

Narromine Shire

Local Flood Emergency Sub Plan



NARROMINE SHIRE FLOOD EMERGENCY SUB PLAN

A Sub Plan of the Local Emergency Management Plan (EMPLAN)

Volume 1 of the Narromine Shire Flood Emergency Sub Plan

Endorsed by the Local Emergency Management Committee

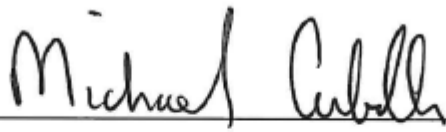
**9 May 2024
Version 3.0**

AUTHORISATION

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

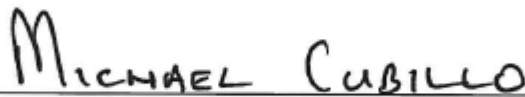
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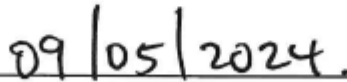


NSW SES Local/Unit Commander

Print Name:



Date:



Endorsed

Signature:

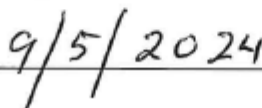


Chair, Local Emergency Management Committee

Print Name:



Date:



VERSION HISTORY

Version Number	Description	Date
1.0	Narromine Shire Local Flood Plan	July 2007
2.0	Narromine Shire Local Flood Plan	July 2014

AMENDMENT LIST

Suggestions for amendments to this plan should be forwarded to:

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

Amendment Number	Description	Updated by	Date

DISTRIBUTION LIST

Available for general use and distribution on the NSW State Emergency Service website
www.ses.nsw.gov.au

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1 OUTLINE AND SCOPE

1.1 PURPOSE

1.1.1 The purpose of this plan is to set out the multi-agency arrangements for the emergency management of flooding in the Narromine Shire Local Government Area (LGA).

1.2 AUTHORITY

1.2.1 This plan is written and issued under the authority of the [State Emergency and Rescue Management Act 1989 \(NSW\)](#) ('SERM Act'), the [State Emergency Service Act 1989 \(NSW\)](#) ('SES Act') and the NSW State Emergency Management Plan (EMPLAN).

1.2.2 This plan is a sub plan to the Narromine Shire Local Emergency Management Plan (EMPLAN) and is endorsed by the Local Emergency Management Committee (LEMC).

1.3 ACTIVATION

1.3.1 This plan does not require activation. The arrangements set out in this plan are always active.

1.3.2 The Narromine Shire Emergency Management Plan (EMPLAN) is active at all times in anticipation of the need to coordinate support and resources requested by combat agencies, including the NSW State Emergency Service (NSW SES).

1.4 SCOPE

1.4.1 The area covered by this plan is the Narromine Shire LGA. The Narromine Shire LGA and its principal towns, villages, rivers and creeks are shown in Appendix A.

1.4.2 The council area is in the NSW SES Western Zone and for emergency management purposes, is part of the Central West Emergency Management Region.

1.4.3 The plan sets out the Narromine Shire level emergency management arrangements for prevention, preparation, response and initial recovery for flooding in the Narromine Shire LGA.

1.4.4 In this plan a flood is defined as a 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 (including tsunamis) overtopping coastline defences.

1.4.5 This plan outlines the local level arrangements for the management of downstream consequences of flooding due to dam failure, however it does not cover the management of flooding of an underground mine by inrush or other cause, which should be covered by the Mine Emergency Sub Plan for the respective mine.

1.5 GOALS

- 1.5.1 The primary goals for flood emergency management in NSW are:
- a. Protection and preservation of life.
 - b. Establishment and operation of flood warning systems.
 - c. Issuing of community information and community warnings.
 - d. Coordination of evacuation and welfare of affected communities.
 - e. Protection of critical infrastructure and community assets essential to community survival during an emergency incident.
 - f. Protection of residential property.
 - g. Protection of assets and infrastructure that support individual and community financial sustainability and aid assisting a community to recover from an incident.
 - h. Protection of the environment and conservation values considering the cultural, biodiversity and social values of the environment.

1.6 KEY PRINCIPLES

- 1.6.1 The protection and preservation of human life (including the lives of responders and the community) is the highest priority.
- 1.6.2 Evacuation is the primary response strategy for people impacted by flooding.

1.7 ROLES AND RESPONSIBILITIES

- 1.7.1 General responsibilities of emergency service organisations and functional areas are set out in the NSW State EMPLAN and NSW State Flood Sub Plan.
- 1.7.2 Specific roles and responsibilities for agencies, functional areas and organisations in relation to flooding within Narromine Shire are detailed within this plan, Appendix B and Appendix C.
- 1.7.3 Any agency with agreed responsibilities in this plan which are temporarily unable or no longer able to fulfil their responsibilities in response operations must, as soon as possible, notify:
- a. The NSW SES Incident Controller (for local or zone level responsibilities during response operations).
 - b. The NSW SES Zone Duty Commander and/or the NSW SES Western Zone office (for regional level responsibilities outside of response operations).

1.8 PLAN MAINTENANCE AND REVIEW

- 1.8.1 The NSW SES will maintain the currency of this plan by:
- a. Ensuring that all supporting emergency services and functional areas, organisations and officers mentioned in it are aware of their roles and responsibilities.
 - b. Conduct a minimum of one exercise every five years or within two years of the plan being reviewed.

- c. Reviewing the contents of the plan:
 - When there are changes which alter agreed plan arrangements.
 - When changes to land use strategic plans and policies increase the population at risk.
 - After a flood including recommendations from after action reviews, reports or inquiries.
 - As determined by the NSW SES Commissioner.
- d. The plan is to be reviewed no less frequently than every five years or after a significant flood event.

1.9 SUPPLEMENTARY DOCUMENTS

- 1.9.1 Supplementary and supporting material of the Local Flood Emergency Sub Plan is maintained on the NSW SES website at: <https://www.ses.nsw.gov.au/about-us/flood-storm-and-tsunami-plans/> including:
- a. Flood Plan Glossary.
 - b. The NSW SES Dam Failure Notification Flowchart.
 - c. The NSW SES Resupply Flowchart.

2 OVERVIEW OF NSW FLOOD HAZARD AND RISK

2.1 THE FLOOD THREAT

- 2.1.1 The NSW SES maintains information on the nature of flooding and effects of flooding on the community in the Narromine Shire LGA.
- 2.1.2 Declared dams in or upstream of the Narromine Shire Local Government Area.

Dam Name	Owner	High Risk Dam
Burrendong Dam	Water NSW	No
Tomingley Residue Storage Facility	Tomingley Gold Operation Pty Ltd	No
Wyoming Central Dam	Tomingley Gold Operation Pty Ltd	No

3 PREVENTION/ MITIGATION

3.1 INTRODUCTION

- 3.1.1 The Floodplain Risk Management Manual outlines the NSW Government's Flood Prone Land Policy which details the framework for managing flood prone land in New South Wales. Incorporation of floodplain risk management into land use planning is one of the key means to limit the exposure to flood risks to our communities and help build long term resilience to future flood events.

3.2 LAND USE PLANNING

3.2.1 **Strategy:** Effective land use planning is a key focus for minimising the impacts of flooding. The NSW SES will work with land use planning and consent authorities to inform and influence the consideration of the risks arising from flood, storm and tsunami to prevent the creation of intolerable impacts of these hazards on the community.

Actions:

- a. The NSW SES will provide strategic input about land use planning matters which have or will create significant flood risk to life and/or property due to flooding.
- b. The NSW SES will provide responses to land use planning proposal referrals that have or will create significant flood risk to life and/or property due to flooding.

3.3 FLOODPLAIN RISK MANAGEMENT

3.3.1 **Strategy:** Advocate for consideration of emergency management in decision making to reduce risks to the existing community and minimise the growth in future, continuing and residual risk due to development through input to the floodplain management program.

Actions:

- a. The NSW SES will provide coordinated and consistent emergency management advice to councils and other agencies in relation to the management of land that is subject to flooding.
- b. The NSW SES will provide advice, support, technical resources and training for the NSW SES representatives to contribute effectively on local Floodplain Risk Management Committees.

4 PREPARATION

4.1 INTRODUCTION

4.1.1 Preparation includes arrangements or plans to deal with an emergency or the effects of an emergency.

4.2 FLOOD EMERGENCY PLANNING

4.2.1 **Strategy:** The NSW SES develop, review and maintain Flood Emergency Sub Plans.

Actions:

- a. Develop and review this NSW SES Local Flood Emergency Sub Plan as required. Local Flood Emergency Sub Plans outline the specific arrangements for management of flood events within an LGA and may include cross boundary arrangements.
- b. Review plans as per [Section 1.8](#).

4.2.2 Local EMPLAN Consequence Management Guides (CMGs) for flood are not required for communities covered by the NSW SES Local Flood Emergency Sub

Plans however may be utilised in place of Local Flood Emergency Sub Plan if agreed to by the NSW SES.

4.3 FLOOD INTELLIGENCE SYSTEMS

4.3.1 **Strategy:** The NSW SES develop and maintain a flood intelligence system to identify flood behaviour, its impact on the community and required response actions.

Actions:

- a. Gather and assess flood information for the full range of flood types and severities.
- b. Collect, collate, and assess information on the characteristics of communities at risk and the potential effects of flooding on communities at risk.
- c. Share flood intelligence information with supporting agencies.

4.4 DEVELOPMENT OF WARNING SYSTEMS

4.4.1 **Strategy:** Develop, maintain and prepare systems for the provision of flood warnings and associated warning services.

Actions:

- a. All levels of government work in partnership to develop and maintain flood warning infrastructure.
- b. The NSW SES maintains a list of the requirements for flood warnings for flood gauges in NSW (including flood classifications, warning times required and key statistics) and can be found in the supplementary document to the NSW State Flood Plan (see Section 1.9). Gauges of relevance within the Narromine Shire LGA are also listed in Volume 3 of this plan.
- c. The NSW SES will recommend new warning services and changes to warning alert levels for gauges to the NSW and ACT Flood Warning Consultative Committee.
- d. The State Government, in partnership with Local Government, is responsible for developing and maintaining flash flood warning systems for local catchments where required.
- e. The dam owners will provide Dam Emergency Plans (where required) and consult with the NSW SES on alert levels and messaging. Alert level definitions are listed in Dam Emergency Plans.
- f. The NSW SES maintains a dedicated dam failure hotline and procedures to ensure priority dissemination of dam failure warnings.
- g. The NSW SES develops and maintains warning and flood information products by:
 - Utilising flood intelligence data.
 - Developing warning and flood information products.
 - Continuously reviewing warning and flood information products.

- Consulting with affected communities, key stakeholders, Dam Safety NSW and the NSW and ACT Flood Warning Consultative Committee, and maintains Operational Readiness.
 - Participating in the development of public information and warning systems.
- h. Gauge owners adequately maintain flood warning gauges and systems, including those identified in the 'Service Level Specification' maintained by the Bureau of Meteorology (Bureau) and those identified in the 'Provision and Requirements for Flood Warning in New South Wales's maintained by the NSW SES.

4.5 BRIEFING, TRAINING AND EXERCISING

4.5.1 **Strategy:** Ensure the NSW SES, supporting agencies, functional areas and the community are prepared and familiar with the strategies and arrangements within the Flood Emergency Sub Plan and supporting documents.

Actions:

- a. The NSW SES will consult stakeholders throughout the development of plans.
- b. The NSW SES will inform stakeholders of content changes after revisions.
- c. The NSW SES will ensure their facilities and resources are maintained and operationally ready.
- d. The NSW SES will train personnel for their expected flood operation roles.
- e. The NSW SES will regularly brief stakeholders on the exercise arrangements contained in the NSW Flood Emergency Sub Plan.

4.6 COMMUNITY RESILIENCE TO FLOODING

4.6.1 **Strategy:** The NSW SES provides and maintains a flexible volunteer workforce to support community resilience.

Actions:

- a. Ensure ongoing recruitment and training of a diverse range of volunteers.
- b. Ensure pre-planning to facilitate the management of spontaneous volunteers and community members during a flood.

4.6.2 **Strategy:** The NSW SES works with individuals, communities, businesses and government agencies to build flood resilience.

Actions:

- a. Partners with and engage communities to understand and manage the risks associated with floods, including providing business continuity guidance (NSW SES Business FloodSafe), family preparedness (NSW SES Home FloodSafe) and other engagement strategies.
- b. The NSW SES will collate, assess and disseminate flood information to the community.

- c. Collaborate with individuals, businesses, government agencies and communities when developing flood intelligence, preparedness and response information.
- d. Plan for floods collaboratively with communities through community and stakeholder participation and engagement.
- e. Collaborate with community sector and recognise the needs of individuals within communities who have an increased susceptibility during floods.

5 RESPONSE

5.1 INTRODUCTION

5.1.1 Flood response operations will begin:

- a. On receipt of a Bureau Severe Weather Warning or Thunderstorm Warning that includes heavy rain or storm surge; or
- b. On the receipt of a Bureau Flood Watch or Flood Warning; or
- c. On receipt warnings for flash flood; or
- d. On receipt of a dam failure alert; or
- e. When other evidence leads to an expectation of flooding.

5.2 INCIDENT MANAGEMENT ARRANGEMENTS

5.2.1 **Strategy:** Maintain effective control of flood operations across NSW.

Actions:

- a. The NSW SES uses the Australasian Inter-service Incident Management System (AIIMS) to manage the flood response.
- b. Control of flood response will be at the lowest effective level and may be scaled to suit the incident.
- c. The NSW SES State Controller (or delegate) will appoint Incident Controllers and establish Incident Control Centres (see NSW SES facilities on map in Appendix A).
- d. The NSW SES Incident Controller, in consultation with participating supporting emergency services and functional areas will determine the appropriate breakdown of an Area of Operations into Divisions and/or Sectors in accordance with the principles of AIIMS.

5.2.2 **Strategy:** Maintain Incident Control Centre(s).

Actions:

- a. The NSW SES will operate Incident Control Centre(s) as required.
- b. The NSW SES Incident Control Centre(s) will:
 - Control resources from the NSW SES and coordinate resources of supporting emergency services and functional areas.

- Manage incident tasking and ensure they are actioned in a timely manner.
- Undertake response planning and determine future resourcing requirements.
- Coordinate information flow, including warnings, public information and social media.

5.2.3 **Strategy:** Provide effective liaison between the NSW SES and supporting agencies or functional areas in accordance with the local EMPLAN.

Actions:

- Supporting emergency services and functional areas should provide liaison officers to the NSW SES Incident Control Centre(s) and/or Emergency Operation Centres as required.
- The NSW SES will provide Liaison Officer(s) to Emergency Operations Centres as required.
- Where possible Emergency Operation Centres are to be co-located with the NSW SES Incident Control Centres for Flood Emergency Response.

5.2.4 **Strategy:** Coordinate resources and logistics support to ensure operational effectiveness.

Actions:

- The NSW SES Incident Controller will notify agencies of potential access issues between locations, for the consideration of pre-deploying of resources.
- The NSW SES may request resources and logistics support directly from a supporting emergency service or functional area.
- Wherever possible, supporting organisations are to provide their own logistic support in consultation with the NSW SES where appropriate.
- The NSW SES Incident Controller will control air support operations and may utilise supporting agencies in the management of aircraft.

5.3 USE OF INFORMATION AND COLLECTION OF INTELLIGENCE

5.3.1 **Strategy:** Ensure flood information is effectively utilised, communicated and collected during and post a flood.

Actions:

- Information relating to the consequences of flooding, response strategies, situational awareness and operational updates will be distributed by the NSW SES to supporting emergency services and functional areas listed under this plan.
- All supporting emergency services and functional areas and Council will accurately record and report information relevant to their activities and any real time flood information (including road closure information) to the NSW SES Incident Controller. This may be in the form of a combined Emergency Operations Centre (EOC) report, or direct from agencies where an EOC has not been established.

- c. The NSW SES may establish and operate a Joint Intelligence Unit to coordinate the collection, collation, interpretation, mapping, actioning and dissemination of information.
- d. Reconnaissance, mapping, damage assessments, intelligence validation and post flood evaluation will be coordinated by the NSW SES. This may occur post impact and continue into the recovery phase.
- e. NSW SES may request the Engineering Services Functional Area to assist with the gathering of flood intelligence including (not limited to) maximum flood extents, peak flood heights, recording major flood damage at key high velocity locations and preparation of the after-flood report.

5.3.2 **Strategy:** Ensure flood intelligence is incorporated into operational decision-making.

Action: The NSW SES will use flood intelligence, official forecasts, warnings, and flood scenario products to undertake an assessment of the predicted impact of a flood and to inform operational decision-making.

5.4 PROVISION OF INFORMATION AND WARNINGS TO THE COMMUNITY

5.4.1 **Strategy:** Timely and effective warnings are distributed to the community.

Actions:

- a. The Bureau issues public weather and flood warning products before and during a flood. These may include:
 - Severe Thunderstorm Warnings – Detailed - Issued for all capital cities and surrounding areas when individual severe thunderstorms are within range of the capital city radars.
 - Severe Thunderstorm Warnings - Broad-based - Issued for the entire Australian state or territories affected highlighting broad areas where severe storms may occur within the next 3 hours.
 - Severe Weather Warnings with reference to heavy rainfall and/or storm surge.
 - Flood Watches.
 - Flood Warnings.
- b. Dam owners will utilise the Dam Emergency Plan to provide warnings and information to the NSW SES and communities (where appropriate).
- c. The NSW SES Incident Controllers will issue the following NSW SES Flood Warnings aligning to the Australian Warning System:
 - Advice.
 - Watch And Act.
 - Emergency Warning.
- d. The NSW SES liaises with the Bureau to discuss the development of flood warnings as required.

- e. The NSW SES provides alerts and deliver flood information to affected communities using a combination of public information.
- f. The NSW SES may request supporting agencies redistribute NSW SES alerts and information, including through the provision of doorknocking teams.
- g. Road closure information will be provided to the community through the following agencies/methods:
 - Local Government websites.
 - Transport for NSW 'Live Traffic' website: www.livetraffic.com or 'Transport InfoLine': 131 500. VMS messaging on roadways may also be used to advise motorists.
- h. The Public Information and Inquiry Centre will be established by the NSW Police Force where required to provide information regarding evacuees and emergency information. Contact details will be broadcast once the centre is established.
- i. The Disaster Welfare Assistance Line will be established by the Disaster Welfare Services Functional Area where required to provide information on welfare services and assistance. Assistance line contact details will be broadcast once Disaster Welfare services commence.

5.5 PROTECTION OF PROPERTY

5.5.1 **Strategy:** Coordinate the protection of property from destruction or damage arising from floods.

Action: The NSW SES, supporting agencies, and community volunteers will assist the community (where resources are available, feasible and safe to do so) in:

- a. The protection of properties including critical infrastructure through flood protection systems (e.g. sandbagging) to minimise entry of water into buildings.
- b. The raising or moving of household furniture and commercial stock/equipment.

5.6 ROAD AND TRAFFIC CONTROL

5.6.1 **Strategy:** Coordinate the closing and re-opening of flood affected roads.

Actions:

- a. Narromine Shire Council will coordinate the closure and reopening of council managed roads once inspections have been carried out by the relevant authority.
- b. Transport for NSW will coordinate the closure and reopening of the state road network.
- c. The NSW Police Force may close and re-open roads but will normally only do so (if the Narromine Shire Council or Transport for NSW have not already acted and if public safety requires such action).

- d. The NSW SES will assist with erecting road closure signs and barriers when time and resources permit.

5.6.2 **Strategy:** Coordinate traffic control measures in flood affected areas.

- a. The NSW SES Incident Controller may direct the imposition of traffic control measures into flood affected areas in accordance with the provisions of the *State Emergency Service Act, 1989* and the *State Emergency Rescue Management Act, 1989*.
- b. The NSW SES Incident Controller may request the Local Emergency Operations Controller provide suitable personnel to assist with traffic coordination.

5.7 PROTECTION OF ESSENTIAL SERVICES

5.7.1 Local and Region EMPLANS contain infrastructure inventories.

5.7.2 **Strategy:** Minimise disruption to the community by ensuring protection of infrastructure and supply of essential energy, utility services and lifelines.

Actions:

- a. The Transport Services Functional Area is to coordinate the provision of information about the assessment and restoration of transport network infrastructure.
- b. The Energy and Utility Services Functional Area is to coordinate the assessment and restoration of essential energy and utility services (not including telecommunications).
- c. The Telecommunications Services Functional Area is to coordinate the assessment and restoration of telecommunications and the Public Safety Network.
- d. The Engineering Services Functional Area is to:
 - Coordinate the assessment and restoration of critical public buildings for example hospitals.
 - Assessment and operation of flood protection levees.
 - Protection of property.
 - Construction and repair of levees.
 - Dam safety assessment and dam stability.
 - Water supply and sewerage operations.
 - Other critical infrastructure.
- e. The Functional Areas and Narromine Shire will keep the NSW SES informed of the status of utilities and infrastructure.

5.8 EVACUATION

5.8.1 Evacuation is the NSW SES' primary response strategy for managing the population at risk of flooding.

5.8.2 **Strategy:** Conduct planning to ensure all evacuation constraints are considered.

Actions:

- a. Evacuations will take place when there is a risk to public safety. Circumstances may include:
 - Evacuation of people when their homes or businesses are likely to flood.
 - Evacuation of people who are unsuited to living in isolated circumstances, due to flood water closing access.
 - Evacuation of people where essential energy and/or utility services are likely to fail or where buildings have been or may be made uninhabitable.
- b. The NSW SES will consider the following in evacuation decisions:
 - Duration of evacuation.
 - Characteristics of the community.
 - Numbers requiring evacuation.
 - Availability of evacuation routes and transport.
 - The ability for existing levees or other flood protection works to fulfil their intended function.
 - Time available for evacuation.
 - Evacuee management requirements.
 - Resources and delivery of evacuation information.
 - Length of isolation.
- c. The NSW SES Incident Controllers, planning and intelligence officers will carefully consider the risks involved in conducting evacuations.
- d. All evacuation decisions will be made as per the current the NSW SES policies and procedures, and consistent with the NSW Evacuation Management Guidelines.
- e. Potential Evacuation Centres are located in the Local EMPLAN.
- f. The NSW Police Force will coordinate the provision of overall security for evacuated areas.

5.8.3 **Strategy:** Evacuate people pre-emptively from dangerous or potentially dangerous places and or locations created by the flood hazard to safe locations away from the hazard.

- a. The NSW SES will control and coordinate the evacuation of affected communities.
- b. The NSW SES Commissioner (or delegate) will warn communities to prepare for a possible evacuation, where circumstances allow such lead time.
- c. The NSW SES Commissioner (or delegate) will order any necessary evacuations and provide information to the community about when and how to evacuate.
- d. Support to evacuation operations may be requested from other emergency services and supporting agencies using arrangements in the local EMPLAN and supporting plans.

- e. The Health Services Functional Area will coordinate the evacuation of hospitals, health centres and aged care facilities (including nursing homes) in consultation with the NSW SES and the Welfare Services Functional Area.
- f. School administration offices (government and private) will coordinate the evacuation of schools in consultation with the NSW SES and Welfare Services Functional Area, if not already closed.
- g. Caravan Park proprietors will inform the NSW SES Incident Controller when caravan park evacuations have been completed.
- h. People who are reluctant or refuse to comply with any Emergency Warning will be referred to the NSW Police Force.

5.9 EVACUEE MANAGEMENT AND WELFARE

5.9.1 Research and experience in flood operations shows that most evacuees go to family, friends and commercial accommodation outside the impact area.

5.9.2 **Strategy:** Maintain the welfare of communities and individuals affected by the impact of a flood.

Actions:

- a. The NSW SES will provide initial welfare for evacuees where required but will hand the responsibility over to the Welfare Services Functional Area as soon as possible. The NSW SES will brief the Welfare Services Functional Area at the earliest opportunity regarding the level of assistance required.
- b. The Welfare Services Functional Area will manage evacuation centres for affected residents and travellers in accordance with the Welfare Services Functional Area Supporting Plan.
- c. Schools administration (government and private) will manage the safety of students directly affected by flooding and will work with the NSW SES in the temporary closure of schools and will coordinate with the NSW SES, the Transport and Welfare Services Functional Area in the management of school evacuees.
- d. Disaster Victim Registration will be controlled and coordinated by the NSW Police Force with the assistance of the NSW SES and the Welfare Services Functional Area.
- e. The NSW SES will provide details of all residents assisted in evacuations to the Welfare Services Functional Area as early as possible.
- f. Where the expected remaining number of evacuees and the duration of evacuation is assessed to be beyond the capability and capacity of the established evacuation centre arrangements the State Emergency Operations Controller (SEOCN) may establish Major Evacuation Centres or Mass Care facilities.
- g. The decision to establish Major Evacuation Centres or Mass Care Facilities will be made by the NSW SES and SEOCN in consultation with members of the State Emergency Management Committee (SEMC).

5.9.3 **Strategy:** Coordinate available and accessible health services for flood affected communities.

Action: The provision of environmental health advice, assessment of public health risks and coordination of immediate mental health support will be provided by the Health Services Functional Area.

5.9.4 **Strategy:** Maintain the welfare of animals impacted by a flood.

Actions:

- a. The Agriculture and Animal Services Functional Area will coordinate the welfare of livestock, pets, companion animals and wildlife including support to primary producers, animal holding establishments and community members.
- b. The Agriculture and Animal Services Functional Area role will coordinate the evacuation, emergency care and assessment of animals, the humane destruction and disposal of affected animals and the supply of emergency fodder and water (with aerial support where necessary).

5.10 FLOOD RESCUE

5.10.1 **Strategy:** Control and coordinate flood rescue of people and domestic animals.

Actions:

- a. The NSW SES will perform flood rescue, where training and equipment is suitable and where a risk assessment has indicated that the risk to rescuers is acceptable.
- b. Flood rescue operations will be conducted in accordance with the State Rescue Board NSW State Rescue Policy which sets out the framework, governance, responsibilities and requirements for the management and conduct of flood rescue in NSW.
- c. The NSW SES may request other supporting emergency services to undertake flood rescues on behalf of the NSW SES. Agencies must be authorised/accredited to undertake flood rescue operations in accordance with State Rescue Board requirements, as prescribed by the NSW SES. Supporting emergency services must supply information regarding rescues performed to the NSW SES. Notification arrangements with the NSW Police Force are outlined in the State Rescue Board NSW State Rescue Policy.
- d. Rescue agencies will conduct rescue of domestic small and large animals as per the State Rescue Board NSW State Rescue Policy (and may include large animal rescue of family horses and cows at a residence or property). The rescue of livestock (which includes commercial animals found on farming and breeding enterprises) will be coordinated through the Animal and Agriculture Services Functional Area.

5.11 RESUPPLY

5.11.1 **Strategy:** Coordinate resupply to towns and villages isolated by flooding to minimise disruption to the community.

Actions:

- a. The NSW SES will advise communities and businesses if flood predictions indicate that areas are likely to become isolated, and indicative timeframes where possible.
- b. Retailers should be advised to ensure sufficient stock is available for the duration of the flood.
- c. When isolation occurs, the NSW SES will establish loading points where retailers can instruct suppliers to deliver goods.
- d. The NSW SES will endeavour to support the delivery of mail to isolated communities but may not be able to do so according to normal Australia Post timetables.
- e. The NSW SES will assist hospitals with resupply of linen and other consumables where able.
- f. The NSW SES may request resupply assistance from supporting agencies.
- g. The NSW SES may conduct resupply operations as per the designated resupply plan for the event.
- h. Where additional supplies are required Engineering Services Functional Area be requested to coordinate the supply of goods and services in response to and recovery from the emergency.

5.11.2 **Strategy:** Coordinate resupply to rural properties isolated by flooding.

Actions:

- a. When requested, the NSW SES will establish a resupply schedule and coordinate the resupply for isolated rural properties.
- b. The NSW SES will provide local suppliers with designated loading points. Resupply items are to be packaged by the supplier.
- c. Isolated households unable to afford resupply items will be referred to the Welfare Services Functional Area for assistance.

5.12 RETURN

5.12.1 **Strategy:** Coordinate the safe return of communities to flood affected areas when the immediate danger to life and property has passed.

Actions:

- a. The NSW SES Incident Controller will determine when it is safe to progressively return in consultation with the relevant Emergency Operations Controller and supporting agencies considering the ongoing risk to public safety.
- b. The NSW SES Incident Controller will specify the level of access to affected communities as the following:

- Not suitable for access; or
 - Limited access by emergency services and response agencies; or
 - Limited access by residents and/or business operators; or
 - Full access.
- c. The NSW SES Incident Controller will issue an Advise Warning advising 'Reduced Threat: Return with Caution' when the immediate danger to life and property has passed for areas.
- d. The NSW SES will facilitate the return of evacuees to their homes.

5.13 END OF RESPONSE OPERATIONS

5.13.1 **Strategy:** Conclude response operations.

Actions:

- a. Response operations will conclude when:
- There is a reduced likelihood of additional flooding within the Area of Operation and flood waters have receded.
 - All requests for assistance related to the flood have been completed.
 - The need for warning and evacuation no longer exist.
 - There is no further likelihood of rescuing people.
 - Resupply is no longer required (resupply operations may occur concurrently with the recovery phase).
 - Response to fire and hazardous material incidents have concluded (not including subsequent clean-up of contaminated sites).
 - All affected areas have had a 'Reduced Threat: Return with Caution' issued.

5.14 POST IMPACT ACTIONS

5.14.1 **Strategy:** Learnings from the event are used to inform recovery and future events.

Actions:

- a. The NSW SES will continue to engage with communities after significant floods through convening one or more community forums, workshops or other opportunities to provide communities a chance to provide feedback, address any concerns and provide input into the recovery process. These will typically include other agencies such as the Bureau, the Welfare Services Functional Area and Narromine Shire Council representatives.
- b. The NSW SES will conduct After Action Reviews, at the conclusion of response operations, which will involve all stakeholders. Findings will be shared and incorporated into improved disaster resilience planning.
- c. The NSW SES will provide information and data throughout the emergency response to inform community recovery. A report will be developed at the

request of the SERCON at the conclusion of the response within an area. Should a response summary report be required it will include the following:

- The emergency action plan in place at conclusion of the response emphasising any continuing activities including community meetings/engagement activities.
- Resources allocated to the emergency response and associated exit strategies.
- Details of any areas or situations with potential to re-escalate the emergency.
- A recommendation for the conclusion of the NSW SES as lead agency to transition to the NSW Reconstruction Authority as the lead agency for recovery.
- Any actions that are incomplete or outstanding.
- Damage assessment data and Information obtained throughout the response phase which will further support the long-term recovery of communities.

d. The NSW SES will undertake/coordinate a comprehensive review of intelligence and plans following significant flood events.

5.14.2 **Strategy:** Participate in post flood data collection analysis.

Actions: The NSW SES works with relevant stakeholders and Narromine Shire Council on post flood data collection analysis including review of flood intelligence where necessary.

6 RECOVERY OPERATIONS

6.1 INTRODUCTION

6.1.1 Recovery is the process of returning an affected community to its proper level of functioning after an emergency. It will generally commence simultaneously with the response phase.

6.1.2 Recovery operations will be initiated and conducted as outlined in the NSW State EMPLAN and as further detailed in the NSW Recovery Supporting Plan.

6.2 NSW SES RECOVERY ROLE

6.2.1 **Strategy:** The NSW SES will support recovery operations and established Recovery Committees.

6.2.2 **Actions:**

- a. The NSW SES will provide representation to Recovery Committees as required and may have an ongoing role in the recovery phase.
- b. The NSW SES roles on Recovery Committees may include providing information about any continuing response, guidance on mitigation strategies and general

advice and assistance to the committee as a subject matter specialist and or expert.

- c. The NSW SES will provide information to the NSW Reconstruction Authority to support applications to Treasury for Natural Disaster Relief and Recovery Arrangements.
- d. The NSW SES, in conjunction with a Recovery Committee, will provide a service to support the information needs of a community immediately following a flood.
- e. The NSW SES, and where required supporting agencies, will assist with clean-up operations after floods, where possible when resources and personnel permit.
- f. The NSW SES may coordinate immediate relief in collaboration with the State Emergency Recovery Controller (SERCON)

7 ABBREVIATIONS

For a full list of abbreviations refer to the NSW State Flood Plan – Abbreviations.

8 GLOSSARY

Common emergency service terminology can be found within the Australian Disaster Resilience Glossary.

Readers should refer to EMPLAN Annex 9 – Definitions.

Refer to the NSW State Flood Plan for a complete glossary of terminology used throughout this plan and within NSW SES Flood Plans.

For a full list of definitions refer to the Supporting Document - State Flood Plan Glossary
<https://www.ses.nsw.gov.au/media/2650/glossary.pdf>

9 Appendix A – Map of Narromine Shire Council Area

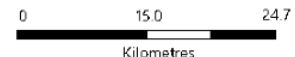


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Local Government Area of
Narromine Shire Council

- Legend
- SES Headquarters
 - Gauges (BOM Forecast)
 - Declared Dams
 - Levees
 - Rivers (Major)
 - LGA
 - Regional Towns



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10 Appendix B – Roles and Responsibilities

AGENCY	RESPONSIBILITIES
NSW State Emergency Service	The NSW SES is the designated Combat Agency for floods, storms and tsunami and controls response operations. The NSW SES roles and responsibilities in relation to floods are outlined in the NSW State Flood Plan .

AGENCY	RESPONSIBILITIES
Agriculture and Animal Services Functional Area	The roles and responsibilities for the Agriculture and Animal Services Functional Area are outlined in the Agriculture and Animal Services Supporting Plan and NSW State Flood Plan.
Australian Government Bureau of Meteorology	The roles and responsibilities for the Australian Government Bureau of Meteorology (Bureau) are outlined in the NSW State Flood Plan.
Caravan Park Proprietor(s)	<ul style="list-style-type: none"> • Prepare a flood emergency plan for the caravan park. • Ensure that owners and occupiers of movable dwellings are aware that the caravan park is flood liable by providing a written notice to occupiers taking up residence and displaying this notice and emergency management arrangement within the park. • Ensure that owners and occupiers of movable dwellings are aware that if they are expecting to be absent for extended periods, they should: <ul style="list-style-type: none"> – Provide the manager of the caravan park with a contact address and telephone number in case of an emergency. – Leave any movable dwelling in a condition allowing it to be relocated in an emergency (i.e.: should ensure that the wheels, axles and draw bar of the caravans are not removed and are maintained in proper working order). • Ensure that occupiers are informed of Flood Information. At this time, occupiers should be advised to: <ul style="list-style-type: none"> – Ensure that they have spare batteries for their radios. – Listen to a local radio station for updated flood information. – Prepare for evacuation and movable dwelling (cabins) relocation. • Ensure that owners and occupiers of caravans are aware of what they must do to facilitate evacuation and movable dwelling relocation when flooding occurs. • Coordinate the evacuation of people and the relocation of movable dwellings when floods are rising and their return when flood waters have subsided. Movable dwellings will be relocated back to the caravan park(s) by owners or by vehicles and drivers arranged by the park managers.

AGENCY	RESPONSIBILITIES
	<ul style="list-style-type: none"> • Secure any movable dwellings that are not able to be relocated to prevent floatation. • Inform the NSW SES of the progress of evacuation and/or movable dwellings relocation operations and of any need for assistance in the conduct of these tasks.
Childcare Centres and Preschools	<ul style="list-style-type: none"> • When notified of possible flooding or isolation, childcare centres and preschools should: <ul style="list-style-type: none"> – 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 childcare centres.
Dams Safety NSW	The roles and responsibilities for Dams Safety NSW (formerly NSW Dam Safety Committee) are outlined in the NSW State Flood Plan.
Department of Defence	Arrangements for Defence Assistance to the Civil Community are detailed within the State EMPLAN (section 448).
Energy and Utilities Services Functional Area	<p>The roles and responsibilities for the Energy and Utilities Services are outlined in the Energy and Utility Services Supporting Plan (EUSPLAN).</p> <p>Roles and responsibilities in addition to the supporting plan are:</p> <ul style="list-style-type: none"> • Assist the NSW SES with identification of infrastructure at risk of flood damage where resources are available. • Facilitate local utility service distribution providers (electricity, gas, water, wastewater) to: <ul style="list-style-type: none"> – Provide advice to the NSW SES of any need to disconnect power/gas/water/wastewater 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 electricity distribution equipment. – Reconnect customers’ electrical/ gas/ water/wastewater installations, when certified safe to do so and as conditions allow. – Assist the NSW SES to identify infrastructure at risk of flooding for incorporation into planning and intelligence.
Engineering Services Functional Area	The roles and responsibilities for the Engineering Services Functional Area are outlined in the Engineering Services Supporting Plan and NSW State Flood Plan.

AGENCY	RESPONSIBILITIES
Environmental Services Functional Area	The roles and responsibilities for the Environmental Services Functional Area are outlined in the Environmental Services (ENVIROPLAN) Supporting Plan.
Floodplain Management Australia	The roles and responsibilities for Floodplain Management Australia are outlined in the NSW State Flood Plan.
Fire and Rescue NSW	The roles and responsibilities for Fire and Rescue NSW are outlined in the NSW State Flood Plan.
Forestry Corporation of NSW	The roles and responsibilities for the Forestry Corporation of NSW are outlined in the NSW State Flood Plan.
Health Services Functional Area	The roles and responsibilities for the Health Services Functional Area are outlined in the Health Services (HEALTHPLAN) Supporting Plan and NSW State Flood Plan.
Local Emergency Operations Controller (LEOCON)	<ul style="list-style-type: none"> • Monitor flood operations. • If requested, coordinate support for the NSW SES Incident Controller.
Local Emergency Management Officer (LEMO)	<ul style="list-style-type: none"> • If requested by the NSW SES Incident Controller, advise appropriate agencies and officers of the start of response operations.
Manly Hydraulics Laboratory (MHL)	The roles and responsibilities for Manly Hydraulic Laboratory are outlined in the NSW State Flood Plan.
Marine Rescue NSW	The roles and responsibilities for Marine Rescue NSW are outlined in the NSW State Flood Plan.
Narromine Shire Council	<p>Preparedness</p> <ul style="list-style-type: none"> • Establish and maintain floodplain and coastal risk management committees and ensure that key agencies are represented. • Develop and implement floodplain risk management plans in accordance with the NSW Government’s Flood Prone Land Policy and the Floodplain Risk Management Manual. • Provide levee studies, flood studies and floodplain management studies to the NSW SES. • Maintain council-owned flood warning networks and flood mitigation works. • Participate in the NSW SES-led flood emergency planning meetings, to assist in the preparation of Flood Sub Plans. • Maintain a plant and equipment resource list for the council area. • Contribute to community engagement activities. <p>Response</p>

AGENCY	RESPONSIBILITIES
	<ul style="list-style-type: none"> ● Subject to the availability of council resources, assist the NSW SES with flood operations including: <ul style="list-style-type: none"> – Traffic management on council managed roads. – Provision of assistance to the NSW SES (plant, equipment and personnel where able and requested). – Property protection tasks including sandbagging. – Assist with the removal of caravans from caravan parks. – Warning and/or evacuation of residents and other people in flood liable areas. – Provision of back-up radio communications. – Resupply of isolated properties. – Technical advice on the impacts of flooding. – Close and reopen council roads (and other roads nominated by agreement with Transport for NSW) and advise the NSW SES, the NSW Police Force and people who contact the council for road information. – Assist the NSW SES to provide filled sandbags and filling facilities to residents and business in areas which flooding is expected. ● Assist with making facilities available for domestic pets and companion animals of evacuees during evacuations. ● Operate flood mitigation works including critical structures such as detention basins and levees and advise the NSW SES regarding their operation. ● Manage and protect council-owned infrastructure facilities during floods. ● Provide advice to the NSW SES and the Health Services Functional Area during floods about key council managed infrastructure such as sewerage treatment and water supply. ● Advise the Environmental Protection Authority of any sewerage overflow caused by flooding. ● Work with the NSW SES and NSW Department of Planning and Environment to collect flood related data during and after flood events. <p>Recovery</p> <ul style="list-style-type: none"> ● Provide for the management of health hazards associated with flooding including removing debris and waste. ● Ensure premises are fit and safe for reoccupation and assess any need for demolition. ● Provide services, assistance and advice to the State Government in accordance with the State Recovery Plan.

AGENCY	RESPONSIBILITIES
NSW Ambulance	The roles and responsibilities for NSW Ambulance are outlined in the Health Services (HEALTHPLAN) Supporting Plan and NSW State Flood Plan.
NSW Department of Education, Association of Independent Schools of NSW, and National Catholic Education Commission	The roles and responsibilities for NSW Department of Education, Association of Independent Schools of NSW, and National Catholic Education Commission are outlined in the NSW State Flood Plan.
NSW Department of Planning and Environment (Environment and Heritage Group)	The roles and responsibilities for NSW Department of Planning and Environment (Environment and Heritage Group) are outlined in the NSW State Flood Plan (referred to as DPIE EES).
NSW Department of Planning and Environment (Water)	The roles and responsibilities for NSW Department of Planning and Environment (Water) are outlined in the NSW State Flood Plan.
NSW Food Authority	The roles and responsibilities for the NSW Food Authority are outlined in the Food Safety Emergency Sub Plan.
NSW National Parks and Wildlife Services	The roles and responsibilities for the NSW National Parks and Wildlife Services are outlined in the NSW State Flood Plan.
NSW Police Force	The roles and responsibilities for the NSW Police Force are outlined in the NSW State Flood Plan.
NSW Reconstruction Authority	The roles and responsibilities for the NSW Reconstruction Authority are outlined in the NSW State Flood Plan.
NSW Rural Fire Service	The roles and responsibilities for the NSW Rural Fire Service are outlined in the NSW State Flood Plan.
Owners of Declared Dams within or upstream of the LGA	The roles and responsibilities for the owners of declared dams are outlined in the NSW State Flood Plan.
Public Information Services Functional Area	The roles and responsibilities for the Public Information Services Functional Area are outlined in the Public Information Services Supporting Plan and the NSW State Flood Plan.
State Emergency Operations Controller SEOC	The roles and responsibilities for the SEOC/SEOC are outlined in the NSW State Flood Plan.
Surf Life Saving NSW	The roles and responsibilities for Surf Life Saving NSW are outlined in the NSW State Flood Plan.
Telecommunications Services Functional Area	The roles and responsibilities for the Telecommunications Services Functional Area are outlined in the Telecommunications Services (TELCOPLAN) Supporting Plan.
Transport for NSW	<ul style="list-style-type: none"> • Transport for NSW coordinates information on road conditions for emergency services access.

AGENCY	RESPONSIBILITIES
	<ul style="list-style-type: none"> • Transport for NSW coordinates the management of the road network across all modes of transport. • Transport for NSW in conjunction will assist NSW SES with the evacuation of at-risk communities by maintaining access and egress routes. • Assist the NSW SES with the communication of flood warnings and information provision to the public through Live Traffic and Social Media according to the VMS protocols and procedures. • Assist the NSW SES with identification of road infrastructure at risk of flooding.
Transport Services Functional Area	The roles and responsibilities for the Transport Services Functional Area are outlined in the Transport Services Functional Area Supporting Plan and NSW State Flood Plan.
VRA Rescue NSW	The roles and responsibilities for VRA Rescue NSW are outlined in the NSW State Flood Plan.
Water NSW	The roles and responsibilities for Water NSW are outlined in the NSW State Flood Plan.
Welfare Services Functional Area	The roles and responsibilities for the Welfare Services Functional Area are outlined in the Welfare Services Functional Area Supporting Plan and NSW State Flood Plan.

11 Appendix C – Community Specific Roles and Responsibilities

<p>Community Members</p>	<p>Preparedness</p> <ul style="list-style-type: none"> • Understand the potential risk and impact of flooding. • Prepare homes and property to reduce the impact of flooding. • Understand warnings and other triggers for action and the safest actions to take in a flood. • Households, institutions and businesses develop plans to manage flood risks, sharing and practicing this with family, friends, employees and neighbours. • Have an emergency kit. • Be involved in local emergency planning processes. <p>Recovery</p> <ul style="list-style-type: none"> • Assist with community clean-up if required and able to do so. • Participate in After Action Reviews if required.
<p>Aboriginal Organisations or Groups</p>	<p>Narromine Local Aboriginal Land Council</p> <ul style="list-style-type: none"> • Act as the point of contact between the NSW SES and the Narromine Aboriginal community. • Inform the NSW SES Narromine Unit Commander about flood conditions and response needs. • Disseminate flood information, including flood and evacuation warnings, to the Narromine Aboriginal community.
<p>Communication</p>	<ul style="list-style-type: none"> • The Narromine NSW SES Facebook Page.

HAZARD AND RISK IN NARROMINE SHIRE

Volume 2 of the Narromine Shire Local Flood Plan

Last Update: July 2007

ANNEX A - THE FLOOD THREAT

General

1. The Narromine Council area is located to the west of Dubbo. It is made up predominantly of gently undulating and hilly country in the east, gradually changing to very flat land in the central and western portions. Much of the council's territory is liable to flooding, and the low-lying areas in the west can be subjected to long-lasting inundation.

Landforms and River Systems

2. The Macquarie River rises far from Narromine in the Great Dividing Range, its headwater streams forming in the Oberon, Lithgow, Mid-Western Regional and Warrumbungle council areas. Much of the upper catchment drains into Lake Burrendong via the Fish, Campbells, Turon, upper Macquarie and Cudgegong river systems. Downstream of the dam the river is fed by the Bell, Little and Talbragar rivers.
3. Within the Narromine Council area, the Macquarie River is joined by three minor tributaries. These are the Coolbaggie and Kookaburra creeks, which enter from the north, and Brummagen Creek which flows into the Macquarie's south bank. The Brummagen forms part of the council area's boundary with Dubbo City. At the town of Narromine, the Macquarie River turns northward, flowing through increasingly flat country towards and downstream of Gin Gin.
4. Numerous minor and intermittent watercourses drain parts of the council area. These include Ewenmar Creek, which crosses the northern portion, and numerous cowals which flow from east to west including the Trangie, Boggy (Backwater) and Brady's cawal systems. The Boggy and Brady's cowals rise in the Sappa Bulga Range in the south-east of the council area. The Boggy is an ancient, now abandoned channel of the Macquarie River.
5. The far south is drained by the Bogan River, which rises in the Herveys Range outside the council area and forms the boundary with the Parkes council area. There are no significant tributaries entering the Bogan within the council area, but Genaren, Sandy and Bullock creeks enter from the southern (Parkes) side.
6. Flooding can occur on all these watercourses, but the most severe floods in the history of the Narromine Council area have been those generated over the headwaters of the Macquarie River. The worst floods experienced at Narromine itself were in 1867, 1892, 1926, 1950, 1955 and 1956. Of these the most severe was in 1955, when flood waters broke out above the town and flowed to the Boggy Cawal and Bogan River. All these floods caused widespread inundation especially in the western parts of the council area. In recent years the most severe floods (which occurred in 1971 and 1990) did not inundate such large areas. The 1990 flood broke out downstream of Narromine and flowed

westward via the Trangie Cowal and Buddah Lake to cover the area between Trangie and Gin Gin.

7. Flood waters in most events are shallow (up to a metre in depth over wide areas) and relatively slow moving. Inundation can last for some weeks, especially in the west and in serious floods. Large overbank flows fill natural depressions, swamps and channels which together carry much greater flows than the main channel.
8. As is the norm with the western rivers of NSW, the flood carrying capacity of the Macquarie River declines in a downstream direction. This means that flood frequencies are higher in the western parts of the council area, where waters spill out even in relatively non-severe events, than in the central and eastern portions. Above Gin Gin, flooding of areas adjacent to the channel occurs about once every 10-12 years whereas from Gin Gin downstream it is experienced every three to four years on average. Most flooding occurs over the left (south) bank, though the 1955 event caused flooding on the north side as well.

Storage Dams

9. Burrendong Dam, which is just upstream of Wellington on the Macquarie River (downstream of its confluence with the Cudgegong River) was completed in 1965 to provide flood mitigation. A small quantity of electricity is generated from the flow of the water leaving Burrendong Dam. The dam has a total catchment of 13,890sq.km.
10. The dam construction is of a clay core, with earth and rock fill embankment, having a storage capacity of 1 188 000ML (344.73 mAHD). The dams flood storage level is 489 000 ML (350.83mAHD).
11. It can be operated to have a significant flood mitigation effect on minor to moderate sized flood events in the Narromine Shire. Were the 1955 event to recur today, its severity at Narromine would be significantly lessened though not eradicated. Serious flooding can also occur as a result of contributions from tributaries entering the river below the dam.
12. The dam is estimated to be able to withstand a flood volume up to 70-80% of that in the PMF (Probable Maximum Flood) at the dam site. The flow in such a flood would be vastly greater than has ever been recorded there and would be extremely rare. Failure would add further to the previously-existing flow volume, but is extremely unlikely because one of the saddle dams would be deliberately breached to save the main dam. This too would, however would add to the seriousness of an already very severe flood downstream
13. The Burrendong Dam Safety Emergency Plan 2005 contains procedures for the dams safety operation.
14. Windamere Dam is a 69 metre high, earth and rock fill embankment dam on the Cudgegong River. It is located about 19 km south-west of Rylstone and was completed in 1984 for the purposes of supplementing Burrendong Dam storage

as well as meeting the growing demand of water for Mudgee, vegetable production and sheep and cattle grazing between Cudgegong Village and Burrendong storage. It has a relatively insignificant impact on flooding in the Macquarie River at and below Narromine.

Weather Systems and Flooding

15. Average annual rainfall over the Macquarie River catchment decreases from east to west. In the headwaters above Burrendong Dam, average annual precipitation is more than 700 mm, but at the council area's western limits it is less than 500 mm.

16. Flooding can occur any time of the year, but the weather systems which cause it vary considerably from season to season. The major flood-producing regimes are as follows:

Summer: Very heavy daily falls result from the penetration of cyclonic low-pressure systems from northern Australia. Intense short-duration rainfall occurs and flooding is the result. Such intrusions are not annual events, however, and summer flooding is sporadic.

Winter: High monthly totals may result from a series of well-developed troughs associated with southern depressions which cross the catchment from west to east. These troughs rarely produce high daily rainfall but can bring substantial falls over long periods. It is the sequence of these events rather than the individual troughs which cause floods to occur.

17. In addition to these major weather systems, flooding can result from high-intensity, short-duration convective thunderstorms which are experienced during the November-March period. These events are highly localised and can cause sharp rises on small creeks and flooding in towns and villages when artificial drainage systems surcharge. Thunderstorm rains are insufficient to cause main-river flooding, however.
18. Narromine has no single clear-cut flood season, and flooding has been recorded in all months of the year. There is a weak tendency towards a concentration of flooding in the winter and spring months, especially July, August and October. April and May have been the least flood liable months.

Characteristics of flooding

19. Upstream of Narromine the floodplain of the Macquarie River is well defined and relatively narrow and hence flooding is confined within the river banks. A number of break outs occur from the Macquarie River near Narromine, a significant one being at Webbs Siding.
20. In the reach from Narromine to Gin Gin considerable overbank flow occurs during major floods in the vicinity of Bugaboo Point and Rocky Point. The water escaping at Bugaboo Point moves on a wide face through well developed irrigation areas to Buddah Lake and the balance passes into Trailgang Cowl.

Overflows on the left bank of the Macquarie River are restricted to a relatively narrow floodplain because of the elevated nature of the area.²

21. Serious flooding can also occur as a result of contributions from tributaries entering the river below the dam, however. Serious flooding has also been recorded on the Bogan River and on individual small creeks and cowals within the council area. On the Bogan, the flood of 1990 was much less serious in the Dandaloo area and elsewhere in the Narromine Council area than it was in the Bogan Council area downstream. Widespread inundation was experienced in the area around Dandaloo, however.

Flood History

22. Table A-1 describes assigned AEPs and ARIs of selected historic flood events at the Narromine gauge.

Historical Flood Event	Narromine Gauge Height at Peak	Narromine Peak Flow (ML/day)	Assigned Annual Exceedance Probability (AEP)	Assigned Average Recurrence Interval (ARI)
1955	15.65m	501,100	0.5%	200 years
1990	13.48m	179,500	1.5%	65 years
1971	13.16m	158,000	4.5%	20 years
2000	11.2m	99,300	7.5%	15 years
1998	10.29m	92,300	10%	10 years
1976	8.7m	67,200	19%	5 years

Table A-1 Assigned AEPs and ARIs of Selected Historic Flood Events

Flood Mitigation Systems

23. The town of Narromine has a short levee designed to keep out the more frequent, smaller floods, up to approximately 14.6m (1% AEP flood³). Floods larger than 14.6m are likely to bypass or overtop the levee and most of the town would be inundated, as was the case in 1955. The Narromine Draft (October 2006) Flood Study suggests that low spots in the river bank, particularly in the Crossley Drive area, would allow flood waters to enter at around the 1% AEP level of flooding. Modelling also suggested flow entering the floodplain via low points in the riverbank further downstream which would travel a separate flow path to the river, westwards along the floodplain and flowing over Manildra St into town.
24. Trangie is subject to overland flooding from the Macquarie River via Buddah Lake and Trangie Cowal. A levee has kept the flood waters out of the village, but it has been isolated for days at a time. Very severe floods could overtop the bank and inundate the whole settlement.
25. A factor which has complicated flood prediction in recent times has been the construction, in association with irrigation systems for cotton farming in the lower parts of the council area, of numerous rural levees and channels. These

² Macquarie River (Narromine to Oxley Station) Draft Floodplain Management Plan

³ Narromine Flood Study Draft Report, October 2006, Lyall & Associates Consulting Engineers

will modify the behaviour of flood waters in ways that are difficult to determine as a flood is rising.

Extreme Flooding

26. While Burrendong Dam mitigates most flooding, and while Narromine and Trangie have levee protection, it should not be believed that very severe flooding will never occur again. Indeed flooding more serious than that of 1955 could be experienced and on rare occasions could be of extreme proportions sufficient to overtop or flow around the levees of both communities. It is a characteristic of extreme floods that they tend to reach much greater heights than was true of recorded earlier events and to rise more quickly.
27. The Narromine Draft (October 2006) Flood Study suggests most of the town would suffer inundation in the 1% AEP flood due to overtopping of the southern river banks upstream of Manildra St.
28. A flood worse than that of 1955 would break out of the Macquarie River upstream of Narromine and flow across country. The cowals would be filled and some water from the Macquarie River could reach the Bogan in the vicinity of Dandaloo as is believed to have happened in very severe floods in the past. A very severe flood on the Bogan could cause more widespread flooding of southern parts of the council area than occurred in 1990.
29. No assessment of the worst possible flood (the Probable Maximum Flood or PMF) has been made for Narromine or for other locations in the council area. However, estimated flows and flooding behaviour of an extreme flood at Narromine (3 times the volume of the 1% AEP) has been made as part of the 2006 Narromine flood study.
30. Hydraulic modelling⁴, undertaken in 2006 describes that “if the February 1955 flood occurred under present day conditions, peak flood levels would generally be higher at most locations in the floodplain. This is mainly due to the fact that the Main Western Railway embankment was about 300mm lower in 1955. The embankment had a greater capacity to convey floodwaters to the southern side of town acting as a broad crested weir, than presently. Consequently under present day conditions, additional flow would be conveyed towards town along a flow path near Manildra St, resulting in levels which would be about 250 mm higher than under 1955 conditions in this area of the floodplain”.
31. In a Burrendong Dam failure flood, the whole town would be completely inundated. Evacuation would be to Gilgandra or Parkes.

⁴ Narromine Flood Study Draft Report, October 2006, Lyall & Associates Consulting Engineers.

ANNEX B - EFFECTS OF FLOODING ON THE COMMUNITY

Community Profile

Census Description	LGA	Narromine	Trangie
Total Persons	6621	3548	940
Total Dwellings	2872	1486	434
Total persons aged 65 years and over	852	515	136
Total persons aged below 15 years	1630	887	246
Total persons of indigenous origin	963	629	206
Total persons using Internet	1549	793	163
Single parent families	281	197	36
Persons living alone	591	339	127
Total persons who do not speak English well	6	3	0
Total persons who lived at a different address 5 years ago	2293	1344	326
Households without vehicles	232	117	38
Total persons residing in caravans, cabins or houseboats	37	6	16
Mean household size	2.6	2.6	2.4

Table B-1: Census of Housing and Population data (2001)

Specific Risk Areas

Narromine Urban Area (2001 census population 3,548)

- Five floods have entered the town in the past 130 years, the last in 1955, and since then a levee has been constructed. Hydraulic modelling showed that floods greater than the 1% AEP design event (14.65m at Narromine gauge) would be required to initiate overtopping of the riverbanks upstream of Manildra Street. The model showed that the existing town levee downstream of that location would contain flows within the river for the 2% AEP flood

(13.92m at the gauge). In floods greater than this, it is likely that the levee will overtop, or bypassed, and most of the town would be inundated.

2. The 1955 flood broke out of the Macquarie River about six kilometres upstream and entered the town from the east as well as directly from the river adjacent to Culling St on the town's northern edge. Flood waters crossed the railway line to both the east and the west of the town and inundated the built-up area itself to depths of 0.3 - 2.1 metres. Only the railway station, part of the railway line and the floors of some buildings remained above water. Virtually all the town's population had to be evacuated. Much of the water came from the east, passing through the railway embankment culvert 1.5 kilometres east of the town and following a depression along the southern side of the railway embankment as far south as Cathundril St.
3. Prior to the construction of Burrendong Dam, water entered the town roughly every 23 years on average. These historic floods would have peaked about a metre lower, had the dam been in place, than was actually recorded. Now, floods entering Narromine are likely, on average, to occur only about every 50 years (that is, in the 2% AEP event). This means that there is roughly a 2% chance, each year, of a flood entering the town.
4. About eight dwellings and a caravan park in Rosebank Rd, north of the river and not protected by levees, are flood liable. The airport and an adjacent caravan park would be inundated in a 14.65m flood; a severity which would be experienced, on average, only once every 100 years.

Village Of Trangie

5. Trangie (2001 census population 940) is located 'off-river', but the village has been subject to overland flooding from the Macquarie River via Buddah Lake and Trangie Cowal. A levee has kept the flood waters out of the village, but it has been isolated for days at a time. Very severe floods could overtop the bank and inundate the whole settlement.
6. In 1955, flood waters surrounded Trangie and crossed the highway, moving in a south-westerly direction. In the 1990 event, the water passed to the north of the village and re-entered the river below Gin Gin. It did not cross the Mitchell Highway on the latter occasion.

Rural Areas

7. Most flooding within the Narromine Council area affects rural areas only. Major breakouts of floods water begin to occur when the river reaches about 12 metres on the Narromine gauge, with areas downstream of the town being affected at lower levels and more frequently than areas above it. Progressively more serious breakouts occur at greater heights, with larger areas of rural land being inundated, especially in central and eastern areas.
8. Large areas have been developed for irrigation south of the Mitchell Highway by farmers in the Trangie/Nevertire Co-operative and the Narromine/Trangie private Irrigation District. These lands are subject to inundation only in major

floods. Major floods break from the left bank of the Macquarie River above Narromine, enter the Boggy Cowal and pass through both the Narromine / Trangie and Trangie / Nevertire Schemes in a path several kilometres wide and 0.5 to one metre deep. Similar depths of flow can occur on farmlands when flooding occurs on the Bogan River around Dandaloo.

9. Few rural houses are directly affected by flooding, most being protected by levees from all but the most severe events. Traffic can be disrupted, though, both during floods and in the black soil areas of the far north and south-west of the council area where roads can become impassable even after heavy rain. Stock feeding, evacuation and rescue operations are necessary during periods of serious flooding, and some properties can be isolated for several days creating a need for resupply operations.

Camping Reserves

10. Locations of camping reserves susceptible to flooding include:
 - a. Gin Gin Reserve near weir.
 - b. Gin Gin at Yin Yin Bridge – 42kms out
 - c. Old Warren Rd - approx 26kms.
 - d. Turkey Farm - 11Km North West
 - e. Webbs Reserve - 5 km East of Narromine
 - f. Max Reserve - 5 km North West
 - g. Timberbongie Reserve - 10 km North
 - h. Brummgen Reserve - 11 km east

Road Closures

11. Roads can be closed in numerous locations during floods. Map 5 indicates the locations at which closure can occur. The map is not complete, and especially in extreme events there could be more points of closure than are indicated here.

Effects on Utilities and Infrastructure

12. Failure of utilities and key infrastructure is possible in extreme floods in the township of Narromine. The following infrastructure is located within the 1% AEP flood extent (approx 14.65m on the Narromine gauge)
 - a. Narromine SES Headquarters
 - b. Narromine Shire Council Offices and Depot
 - c. Police Station – Merilba St
 - d. Ambulance Station – Dandaloo St

- e. Narromine Health Service – (35 bed) Designated P4 Hospital
- f. Narromine Bulk Wheat Depot
- g. Narromine aerodrome and aviation museum
- h. Fire Station – Burroway St

SES RESPONSE ARRANGEMENTS FOR NARROMINE SHIRE

Volume 3 of the Narromine Shire Local Flood Plan

Last Update: July 2007

ANNEX C - GAUGES MONITORED BY THE NARROMINE SES LOCAL HEADQUARTERS

Gauge Name	Type	AWRC No	Stream	Flood Classification			Reading Arrangements
				Min	Mod	Maj	
Wellington Bridge*‡	Manual	421003	Macquarie River	4.0	9.10	12.20	DECC
Dubbo*‡	Telemeter	421001	Macquarie River	5.5	7.9	11.0	DECC
Barooka‡	Telemeter	421127	Macquarie River	4.0	10.0	12.0	DECC
Narromine*‡	Manual	421006	Macquarie River	4.0	9.1	13.7	DECC
Weemabah	Manual	10414	Macquarie River				Council
Gin Gin	Telemeter	421031	Macquarie River				DECC
Rawsonville	Manual	421055	Coolbaggie Creek				DECC
Peak Hill*‡	Telemeter	421076	Bogan River	2.5	4.6	6.0	DECC
Dandaloo*‡	Telemeter	421083	Bogan River	4.1	5.2	6.0	DECC

Notes:

1. The Bureau of Meteorology provides flood warnings for the gauges marked with an asterisk (*).
2. The SES holds a Flood Intelligence Card for the gauges marked with a double cross (‡).

ANNEX D - DISSEMINATION OF SES FLOOD BULLETINS

The Macquarie 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
WIN TV	Orange
Prime TV	Orange
Capital TV	Canberra
ABC TV	Sydney

Radio Stations:

Station	Location	Frequency
2DU	Dubbo	1251 AM
ABC Radio 2CR	Orange, for transmission to 2WPR 99.5FM Dubbo)	549 AM
Zoo FM	Dubbo	92.7 FM

Newspapers:

Name	Location
Daily Liberal	Narromine
Narromine News	Narromine
Flat Chat	Narromine

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.

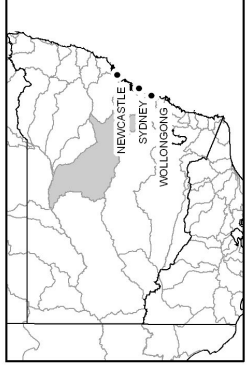
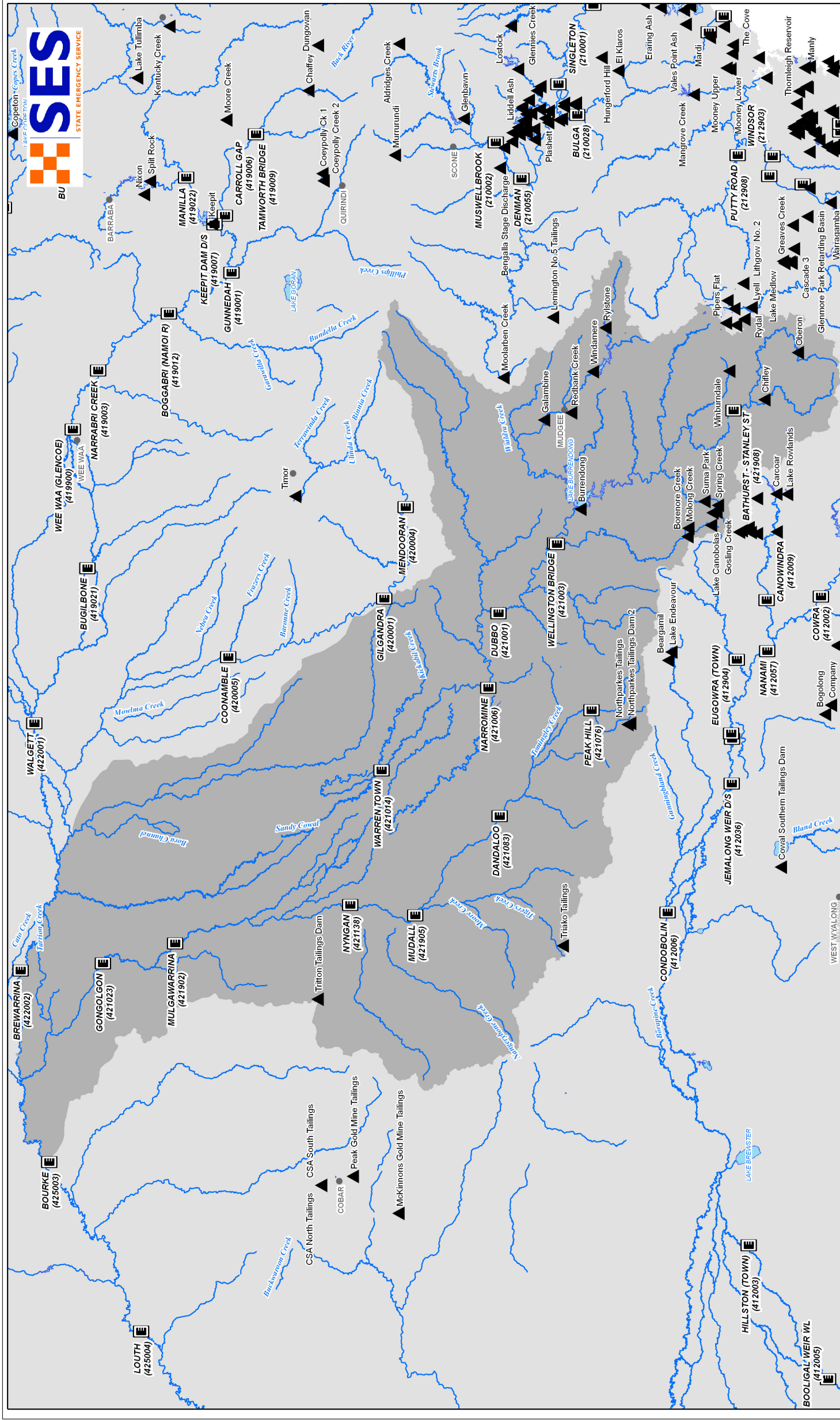
To prepare for evacuation, you should:

- 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.

MAP 1 - MACQUARIE - BOGAN RIVER BASIN



Legend

- Dams
- Warning Gauges
- Major River
- Waterbodies
- Macquarie - Bogan River Basin (412)

Kilometres

0 20 40 80

Print Date: 30 April 2007

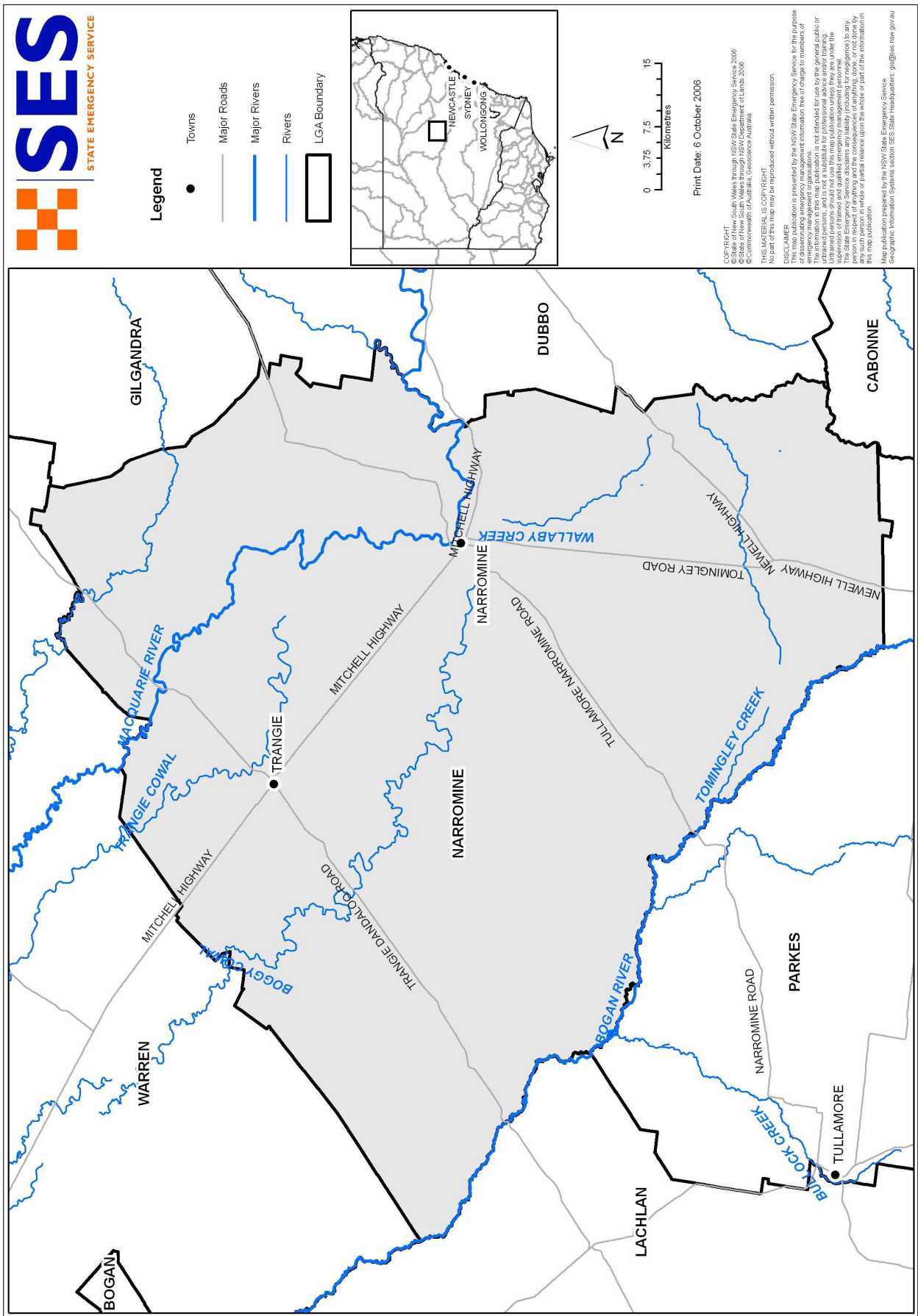
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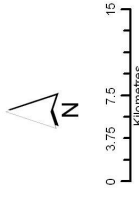
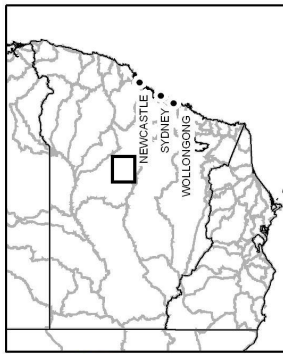
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 SES State Headquarters

Macquarie - Bogan
River Basins

MAP 2 - NARROMINE COUNCIL AREA



- Legend**
- Towns
 - Major Roads
 - Major Rivers
 - Rivers
 - ▭ LGA Boundary



Print Date: 6 October 2006

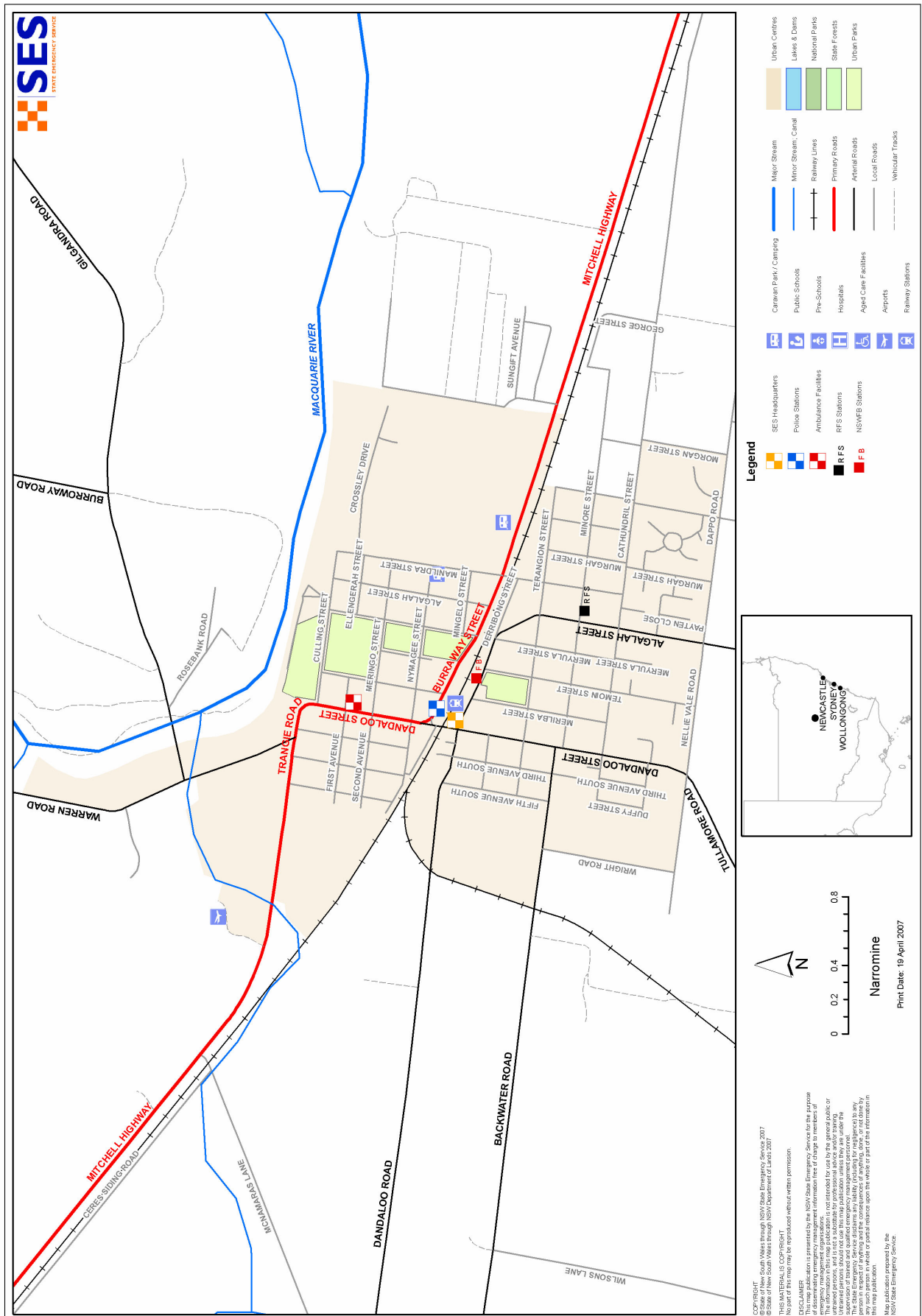
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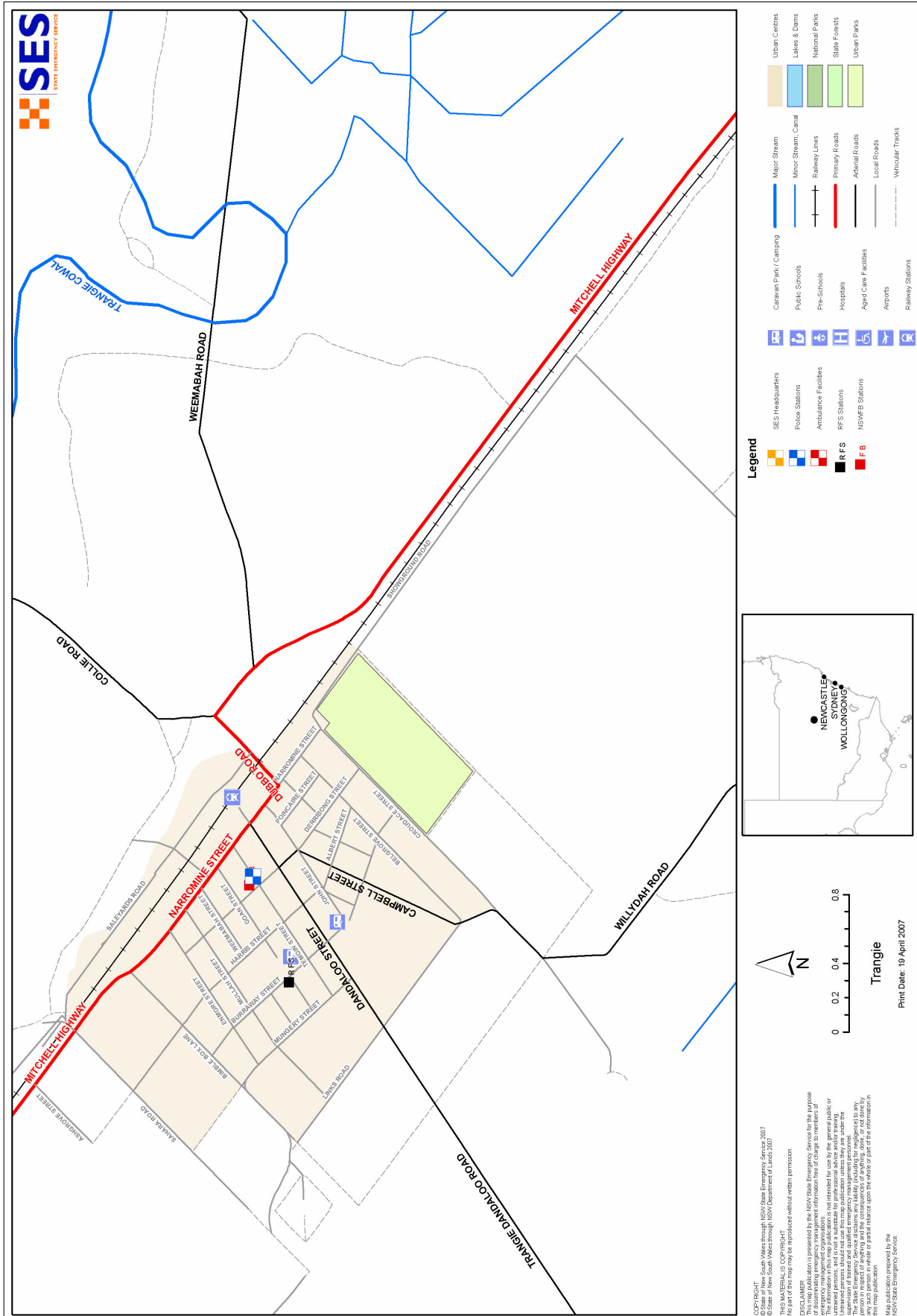
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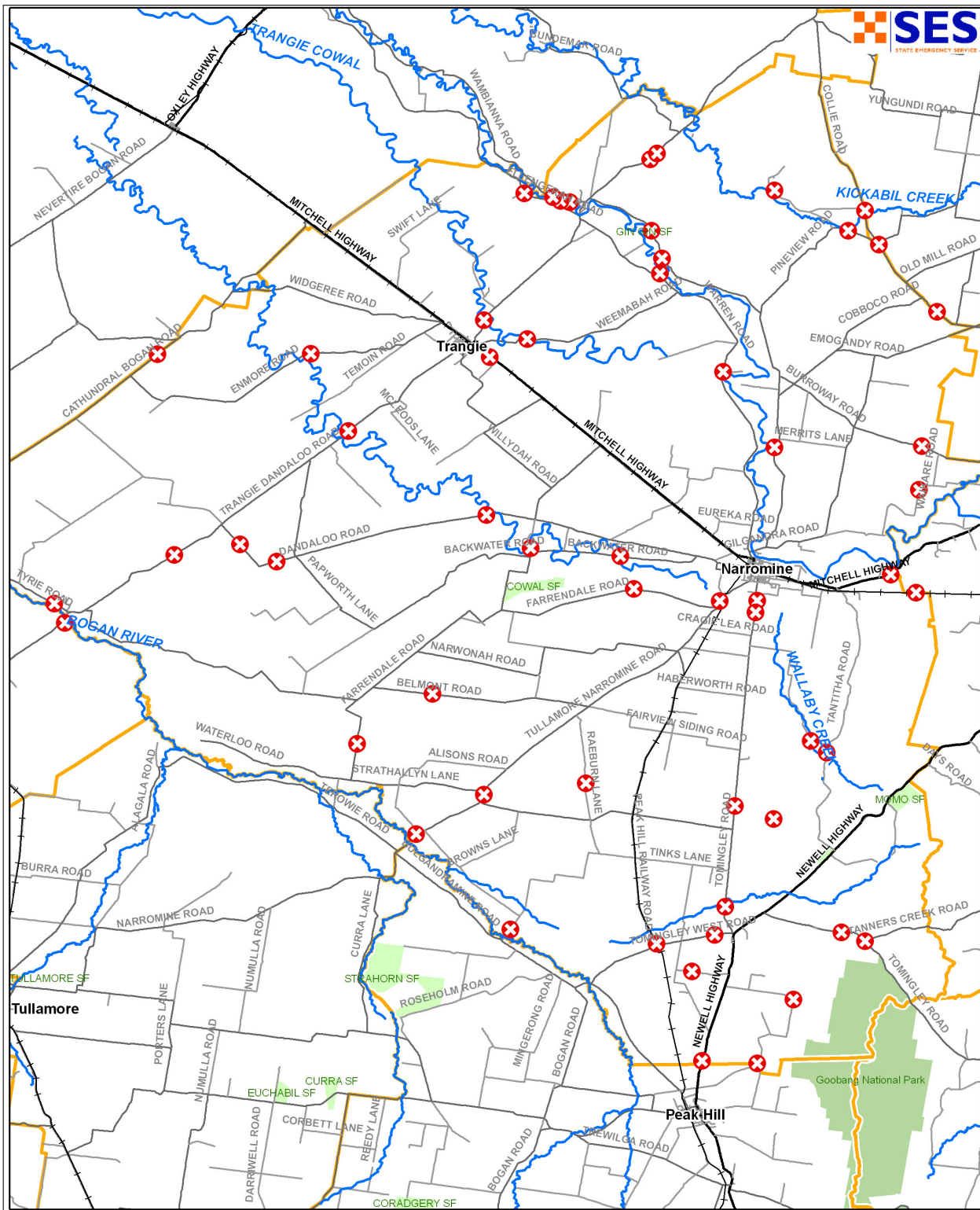
MAP 3 - NARROMINE TOWN AREA



MAP 4 - TRANGIE VILLAGE AREA



MAP 5 - ROAD CLOSURE LOCATIONS

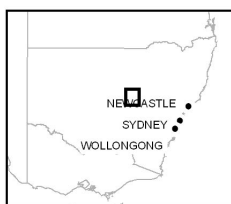
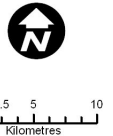


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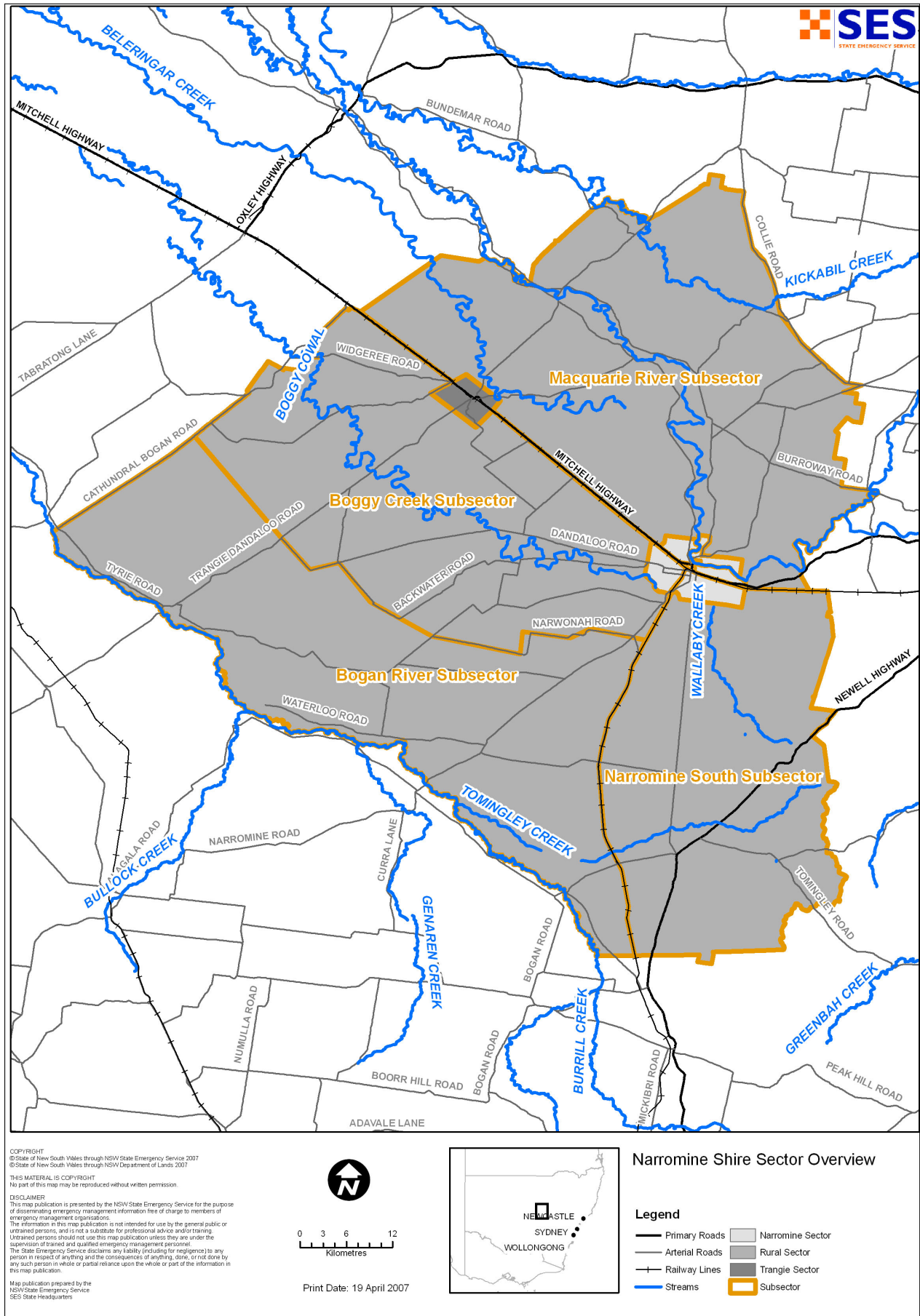
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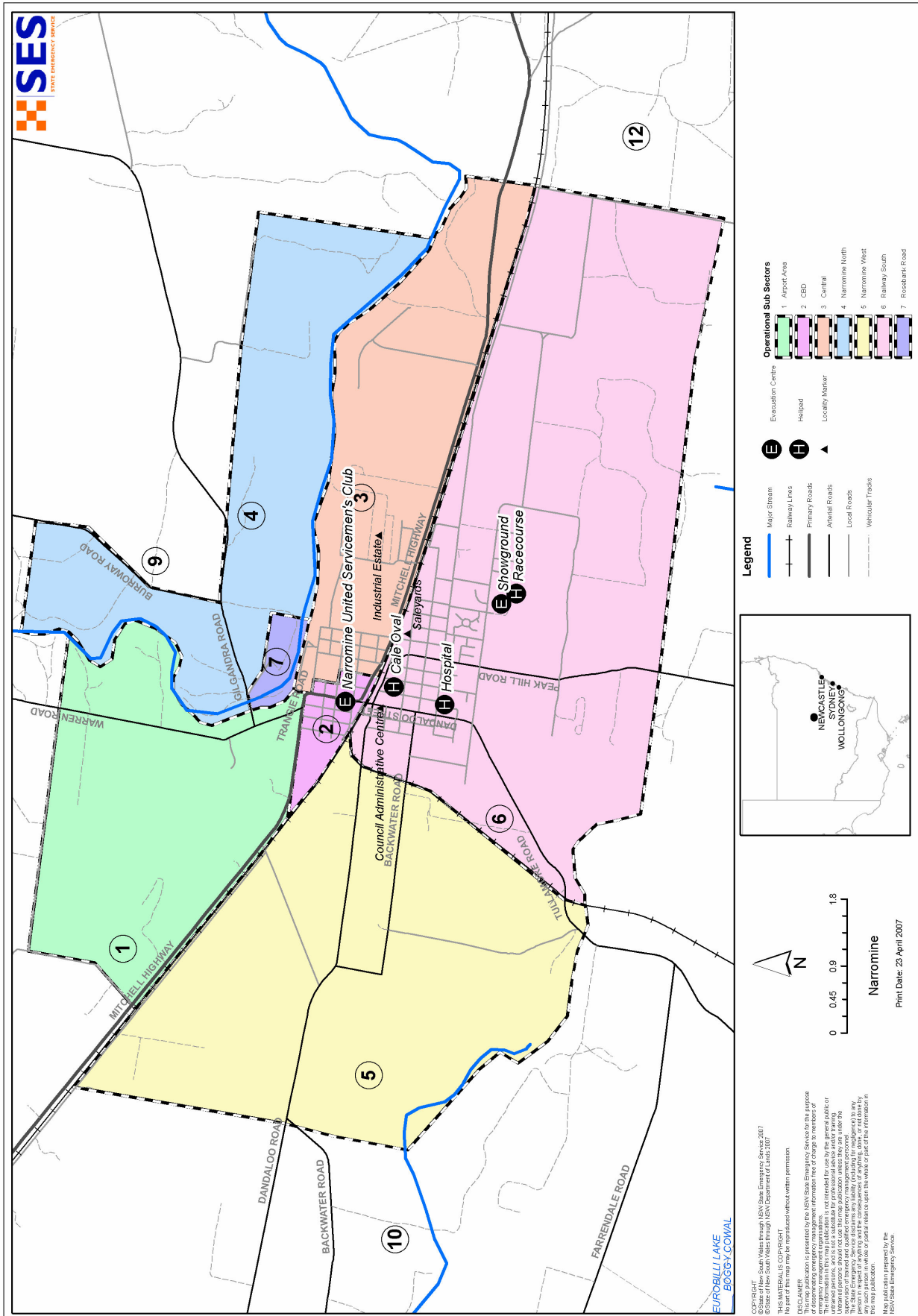
- Legend**
- Streams
 - Railway Lines
 - Primary Roads
 - Arterial Roads
 - Local Roads
 - SES Units
 - National Parks
 - State Forests
 - ✕ Road Closure Points

Print Date: 19 April 2007

MAP 6 - SECTOR OVERVIEW



MAP 7 - NARROMINE SUBSECTORS



MAP 8 - NARROMINE DESIGN FLOOD EXTENTS

