority of the allocated sites proposed through the SADM Policies Plan are within Flood Zone 1, therefore they pass the flood risk sequential test and are considered to be suitable for development (see Appendix A).
- 4.2 Two proposed housing sites are located partially within Flood Zone 3b Functional Floodplain and so the sequential and exception tests have been applied to these. Both of these sites are largely within Flood Zone 1, and the use of the sequential approach on site, as described within the Site Specific Requirements in policy SADM1, will ensure that no built development is proposed within Flood Zone 3b. The exception tests show that in principle the wider sustainability benefits of development on these sites outweigh the risk of flooding.

Appendix A: The Sequential and Exception Test for the Proposed Site Allocations: sites located within Flood Zone 1

Policy SADM1 Housing Allocations	
<i>SADM Site Reference</i>	<i>Site Location</i>
H1	Directors Arms Public House, Ripon Way, Borehamwood
H3	Land to the south of Elstree and Borehamwood Station
H4	Land at Bushey Hall Golf Club, Bushey
H5	Land at Rossway Drive, Bushey
H6	Hertswood Upper School, Thrift Farm Lane, Borehamwood
H8	Europcar House, Aldenham Road, Bushey
H9	Former Sunny Bank School, Potters Bar
H10	Birchville Court and adjoining haulage yard, Heathbourne Road, Bushey
H11	Elton House, Elton Way, Bushey
H12	First Place Nurseries, Falconer Road, Bushey
<i>Flood Zone</i>	These sites are located in Flood Zone 1
Summary	
This assessment concludes that these sites pass the sequential test because they are all located in Flood Zone 1. A Surface Water Flood Risk Assessment will need to be submitted with any planning application for sites of 10 units and above.	

Policy SADM33 Key Community Facilities	
<i>SADM Site Reference</i>	<i>Site Location</i>
C1	Former Sunny Bank School, Potters Bar – provision of new public open space
C2	Hertswood Lower School, Cowley Hill, Borehamwood – provision of new and/or refurbished school facilities
<i>Flood Zone</i>	These sites are located in Flood Zone 1
Summary	
This assessment concludes that these sites pass the sequential test because they are all located in Flood Zone 1.	

Policy SADM43 Town and District Centres	
<i>SADM Site Reference</i>	<i>Site Location</i>
TC1	29-59 Shenley Road and 61-71 Shenley Road, Borehamwood
TC2	Radlett Service Station/Regency House, Former Fire Station and Burrell & Co
<i>Flood Zone</i>	These sites are located in Flood Zone 1
Summary	
This assessment concludes that these sites pass the sequential test because they are all located in Flood Zone 1.	

Appendix B: The Sequential and Exception Test for the Proposed Site Allocations: sites not wholly within Flood Zone 1

Policy SADM1 Housing Allocations	
<i>SADM Site Reference</i>	<i>Site Location</i>
H2	Gas Holders site, Station Road, Borehamwood
<i>Allocation</i>	43 dwellings
<i>Site Specific Requirements</i>	Flatted residential development. A building height of up to 4 storeys may be acceptable fronting Station Road. The height and design of building to the rear of the site must not harm the amenity of occupants of neighbouring two storey properties. A flood risk assessment is required in support of any planning application. Contamination and remediation strategy to be provided. The Retort House, a locally important building, should be retained. Design should integrate linking paths between H2, H3 and surrounding roads. Development must be located outside Flood Zones 2 and 3 (on the sequential approach) to avoid placing vulnerable development in areas of highest flood risk. Proposals should if possible de-culvert and enhance Borehamwood Brook Main River. The adequacy of waste water capacity is to be assessed: adequate capacity should be made available before development is occupied.
<i>Flood Zone</i>	The majority of the area of this site (around 90%) is located within Flood Zone 1, with the remainder falling within Flood Zones 2 and 3b.
	<p>The map displays the SADM1 H2 site, outlined in black, situated along Station Road. The site is primarily within Flood Zone 1 (unshaded). A portion of the site is within Flood Zone 2 (light blue dashed outline), and a significant area is within Flood Zone 3b (Hertsmere SFRA, indicated by a blue hatched pattern). The Main River is shown as a blue line. Surrounding streets include Bonwick Close, Siswin Close, and Shelley Close. Landmarks such as Trinity House, Pembroke House, Gas Works, Gas Holder, Oakwood House, and Gresham College are also labeled. A scale bar indicates 0 to 50.00 meters.</p>
<i>Highest vulnerability of proposed use</i>	More vulnerable (housing)
<i>Reasonable alternative site/s available in same or lower flood zone?</i>	No. The SHLAA indicates that only the part of the site outside of Flood Zone 3b is considered to be available for residential development, and the area within 3b has been excluded from the density calculations for the site. Therefore any development proposals coming forward will be

	<p>located within Flood Zone 1.</p> <p>The SFRA recommends (para. 6.3.3) using the sequential test within development sites to inform the layout by locating the most vulnerable elements of a development in the lowest risk areas. For example, the use of low-lying ground in waterside areas for recreation, amenity and environmental purposes can provide an effective means of flood risk management as well as providing connected green spaces with consequent social and environmental benefits. It also recommends preserving flood flow routes and ensuring that there is dry pedestrian egress to the development without crossing through the 1 in 100 year plus climate change flood plain.</p> <p>This allocation provides an opportunity for the regeneration of a redundant utility site in a highly accessible town centre location within one of the borough’s main settlements. Development on this site is considered important to achieving the Local Plan’s vision and spatial strategy, as well as the NPPF objective of achieving sustainable development.</p> <p>The Core Strategy seeks to deliver development on sites within existing settlements and previously developed land to ensure development is sustainable and avoid the need to develop green field sites in the Green Belt at this stage.</p>
<p>Exception Test</p>	
<p><i>It must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a Strategic Flood Risk Assessment where one has been prepared.</i></p>	<p>This development site has been identified through the Hertsmere SHLAA Update 2011 as having the potential to deliver housing during the plan period. The relevant notices have been submitted for the demolition of the redundant gasholders on the site.</p> <p>The Sustainability Appraisal (SA) for the submission SADM Policies Plan considered the sustainability benefits of all of the proposed allocations. The SA considers that the site is in a highly sustainable location opposite Elstree and Borehamwood mainline railway station and bus stops serving a number of routes to London and Hertfordshire, and is also within 10 minutes walking distance of Borehamwood Town Centre, a primary school and a food store.</p>
<p><i>A site-specific flood risk assessment must demonstrate that 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.</i></p>	<p>Detailed development proposals will require the preparation of a Flood Risk Assessment and development must be directed to part of site which is within Flood Zone 1 using the sequential approach.</p> <p>A major development proposal on this site (10 residential units or over) would require the use of sustainable drainage systems (SuDS) in line with Policy SADM16 which would help to ameliorate flood risk.</p> <p>Planning applications should draw on the SFRA, the NPPG and SADM Plan Policies SADM14 (‘The Water Environment’) and SADM15 (‘Flood Risk’) to address flood risk issues, alongside SADM16 (‘Sustainable Drainage Systems’).</p>
<p>Summary</p>	
<p>This assessment concludes that this site passes the sequential test and (in principal) the exception test.</p> <p>No vulnerable development is proposed on the small portion of the site that lies within Flood Zone 3b, as set out in the Site Specific Requirements in Policy SADM1.</p> <p>The site is considered a key site within Borehamwood, important to delivering sustainable development in the town.</p> <p>Any future development proposals will require the preparation of a Flood Risk Assessment and residential development must be located within Flood Zone 1. Planning applications should draw on the SFRA, the NPPG and SADM Plan Policies SADM14, SADM15 and SADM16 to address flood risk issues.</p>	

Policy SADM1 Housing Allocations	
<i>SADM Site Reference</i>	<i>Site Location</i>
H7	Land at Lincolnsfield, Bushey
<i>Allocation</i>	23 dwellings
<i>Site Specific Requirements</i>	<p>Building coverage should be limited so as to ensure no greater impact on the openness of the Green Belt. A flood risk assessment should be submitted in support of any planning application. Development must be located outside Flood Zones 2 and 3 (on the sequential approach). Preliminary Risk Assessment required (Source Protection Zone 2) if potential for contamination on site exists. Development to deculvert and enhance the King George Drain main river running through the site as far as possible. The adequacy of waste water capacity is to be assessed: adequate capacity should be made available before development is occupied.</p> <p>Protected trees should be retained and development limited to unused land and offset by removal of derelict buildings. As the site may contain significant heritage assets, Historic England should be consulted: survey and recording of any features of historic interest required. Planning permission has been granted for residential development of 23 units within the part of the site that is within Flood Zone 1.</p>
<i>Flood Zone</i>	The majority of the area of this site is located within Flood Zone 1 (around 85%) with a small part of the site located in Flood Zones 2 and 3b due to a watercourse running through the southern portion of the site.
<i>Highest vulnerability of proposed use</i>	More vulnerable
<i>Reasonable alternative site/s available in same or lower flood zone?</i>	<p>No.</p> <p>Planning permission was granted for 23 dwellings in April 2015 for the development of housing in Flood Zone 1. This site provides an opportunity for the redevelopment of a previously developed site in the Green Belt which currently consists of a number of</p>

	<p>dilapidated buildings in former community uses which have remained derelict for a number of years.</p> <p>The SFRA recommends (para. 6.3.3) using the sequential test within development sites to inform the layout by locating the most vulnerable elements of a development in the lowest risk areas. For example, the use of low-lying ground in waterside areas for recreation, amenity and environmental purposes can provide an effective means of flood risk management as well as providing connected green spaces with consequent social and environmental benefits. It also recommends preserving flood flow routes and ensuring that there is dry pedestrian egress to the development without crossing through the 1 in 100 year plus climate change flood plain.</p> <p>In line with the sequential approach, the Site Specific Requirements in policy SADM1 require development to be located outside of Flood Zones 2 and 3b. This accords with the recently-granted planning consent, and so the site passes the sequential test because development is not required to be located within the areas of higher flood risk.</p>
<p>Exception Test</p>	
<p><i>It must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a Strategic Flood Risk Assessment where one has been prepared.</i></p>	<p>This development site has been identified through the SADM Policies Plan as having the potential to deliver housing during the plan period. The site is owned by a charitable trust which obtained planning permission to build a school on the site in 2002, but has been unable to complete this development and has more recently sought to promote the site for residential development through the local plan process. The allocation of this previously developed site is necessary as part of reducing the need to develop green field sites which could have greater sustainability implications.</p> <p>The Sustainability Appraisal (SA) for the submission SADM Policies Plan considered the sustainability benefits of all of the proposed allocations. The SA considers that the site is located in a sustainable location within 10-12 minute walking distance of Bushey Hall Road neighbourhood parade, a primary school, a secondary school and food store. There are also frequent bus services within five minutes walking distance of the site providing convenient access to Bushey.</p> <p>The development of the site for residential use enables river restoration to take place, as without a viable use the site would be highly likely to remain empty providing little opportunity for river restoration works to be undertaken. The removal of the culvert, which is a condition of the planning permission, offers benefits to the natural environment and biodiversity and may help to alleviate flood risk. Restoring watercourses to their natural state is in line with the recommendations in the Council’s SFRA and the Environment Agency aims. The Site Specific Requirements in SADM1 also require river restoration to help ensure that this will be carried out if the extant planning permission is not implemented.</p>
<p><i>A site-specific flood risk assessment must demonstrate that 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.</i></p>	<p>A site-specific flood risk assessment has been prepared as part of the planning application submission for the site.</p> <p>Should the permitted scheme not go ahead any future detailed development proposals will require the preparation of a Flood Risk Assessment, and development must be located outside of Flood Zones 2 and 3b using the sequential approach.</p> <p>A major development proposal on this site (10 residential units or over) would require the use of sustainable drainage systems (SuDS) in line with Policy SADM16 which would help to ameliorate flood risk. Future planning applications should draw on the SFRA, the NPPG and Local Plan policies, particularly emerging policies SADM14 (‘The Water Environment’) and SADM15 (‘Flood Risk’) to address flood risk issues, alongside SADM16 (‘Sustainable Drainage Systems’).</p>
<p>Summary</p>	
<p>This assessment concludes that this site passes the sequential test and (in principal) the exception test.</p> <p>No development is proposed on the portion of the site that lies within Flood Zone 3b, as set out in the Site Specific Requirements in Policy SADM1 and the planning permission granted in April 2015 for a scheme which locates built</p>	

development only within Flood Zone 1.

The planning application was accompanied by a flood risk assessment.

The permission includes a condition requiring watercourse restoration which will provide sustainability and flood risk benefits which would not otherwise be delivered. The site is also in a sustainable location close to an existing town centre and is previously developed land in the Green Belt so its development is consistent with current policy.

Notwithstanding the current planning consent, any future development proposals will require the preparation of a Flood Risk Assessment and residential development must be located within Flood Zone 1. Planning applications should draw on the SFRA, the NPPG and SADM Plan Policies SADM14, SADM15 and SADM16 to address flood risk issues.