SITES 1, 1A, 2 & 3 NEW BROADWAY



WORTHING, BN1 4HP

Flood Risk Assessment

January 2024

eas ltd
Environmental Assessment Services Ltd

REPORT DATA SHEET

Requirement	Data
Report Reference	662/MME/NewBroadway/Worthing/FRA
Date	January 2024
Client	Icecourt Ltd
Report type	Flood Risk Assessment
Purpose	Submission to Planning
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Flood Risk Assessment

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1. INTRODUCTION

1.1 Environmental Assessment Services Ltd was instructed to prepare a Flood Risk Assessment (FRA) in relation to planning applications for the proposed redevelopment at Sites 1, 1A, 2 & 3, New Broadway, Worthing.

1.2 According to the Environment Agency (EA) Flood Map for Planning, the site lies within Flood Zone 1 (Low probability of flooding from rivers and sea), but is vulnerable to surface water flooding, the site lies in an area with medium risk of surface water flooding and directly adjacent to an area with high risk.

1.3 The site-specific FRA is prepared generally in accordance with the Revised National Planning Policy Framework (NPPF) and its accompanying Update Planning Practice Guidance (PPG), published in July 2018.

1.4 This report has been prepared for the purposes of assisting a planning application and addressing any Environment Agency (EA) concerns over the flood risks relating to the proposed redevelopment. Specifically, the risk from the surface water flow path that is close to the site. It should be appreciated that the potential for flooding at a site depends on many factors, some natural, some man-made and some arising from accident, and that these factors may change substantially over the life of the proposed development. The flood risk in this report is assessed on the basis of available information, which is generally catalogued in the report but does not take into account any special risks or requirements of the development unless we have been specifically informed of them.

1.5 Any construction levels suggested in this report should therefore be considered as minimum levels and the client and any person appointed to undertake the design of the development should satisfy themselves that any such level is in all respects suitable for their purposes.

2. THE SITE & PROPOSED DEVELOPMENT

2.1 The flood risk assessment is prepared for the proposed redevelopment at Site 1, 1A, 2 & 3, New Broadway, Worthing to convert the existing first-floor offices into one one-bedroom self-contained flat and one two-bedroom self-contained flat. See the notices of planning for the site listed below:

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NOTICE/0018/23 | Application for Prior Approval for construction of one additional storey upward extension to form an additional storey to provide 2x flats. | Site Of 1 And 1A And 2 To 3 New Broadway Worthing West Sussex

NOTICE/0017/23 | Application for permitted development for prior approval for change of use from first floor offices to residential C3 to form 2no flats. (2 x 1 bedroom) | Site Of 1 And 1A And 2 To 3 New Broadway Worthing West Sussex

NOTICE/0016/23 | Application for permitted development for prior approval for change of use from use of first floor offices to residential C3 to form 2no flats. (1x 1 bedroom and 1 x 2 bedroom) | Site Of 1 And 1A And 2 To 3 New Broadway Worthing West Sussex

2.2 The Ordnance Survey reference for the site is TQ 13404 03328 and the site elevation is approximately +8.2 m OD. The total site area is 380 m^2. See Figure 1 in Appendix A for the site location.

2.3 The site (as existing) is occupied by office buildings with commercial buildings on the ground floor (to remain). The proposed site is bordered by Tarring Road to the south, the junction between Tarring Road and Downsview Road and the railway level crossing to the southwest and west. To the north and directly adjacent, lies the railway tracks and sharing a wall to the east the first floor flat at no. 4 The Broadway.

2.4 According to the British Geological Survey, the site lies on Lambeth Group – clay, silt and sand over Sedimentary bedrock formed during the Paleogene era. DEFRA classify the soil at the site as “freely draining, slightly acidic loamy soil”.

2.5 The site lies on a Secondary A Aquifer and adjacent to a principal aquifer to the south and is in an area of medium groundwater vulnerability.

2.6 The site is to be redeveloped, excluding the existing ground floors, for use as two self-contained residential flats.

3. FLOOD RISK & DEFENCES

3.1 Outline Flood Risk

3.1.1 The EA Flood Map for Planning showed the site as lying within Flood Zone 1, (<0.1% chance of flooding from rivers or the sea, in any given year), where defences are not considered. The site is not considered to be at risk of flooding from reservoirs. The site is considered to be at medium - low risk of flooding from surface water (medium risk means the area has a risk of flooding between 1% and 3.3% each year) but adjacent to the site is an area of high risk, (the area to the north of the site along South Street Tarring and Becket Road are in a high risk category with regards to surface water flooding). See Appendix B for Environment Agency flood maps.

3.1.2 The EA data provides long term modelled flood data 'Flood Risk Assessment Data' and maps specific to the vicinity of the site. The modelled data indicates that the site lies within an area of low risk of flooding from rivers and the sea, but in an area of medium risk from flooding by surface water.

3.1.3 The pathway of the potential flooding would be caused by overland and underground surface flows from a failure of the drainage system and backing up through the drainage system and overground through the residential areas to the north of the site and across the railway line. This could potentially occur during an extreme storm event.

3.2 Defences

3.2.1 Flood defences work by:

- Reducing the probability of flooding from a specific source (a river or the sea).
- They do not completely stop the chance of flooding because there may be a flood that is bigger than the one the defence is designed to protect against (this is called overtopping), or the defence may fail.
- They may provide reduced protection over time due to climate change possibly increasing flood risk in the future.

3.2.2 The site is not protected by flood defences.

4. ALTERNATIVE SOURCES OF FLOODING

An assessment of alternative sources of flooding potentially affecting the site has also been made from a review of the SFRA from Adur & Worthing (2020) and the EA online mapping.

The SFRA addresses alternative sources of flooding including fluvial flooding, surface water flooding, groundwater flooding, flooding from sewers and flooding from reservoirs.

4.1 Coastal Flooding

4.1.1 Coastal flooding is a flood that occurs when sea or estuary water covers dry or low-lying land. Coastal flooding can be caused by storms, tides or surges that raise the level of the sea. The impact of coastal flooding is dependent on the location and severity of the event.

4.1.2 According to the Environment Agency the site is at very low risk of flooding from coastal waters. (0.1% or less than chance of flooding by the sea).

4.2 Surface Water Flooding

4.2.1 Surface water flood occurs when rainfall falls at a higher rate than the infiltration rate of ground it is landing on. This is particularly problematic in

developed areas where there is a high proportion of impermeable surfacing (concrete paving and tarmac).

4.2.2 In addition to flood risk from surface water runoff; surface water flooding can also occur as a result of water flowing out of manholes and gullies. This is the result of extreme storm events, where the pipe network system becomes overwhelmed. Water then escapes at critical low points in the network through surcharged manholes and gullies.

4.2.3 Current climate change guidance suggests a rise in peak rainfall intensities by up to 40% by the year 2115. Hence, climate change would exert capacity pressure on surface water and combined sewers. The SFRA (2020) confirms the extent of the floodplain based on a 100-year lifespan of the development and indicated that the site would remain in Zone 1 for the duration of its life. Climate change data may be subject to adjustment.

4.2.4 The site is above ground level (first-floor development) and as such holds a decreased risk to flooding from surface water. However, flood escape routes need to be considered in the event of a storm surge event.

4.2.5 The EA's online surface water flood risk map shows that the site is in an area at medium risk of surface water flooding (between 1% and 3.3% each year) but adjacent to an area of high risk of flooding from surface water. See Appendix B for Surface Water Flood Map.

4.3 Sewer Flooding

4.3.1 Sewer flooding occurs when sewage or foul water leaks from the sewerage system (through pipes, drains or manholes) or floods up through toilets, sinks or showers inside a building.

4.3.2 There does not appear to be any record of sewer flooding affecting the site.

4.4 Groundwater Flooding

4.4.1 Groundwater flooding occurs when the water table rises above the ground surface, normally as a result of persistent rainfall over a prolonged period. Increased levels of development in an area can increase the risk of groundwater flooding.

4.4.2 The EA online flood maps for planning show that the site is unlikely to flood from groundwater.

4.5 Reservoirs

4.5.1 The EA online flood maps for planning show that the site is not at risk of flooding from reservoirs.

5. HISTORY OF FLOODING

5.1 The SFRA for Adur-Worthing (2020) records historic flood events in the area. There have been some recorded incidents of historic flooding within Worthing. However, there is no evidence that the site was affected by these events. The site also remained unaffected by the June 2012 Surface Water Flood Event, however properties to the east of the site, further along Tarring Road, were flooded at this time.

6. PLANNING STATUS WITH RESPECT TO FLOODING

6.1 The site is shown on the current Environment Agency (EA) flood risk mapping as being within Flood Risk Zone 1 (0.1% or less than chance of flooding by the sea).

6.2 Residential dwellings are classified as 'More Vulnerable' by the NPPF. Paragraph 168 of the 2023 NPPF states:

"*Application for some minor dwellings and changes of use should not be subject to the Sequential or Exception Tests but should still meet the requirements for site-specific risk assessments.*"

6.3 The site lies in Flood Risk Zone 1 and in a long developed, urban area which includes numerous residential premises. The Sequential Test would appear to be satisfied for the proposed use of the property. As the development in this case is a material change of use, an Exception Test is not required.

7. RISK TO PROPERTY

7.1 The site is in Flood Risk Zone 1, and therefore at low risk of flooding from rivers or the sea. It is already in use as an office, and the development is not proposing to alter the existing ground level. Therefore, the level of risk to the property will not be increased by the proposed development.

8. RISK TO OCCUPIERS OF THE PROPOSED DEVELOPMENT

8.1 As the site lies in Flood Risk Zone 1, there will not be potential flood related risk to the proposed occupants of the redevelopment. However, as the site is in an area of medium risk of flooding from surface waters, and adjacent to an area of high risk from surface waters, the proposed residents will need a Flood Evacuation Plan for use in an extreme weather event.

9. LIKELY IMPACT ON FLOOD RISK ELSEWHERE

9.1 The site is presently a two-story building on the first floor (proposed site) and is in use as an office. The proposed development will not increase the amount of hardstanding or the footprint of the site. As such it is most unlikely that the proposed redevelopment will increase flood risk elsewhere.

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10. FLOOD EVACUATION PLAN

10.1 A Site Evacuation Plan would need to be in place in the event of an extreme flood event. Given that the site is at medium risk of flooding from a surface water event, and adjacent to a high-risk surface water flood risk area, and considering the possible effects of climate change and the proposed lifetime of the site, an Evacuation Plan comprising an exit route and procedure should be put into place.

10.2 Safe, direct access onto Tarring Road would be needed, and a pre-arranged route safely out of the potential flood zone would need to be followed. The proposed route is shown below:

- Depart 1-3 New Broadway, Worthing.

- Walk west on Tarring Road and take the first left onto Downsview Road.

- Walk along Downsview Road until you reach Mill Road (A259).

- Exit the Surface Water Flood Risk Zone.

If the residents are leaving by car, the same evacuation route should be followed. Residents may then be taken to a pre-arranged location outside of the surface water flood risk zone.

10.3 Residents should contact the local authority to check if it is safe to return to their property.

10.4 Residents should regularly update their evacuation plan and check with the EA that the flood risk for the property has not changed. They should be aware of how to turn off the gas, electricity, and water mains supply. See Appendix D for the Environment Agency's Personal Flood Plan.

11 FLOOD WARNINGS

11.1 In the event of an extreme flood the Environment Agency is responsible for providing flood warnings. Public safety is the responsibility of the Local Authority and the emergency services.

11.2 There is not a flood warning system in place in the area of the site, but the Environment Agency operates a national flood warning system from their website.

11.3 Flood warnings are forecast using codes. See Appendix C for EA's Flood Warning codes.

12. SUMMARY

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12.1 The site lies within Flood Risk Zone 1 and is at low risk of flooding from the rivers and the sea. Surface water flood risk is medium, and the site is adjacent to a high surface water flood risk area. No other flood risks likely to affect the site have been identified.

12.2 There is a risk of flooding under extreme storm event conditions and the design of the development should reflect this consideration. There should be safe access to Tarring Road from the site under all eventualities.

13. RECOMMENDATIONS

13.1 It is recommended that the proposed future residents maintain a Flood Evacuation Plan, this will need to be included in the planning.

13.2 The Sequential Test is satisfied for the location of the property and will not need to be reapplied for this change of use. There is no need to apply the Exception Test.

13.3 CIRA (Construction Industry Research and Information Association) recommend that passive flood protection measures should be included in the planning for this type of development. As this is a first-floor development the measures that relate to the proposed development are:

- sealed service ducts and non-return valves on sewer connections.

- protected supplies for utilities.

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APPENDIX A

Figure 1: Site location
Figure 2: Site Photographs
Figure 3: Proposed Development Plans

Figure 1: Site Location



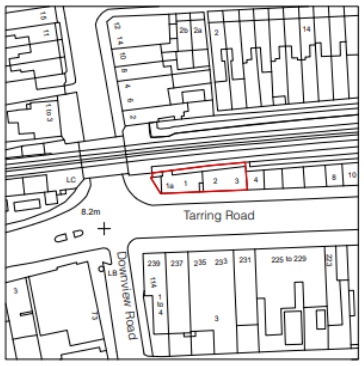
20 0 20 40 60 80 100

Metres

N

Block Plan 1:500

513400



103300 103300

513400

20 0 20 40 60 80 100

Metres

N

Scale 1:1250

Figure 2: Site Photographs



The site rear (northern) elevation



The site side (western) elevation

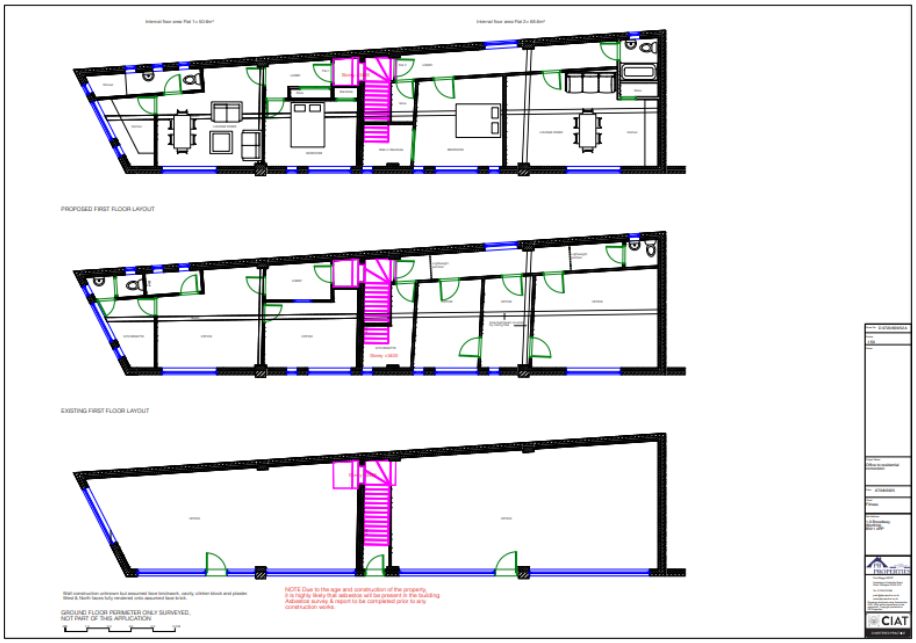


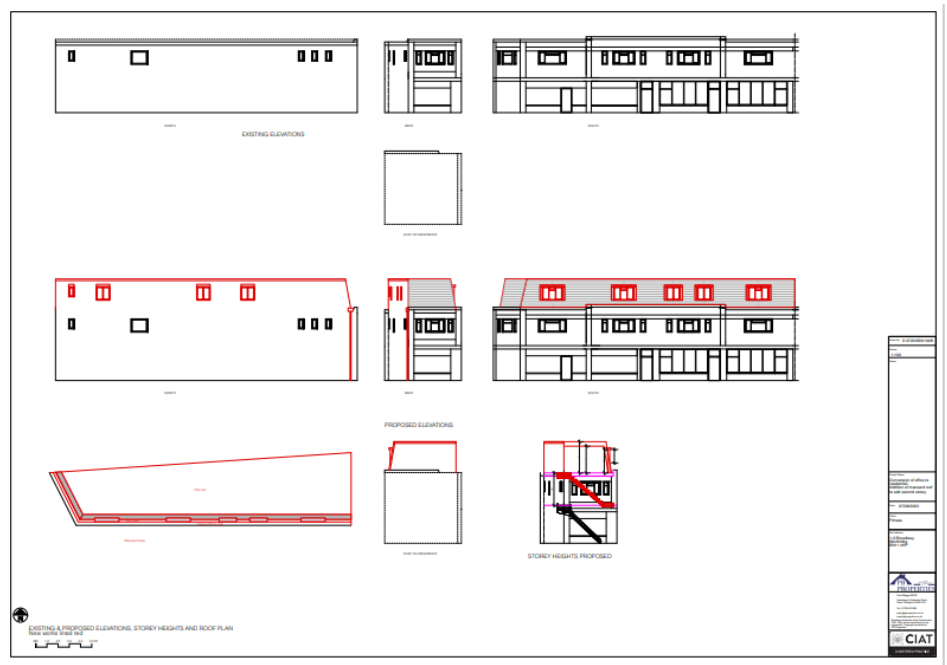
The site front (southern) elevation



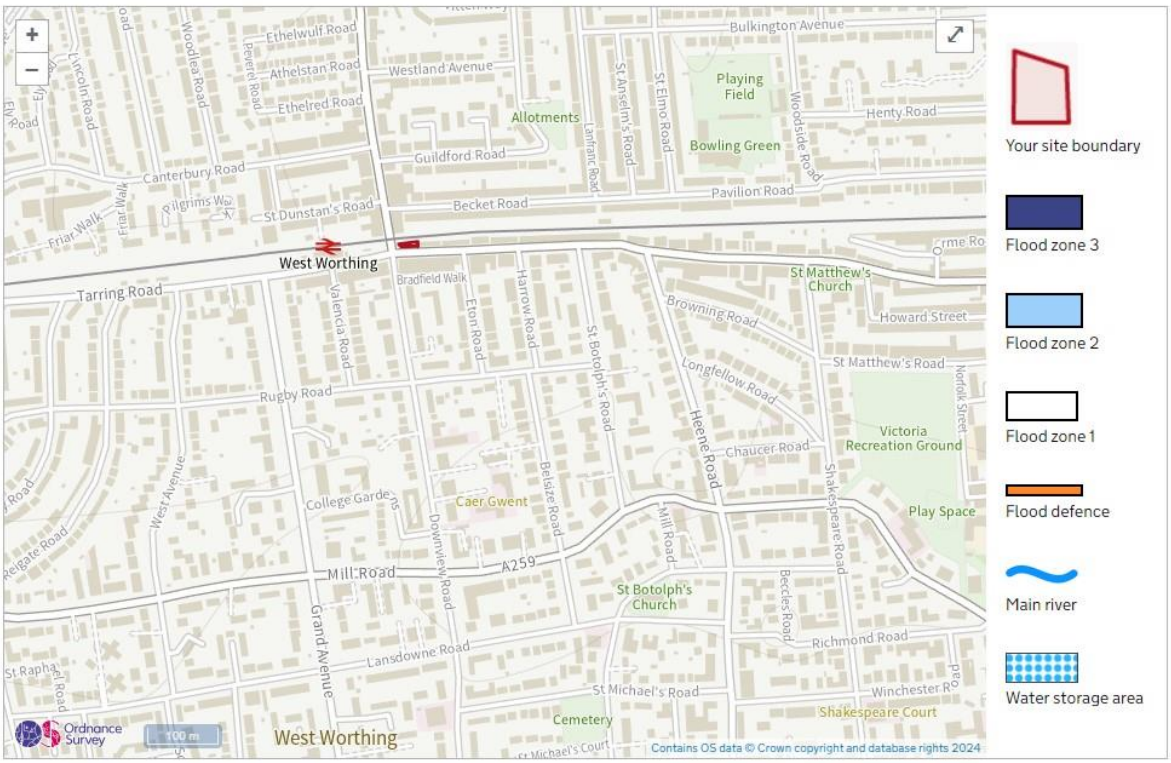
The site showing neighbouring property (4 New Broadway)

Figure 3: Proposed Development Plans

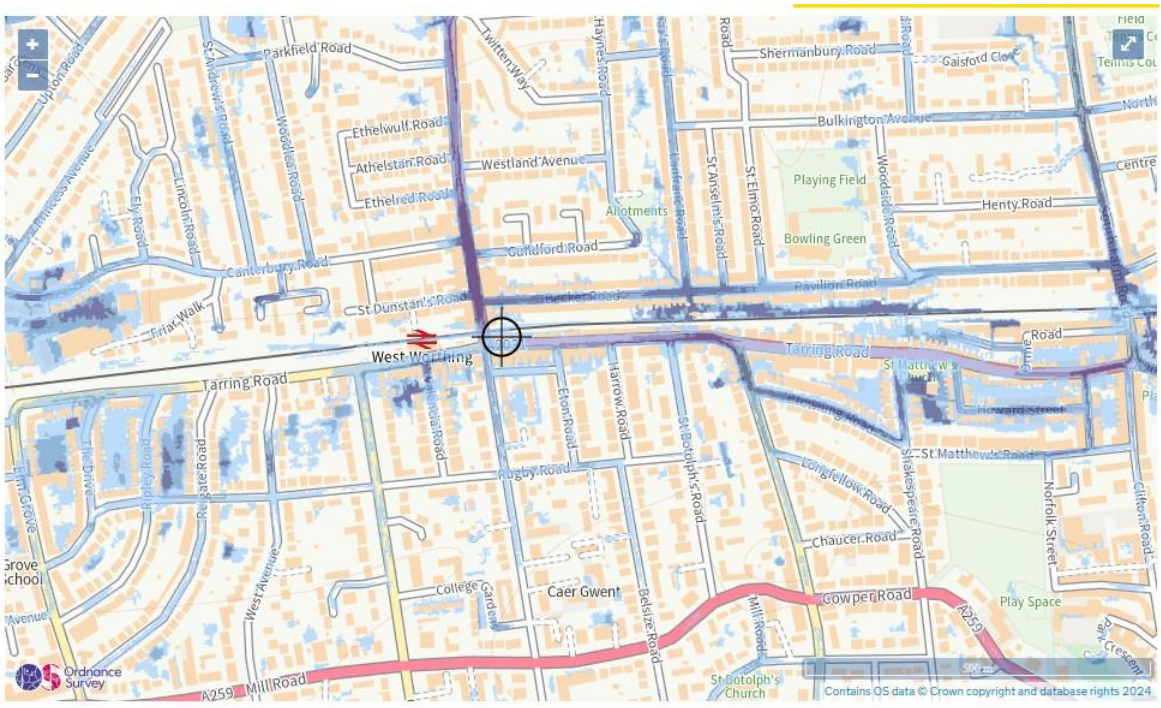




APPENDIX B
Environment Agency Flood Mapping



(Site outlined in red).



APPENDIX C:
Environment Agency Flood Warning Codes

WARNINGS		EA recommended actions
 **Flood Alert**	**What it means** Flooding is possible. Be prepared. **When it's used** Two hours to two days in advance of flooding.	Be prepared to act on your flood plan. Prepare a flood kit of essential items. Monitor local water levels and the flood forecast on our website.
 **Flood Warning**	**What it means** Flooding is expected. Immediate action required. **When it's used** Half an hour to one day in advance of flooding.	Move family, pets and valuables to a safe place. Turn off gas, electricity and water supplies if safe to do so. Put flood protection equipment in place.
 **Severe Flood Warning**	**What it means** Severe flooding. Danger to life. **When it's used** When flooding poses a significant threat to life.	Stay in a safe place with a means of escape. Be ready should you need to evacuate from your home. Co-operate with the emergency services. Call 999 if you are in immediate danger.
EA Flood Warnings No longer in force	**What it means** No further flooding is currently expected in your area. **When it's used** When river or sea conditions begin to return to normal.	Be careful. Flood water may still be around for several days. If you've been flooded, ring your insurance company as soon as possible.
MET Office Weather Warnings	Warnings of heavy rainfall Warnings of severe winter weather e.g. hail, snow, freezing rain.	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 etc

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APPENDIX D:
Personal Flood Plan

Personal flood plan

Checklists to help you prepare for flooding

Before a flood

Actions	Done	Notes
Check what to do before or during a flood		
Sign up for flood warnings		
Check you understand what the warnings mean: • Flood alert • Flood warning • Severe flood warning		
Note your local radio station for travel and weather updates		
Note the phone number for Floodline (0345 988 118)		
Note your local websites and social media for updates		
Check if your insurance covers you for flooding		

Think about how you could stop water entering your home		
Check you know how to turn off your electricity and water		

Move important documents and possessions to a high-up place so that they're safe from flood water. Protect them in a waterproof container. Keep them in a place that is easy to get to in an emergency.

Documents	**Done**	**Notes**
Passport		
Driving licence		
Medical cards		
Insurance documents		
Computers or laptops		
Mobile phones and charges		
Important photos and papers		
Items of sentimental value		

Getting help

Keep a note of who can help you and anyone you can help.

This might be relatives, friends or neighbours. Make a note of what help you might need from them, or what you can do to help them.

Contact details you might need

Insurance	Done	Notes
Home		
Contents		
Vehicle		

Utilities	Done	Notes
Electricity		
Gas		
Water		
Telephone		
Broadband		
Mobile phone		
Media providers		

Finance	Done	Notes
Bank accounts		

Pets	Done	Notes
Kennels		
Carers		
Vets		

Council	Done	Notes
District or unitary		
Town or parish		

Medical	Done	Notes
Doctors		
Hospitals		

Preparing a flood kit

Items you might want to include	Done	Notes
Important documents and contact information		
Warm, waterproof and dry clothing and footwear		

A torch		
Drinking water		
Medicine		
Toys for children		
Baby care items		
Mobile phone or device charger or spare batteries		

Pets and animals

Think about what to do with pets if a flood happens.

Actions	Done	Notes
Where they might go		
Food		
Carriers		
Medicines		

If you are asked to evacuate, many centres will allow you to bring your pet. Put cats or small animals in a carrier or small box.

Immediately before a flood

Actions you can take if you know you are about to be flooded

Actions	Done	Notes
Turn off electricity, water and gas supplies		
Lift curtains over rails above flood water levels		
Use any measures you have to stop water entering your property, such as door guards or air brick covers		
Move important items to safety		
Lift rugs and smaller furniture upstairs or on to tables or worktops if possible		
Get your flood kit together and prepare to move from your home		
Move your pets and vehicles away from flood areas if possible		
Make sure your mobile phone or devices are charged		

When a flood happens

Actions you should take

Actions	Done	Notes

Follow warnings, information and advice issued by authorities		
Do not walk or drive through flood water, as it may conceal hidden dangers		
Do not put yourself or others at risk		
Take your flood kit with you if you are directed to an evacuation centre		
Let your family or friends know you are safe		
Check they are safe too		

After a flood

Actions you can take

Actions	**Done**	**Notes**
Do not return to your home until you are told it is safe to do so		
When returning home, remember that flood water may contain sewage and conceal hidden dangers		
Wear appropriate waterproof or protective clothing when cleaning up		

Contact your insurance company to start the claims process		
If you rent your property, contact your landlord and contents insurance company		
Throw away items damaged by flood water after your property and items have been checked by a loss adjuster		
Throw away items in an appropriate manner		

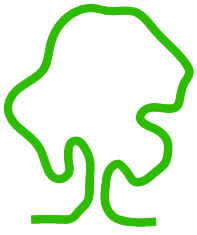
You may need gas or electricity engineers to check your supply before turning it back on.

Further information

You can find more information from:

- Your local council
- Your local advice centre
- The British Red Cross
- The National Flood Forum

Use this space to make any further notes you think might help you.



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