POLICY :	HD6 – Southern Urban Expansion Area (Lower Bullingham)
LOCATION:	Hereford
DESCRIPTION:	Mixed use development of around 1,000 new dwellings and 5ha of employment land
GRID REFERENCE:	OS 35200 23750
	May 2015

Introduction

Herefordshire Council requires an overview of the Core Strategy – strategic housing and employment proposals, with a view to identifying key development constraints in regard to flood risk and land drainage aspects. Information relating to the review of strategic proposals has been obtained from the following sources:

- Environment Agency (EA) indicative flood maps available through the EA website;
- EA groundwater maps available through the EA website;
- Ordnance Survey mapping;
- Strategic Flood Risk Assessment for Herefordshire, March 2009;
- Herefordshire Unitary Development Plan - March 2007;
- Technical Guidance to the National Planning Policy Framework (NPPF).

Overview of the Policy Development Proposals

The Southern Urban Expansion Area (Lower Bullingham) will accommodate around 1,000 new homes and 5ha of employment land within the plan period.

The Core Strategy does not identify or allocate specific sites for this area but in undertaking this report a review of the SHLAA database has been used to provide a basis for the assessment. The area assessed is shown below.

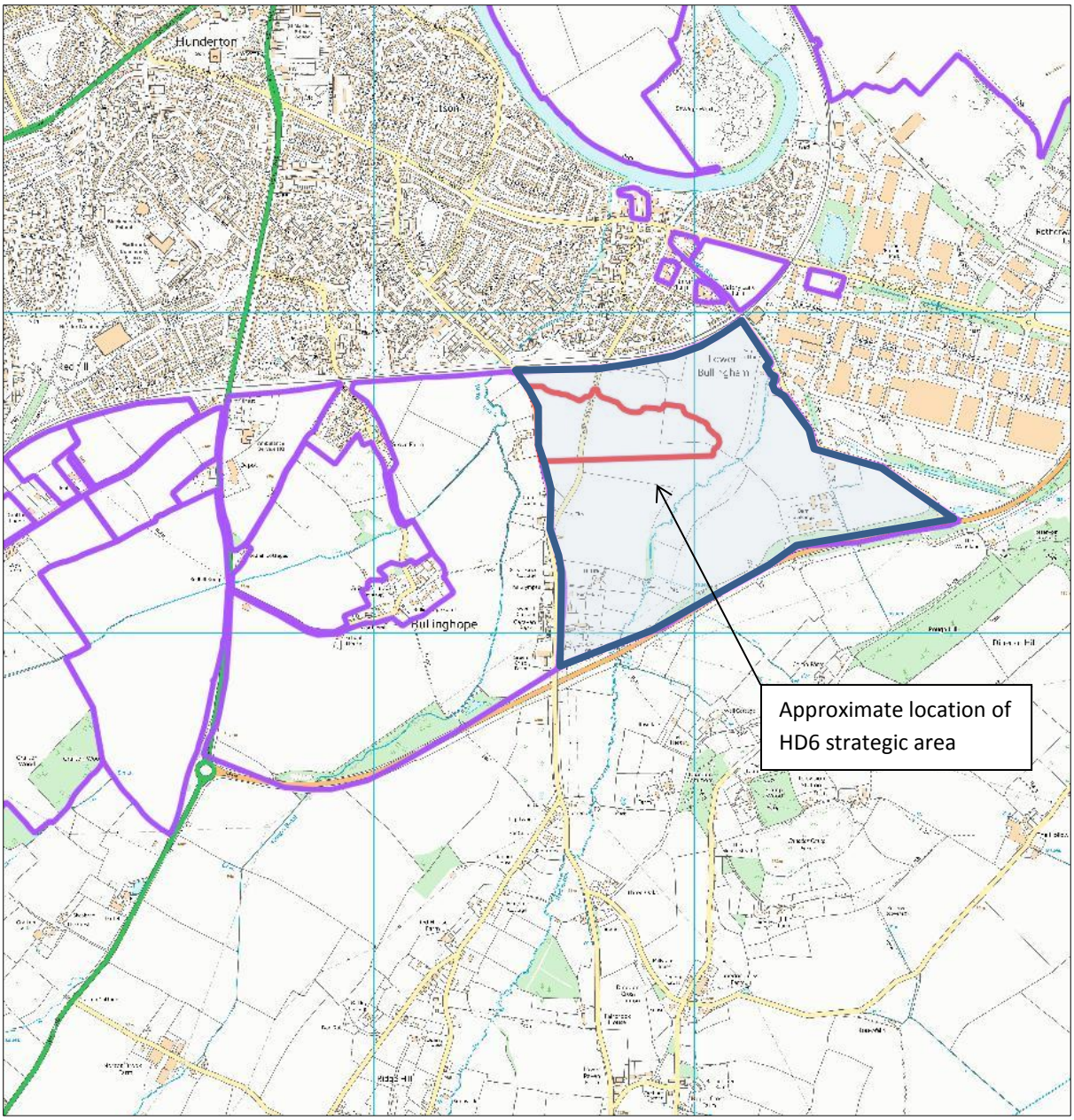

Figure 1: HD6 Southern Urban Expansion Area (Lower Bullingham) – Strategic Development Area (shaded blue)

General Description of Strategic Development Area

The existing area is a greenfield area largely comprising mixed arable land and a small area of pasture land. The Red Brook watercourse flows from south-west to north-east through the area. A further unnamed watercourse flows from west to east along the northern boundary of the area. Norton Brook flows from south to north approximately 100m to the west of the area. Norton Brook joins with Withy Brook just outside the north-west corner of the area and continues northwards to the River Wye. The general topography of the strategic area is that land slopes downwards from south-west to north-east across the area, and towards Red Brook running through the area. The majority of the area is situated at an elevation of about 55 – 70m AOD.

Environment Agency Flood Map

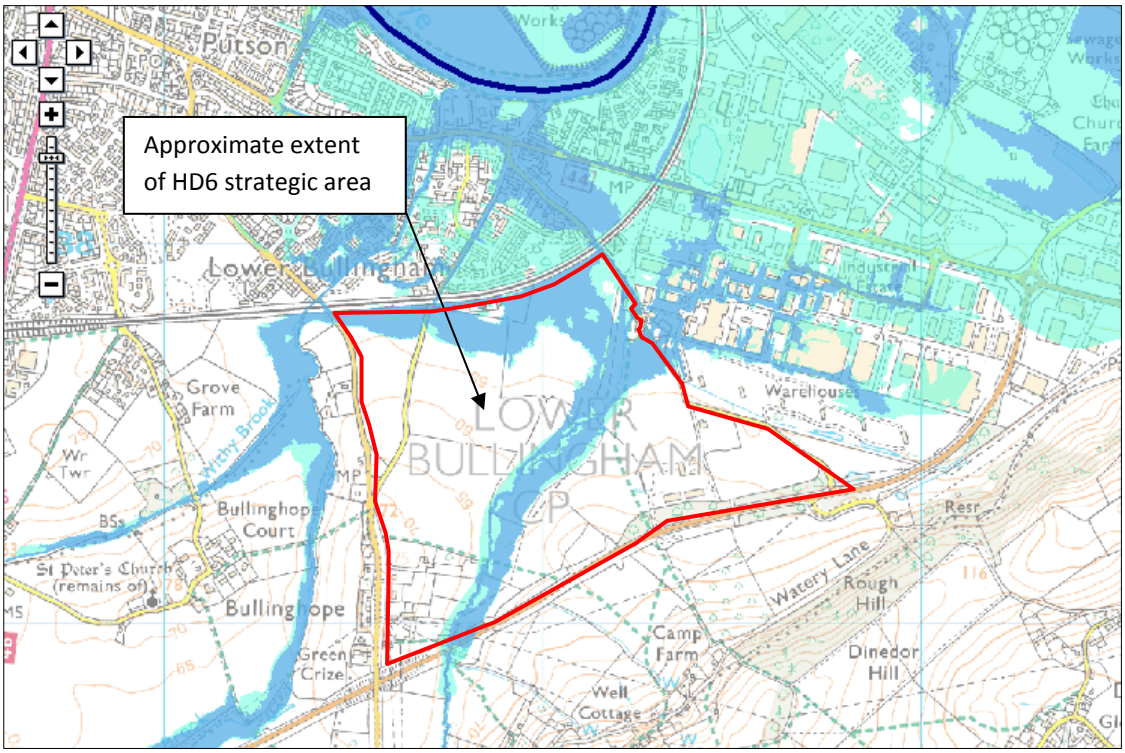

Figure 1: Environment Agency Indicative Flood Map, February 2014

Fluvial Flood Risk

As shown by the EA Indicative Flood Map in Figure 1, a large part of the Policy HD6 Southern Urban Expansion Area (Lower Bullingham) is situated within Flood Zone 1, a low risk flood area with a less than a 1 in 1000 annual probability of river flooding. However, there are areas of greater flood risk located within the area. The river corridor of Red Brook flowing through the area, and the unnamed watercourse along the northern boundary of the area, are associated with Flood Zone 2 and Flood Zone 3 areas, with a large extent of Flood Zone 3 shown in the north-east corner of the area where the two watercourses meet. Flood Zone 2 areas are medium flood risk areas comprising land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1%); Flood Zone 3 areas are high risk flood areas where the land is assessed as having a 1 in 100 or greater annual probability of river flooding (>1%). It should also be noted that areas of Flood Zones 2 and 3 are also present to the west of the strategic area.

Residential and employment area types of development are classified as being “More Vulnerable” to flood risk. “More Vulnerable” development is appropriate in Flood Zones 1 and 2 but must pass an Exception Test to justify their development in Flood Zone 3 areas.

Red Brook, Norton Brook and the unnamed watercourse at the northern boundary of the development area are classified as ‘Ordinary Watercourse’.

Other Sources of Flood Risk and Considerations

EA maps indicate no risk of potential reservoir flooding to the development area.

The EA maps identify that the strategic development area does not lie within a designated groundwater source protection zone (although groundwater source protection zones are located approximately 2km to the north west). The development area lies within a groundwater vulnerability zone with zones of both ‘Minor Aquifer

Intermediate' and 'Minor Aquifer High' designations across the area. The area also lays within designated zones of both surface and groundwater Nitrate Vulnerable Zones.

The Aquifer maps indicate the underlying bedrock is designated as a 'Secondary A' aquifer and superficial deposits may be present below the area with a 'Secondary (undifferentiated)' designation.

Strategic Flood Risk Assessment Comments

There is a history of flooding in the Lower Bullingham area, in particular around Holme Lacy Road and Watery Lane, primarily due to the floodplain of the River Wye. The Lower Wye at Hereford, affecting both Red Brook and Withy Brook, has been ranked No 1 with the highest fluvial flood risk in the county. The River Wye has been extensively modelled. A 1D HEC-RAS hydraulic model exists for Red Brook and Withy Brook, although this is now more than 10 years old.

This potential development area has been reviewed in the SFRA, which concluded that local fluvial flood risks within the area are likely to be manageable but surface water runoff from development has the potential to severely overload the receiving watercourses. Significant attenuation is likely to be required but this must be arranged to empty before peak flows of the River Wye reach the city. This will not be straightforward to arrange and a detailed Surface Water Management Plan was recommended for the development area.

Surface Water Flood Risk

The updated EA Flood Maps for Surface Water shown in Figure 2 below illustrates that there is no significant risk of surface water flooding across the majority of the area. However, there are medium to high risks of surface water flooding across the area in the vicinity of Red Brook and the unnamed watercourse, and also with Norton and Withy Brooks to the west of the area.

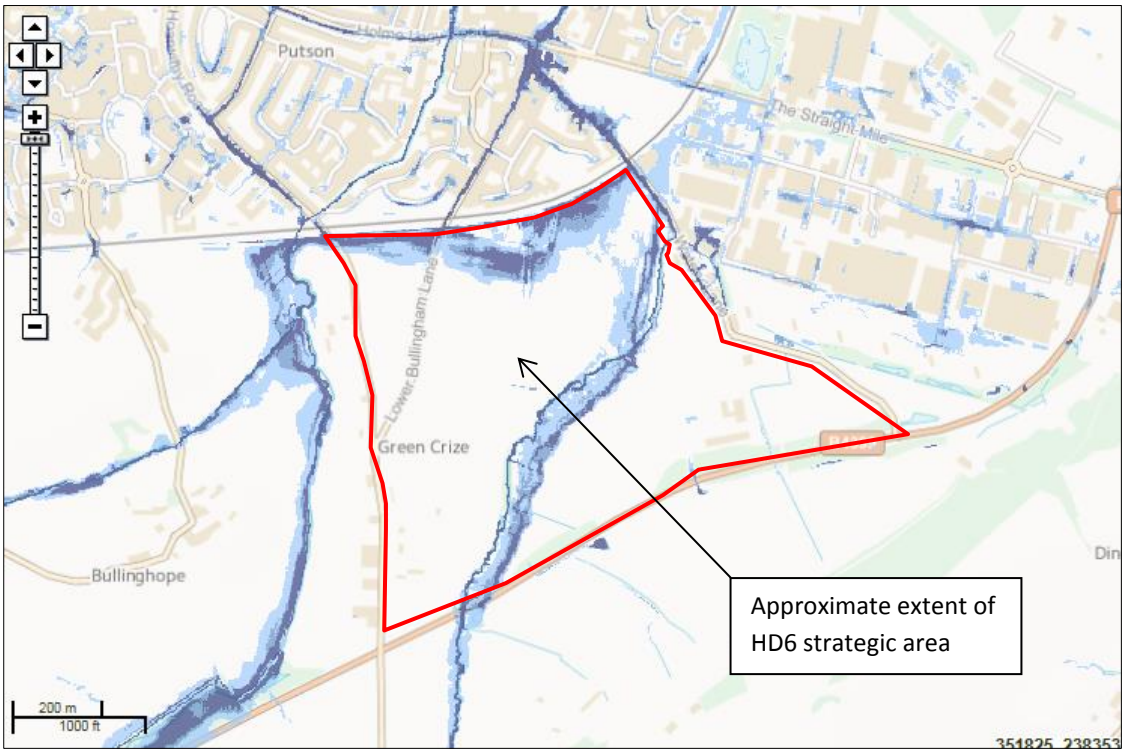

Figure 2: Environment Agency Updated Surface Water Flood Risk Map, February 2014

Surface Water Drainage

In accordance with the draft National Standards for Sustainable Drainage and Policy DR4 of the Unitary Development Plan, a surface water drainage strategy will be required that incorporates the use of Sustainable Drainage (SUDS) where possible. SUDS features promote the use of infiltration features in the first instance. If drainage cannot be achieved solely through infiltration due to ground conditions or contamination risks, the preferred options are (in order of preference): (i) a controlled discharge to a local watercourse, or (ii) a controlled discharge into the public sewer network (depending on availability and capacity).

As has been highlighted above, the surface water drainage strategy for development of this area will require very careful consideration to avoid increasing the flood risk to properties downstream of the site.

Red Brook, Norton Brook and the unnamed watercourse at the northern boundary of the development area are classified as 'Ordinary Watercourse'. As such, permissions and approvals for the discharge of surface water to these watercourses will fall to Herefordshire Council as the Lead Local Flood Authority (LLFA).

Foul Water Drainage

Existing public foul sewers are likely to be present nearby serving the residential communities to the north of the railway and the employment area to the east of the strategic area. The topography of the strategic area slopes in the general direction towards the existing residential and employment areas, that suggests existing sewerage infrastructure will be at a lower elevation than new development, and that a gravity-based foul drainage system could be developed to serve future development on the strategic area. The capacity of existing public sewers, and the need for any off-site sewerage upgrades, will need to be confirmed with Dwr Cymru Welsh Water.

Overall Comment

The flood risk on this strategic area is considered to be low for the majority of the area but of medium to high risk in the vicinity of Red Brook and the unnamed watercourse flowing through the area, and in the north east corner of the area. Residential and employment type development will be appriopriate in Flood Zone 1 for the majority of the area. At this stage, it likely that the majority of the proposed residential and employment development (including primary access roads and associated infrastructure) could be located in Flood Zone 1 areas. However, the large extent of Flood Zone 3 area in the north-east corner of the site may make continuity difficult of locating new employment development adjacent to the existing employment land. Detailed hydraulic modelling will be required at planning stage for this area to demonstrate that all built development is achievable in areas of the least flood risk. It will be desirable to locate buffer zones, green corridors, and public open space within Flood Zone 3a areas and areas of surface water flooding associated with Red Brook and the unnamed watercourse. Only 'Essential Infrastructure' that has passed the Exception test may be located in Flood Zone 3b, functional floodplain areas.

All proposed development in this area will require a detailed site-specific FRA and surface water drainage strategy at planning application stage. The site specific FRA will need to include detailed hydraulic modelling of Red Brook and the unnamed watercourse to fully confirm developable areas. It may also be necessary tio include Norton Brook in the scale of hydraulic modelling in this area.

The management of surface water runoff from the re-development will require careful consideration and a surface water drainage strategy will need to be developed in accordance with draft National Standards for Sustainable Drainage. It has been recommended (in the SFRA) that a detailed Surface Water Management Plan is developed for this area. It is likely that any discharges to Red Brook or the unnamed watercourse flowing through the area will need to be severely restricted and timed to avoid peak flows in the River Wye to protect properties downstream in Lower Bullingham and Rotherwas. Suitable foul sewer connection points will need to be identified and agreed to receive foul effluent discharges from a development.