

Tasmanian Flood Warning Classification Level Review

Discussion Paper

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The Review of Flood Warning Classification Levels for Tasmania

The Flood Warning Classification Level Review Project is funded with an Australian Government Natural Disaster Risk Reduction Grant. The project was developed in response to the *Independent Review into the Tasmanian Floods in June and July 2016* (Blake June 2017) to directly address recommendations 12 and 15, and indirectly addresses Recommendation 17.

Recommendation: (Blake June 2016)

- 12 *That councils and the State Emergency Service need to facilitate heightened awareness and training by communities when Bureau of Meteorology (the Bureau) issues flood watches and related warnings.*
- 15 *That the Flood Warning Consultative Committee reviews flood classification levels in the Service Level Specifications with BoM specifically relating to flood level triggers on gauges.*
- 17 *That Government supports the anticipated SES State Flood Warning proposals aimed at improving public warnings and communication, and that the proposed warning system is consistent with the National Frameworks.*

The review of the flood warning classifications is a consultation lead process. It involved meeting with stakeholders across the state, including landholders, council employees and State Emergency Service (SES) staff and volunteers, local councils, and farmer groups, to understand the effect floods have on their activities, and how they accessed flood warning information. This discussion paper is part of the consultation phase for the project.

The current flood warning classification levels are available on the Bureau of Meteorology website in the Service Level Specification for Flood Forecasting and Warning Services for Tasmania – Version 3.2. http://www.bom.gov.au/tas/flood/TAS_SLS_Current.pdf

Submission process

Stakeholders are invited to comment on any flood classification warning levels relevant to them. Submissions must be lodged with the SES on or before 31 January 2022.

Submissions should include your name, address, phone number and/or email contact details.

In your submission be clear on the location you mean by referring to the station number or forecast location name. You could include copies of photographs that show the date and place they were taken, reference to newspaper articles or other supporting information that may be included in the department's flood history layer for future reference.

Submissions can be made:

By email: ses@ses.tas.gov.au

By mail: State Emergency Service - Flood Warning Classification Review

GPO Box 308, Hobart TAS 7001

Background

Flood forecasting and warning services are provided by the Commonwealth of Australia through the Bureau for the state of Tasmania, in consultation with the Bureau's Tasmanian Flood Warning Consultative Committee. Additionally, and unique to Tasmania, a river and rainfall alert service is sponsored by the Tasmanian State Emergency Service.

The flood service is limited to dealing with riverine flooding where typical rain-to-flood times are longer than six hours. The Bureau monitors catchment conditions and the potential for flooding at 36 locations.

Flood classification levels

Minor, Moderate and Major flood classification levels at key river height stations are based on the impacts flooding has for some distance upstream and downstream of that station. The process for establishing flood classification levels involves determining local flood effects, review and endorsement by relevant stakeholders and passing recommendations to the Bureau for inclusion in forecast and warning procedures and is specific to each State and Territory.

The following descriptions are used to determine flood classification levels, which are set at a single height. As flood water rises to the next classification level there will be increasing flood impacts in that region.

For example, the Minor flood level at Meander is 2.0 metres while the Moderate flood level is 3.0 metres. A river level between two metres and three metres is classed as a minor flood, even as the water gets deeper, and flooding covers a bigger area.

Flood class definitions

Minor flooding

Causes inconvenience. Low-lying areas next to watercourses, including minor roads and low-level bridges may be flooded. In urban areas flooding may affect some backyards and buildings below the floor level as well as bicycle and pedestrian paths. In rural areas moving livestock and equipment to higher ground may be required.

Moderate flooding

The flooded area is now more substantial. Main traffic routes may be flooded. Some buildings may be flooded above the floor level. Evacuation of people from flood affected areas may be required. In rural areas moving livestock to higher ground is required.

Major flooding

In addition to the above, extensive rural areas and/or urban areas are now flooded. Many buildings may be flooded above the floor level. Properties and towns are likely to be isolated and major rail and traffic routes closed. Evacuation of people from flood affected areas could be required. Utility services including electricity, water and sewage may be impacted.

Flood warnings and prediction types

Flood watches provide an early warning that forecast rainfall and catchment conditions indicate flooding is possible. A flood watch can be issued one to four days before an anticipated flood event, depending on the Bureau’s confidence in rainfall predictions.

Flood warnings are issued when the river level for at least one forecast location in a river basin is expected to or has exceeded the minor flood warning level. These trigger heights and lead times are shown for each forecast location in the tables at *Appendix 1*.

Flood warnings will normally begin with generalised terms as shown in below. Qualitative or Quantitative predictions will then follow, based on the availability of real time rainfall and river level data.

Prediction type	Height prediction	Time of Prediction	Example
Generalised	No height prediction, forecast rising or falling	Generally, in 24-hour blocks	Flooding is expected in the Coal River on Saturday (date) and further rises are possible with forecast rainfall.
Qualitative	Refers to the Minor, Moderate or Major flood class.	Will be in 6-, 12- or 24-hour blocks	Minor flooding is expected along the North Esk River at Nunamara during Saturday afternoon. The river is expected to peak above the major flood level on Sunday evening.
Quantitative	A numerical prediction that could include current flood level, expected peak height and flood class.	More often, typically in blocks of 3-6 hours.	The South Esk River at Perth is likely to exceed the Minor flood level of 4.3 metres by 3pm Saturday. The river is currently expected to peak above the Major flood level of 8.9 metres and reach 9.2 metres Sunday evening.

Objective

The project objective is to reduce risks to life and property posed by flooding by:

- confirming that flood alerts and warnings are issued at levels aligned to meaningful consequences for those exposed to the flooding risk from review and analysis of flood classification warning levels for forecast locations in Tasmania specified in the Service Level Specification for Flood Forecasting and Warning Services, and
- developing and delivering relatable warning and awareness activities to assist people exposed to flood risks to access and interpret flood alerts and warnings and to take appropriate actions.

Project approach

This project took a community engagement approach from the beginning. Contact was made with people living and working in areas impacted by flooding, including primary producers, residents outside townships, State Emergency Service (SES) staff and volunteers, local council staff and the Tasmania Department of Education. During 2021 interviews were conducted at events including AgFest the Powrana cattle sales, and the Hobart Show. Other interviews occurred with individuals contacted through Landcare meetings, from casual conversations or names passed on from landholders on the rivers. All flood history information that was collected was recorded and contributed to a better understanding of flood impacts on people in different circumstances. Over 500 photographs were provided by landholders for different floods in different catchments. These were reviewed and the best quality and representational photographs for an event were loaded into the publicly available SES flood history map layer of ListMap for current and future reference.

Reviewing the flood classification warning levels for forecast locations in Tasmania was the first part of the project to be addressed and has resulted in this discussion paper. An impacts-based approach was taken, in line with the definitions for Minor, Moderate and Major flood classification levels provided in the Service Level Specifications. It included analysis of any current flood studies for the Forth, Mersey, Meander, North Esk, South Esk, Macquarie, Derwent, Coal and Huon Rivers. Data was compared to the existing flood classification warning levels and flood history information provided through research, interviews, and consultation.

Summary recommendations

A table of recommendations for each river catchment can be found at *Appendix 1*.

The River Derwent and Jordan River Basins

The Ashton site on the Ouse River has new Moderate and Major flood levels determined by analysis of daily data water level summaries for representative flood events and supported by comments from local people and SES staff and volunteers.

The lower site on the Ouse River at Ouse will be replaced with the automated site upriver at 3B Weir to provide a more consistent level of service and help with flood forecasting for the lower river. Flood warning levels have been determined for 3B Weir by analysis of daily data water level summaries for representative flood events referenced to river rating curves, and after consultation with local residents.

The Mauriceton site on the Jordan River will be downgraded to a Qualitative site and the Minor flood warning level will be removed. In minor flood events there are very low flow rates at the gauge site which makes Quantitative forecasting difficult for this site. After discussion with the Brighton Council and local SES volunteers it was decided that a Qualitative forecast using the current Moderate and Major flood warning levels was sufficient to manage the impacts of flood events

Huon River

New flood warning levels are proposed for each flood forecasting site on the Huon River after a review of recent flood studies and consultation with the Huon Valley Council, the local SES, and local landholders. These warning levels account for the influence of high tides on flood water levels.

At Tahune Bridge new interim Moderate and Major flood warning levels have been defined that reflect impacts downriver at Judbury and Huonville.

At Judbury the Moderate and Major flood warning levels have been lowered to reflect localised flooding at Judbury and other impacts Huonville.

At Huonville the Moderate and Major flood warning levels have been lowered to reflect flooding in Huonville.

Forth River

New flood warning levels are proposed for the Below Wilmot gauge site on the Forth River after review of recent flood studies and consultation that described impacts in the area.

The Minor flood warning level has been increased to reflect when the embankment overtops at Forth Oval.

The Moderate flood warning level has been decreased to align with local road closures.

The Major flood warning level has been decreased to the level when flooding on roads impacts travel in and out and when evacuation of some residences may be necessary.

Mersey River

New flood warning levels are proposed for each flood forecasting site on the Mersey River after review of flood studies, known flood impacts, and consideration of the new bridge constructed at Liena.

At Liena a new interim Moderate flood warning level has been defined that reflects when the river overtops at Liena and some residences may need to be evacuated. The new interim Major flood level is aligned to major flood heights from August 1970 and June 2016.

At Kimberley the Minor flood warning level has been lowered to reflect local road closures.

At Latrobe Bridge it is recommended that the current interim Minor, Moderate and Major flood warning levels are accepted as they align with recent and historic flood impacts.

South Esk River

Information from the 2016 flood event and findings of a 2018 flood study prepared for City of Launceston council provided evidence to change the flood class warning levels at Trevallyn Dam. The new levels better reflect the impact flood levels have on the city infrastructure, road closures and activities. There was no evidence found to change flood class levels at other locations.

Macquarie River

There are recommended changes to some warning levels and parameters for forecast locations along the Macquarie River.

At Mt Morriston the warning lead time was reduced to zero hours. The river at this site rises very quickly and is hard to predict.

At Lake Leake Lake Level the minor flood warning level has been increased to reflect the actual spillway height. No other flood warning levels were added as the minimum flood warning height forecasts dam spill.

New interim flood warning levels have been determined for the gauge Above Westmoor bridge, based on information provided by the Northern Midlands Council and the Bureau.

A shorter warning lead time is recommended for Cressy Pumps, as it is difficult to predict accurately when rain falls along the Western Tiers.

Meander River

The flood warning levels for the Meander River remain unchanged as there was no evidence to indicate that changes should be made.

North Esk River

The Minor flood warning height at Nunamara on the North Esk River has been increased to reflect impacts on low lying properties in the area, based on recorded impacts from the 2016 flood and the findings of a 2018 flood study prepared for City of Launceston council.

Other considerations

During the consultation process many people who were impacted by flooding, as part of their job, because of where they live or both, provided information on the impacts of the flood event and the information they received.

When it came to flood warning information their comments were reasonably consistent. They want information to be:

- appropriate and timely
- easily available from a range of sources, including radio, television, the internet, and other applications
- clear and concise with simple directions
- easily understood and readily relatable to their circumstances
- consistent between emergency agencies.

The overarching consideration for people who need to take early action for flood threat is that timing is most important. They would accept a lower level of certainty and accuracy if the information was delivered in daylight hours when it was safe for them to respond. Alerts or warnings received after work hours or at night were either not seen until the morning when flooding had already impacted their property, or prompted potentially dangerous actions in the dark, especially when trying to move animals. This included farmers moving livestock or irrigation equipment, landholders on rivers who may be cut-off from work or the school run, SES staff and volunteers and council workers who need to prepare to close roads or evacuate people from low-lying property.

Other comments made were that information during a flood event was great, however before an event there were often too many alerts/warnings, and people stopped listening.

This feedback, and information from responses to this Discussion Paper and from submissions to the review will help address Recommendation 12 from the *Independent Review into the Tasmanian Floods in June and July 2016* – that councils and the State Emergency Service need to facilitate heightened awareness and training by communities when the Bureau issues flood watches and related warning.

Where to next?

- 1 At the end of the public consultation period submissions will be reviewed, and proposed levels confirmed before final recommendations are submitted to the Flood Warning Consultative Committee for endorsement.
- 2 When the recommendations are endorsed by the Committee, they will form the basis of the next Service Level Specification for Flood Forecasting and Warning Services for Tasmania.
- 3 All changed flood warning classification levels will be considered interim and subject to on-going verification and review from information collected for the gauge site and in the region following flood events.
- 4 Information from community engagement activities and research will be used to develop flood awareness training and response resources and activities that will be delivered to flood prone communities, commencing in early 2022.

Appendix I: Service Level Specifications recommendations

The River Derwent and Jordan River Basins

The Ashton site on the Ouse River has new Moderate and Major flood levels determined by analysing daily data water level summaries for representative flood events and supported by comments from local people and the SES.

The lower site at Ouse will be replaced with the automated site upriver at 3B Weir to provide a more consistent level of service and help with flood forecasting for the lower river. Flood warning levels were determined for 3B Weir by analysing daily data water level summaries for representative flood events referenced to river rating curves.

The Mauriceton site on the Jordan River will be downgraded to a Qualitative site and the minor flood warning level will be removed. In minor flood events there are very low flow rates at the gauge site which makes Quantitative forecasting difficult for this site. After discussion with the Brighton Council and local SES volunteers it was decided that a Qualitative forecast using the current Moderate and Major flood warning levels was sufficient to manage the impacts of flood events.

Number	Forecast Location	Station Owner	Gauge Type	Min	Mod	Maj	Prediction Type	Time (hrs)	Trigger height (m)	70% of peak forecasts within...	Priority	Comment
95049	Ashton (on Ouse)	Hydro Tasmania	Automatic	2.4	n/a 3.2	n/a 4.5	Qualitative	12	Minor	n/a	High	New interim moderate and major flood warning level.
595006	Ouse	Bureau	Manual	4	5.2	5.7	Qualitative	12	Minor	n/a	High	Replace Ouse as the flood forecast location with 3B Weir.
595029	3B Weir	Hydro Tasmania	Automatic	3	3.7	4.3	Qualitative	12	Minor	n/a	High	Replace Ouse as the flood forecast location with 3B Weir.

Number	Forecast Location	Station Owner	Gauge Type	Min	Mod	Maj	Prediction Type	Time (hrs)	Trigger height (m)	70% of peak forecasts within...	Priority	Comment
95046	Bothwell (on Clyde)	DPIPWE	Automatic	2	3	4	Qualitative	12	Minor	n/a	High	No evidence found to change the levels at this site.
95062	Hamilton	Bureau	Manual	2.4	3.5	4.5	Qualitative	12	Minor	n/a	High	No evidence found to change the levels at this site.
595012	Below Meadowbank	Hydro Tasmania	Automatic	4.1	6.1	7.3	Quantitative	12	>4.0	+/- 0.3 m	High	No evidence found to change the levels at this site.
95042	Macquarie Plains	Bureau/ Derwent Valley Council	Automatic	4	5	6.7	Quantitative	24	>4.0	+/- 0.3 m	High	No evidence found to change the levels at this site.
95066	New Norfolk	Bureau/ Derwent Valley Council	Automatic	2	4	6	Quantitative	24	>2.0	+/- 0.3 m	High	No evidence found to change the levels at this site.
94143	Jordan River at Mauriceton	DPIPWE	Automatic	0.9 n/a	2	2.5	Quantitative Qualitative	12	>2.0	+/- 0.3 m	High	Remove the Minor flood warning level. Change from providing Quantitative to Qualitative alerts.

Huon River

New flood warning levels are proposed for each flood forecasting site on the Huon River after review of recent flood studies and consultation with the Huon Valley Council, the local SES, and local landholders. These warning levels account for the influence of high tide on flood water levels.

At Tahune Bridge new interim Moderate and Major flood warning levels have been defined that reflect impacts downriver at Judbury and Huonville.

At Judbury the Moderate and Major flood warning levels have been lowered to reflect localised flooding at Judbury and other impacts Huonville.

At Huonville the Moderate and Major flood warning levels have been lowered to reflect flooding in Huonville.

Bureau Number	Forecast Location	Station Owner	Gauge Type	Min	Mod	Maj	Prediction Type	Time (hrs)	Trigger height (m)	70% of peak forecasts within...	Priority	Other comment
597500	Tahune Bridge	Huon Valley Council / Bureau	Automatic	4	n/a 5	n/a 6.3	Quantitative	6	>4.0	+/- 0.3 m	High	New interim Moderate and Major flood warning level.
94179	Judbury	Huon Valley Council / DPIPWE / Bureau	Automatic	4	6 5.3	7 6	Quantitative	12	>4.0	+/- 0.3 m	High	Lowered Moderate and Major flood warning level.
94180	Huonville	Huon Valley Council / Bureau	Automatic	3	3.8 3.6	4.2 4.0	Quantitative	12	>3.0	+/- 0.3 m	High	Lowered Moderate and Major flood warning level.

Forth River

New flood warning levels are proposed for the Below Wilmot gauge site on the Forth River after review of recent flood studies and consultation that described impacts in the area.

The Minor flood warning level has been increased to reflect when the embankment overtops at Forth Oval.

The Moderate flood warning level has been decreased to align with local road closures.

The Major flood warning level has been decreased to the level when flooding on roads impacts travel in and out and when evacuation of some residences may be necessary.

Bureau Number	Forecast Location	Station Owner	Gauge Type	Min	Mod	Maj	Prediction Type	Time (hrs)	Trigger height (m)	70% of peak forecasts within...	Priority	Other comment
591036	Below Wilmot	Hydro Tasmania	Automatic	4.3 4.5	5.9 5.1	7.5 6.8	Quantitative	12	>4.3	+/- 0.3 m	High	New interim Minor, Moderate and Major flood warning level.

Mersey River

New flood warning levels are proposed for each flood forecasting site on the Mersey River after review of flood studies, known flood impacts, and consideration of the new bridge constructed at Liena.

At Liena a new interim Moderate flood warning level has been defined that reflects when the river overtops at Liena and some residences may need to be evacuated. The new interim Major flood level is aligned to major flood heights from August 1970 and June 2016.

At Kimberley the Minor flood warning level has been lowered to reflect local road closures.

At Latrobe Bridge it is recommended that the current interim Minor, Moderate and Major flood warning levels are accepted as they align with recent and historic flood impacts.

Bureau Number	Forecast Location	Station Owner	Gauge Type	Min	Mod	Maj	Prediction Type	Time (hrs)	Trigger height (m)	70% of peak forecasts within...	Priority	Other comment
591034	Liena	Hydro Tasmania	Automatic	2.4	n/a 3.1	n/a 4.3	Qualitative	6	Minor	n/a	High	New interim Minor, Moderate and Major flood warning level
91266	Kimberley	Bureau	Automatic	2.6 2.4	3.3	4	Quantitative	12	>2.6	+/- 0.3 m	High	Lowered Minor flood warning level.
91279	Latrobe Bridge	Bureau	Automatic	3.1	3.6	4.0	Quantitative	12	> 3.1	+/- 0.3 m	High	Accept the current interim Minor, Moderate and Major flood warning levels that align with recent and historic flood impacts.

South Esk River

Information from the 2016 flood event and findings of a 2018 flood study prepared for City of Launceston council provided evidence to change the flood class warning levels at Trevallyn Dam. The new levels better reflect the impact flood levels have on the city infrastructure and activities. There was no evidence found to change flood class levels at other locations.

Bureau Number	Forecast Location	Station Owner	Gauge Type	Min	Mod	Maj	Prediction Type	Time (hrs)	Trigger height (m)	70% of peak forecasts within...	Priority	Other Comment
92091	Fingal	Bureau	Automatic	4	5	7	Quantitative	12	>4.0	+/- 0.3 m	High	No evidence found to change the levels at this site.
92020	Lewis Hill (St Pauls River)	Bureau	Automatic	1.7	2.6	3.5	Qualitative	12	Minor	n/a	High	No evidence found to change the levels at this site.
93044	Llewellyn	Hydro Tasmania	Automatic	4	5	8.5	Quantitative	24	>4.0	+/- 0.3 m	High	No evidence found to change the levels at this site.
591031	Perth	DPIPWE	Automatic	4.3	7.2	8.9	Quantitative	24	>4.3	+/- 0.3 m	High	No evidence found to change the levels at this site.
91207	Longford	Bureau	Automatic	3.5	5	7	Quantitative	24	>3.5	+/- 0.3 m	High	No evidence found to change the levels at this site.
591037	Trevallyn Dam (AHD)	Hydro Tasmania	Automatic	128.2	129.4	130.0	Quantitative	24	>128.2	+/- 0.3 m	High	
591037	Trevallyn Dam (Flow)	Hydro Tasmania	Automatic	420	1100 1400	1486 2250	Quantitative	24	>420	n/a	High	Update moderate and major Flood Class Warning Levels.

Macquarie River

There are recommended changes to some warning levels and parameters for forecast locations along the Macquarie River.

At Mt Morriston the warning lead time was reduced to zero hours. The river at this site rises very quickly and is hard to predict.

At Lake Leake Lake Level the minor flood warning level has been increased to reflect the actual spillway height. No other flood warning levels were added as the minimum flood warning height forecasts dam spill.

New interim flood warning levels have been determined for the gauge Above Westmoor bridge, based on information provided by the Northern Midlands Council and the Bureau of Meteorology.

A shorter warning lead time is recommended for Cressy Pumps, as it is difficult to predict accurately when rain falls along the Western Tiers.

Bureau Number	Forecast Location	Station Owner	Gauge Type	Min	Mod	Maj	Prediction Type	Time (hrs)	Trigger height (m)	70% of peak forecasts within...	Priority	Other comment
92079	Tooms Lake	Bureau	Automatic	4.4	n/a	n/a	Qualitative	6	Minor	n/a	High	No other flood warning levels were added as the minimum flood warning height forecasts dam spill.
93052	Mt Morriston	Bureau	Automatic	1.5	2	3	Qualitative	12 0	Minor	n/a	High	Reduce target warning lead time.
93051	Ross	Bureau	Automatic	2	2.5	3.2	Quantitative	12	>2.0	+/- 0.3 m	High	No evidence found to change the flood warning levels at this site.
92146	Lake Leake Lake Level	Bureau	Automatic	5 5.2	n/a	n/a	Qualitative	6	Minor	n/a	High	Update minor level to reflect actual spillway height. No other flood warning levels were added as the minimum flood warning height forecasts dam spill.

Bureau Number	Forecast Location	Station Owner	Gauge Type	Min	Mod	Maj	Prediction Type	Time (hrs)	Trigger height (m)	70% of peak forecasts within...	Priority	Other comment
92146	Lake Leake Below Lake	Bureau	Automatic	0.8	2	2.5	Qualitative	6	Minor	n/a	High	No evidence found to change the flood warning levels at this site.
93026	Morningside	DPIPWE	Automatic	3.5	5.5	6.5	Quantitative	12	>3.5	+/- 0.3 m	High	No evidence found to change the flood warning levels at this site.
591013	Abv Westmoor	Hydro Tasmania	Automatic	n/a 1.5	n/a 2.5	n/a 4.5	Quantitative	12	>2.0		High	New interim Minor, Moderate and Major flood warning levels.
591049	Cressy Pumps	Hydro Tasmania	Automatic	3	4	5	Quantitative	12 9 to 24 hours	>3.0	+/- 0.3 m	High	Shorter warning lead time. No evidence found to change the flood warning levels at this site.

Meander River

The flood warning levels for the Meander River remain unchanged as there was no evidence to indicate that changes should be made.

Bureau Number	Forecast Location	Station Owner	Gauge Type	Min	Mod	Maj	Prediction Type	Time (hrs)	Trigger height (m)	70% of peak forecasts within...	Priority	Other Comment
91267	Meander (Bridge)	Bureau	Automatic	2	3	3.5	Qualitative	6	Minor	n/a	High	No evidence found to change the levels at this site.
91227	Deloraine	Hydro Tasmania	Automatic	2	2.5	3	Quantitative	12	>2.0	+/- 0.3 m	High	No evidence found to change the levels at this site.
91260	Strathbridge	DPIPWE	Automatic	5	6.5	7	Quantitative	24	>5.0	+/- 0.3 m	High	No evidence found to change the levels at this site.
91303	Westwood Bridge	Bureau	Automatic	4	6	7	Quantitative	24	>4.0	+/- 0.3 m	High	No evidence found to change the levels at this site.

North Esk River

The Minor flood warning height at Nunamara on the North Esk River has been increased to reflect impacts on low lying properties in the area, based on recorded impacts from the 2016 flood and the findings of a 2018 flood study prepared for City of Launceston council.

Bureau Number	Forecast Location	Station Owner	Gauge Type	Min	Mod	Maj	Prediction Type	Time (hrs)	Trigger height (m)	70% of peak forecasts within...	Priority	Other Comment
91271	1 Nunamara	Bureau	Automatic	1.5 2.0	3	5	Qualitative	12	Minor	n/a	High	Update minor Flood Class Warning Level.
91263	2 Corra Linn	Bureau	Automatic	2.7	3.6	4.9	Quantitative	12	>2.7	+/- 0.3 m	High	No evidence found to change the levels at this site.



Tasmanian
Government

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