

# FLOOD INFORMATION SERVICE EXPLANATORY NOTES

## Part 1

- About the flood maps
- Limitations of the mapping
- What the maps **don't** show
- Where to find more information
- Definitions of words used to describe flooding.



## About these maps

The default flood event displayed on these maps is the 1% *Annual Exceedance Probability (AEP)* flood event (also known as the *Q100 flood*) is. It is the *Defined Flood Event* for the new Townsville City Council planning scheme adopted in late 2014.

The 2% *AEP* flood (Q50 flood) is also available on these maps as previous planning schemes were based on the 2% *AEP* flood.

**Flood information is visible on this mapping system for scales 1:250 to 1:5000 only. Outside these scales, flood maps WILL NOT BE VISIBLE.**

The flood data shown is primarily for *regional flooding*. *Overland flow* and *local flooding* are not necessarily shown.

The maps show data from *flood modelling* studies, not historical flood levels. Council does not have historical flood level information for properties or flood modelling for all of Townsville. Flood mapping will be added as it becomes available.

The flood data is in grids that range in size from 5 x 5 m to 30 x 30 m. This means that the flood extent will not end or begin exactly as it is shown on these maps, rather the flood extent indicates whether regional flooding is likely to be a concern for your property.

## Limitations of the mapping

The flood mapping may not be accurate if there have been substantial changes to the topography of your property of interest or to the catchment it is in, after the topographical data for the flood study was collected.

### These maps DO NOT show:

- 1) the **absolute worst flooding** that could occur. Townsville has experienced floods larger than 1% AEP floods.
- 2) flooding or inundation due to **stormtide**.
- 3) flooding that occurs because a drain is obstructed with debris or otherwise not functioning.



## Further information

For general instructions on how to use this service, including how to print, please download the MOSAIC user guide from:

<http://www.townsville.qld.gov.au/business/mapping/Pages/Mosaic.aspx#faq>.

## For examples of how to use and interpret these flood maps, please refer to Explanatory Notes Part 2

For assistance interpreting information for your property of interest, please email [enquiries@townsville.qld.gov.au](mailto:enquiries@townsville.qld.gov.au).

To obtain a contour map for your property (for a small fee), please contact council's Customer Service Centre on 1300 878 001 or email [enquiries@townsville.qld.gov.au](mailto:enquiries@townsville.qld.gov.au).

For questions relating to planning or building approvals or habitable floor levels, please contact council's Customer Service Centre on 1300 878 001 or email [enquiries@townsville.qld.gov.au](mailto:enquiries@townsville.qld.gov.au).

Most of the flood studies on which these maps are based are available for download from:

<http://www.townsville.qld.gov.au/council/publications/reportdrawplan/engineerreport/flood/Pages/default.aspx>.

For maps of modelled 100 year ARI stormtide by suburb and general information relating to stormtide:

<http://www.townsville.qld.gov.au/council/publications/reportdrawplan/engineerreport/stormtide/Pages/tsvcot2007.aspx>.

To obtain stormtide information for your property of interest, please email [enquiries@townsville.qld.gov.au](mailto:enquiries@townsville.qld.gov.au).

For stormtide evacuation areas please refer to:

[http://www.townsville.qld.gov.au/RESIDENT/DISASTER/CYCLONES/Pages/storm\\_tide\\_evacuation.aspx](http://www.townsville.qld.gov.au/RESIDENT/DISASTER/CYCLONES/Pages/storm_tide_evacuation.aspx).

For general information related to flooding and flood preparation in Townsville:

<http://www.townsville.qld.gov.au/resident/disaster/cyclones/flooding/pages/default.aspx>.



## **Flooding terminology**

**AHD:** stands for Australian Height Datum. Metre (m) AHD is a unit of measurement. 0 m AHD is approximately equal to mean sea level.

**Annual Exceedance Probability (AEP):** the probability that a flood event of a particular size will be exceeded in any one year e.g. a flood event with a 1% *AEP* has a 1 in 100 chance of occurring, or being exceeded, in any year.

**Average Recurrence Interval (ARI):** the statistically average time interval between occurrences of a flood of a given magnitude, or larger. An event of any size could actually occur in any given year.

*For example*, a 50 year *ARI* flood has a 2% chance of occurring, being met or exceeded, in any particular year. A 50 year *ARI* flood should not be interpreted as occurring only once every 50 years. A Q50 flood is equivalent to a 2% *AEP* flood.

**Q100 Flood:** a flood event with a 100 year *Average Return Interval (ARI)*. It has a 1% (1 in 100) chance of occurring, or being exceeded, in any one year. A Q100 flood is equivalent to a 1% *AEP* flood.

A Q100 or 100 year *ARI* flood should not be interpreted as occurring only once every 100 years.

**Defined Flood Event:** the flood event adopted as a planning standard by a local government for the management of development in a particular locality. For example:

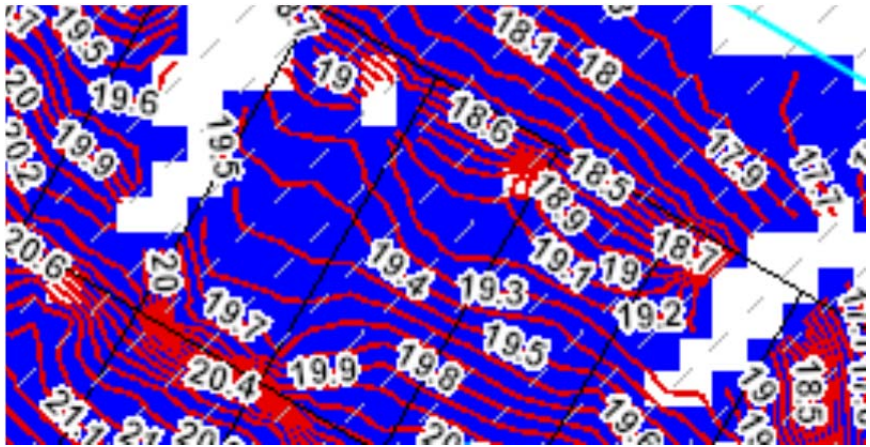
The 1% *Annual Exceedance Probability (1% AEP)* flood event (also known as the *Q100 flood*) is the *Defined Flood Event* in the new Townsville City Council planning scheme which was adopted in late 2014.

Previous planning schemes for Townsville City Council and the City of Thuringowa were based on the 2% *AEP flood (Q50 flood)*.

**Flood extent:** the area that is inundated by flooding

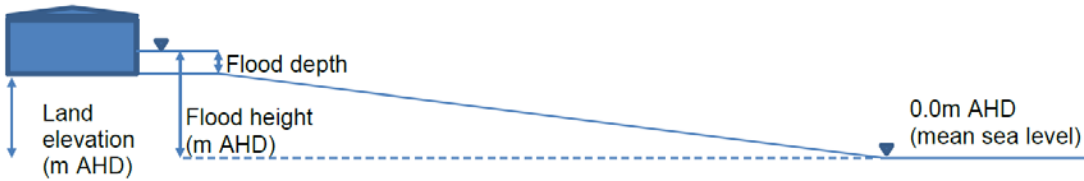
**Flood height** is the flood level in m AHD above mean sea level at a particular point (see Figures 1.2 and 1.3).

**Flood height contours** represent change in flood height in regular intervals. For these maps the interval is 0.1m (see Figure 1.1 below)

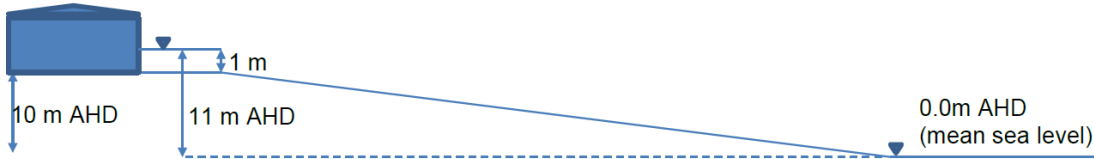


**Figure 1.1:** illustration of flood height contours using in the mapping system

**Flood depth** is the difference between the flood height and the land elevation beneath it (see Figures 1.2 and 1.3).



**Figure 1.2:** illustration of flood depth, flood height, land elevation (topographical height)



**Figure 1.3:** Flood depth = flood height – land elevation  
 In this example, the flood height is 11 m AHD and the land elevation is 10 m, so the flood depth is 1 m

**Flood modelling:** the prediction of stormwater flows and flooding heights using computer software packages. It is based on rainfall records for the area, topography, soil types and various parameters. Whilst these models are quite sophisticated, it is difficult to accurately model the variability of rainfall and all surface features across an urban area, so there is some uncertainty in every flood model.



**Freeboard:** a factor of safety usually expressed as a height above the adopted *Defined Flood Event* level. Freeboard is intended to compensate for factors such as wave action and flood modelling uncertainties. The planning scheme defines how much freeboard habitable floors must have above the *Defined Flood Event*. With the adoption of the 2014 Planning Scheme, habitable floors in new houses in Townsville must be 300 mm above the 1% *AEP* flood level.

**Habitable floor:** bedrooms, kitchens and living rooms. Garages, carports, sheds, laundries and storage rooms are not considered habitable floors.

**Local flooding:** an intense burst of rainfall over a short period of time causes excessive run-off that builds up in a small area and causes flooding of local area streets. Inundation lasts for a limited time, typically up to one to two hours.

**Regional flooding:** when rivers, creeks and channels overtop their banks due to continuous heavy rainfall across a number of large catchments within a floodplain. This does not include flows over park residential and rural residential properties or stormwater backing up because a drain is obstructed with debris.

**Overland flow:** stormwater run-off that spreads out over an area at a relatively uniform depth; also known as sheet flow.

**Storm Surge:** an abnormal rise in sea levels caused by strong winds usually associated with a tropical cyclone. Its height is the difference between the observed level of sea surface and the level that would have occurred in the absence of the cyclone.

**Stormtide:** the actual level of sea water resulting from the normal tide plus *storm surge*.

**Topography:** land surface elevation