Gloucester, Cheltenham & Tewkesbury Joint Core Strategy

Strategic Flood Risk Assessment for Local Development Framework Level 2

CONCISE EXECUTIVE SUMMARY
July 2012

Halcrow Group Limited

Guidance on the Use of the SFRA Documentation:

This Level 2 SFRA report and accompanying documents are part of a suite of documents designed to provide further information of flood risk within the Joint Core Strategy (JCS) area:

- SFRA Level 1 (Published September 2008) provides an initial assessment of fluvial flood risk across the whole JCS area.
- SFRA Level 2 (Published October 2011) provides a detailed assessment of multiple flood sources for specific sites within the JCS area which at the time of commissioning were potential development sites.
- Additional work is currently being undertaken to identify whether additional sites need to be assessed as a supplement to SFRA L2.
- Further updates to the existing documents may be undertaken when deemed necessary and expedient.
- Surface Water Management Plans (SWMPs) are in progress for Gloucester, Cheltenham, Tewkesbury and Bishops Cleeve. The findings of these studies (and any additional SWMPS undertaken in the area) will be taken into consideration when completed and any necessary changes will be fed back into the SFRA Level 2.
- New Flood Zone information contained herein should be used in conjunction with the Environment Agency's existing Flood Zone mapping.

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Contents Amendment Record

This summary has been issued and amended as follows:

Issue	Revision	Description	Date	Signed
1	0	Revised format Executive Summary - DRAFT	06/12	J Parkin
2	1	FINAL	07/12	J Parkin

Prepared by: John Parkin

Full Study and Report Reviewed by: John Parkin and the Environment Agency

Approved by: Phil Marsh

Contents

Concise Executive Summary – Purpose & Limitations

This Concise Executive Summary document is designed to provide a brief overview of the project and findings. It will provide the reader with a broad overview of the Strategic Flood Risk Assessment purpose and process, and how this fits in with the National and Local planning context. Comprehensive details on specific technical methodologies, results, flood history, flood risk, recommendations and policy are to be found in the main report – specific locations of which are given in this Executive Summary.

For a site specific results summary it is recommended that the **Site Assessment Tables** in Appendix A and **Maps** in Volume 2 of the main report are consulted.

June 2012 Addendum

The UK Government has recently issued changes to national planning policy. Published on the 27th March 2012, the National Planning Policy Framework (NPPF) aims to make the planning system less complex and more accessible, to protect the environment and to promote sustainable growth.

The advice and guidance in relation to flood risk is detailed in a companion document – the "Technical Guidance to the National Planning Policy Framework" (March 2012). The first section of this document deals with flood risk and is a direct transfer of the previous Planning Policy Guidance Notes (PPGs) 25 – Development and Flood Risk (March 2010). Therefore, at the time of publication of this Level 2 Executive Summary document, the discussion and principles of the EA Flood Zones, PPS25, Sequential Tests and Exception Tests, plus results and recommendations of the main study are still relevant.

1 Summary Introduction

1.1 Project History

1.1.1 In April 2010 Halcrow Group Limited was requested by the Joint Core Strategy consortium (JCS), comprising Gloucester City Council, Cheltenham Borough Council and Tewkesbury Borough Council, to undertake a Level 2 Strategic Flood Risk Assessment (SFRA) in accordance with Planning Policy Statement 25 Development and Flood Risk (PPS25). The JCS is a consortium partnership formed to produce a co-ordinated strategic development for the overall area, in order to plan development up to 2031.

1.1.2 The study area contains a number of designated Main Rivers, including the River Severn, River Avon and River Chelt (see Figure 1.1).

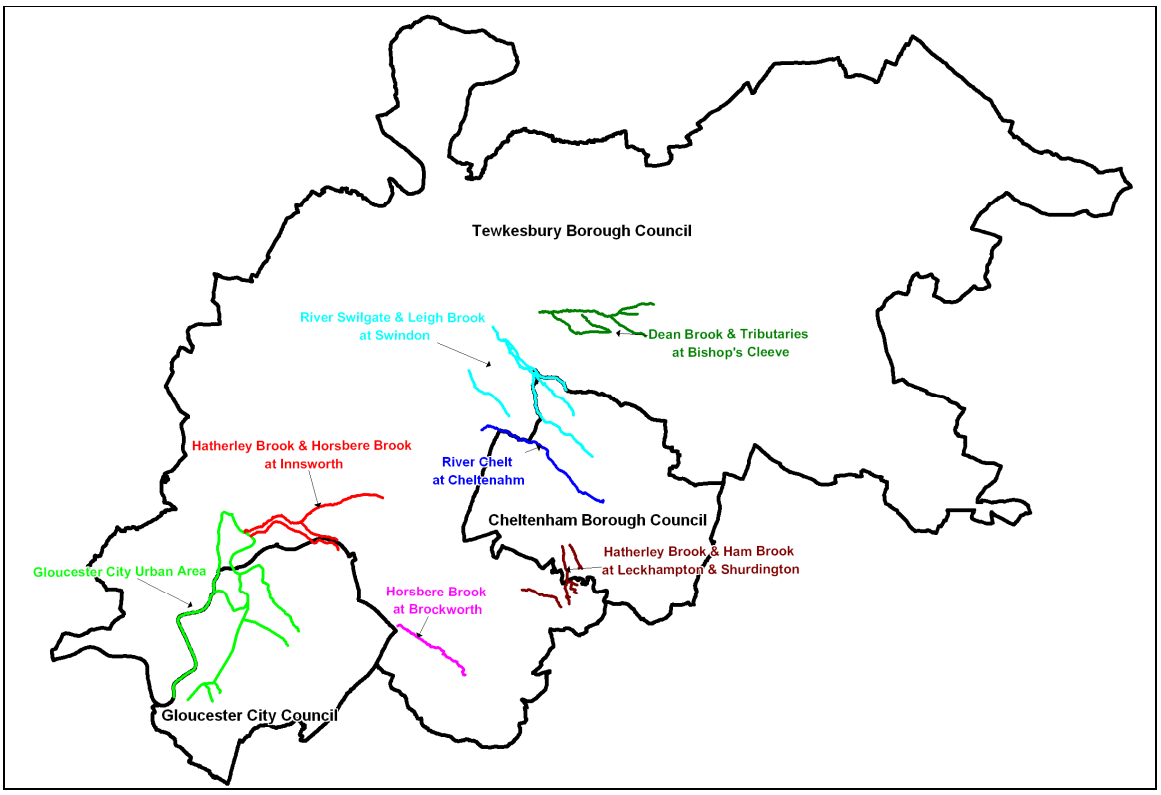

Figure 1.1: Extent and location of modelled watercourses

2 SFRAs and Planning Context

2.1 Strategic Flood Risk Assessments

2.1.1 SFRAs are an integral part of the planning process, and are there to assist the decision making process, guiding development towards areas of lowest flood risk. SFRAs are at the core of the Planning Policy Document 25: Development and Flood Risk (PPS25). The aims of PPS25 are to ensure that flood risk is taken into account at all stages of the planning process, to avoid inappropriate development in areas at risk of flooding and to direct development away from areas at highest risk. Where new development is necessary in such areas, under exceptional circumstances, the policy aims to make the development 'safe' without increasing flood risk elsewhere and, where possible, reducing flood risk overall.

2.2 Environment Agency Flood Zones

2.2.1 Flood Zones are integral to the SFRA process, and are referred to as follows:

- Flood Zone 1 (Low Probability): This zone comprises land assessed as having less than a 1 in 1000 year annual probability of river or sea flooding in any year (<0.1%)
- Flood Zone 2 (Medium Probability): This zone comprises land assessed as having between a 1 in 100 (1%) and 1 in 1000 (0.1%) annual probability of river flooding in any one year
- Flood Zone 3a (High Probability): This zone comprises land assessed as having a 1 in 100 or greater annual probability of river flooding in any one year (1%)
- Flood Zone 3b (Functional Floodplain): This zone comprises land where water has to flow or be stored in times of flood. SFRAs should identify this Flood Zone (land which would flood with an annual probability of 1 in 20 (5%) or greater in any year or is designed to flood in an extreme (0.1%) flood, or at another probability to be agreed between the LPA and the Environment Agency, including water conveyance routes)

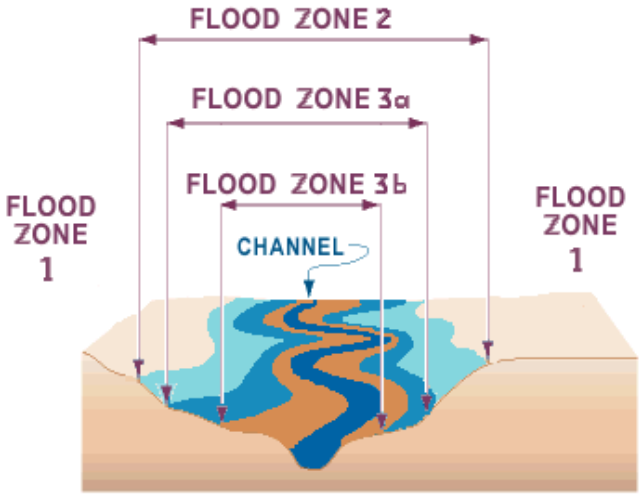

Figure 1.2 Environment Agency Flood Zones

2.3 Level 1 and Level 2 Strategic Flood Risk Assessments

2.3.1 There are two levels of SFRA:

Level 1 SFRA

2.3.2 The Level 1 SFRA is a tool that can be used by a planning authority to:

- Locate new development in areas of lowest flood risk
- Where this is not possible, carry out the **Sequential Test** and identify where the **Exception Test** will be required
- Prepare appropriate policies for the management of flood risk
- Identify opportunities for reducing flood risk and consider the implications of climate change

Sequential Test

2.3.3 Using the information from the Level 1 SFRA, the planning authority can apply the Sequential Test:

- A process which seeks to allocate all new development in Flood Zone 1
- Where this is not possible, development in Flood Zone 2 should be considered
- Where this is not possible, development in Flood Zone 3 should be considered
- If there are no reasonably available sites in Flood Zone 1, the vulnerability of the development will be taken into account when looking to place in FZ 2 or 3

2.3.4 In some cases, in order to undertake a Sequential Test, additional data and understanding may be required – this is one of the purposes of a Level 2 study.

Level 2 SFRA

2.3.5 A Level 2 study (such as this Gloucester, Cheltenham and Tewkesbury Level 2 SFRA) refines and builds upon the work undertaken in the Level 1 SFRA (published in September 2008). A number of key sites identified during the Level 1 SFRA which may be considered for future development, had a higher level of flood risk, and therefore these sites were brought forward for further consideration. The Level 2 SFRA therefore:

- Improves the existing Flood Zone information for key watercourses in the JCS area
- Assesses the flood hazard posed by these watercourses
- Assesses the residual fluvial flood risk posed by the watercourses (blockages and defence failure)
- Assesses the risk arising from surface water

2.3.6 Flood hazard enables the variation in risk within a flood zone to be understood, as it distinguishes between areas of higher hazard (deep and/or fast flowing water) against areas of lower hazard (shallow and/or slow flowing water).

Exception Test

2.3.7 The main purpose of this Level 2 SFRA is to facilitate the application of the Sequential and Exception Tests for sites that have been identified from the Level 1 SFRA stage. The Exception Test is applied when there are an insufficient number of suitably available sites for development within zones of lower flood risk or due to possible increases in flood risk arising from climate change. In such cases, a Level 2 SFRA is required to facilitate application of the Exception Test.

2.3.8 **For the Exception Test to be passed**:

a) It must be demonstrated that the development provides wider sustainability benefits to the community which outweigh flood risk, informed by a SFRA where one has been prepared. If the Development Plan Document has reached the 'submission' stage (see Figure 4 of PPS12: Local Development Frameworks) the benefits of the development should contribute to the Core Strategy's Sustainability Appraisal;

b) The development should be on developable previously-developed land or, if it is not on previously developed land, that there are no reasonable alternative sites on developable previously-developed land; and,

c) A flood risk assessment must demonstrate that the development will be safe, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

2.3.9 It is possible that the JCS consortium will need to apply the Exception Test to future land allocations or brownfield re-developments. The purpose of this study is to provide the necessary information for this to be carried out, in the study areas modelled as part of this assessment, as the need arises. Should additional sites outside the study areas within this assessment come forward, there may be a need for further Level 2 SFRA work.

2.4 Planning Context

2.4.1 Following recent changes to the planning system, including the recent abolition of the South West Regional Spatial Strategy (which originally set targets for housing and jobs) the JCS consortium must now work together to assess local housing and employment needs. One of the many considerations within this process is flood risk – understanding the risk and ensuring development proposals appropriately consider this risk, in line with PPS25 requirements, to ensure sustainable development.

2.4.2 Through the work undertaken within this Level 2 SFRA, an improved understanding of flood risk has been achieved, providing local authorities with a useful tool upon which informed decisions on the allocation of future development can be made, taking into account flood risk via the application of the Sequential Test and where required, the Exception Test.

2.4.3 This Level 2 SFRA has been prepared in accordance with best practice, PPS25 and the latest PPS25 Practice Guide. The Environment Agency's Development and Flood Risk Mapping teams have also been consulted at all stages of the assessment, and modelling and mapping methodologies have been discussed and agreed with the Environment Agency to ensure acceptance of the Level 2 SFRA approach. The SFRA has been reviewed by the Environment Agency, and a formal response letter is included at the end of the main report.

2.5 Key Local Policy

2.5.1 The Level 2 SFRA study has been produced with regard to the following external local policies:

- Fluvial Severn Catchment Flood Management Plan (CFMP)
- Severn Tidal Tributaries CFPM
- Severn Estuary Shoreline Management Plan
- Surface Water Management Plans

Further information on Local Policy can be found in Section 2 of the main report.

2.6 Proposed Development Sites

2.6.1 Sites have been selected by the JCS for assessment based on the flood risk identified in the Level 1 SFRA (published September 2008), and on the likelihood of any site's future development. In total, 16 sites potential development sites were identified as shown in Figure 2.1. Appendix A of the main report provides detailed location maps of these areas.

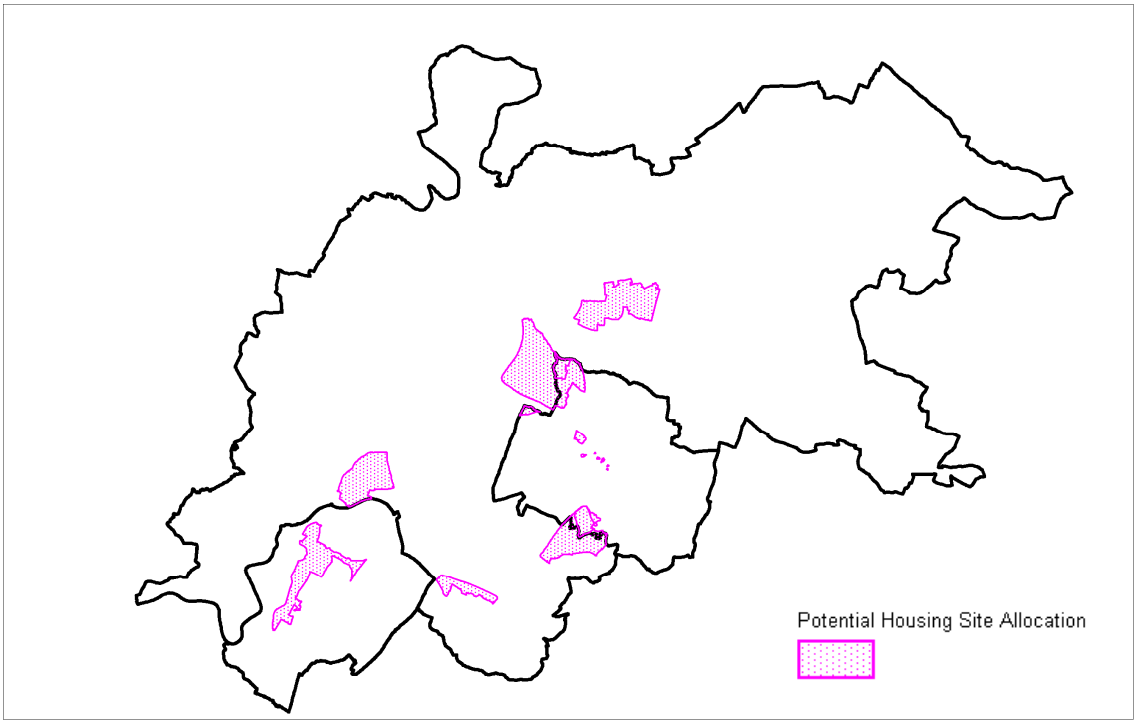

Figure 2.1: Potential housing site allocations within the JCS area assessed as part of the Level 2 SFRA

3 Level 2 SFRA Methodology

3.1 Analysis & Results

3.1.1 To provide the Level 2 SFRA with a greater level of flood risk understanding, additional data sets were gathered and hydraulic modelling undertaken. The study required an assessment of flooding from all sources, and so utilised modelled results in conjunction with historic data, existing surface water mapping (from the Gloucestershire county-wide Surface Water Management Plan), and discussions with stakeholders and the Environment Agency.

3.1.2 Development Control Policies and guidance for Flood Risk Assessments were also required to assist with the planning application process, and produced as part of this commission.

An overview of the analysis undertaken as part of this Level 2 study can be found in Section 3.2 of the main report, whilst detailed information regarding the hydraulic modelling approach is contained with Section 4 of the main report.

The results of the analysis are presented in Sections 5 to 11 of the main report. Each of these sections outlines the flood risk from all sources (including historic flood risk) and residual risk (from culvert blockages, or failure of flood risk management assets or canal embankments).

3.2 Interpretation of Results - Site Assessments

3.2.1 The results of the analysis phase of the study were used to undertake Site Assessments, which provided the JCS consortium with a comprehensive understanding of flood risk posed to each potential development site, enabling application of the Sequential and Exception Tests and informing the overall consideration of development. These are known as the **Site Assessments** and are located in Appendix A of the main report.

3.2.2 An overview of suitable Sustainable Urban Drainage Systems (SUDS) for the County of Gloucestershire was also undertaken. Maps were produced covering the JCS area, demonstrating soil classification and groundwater source protection zones. In conjunction with geological information, a technical review document has been produced detailing suitable SUDS techniques for each classification, which (along with the maps) are contained within Volume 3 of the main report.

4 Level 2 SFRA Recommendations

4.1 Policy Recommendations Overview

4.1.1 The Level 2 study provided policies developed in partnership with the Local Authorities and Environment Agency for flood risk management. These were in line with PSS25 requirements and in accordance with relevant Catchment Flood Management Plan objectives. The recommendations were provided to enhance the existing flood risk management policies outlined in the Level 1 SFRA report. Strategic policy recommendations for all sites are provided in Section 12.2 of the main report, whilst the site Specific policies are outlined in Section 12.3 of the main report.

4.1.2 Development Control policies were also provided to give guidance for development in different Flood Zones, which can be used by potential developers required to produce site-specific FRAs, and to help the Councils deal with non-allocated 'windfall' sites, should they arise.

End of Document