

FLOODING WITHIN WARWICKSHIRE

An Introduction to Flooding and Keeping Safe in a Flood Event



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1| Introduction

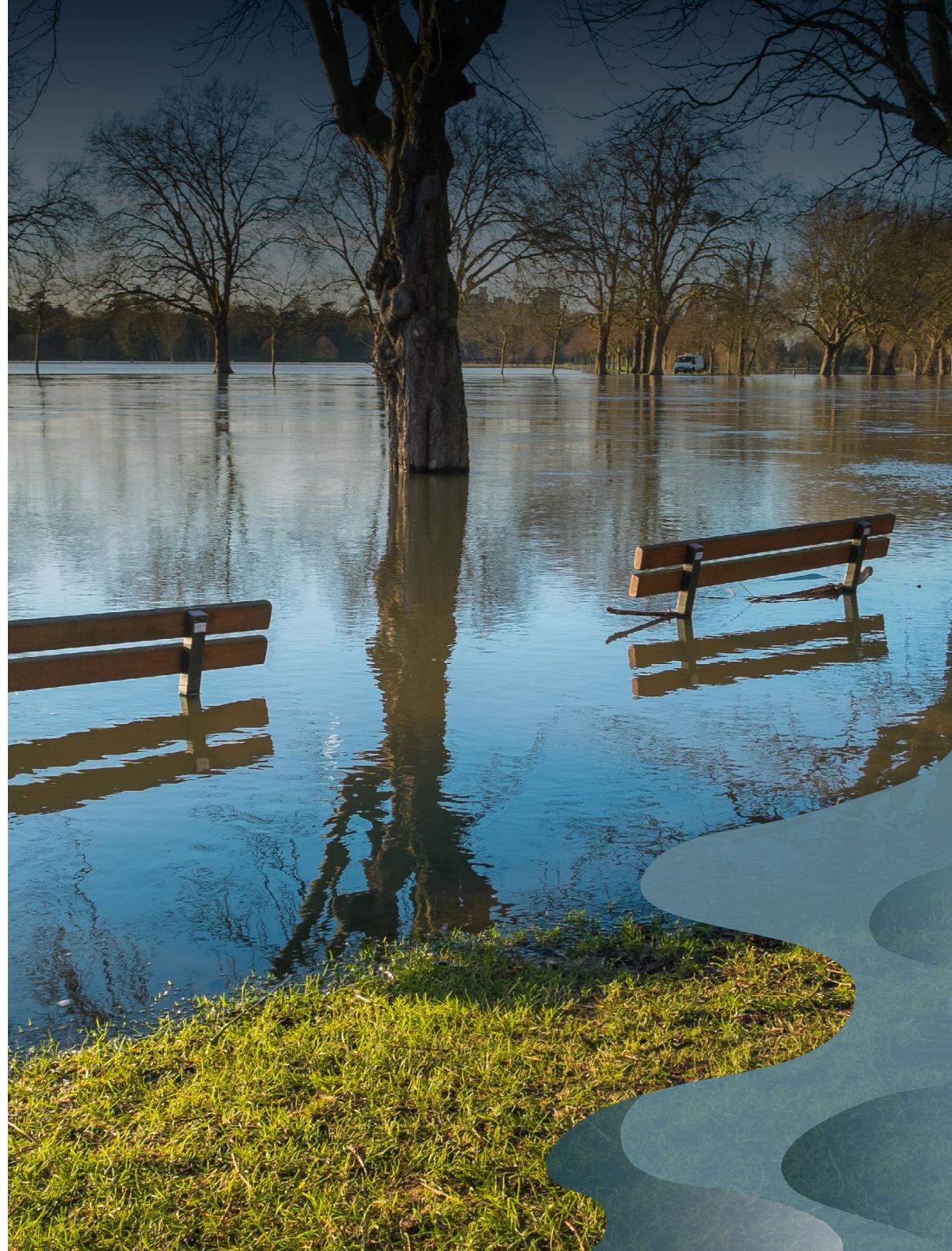
We are Warwickshire County Council's (WCC's) Flood Risk Management (FRM) team.

We are also the Lead Local Flood Authority (LLFA), meaning that we have responsibility in understanding and reducing flood risk from local sources across the county. 'Local Sources' may include but are not limited to, ordinary watercourses, groundwater and surface water. We work in partnership with other agencies, services and communities which may also be at risk, helping them to help themselves. Our aim is to protect the lives and properties of the most vulnerable and enhance economic growth, making Warwickshire a more attractive place to live, work and visit.

2| Who is this booklet for?

This booklet is aimed at anyone who may wish to learn more about flooding, and what to do in a flood event. It also aims to provide information on WCC FRM's role in flood events across Warwickshire.

You may have flooded before, or you may be a general member of the public looking to gain knowledge. You might even be a member of a local Flood Action Group or a WCC partner. Riparian landowners may also find this booklet beneficial.



Flooding in Stratford on Avon, from the River Avon in November 2019.
Source: Warwickshire County Council, Flood Risk Management Team 2019.



3| Before a Flood Event

3.1 Know your flood risk

It is important to understand your flood risk so that you are able to prepare for flooding and take appropriate action. There are a number of free online resources that provide information on flood risk from all sources and show historic flooding records. This includes information provided by ourselves at WCC, and by the Environment Agency. Links to various tools can be found within this information pack.

Surface water flooding can impact anyone, especially properties with floor levels no higher than the ground outside. This means that you could be at risk of flooding, even if you do not live near a river or watercourse. Flooding from local sources can be difficult to predict as there is no warning system available for when rainfall may exceed the capacity of drainage systems. When this occurs, as surface water is not able to enter drainage systems when required, flooding may occur. Watercourses may also exceed capacity in rainstorm events, contributing to such flooding.

Rivers and watercourses can flow below ground in culverts, especially in urban areas. This means you may be at risk of flooding from such sources even if you are unable to see them. The Environment Agency have an online mapping tool that shows flood risk from rivers or the sea, surface water and reservoirs. This is called the 'Long Term Flood Risk' information services and can be searched by location or postcode.

The surface water flood maps have been produced by the Environment Agency on behalf of the government and, in some areas, Lead Local Flood Authorities, using best available information to represent surface water flood flow paths, depths and velocities. If you wish to challenge the information displayed on this map, please see our 'Useful Links' section in section 7 of this document.

In addition, the FRM Team webpage contains information on historic flooding along with our Local Flood Risk Management Strategy (LFRMS) and other useful documentation. This provides insight into the amount of historic flood reports we have received in one area, and allows the public access to legislation, policy, and procedures the FRM Team follows.

Please note that the number of reports we receive may be incomplete, as they are only a representation of the records we hold from a number of sources. The FRM Team webpage can be found on Warwickshire County Council's website, or alternatively via this link:
www.warwickshire.gov.uk/flooding

3.2 Preparing for flooding

There are many ways that you can prepare for flooding, including signing up for flood warnings.

The Environment Agency (EA) have a webpage that allows you to view a map of flood warnings and alerts across England, including the ability to check for flooding near you. This can be accessed here: check-for-flooding.service.gov.uk/

The EA also issue area specific flood warnings that you can sign up to here:
www.gov.uk/sign-up-for-flood-warnings

Whilst preparing for surface water flooding can be more difficult as impacts are often very localised and with little warning, there are steps you can take. Below are a few ways in which you can prepare for flooding:

- Prepare an emergency plan and discuss it with your family, make sure everyone is aware of what to do and when in the event of a flood alert.
- Prepare a grab bag of essential items should you need to leave your property quickly when told to do so by emergency services.
- Store valuables, sentimental objects or important documents upstairs or on higher ground where possible.
- Find out how to turn off your gas, electricity and water supply.
- Following the Met Office on social media and listening out for weather warnings can be a useful way to be aware of preparing for the potential of surface water flooding.



CSW Resilience Team's example of what to put in a Grab Bag.
Source: cswprepared.org.uk/be-prepared/grab-bag/

You may even want to consider setting up a Flood Action Group within your local community if you are at risk of flooding or have flooded previously. Getting involved in local groups such as Flood Action Groups can be a great way for the community to come together and understand the areas most at risk, taking a lead themselves on projects and learning together. This also gives communities the ability to create or maintain a local emergency plan to follow during a flooding event.

The FRM Team are happy to offer advice to anyone who may be interested in setting up a Flood Action Group. We can also put you in touch with contacts, including other Flood Action Groups across the county.

By creating these connections, we can further increase the resilience of communities across Warwickshire.

The FRM Team work closely with CSW Resilience (Coventry, Solihull and Warwickshire Council's Planning, Preparing and Responding to Emergencies Team). CSW Resilience work with communities to provide guidance and create emergency plans and during emergency situations coordinate the emergency response.

Further information on CSW and their role can be found via their website. Advice on preparing for flooding can also be found on their website which considers aspects such as appropriate insurance and flood protection measures ahead of flood events here: cswprepared.org.uk/hazard-advice/flooding/prepare-for-flooding/

The National Flood Forum are a charity that represents people at risk of flooding, and they have also produced a preparation checklist and action plan you can follow here: nationalfloodforum.org.uk/about-flooding/preparing/checklist-action-plan/

4| During a flood event

The FRM team **do not** have an emergency response role during a flood event. If you are in a dangerous or life-threatening situation during a flood event, you should call the emergency services and not the FRM team. However, the FRM team does gather data to inform our post-flooding investigations and improve our understanding of flood risk in the county. This means that when you are in a safe position to do so, you can contact the FRM Team to inform us of any flooding you may have experienced. Further details on how to contact the team can be found within this booklet, however our online flood reporting tool can be accessed here: www.warwickshire.gov.uk/flooding

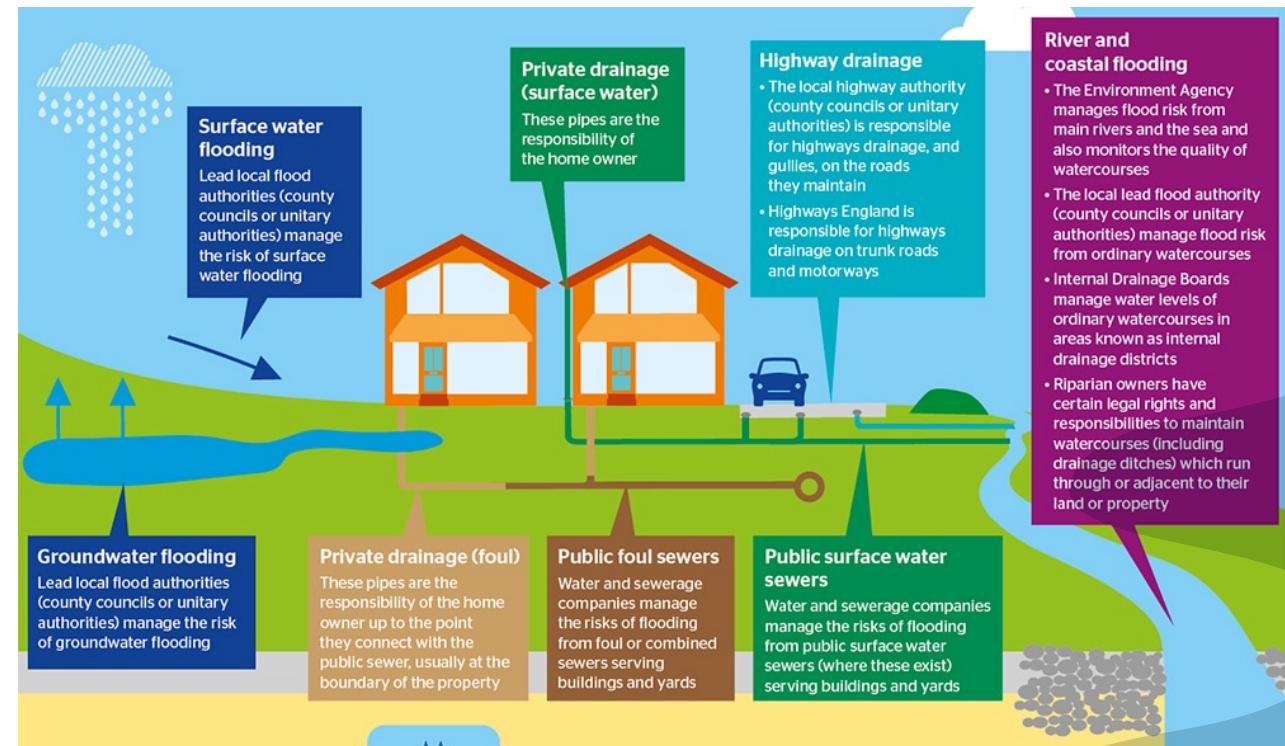


Figure 2: Diagram of possible contributing factors to flooding, and who would be responsible.

Source: Southern Water www.southernwater.co.uk/help-advice/flooding/flooding-who-s-responsible

There are several organisations responsible for flooding from various sources, this can often be confusing if the source of flooding is not clear or comes from multiple sources.

4.1 Protecting your home from flooding

There are several things you can do as home or landowners to help reduce the impact and damage flooding can result in. Making sure you have suitable insurance cover is a great place to start. Other ways to combat flood risks involve resistance and resilience. Resistance is involved with the physical prevention of water gaining access into properties, while the resilience focuses on the extent of damage made if water does find its way into your property. It is important to carry out such measures early, before a possible flood event occurs. This will produce the best outcome.



Flood Resistance involves adapting your property and land through both active and passive examples such as:

- Using removable barriers to divert water away from your home
- Using water resistant seals on entrances into the property e.g windows and doors
- Using anti-flood airbricks
- Temporary plug and electrical socket covers

If you live in an area of flood risk, or have experienced flooding before, you may wish to consider the installation of Property Flood Resilience (PFR) to better the protection of your property. Further examples of PFR can be found on the BeFloodReady website here: www.befloodready.uk/pfr-products

If you live in a rented property or social housing, you may need to ask your landlord if they can install such measures, or if they are aware of the flood risk to the property.

Flood Resilience often involves more long-term changes to the property to allow you to recover more quickly after a flood event as structural integrity is better maintained. Such examples include:

- Decorating your property with more water-resistant materials like ceramic or stone rather than porous materials like chipboard and carpet

- Raising electrical sockets to lessen likeliness of water gaining access
- Altering the landscape around the property, e.g., adding flood gates to prevent water gaining access
- Storing valuable or sentimental items upstairs or higher from the ground within the property e.g. having washing machines raised on top of kitchen counters

4.2 The use of Sandbags

Whilst sandbags seem to be one of the most popular and widely used mechanisms in flood events due to their low costs and ease of use, the FRM team recommend the use of other alternatives before sandbags are considered as a **last resort**. Sandbags may not create a complete barrier against flooding as they are not purpose-designed flood protection products; especially in comparison to other solutions that are widely available. Other purpose-designed alternatives can also be reused and are easier to dispose of compared to sandbags, which can also rot. Alternatives may include but are not limited to: flood barriers and boards, non-return valves and Aqua-sacs.



A range of alternatives can be found on the Blue Pages website here: bluepages.org.uk/

If you are considering the use of sandbags, please note that they can be commonly purchased from building merchants and must be purchased by the land or homeowner. Warwickshire County Council (WCC) do not have a duty to provide sandbags to the wider public and do not carry stocks for general distribution. When requests for sandbags are received, these are often too late to prevent water entering the property. Also, as the team do not come out during a flood event due to not being emergency responders, this also prevents us being able to get sandbags to you. Sandbags may also become contaminated waste after coming into contact with various possible hazardous wastes and chemicals, meaning they are not environmentally friendly, or safe for handling without appropriate protection measures. This means they are not safe for reusing, or to be kept in area that may affect plants, animals and humans.

4.3 Riparian responsibilities

It is important that riparian owners regularly inspect and maintain their watercourse to ensure that flood risk is not increased..

If you are a riparian owner who is considering building or even temporarily working within or around an ordinary watercourse that will obstruct the flow of water, you will require land drainage consent. Further details on what land drainage consent is and how to apply can be found here: www.warwickshire.gov.uk/watercourse

4.4 Staying Safe Near Flood Water

Do not drive through flood water

Driving through floodwater puts the lives of passengers and emergency responders at risk. It is the leading cause of deaths during recent flood events (32%). Just 30cm of water can float a family car and smaller cars take even less. These statistics followed by further facts regarding driving through flood water can be found on the following Environment Agency article here: www.gov.uk/government/news/two-thirds-of-motorists-would-risk-their-lives-in-a-flood

If a road is closed due to flooding, do not move flood boards and continue to drive through, please use diversion routes and do not take the risk. The road may seem fine to drive through initially, but you do not know what lies ahead or beneath the flood water. It is also important to note that your vehicle insurer may not pay a claim for water damage if you have knowingly passed a road closure sign and entered flood water.

Additionally, driving through flood water can cause bow waves that may flood properties that would not have otherwise been flooded, causing distress and damage to residential homes. Some people may have the urge to leave their land or property during a flood event and may attempt to walk or drive away. Residents are often not encouraged to leave their property until instructed to do so by emergency services as doing so could put their lives in even greater danger. During a flood event



or similar emergency situation, emergency services may evacuate residents to a place of safety or ask for them to remain in their homes and listen to local radio stations to keep up to date with what to do to stay safe.

In the unlikely situation where you are to evacuate your house, remain calm and follow any instructions given to you. This is when you should take your emergency 'Grab Bag' with you. Always listen to and liaise with emergency services.



Examples of bow waves created by vehicles on the highway in Marton, December 2020. Source: Marton Parish Council 2020

Do not walk through flood water

Similarly to driving through flood water, walking through flood water can be more dangerous than some may initially think. Flood water may rise quickly, meaning you could risk becoming stuck or stranded away from a place of safety. Flood water may also become murky due to debris and mud, making you unable to see the ground below you. Due to this, you could risk falling down into a concealed hole, such as a manhole if the cover was to become dislodged.

The velocity of water may cause you to become imbalanced and fall, and this velocity also has the same effect on objects. Trees and other objects may be swept up by flood water which could knock you over. Hidden objects in the flood water may also be sharp such as glass or wire and could cut your skin. Due to the bacteria and pollutants in flood water, this could result in you becoming unwell from infections such as tetanus. Medical help should be sought immediately.

Do not enter watercourses or waterbodies during a flood event

As stated in the paragraphs above, watercourses during flood events may flow at a considerably faster velocity than normal. During a flood event, do not attempt to enter a watercourse as there is a considerable risk you may get swept in by the current. Any work you may wish to undertake to the watercourse must be done when safe to do so, gaining land drainage consent where required. Checking the weather forecast ahead of carrying out remedial works is one way to take a precautionary step to keep yourself safe.

Pollutants in flood water

Flood water may be contaminated by raw sewage, industrial chemicals and run off from roads. We do not recommend entering flood water due to the risks to health.

This also means that safe drinking water has the risk of becoming polluted during a flood event. Due to this, seek advice from your local water company if you believe fresh water supplies have been affected by flooding. If you do enter flood water or drink water you believe has been contaminated, seek medical help safely, at the earliest opportunity.



5| After a Flood Event

5.1 Reporting flooding

You can report flooding to ourselves via our online flood reporting tool which can be accessed here: www.warwickshire.gov.uk/flooding

Once you have reported an incident of flooding to ourselves, you will also be advised on how you can send further photos and videos to us.

Reports of flooding feed into knowledge of flood risk across the county and in turn informs future flooding schemes and our statutory planning responses.

Our Local Flood Risk Management Strategy (LFRMS) gives details on how we prioritise our investigations into flooding. Our thresholds for carrying out formal investigation are:

- Flooding that poses a threat to safety of the public or may result in serious injury or death
- Five or more homes internally flooded
- Two or more commercial properties internally flooded
- One or more piece of critical infrastructure affected that impacts on the wider area
- Flooding that places vulnerable individuals or vulnerable communities at risk
- Additionally, where one or more residential property has flooded internally from the same source on five or more occasions within the last five years.

If flood reports do not hit the above thresholds, they may still be investigated on an informal basis, however this will depend on resources and reports with higher priority being considered in the first instance. We will prioritise reports of internal flooding over reports of private external areas such as driveways and gardens.

Depending on the source of flooding, ensure flooding is reported to ourselves and also the responsible organisation. Refer to Figure 2 to see who flooding should be reported to. The following link can also signpost you to the correct organisation: www.gov.uk/report-flood-cause

The FRM team appreciate that following flooding your priority is not on gathering information. The most important thing is your safety and wellbeing. However, if you have the opportunity to gather information and would like to contact the team, guidance is available in our 'How to positively engage in planning and development' guide available at the following link: apps.warwickshire.gov.uk/api/documents/WCCC-1039-86

The FRM Team also seek external funding from national funding streams for investments into areas that are at greatest risk of flooding. From this, we offer Property Flood Resilience Schemes to better protect these areas at risk. As the areas that are chosen for these schemes to be delivered in are influenced by the knowledge we hold of an area, we encourage the public to report incidents of flooding to ourselves. The more we know about flooding in the area, the better.

Depending on the flood risk of your location, you may wish to take varying steps to keep you and your property safe. If you are subject to flooding, see the below section on how to report flooding to WCC. Furthermore, if you own a watercourse or part of, running under or over your land, or even adjacent to, you have a responsibility to maintain it and allow the natural flow of water.

6| Summary

Your safety is the most important thing. Take precautionary steps to protect your home to the best of your ability, including having home insurance against flooding, installing Property Flood Resilience (PFR), and moving belongings to higher ground. Where you may be required to evacuate your property, turn off your gas, water and electricity if possible. Once in a place of safety and once flooding has ceased, prepare to return to your home when safe to do so. Report the flooding if possible and consider what steps can be taken to prevent future damage and disturbance through flooding.

A safe and prepared Warwickshire is the best Warwickshire.



7| Useful Links

For quick access to useful links provided by WCC and others, please see the links below. Beneficial items such as a Flood Recovery timeline and checklist produced by Floodhub can also be found below:

Warwickshire County Council Flooding
www.warwickshire.gov.uk/flooding

CSW Resilience Team
cswprepared.org.uk/

Gov.uk Check the long-term flood risk for an area in England
www.gov.uk/check-long-term-flood-risk

Environment Agency What to do before, during and after a flood
assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/403213/LIT_5216.pdf

The National Flood Forum
www.nationalfloodforum.org.uk/

FloodRE
www.floodre.co.uk/

Floodhub Flood Recovery timeline and checklist
thefloodhub.co.uk/wp-content/uploads/2019/01/Flood-Recovery-booklet.pdf

Flood Guidance

www.floodguidance.co.uk/

BeFloodReady Property Flood Resilience PFR
www.befloodready.uk/pfr-products

Blue Pages
bluepages.org.uk/

Environment Agency Long Term Flood Risk Mapping

If you do not agree with the information displayed within the Flood Mapping produced by the Environment Agency, please see the below article on how to use and understand the mapping tool. The last paragraph of the below article provides instructions on what you can do to change areas of the mapping you may disagree with. Evidence would normally be submitted in the form of hydraulic modelling of the surface water flood risk, and as stated in the EA document, anecdotal evidence would not be accepted. WCC are unable to assist you with such a modelling exercise and suggest that this work would need be arranged and funded privately.

assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/297429/LIT_8986_eff63d.pdf

8 | Glossary of Terms

Lead Local Flood authority (LLFA): Lead Local Flood Authorities consist of county councils and unitary authorities. LLFA's were established following the Flood and Water Management Act 2010 and exist to assist in the management of local flood risk.

Surface Water Flooding: Surface water flooding occurs when the volume of rainfall exceeds the capacity of the drainage system (drains and surface water sewers) meaning water is unable to drain away as it falls. Due to this, surface water remains above ground and can result in flooding.

Groundwater: Groundwater is water that is situated within the spaces between soil and rock, beneath the Earth's surface. Groundwater can rise, which can result in groundwater flooding.

Ordinary Watercourse: Ordinary watercourses are watercourses which do not form part of a main river. Whereas main rivers are the responsibility of the Environment Agency, LLFA's hold responsibility to ensure issues regarding ordinary watercourses are tended to. Ordinary watercourses may include streams, ditches, brooks and culverted areas of watercourses.

Bow waves: Bow waves can be created when driving through flood water too quickly. We strongly recommend avoiding driving in flood water due to this. Such bow waves can harm nearby properties and pedestrians and can otherwise be avoided. Driving slowly not only protects your vehicle engine as any bow waves produced are small, but it also protects the surrounding area as flood water is less likely to travel greater distances due to less velocity being applied.

Riparian Landowner/Ownership: Riparian owners are those who own land adjoining or containing a watercourse that flows through it. If you are a riparian landowner, you are responsible for the maintenance of the stretch of watercourse that runs through your land, even if it is culverted or piped. Failure to do so can result in enforcement action.

Property Flood Resilience (PFR): Property Flood Resilience is also known as Property Level Protection (PLP). This includes the steps homeowners may take to improve the resilience of the property to flooding. Original features of a property such as doors and airbricks may be replaced with flood proof alternatives as the flood risk to an area/ property is discovered.

