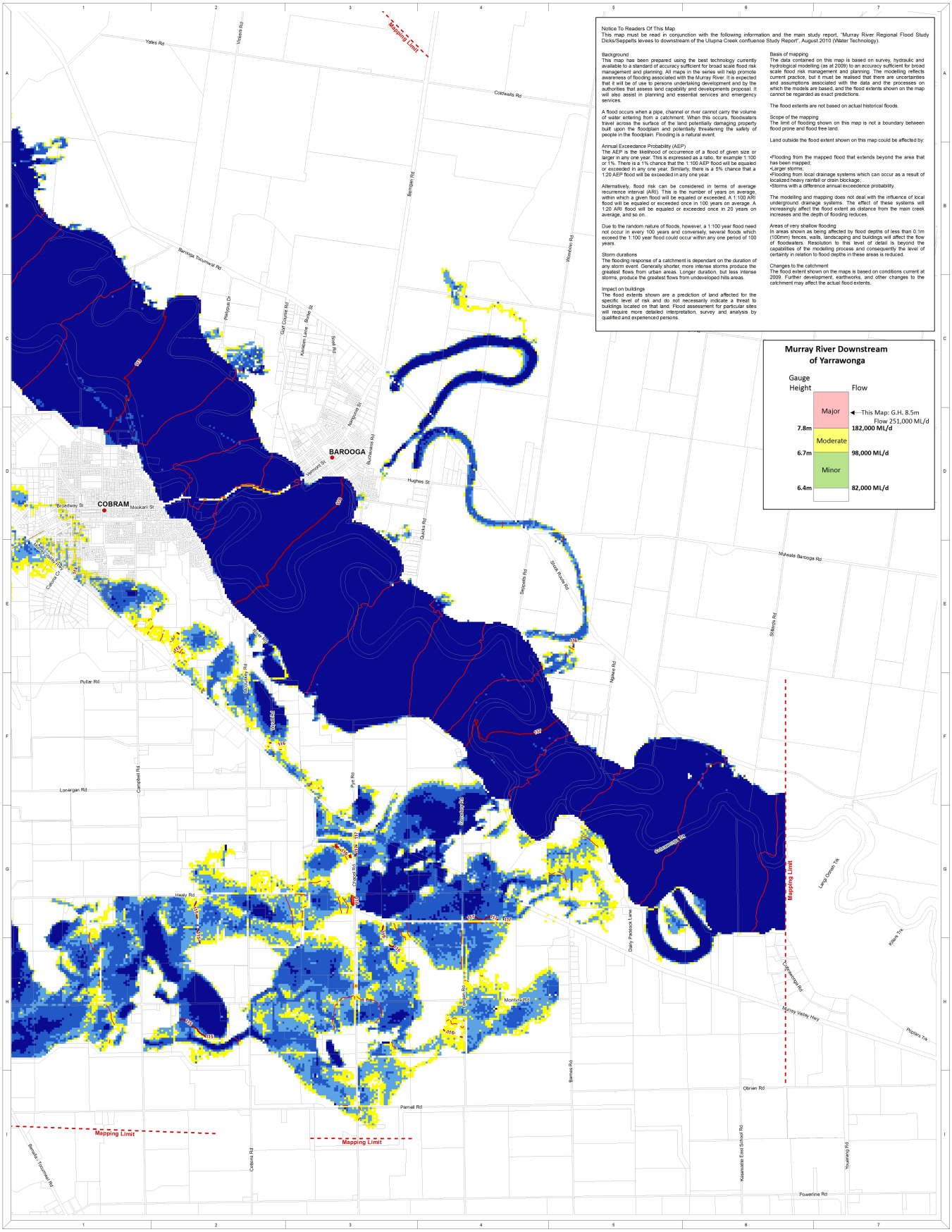


Notice To Readers Of This Map
This map must be read in conjunction with the following information and the main study report, "Murray River Regional Flood Study Dicks/Seppelts levees to downstream of the Ulupna Creek confluence Study Report", August 2010 (Water Technology).

Background
This map has been prepared using the best technology currently available to a standard of accuracy sufficient for broad scale flood risk management and planning. All maps in the series will help promote awareness of flooding associated with the Murray River. It is expected that it will be of use to persons undertaking development and by the authorities that assess land capability and developments proposal. It will also assist in planning and essential services and emergency services.

A flood occurs when a pipe, channel or river cannot carry the volume of water entering from a catchment. When this occurs, floodwaters travel across the surface of the land potentially damaging property built upon the floodplain and potentially threatening the safety of people in the floodplain. Flooding is a natural event.

Annual Exceedance Probability (AEP)
The AEP is the likelihood of occurrence of a flood of given size or larger in any one year. This is expressed as a ratio, for example 1:100 or 1%. There is a 1% chance that the 1:100 AEP flood will be equaled or exceeded in any one year. Similarly, there is a 5% chance that a 1:20 AEP flood will be exceeded in any one year.

Alternatively, flood risk can be considered in terms of average recurrence interval (ARI). This is the number of years on average, within which a given flood will be equaled or exceeded. A 1:100 ARI flood will be equaled or exceeded once in 100 years on average. A 1:20 ARI flood will be equaled or exceeded once in 20 years on average, and so on.

Due to the random nature of floods, however, a 1:100 year flood need not occur in every 100 years and conversely, several floods which exceed the 1:100 year flood could occur within any one period of 100 years.

Storm durations
The flooding response of a catchment is dependant on the duration of any storm event. Generally shorter, more intense storms produce the greatest flows from urban areas. Longer duration, but less intense storms, produce the greatest flows from undeveloped hills areas.

Impact on buildings
The flood extents shown are a prediction of land affected for the specific level of risk and do not necessarily indicate a threat to buildings located on that land. Flood assessment for particular sites will require more detailed interpretation, survey and analysis by qualified and experienced persons.

Basis of mapping
The data contained on this map is based on survey, hydraulic and hydrological modelling (as at 2009) to an accuracy sufficient for broad scale flood risk management and planning. The modelling reflects current practice, but it must be realised that there are uncertainties and assumptions associated with the data and the processes on which the models are based, and the flood extents shown on the map cannot be regarded as exact predictions.

The flood extents are not based on actual historical floods.

Scope of the mapping
The limit of flooding shown on this map is not a boundary between flood prone and flood free land.

Land outside the flood extent shown on this map could be affected by:

- Flooding from the mapped flood that extends beyond the area that has been mapped;
- Larger storms;
- Flooding from local drainage systems which can occur as a result of localized heavy rainfall or drain blockage;
- Storms with a difference annual exceedence probability.

The modelling and mapping does not deal with the influence of local underground drainage systems. The effect of these systems will increasingly affect the flood extent as distance from the main creek increases and the depth of flooding reduces.

Areas of very shallow flooding
In areas shown as being affected by flood depths of less than 0.1m (100mm) fences, walls, landscaping and buildings will affect the flow of floodwaters. Resolution to this level of detail is beyond the capabilities of the modelling process and consequently the level of certainty in relation to flood depths in these areas is reduced.

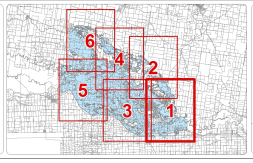
Changes to the catchment
The flood extent shown on the maps is based on conditions current at 2009. Further development, earthworks, and other changes to the catchment may affect the actual flood extents.

Murray River Downstream of Yarrawonga

Gauge Height	Flow	
	Major	◄ This Map: G.H. 8.5m Flow 251,000 ML/d
7.8m	182,000 ML/d	
	Moderate	
6.7m	98,000 ML/d	
	Minor	
6.4m	82,000 ML/d	

NOTE
Water Technology Pty. Ltd. has prepared this document in accordance with instruction of Goulburn Broken Catchment Management Authority, Berrigan and Moira Shires for their specific use.

DISCLAIMER
The Goulburn Broken Catchment Management Authority, Berrigan and Moira Shires, and Water Technology Pty. Ltd. does not warrant that this document is definitive nor free from error and does not accept liability for any loss caused or arising from reliance upon information provided herein.



LEGEND

- Townships
- Mapping Limits
- Railway
- Cadastre
- Water Surface Elevation Contours (m AHD)

Flood Depth (m)
- 0 - 0.25m
- 0.25 - 0.5m
- 0.5 - 1.0m
- Greater than 1.0m

0 250 500 1,000 1,500 2,000 Metres
1:25,000 at A1

GOULBURN BROKEN CATCHMENT MANAGEMENT AUTHORITY
MOIRA SHIRE ON THE MURRAY
WATER TECHNOLOGY WATER, COASTAL & ENVIRONMENTAL CONSULTANTS
BERRIGAN SHIRE

MURRAY REGIONAL FLOOD STUDY
Regional Flood Inundation Map
20 Year ARI Flood Event
Victorian Levee Failure Scenario
Flood Depths and Flood Contours
Murray River Downstream of Yarrawonga
Flow: 251,000 ML/d
Estimated Gauge Height: 8.5m

REFERENCE: S:\J100-J199\J150_Murray\Regional\Digitised\project_files\FINAL_MAPPING\A1_Portrait_Regional_Flood_Maps.mxd
DATE: Jan 11, 2011 | SHEET: 1 OF 6 | DRAWING NO: 940362 (sheet 1 of 6)