

An aerial photograph of a residential area. A red location pin is placed on a house in the upper left. A yellow rectangular box with a black border is centered in the middle of the image, containing text. The background shows houses, green lawns, and a large open field. A road labeled 'River Ingrebourne' is visible on the left side.

**FLOOD RISK ASSESSMENT:
LAND TO THE REAR OF 2
SHEPHERDS HILL, RM3 0ND
MARCH 2023**

INTRODUCTION

This Flood Risk Assessment has been undertaken in relation to the proposed extension of the existing Cattery Business at 2 Shepherds Hill, RM3 0ND.

The Flood Risk Assessment has been undertaken in accordance with the National Planning Policy Framework (NPPF) July 2021 and associated technical guidance.

The site appears to be located within Flood Zone 3 as defined by the Environment Agency (EA) on their Flood Map for Planning. Under the NPPF, a Flood Risk Assessment is required if a proposed development:

- includes building or engineering works in Flood Zone 2 or 3;
- includes building or engineering works on land classified by the Environment Agency as having critical drainage problem;
- changes the use of land or buildings in a location at risk of flooding from rivers or the sea, or with critical drainage problems;
- changes the use of land or buildings in a way that increases the flood vulnerability of the development where it may be subject to other sources of flooding;
- is larger than 1 hectare.

Given that the proposed application site is located within Flood Zones 3 (High Risk of flooding from rivers or the sea), and includes changes of use to land or buildings, the applicant is required to submit a FRA under the NPPF. The assessment should demonstrate to the Local Planning Authority (LPA) and EA how flood risk will be managed now and over the development's lifetime, taking climate change into account, and with regard to the vulnerability of its potential users.

The objectives of a FRA to support a planning application are to establish:

- whether the proposed development is likely to be affected by current or future flooding from any source;
- whether it will increase flood risk elsewhere;
- whether the measures proposed to deal with these effects and risks are appropriate.

EXISTING SITUATION

Site Usage:

The existing site is occupied by a residential house, with gardens to south. Ancillary buildings, comprising of a cattery, a chick coup and stable block with associated menège are also located to the south of the residential house. The site is bounded by the River Ingrebourne to the west.



Figure 1: Street view of the site and immediate surrounding area (Source: Google Street View)



Figure 2: Aerial view of the site and immediate surrounding area (Source: Google Maps)

ASSESSMENT OF FLOOD RISK

Flood Zones:

Within planning, Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences. They are shown on the Environment Agency's Flood Map for Planning (Rivers and Sea), available on the Environment Agency's website.

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3)
Zone 2 Medium Probability	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or Land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	This zone comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)

Table 1: Flood Zones

The Flood Zones shown on the Environment Agency's Flood Map for Planning (Rivers and Sea) do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding.

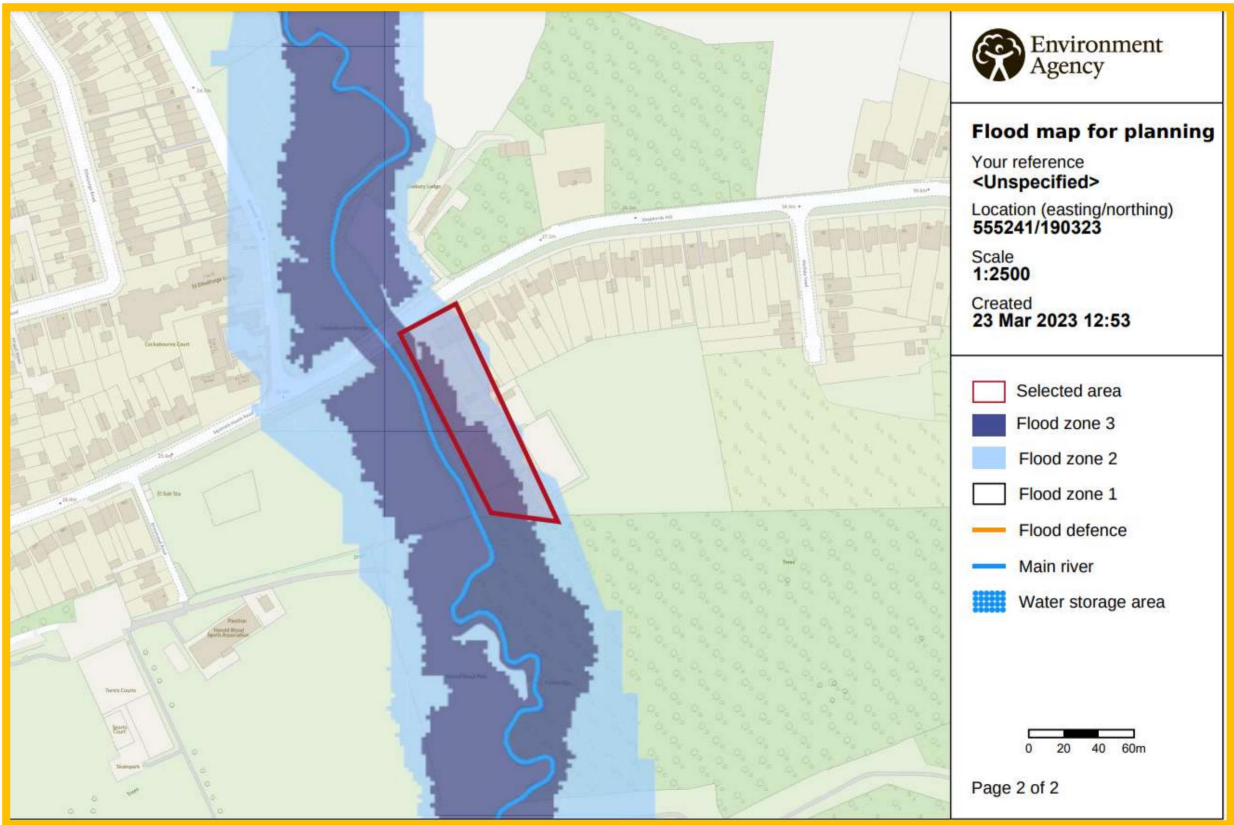


Figure 3: Environment Agency Flood Map for Planning (Rivers and Sea) (Source: EA)

Pluvial (Surface Water):

Pluvial (surface water) flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead.

The Flood Map for Surface Water assesses flooding scenarios as a result of rainfall with the following chance of occurring in any given year (annual probability of flooding is shown in brackets):

- 1:30 (3.3%)
- 1:100 (1%)
- 1:1000 (0.1%)

The mapping below shows the Risk of Flooding from Surface Water centred on the site. Please note that the EA do not consider this information suitable to be used to identify the risk. The EA Surface Water Flood Map suggests that the site lies in an area of 'High Risk' of flooding from surface water.

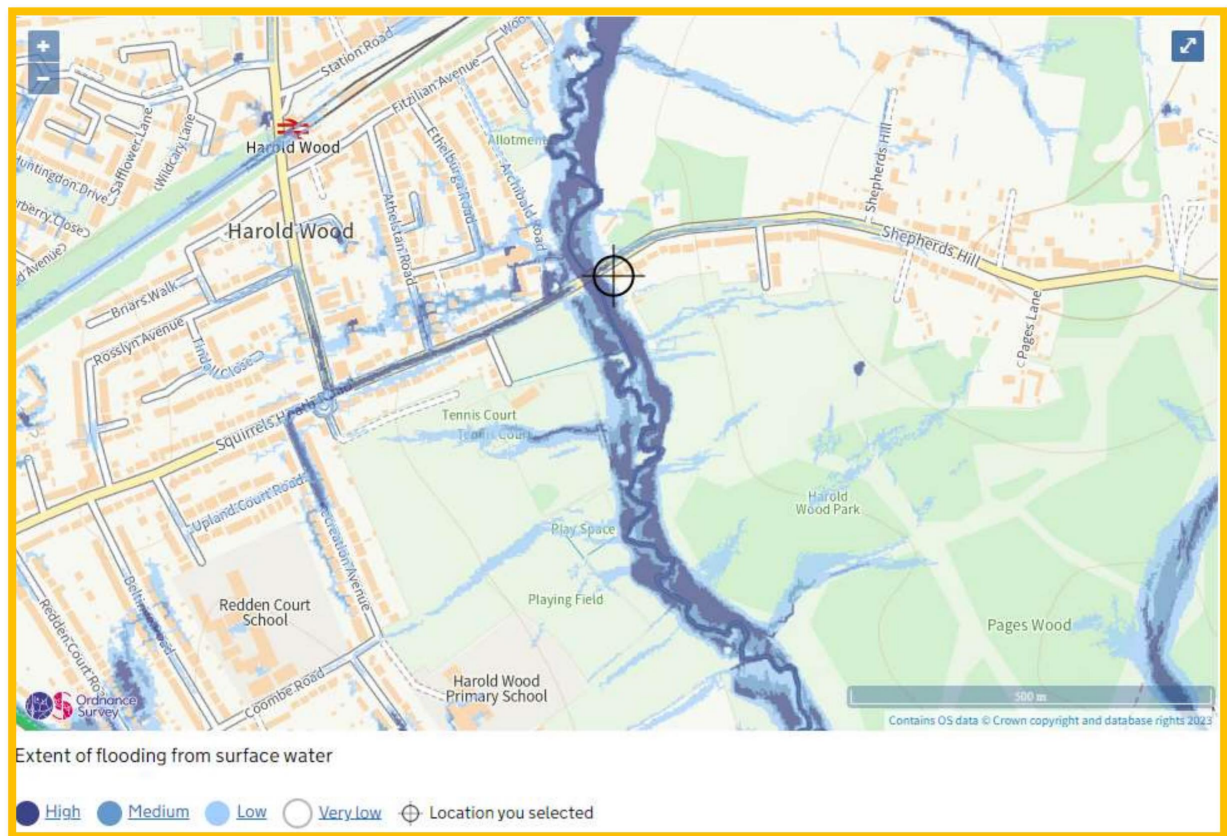


Figure 4: Extract from Environment Agency Surface Water Map (Source EA)

FLOOD RISK MANAGEMENT MEASURES

Vulnerability to flooding:

The NPPF classifies property usage by vulnerability to flooding. The existing site usage is residential and therefore classified 'more vulnerable'. Whilst the development of the cattery complex is considered 'less vulnerable', post development the site as a whole will remain 'more vulnerable'. Accordingly, it is considered that the vulnerability of the site as a whole will not increase post development.

EA Standing Advice:

The EA Standing Advice guidance is for domestic extensions and non-domestic extensions where the additional footprint created by the development does not exceed 250m². It should not be applied if an additional dwelling is being created, e.g. a self-contained annex or additional commercial unit.

Physical Design Measures:

As the development work is classified as 'Less Vulnerable', it is proposed that the development would set the floor level between 400mm and 600mm above the adjacent land.

To help protect against flooding during extreme events, it is proposed that the development will include the following:

- Solid (concrete) ground floor;
- Closed-cell foam used in wall cavities;
- Waterproof ground floor internal render;
- External walls rendered resistant to flooding to first floor level;
- Use of MDF carpentry (i.e. skirting, architrave, built-in storage) avoided at ground floor level.

Safe Escape:

The NPPF requires a route of safe escape for all residents and users to be provided from new residential properties in Flood Zone 3. Safe escape is usually defined as being through slow moving flood water no deeper than 25cm.

Whilst the proposed development is located in Flood Zone 3, it is considered 'Less vulnerable' and does not include the introduction of any new residential dwellings; therefore, safe escape is not required.

Owners should follow the warning and evacuation procedure detailed in the following section.

Flood Warning:

To further conform to the EA Standing Advice, the applicant has agreed to implement a flood warning and evacuation plan post development and subscribe to the Environment Agency's flood warning service. The EA is responsible for issuing flood warnings. Flood

warnings are issued to the emergency services and local authorities. Both private individuals and organisations can sign-up to receive warnings via phone, text or email. This system of receiving warnings is currently voluntary. Advice regarding severe flood warnings will generally be given during weather forecasts on local radio and TV. In the case of extreme events, warnings can also be disseminated via door to door visits by the police or locally appointed flood wardens. The site lies within an Environment Agency Flood Warning and Alert Area. The Environment Agency issue flood warnings to specific areas when flooding is expected. It is recommended that the applicant registers online with the free Environment Agency Floodline Warnings Direct service at <https://fwd.environment-agency.gov.uk/app/olr/register> to receive flood warnings by phone, text or email.

Flood Plan:

It is recommended that the applicant and future owners, occupiers and Landlords of the proposed properties prepare a flood plan to protect life and property during a flood event:

Before a flood:

- Find out if you are at risk of flooding.
- Find out if you can receive flood warnings.
- Prepare and keep a list of all your important contacts to hand or save them on your mobile phone.
- Think about what items you can move now and what you would want to move to safety during a flood such as pets, cars, furniture, and electrical equipment.
- Know how to turn off gas, electricity and water supplies.
- Prepare a flood kit of essential items and keep it handy. It can include copies of important documents, a torch, a battery-powered or wind-up radio, blankets and warm clothing, waterproofs, rubber gloves and a first aid kit including all essential medication.
- Consider buying flood protection products such as flood boards and airbrick covers to help reduce flood water getting into your property.

During a flood:

- Tune into your local radio station on a battery or wind-up radio.
- Fill jugs and saucepans with water.
- Grab your flood kit - if you have prepared one.
- Collect blankets, torch, first aid kit, medication and food.
- Move important documents, personal items, valuables, and lightweight belongings upstairs or to high shelves.
- Raise large items of furniture, or put them in large bags if you have them.
- Move people, outdoor belongings, cars and pets to higher ground.
- Switch off water, gas and electricity at mains when water is about to enter your home. Do not touch sources of electricity when standing in water.
- Fit flood protection products, if you have them, for example flood boards, airbrick covers, sandbags.
- Put plugs in sinks and baths. Weigh them down with a pillowcase or plastic bag filled with soil.
- If you do not have non-return valves fitted, plug water inlet pipes with towels or cloths.
- Move your family and pets upstairs or to a high place with a means of escape.
- Listen to the advice of the emergency service and evacuate if told to do so.

- Avoid walking or driving through flood water. Six inches of fast-flowing water can knock over an adult and two feet of water can move a car.

After a flood:

- If you have flooded, contact your insurance company as soon as possible.
- Take photographs and videos of your damaged property as a record for your insurance company.
- If you don't have insurance, contact your local authority for information on grants and charities that may help you.
- Flood water can contain sewage, chemicals and animal waste. Always wear waterproof outerwear, including gloves, wellington boots and a face mask.
- Have your electrics, central heating and water checked by qualified engineers before switching them back on.

Surface Water Drainage Strategy:

The development will utilise Sustainable Drainage Systems (SuDS) design in accordance with the NPPF for Planning Applications as follows:

1. Store rainwater for later use;
2. Attenuation of rainwater in ponds or open water features with controlled discharge into the local watercourse.

Runoff from the development will be limited to the greenfield runoff rate for all events up to and including the 1:100 year event.

Sequential and Exception Test

The Sequential Test aims to ensure that development does not take place in areas at high risk of flooding when appropriate areas of lower risk are reasonably available. The site is situated within Flood Zones 3a. The development itself is considered 'Less vulnerable' therefore post construction the site as a whole will remain 'more vulnerable'.

Flood Zones	Flood Risk Vulnerability Classification				
	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception test required	✓	✓	✓
Zone 3a	Exception test required	X	Exception test required	✓	✓
Zone 3b	Exception Test required	x	x	x	✓

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

Using the table above, given that the proposed application is 'Less vulnerable' it is considered to be suitable within Flood Zone 3a.

CONCLUSIONS

This document forms a Site Specific Flood Risk Assessment (FRA) for a planning application for 2 Shepherds Hill, Romford, RM3 0ND. The FRA has been undertaken in accordance with the National Planning Policy Framework (NPPF) July 2021 and the associated technical guidance. The proposed planning application is for the development of a cattery building to sit alongside an existing cattery building. The existing site is occupied by a residential dwelling with gardens to the south. Post development, part of the whole site (i.e. the land for the cattery building) will become 'Less vulnerable'. Accordingly, it is considered that the vulnerability of the site as a whole will remain the same post development. The site is situated within Flood Zone 3 when using the Environment Agency Flood Map for Planning (Rivers and Sea). The risk is understood to be from the River Ingrebourne and also from surface water flooding. Following NPPF guidance 'Less vulnerable' development is considered to be suitable within Flood Zone 3a.

In summary:

- Finished floor levels will be raised to between 400mm and 600mm above adjacent ground level.
- Flood proofing of the building will be incorporated as appropriate.
- A flood warning and evacuation plan will be implemented post development.
- The applicant will register with the free Environment Agency Floodline Warnings Direct service.

Assuming accordance with these flood risk management measures, it is considered that the proposed application to be suitable in flood risk terms.