

**Ballina Shire**

# Local Flood Plan



**July 2013**

To be reviewed no later than July 2018

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# **BALLINA SHIRE FLOOD EMERGENCY SUB PLAN**

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**A Sub-Plan of the Ballina Shire Council Local Emergency Management Plan (EMPLAN)**

**Volume 1 of the Ballina Shire Local Flood Plan**



## AUTHORISATION

The Ballina Shire Flood Emergency Sub Plan is a sub plan of the Ballina Shire Council Local Emergency Management Plan (EMPLAN). It has been prepared in accordance with the provisions of the ***State Emergency Service Act 1989 (NSW)*** and is authorised by the Local Emergency Management Committee in accordance with the provisions of the ***State Emergency and Rescue Management Act 1989 (NSW)***.

**Recommended**



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NSW SES Ballina Local Controller

Date: 12 July 2013.

**Approved**



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Chair, Local Emergency Management Committee

Date: 12 July 2013.

# CONTENTS

<b>AUTHORISATION .....</b>	<b>i</b>
<b>CONTENTS .....</b>	<b>ii</b>
<b>LIST OF TABLES .....</b>	<b>iii</b>
<b>DISTRIBUTION LIST .....</b>	<b>iv</b>
<b>VERSION HISTORY.....</b>	<b>v</b>
<b>AMENDMENT LIST .....</b>	<b>v</b>
<b>LIST OF ABBREVIATIONS .....</b>	<b>vi</b>
<b>GLOSSARY.....</b>	<b>viii</b>
<b>PART 1 - INTRODUCTION .....</b>	<b>1</b>
1.1 Purpose.....	1
1.2 Authority.....	1
1.3 Area Covered by the Plan .....	1
1.4 Description of Flooding and its Effects .....	1
1.5 Responsibilities .....	2
<b>PART 2 - PREPAREDNESS.....</b>	<b>15</b>
2.1 Maintenance of this Plan .....	15
2.2 Floodplain and Coastal Risk Management.....	15
2.3 Development of Flood Intelligence.....	15
2.4 Development of Warning Systems .....	15
2.5 Public Education .....	16
2.6 Training .....	16
2.7 Resources.....	16
<b>PART 3 - RESPONSE.....</b>	<b>17</b>
3.1 Control Arrangements .....	17
3.2 Operational Management .....	17
3.3 Start of Response Operations .....	17
3.4 Response Strategies.....	18
3.5 Operations Centres.....	19
3.6 Liaison .....	20
3.7 End of Response Operations.....	20
3.8 Collating Situational Information.....	20
3.9 Provision of Flood Information and Warnings.....	22
3.10 Aircraft Management .....	25
3.11 Assistance for Animals .....	25
3.12 Communication Systems .....	25
3.13 Preliminary Deployments .....	26
3.14 Road and Traffic Control.....	26
3.15 Stranded Travellers.....	27
3.16 Managing Property Protection Operations .....	27
3.17 Managing Flood Rescue Operations .....	27
3.18 Managing Evacuation Operations.....	28

3.19	Managing Resupply Operations.....	34
<b>PART 4 - RECOVERY.....</b>		<b>36</b>
4.1	Recovery Coordination at the Local level .....	36
4.2	Arrangements for Debriefs / After Action Reviews .....	36
<b>ATTACHMENT 1 - Resupply Flowchart .....</b>		<b>37</b>
<b>ATTACHMENT 2 - Dam Failure Alert Notification Arrangements Flowchart .....</b>		<b>38</b>
<b>ATTACHMENT 3 - Ballina Shire Council LGA MAP .....</b>		<b>39</b>

## LIST OF TABLES

Table 1: Dam Failure Alert Levels .....	24
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## DISTRIBUTION LIST

Recipient	Number of copies
NSW SES Ballina Local Controller	1
NSW SES Ballina Unit	1
NSW SES Richmond -Tweed Region Headquarters	1
NSW SES State Headquarters	1
Ballina Shire Council Local Emergency Operations Controller	1
NSW Police Force, Richmond Local Area Command	1
Ballina Shire Council, Local Emergency Management Committee Members	1 each
Ballina Shire Council, Local Emergency Management Officer	1
Ballina Shire Council, Local Emergency Operations Centre	1
Ballina Shire Council, Mayor	1
Ballina Shire Council, General Manager	1
Ballina Shire Council, Technical Services Department	1
Fire and Rescue NSW, Regional North 2 Zone - Northern Rivers	1
NSW Rural Fire Service, Far North Coast Zone	1
Ambulance Service of NSW, Ballina	1
Marine Rescue NSW	1
Surf Life Saving NSW	1
Office of Environment and Heritage	1
Evacuation Centres	1 each
Hospitals	1 each
Nursing Homes	1 each
Schools	1 each
Caravan Parks	1 each
Council Libraries	1 each
Child Care Centres and Preschools	1 each
<b>Total</b>	

## VERSION HISTORY

The following table lists all previously endorsed versions of this plan.

Description	Date

## AMENDMENT LIST

Suggestions for amendments to this plan should be forwarded to:

The Ballina Local Controller  
 NSW State Emergency Service  
 PO Box 4044, Goonellabah, NSW 2489

Amendments promulgated in the amendments list below have been entered in this plan.

Amendment Number	Description	Updated by	Date

## LIST OF ABBREVIATIONS

The following abbreviations have been used in this plan:

<b>AEP</b>	Annual Exceedance Probability
<b>AHD</b>	Australian Height Datum
<b>AIIMS</b>	Australasian Inter-service Incident Management System
<b>ARI</b>	Average Recurrence Interval (Years)
<b>ALERT</b>	Automated Local Evaluation in Real Time
<b>AWRC</b>	Australian Water Resources Council
<b>BUREAU</b>	Australian Government Bureau of Meteorology
<b>CBR</b>	Chemical, Biological or Radiation
<b>DCF</b>	Dam Crest Flood
<b>DSC</b>	Dams Safety Committee
<b>EMPLAN</b>	Emergency Management Plan
<b>EMPLAN</b>	Emergency Management plan
<b>DSEP</b>	Dam Safety Emergency Plan
<b>DVR</b>	Disaster Victim Registration
<b>FRNSW</b>	Fire and Rescue NSW (previously NSW Fire Brigades)
<b>GIS</b>	Geographic Information System
<b>GRN</b>	Government Radio Network
<b>IAP</b>	Incident Action Plan
<b>IFF</b>	Imminent Failure Flood
<b>LEMC</b>	Local Emergency Management Committee
<b>LEOCON</b>	Local Emergency Operations Controller
<b>LGA</b>	Local Government Area
<b>MAA</b>	Mutual Aid Agreement
<b>MHL</b>	Manly Hydraulics Laboratory



<b>NOW</b>	NSW Office of Water
<b>NSW SES</b>	NSW State Emergency Service
<b>OEH</b>	Office of Environment and Heritage (previously DECCW)
<b>PMF</b>	Probable Maximum Flood
<b>PMR</b>	Private Mobile Radio
<b>PMP</b>	Probable Maximum Precipitation
<b>RFS</b>	Rural Fire Service
<b>RMS</b>	Roads and Maritime Services
<b>SEOCON</b>	State Emergency Operations Controller
<b>SERCON</b>	State Emergency Recovery Controller
<b>SEWS</b>	Standard Emergency Warning Signal
<b>VRA</b>	Volunteer Rescue Association

## GLOSSARY

**Annual Exceedance Probability (AEP).** The chance of a flood of a given or larger size occurring in any one year, usually expressed as a percentage. For example, if a peak flood level (height) has an AEP of 5%, there is a 5% chance (that is, a one-in-20 chance) of such a level or higher occurring in any one year (see also Average Recurrence Interval).

**Assistance Animal.** A guide dog, a hearing assistance dog or any other animal trained to assist a person to alleviate the effect of a disability (Refer to Section 9 of the Disability Discrimination Act 1992).

**Australian Height Datum (AHD).** A common national surface level datum approximately corresponding to mean sea level.

**Average Recurrence Interval (ARI).** The long-term **average** number of years between the occurrence of a flood as big as, or larger than, the selected event. For example, floods reaching a height as great as, or greater than, the 20 year ARI flood event will occur **on average** once every 20 years.

**Catchment (river basin).** The land area draining through the main stream, as well as tributary streams, to a particular site. It always relates to an area above a specific location.

**Coastal Erosion.** The loss of land along the shoreline predominantly by the offshore movement of sand during storms.

**Dambreak Study.** A Dambreak Study is undertaken to determine the likely downstream inundation areas in case of a dam failure. Modelling is undertaken for a range of dam breach possibilities and design floods. The dambreak study includes information such as the extent of flooding, flood travel times and flood water velocities. The study can assist dam owners, regulators, and emergency agencies in the preparations of evacuation plans, dam break and other flood warning systems, and hazard classification of affected areas.

**Dam Failure.** The uncontrolled release of a water storage. The failure may consist of the collapse of the dam or some part of it, or excessive seepage or discharges. The most likely causes of dam failure are:

- **Flood Induced Dam Failure:** Dam failure caused by flood, either due to overtopping erosion or by subsequent structural failure.
- **Sunny Day Dam Failure:** Dam Failure as a result of factors other than flood i.e. other than flood flow into the reservoir. Causes of "Sunny Day" dam failure can include internal erosion, landslide, piping, earthquake or sabotage.

**Dam Safety Emergency Plan (DSEP).** A DSEP outlines the required actions of owners and their personnel at dams in response to a range of possible emergency situations. The NSW Dam Safety Committee requires a quality controlled DSEP, with associated dambreak warning procedures to be prepared for prescribed dams where persons may be at risk downstream, if the dam failed.

**Design flood (or flood standard).** A flood of specified magnitude that is adopted for planning purposes. Selections should be based on an understanding of flood behaviour and the associated flood risk, and take account of social, economic and environmental considerations. There may be several design floods for an individual area.

**EMPLAN (Emergency Management Plan).** The object of a EMPLAN is to ensure the coordinated response by all agencies having responsibilities and functions in emergencies.

**Emergency Alert.** A national telephony based alerting system available for use by emergency service agencies to send SMS and voice messages to landlines and/or mobile telephones (by billing address) in times of emergency.

**Essential services.** Those services, often provided by local government authorities, that are considered essential to the life of organised communities. Such services include power, lighting, water, gas, sewerage and sanitation clearance.

**Evacuation.** The temporary movement of people from a dangerous or potentially dangerous place to a safe location, and their eventual return. It is a safety strategy which uses distance to separate people from the danger created by the hazard.

**Evacuation Order.** Notification to the community, authorised by the NSW SES, when the intent of an Incident Controller is to instruct a community to immediately evacuate in response to an imminent threat.

**Evacuation Warning.** Notification to the community, authorised by the NSW SES, when the intent of an Incident Controller is to warn a community of the need to prepare for a possible evacuation

**Flash flooding.** Flooding which is sudden and often unexpected because it is caused by sudden local or nearby heavy rainfall. It is sometimes defined as flooding which occurs within six hours of the rain that causes it.

**Flood.** Relatively high water level which overtops the natural or artificial banks in any part of a stream, river, estuary, lake or dam, and/or local overland flooding associated with drainage before entering a watercourse, and/or coastal inundation resulting from super-elevated sea levels and/or waves overtopping coastline defences, including Tsunami.

**Flood classifications.** Locally defined flood levels used in flood warnings to give an indication of the severity of flooding (minor, moderate or major) expected. These levels are used by the State Emergency Service and the Australian Government Bureau of Meteorology in flood bulletins and flood warnings.

**Flood intelligence.** The product of collecting, collating, analysing and interpreting flood-related data to produce meaningful information (intelligence) to allow for the timely preparation, planning and warning for and response to a flood.

**Flood fringe.** The remaining area of flood prone land after floodway and flood storage have been defined

**Flood liable land (also referred to as flood prone land).** Land susceptible to flooding by the Probable Maximum Flood. (PMF) event. This term also describes the maximum extent of a **floodplain** which is an area of a river valley, adjacent to the river channel, which is subject to inundation in floods up to this event.

**Flood of record.** Maximum observed historical flood.

**Floodplain Management Plan.** A plan developed in accordance with the principles and guidelines in the New South Wales Floodplain Development Manual. Such a plan usually includes both written and diagrammatic information describing how particular areas of flood prone land can be used and managed to achieve defined objectives.

**Flood Plan.** A response strategy plan that deals specifically with flooding and is a sub-plan of a Emergency Management Plan. Flood plans describe agreed roles, responsibilities, functions, strategies and management arrangements for the conduct of flood operations and for preparing for them. A flood plan contains information and arrangements for all floods whereas an IAP is for a specific flood/event.

**Flood Rescue.** The rescue or retrieval of persons trapped by floodwaters.

**Flood storage areas.** Those parts of the floodplain that are important for the temporary storage of floodwaters during the passage of a flood. The extent and behaviour of flood storage areas may change with flood severity, and loss of flood storage can increase the severity of flood impacts by reducing natural flood attenuation.

**Floodway.** An area where a significant volume of water flows during floods. Such areas are often aligned with obvious naturally-defined channels and are areas that, if partially blocked, would cause a significant redistribution of flood flow which may in turn adversely affect other areas. They are often, but not necessarily, the areas of deeper flow or the areas where higher velocities occur.

**Flood Watch.** A Flood Watch is a notification of the potential for a flood to occur as a result of a developing weather situation and consists of short generalised statements about the developing weather including forecast rainfall totals, description of catchment conditions and indicates streams at risk. The Bureau will also attempt to estimate the magnitude of likely flooding in terms of the adopted flood classifications. Flood Watches are normally issued 24 to 36 hours in advance of likely flooding. Flood watches are issued on a catchment wide basis.

**Flood Warning.** A Flood Warning is a gauge specific forecast of actual or imminent flooding. Flood Warnings specify the river valley, the locations expected to be flooded, the likely severity of flooding and when it will occur.

**Functional Area.** A category of services involved in the preparations for an emergency, including the following:

- Agricultural and Animal Services;
- Energy and Utility Services;
- Engineering Services;
- Environmental Services;
- Health Services;
- Public Information Services;
- Telecommunication Services;
- Transport Services; and
- Welfare Services.

**Geographic Information System (GIS).** A geographic information system (GIS) integrates hardware, software, and data for capturing, managing, analysing, and displaying all forms of geographically referenced information.

**Incident Action Plan (IAP).** An action plan for managing a specific event. Information from the Flood Emergency Sub Plan is used to develop the flood IAP.

**Indirect Effect.** Indirect effects are generally a consequence of infrastructure damage or interruption of services and can affect communities distant from the actual flood footprint i.e. floodplain. Indirect effects can also refer to indirect losses due to disruption of economic activity, both in areas which are inundated or isolated. Indirect effects are one of the three primary sources of risk in the context of flooding (the other two are inundation and isolation).

**Inundation.** See definition for Flood.

**Isolation.** Properties and/or communities where flooding cuts access to essential services or means of supply. Isolation is one of the three primary sources of risk in the context of flooding (the other two are inundation and indirect effects).

**Local overland flooding.** Inundation by local runoff rather than overbank discharge from a stream, river, estuary, lake or dam.

**Major flooding.** Flooding which causes inundation of extensive rural areas, with properties, villages and towns isolated and/or appreciable urban areas flooded.

**Minor flooding.** Flooding which causes inconvenience such as closing of minor roads and the submergence of low-level bridges. The lower limit of this class of flooding, on the reference gauge, is the initial flood level at which landholders and/or townspeople begin to be affected in a significant manner that necessitates the issuing of a public flood warning by the Australian Government Bureau of Meteorology.

**Moderate flooding.** Flooding which inundates low-lying areas, requiring removal of stock and/or evacuation of some houses. Main traffic routes may be covered.

**Peak height.** The highest level reached, at a nominated gauging station, during a particular flood event.

**Prescribed Dam.** "Prescribed" dams are those listed in Schedule 1 of the Dams Safety Act 1978. The NSW Dam Safety Committee will prescribe those dams with the potential for a failure which could have a significant adverse effect on community interests.

**Probable Maximum Flood (PMF).** The largest flood that could conceivably be expected to occur at a particular location, usually estimated from probable maximum precipitation. The PMF defines the maximum extent of flood prone land, that is, the floodplain. It is difficult to define a meaningful Annual Exceedance Probability for the PMF, but it is commonly assumed to be of the order of  $10^4$  to  $10^7$  (once in 10,000 to 10,000,000 years).

**Runoff.** The amount of rainfall which ends up as stream flow, also known as 'rainfall excess' since it is the amount remaining after accounting for other processes such as evaporation and infiltration.

**Stage height.** A level reached, at a nominated gauging station, during the development of a particular flood event.

**Stream gauging station.** A place on a river or stream at which the stage height is routinely measured, either daily or continuously, and where the discharge is measured from time to time so as to develop a relationship between stage and discharge or rating curve.

## PART 1 - INTRODUCTION

### 1.1 PURPOSE

- 1.1.1 This plan covers preparedness measures, the conduct of response operations and the coordination of immediate recovery measures from flooding within the Ballina Shire Council area. It covers operations for all levels of flooding within the council area.
- 1.1.2 The plan also covers arrangements for the management of coastal erosion in the council area.

### 1.2 AUTHORITY

- 1.2.1 This plan is issued under the authority of the *State Emergency and Rescue Management Act 1989* (NSW) and the *State Emergency Service Act 1989* (NSW). It has been approved by the NSW SES Ballina Local Controller and the NSW SES Richmond-Tweed Region Controller as a NSW SES plan and endorsed by the Ballina Shire Council Local Emergency Management Committee as a sub plan of the Local EMPLAN.

### 1.3 AREA COVERED BY THE PLAN

- 1.3.1 The area covered by the plan is the Ballina Shire Council area which includes:
  - a. Alstonville;
  - b. Wollongbar;
  - c. Ballina;
  - d. Lennox Head;
  - e. The villages of Newrybar,
  - f. Teven;
  - g. Tintenbar;
  - h. Wardell;
  - i. Cabbage Tree Island is also within the Council area.
- 1.3.2 The council area and its principal rivers and creeks are shown in Attachment 3.
- 1.3.3 The council area is in the NSW SES Richmond-Tweed Region and for emergency management purposes is part of the North Coast Emergency Management Region.

### 1.4 DESCRIPTION OF FLOODING AND ITS EFFECTS

- 1.4.1 The NSW SES maintains information on the nature of flooding and effects of flooding on the community in the Ballina Shire Council LGA.

## 1.5 RESPONSIBILITIES

1.5.1 The general responsibilities of emergency service organisations and supporting services (functional areas) are listed in the Local and State Emergency Management Plans (EMPLAN). Some specific responsibilities are expanded upon in the following paragraphs. The extent of their implementation will depend on the severity of the flooding. Specific responsibilities of agencies and organisations as they relate to tsunami are detailed in the State Tsunami Emergency Sub Plan.

1.5.2 **NSW SES Ballina Local Controller** is responsible for dealing with floods as detailed in the State Flood Plan, and will:

### Preparedness

- a. Maintain a Local Headquarters at Angles Beach Drive, Ballina in accordance with the NSW SES Controllers' Guide.
- b. Ensure that NSW SES members are trained to undertake operations in accordance with current policy as laid down in the NSW SES Controllers' Guide and the NSW SES Operations Manual.
- c. Coordinate the development and operation of a flood warning service for the community.
- d. Participate in floodplain and coastal risk management initiatives organised by the Ballina Shire Council.
- e. Coordinate a public education program.
- f. Identify and monitor people and/or communities at risk of flooding and coastal erosion.
- g. Ensure that the currency of this plan is maintained.

### Response

- h. Appoint an appropriate Local Incident Controller to undertake response roles. The Incident Controller will:
- i. Control flood and storm response operations. This includes:
  - Directing the activities of the NSW SES units operating within the council area.
  - Coordinating the activities of supporting agencies and organisations and ensuring that liaison is established with them.
  - Contribute to preparation of Region IAP.
- j. Provide an information service in relation to:
  - Flood heights and flood behaviour.
  - Coastal erosion / inundation.
  - Advice on methods of limiting property damage.



- Confirmation of evacuation warnings and evacuation orders.
- k. Direct the conduct of flood rescue operations.
- l. Direct the evacuation of people and/or communities.
- m. Provide immediate welfare support for evacuated people.
- n. Coordinate the provision of emergency food and medical supplies to isolated people and/or communities.
- o. Coordinate operations to protect property, for example by:
  - Arranging resources for sandbagging operations.
  - Lifting or moving household furniture.
  - Lifting or moving commercial stock and equipment.
- p. Arrange for support (for example, accommodation and meals) for emergency service organisation members and volunteers assisting them.
- q. Ensure that the managers of caravan parks are advised of flood warnings and the details of any evacuation order.
- r. If NSW SES resources are available, assist with emergency fodder supply operations conducted by Agricultural and Animal Services.
- s. If NSW SES resources are available, assist the NSW Police Force, RMS and Council with road closure and traffic control operations.
- t. Exercise financial delegations relating to the use of emergency orders as laid down in the NSW SES Controllers' Guide.
- u. Coordinate the collection of flood and coastal erosion/inundation information for development of intelligence.
- v. Submit Situation Reports to the NSW SES Richmond-Tweed Region Headquarters and agencies assisting within the council area. These will contain information on:
  - Current flood behaviour.
  - Current operational activities.
  - Likely future flood behaviour.
  - Likely future operational activities.
  - Probable resource needs.
  - Road conditions and closures as provided by RMS, Council or NSW Police Force.
- w. Keep the Local Emergency Operations Controller advised of the flood situation and the operational response.
- x. Issue the 'All Clear' when flood operations have been completed.

### Recovery resiginate

- y. Ensure that appropriate After Action Reviews are held after floods.
- z. Provide appropriate representation to the recovery committee for the duration of the response phase of an event and as agreed during the recovery phase.

#### 1.5.3 **NSW SES Ballina Unit Members:**

- a. Carry out flood and coastal erosion response tasks. These may include:
  - The management of the NSW SES Ballina Local Headquarters Operations Centres.
  - Assist in the collection of flood and coastal erosion/inundation information for the development of intelligence.
  - Flood rescue.
  - Evacuation.
  - Providing immediate welfare for evacuated people.
  - Delivery of warnings and information.
  - Resupply.
  - Sandbagging.
  - Lifting and/or moving household furniture and commercial stock.
  - Animal rescue.
  - Assisting with road closure and traffic control operations.
  - Assisting with emergency fodder supply operations.
- b. Assist with preparedness activities.
- c. Undertake training in flood and storm response operations.

#### 1.5.4 **Agricultural and Animal Services Functional Area:**

- a. When requested by NSW SES:
  - Activate the Agricultural and Animal Services Supporting Plan as required and coordinate the provision of required services which may include:
    - Supply and delivery of emergency fodder.
    - Coordinate the management of livestock and farm animals.
    - Advice on dealing with dead and injured farm animals.
    - Financial, welfare and damage assessment assistance to flood affected farmers.
    - Operation of animal shelter compound facilities for the domestic pets and companion animals of evacuees.

- b. Forestry Corporation of NSW
    - Close and evacuate at risk camping grounds in Forestry Corporation of NSW managed areas.
- 1.5.5 **The Ambulance Service of NSW:**
  - a. Assist with the evacuation of at risk communities (in particular elderly and/or infirm people).
  - b. Deploy ambulance resources to appropriate locations if access is expected to be lost.
  - c. Assist the NSW SES with flood rescue operations.
- 1.5.6 **Australian Government Bureau of Meteorology (The Bureau):**
  - a. Provide Flood Watches for the Richmond-River River Basin.
  - b. Provide Flood Warnings, incorporating height-time predictions, for Woodburn (ARWC N° 203412).
  - c. Provide severe weather warnings when large waves and/or storm surge conditions are forecast to result in coastal erosion/inundation.
  - d. Provide severe weather warnings when flash flooding is likely to occur.
- 1.5.7 **Ballina Shire Local Emergency Operations Controller (LEOCON):**
  - a. Monitor flood operations.
  - b. Coordinate support to the NSW SES Ballina Local Controller if requested to do so.
- 1.5.8 **Ballina Shire Council Local Emergency Management Officer:**
  - a. Provide executive support to the LEMC and LEOCON in accordance with the Ballina Shire Council Local Emergency Management plan.
  - b. At the request of the NSW SES Ballina Local Controller, advise appropriate agencies and officers of the start of response operations.
- 1.5.9 **Ballina Shire Council:**

**Preparedness**

  - a. Establish and maintain floodplain and coastal risk management committees and ensure that key agencies are represented on such committees.
  - b. Provide levee studies, flood studies, floodplain management studies and coastal management studies to the NSW SES.
  - c. Provide information on the consequences of dam failure to the NSW SES for incorporation into planning and flood intelligence.
  - d. Maintain a plant and equipment resource list for the council area.
  - e. Contribute to the development and implementation of a public education program.

### Response

- f. At the request of the NSW SES Local Controller, deploy personnel and resources for flood and coastal erosion related activities.
- g. Close and reopen council roads (and other roads nominated by agreement with the RMS) and advise the NSW SES Ballina Local Controller and the Police.
- h. Provide information on the status of roads through the website [www.myroadinfo.com.au](http://www.myroadinfo.com.au) with information relating to Ballina LGA road network.
- i. Provide filled sandbags to urban and village areas in which flooding is expected.
- j. Assist with the removal of caravans from caravan parks.
- k. Provide back-up radio communications.
- l. In the event of evacuations, assist with making facilities available for the domestic pets and companion animals of evacuees.
- m. During periods of coastal erosion from ocean storms:
  - Assist the NSW SES with reconnaissance of coastal erosion risk areas.
  - Liaise with the NSW SES Local Controller to provide advice regarding the need for response actions by the NSW SES such as evacuations.
  - Activate the Ballina Shire Council Coastal Zone Management Plan – Emergency Action Plan.

### Recovery

- n. Provide for the management of health hazards associated with flooding. This includes removing debris and waste.
- o. Ensure premises are fit and safe for reoccupation and assess any need for demolition.
- p. Arrange for storage of evacuees' furniture as required.

#### 1.5.10 Caravan Park Proprietors:

- a. Prepare a Flood Management Plan for the Caravan Park.
- b. Install flood depth indicators and road alignment markers within their caravan parks.
- c. Ensure that owners and occupiers of caravans are aware that the caravan park is flood liable by:
  - Handing a printed notice to occupiers taking up residence. The notice will indicate that the caravan park is liable to flooding and outline the evacuation and van relocation arrangements.
  - Displaying this notice prominently in each van.

- d. Ensure that owners and occupiers of caravans are aware that if they are expecting to be absent from their vans for extended periods, they must:
  - Provide the manager with a key; in a sealed envelope; to the van.
  - Provide a contact address and telephone number.
  - Inform the manager if a vehicle will be required to relocate the van during flood time.
  - Leave any mobile van in a condition allowing it to be towed in an emergency (i.e.: tyres inflated, jacks wound up, personal effects secured and annexes and lines for water, sewer, electricity and gas readily detachable).
- e. Ensure that occupiers are informed of Flood Warnings and Flood Watches. At this time, occupiers should be advised to:
  - Ensure that they have spare batteries for their radios.
  - Listen to a local radio station for updated flood information.
  - Prepare for evacuation and van relocation.
- f. Ensure that owners and occupiers of caravans are aware of what they must do to facilitate evacuation and van relocation when flooding occurs. Owners of vans which are incapable of being relocated should ensure they are securely anchored to their site to avoid being swept away.
- g. Coordinate the evacuation of people and the relocation of moveable vans when floods are rising and their return when flood waters have subsided. Vans will be towed back to the caravan park(s) by van owners or by vehicles and drivers arranged by the park managers.
- h. Inform the NSW SES of the progress of evacuation and/or van relocation operations and of any need for assistance in the conduct of these tasks.

**1.5.11 Child Care Centres and Preschools:**

- a. Childcare Centres are to be contacted by the NSW SES in the event of possible flooding or isolation.
- b. When notified the child care centres and preschools should:
  - Liaise with the NSW SES and arrange for the early release of children whose travel arrangements are likely to be disrupted by flooding and/or road closures.
  - Assist with coordinating the evacuation of preschools and child care centres.

**1.5.12 Energy and Utility Services Functional Area:**

- a. When requested by NSW SES:
  - Implement the Energy and Utilities Services Functional Area Supporting Plan.

- Where required, coordinate energy and utility services emergency management planning, preparation, response and recovery, including the restoration of services following a flood event.
- Coordinate advice to the NSW SES of any need to disconnect electricity, gas, water or wastewater services.
- Assist the NSW SES to identify infrastructure at risk of flooding for incorporation into planning and intelligence.
- Identify effects of flooding on utilities and advise the NSW SES.
- Assist the NSW SES with advisory notices relating to hazards from utility services during flooding.
- Coordinate with utilities on restoration of services, including advisory notices relating to estimated time for restoration and mandatory safety checks prior to reconnection. Advise the NSW SES and the relevant recovery committee and coordinator of the timetable for restoration.

b. Local Providers (electricity, gas, water, waste water):

- Provide advice to the NSW SES Ballina Local Controller of any need to disconnect power/gas/water/waste water supplies or of any timetable for reconnection.
- Advise the NSW SES of any hazards from utility services during flooding and coastal erosion/inundation.
- Advise the public with regard to electrical hazards during flooding and coastal erosion/inundation, and to the availability or otherwise of the electricity supply.
- Clear or make safe any hazard caused by power lines or electrical reticulation equipment.
- Inspect, test and reconnect customers' electrical/ gas/ water/waste water installations as conditions allow.
- Assist the NSW SES to identify infrastructure at risk of flooding for incorporation into planning and intelligence.

**1.5.13 Engineering Services Functional Area:**

a. When requested by NSW SES:

- Provide engineering advice regarding the integrity of damaged structures.
- Assist the NSW SES with damage assessment.
- Acquire and/or provide specialist technical engineering expertise.
- Assist the NSW SES and councils with the assessment and operation of flood protection levees when requested.

- Assist with property protection, including the construction or repair of levees.
- Coordinate the restoration of critical public facilities.
- Establish recovery centre facilities.

**1.5.14 Environmental Services Functional Area:**

- a. When requested by NSW SES:
- Implement the Environmental Services Functional Area (Enviroplan) Supporting Plan if required.
  - Activate the Hazmat/CBR Emergency Sub Plan if required.

**1.5.15 Fire and Rescue NSW:**

- a. Meet the agreed arrangements described in the NSW SES/FRNSW MAA
- b. Identify and notify the NSW SES of any locations at risk of fire (within FRNSW prescribed Fire Districts) or hazmat that pose a significant threat to surrounding populations due to the impact of a flood for incorporation into SES flood intelligence and planning;
- c. Assist the SES with the warning and/or evacuation of at risk communities;
- d. Assist the SES with the monitoring / reconnaissance of flood prone areas;
- e. Assist the SES with the resupply of isolated communities and/or properties;
- f. Assist the SES with property protection tasks including sandbagging;
- g. Provide resources for pumping flood water out of buildings and from low-lying areas;
- h. Assist with cleanup operations, including the hosing out of flood affected properties;
- i. Coordinate the deployment of fire resources to communities within FRNSW fire districts if access is expected to be lost in consultation with the NSW SES;
- j. Assist the NSW SES with flood rescue operations;
- k. Activate the Hazmat/CBR Emergency Sub Plan if required.

**1.5.16 Health Services Functional Area:**

- a. When requested by NSW SES:
- Activate Healthplan if required.
  - Ensure that appropriate business continuity plans are developed for essential health infrastructure and are activated during floods.
  - Provide medical support to the NSW SES.

- Establish health surveillance in affected areas.
- Assess potential public health risks that either acutely endanger the health of human populations or are thought to have longer term consequences.
- Provide environmental health advice.
- Provide public health warnings and advice to affected communities.
- Assist the NSW SES with the warning and evacuation of hospitals.

**1.5.17 Marine Rescue NSW:**

- a. Assist the NSW SES with the delivery of evacuation warnings and evacuation orders.
- b. Assist the NSW SES with the conduct of evacuations.

**1.5.18 NSW Office of Water:**

- a. Collect and maintain flood data including data relating to flood heights, velocities and discharges.
- b. Provide the Bureau of Meteorology and NSW SES real-time or near real-time access to river height gauges and height data for the development of official flood warnings.
- c. Provide flow rating charts for river height gauges.
- d. Manage (with technical support from OEH) the approval process under the Water Act 1912 and Water Management Act 2000 for flood control works (earthworks, embankments and levees which can affect the distribution of floodwaters) including:
  - Assessment and approval of flood control works (including flood mitigation works) in rural areas designated under the Acts.
  - Use of floodplain management plans prepared by OEH in rural areas designated under the Acts to assess flood control work approvals.
  - Giving the NSW SES access to relevant studies regarding flooding and studies supporting floodplain management plans prepared by OEH including flood studies, floodplain risk management studies and flood behaviour investigations.

**1.5.19 NSW Police Force, Richmond Local Area Command (LAC):**

- a. Assist the NSW SES with the delivery of evacuation warnings and evacuation orders.
- b. Assist the NSW SES with the conduct of evacuation operations.
- c. Conduct road and traffic control operations in conjunction with council and/or RMS.
- d. Coordinate the registration of evacuees.
- e. Secure evacuated areas.



**1.5.20 NSW Rural Fire Service (Far North Coast Zone):**

- a. Provide personnel in rural areas and villages to:
  - Inform the NSW SES Ballina Local Controller about flood conditions and response needs in their own communities, and
  - Disseminate flood information.
- b. Provide personnel and high-clearance vehicles for flood related activities.
- c. Assist the NSW SES with the delivery of evacuation warnings and evacuation orders.
- d. Assist the NSW SES with the conduct of evacuations.
- e. Provide equipment for pumping flood water out of buildings and from low-lying areas.
- f. Assist with the removal of caravans.
- g. Provide back-up radio communications.
- h. Assist with clean-up operations, including the hosing of flood affected properties.
- i. Deploy fire resources to appropriate locations if access is expected to be lost.

**1.5.21 Office of Environment and Heritage:**

- a. Provide specialist policy, engineering and scientific advice to councils and the NSW SES on flood related matters including assistance with:
  - The identification of flood problems.
  - The preparation of Floodplain Risk Management Plans and associated studies.
  - The implementation of floodplain risk management plans. This involves floodplain management projects which include flood mitigation works, flood warning, strategic land use planning and upgrade of evacuation routes.
  - The exercising of Local Flood Plans.
- b. Provide specialist advice flood related matters as follows:
  - Provide the NSW SES with access to relevant studies regarding flooding, including Flood Studies and Floodplain Risk Management Studies.
  - Coordinate the collection of post event flood data, in consultation with the NSW SES.
  - Provide advice to the NSW SES about conditions which may lead to coastal flooding or retarded river drainage near the coast.

- Collect and maintain flood data relating to flood heights, velocities and discharges in coastal areas of NSW (through a contract with MHL as discussed separately).
- Provide data to the Bureau of Meteorology and NSW SES real-time or near real-time access to river height gauges and height data for the development of official flood warnings (through a contract with MHL as described in the Response section of this plan).

c. **National Parks and Wildlife Service**

- Close and evacuate at risk camping grounds in National Parks managed areas.

1.5.22 **Private Companies, Blanch's Bus Service:**

- a. Assist with the provision of:
- Bus transport and drivers for evacuation, resupply or commuting purposes.

1.5.23 **Public Information Services Functional Area:**

- a. When requested by NSW SES:
- Assist the NSW SES in the establishment and operation of a Joint Media Information Centre.

1.5.24 **Roads and Maritime Services** will:

- Close and reopen the RMS owned roads when affected by flood waters and advise the NSW SES of their status.
- Facilitate the safe reliable access of emergency resources on RMS managed roads.
- Assist the NSW SES with identification of road infrastructure at risk of flooding.
- Manage traffic.
- Assist the NSW SES with the communication of warnings and information provision to the public through variable message signs.

1.5.25 **School Administration Offices (including Catholic Education Office Lismore, Department of Education & Communities, North Coast and Private Schools):**

- a. Liaise with the NSW SES and arrange for the early release of students whose travel arrangements are likely to be disrupted by flooding and/or road closures (or where required, for students to be moved to a suitable location until normal school closing time).
- b. Pass information to school bus drivers/companies and/or other schools on expected or actual impacts of flooding.
- c. Assist with coordinating the evacuation of schools when flooding or isolation is expected to occur.
- d. Provide space in schools for evacuation centres where necessary.

**1.5.26 Service and Sporting Clubs, Ballina 4WD Club:**

- a. Assist with:
  - Delivery of evacuation warnings.
  - Conduct of evacuations.
  - Lifting and/or moving household furniture and commercial stock.
  - Sandbagging.
  - Relocation of caravans.

**1.5.27 Surf Life Saving NSW:**

- a. Assist the NSW SES with the warning and/or evacuation of at risk communities;
- b. Provide space in Surf Life Saving facilities for evacuation centres where required; and
- c. Assist the NSW SES with flood rescue operations.

**1.5.28 Telecommunication Services Functional Area:**

- a. When requested by NSW SES:
  - Coordinate the restoration of telephone facilities damaged by flooding.
  - Coordinate additional telecommunications support for the NSW SES Headquarters as required.
  - Assist the NSW SES to identify infrastructure at risk of flooding for incorporation into planning and intelligence.

**1.5.29 Transport Services Functional Area:**

- a. When requested by NSW SES:
  - Assist with the coordination of transport for evacuation purposes.
  - Assist with the resupply of isolated communities and/or properties.

**1.5.30 Welfare Services Functional Area:**

- a. When requested by NSW SES:
  - Establish and manage evacuation centres, and provide disaster welfare services from recovery centres.
  - Administer the Personal Hardship and Distress component of the NSW Disaster Relief Scheme established to provide financial assistance to people affected by emergencies.

**1.5.31 Owners of Prescribed Dams within or upstream of Ballina:**

Dam	Owner
Emigrant Creek Dam	Rous Water

- a. Maintain and operate the Dam Failure Warning System for their Dam(s).
- b. Contribute to the development and implementation of a public education program on flooding within the council area.
- c. Consult with NSW SES on the determination of dam failure alert levels and notification arrangements when developing Dam Safety Emergency Plans.
- d. Maintain a Dam Safety Emergency Plan and provide copies to the NSW SES.
- e. Provide information on the consequences of dam failure to the NSW SES for incorporation into planning and flood intelligence.

**1.5.32 Jali Land Council (Cabbage Tree Island)**

- a. Act as the point of contact between the NSW SES and the Jali community and:
  - Inform the NSW SES Ballina Local Controller about flood conditions and response needs.
  - Disseminate flood information, including flood and evacuation warnings, to the Jali community on Cabbage Tree Island.

**1.5.33 Lennox Head (Ross Lane) and Teven Flood Warden Network:**

- a. Provide flood information to the NSW SES Ballina Local Controller.
- b. Distribute flood warnings and flood information provided by the NSW SES Ballina Local Controller.

## **PART 2 - PREPAREDNESS**

### **2.1 MAINTENANCE OF THIS PLAN**

- 2.1.1 The NSW SES Ballina Local Controller will maintain the currency of this plan by:
- a. Ensuring that all agencies, organisations and officers mentioned in it are aware of their roles and responsibilities.
  - b. Conducting exercises to test arrangements.
  - c. Reviewing the contents of the plan:
    - After each flood operation.
    - When significant changes in land-use or community characteristics occur.
    - When new information from flood studies become available.
    - When flood control or mitigation works are implemented or altered.
    - When there are changes that alter agreed plan arrangements.
- 2.1.2 The plan is to be reviewed no less frequently than every five years.

### **2.2 FLOODPLAIN AND COASTAL RISK MANAGEMENT**

- 2.2.1 The NSW SES Ballina Local Controller will ensure that:
- a. NSW SES participates in local floodplain and coastal risk management committee activities when those committees are formed, in accordance with the protocols outlined in the NSW SES Controllers' Guide.
  - b. The NSW SES Richmond-Tweed Region Headquarters is informed of involvement in floodplain and coastal risk management activities.

### **2.3 DEVELOPMENT OF FLOOD INTELLIGENCE**

- 2.3.1 Flood intelligence describes flood behaviour and its effects on the community.
- 2.3.2 The NSW SES maintains a centralised flood intelligence system.

### **2.4 DEVELOPMENT OF WARNING SYSTEMS**

- 2.4.1 The NSW SES may establish a total flood warning system for areas affected by flooding. This requires:
- a. An identification of the potential clients of flood warning information at different levels of flooding (i.e. who would be affected in floods of differing severities).
  - b. Available information about the estimated impacts of flooding at different heights.

- c. Identification of required actions and the amounts of time needed to carry them out.
  - d. Appropriate means of disseminating warnings to different clients and at different flood levels.
- 2.4.2 Council and the Bureau have installed an ENVIROMON computer system to monitor water levels in the Richmond Valley and Teven Valley catchments. Data gathered is used by the BoM in the development of Flood Watch and Flood Warning products.

## **2.5 PUBLIC EDUCATION**

- 2.5.1 The NSW SES Ballina Local Controller, with the assistance of the Ballina Shire Council, the NSW SES Richmond-Tweed Region Headquarters and NSW SES State Headquarters, is responsible for ensuring that the residents of the LGA are aware of the flood threat in their vicinity and how to protect themselves from it.
- 2.5.2 Specific strategies to be employed include:
  - a. Dissemination of flood-related brochures and booklets in flood liable areas.
  - b. Dissemination of coastal erosion related brochures in coastal erosion liable areas.
  - c. Talks and displays orientated to community organisations, businesses and schools.
  - d. Publicity given to this plan and to flood-orientated NSW SES activities through local media outlets, including articles in local newspapers about the flood threat and appropriate responses.

## **2.6 TRAINING**

- 2.6.1 Throughout this document there are references to functions that must be carried out by the members of the NSW SES Ballina Unit. The NSW SES Ballina Local Controller is responsible for ensuring that the members are:
  - a. Familiar with the contents of this plan.
  - b. Trained in the skills necessary to carry out the tasks allocated to the NSW SES.

## **2.7 RESOURCES**

- 2.7.1 The NSW SES Ballina Local Controller is responsible for maintaining the condition and state of readiness of NSW SES equipment and the NSW SES Ballina Local Headquarters.

## PART 3 - RESPONSE

### CONTROL

#### 3.1 CONTROL ARRANGEMENTS

- 3.1.1 The NSW SES is the legislated Combat Agency for floods and is responsible for the control of flood operations. This includes the coordination of other agencies and organisations for flood management tasks.
- 3.1.2 The NSW SES is the designated Combat Agency for damage control for storms. This includes damage control for coastal erosion and inundation from storm activity, specifically the protection of life and the coordination of the protection of readily moveable household goods and commercial stock and equipment. The NSW SES is not responsible for planning or conduct of emergency beach protection works or other physical mitigation works.
- 3.1.3 The Local EMPLAN will operate to provide support as requested by the NSW SES Local Incident Controller.

#### 3.2 OPERATIONAL MANAGEMENT

- 3.2.1 NSW SES utilises the Australasian Inter-service Incident Management System (AIIMS), which is based on three principles:
  - a. Functional management;
  - b. Management by objectives; and
  - c. Span of control.
- 3.2.2 AIIMS provides for different incident levels based on the complexity of management.
- 3.2.3 The Local Government Area may be divided into sectors and divisions to manage the flood and/or coastal erosion event (divisions are usually a group of sectors).
- 3.2.4 Sectors and divisions may be based on floodplain classifications, geographical, physical or functional boundaries. A town, city or suburb may be one sector or split into several sectors and divisions.

#### 3.3 START OF RESPONSE OPERATIONS

- 3.3.1 This plan is always active to ensure that preparedness actions detailed in this plan are completed.
- 3.3.2 Response operations will begin:
  - a. On receipt of a Bureau of Meteorology Preliminary Flood Warning, Flood Warning, Flood Watch, Severe Thunderstorm Warning or a Severe Weather Warning for flash flooding or severe ocean conditions.

- b. On receipt of a dam failure alert.
  - c. When other evidence leads to an expectation of flooding or coastal erosion within the council area.
- 3.3.3 Contact with the Bureau of Meteorology to discuss the development of flood warnings will normally be through the NSW SES Richmond-Tweed Region Headquarters and/or NSW SES State Headquarters.
- 3.3.4 The following persons and organisations will be advised of the start of response operations regardless of the location and severity of the flooding anticipated:
  - a. NSW SES Richmond-Tweed Region Headquarters.
  - b. NSW SES Ballina Unit Controller.
  - c. Ballina Shire Council Local Emergency Operations Controller (for transmission to the NSW Police Force Local Area Command Headquarters).
  - d. Ballina Shire Council Local Emergency Management Officer (for transmission to appropriate council officers and departments).
  - e. Ballina Shire Council Mayor.
  - f. Other agencies listed in this plan will be advised by the Local Emergency Management Officer on the request of the NSW SES Ballina Local Incident Controller and as appropriate to the location and nature of the threat.

### **3.4 RESPONSE STRATEGIES**

- 3.4.1 The main response strategies for NSW SES flood operations include:
  - a. Information Provision and Warning
    - Provision of warnings, information and advice to communities.
    - Inform the community regarding the potential impacts of a flood and what actions to undertake in preparation for flooding.
    - Inform the community regarding the potential impacts of coastal erosion and what preparatory actions to undertake.
    - Provide timely and accurate information to the community.
  - b. Property protection
    - Protect the property of residents and businesses at risk of flood damage.
    - Assistance with property protection by way of sandbagging and the lifting or transporting of furniture, personal effects, commercial stock and caravans.



- Assistance with the relocation of readily moveable household goods and commercial stock and equipment from properties threatened by coastal erosion.
  - Assistance with the protection of essential infrastructure.
  - c. Evacuation
    - The temporary movement of people from a dangerous or potentially dangerous place to a safe location, and their eventual return. It is a safety strategy which uses distance to separate people from the danger created by the hazard.
  - d. Rescue
    - The rescue or retrieval of persons trapped by floodwaters.
  - e. Resupply
    - Minimise disruption upon the community by resupplying towns and villages which have become isolated as a consequence of flooding.
    - Ensure supplies are maintained to property owners by coordinating the resupply of properties which have become isolated as a consequence of flooding.
- 3.4.2 The NSW SES Local Incident Controller will select the appropriate response strategy to deal with the expected impact of the flood in each sector and/or community. The impact may vary so a number of different strategies may need to be selected and implemented across the whole operational area. The available strategies for each sector and/or community are maintained by the NSW SES.
- 3.4.3 Supporting strategies may include:
- a. Protect the community from incidents involving fire and hazardous materials.
  - b. Maintain the welfare of communities and individuals affected by the impact of a flood.
  - c. Minimise disruption to the community by ensuring supply of essential energy and utility services.
  - d. Ensure coordinated health services are available to and accessible by the flood affected communities.
  - e. Maintain the welfare of animals affected by the impact of a flood.

### **3.5 OPERATIONS CENTRES**

- 3.5.1 The NSW SES Ballina Operations Centre is located at Angles Beach Drive, Ballina, NSW, 2478
- 3.5.2 The Ballina Shire Council Emergency Operations Centre is located at Council Waste Management Centre, Southern Cross Drive, North Ballina, NSW, 2478.

### 3.6 LIAISON

- 3.6.1 Any agency with responsibilities identified in this plan may be requested by the NSW SES to provide liaison (including a liaison officer where necessary) to the NSW SES Ballina Operations Centre.
- 3.6.2 Liaison officers are to:
- Have the authority to deploy the resources of their parent organisations at the request of the NSW SES Ballina Local Incident Controller,
  - Advise the NSW SES Ballina Local Incident Controller on resource availability for their service, and
  - Be able to provide communications to their own organisations.

### 3.7 END OF RESPONSE OPERATIONS

- 3.7.1 When the immediate danger to life and property has passed, the NSW SES Region Incident Controller or the NSW SES Local Incident Controller will issue an 'All Clear' message signifying that response operations have been completed. The message will be distributed through the same media outlets as earlier evacuation messages. The relevant Controller will also advise details of recovery coordination arrangements, arrangements made for clean-up operations prior to evacuees being allowed to return to their homes, and stand-down instructions for agencies not required for recovery operations.

## PLANNING

### 3.8 COLLATING SITUATIONAL INFORMATION

#### Strategy

- 3.8.1 The NSW SES maintains and records situational awareness of current impacts and response activities.

#### Actions

- 3.8.2 The NSW SES Ballina Local Headquarters collates information on the current situation in the Ballina Shire Council LGA and incorporates in Situation Reports.
- 3.8.3 The NSW SES Richmond-Tweed Region Headquarters collates Region-wide information for inclusion in NSW SES Regional Situation Reports.
- 3.8.4 Sources of situational information during times of flooding are:
- Agency Situation Reports.** Agencies and functional areas provide regular situation reports (SITREPs) to the NSW SES.
  - Active Reconnaissance.** The NSW SES Ballina Local Incident Controller is responsible for coordinating the reconnaissance of impact areas, recording and communicating observations. Reconnaissance can be

performed on the ground and using remote sensing (more commonly aerial). The NSW SES monitors the following problem areas:

- Cabbage Tree Island and its evacuation routes.
  - Tintenbar Valley
  - Teven Valley
  - Meerschaum Vale
  - Wardell
  - Urallba
- c. The **Bureau of Meteorology's Flood Warning Centre** provides river height and rainfall information, data is available on the website <http://www.bom.gov.au/nsw/flood/>
- d. **Manly Hydraulics Laboratory (a business unit within NSW Public Works)** automated river watch system funded by the Office of Environment and Heritage. This system provides river height and rainfall readings for a number of gauges in the Ballina Shire Council LGA. Recent data from this system is available on the Manly Hydraulic Laboratory website: <http://www.mhl.nsw.gov.au>. A history of area floods is also available upon request via the website.
- e. **NSW Office of Water.** This office advises flow rates and rates of rise for the Richmond River. Daily river reports containing information on gauge heights and river flows are available from the website: <http://waterinfo.nsw.gov.au/>
- f. **Emigrant Creek Dam Storage Monitoring System.** This system provides information on Emigrant Creek Dam.
- g. **NSW SES Richmond-Tweed Region Headquarters.** The Region Headquarters provides information on flooding and its consequences, including those in nearby council areas (this information is documented in Bulletins and Situation Reports).
- h. **Ballina Shire Council.**
- 3.8.5 During flood operations sources of information on roads closed by flooding include:
- a. Ballina Shire Council: [www.myroadinfo.com.au](http://www.myroadinfo.com.au)
  - b. NSW Police Force
  - c. Roads and Maritime Services (website and/or telephone service).
  - d. NSW SES Richmond-Tweed Region Headquarters.
  - e. NSW SES Ballina Local Headquarters.
- 3.8.6 Situational information relating to consequences of flooding and/or coastal erosion should be used to verify and validate NSW SES Flood Intelligence records.

### 3.9 PROVISION OF FLOOD INFORMATION AND WARNINGS

#### Strategy

- 3.9.1 The NSW SES Ballina Local Headquarters provides advice to the NSW SES Richmond-Tweed Region Headquarters on current and expected impacts of flooding in the Ballina Shire Council LGA.
- 3.9.2 The NSW SES Richmond-Tweed Region Headquarters issues NSW SES Flood Bulletins, NSW SES Livestock and Equipment Warnings, Evacuation Warnings and Evacuation Orders to media outlets and agencies on behalf of all NSW SES units in the Region.

#### Actions

- 3.9.3 The NSW SES Ballina Local Incident Controller will ensure that the NSW SES Richmond-Tweed Region Incident Controller is regularly briefed on the progress of operations.
- 3.9.4 NSW SES Ballina Local Headquarters operations staff will be briefed regularly so that they can provide information in response to inquiries received in person or by other means such as phone or fax.
- 3.9.5 **Bureau of Meteorology Severe Thunderstorm Warning.** These are issued direct to the media by the Bureau when severe thunderstorms are expected to produce dangerous or damaging conditions, including flash flooding. Severe thunderstorms are usually smaller in scale than events covered by Flood Watches and Severe Weather Warnings.
- 3.9.6 **Bureau of Meteorology Severe Weather Warnings for Flash Flooding.** These are issued direct to the media by the Bureau and provide a warning of the possibility for flash flooding as a result of intense rainfall. These warnings are issued when severe weather is expected to affect land based communities with 6 to 24 hours. Severe Weather Warnings may also include other conditions such as Damaging Surf, Dangerous Surf or tides, or Damaging Winds.
- 3.9.7 **Bureau of Meteorology Flood Watches.** Flood Watches are issued by the Bureau to advise people of the potential for flooding in a catchment area based on predicted or actual rainfall. Flood Watches will be included in NSW SES Flood Bulletins issued by the NSW SES Richmond-Tweed Region Headquarters.
- 3.9.8 **Bureau of Meteorology Flood Warnings.** The NSW SES Richmond-Tweed Region Headquarters will send a copy of Bureau Flood Warnings to the NSW SES Ballina Unit. On receipt the NSW SES Local Incident Controller will provide the NSW SES Richmond-Tweed Region Headquarters with information on the estimated impacts of flooding at the predicted heights for inclusion in NSW SES Region Flood Bulletins.
- 3.9.9 **NSW SES Livestock and Equipment Warnings.** Following heavy rain or when there are indications of significant creek or river rises (even to levels below Minor Flood heights), the NSW SES Ballina Local Incident Controller will advise

- the NSW SES Richmond-Tweed Region Headquarters which will issue NSW SES Livestock and Equipment Warnings.
- 3.9.10 **NSW SES Local Flood Advices.** The NSW SES Local Incident Controller may issue Local Flood Advices for locations not covered by Bureau Flood Warnings. They may be provided verbally in response to phone inquiries but will normally be incorporated into NSW SES Region Flood Bulletins.
- 3.9.11 **NSW SES Flood Bulletins.** The NSW SES Richmond-Tweed Region Headquarters will regularly issue NSW SES Flood Bulletins which describe information on the estimated impacts of flooding at the predicted heights (using information from Bureau Flood Warnings and NSW SES Local Flood Advices) to NSW SES units, media outlets and agencies on behalf of all NSW SES units in the Region. When operations relating to coastal erosion/inundation are being undertaken, NSW SES Region Bulletins will contain information and advice about property damage mitigation measures and evacuation in affected areas.
- 3.9.12 **NSW SES Evacuation Warnings and Evacuation Orders.** These are usually issued to the media by the NSW SES Region Incident Controller on behalf of the NSW SES Local Incident Controller.
- 3.9.13 **Special Warnings. Teven Special Warning System:** Ballina Shire Council has facilitated the installation of an Alert Flood warning system on Maguires Creek to provide warnings of impending flash flooding in the Teven Valley. The system provides real time rainfall and stream level information direct to the NSW SES Ballina local headquarters and will provide direct warning to NSW SES and residents by phone. Details of this warning system are included in the Ballina NSW SES Standing Operating Procedures. Copies are also held by each person involved in the telephone warning system. The NSW SES Ballina SES Local Controller updates contact details for this system at least annually.
- 3.9.14 **Emigrant Creek Dam Failure Warning System.** The Rous County Council and the Ballina NSW SES have developed a special warning system for residents downstream of the Emigrant Creek Dam. Monitoring devices at the spillway trigger an alarm monitored by North Coast Monitoring Service - a security firm. They then advise the Ballina NSW SES, Ballina Police Station and the Rous County Council and remain on standby to assist with further distribution of warnings. The Ballina NSW SES telephones three residents who, in turn, telephone five others each and warn them of the need to evacuate. The residents will then evacuate to designated locations. Details of this warning system are included in the Ballina NSW SES Standing Operating Procedures. Copies are also held by each person involved in the telephone warning system. The NSW SES Ballina Local Controller updates contact details for this system at least annually.
- 3.9.15 **Dam Failure Alerts.** Dam failure alerts are issued to NSW SES by the dam owner, in accordance with arrangements in the Dam Safety Emergency Plan (DSEP), the system involves the Dam Owner notifying NSW SES State Headquarters Operations Communications Centre, who in turn distribute the

warning to the NSW SES Region Headquarters and NSW SES Unit Headquarters.

- 3.9.16 A flow chart illustrating the notification arrangements for potential dam failure is shown in Attachment 2.
- 3.9.17 Dam failure alert levels are set in consultation with the NSW SES and are used to trigger appropriate response actions. The conditions that define each of the alert levels are listed in the relevant DSEP. Responses escalate as the alert level migrates from white to amber to red. Table 1 briefly outlines example defining conditions and appropriate NSW SES responses associated with each alert.

Alert Level	Example Defining Condition	NSW SES Response	NSW SES Warning Product
White	May be a structural anomaly.  May be increased monitoring in response to a heavy rainfall event	Implements notification flowchart.  Check operational readiness.	This is a preliminary alert to assist the NSW SES in its preparation. This is not a public alert.
Amber	Failure possible if storage level continues to rise or structural anomaly not fixed	Implements notification flowchart.  Warn downstream population at risk to prepare to evacuate	NSW SES Evacuation Warning
Red	Failure imminent or occurred	Implements notification flowchart.  Evacuation of downstream populations	NSW SES Evacuation Order

**Table 1: Dam Failure Alert Levels**

Note: Some DSEPs will have alert levels that proceed directly from White to Red. This is the case if adequate time does not exist between the three alert levels to evacuate the downstream population at risk. The decision to omit the Amber Alert level, and the general setting of Alert levels should be undertaken in consultation with the NSW SES.

- 3.9.18 The NSW SES / Dam Owner will disseminate warnings to the population at risk of dam failure (these arrangements are specific to each dam, are negotiated between the Dam Owner and NSW SES, and are documented in the DSEP).
- 3.9.19 **Standard Emergency Warning Signal (SEWS).** This signal may be played over radio and television stations to alert communities to Evacuation Warnings, Evacuation Orders, Special Warnings or Dam-Failure Warnings. Approval to use the signal is associated with who approves the warning/order message.
- 3.9.20 **The Public Information and Inquiry Centre (PIIC)** (operated by the NSW Police Force) will answer calls from the public regarding registered evacuees.

- 3.9.21 **The Disaster Welfare Assistance line** is a central support and contact point for disaster affected people inquiring about welfare services advice and assistance.
- 3.9.22 **The RMS Transport Information Line** will provide advice to callers on the status of roads. The RMS website also lists road closure information.
- 3.9.23 **Ballina Shire Council** will provide information on the status of roads.
- 3.9.24 Collation and dissemination of road information is actioned as follows:
- a. As part of Situation Reports, the NSW SES Ballina Local Incident Controller provides road status reports for main roads in the council area to the NSW SES Richmond-Tweed Region Headquarters.
  - b. The NSW SES Richmond-Tweed Region Headquarters distributes information on main roads to NSW SES units, media outlets and agencies as part of NSW SES Flood Bulletins.

## OPERATIONS

### 3.10 AIRCRAFT MANAGEMENT

- 3.10.1 Aircraft can be used for a variety of purposes during flood operations including evacuation, rescue, resupply, reconnaissance and emergency travel.
- 3.10.2 Air support operations will be conducted under the control of the NSW SES Region Headquarters, which may allocate aircraft to units if applicable.
- 3.10.3 NSW SES maintains the following information for the Ballina Shire Council LGA:
- a. Locations of suitable helicopter landing points.
  - b. Locations of suitable airports and records detailing aircraft size and type that can land at airports.
  - c. Intelligence on when access to these locations is expected to be lost.

### 3.11 ASSISTANCE FOR ANIMALS

- 3.11.1 Matters relating to the welfare of livestock, companion animals and wildlife are to be referred to Agricultural and Animal Services.
- 3.11.2 Requests for emergency supply and/or delivery of fodder to stranded livestock, or for livestock rescue, are to be referred to Agricultural and Animal Services.
- 3.11.3 Requests for animal rescue should be referred to the NSW SES.

### 3.12 COMMUNICATION SYSTEMS

- 3.12.1 The primary means of communications between fixed locations is by telephone, email and facsimile.

- 3.12.2 The primary means of communication to and between deployed NSW SES resources is by GRN compatible radio, and mobile phone.
- 3.12.3 All liaison officers will provide their own communication links back to their parent agencies.
- 3.12.4 All other organisations will provide communications as necessary to their deployed field teams.
- 3.12.5 Back-up communications are provided as follows:
  - a. NSW Rural fire Service (RFS) Radio Network
  - b. Ballina Shire Council Radio Network

### **3.13 PRELIMINARY DEPLOYMENTS**

- 3.13.1 When flooding is expected to be severe enough to cut road access to towns, within towns and/or rural communities, the NSW SES Ballina Local Incident Controller will ensure that resources are in place for the distribution of foodstuffs and medical supplies to the areas that could become isolated.
- 3.13.2 When access between locations is expected to be cut, the NSW SES Ballina Local Incident Controller will advise appropriate agencies so that resources (including sandbags, fire fighting appliances, ambulances, etc.) are deployed to ensure that operational capability is maintained.

### **3.14 ROAD AND TRAFFIC CONTROL.**

- 3.14.1 A number of roads within the council area are affected by flooding. NSW SES maintains details of these roads.
- 3.14.2 The Ballina Shire Council closes and re-opens its own roads as well as the Pacific Highway or Bruxner Highway, if resources allow, at the request of RMS.
- 3.14.3 The NSW Police Force has the authority to close and re-open roads but will normally only do so (if the Council or the RMS have not already acted) if public safety requires such action.
- 3.14.4 The Ballina Shire Council operates the following vehicular ferries:
  - a. South Ballina Ferry
- 3.14.5 When resources permit, the NSW SES assists Council, RMS or the Police by erecting road closure signs and barriers.
- 3.14.6 In flood events, the NSW SES Ballina Local Incident Controller may direct the imposition of traffic control measures. The entry into flood affected areas will be controlled in accordance with the provisions of the State Emergency Service Act, 1989 (Part 5, Sections 19, 20, 21 and 22) and the NSW Police Force under provisions of the State Emergency Rescue Management Act, 1989 (Part 4, Sections 60KA, 60L and 61).
- 3.14.7 Police, RMS or Council officers closing or re-opening roads or bridges affected by flooding are to advise the NSW SES Ballina Local Headquarters, which will



then provide a road information service to local emergency services, the public and the NSW SES Richmond Tweed Region Headquarters. All such information will also be passed to the Police, RMS and the Council.

### **3.15 STRANDED TRAVELLERS**

- 3.15.1 Flood waters can strand travellers. Travellers seeking assistance will be referred to the Welfare Services Functional Area for the arrangement of emergency accommodation.

### **3.16 MANAGING PROPERTY PROTECTION OPERATIONS**

#### **Strategy**

- 3.16.1 Protect the property of residents and businesses at risk of flood damage.

#### **Actions**

- 3.16.2 The NSW SES is the responsible agency for the coordination of operations to protect property.
- 3.16.3 Property may be protected from floods by:
- a. Lifting or moving of household furniture.
  - b. Lifting or moving commercial stock and equipment.
  - c. Sandbagging to minimise entry of water into buildings.
- 3.16.4 The NSW SES maintains stocks of sandbags.
- 3.16.5 Property protection options are however very limited in the Ballina Shire Council LGA due to the large number of properties that can be affected and the depth of floodwaters arising from severe flooding on the Richmond River.
- 3.16.6 Property protection measures for the threat of coastal erosion involves the relocation of readily moveable household goods and commercial stock and equipment. The NSW SES is not responsible for planning or conduct of emergency beach protection works or other physical mitigation works.

### **3.17 MANAGING FLOOD RESCUE OPERATIONS**

#### **Strategy**

- 3.17.1 Rescue of people from floods.

#### **Actions**

- 3.17.2 The NSW SES Ballina Local Incident Controller controls flood rescue in Ballina Shire Council LGA.
- 3.17.3 Flood rescues, may be carried out by accredited units in accordance with appropriate standards.

- 3.17.4 Additional flood boats and crews can be requested through the NSW SES Richmond-Tweed Region Headquarters.
- 3.17.5 There may be some residual population which did not evacuate during the early stages of flooding and which require rescue.

### **3.18 MANAGING EVACUATION OPERATIONS**

#### **Strategy**

- 3.18.1 When there is a risk to public safety, evacuation is the primary strategy. Circumstances may include:
- a. Evacuation of people when their homes or businesses are likely to flood.
  - b. Evacuation of people who are unsuited to living in isolated circumstances, due to flood water closing access.
  - c. Evacuation of people where essential energy and utility services are likely to fail, have failed or where buildings have been made uninhabitable.
  - d. Evacuation of people when their homes or business are at threat of collapse from coastal erosion.

#### **Actions**

- 3.18.2 The evacuation operation will have the following stages:
- a. Decision to evacuate.
  - b. Mobilisation (mobilisation may begin prior to the decision to evacuate).
  - c. Evacuation Warning delivery.
  - d. Evacuation Order delivery.
  - e. Withdrawal.
  - f. Shelter.
  - g. Return.
- 3.18.3 During floods evacuations will be controlled by the NSW SES. Small-scale evacuations will be controlled by the NSW SES Ballina Local Incident Controller. Should the scale of evacuation operations be beyond the capabilities of local resources control may be escalated to the NSW SES Richmond-Tweed Region Incident Controller.

#### **Decision to evacuate**

- 3.18.4 In most cases the decision to evacuate rests with the NSW SES Ballina Local Incident Controller who exercises his/her authority in accordance with Section 22(1) of The State Emergency Service Act 1989. However, the decision to evacuate will usually be made after consultation with the NSW SES Richmond-Tweed Region Incident Controller and the Local Emergency Operations Controller.

- 3.18.5 In events that require large scale evacuations, the decision to evacuate may be escalated to the Region or the State Incident Controller.
- 3.18.6 Some people will make their own decision to evacuate earlier and move to alternate accommodation, using their own transport. This is referred to as self-motivated evacuation.

### **Mobilisation**

- 3.18.7 The NSW SES Local Incident Controller will mobilise the following to provide personnel for doorknock teams for designated Sectors/locations:
- NSW SES Ballina Unit members.
  - FRS Ballina District members via the RFS Far North Coast Zone.
  - Local Police Force officers.
- 3.18.8 The NSW SES Richmond-Tweed Region Incident Controller will mobilise any additional personnel required to assist with doorknock teams using:
- NSW SES members from the NSW SES Richmond-Tweed Region and surrounding NSW SES Regions.
  - FRNSW personnel arranged via the FRNSW Liaison Officer located at NSW SES Richmond-Tweed Region Headquarters.
  - RFS personnel arranged via the RFS Liaison Officer located at NSW SES Richmond-Tweed Region Headquarters.
- 3.18.9 The NSW SES Local Incident Controller will request the Ballina Council Local Emergency Management Officer to provide Council personnel to assist with traffic coordination within Sector(s)/Community.
- 3.18.10 The NSW SES Local Incident Controller will arrange liaison officers for Sector Command Centres.
- 3.18.11 The NSW SES Richmond-Tweed Region Operations Controller will mobilise the required number of buses for Sectors via the Transport Services Functional Area Coordination Centre.

### **Delivery of Evacuation Warnings and Evacuation Orders**

- 3.18.12 The NSW SES will advise the community of the requirements to evacuate. The NSW SES will issue an **Evacuation Warning** when the intent of an NSW SES Incident Controller is to warn the community of the need to prepare for a possible evacuation.
- 3.18.13 The NSW SES will issue an **Evacuation Order** when the intent of the NSW SES Incident Controller is to instruct a community to immediately evacuate in response to an imminent threat.
- 3.18.14 The NSW SES Local Incident Controller will distribute Evacuation Warnings and Evacuation Orders to:
- Sector/Division Command Centres (where established).

- b. Ballina Shire Council Local Emergency Operations Centre.
  - c. Ballina Shire Council.
  - d. Richmond Police Local Area Command.
  - e. Rural Fire Service Far North Coast Zone
  - f. Radio Stations.
  - g. Other local agencies and specified individuals.
- 3.18.15 The NSW SES Richmond-Tweed Region Incident Controller will distribute Evacuation Warnings and Evacuation Orders to:
- a. The NSW SES State Operations Centre.
  - b. The NSW SES Ballina Local Incident Controller.
  - c. Affected communities via dial-out warning systems where installed or applicable.
  - d. Relevant media outlets and agencies.
- 3.18.16 Evacuation Warnings and Evacuation Orders may be delivered through:
- a. Radio and television stations.
  - b. Doorknocking by emergency service personnel.
  - c. Public address systems (fixed or mobile).
  - d. Telephony-based systems (including Emergency Alert).
  - e. Two-way Radio.
- 3.18.17 The Standard Emergency Warning Signal (SEWS) may be used to precede all Evacuation Orders broadcast on Radio Stations.
- 3.18.18 Sector Command Centres, where established, will distribute Evacuation Orders via Emergency Service personnel in doorknock teams to areas under threat of inundation.
- 3.18.19 Doorknock teams will work at the direction of:
- a. The Sector Commander if a Sector Command Centre is established; or
  - b. The relevant Division Commander where a Sector Command Centre has not been established; or
  - c. The Local Incident Controller.
- 3.18.20 Field teams conducting doorknocks will record and report back the following information to their Sector Commander/Division Commander/Local Incident Controller:
- a. Addresses and locations of houses doorknocked and/or evacuated.
  - b. The number of occupants.

- c. Details of support required (such as transport, medical evacuation, assistance to secure house and/or property and raise or move belongings).
  - d. Details of residents who refuse to comply with the Evacuation Order.
- 3.18.21 Refusal to evacuate. Field teams cannot afford to waste time dealing with people who are reluctant or refuse to comply with any Evacuation Order. These cases are to be referred to the NSW Police Force.

## Withdrawal

- 3.18.22 Evacuations will generally be carried out in stages starting from the lowest areas, low flood islands and low trapped perimeters; and progressively from higher areas.
- 3.18.23 The most desirable method of evacuation is via road using private transport. This may be supplemented by buses for car-less people. However, other means of evacuation may also be used if available and as necessary (e.g. by foot, rail, air).
- 3.18.24 Evacuees who require emergency accommodation or disaster welfare assistance will be directed to designated evacuation centres. Evacuees who have made their own accommodation arrangements will not be directed to evacuation centres. It is not possible to determine in advance how many will fall into this category.
- 3.18.25 Evacuees will:
- a. Move under local traffic arrangements from the relevant Sectors/Community via managed evacuation routes.
  - b. Continue along the suburban/regional/rural road network to allocated Evacuation Centres.
- 3.18.26 **Health Services.** The Health Services Functional Area will coordinate the evacuation of hospitals, health centres and aged care facilities (including nursing homes).
- 3.18.27 **Schools.** School administration offices (Department of Education and Communities, Catholic Education Office and Private Schools) will coordinate the evacuation of schools if not already closed.
- 3.18.28 If there is sufficient time between the start of response operations and the evacuation of communities, the NSW SES Richmond-Tweed Region Incident Controller will discuss the temporary closure of appropriate schools with the Regional Director, [insert Region name] North Coast Region, Department of Education and Communities. This will enable pupils to stay at home or be returned home so they can be evacuated (if required) with their families.
- 3.18.29 Note that in the Ballina Shire Council LGA, school principals may close some schools affected by flooding in the early stages of flooding.
- 3.18.30 **Caravan parks.** When an evacuation order is given occupiers of non-movable vans should:

- a. Secure their vans by tying them down to prevent flotation.
  - b. Isolate power to their vans.
  - c. Collect personal papers, medicines, a change of clothing, toiletries and bedclothes.
  - d. Lift the other contents of their vans as high as possible within the van.
  - e. Move to a designated evacuation centre if they have their own transport, or move to the caravan office to await transport.
- 3.18.31 Where possible, vans that can be moved will be relocated by their owners. Park managers will arrange for the relocation of mobile vans whose owners do not have a vehicle. Council and NSW SES personnel will assist if required and may be able to provide additional vehicles.
- 3.18.32 Caravan park managers will ensure that their caravan park is capable of being evacuated within the allocated time.
- 3.18.33 Advise the NSW SES Ballina Shire Local Controller of:
  - a. The number of people requiring transport.
  - b. Details of any medical evacuations required.
  - c. Whether additional assistance is required to effect the evacuation.
- 3.18.34 Check that no people remain in non-removable vans that are likely to be inundated.
- 3.18.35 Inform the NSW SES Ballina Shire Local Controller when the evacuation of the caravan park has been completed.
- 3.18.36 Provide the NSW SES Ballina Shire Local Controller with a register of people that have been evacuated.
- 3.18.37 **Assistance Animals, Pets and Companion Animals of Evacuees:** Assistance animals (guide dogs, hearing assistance animals, etc.) will remain in the care of their owners throughout the evacuation. This includes transport and access into evacuation centres etc. Due to safety restrictions, it may not be possible to allow companion animals to accompany their owners when being transported via aircraft or flood rescue boats. Agricultural and Animal Services will make separate arrangements for the evacuation and care of companion animals.
- 3.18.38 **Transport and storage:** Transport and storage of furniture from flood and/or coastal erosion threatened properties will be arranged as time and resources permit.
- 3.18.39 **Security:** The NSW Police Force will provide security for evacuated areas.
- 3.18.40 The NSW SES Local Incident Controller is to provide the following reports to the NSW SES Richmond-Tweed Region Headquarters:
  - a. Advice of commencement of the evacuation of each Sector;
  - b. Progress reports (by Sectors) during evacuations;

- c. Advice of completion of the evacuation of each Sector.

## Shelter

- 3.18.41 **Evacuation centres / assembly areas.** The usual purpose of evacuation centres or assembly areas is to meet the immediate needs of disaster affected people following evacuation from an emergency situation, not to provide them with accommodation. Evacuees will be advised to go to or be taken to the nearest accessible evacuation centre, which may initially be established at the direction of the NSW SES Ballina Local Incident Controller, but managed as soon as possible by Welfare Services.
- 3.18.42 The following locations are suitable for use as flood evacuation centres:
  - a. Tintenbar Hall, Tintenbar
  - b. Ballina RSL Club
- 3.18.43 **Registration:** The NSW Police Force will ensure that evacuees are registered on arrival at the designated evacuation centres.
- 3.18.44 **Animal shelter compounds:** Animal shelter compounds will be set up for the domestic pets and companion animals of evacuees if required. Facilities will be managed by Agricultural and Animal Services.

## Return

- 3.18.45 The NSW SES Local Incident Controller will advise when return to evacuated areas is safe after flood waters have receded and reliable access is available.
- 3.18.46 The NSW SES Local Incident Controller will determine when it is safe for evacuees to return to their homes in consultation with:
  - a. The Recovery Committee (if established),
  - b. Welfare Services Functional Area Coordinator (welfare of evacuees),
  - c. Engineering Services Functional Area Co-coordinator (electrical safety of buildings, structural integrity of levees/dams),
  - d. Health Service Functional Area Coordinator (public health),
  - e. Transport Services Functional Areas Coordinator (arrangement of transport),
  - f. The Ballina Shire Council LEOCON,
  - g. The Ballina Shire Council,
  - h. NSW SES Region Incident Controller,
  - i. Other appropriate agencies/functional areas as required (mitigation and advice regarding identified risks resulting from the flood and/or coastal erosion event).
- 3.18.47 Once it is considered safe to do so, the NSW SES Incident Controller will authorise the return of evacuees.

- 3.18.48 The return will be controlled by the NSW SES Local Incident Controller and may be conducted, at their request, by the Recovery Coordinator.

### **3.19 MANAGING RESUPPLY OPERATIONS**

- 3.19.1 The NSW SES is responsible for the coordination of the resupply of isolated communities and properties.
- 3.19.2 If isolation is expected to occur, residents should be encouraged to consider their needs and suitability for an unknown period of isolation.
- 3.19.3 If properties/communities are going to remain in locations expected to become isolated, households/retailers should be encouraged to stock up on essential supplies.
- 3.19.4 Where practicable, once supplies are delivered to the NSW SES designated loading point, the NSW SES Local Incident Controller will arrange for the delivery of essential foodstuffs, fuels or urgent medical supplies required by an isolated property or community.
- 3.19.5 All reasonable effects will be made to deliver supplies, however where necessary the NSW SES will prioritise the delivery of items.

#### **Resupply of Isolated Towns and Villages**

##### **Strategy**

- 3.19.6 Minimise disruption upon the community by resupplying towns and villages which have become isolated as a consequence of flooding.

##### **Actions**

- 3.19.7 The NSW SES is responsible for the coordination of the resupply of isolated communities.
- 3.19.8 If flood predictions indicate that areas are likely to become isolated, the NSW SES Local Incident Controller should advise retailers that they should stock up.
- 3.19.9 When isolation occurs, retailers will be expected to place orders with suppliers where they have a line of credit and to instruct those suppliers to package their goods and deliver them to loading points designated by the NSW SES.
- 3.19.10 The NSW SES is prepared to deliver mail to isolated communities but may not be able to do so according to normal Australia Post timetables.
- 3.19.11 The NSW SES will assist hospitals with resupply of linen and other consumables where able.

#### **Resupply of Isolated Properties**

##### **Strategy**

- 3.19.12 Ensure supplies are maintained to properties by coordinating the resupply of properties which have become isolated as a consequence of flooding.



### Actions

- 3.19.13 The resupply of isolated properties is a common requirement during floods and coordination can be difficult because requests can emanate from a variety of sources. Isolated properties may call their suppliers direct, place their orders through their own social networks or contact the NSW SES.
- 3.19.14 The principles to be applied when planning for the resupply of isolated properties are:
- a. The NSW SES will coordinate resupply and establish a schedule.
  - b. Some isolated households will not have the ability to purchase essential grocery items due to financial hardship. If an isolated household seeks resupply from the NSW SES and claims to be, or is considered to be, in dire circumstances, he/she is to be referred to Welfare Services for assessment of eligibility. Where financial eligibility criteria are met, Welfare Services will assist with the purchase of essential grocery items. Welfare Services will deliver the essential grocery items to the NSW SES designated loading point for transport.
  - c. Local suppliers will liaise with the NSW SES regarding delivery of resupply items to the designated loading point.
  - d. Local suppliers are responsible for packaging resupply items for delivery.
- 3.19.15 A flowchart illustrating the Resupply process is shown in Attachment 1. Please note that the flowchart outlines the resupply process but does not encompass all potential situations and/or outcomes.

## **PART 4 - RECOVERY**

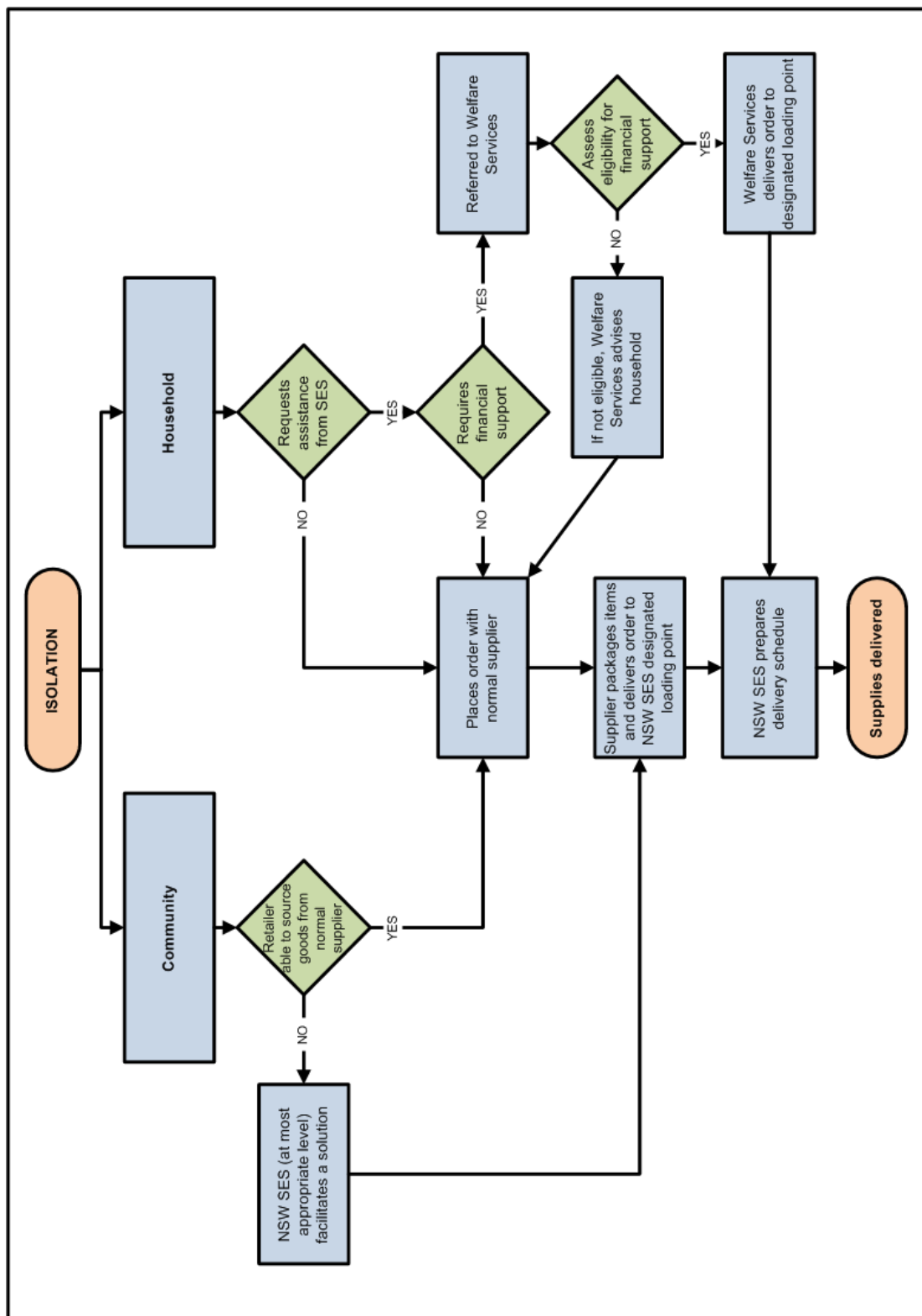
### **4.1 RECOVERY COORDINATION AT THE LOCAL LEVEL**

- 4.1.1 The NSW SES Ballina Local Controller will ensure that planning for long-term recovery operations begins at the earliest opportunity, initially through briefing the Local Emergency Management Committee (LEMC).
- 4.1.2 Arrangements for recovery at the local, District and State level are detailed in EMPLAN and the NSW Recovery Plan.
- 4.1.3 The NSW SES Ballina Shire Local Controller may be required to attend recovery meetings to provide an overview of the emergency response operation.
- 4.1.4 The NSW SES Region Incident Controller may be invited to the initial local Recovery Committee meeting and to subsequent meetings as required.

### **4.2 ARRANGEMENTS FOR DEBRIEFS / AFTER ACTION REVIEWS**

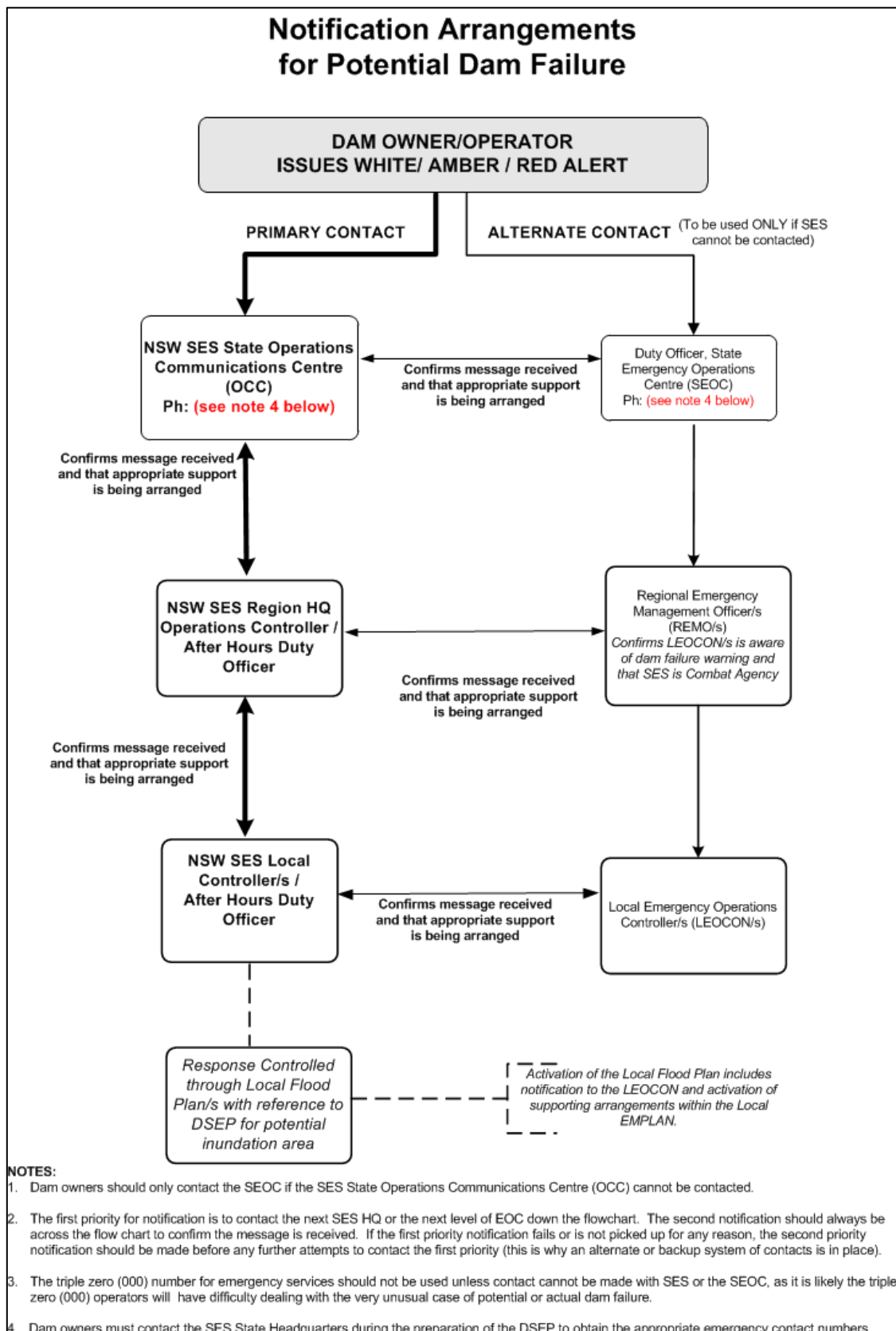
- 4.2.1 As soon as possible after flooding has abated, the NSW SES Ballina Shire Local Controller will advise participating organisations of details of response operation after action review arrangements.
- 4.2.2 The NSW SES Ballina Shire Local Controller will ensure that adequate arrangements are in place to record details of the after action review and each item requiring further action is delegated to an organisation or individual to implement.
- 4.2.3 Follow-up to ensure the satisfactory completion of these actions will be undertaken by the Ballina Shire Council Local Emergency Management Committee.

## ATTACHMENT 1 - RESUPPLY FLOWCHART

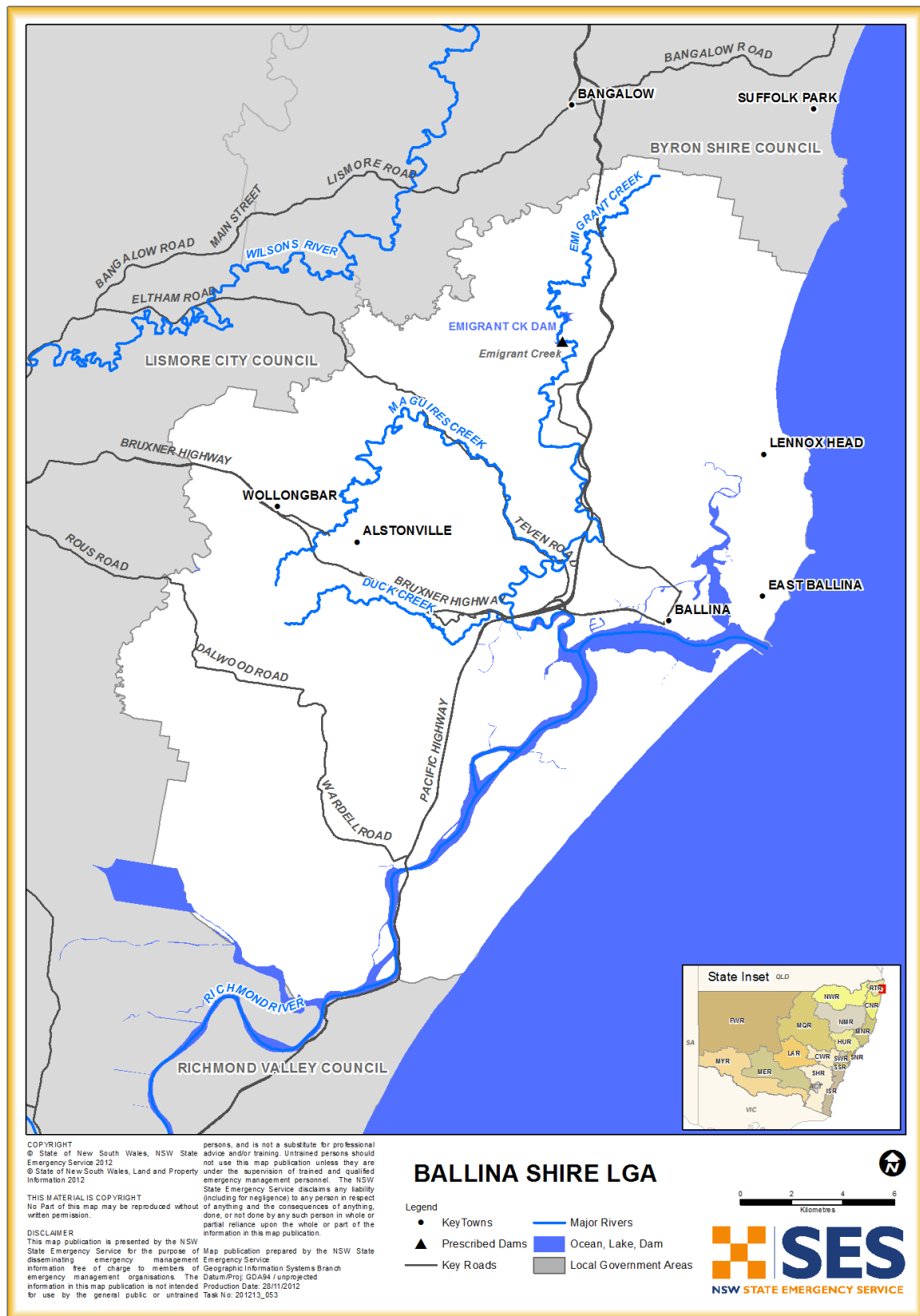


**Please Note:** The chart outlines the resupply process, but does not encompass all potential situations and outcomes.

# ATTACHMENT 2 - DAM FAILURE ALERT NOTIFICATION ARRANGEMENTS FLOWCHART



# ATTACHMENT 3 - BALLINA SHIRE COUNCIL LGA MAP



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# HAZARD AND RISK IN BALLINA SHIRE

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**Volume 2 of the Ballina Shire Local Flood Plan**

Last Update: February 2008

## **ANNEX A - THE FLOOD THREAT**

### **Background**

1. The Ballina Shire Council Area is within the Richmond River catchment covers an approximate area of 6900 square kilometres. Ballina lies near the Richmond River mouth and the Ballina Shire includes the lower 25km of the river from Broadwater to the Pacific Ocean. The major local creeks, Maguires, Emigrant and North Creeks have a combined catchment area of 102 square kilometres. They all enter the Richmond River near its mouth.
2. Much of the southern part of the Council area is in the floodplain of the Lower Richmond River and is sparsely populated except for sugar cane growing farms.
3. Although floodwaters from the Richmond River spill into the lower lying areas of Ballina Township, the extent of flooding from this source alone is minimal. Flooding from tributaries of the Richmond River - North and Emigrant Creeks, contribute a greater risk to Ballina than the main channel.

### **Landforms and River Systems**

#### **Richmond River Catchment (2716 km<sup>2</sup>)**

4. The Richmond River Catchment is the largest of the catchments and is drained by the Richmond River and a number of tributaries including Lynch's, Iron Pot and Deep Creeks.
5. It is possible to have a major flood in one of the arms of the Richmond River (Richmond River, Wilsons River or Bungawalbyn Creek) without having a major flood on the Lower River. However, flooding can occur as a result of heavy rain in any of the catchments. Extensive flooding in the Lower River area is usually the result of significant rain falls in all three catchment areas.
6. Flood waters originate from three primary sources:
  - a. Rainfall over the Richmond River catchment causing swelling and overtopping of the Richmond River.
  - b. Localised rainfall over the Maguires, Emigrant, North and other minor creeks in the Shire and over the floodplains themselves.
  - c. Elevated ocean levels and storm wave conditions from a low or cyclonic depressions.
7. The timing and magnitude of each of these flood sources is complex and indefinite, although historically it is unusual to have one source occurring without minor occurrences of the others. The likelihood of the peaks of all three occurring simultaneously with similar magnitudes is, however, highly improbable.

## **North and Emigrant Creeks**

8. These creeks are tributaries of the Richmond River which join the main river at Ballina. They are often in flood at the same time as the main river. When this occurs, flooding may be severe and cuts main roads isolating the town. However, even during the record flood of February 1978, isolation did not exceed 12 hours. Most of this flooding occurs to the north and west of the North Creek Canal.
9. Flooding in the Tintenbar area on Emigrant Creek is essentially flash flooding in nature. Severe flooding could occur after 150mm of rainfall in one hour in the upper catchment and can be affected by tidal movements upstream as far as the Tintenbar road bridge. Significant areas of low lying ground were flooded in 1985 and in 1976 (the Flood of Record) two houses in the area were flooded. Friday Hut Road is cut by fast flowing water at Kirklands Crossing even during minor levels of flooding.

## **Storage Dams**

### **Emigrant Creek Dam**

10. Emigrant Creek Dam is situated at the headwaters of Emigrant Creek to the west of Knockrow, in the Tintenbar Valley. It has a full supply volume of 819 ML and contributes to the Ballina water supply. The Emigrant Creek Dam Failure Warning System is designed to be activated when severe flooding (of the order of the 1976 and 1985 floods) is expected and well before any threat to the dam exists. It is designed to warn of severe levels of natural flooding regardless of the possibility of dam failure. Rous County Council has a program in place to upgrade the dam to remove the possibility of dam failure.
11. Rous County Council are currently undertaking a review of the dam safety survey and formulating Dam Safety Emergency Plan for the dam.
12. In the 1976 flood of record, Emigrant Creek Dam did not fail.
13. The Emigrant Creek Dam Failure Warning System is designed to be activated when severe flooding is expected and well before any threat to the dam exists.

## **Weather Systems and Flooding**

14. Floods within the Ballina Shire Council area can be caused by the following types of weather systems;
  - a. The majority of recorded floods occur between February and September. This seasonality of flooding is the result of two distinct weather patterns; tropical cyclones and intense depressions close to the coast.
  - b. In the early months of the year, tropical cyclones originating near the equator may move south. While it is rare for a cyclone to enter north-eastern New South Wales, those that approach southern Queensland or which travel southwards past the coast of northern New South Wales may bring rain of



sufficient intensity and duration to cause flooding. There are also occasions when a heavy rain area advances well ahead of the cyclone which may be 200 to 300 kilometres distant.

c. The most frequent origin of flooding rain events however, is the development of intense depressions close to the coast. Generally, these systems maintain a supply of deep moisture as they move southwards in proximity to the coast.

d. These depressions may develop at any time but the flood rain events are most likely during that part of the year when sea surface temperatures are high and the air is humid. As tropical cyclones can also be expected at this time, most flood events in the Richmond River (& Wilsons) catchments occur in the first half of the year with a peak period from February to April.

### **Characteristics of Flooding**

15. The nature of flooding around Ballina is complicated. Flood inundation occurs because of overtopping of the Richmond River, overtopping of local creeks (Maguires, Emigrant and North Creeks), heavy localised rainfall or from elevated ocean levels and large ocean swells caused by low or cyclonic depression. The ocean tidal conditions during flood events add another level of complexity because higher levels result if the flood peak coincides with the top of the tide.
16. Though there are numerous sources which can flooding at Ballina, the chances of all sources “peaking” together is very improbable.
17. Historical records and aerial photographs taken during the March 1974 flood shows a significant quantity of water during major floods probably flow across the Bagotville Barrage in the Broadwater returning to the Richmond River downstream of Broadwater. The source of these floodwaters would be from the Tuckean Swamp catchment and from overtopping of the Richmond riverbank upstream of Broadwater. Flood records for the 1954 event and a stage hydrograph recorded for the March 1974 event indicate flood levels at the Bagotville Barrage site to be some 0.3 to 0.4 m higher than Broadwater. It is therefore likely that a significant flood gradient and flow occurs down the Broadwater during major events.
18. On the Ballina Shire floodplains the duration of inundation varies significantly depending on the type of flood (Richmond River, local catchment or storm tide) and in lower lying areas, on post flood tidal conditions. Typically the duration of inundation would vary from a few hours to several days. Where poor drainage conditions exist and/or tide levels restrict drainage, longer periods of inundation may occur.
19. WBM Oceanics Australia as the consultants for the Ballina Shire Flood Study modelled design floods for each source, the conditions for 100, 50, 20 and 10 year events and the PMF (Possible Maximum Flood).

20. A summary of peak flood levels for design floods and major historical floods is shown in the following table:

Location	Peak Flood Levels m (AHD)							
	100 yr	50 yr	20 yr	10 yr	PMF	1954	1974	1976
Broadwater	3.84	3.38	2.76	2.28	6.12	3.72	3.25	1.7
U/S Wardell Bridge	3.24	2.81	2.27	1.90	5.25	2.95		
D/S Wardell Bridge	3.00	2.61	2.12	1.80	4.87		2.49	
D/S Pimlico Island	2.48	2.14	1.77	1.57	4.13			
Confluence Emigrant Creek & Richmond River	1.86	1.72	1.65	1.58	3.25			
Missingham Bridge	1.86	1.78	1.70	1.62	2.41			
Pacific Ocean	2.00	1.90	1.80	1.70	2.00			
Confluence Emigrant & Maguires Creek	2.24	2.07	1.88	1.72	3.17			
Emigrant Creek U/S Pacific Highway	1.84	1.71	1.67	1.6	3.21			
West Ballina	2.15	1.98	1.8	1.66	3.15			1.85
North Creek (near Airport)	1.76	1.7	1.65	1.59	2.6			
Confluence North Creek & Canal	1.81	1.74	1.68	1.61	2.57			

#### **Mid Richmond River (Downstream of Coraki)**

21. Floodwaters which have flowed out of the Lower Wilsons River and filled the Tuckean Swamp and surrounding areas, are joined by water from the Mid Richmond River (over-bank flows break out of the Richmond at O'Connor's Levee at Buckendoon and flow northwards). These combined floodwaters eventually flow back into the Richmond River at Broadwater.
22. At Woodburn, floodwaters from the Richmond River can flow through flood mitigation works on the Tuckombil Canal and into the Evans River, entering the Pacific Ocean at Evans Head. The Tuckombil Canal also takes floodwaters from the catchment of the relatively short Rocky Mouth Creek.

#### **Peak Height Travel Times**

23. The indicative peak flow travel times are as follows:

Casino to Coraki	12 to 24 hours
Lismore to Coraki	10 to 20 hours

Coraki to Bungawalbyn Junction	3 hours
Coraki to Woodburn	5 to 10 hours
Coraki to Broadwater	10 to 20 hours

## Flood History

24. Records indicate that the greatest flood on the Richmond River in Ballina Shire took place around 1858 or 1860.
25. During this flood a new straight deep channel was cut by the floodwaters through the South Beach. Large seas and gale force winds at this time came in through this opening causing flooding.
26. The next heavy flood came in 1864 when there were eight inundations rapidly following each other in one year. This flood resulted in great losses of buildings and stock within the Richmond River system.
27. In 1892 a storm surge caused water at high tide to surround the old Ballina Post Office in River Street.
28. Other major floods occurred during 1945, 1948, 1950, 1954, 1956, 1962, 1974, 1976, 1978, 1985, 1987 and 1989.
29. The March 1974 flood occurred after heavy rainfall in several bursts over the Richmond River catchment from March 9 to 12. It is one of the largest floods recorded at Broadwater and the largest with some calibration data. There was also significant flooding in the local creeks. There were reports of elevated ocean levels along the NSW coastline. The flood was the result of a cyclonic depression which crossed the coast.
30. Some of the largest floods on record resulted in heights as follows:

CASINO		CORAKI		BUNGAVALBYN JUNCTION		WOODBURN		BROADWATER	
YEAR	HEIGHT	YEAR	HEIGHT	YEAR	HEIGHT	YEAR	HEIGHT	YEAR	HEIGHT
1954	25.13m	1974	7.01m	1954	6.10m	1954	5.27m	1954	4.58m
1967	21.67m	1954	6.96m	1974	5.83m	1974	5.12m	1974	4.11m
1945	21.04m	1893	6.95m	1988	5.80m	1948	4.71m	1948	4.04m
1956	20.69m	1989	6.88m	1989	5.61m	1988	4.60m	1945	3.76m
1948	20.47m	1962	6.76m	1988	5.43m	1945	4.57m	1962	3.44m
1950	20.27m	1967	6.76m	1987	5.38m	1962	4.51m	1988	3.23m
1975	19.67m	1945	6.72m	1987	5.18m	1950	4.33m	1967	2.95m

## **Flood Mitigation Systems**

### **Mid Richmond General**

31. Towns on the Lower River are all situated on the natural levee adjacent to the river and thus are acutely flood liable. Floods cut many roads on the floodplain.

### **Tuckurimba Levee**

32. Floodwaters from the Wilsons River break over the riverbank at the Western end of Baxter Lane at 6.18m (Tuckurimba Gauge). This flow causes minor inundation of the farmland basin through Tuckean. Once this water reaches 5.68m, the Tuckurimba levee will overtop and moderate to major flooding will occur. The extent of flooding will be dependent on the duration of overflow.

### **The Bagotville Barrage**

This structure was constructed in 1966 and was designed at a tidal barrage to have a controlling influence on tide propagation and minor flood flow behaviour. However, during large flood events it would have little control or effect on the overland floodplain flows travelling downstream.

## **Extreme Flooding**

33. On rare occasions, flooding of extreme proportions can occur. Extreme floods can reach far greater heights than previously recorded, flooding areas without any previous flood history. In addition, such floods are generally both faster to rise and more dangerous in terms of depth and velocity than previous floods. Extreme flooding can result from dam failure, extreme rainfall events or both. The estimated probable maximum flood height for Broadwater is estimated at 6.2 metres on the gauge.
34. Flooding occurring as result of the failure of Emigrant Creek Dam can be of even greater severity, resulting in large-scale property destruction. The resulting flood waters would be deep and fast flowing, consisting of large amounts of debris. The probability of dam failure occurring is very low.

## ANNEX B - EFFECTS OF FLOODING ON THE COMMUNITY

### Community Profile

Census Description	LGA	Ballina	Lennox Head	Wardell
Total Persons	37218	16599	5843	483
Total Dwellings	16147	7760	2389	222
Total persons aged 65 years and over	7166	4155	674	58
Total persons aged below 15 years	7420	2722	1491	119
Total persons of indigenous origin	909	423	65	39
Total persons using Internet	12105	4719	2303	109
Single parent families	1726	899	259	25
Persons living alone	3780	2206	369	48
Total persons who do not speak English well	39	22	0	0
Total persons who lived at a different address 5 years ago	16812	7703	3193	174
Households without vehicles	1529	757	62	10
Total persons residing in caravans, cabins or houseboats	1252	857	178	0
Mean household size	2.4	2.2	2.7	2.4

### Specific Risk Areas

#### Cabbage Tree Island (Population 160+)

1. The aboriginal community on Cabbage Tee Island is the only community in the Region which may need complete evacuation during major flooding. During 1974 the community was inundated by the time flood levels reached 3.43 metres upstream at Broadwater. The evacuation route along Back Channel Road is lapped by flood waters by the time flood levels reach 2.4 metres at Broadwater.

## Wardell

Although some of Wardell would be inundated by a 1% AEP flood, most of the village would remain unaffected. The low lying area to the east of the Pacific Highway could be affected by floods with a recurrence as high as 5% AEP. Up to 30 houses could be inundated or isolated in the Richmond Street area.

In East Wardell, up to 20 houses could be isolated although most would have floor levels above the 1% AEP level.

## Teven

Teven has 15-16 houses which are affected by flooding. Thirteen houses are raised high enough to keep out of trouble, while the water may enter 2 houses. The school was washed out in 1985, 10 July.

## Ballina

2. The nature of flooding around Ballina is complicated. Flood inundation occurs because of the over-topping of the Richmond River, overtopping of the local creeks (Maguires, Emigrant and North Creeks), heavy localised rainfall or from elevated ocean levels and large ocean swells caused by a low or cyclonic depression.
3. Though there are numerous sources which can cause flooding at Ballina, the chances of all sources “peaking” together is very improbable.
4. The table below indicates the amount of buildings affected by over-floor flooding during various design flood events. This data is based upon a 1979 property survey. Development since 1979 has conformed to Ballina Shire Council’s current fill and floor level policy and therefore would not experience inundation except possibly during a severe event great the 1% AEP flood (Source: Ballina Flood Plain Risk Management Study, 1998)

Floor levels	PMF	1% AEP	2% AEP	5% AEP	10% AEP
Inundation by more than 0.3m	1678	29	12	6	6
Inundation between 0 and 0.3m	149	114	72	52	42
Total	1827	143	84	58	48

5. The main flood risk area of Ballina is West Ballina (that area to the west of North Creek Canal). Here, flood waters from Emigrant and Maguires Creeks cross the flood plain from the north west. They have historically run through a flood runner in the older part of West Ballina between Daydream Avenue and Riverview Road. Upgrading of the Pacific Highway may change the flood

pattern in this area. New areas of development in West Ballina have flood levels above the 1974 flood height.

6. Some properties in the following streets may experience inundation during a 1% AEP flood: Pacific Hwy (West Ballina), Riverview Ave, Riverside Dr, Henry Philip Ave, Bolding St, Richmond Ave, Tweed St, Camoola Av, River St, Tamar St, Grant St, Moon St, Fox St, Martin St, Skinner St, Marine St and Cawarra St. In floods larger than the 1% AEP, substantial parts of Central Ballina would be inundated. Similar areas of West Ballina would also be flooded but to a greater severity.
7. Significant areas of Ballina may be inundated during a major ocean storm tide, such as the 100 year event, particularly if there is significant rainfall over the town coinciding with the peak or significant flows in the lower Richmond River.

### **Tintenbar**

Within Tintenbar are two houses which were affected by water during the 1976 Flood of Record. Higher levels of flooding (including those made worse by the unlikely event of the failure of Emigrant Creek Dam) could affect up to 17 houses in total.

### **Road Closures**

8. The following important access links may be disrupted by flooding:

<b>Road</b>	<b>Location Closed</b>
Pacific Highway	Cumalum (Emigrant Creek flooding) & South Wardell (Richmond River flooding)
Bruxner Highway	Bottom of Ballina cutting near the Pacific Highway junction
Ross Lane	Near Meat-E-Vites factory
Coast Road	Boulder Beach
Tintenbar/Teven Road	Between Fernleigh Road and Teven Bridge, and Maguires Creek Bridge (to Alstonville)
Wardell to Alstonville Road	Meerschaum Vale Bridge
Dalwood Road to Lismore Road	Causeway

### **Effects on Utilities and Infrastructure**

9. The sewerage treatment plant may be at risk in a flood. Ballina Shire Council operates a pumping system for sewerage treatment plant which will be in operation during a flood.



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# **SES RESPONSE ARRANGEMENTS FOR BALLINA SHIRE**

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**Volume 3 of the Ballina Shire Local Flood Plan**

Last Update: February 2008

## ANNEX C - GAUGES MONITORED BY THE BALLINA SES LOCAL HEADQUARTERS

Gauge Name	AWRC No	Stream	Flood Classification		
			Min	Mod	Maj
Woodburn*‡	203412	Richmond River	3.2	3.7	4.2
Broadwater†‡	10050	Richmond River	2.0	2.5	3.0
Wardell (Wharf) †‡	203416	Richmond River			
Teven	203039	Richmond River			
Ballina†	10013	Richmond River			
Ballina RSL	10335	Richmond River			
East Wardell (Collier)	10130	Richmond River			
Teven Creek	10374	Teven Creek			

### Notes:

1. The Bureau of Meteorology provides flood warnings for the gauges marked with an asterisk (\*).
2. SES Local Flood Advices are provided for the gauges marked with a single cross (†).
3. The SES holds a Flood Intelligence Card for the gauges marked with a double cross (‡).

## ANNEX D - DISSEMINATION OF SES FLOOD BULLETINS

The Richmond Tweed SES Region Headquarters distributes SES Flood Bulletins and other flood related information (including Flood Warnings) to the following regional media outlets:

### Television Stations:

Station	Location
Prime	Lismore
NBN	Lismore
ABC	Ultimo
Channel Ten	Goonellabah

### Radio Stations:

Station	Location
The ABC	Lismore Regional Office
2LM	Lismore
2NCR (FM)	Lismore
Radio 97	Tweed Heads
2ZZZ FM	Lismore
Byron Bay Community Radio	Byron Bay
Casino's Own Wireless Assoc Inc	Casino
Paradise Fm	Ballina

### Newspapers:

Name	Location
Echo	Lismore
Northern Star	Goonellabah
Advocate	Ballina

### Other Agencies:

Flood Bulletins will be issued to all agencies with responsibilities listed in this plan.

## ANNEX E - TEMPLATE EVACUATION WARNING MESSAGE FOR [ENTER NAME OF AREA]

**Evacuation Warning for** [ ]

**Date/Time of Issue:** [ ]

**Authorised By:** [ ]

The Bureau of Meteorology has predicted a flood level of [ ] metres at [ ] (*place*) at [ ] (*time*). This means that the following area(s) may be inundated [ ].

It is recommended that you prepare to evacuate/for evacuation within the next [ ] hours. If you leave it later, the roads may be congested or closed.

To prepare for evacuation, you should:

- Raise belongings by placing them on tables, beds and benches. Put electrical items on top. Some items may be able to be placed in ceilings.
- Gather medicines, personal and financial documents and mementos together to take with you.
- Listen to radio stations [enter station] for further information and to confirm this warning.
- If possible, check to see whether your neighbours need help.
- Make arrangements for care of pets or companion animals.

If evacuation is necessary:

- Turn off the electricity, gas and water.
- Take three days' supply of clothes with you.
- If you have a car, drive to the evacuation centre at [ ] (*specify route if appropriate*).
- If you don't have a car, buses will operate on normal routes. Special transport can also be provided on request if necessary, telephone [ ].
- So that you can be accounted for, it is important that you register at the evacuation centre.
- After registering, you may go to the house of a friend or relative. Alternatively, accommodation will be arranged for you.
- The Police will provide security for your property while you are away.

## **ANNEX F - EVACUATION ARRANGEMENTS FOR CABBAGE TREE ISLAND**

### **Background**

1. **Cabbage Tree Island.** Cabbage Tree Island is located on a high hazard floodway. Although all but three buildings are raised to above the 1% AEP flood level the expected high velocity of water and the early loss of the single evacuation route means the complete evacuation is essential prior to the loss of the evacuation route.

Cabbage Tree Island is located in a high hazard floodway. In a 1% AEP flood it is expected that approximately 1 metre of water flowing at 1 m/s will be experienced across the island.

There are 24 residences, a school, shop, church, hall, health centre and office on the island. All of which are located on land that is likely to experience flooding as a result of a 10% AEP (approximately 2.4m AHD at the Broadwater gauge). All but three residences, the office, health centre, shop, church and hall are raised with floor levels above the approximate 1% AEP flood level (approximately 3.8m AHD on the Broadwater gauge). An approximate plan of locations of buildings on Cabbage Tree Island is at Map 4.

The Back Channel Road accesses the Jali Community on the Western Bank of the Richmond River with a single lane bridge across to the island and a bridge across Bingal Creek.

An evacuation of the Jali Community on Cabbage Tree Island would take from 4 to 6 hours, using the island's Main Hall as an Assembly Area and Back Channel Road as the evacuation route through Wardell.

The population of the community is approximately 160 – 170.

### **Control**

2. During floods evacuations will be controlled by the NSW SES. Small-scale evacuations will be controlled by the Ballina SES Local Controller. Should the evacuations operations escalate beyond the capabilities of local resources control may be handed over to the Richmond Tweed SES Region Controller.

### **Decision to Evacuate**

3. The decision to evacuate. The responsibility for issuing any general evacuation order during flooding rests with the Ballina SES Local Controller who exercises his/her authority in accordance with Section 22(1) of The State Emergency Service Act 1989. However, the decision to evacuate will usually be made after consultation with the Local Emergency Operations Controller and the Richmond Tweed SES Region Controller.

4. When evacuation should occur. As far as possible, evacuation will be carried out before inundation occurs.

## **Trigger**

An evacuation order for the Jali Aboriginal Community on Cabbage Tree Island will be considered when a prediction is received from the BoM for a flood height exceeding **4.2m at the Woodburn gauge (1.4m AHD Broadwater gauge)** and there is a possibility of further river rises. This is the height that water is expected to close the evacuation route to light traffic.

## **Warning**

5. The primary means of warning of the Jali Community will be by door knock by the Jali Land Council. The Richmond Tweed SES Region Headquarters will also broadcast a warning over local radio stations.

## **Assembly Areas**

6. The community's Main Hall will be the evacuation assembly area

## **Evacuation Route**

The Back Channel Road to Wardell then the Pacific Hwy to Ballina

The Back Channel Road accesses the Jali Community on the Western Bank of the Richmond River with a single lane bridge across to the island and a bridge across Bingal Creek. The road is likely to be closed by floodwater at 4.2 metres on the Woodburn gauge.

## **Security**

7. The NSW Police Force will provide security for evacuated areas.

## **Transport and storage.**

8. Transport and storage of furniture from flood threatened properties will be arranged as time and resources permit.

## **Evacuation Centre**

9. Gunundi Anglican Camp and Conference Centre, Shelly Beach Rd, East Ballina, Richmond Room or other appropriate centre.

## **ANNEX G - ARRANGEMENTS FOR THE EVACUATION OF CARAVAN PARKS AND THE RELOCATION OF CARAVANS**

### **General**

1. The Sunmaid Caravan Park can be affected by floodwaters from Emigrant Creek and the Byrnes Point Ferry to South Ballina ceases operations when conditions become dangerous.
2. Other caravan parks that may be flood liable include:
  - a. Ballina Central Caravan Park
  - b. Ballina Gardens Caravan Park
  - c. Ballina Headlands Leisure Park
  - d. Ballina Lakeside Holiday Park
  - e. Ballina Pacific Palms Village
  - f. Ballina Sea Breeze Caravan Park
  - g. Cedars Caravan Park
  - h. Flat Rock Camping Area
  - i. Hibiscus Gardens Caravan Park
  - j. Lake Ainsworth Caravan Park
  - k. Sandalwood Leisure Village
  - l. Shaws Bay Caravan Park
  - m. South Ballina Beach Holiday Park
  - n. The Sanctuary Mobile Home Park
  - o. Riverbend Retirement Village (Relocatable homes)

### **Advising Procedures**

3. Caravan Park proprietors will be encouraged to ensure that the owners and occupiers of caravans are:
  - a. Made aware that the caravan park is flood liable by:

- Handing a printed notice to occupiers taking up residence. The notice will indicate that the caravan park is liable to flooding and outline the evacuation and van relocation arrangements as detailed in this Annex.
  - Displaying this notice prominently in each van.
- b. Made aware that if they are expecting to be absent from their vans for extended periods, they must:
- Provide the manager with a key; in a sealed envelope; to the van.
  - Provide a contact address and telephone number.
  - Inform the manager if a vehicle will be required to relocate the van during flood time.
  - Leave any mobile van in a condition allowing it to be towed in an emergency (ie: tyres inflated, jacks wound up, personal effects secured and annexes and lines for water, sewer, electricity and gas readily detachable).
- c. Informed when a flood is rising. At this time, occupiers will be advised to:
- Ensure that they have spare batteries for their radios.
  - Listen to a local radio station for updated flood information.
  - Prepare for evacuation and van relocation.
4. The Ballina SES Local Controller will ensure that the managers of caravan parks are advised of flood warnings and the details of any evacuation order.

### **Evacuation of Occupants and Relocation of Vans**

5. Caravan park proprietors will be encouraged to install flood depth indicators and road alignment markers within their caravan parks.
6. When an evacuation order is given:
- a. Occupiers of non-movable vans should:
- Secure their vans by tying them down to prevent flotation.
  - Isolate power to their vans.
  - Collect personal papers, medicines, a change of clothing, toiletries and bedclothes.
  - Lift the other contents of their vans as high as possible within the van.
  - Move to a designated evacuation centre if they have their own transport, or move to the caravan office to await transport.

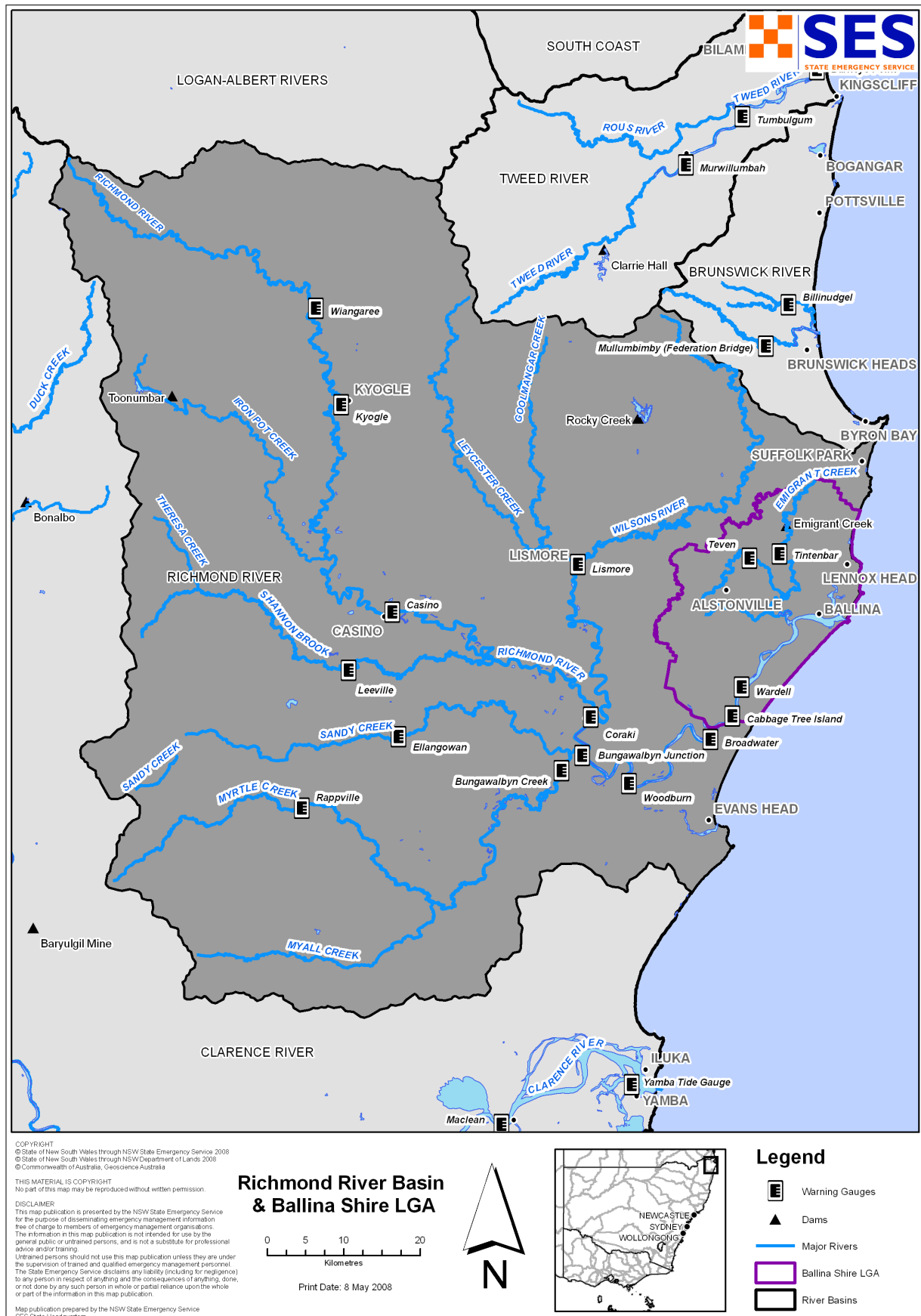


- Where possible, vans that can be moved will be relocated by their owners. Park managers will arrange for the relocation of mobile vans whose owners do not have a vehicle. Council and SES personnel will assist if required and may be able to provide additional vehicles.
7. Caravan park managers will be encouraged to:
- a. Advise the Ballina SES Local Controller of:
    - The number of people requiring transport.
    - Details of any medical evacuations required.
    - Whether additional assistance is required to effect the evacuation.
  - b. Check that no people remain in non-removable vans that are likely to be inundated.
  - c. Inform the Ballina SES Local Controller when the evacuation of the caravan park has been completed.
  - d. Provide the Ballina SES Local Controller with a register of people that have been evacuated.

### **Return of Occupants and Vans**

8. The Ballina SES Local Controller, using council resources as necessary, will advise when it is safe for the caravan parks to be re-occupied.

# MAP 1 - RIVER BASIN



## MAP 2 - COUNCIL AREA

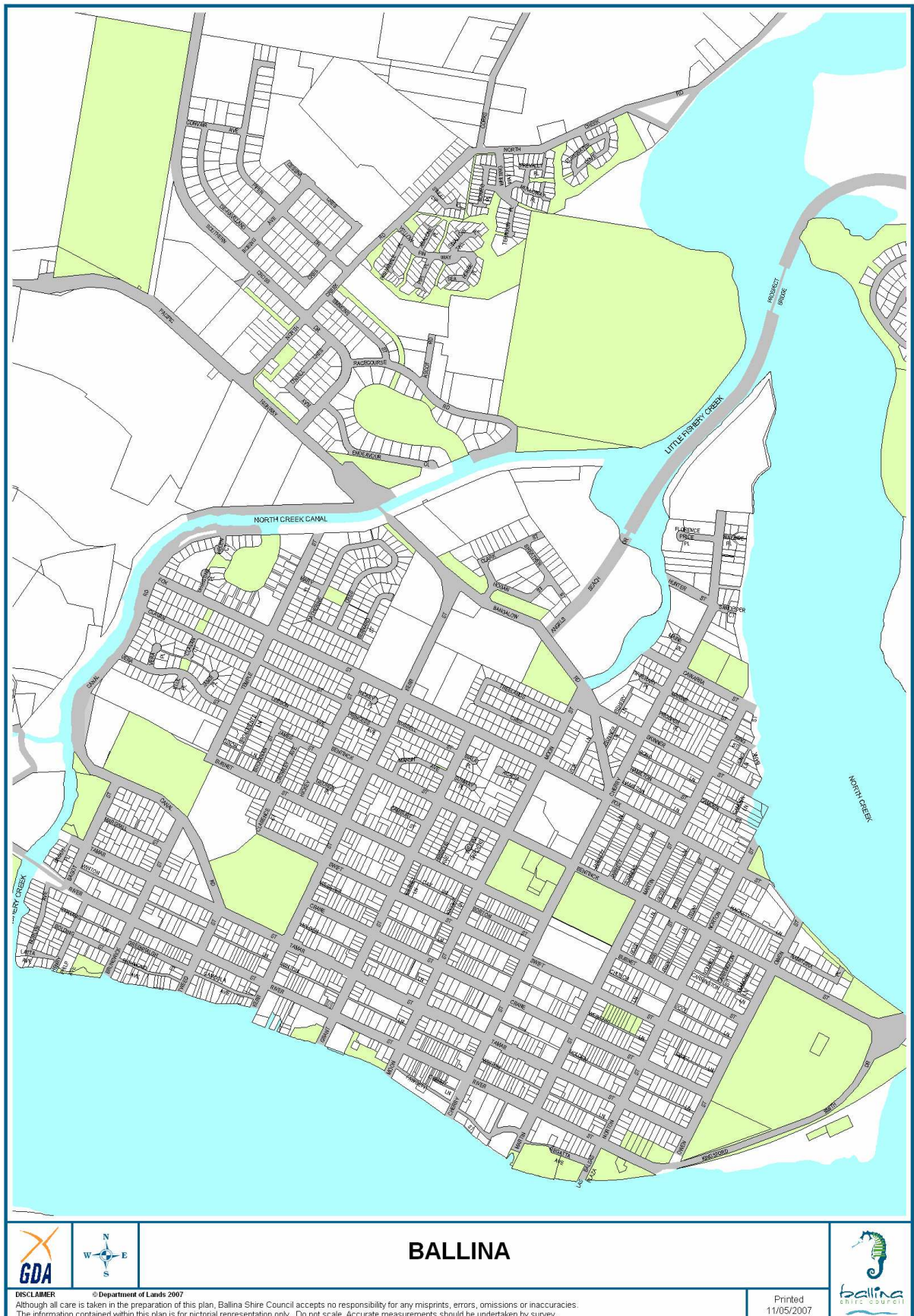


# MAP 3 - ALSTONVILLE

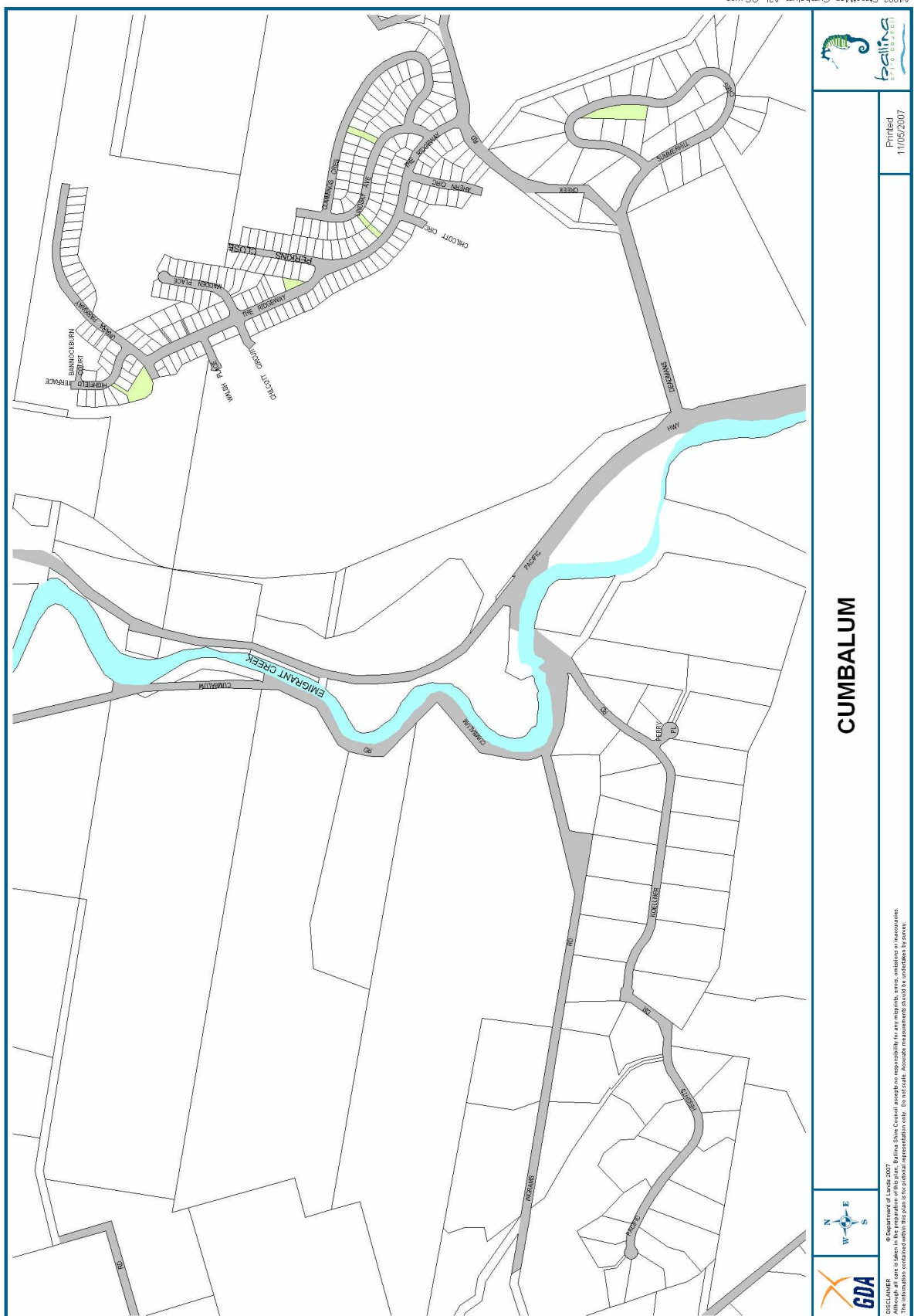




## MAP 4 - BALLINA



# MAP 5 - CUMBALUM

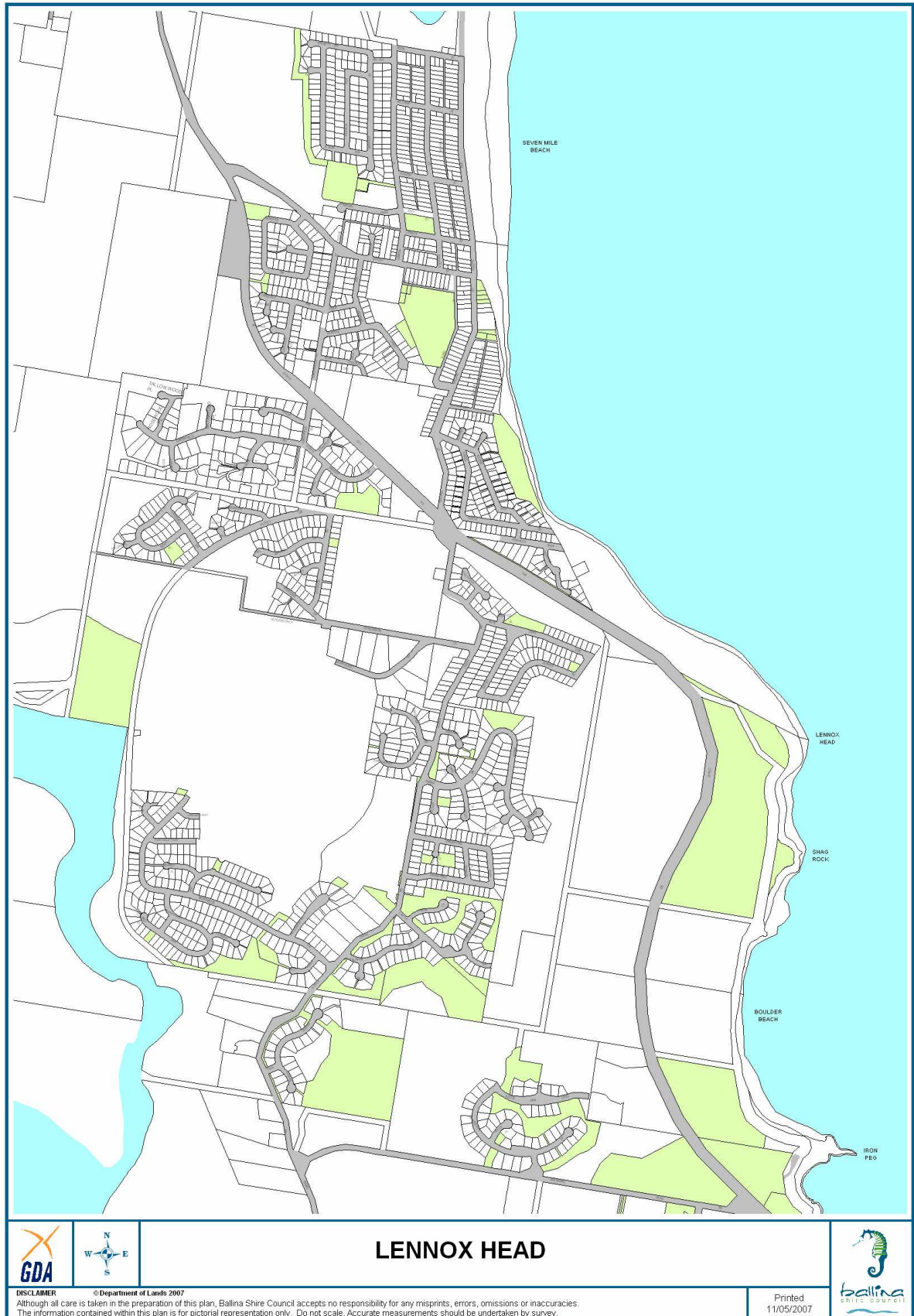




## MAP 6 - EAST BALLINA

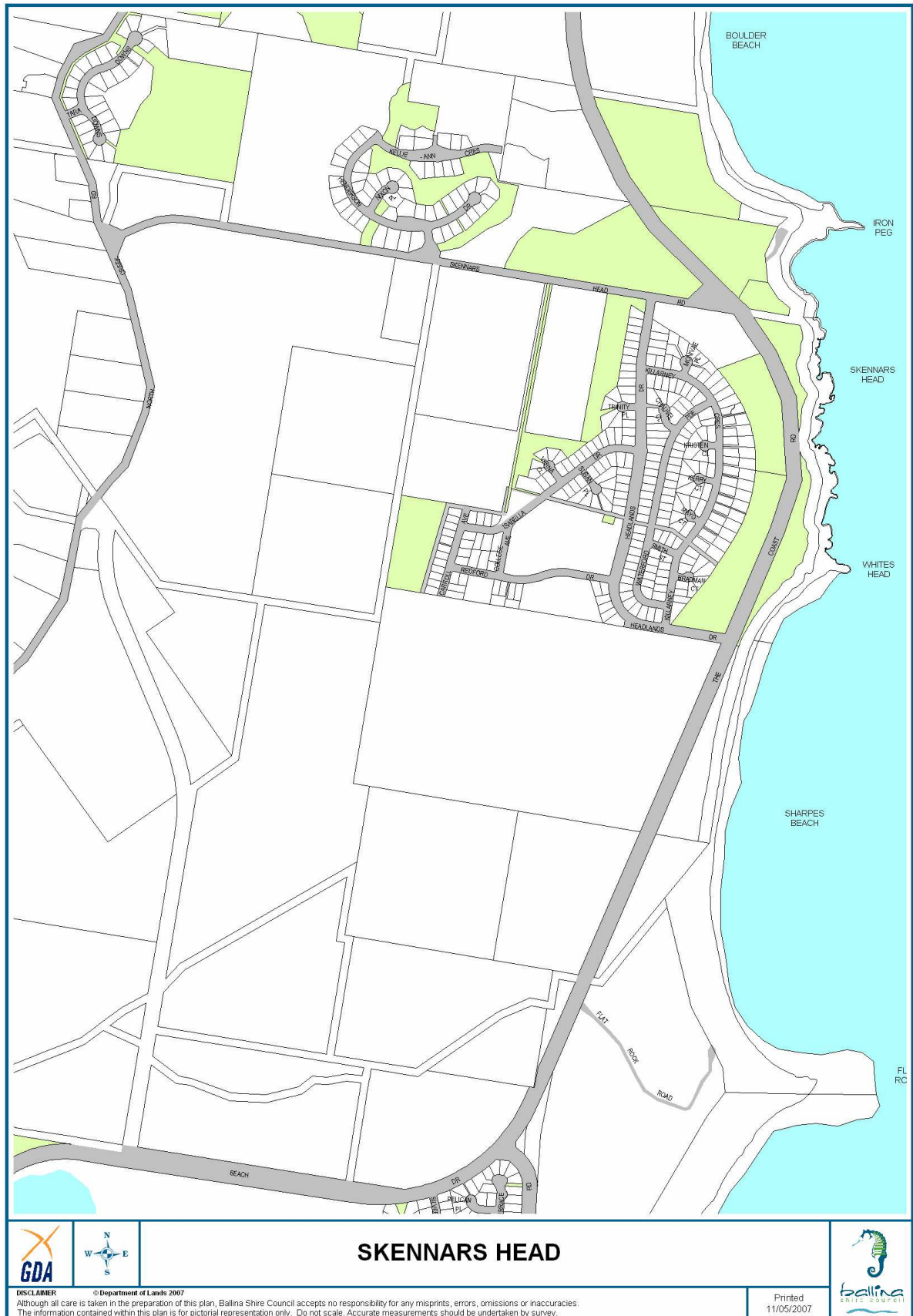


## MAP 7 - LENNOX HEAD

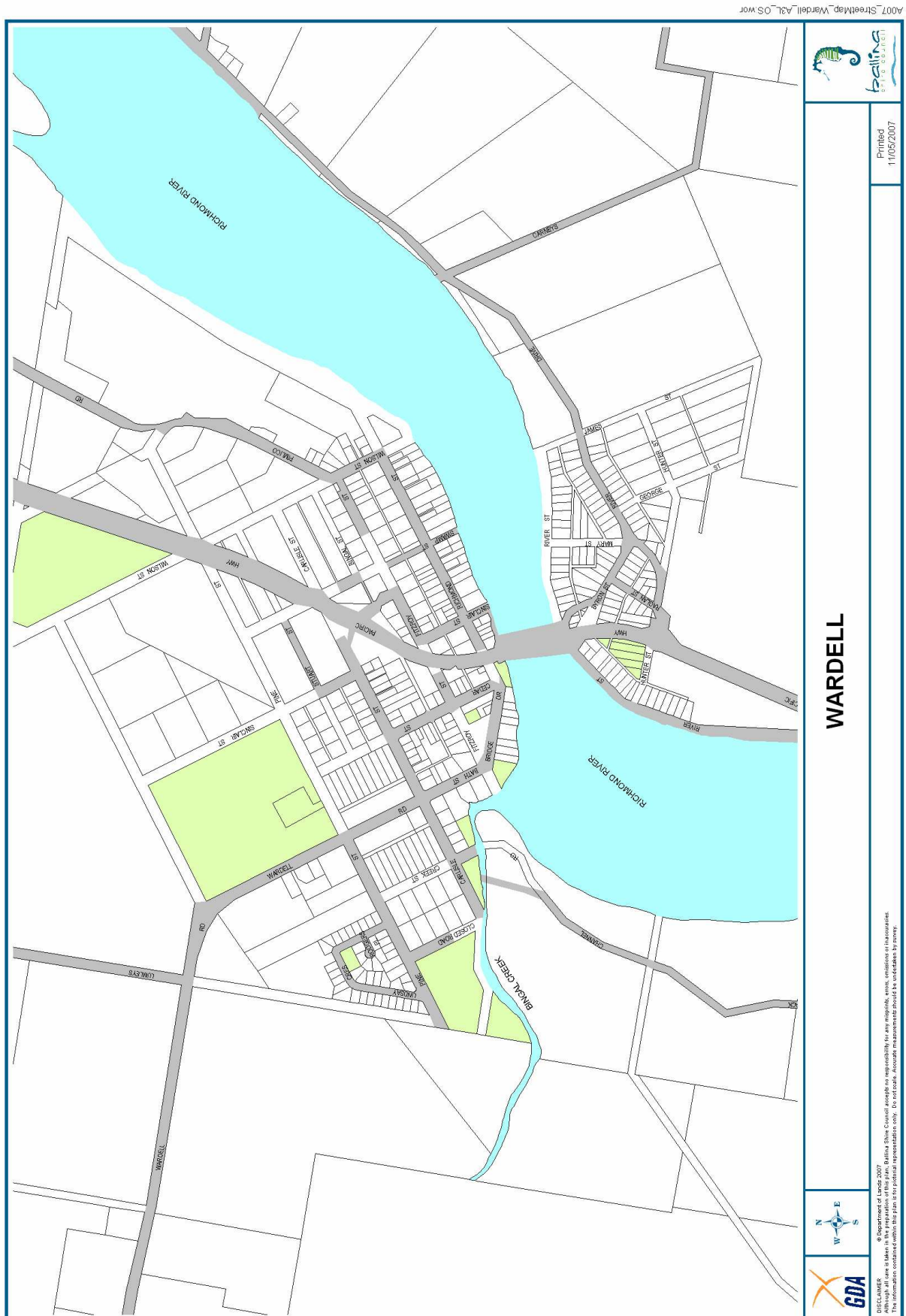




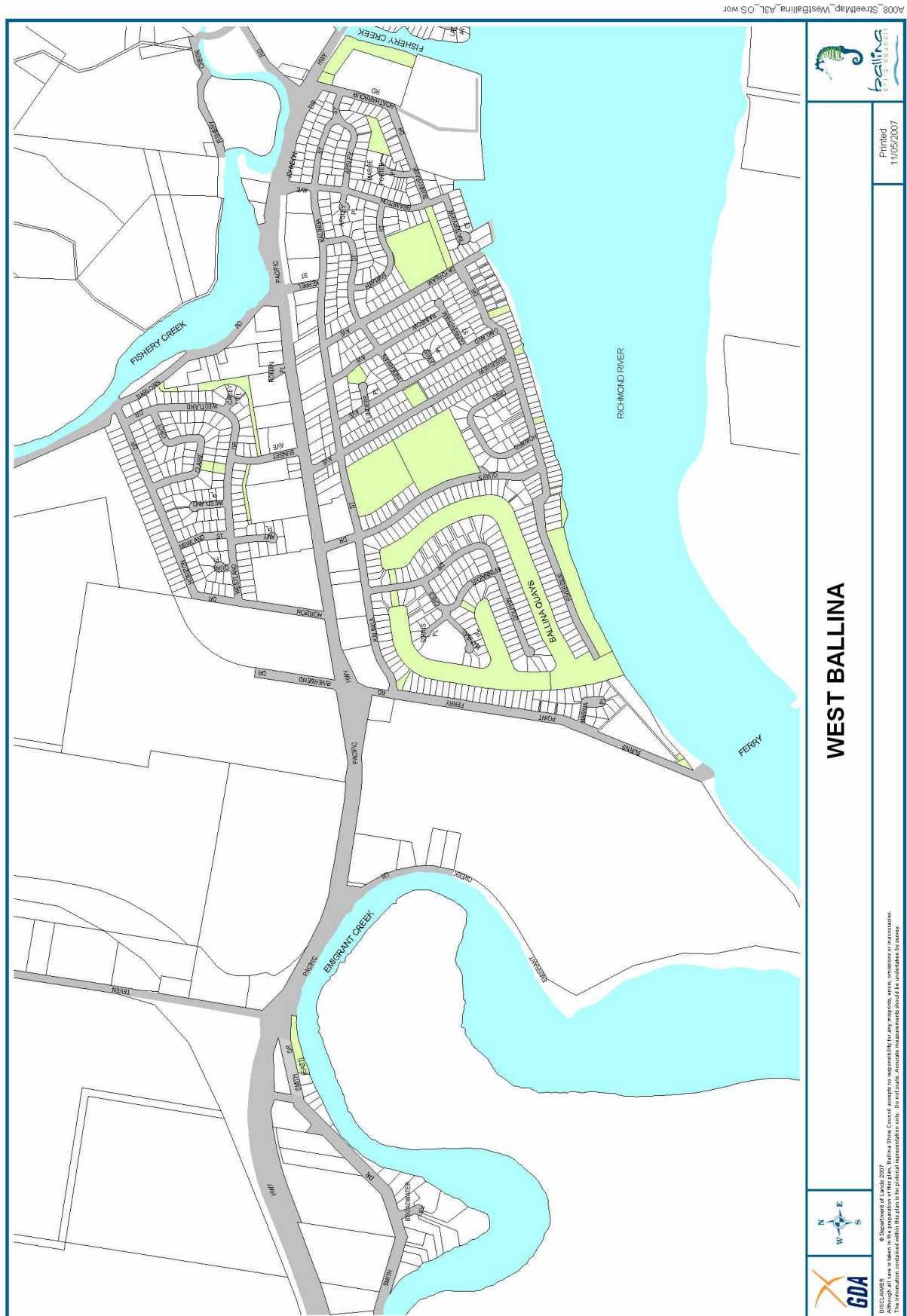
## MAP 8 - SKENNARS HEAD



# MAP 9 - WARDELL



## MAP 10 - WEST BALLINA





# MAP 11 - WOLLONGBAR

