

Flood Risk Assessment

To accompany a planning application for an
ancillary building at

Fade to Grey, Redlake Lane,
Wokingham, RG40 3BF

Prepared by

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1 Executive Summary

- A The LPA can reasonably rely on this FRA in reaching an informed planning judgement;
- B The outbuilding is ancillary to an existing dwelling within an existing developed site and this is minor development;
- C The site lays, in part, in Flood Zones 2 & 3 and is at a Low risk from ground-water flooding;
- D Floor levels can readily be raised 300mm above the estimated flood level;
- E No specific flood resilience measures are required;
- F Access/egress routes are existing and are not affected by the proposal;
- G There is no documented evidence of flood risk from any other sources;
- H The development does not impact on flood risk elsewhere;
- I Assuming the recommended warning and evacuation procedures can be maintained over the lifetime of the development, the proposed minor development within the curtilage of an existing dwelling is considered acceptable.

Client recommended actions

- I Sign up to flood warning schemes.

Designer actions required

- 1 Confirm the design intention to manage surface water at source in line with the drainage hierarchy.

2 Introduction

2.1 Site location

The project is at 'Fade to Grey', Redlake Lane, Wokingham, RG40 3BF (see Figure 1).



Figure 1: Site location plan, as indicated with North topmost.

2.2 Development description

The proposal is for an ancillary outbuilding not exceeding 250m² in footprint within the curtilage of an existing dwelling. The site is an existing developed site and the proposed work is classed as minor development.

The proposed layouts and details are to be submitted under separate cover.

2.3 Site geology

Geological mapping data from within the vicinity indicate Head-Clay, silt, sand and gravel however this would require confirmation on site. If available on site, the superficial deposits will offer limited to poor permeability. Infiltration SuDS therefore may not be viable (subject to site testing).

3 LPA reliance and author competency

3.1 LPA reliance on this report

The Flood Risk Assessment (FRA) has been independently commissioned in response to a requirement of the Local Planning Authority and prepared in accordance with prevailing policy and guidance. Its purpose is to inform the planning process by providing a robust and proportionate assessment of flood risk to and from the site. It is not a document that requires re-determination by consultees, but rather one upon which the LPA can reasonably rely in reaching an informed planning judgement.

3.2 About the author

By way of professional context, I am the author of the FRA and act in the capacity of a flood risk and drainage specialist. My experience includes a PhD in hydraulic theory, published academic work in the same field, authorship of industry-used flood risk probability software and as cited in academic literature, appointment as an expert witness in flood risk matters to HM Courts, and technical advisory roles including for the Chartered Association of Building Engineers.

I have authored in excess of 900 Flood Risk Assessments and close to 700 SuDS strategy reports of which 13 FRA reports (at the locations shown in Figure 2) have previously been relied upon by this LPA to make informed planning judgements with respect to flood risk to developments under their control. This is set out not to overstate my role, but to provide assurance that the assessment submitted is grounded in extensive technical expertise and professional accountability.

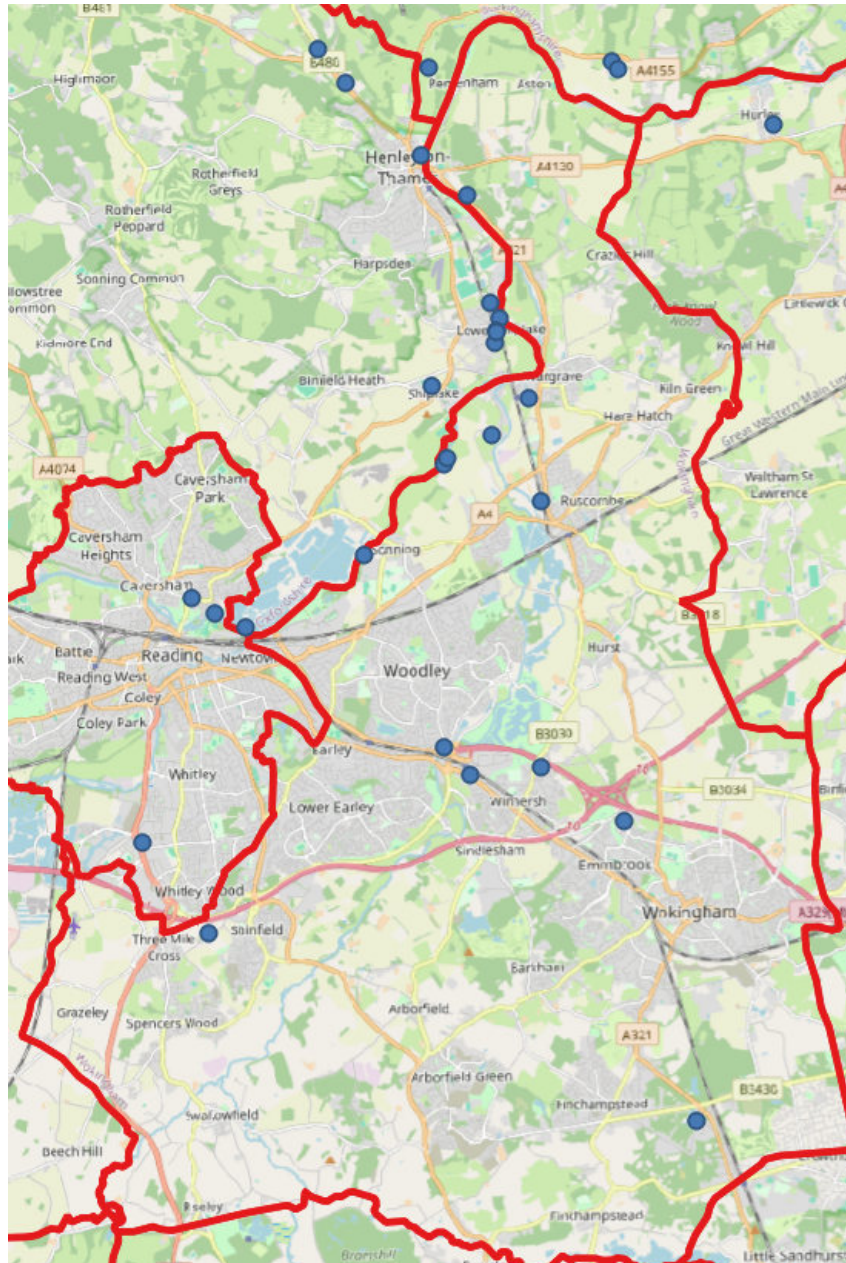


Figure 2: Locations of the authors FRA reports as previously relied upon by the LPA.

4 Policies

In preparation for this Flood Risk Assessment (FRA), National Planning Policy Framework^[2] and British Standards on Assessing and Managing Flood Risk^[1] were reviewed, and their related policies are, where applicable, referred to in this report.

The Environment Agency has been consulted in order to establish the flood zone of the proposed site.

In addition, planning policies from the Local Authority were also reviewed including its Strategic Flood Risk Assessment.

Some of key policies are summarised as below.

4.1 Standing Advice

Generally the following applies: Apart from habitable basements, domestic extensions within the curtilage of the dwelling (see GDPO definition of, minor development) and non-domestic extensions with a footprint of less than 250 m² will not require a detailed FRA. These applications should demonstrate that the risk of flooding from all sources has been assessed.

4.2 Environment Agency Guidance on Standing Advice

The FRA should be:

- appropriate to the scale, nature and location of the development;
- proportionate to the degree of flood risk.

For all development covered by standing advice, a FRA should include:

- the site address;
- a description of the development;
- the estimated flood level for your development, taking into account the impacts of climate change over its lifetime;
- details of the finished floor levels;
- details of your flood resistance and resilience plans;
- any supporting plans and drawings any other information.

Floor levels

- floor levels are set at least 600 millimetres (mm) above the estimated flood level. You may be able to reduce this to 300mm if there is a high level of certainty about

your estimated flood level. If there is a particularly high level of uncertainty it may need to be increased;

- if floor levels cannot be raised in this way, you will also need to include extra flood resistance and resilience measures. These measures should protect the property to at least 600mm above the estimated flood level.

The building design should also:

- prioritise excluding flood water where possible;
- speed recovery in case water gets in.

5 Flood risk analysis

5.1 Sources of potential flooding

Flood risk from various sources at the site is analysed in this section.

5.1.1 Flood risk from sea and rivers

Flooding can occur from the sea due to a particularly high tide or surge, or combination of both.

The site is not at risk from tidal flooding.

Flooding can also take place from flows that are not contained within a river channel due to high levels of rainfall in the catchment.

With reference to the Environment Agency's RoFRS (**R**isk of **F**looding from **R**ivers and **S**ea) data (release date 01/2026), Figure 3, part of the site lays within Flood Zone 3. This means that that this area of the site has a High probability of fluvial flooding (greater than a 1 in 100yr annual probability of fluvial flooding).

However, the location of the proposed outbuilding is seen to be located wholly within Flood Zone 1 and hence at a very low, less than 1 in 1000yr, risk.

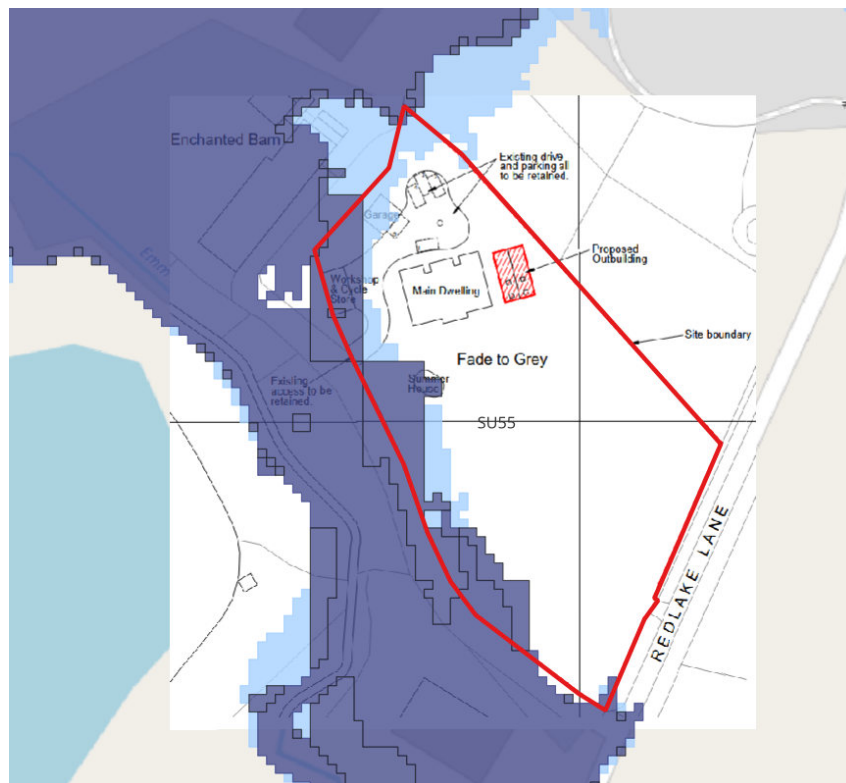


Figure 3: Flood mapping from the EA online data. The site lays, in part, within Flood Zones 3 & 2. The outbuilding is located wholly within Flood Zone 1.

Defences

The site is not shown to be defended.

Historic flooding

With reference to the EA historic flood mapping as extract at Figure 4, the site is not shown to lay within an area of historic flooding.

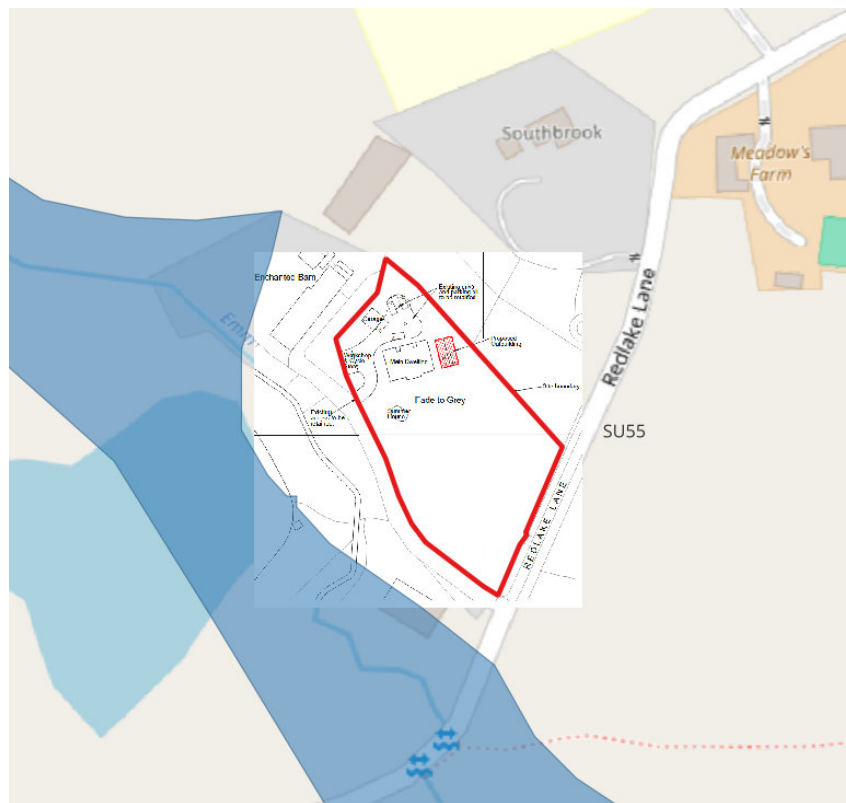


Figure 4: Historic flood mapping from the EA online data. The site falls outside of an area of historic flooding

5.1.2 Flood risk from groundwater

Groundwater flooding occurs when water levels in the ground rise above surface levels. It is most common in low-lying areas underlain by permeable rock (aquifers), usually due to extended periods of wet weather. The site's geology is classified as having a Low susceptibility to groundwater flooding ($\geq 25\% < 50\%$).

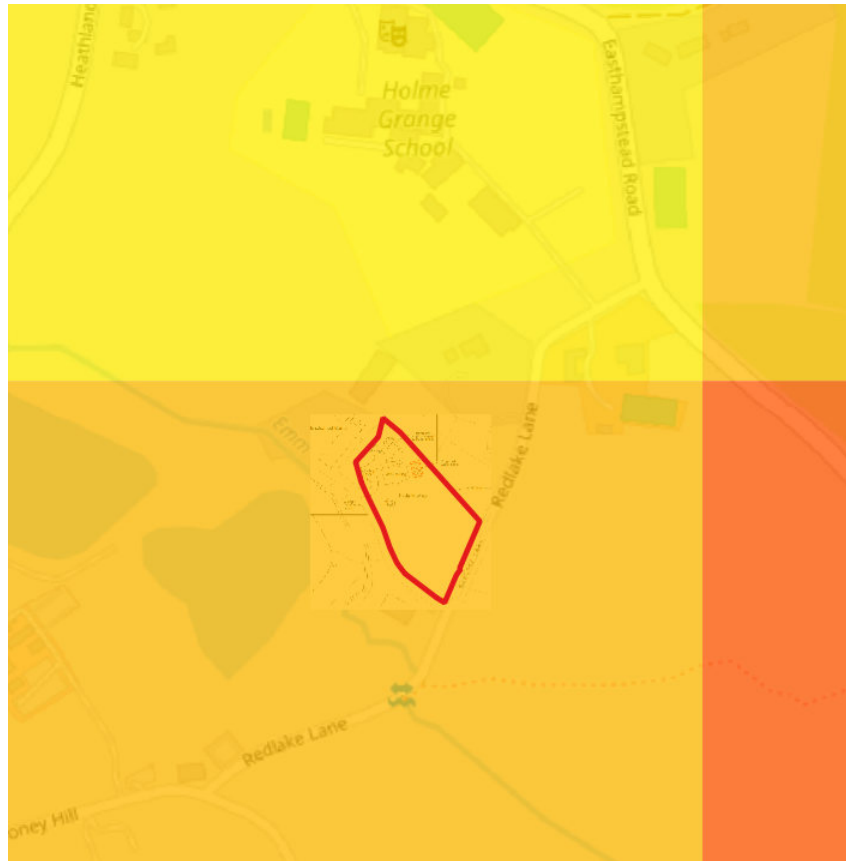


Figure 5: Susceptibility to ground water flooding. The site falls within an area at Very High, $\geq 75\%$ risk

Since the proposed development does not involve any basement elements, the impact of groundwater flooding on the proposed site will be minimal.

Hence, the relative risk of groundwater flooding on the proposed site can be considered to be Negligible.

5.1.3 Flood risk from sewer and highway drains

Flooding occurs when combined, foul or surface water sewers and highway drains are temporarily over-loaded due to excessive rainfall or due to blockage.

There are no indicators to Sewer flooding at the site.

Hence, the risk of sewer and highway flooding to the proposed site can be considered to be Low.

5.1.4 Flooding risk from surface water

Flooding occurs when rainfall fall on a surface (on or off the site) which acts as run-off which has not infiltrated into the ground or entered into a drainage system.

Present day risk With reference to the 17.09.2025 release of the Flood Map for Planning data set, Figure 6, the outbuilding is at a very Low, less than a 1 in 1000yr risk from surface water flooding.

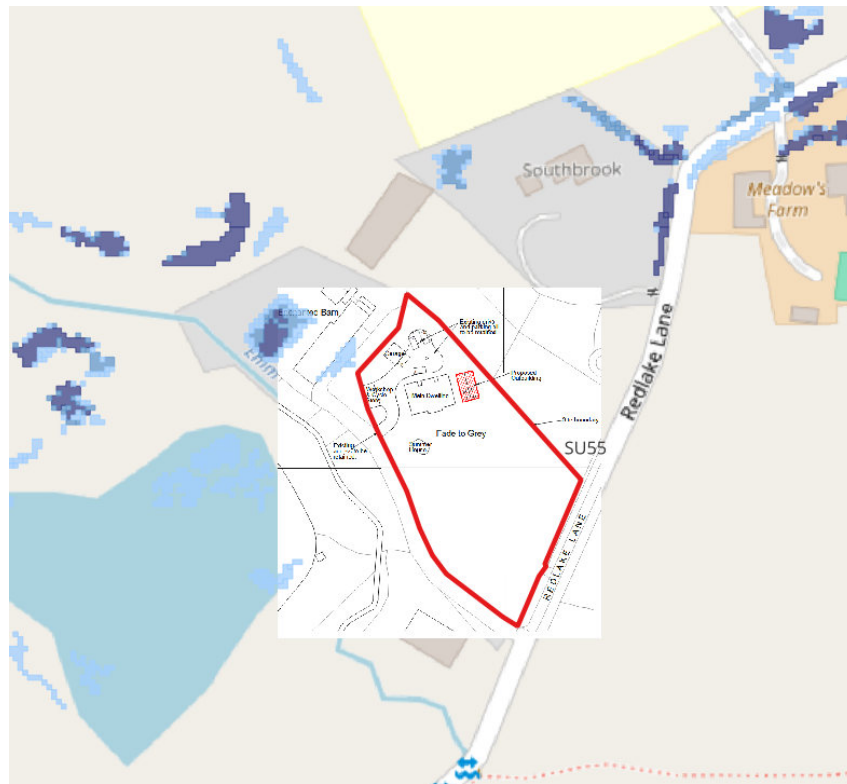


Figure 6: SW flood risk mapping of current risk. The site is not shown to be at risk.

Future risk With reference to the 17.09.2025 release of the E.A online SW data set, Figure 7, the extension will remain at a very Low risk (less than 1 in 1000yr) from surface water flooding.

For the design period, 1 in 100yr+ CC, the probability of occurrence for any depth of surface water flooding at the development is shown in Table 1 where:

“The chance of flooding beyond the stated depth (for example 0.2m) is given as follows:

- ‘High’ - means more than 3.3% (1 in 30) chance of a flood each year
- ‘Medium’ - means between 1% (1 in 100) and 3.3% (1 in 30) chance of a flood each year
- ‘Low’ - means between 0.1% (1 in 1000) and 1% (1 in 100) chance of a flood each year
- ‘Very low’ - means less than 0.1% (1 in 1000) chance of a flood each year”

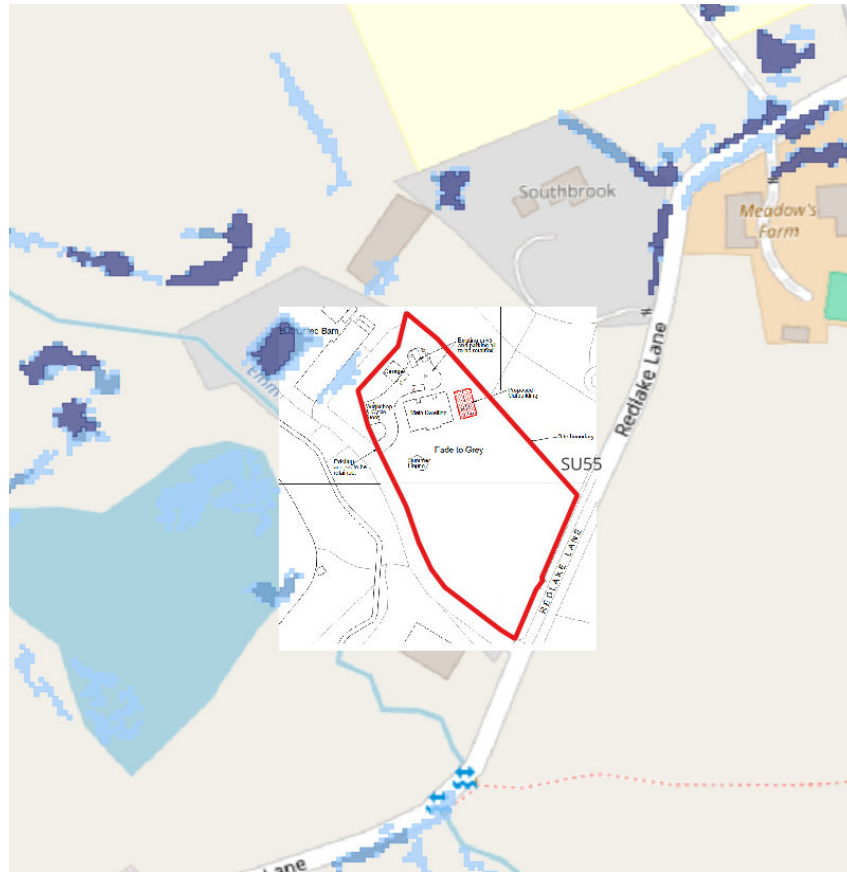


Figure 7: SW flood risk mapping including climate change. The site is in an area at Low, 1 in 1000yr, future risk

Depth	Probability of occurrence
=> 0.2m	Very Low
=> 0.3m	Very Low
=> 0.6m	Very Low
=> 0.9m	Very Low
=> 1.2m	Very Low

Table 1: Design period, 1 in 100yr + CC SW flood depth and highest related probability of occurrence at the extension

5.1.5 Flood risk from infrastructure failure

Flooding occurs because of canals, reservoirs, industrial processes, burst water mains or failed pumping stations.

The site is not at flood risk due to reservoir failure as shown in Figure 8.

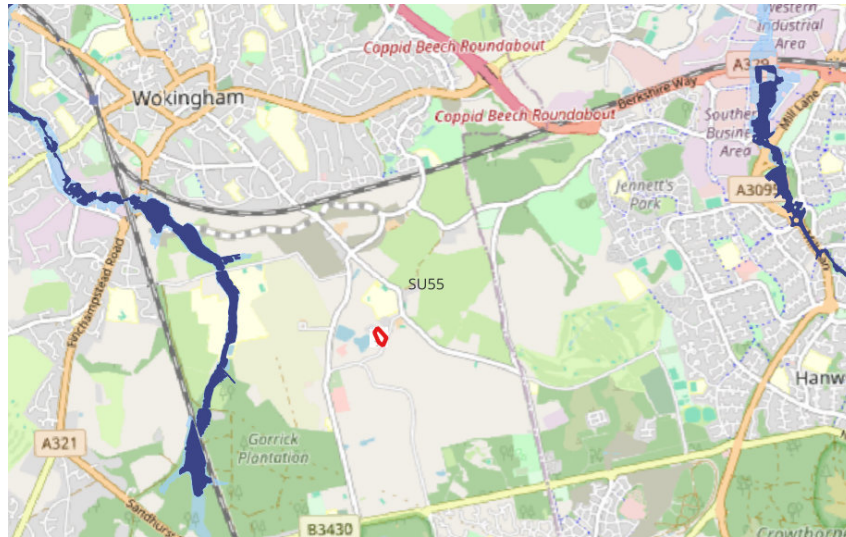


Figure 8: Flood risk from reservoir flooding. The site is shown to be in an area at risk. (Source: EA flood mapping)

However the EA have previously stated that:

“Reservoir flooding is extremely unlikely to happen. There has been no loss of life in the UK from reservoir flooding since 1925. All large reservoirs must be inspected and supervised by reservoir panel engineers. As the enforcement authority for the Reservoirs Act 1975 in England, we ensure that reservoirs are inspected regularly and essential safety work is carried out.”

Hence the flood risk to the site from reservoir failure is considered to be Low.

5.1.6 Urban flash flooding

With reference to the UFF dataset there are no referenced flash flood incidents at this location.

5.2 EA summary of flood risk

Figure 9 gives the EA’s overall summary of flood risk to the site.

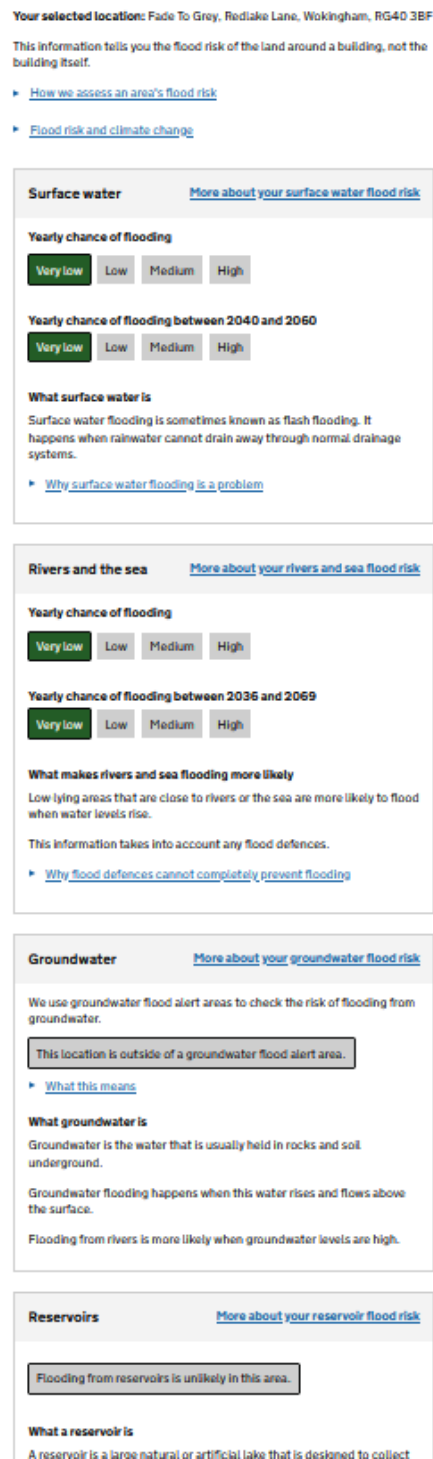


Figure 9: EA summary of flood risk to the site

5.3 On-site surface water analysis and management

5.3.1 Generation of Run-off

The post-development surface water run-off volume will increase when compared to the pre-development level because there is an overall reduction in permeable areas.

Hence all additional surface water arising will be managed on site in line with current best practice.

5.3.2 SuDS Statement:

Surface water will be managed in full alignment with the SuDS hierarchy as required under provisions made under the Town and Country Planning Act 1990.

While not required for Planning permission consent it can be confirmed that all SW on site will be also be designed, installed and tested in full accordance with Part H of the Building Regulations 2010 (as amended 2013), Requirement H3, as made under the Building Act 1984.

It is unlikely that soakaways will be viable given the expected ground conditions associated with the local geology hence the recommendation of this report would be to utilise a controlled outfall rate to the existing SW provision on site and for this raised raingardens would be a potential method to provide the required levels of control and treatment.

5.4 Impact on flood risk elsewhere

SW arising: Since the proposal is intending to manage surface water arising at source the impact on flood risk elsewhere is Low.

6 Levels

6.1 Climate change allowances

The revised climate change allowance for the site is +14% as shown in Figure 10.

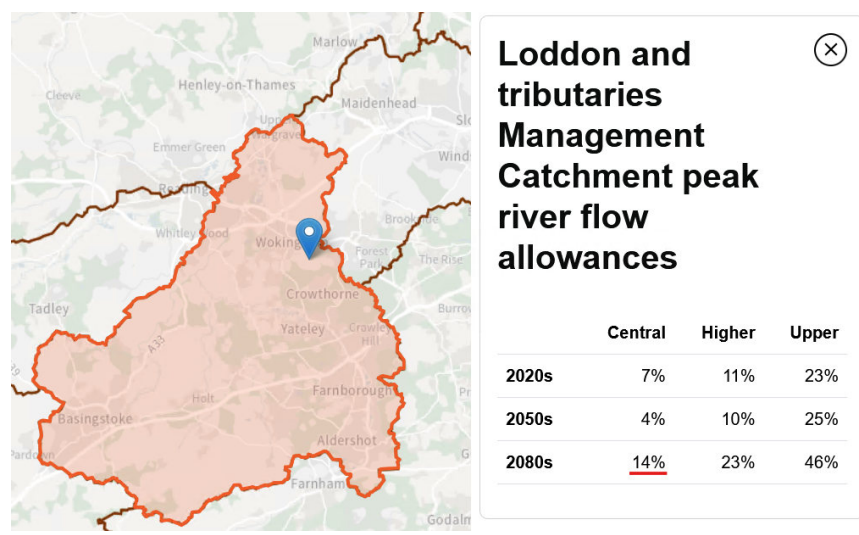


Figure 10: Revised climate change allowances

6.2 Flood level data

The flood data is extracted from the River Loddon (Lower Loddon, Emm Brook - Jan 07) data as provided under a “Product 6” FOI request to the EA hence there is a high degree of certainty with this data.

Figure 11 provides 1 in 100yr+ 20% CC flood levels at the nearest node to the site - Em3.07 (note that no data is available for +14% hence these are conservative).

The design flood level is 56.08m AOD.

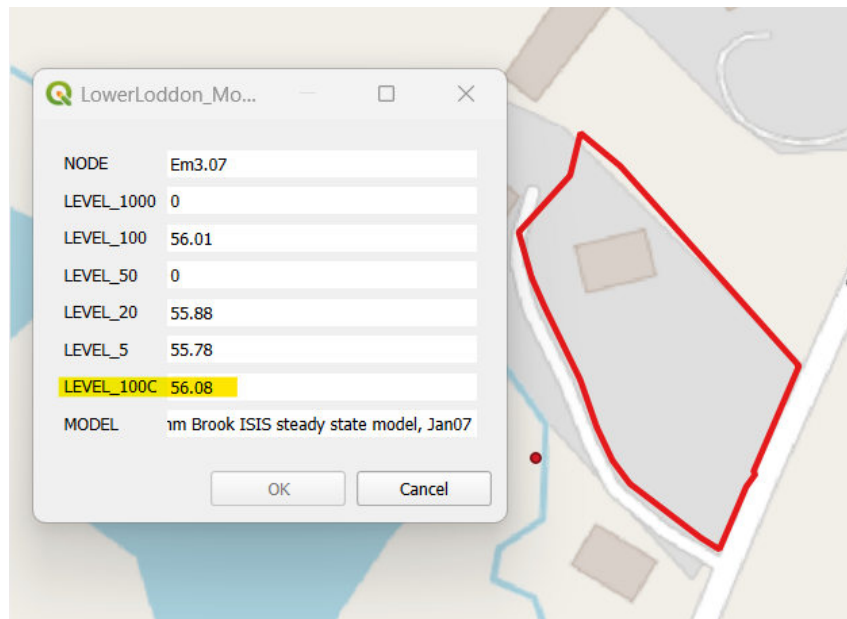


Figure 11: Flood levels for various return periods at the nearest model node to the site. The 1 in 100yr +20% CC flood level as highlighted, is 56.08m AOD.

6.3 Site levels

Figure 11 provides site levels to OSD.

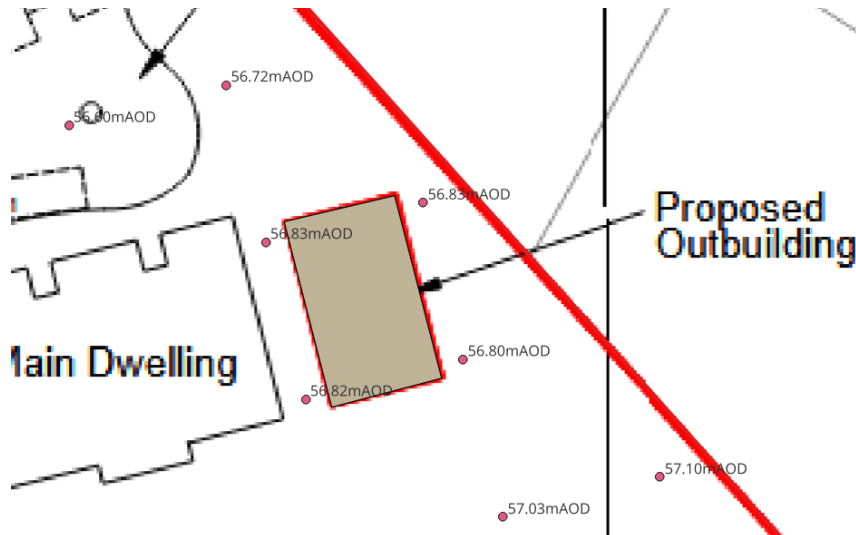


Figure 12: Spot levels, mAOD.

6.4 External ground level

At the footprint of the outbuilding the site level is c56.83m AOD.

6.5 Outbuilding's floor level

In line with EA standing advice the FFL of the outbuilding should be set no lower than $56.08 + 0.3 = 56.38\text{m AOD}$.

This in practice is readily achievable given ground levels already exceed this value by c0.45m.

6.5.1 Freeboard

Minimum required = 300mm

Assuming a standard 150mm elevated floor level, then the minimum freeboard provided will be c0.9m hence satisfactory.

7 Management of flood risk

7.1 Flood risk resilience measures

Given greater than a 600mm freeboard is provided no specific measures beyond standard construction details are required.

7.2 Management of residual risk

Any residual risk can be safely managed by not impairing access and evacuation routes and signing residents up to flood warning schemes.

7.3 Safe access and egress routes

The NPPF stipulates that, where required, safe access and escape routes should be available to/from new developments in flood risk areas. Access routes should be such that occupants can safely access and exit buildings in design flood conditions. The outbuilding does not impact on existing access and egress routes. It is noted that the existing routes are within the flood risk zone (ref Figure 13).

It is therefore important that the occupiers gain early warning of likely flood events.



Figure 13: Access and Egress routes

7.4 Flood warning schemes

Since it has been established that the site is in an area with a possibility of flooding the owners of the dwelling should (if they have not done so already) sign up to the E.A. “Flood Warnings Direct” which is a free service providing flood warnings by phone, text or email. See <https://www.fws.environment-agency.gov.uk/app/olr/register>, or call the E.A. on 0345 988 1188 for full information.

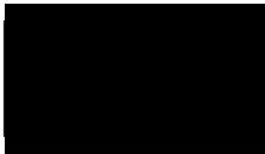
8 Conclusions

The LPA can reasonably rely on this FRA in reaching an informed planning judgement and given that:

- The outbuilding is ancillary to an existing dwelling within an existing developed site and this is minor development;
- The site lays, in part, in Flood Zones 2 & 3 and is at a Low risk from groundwater flooding;
- Floor levels can readily be raised 300mm above the estimated flood level;
- No specific flood resilience measures are required;
- Access/egress routes are existing and are not affected by the proposal;
- There is no documented evidence of flood risk from any other sources;
- The development does not impact on flood risk elsewhere;

and assuming the recommended warning and evacuation procedures can be maintained over the lifetime of the development, the proposed minor development within the curtilage of an existing dwelling is considered acceptable.

Signed:



Dr Robin Saunders CEng, C. Build E, MCABE, BEng(Hons), PhD

Date: 6th August, 2026

References

- [1] BSI. BS 8533:2011. Technical report, 2011.
- [2] Ministry of Housing, Communities and Local Government. National planning policy framework. 2021.