



AIRE VALLEY LEEDS AREA ACTION PLAN

Leeds Local Development Framework

Development Plan Document

**Aire Valley Leeds Area Action Plan Flood Risk Sequential
Test & Exception Test: Update based on revised
Environment Agency Flood Maps (November 2016)**

December 2016

1 INTRODUCTION

- 1.1 This report sets out updates to the flood risk sequential test and exception tests relating to the proposed site allocations in the Aire Valley Leeds Area Action Plan (AVLAAP) following the release of new flood maps by the Environment Agency in November 2016. The Council has published two earlier flood risk sequential and exception tests to support the AVLAAP based on the proposals set out in the Publication Draft (September 2015) and Submission Draft (September 2016) versions of the Plan. This update should be read in conjunction with them.
- 1.2 Subsequent to the submission of the AVLAAP on 23 September 2016, the Environment Agency published new flood risk maps in November 2016. These maps include substantial revisions to flood zones within the AVLAAP area based on updated flood model data for the River Aire between Leeds station and Woodlesford. This alters the flood zone attributes of a number of the proposed site allocations in the Submission Draft AVLAAP and therefore has significant implications for the Plan's evidence base. Following discussions held with the Environment Agency through the Duty to Co-operate process, the Council agree it is important that the AVLAAP is supported by the best available evidence on flood risk and that this is used to test proposed allocations against the sequential and exception test requirements.
- 1.3 The Submission Draft sequential and exception tests were based on the Leeds Strategic Flood Risk Assessment (SFRA) which was published in 2007 and the latest available Environment Agency flood risk maps at the time that assessment was prepared (September 2015). At that time, although there had been very minor changes to the EA's flood map since the SFRA was published, the two data sources were generally consistent and could be used in conjunction with each other. The latest, more significant, revisions to the November 2016 EA flood maps mean this is no longer the case within the AVLAAP area.
- 1.4 The revised sequential test set out in Section 4 of this document updates the previous test using the November 2016 EA flood maps to define the flood zone that each of the proposed allocations lie within. The test attempts to meet the target from sites in flood zone 1 in the first instance before looking for sites in flood zone 2 and then in flood zone 3a. Because the SFRA no longer aligns with the EA maps it is not recommended to use the SFRA sub-division of flood zone 3a into zones 3ai and 3aii. This additional step in the sequential test methodology (sequentially preferring zone 3ai to 3aii sites) has not therefore been undertaken in this revised assessment.
- 1.5 The Publication Draft and Submission Draft sequential and exception tests have used the flood zones identified in the SFRA, including the breakdown of zones 3ai and 3aii as it represented the best available data at that time. Section 2 sets out more detail in respect to the current status of the SFRA following the update to the EA flood maps.

- 1.6 The NPPG recommends using the sustainability appraisal process to integrate use of the SFRA and application of the sequential test and exceptions test. The Leeds sustainability appraisal framework contains objective SA14 to 'Improve Leeds' ability to manage extreme weather conditions including flood risk and climate change.' The objective's assessment criteria directly reflect the site's flood risk zone in the SFRA. Part A of the exception test makes use of the sustainability criteria assessments from the sustainability appraisal objectives, to account for the wider sustainability of a site in the decision making process. Where it is necessary to allocate land in areas of high flood risk, justification is contained within the exception test and the sustainability appraisal.
- 1.7 Section 2 of this document provides the policy context for the tests with section 3 describing information about the sites assessed; Section 4 sets out the sequential test for each assessed site; Section 5 sets out the exception test for sites as required by the NPPF paragraphs 100 to 102. Section 6 sets out the assessment of the risk from other sources of flooding in Aire Valley Leeds.

2. POLICY CONTEXT (UDDATE)

Leeds Strategic Flood Risk Assessment (SFRA)

- 2.1.1 The Leeds SFRA was published in November 2007 and signed off by the Environment Agency in April 2008. The document subdivides the district into zones of 'low' (zone 1), 'medium' (zone 2) and 'high' (zone 3) probability of flooding.
- 2.1.2 The Leeds SFRA provides a Level 2 Flood Risk Assessment and for previous stages of plan-making this enabled the allocation of sites to be informed by the further refinement of zone 3a into zone 3ai and 3aii, thereby enabling a sequential approach to site allocation to be taken within Flood Zone 3. The SFRA also defines the extent of functional floodplain in the Leeds district and this was used to ensure that no allocation of land for built development took place in those areas shown in the SFRA as functional floodplain. The November 2016 Environment Agency Flood Map has significantly changed the extent of flood zones 2 and 3a. As a consequence the subdivision of zone 3a into 3ai and 3aii in the SFRA is no longer accurate and therefore this update does not rely on the SFRA for the latest information on flood probability. However, the SFRA provides its own definition of functional floodplain (zone 3b) and as such it can still be relied upon to reflect those areas where water has to be stored in times of flood. Zones of Rapid Inundation are those areas where the product of depth and velocity exceeds $0.4\text{m}^2/\text{s}$. and as such these areas remain reasonably accurate as the best available information in the SFRA.
- 2.1.3 The SFRA represents the best available information to inform the Submission Draft exception test as a Level 2 Flood Risk Assessment at that point in time and enabled a strategic approach to avoiding flood risk in site allocations. Whilst the SFRA is not entirely out of date, where appropriate the Council has undertaken further assessment work such as site specific modelling to underpin the conclusion and site requirements set out in the exception test.
- 2.1.4 In February 2016 the Government updated the climate change allowances that should be taken into account in flood risk assessments to minimise vulnerability and provide resilience to flooding over the lifetime of the development. The climate change allowances are based on climate change projections and different scenarios of carbon dioxide (CO₂) emissions to the atmosphere. There are different allowances for different periods of time over the next century. Leeds City Council is updating its Minimum Development Control Standards for Flood Risk to reflect the Government's climate change allowances. The Minimum Development Control Standards for Flood Risk can be found as the appendix to the adopted Natural Resources and Waste Local Plan on the Council's website.

3. SITE AND DEVELOPMENT INFORMATION

3.1 Site locations

- 3.1.1 The tests relate to all development sites identified in the Aire Valley Leeds AAP Submission Draft Document and alternative sites submitted by land owners and developers or otherwise considered by the Council during the course of plan preparation. The site boundaries in relation to the identified flood risk zone from the November 2016 EA flood risk maps are shown on Map 1 (Appendix G).
- 3.1.2 The development sites assessed have been identified from the following sources:
- Sites with planning permission extant at April 2012.
 - Existing land use allocations identified in the Leeds Unitary Development Plan (UDP Review 2006) which had not been developed;
 - Sites submitted for consideration as part of the Strategic Housing Land Availability Assessment (reviewed annually), previous consultation stages in preparation of the AVLAAP and 'Call for Sites' exercise in January 2013;
 - Other vacant/derelict land.
- 3.1.3 No further land with development potential was identified in the Aire Valley Leeds area at the time this assessment was undertaken.

3.2 Flood risk source

- 3.2.1 In Aire Valley Leeds, flood risk is fluvial, from the River Aire, Wyke Beck and Colton Beck. Surface water run-off from the existing and new development contributes to the risk.

3.3 Flood zones in which proposed allocations are located

- 3.3.1 Land affected by proposed site allocations lie within the following Flood Risk Zones identified on the Environment Agency Flood Maps (November 2016) 1, 2 and 3A (see Appendix B for Leeds SRFA definitions).

3.4 Site information

- 3.4.1 Tables 1 to 9 at Appendix C contain:
- the development sites identified in the AAP Publication Draft and alternative sites suggested through consultation and evidence base, such as Strategic Housing Land Availability Assessment (SHLAA), Call for Sites (CFS), Employment Land Review (ELR) sites. These sites are split by flood risk zone and those sites proposed to be allocated or identified in the AAP (Tables 1-5) and alternative options not proposed in the plan (Tables 6-9);
 - proposed flood defences, particularly the Leeds Flood Alleviation Scheme (see Section 2) for sites within higher flood risk zones. This scheme will provide

protection against the 1 in 100 year flood for a number of sites in and close to Leeds City Centre;

- the potential uses assessed. This is limited to those uses where a specific allocation would be made, such as housing, general employment and offices and excludes possible small scale or ancillary uses which may be included within a development
- the Flood Risk Vulnerability Classification of the most vulnerable use proposed on the site

4. THE SEQUENTIAL TEST

4.1 Background

- 4.1.1 The NPPG advises that the overall aim of the sequential test should be to steer new development to Flood Zone 1. Where there are no reasonably available sites in Flood Zone 1, local planning authorities allocating land in local plans should take into account the flood risk vulnerability of land uses and consider reasonably available sites in Flood Zone 2. Only where there are no reasonably available sites in Flood Zones 1 or 2 should decision-makers consider the suitability of sites in Flood Zone 3, taking into account the flood risk vulnerability of land uses and applying the Exception Test if required.
- 4.1.2 Within each Flood Zone, new development should be first directed to sites at the lowest probability of flooding and the flood vulnerability of the intended use matched to the flood risk of the site e.g. higher vulnerability uses located on parts of the site at lowest probability of flooding.

4.2 Methodology

- 4.2.1 The AVLAAP allocates land for a number of main uses. This includes mixed use development site allocations, with the breakdown of individual uses is identified in the plan. Ancillary uses have also been assessed if they are more vulnerable to flooding than the main use.
- 4.2.2 The AVL area has requirements for the amount of land or number of units to be developed for residential and employment uses which can be used as the basis for applying the sequential test.

Assumptions/approach used

- The AVLAAP needs to provide a minimum of 6,500 new homes over the plan period as set out in Spatial Policy 5 of the Leeds Core Strategy;
- The AVL area needs to identify/allocate 250 hectares of land for employment uses as set out in Policy SP5;
- Two park & ride sites are shown on the Core Strategy key diagram within the AVL area;
- Where a site satisfies the sequential test it is assumed that other uses which are less vulnerable to flooding are also appropriate on the site subject to conformity with other plan policies;
- Development on sites completed between the start of the plan period (April 2012) and the base date for this sequential test (31st March 2016) is accounted for before the sequential test is applied.
- Land with planning permission for the uses being assessed is included within the sequential test where development was not completed as of 31st March 2016. The sequential test sets out recommendations for the site depending on which Flood Zone it falls within and the use being assessed. However, it is recognised that

flood risk matters will have been addressed at the time planning permission was granted and the permission can be implemented accordingly. The sequential test and recommendations made may be relevant should the existing planning permission not be implemented and a new planning application is submitted for the site.

4.3 Sequential Test Results

- 4.3.1 The assessment includes development sites in Flood Zones 1, 2 and 3A. This section provides a summary of the sequential test results and recommendations, considering the development sites in sequence starting with the sites at lowest risk of flooding (in Flood Zone 1).
- 4.3.2 Details of the full sequential test and methodology used for each proposed use are set out in Appendix D (housing), Appendix E (employment) and Appendix F (park and ride sites).

COMPLETED DEVELOPMENTS

- 4.3.3 The development proposed at the following sites was completed before 1st April 2016 and have not therefore been assessed as part of the updated sequential test:
- AV5 – Indigo Blu, Crown Point Road
 - AV10 – Armouries Drive, Leeds Dock
 - AV21 – The Parade & The Drive
 - AV35 – Cross Green Grove
 - AV39 – East Street Mills
 - AV43 – Yarn Street
 - AV57 – Plot 2A, Thornes Farm Business Park
 - AV61 – Connex 45 site, Thornes Farm Way
 - AV69 – Symingtons, Thornes Farm
 - AV70 – 2 Pontefract Lane
 - AV73 – Former Post Office building, Skelton Grange Road
 - AV93 – Unit 4 Queen Street, Stourton
 - AV113 – Former Leeds College of Building, Intermezzo Drive

STEP 1: CAN DEVELOPMENT BE ALLOCATED IN FLOOD ZONE 1?

1A. PROPOSED DEVELOPMENT IN FLOOD ZONE 1 – ‘LOW PROBABILITY’ OF FLOOD RISK

(i) The Aire Valley Leeds AAP includes the following identified sites with extant planning permission in Flood Zone 1:

AV30 – Ellerby Lane
 AV31 – Cross Green Lane / Echo Phase 3
 AV36 – St Hildas Church, Knowsthorpe Crescent
 AV42 – Riverside Place, Bridgewater Road
 AV58 – Plot 2B, Thornes Farm Business Park

AV59 – Plot 5, Thornes Farm Business Park
 AV60 – Plot 6, Thornes Farm Business Park
 AV65 – Pontefract Road / Newmarket Approach
 AV66 – Former Pittards site, Knowsthorpe Gate
 AV71 – Thwaite Gate / Sussex Avenue
 AV75 – Pontefract Road, North of M1
 AV81 – Leeds Valley Park
 AV91 – Temple Green Park & Ride
 AV92 – William Cooke Castings, Cross Green Approach
 AV112 – Rocheford Court, Pepper Road
 AV115 – Land off Pontefract Road
 AV116 – Site 8, Newmarket Green
 AV117 – Land north of St Hildas Crescent

Assessment conclusion: The above sites have extant planning permissions which have addressed detailed site specific flood risk matters. Should the existing permission expire or a new application be submitted, the sites satisfy the flood risk sequential test and are appropriate, subject to consideration of risk from other sources of flooding (see section 6).

(ii) The Aire Valley Leeds AAP includes the following proposed allocations and other identified sites in Flood Risk Zone 1:

AV18 – Marsh Lane
 AV19 – Marsh Lane / Saxton Lane
 AV20 – Ambulance Station, Saxton Lane / Flax Place
 AV22 – Former Richmond Inn, Upper Accommodation Road
 AV23 – Former Butterfield Manor & Richmond Court, Walter Crescent
 AV24 – Presbytery, St Marys Church
 AV28 – Bow Street / East Street
 AV29 – Bow Street / Ellerby Road
 AV38 – Copperfields
 AV50 – Snake Lane / Cross Green Approach
 AV51 – Knowsthorpe Way
 AV52 – Newmarket Lane
 AV54 – Belfry Road / Cross Green Approach
 AV55 – Pontefract Lane / Newmarket Lane
 AV56 – Land off Knowsthorpe Road
 AV62 – Thornes Farm Way
 AV79 – Land north of Valley Farm Road
 AV80 – Stocks Bros, Pontefract Road
 AV82 – Stourton North

Assessment conclusion: The above sites satisfy the flood risk sequential test and are appropriate, subject to consideration of risk from other sources of flooding (see section 6).

1B. PROPOSED DEVELOPMENT IN FLOOD ZONE 1 – ‘LOW PROBABILITY’ OF FLOOD RISK (WITH SMALL AREAS OF SITE WITHIN FLOOD ZONES 2 & 3)

- (i) The Aire Valley Leeds AAP includes the following identified sites with planning permission in Flood Zone 1 (with less than 10% or 25% total site area in Flood Zones 2 or 3, as appropriate¹):

AV25 – Richmond Street / Flax Place

AV27 – Former Leeds College of Technology, East Street

AV63 – Logic Leeds (Skelton Moor Farm)

AV64 – Temple Green

Assessment conclusion: The above sites have extant planning permissions which have addressed detailed site specific flood risk matters. Should the existing permission expire or a new application be submitted, the sites satisfy the flood risk sequential test, providing that a sequential approach is taken to the layout of the site so that the most vulnerable development is located in areas of the lowest flood risk unless there are overriding reasons to prefer a different location.

- (ii) The Aire Valley Leeds AAP includes the following proposed allocations and identified UDP sites in Flood Zone 1 (with less than 10% or 25% of the total site area in Flood Zones 2 or 3, as appropriate):

AV40 – Bridgewater Road (North)

AV48 – Church Street / Balm Road, Hunslet

AV77 – Pontefract Road / Nijinsky Way

AV111 – Skelton Gate

Assessment conclusion: These proposed allocations satisfy the flood risk sequential test, providing that a sequential approach is taken to the layout of the site so that the most vulnerable development is located in areas of the lowest flood risk unless there are overriding reasons to prefer a different location. Proposed housing (or other more vulnerable uses) on sites AV40, AV48, AV111 and the proposed school on site AV111 should not be located in Flood Zone 3 because it is possible to avoid these areas using a sequential approach to the site layout. Consideration also needs to be given to risk from other sources of flooding (see section 6).

¹ All flood risk zones applying to the site are identified with the percentage stated in the Appendix tables where the site is within more than one zone. The flood risk zone used for the sequential test will be the highest flood risk zone required to develop the site to its maximum realistic potential, but excludes smaller areas of land (less than 10% of the total site area for site up to 2 ha. and less than 25% for sites greater than 2 ha.) as it is assumed that these can be incorporated into undeveloped parts of a scheme, such as landscaped areas, green infrastructure etc

STEP 2: CAN DEVELOPMENT BE ALLOCATED IN FLOOD ZONE 2?

2A. PROPOSED DEVELOPMENT IN ZONE 2 'MEDIUM PROBABILITY' OF FLOOD RISK
<p>(i) The Aire Valley Leeds AAP includes the following identified sites with planning permission in Flood Zone 2:</p> <p>AV11 – Former Alea Casino, The Boulevard, Leeds Dock AV44 – Unit 5 Nelson House, Quayside Business Park, George Mann Road AV67 – Skelton Grange</p> <p>Assessment conclusion: The above sites have extant planning permissions which have addressed detailed site specific flood risk matters. Should the existing permission expire or a new application be submitted, the sites satisfy the flood risk sequential test and are appropriate, subject to consideration of risk from other sources of flooding (see section 6).</p>
<p>(ii) The Aire Valley Leeds AAP includes the following proposed allocations or identified UDP sites in Flood Zone 2:</p> <p>AV7 – Former Yorkshire Chemicals site, Black Bull Street AV68 – Land south of Knowsthorpe Lane AV78 – Haigh Park Road / Pontefract Road</p>
Proposed allocations in the 'Water Compatible', 'Less Vulnerable', 'More Vulnerable' or 'Essential Infrastructure' classifications ²
<p><u>Less vulnerable</u></p> <ul style="list-style-type: none"> General employment – AV68, AV78 Mixed use (office) – AV7 <p><u>More vulnerable</u></p> <ul style="list-style-type: none"> Mixed use (housing) – AV7 <p>Assessment conclusion: The above sites satisfy the flood risk sequential test. For site AV7 a sequential approach should be taken to the layout of the site so that the most vulnerable development is located in areas of the lowest flood risk unless there are overriding reasons to prefer a different location. Consideration also needs to be given to risk from other sources of flooding (see section 6).</p>
Proposed uses in the 'Highly Vulnerable' classifications:
<ul style="list-style-type: none"> None

² From Table 2 Flood Risk Vulnerability Classification of the NPPG (Flood Risk & Coastal Change, Table 2 Para 65)

2B. PROPOSED DEVELOPMENT IN ZONE 2 ‘MEDIUM PROBABILITY’ OF FLOOD RISK (WITH SMALL AREAS OF SITE WITHIN FLOOD ZONE 3)

- (i) The Aire Valley Leeds AAP includes the following identified sites with planning permission in Flood Zone 2 (with more than 10% or 25% of the total site area in Zone 2 and less than 10% or 25% of the total site area in Zone 3, as appropriate):

AV33 – Low Fold, East Street
AV45 – Gibraltar Island Road

Assessment conclusion: The above sites have extant planning permissions which have addressed detailed site specific flood risk matters. Should the existing permission expire or a new application be submitted, the sites satisfy the flood risk sequential test, providing that a sequential approach is taken to the layout of the site so that the most vulnerable development is located in areas of the lowest flood risk unless there are overriding reasons to prefer a different location.

- (ii) The Aire Valley Leeds AAP includes the following proposed allocations in Flood Zone 2 (with more than 25% of the total site area in Zone 2 and less than 25% of the total site area in Zone 3):

AV15 – Clarence Road / Sayner Lane
AV16 – Carlisle Road / Sayner Lane
AV34 – South Accommodation Road
AV83 – Land south of Skelton Grange Road (east site)
AV94 – South Bank Planning Statement Area
AV98 – Atkinson Street

Proposed allocations in the ‘Water Compatible’, ‘Less Vulnerable’, ‘More Vulnerable’ or ‘Essential Infrastructure’ classifications³

Less vulnerable

- General employment – AV45, AV83
- Mixed use (office) – AV15, AV16, AV94, AV98

More vulnerable

- Housing – AV33, AV34
- Mixed use (housing) – AV15, AV16, AV94, AV98

Assessment conclusion: These proposed allocations satisfy the flood risk sequential test, providing that a sequential approach is taken to the layout of the site so that the most vulnerable development is located in areas of the lowest flood risk unless there are overriding reasons to prefer a different location. Proposed housing (or other more vulnerable uses) on sites AV15, AV16 and AV98 should not be located in Flood Zone 3A because it is possible to avoid these areas using a sequential approach to the site layout. Consideration also needs to be given to risk from other sources of flooding (see section 6).

³ From Table 2 Flood Risk Vulnerability Classification of the NPPG (Flood Risk & Coastal Change, Table 2 Para 65)

Site AV94 is a broad location of development where the land is in different ownerships and there is uncertainty over the availability of some of the area due to the HS2 station proposals. Although the land falls within Flood Zone 2 because less than 25% of the area is within Flood Zone 3A, the practicality of developing the available parts of the site may require some development within Zone 3 even where a sequential approach to location of uses within the site is applied. Accordingly, land within the Flood Zone 3A has been assessed (see Table D8, Appendix D) against the smaller area sequential test criteria (see Table D6, Appendix D). Having met these criteria, the Zone 3A land is considered to have passed the sequential test providing that a sequential approach is adopted within the boundary of any future planning application. The exception test set out in the NPPF and NPPG needs to be applied for land proposed within Flood Zone 3A.

Proposed uses in the 'Highly Vulnerable' classifications:

- None

STEP 3: CAN DEVELOPMENT BE ALLOCATED WITHIN THE LOWEST RISK SITES AVAILABLE IN FLOOD ZONE 3?

3. PROPOSED DEVELOPMENT IN ZONE 3A 'HIGH PROBABILITY' OF FLOOD RISK

- (i) The Aire Valley Leeds AAP includes the following identified sites with planning permission in Flood Zone 3A (with more than 10% or 25% of the total site area in Zone 3A, as appropriate):

AV26 – The Gateway, Marsh Lane
 AV41 – Hunslet Mills, Goodman Street (housing use)
 AV47 – South Point, South Accommodation Road
 AV96 – Airedale Mills, Clarence Road

Assessment conclusion: The above sites have extant planning permissions which have addressed detailed site specific flood risk matters. Should the existing permission expire or a new application be submitted, the sites satisfy the flood risk sequential test, providing that a sequential approach is taken to the layout of the site so that the most vulnerable development is located in areas of the lowest flood risk unless there are overriding reasons to prefer a different location.

- (ii) The Aire Valley Leeds AAP includes the following proposed allocations and identified UDP sites in Flood Zone 3A (with more than 10% or 25% of the total site area in Zone 3A, as appropriate):

AV9 – Evans Halshaw, Hunslet Lane
 AV12 – Armouries Drive / Carlisle Road
 AV13 – Carlisle Road / Clarence Road
 AV14 – Former Hydro Site, Clarence Road
 AV17 – Braime Pressings, Hunslet Road
 AV32 – Rose Wharf Car Park, East Street
 AV41 – Hunslet Mills, Goodman Street (other proposed uses)

AV46 – Tetley Motors, Goodman Street AV72 – North of Haigh Park Road AV74 – South of Skelton Grange Road (west site) AV76 – South of Haigh Park Road
Proposed uses in the ‘Water Compatible’ or ‘Less Vulnerable’ classifications:
<u>Less Vulnerable</u> <ul style="list-style-type: none"> • General Employment – AV47, AV72, AV74, AV76, AV77, AV96 • Mixed use (offices) – AV12, AV13, AV14 • Mixed use (other less vulnerable uses) – AV41 <p>Assessment conclusion: These proposed allocations satisfy the flood risk sequential test and are appropriate providing that a sequential approach is taken to the layout of the site so that the most vulnerable development is located in areas of the lowest flood risk unless there are overriding reasons to prefer a different location. Consideration also needs to be given to risk from other sources of flooding (see section 6).</p>
Proposed uses in the ‘More Vulnerable’ or ‘Essential Infrastructure’ classifications
<u>More Vulnerable</u> <ul style="list-style-type: none"> • Housing – AV32, AV46 • Mixed use (housing and other more vulnerable uses) – AV9, AV12, AV13, AV14, AV17, AV41 <p>Assessment conclusion: These proposed allocations satisfy the flood risk sequential test providing that a sequential approach is taken to the layout of the site so that the most vulnerable development is located in areas of the lowest flood risk unless there are overriding reasons to prefer a different location. The exception test set out in the NPPF and NPPG needs to be applied for land proposed within Flood Zone 3A. Consideration also needs to be given to risk from other sources of flooding (see section 6).</p>
Proposed uses in the ‘Highly Vulnerable’ classification
<ul style="list-style-type: none"> • None

Consideration of alternative approaches

Could the development proposals for the allocated sites in Zone 2 or 3A be located in lower risk flood zones?
<p>a) Identify alternative sites that were considered and explain why they were dismissed:</p> <p>Alternative sites have been assessed for their potential to contribute towards the housing and employment land requirements. The alternative sites assessed are not considered to be suitable, available and/or deliverable within the plan period.</p>

The detailed assessment of alternative sites is included in Appendices D and E.

b) Explain why the proposals cannot be redirected to lower risk flood zones:

- All the development sites identified in lower risk flood zones have already been allocated for one or more of the principle uses as demonstrated by the detailed assessments set out in Appendices D, E and F.
- Rejecting potential housing development sites in Flood Zone 2 would prejudice delivery of the Core Strategy housing requirement of 6,500 dwellings for Aire Valley Leeds (see Appendix D for detailed breakdown of assessment).
- Rejecting potential employment development sites in Flood Zone 2 and Flood Zone 3A would prejudice delivery of the Core Strategy employment land requirement (250 hectares) for Aire Valley Leeds (see Appendix E for detailed breakdown of assessment).
- Rejecting developable brownfield sites in Flood Zone 3A in areas where housing development is currently being undertaken and where development would otherwise fully accord with the broad locational policies for housing in the Core Strategy and AVLAAP could unnecessarily sterilise some key regeneration areas. In such areas it improves the overall effectiveness of the plan to consider housing sites over and above the Core Strategy minimum housing requirement of 6,500 dwellings.

5. THE EXCEPTION TEST

5.1 Introduction

- 5.1.1 The NPPF requires the exception test to be applied when, following the application of the sequential test, it is not possible for the development to be located in zones of lower probability of flooding.
- 5.1.2 According to Table 3 of the NPPG flood risk section, an exception test is required where 'more vulnerable uses' or 'essential infrastructure' are proposed in Flood Zone 3A; or 'highly vulnerable' uses are proposed in Flood Zone 2. The proposal must always have passed the sequential test first. Within the AVLAAP there are a number of 'more vulnerable' uses, mainly housing sites, proposed in Flood Zone 3A which have passed the sequential test.
- 5.1.3 NPPF (Paragraph 102) sets out the two criteria which make up the exception test, which are:
- A. Does the development provide wider sustainability benefits to the community that outweigh flood risk?
 - B. Has a FRA demonstrated that the development will be safe for its lifetime, without increasing flood risk elsewhere, and, where possible, reduce flood risk overall?

5.2 Exception test results

- 5.2.1 This section sets out the results and recommendations of the exception test of the proposed housing and mixed use allocations which would allow or potentially allow the development of land for more vulnerable uses within Flood Zone 3. This includes an assessment of the site against both parts of the exception test outlined in paragraph 5.1.3. The assessment against Part B of the exception test sets out detailed mitigation measures to ensure that the development will be safe for its lifetime without increasing flood risk elsewhere.
- 5.2.2 The sites which passed the sequential test, but require an exception test for housing uses in accordance with paragraph 102 of the NPPF are as follows:

Site	Proposed uses
AV9 - Evans Halshaw, Hunslet Lane	Housing
AV12- Armouries Drive / Carlisle Road	Housing
AV13 - Carlisle Road / Clarence Road	Housing
AV14 - Former Hydro Site, Clarence Road	Housing
AV17 - Braime Pressings, Hunslet Road	Housing

Site	Proposed uses
AV26 – The Gateway, Marsh Lane	Housing*
AV32 – Rose Wharf car park, East Street	Housing
AV41 – Hunslet /Victoria Mills	Mixed use**
AV46 – Tetley Motors	Housing
AV94 – South Bank Planning Statement Area	Housing

* Site has an implemented planning permission for housing but final phase of scheme has yet to commence.

** Site has an implemented planning permission for housing through a technical start to development but construction has yet to commence. Policy HU2 also allows the following more vulnerable uses to be developed: hotel, education facilities, pubs and bars. These are not part of the existing planning permission and need to also be subject to the exception test.

5.2.3 The following tables set out the exception test results for each of the above sites.

Exception Test for Site AV9 - Evans Halshaw, Hunslet Lane	
Flood Risk Zone: FZ 3A=41% of site; FZ 2=59% of site	
Proposed uses subject of Exception Test: Housing (estimated 191 units)	
A: Does the development provide wider sustainability benefits to the community that outweigh flood risk?	
Yes	<p>Explain how:</p> <p>Policy compliance: Vacant, brownfield site that lies within a Regeneration Programme Priority Area identified under Core Strategy Spatial Policy 4 which gives priority to development that improves housing quality, affordability and choice.</p> <p>The site is located within the defined City Centre boundary and fully accords with the housing locational criteria (other than flood risk) set out in Core Strategy Policy 6 (see Table D6 of Appendix D for details).</p> <p>Support for regeneration initiatives: The site is located within a wider area of redevelopment and regeneration in the South Bank. There has been recent construction of schools and other educational facilities on neighbouring sites and its development of the site for housing would help to reinforce the wider regeneration of the area.</p> <p>Sustainability appraisal site assessment: Generally positive scores for housing provision, reusing brownfield land and buildings, and four significant positive scores for the sustainable location and access to the highway network, facilities and services.</p>
B: Has a FRA demonstrated that the development will be safe for its lifetime, without increasing flood risk elsewhere, and, where possible, reduce flood risk overall?	
<p>The site is located within Flood Zone 2 and 3A, but it didn't flood during the 2015 Boxing Day event. The following points are material when considering the risks associated with flooding at this site:</p> <ul style="list-style-type: none"> • The site will be defended by the Leeds FAS. • Any flooding is likely to be of short duration, (less than 24 hours), hence it is likely that people could remain inside buildings at first floor level, if they are unable to evacuate the site. 	

- The depth and velocity of flooding at the site during extreme events (> 1 in 100yrs return period) is unlikely to present a risk of structural damage to buildings.

The measures, described below, explain how the residual flood risk will be mitigated, for exceedance events, in order to make the site safe for its users.

- The EA have a flood warning service which covers this area. In the event of flooding it will be possible to provide at least 2 hours advance warning, probably much longer for extreme events.
- Occupants of the site will be encouraged to sign up to the EA's Flood Warning Service. This will provide sufficient advance warning to enable the site to be evacuated, if necessary, for very extreme events. Higher ground can be found on Leathley Road, approximately 300m from the centre of the site.
- Flood resilient construction should be utilised, where appropriate. For example, concrete ground floors should be used in preference to timber. Electrical sockets, fuse boxes, control equipment and wiring should be located at least 1.5 metres above floor level. Electrical cables should come down the wall to raised sockets rather than be located below ground level.
- Floor levels should be raised above the 100 year flood level as per LCC's Minimum Development Control Standards, which have been updated to reflect the Government's climate change allowances February 2016 and which can be found as the appendix to the adopted Natural Resources and Waste Local Plan.
- There is also a risk of flooding from other sources, such as sewers, water mains and surface water run-off. This needs to be considered during detail design, but it is expected that flood risk from these sources will be reduced by setting finished floor levels above adjacent ground levels.
- In terms of drainage, the site is classified as 'brown-field'. Any redevelopment would have to comply with current SuDS policy which requires run-off from brownfield sites to revert back to greenfield rates. This will help to reduce flood risk elsewhere.

Conclusion

Subject to an FRA being submitted alongside detailed development proposals and demonstrating that the development will be safe and will not increase flood risk elsewhere, the proposed housing use on site AV9 is considered to have passed the Exception Test.

Exception Test for Sites AV12 and AV13 - Armouries Drive / Carlisle Road and Clarence Road / Carlisle Road

Flood Risk Zone: FZ 3A (AV12 = 91% of site; AV13 = 87% of site)

Proposed uses subject of Exception Test: Housing (estimated 129 units)

A: Does the development provide wider sustainability benefits to the community that outweigh flood risk?

Yes	<p>Explain how:</p> <p>Policy compliance: Brownfield site that lies within a Regeneration Programme Priority Area identified under Core Strategy Spatial Policy 4 which gives priority to development that improves housing quality, affordability and choice.</p>
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	<p>The site is located within the defined City Centre boundary and fully accords with the housing locational criteria (other than flood risk) set out in Core Strategy Policy 6 (see Table D6 of Appendix D for details).</p> <p>Support for regeneration initiatives: The site is located within a wider area of redevelopment and regeneration in the South Bank. There has been recent construction of schools and other educational facilities on neighbouring sites to the north and its development of the site for housing would help to reinforce the wider regeneration of the area.</p> <p>Sustainability appraisal site assessment: Generally positive scores for housing provision, reusing brownfield land and buildings, and four significant positive scores for the sustainable location and access to the highway network, facilities and services.</p>
B: Has a FRA demonstrated that the development will be safe for its lifetime, without increasing flood risk elsewhere, and, where possible, reduce flood risk overall?	
<p>These sites are located almost entirely within Flood Zone 3A and they flooded quite badly during the 2015 Boxing Day flood, which is estimated to have a return period in excess of 1 in 200 years. The Assisted Living site, on the corner of Clarence Road and Carlisle Road is set below road level and the depth of flooding inside the building was in excess of 1m.</p> <p>The following points are material when considering the risks associated with flooding at this site:</p> <ul style="list-style-type: none"> • These sites will be defended by the Leeds FAS. • Any flooding is likely to be of short duration, (less than 24 hours), hence it is likely that people could remain inside buildings at first floor level, if they are unable to evacuate the site. • The depth and velocity of flooding at the site during extreme events (> 1 in 100yrs return period) is unlikely to present a risk of structural damage to buildings. <p>The measures, described below, explain how the residual flood risk will be mitigated, for exceedance events, in order to make the sites safe for their users:</p> <ul style="list-style-type: none"> • The EA have a flood warning service which covers this area. In the event of flooding it will be possible to provide at least 2 hours advance warning, probably much longer for extreme events. • Occupants of the site will be encouraged to sign up to the EA's Flood Warning Service. This will provide sufficient advance warning to enable the sites to be evacuated, if necessary, for very extreme events. Higher ground can be found on Leathley Road, approximately 500m from the centre of the site. • Flood resilient construction should be utilised, where appropriate. For example, concrete ground floors should be used in preference to timber. Electrical sockets, fuse boxes, control equipment and wiring should be located at least 1.5 metres above floor level. Electrical cables should come down the wall to raised sockets rather than be located below ground level. • Floor levels should be raised above the 100 year flood level as per LCC's Minimum Development Control Standards, which have been updated to reflect the Government's climate change allowances introduced in February 2016 and which can be found as the appendix to the adopted Natural 	

<p>Resources and Waste Local Plan. (Note: raising levels within FZ3 is usually acceptable, where the site is 'defended'.)</p> <ul style="list-style-type: none"> • Buildings, with living accommodation at first floor level and above, with car parking at ground level, would be preferable. Bungalows are not acceptable. • There is also a risk of flooding from other sources, such as sewers, water mains and surface water run-off. This needs to be considered during detail design. It is expected that flood risk from these sources will be reduced by setting finished floor levels above adjacent ground levels. • In terms of drainage, the site is classified as 'brown-field'. Any redevelopment would have to comply with current SuDS policy which requires run-off from brownfield sites to revert back to greenfield rates. This will help to reduce flood risk elsewhere.
<p>Conclusion</p> <p>Subject to an FRA being submitted alongside detailed development proposals and demonstrating that the development will be safe and will not increase flood risk elsewhere, the proposed housing use on site AV12 and AV13 are considered to have passed the Exception Test.</p>

Exception Test for Site AV14 Former Hydro Site	
Flood Risk Zone: FZ 3A=84% of site; FZ 2=16% of site	
Proposed uses subject of Exception Test: Housing (estimated 105 units)	
A: Does the development provide wider sustainability benefits to the community that outweigh flood risk?	
Yes	<p>Explain how:</p> <p>Policy compliance: Vacant brownfield site that lies within a Regeneration Programme Priority Area identified under Core Strategy Spatial Policy 4 which gives priority to development that improves housing quality, affordability and choice.</p> <p>The site is located at the edge of the defined City Centre boundary and fully accords with the housing locational criteria (other than flood risk) set out in Core Strategy Policy 6 (see Table D6 of Appendix D for details) subject to suitable mitigation relating to the impact on biodiversity.</p> <p>Support for regeneration initiatives: The site is located within a wider area of redevelopment and regeneration in the South Bank. There has been recent construction of schools and other educational facilities on nearby sites to the north and its development of the site for housing would help to reinforce the wider regeneration of the area.</p> <p>Sustainability appraisal site assessment: Generally positive scores for housing provision, reusing brownfield land and buildings, and three significant positive scores for the sustainable location and access to the highway network, facilities and services. Significant negative impact on biodiversity which will require mitigation.</p>
B: Has a FRA demonstrated that the development will be safe for its lifetime, without increasing flood risk elsewhere, and, where possible, reduce flood risk overall?	
This site is located within Flood Zones 2 and 3A and it flooded during the 2015	

Boxing Day flood, which is estimated to have a return period in excess of 1 in 200 years. The apartment block located immediately North of this site was protected from flooding, during the same event, by a flood barrier across its entrance.

The following points are material when considering the risks associated with flooding at this site:

- The site will be defended by the Leeds FAS.
- Any flooding is likely to be of short duration, (less than 24 hours), hence it is likely that people could remain inside buildings at first floor level, if they are unable to evacuate the site.
- The depth and velocity of flooding at the site during extreme events (> 1 in 100yrs return period) is unlikely to present a risk of structural damage to buildings, subject to buildings being set back from the edge of the river.

The measures, described below, explain how the residual flood risk will be mitigated, for exceedance events, in order to make the site safe for its users.

- Open space should be located adjacent to the river and buildings should be set back at least 8m.
- Buildings, with living accommodation at first floor level and above, with car parking at ground level, would be preferable. Bungalows are not acceptable.
- Openings should be incorporated within the building structure, to allow water to pass through the site.
- The EA have a flood warning service which covers this area. In the event of flooding it will be possible to provide at least 2 hours advance warning, probably much longer for extreme events.
- Occupants of the site will be encouraged to sign up to the EA's Flood Warning Service. This will provide sufficient advance warning to enable the site to be evacuated, if necessary, for very extreme events. Higher ground can be found on South Accommodation Road, approximately 250m from the centre of the site.
- Flood resilient construction should be utilised, where appropriate. For example, concrete ground floors should be used in preference to timber. Electrical sockets, fuse boxes, control equipment and wiring should be located at least 1.5 metres above floor level. Electrical cables should come down the wall to raised sockets rather than be located below ground level.
- Floor levels should be raised above the 100 year flood level as per LCC's Minimum Development Control Standards, which have been updated to reflect the Government's climate change allowances introduced in February 2016 and which can be found as the appendix to the adopted Natural Resources and Waste Local Plan (note: raising levels within FZ3 is usually acceptable, where the site is 'defended').
- There is also a risk of flooding from other sources, such as sewers, water mains and surface water run-off. This needs to be considered during detail design. It is expected that flood risk from these sources will be reduced by setting finished floor levels above adjacent ground levels.
- In terms of drainage, the site is classified as 'brown-field'. Any redevelopment would have to comply with current SuDS policy which requires run-off from brownfield sites to revert back to greenfield rates. This will help to reduce flood

<p>risk elsewhere.</p> <ul style="list-style-type: none"> • Compensatory flood plain storage may be required.
<p>Conclusion</p> <p>Subject to a FRA being submitted alongside detailed development proposals and demonstrating that the development will be safe and will not increase flood risk elsewhere, the proposed housing use on site AV14 is considered to have passed the Exception Test.</p>

Exception Test for Site AV17 - Braime Pressings, Hunslet Road	
Flood Risk Zone: FZ 3A=89% of site; FZ 2=11% of site	
Proposed uses subject of Exception Test: Housing (estimated 121 units)	
A: Does the development provide wider sustainability benefits to the community that outweigh flood risk?	
Yes	<p>Explain how:</p> <p>Policy compliance: Brownfield site that lies within a Regeneration Programme Priority Area identified under Core Strategy Spatial Policy 4 which gives priority to development that improves housing quality, affordability and choice.</p> <p>The site is located at the edge of the defined City Centre boundary and fully accords with the housing locational criteria (other than flood risk) set out in Core Strategy Policy 6 (see Table D6 of Appendix D for details) subject to suitable mitigation relating to the impact on biodiversity.</p> <p>Support for regeneration initiatives: The site is located within a wider area of redevelopment and regeneration in the South Bank. There has been recent construction of schools and other educational facilities within the site and neighbouring sites and development of the site for housing would help to reinforce the wider regeneration of the area.</p> <p>Sustainability appraisal site assessment: Generally positive scores for housing provision, reusing brown field land and buildings, and four significant positive scores for the sustainable location and access to the highway network, facilities and services.</p>
B: Has a FRA demonstrated that the development will be safe for its lifetime, without increasing flood risk elsewhere, and, where possible, reduce flood risk overall?	
<p>This site is located within Flood Zone 2 and 3A, but it didn't flood during the 2015 Boxing Day event, which had a return period in excess of 1 in 100 years.</p> <p>The following points are material when considering the risks associated with flooding at this site:</p> <ul style="list-style-type: none"> • The site will be defended by the Leeds FAS. • Any flooding is likely to be of short duration, (less than 24 hours), hence it is likely that people could remain inside buildings at first floor level, if they are unable to evacuate the site. • The depth and velocity of flooding at the site during extreme events (> 1 in 100yrs return period) is unlikely to present a risk of structural damage to buildings. 	

The measures, described below, explain how the residual flood risk will be mitigated, for exceedance events, in order to make the site safe for its users.

- The EA have a flood warning service which covers this area. In the event of flooding it will be possible to provide at least 2 hours advance warning, probably much longer for extreme events.
- Occupants of the site will be encouraged to sign up to the EA's Flood Warning Service. This will provide sufficient advance warning to enable the site to be evacuated, if necessary, for very extreme events. Higher ground can be found on Leathley Road, approximately 300m from the centre of the site.
- Flood resilient construction should be utilised, where appropriate. For example, concrete ground floors should be used in preference to timber. Electrical sockets, fuse boxes, control equipment and wiring should be located at least 1.5 metres above floor level. Electrical cables should come down the wall to raised sockets rather than be located below ground level.
- Floor levels should be raised above the 100 year flood level as per LCC's Minimum Development Control Standards, which have been updated to reflect the Government's climate change allowances introduced in February 2016 and which can be found as the appendix to the adopted Natural Resources and Waste Local Plan (note: raising levels within FZ3 is usually acceptable, where the site is 'defended').
- There is also a risk of flooding from other sources, such as sewers, water mains and surface water run-off. This needs to be considered during detail design, but it is expected that flood risk from these sources will be reduced by setting finished floor levels above adjacent ground levels.

In terms of drainage, the site is classified as 'brown-field'. Any redevelopment would have to comply with current SuDS policy which requires run-off from brownfield sites to revert back to greenfield rates. This will help to reduce flood risk elsewhere.

Conclusion

Subject to an FRA being submitted alongside detailed development proposals and demonstrating that the development will be safe and will not increase flood risk elsewhere, the proposed housing use on Site AV17 is considered to have passed the Exception Test.

Exception Test for Site AV26 – The Gateway

Flood Risk Zone: FZ 3A (100% of site)

Proposed uses subject of Exception Test: Housing (110 units, 96 units not started)

The site has an implemented planning permission for housing which represents the unbuilt final phase of the Gateway development. The permitted scheme can be built without further reference to the exception test. Should a new scheme be submitted the results and recommendations of the exception test below will apply.

A: Does the development provide wider sustainability benefits to the community that outweigh flood risk?	
Yes	<p>Explain how:</p> <p>Policy compliance: Vacant, brownfield site that lies within a Regeneration Programme Priority Area identified under Core Strategy Spatial Policy 4 which gives priority to development that improves housing quality, affordability and choice.</p> <p>The site is located within the defined City Centre boundary and fully accords with the housing locational criteria (other than flood risk) set out in Core Strategy Policy 6 (see Table D6 of Appendix D for details).</p> <p>Support for regeneration initiatives: The site is located within a wider area of redevelopment and regeneration in the East Bank area. The earlier phases of The Gateway scheme have been completed and are occupied. Other housing development has been completed and is under construction on other neighbouring sites. Development of this site for housing would help to reinforce the wider regeneration of the area.</p> <p>Sustainability appraisal site assessment: Existing planning permission demonstrates the sustainability of the site.</p>
B: Has an FRA demonstrated that the development will be safe, without increasing flood risk elsewhere, and where possible, reduce flood risk overall?	
<ul style="list-style-type: none"> • This site is located within Flood Zone 3A. The basement car parks within the other parts of the Gateway development flooded during the 2015 Boxing Day event. • The following points are material when considering the risks associated with flooding at this site: • The site will be defended by the Leeds FAS. • Any flooding is likely to be of short duration, (less than 24 hours), hence it is likely that people could remain inside buildings at first floor level, if they are unable to evacuate the site. • The depth and velocity of flooding at the site during extreme events (> 1 in 100yrs return period) is unlikely to present a risk of structural damage to buildings. • The measures, described below, explain how the residual flood risk will be mitigated, for exceedance events, in order to make the site safe for its users. • The EA have a flood warning service which covers this area. In the event of flooding it will be possible to provide at least 2 hours advance warning, probably much longer for extreme events. • Occupants of the site will be encouraged to sign up to the EA's Flood Warning Service. This will provide sufficient advance warning to enable the site to be evacuated, if necessary, for very extreme events. • Flood resilient construction should be utilised, where appropriate. For example, concrete ground floors should be used in preference to timber. Electrical sockets, fuse boxes, control equipment and wiring should be located at least 1.5 metres above floor level. Electrical cables should come down the wall to raised sockets rather than be located below ground level. • Plant rooms located within the basement should be avoided, if practicable. 	

- Floor levels should be raised above the 100 year flood level as per LCC's Minimum Development Control Standards, which have been updated to reflect the Government's climate change allowances introduced in February 2016 and which can be found as the appendix to the adopted Natural Resources and Waste Local Plan. The entrance to any underground car park should also be above the 100 year flood level (note: raising levels within FZ3 is usually acceptable, where the site is 'defended').
- There is also a risk of flooding from other sources, such as sewers, water mains and surface water run-off. This needs to be considered during detail design, but it is expected that flood risk from these sources will be reduced by setting finished floor levels above adjacent ground levels.
- In terms of drainage, the site is classified as 'brown-field'. Any redevelopment would have to comply with current SuDS policy which requires run-off from brownfield sites to revert back to greenfield rates. This will help to reduce flood risk elsewhere.

Exception Test for Site AV32 – Rose Wharf Car Park, East Street

Flood Risk Zone: FZ 3A=11% of site; FZ 2=8% of site

Proposed uses subject of Exception Test: Housing (estimated 27 units)

A: Does the development provide wider sustainability benefits to the community that outweigh flood risk?

Yes	<p>Explain how:</p> <p>Policy compliance: Brownfield site that lies within a Regeneration Programme Priority Area identified under Core Strategy Spatial Policy 4 which gives priority to development that improves housing quality, affordability and choice.</p> <p>The site is located within the defined City Centre boundary and fully accords with the housing locational criteria (other than flood risk) set out in Core Strategy Policy 6 (see Table D6 of Appendix D for details).</p> <p>Support for regeneration initiatives: The site is located within a wider area of redevelopment and regeneration in the East Bank area. Planning permission has been granted on the adjoining site (Low Fold – AV33) and site preparation is underway. Development of this site for housing would help to reinforce the wider regeneration of the area.</p> <p>Sustainability appraisal site assessment: Generally positive scores for housing provision, reusing brown field land and buildings, and two significant positive scores for the sustainable location and access to the highway network, facilities and services.</p>
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B: Has an FRA demonstrated that the development will be safe, without increasing flood risk elsewhere, and where possible, reduce flood risk overall?

- The majority of the site is located within FZ1, but it's likely that there will be some built development within FZs 2 and 3.
- We don't believe that this site flooded on Boxing Day 2015
- The following points are material when considering the risks associated with flooding at this site:

- The site will be defended by the Leeds FAS.
- Any flooding is likely to be of short duration, (less than 24 hours), hence it is likely that people could remain inside buildings at first floor level, if they are unable to evacuate the site.
- The depth and velocity of flooding at the site during extreme events (> 1 in 100yrs return period) is unlikely to present a risk of structural damage to buildings, subject to buildings being set back from the edge of the river.

The measures described below, explain how the residual flood risk will be mitigated, for exceedance events, in order to make the site safe for its users.

- Open space should be located adjacent to the river and buildings should be set back at least 8m.
- Buildings, with living accommodation at first floor level and above, with car parking at ground level, would be preferable. Bungalows are not acceptable.
- Openings should be incorporated within the building structure, to allow water to pass through the site.
- The EA have a flood warning service which covers this area. In the event of flooding it will be possible to provide at least 2 hours advance warning, probably much longer for extreme events.
- Occupants of the site will be encouraged to sign up to the EA's Flood Warning Service. This will provide sufficient advance warning to enable the site to be evacuated, if necessary, for very extreme events.
- Flood resilient construction should be utilised, where appropriate. For example, concrete ground floors should be used in preference to timber. Electrical sockets, fuse boxes, control equipment and wiring should be located at least 1.5 metres above floor level. Electrical cables should come down the wall to raised sockets rather than be located below ground level.
- Floor levels should be raised above the 100 year flood level as per LCC's Minimum Development Control Standards, which have been updated to reflect the Government's climate change allowances introduced in February 2016 and which can be found as the appendix to the adopted Natural Resources and Waste Local Plan (note: raising levels within FZ3 is usually acceptable, where the site is 'defended').
- There is also a risk of flooding from other sources, such as sewers, water mains and surface water run-off. This needs to be considered during detail design. It is expected that flood risk from these sources will be reduced by setting finished floor levels above adjacent ground levels.
- In terms of drainage, the site is classified as 'brown-field'. Any redevelopment would have to comply with current SuDS policy which requires run-off from brownfield sites to revert back to greenfield rates. This will help to reduce flood risk elsewhere.

Exception Test for Site AV41 – Hunslet Mills

Flood Risk Zone: FZ 3A=98% of site; FZ 2=2% of site

The site has an implemented planning permission for housing as a technical start was made to an earlier planning permission. The permitted scheme can be built without further reference to the exception test. Should a new scheme be

submitted the results and recommendations of the exception test below will apply. This test also applies to other uses permitted by AVLAAP Policy HU2 which were not part of the existing approved scheme.

Proposed uses subject of Exception Test: Housing (estimated 699 units), hotel (Class C2), education uses (Class D1) & pubs and bars (Class A4)

A: Does the development provide wider sustainability benefits to the community that outweigh flood risk?

Yes **Explain how:**

Policy compliance: Vacant brownfield site that lies within a Regeneration Programme Priority Area identified under Core Strategy Spatial Policy 4 which gives priority to development that improves housing quality, affordability and choice.

The site fully accords with the housing locational criteria (other than flood risk) set out in Core Strategy Policy 6 (see Table D6 of Appendix D for details).

Support for regeneration initiatives: The site is located within a wider area of redevelopment and regeneration in the Hunslet Riverside area. A housing development has recently been completed on the neighbouring Yarn Street site. The site and grade II* and grade II buildings are currently derelict but they are important landmark buildings whose restoration and beneficial reuse can provide a catalyst to the regeneration of the wider area. The listed building appears on the Buildings at Risk Register. Development of this site for housing and/or the other more vulnerable uses listed under AVLAAP Policy HU2 would help to reinforce the wider regeneration of the area.

Sustainability appraisal site assessment: Generally positive scores for housing provision, reusing brown field land and buildings, and two significant positive scores for the sustainable location and access to the highway network, facilities and services.

B: Has an FRA demonstrated that the development will be safe, without increasing flood risk elsewhere, and where possible, reduce flood risk overall?

This site is located within Flood Zone 3A and is known to have experienced some degree of flooding during the 2015 Boxing Day flood.

The following points are material when considering the risks associated with flooding at this site:

- The site will be defended by the Leeds FAS.
- Any flooding is likely to be of short duration, (less than 24 hours), hence it is likely that people could remain inside buildings at first floor level, if they are unable to evacuate the site.
- The depth and velocity of flooding at the site during extreme events (> 1 in 100yrs return period) is unlikely to present a risk of structural damage to new buildings, subject to them being set back from the edge of the river.

The measures, described below, explain how the residual flood risk will be mitigated, for exceedance events, in order to make the site safe for its users.

- Open space should be located adjacent to the river and new buildings

should be set back at least 8m.

- Buildings, with living accommodation at first floor level and above, with car parking at ground level, would be preferable. Bungalows are not acceptable.
- Openings should be incorporated within the building structure, to allow water to pass through the site.
- The EA have a flood warning service which covers this area. In the event of flooding it will be possible to provide at least 2 hours advance warning, probably much longer for extreme events.
- Occupants of the site will be encouraged to sign up to the EA's Flood Warning Service. This will provide sufficient advance warning to enable the site to be evacuated, if necessary, for very extreme events. Higher ground can be found on South Accommodation Road, approximately 250m from the centre of the site.
- Flood resilient construction should be utilised, where appropriate. For example, concrete ground floors should be used in preference to timber. Electrical sockets, fuse boxes, control equipment and wiring should be located at least 1.5 metres above floor level. Electrical cables should come down the wall to raised sockets rather than be located below ground level.
- Floor levels should be raised above the 100 year flood level as per LCC's Minimum Development Control Standards , which have been updated to reflect the Government's climate change allowances introduced in February 2016 and which can be found as the appendix to the adopted Natural Resources and Waste Local Plan (note: raising levels within FZ3 is usually acceptable, where the site is 'defended').
- There is also a risk of flooding from other sources, such as sewers, water mains and surface water run-off. This needs to be considered during detail design. It is expected that flood risk from these sources will be reduced by setting finished floor levels above adjacent ground levels.
- In terms of drainage, the site is classified as 'brown-field'. Any redevelopment would have to comply with current SuDS policy which requires run-off from brownfield sites to revert back to greenfield rates. This will help to reduce flood risk elsewhere.
- Compensatory flood plain storage may be required.

Conclusion

Subject to an FRA being submitted alongside detailed development proposals and demonstrating that the development will be safe and will not increase flood risk elsewhere, the proposed housing and other more vulnerable uses outlined in AVLAAP Policy HU2 on Site AV41 is considered to have passed the Exception Test.

Exception Test for Site AV46 - Tetleys Motors, Goodman Street	
Flood Risk Zone: FZ 3A: (100% of site)	
Proposed uses subject of Exception Test: Housing (estimated 36 units)	
A: Does the development provide wider sustainability benefits to the community that outweigh flood risk?	
Yes	<p>Explain how:</p> <p>Policy compliance: Brownfield site that lies within a Regeneration Programme Priority Area identified under Core Strategy Spatial Policy 4 which gives priority to development that improves housing quality, affordability and choice.</p> <p>The site fully accords with the housing locational criteria (other than flood risk) set out in Core Strategy Policy 6 (see Table D6 of Appendix D for details).</p> <p>Support for regeneration initiatives: The site is located within a wider area of redevelopment and regeneration in the Hunslet Riverside area. A housing development has recently been completed on the neighbouring Yarn Street site. Development of this site for housing would help to reinforce the wider regeneration of the area.</p> <p>Sustainability appraisal site assessment: Generally positive scores for housing provision, reusing brown field land and buildings, and one significant positive score for the sustainable location.</p>
B: Has a FRA demonstrated that the development will be safe for its lifetime, without increasing flood risk elsewhere, and, where possible, reduce flood risk overall?	
<p>This site is located within Flood Zone 3A and is known to have experienced some degree of flooding during the 2015 Boxing Day flood.</p> <p>The following points are material when considering the risks associated with flooding at this site:</p> <ul style="list-style-type: none"> • The site will be defended by the Leeds FAS. • Any flooding is likely to be of short duration, (less than 24 hours), hence it is likely that people could remain inside buildings at first floor level, if they are unable to evacuate the site. • The depth and velocity of flooding at the site during extreme events (> 1 in 100yrs return period) is unlikely to present a risk of structural damage to buildings. <p>The measures, described below, explain how the residual flood risk will be mitigated, for exceedance events, in order to make the site safe for its users.</p> <ul style="list-style-type: none"> • Buildings, with living accommodation at first floor level and above, with car parking at ground level, would be preferable. Bungalows are not acceptable. • Openings should be incorporated within the building structure, to allow water to pass through the site. • The EA have a flood warning service which covers this area. In the event of flooding it will be possible to provide at least 2 hours advance warning, probably much longer for extreme events. • Occupants of the site will be encouraged to sign up to the EA's Flood Warning Service. This will provide sufficient advance warning to enable the 	

site to be evacuated, if necessary, for very extreme events. Higher ground can be found on Foster Street, approximately 150m from the centre of the site.

- Flood resilient construction should be utilised, where appropriate. For example, concrete ground floors should be used in preference to timber. Electrical sockets, fuse boxes, control equipment and wiring should be located at least 1.5 metres above floor level. Electrical cables should come down the wall to raised sockets rather than be located below ground level.
- Floor levels should be raised above the 100 year flood level as per LCC's Minimum Development Control Standards, which have been updated to reflect the Government's climate change allowances introduced in February 2016 and which can be found as the appendix to the adopted Natural Resources and Waste Local Plan (note: raising levels within FZ3 is usually acceptable, where the site is 'defended').
- There is also a risk of flooding from other sources, such as sewers, water mains and surface water run-off. This needs to be considered during detail design. It is expected that flood risk from these sources will be reduced by setting finished floor levels above adjacent ground levels.
- In terms of drainage, the site is classified as 'brown-field'. Any redevelopment would have to comply with current SuDS policy which requires run-off from brownfield sites to revert back to greenfield rates. This will help to reduce flood risk elsewhere.

Compensatory flood plain storage may be required.

Conclusion

Subject to a FRA being submitted alongside detailed development proposals and demonstrating that the development will be safe and will not increase flood risk elsewhere, the proposed housing use on Site AV46 is considered to have passed the Exception Test.

EXCEPTION TEST FOR SITE AV94: SOUTH BANK PLANNING STATEMENT AREA

Flood Risk Zone: FZ 3A=22% of site; FZ 2=70% of site

Site AV94 is a broad location of development where the land is in different ownerships and there is uncertainty over the availability of some of the area due to the HS2 station proposals. Although the land falls within Flood Zone 2 because less than 25% of the area is within Flood Zone 3A, the practicality of developing the available parts of the site may require some development within Zone 3 even where a sequential approach to location of uses within the site is applied. The exception test, which applies to the land in Flood Zone 3A that lies within this allocation, has been undertaken on this basis.

Proposed uses subject of Exception Test: Housing (estimated 1,635 units)	
A: Does the development provide wider sustainability benefits to the community that outweigh flood risk?	
Yes	<p>Explain how:</p> <p>Policy compliance: Brownfield site that lies within a Regeneration Programme Priority Area identified under Core Strategy Spatial Policy 4 which gives priority to development that improves housing quality, affordability and choice.</p> <p>The site is located within the defined City Centre boundary and fully accords with the housing locational criteria (other than flood risk) set out in Core Strategy Policy 6 (see Table D6 of Appendix D for details).</p> <p>Support for regeneration initiatives: The site is part of a wider regeneration proposal in the South Bank which are linked to the delivery of a city park, a HS2 station (confirmed in November 2016), and a growing education hub. A masterplan is being prepared to support the development of the wider South Bank, with this area central to the emerging strategy. Development of this site for housing would help to reinforce the wider regeneration of the area.</p> <p>Sustainability appraisal site assessment: Generally positive scores for housing provision, reusing brown field land and buildings, and four significant positive scores for the sustainable location and access to the highway network, facilities and services.</p>
B: Has a FRA demonstrated that the development will be safe for its lifetime, without increasing flood risk elsewhere, and, where possible, reduce flood risk overall?	
<p>This site is located within Flood Zones 2 and 3A. Approximately 50% of the site is known to have flooded during the 2015 Boxing Day flood.</p> <p>The following points are material when considering the risks associated with flooding at this site:</p> <ul style="list-style-type: none"> • The site will be defended by the Leeds FAS. • Any flooding is likely to be of short duration, (less than 24 hours), hence it is likely that people could remain inside buildings at first floor level, if they are unable to evacuate the site. • The depth and velocity of flooding at the site during extreme events (> 1 in 100yrs return period) is unlikely to present a risk of structural damage to buildings. <p>The measures, described below, explain how the residual flood risk will be mitigated, for exceedance events, in order to make the site safe for its users.</p> <ul style="list-style-type: none"> • Open space should be located adjacent to the river and buildings should be set back at least 8m. • This is a very large site and some parts are at significantly greater flood risk than others. Buildings, such as flats – at first floor level and above, with car parking at ground level would be preferable to dwelling houses within the high risk parts of the site. Bungalows are not acceptable. 	

- Openings should be incorporated within the building structure, to allow water to pass through the site.
- The EA have a flood warning service which covers this area. In the event of flooding it will be possible to provide at least 2 hours advance warning, probably much longer for extreme events.
- Occupants of the site will be encouraged to sign up to the EA's Flood Warning Service. This will provide sufficient advance warning to enable the site to be evacuated, if necessary, for very extreme events. Higher ground can be found on Foster Street, approximately 150m from the centre of the site.
- Flood resilient construction should be utilised, where appropriate. For example, concrete ground floors should be used in preference to timber. Electrical sockets, fuse boxes, control equipment and wiring should be located at least 1.5 metres above floor level. Electrical cables should come down the wall to raised sockets rather than be located below ground level.
- Floor levels should be raised above the 100 year flood level as per LCC's Minimum Development Control Standards, which have been updated to reflect the Government's climate change allowances introduced in February 2016 and which can be found as the appendix to the adopted Natural Resources and Waste Local Plan (note: raising levels within FZ3 is usually acceptable, where the site is 'defended').
- There is also a risk of flooding from other sources, such as sewers, water mains and surface water run-off. This needs to be considered during detail design. It is expected that flood risk from these sources will be reduced by setting finished floor levels above adjacent ground levels.
- In terms of drainage, the site is classified as 'brown-field'. Any redevelopment would have to comply with current SuDS policy which requires run-off from brownfield sites to revert back to greenfield rates. This will help to reduce flood risk elsewhere.
- Compensatory flood plain storage may be required.

Conclusion

Subject to a FRA being submitted alongside detailed development proposals and demonstrating that the development will be safe and will not increase flood risk elsewhere, the proposed housing use on Site AV94 is considered to have passed the Exception Test.

5.3 Wider considerations related to flood risk and safety

- 5.3.1 A site specific flood risk assessment is required as part of a planning application commensurate with the scale and nature of the development. It will have to 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. This could take the form of a sequential approach to layout of the site to ensure that the parts that flood to the deepest depths with the quickest inundation rates are avoided, or set aside for less vulnerable uses, such as open space.

- 5.3.2 Leeds City Council works with partners to ensure that in major flood situations, the Council can provide an effective response during and after flood events, in order to care for those affected. These arrangements are made in partnership with other response organisations such as the emergency services, Environment Agency and health organisations.
- 5.3.3 To support these arrangements, multi-agency plans are prepared by Leeds City Council and are in place, at a community and strategic level. The emergency plans describe the flood risk profile for different parts of the city, and set out the response activities which will be co-ordinated by each organisation. Leeds City Council continues to work with partners to ensure that flood risk and the impacts of flooding are properly understood and planned for. This work includes coordination of the Strategic Leeds Flood Risk Forum to identify potential problem areas and take action to rectify them or reduce the risk.
- 5.3.4 Softer measures are also taken to raise awareness and thereby reduce flood risk, for example, flood risk awareness and response campaigns informed by the Environment Agency's Local Flood Warning Plan. Developments in high flood risk areas will be included in generic emergency response plans, including the multi-agency flood plan and community emergency plans.

6. SURFACE WATER AND OTHER SOURCES OF FLOODING

- 6.1 Surface water flooding occurs when the rainfall intensity exceeds the ability of the ground to absorb the water and when the drainage system is at full capacity. It commonly occurs during high intensity, short duration, rainfall. The resulting flooding is more often localised in nature, rather than wide scale flooding usually associated with river (fluvial) flooding.
- 6.2 The Council maintains an up-to-date record of incidents of flooding that are non-fluvial, such as flash floods from high rainfall incidents and infrastructure breakdown. The SFRA 2007 includes a map of localised flood problems (Fig B – Local Flood Incident Overview).
- 6.3 The Environment Agency has undertaken modelling of surface water flood risk at a national scale and produced mapping identifying those areas at risk of surface water flooding during three annual probability events: 3.3% AEP (1 in 30 chance of flooding in any one year), 1% AEP and 0.1% AEP. The latest version of the mapping is available on the Environment Agency's website, and is referred to as '**Risk of Flooding from Surface Water**'. The data for the AVL area is shown on Map 2 (Appendix G).
- 6.4 This information was utilised as part of the individual site assessments for all of the sites being proposed for allocation in the Aire Valley Leeds Area Action Plan. The Council's Flood Risk Management Service have reviewed all the proposed sites in Aire Valley Leeds and confirmed that none are at significant risk of surface water flooding. This does not mean there is no risk, and as such it would be expected that finished floor levels are raised up above adjacent ground level by an appropriate amount in order to mitigate the risk. The amount by which the floor levels should be raised is expected to be between 150mm and 300mm, and the actual amount will be determined as part of the FRA for each site, as this will depend upon the proposed site layout. An allowance should also be made for climate change in accordance with the Government's latest advice produced in February 2016.
- 6.5 All sites within the Plan are required to comply with Policy WATER 7 of the Council's adopted Natural Resources and Waste Local Plan regarding the need to reduce the rate of surface run-off from the site, post-development.

APPENDICES

APPENDIX A: FLOOD ZONE AND FLOOD RISK TABLES REFERRED TO IN NPPG SEQUENTIAL TEST FLOW CHART

Extract from National Planning Policy Guidance

Table 1: Flood Zones

These Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences. They are shown on the Environment Agency's Flood Map for Planning (Rivers and Sea), available on the Environment Agency's web site, as indicated in the table below.

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' on the EA's Flood Map – all land outside Zones 2 and 3)
Zone 2 Medium Probability	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or Land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. (Land shown in light blue on the EA's Flood Map)
Zone 3a High Probability	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	This zone comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the EA's Flood Map)

Note: The Flood Zones shown on the Environment Agency's Flood Map for Planning (Rivers and Sea) do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding. Reference should therefore be made to the Government's latest allowances for climate change produced in February 2016.

Table 2: Flood Risk Vulnerability Classification

<p>Essential Infrastructure</p> <ul style="list-style-type: none">• Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk.• Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood.• Wind turbines.
<p>Highly Vulnerable</p> <ul style="list-style-type: none">• Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding.• Emergency dispersal points.• Basement dwellings.• Caravans, mobile homes and park homes intended for permanent residential use.• Installations requiring <u>hazardous substances consent</u>. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure').
<p>More Vulnerable</p> <ul style="list-style-type: none">• Hospitals• Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels.• Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels.• Non-residential uses for health services, nurseries and educational establishments.• Landfill* and sites used for waste management facilities for hazardous waste.• Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.
<p>Less Vulnerable</p> <ul style="list-style-type: none">• Police, ambulance and fire stations which are not required to be operational during flooding.• Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'More Vulnerable' class; and assembly and leisure.• Land and buildings used for agriculture and forestry.• Waste treatment (except landfill* and hazardous waste facilities).• Minerals working and processing (except for sand and gravel working).• Water treatment works which do not need to remain operational during times of flood.• Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place.

Water-Compatible Development

- Flood control infrastructure.
- Water transmission infrastructure and pumping stations.
- Sewage transmission infrastructure and pumping stations.
- Sand and gravel working.
- Docks, marinas and wharves.
- Navigation facilities.
- Ministry of Defence defence installations.
- Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location.
- Water-based recreation (excluding sleeping accommodation).
- Lifeguard and coastguard stations.
- Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.
- Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

* Landfill is as defined in Schedule 10 to the Environmental Permitting (England and Wales) Regulations 2010.

Table 3: Flood risk vulnerability and flood zone ‘compatibility’

<u>Flood Zones</u>	<u>Flood Risk Vulnerability Classification</u>				
	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 to table 3:

- 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.

APPENDIX B: FLOOD RISK ZONE DEFINITIONS

The spatial variation in flood risk across the district has been delineated in the following manner:

Zone 3b (Functional Floodplain)

Zone 3b Functional Floodplain is land:

- where water flows or has to be stored in times of flood;
- that is subject to flooding with a 1 in 20 year (5%) probability (or more frequently); and
- that is reserved by Leeds City Council for this purpose

Where the council has identified that undeveloped land already has an existing planning permission or a brownfield allocation that has been protected through the 'Saved Policies' review of the Leeds Unitary Development Plan, then a decision has been made not to include it in the functional floodplain. The functional floodplain therefore primarily consists of the broad open spaces adjoining the waterway corridors of the River Wharfe and River Aire. It is essential that these floodplain areas are protected from future development.

Zone 3a High Probability

Areas subject to flooding up to (and including) a 1 in 100 year (1%) annual probability of flooding have been identified. Within Leeds there is a considerable variation in the depth, duration and frequency (and hence the consequence) of flooding to properties situated within Zone 3a. All sites that are proposed for allocation in zone 3a need to have passed the sequential and exception tests. The exception test includes mitigation measures that are required to make the development safe and ensure that it does not contribute to flooding elsewhere; however a detailed FRA is still required to accompany applications for development on these sites.

Zone 2 Medium Probability

Areas subject to flooding events exceeding the 1% (100 year) event, and up to (and including) the 0.1% (1,000 year) event (i.e. Zone 2 Medium Probability) have been identified. Future development may only be considered within Zone 2 Medium Probability if it can be demonstrated that there are no suitable sites available within Zone 1 Low Probability.

Zone 1 Low Probability

The NPPF does not constrain the type of development taken forward within Zone 1 Low Probability (i.e. all remaining areas of the District), defined as having less than 0.1% (1 in 1,000 year) annual probability of flooding. It is important to remember however that development within these areas, if not carefully managed, may exacerbate existing flooding and/or drainage problems downhill. It is necessary therefore to ensure that developers carry out a Flood Risk Assessment which concentrates on surface water. This should demonstrate that the proposed drainage system design will mitigate any possible increase in runoff that may occur from the site as a result of the proposed development.

APPENDIX C: SCHEDULES OF PROPOSED AND ALTERNATIVE SITES IN AIRE VALLEY LEEDS AAP BY FLOOD RISK ZONE

C1. All flood risk zones applying to the site are identified with the percentage stated where the site is within more than one zone. The flood risk zone used for the sequential test will be the highest flood risk zone required to develop the site to its maximum realistic potential, but excludes smaller areas of land (less than 10% of the total site area for site up to 2 ha. and less than 25% for site greater than 2 ha.) as it is assumed that these can be incorporated into undeveloped parts of a scheme such as landscaped areas, green infrastructure etc.

Proposed sites in the Aire Valley Leeds AAP

Table C1: Proposed development sites in Aire Valley Leeds (Flood Zone 1 sites)				
Site Ref	Site Name	Flood Risk Zones (EA maps) ⁴	Proposed use (specific uses in policy)	Highest Flood Vulnerability Classification Proposed
AV18	Marsh Lane		Mixed use (housing, offices)	More vulnerable
AV19	Marsh Lane / Saxton Lane		Housing	More vulnerable
AV20	Yorkshire Ambulance Station, Saxton Lane / Flax Place		Housing	More vulnerable
AV21	The Parade & The Drive		Housing (identified planning permission)	More vulnerable
AV22	Former Richmond Inn, Upper Accommodation Road		Housing	More vulnerable
AV23	Former Richmond Court & Butterfield Manor, Walter Crescent		Housing	More vulnerable
AV24	Presbytery, St Marys Church		Housing (identified planning permission)	More vulnerable
AV28	Bow Street / East Street		Housing	More vulnerable
AV29	Bow Street / Ellerby Road		Housing	More vulnerable

⁴ The Environment Agency Flood Maps show Zones 2 and 3 only. Land not falling within Zone 2 or 3 is classified as Zone 1.

Table C1: Proposed development sites in Aire Valley Leeds (Flood Zone 1 sites)

Site Ref	Site Name	Flood Risk Zones (EA maps)⁴	Proposed use (specific uses in policy)	Highest Flood Vulnerability Classification Proposed
AV30	Ellerby Lane		Housing (identified planning permission)	More vulnerable
AV31	Cross Green Lane / Echo Phase 3		Mixed use (offices - identified planning permission)	Less vulnerable
AV35	Cross Green Grove		Housing (identified planning permission)	More vulnerable
AV36	St Hilda Church, Knowsthorpe Crescent		Housing (identified planning permission)	More vulnerable
AV38	Copperfields		Housing (school, retail)	More vulnerable
AV39	East Street Mills		Housing (identified planning permission)	More vulnerable
AV42	Riverside Place, Bridgewater Road		General employment (identified planning permission)	Less vulnerable
AV50	Snake Lane		General employment	Less vulnerable
AV51	Knowsthorpe Way		General employment	Less vulnerable
AV52	Newmarket Lane		General employment (identified UDP)	Less vulnerable
AV54	Belfry Road / Cross Green Approach		General employment	Less vulnerable
AV55	Pontefract Lane / Newmarket Lane		General employment (identified UDP)	Less vulnerable
AV56	Knowsthorpe Road		General employment (identified UDP)	Less vulnerable
AV57	Plot 2A, Thornes Farm Business Park		General employment (identified planning permission)	Less vulnerable
AV58	Plots 2B, Thornes Farm Business Park		General employment (identified planning permission)	Less vulnerable

Table C1: Proposed development sites in Aire Valley Leeds (Flood Zone 1 sites)

Site Ref	Site Name	Flood Risk Zones (EA maps) ⁴	Proposed use (specific uses in policy)	Highest Flood Vulnerability Classification Proposed
AV59	Plot 5, Thornes Farm Business Park		General employment (identified planning permission)	Less vulnerable
AV60	Plot 6, Thornes Farm Business Park		General employment (identified planning permission)	Less vulnerable
AV61	North site, Thornes Farm Way		General employment (identified planning permission)	Less vulnerable
AV62	Land east of Thornes Farm Way (south site), Thornes Farm		General employment (identified UDP)	Less vulnerable
AV65	Pontefract Road / Newmarket Approach		General employment (identified planning permission)	Less vulnerable
AV66	Former Pittards site, Knowsthorpe Gate		General employment (identified planning permission)	Less vulnerable
AV69	Symingtons Plot, Far Lane, Thornes Farm Business Park		General employment (identified planning permission)	Less vulnerable
AV70	2 Pontefract Lane		General employment (identified planning permission)	Less vulnerable
AV71	Thwaite Gate / Sussex Avenue		General employment (identified planning permission)	Less vulnerable
AV75	Pontefract Road, North of M1 J44		General employment (identified planning permission)	Less vulnerable
AV79	Land north of Valley Farm Road		General employment (identified UDP)	Less vulnerable

Table C1: Proposed development sites in Aire Valley Leeds (Flood Zone 1 sites)

Site Ref	Site Name	Flood Risk Zones (EA maps) ⁴	Proposed use (specific uses in policy)	Highest Flood Vulnerability Classification Proposed
AV80	Stocks Bros. Pontefract Road		General employment	Less vulnerable
AV81	Leeds Valley Park		Offices (identified planning permission)	Less vulnerable
AV82	Stourton North		Transport infrastructure	Less vulnerable
AV91	Temple Green Park and Ride		Transport infrastructure (identified planning permission)	Less vulnerable
AV92	William Cooke Castings, Cross Green Approach		General employment (identified planning permission)	Less vulnerable
AV93	Unit 4 Queen Street, Stourton		General employment (identified planning permission)	Less vulnerable
AV112	RocheFord Court, Pepper Road		Housing (identified planning permission)	More vulnerable
AV115	Land off Pontefract Road		General employment (identified planning permission)	Less vulnerable
AV116	Site 8, Newmarket Green		General employment (identified planning permission)	Less vulnerable
AV117	Land north of St Hildas Crescent		Housing (identified planning permission)	Less vulnerable

Table C2: Proposed development sites in Aire Valley Leeds (Flood Zone 1 with smaller areas in Flood Zones 2 & 3)

Site Ref	Site Name	Flood Risk Zones (EA maps)	Proposed use (specific uses in policy)	Highest Flood Vulnerability Classification Proposed
AV25	Richmond Street / Flax Place	2 (1.13%) 3 (2.31%)	Housing (identified planning permission)	More vulnerable
AV27	Former Leeds College of Technology, East Street	2 (4.45%) 3 (0.01%)	Housing (identified planning permission)	More vulnerable
AV40	Bridgewater Road North	2 (0.46%) 3 (2.57%)	Housing	More vulnerable
AV48	Church Street/Balm Road, Hunslet	2 (0.32%) 3 (0.03%)	Mixed use (housing, offices, retail)	More vulnerable
AV63	Logic Leeds (Skelton Moor Farm)	2 (1.16%)	General employment identified planning permission)	Less vulnerable
AV64	Temple Green	2 (4.24%) 3 (1.32%)	General employment identified planning permission)	Less vulnerable
AV77	Pontefract Road / Nijinsky Way	2 (0.16%)	General employment (identified UDP)	Less vulnerable
AV111	Skelton Gate	2 (3.21%) 3 (5.13%)	Housing (school, health services retail, offices)	More vulnerable

Table C3: Proposed development sites in Aire Valley Leeds (Flood Zone 2 sites)

Site Ref	Site Name	Flood Risk Zones (EA maps)	Proposed flood defences and protection afforded	Proposed use (specific uses in policy)	Highest Flood Vulnerability Classification Proposed
AV5	Indigo Blu, Crown Point Road	2	FAS (1:75 year)	Mixed housing & offices (identified planning permission)	More vulnerable

Table C3: Proposed development sites in Aire Valley Leeds (Flood Zone 2 sites)

Site Ref	Site Name	Flood Risk Zones (EA maps)	Proposed flood defences and protection afforded	Proposed use (specific uses in policy)	Highest Flood Vulnerability Classification Proposed
AV7	Former Yorkshire Chemicals site (north west site), Black Bull Street	2 (90.81%)	FAS (1:75 year)	Mixed use (housing, offices)	More vulnerable
AV11	Former Alea Casino, The Boulevard, Leeds Dock	2 (27.49%)	FAS (1:75 year)	Offices (identified planning permission)	Less vulnerable
AV44	Unit 5 Nelson House, Quayside Business Park, George Mann Road	2	None	Offices (identified planning permission)	Less vulnerable
AV67	Skelton Grange	2 (65.53%)	None	General employment (identified planning permission)	Less vulnerable
AV68	Land south of Knowsthorpe Lane	2 (87.85%)	None	General employment (identified UDP)	Less vulnerable
AV78	Haigh Park Road / Pontefract Road	2 (92.99%)	None	General employment (identified UDP)	Less vulnerable
AV113	Former Leeds College of Building, Intermezzo Drive, Stourton	2 (26.98%)	None	General employment (identified planning permission)	Less vulnerable

Table C4: Proposed development sites in Aire Valley Leeds (Flood Zone 2 with smaller areas in Flood Zone 3)

Site Ref	Site Name	Flood Risk Zones (EA maps)	Proposed flood defences and protection afforded	Proposed use (specific uses in policy)	Highest Flood Vulnerability Classification Proposed
AV15	Clarence Road / Sayner Lane	2 (98.32%) 3 (1.62%)	FAS (1:75 year)	Mixed use (housing, offices)	More vulnerable
AV16	Carlisle Road / Sayner Lane	2 (98.04%) 3 (0.4%)	FAS (1:75 year)	Mixed use (housing, offices)	More vulnerable

Table C4: Proposed development sites in Aire Valley Leeds (Flood Zone 2 with smaller areas in Flood Zone 3)

Site Ref	Site Name	Flood Risk Zones (EA maps)	Proposed flood defences and protection afforded	Proposed use (specific uses in policy)	Highest Flood Vulnerability Classification Proposed
AV33	Low Fold, East Street	2 (21.72%) 3 (17.3%)	FAS (1:75 year)	Housing (identified planning permission)	More vulnerable
AV34	South Accommodation Road	2 (6.03%) 3 (7.40%)	FAS (1:75 year)	Housing	More vulnerable
AV43	Yarn Street	2 (15.23%) 3 (14.01%)	FAS (1:75 year)	Housing (identified planning permission)	More vulnerable
AV45	Gibraltar Island Road	2 (97.28%) 3 (1.63%)	FAS (1:75 year)	General employment (identified planning permission)	Less vulnerable
AV83	Land south of Skelton Grange Road (east site)	2 (98.84%) 3 (1.16%)	None	General employment	Less vulnerable
AV94	South Bank Planning Statement Area	2 (70.43%) 3 (21.57%)	FAS (1:75 year)	Mixed use (housing, offices)	More vulnerable
AV98	Atkinson Street	2 (86.74%) 3 (8.28%)	FAS (1:75 year)	Mixed use (housing, offices)	More vulnerable

Table C5: Proposed development sites in Aire Valley Leeds (Flood Zone 3 sites)

Site Ref	Site Name	Flood Risk Zones (EA maps)	Proposed flood defences and protection afforded	Proposed use (specific uses in policy)	Highest Flood Vulnerability Classification Proposed
AV9	Evans Halshaw, Hunslet Road	2 (59.26%) 3 (40.74%)	FAS (1:75 year)	Mixed use (housing)	More vulnerable
AV10	Armouries Drive, Leeds Dock	2 (51.75%) 3 (48.25%)	FAS (1:75 year)	Offices (identified planning permission)	Less vulnerable
AV12	Armouries Drive / Carlisle Road	2 (9.24%) 3 (90.76%)	FAS (1:75 year)	Mixed use (housing, offices)	More vulnerable
AV13	Carlisle Road / Clarence Road	2 (12.97%) 3 (87.03%)	FAS (1:75 year)	Mixed use (housing, offices)	More vulnerable

Table C5: Proposed development sites in Aire Valley Leeds (Flood Zone 3 sites)

Site Ref	Site Name	Flood Risk Zones (EA maps)	Proposed flood defences and protection afforded	Proposed use (specific uses in policy)	Highest Flood Vulnerability Classification Proposed
AV14	Former Hydro Site, Clarence Road	2 (15.77%) 3 (84.23%)	FAS (1:75 year)	Mixed use (housing, offices)	More vulnerable
AV17	Braime Pressings, Hunslet Lane	2 (11.39%) 3 (88.61%)	FAS (1:75 year)	Mixed use (housing)	More vulnerable
AV26	The Gateway, Marsh Lane	3		Housing (identified planning permission)	More vulnerable
AV32	Rose Wharf Car Park, East Street	2 (7.93%) 3 (10.81%)	FAS (1:75 year)	Housing	More vulnerable
AV41	Hunslet Mills, Goodman Street	2 (2.01%) 3 (97.99%)	FAS (1:75 year)	Mixed use (housing - identified planning permission) & (allocated - education, offices, retail, leisure, hotel)	More vulnerable
AV46	Tetley Motor Services, Goodman Street	2 (0.41%) 3 (99.59%)	FAS (1:75 year)	Housing	More vulnerable
AV47	South Point, South Accommodation Road	2 (80.18%) 3 (19.82%)	FAS (1:75 year)	General employment (identified planning permission)	Less vulnerable
AV72	Land north of Haigh Park Road	2 (32.88%) 3 (67.12%)	None	General employment	Less vulnerable
AV73	Former Post Office building, Skelton Grange Road	2 (59.36%) 3 (40.64%)		General employment (identified planning permission)	
AV74	Land south of Skelton Grange Road (west site)	2 (14.04%) 3 (85.96%)	None	General employment	Less vulnerable
AV76	Land south of Haigh Park Road	2 (19.40%) 3 (80.60%)	None	General employment	Less vulnerable
AV96	Airedale Mills, Clarence Road	2 (47.32%) 3 (52.68%)	FAS (1:75 year)	General employment (identified planning permission)	

Alternative sites considered but not carried forward as allocations in the Aire Valley Leeds AAP

Table C6: Alternative sites (Flood Zone 1)					
Site Ref	Site Name	Flood Risk Zones (EA maps)	Proposed flood defences and protection afforded	Alternative Options	Highest Flood Vulnerability Classification Proposed
AV53	Land south of Neville Hill Sidings		None	General employment	Less vulnerable
AV81	Leeds Valley Park		None	Housing	More vulnerable
AV95	New Hope Church, Saxton Lane		None	Housing	More vulnerable
AV102	Cross Green Industrial Estate (various sites)		None	Retail Offices	Less Vulnerable
AV103	Newmarket Approach (various sites)		None	Retail Offices	Less Vulnerable

Table C7: Alternative sites (Flood Zone 1 with smaller areas in Flood Zones 2 & 3)					
Site Ref	Site Name	Flood Risk Zones (EA maps)	Proposed flood defences and protection afforded	Alternative Options	Highest Flood Vulnerability Classification Proposed
AV97	Dransfield House, Mill Street	2 (0.45%) 3 (2.36%)	None	Housing	More vulnerable
AV101	Temple Green (wider site)	2 (2.61%) 3 (0.66%)	None	Housing	More Vulnerable

Table 8: Alternative sites (Flood Zone 2 with smaller areas in Flood Zone 3A)

Site Ref	Site Name	Flood Risk Zones (EA maps)	Proposed flood defences and protection afforded	Alternative Options	Highest Flood Vulnerability Classification Proposed
AV8	Former Yorkshire Chemicals site (east site), Black Bull Street	2 (93.87%) 3 (2.62%)	FAS (1:75 year)	Housing	More vulnerable
AV99	Former power station, Skelton Grange (wider site)	2 (67.52%) 3 (0.06%)	None	Housing	More vulnerable
AV114	Skelton Gate (west site only)	2 (8.83%) 3 (21.96%)	None	Motorway Service Area / Retail / Employment	

Table 9: Alternative sites (Flood Zone 3A)

AVL Ref	Site Name	Flood Risk Zones (EA maps)	Proposed flood defences and protection afforded	Alternative Options	Highest Flood Vulnerability Classification Proposed
AV96	Airedale Mills, Clarence Road	2 (47.32%) 3 (52.68%)	FAS (1:75 year)	Housing	More vulnerable
AV100	Haigh Park Road, Stourton	2 (69.49%) 3 (29.72%)	None	Housing Retail Offices	More vulnerable

APPENDIX D, E and F: DETAILED FLOOD RISK SEQUENTIAL TEST FOR THE USES IDENTIFIED IN THE AIRE VALLEY LEEDS AAP SUBMISSION DRAFT

DEF1. The assessment details the process used to undertake the sequential test for the Aire Valley Leeds AAP. The assessment focuses on the following principal uses which formed the basis of the proposed allocations:

- Housing
- Employment uses (offices, research & development / industry / storage & distribution)
- Transport infrastructure (park & ride sites)
- Other uses proposed/acceptable on specific sites (retail, leisure, education uses, hotel)

DEF2. The process adopts the principle set out in the NPPF (para 100 to 101) which advises that LPAs should use the sequential test to “*steer new development to areas with the lowest probability of flooding.*” It takes account of specific requirements set out for the area in the Leeds Core Strategy over the plan period as follows:

- 6,500 new homes (Spatial Policy 5)
- 250 hectares of employment land (Spatial Policy 5)
- Two park and ride sites (shown on the key diagram)

DEF3. Other uses have no specific area requirement, but reference is made to the need for retail and community uses to support new development in the area under Core Strategy Spatial Policy 5.

DEF4. The sequential test for each land use is set out as a series of steps undertaken in accordance with Diagram 2 of the NPPG Flood Risk Guidance. Sites are discounted in order of their risk of flooding (lowest flood zone 1 sites first) until the assumed requirement is met.

DEF5. Following this process, any uses identified in the higher risk flood zones are assessed against Table 3 in the NPPG Flood Risk Guidance (para 66). Uses in the higher risk flood zones which are not deemed appropriate by Table 3 and which are not needed to meet the requirement for that use fail the sequential test. Sites which may be needed to meet a requirement for a particular use, but are not deemed to be appropriate by Table 3, either require an Exception Test to be undertaken or are deemed inappropriate depending on the Flood Risk Zone the site is located within and the level of vulnerability of the proposed use.

APPENDIX D: SEQUENTIAL TEST FOR HOUSING USES

Flood Vulnerability Classification	More Vulnerable
Leeds Core Strategy minimum requirement (from Spatial Policy 5)	6,500 dwellings

COMPLETED DEVELOPMENTS

D1. The base date of this assessment is the 31st March 2016. Development on the following sites was completed between April 2012 and March 2016. Whilst contributing to housing delivery within the plan period these sites do not form part of this sequential test and have therefore been deducted from the overall minimum dwelling requirement.

Table D1: Completed housing sites at 31st March 2016		
Site Ref	Site Name	No of dwellings
Core Strategy minimum housing requirements		6,500
AV5	Indigo Blu, Crown Point Road	26
AV21	The Parade & The Drive	75
AV35	Cross Green Grove	21
AV39	East Street Mills	7
AV43	Yarn Street	173
Residual housing requirement subject to sequential test		6,198

STEP 1: CAN DEVELOPMENT BE ALLOCATED IN FLOOD ZONE 1?

1a - Identified sites and proposed housing (and mixed use) allocations located in flood zone 1.

D2. A number of the housing or mixed use (which include housing) sites allocated in the AAP are located in Flood Zone 1, having a less than 0.1% annual probability of flooding. As such, these sites are sequentially preferred in the NPPF. These sites are the first sites to be deducted from the AAP requirement. The results are set out in the table below:

Table D2: Aire Valley Leeds AAP identified sites and proposed housing/mixed use allocations in Flood Zone 1				
Site Ref	Location	Dwellings	% site area in Flood Zone 2	% site area in Flood Zone 3
Residual dwelling requirement		6,198		
Sites in Flood Zone 1				
AV18	Marsh Lane	289		
AV19*	Marsh Lane / Saxton Lane	80		
AV20	Yorkshire Ambulance Station, Saxton Lane / Flax Place	95		
AV22	Former Richmond Inn, Upper Accommodation Road	26		
AV23	Former Butterfield Manor &	48		

Table D2: Aire Valley Leeds AAP identified sites and proposed housing/mixed use allocations in Flood Zone 1

Site Ref	Location	Dwellings	% site area in Flood Zone 2	% site area in Flood Zone 3
	Richmond Court, Walter Crescent			
AV24	Presbytery, St Marys Church	171		
AV25*	Richmond Street / Flax Place	195	1.13%	2.31%
AV27*	Former Leeds College of Technology, East Street	39		
AV28	Bow Street / East Street	23		
AV29	Bow Street / Ellerby Road	79		
AV30*	Ellerby Lane	147		
AV36*	St Hildas Church, Knowsthorpe Crescent	86		
AV38	Copperfields	273		
AV40	Bridgewater Road North	546	0.46%	2.57%
AV48	Balm Road / Church Street	23	0.32%	0.03%
AV111	Skelton Gate	1,801	2.06%	4.07%
AV112	Rocheford Court, Pepper Road	11		
AV117	Land north of St Hildas Crescent	7		
Balance to find		2,259		

* Identified sites with planning permission.

D3. The potential housing sites in flood zone 1 can provide **3,939** dwellings. When these sites are discounted from the total requirement, there remains a shortfall **2,259** dwellings. Further sites will be needed to accommodate the housing requirement.

1b - Other development sites from SHLAA and Call for Sites located in flood zone 1 which have been considered for their potential for housing development

D4. The AAP area contains potential development sites within flood zone 1, which have been considered for their potential residential development. For the purposes of this exercise, sites allocated with a primary use of offices or leisure, considered suitable for residential development, are the next to be discounted. The results are set out in the table below:

Table D3: Other sites considered for potential housing use in Flood Zone 1

Site Ref	Location	Potential Capacity	Deliverability assessment
AV81	Leeds Valley Park	118	Site is preferred for employment uses based on existing allocation and planning permission. Given the site is separated from existing residential communities by motorway infrastructure, it is considered to be more appropriate to retain the employment allocation.
AV82	Stourton North	360	Site safeguarded for a bus-based park and ride facility serving the City Centre. Uncertain at this stage whether any residual land would be available for development of other uses including housing.

Table D3: Other sites considered for potential housing use in Flood Zone 1			
Site Ref	Location	Potential Capacity	Deliverability assessment
AV95	Living Hope Church, Saxton Lane	73	Site is in active use and is not available.
AV96	Airedale Mills, Clarence Road	67	Site is in active industrial use and has recently been granted planning permission to expand existing activities within the site. Site proposed to be identified for general employment uses.
AV97	Dransfield House, Mill Street	241	Site is in active use and is not available.
AV101	Temple Green (wider site)	2,000	Majority of site within the Leeds City Region Enterprise Zone with permission for employment development. Early phases of development have begun, including proposal for a park & ride facility. Part of site is allocated for a strategic waste facility within the NRWLP so this land cannot be allocated for housing. Presence of adjoining Knostrop WWTW and strategic waste allocations and impact on residential amenity and costs of remediation part of the site mean that large parts of the site are unsuitable and/or undeliverable for housing. Preferred for employment uses on basis of existing planning permission.

** Small area of site in Flood Zone 3

STEP 2: CAN DEVELOPMENT BE ALLOCATED IN FLOOD ZONE 2?

2a – Identified sites and proposed housing (and mixed use) allocations located in Flood Zone 2

D5. A number of housing or mixed use allocations (incorporating housing uses) proposed in the AAP lie within or partly within Flood Zone 2, having between a 0.1% and 1% annual probability of flooding. The NPPF and NPPG advise that such sites should be the next to be considered in sequential terms where insufficient land has been identified on sites entirely within Flood Zone 1. It should be noted that some sites within this category include land within Flood Zone 1 (the percentage is indicated in the table below) but are included within Flood Zone 2 for the purposes of this assessment because it is assumed some Flood Zone 2 land will need to be developed to achieve the dwelling capacity assumed for the site. Results are set out in the table below:

Table D4: Aire Valley Leeds AAP proposed housing/mixed use allocations in Flood Zone 2				
Site Ref	Location	Dwellings	% site area within Flood Zone 1	% site area within Flood Zone 3
Balance carried forward		2,259		
AV7	Former Yorkshire Chemicals site (north west site)	53	9.19%	
AV15	Sayner Lane / Clarence Road	94	0.06%	1.62%
AV16	Sayner Lane / Carlisle Road	90	0.4%	1.56%
AV33*	Low Fold, East Street	312	60.98%	17.3%

Site Ref	Location	Dwellings	% site area within Flood Zone 1	% site area within Flood Zone 3
AV34	South Accommodation Road	27	86.57%	7.4%
AV94	South Bank Planning Statement Area	1,635	8%	21.57%
AV98	Atkinson Street	35	4.98%	8.28%
Balance to find		13		

* Identified sites with planning permission.

D6. The potential housing / mixed use allocations in Flood Zone 2 can provide a further estimated capacity of **2,246** dwellings. When these sites are discounted from the total requirement, there remains a shortfall of **13** dwellings. Further sites will be needed to accommodate the housing requirement.

2b. - Other development sites from SHLAA and Call for Sites located in flood zone 2 which have been considered for their potential for housing development

D7. The AAP area contains one additional development site within flood zone 2 which has been considered for their potential residential development. The results are set out in the table below:

Table D5: Other sites considered for potential housing use in Flood Zone 2			
Site Ref	Location	Potential Capacity	Deliverability assessment
AV99	Former Power Station, Skelton Grange	880	Western part of site is allocated as a strategic waste site in the Natural Resources & Waste Local Plan. Eastern part of site is not suitable for housing uses as these would potentially be immediately adjacent to major waste uses. Also suitability issues relating to ground conditions, access, accessibility to local services. Site appropriate for employment uses.

STEP 3: CAN THE DEVELOPMENT BE ALLOCATED WITHIN THE LOWEST RISK SITES AVAILABLE IN FLOOD ZONE 3A?

Methodology

D8. The sequential test (Steps 1a & 2a) has identified a need for a further 13 dwellings to be allocated to meet the minimum housing requirement of 6,500 dwellings for the AAP area set out under Core Strategy Spatial Policy 5. The sequential test (Steps 1b & 2b) has indicated that there are no further suitable, available and achievable sites within Flood Zones 1 and 2 which can be allocated to address this shortfall. This provides justification to assess the potential of sites in Flood Zone 3A to provide housing to meet the requirement.

D9. In addition to ensuring that the plan can deliver the minimum housing requirement, it is also appropriate to consider whether the effectiveness of the plan could be enhanced by identifying smaller areas within the AAP plan area where it would be appropriate to consider further housing allocations that would lie or partly lie within Flood Zone 3A.

D10. This is based on areas within the AVL plan area where development would meet all the following criteria : it would fully accord with the Core Strategy locational preferences for housing development, promote the development of derelict and vacant brownfield land and otherwise promote demonstrably sustainable patterns of development. A further criteria is that the site is located within an area where housing development has recently been completed, is under construction or has received planning permission and where to preclude further housing development based solely on the flood risk sequential test based on the minimum requirement would potentially prejudice the wider regeneration of the area.

D11. Table D6 below set out the detailed criteria used to assess whether the justification for applying the sequential test over smaller areas of the AVLAAP area, where development would otherwise fully accord with Core Strategy and AVLAAP locational policy. The two relevant policies in the Core Strategy are Spatial Policy 4, which defines Regeneration Priority Programme Areas which give priority to development that improves housing, quality, affordability and choice, and Spatial Policy 6 which includes a list of criteria to be used to assess the preference for location of housing development. Spatial Policy 6 includes seven criteria, six of which are listed in the table. Flood risk is excluded as this forms part of the assessment carried out in this document. The AVLAAP also includes a locational policy defining the main areas of housing development (Policy AVL7 (1)). These areas are also shown on the Strategic Plan (Map 3 of the AVLAAP) as either housing or mixed use areas.

D12. Where a development area/site can meet all of the 8 criteria set out in Table D6 it is considered there is justification for using a smaller area for the sequential test. Therefore within such areas there is justification for making housing allocations (subject to the exception test being satisfied) where the minimum housing requirement is exceeded.

Table D6: Criteria used to define smaller areas of the Aire Valley Leeds area for the application of the sequential test for housing development.

Policy	Criteria	Reason
1. Core Strategy Spatial Policy 4	Located within a Regeneration Priority Programme Area	SP4 indicates that priority will be given to development that improves housing quality, affordability and choice.
2. Core Strategy Spatial Policy 6 (i) Sustainable locations (which meet standards of public transport accessibility – see the Well Connected City chapter), supported by existing or access to new local facilities and services, (including Educational and Health Infrastructure)	The site meets the accessibility standards for housing development set out in Policy T2 and Appendix 3.	The site fully accords with Core Strategy locational policy for housing development (other than in relation to flood risk issues) if it meets all six criteria.
3. SP6 (ii) Preference for brownfield and regeneration sites	The site is brownfield and located within a regeneration area	

Table D6: Criteria used to define smaller areas of the Aire Valley Leeds area for the application of the sequential test for housing development.

Policy	Criteria	Reason
4. SP6 (iii) The least impact on Green Belt purposes	The area is not in the Green Belt	
5. SP6 (iv) Opportunities to reinforce or enhance the distinctiveness of existing neighbourhoods and quality of life of local communities through the design and standard of new homes	Site is part of a wider area of development where housing development has recently been completed, is under construction or granted planning permission.	
6. SP6 (v) The need for realistic lead-in-times and build-out-rates for housing construction	The SHLAA indicates the site can be delivered within the plan period.	
7. SP6 (vi) The least negative and most positive impacts on green infrastructure, green corridors, green space and nature conservation.	The site would not have a negative impact on the green space, green infrastructure and nature conservation shown on Map 5 of the AVLAAP.	
8. AVLAAP Policy AVL7 (1)	Located within one of the main areas of housing: <ul style="list-style-type: none"> • Leeds South Bank • The East Bank area, including the Marsh Lane site • Cross Green, including the Copperfields site • Hunslet Riverside • Skelton Gate 	Supports the spatial approach to housing development set out in the AVLAAP.

D13. In applying the criteria set out in Table D6 it is noted that of the five areas of housing listed the following four could have sites which meet all the criteria, subject to the specific characteristics of the site. These are:

- Leeds South Bank;
- The East Bank area, including the Marsh Lane site;
- Cross Green, including the Copperfields site;
- Hunslet Riverside

D14. The areas subject to the smaller areas sequential test are defined on Map 2 in Appendix G.

D15. The Skelton Gate area will not meet the criteria because it includes an area of Green Belt and/or greenfield land. The sequential test based on the AVLAAP minimum housing requirement will apply in this area.

D16. It is important to note that all allocations proposing housing within Flood Zone 3A sites are also subject to the exception test. Under Part 1 of the test, it must be demonstrated that the sustainability benefits to the community outweigh flood risk and under Part 2 there is a need to demonstrate that it will be safe for its lifetime, without increasing flood risk elsewhere. Details of the exception test are set in Section 5.

3a. – Identified sites and proposed housing (and mixed use) allocations located in flood zone 3A

D17. A number of the housing or mixed use allocations (incorporating housing uses) proposed in the AAP are located in flood zone 3A according to the Environment Agency's Flood Risk Maps, having a greater than 1% annual probability of flooding. The NPPF and NPPG advise that such sites should be the next to be considered in sequential terms where insufficient land has been identified on sites entirely within flood zone 1 or 2. It should be noted that some sites within this category include land within flood zone 1 or 2 (the percentage is indicated in the table below) but are included within flood zone 3A for the purposes of this assessment because it is assumed some flood zone 3A land will need to be developed to achieve the dwelling capacity assumed for the site. Results are set out in the table below:

Table D7: Aire Valley Leeds AAP identified sites and proposed housing and mixed use allocations in Flood Zone 3			
Site Ref	Location	Dwellings	% site area within flood zone 1 or 2
Balance carried forward		13	
AV9	Evans Halshaw, Hunslet Lane	191	59.26%
AV12	Armouries Drive / Carlisle Road	114	9.24%
AV13	Carlisle Road / Clarence Road	15	12.97%
AV14	Former Hydro Site, Clarence Road	105	15.77%
AV17	Braime Pressings, Hunslet Lane	121	11.39%
AV26*	The Gateway, Marsh Lane	110	-
AV32	Rose Wharf Car Park, East Street	72	89.19%
AV41*	Hunslet Mills	699	2.01%
AV46	Tetley Motors, Goodman Street	36	0.41%
Balance to find		-1450	

* Identified sites with planning permission.

D18. After a further **1,463 dwellings** on Zone 3 sites are taken into account **7,950 dwellings** have been identified on suitable sites in Flood Zones 1, 2 and 3A. This is a surplus of **1,450 dwellings** when compared to the minimum housing requirement.

D19. In accordance with the methodology set out above, as there is a surplus against the minimum housing requirement, the sites have been assessed against the criteria set out in Table D6 to determine whether it is appropriate to apply the sequential test on a smaller area basis. The results are set out in Table D8 below.

Table D8: Assessment of Flood Zone 3A sites against criteria set out in Table D6			
Site Ref	Location	AVLAAP Housing Area (Policy AVL7, see Map 2)	All Core Strategy Policy SP4 & SP6 criteria met (see Table D6)
AV9	Evans Halshaw, Hunslet Lane	South Bank	Yes

Table D8: Assessment of Flood Zone 3A sites against criteria set out in Table D6			
Site Ref	Location	AVLAAP Housing Area (Policy AVL7, see Map 2)	All Core Strategy Policy SP4 & SP6 criteria met (see Table D6)
AV12	Armouries Drive / Carlisle Road	South Bank	Yes
AV13	Carlisle Road / Clarence Road	South Bank	Yes
AV14	Former Hydro Site, Clarence Road	South Bank	Yes
AV17	Braime Pressings, Hunslet Lane	South Bank	Yes
AV26*	The Gateway, Marsh Lane	East Bank	Yes
AV32	Rose Wharf Car Park, East Street	East Bank	Yes
AV41*	Hunslet Mills	Hunslet Riverside	Yes
AV46	Tetley Motors, Goodman Street	Hunslet Riverside	Yes
AV94	South Bank Planning Statement Area (Zone 3A land)	South Bank	Yes

D20. The sites assessed have all met the criteria set out in Table D6. Accordingly it is appropriate to apply a smaller area sequential test to these sites and the sites are considered to have passed the sequential test on this basis.

3b. - Other development sites from SHLAA and Call for Sites located in flood zone 3A which have been considered for their potential for housing development

D21. The AAP area contains one additional development site within flood zone 2 which has been considered for their potential residential development. The results are set out in the table below:

Table D9: Other sites considered for potential housing use in Flood Zone 3A			
Site Ref	Location	Potential Capacity	Deliverability assessment
AV8	Former Yorkshire Chemicals (east site), Black Bull Street	138	A secondary free school opened on the site in September 2016. Site is unavailable.
AV100	Haigh Park Road, Stourton	1,144	<p>Two areas of the site are proposed for canal wharf allocations / safeguarded sites in the NRWLP. The Stourton area is also proposed as an area of search for an intermodal freight area in the NRWLP.</p> <p>With respect to the site's suitability for housing, the following are also identified as significant constraints:</p> <ul style="list-style-type: none"> • Location within an existing established industrial area surrounded by heavy industrial uses. • Contaminated land and costs of remediation for housing end use. • Potential odour nuisance from Knostrop waste water treatment works. • Poor accessibility to access schools, shopping and health facilities. <p>The site is within the highest risk flood zone (the</p>

Table D9: Other sites considered for potential housing use in Flood Zone 3A			
Site Ref	Location	Potential Capacity	Deliverability assessment
			same as the proposed allocations identified above) but scores negatively overall in the sustainability appraisal of sites which accompanies the draft AAP, unlike the proposed allocations.

APPENDIX E – SEQUENTIAL TEST FOR EMPLOYMENT USES

Flood Vulnerability Classification	Less Vulnerable
Leeds Core Strategy minimum requirement (from Spatial Policy 5)	250 hectares LESS 42.6 hectares allocated for waste or rail/canal freight uses in the Natural Resources and Waste Local Plan. Residual employment land to find 207.4 hectares

COMPLETED DEVELOPMENTS

E1. The base date of this assessment is the 31st March 2016. Development on the following sites was completed between April 2012 and March 2016. Whilst contributing to employment land delivery within the plan period these sites do not form part of this sequential test and have therefore been deducted from the overall minimum employment land requirement.

Table E1: Completed employment sites at 31st March 2016		
Site Ref	Site Name	Site Area (ha)
Residual employment land less NRWLP sites		207.4
AV5	Indigo Blu, Crown Point Road	0.05
AV10	Armouries Drive, Leeds Dock	1.04
AV57	Plot 2A, Thornes Farm Business Park	0.99
AV61	Connex 45 site, Thornes Farm Way	1.83
AV69	Symingtons, Thornes Farm	1.01
AV70	2 Pontefract Lane	0.37
AV73	Former Post Office building, Skelton Grange Road	3.35
AV93	Unit 4 Queen Street, Stourton	0.22
AV113	Former Leeds College of Building, Intermezzo Drive	1.62
Residual employment land subject to sequential test		196.92

STEP 1: CAN DEVELOPMENT BE ALLOCATED IN FLOOD ZONE 1?

1a – Identified sites and proposed employment (and mixed use) allocations located in Flood Zone 1

E2. A number of the proposed employment or mixed use allocations (incorporating employment uses) in the AAP are located in Flood Zone 1, having a less than 0.1% annual probability of flooding. As such, sites are sequentially preferred in the NPPF and NPPG they can be deducted from the overall AAP employment land requirement. The results are set out in Table E2 below:

Table E2: Aire Valley Leeds AAP identified sites and proposed employment/mixed use allocations in Flood Zone 1

Site Ref.	Location	Proposed Allocation	Area (ha) (employment uses)	% site area within Flood Zone 2	% site area within Flood Zone 3
Balance carried forward			196.92		
AV18	Marsh Lane	Mixed use (offices)	1.84		
AV31*	Cross Green Lane	Mixed use (offices)	0.18		
AV42*	Riverside Place, Bridgewater Road	General employment (identified planning permission)	0.45		
AV50	Snake Lane	General employment	0.80		
AV51	Knowsthorpe Way	General employment	0.85		
AV52*	Newmarket Lane	General employment	2.04		
AV54	Belfry Road / Cross Green Approach	General employment	1.98		
AV55	Pontefract Lane / Newmarket Lane	General employment	0.49		
AV56	Knowsthorpe Road	General employment	2.97		
AV58*	Plot 2B, Thornes Farm	General employment (identified planning permission)	1.20		
AV59*	Plot 5, Thornes Farm	General employment (identified planning permission)	2.70		
AV60*	Plot 6, Thornes Farm	General employment (identified planning permission)	2.40		
AV62	Thornes Farm Way	General employment (identified planning permission)	0.87		
AV63*	Logic Leeds (Skelton Moor Farm)	General employment (identified planning permission)	46.4	1.16%	
AV64*	Temple Green	General employment (identified planning permission)	69.56	4.24%	1.32%
AV65*	Pontefract Road / Newmarket Approach	General employment (identified planning permission)	0.41		
AV66*	Former Pittards site, Knowsthorpe Gate	General employment (identified planning permission)	5.22		
AV71*	Thwaite Gate / Sussex Avenue	General employment (identified planning permission)	0.43		
AV75*	Pontefract Road, North of M1 J44	General employment (identified planning permission)	5.58		
AV77	Pontefract Road / Nijinsky Way	General Employment	0.83	0.16%	
AV79	North of Valley Farm Road	General employment	1.16		

Table E2: Aire Valley Leeds AAP identified sites and proposed employment/mixed use allocations in Flood Zone 1

Site Ref.	Location	Proposed Allocation	Area (ha) (employment uses)	% site area within Flood Zone 2	% site area within Flood Zone 3
AV80	Stocks Bros, Pontefract Road	General Employment	1.62		
AV81*	Leeds Valley Park	Offices (identified planning permission)	11.69		
AV92*	William Cooke Castings, Cross Green Approach	General employment (identified planning permission)	0.43		
AV115*	Land off Pontefract Road	General employment (identified planning permission)	0.71		
AV116*	Site 8, Newmarket Green	General employment (identified planning permission)	0.16		
Balance to find			33.95		

* Identified sites with planning permission.

E2. The proposed sites predominantly in Flood Zone 1 can provide **162.97 hectares** of land for employment uses (including mixed use sites). When these sites are deducted from the total, the residual requirement is reduced to **33.95 hectares**. There is a need to identify further sites to accommodate the minimum employment land requirement.

1b. - Other sites located in flood zone 1 which have been considered for their potential for employment development

Table E3: Other sites considered for potential employment use in Flood Zone 1

Site Ref	Location	Site size (ha)	Deliverability assessment
AV53	Neville Hill sidings	6.17	Not suitable. Site considered as a potential rail freight site through the Natural Resource & Waste Plan but was rejected because of the difficulty of achieving a suitable highway access given the HGV ban, which applies along Halton Moor Avenue, and the need to cross the City Centre – Garforth cycle path, which runs along the south of the site. This is also a further issue about protecting the amenity of residents living in the Nevilles housing area to the east of the site. There is insufficient certainty about delivery prospects to underpin an employment allocation through the AAP given the potential costs of overcoming highway access and amenity constraints.
AV102	Sites at Cross Green / Knowsthorpe Way / Cross Green Way / Cross Green Approach / Knowsthorpe Road	32.48	Not available. Already an existing employment site.

Table E3: Other sites considered for potential employment use in Flood Zone 1			
Site Ref	Location	Site size (ha)	Deliverability assessment
AV105	Sludge Lagoons, south of Knowsthorpe Lane	25.84	Not suitable / deliverable. Site of former sludge lagoon for Knostrop WWTW now capped and naturally re-vegetating. Remediation costs are too high, making site unviable for employment use.
AV106	National Grid Site adjacent Skelton Grange Power Station	7.29	Not available. Site occupied by a large electricity sub-station.
AV108	Land north of Pontefract Road, Bell Hill	3.59	Not deliverable. Feasibility study identified substantial highway constraints. It is estimated that necessary highway works will cost >£5million
AV109	Land opposite Thornes Farm Approach	4.62	Not available. The landowner, Yorkshire Water, have indicated they require site for operational use at the earlier consultation stages.
AV110	South of Knowsthorpe Lane (East Site)	13.52	Not suitable / deliverable. Issues with access. Remediation costs will make site unviable for employment use without significant public investment.

STEP 2: CAN DEVELOPMENT BE ALLOCATED IN FLOOD ZONE 2?

2a. – Proposed employment sites located in Flood Zone 2

E3. Two sites proposed in the AAP are located in Flood Zone 2, having between a 0.1% and 1% annual probability of flooding. The NPPF technical guidance advises that such sites are next to be considered in sequential terms. The results are set out in Table E4 below:

Table E4: Aire Valley Leeds AAP identified sites and proposed employment/mixed use allocations in Flood Zone 2					
Site Ref	Location	Proposed Allocation	Area (ha) (employment uses)	% site area within Flood Zone 1	% site area within Flood Zone 3
Balance to find carried forward			33.95		
AV7	Former Yorkshire Chemicals site (North West), Black Bull Street	Mixed use (offices)	0.15	9.19%	
AV11*	Former Alea Casino, The Boulevard, Leeds Dock	Mixed use (offices – identified planning permission)	0.17	72.51%	
AV15	Sayner Lane / Clarence Road	Mixed use (offices)	0.72	0.06%	1.62%
AV16	Sayner Lane / Carlisle Road	Mixed use (offices)	0.69	0.4%	1.56%
AV44*	Unit 5 Nelson House, Quayside Business Park, George Mann Road	Offices (identified planning permission)	0.37		

AV45*	Gibraltar Island Road	General employment (identified planning permission)	0.7	1.09%	1.63%
AV67*	Skelton Grange	General employment (identified planning permission)	11.81	34.47%	-
AV68	Land south of Knowsthorpe Lane	General employment	9.17	12.15%	-
AV78	Haigh Park Road / Pontefract Road	General employment	1.17	7.01%	
AV83	Off Skelton Grange Road, East site	General employment	0.41		1.16%
AV94	South Bank Planning Statement Area	Mixed Use	4.90	8%	21.57%
AV98	Atkinson Street	Mixed use (offices)	0.59	4.98%	8.28%
Balance to find			3.10		

E4. The sites in Flood Zone 2 provide a further **30.85 hectares** of land for employment uses. When this site is discounted from the total requirement, the residual requirement is reduced to **3.1 hectares**. As all Flood Zone 1 & 2 sites have now been taken into account, potential sites in Flood Zone 3A will be needed to meet the requirement.

STEP 3: CAN THE DEVELOPMENT BE ALLOCATED WITHIN THE LOWEST RISK SITES AVAILABLE IN FLOOD ZONE 3?

3a. Proposed employment sites located in Flood Zone 3A

E5. A number of the employment sites allocated in the AAP are located in Flood Zone 3A, subject to flooding up to (and including) a 1 in 100 year (1%) annual probability of flooding. The NPPG advises that such sites should be the next to be considered in sequential terms. Table E5 below shows the sites identified in the AAP.

Table E5: Aire Valley Leeds AAP identified sites and proposed employment/mixed use allocations in Flood Zone 3A				
Site Ref	Location	Proposed Allocation	Area (ha) (employment uses)	% site area within Flood Zone 1 or 2
Balance carried forward			3.10	
AV12	Armouries Drive / Carlisle Road	Mixed use (offices)	0.73	9.24%
AV13	Clarence Road / Carlisle Road	Mixed use (offices)	0.09	12.97%
AV14	Hydro Works, Clarence Road	Mixed use (offices)	0.8	15.77%
AV47*	South Point, South Accommodation Road	General employment (identified planning permission)	0.51	80.18%
AV72	North of Haigh Park Road	General employment	1.26	32.88%
AV74	Former Playing fields,	General employment	1.01	85.96%

Table E5: Aire Valley Leeds AAP identified sites and proposed employment/mixed use allocations in Flood Zone 3A

Site Ref	Location	Proposed Allocation	Area (ha) (employment uses)	% site area within Flood Zone 1 or 2
	Skelton Grange Road			
AV76	South of Haigh Park Road	General employment	2.91	19.4%
AV96*	Airedale Mills, Clarence Road	General employment (identified planning permission)	0.6	47.32%
Balance to find			-4.81	

* Identified sites with planning permission.

E6. The employment sites in Flood Zone 3A provide a further 7.91 hectares of land for employment uses. When the inclusion of sites located in Flood Zone 3A are discounted from the total requirement, the residual requirement has been met.

APPENDIX F – SEQUENTIAL TEST FOR PARK & RIDE SITES

Flood Vulnerability Classification	Less Vulnerable
Leeds Core Strategy requirement	2 park & ride sites indicated on the Key Diagram

STEP 1: CAN DEVELOPMENT BE ALLOCATED IN FLOOD ZONE 1?

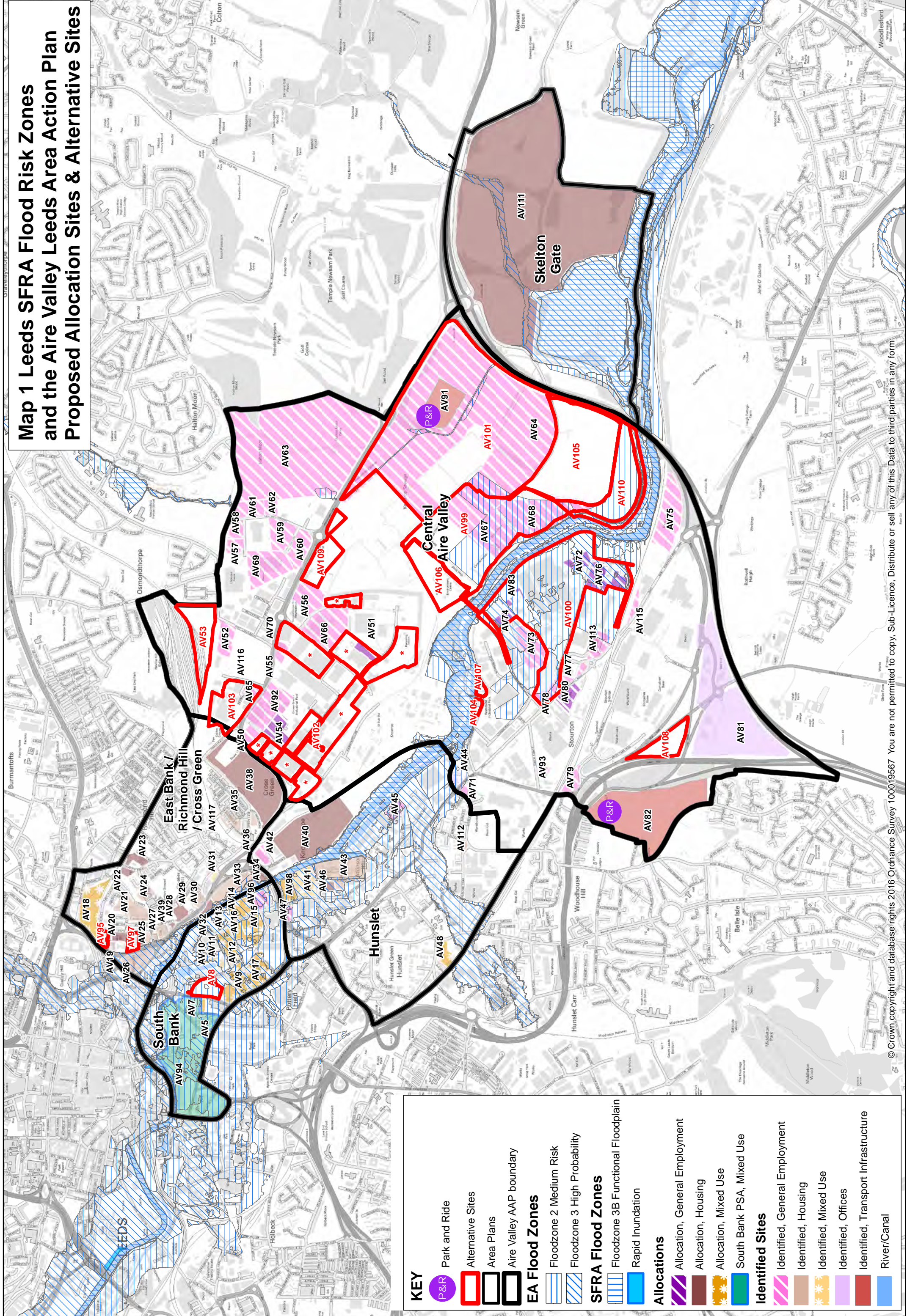
1a –Proposed park and ride allocations located in Flood Zone 1

Table F1: Aire Valley Leeds AAP identified and safeguarded park & ride sites					
Site Ref.	Location	Proposed Allocation	Area (ha)	% site area within Flood Zone 2	% site area within Flood Zone 3
AV82	Stourton park & ride site	Safeguarded for park & ride			
AV91*	Temple Green park & ride site	Identified for park & ride			

The two proposed park and ride site in the AAP at Stourton and Temple Green are located in Flood Zone 1, having a less than 0.1% annual probability of flooding. As such, both sites are sequentially preferred in the NPPF and NPPG.

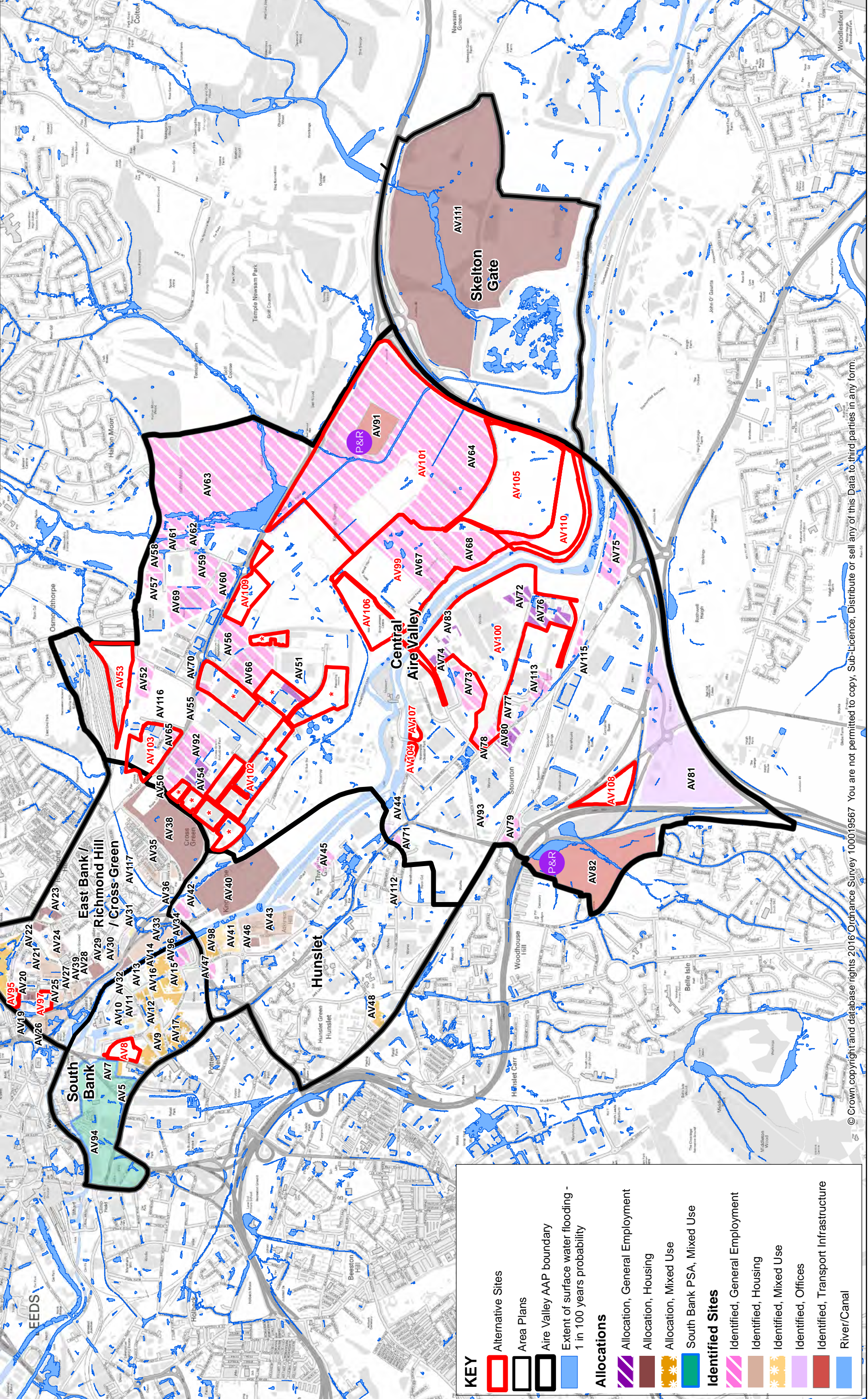
APPENDIX G MAP

Map 1 Leeds SFRA Flood Risk Zones and the Aire Valley Leeds Area Action Plan Proposed Allocation Sites & Alternative Sites



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MAP 2 Aire Valley Leeds Area Action Plan
Floodrisk Map showing Extent of surface water
flooding - 1 in 100 years probability.



KEY

- Alternative Sites
- Area Plans
- Aire Valley AAP boundary
- Extent of surface water flooding - 1 in 100 years probability

Allocations

- Allocation, General Employment
- Allocation, Housing
- Allocation, Mixed Use
- South Bank PSA, Mixed Use

Identified Sites

- Identified, General Employment
- Identified, Housing
- Identified, Mixed Use
- Identified, Offices
- Identified, Transport Infrastructure
- River/Canal

