

Settlement	Site code	Vulnerability class (NPPF)	% Flood Zone 3b	% Flood Zone 3a	% Flood Zone 3a plus CC	% Flood Zone 2	% uFMFSW 1000yr	Within 8m of a water-course?	% Historic Flood Map	Hazard category (where available)	Max Depth (m) (where available)	Comments on constraints (e.g. development not permitted/Exception Test required)
Moreton-in-Marsh	M_14B	More					10% to 50%	Yes				Flood risk from other sources
Moreton-in-Marsh	M_14C	More			10% to 50%	10% to 50%	10% to 50%	Yes	10% to 50%			Exception Test required in FZ2 for Highly Vulnerable use
Moreton-in-Marsh	M_19A	More					< 10%	Yes				Flood risk from other sources
Moreton-in-Marsh	M_19B	More			< 10%	< 10%	10% to 50%	Yes	< 10%			Exception Test required in FZ2 for Highly Vulnerable use
Moreton-in-Marsh	M_21	More					10% to 50%	Yes				Flood risk from other sources
Moreton-in-Marsh	M_29	More			> 50%	> 50%	> 50%		> 50%			Exception Test required in FZ2 for Highly Vulnerable use
Moreton-in-Marsh	M_51	More										No constraints
Moreton-in-Marsh	M_56	More			> 50%	> 50%	10% to 50%		> 50%			Exception Test required in FZ2 for Highly Vulnerable use
Moreton-in-Marsh	M_57	More										No constraints
Moreton-in-Marsh	M_60	More					10% to 50%	Yes				Flood risk from other sources
Northleach	N_13B	More					< 10%					Flood risk from other sources
Northleach	N_14B	More					< 10%					Flood risk from other sources
Northleach	N_1A	More					< 10%					Flood risk from other sources
Northleach	N_8	More					< 10%					Flood risk from other sources
Siddington	SD_3	More					< 10%					Flood risk from other sources
South Cerney	SC_13A	More		< 10%	< 10%	< 10%	< 10%			Low	0.144	Exception Test required in FZ3a for More Vulnerable use.
Stow-on-the-Wold	S_14	More										No constraints
Stow-on-the-Wold	S_20	More										No constraints
Stow-on-the-	S_22B	More					< 10%	Yes				Flood risk from other sources

Settlement	Site code	Vulnerability class (NPPF)	% Flood Zone 3b	% Flood Zone 3a	% Flood Zone 3a plus CC	% Flood Zone 2	% uFM/5W 1000yr	Within 8m of a water-course?	% Historic Flood Map	Hazard category (where available)	Max Depth (m) (where available)	Comments on constraints (e.g. development not permitted/Exception Test required)
Wold												
Stow-on-the-Wold	S_34A	More										No constraints
Stow-on-the-Wold	S_34B	More										No constraints
Stow-on-the-Wold	S_46	More					< 10%					Flood risk from other sources
Stow-on-the-Wold	S_8A	More										No constraints
Tetbury	T_24B	More					< 10%					Flood risk from other sources
Tetbury	T_31B	More					< 10%					Flood risk from other sources
Tetbury	T_38	More										No constraints
Tetbury	T_51	More					10% to 50%					Flood risk from other sources
Tetbury	T_61	More					< 10%					Flood risk from other sources
Upper Rissington	UR_2	More										No constraints
Willersey	W_1A	More					< 10%					Flood risk from other sources
Willersey	W_1B	More										No constraints
Willersey	W_4	More					10% to 50%	Yes				Flood risk from other sources
Willersey	W_4B	More					10% to 50%	Yes				Flood risk from other sources
Willersey	W_5	More										No constraints
Willersey	W_7A	More					< 10%					Flood risk from other sources
Willersey	W_8A	More					10% to 50%	Yes				Flood risk from other sources
Willersey	W_8B	More					10% to 50%	Yes				Flood risk from other sources
Willersey	W_9	More					> 50%	Yes				Flood risk from other sources
Willersey	W_10	More					10% to 50%	Yes				Flood risk from other sources

Table 5-3: Flood risk to potential economic development sites

Settlement	Site code	Vulnerability class (NPPF)	% Flood Zone 3b	% Flood Zone 3a	% Flood Zone 3a plus GC	% Flood Zone 2	% uFMFSW 1000yr	Within 8m of a water-course	Historic Flood Map	Hazard Category (where available)	Max Depth (m) (where available)	Local evidence	Comments on constraints (e.g. development not permitted/Exception Test required)
Bourton-on-the-Water	BOW_E1	Less			< 10%	< 10%	10% to 50%	Yes					Exception Test required in FZ2 for Highly Vulnerable use
Bourton-on-the-Water	BOW_E3	Less					< 10%						Flood risk from other sources
Bourton-on-the-Water	BOW_E4	Less											No constraints
Chipping Campden	CCN_E1	Less					< 10%	Yes					Flood risk from other sources
Chipping Campden	CCN_E3A	Less			< 10%	< 10%	< 10%						Exception Test required in FZ2 for Highly Vulnerable use
Chipping Campden	RUR_E19	Less					< 10%						Flood risk from other sources
Cirencester	CIR_E10	Less						Yes					No constraints
Cirencester	CIR_E11	Less	< 10%	< 10%	< 10%	< 10%	10% to 50%	Yes		Significant	0.399		Less vulnerable development not permitted in Flood Zone 3b. Sequential planning of the site would be necessary.
Cirencester	CIR_E12	Less					< 10%						Flood risk from other sources
Cirencester	CIR_E13	Less					< 10%						Flood risk from other sources

Settlement	Site code	Vulnerability class (NPPF)	% Flood Zone 3b	% Flood Zone 3a	% Flood Zone 3a plus CC	% Flood Zone 2	% uFMSW 1000yr	Within 6m of a water-course	Historic Flood Map	Hazard Category (where available)	Max Depth (m) (where available)	Local evidence	Comments on constraints (e.g. development not permitted/Exception Test required)
Cirencester	CIR_E14	Less	< 10%	< 10%	10% to 50%	> 50%	10% to 50%						Less vulnerable development not permitted in Flood Zone 3b. Sequential planning of the site would be necessary.
Cirencester	CIR_E20	Less					< 10%						Flood risk from other sources
Cirencester	CIR_E4A	Less											No constraints
Cirencester	CIR_E5	Less					< 10%						Flood risk from other sources
Cirencester	CIR_E6	Less											No constraints
Lechlade	LEC_E1	Less					< 10%	Yes					Flood risk from other sources
Lechlade	LEC_E2A	Less											No constraints
Moreton-in-Marsh	MOR_E11	Less						Yes					No constraints
Moreton-in-Marsh	MOR_E4	Less			< 10%	< 10%	10% to 50%		< 10%				Exception Test required in FZ2 for Highly Vulnerable use
Moreton-in-Marsh	MOR_E5	Less					10% to 50%						Flood risk from other sources
Moreton-in-Marsh	MOR_E6	Less											No constraints
Moreton-in-Marsh	MOR_E7	Less					10% to 50%	Yes					Flood risk from other sources
Moreton-in-Marsh	MOR_E8	Less					10% to 50%						Flood risk from other sources
Moreton-in-	MOR_E9A	Less											No constraints

Settlement	Site code	Vulnerability class (NPPF)	% Flood Zone 3b	% Flood Zone 3a	% Flood Zone 3a plus CC	% Flood Zone 2	% uFMfSW 1000yr	Within 8m of a water-course	Historic Flood Map	Hazard Category (where available)	Max Depth (m) (where available)	Local evidence	Comments on constraints (e.g. development not permitted/Exception Test required)
Marsh													
Northleach	NOR_E3A	Less					< 10%						Flood risk from other sources
South Cerney	RUR_E12	Less		> 50%	> 50%	> 50%	< 10%			Low	0.661		Significant flood risk. Exception Test required in FZ3a for More Vulnerable use.
South Cerney	RUR_E13	Less	< 10%	< 10%	< 10%	> 50%	10% to 50%	Yes	> 50%	Moderate	0.750		Less vulnerable development not permitted in Flood Zone 3b. Sequential planning of the site would be necessary.
Stow-on-the-Wold	STW_E1	Less											No constraints
Stow-on-the-Wold	STW_E7	Less											No constraints
Stow-on-the-Wold	STW_E9	Less											No constraints
Tetbury	TET_E1	Less					< 10%						Flood risk from other sources
Tetbury	TET_E2	Less											Flood risk from other sources
Tetbury	TET_E4	Less					< 10%						Flood risk from other sources
Willersey	WIL_E1C	Less					< 10%						Flood risk from other sources



6 Guidance for planners and developers

6.1 Introduction

In terms of planning for future development, the preparation of Strategic Flood Risk Assessments (SFRA) has become essential evidence that is required to help support Local Plans. Planners and developers should follow the NPPF Planning Practice Guidance and [Environment Agency Flood Risk Standing Advice](#)²⁶ as a starting point when considering applications for new development. In addition, developers should engage with the Local Authority in the early stage of planning, as CDC has specific guidance with regards to any site >5 hectares concerning the assessment of risk from surface water.

This section will summarise guidance for CDC on the appropriate planning response for all development in Flood Zones 1, 2, 3a and 3b (from large strategic sites site allocations to small windfall sites) and provide guidance for developers on what should be included within an appropriate Flood Risk Assessment. Flood Zone 3a plus climate change and Flood Zone 2 plus 10m buffer should be used to assess the impact of climate change on the NPPF Flood Zones. It should be read with reference to Map 1 and 2 which show the available flood mapping information for different sources of flood risk.

Table 3 of the NPPF Planning Practice Guide provides further detail of the type of development considered appropriate for each Flood Zone, where development is not permitted, and where development is allowed only when the Exception Test is passed.

6.2 Identifying areas at risk of flooding

When presented with a site for development, planners and developers should use the evidence and maps presented in this SFRA, along with other evidence (see Section 3.8) to identify any risk of flooding (from all sources). Table 6-1 gives some guidelines on sources of evidence and criteria for identifying a significant level of risk.

Table 6-1: Identifying areas at risk of flooding from all sources

Source of flooding	Sources of evidence	Criteria for identifying risk
Fluvial	Environment Agency Flood Zones Environment Agency Historic Flood Map CDC/GCC records Anecdotal evidence	Within Flood Zone 2 or 3.
Minor watercourses (not included in Flood Zone maps)	Detailed River Network CDC/GCC records Anecdotal evidence	Within 8m of the watercourse Local evidence of historic flooding from the watercourse.
Surface water	Environment Agency Flood Map for Surface Water CDC/GCC records Anecdotal evidence	Predicted surface water depths greater than 0.3m at the site on the Flood Map for Surface Water 200 year. Local evidence of surface water flooding in the area.
Groundwater	Environment Agency Areas Susceptible to Groundwater Flooding CDC/GCC records Anecdotal evidence	Risk in highest category on ASTGWF. Local evidence of groundwater flooding problems in the area.
Sewer	Thames Water Sewer Flooding Register Map CDC/GCC records Anecdotal evidence	Local evidence of sewer flooding to existing properties on or near the site. Sewer flooding records provided by Thames Water are not detailed enough to identify site-specific risks. However, Thames Water will comment on larger planning applications, and on Local Plans.
Flooding from reservoirs, canals and other artificial sources	Environment Agency reservoir flood plans - can be viewed on the Environment Agency website under Risk of Flooding from Reservoirs ¹⁷ ,	Within flood envelope on Environment Agency reservoir flooding maps. Within 8m of a canal or other waterbody.

²⁶ [Environment Agency Flood Risk Standing Advice](#)
2016s3821 Cotswold SFRA Update Final (May 2016)



6.3 Permitted development in Flood Zones

6.3.1 Flood Zone 1

All development (essential infrastructure, highly vulnerable, more vulnerable, less vulnerable and water-compatible development) is allowed in Flood Zone 1. All development proposals should consider the following about the sites:

- Their vulnerability to flooding from other sources as well as from fluvial flooding.
- Their potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water runoff.
- Their potential impact on other sources of flood risk such as the groundwater regime (specifically underground development) and the overland flow routes for surface water.
- Their potential impact on watercourses including those not considered in the Flood Zones.
- Developments should be set back from watercourses, seeking a minimum of 8 metres wide undeveloped strip from the top of bank.
- Their access and egress, it should be noted for sites where access and egress routes are located in Flood Zone 2 and/ or 3, the site will be considered to be in that Flood Zone.

Developments greater than one hectare 1ha in Flood Zone 1

A detailed FRA must be undertaken by a suitably qualified professional. It should:

- Assess risk from all sources of flooding (e.g. fluvial, surface water, sewer, and groundwater) for the lifetime of the development (accounting for climate change. Provide a detailed assessment of the risk using hydraulic modelling, surface water modelling or groundwater investigations as appropriate.
- Recommend mitigation measures in response to any identified flood risk:
 - Sequentially design the site to locate the built element of the development away from the source of flood risk, see section 6.3.7.
 - Substitute less vulnerable development types for those incompatible with the degree of flood risk, see Section 6.3.8. Appropriate space should be allocated within the site for SuDS.
- Assess the impact of proposed development upon surface water drainage following any increase in impermeable area. This should include the potential impact upon areas and receiving watercourses downstream, and recommend the approach to control surface water discharge.
- Demonstrate that a proposed development can reduce flood risk elsewhere through the addition of SuDS, to control the potential impact new development may have on the surface water run-off regime, see Section 0. The following minimum drainage requirements should be adhered to:
 - Surface water run-off rates are attenuated to greenfield run-off rates. Higher rates would need to be justified and the risks quantified. Developers should strive to reduce run-off rates for existing developed sites. Early liaison with CDC and the Environment Agency should be undertaken to consider viable options for onsite drainage.
 - Attenuation up to the 1% annual probability event plus climate change.
 - Consideration of the existing groundwater regime.
- Developers should also be able to demonstrate that a proposed development does not adversely impact on the local groundwater regime.
- It is recommended that the FRA should propose a schedule to monitor groundwater levels from the conception to the completion of a proposed development. This schedule should ideally include a scheme for monitoring groundwater levels for a year post development to ensure that there is no alteration to the groundwater regime.²⁷

²⁷ Note: This measure is not compulsory, but in areas where sites are potentially vulnerable to ground water flooding an assessment of this risk will need to be considered. CDC has recommended this approach.



Further information on the details to be provided within the FRA can be found in the [Environment Agency's FRA Guidance Note 1](#)²⁸, [CIRIA report C624](#)²⁹, and [PPS 25 Practice Guide](#)³⁰.

Developments less than one hectare in Flood Zone 1

CDC should be consulted directly for developments <1ha in Flood Zone 1. The Environment Agency is only statutory consultee for sites greater than 1 ha. If a site within Flood Zone 1 has been identified by the SFRA as having a known drainage problem, or has experienced flooding from other sources, then a detailed FRA is required (as above).

For those proposed developments where there is not a known drainage issue then a detailed FRA is not required. Nevertheless, the proposed development should include the appropriate application of sustainable drainage techniques so as to maintain, or preferably reduce the existing runoff and flood risk in the area, see Section 0.

Developers should also be able to demonstrate through an appropriate assessment that a proposed development does not adversely impact on the local groundwater regime.

6.3.2 Flood Zone 2

Flood Zone 2 is considered suitable for water-compatible, less vulnerable, more vulnerable and essential infrastructure, following application of the Sequential Test. Highly vulnerable development is only allowed where the Exception Test is passed. A Flood Risk Assessment is required for all development. Planners and developers are to be aware that a FRA should be appropriate to the scale and size of the development and undertaken by a suitably qualified professional. The following should be included within a FRA for developments within Flood Zone 2:

- Assess risk from all sources of flooding (e.g. fluvial, surface water, sewer, and groundwater) for the lifetime of the development (accounting for climate change. Provide a detailed assessment of the risk using hydraulic modelling, surface water modelling or groundwater investigations as appropriate.
- Recommend mitigation measures in response to any identified flood risk, such as:
 - Sequentially design the site to locate the built element of the development away from the source of flood risk, see section 6.3.7.
 - Substitute less vulnerable development types for those incompatible with the degree of flood risk, see Section 6.3.8. Appropriate space should be allocated within the site for SuDS.
 - Floor levels should be situated above the 1 in 100-year plus climate change predicted maximum level with a minimum freeboard of 300mm, see 6.6.2.
 - Demonstration that flood resilience/ resistance and emergency escape measures have been incorporated where appropriate. This includes flood defences, flood resilient and resistant design, effective flood warning and emergency planning are acceptable, see 6.6.2.
- Assess the impact of proposed development upon surface water drainage following any increase in impermeable area. This should include the potential impact upon areas and receiving watercourses downstream, and recommend the approach to control surface water discharge.
- Demonstrate that a proposed development ensures flood risk is not increased elsewhere through the addition of SuDS, to control the potential impact new development may have on the surface water run-off regime see Section 0. The following minimum drainage requirements should be adhered to:
 - Surface water run-off rates are attenuated to greenfield run-off rates. Higher rates would need to be justified and the risks quantified. Developers should strive to

28 Environment Agency, FRA Guidance Note 1 http://www.environment-agency.gov.uk/static/documents/Utility/FRAGuidanceNote1_v3.1.pdf

29 CIRIA (2004) Development and Flood Risk: Guidance for the Construction Industry. Report C624 http://www.ciria.org/service/AM/ContentManagerNet/Search/SearchRedirect.aspx?Section=Search1&content=product_excerpts&template=/contentmanagernet/contentdisplay.aspx&contentfileid=1417

30 Department of Communities and Local Government (2009) Planning Policy Statement 25: Development and Flood Risk Practice Guide.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7772/pps25guideupdate.pdf
2016s3821 Cotswold SFRA Update Final (May 2016)