Meadow Cottage

Flood Risk Assessment

Job Number: 1361

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July 2023	1	For Information

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Acronyms	
AOD	Above Ordnance Datum
CIRIA	Construction Industry Research and Information Association
EA	Environment Agency
FRA	Flood Risk Assessment
NPPF	National Planning Policy Framework
PPG	Planning Practice Guidance
SFRA	Strategic Flood Risk Assessment

Introduction

Flume Consulting Engineers have been appointed to undertake a Flood Risk Assessment (FRA) for the proposed development at Meadow Cottage, Kings Lane, Ansty, Salisbury SP3 5QA.

This FRA has been carried out in accordance with the National Planning Policy Framework (NPPF) and the Planning Practice Guidance 'Flood Risk and Coastal Change' (PPG). This FRA also incorporates advice and guidance from the Environment Agency (EA), the Strategic Flood Risk Assessment (SFRA) produced by Wiltshire Council, and relevant CIRIA documents.

The EA's indicative floodplain map shows that the site is located in Flood Zone 1, however, the Local Authority has requested a review of the flood risk associated with the development. This assessment will therefore focus on the flood risk to the development from overland flows and from groundwater.

Site Description and Location

The application site lies to the eastern edge of Kings Lane. Immediately to the front, rear and to the side of the property is an area of hardstanding, with the main access door at the front of the building facing west.

The existing building is approximately 0.50km south of the River Nadder Tributary (Swallowcliffe). A smaller ordinary watercourse, upstream of this river resides within close proximity to the site. However, these have no impact on the fluvial flood risk to the site.

The site postcode is SP3 5QA and the OS grid reference is ST 95154 26587.

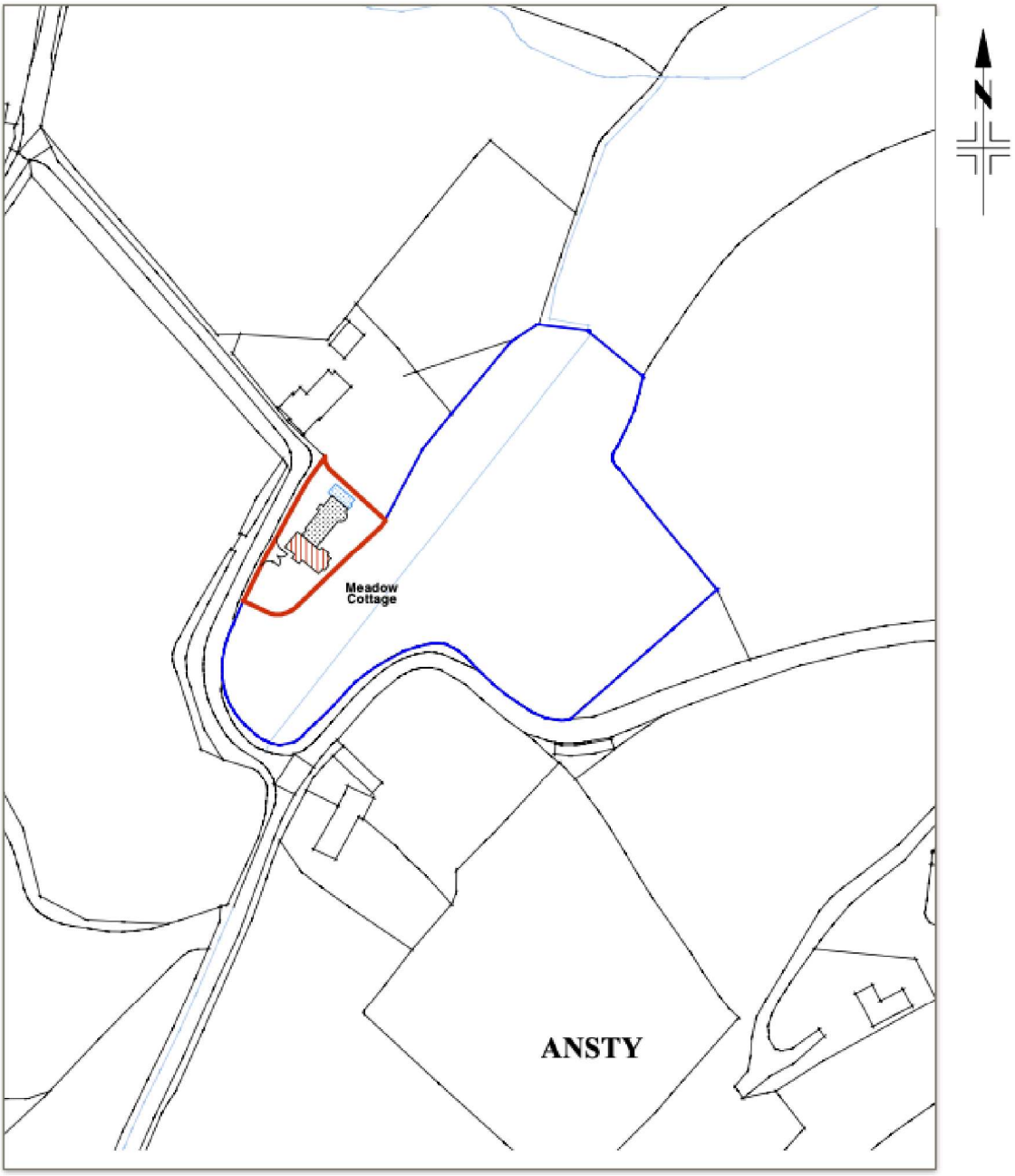

FIGURE 1. SITE LOCATION

Development Proposal

The proposal is to demolish the garage, add an extension, form a new vehicle access on to the lane and insulate and overhaul the existing structure. The proposal also includes a first floor side extension. Externally there are minor changes with parking and turning to be provided within the site and within the existing curtilage. The surface to be loose stoned.

Vehicular access will be maintained and remain unchanged from the existing case. Pedestrian street access is also unaffected.

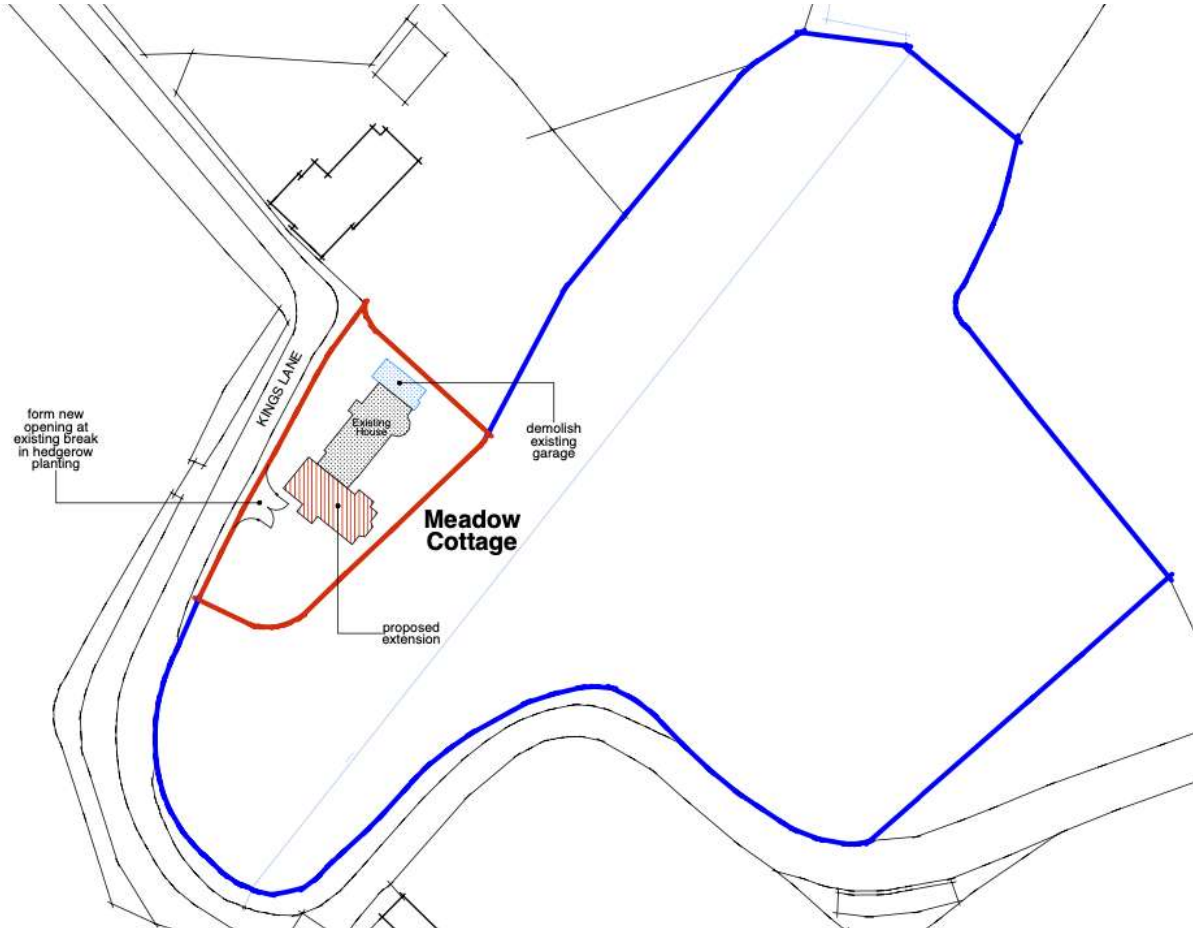

FIGURE 2. EXISTING BUILDING AND PROPOSED EXTENSION

Flood Risk Assessment

The National Planning Policy Framework states that minor developments such as residential extensions, are unlikely to raise significant flood risk issues. The NPPF refers applications to the Environment Agency's (EA) 'Standing Advice' for further guidance.

Flood Risk from Watercourses

The EA's indicative floodplain map shows that the site is located in Flood Zone 1 (Low risk). Land in this flood zone is assessed as having annual probability of river flooding less than 0.1% (Figure 3).

Developments in this flood zone do not have any restrictions, provided they do not increase the risk of flooding elsewhere.

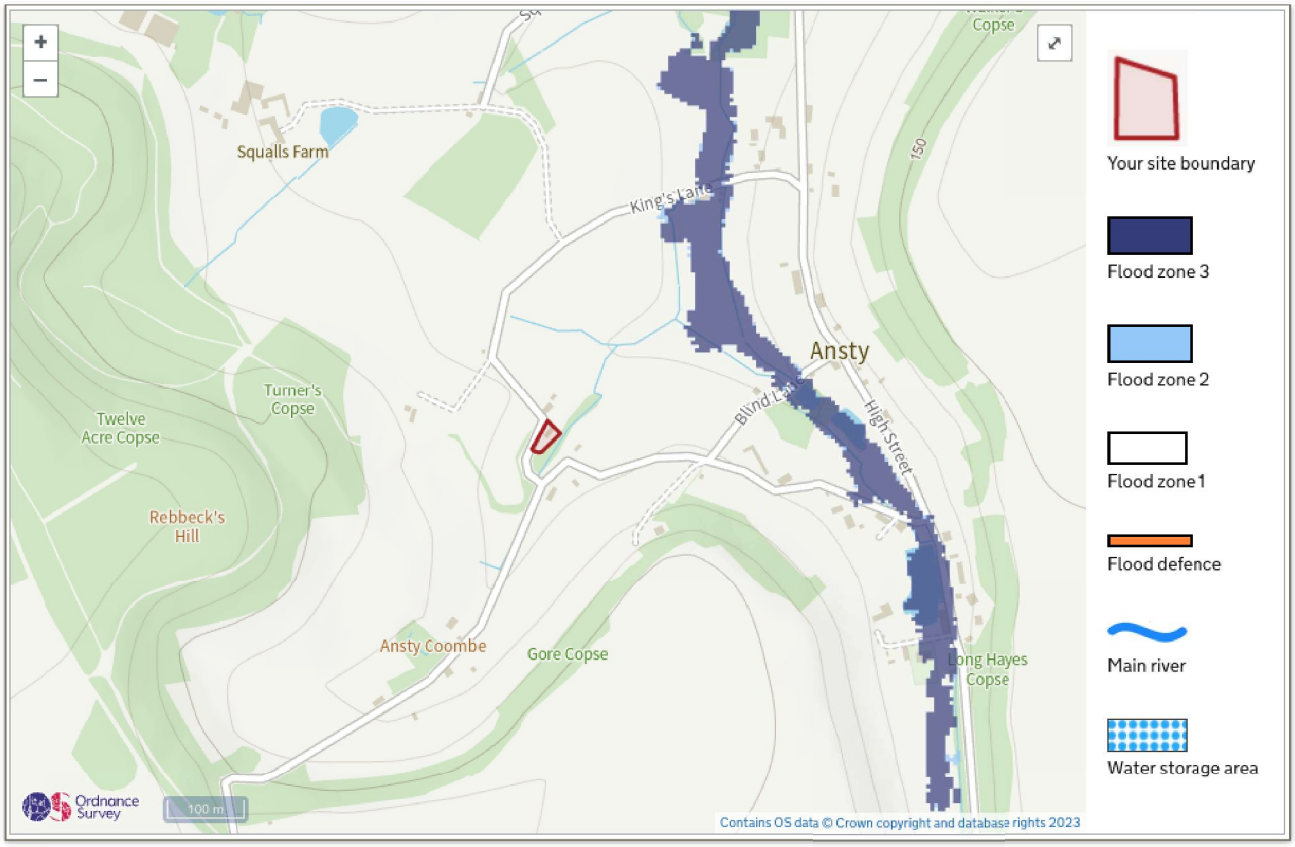

FIGURE 3. ENVIRONMENT AGENCY FLOOD RISK FROM RIVERS OR SEA MAP (GOV.UK, 2023)

Flood Risk from Groundwater

Groundwater flooding occurs in low-lying areas with permeable aquifers following prolonged wet weather. These aquifers become fully saturated, leading to surface-level flooding from the sub-surface strata. As water accumulates due to excessive rainfall, the water table rises, saturating the soil and filling the aquifers. The water eventually reaches the surface, causing visible flooding. Groundwater flooding has a slower onset and longer duration compared to other types of flooding, and its extent can be widespread. Effective flood management strategies, such as monitoring groundwater levels and implementing proper drainage systems, are important in mitigating the impacts of this type of flooding in vulnerable areas.

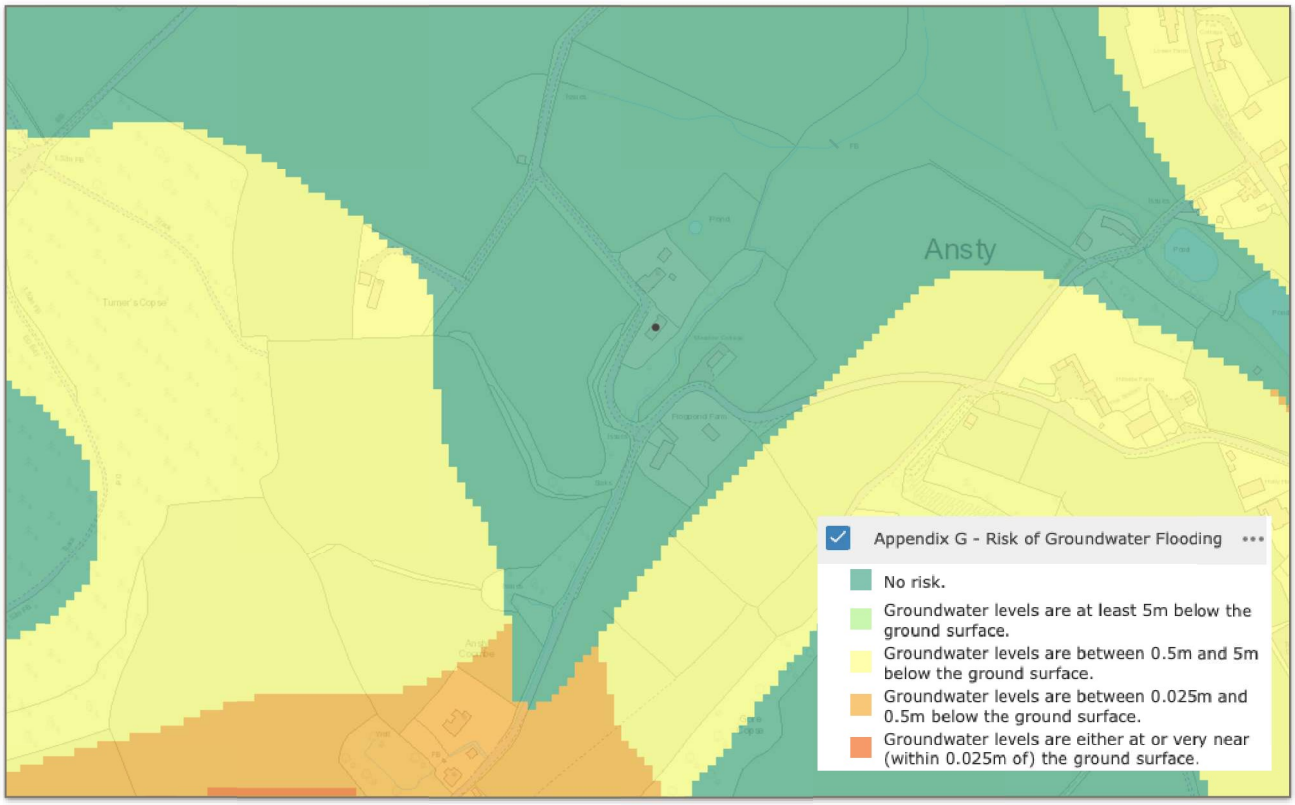

FIGURE 4. RISK OF GROUNDWATER FLOODING (SFRA, 2019)

According to Figure 4, the development resides in an area of having *'No risk'* of Groundwater Flooding. Therefore the likelihood of groundwater flooding at ground level is considered to be relatively low risk. In consideration of the available maps provided in the SFRA and the EA/DEFRA's recorded datasets, the site is considered to have a low risk of groundwater flooding.

Flood Risk from Surface Water and Overland Flows

Surface water flooding occurs when intense rainfall is unable to infiltrate into the ground or overwhelms the drainage system. This surface water runs across the surface of the ground causing flooding. The Environment Agency's Surface Water Flood Risk Map can also reflect surface water flooding along the line of small ordinary watercourses. Overland flows can also be generated by burst water mains, failed dams and any failure in a system storing or transferring water.

The SFRA's Surface Water Flooding Map, Figure 5, shows that the site is at *very low* risk of surface water flooding.



FIGURE 5. FLOOD RISK FROM SURFACE WATER MAP - 1:1000 YEAR RETURN PERIOD (SFRA, 2019)

As part of the new extension, permeable paving and other SuDS features should be promoted within the design. External ground levels immediately outside of the building will fall away from the building thresholds, ensuring the minimisation of storm water ingress. This can be achieved by either reducing the external ground levels below internal floor levels, and/or incorporating channel drainage system along the entrance into the building to positively drain overland flows.

Flood Risk from Reservoir and Infrastructure Failure

The EA's information states that reservoir flooding is extremely unlikely to happen and there has been no loss of life in the UK from reservoir flooding since 1925. The Reservoir Act of 1975 ensures that reservoirs are inspected regularly and essential safety work is carried out.

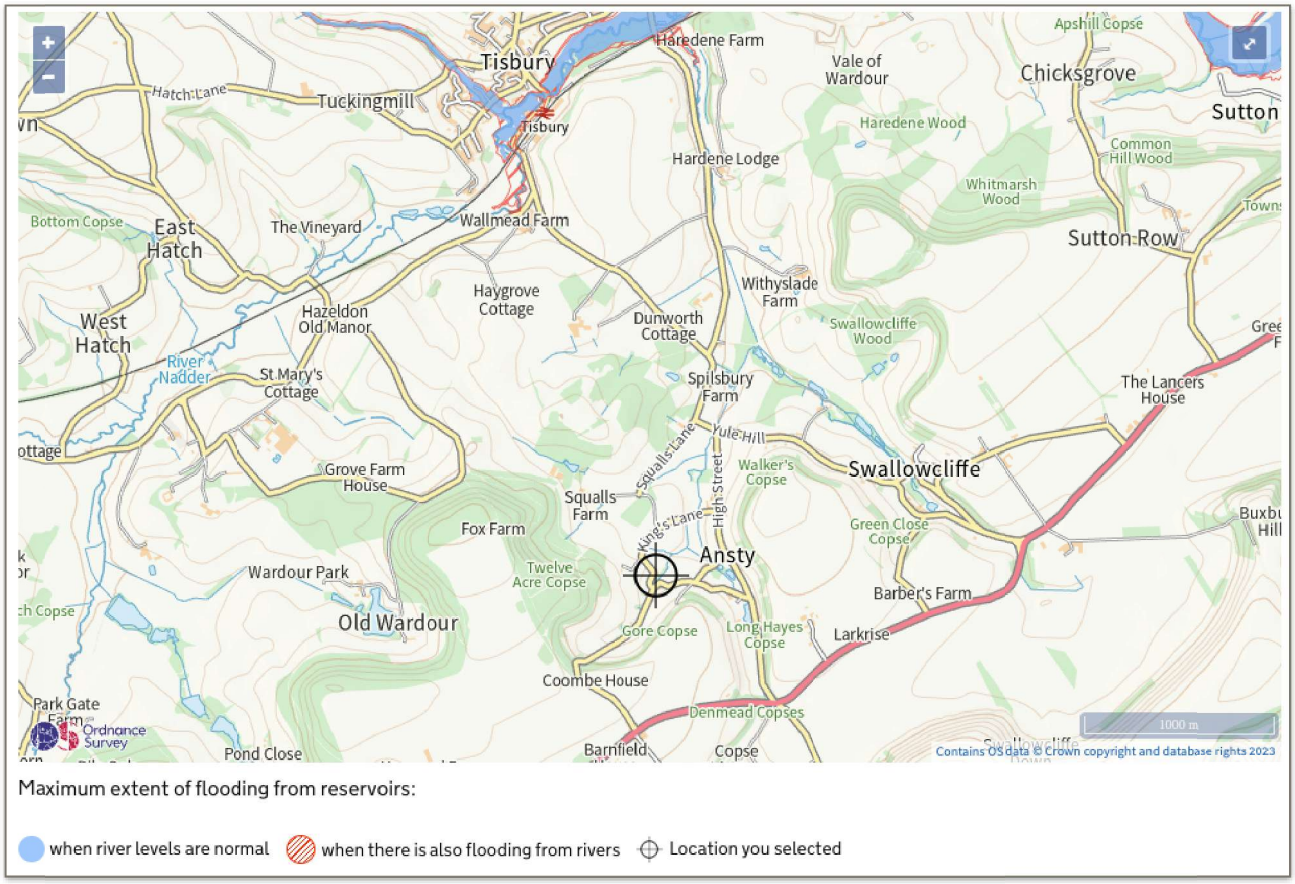

FIGURE 6. ENVIRONMENT AGENCY FLOOD RISK FROM RESERVOIRS MAP (GOV.UK, 2023)

The Environment Agency dataset 'Risk of Flooding from Reservoirs' identifies areas that could be flooded if a large reservoir were to fail and release the water it holds. Figure 6 shows that there is no flood risk associated with Reservoir Failure for the proposed site.

Flood Mitigation Measures

The proposed development resides in Flood Zone 1 and is not at risk of flooding. Developments in this flood zone do not have any restrictions, provided they do not increase the risk of flooding elsewhere.

Surface Water Flood Risk is considered low. As part of the proposals, permeable paving and other SuDS features should be promoted within the design. To prevent stormwater from entering the building, it is crucial that the external ground levels surrounding the building slope away from the thresholds. This can be accomplished by lowering the ground levels below the internal floor levels or installing a channel drainage system along the building entrance to effectively direct overland flows. It is also essential to regularly maintain all drainage systems to minimise the chances of blockage and mitigate the risk of surface water flooding.

Groundwater flooding as a sole source is deemed to be relatively low risk to the site. Any adjustment in external proposed levels will be designed to ensure surface water is directed away from building thresholds, should groundwater migrate to surface level.

Conclusions

The NPPF states that minor developments such as residential extensions, are unlikely to raise significant flood risk issues.

The site resides in Flood Zone 1 where there is less than 1 in 1000 annual probability of river or sea flooding (<0.1%). Developments in this flood zone have no restrictions other than ensuring surface water drainage proposals do not increase the flood risk on site and the surrounding areas.

The proposed extension will not increase the impermeable areas on the site, as the external area is currently positively drained hardstanding/roof areas. It will therefore not increase the flood risk from surface water, as there will be no increase in the surface water run-off rate or volumes.

The FRA has further demonstrated that the proposed extension has an acceptable flood risk within the terms and requirements of NPPF and accompanying technical guidance.

Note:

This report has been prepared for the purposes of submitting for planning to the local planning authority for review in relation to the associated flood risk for the proposed development, and uses the most up-to-date information available to us at the time. It should not be relied upon by anyone else or used for any other purpose. This report is confidential to our Client; it should only be shown to others with their permission. We retain copyright of this report which should only be reproduced with our permission.

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