

Purchasing flood insurance

Many house and contents policies do not cover flood damage or have specific limitations on the definition of flood. Carefully read your policy or contact your insurer to discuss your property and contents insurance.

Considering flood risks when renovating a property

A popular building and renovating trend in Brisbane has been to extend a house by building in underneath. Many older properties on stumps are not legal height underneath. Under past planning standards homes were built on stumps to allow for excess stormwater or flood waters to flow through yards and under houses. If you are considering building in under a house, ensure there are no flood impacts and all regulations are met.

Reporting flood hazards to Council

Flood management is a community-wide responsibility. You can assist Council in reducing the risk of creek flooding by reporting hazards including:

- blocked or damaged drains, grates (the metal grills in the gutter)
- blocked stormwater pipes
- water ponding around kerb & channel (gutters)
- illegal piping.

Once notified of a hazard or damaged infrastructure, Council will take action to arrange for the removal, inspection or repair to restore it back to its optimum condition. To report a flood hazard, phone Council on (07) 3403 8888.

Abandoned shopping trolleys on the footpath, park, road, or in waterways should be reported to the relevant shop owner.

Water runoff from a neighbouring property is a civil matter between property owners.



Most vegetation is flattened by water current, and does not obstruct the flow of water. Therefore, vegetation is only cleared where it presents a potential risk to flooding.



Be FloodWise tip

Maintenance and infrastructure can assist in reducing the impact of flooding, however in some instances, flooding cannot be eliminated.

What Council is doing to manage creek flooding

To reduce the impact of flooding on residents Council undertakes a number of floodplain management actions including:

Stormwater management

Council allocates a large annual budget (average \$24 million per annum) on construction and maintenance of the city's 2,500 km stormwater network. Investment includes:

- maintaining, cleaning and upgrading 80,000 stormwater grates (metal grates seen on the road in which stormwater is collected). Grates are cleaned between four and six times per year, and work is prioritised based on known critical or 'hotspot' locations
- replacing and upgrading components of the stormwater network
- maintaining, upgrading and building new stormwater networks across the city
- removing excess sediment at control points, such as bridges and culverts.

Vegetation and waterway management

Council regularly clears rubbish and man-made debris from waterways as they reduce the water carrying capacity, interfere with the ecology of creeks and can cause flood hazards.

Vegetation such as reeds and bullrushes, are often seen as weeds and obstructions. However, it is not always removed as it prevents erosion by acting as anchors for soil, provides shelter for fauna that lives around creeks and acts as a filter to prevent pollutants and sediment from entering the waterway. This vegetation is generally flattened by the water current and does not obstruct the flow of water.



Brisbane has evolved around a network of creeks and waterways that provide many community benefits.

Waterway corridors

Along most creeks and waterways, Council has zoned a portion of land either side as a waterway corridor. A waterway can be any element of a river, creek, stream, gully or drainage channel, including the bed, banks and surrounding floodplain. Waterway corridors serve multiple purposes including habitat for wildlife, opportunities for recreation, channels for flood waters, and protecting the water quality and health of Moreton Bay.

If you are planning on building or extending a property that is situated within a waterway corridor, plans must be developed in accordance with Council's *City Plan* codes. Applications must demonstrate that there will be no impact on the flow and storage of flood waters or the ecological value of the corridor.

Filling or excavating land situated within a waterway corridor is assessable under Council's *City Plan* and is generally not permitted. Residents need to ensure that placement of swimming pools, landscaping, retaining walls and fences are within the regulatory requirements of *City Plan* and building regulations, and do not create or worsen flooding.

Open channel management

Council works to ensure that 80 per cent of open channels are maintained by the commencement of the wet season each year to reduce the impact of localised flooding from summer storms. This includes desilting and clearing of pipe outlets into the creek or channel.

Building controls and regulations

Through its planning scheme *City Plan*, Council manages development to ensure that no adverse effect on flooding occurs. All applications for development must demonstrate to Council that it will not adversely impact on flooding to surrounding areas. By reviewing and strengthening building and land use controls, and developing a Flood Code, Council is ensuring sound floodplain management, and minimising the chance of new flood hazards being created.

Voluntary Home Purchase Scheme

As part of the Lord Mayor's Taskforce on Suburban Flooding, Council has implemented a targeted program which identifies the properties most at-risk of flooding for Council acquisition. This voluntary process is based on set criteria, and is aimed at purchasing properties that flood frequently where there is no viable infrastructure solution to eliminate the flood risk.

Technology measures

Council has installed Flood Warning Systems on some roads that are subject to creek flooding. The flashing lights assist motorists to recognise that flood waters are present and to turn around. Signalling and signage are connected to a network of telemetry gauges installed in many suburban creeks which are monitored by Council to assist in flood forecasting and response.

What other information is available?

Council's *Be FloodWise* program has a range of publications available that provide information on flooding in Brisbane, how to prepare for flooding and flooding considerations when buying, renting, building or renovating. This information is available from Council's regional business centres or customer service centres, by phoning Council on (07) 3403 8888, or by visiting the *Be FloodWise* web pages at [www.brisbane.qld.gov.au/floodwise](http://www.brisbane.qld.gov.au/floodwise).

- *Be FloodWise – A guide for residents*
- *Be FloodWise – A guide for businesses*
- *Now is the time to Be FloodWise Fact Sheet*
- *Be FloodWise – Flooding facts for industry*
- *Be FloodWise – Building and renovating fact sheet*
- *Be FloodWise – Buying and renting fact sheet*
- *Be FloodWise Emergency Contact Card\**
- *Be FloodWise Bookmark*
- *FloodWise Property Report\**

\* available from Council's regional business centres and customer service centres.



Be FloodWise tip

New homes are required by legislation to install rainwater tanks. By capturing roof water, rainwater tanks help to reduce stormwater runoff and reduce the potential for flooding.

Be FloodWise

Understanding creek flooding and how it impacts you and your property.



Creek flooding

FACT SHEET

Brisbane is a sub-tropical city that has evolved around its river, creeks and Moreton Bay. Historically, the city experiences a high annual rainfall, and has a climate and topography that makes some areas at risk of flooding.

It is estimated that up to 6,900 Brisbane residential properties may be prone to creek flooding. If your home, or the home you are interested in buying, renting, building or renovating is subject to creek flooding, this fact sheet will assist you to understand:

- types and frequency of creek flooding
- impacts of creek flooding on people and properties
- ways to prepare for creek flooding
- actions Council is taking to minimise the impacts of creek flooding
- where to find additional information.

Causes of creek flooding

Waterways across the city are all connected. Stormwater from homes flows into the street, to local stormwater drains, which then flows into creeks, the river, and ultimately Moreton Bay. Creek systems do not act independently, and can be affected by changes in the river, ocean or other creeks.

Creek flooding occurs when the capacity of a creek is exceeded and overflows as a result of:

- stormwater runoff from severe or prolonged rainfall in a catchment or upstream
- ocean tide fluctuations or storm surge (ocean rises).

Creek flooding is difficult to forecast, as flood waters can rise and fall very quickly without warning. It is important that properties subject to creek flooding are prepared at all times.

Myths about flooding:

*Wivenhoe Dam has eliminated Brisbane's flood risk*

Wivenhoe Dam has NOT eliminated flooding. It has reduced the potential impact of flooding in the Brisbane River, however it does not influence creek flood levels.

*Creek vegetation needs to be cleared as it restricts water flow in creeks*

When a creek is affected by flooding, the flow of the water flattens most vegetation and has little or no effect on flood levels. Vegetation within waterways assists in providing a natural and healthy ecosystem. Removing vegetation can reduce the health of the waterway rather than eliminating or lessening the impact of flooding, and can cause erosion.

*Logs and debris cause flooding in creeks*

Logs and debris do not necessarily impact on water flow in a creek, even during flooding. Water flows around, over and under logs and debris. Logs also provide shelter and food sources for wildlife such as fish, birds and platypus, and are therefore not removed.



Be FloodWise tip

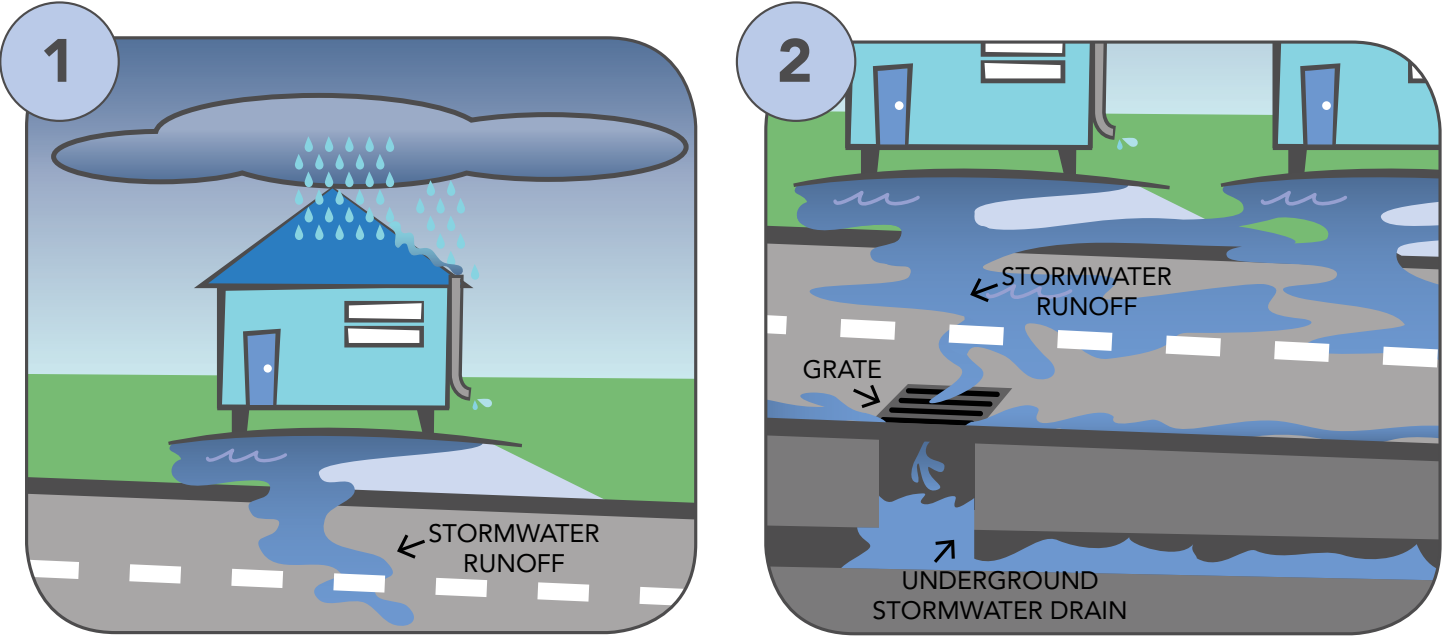
The last thing you expect during a drought is flooding, however overland flow and creek flooding can still occur during summer storms, and heavy or prolonged rainfall.





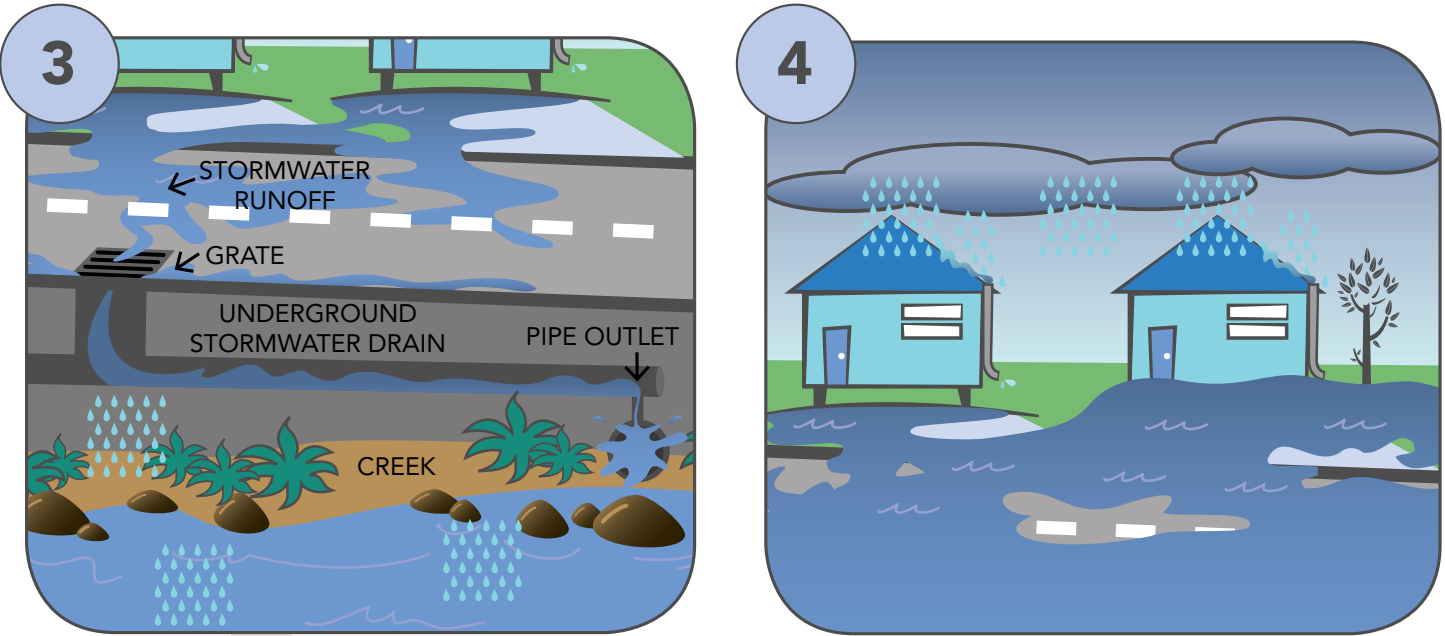
How does creek flooding occur?

Intense, heavy downpours mean that a creek can rise very quickly and without warning. Now is the time to *Be FloodWise*.



During rainfall, water from downpipes (roof water), driveways and other hard surfaces is collected and carried away from properties into the street. This is the origin of stormwater.

Stormwater is carried down the street and into grates connected to the underground stormwater pipe network. In heavy rainfall events where the stormwater drain is already full, stormwater will flow down the road and over land (over footpaths, through properties and parks) resulting in localised flooding.



Stormwater can travel in the pipe network for a considerable distance before being discharged via a pipe outlet into the creek or local waterway. The combination of stormwater, rainfall and the existing water in the creek results in rising creek levels. The height of the creek levels is dependent on the intensity of rainfall.

Significant rainfall may result in creek capacity being exceeded. Flood waters may flow over creek banks and properties, roads and parks located in close proximity to the creek may be affected by flooding.

Calculating the frequency and extent of creek flooding

There are several ways to determine whether a property is affected by creek flooding.

FloodWise Property Reports

Council's free FloodWise Property Report provides the most complete record of flood information available for a property. Based on information provided in the report, you can determine the extent of creek, river or storm surge flooding affecting your property. Properties may also be subject to overland flow flooding.

The FloodWise Property Report also identifies minimum and maximum ground levels and flood levels for a property.

Follow these four steps to determine the approximate depth of creek flooding affecting a property using the FloodWise Property Report:

**Step 1:** Locate the minimum ground level of your property.

**Step 2:** Locate the highest ARI\* level or DFL\* for your property.

**Step 3a:** If the minimum ground level is higher than the highest ARI level or DFL, your property may not be affected by flooding, however if building or renovating, minimum floor level requirements apply.

**Step 3b:** If the minimum ground level is lower than the highest ARI level or DFL, your property is likely to flood. Subtract the minimum ground level from the highest ARI level or DFL to establish the approximate height of flooding on your property during that event.

**Example:** 100 year ARI\* = 14.5m **minus**  
Minimum ground level = 13.2m  
Approximate depth of flooding = 1.3m above minimum ground level

**Step 4:** Recognise that flood level information is generally only calculated up to a 100 year ARI. Although rare, a flood greater than this (Probable Maximum Flood) can occur. This is the most severe flood considered possible and has an ARI in excess of 1 in 10,000 years.

\*ARI – The Average Recurrence Interval. E.g. A 100 year ARI means that on average a flood event of this size or greater is expected to occur at least once in 100 years or there is a 1% chance of it occurring in any one year.

\*DFL – The Defined Flood Level is used to determine habitable floor levels based on a minimum of a 100 year ARI flood event.

The inclusion of flood information in a FloodWise Property Report is dependent on whether Council has any information specific to that property. If there is no available information on the property, this does not mean that it is not affected by flooding, simply that Council has no information. If the property is situated in close proximity to a creek or waterway, you should seek advice from a Registered Professional Engineer to calculate likely flood levels. Local knowledge from people who have lived in or serviced an area for a while may provide insights into past flooding. Visiting the property to identify where the minimum and maximum ground levels are located will assist in determining where flooding will occur.

Average Recurrence Intervals (ARI)

Flooding frequencies are usually referred to in terms of probability and are technically described as Average Recurrence Intervals (ARI). Average Recurrence Intervals can be interpreted in terms of years (frequency) or percentages (probability of occurring).

A property with a 10 year ARI flood level may be affected by flooding twice in a year and not again for twenty years. In 1893 the two largest floods ever recorded occurred within two weeks of each other. Flooding and rainfall are random events, particularly given the changing weather patterns being experienced globally.

BiMap Flood Search

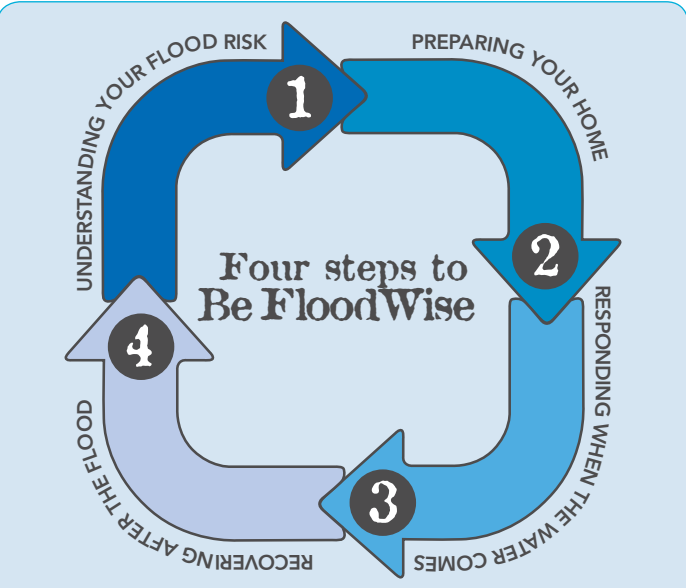
Seek a BiMap Flood Search from a Council Customer Service Centre to determine whether the property is affected by creek flooding (an administration fee applies). You should also check whether the property is located within a waterway corridor. If so, refer to the waterway corridor section of this fact sheet to determine the impact on your property.

100 year ARI level	=	During a <b>100</b> year period, a flood this size or greater is expected to occur AT LEAST once.	=	<b>1%</b> chance of occurring in any one year
50 year ARI level	=	During a <b>50</b> year period, a flood this size or greater is expected to occur AT LEAST once.	=	<b>2%</b> chance of occurring in any one year
20 year ARI level	=	During a <b>20</b> year period, a flood this size or greater is expected to occur AT LEAST once.	=	<b>5%</b> chance of occurring in any one year
10 year ARI level	=	During a <b>10</b> year period, a flood this size or greater is expected to occur AT LEAST once.	=	<b>10%</b> chance of occurring in any one year
5 year ARI level	=	During a <b>5</b> year period, a flood this size or greater is expected to occur AT LEAST once.	=	<b>20%</b> chance of occurring in any one year

What you can do to manage creek flooding

Impacts of flooding are largely dependent on the severity of the event. Creek flooding can be unpredictable, and can occur without warning. Flooding can cause extensive damage to property and can also result in road closures, service disruptions, property isolation and even evacuation. Flood waters contain many contaminants, mud and debris, which can cause injury or a health hazard.

If caught unprepared, flooding can cause substantial damage to property. The recovery process can also be costly in both financial and emotional terms. While the risk of flooding can never be totally eliminated, it can be reduced by preparing ahead of time.



Four steps to Be FloodWise:

- Step 1: Understanding your flood risk** – Find out all you can to determine if your property has a flood risk by obtaining a free FloodWise Property Report from Council, talking to people who have lived in the area a while, assessing the property to identify flood hazards or consider engaging a qualified engineer to determine your flood risk.
- Step 2: Preparing your home – people and property** – There are a number of things you can do to prepare your home. These include checking that all safety precautions have been taken, storing valuable items such as photo albums well above likely flood levels, insuring your home and contents for flood, learning where to access warning information, removing potential flood hazards from your property and preparing an emergency kit.
- Step 3: Responding when the water comes** – As the water rises, further protect your home where possible with sandbags and plastic. Prepare for possible evacuation and listen to a local radio station for warnings and advice. Do not swim, walk or drive through flood waters.
- Step 4: Recovering after the flood** – After a flood, cleaning up can be a difficult process. Be alert for hazards such as unsafe electrical wiring, contaminated mud and stray wildlife.

Accessing flood warnings

Weather warnings are broadcast on radio, and in some cases on television. They are also sent from the Bureau of Meteorology to Councils, Emergency Management Queensland and other agencies involved in managing severe weather and flood response activities. The table below lists ways to access warning information.

Channel	Access	Contact Information
Internet	Visit the Bureau of Meteorology website	www.bom.gov.au
Radio	Tune in your radio to a relevant station	Local AM and FM stations (especially radio ABC 612)
Television	Watch out for televised weather updates	All free-to-air channels The Weather Channels (Foxtel)
Telephone	Listen to the Bureau's Telephone Weather Service. Local call charges apply.	Severe weather and flood warnings: 1300 659 219

Preparing for a flood

The location of a property and its proximity to a creek means in many cases, the flooding problem cannot be eliminated or avoided.

- However, there are several measures you can take to minimise the impacts of flooding on your property:
- keep furniture, fittings, wiring and electrical items above possible flood levels
  - place valuables such as photographs, passports and other important documents in high places away from possible flood waters
  - move your car to higher ground if your carport or garage is likely to flood
  - secure outdoor furniture, garden equipment and children's toys to prevent them from becoming potential debris or a flood hazard.



Some suburban creeks provide walkways and bikeways that attract people to live nearby.