SITE:	Four Winds, Phocle Green, Ross-on-Wye, Herefordshire HR9 7TL
TYPE:	Outline
DESCRIPTION:	Erection of a 3 bed dwelling, amended access and bio-disc drainage
APPLICATION NO:	170984
GRID REFERENCE:	OS 362146, 225868
APPLICANT:	Mr & Mrs Long
AGENT:	Mr Brian Griffin
DATE OF THIS RESPONSE:	19th July 2017

Introduction

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

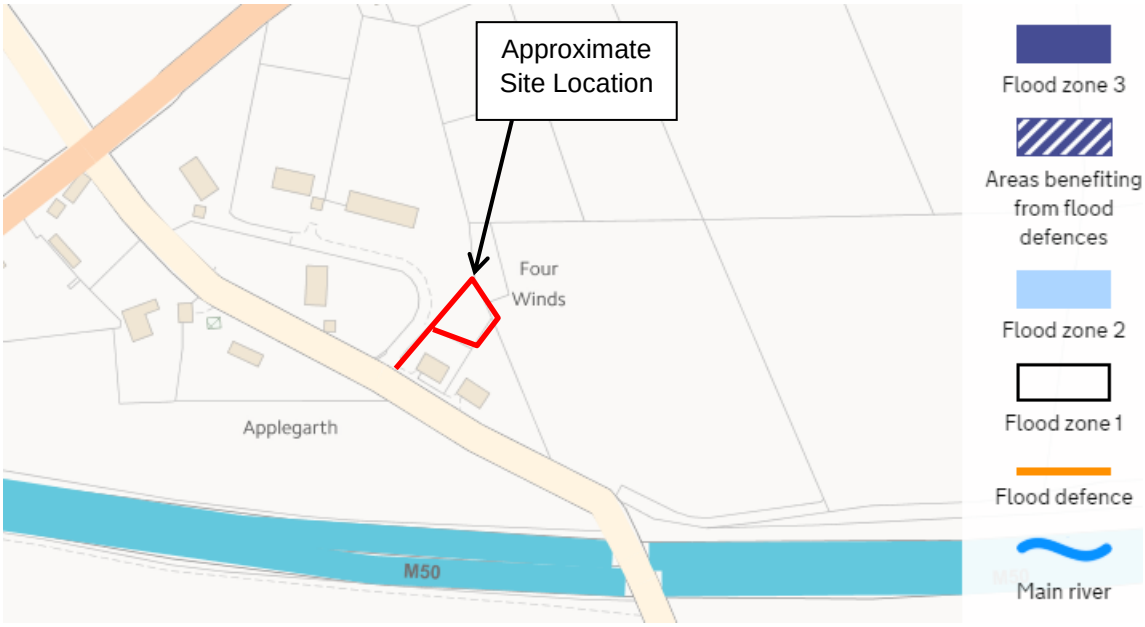
- Environment Agency (EA) indicative flood maps available through the EA website.
- EA groundwater maps available through the EA website.
- Ordnance Survey mapping.
- Cranfield University Soilscapes mapping available online.
- Strategic Flood Risk Assessment for Herefordshire.
- Core Strategy 2011 -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

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

- Application for outline planning;
- Location Plan (Ref: FW30 A);
- Proposed Plans (Ref: FW20 A);
- Existing Layout Plan (Ref: FW10).

Site Location

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



Overview of the Proposal

The Applicant proposes the construction of one dormer bungalow and appropriate parking and turning space. The site covers an area of approx. 0.10ha and is currently used as a residential garden. The topography of the site is relatively flat.

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.

As the proposed development is less than 1ha and is located within Flood Zone 1, in accordance with Environment Agency standing advice, the planning application has not been supported by a Flood Risk Assessment (FRA). This is summarised in Table 1.

Table 1: Scenarios requiring a FRA

	Within Flood Zone 3	**Within Flood Zone 2**	**Within Flood Zone 1**
Site area less than 1ha	FRA required	FRA required	FRA not required*
Site area greater than 1ha	FRA required	FRA required	FRA required

**except for changes of use to a more vulnerable class, or where they could be affected by other sources of flooding*

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.

Review of the EA's Groundwater map indicates that the site **is** located within a designated Source Protection Zone. The Applicant should refer to the EA's GP3 document.
https://www.gov.uk/government/publications/groundwater-protection-principles-and-practice-gp3

Surface Water Drainage

The Applicant has stated that surface water will be disposed of via soakaway(s). The Applicant should provide a surface water drainage strategy showing how surface water from the proposed development will be managed. 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). The Applicant should consult with the relevant authority to agree discharge rates from the site.

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 Cranfield University Soilscapes Map identifies the soils within the proposed development area to be freely draining, however Herefordshire Highways have experienced difficulties in achieving sufficient infiltration rates, 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 for managing surface water 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.

The Applicant has proposed the use of soakaways, thus it must be noted that soakaways should be designed for a minimum 1 in 10 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 about 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. 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.

Foul Water Drainage

The Applicant proposes that foul sewage is to be disposed of via a package treatment plant.

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, 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.

The EA will not usually accept the discharge from any septic tank within Zone 1 of a groundwater SPZ or within 50m of a groundwater abstraction point.

Overall Comment

We recommend that the following information is provided prior to the Council granting planning permission for this development

- A detailed foul water drainage strategy showing how foul water from the development will be disposed of. If infiltration of treated effluent is proposed, the Applicant should undertake infiltration testing in accordance with BS6297 to determine whether infiltration is a viable option. We note that the Applicant owns land to the rear of the property, however this land is higher than the proposed dwelling, and so draining the treated effluent into a soakage field would require a pump. We do not support pumping treated effluent.

Once the above has been submitted and approved, the following information should be provided within suitably worded planning conditions:

- Provision of a detailed surface water drainage strategy that demonstrates that opportunities for the use of SUDS features have been maximised, where possible, including use of infiltration techniques and on-ground conveyance and storage features;

- Results of infiltration testing undertaken in accordance with BRE365 and confirmation of groundwater levels to demonstrate that the invert level of any soakaways or unlined attenuation features can be located a minimum of 1m above groundwater levels in accordance with Standing Advice;

- Confirmation of the proposed authority responsible for the adoption and maintenance of the proposed drainage systems.

- The Applicant must address the groundwater issue (refer to the EA's GP3 document: https://www.gov.uk/government/publications/groundwater-protection-principles-and-practice-gp3

If the results of infiltration testing indicate that infiltration will not provide a feasible means of managing surface water runoff, an alternative drainage strategy must be submitted to the Council for review and approval. Best practice SUDS techniques should be considered and we promote the use of combined attenuation and infiltration features that maximise infiltration during smaller rainfall events.

Any discharge of surface water or foul water to an ordinary watercourse will require Ordinary Watercourse Consent from Herefordshire Council prior to construction.

Please refer to "Herefordshire Council Planning Applications: Flood Risk and Drainage Checklist" (Ref: RCLHP001-AM0070-RP-003) for detail of the documentation to be submitted for planning applications.