

**SITE:** Land adjacent to Englands Gate Inn, Bodenham, Herefordshire, HR1 3HU  
**TYPE:** Outline  
**DESCRIPTION:** Residential development of up to ten dwellings with associated vehicle access  
**APPLICATION NO:** 171319  
**GRID REFERENCE:** OS 354294, 251285  
**APPLICANT:** Mrs E McNeil  
**AGENT:** Mr D F Baume  
**DATE OF THIS RESPONSE:** 5<sup>th</sup> May 2017

### **Introduction**

This response is in regard to flood risk and land drainage aspects, with information obtained from the following sources:

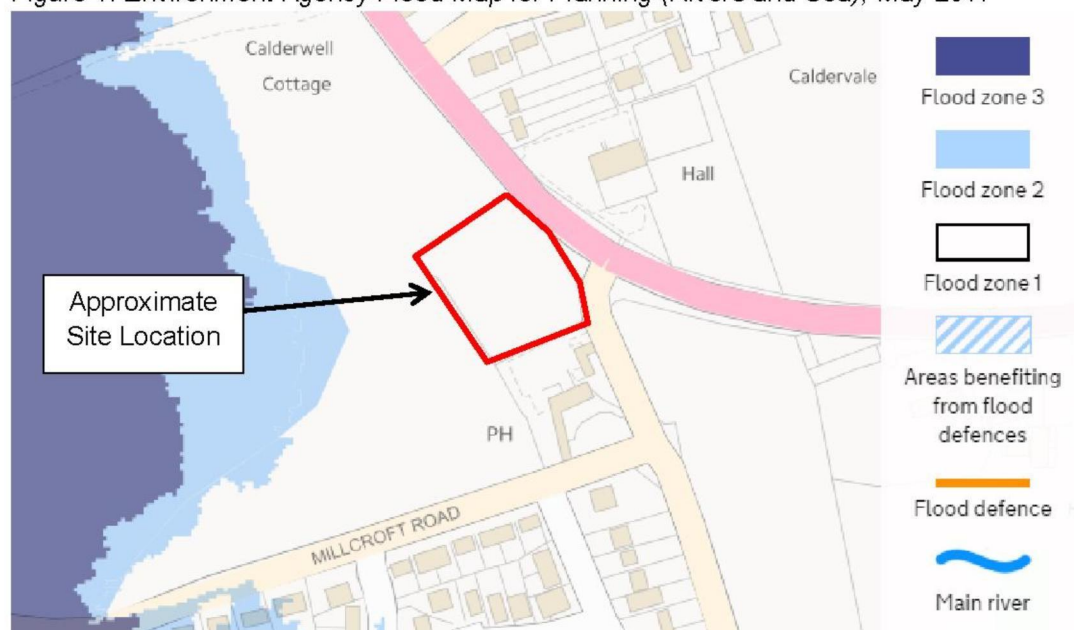
- Environment Agency (EA) indicative flood maps available through the EA website.
- EA groundwater maps available through the EA website.
- Ordnance Survey mapping.
- Cranfield University Soilscape mapping available online.
- Strategic Flood Risk Assessment for Herefordshire.
- Core Strategy 2011 - 2031.

Our knowledge of the development proposals has been obtained from the following sources:

- Application for Planning Permission;
- Location Plan (Ref: 6245-1-9a);
- Flood Risk Assessment (Ref: K0588/1);
- Planning Statement (Ref: 6245.1).

### **Site Location**

Figure 1: Environment Agency Flood Map for Planning (Rivers and Sea), May 2017



### **Overview of the Proposal**

The Applicant proposes the construction of up to 10 dwellings with associated vehicle access and 22 parking spaces. The site covers an area of approx. 0.47ha and is currently used as a pasture site. The topography of the site is relatively flat. The River Lugg is located approx. 524m to the west of the proposed development site, in addition to an IDB managed watercourse located approx. 170m to the south of the proposed development site.

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**Subject:** 171319 - Land adjacent to Englands Gate Inn, Bodenham, HR1 3HU comments

Hi Andrew,

Please find attached our response for application 171319

If you have any further questions, please do not hesitate to contact me or Joel

Regards,

**Ruth Blair BSc (Hons)**

**Graduate Civil Engineer** | Balfour Beatty Living Places

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## **Fluvial Flood Risk**

Review of the Environment Agency's Flood Map for Planning (Figure 1) indicates that the site is located within the low risk Flood Zone 1: Flood Zone 1 comprises land assessed as having less than a 1 in 1,000 annual probability of river flooding.

The outline application has been supported by a Flood Risk Assessment (FRA) undertaken in accordance with National Planning Policy Framework (NPPF) and its supporting Planning Practice Guidance.

The Applicant should refer the Applicant to Environment Agency Standing Advice for the requirements of their development in the identified flood zone. (<https://www.gov.uk/guidance/flood-risk-assessment-standing-advice>)

The Planning Practice Guidance to NPPF identifies five classifications of flood risk vulnerability and provides recommendations on the compatibility of each vulnerability classification within each of the Flood Zones, as shown in Table 2.

*Table 2: Flood risk vulnerability and flood zone compatibility*

EA Flood Zone	Essential Infrastructure	Water Compatible	Highly Vulnerable	More vulnerable	Less vulnerable
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	✓	Exception test required	✓	✓
Zone 3a	Exception test required	✓	✗	Exception test required	✓
Zone 3b	Exception test required	✓	✗	✗	✗

✓ Development considered acceptable

✗ Development considered unacceptable

The Planning Practice Guidance to NPPF states that residential development is to be considered as 'more vulnerable' development. With reference to Table 2, 'more vulnerable' development would be considered appropriate in Flood Zones 1 and 2.

## **Other Considerations and Sources of Flood Risk**

Local residents may have identified other local sources of flood risk within the vicinity of the site, commonly associated with culvert blockages, sewer blockages or unmapped drainage ditches. Review of the EA's Risk of Flooding from Surface Water map indicates that the site is not located within an area at significant risk of surface water flooding.

The proposed site is lower than the adjacent highway. The Applicant should investigate whether any highway drainage orifices discharge onto the site.

Review of the EA's Groundwater map indicates that the site is not located within a designated Source Protection Zone or Principal Aquifer



## **Surface Water Drainage**

The Applicant has stated that a Sustainable Drainage System will be utilised to manage surface water runoff. The Applicant should provide a surface water drainage strategy showing how surface water from the proposed development will be managed.

The strategy must demonstrate that there is no increased risk of flooding to the site or downstream of the site as a result of development between the 1 in 1 year event and up to the 1 in 100 year event and allowing for the potential effects of climate change. Where possible, betterment over existing conditions should be promoted. Note that in February 2016 the EA updated their advice on the potential effects of climate change and that a range of allowances should be considered to understand the implications: <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>.

All new drainage systems for new and redeveloped sites must, as far as practicable, meet the Non-Statutory Technical Standards for Sustainable Drainage Systems and will require approval from the Lead Local Flood Authority (Herefordshire Council).

In accordance with the NPPF, Non-Statutory Technical Standards for Sustainable Drainage Systems and Policy SD3 of the Core Strategy, the drainage strategy should incorporate the use of Sustainable Drainage (SUDS) where possible. The approach promotes the use of infiltration features in the first instance. If drainage cannot be achieved solely through infiltration due to site 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). The rate and volume of discharge should be restricted to the pre-development Greenfield values as far as practicable. Reference should be made to The SUDS Manual (CIRIA C753, 2015) for guidance on calculating runoff rates and volumes. The assessment of pre and post-development runoff rates should consider a range of storm durations to determine those which are critical for the site and receiving watercourse or sewer and demonstrate sufficient storage has been provided. Allowances for climate change would not typically be included in the calculation of existing discharge rates.

The Cranfield University Soilscapes Map identifies the soils within the proposed development area to be on the boundary of 'clayey soils with impeded drainage' and 'freely draining floodplain soil' thus the use of infiltration techniques may not be a viable option for managing surface water. On-site testing undertaken in accordance with BRE365 should be undertaken prior to construction to confirm that the use of infiltration techniques are viable or to confirm that the use of infiltration techniques are not viable. If infiltration rates are considered to be too low, an alternative drainage strategy must be submitted to the Council for review and approval prior to construction. Where site conditions and groundwater levels permit, the use of combined attenuation and infiltration features are promoted to provide treatment and reduce runoff during smaller rainfall events.

If the Applicant is proposing to use soakaways, it should be noted that soakaways should be designed for a minimum 1 in 30 year design standard, be located a minimum of 5m from building foundations, that the base of soakaways and unlined storage/conveyance features should be a minimum of 1m above groundwater levels, and must have a half drain time of no greater than 24 hours.

The drainage system should be designed to ensure no flooding from the drainage system (which can include on-the-ground conveyance features) in all events up to the 1 in 30 year event. The Applicant must consider the management of surface water during extreme events that overwhelm the surface water drainage system (including temporary surcharging of gullies) and/or occur as a result of blockage. Surface water should either be managed within the site boundary or directed to an area of

low vulnerability. Guidance for managing extreme events can be found within CIRIA C635: Designing for exceedance in urban drainage: Good practice.

Consideration should also be given to the control of potential pollution of ground or surface waters from wash down, vehicles and other potentially contaminating sources. Evidence of adequate separation and/or treatment of polluted water should be provided to ensure no risk of pollution is introduced to groundwater or watercourses both locally and downstream of the site, especially from proposed parking and vehicular areas. SUDS treatment of surface water is considered preferential for a development of this size.

The Applicant must confirm the proposed adoption and maintenance arrangements for the surface water drainage system.

### **Foul Water Drainage**

In accordance with Policy SD4 of the Core Strategy, the Applicant should provide a foul water drainage strategy showing how it will be managed. Foul water drainage must be separated from the surface water drainage. The Applicant should provide evidence that contaminated water will not get into the surface water drainage system, nearby watercourse and ponds.

We recommend that the Applicant contacts the relevant public sewerage authority in regards to foul water discharge from the site to check whether it is feasible to connect to the public sewers.

If there are no sewers within the vicinity of the site, the Applicant should consult with the EA regarding the use of a package treatment plant or other on-site method of wastewater treatment and disposal. In accordance with Building Regulations Part H Drainage and Waste Disposal:

- Septic tanks and cesspools should be located a minimum of 7m from habitable buildings;
- If infiltration is proposed, the discharge from any septic tank or package treatment plants should be located a minimum of 10m away from watercourses and 15m away from buildings.
- If direct discharge to a live watercourse is proposed, the package treatment works should be located a minimum of 10m from any building and 10m from a watercourse.
- If infiltration is proposed, the discharge from any package treatment plant should be located a minimum of 10m away from watercourses and 10m away from buildings. Soakage drains need to be laid at a gradient of 1:200, accordingly sufficient level ground will be required. Soil permeability needs to be established by means of soakaway testing (using the method outlined in the Building Regulations). Discharges of treated effluent to highway drains are not permitted.

### **Overall Comment**

Before we recommend that the Council consider granting planning permission a surface water drainage strategy is required and evidence that the Applicant has consulted with Welsh Water in regards to connecting to a foul public sewer. We have no concerns regarding flood risk.