

Leeton Shire

Local Flood Emergency Sub Plan



LEETON SHIRE FLOOD EMERGENCY SUB PLAN

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

Volume 1 of the Leeton Shire Flood Emergency Sub Plan

Endorsed by the Leeton Shire Local Emergency Management Committee

**12 October 2023
Version 2.0**

AUTHORISATION

The Leeton Shire Flood Emergency Sub Plan is a sub plan of the Leeton 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)**.

Authorised

Signature:



NSW SES Local/Unit Commander

Print Name:

Shane Hargrave

Date:

12 October 2023

Endorsed

Signature:



Chair, Local Emergency Management Committee

Print Name:

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Date:

12 October 2023

VERSION HISTORY

Version Number	Description	Date
1.1	Leeton Shire Local Flood Plan	2 January 2013

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 Leeton 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 Leeton 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 Leeton 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 Leeton Shire LGA. The Leeton 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 Southern Zone and for emergency management purposes, is part of the Riverina Murray Emergency Management Region.

1.4.3 The plan sets out the Leeton Shire level emergency management arrangements for prevention, preparation, response and initial recovery for flooding in the Leeton 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 tsunami) 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 Leeton Shire are detailed within this plan, Appendix B and Appendix C.
- 1.7.3 Any agency with agreed responsibilities in this plan that 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 (for regional level responsibilities outside of response operations).

1.8 PLAN MAINTENANCE AND REVIEW

- 1.8.1 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. NSW SES Dam Failure Notification Flowchart.
 - c. NSW SES Resupply Flowchart.

2 OVERVIEW OF NSW FLOOD HAZARD AND RISK

2.1 THE FLOOD THREAT

- 2.1.1 NSW SES maintains information on the nature of flooding and effects of flooding on the community in the Leeton Shire LGA. This is outlined in Volume 2 – Hazard and Risk in Leeton Shire.
- 2.1.2 Within the Leeton Council area, the Murrumbidgee River is characterised by low gradients, a broad floodplain and a number of oxbow lakes and lagoons. The lagoons are the Coononcoocabil, Euwarderry, Horseshoe and Gooragool lagoons. Two major water-control devices, Yanco and Gogeldrie weirs, are located within the council area. A number of minor tributaries and anabranches occur on the floodplain; these are Middle, Yarangery, Cudgel, Euroley and Bareena creeks.
- 2.1.3 There are no Declared dams in or upstream of the Leeton Shire Local Government Area.

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. 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. 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. 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. 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 or coastal inundation.
- b. NSW SES will provide advice, support, technical resources and training for NSW SES representatives to contribute effectively on local Floodplain 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:** 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 (CMG's) for flood are not required for communities covered by NSW SES Local Flood Emergency Sub Plans however may be utilised in place of Local Flood Emergency Sub Plan if agreed to by NSW SES.

4.3 FLOOD INTELLIGENCE SYSTEMS

4.3.1 **Strategy:** 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. 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).
- c. 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. NSW SES maintains a dedicated dam failure hotline and procedures to ensure priority dissemination of dam failure warnings.
- f. 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.
- g. 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' maintained by NSW SES.

4.5 BRIEFING, TRAINING AND EXERCISING

4.5.1 **Strategy:** Ensure 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. NSW SES will consult stakeholders throughout the development of plans.
- b. NSW SES will inform stakeholders of content changes after revisions.
- c. NSW SES will ensure their facilities and resources are maintained and operationally ready.
- d. NSW SES will train personnel for their expected flood operation roles.
- e. 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:** 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:** 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. 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. 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. NSW SES will operate Incident Control Centre(s) as required.
- b. The NSW SES Incident Control Centre(s) will:
 - Control resources from NSW SES and coordinate resources of supporting emergency services and functional areas.
 - Manage Request for Assistance (RFA) 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 NSW SES and supporting agencies or functional areas in accordance with Local EMPLAN.

Actions:

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

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

Actions:

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

- a. Information relating to the consequences of flooding, response strategies, situational awareness and operational updates will be distributed by NSW SES to supporting emergency services and functional areas listed under this Plan.
- b. 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. 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 NSW SES. This may occur post impact and continue into the recovery phase.
- e. NSW SES may request Engineering 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 After-Flood Report.

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

Action: 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. NSW SES Incident Controllers will issue the following NSW SES Flood Warnings aligning to the Australian Warning System:
 - Advice
 - Watch and Act
 - Emergency Warning
- c. NSW SES liaises with the Bureau to discuss the development of flood warnings as required.
- d. NSW SES provides alerts and deliver flood information to affected communities using a combination of public information.
- e. NSW SES may request supporting agencies redistribute NSW SES alerts and information, including through the provision of doorknocking teams.
- f. Road closure information will be provided to the community through the following agencies/methods:
 - Local Government Council websites.
 - Transport for NSW 'Live Traffic' website: www.livetraffic.com
- g. The Public Information and Inquiry Centre will be established by NSW Police Force where required to provide information regarding evacuees and emergency information. Contact details will be broadcast once the centre is established.
- h. The Disaster Welfare Assistance Line will be established by Disaster Welfare Services 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: 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. Leeton 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. NSW Police Force may close and re-open roads but will normally only do so (if the Leeton Shire Council or Transport for NSW have not already acted and if public safety requires such action).
- d. 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 EMPLAN's 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 Council will keep NSW SES informed of the status of utilities and infrastructure.

5.8 EVACUATION

5.8.1 Evacuation is NSW SES's 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. 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. 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 NSW SES policies and procedures, and consistent with the NSW Evacuation Management Guidelines.
- e. Potential Evacuation Centres are located in the Local EMPLAN.
- f. 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. 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 NSW SES and Welfare Services.
- f. School administration offices (Government and Private) will coordinate the evacuation of schools in consultation with NSW SES and Welfare Services, 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 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. 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. 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 NSW SES in the

temporary closure of schools and will coordinate with NSW SES, Transport and Welfare Services in the management of school evacuees.

- d. Disaster Victim Registration will be controlled and coordinated by NSW Police Force with the assistance of NSW SES and the Welfare Services Functional Area.
- e. 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 SEOCON 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 NSW SES and SEOCON in consultation with members of the State Emergency Management Committee.

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 of animals and assessment, humane destruction and disposal of affected animals, and supply of emergency fodder, water and aerial support where necessary.

5.10 FLOOD RESCUE

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

Actions:

- a. 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. NSW SES may request other supporting emergency services to undertake flood rescues on behalf of NSW SES. Agencies must be authorised/accredited to undertake flood rescue operations in accordance with State Rescue Board requirements, as prescribed by NSW SES. Supporting emergency services must supply information regarding rescues performed to NSW SES. Notification

arrangements with 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. 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, NSW SES will establish loading points where retailers can instruct suppliers to deliver goods.
- d. 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. NSW SES will assist hospitals with resupply of linen and other consumables where able.
- f. NSW SES may request resupply assistance from supporting agencies.
- g. 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 will 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, NSW SES will establish a resupply schedule and coordinate the resupply for isolated rural properties.
- b. 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 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 Advice Warning advising “Reduced Threat: Return with Caution” when the immediate danger to life and property has passed for areas.
- d. 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 exists.
 - 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 an ‘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. 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, Welfare Services and Leeton Shire Council representatives.

- b. 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. 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 NSW SES as lead agency to transition to 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. 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: NSW SES works with relevant stakeholders and Leeton Shire Council(s) 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:** NSW SES will support recovery operations and established Recovery Committees.

6.2.2 **Actions:**

- a. NSW SES will provide representation to Recovery Committees as required and may have an ongoing role in the Recovery phase.

- b. 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. NSW SES will provide information to NSW Reconstruction Authority to support applications to Treasury for Natural Disaster Relief and Recovery Arrangements.
- d. 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. NSW SES and where required supporting agencies will assist with clean-up operations after floods, where possible when resources and personnel permit.
- f. NSW SES may coordinate immediate relief in collaboration with SEOCAN and SERCON.

7 ABBREVIATIONS

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

8 GLOSSARY

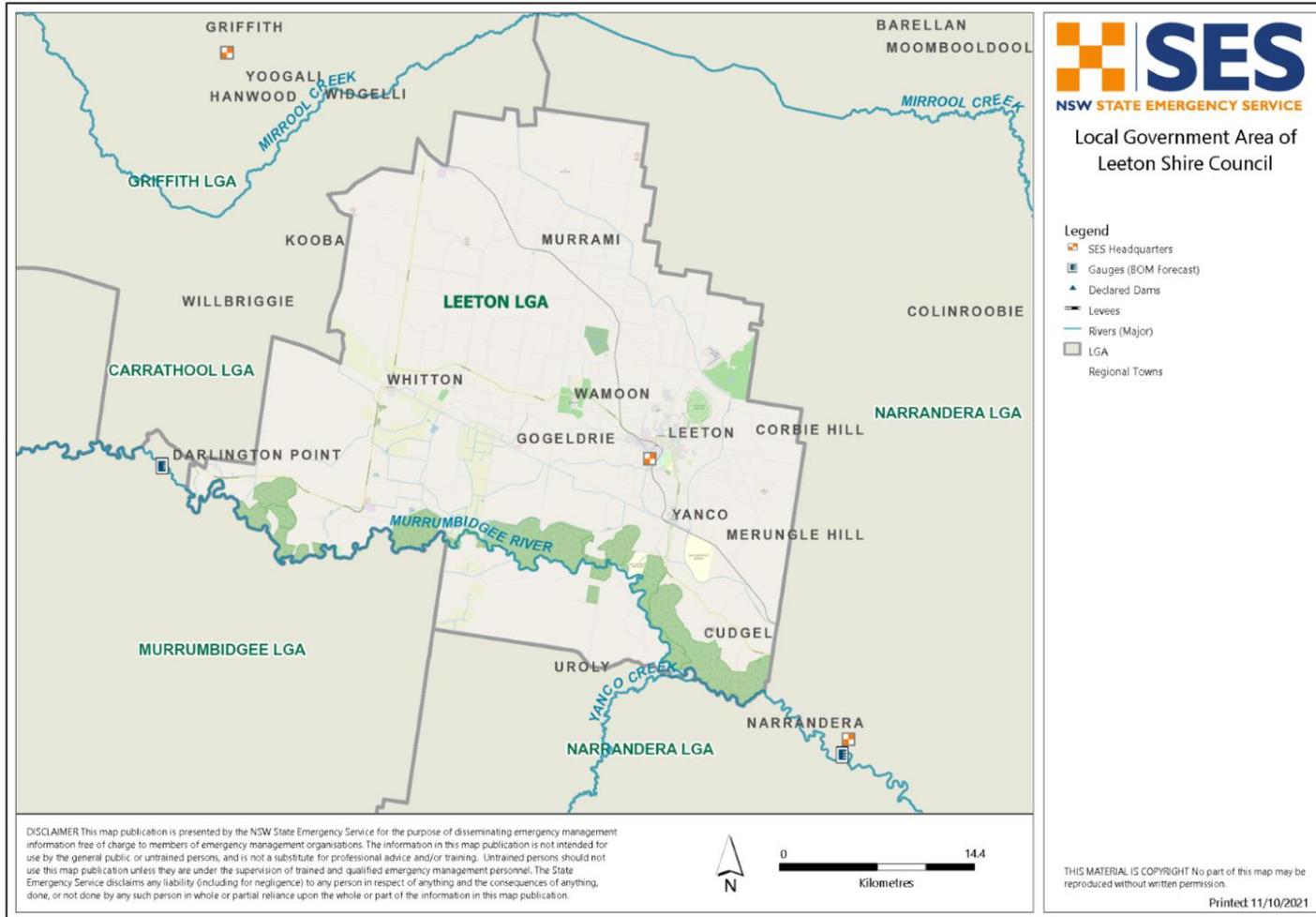
Common emergency service terminology can be found within the Australian Disaster Resilience Glossary.

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 Leeton Shire Area



10 Appendix B – Roles and Responsibilities

AGENCY	RESPONSIBILITIES
NSW State Emergency Service	NSW SES is the designated Combat Agency for floods, storms and tsunami and controls response operations. 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 Agriculture and Animal Services 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 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 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 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 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 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 NSW SES of any need to disconnect power/gas/water/wastewater supplies or of any timetable for reconnection. – Advise NSW SES of any hazards from utility services during flooding and coastal erosion/inundation. – Advise the public regarding 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 NSW SES to identify infrastructure at risk of flooding for incorporation into planning and intelligence.
Engineering Services Functional Area	The roles and responsibilities for Engineering Services are outlined in the Engineering Services Supporting Plan and NSW State Flood Plan.

AGENCY	RESPONSIBILITIES
Environmental Services Functional Area	The roles and responsibilities for Environmental Services 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 Forestry Corporation of NSW are outlined in the NSW State Flood Plan.
Health Services Functional Area	The roles and responsibilities for Health Services are outlined in the Health Services (HEALTHPLAN) Supporting Plan and NSW State Flood Plan.
Leeton Shire Council	<p data-bbox="507 745 687 779">Preparedness</p> <ul data-bbox="507 801 1449 1518" 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 NSW SES. • Coordinate the development of warning services for catchments prone to flash flooding. • Maintain council-owned flood warning networks and flood mitigation works. • Participate in 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 data-bbox="507 1541 635 1574">Response</p> <ul data-bbox="507 1597 1449 2069" style="list-style-type: none"> • Subject to the availability of council resources, assist NSW SES with flood operations including: <ul style="list-style-type: none"> – Traffic management on council managed roads. – Provision of assistance to 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.

AGENCY	RESPONSIBILITIES
	<ul style="list-style-type: none"> – Technical advice on the impacts of flooding. – Close and reopen council roads (and other roads nominated by agreement with Transport for NSW) and advise NSW SES, NSW Police Force and people who contact the council for road information. – Assist NSW SES to provide filled sandbags and filling facilities to residents and business in areas which flooding is expected. <ul style="list-style-type: none"> • 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 NSW SES regarding their operation. • Manage and protect council-owned infrastructure facilities during floods. • Provide advice to 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 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 State Government in accordance with the State Recovery 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.
Murrumbidgee Irrigation Limited (MI)	Murrumbidgee Irrigation Limited (MI) is not responsible for flood mitigation or management (including prevention, preparation,

AGENCY	RESPONSIBILITIES
	<p>response or recovery) but MI will provide to the NSW SES, when requested, available data in its possession that it may lawfully provide:</p> <ul style="list-style-type: none"> • about water diversions into, and water flows and water storage levels in, its irrigation infrastructure; and • to assist the NSW SES to identify MI's supply and drainage channels and other irrigation infrastructure that could be at risk of flood damage. • The NSW SES may give directions to MI under the State Emergency Service Act 1989, the Minister responsible for the State Emergency and Rescue Management Act 1989 or an emergency services officer acting with the authority of the Minister may give directions to MI under that Act, and the Minister responsible for the Water Management Act 2000 may give directions to MI under that Act.
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 NSW Food Authority are outlined in the Food Safety Emergency Sub Plan.
NSW National Parks and Wildlife Services	The roles and responsibilities for NSW National Parks and Wildlife Services are outlined in the NSW State Flood Plan.
NSW Police Force	The roles and responsibilities for NSW Police Force are outlined in the NSW State Flood Plan.
NSW Reconstruction Authority	The roles and responsibilities for NSW Reconstruction Authority are outlined in the NSW State Flood Plan.
NSW Rural Fire Service	The roles and responsibilities for 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 Owners of Declared Dams are outlined in the NSW State Flood Plan.

AGENCY	RESPONSIBILITIES
Public Information Services Functional Area	The roles and responsibilities for Public Information Services are outlined in the Public Information Services Supporting Plan and NSW State Flood Plan.
SEOCN/SEOC	The roles and responsibilities for the SEOCN/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 Telecommunications Services 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. • 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 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 NSW SES with identification of road infrastructure at risk of flooding.
Transport Services Functional Area	The roles and responsibilities for Transport Services 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 Welfare Services are outlined in the Welfare Services Functional Area Supporting Plan and NSW State Flood Plan.

11 Appendix C – Community Specific Roles and Responsibilities

Community Members	<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.
Private Companies or other Organisations	<ul style="list-style-type: none"> • David Boots Sand & Gravel in Leeton can assist with the provision of sand to fill sandbags.
Aboriginal Organisations or Groups	<p>Leeton and District Local Aboriginal Land Council.</p> <ul style="list-style-type: none"> • Act as the point of contact between NSW SES and local indigenous communities. • Inform the NSW SES Incident Controller about flood conditions and response needs. • Disseminate flood information, including flood and evacuation warnings, to local indigenous communities within the Leeton LGA.
Communication	<ul style="list-style-type: none"> • Leeton Irrigator. • Leeton Unit NSW SES Facebook page.
Name of farmer or Flood Warning Networks	<ul style="list-style-type: none"> • Leeton Flood Wardens Network.
Community Assistance Groups	<ul style="list-style-type: none"> • Rapid Relief. <p>Assist with filling of sandbags.</p> <ul style="list-style-type: none"> • Boys to the Bush. • Yanko Agricultural College.

HAZARD AND RISK IN LEETON SHIRE

Volume 2 of the Leeton Shire Local Flood Plan

Last Update: August 1994 (DRAFT)

THE FLOOD THREAT

THE MURRUMBIDGEE RIVER VALLEY (BASIN NO 410)

Most of the flood prone land of the Leeton Council area is floodplain land along the Murrumbidgee River. This river is 1,600 kilometres long and is the third-longest river in the state. It rises in the Snowy Mountains at an altitude of approximately 1,600 metres in steep high-rainfall country, initially flowing south-eastwards before turning north near Cooma. It flows through the Australian Capital Territory and west into the Burrinjuck Dam storage lake. Numerous tributaries drain the high country and join the river above the dam.

From Burrinjuck Dam the river flows through undulating foothills country to the urban centre of Wagga Wagga, being joined by several tributaries along the way. The most important of these is the Tumut River which contains the Blowering, Talbingo and some minor dams and which enters the Murrumbidgee above Gundagai. Other tributaries entering the river above Wagga Wagga are Jugiong, Muttama, Adelong, Billabong, Hillas, Tarcutta and Kyeamba creeks.

From Wagga Wagga the river traverses open plains country characterised by considerable anabranch and effluent creek development. The main tributaries and anabranches below the urban centre of Wagga Wagga are Houlaghlans, Sandy, Bullenbung, Beaver/Old Man and Bundidgerry creeks.

Within the Leeton Council area the Murrumbidgee River is characterised by low gradients, a broad floodplain and a number of oxbow lakes and lagoons. The lagoons are the Coononcoocabil, Euwarderry, Horseshoe and Gooragool lagoons. Two major water-control devices, Yanco and Gogeldrie weirs, are located within the council area. A number of minor tributaries and anabranches occur on the floodplain; these are Middle, Yarangery, Cudgel, Euroley and Bareena creeks.

Water is taken off the Murrumbidgee River in the Narrandera Council area and fed to irrigators in the Leeton area via the Main Canal and a number of distributary channels. The far north of the council area is drained by Mirrool Creek (a tributary of the Lachlan River) which rises in the Temora, Bland and Coolamon Council areas.

RAINFALL, WEATHER SYSTEMS AND FLOODING

The Leeton Council area is a low rainfall area, most of it having an average annual rainfall of between 400 and 500 mm. Almost all the flooding it receives occurs as a result of rain occurring upstream of the council area.

Four different kinds of weather system can produce flooding within the council area. These are:

1. Airmasses which originate in the southern ocean and move across the Riverina from the south-west. Most of the floods to have been recorded the Murrumbidgee River have resulted from **sequences** of such airmasses and have caused flooding during the months from April to October. This is the primary flood season on the river: all but one of the 23 highest floods recorded at Narrandera (the reference point for Leeton) have occurred in these months (see table).
2. Large depressions moving south from tropical areas in northern and north-western Australia. Such systems can produce very intensive rainfall in the summer and early autumn months and flooding can result. This mechanism occurs only sporadically over the Murrumbidgee River valley and severe summer flooding is not common.
3. Low pressure systems located over the coast of New South Wales can cause heavy rain over the Snowy Mountains and Great Dividing Range in which the headwaters of the Murrumbidgee River rise. Flooding from this mechanism can occur at any time of year and is 'imported' to the area from upstream areas.
4. Short-duration, high-intensity convective thunderstorms during the summer months can cause localised flooding, rises on small creeks and the surcharging of urban drainage systems. Such flooding is 'flash' flooding, occurring with little or no warning and having no significant impact on water levels in the Murrumbidgee River.

FLOOD CHARACTERISTICS

Areas immediately adjacent to the Murrumbidgee River within the council area are subject to frequent, shallow inundation, and drainage as floods recede is usually slow. Significant flooding results in water leaving the main channel and flowing into anabranches. The pattern of flow is complex, water flowing through slight depressions which are intermittently swampy or dry when not carrying flood waters.

Warning times are generally long. Indicative minimum flow times on the Murrumbidgee are as follows:

Gundagai to Wagga Wagga: 1 day
Wagga Wagga to Berembed: 2 days
Berembed to Narrandera: 2 days
Narrandera to Darlington Point: 2 days.

There is usually up to at least two days warning of floods on Mirrool Creek.

EXTREME FLOODING

The September 1974 flood, which reached 8.99 metres on the Narrandera gauge, is the highest flood to have occurred there since records were first kept in the mid-nineteenth century. More severe flooding must be expected, and extreme flood events could approach levels up to 10.5 metres on this gauge. Such flooding would overtop the main irrigation channel and cause inundation of a substantial part of the council area. Very widespread inundation of the rural parts

of the floodplain between the canal and the river would be experienced.

No estimate has been made of the height which could be reached by the Probable Maximum Flood (PMF) at any location within the Leeton Council area.

**MURRUMBIDGEE RIVER: FLOOD PEAK LEVELS AT NARRANDERA,
DARLINGTON POINT AND SELECTED UPSTREAM LOCATIONS**

Date (at Wagga Wagga Gauge)	Burrinjuck Dam		Jugiong	Gundagai	Erringoarah	Wagga Wagga	NARR- AN- DERA	DARL- ING-TON POINT
	Inflow at: River s Wall	Discharge in megalitres Date/Time						
16 Oct 1844				9.15		10.97		
29 June 1852				12.32		10.67		
14 July 1853				12.57		10.90		
31 July 1867				9.56		9.32		
18 July 1869				8.78		9.09		
27 April 1870				12.34		10.67	8.82	
15 May 1870				9.76		10.06		
5 June 1870						9.22		
20 Sep 1879				10.97		9.35		
10 Jan 1891				10.36		9.25		
29 June 1891				10.80		10.46	8.79	
14 July 1891				9.75 (12)		9.73 (14)	8.64 (16)	
23 April 1894				9.40		9.17 (23)	7.73 (27)	

	Burrinjuck Dam		Jugiong	Gundagai	Erringarah	Wagga Wagga	NARR- AN- DERA	DARL- ING- TON POINT
Date (at Wagga Wagga Gauge)	Inflow at: River Wall	Discharge in megalitres Date/Time						
7 July 1900				11.73 (5)		9.98 (7)	8.31 (10)	
31 July 1922			8.15 (29)	9.65 (30)		9.17 (31)	7.93 (051800)	6.96 (090900)
30 May 1925	11480 00	429530 (272300)	10.24 (28)	11.32 (282000)	11.86 (290800)	10.11 (300530)	8.18 (3)	7.09 (080900)
26 June 1931		93600 (270900)	7.29 (25)	9.96 (25)		9.65 (26)	9.71 (29)	7.34 (010900)
28 Oct 1934			6.81 (26)	9.56 (26)		9.14 (28)	7.96 (021400)	6.93 (060900)
25 Mar 1950		373000 (240900)	9.17 (23)	10.45 (232200)	9.85 (24)	10.13 (25)	8.69 (271200)	7.26 (300900)
6 April 1950		89700 (050900)	7.01 (4)	8.83 (5)		9.07 (6)	8.08 (10)	7.06 (120900)
19 June 1952		217280 (170900)	8.61 (180100)	10.13 (181500)	9.45 (19)	9.79 (19)	8.70 (221000)	7.43 (240900)
16 June 1956		121450 (110900)	6.25 (111700)	8.89 (121800)		9.12 (16)	8.11 (192200)	7.21 (220900)
29 June 1956		167280 (260900)	7.50 (261730)	9.46 (281800)	9.30 (29)	9.58 (29)	8.70 (030900)	7.47 (050900)
24 Oct 1959		251480 (220900)	8.93 (221130)	10.00 (23)	8.90 (24)	9.17 (24)	7.38 (010900)	6.23 (060900)
30 Aug 1974	48673 0 47474 0	395200 (291300)	10.14 (291600)	11.01 (300030)	10.38 (300600)	10.75 (302100)	8.99 (022230)	7.71 (051400)
7 Sept 1974	12960 0	66320 (060900)	5.28 (060600)	8.93 (060145)	8.70 (062359)	9.19 (071800)	8.12 (110430)	7.37 (131200)
19 Oct 1974	13906 0 15926 0	37170 (181200)	4.06 (190100)	8.67 (181130)	8.68 (181000)	9.22 (191100)	8.32 (231600)	7.40 (251400)
29 Oct 1975	14397 0 17711 0	114110 (251400)	6.48 (260100)	9.47 (262115)	9.07 (270000)	9.58 (280300)	8.32 (010930)	7.32 (060830)

	Burrinjuck Dam		Jugiong	Gundagai	Erringarah	Wagga Wagga	NARR- AN- DERA	DARL- ING-TON POINT
Date (at Wagga Wagga Gauge)	Inflow at: River s Wall	Discharge in megalitres Date/Time						
20 Oct 1976	17024 0 16047 0	75300 (171600)	8.08 (180730)	9.70 (182350)	9.08 (191100)	9.40 (200545)	7.37 (250730)	6.57 (300830)
7 April 1989	16900 0 15740 0	137000 (031900)	7.16 (040500)	9.18 (042300)	8.65 (060700)	9.06 (071100)	7.82 (131400)	6.60 (180630)
16 April 1989	11400 0 12658 0	11400 (132330)	7.96 (140100)	9.41 (142100)	8.97 (151200)	9.41 (161100)	8.17 (201600)	7.37 (241300)
15 July 1991	33516 0 31810 0	22100 (121400)	8.46 (121600)	9.92 (130700)	9.24 (132359)	9.61 (150540)	8.02 (192000)	6.90 (240300)

NOTES

- a. Numbers in brackets refer to the date and time of the peak being reached (eg 300300 means the 30th of the month, at 0300 hours) or to the date only (eg 30).
- b. From about 1925 Burrinjuck Dam became effective in mitigating floods. Note: In the flood of 27 May 1925 at the dam, the average peak inflow for six hours was 890,000 megalitres per day and peak instantaneous outflow was 450,000 megalitres per day.
- c. From about 1968 Blowering Dam became effective in the minor mitigation of floods.

SPECIFIC RISK AREAS

Flooding is relatively common in the south of the Leeton Council area, but only rarely are its consequences severe. Most floods cause inconvenience such as the closure of roads, which can mean that movement has to take place by boat and that some resupply may be necessary. In severe events, some evacuations are likely to be required. The areas which experience flooding are:

EUROLEY AREA

Areas on the floodplain to the south of the river are isolated from Leeton when the Euroley Bridge Rd is cut at Euroley Creek. This occurs when a gauge height of 7.39 metres is reached at Narrandera. An alternative route is available via the Sturt Highway to Darlington Point, but this road can be cut at North Darlington Point.

Some farm households become isolated and could require resupply or, in a very severe event, evacuation. A suitable boat launching site, which can be used until a gauge height of 8.2 metres is reached at Narrandera, is located at the Yanco Agricultural High School pump shed.

YANCO AGRICULTURAL HIGH SCHOOL

This school, which is situated near the north bank of the Murrumbidgee River, would require complete evacuation in a flood not very much more severe than the flood of 1974 which peaked at 8.99 metres on the Narrandera gauge. Water crosses the school's access road at a gauge height of 8.20 metres.

A plan has been prepared by the school to guide the evacuation of students and staff and the preservation of school equipment, records, plant and livestock and the personal effects of students. The plan specifies:

- a. Warning and notification procedures, including the notification of parents.
- b. The transferral of school records, equipment, medical stores and personal items to the first floor of the school's buildings.
- c. The transport of farm livestock and plant to high ground.
- d. The dispatch of students by bus and parents' vehicles.
- e. Accommodation arrangements for students who are unable to leave the Yanco area.

YANCO (1991 census population 651)

Parts of the village of Yanco could experience inundation in a very severe flood in which the Main Canal Bank was overtopped. In such an event, all road access southward would already have been lost. Floods in the past have resulted in flooding against the Main Canal Bank north-east of the Leeton-Narrandera road and at the Yanco Brick Works.

LEETON-NARRANDERA AERODROME

During the 1974 flood, the aerodrome was almost isolated, passengers having to be transported by bus. In a more severe event, access from Leeton would be lost. The aerodrome has its own levee bank protection.

MIRROOL CREEK FLOODPLAIN

This area, in the far north of the council area, can experience nuisance flooding from the Mirrool Creek, a small number of farms being affected.

ROAD CLOSURES

The following roads are known to be subject to closure during floods:

- Leeton-Narrandera rd, near the aerodrome (at a height of 8.07 metres on the Narrandera gauge) and at 'Black Flat'.
- Euroley Bridge rd, at Euroley Creek (at 7.39 metres on the Narrandera gauge).
- Darlington Point-Whitton rd, between North Darlington Point and Whitton.
- Sturt Highway.
- The Barellan and Brobenah Hall rds may be cut by Mirrool Creek.

In a very severe flood, it is expected that most roads south of the Yanco-Whitton road would be closed.

SES RESPONSE ARRANGEMENTS FOR LEETON SHIRE

Volume 3 of the Leeton Shire Local Flood Plan

Last Update: August 1994 (DRAFT)

GAUGES MONITORED BY THE LEETON SES LOCAL CONTROLLER

AWRC NUMBER	STATION	FLOOD CLASSIFICATIONS (metres)		
		MINOR	MODERATE	MAJOR
410004	Gundagai*	6.1	7.6	8.5
410001	Wagga Wagga*	7.3	9.0	9.6
410054	Narrandera*	6.7	7.3	8.2
	Yanco Weir			
	Yanco Ck Offtake			
410021	Darlington Point*	5.5	7.0	7.3

Notes

- a. All these gauges are located on the Murrumbidgee River. They are telemetered gauges owned by the DWR.
- b. Flood warnings are issued by the Bureau of Meteorology for gauges marked with an asterisk.
- c. Polling of these gauges is carried out by the Murrumbidgee SES Division Headquarters during floods and the information passed to the Leeton SES Local Controller. Polling is done twice daily (at 9 am and 4 pm) for all gauges except Darlington Point which is polled once daily at 9 am.
- d. The Narrandera and Darlington Point gauges are the reference gauges for the Leeton Council area.

GUIDE TO THE CONTENT OF EVACUATION WARNING MESSAGES

1. Time of issue and title of Authorising Officer.
2. Description of the area to which the warning applies and the flood threat to that area.
3. Information to be given to evacuees on:
 - a. Location of and route to evacuation centre.
 - b. Time by which evacuation should take place.
 - c. Arrangements for those without their own transport.
4. Evacuees to be advised to:
 - a. Raise furniture and furnishings above likely flood level.
 - b. Gather medicines, personal documents and mementoes and those belongings that can be fitted within own means of transport (or within a suitcase if travelling by bus).
 - c. Listen to radio for confirmation of message and for further information.
 - d. Assist neighbours if necessary.
 - e. Register their evacuation at a Police Station or evacuation centre.
5. Evacuees to be advised that Police will provide security for properties in the evacuated area.
6. Phone number for confirmation of warnings.

THE DISSEMINATION OF FLOOD WARNINGS AND OTHER FLOOD INFORMATION

1. During periods of flooding, the Murrumbidgee SES Division Headquarters disseminates SES Flood Bulletins (incorporating Bureau of Meteorology Flood Bulletins, SES Pump and Stock Warnings, Evacuation Warnings and other information) to the following media and other organisations relevant to the Leeton Council area:

2RG Griffith.
2WG Wagga Wagga.
ABC Radio Riverina.
WIN TV, Wagga Wagga.
Prime TV, Wagga Wagga.
MTN TV, Griffith.
Leeton SES.
Leeton Shire Council.
NSW Police Service, Leeton Patrol Headquarters.
Roads and Traffic Authority, Narrandera.
NSW Agriculture, Yanco.
Department of Community Services, Wagga Wagga.
Department of Water Resources, Leeton.

2. The SES Local Controller forwards SES Flood Bulletins and provides other flood information to the following organisations as appropriate:

Leeton Flood Wardens.
Leeton Bush Fire Brigades.
Leeton Rescue Squad.
Murrumbidgee Electricity, Leeton.
Telecom Australia, Leeton.
Leeton Disaster Welfare Service.
Leeton Red Cross Society.
The Area News, Griffith.
The Murrumbidgee Irrigator, Leeton.
The Narrandera Argus.