



# LOCAL CATCHMENT FLOOD MAPPING

## Local Catchment Flooding

Local Catchment flooding can be referred to as creek flooding, overland flow flooding or a combination of both.

Creek flooding happens when intense rain falls over a creek catchment. Run-off from houses and streets also contributes to creek flooding.

Overland flow refers to run-off that travels over land during heavy rainfall events. It can be unpredictable, as it is influenced by localised rainfall and urban features such as stormwater pipes, roads, fences, walls and other structures. The actual depth and impact of overland flow vary depending on local conditions, but it generally occurs quickly.

## Flood Modelling

Flood models are created to illustrate flood behaviour and hazards within local catchments.

These models are developed by integrating land data (such as contours, stormwater networks) with meteorological data (including rainfall and storm event information) into a computer-based model. This process identifies areas within the catchment that are predicted to be impacted by flooding during flood events of varying sizes and durations.

This information is input into the modelling software to undertake hydrological and hydraulic assessments, determining how local catchments respond to storm events of various flood sizes, and durations, including the 1% AEP defined flood event. Council's flood modelling has been undertaken using the latest methodologies that align with national best practice principles.

The outputs of the flood models are collated to produce flood mapping for information and awareness. All mapping undertaken by Council is subject to ongoing review. As these reviews take place, it is likely that changes to the mapping will occur, particularly as new flood study information or ground topography information become available.

## The 1% AEP event

The AEP stands for 'Annual Exceedance Probability', which is a measure of the rarity of a flood event. Annual Exceedance Probability (AEP) is used to explain the chance of a flood of a given size (or larger) occurring in any one year, usually expressed as a percentage.

The 1 percent AEP flood event is a level of flooding that has a one percent (one in 100) chance of being equaled or exceeded in any given year. This means such a flood event could occur at any time (i.e. it could occur this year or in the next couple of years, and on one or multiple occasions, or not occur at all for many decades) but it only has a one percent chance of doing so in any given year.

## What is Flood Hazard

Flood hazard (in which flooding is the source of potential harm and can cause harm to the community) refers to the potential loss of life, injury, and economic loss that can be caused by future flood events.

The degree of flood hazard varies with the severity of flooding and location within the floodplain and flood behaviour. It is characterised by velocity and depth of the water - the faster or deeper the water, the greater the hazard.



## Flood Hazard Classifications

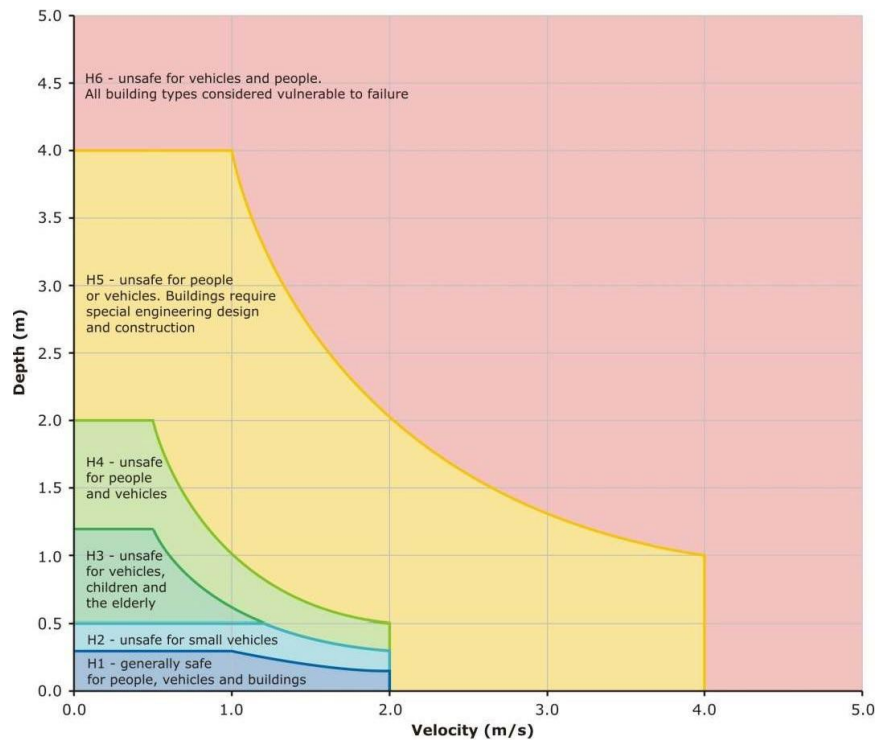
Flood hazard classification helps to better understand the variation in flood behavior and hazard across the floodplain and between different flood events. The degree of hazard varies across a floodplain due to several factors, including:

- Flow depth
- Flow velocity
- Rate of flood level rise (including waiting times)
- Duration of inundation

Identifying hazards related to flood water depth and velocity helps focus management efforts on minimising the risks to life and property. As such, a series of flood hazard classifications have been developed in accordance with Australian Rainfall and Runoff 2019, the national guideline used for estimating flood characteristics in Australia.

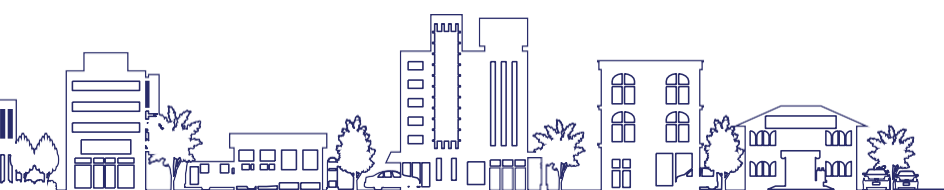
The hazard classifications are grouped into Planning Areas that are identified in Council's Planning Scheme as overlays.

Hazard Vulnerability Classification	Description
H1	Generally safe for vehicles, people and buildings.
H2	Unsafe for small vehicles.
H3	Unsafe for vehicles children and the elderly.
H4	Unsafe for vehicles and people.
H5	Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust buildings subject to failure.
H6	Unsafe for vehicles and people. All building types considered vulnerable to failure.



## Planning Scheme Flood Areas

Flood hazard overlay	Hazard	What does this mean for development?
<b>Planning Area 1</b> Identified as red on the map	<p>Flooding is very likely and there may be very deep and/or very fast moving water.</p> <p>This area is considered a 'high and extreme hazard' area.</p>	<p>Any new development will be subject to the highest development assessment requirements.</p> <p>No new buildings or structures to locate in this area. No additional lots to be created.</p> <p>Any replacement, alterations or extensions to an existing building will have to be constructed in accordance with the Rockhampton Regional Planning Scheme (RRPS) Flood Hazard Overlay Code. Any building works will need to comply with the Queensland Development Code – Construction of Buildings in Flood Hazard Areas.</p>
<b>Planning Area 2</b> Identified as blue on the map	<p>Flooding is likely and there may be shallow and/or slow-moving water.</p> <p>This area is considered a 'low-medium hazard' area.</p>	<p>New development may be allowed if it is located and designed to minimise the impacts of flooding.</p> <p>New buildings that can mitigate flood impacts by being constructed in accordance with the RRPS Flood Hazard Overlay Code. Any building works will need to comply with the Queensland Development Code – Construction of Buildings in Flood Hazard Areas.</p>





## H1 Hazard Area

Planning Areas 1 and 2 do not show the full extent of flood inundation during a local catchment event as the mapping does not include the H1 hazard areas. The H1 Hazard area is depicted as the hatched area labelled 'Local Catchment Defined Flood Event (DFE)' in Council's interactive online overlay flood mapping.

This area typically represents flood depths of less than 300mm and flood velocities less than 2.0 meters per second, which is generally considered safe for people, vehicles, and buildings. In many cases, it may represent standing water from a localised depression or other minor features.

Any development proposed outside Planning Areas 1 and 2, but within the H1 Hazard area, does not require an assessment against the Planning Scheme Flood Hazard Overlay Code. However, it should be noted that any potential impacts will need to be addressed during the Building Application process to ensure that floor levels, plumbing fixtures, and other elements are established above flood levels.

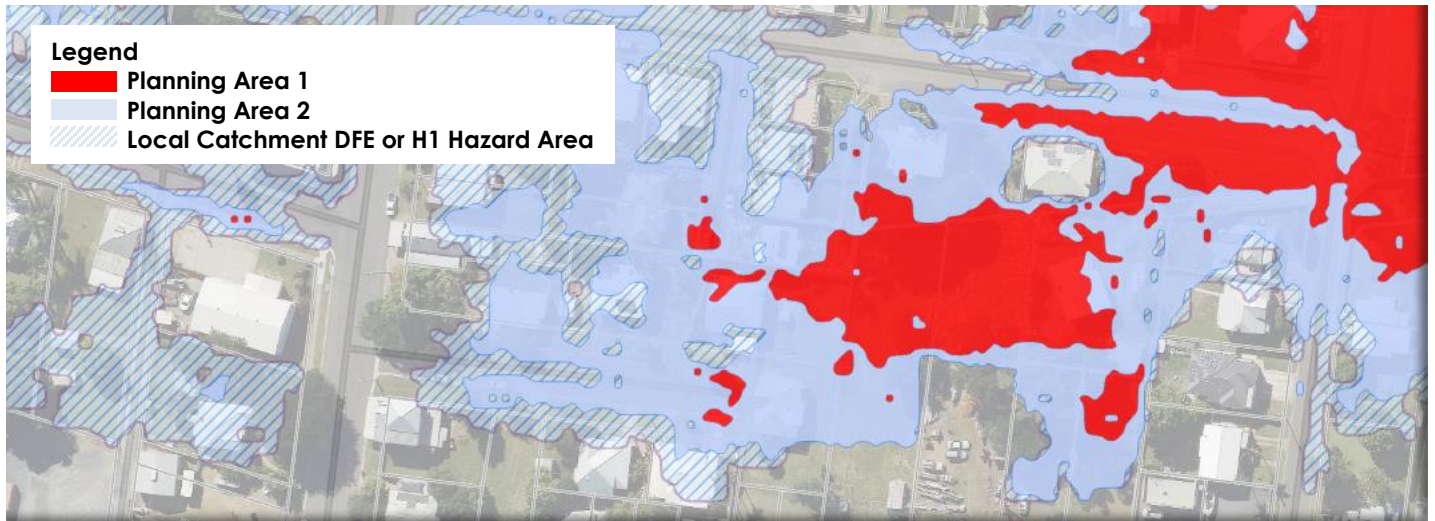


Image: Snippet of Local Catchment Flood Overlay Map (Interactive Mapping Version)

## Flood Impacts

When development is proposed within flood inundation extents, particularly within the H1 hazard category, consideration must be given to the potential external impacts of the proposed works. Whilst the structure may have limited impact on the site itself, flows could be diverted and concentrated onto neighbouring properties, causing a nuisance and affecting the usability of those properties.

## Mapping Currency

All mapping undertaken by Council is subject to ongoing review. As these reviews occur, changes to the mapping are likely, especially as new flood study data or ground topography information becomes available – typically every three to five years.

It should be noted that the flood modelling conducted by Council to date does not provide a complete picture of all local catchment areas within the Rockhampton Region. Some overland flow paths have not been modelled and careful consideration of available contour information is advised when determining building floor heights and other related factors.

*Disclaimer: The content of this information sheet is a summary only and has been prepared to assist the reader to understand the Planning Scheme. Please refer to the full planning scheme, entitled Rockhampton Region Planning Scheme 2015 on Council's website for further detail.*

## Property Flood Levels

Flood models do not provide detailed information on the extent of potential inundation to existing structures such as homes, sheds and garages. This is because Council does not hold information on floor levels of all properties across the region. Buildings would need to be individually surveyed against the flood model data to determine this level of detail. A property identified as 'at risk' means it sits within the area mapped as being affected by water in a modelled flood event.

## Flood Report

You can purchase a property-specific Flood Report from Council's Customer Service Centre. This report provides detailed flood information for your property, which helps to support and supplement the application of Council's Rockhampton Region Planning Scheme Flood Hazard Overlay Code, floodplain planning provisions, and the relevant flood planning levels.

