

Flood risk /sequential test considerations for NHLP Site KB4 - Land East of Knebworth

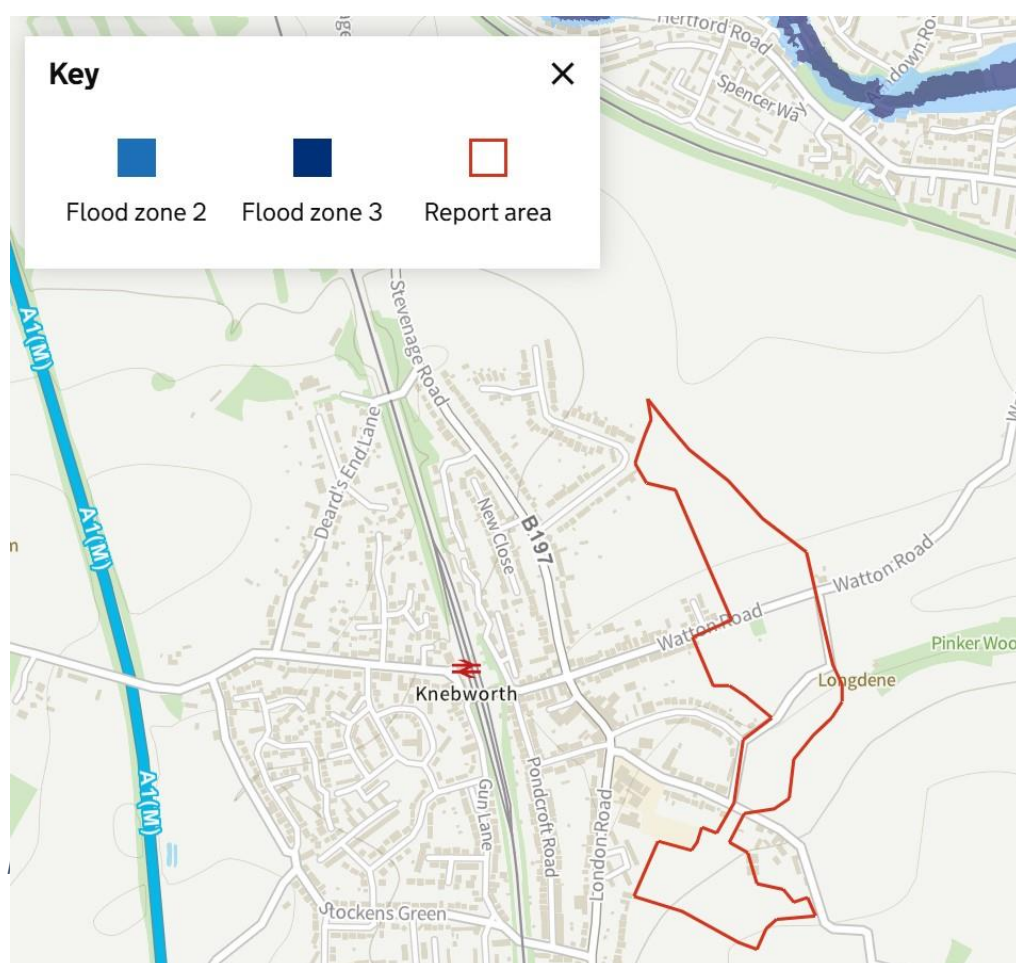


Figure 2- Site KB4 superimposed on EA's Flood Map

Background

1. The Flood Risk and Coastal Change Planning Practice Guidance ([PPG](#)) was updated on the 25th of August 2022 – It became a material consideration on publication (there were no transition arrangements). It defines “Flood risk” as a combination of the probability and the potential

consequences of flooding. Areas at risk of flooding are those at risk of flooding from any source, now or in the future. Sources include rivers and the sea, direct rainfall on the ground surface, rising groundwater, overwhelmed sewers and drainage systems, reservoirs, canals and lakes and other artificial sources. Flood risk also accounts for the interactions between these different sources. The updated guidance largely provides additional clarification and explanation of existing policies. The main changes relate to:

- The definition of functional floodplain which was amended from 5% annual exceedance event (AEP) to 3.3% AEP event.
 - Multifunctional Sustainable Drainage Systems (SuDS) are to be applied to all development affected by flooding, including surface water flooding.
 - Paragraph 55 of the PPG makes it clear that to be considered sustainable SuDS must meet the 4 pillars (biodiversity, amenity, water quality in addition to controlling water quantity). This implies that for all major developments and all development within flood risk areas, applicants must include a SuDS meeting all 4 pillars unless they can justify that it would be inappropriate.
 - This means that systems such as traditional piped and tanked storage systems would not be considered SuDS (as they only meet one of the 4 pillars). Therefore, the use of SuDS is required in order to pass the sequential test of the development.
 - The Guidance also promotes Natural Flood Management (NFM) in new development and provides outlines how NFM techniques can be carried out, with a focus on de-culverting and re-naturalizing watercourses. In cases where these measures cannot be achieved and there are offsite impacts, the developer may be required to provide additional funding to maintain such structures.
 - Flood risk assessments and design considerations are now required to show that a development can withstand flood risks over its lifetime without increasing flood risks in the surrounding area.
 - Stronger emphasis of the need to take surface water flood risk into consideration (see below).
1. Herts County Council in its capacity as the Lead Local Flood Authority (LLFA) has queried whether, given that the PPG update post-dates the North Herts Local Plan (NHLP) examination, further sequential testing is now required on site-by-site basis. The LLFA recognises that the decision on whether further sequential testing is required lies with the LPA not the LLFA.
 2. NHCC considers that notwithstanding the updated PPG, the issues of reasonable alternatives and mitigations concerning fluvial, surface water and broader flood risk were

comprehensively considered through the Strategic Flood Risk Assessment (SFRA), the site selection process, the NHLP examination and the NHLP Sustainability Appraisal. Furthermore, there are no meaningful 'reasonable alternatives' to the allocated sites (particularly at strategic scale) and there has been no substantive change in land availability in the meantime that would support a different view. Therefore, NHDC as the LPA, consider that further sequential testing is not required either in overall terms or on a site-by-site basis.

Site Context

3. Policy KB4 in the adopted North Herts Local Plan ([NHLP](#)) allocates site KB4 – Land east of Knebworth for 200 homes (Figure 1). The Local Plan allocates a total of 598 dwellings in Knebworth; which is one of five villages where a greater amount of growth has been allocated. Knebworth has a good range of facilities including a railway station, school, doctors and dentists, library, a range of shops, village hall and churches. Policy KB4 requires proposals to *address existing surface water flood risk issues through SuDS and a detailed drainage strategy identifying water infrastructure required and mechanism(s) for delivery.*
4. The Environment Agency's (EA) flood map for planning¹ shows that the entire site is within Flood Zone 1. However, there are areas of surface water flood risk (medium and high) according to the EA's Surface water flood risk map (Fig.2). The site contains 1:1000, 100 and 30 year extents showing flows associated with topography to the northwest and south of the site. Main flows appear to gather in the High Street / Old Lane.

¹[Environment Agency flood map for planning](#)

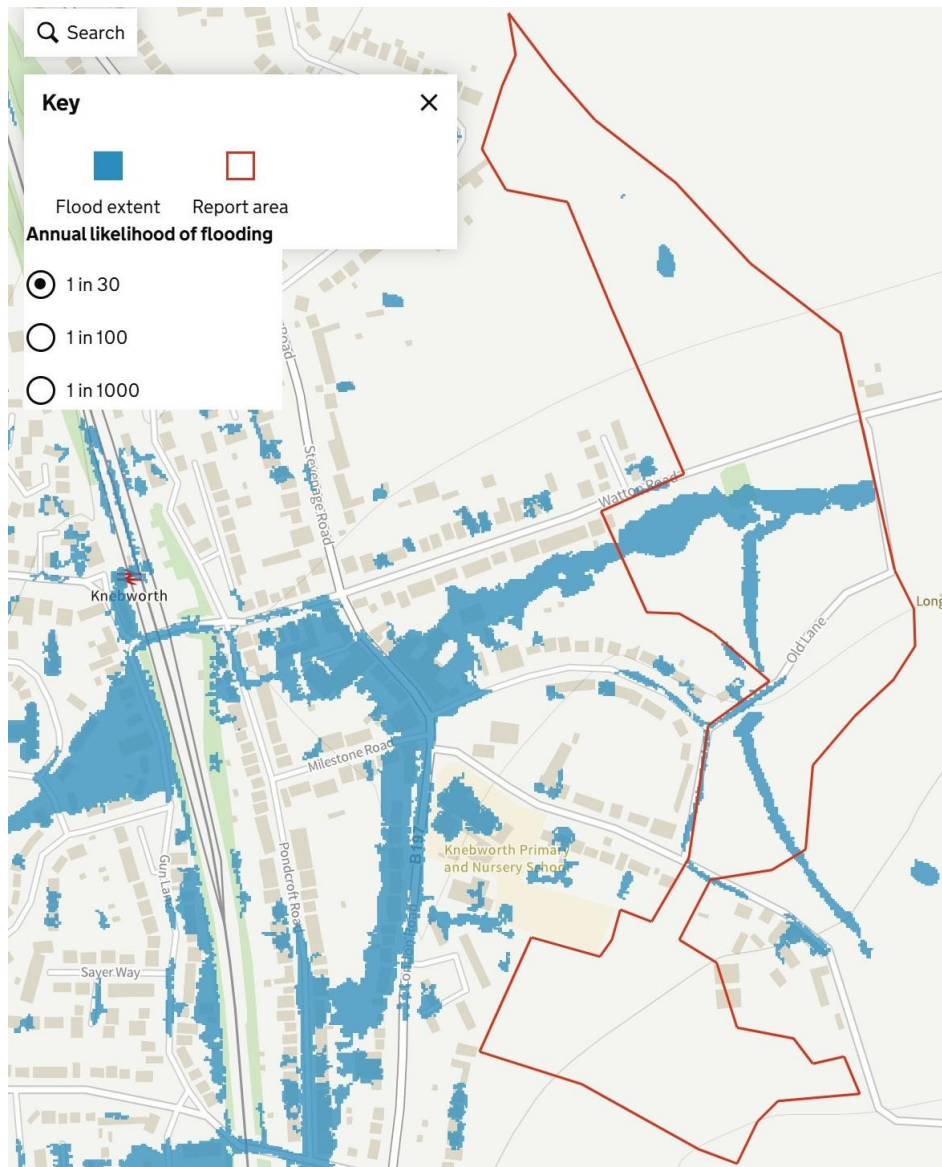


Figure 2 EA surface water flood risk map

Constraints on housing land in the District

Green Belt

5. The Local Plan's evidence base identified an objectively assessed housing need ([OAN](#)) of 13,800 homes over the plan period (2011-2031). The Housing and Green Belt background [paper](#) (HGBP) recognised this as an 'acute' need for housing in the District and set out to identify how the OAN can be met within the District. The paper found that of the 115 sites

[SHLAA](#) sites available for allocation (with a capacity of 14,420 homes)² the majority (11,857 or 82%) were within the Green Belt with only a maximum of 6,343 homes (46%) deliverable on non-Green Belt land. The paper concluded that the Green Belt presents an inherent constraint on housing land availability in the district. This is further exacerbated when the needs of the other authorities within the Stevenage HMA are considered³. The same applies to the Luton HMA and the substantial shortfall identified in Luton itself⁴.

Flood Risk

6. The Council assessed sites in the SHLAA considered at risk from river and surface water flooding. Of the six sites identified a being at risk of river flooding three (sites 331, WSN and 232) were considered sufficiently large as to offer scope for mitigation of risk through layout/ design and their capacities were adjusted accordingly. For the remaining three sites (110, 121 and 225, total capacity 439 units), the SHLAA sets out that their suitability is contingent on development occurring within the area of flood risk. This implies that if it were possible to locate development entirely in Flood Zone 1, these sites would not be utilised as per the Sequential Testing approach set out in the NPPF. The assessment concluded that half of all future housing growth is reliant on sites containing at least some areas of high surface water flood risk (Table 1). The NHLP requires all major sites to incorporate sustainable urban drainage systems (SuDS) to manage run-off, subject to approval by HCC.

Table 1 - Potential housing sites by risk of surface water flood risk

	Total homes	Of which	
		Ex-Green Belt	Within Green Belt
No surface water flood risk on site	4,490	1,205	3,585
Low surface water flood risk on at least part of site	1,642	228	1,414
Medium surface water flood risk on at least part of site	763	327	436
High surface water flood risk on at least part of site	7,225	791	6,434
Total	14,420	2,551	11,869

² Some of the sites initially included in the SHLAA were subsequently discounted due to availability/ deliverability issues leading to a reduction of potential capacity by 1,128 units.

³ Only 22,000 of the of 37,000 homes needed across the HMA can be accommodated outside the Green Belt.

⁴ The Luton Local Plan makes provision for 6,700 new homes out of a total need of 18,000.

Other constraints:

7. Potential development sites in North Hertfordshire are also constrained by other factors including:
 - **Agricultural land** – around 94% of housing growth is on Grade 3 or Grade 2 (40% of total) BMV land. Again, the majority of these sites are within the Green Belt.
 - **Heritage constraints** - most of the sites identified have at least some potential impacts upon heritage assets. 83 of the 115 sites are considered to contain, be adjacent to, or within the setting of, a heritage asset. Following consultations with Historic England and conducted heritage impact appraisals. This resulted in discounting site (329).
 - **Environmental constraints** – Two of the potential sites are adjacent to SSSI's (Therfield Heath and Knebworth Woods). The Council consulted Natural England, and the LP requires mitigation measures to counteract the effects of increased recreational disturbance on these sites. There are five additional sites within the SSSI impact zones where impacts should also be taken into account. In all around 1,381 are either adjacent to or within the impact zone of SSSI sites.
8. The HGBP concludes that if the Council were to impose blanket restrictions upon development on many (combinations) of the grounds above it would face severe challenges in meeting the identified needs for housing and employment. On this basis it was considered that exceptional circumstances exist to justify the release of land from the Green Belt and that given the number of sites affected. It is also considered that any blanket restraint on the grounds of surface water flood risk would hinder the achievement of sustainable development.

The Sequential test and exception test

9. The sequential test is essentially designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. This means avoiding, so far as possible, development in current and future medium and high flood risk areas, considering all sources of flooding including areas at risk of surface water flooding. The updated guidance places stronger emphasis on considering the impact of surface water on new development with the sequential and exception tests now required for sites at risk of surface water flooding or other flood risks such as groundwater flooding and the impact of climate change (previously used to evaluate fluvial/ river flooding only). The guidance states that *'other forms of flooding need to be treated consistently with river and tidal flooding in*

mapping probability and assessing vulnerability, so that the sequential approach can be applied across all areas of flood risk'. 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.

10. The sequential test should then consider the spatial variation of risk within medium and then high flood risk areas to identify the lowest risk sites in these areas, ignoring the presence of flood risk management infrastructure. It may then be appropriate to consider the role of flood risk management infrastructure in the variation of risk within high and medium flood risk areas.

Applying the Sequential Test in the preparation of strategic policies

11. The sequential test needs to be applied to the whole local planning authority area to increase the possibilities of accommodating development, which is not exposed to flood risk, both now and in the future (see the constraints section above which considered all potential sites options in SHLAA). The process is illustrated in Figure 3:

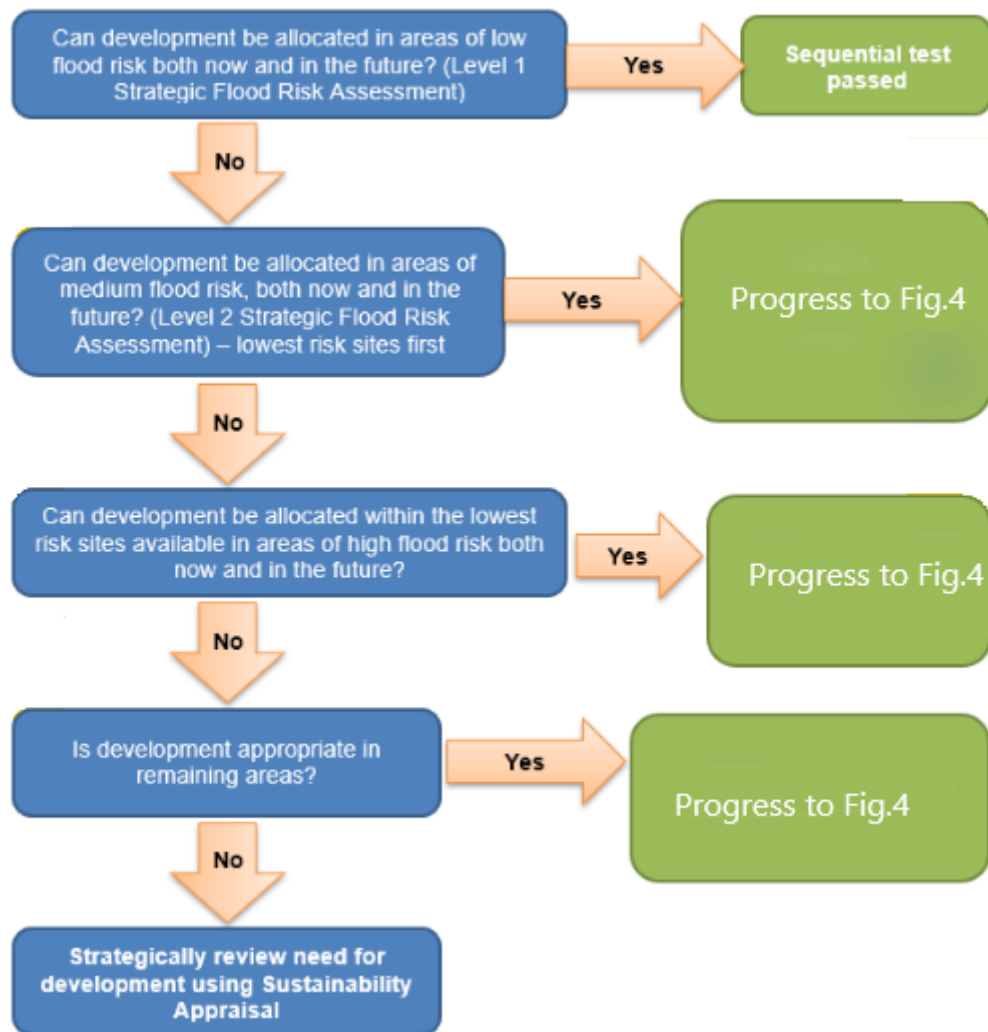


Figure 3 Application of the Sequential Test for plan preparation

12. The sequential test is passed if development can be located entirely within areas of low flood risk both now and in future (Level 1 Strategic Flood Risk Assessment). If that is not the case, the next consideration would be can development be allocated in areas of medium flood risk (Level 2 Strategic Flood Risk Assessment)? If that is the case, then the next step would be to consider if the exception test is required (Fig.4).

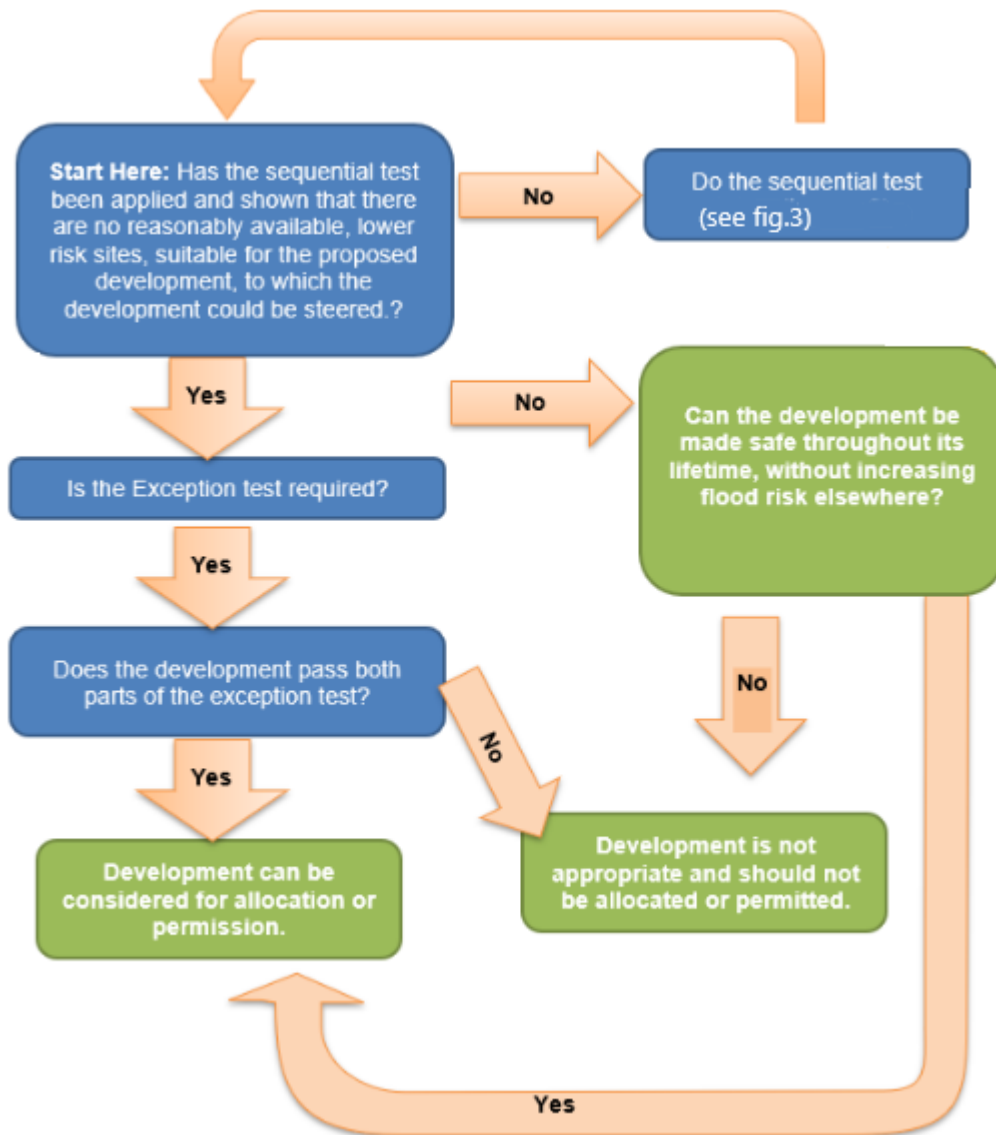


Figure 4 Application of the Exception to plan preparation

NHDC Strategic Flood Risk Assessment (SFRA)

13. The NPPF is clear that the sequential test should consider all sources of current and future flood risk. Strategic Flood Risk Assessments (SFRAs) should form the basis for the sequential test. It is therefore for the SFRA to assess all sources of flood risk and how these risks may change over the anticipated lifetime of development. According to [NHDC SFRA Update](#) (2016) the KB4 site is not within a fluvial Flood Zone 2 or 3. However, there are areas within the site that are susceptible to surface water flooding. The SFRA states that site KB4 (Great Ashby) contains potential surface water flood risk with the map showing flows associated with topography to the north west and south of the site. Main flows appear to gather in the High Street / Old Lane, therefore, site provides opportunity for betterment.

14. The SFRA details the sequential approach taken in the assessment. This can be summarised as follows:

- **Consideration of fluvial risk:** The large majority of allocations in the local plan are not adversely affected by fluvial flood risk issues and as a result flood risk has largely been avoided by the allocations process. Only sites WY1, HT11 and LS1 contain any areas at risk from fluvial flooding and they can deliver development onsite without developing in the areas at risk by applying the sequential test within the site areas.
- **Consideration of surface water and other sources of flooding:** The SFRA applied the Sequential Test to other forms of flood risk including surface water and ordinary water courses. The assessment identified 66 sites with areas of surface water flood risk including site KB4. The assessment states that most of the sites will require the applicant to submit a surface water drainage assessment including SuDS to manage any existing surface water flood risk issues onsite. These will be referred to the LLFA⁵ for consultation. Sites over 1 hectare will be required to carry out a Flood Risk Assessment in accordance with the NPPF. Sites under 10 dwellings will still be required to provide surface water drainage proposals which will be considered by the LPA. Regarding the Knebworth site allocations (including KB4) the SFRA states that *the “railway line appears to be a barrier in the middle of the village. There is a known issue originating from land to the west of the village, within site KB2. The site provides the opportunity to manage the issue. The SWMP is investigating potential detailed solutions. Development will need to take into account solutions identified through the SWMP and a Section 19 report already exists. The map also appears to show flows on the east of the village, again converging towards the middle of the village, representative of topography. KB4 provides the opportunity to contribute to the flow management if the issue is validated. KB3 within the village provides a further the opportunity for management of the issue, being further downstream of the flow.”*

Statement of Common Ground between the EA & NHDC

15. The Statement of Common Ground (SoCG) in respect of the NHLP proposed submission version was prepared jointly by NHDC and the Environment Agency (Nov. 2016). It sets out that the Council engaged continuously with the EA throughout the Plan’s production taking into account the EA’s representations. These included additional wording for inclusion

⁵ Guidance on requirements is available from HCC [here](#)

within Policies NE7, NE10 and NE11 and some additional site-specific mitigation criteria for some of the allocations in the Plan. The SoCG adds that the majority of these changes were taken forward following further clarification / negotiation. In terms of the flood risk, the EA's representation included changes to the criteria in policy NE7 'Reducing flood risk' and a site-specific recommendation for site WY1. (Table 2). The changes were subsequently applied to the policy wording.

16. The SoCG agreed matters includes the following statements:

- "It is agreed that sites identified in the plan are located appropriately in line with the Sequential Test and sequential approach as identified in National Guidance" and
- "It is agreed that there are no outstanding issues in relation to the environment, flood risk and water and wastewater infrastructure in the area of North Hertfordshire (in addition to the changes set out in the schedule of minor modifications). It can therefore be agreed that the plan constitutes sustainable development in accordance with paragraph 180 of the National Planning Policy Framework, March 2012."

Table 2 - Excerpt from the SoCG relating to flood risk

Para / page	Page	Change	Reason
Policy NE7 criteria changes	119	Planning permission for development proposals will be granted where (as applicable): a) Development is located outside of medium and high risk flood areas (flood zone 2 and 3) and other areas affected by other sources of flooding where possible; b) Where a) is not possible, application of the sequential test and exception test is demonstrated where development is proposed in areas of flood risk using the Strategic Flood Risk Assessment (SFRA) and Environment Agency flood maps and; c) An FRA has been prepared in accordance with national guidance that considers the lifetime of the development, climate change impacts and safe access and egress; d) It will be located, designed and laid out to ensure the risk of flooding is reduced whilst not increasing flood risk elsewhere; e) The impact of any residual flood risk will be minimised through flood resistant, resilient design and construction; f) Flood protection and mitigation measures which may be necessary will have a positive impact on nature conservation, heritage assets, landscape and recreation and; g) Overland flow routes and functional floodplain are protected from all development other than that which is "water compatible" and this must be designed and constructed to remain operational and safe for users during flood events, resulting in no net loss of flood plain storage and not impeding water flows or increasing flood risk elsewhere	Representations by Environment Agency comments [852]
Allocation WY1	213	Undertake site specific Flood Risk Assessment to address surface water and river flood risk issues, particularly along Stevenage Road through, and help inform SuDs or other appropriate solutions as well as the site's access;	Representations by Environment Agency [852]

NHLP Sustainability Appraisal

17. The NHLP was informed by a [Sustainability Appraisal](#) (SA) which identified the above discussed constraints as key sustainability issues. With regard to flood risk it noted that 'a significant number of existing homes and potential new development sites face surface water flood risk'. The SA tested all the sites included in the adopted LP against a set of SA objectives including objective 4(b) "improve the District's ability to adapt to climate change" with the sub-objectives to reduce vulnerability to climate change and avoid development in areas at risk from flooding. The SA identified how the LP mitigates potential significant

negative effects through policies; specifically, policies SP9 (requires masterplans, creation of GI to support climate change mitigation/ adaptation and SuDS), SP11 (requires SuDS) and NE8 (seeks most sustainable drainage solutions for each development to reduce surface water flood risk).

18. In terms of residual effects⁶ of the Plan, the SA identified surface water flooding as an issue affecting development across the District noting that the associated residual negative effect is of medium probability and could be reduced depending on design and layout of development and mitigation measures.

LP Inspector's Report

19. The Council received the Inspector's [Final Report](#) on the Examination of the NHLP on 8 September 2022. This concluded that subject to a number of main modifications, set out in the Appendix to the report, the LP is sound, legally compliant and capable of adoption. The main modifications included the reduction of the OAN to 11,500 (from 13,800), the reduction of the housing growth proposed to 11,600 (from 14,000) and the requirement for masterplans for strategic housing sites.

The report recognised the overall constraints and lack of reasonable alternative, noting that: *“the district’s need for housing is acute and pressing. The supply of identified deliverable and/or developable land outside of the Green Belt falls well short of the need – indeed, it is less than half. Given this, the constraints in neighbouring local authority areas, the consequent inability of those authorities to assist in meeting the district’s housing need and the absence of any agreement for them to do so, it is impossible to see how anything even close to approaching the identified need for housing could be met without a significant level of Green Belt ‘release’”*. It also noted the historic *“housing under-delivery set against a background of significant and pressing need and any risk to optimising the recovery from this position should be avoided”*. With reference to the site allocations, the report stated that the *“proposed allocations would ensure that those needs are met where they arise in the most sustainable locations that are deliverable/developable. Rejecting these sites would delay meeting the pressing need for housing further”*, noting that the consequences of not meeting local housing needs *“would choke the local housing market” and that the “home-making aspirations of many people, particularly those requiring affordable homes, would be*

⁶ Refers to the combined remaining effects of the sites, policies and cumulative effects, after all the identified mitigation measures have been applied.

shattered and the local economy would most likely suffer negative consequences. These too are matters of substantial weight."

20. The report did not specify any modification specifically relating to site allocation KB4 but did mention another site where surface water flooding is also an issue, BA1 (North Baldock), noting that *"some suggest that large areas of this site are subject to flooding. However, it is in Flood Zone 1 and the Council says that there are surface water issues. Addressing these through the provision of SuDS or other measures is a requirement of Policy SP14. That is an effective and necessary approach."* Site KB4 is also within Flood Zone 1 with some areas of surface water flood risk and the policy provisions include the requirement for SuDS and other mitigation measures. Additionally, Policy NE7 requires the application of the sequential and exception tests for development within area of flood risk (according to the SFRA and the EA's flood maps) and also a FRA prepared in accordance with national guidance that considers the impact of climate change. The policy also stipulates that development must be designed to ensure that the risk of flooding is reduced whilst not increasing flood risk elsewhere. Where development is within an area at risk from flooding, the LP requires applicants to demonstrate that the site passes the Sequential Test before providing an FRA as part of the application process.

Conclusion

21. The issues of reasonable alternatives and mitigations (in terms of flood risk and other constraints) were comprehensively considered through the SFRA and the Plan making process which demonstrated that there are no meaningful 'reasonable alternatives' to the allocated sites.
22. The Council has applied the sequential test in accordance with NPPF and PPG requirements by assessing all potential SHLAA sites and the various constraints (Green Belt, environmental, heritage and flood risk). The housing background paper established that there is an acute OAN and the District is severely constrained by the Green Belt. Whilst the majority of sites are within fluvial Flood Zone 1, most of the sites have potential surface water flood risk (according to the SFRA and the EA's mapping data). The NHLP seeks to address this issue by through Plan policies seeking SuDS, sustainable drainage strategies and site specific FRAs.
23. The PPG states that applicants do not "need to do a sequential test if one has already been carried out for a development of the type you're planning (e.g. a residential development)

for the site. Adding that, in such cases applicants need to ask their LPA for the site allocation reference in their Local Plan and include that in their planning application.

24. In conclusion it is considered that the approach taken by NHC is appropriate and in accordance with the requirements. Further sequential approaches to design and layout will be part of the masterplanning process for strategic sites allocated in the Local Plan and NHDC will continue working with the LLFA on any unforeseen issues that may arise.
25. In view of the above, the Council (as the LPA) considers that further sequential testing is *not* required either in overall terms or on a site-by-site basis.