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**Our ref:** SV/2013/107146/01-L01  
**Your ref:** 2367

**Date:** 25 July 2013

Dear Ms Cornmell

**REVIEW OF PRELIMINARY FLOOD RISK ASSESSMENT (FRA) FOR LAND TO THE WEST OF REDDITCH SP0138867322**

I am writing in reply to your email to the West Area Sustainable Places team on 24 June 2013 requesting advice on the above matter. I apologise for the delay in response.

It is noted from the preliminary FRA that the subject site is approximately 1.45km<sup>2</sup> in area and currently comprises agricultural land, a small number of dwellings and agricultural buildings. There are a number of ordinary watercourses associated with the site including Spring Brook and three of its tributaries. The development proposals for the site are approximately 2830 dwellings, a first school and a local centre.

**Flood Risk**

All of the streams and ditches within the site boundary are classed as ordinary watercourses and the Environment Agency (EA) does not possess detailed hydraulic models for them. Flood zones 2 and 3 (Medium and High Probability zones as defined in Table 1 of the NPPF Technical Guidance) are provided on the Spring Brook downstream of Cur Lane but have been produced from a national, generalised mapping technique (JFlow) rather than from a detailed hydraulic model. This type of modelling ignores the impacts of structures such as bridges and culverts on the Environment Agency

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flooding regime. All of the other watercourses do not have flood zones associated with them but this is due to their catchment size being less than 3km<sup>2</sup> and therefore under the scope of this type of modelling. It does not mean that flooding is not a potential issue on these watercourses.

The FRA confirms that all built development will be located in Flood Zone 1 (Low Probability zone where land has less than a 1 in 1000 annual probability of flooding) where flood zones exist. However, for a development of this scale we would expect full hydraulic modelling of the watercourses to be undertaken to determine the potential flood risk. The results of this should be included with any future planning application. This should include an assessment of the impacts of climate change (20% increase on flows as detailed in Table 5 of the NPPF Technical Guidance) and blockage scenarios of the key structures. However, we agree with the statement made in Paragraph 3.2.5 of the FRA in that the site is very large whilst the watercourses are of a relatively small size and that there should be more than ample land available in Flood Zone 1 for development once this assessment has been undertaken.

We would agree that the alignment of culverted sections of the watercourses should be assessed at an early stage in order to inform the development layout. We would look to opportunities to open up these sections of culverted watercourses wherever possible.

## **Surface Water Drainage Strategy**

The development of greenfield sites of this size has the potential to significantly increase flood risk elsewhere unless the surface water drainage is managed in a sustainable manner. Whilst we would expect the Lead Local Flood Authority (LLFA) to lead on the surface water drainage arrangements, we support the general approach and principles outlined in Section 4 of the FRA. We would however advise that all opportunities are fully exploited in the scheme so as to ensure no negative impact on water quality. Incorporation of systems both at source (i.e. within the footprint of buildings), along pathways (i.e. roads, verges, open areas, footpaths etc) and near to receptors (i.e. near to watercourses) can not only control flows but potentially bring about improvements in water quality of receiving watercourses.

Infiltration tests will need to be undertaken to see if this is a viable option in the northwest and central areas of the site. If not, the storage volume of just over 500m<sup>3</sup> per built hectare of development outlined in the FRA to cater for the 1 in 100 year plus 30% storm seems reasonable at this stage in terms of determining the area of land required for surface water attenuation features. 650m<sup>3</sup> of storage per built hectare of development for the east and south of the site also seems to be appropriate given the run-off rates.

The top end of the Bow Brook is augmented by flows from a Severn Trent Water Ltd groundwater borehole (18/54/19/0113) near the edge of the proposed development site. The proposed development must not have a negative impact on the flows in any watercourses. Surface water runoff from the site should be controlled and managed such that it brings about hydraulic benefits.

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Whilst detailed designs will need to be submitted and approved, again given the size of the site, there should be ample room to accommodate the attenuation features as demonstrated in the Indicative Drainage Layout included in Appendix E of the FRA.

## **Water Quality/Water Infrastructure**

Whilst it is appreciated that the purpose of your consultation with the EA is for advice on Flood Risk, it is considered that this also provides a useful opportunity to comment on Water Quality issues and the implications of the Water Framework Directive (WFD). Furthermore, it is considered that a development of this scale is likely to be Schedule 2 EIA development where water quality issues will be of relevance.

The Spring Brook and the other small tributary watercourses form part of the upper Bow Brook catchment. The upper 'section' of the Bow Brook is referenced as water-body GB109054043820 (Bow Brook – source to Letts Mill). This water-body is classified for the purposes of the WFD as having 'Moderate' ecological status. Levels of phosphate and suspended solids are the major concerns and negative influences on the ecology of the water-body. This means that action is needed to improve the quality of the water-body to 'good status' by 2027 – a requirement of the WFD. Furthermore, no development should be permitted if it will result in deterioration in the quality of the water-body.

Where existing watercourse channels within and near to the development site have been straightened, culverted and/or deepened by previous land use (primarily to aid agricultural activities), we would expect to see the watercourse naturalised and 'opened up' as part of the development. Existing headwalls (as shown in photographs and identified in the report) should be modified, 'set back' or removed where possible, to promote improvements in water quality and create habitat.

Methods for disposing of foul drainage (sewage) and surface water drainage (roads, roofs etc) must be kept separate, as indicated in the FRA. We note that Severn Trent Water Ltd has been consulted on foul drainage and a response is pending. No development must commence until a satisfactory scheme for disposal of foul drainage that also meets requirements of the WFD has been approved. Our preference would be for sewage to be diverted via the foul sewer system to Severn Trent Water Ltd's treatment works at Spermal, Redditch. There must not be any deterioration by virtue of a significant increase in frequency and volume of 'spills' to the watercourse from Combined Sewer Overflows (CSOs) as a result of this development.

I would refer you to Redditch Borough Council and Bromsgrove District Council's Outline Water Cycle Study (WCS) by MWH Ltd (May 2012). The WCS does not include this particular site and we have advised the two Councils that, in order to support the allocation/inclusion of the site in their respective Development Plans, the WCS should be updated to reflect the additional housing numbers proposed. Any planning applications put forward for the proposed development would need to provide evidence to address the foul drainage infrastructure constraints and upgrade requirements for the development and its associated water cycle implications. The Councils' current WCS and any future amendments to it would be a useful source of Cont/d..

evidence, although if a planning application is submitted ahead of the plan making process additional work on this aspect would be expected to be provided by the developer.

### **Other matters**

On 8 July 2013 we introduced a new two-tier pre-planning application advice process. We will continue to provide a free preliminary level of pre-application advice on planning issues to proposers. However where there are detailed issues to be considered as part of that submission or in subsequent pre-planning application submissions we will offer a charged advice service at £84 per hour. This will include initial permitting advice where considered appropriate. This change is being piloted in the Midlands with a view to national adoption in 2014.

Please contact me or the team at [westareaplanning@environment-agency.gov.uk](mailto:westareaplanning@environment-agency.gov.uk) to discuss this option in respect of future projects.

I trust the above is of assistance. Please do not hesitate to contact me if you would like to discuss this letter in more detail.

Yours sincerely

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**Senior Planning Advisor**

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