

## Planning Application

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### Proposed Extension at

6A Redwick Road,  
Pilning, Bristol,  
BS35 4LQ

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### Flood Mitigation and Proofing

By

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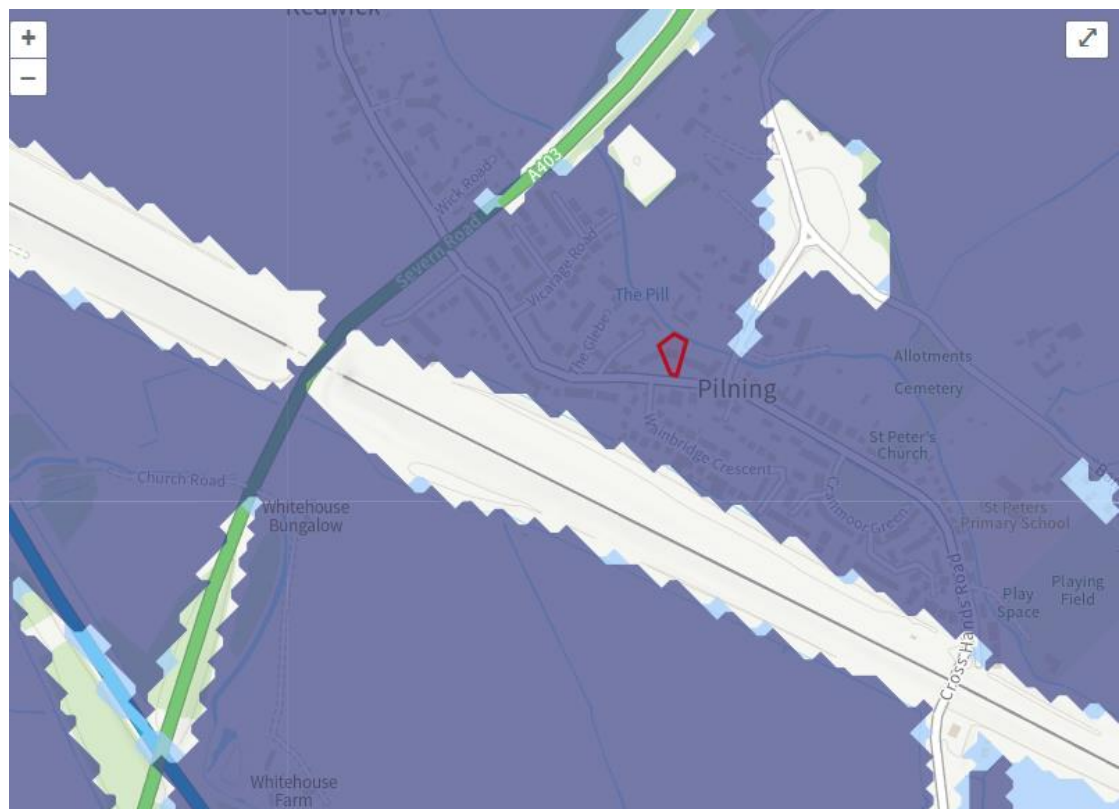
May 24

## 1.0 Flood Zone Risk Assessment

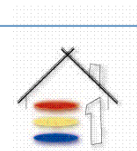
This Flood Risk Assessment has been prepared in respect of a planning application for a proposed single storey side extension at 6a Redwick Road, Pilning, Bristol.

This assessment provides a review of the site and proposed development. It then considers the relevant policy and reviews the flood risk at the site in respect of the proposal. The Environment Agency flood map shows that the site is within a flood area benefiting from flood defences, see below image.

Environment Agency Flood Map



Land and property in this flood zone would have a high probability of flooding without the local flood defences. These protect the area against a river flood with a 1% chance of happening each year, or a flood from the sea with a 0.5% chance of happening each year.



## Site and Context

The application site is an existing residential plot and comprises a detached dwelling house and within the Settlement Boundary of Pilning.

This Flood Risk Assessment seeks to support planning application to erect a single storey front and side extension comprising of approx. 42 sqm floor space. The site is shown to be within Flood Zone 3 of the Environment Agency's indicative flood plain maps and is therefore defined as having a high probability of fluvial flooding within a 1 in 100 year annual probability and with a 1 in 200 year annual probability of tidal flooding.

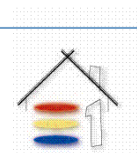
Predicted Future (2110) Actual Flood Risk Depths for the area are as follows:

**1- 1.5m, Flood Hazard** (Figure 7.3a, Capita Symonds' *Strategic Flood Risk Assessment Summary report*, March 2011 for Bristol City Council, South Gloucestershire Council & the Lower Severn Drainage Board).

**1 - 2m, Tidal Event** (Figure 7.5a, Capita Symonds' *Strategic Flood Risk Assessment Summary report*, March 2011 for Bristol City Council, South Gloucestershire Council & the Lower Severn Drainage Board).

The primary sources of flooding to the site are from tidal flooding of the River Severn. The site lies within tidal Flood Zone 3. Flood Zone 3 comprises land assessed as having a 0.5% (1 in 200) or greater annual probability of flooding from the sea in any year.

Tidal Flood Defences are constructed of earth bund and concrete retaining walls with a coastal crest level of 9.76m AOD. Work is due to commence in the Autumn of 2020 to increase the flood defences to the Avonmouth and Severn side area by 2.5 metres in height by the Environment Agency in anticipation of rising sea levels resulting from climate change.



## 2.0 Flood Proofing and Mitigation

- Floor levels within the proposed development will be set no lower than existing levels.
- The concrete base for the extension will be treated with a suitable damp proof membrane.
- Floor insulation will be of the closed-cell type to minimise the impact of flood water.
- Wall insulation should be of the closed-cell type to minimise the impact of flood water.
- Extension door threshold levels will be the same as the existing house.
- Electrical sockets and fuse boxes set above EA predicted flood level
- Non-return valves will be used on all drainage connections.
- All service entries will be sealed (e.g. with expanding foam or similar closed cell material).
- Building materials that are suitable for a 'water entry strategy' will be used which include: facing bricks, concrete blocks, sacrificial or easily removable external finishes or internal linings.
- The occupants are advised to utilise the Environment Agency's Flood Warnings Direct which is a free flood warning service called Floodline Warnings Direct (FWD). This service generally gives an advance notice of when flooding is likely to happen and time to prepare for a flood event.

### Evacuation

The decision to evacuate or take shelter ultimately rests with the householder, but must be made to allow sufficient time to conduct the evacuation before flooding occurs. Flood waters contain hidden dangers and will impede, if not prevent, a safe evacuation. The property is in a flood zone level 2 area of medium probability and low risk of flooding. The following procedures should be adhered to in order to ensure that all residents and future occupiers are safe from flooding.

***You are advised NOT to assume that the emergency services will be able to assist you with the evacuation; their focus will be directed to those in greatest need.***

Where evacuation is not a feasible option, or has been delayed, you should move to the upper floor of the property; taking with you any important documents, bottled water,



essential medicines and food sufficient to support you until rescue (see information related to [Grab Bags](#)).

If possible arrangements should be made so that you are able to stay with a relative or friend who lives in a safe place that live nearby that can accommodate your stay if needed and that access is available to you any day or time (24/7). Arrangements should be made in advance if there are any members of the residents who have vulnerabilities who may need specific needs or requirements to access the agreed evacuation venue.

If on-site refuge is considered appropriate, the place of refuge should be well above the predicted flood level, as a minimum above the 1 in 100 fluvial or 1 in 200 tidal flood level (whichever is greater), and where applicable, taking into account breach of flood defences. This is to ensure that the place of refuge is safe during a flood event.

The quality of the refuge in terms of facilities, communication and warmth provided should reflect the timescales that people would be trapped.

A reminder of the dangers associated with flood waters:

### **REMEMBER!**

- *Don't walk through flowing water – Currents can be deceptive, and shallow, fast moving water can knock you off your feet!*
- *Don't swim through fast flowing water – You may get swept away or struck by an object in the water! If you have to walk in standing water, use a pole or stick to ensure that you do not step into deep water, open manholes or ditches!*
- *Don't drive through a flooded area – You may not be able to see abrupt drop-offs and only half a metre of flood water can carry a car away!*
- *Avoid contact with flood water – It may be contaminated with sewage, oil, chemicals or other substances!*

## **Flood Risk**

### **Am I at risk?**

Recent weather may have provided evidence about whether you live in an area at risk from flooding.

But if you are not facing rising flood waters right now, how do you know whether your house is at risk from flooding in the future?

Our "[Am I at risk?](#)" document that explains how to use Environment Agency's new and updated flood risk maps.

### **It's an emergency – what should I do?**

If you have a flooding emergency contact Fire and Rescue on 999 or 112

Although Avon Fire and Rescue's main responsibility is saving lives, they may also be able to help pump out floodwater from your property depending on how busy they are.



During a flood incident you should focus on the safety of yourself and others and make sure you STAY OUT of any floodwater.

Our "[It's an Emergency!](#)" document that provides useful emergency contact details for flooding, together with advice if you need to be evacuated and on preparing for a flood.

### **Other flooding**

There are many different types of flooding that can happen depending on where the water comes from. Each of these flooding types is managed by different organisations across South Gloucestershire.

Our "[Other Flooding](#)" document which describes the six most common types of flooding

### **Preventing flooding**

Whether you're a homeowner, business owner, community or landowner there are a whole host of ways to help reduce the impacts of flooding and protect your property and land.

There are a number of ways to help reduce the risk of flooding to your community and in turn reduce the risk of flooding to your own home. By acting as a community using the information in the points below, you'll feel better prepared when heavy rainfall and flooding comes.

Our "[Preventing Flooding](#)" document that details a number of activities that communities, landowners, homeowners and businesses that can do to prevent flooding.

### **Downloads:**

- [Am I at Risk \(Final Draft 210616\)](#)
- [It's an Emergency \(Final Draft 210616\)](#)
- [Other Flooding \(Final Draft 160616\)](#)
- [Preventing Flooding \(Final Draft 210616\)a](#)
- [Sandbag Policy \(Draft 210616\)](#)

### **Warning & informing**

The Environmental Agency aim to provide at least 2 hours warning between the Flood Warning alert and commencement of flooding. South Gloucestershire Council and the emergency services encourage you to sign up to Flood Warnings Direct (FWD) from the Environment Agency and to Weather Alerts from the Meteorological Office and to act upon the guidance provided.

Annex B provides the means to record your planned actions in relation to the flood alert levels. Alternatively you may wish to make an [emergency plan](#) for your home.

### **Community & Household Resilience**



The successful implementation of any plan is dependent on all occupants being familiar with its content and to have rehearsed, where possible, the procedures contained within it. Rehearsing the plan can be made fun and educational for younger members of the family.


Resilience is achieved when individuals and communities cooperate to prepare for, respond to and recovery from emergencies. This begins with engagement with neighbours, understanding your community and culminates in a collective approach to management of risk.

### Recovery



If your home is subjected to flooding, and you have evacuated, you may not be allowed to return to your home until it has been declared safe to do so. Your insurance company will provide further guidance and support.

In the event that you did not evacuate it is possible that you will now be encouraged to do so, insurance companies may insist upon it in order to ensure your protection and to effect necessary repairs.

## Annex B – Household Flood Warning Activation Procedures

Warnings		EA Recommended Actions	Household Actions	
			Actions [Detail the actions you will take at each stage of the activation]	Resources [Record the flood resources available and when you will deploy/utilise them]
	<p><b>What it means:</b> Flooding is possible. Be prepared.</p>	<p>Be prepared to act on your FWEP. Prepare a flood kit of essential items.</p>		
	<p><b>When it's used:</b> Two hours to two days in advance of flooding.</p>	<p>Monitor <a href="#">local water levels</a> and the flood forecast on our website.</p>		
	<p><b>What it means:</b> Flooding is expected. Immediate action required.</p>	<p>Move family, pets and valuables to a safe place.</p>		



 <p><b>FLOOD WARNING</b></p>	<p><b>When it's used:</b> ½ an hour to one day in advance of flooding.</p>	<p>Turn off gas, electricity and water supplies if safe to do so.</p> <p>Put <a href="#">flood protection equipment</a> in place.</p>		
 <p><b>SEVERE FLOOD WARNING</b></p>	<p><b>What it means:</b> Severe flooding. Danger to life.</p> <p><b>When it's used:</b> When flooding poses a significant threat to life.</p>	<p>Stay in a safe place with a means of escape.</p> <p>Be ready should you need to evacuate from your home.</p> <p>Co-operate with the emergency services. Call 999 if you are in immediate danger.</p>		
<p><b>EA Flood Warnings No longer in force</b></p>	<p><b>What it means:</b> No further flooding is currently expected in your area.</p> <p><b>When it's used:</b> When river or sea conditions begin to return to normal.</p>	<p>Be careful. Flood water may still be around for several days.</p> <p>If you've been flooded, ring your insurance company as soon as possible.</p>		
<p><b>Meteorological Office Weather Warnings</b></p>	<p>Warnings of heavy rainfall.</p> <p>Warnings of severe winter weather e.g. hail, snow, freezing rain.</p>	<p>Consider the impact of this type of weather – e.g. this could lead to surface water flooding, ground water flooding, increased river and sea levels.</p>		

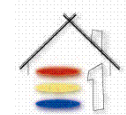
### Future Climate Change

Guidance from the government in regards to future flood risk is detailed in the technical guide to the NPPF. It is predicted that annual rainfall is expected to increase and that it will have increased by approx. 30% by the year 2115. This increase is expected to result in increased peak fluvial flows of up to 20%. In the region of the South West, the sea levels are expected to rise by up to 3.5mm per year by 2025, 8.00mm per year by 2055 and 11.5mm per year from 2055 to 2085.

### Summary

#### Proposed Flood Mitigation measures:

*Floor levels within the proposed development will be set no lower than*





*existing levels AND, flood proofing of the proposed development has been incorporated where appropriate.*

**Details of flood proofing / resilience and resistance techniques considered:**

**Floor:**

- Extension floor levels will be the same as the existing house.*
- The concrete base for the extension will be treated with a suitable damp proof membrane.*
- Floor insulation will be of the closed-cell type to minimise the impact of flood water.*

**Walls:**

- The wall structure will be treated with a suitable damp proof membrane 1.00m above floor level.*
- Wall insulation should be of the closed-cell type to minimise the impact of flood water.*
- The internal lining to the existing structure will be lined with sacrificial insulated plasterboard.*

**Doors/Windows:**

- Extension door threshold levels will be the same as the existing house.*
- The U-PVC doors and windows will be double glazed and conforming to the relevant standards.*
- The U-PVC doors and windows will be sealed with silicone sealant to the fabric of the house.*

**Services:**

- Electrical services will be fitted at 0.80m above existing floor level.*

The proposed extension site is at low risk from flooding (Zone 2 ) due to it not being in the zone and being elevated above the road.

For this reason we consider that the proposed conversion conforms fully to Local Plan Policy, Structure Plan Policy and Government Guidance. Together with other material considerations, we consider that this application should be positively received.

**Conclusion**

The site is situated within Flood Zone 3, however it is also an area that benefits from flood defences. It is noted that land and property in this flood zone would have a high probability of flooding without the local flood defences.

The report identifies the dangers from flood risk, which given the defences is classified by the Environment Agency to be low. The site is defended against both tidal and fluvial flooding, and the tidal sea defences are considered to be sufficient to eliminate flood risk.

The extension is small in scale and area and the effect of the extension is viewed as negligible. The area around the extension is permeable and as described above a number of flood resilient measures will be incorporated into the design and final construction.



This Flood Risk assessment demonstrates that the proposed development is sustainable in terms of flood risk. New flood defences are to be installed in the Avonmouth and Severn side area, which will further reduce the risk of flooding in the area. In the event that defences are breached, the proposed extension is designed to minimise the impact of flooding.

### **Additional Guidance**

#### **Contact:**

#### **South Gloucestershire Council**

Tel: 01454 868000 (8:00am – 6:00pm)

Tel: 01454 868009 (Out of Hours)

#### **Environment Agency Floodline**

Tel: 0345 988 1188 or 0800 807060

**Gov.UK:** [Prepare for a Flood](#)

**Gov.UK:** [Preparing for Emergencies](#)

**Environment Agency:** [Flood Warnings Direct](#)

**Meteorological Office:** [Weather Warnings](#)

