

Orange City

Local Flood Emergency Sub Plan

ORANGE CITY FLOOD EMERGENCY SUB PLAN

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

Volume 1 of the Orange City Flood Emergency Sub Plan

Endorsed by the Orange Local Emergency Management Committee

**28 February 2024
Version 3.0**

AUTHORISATION

The Orange City Flood Emergency Sub Plan is a sub plan of the Orange City 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

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INSR. ROSS STEVENS

Date:

28/2/2024

Endorsed

Signature:



Chair, Local Emergency Management Committee

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Date:

28.2.2024.

VERSION HISTORY

Version Number	Description	Date
1.0	Orange City Local Flood Plan	September 2010
2.0	Orange City Local Flood Plan	11 April 2017

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 Orange City 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 Orange City 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 Orange City 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 Orange City LGA. The Orange City 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 Orange City level emergency management arrangements for prevention, preparation, response, and initial recovery for flooding in the Orange City Council 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 Orange City 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 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 The NSW SES maintains information on the nature of flooding and effects of flooding on the community in the Orange City Council LGA.
- 2.1.2 Declared dams in or upstream of the Orange City Council Local Government Area.

Dam Name	Owner	High Risk Dam
Gosling Creek	Orange City Council	Yes
Lake Canobolas (Cabonne Council LGA)	Orange City Council	No
Research Station - Orange	DRNSW Primary Industries Department of Regional NSW	No
Spring Creek	Orange City Council	No
Suma Park	Orange City Council	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 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:** 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 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).
- 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. Orange City Council has developed and maintains a flash flood warning system. No specific forecast location exists – forecast based on exceedance of a rainfall threshold as per trigger height 70mm in 6 hours.

- f. 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.
- g. The NSW SES maintains a dedicated dam failure hotline and procedures to ensure priority dissemination of dam failure warnings.
- h. 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.
- i. 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 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. Partner 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 of 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 AIIIMS.

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:

- 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. The NSW SES will provide Liaison Officer(s) to Emergency Operations Centres as required.
- c. Where possible Emergency Operation Centres are 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. The 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 the 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 after a flood.

Actions:

- a. 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.
- b. All supporting emergency services, 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. Councils will use the established flash flood warning system to provide warnings and information to the NSW SES, key stakeholders, and the community.
 - c. Dam Owners will utilise the Dam Emergency Plan to provide warnings and information to the NSW SES and communities (where appropriate).
 - d. NSW SES Incident Controllers will issue the following NSW SES Flood Warnings aligning to the Australian Warning System:
 - Advice.
 - Watch And Act.
 - Emergency Warning.
 - e. The NSW SES liaises with the Bureau to discuss the development of flood warnings as required.
 - f. The NSW SES provides alerts and deliver flood information to affected communities using a combination of public information.
 - g. The NSW SES may request supporting agencies redistribute NSW SES alerts and information, including through the provision of doorknocking teams.
 - h. Road closure information will be provided to the community through the following agencies/methods:
 - Local Government websites.
 - Transport for NSW 'Live Traffic' website: <https://www.livetraffic.com/> or 'Transport InfoLine': 131 500. VMS messaging on roadways may also be used to advise motorists.
 - i. 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.
 - j. 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. Orange City 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 Orange City 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. Transport Services Functional Area is to coordinate the provision of information about the assessment and restoration of transport network infrastructure.
- b. Energy and Utility Services Functional Area is to coordinate the assessment and restoration of essential energy and utility services (not including telecommunications).
- c. Telecommunications Services Functional Area is to coordinate the assessment and restoration of telecommunications and the Public Safety Network.
- d. 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. Functional Areas and Orange City Council 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. 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. 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. 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. 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 the 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 Welfare Services Functional Area as soon as possible. The NSW SES will brief 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 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 Areas 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 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 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 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 Advice 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 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 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 Orange City 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. 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 Orange City 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 SEOCAN and State Emergency Recovery Controller (SERCON).

7 ABBREVIATIONS

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

8 GLOSSARY

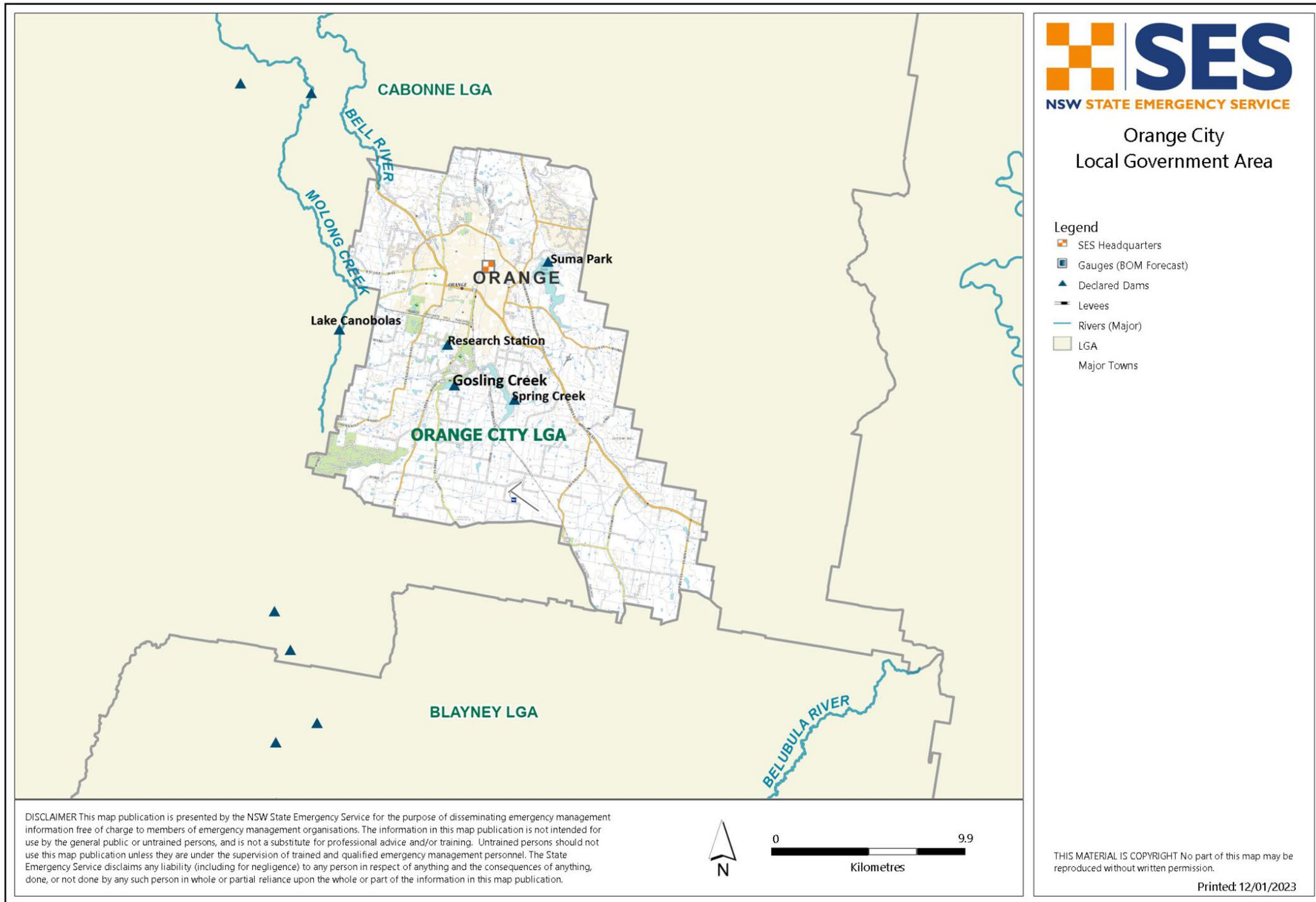
Common emergency service terminology can be found within the Australian Disaster Resilience Glossary.

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 Orange City Council Area



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 Emergency Sub Plan .

AGENCY	RESPONSIBILITIES
Agriculture and Animal Services Functional Area	The roles and responsibilities for the 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 (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

AGENCY	RESPONSIBILITIES
	<p>caravan park(s) by owners or by vehicles and drivers arranged by the park managers.</p> <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.
<p>Childcare Centres and Preschools</p>	<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.
<p>Dams Safety NSW</p>	<p>The roles and responsibilities for Dams Safety NSW (formerly NSW Dam Safety Committee) are outlined in the NSW State Flood Plan.</p>
<p>Department of Defence</p>	<p>Arrangements for Defence Assistance to the Civil Community are detailed within the State EMPLAN (section 448).</p>
<p>Energy and Utilities Services Functional Area</p>	<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.

AGENCY	RESPONSIBILITIES
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.
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 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.
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).

AGENCY	RESPONSIBILITIES
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 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.
Orange City Council	<p data-bbox="507 882 683 913">Preparedness</p> <ul data-bbox="507 943 1412 1888" 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 Dam Emergency Plans for the Gosling Creek, Lake Canobolas, Spring Creek, and Suma Creek dams and provide copies to the NSW SES. • Provide information on the consequences of dam failure to the NSW SES for incorporation into planning and flood intelligence. • Coordinate the development of warning services for catchments prone to flash flooding (small catchments), where appropriate. • 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 1910 632 1942">Response</p> <ul data-bbox="507 1971 1412 2054" style="list-style-type: none"> • Subject to the availability of council resources, assist the NSW SES with flood operations including:

AGENCY	RESPONSIBILITIES
	<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, 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 flash flood warning systems. • 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. <p>Provide services, assistance, and advice to State Government in accordance with the State Recovery Plan.</p>

AGENCY	RESPONSIBILITIES
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.
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 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. • 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>Private Companies or Other Organisations</p>	<p>Bus Transport - Apple City Transport and Orange Buslines. Transport and Storage - Offners Removals and Storage. Sand and Soil - Australian Native Landscapes. Assist with the provision of:</p> <ul style="list-style-type: none"> • Bus Transport and drivers for evacuation, resupply, or commuting purposes. • Trucks and drivers. • Warehousing facilities. • Sand for sandbagging • Space for evacuation centres.
<p>Aboriginal Organisations or Groups</p>	<p>Orange Aboriginal Medical Service. Orange Local Aboriginal Land Council. Birrang Enterprise Development Company Ltd.</p> <ul style="list-style-type: none"> • Act as the point of contact between the NSW SES and the Orange City Aboriginal community. • Inform the NSW SES Incident Controller about flood conditions and response needs. • Disseminate flood information, including flood and evacuation warnings, to the Orange City Aboriginal community.
<p>Communication</p>	<p>Orange City SES Unit Facebook page.</p>
<p>Cross-Border Assistance Arrangements (Cabonne Shire)</p>	<p>The NSW SES Orange City Unit will provide support to the Canowindra, Eugowra, and Molong Units in Cabonne Shire when necessary and where resources permit.</p>

HAZARD AND RISK IN ORANGE CITY

Volume 2 of the Orange City Local Flood Plan

Last Update: September 2010

ANNEX A - THE FLOOD THREAT

Characteristics of Flooding

The Orange City Council area falls within the catchment of the Macquarie River. The western portion of the council area is drained by Ploughmans Creek and Broken Shaft Creek, which are tributaries of the Bell River. The remainder is part of the catchment of Summer Hill Creek, which includes the tributary Blackmans Swamp, Brandy, Gosling and Spring Creeks. These watercourses rise in the high ground of the Canobolas State Forest or in the undulating country of the Cabonne and Blayney council areas to the south and east of the urban centre of Orange.

Blackmans Swamp Creek is the major drainage catchment of the City of Orange and has as its main tributaries Rifle Range Creek and East Orange Creek, all of which feed water into the urban areas of the City of Orange. The catchment rises on the south-western side of the City of Orange and flows through rural and residential land and the CBD of the City in a generally north-easterly direction, before passing into Summer Hill Creek and then into the Macquarie River upstream of Burrendong Dam. Two railway lines traverse the catchment and are important features as they divide the catchment into separate parts. The Great Western Railway Line runs on an elevated embankment in a north-south direction through the City. This railway embankment serves as a catchment divide between East Orange Creek and Rifle Range Creek. The second railway line, the Orange to Broken Hill line, runs along an embankment at the southern end of the town and divides the rural part of the catchment from the urbanised area on the northern side of the line.

The catchments are small in size with comparatively steep bed slopes of the drainage system. In all cases the headwaters are only 10-20 kilometres from the urban centre of Orange, and the creeks rise and fall quickly after heavy rain. Much of the flooding which occurs (including flooding caused by the surcharging of the artificial drainage system in Orange itself) is 'flash flooding' in nature, with flood levels peaking about 30-60 minutes after commencement of heavy rainfall, hence warning times are short. Consequently, there is little warning time for residents to take action to raise goods above floor level and mitigate damage to property. The water levels recede quickly after cessation of heavy rainfall.

Bell River Catchment Area

Broken Shaft Creek

Broken Shaft Creek rises in the hilly country to the west of Ploughmans Creek and of Orange, and to the north of the Cargo Road. From its source, the creek flows for about 6kms through open, hilly country to the Forbes Road (Escort Way) in a generally northerly direction. It then continues northwards through gently undulating open country to the Mitchell Highway to its junction with Ploughmans Creek, from which point it becomes the Bell River.

Ploughmans Creek

Ploughmans Creek rises in the Wentworth Golf Course and also in the hilly country to the west of Orange and north of the Orange – Broken Hill Railway Line. From its source, the creek flows generally northwards for about 10kms to its confluence with Broken Shaft Creek northwards of, and adjacent to, the Mitchell Highway from where it becomes the Bell River. (See Map 3).

Near its headwaters, Ploughmans Creek passes through a golf course and grassy paddocks close to recent residential development until reaching the Cargo Road. Ploughmans Creek then flows beside Ploughmans Lane, crossing under this roadway through two concrete pipes midway along its length and then through open country flanked by residential and commercial development on the eastern side to the Forbes Road (Escort Way). This development includes a childcare centre and a retirement village, both located about 40 metres from this creek.

From the Forbes Road (Escort Way), Ploughmans Creek continues through further undulating open country to the Mitchell Highway, again flanked on its eastern side by residential and commercial development, including a childcare centre and an aged care facility, both located about 100 metres from this creek.

The creek continues through more open, undulating country around Ammerdown from where it flows in a north-westerly direction to join with Broken Shaft Creek.

The effects of residential development in the upper catchment means that the ground has reduced ability to absorb stormwater which will now flow as runoff, with both increased velocity and in a shorter timeframe over the impervious surfaces (roofs, driveways, roadways, etc.) located in the developed areas. The impact of this increased run-off intensity means that:

- The potential for short duration closure of roads by flash flooding is increased.
- The stormwater system may become overloaded and surcharge.
- The sewer system may become overloaded with stormwater and surcharge.
- There is a potential increase in the risk of localised flooding of yards and houses in properties located adjacent to the creek.

Ploughmans Creek Stormwater Harvesting Scheme

The Ploughmans Creek Stormwater Harvesting Scheme will have some mitigating effect on any increased intensity of runoff caused by residential development with the construction of four wetland areas on Ploughmans Creek and its tributaries. These wetlands act as detention basins and provide flood storage additional to that contained in the natural floodplain which can reduce the flood peak in downstream reaches of the creek by dissipating the effects of increased runoff. These four wetland areas are located

- To the immediate south (upstream) of the Cargo Road on Ploughmans Creek, with three ponds.
- To the immediate north (downstream) of the Escort Way (Forbes Road) and east of the Northern Distributor on Ploughmans Creek, with four ponds.

- On a tributary of Ploughmans Creek at Somerset Park, with four ponds.
- On another tributary of Ploughmans Road south of the Northern Distributor and to the east of Burrendong Way, with three ponds.

Summer Hill Creek Catchment Area

Brandy Creek

Brandy Creek rises in the hilly vineyard and orchard country to the north-east of Towac Pinnacle and flows north- easterly and then generally easterly for about 8kms to join Gosling Creek at Bloomfield. Brandy Creek flows through gently undulating open country to cross Walkers Lane and Pinnacle Road. It then crosses Forest Road immediately south of the Orange Agricultural Institute to join Gosling Creek to the south-east of Bloomfield Hospital.

Gosling Creek

Gosling Creek rises in the hilly country of Canobolas State Forest to the south-west of Orange. It flows through open rural country for about 20 kms until its confluence with Summer Hill Creek, 2½ kms northwest of the village of Lucknow and on the northern side adjacent to the Mitchell Highway.

From its headwaters Gosling Creek flows initially eastwards and then in a generally northerly direction, crossing Cadia Road and then, heading north-easterly, crosses Forest Road before entering Gosling Creek Dam (at about 10kms). From this dam, the creek continues north-easterly to enter the northern end of Spring Creek Dam (at about 13 kms) and then flows south-easterly within the dam. Immediately downstream of Spring Creek Dam, Gosling Creek travels in an easterly direction, passing through a narrow valley and then a northerly direction onto a wide flat plain before flowing into Suma Park Dam to join Summer Hill Creek. The river plain is crossed by the Mitchell Highway and is well developed between Spring Creek Dam and Suma Park Dam.

Spring Creek

Spring Creek rises at Springside, to the north of the Spring Terrace – Cadia Road and flows through gently undulating country for about 8kms. The creek is generally timbered along its banks to Forest Road where there is some remnant timber along the creek line to Hiney Road. Spring Creek continues to flow through remnant timber to cross Huntley Road and the Main Western Railway Line and then into Spring Creek Dam.

Summer Hill Creek

Summer Hill Creek rises in hilly country around Greghamstown, about 3kms east-southeast of Millthorpe in the southeast corner of the Orange City Local Government Area. The upper catchment is generally in a well cleared and developed area with a broad valley. It generally heads in a northerly direction for about 5kms to near Shadforth, where it turns generally to the north west.

Summer Hill Creek heads for about 12kms generally parallel to the Mitchell Highway in a broad, well-defined and well developed rural valley which is largely cleared of timber. It crosses the Shadforth – Millthorpe Road and Mitchell Highway near Shadforth from where it is flanked by a line of hilly country to its north, while retaining a broad open valley to its south. At its confluence with Gosling Creek, 2½kms northeast of Lucknow, Summer Hill Creek heads in a northerly direction for about 3kms in a narrow and well – defined valley lined with prominent hills, then crosses Icely Road through hilly, close country before entering Suma Park Dam.

Downstream of Suma Park Dam, Summer Hill Creek passes through a short narrow valley and then opens out to a wider valley. It crosses Ophir Road about 2kms downstream and again at 3kms downstream before leaving the Orange City Local Government Area. It then flows across undulating country for a distance of 25kms towards Ophir, generally along Ophir Road which it crosses three more times. It joins the Lewis Ponds Creek at Ophir, from where it becomes Ophir Creek, which then heads north to join the Macquarie River. Isolated and sparse developments exist along Summer Hill Creek between the third crossing of Summer Hill Creek and Ophir.

A major pump station has been constructed approximately 300 metres downstream of Suma Park Dam on the left bank of Summer Hill Creek. This pump station will be affected by very severe floods which lead to overfloor flooding.

Blackmans Swamp Creek

(Source: Blackmans Swamp Creek Floodplain Risk Management Study, July 2009.)

There are three principal streams in the Blackmans Swamp Creek catchment. They are:

- Blackmans Swamp Creek,
- Rifle Range Creek, and
- East Orange Creek

Blackmans Swamp Creek and Rifle Range Creek drain mainly residential areas in the upper and middle reaches of the catchment. These two creek channels upstream of the Orange-Broken Hill Railway Line remain in a semi natural state as they flow through the rural portion of the catchment initially, then open space and parkland. There is also a natural detention basin on the upstream side of the Orange - Broken Hill Railway Line on Rifle Range Creek. As the creeks pass under the railway embankment they enter a more urbanised area. A section of Rifle Range Creek has been piped downstream of Gardiner Road.

The nature of the creek channel changes somewhat after the confluence of Rifle Range Creek with Blackmans Swamp Creek upstream of Anson Street. Downstream of Anson Street, the creek is piped to Moulder Street. It then enters a section of lined channel before entering the CBD Drainage Culvert at Kite Street.

Downstream of their junction in Moulder Park, Blackmans Swamp Creek flows as a large underground culvert. The CBD Drainage Culvert is about 1 km long and traverses the CBD, running underneath commercial buildings from its commencement at Kite Street to Summer Street. From Summer Street to Byng Street it runs below Robertson Park, and from Byng Street under the Council Library to March Street.

From here, the culvert runs parallel with Peisley Street to a point opposite the Tip Top Bakery where it turns eastwards beneath Peisley Street and outfalls to a lined open channel. Flows are then conveyed under the Great Western Railway Line embankment to the confluence with the East Orange Creek.

Overland flows occur when the culvert beneath the CBD surcharges and several other streets in the business area and the lower reaches of the East Orange Creek become floodways, with significant flow velocities and potentially high hazard conditions prevailing. (See Map 6).

The eastern portion of the catchment is drained by East Orange Creek which drains the older part of the city and is characterised by narrow, concrete lined sections of stormwater drain running adjacent to residential allotments. In many areas, properties are fenced to the edge of the channel wall, obstructing the passage of overbank flows when the channel surcharges. The creek channel passes through numerous sets of culverts, road crossings and piped reaches.

A detention basin is located on the upper reaches of this catchment at the former saleyards site. Between McNeilly Avenue and Little Brunswick Streets, flows are piped with surcharges conveyed as overland flow through industrial developments. Further downstream flows on East Orange Creek are conveyed in sections of unlined channel and a concrete lined stormwater drain which joins Blackmans Swamp Creek on the eastern (downstream) side of the Main Western Railway embankment. Downstream of this junction, flows are conveyed in Blackmans Swamp Creek in a rectangular concrete stormwater channel.

A series of smaller detention basins have been constructed through Bloomfield Golf Course and Jack Brabham Park to manage outflows from the new hospital development.

Detention Basins

Detention basins provide flood storage additional to that contained in the natural floodplain which can reduce the flood peak in downstream reaches of the creek. 'Offline' basins, remote from the stream channels, are preferred to maintain the continuity of the creek system.

Over the past 10–15 years, Orange City Council has instituted a staged program of detention basin construction on Blackmans Swamp Creek and its tributaries to reduce downstream flood peaks. Details are shown in Table 4-1 below:

Stream	Location
Blackmans Swamp Creek	Towac Park Racecourse
	Upstream of Railway Embankment, Orange - Broken Hill Railway
	Pilcher Park
Rifle Range Creek	Upstream of Railway Embankment, Orange - Broken Hill Railway
East Orange Creek	(Saleyards Basin) Upstream of McNeilly Avenue and Jack Brabham Park

Tributary of East Orange Creek	Kinross Wolaroi College Playing Fields
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Table 4-1 Streams and Detention Basin locations

The detention basins located on Blackmans Swamp Creek, Rifle Range Creek and East Orange Creek have reduced downstream flood peaks up to the 1% AEP level of flooding. They have mitigated flooding problems in residential areas of Blackmans Swamp Creek and increased the flood security in the CDB area, which previously would have suffered severe flooding during comparatively minor flood events. However, because of limitations in the capacity of the drainage system downstream of the basins, there is the potential for damaging flooding to occur in the event of floods of the 5% AEP magnitude and larger which could cause extensive inundation of residential property and commercial/industrial development.

Flood History

Flooding is not frequent, and years may pass between significant flood events. The three storage dams within the council area (the Gosling Creek, Spring Creek and Suma Park reservoirs) have only minimal flood mitigation capacities, and overflows can occur from all of them. The flood of August 1990 in Spring and Summer Hill Creeks resulted in considerable outflows from these reservoirs and is thought to have been of the order of a 3% (AEP) event. Flooding of such severity can be expected on these creeks, on average, about once in 30 years.

Other floods in the Orange area occurred in 1916, 1928, 1935, 1973, 1974, 1976, 1996, 1998, 1999 and 2005, and there is evidence of a very severe flood on Blackmans Swamp Creek early in the twentieth century on 20 March 1900.

Flooding on Blackmans Swamp Creek and its tributary streams has historically resulted in damage to residential and commercial properties. Most recently, in October 1999, significant overland flooding occurred in the CBD area causing inundation of several commercial properties. The main drainage culvert which conveys flows from Blackmans Swamp Creek beneath the CBD and the local stormwater system surcharged, resulting in several of the streets becoming floodways. The Blackmans Swamp Flood Study Volume 1 pp7-13, 7-14 reports residents referring to flood events in the 1890's, 1975, 1984, 1989, December 1992 and 30-31 October 1999. A smaller storm event occurred on 18 February 2002 with some minor overland flooding occurring.

More recently, minor flooding events on 20 November 2005, and on 16-18 January 2006 have been reported by SES in Activity Reports.

Flood peaks on these streams are mitigated by a series of detention basins which have been constructed by Orange City Council over the past 15 years.

Weather Systems and Flooding

The heavy rain which produces flooding tends to come from the following kinds of weather system:

1. **Depressions** or **ex-tropical cyclones** moving southward from northern Australia. Such systems develop during the summer and autumn months.
2. **Frontal systems** crossing the state from west to east at any time of year, but more frequently in winter and spring than in the other seasons.
3. **High-intensity, short-duration convective thunderstorms.** These storms are concentrated in the months between November and March and can cause flooding very quickly after passing.

Extreme Flooding

More severe flooding than has been seen by the present residents of Orange City is possible. In addition, the NSW Dams Safety Committee has advised that the Orange Research Station, Blackmans Swamp Creek, Gosling Creek and Suma Park dams are flood-deficient and could fail during very severe floods (possibly as a result of intense rain from an extremely severe thunderstorm). Failure of Orange Research Station, Blackmans Swamp Creek and Gosling Creek dams could cause problems for a small number of dwellings, but should Spring Creek and/or Suma Park dams fail the result would be devastating for numerous dwellings in the valley especially below Suma Park Dam.

If the Spring Creek Dam were to fail, it is probable that Suma Park Dam would also fail. In addition, the Suma Park Dam could fail in a very severe flood generated over the catchment of Summer Hill Creek upstream of the Spring Creek confluence. Failure of the Blackmans Swamp Creek and Gosling Creek Dam(s) would not in itself cause the failure of either of the other two dams. It must be stressed that flooding severe enough to cause dam failure would be very rare.

Orange City Council has rectified the deficiencies of Spring Creek Dam. However, Suma Park and Gosling Creek Dams remain deficient and will be addressed by Council in the future.

Orange Research Station Dam (I&INSW) remains deficient.

ANNEX B - EFFECTS OF FLOODING ON THE COMMUNITY

Community Profile

Census Description	LGA	Orange	Lucknow	Spring Hill
Total Persons	35339	31544	145	276
Total Dwellings	12887	11688	53	95
Total persons aged 65 years and over	5059	4595	19	32
Total persons aged below 15 years	7870	6999	25	61
Total persons with a need for assistance (profound / severe disability)	1757	1665	3	9
Total persons of indigenous origin	1543	1500	10	6
Total persons using Internet	12885	11687	53	98
Single parent families	1014	599	0	11
Persons living alone	3524	3364	19	15
Total persons who do not speak English well	129	118	0	0
Total persons who lived at a different address 5 years ago	13696	12370	35	111
Households without vehicles	1430	1410	0	3
Total persons residing in caravans, cabins or houseboats	84	83	0	0
Mean household size	2.7	2.7	2.7	2.9

Table 4-2 Census of Housing and Population data (2006)

Flooding rarely causes serious problems within the Orange City Council area. Flood effects, however can or could include the following.

FARMLAND INUNDATION

In 1990 and 1998, low-lying areas along Spring Creek and Summer Hill Creek were inundated, necessitating the movement of livestock to higher ground. This can be anticipated from time to time on all of the creeks of the council area. In very severe events, some farm dwellings could also be flooded.

ROAD CLOSURES

Several local roads are subject to closure at low points and creek crossings. In a very serious flood on Spring Creek, Summer Hill Creek or Ploughmans Creek, it is possible that the Mitchell Highway would be closed to traffic.

Most closures are for only a few hours. Known locations of closure are shown in Table 4-3 below.

ROAD	LOCATION(S) OF CLOSURE	REMARKS
Mitchell Highway (SH 32)	Gosling Creek crossing, 4 km SE of Orange; Ploughmans Creek crossing, 2 km NW of Orange	Rare; did not occur in 1990 or 1998 floods, but water was over road in 2005 and 2008 events
Icely Rd (Orange to Lewis Ponds)	Summer Hill Creek crossing, 3 km E of Orange	Closed in 1990 and 1998
Emu Swamp Rd (Lucknow to Icely Rd)	Summer Hill Creek, low-level crossing immediately east of Lucknow	Closed 1990
Favell Byng Rd (Mitchell Hwy to Icely Rd)	Summer Hill Creek crossing near 'Edgeworth'	Closed 1990
Ophir Rd (Orange to Ophir)	First and Second Crossings over Summer Hill Creek (1.5 and 2 km downstream of Suma Park Dam)	Second Crossing closed 1990, 1998, 2005 and 2008; shallow water over First Crossing in 1990
Huntley Rd (Orange to airport and Huntley)	Gosling Creek at Bloomfield	
Forest Rd (Orange to airport and Spring Hill)	Gosling Creek, upstream of Gosling Creek reservoir Brandy Creek, south of Orange Agricultural Institute	Extreme events only Severe events only
Forbes Rd (Orange to Forbes)	Ploughmans Creek	Severe events only
Cargo Rd (Orange to Cargo)	Ploughmans Creek	Closed in November 2005. Severe events only
Bloomfield Road	Brandy Creek	Severe events only
Bargwanna Road	Gosling Creek immediately downstream of Gosling Creek Dam.	
Thompson Road	Ploughmans Creek	History of this occurring

Ploughmans Lane	Ploughmans Creek at culvert under road between Forbes Road and Cargo Road	Severe events only
Pinnacle Road	Brandy Creek	Nuisance flooding only
Canobolas Road	Low lying area at ‘Thornleigh’ property 300 m north of Mount Pleasant Lane	Caused by accumulated stormwater runoff in swampy area
Ginns Road	Causeway over unnamed creek 400 metres west of Huntley Road	
Between Jilba Street and Spring Streets, Orange	Low level bridge over Blackmans Swamp Creek	Road closure by inundation is possible

Table 4-3 Locations of known road closures

URBAN FLOODING

Inundation of residential and business properties has occurred within the urban centre of Orange when Blackmans Swamp Creek has overflowed its banks. Decades ago, many premises in Summer Street were flooded under these circumstances. In the 1989 flood event properties were inundated overfloor in Lords Place, Summer, William and March streets and McNamara Lane. A small number of such premises suffered water inundation of yards in the flood of November 1999.

Thunderstorm or other heavy rainfall events over the city can cause the capacities of artificial drains to be exceeded. Sandbagging of dwellings and other properties has been necessary in the past when this has occurred.

POTENTIAL DAM FAILURE IMPACTS

Failure of Orange Research Station Dam **could** cause problems for a small number of dwellings located in the Sundew Crescent area and perhaps in lower Hill Street.

Failure of Gosling Creek Dam **could** flood three residences between this dam and Spring Creek Dam.

Failure of Spring Creek Dam **could** flood a residence to the south of the Mitchell Highway and a further three residences to the north. Uncertainties in the modelling of the dam-failure flood wave means that there is a **possibility** of over-floor inundation in these cases.

None of these dwellings is thought to be at risk of flooding in floods other than those resulting in dam failure.

Failure of Suma Park Dam would inundate 25 residences in the Clifton Grove area on either side of Summer Hill Creek. Up to 21 of these 25 could be flooded in extreme ‘natural’ floods passing over the dam spillway but not causing dam failure.

In the case of a failure of Suma Park Dam, most of the 25 dwellings would be inundated to depths of more than 4 metres over floor level by water flowing at velocities of up to 3 metres per second. Inundation would occur within less than 30 minutes from the start of the breaching of the dam. If Suma Park Dam was to fail as a result of the failure of Spring Creek Dam, inundation of houses would begin approximately one hour after the breaching of Spring Creek Dam.

In the worst case, breaching of either dam could begin within about two hours of the onset of an extreme rainfall event over their respective catchments.

Specific Risk Areas

Effects on Utilities and Infrastructure

TransGrid and Country Energy both have electrical sub-stations located in William Street near March Street which may be at risk of flooding.

The Telstra Telephone Exchange located in Moulder Street may also be at risk of flooding.

Jemena underground gas regulator station located near the Orange Art Gallery and Library complex can be affected by floodwaters in excess of 0.8 metres deep.

The RSPCA animal shelter in William Street may become inundated.

Failure of Blackmans Swamp Creek Holding Pond will flood the sewerage treatment works.

Kooronga Lodge Retirement Village in Kooroonga Avenue may become inundated during severe events or as a result of choking of stormwater pipes under Ploughmans Lane.

Spring Street Pre-school and Neighbourhood Centre may become inundated.

Trinity Pre-School Kindergarten in Kooroonga Avenue may become inundated in severe events or as a result of choking of stormwater pipes under Ploughmans Lane.

Yarrowong Children's Centre may be at risk of inundation by Ploughmans Creek in an extreme flood event.

Council's Works Depot in McLachlan Street could become partially inundated during a severe flood event.

Orange Buslines Depot located at 247 McLachlan Street may become partially inundated during a severe flood event.

SES RESPONSE ARRANGEMENTS FOR ORANGE CITY

Volume 3 of the Orange City Local Flood Plan

Last Update: September 2010

ANNEX C - DETAILS OF ARRANGEMENTS FOR POTENTIAL DAM-FAILURE FLOODING

General

Because Orange Research Station, Blackmans Swamp Creek Holding Pond, Gosling Creek Dam and Suma Park Dam have all been assessed as being unable to withstand extreme flooding, arrangements have been developed to guide the evacuation of people to safety should dam failure become possible. A Dam Failure Warning System has been established, consisting of:

1. Gauging equipment to record rainfall levels in the dams' catchment areas and water levels at the dams.
2. Telemetry to ensure these levels can be read remotely by Orange City Council for dams under its control at any time.
3. Orange Research Station Dam levels are manually read by I&INSW staff.
4. Arrangements for the warning of the occupants of dwellings which would be inundated in the event of dam failure.
5. Arrangements for the management of evacuation to safe locations.

Operation

The Dam Failure Warning System works as follows:

1. Rain over the dams' catchment area and water levels at the dams are monitored continuously (see Map 2 for locations of gauges). Should extremely heavy rain fall or particular flow levels occur over the spillways of the dams:
 - a. Key Council, I&INSW and SES personnel will be alerted, and the personnel of other agencies will be advised to prepare for the evacuation of people from dwellings below the dams.
 - b. Physical surveillance of the dams and downstream areas will be initiated.
 - c. Procedures will be instituted to disseminate evacuation warnings if the level at any dam continues to rise.

2. If the water level at any of these dams reaches specified depths over the dam's spillway, or if rapid rises in water level occur, people in downstream houses will be advised to prepare for evacuation to designated evacuation centres. Warnings will be disseminated by:
 - a. Doorknocking of at-risk dwellings. A series of template warning messages is in Annex E.
 - b. Telephone calls being made to at-risk dwellings.
 - c. Pager messages to at-risk dwellings.
 - d. Radio broadcasts. If evacuation is advised, broadcast messages will be preceded by the playing of the Standard Emergency Warning Signal.

3. If evacuation is required, it will be by private vehicles supplemented by community buses and ambulances. People will be taken or advised to go to evacuation centres as follows:
 - a. From the areas below Gosling Creek Dam and Orange Research Station Dam: Orange Ex-Services Club, Anson St, Orange.
 - b. From the area below Spring Creek Dam: Summer Hill RFS Station, Lucknow.
 - c. From the area east of Summer Hill Creek and below Suma Park Dam: to the Clifton Grove RFS Station.
 - d. From the Kennett Place area west of Summer Hill Creek and below Suma Park Dam: to the Orange Ex-Services Club, Anson St, Orange, via the Orange Agricultural College.
 - e. From below the Third Crossing of Summer Hill Creek: to Kallara Nursery on Ophir Road,

The Procedures in Detail

Notification, surveillance, warning and evacuation arrangements are detailed in the table at the end of this Annex. Note that:

1. Actions indicated as occurring at particular Alert Levels may be brought forward if the development of a flood event warrants (e.g. because of rapid

rises towards these levels). For example, the actions designated for the Orange Alert level could be bypassed and replaced by those which apply at the Red Alert level.

2. The 'Elapsed Times' are estimates of the worst possible case based upon PMF hydrographs. In real events which threaten to cause dam failure, it is likely that **much** more time would elapse between defined levels than is indicated in the table. Assessments of the speed of onset of developing events would be made at the time and advice given to residents would reflect these assessments.
3. It should be noted that a flood large enough to cause any of the dams to fail would be exceedingly rare. However, dam failure could develop rapidly and the amount of time available to evacuate could be short.

Prior Advice to People Potentially At Threat

1. Residents and owners of non-residential properties downstream of the dams have been provided with written material incorporating:
 - a. Information on the nature of the threat and the circumstances under which dam failure could occur,
 - b. The arrangements governing the issuing of warnings (including advice on pager operation), and
 - c. Advice on what they should do when advised to prepare to evacuate or actually to do so.
2. This written material is intended to be placed in a prominent place in each building.

TABLE 1: NOTIFICATION, SURVEILLANCE, WARNING AND EVACUATION PROCEDURES FOR A POTENTIAL FAILURE OF GOSLING CREEK DAM

CONDITION	ELAPSED TIME FROM NORMAL WATER LEVEL	FLOOD EFFECTS	PROCEDURES AND ACTIONS			
			Orange City Council	Orange City SES	LEMO/Other Agencies	People in Properties at Risk
Water level at spillway crest (normal water level).	N/A	None.	Inspects dam on a regular basis.	None required.	None required.	None required.
WHITE (emergency services activation level) <ul style="list-style-type: none"> ◆ Water level 200mm above spillway crest. ◆ Rainfall intensity 25mm or more in an hour at the rain gauge at Gosling Creek Dam. ◆ Water level at dam rising at a rate of 200mm or more in an hour. 	5 minutes minimum. N/A N/A	High flow in Gosling Creek below dam.	<ul style="list-style-type: none"> ◆ Advised automatically by computer and pager. ◆ Advises SES and LEMO. ◆ Arranges monitoring of dam. 	<ul style="list-style-type: none"> ◆ Advised automatically by pager and phone. ◆ Activates Orange City Local Flood Plan. ◆ Monitors Spring Creek below dam (including at Mitchell Hwy). ◆ Advises SES Central West Region. 	<ul style="list-style-type: none"> ◆ LEMO advised automatically by pager and by phone. ◆ LEMO informs: <ul style="list-style-type: none"> • Orange City Council • Orange Local Emergency Operations Controller • Orange and Cabonne RFS • Community Services, Orange. 	None required: no immediate threat to dam.
ORANGE (warning level) <ul style="list-style-type: none"> ◆ Water level 500mm above spillway crest. ◆ Water level at dam rising at a rate of 400mm or more in an hour. 	10 minutes minimum. N/A	Flooding in Gosling Creek below dam.	<ul style="list-style-type: none"> ◆ Continues monitoring of dam. ◆ Passes warning to at-risk residents by telephone. 	<ul style="list-style-type: none"> ◆ Co-ordinates warning of at-risk properties. ◆ Issues warnings, preceded by SEWS, over radio and television stations. 	<ul style="list-style-type: none"> ◆ LEMO ensures that evacuation centre is ready. ◆ Orange and/or Cabonne RFS doorknocks at-risk residents. 	Prepare to evacuate.

CONDITION	ELAPSED TIME FROM NORMAL WATER LEVEL	FLOOD EFFECTS	PROCEDURES AND ACTIONS			
			Orange City Council	Orange City SES	LEMO/Other Agencies	People in Properties at Risk
<p>RED (evacuation level)</p> <ul style="list-style-type: none"> ◆ Water level 800mm above spillway crest. ◆ Water level at dam rising at a rate of 600mm or more in an hour. 	<p>15 minutes Minimum.</p> <p>N/A</p>	<p>Flooding in Gosling Creek below dam.</p>	<ul style="list-style-type: none"> ◆ Continues monitoring at dam. ◆ Passes warning to at-risk residents by telephone. 	<ul style="list-style-type: none"> ◆ Co-ordinates doorknocking of at-risk properties. ◆ Issues warnings, preceded by SEWS, over radio and television stations. 	<ul style="list-style-type: none"> ◆ Orange and/or Cabonne RFS doorknocks at-risk residences. ◆ Community Services manages evacuation centres. 	<p>Evacuate immediately to pre-determined evacuation centre.</p>
<p>IMMINENT DAM FAILURE</p> <ul style="list-style-type: none"> ◆ Water level 1250mm above spillway crest. 	<p>20 minutes minimum</p>	<p>Flooding in Gosling Creek below dam.</p>	<p>Continues monitoring of dam.</p>	<p>Verifies that evacuation has been completed.</p>		
<p>'ALL CLEAR'</p> <ul style="list-style-type: none"> ◆ Danger assessed as being over (note that this condition could be reached at any time after White Alert level is reached). 	<p>N/A</p>	<p>N/A</p>	<ul style="list-style-type: none"> ◆ Advises SES. ◆ Informs residents by telephone (if Orange or Red Alert has occurred). 	<ul style="list-style-type: none"> ◆ Issues All Clear to LEMO and Local Emergency Operations Controller. ◆ Co-ordinates passage of All Clear to residents by doorknock or at evacuation centre (if Orange or Red Alert have occurred). ◆ Advise radio and television stations. 	<p>LEMO advises other agencies.</p>	<p>Stay at home, return home or await further advice.</p>

TABLE 2: NOTIFICATION, SURVEILLANCE, WARNING AND EVACUATION PROCEDURES FOR A POTENTIAL FAILURE OF SPRING CREEK DAM

CONDITION	ELAPSED TIME FROM NORMAL WATER LEVEL	FLOOD EFFECTS	PROCEDURES AND ACTIONS			
			Orange City Council	Orange City SES	LEMO/Other Agencies	People in Properties at Risk
Water level at spillway crest (normal water level).	N/A	None.	Inspects dam on a regular basis.	None required.	None required.	None required.
<p>POTENTIAL 'SUNNY DAY' DAM FAILURE</p> <p>Seepage, cracking or slumping of earthen embankment noted by Orange City Council.</p>	N/A	None until failure; then rapid rise in Gosling Creek below dam. Suma Park saddle dam could breach, causing rapid rise below saddle dam and in Summer Hill Creek 1 km below main Suma Park Dam.	<ul style="list-style-type: none"> ◆ Monitors dam. ◆ Advises SES and LEMO if failure of embankment is possible or occurs. 	<ul style="list-style-type: none"> ◆ Advised by pager and phone. ◆ Activates Orange City Local Flood Plan. ◆ Advises SES Central West Region. ◆ Coordinates warning of at-risk properties. ◆ Issues warning, preceded by SEWS over radio and television stations. 	<ul style="list-style-type: none"> ◆ LEMO advised by pager and phone. ◆ LEMO informs: <ul style="list-style-type: none"> • Orange City Council. • Orange Local Emergency Operations Controller. 	Secure assets near Gosling and Summer Hill Creeks.

CONDITION	ELAPSED TIME FROM NORMAL WATER LEVEL	FLOOD EFFECTS	PROCEDURES AND ACTIONS			
			Orange City Council	Orange City SES	LEMO/Other Agencies	People in Properties at Risk
WHITE (emergency services activation level) <ul style="list-style-type: none"> ◆ Water level 200mm above spillway crest. ◆ Rainfall intensity 25mm or more in an hour at any gauge in Spring Creek or Summer Hill Creek catchments. ◆ Water level at dam rising at a rate of 200mm or more in an hour. 	15 minutes minimum. N/A N/A	Minor flooding in Gosling and Spring Creeks.	<ul style="list-style-type: none"> ◆ Advised automatically by computer and pager. ◆ Advises SES and LEMO. ◆ Arranges monitoring of dam. 	<ul style="list-style-type: none"> ◆ Advised automatically by pager and phone. ◆ Activates Orange City Local Flood Plan. ◆ Monitors Spring Creek below dam (including at Mitchell Hwy). ◆ Advises SES Central West Region. 	<ul style="list-style-type: none"> ◆ LEMO advised automatically by pager and by phone. ◆ LEMO informs: <ul style="list-style-type: none"> • Orange City Council • Orange Local Emergency Operations Controller • Orange and Cabonne RFS • Community Services, Orange. 	None required: no immediate threat to dam.
ORANGE (warning level) <ul style="list-style-type: none"> ◆ Water level 900mm above spillway crest. ◆ Water level at dam rising at a rate of 400mm or more in an hour. 	30 minutes minimum. N/A	Flooding below dam: Mitchell Hwy and Icely Rd probably closed.	<ul style="list-style-type: none"> ◆ Continues monitoring of dam. ◆ Passes warning to at-risk residents by telephone. 	<ul style="list-style-type: none"> ◆ Co-ordinates warning of at-risk properties. ◆ Issues warnings, preceded by SEWS, over radio and television stations. 	<ul style="list-style-type: none"> ◆ LEMO ensures that evacuation centre is ready. ◆ Orange and/or Cabonne RFS doorknocks at-risk residents. 	Prepare to evacuate.
RED (evacuation level) <ul style="list-style-type: none"> ◆ Water level 1200mm above spillway crest. ◆ Water level at dam rising at a rate of 800mm or more in an hour. 	45 minutes minimum N/A	Severe flooding below dam; Mitchell Hwy and Icely Rd closed.	<ul style="list-style-type: none"> ◆ Continues monitoring at dam. ◆ Passes warning to at-risk residents by telephone. 	<ul style="list-style-type: none"> ◆ Co-ordinates doorknocking of at-risk properties. ◆ Issues warnings, preceded by SEWS, over radio and television stations. 	<ul style="list-style-type: none"> ◆ Orange and/or Cabonne RFS doorknocks at-risk residences. ◆ Community Services manages evacuation centres. 	Evacuate immediately to pre-determined evacuation centre.
IMMINENT DAM FAILURE	90 minutes minimum.	Severe flooding below dam.	Continues monitoring of dam.	Verifies that evacuation has been completed.		

CONDITION	ELAPSED TIME FROM NORMAL WATER LEVEL	FLOOD EFFECTS	PROCEDURES AND ACTIONS			
			Orange City Council	Orange City SES	LEMO/Other Agencies	People in Properties at Risk
<ul style="list-style-type: none"> ◆ Water level 2400mm above spillway crest. 						
<p>‘ALL CLEAR’</p> <ul style="list-style-type: none"> ◆ Danger assessed as being over (note that this condition could be reached at any time after White Alert level is reached). 	N/A	N/A	<ul style="list-style-type: none"> ◆ Advises SES. ◆ Informs residents by telephone (if Orange or Red Alert has occurred). 	<ul style="list-style-type: none"> ◆ Issues All Clear to LEMO and Local Emergency Operations Controller. ◆ Co-ordinates passage of All Clear to residents by doorknock or at evacuation centre (if Orange or Red Alert have occurred). ◆ Advises radio and television stations. 	LEMO advises other agencies.	Stay at home, return home or await further advice.

TABLE 3: NOTIFICATION, SURVEILLANCE, WARNING AND EVACUATION PROCEDURES FOR A POTENTIAL FAILURE OF SUMA PARK DAM

EMERGENCY CONDITION and FLOW OVER SPILLWAY (mm)	DAM WATER LEVEL (AHD)	FLOOD EFFECTS	PROCEDURES AND ACTIONS			
			Orange City Council	Orange City SES	LEMO/Other Agencies	People in Properties at Risk
<p>WHITE (Emergency Services activation level)</p> <ul style="list-style-type: none"> ◆ Water level at the spillway crest with no flow over spillway crest, or ◆ Rainfall intensity of 25mm or more in an hour recorded in the Spring Creek or Summer Hill Creek catchments, or ◆ Water level at dam rising at a rate of 200mm or more in an hour. 	RL 842.77 m	Nil.	<ul style="list-style-type: none"> ◆ Advised automatically by computer and pager. ◆ Activates White Alert. ◆ Advises SES. ◆ Interrogates BoM website for forecasts. ◆ Monitors flow over spillway and dam condition. ◆ Advises DSC if warning is likely to go to AMBER. 	<ul style="list-style-type: none"> ◆ Advised automatically by pager and phone. ◆ Activates Local Flood Plan provisions. ◆ Notifies key Unit members. ◆ Monitors situation. 	<p>DECCW</p> <ul style="list-style-type: none"> ◆ Monitors situation. ◆ Inspects dam if necessary. ◆ Advises NSW DSC. ◆ Consults with and advises Council on any observed changes to the dam. 	None required: no immediate threat to dam.
<p>AMBER (warning level)</p> <ul style="list-style-type: none"> ◆ Water level 230mm over spillway crest, and water level rising in the storage and rain still falling in the catchment, or ◆ Water level at dam rising at 	RL 843 m (Notification of water level by computer, pager and phone.)	<ul style="list-style-type: none"> ◆ Flooding below Suma Park Dam. ◆ Causeways on Bulgas Road and First Crossing cut. ◆ Second 	<ul style="list-style-type: none"> ◆ Activates Orange Alert. ◆ Advises SES, DECCW and DSC. ◆ Interrogates BoM site for forecasts. 	<ul style="list-style-type: none"> ◆ Activates Local Flood Plan provisions. ◆ Notifies LEOCON and LEMO. ◆ Coordinates warning of at-risk properties. 	<ul style="list-style-type: none"> ◆ LEMO ensures that evacuation centre is ready. ◆ Orange and/or Cabonne RFS and NSWFB doorknock at-risk properties east of creek. ◆ DECCW and DSC 	Prepare to evacuate.

EMERGENCY CONDITION and FLOW OVER SPILLWAY (mm)	DAM WATER LEVEL (AHD)	FLOOD EFFECTS	PROCEDURES AND ACTIONS			
			Orange City Council	Orange City SES	LEMO/Other Agencies	People in Properties at Risk
<p>a rate of 400mm or more in an hour.</p> <ul style="list-style-type: none"> ◆ Minimum 18 minutes before RED Alert is issued. 		<p>Crossing and Fourth Crossing bridges across Summer Hill Creek closed.</p>	<ul style="list-style-type: none"> ◆ Monitors the storage 24 hours daily. ◆ Passes warning to at-risk residents by telephone. ◆ Provides updates to SES, DECCW and DSC. 	<ul style="list-style-type: none"> ◆ Co-ordinates doorknocks of at-risk properties in Kennett Place. ◆ Issues warnings, preceded by SEWS, over radio and television stations. 	<p>monitor situation, consult/advise and inspect site if necessary.</p> <ul style="list-style-type: none"> ◆ Dep't. of Commerce provides technical support. 	
<p>RED (evacuation level)</p> <ul style="list-style-type: none"> ◆ Water level 1230mm over spillway crest, and water level rising in the storage and rain still falling in the catchment, or ◆ Water level at dam rising at a rate of 800mm or more in an hour. 	<p>RL 844.0 m (Notification of water level by computer, pager and phone).</p>	<p>Severe flooding below dam.</p>	<ul style="list-style-type: none"> ◆ Activate Red Alert. ◆ Advises SES, DECCW and DSC. ◆ Interrogates BoM site for forecasts. ◆ Monitors storage 24 hours daily. ◆ Passes warning to at-risk residents by telephone. ◆ Provides updates to SES, DECCW and DSC. 	<ul style="list-style-type: none"> ◆ Activates Local Flood Plan provisions if not already done. ◆ Notifies LEMO and LEOCON. ◆ Issues warnings, preceded by SEWS, over radio and television stations. ◆ Co-ordinates doorknocks of at-risk properties in Kennett Place. 	<ul style="list-style-type: none"> ◆ Orange and/or Cabonne RFS and NSWFB doorknock at-risk properties east of creek. ◆ Community Services manages evacuation centres. 	<p>Evacuate immediately to pre-determined evacuation centre.</p>

EMERGENCY CONDITION and FLOW OVER SPILLWAY (mm)	DAM WATER LEVEL (AHD)	FLOOD EFFECTS	PROCEDURES AND ACTIONS			
			Orange City Council	Orange City SES	LEMO/Other Agencies	People in Properties at Risk
<p>‘ALL CLEAR’</p> <ul style="list-style-type: none"> ◆ Danger assessed as being over (note that this condition could be reached at any time after White Alert level is reached). 	Less than RL 842.77 m	N/A	<ul style="list-style-type: none"> ◆ Advises SES. ◆ Informs residents by telephone (if Amber or Red Alert has occurred). 	<ul style="list-style-type: none"> ◆ Issues ‘All Clear’ to LEMO and Local Emergency Operations Controller. ◆ Co-ordinates passage of ‘All Clear’ to residents by doorknock or at evacuation centre (if Amber or Red Alert have occurred). ◆ Advises radio and television stations. 	<ul style="list-style-type: none"> ◆ LEMO advises other agencies. ◆ Orange and/or Cabonne RFS and NSWFB assist with dissemination of ‘All Clear’. 	Stay at house, return home or await further advice.

TABLE 4: NOTIFICATION, SURVEILLANCE, WARNING AND EVACUATION PROCEDURES FOR A POTENTIAL FAILURE OF ORANGE RESEARCH STATION DAM

EMERGENCY CONDITION and FLOW OVER SPILLWAY (mm)	DAM WATER LEVEL (RL)	FLOOD EFFECTS	PROCEDURES AND ACTIONS			
			I&INSW	Orange City SES	LEMO/Other Agencies	People in Properties at Risk
Water level at spillway crest (normal water level).	97.4 m	None	Inspects dam on a regular basis.	None required.	None required.	None required.
<p>WHITE (emergency services activation level)</p> <ul style="list-style-type: none"> ◆ 100 mm of water over the entire spillway crest, and ◆ Expectation of thunderstorms bringing very heavy rainfall leading to localised flash flooding. ◆ Earth tremor felt or reported. ◆ Emergency condition detected or reported. 	97.5 m	High flows in Rifle Range Creek below dam with possible flooding.	<ul style="list-style-type: none"> ◆ Arranges monitoring of flows over spillway and dam condition. ◆ Advises SES and LEMO. ◆ Advises NOW and DSC. ◆ Visually inspects dam structure for changes or emergency conditions: <ul style="list-style-type: none"> ○ Uncontrolled seepage or turbidity of seepage. ○ Cracking. ○ Depressions, bulges or soil slides. ◆ Contacts SES and DSC about changed dam 	<ul style="list-style-type: none"> ◆ Activates Orange City Local Flood Plan. ◆ Monitors Rifle Range Creek below dam (including Sundew Crescent). ◆ Advises SES Central West Region. 	<ul style="list-style-type: none"> ◆ LEMO advised by I&INSW by telephone. ◆ LEMO informs: <ul style="list-style-type: none"> • Orange City Council • Orange Local Emergency Operations Controller • Orange and Cabonne RFS • Community Services, Orange. <p>NOW</p> <ul style="list-style-type: none"> ◆ Monitors situation ◆ Advises NSW DSC Consults with Council 	None required: no immediate threat to dam.

EMERGENCY CONDITION and FLOW OVER SPILLWAY (mm)	DAM WATER LEVEL (RL)	FLOOD EFFECTS	PROCEDURES AND ACTIONS			
			I&INSW	Orange City SES	LEMO/Other Agencies	People in Properties at Risk
			<p>conditions.</p> <ul style="list-style-type: none"> ◆ Notifies inspection is required by an engineer. ◆ Activates White Alert. 		on any observed changes to the dam.	
<p>YELLOW (warning level)</p> <ul style="list-style-type: none"> ◆ Water level 750 mm above spillway crest, and ◆ Water level at dam rising, and ◆ Expectations for further thunderstorms bringing more heavy rain. ◆ Minor changes to dam. 	98.25 m	High flows in Rifle Range Creek below dam with possible minor flooding.	<ul style="list-style-type: none"> ◆ Advises Orange City SES Controller and LEMO of water levels. ◆ Continues to monitor flows over spillway of dam and dam condition. ◆ Warns at-risk residents by telephone of possible evacuation. ◆ Advises NOW and DSC. ◆ Monitors changes to dam: <ul style="list-style-type: none"> ○ seepage increasing in volume. ○ Size of cracks, depressions, bulges 	<ul style="list-style-type: none"> ◆ Co-ordinates warning and doorknocking of at-risk properties including Sundew Crescent. ◆ Issues warnings, preceded by SEWS, over radio and television stations. ◆ Notifies LEMO 	<ul style="list-style-type: none"> ◆ LEMO ensures that evacuation centre is ready. ◆ Orange RFS and NSWFB doorknock at-risk residents. ◆ NOW and DSC monitor situation and consult/advise. ◆ Dep't. of Commerce provides technical support. 	Prepare to evacuate.

EMERGENCY CONDITION and FLOW OVER SPILLWAY (mm)	DAM WATER LEVEL (RL)	FLOOD EFFECTS	PROCEDURES AND ACTIONS			
			I&INSW	Orange City SES	LEMO/Other Agencies	People in Properties at Risk
			<p>increasing.</p> <ul style="list-style-type: none"> ◆ Advises SES and DSC of inspection findings and alert status of dam. ◆ Activates Orange Alert. 			
<p>RED (evacuation level)</p> <ul style="list-style-type: none"> ◆ Water level 1500mm above spillway crest. ◆ Water topping dam wall. ◆ Major changes to dam, no immediate threat to dam <ul style="list-style-type: none"> ○ Erosion of dam wall commencing. ○ Erosion of dam wall. 	99.0 m	Moderate flooding in Rifle Range Creek below dam.	<ul style="list-style-type: none"> ◆ Continues monitoring flows over spillway at dam and dam condition. ◆ Passes warning to at-risk residents by telephone recommending evacuation. ◆ Advises Orange City SES Local Controller, and LEMO of water level and that evacuation is recommended. ◆ Advises SES Local Controller of residents not able to be contacted by telephone. ◆ Advises NOW and 	<ul style="list-style-type: none"> ◆ Activates Orange City Local Flood Plan. ◆ Notifies LEMO. ◆ Co-ordinates doorknocking of at-risk properties to deliver warnings, including Sundew Crescent. ◆ Issues warnings, preceded by SEWS, over radio and television stations. ◆ Advises SES Central West Region. 	<ul style="list-style-type: none"> ◆ LEMO advised by SES by telephone. ◆ LEMO informs: <ul style="list-style-type: none"> • Orange City Council. ◆ Orange Local Emergency Operations Controller. ◆ Orange RFS and NSWFB doorknock at-risk residences. ◆ Community Services manages evacuation centres. 	Evacuate immediately to evacuation centre.

EMERGENCY CONDITION and FLOW OVER SPILLWAY (mm)	DAM WATER LEVEL (RL)	FLOOD EFFECTS	PROCEDURES AND ACTIONS			
			I&INSW	Orange City SES	LEMO/Other Agencies	People in Properties at Risk
			<p>DSC.</p> <ul style="list-style-type: none"> ◆ For earthquake and dam failure: monitors dam more frequently and calls in an experienced dams engineer to conduct immediate inspection. ◆ In the event of a dramatic change and imminent dam failure goes to 'Failure Alert' procedure below. ◆ Activates Red Alert. 			
<p>IMMINENT DAM FAILURE</p> <ul style="list-style-type: none"> ◆ Major changes to dam, immediate threat to dam. ◆ Substantial erosion of dam wall. ◆ Dam wall about to breach. 	N/A	Major flooding in Rifle Range Creek below dam.	<ul style="list-style-type: none"> ◆ Continues monitoring flows over spillway at dam and dam condition. ◆ Ensures all personnel are clear of the dam. ◆ Advises SES Controller, DSC and LEMO that dam failure is imminent. 	<ul style="list-style-type: none"> ◆ Ensures all personnel have withdrawn from the danger area. ◆ Verifies that evacuation has been completed. 	<ul style="list-style-type: none"> ◆ Ensures all of their personnel have withdrawn from the danger area. 	Residents should be already evacuated and at the evacuation centre.

EMERGENCY CONDITION and FLOW OVER SPILLWAY (mm)	DAM WATER LEVEL (RL)	FLOOD EFFECTS	PROCEDURES AND ACTIONS			
			I&INSW	Orange City SES	LEMO/Other Agencies	People in Properties at Risk
<p>‘ALL CLEAR’</p> <ul style="list-style-type: none"> ◆ No water passes over the spillway or dam wall. ◆ Danger assessed as being over (note that this condition could be reached at any time after White Alert level is reached). 	97.5 m or less.	None	<ul style="list-style-type: none"> ◆ Detailed inspection by experienced dams engineer to give ‘All Clear’. ◆ Advises SES Controller ‘All Clear’ can be issued. ◆ Informs downstream residents by telephone (if Yellow or Red Alert has occurred). ◆ Advises I&INSW Head Office of the incident. 	<ul style="list-style-type: none"> ◆ Issues ‘All Clear’ to LEMO and Local Emergency Operations Controller. ◆ Co-ordinates passage of ‘All Clear’ to residents by doorknock or at evacuation centre (if Yellow or Red Alert have occurred). ◆ Advise radio and television stations. 	<p>LEMO advises other agencies.</p> <p>Orange RFS and NSWFB assist with dissemination of ‘All Clear’.</p>	Return home or await further advice.

ANNEX D - DISSEMINATION OF SES FLOOD BULLETINS

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

Television Stations:

Station	Location
Prime TV	Orange
Southern Cross Ten	Orange
WIN TV	Orange

Radio Stations:

Station	Location	Frequency	Modulation
2CR (ABC)	Orange	549	AM
2EL	Orange	1089	AM
2GZ -FM	Orange	105.1	FM
Star FM	Orange	105.9	FM
2MCE-FM	Orange	94.7	FM
2OCB	Orange	107.5	FM

Newspapers:

Name	Location
Central Western Daily	Orange

Other Agencies:

- Orange SES Unit Headquarters.
- Flood Bulletins will be issued by the SES to all agencies with responsibilities listed in this plan and the Orange City Local DISPLAN.

ANNEX E - TEMPLATE EVACUATION WARNING MESSAGES

Dam Failure Evacuation Warning



Central West SES Region Headquarters

79 Corporation Avenue,
Bathurst NSW 2795

Telephone: (02) 6334 8555

Fax: (02) 6334 8500

Issued [day] [date] at [time in civilian format (am,pm)]

Email: cwr.ops.ses.nsw.gov.au

Radio stations are asked to immediately broadcast this message and repeat it.

Use of the Standard Emergency Warning Signal (SEWS) with this message is authorised

Dam Failure Evacuation Warning for Occupants of Properties below Gosling Creek Dam at Bloomfield.

Authorised by: [*name & operational position title*]

Orange City Council's dam failure warning system for *Gosling Creek Dam* has issued an Orange Alert. This means that the flow of water over Gosling Creek Dam is approaching dangerous levels and that the dam may be at risk of failure. While the dam is not expected to fail at this level, if the water keeps rising, a Red Alert could be triggered and major flooding of the Bloomfield area is possible.

Residents should monitor the situation closely and be prepared to evacuate immediately when instructed to do so. A specific Dam Failure Evacuation Order will be issued by the SES if necessary.

If flooding does occur in your area, remaining within your home or business will be dangerous and your life may be placed at risk.

Evacuation centres will be established at **the Orange Ex-Services Club, Anson Street, Orange** where you can obtain temporary accommodation and other help. Once you have registered at the evacuation centre you can choose to stay with friends or relatives.

To prepare for possible evacuation you should:

- Remove livestock and equipment from low-lying areas.
- Raise belongings by placing them on tables, beds and benches. Put electrical items on top. You may be able to place light-weight items in the roof space.
- Collect together medicines, personal and financial documents, mementos and photos ready to take with you.
- If possible, check to see if your neighbours need help.
- Make arrangements for care of pets or other animals, or take your pets with you when you evacuate.

- Pack three days' supply of clothing and medicines.
- Find where to turn off the electricity and gas.
- If you don't have a car or require specialised transport for evacuation contact the Orange City SES on **132 500**.
- Continue to listen to a local radio station 2CR (AM549) or 2GZ-FM (105.1) for further information and updates

Don't walk, drive, ride or play in floodwaters – this is the main cause of death and injury during flooding

For emergency assistance telephone the SES on 132 500

SES web site: www.ses.nsw.gov.au

End Dam Failure Evacuation Warning

[Enter update and currency details]

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the best in us*

Dam Failure Evacuation Order



Central West SES Region Headquarters

79 Corporation Avenue,
Bathurst NSW 2795

Telephone: (02) 6334 8555

Fax: (02) 6334 8500

Email: cwr.ops.ses.nsw.gov.au

Issued [day] [date] at [time in civilian format (am,pm)]

Radio stations are asked to immediately broadcast this message and repeat it.

Use of the Standard Emergency Warning Signal (SEWS) with this message is authorized.

Dam Failure Evacuation Order for Occupants of Properties below Gosling Creek Dam at Bloomfield.

Authorised By: [*name & operational position title*]

Orange City Council's dam failure warning system for *Gosling Creek Dam* has issued a Red Alert, for areas downstream of the dam. This alert means dam failure is imminent. Failure of the dam will result in extremely dangerous flooding of the Bloomfield area.

The State Emergency Service directs residents within these areas to evacuate within the next [number] hours. Do not delay your evacuation. Roads may be congested or closed. You could become trapped and need to be rescued. Remaining in flooded areas is dangerous and may place your life at risk.

Evacuation centres will be established at *the Orange Ex-Services Club, Anson Street, Orange* where you can obtain temporary accommodation and other help. Once you have registered you can choose to stay with friends or relatives.

If you don't have a car, or require specialised transport for evacuation telephone *132 500*.

As you evacuate you should:

- Take your important documents, mementos and photos
- Take your spare clothing and medicines
- If possible, check to see if your neighbours need help
- Turn off the electricity and gas
- Do not walk, drive, ride or play in floodwater
- Continue to listen to a local radio station 2CR (AM549) or 2GZ-FM (105.1) for information updates

End Dam Failure Evacuation Order _____

This Dam Failure Evacuation Order remains current until the All Clear has been issued

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Dam Failure Evacuation Warning



Central West SES Region Headquarters

79 Corporation Avenue,
Bathurst NSW 2795

Telephone: (02) 6334 8555

Fax: (02) (02) 6334 8500

Email: cwr.ops.ses.nsw.gov.au

Issued [day] [date] at [time in civilian format (am,pm)]

Radio stations are asked to immediately broadcast this message and repeat it.

Use of the Standard Emergency Warning Signal (SEWS) with this message is authorized.

Dam Failure Evacuation Warning for Occupants of Properties below Spring Creek Dam.

Authorised by: [name & operational position title]

Orange City Council's dam failure warning system for *Spring Creek Dam* has issued an Orange Alert. This means that the flow of water over Spring Creek Dam is approaching dangerous levels and that the dam may be at risk of failure. While the dam is not expected to fail at this level, if the water keeps rising, a Red Alert could be triggered and major flooding of downstream properties is possible.

Residents should monitor the situation closely and be prepared if flooding occurs.

An evacuation centre may be established at the *Summer Hill Rural Fire Service Station at Lucknow* where you may obtain temporary accommodation and other help. Once you have registered at the evacuation centre you can choose to stay with friends or relatives.

To prepare for possible flooding you should:

- Remove livestock and equipment from low-lying areas and from proximity to the creek. You should do this within the next _____ (*specify time*). If water levels begin to rise, you should move away from the creek immediately.
- If possible, check to see if your neighbours need help.
- Continue to listen to a local radio stations 2CR (AM549) or 2GZ-FM (105.1) for further information and updates

Don't walk ride or drive through floodwaters – this is the main cause of death and injury during flooding

For emergency assistance telephone the SES on 132 500

SES web site: www.ses.nsw.gov.au

End Dam Failure Evacuation Warning

[Enter update and currency details]

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Dam Failure Evacuation Warning



Central West SES Region Headquarters

79 Corporation Avenue,
Bathurst NSW 2795

Telephone: (02) 6334 8555

Fax: (02) 6334 8500

Email: cwr.ops.ses.nsw.gov.au

Issued [day] [date] at [time in civilian format (am,pm)]

Radio stations are asked to immediately broadcast this message and repeat it.

Use of the Standard Emergency Warning Signal (SEWS) with this message is authorised

Dam Failure Evacuation Warning for Occupants of Properties below Suma Park Dam at Clifton Grove and downstream to Ophir.

Authorised by: [name & operational position title]

Orange City Council's dam failure warning system for *Suma Park Dam* has issued an Orange Alert. This means that the flow of water over Suma Park Dam is approaching dangerous levels and that this dam may be at risk of failure. The dam is not expected to fail at this level but if the water keeps rising, a Red Alert could be triggered and major flooding of the Clifton Grove and downstream rural properties to Ophir is possible.

Residents should monitor the situation closely and be prepared to evacuate immediately when instructed to do so. A specific Dam Failure Evacuation Order will be issued by the SES if necessary.

If flooding does occur in your area, remaining within your home or business will be dangerous and your life may be placed at risk. Evacuation centres will be established at

Orange Ex-Services Club, Anson Street in Orange for residents on the western (Orange) side of Summer Hill Creek

Clifton Grove Rural Fire Service station for residents on the eastern (Clifton Grove) side of Summer Hill Creek

Kallara Nursery for residents on the northern side of Third Crossing, where you can obtain temporary accommodation and other help. . Once you have registered you can also choose to go to friends or relatives.

To prepare for possible evacuation you should:

- Remove livestock and equipment from low-lying areas.
- Raise belongings by placing them on tables, beds and benches. Put electrical items on top. You may be able to place light weight items in the roof space.
- Collect together medicines, personal and financial documents, mementos and photos
- If possible, check to see if your neighbours need help.

- Make arrangements for care of pets or other animals, or take your pets with you when you evacuate
- Take three days' supply of clothing and medicines
- Find out where to turn off the electricity and gas
- Continue to listen to radio stations 2CR (AM549) or 2GZ-FM (105.1) for further information and updates.

Don't walk, drive, ride or play in floodwaters – this is the main cause of death and injury during flooding

For emergency assistance telephone the SES on 132 500

SES web site: www.ses.nsw.gov.au

End Dam Failure Evacuation Warning

[Enter update and currency details]

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Dam Failure Evacuation Order



Central West SES Region Headquarters

79 Corporation Avenue,
Bathurst NSW 2795

Telephone: (02) 6334 8555

Fax: (02) 6334 8500

Email: cwr.ops.ses.nsw.gov.au

Issued [day] [date] at [time in civilian format (am,pm)]

Radio stations are asked to immediately broadcast this message and repeat it.

Use of the Standard Emergency Warning Signal (SEWS) with this message is authorised

Dam Failure Evacuation Order for Occupants of Properties below Suma Park Dam at Clifton Grove and downstream to Ophir.

Authorised By: [*name & operational position title*]

Orange City Council's dam failure warning system for *Suma Park Dam* has issued a Red Alert, for areas downstream of the dam. This alert means dam failure is imminent. Failure of the dam will result in extremely dangerous flooding of the areas Clifton Grove and downstream rural properties to Ophir.

The State Emergency Service directs residents within these areas to evacuate within the next [number] hours. Do not delay your evacuation. Roads may be congested or closed. You could become trapped and need to be rescued. Remaining in flooded areas is dangerous and may place your life at risk.

Evacuation centres will be established at

Orange Ex-Services Club, Anson Street in Orange for residents on the western (Orange) side of Summer Hill Creek,

Clifton Grove Rural Fire Service station for residents on the eastern (Clifton Grove) side of Summer Hill Creek,

Kallara Nursery for residents on the northern side of Third Crossing,

where you can obtain temporary accommodation and other help. . Once you have registered you can also choose to go to friends or relatives.

If you don't have a car, or require specialised transport for evacuation telephone **132 500**.

As you evacuate you should:

- Take your important documents, mementos and photos
- Take your spare clothing and medicines

- If possible, check to see if your neighbours need help
- Turn off the electricity and gas
- Do not walk, drive, ride or play in floodwater
- Continue to listen to radio stations 2CR (AM549) or 2GZ-FM (105.1) for further information and updates.

End Dam Failure Evacuation Order _____

This Dam Failure Evacuation Order remains current until the All Clear has been issued

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ANNEX F - EVACUATION ARRANGEMENTS FOR THE ORANGE CITY AREA

Background

Flooding in the Orange LGA is either flash flooding with short warning times or flooding due to the overtopping or failure of storage dams. In this latter case some timely warning may be able to be given.

Arrangements

Control. During floods, evacuations will be controlled by the NSW SES. Small-scale evacuations will be controlled by the Orange City SES Local Controller. Should the evacuation operation escalate beyond the capabilities of local resources control may be handed over to the Central West SES Region Controller.

Conduct. Evacuations will be controlled by the SES and conducted in four phases:

- a. Phase 1 - Warning.
- b. Phase 2 – Withdrawal.
- c. Phase 3 – Shelter.
- d. Phase 4 – Return.

Tasks.

Assistance of the RFS may be required for door-knocking in the low lying areas of Clifton Grove and lower Summer Hill Creek.

RFS to staff the evacuation centre at Clifton Grove RFS Station.

The staff of Kallara Nursery to set up an evacuation centre.

Decision to Evacuate

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

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

Self-motivated evacuation. Some people will make their own decision to evacuate earlier and move to alternative accommodation using their own transport. These evacuees will be advised, via the media, to inform the Police or SES of their evacuation and their temporary address.

Evacuation triggers.

Evacuation triggers will be based on

- 1) Excessive overtopping of Gosling Creek, Spring Creek, Suma Park Dams, Blackmans Swamp Creek Holding Pond and/or Orange Research Station Dam.
- 2) Excessive rainfall in the catchment above the main urban area of the City of Orange.
- 3) Potential failure of the above dams as indicated in DSEPs.
- 4) Other information supplied by the community or other sources (e.g.BoM) which may indicate the possibility of flooding,
- 5) Receipt of requests for assistance from the community.

Phase 1 – Warning

Evacuation warnings. Upon receipt of severe weather warnings predicting heavy rain and flash flooding, the Orange City SES Local Controller will consult as necessary to determine the level of threat and the need to consider evacuations. As soon as possible after the decision to evacuate is made, the Orange City SES Local Controller will issue evacuation warnings to the ‘at risk’ residents, indicating what people should do before and during evacuation.

Content of Evacuation Warnings. A template guide to the content of evacuation warning messages is located at Annex E. These are disseminated via:

- The radio and TV stations listed in Annex D.
- Door-knocking by emergency service personnel.
- Public address systems from emergency service vehicles.
- Telephone.
- Direct access to Radio Station 2CR.
- SES Flood Advices.

Phase 2 – Withdrawal

Introduction. Withdrawal involves the actual removal of the community/individuals from dangerous or potentially dangerous areas to safer areas. Within the Orange City Council area it is most probable that withdrawal will generally involve only individual or small numbers of properties.

Movement. Evacuees are to be encouraged to move using their own transport where possible. The Orange City SES Local Controller will arrange transport for those people without their own vehicles.

Special Needs Groups. Spring Street Pre-school and Neighbourhood Centre has been identified as a special needs group due to the level of flood threat existing at their location.

Animals. Assistance animals (guide dogs, hearing assistance animals, etc) will remain in the care of their owners throughout the evacuation. This includes transport and access into evacuation centres etc. I&INSW will make arrangements for the care of companion animals.

Doorknocking. Field teams conducting doorknocks will record and report the following information back to the Operations Centre:

- Addresses and locations of houses doorknocked and/or evacuated.
- The number of occupants.
- Details of support required (such as transport, medical evacuation, assistance to secure house and/or property and raise or move belongings).
- Details of residents who refuse to comply with the evacuation order.

Refusal to evacuate. Field teams should not waste time dealing with people who are reluctant or refuse to comply with any evacuation order. These cases should be referred to the Local Emergency Management Operations Controller who will arrange for Police to ensure their evacuation.

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

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

Phase 3 – Shelter

Evacuation centres. The usual purpose of evacuation centres is to meet the immediate needs of victims, not to provide them with accommodation. Evacuees will be advised to go to or be taken to the nearest accessible evacuation centre, which may initially be established at the direction of the Orange City SES Local Controller but managed as soon as possible by Community Services. Any or all of the following sites may be used as evacuation centres:

- Orange Ex-Services Club, Anson St, Orange.
- Summer Hill RFS Station, Lucknow.
- Clifton Grove RFS Station.
- Kallara Nursery on Ophir Road.

Action on arrival. On arrival, evacuees will be:

- e. Registered;
- f. Medically checked, if necessary; and
- g. Provided with their immediate welfare needs.

Registration. The NSW Police Force will ensure that all evacuees are registered on arrival at the designated evacuation centres.

Animal shelter compounds. Animal shelter compounds will be set up for the domestic pets of evacuees. These facilities will be operated by I&INSW.

Phase 4 – Return

Once it is considered safe to do so, the Orange City SES Local Controller will authorise the return of evacuees to their normal or alternative place of residence. This decision will be made in consultation with appropriate officers in regard to matters such as the electrical safety of buildings.

The return will be controlled by the Orange City SES Local Controller and may be conducted by Community Services, at his/her request.

ANNEX G - DETAILS OF THE DAM- FAILURE WARNING AND EVACUATION SYSTEM FOR SUMA PARK DAM

Purpose of System

1. Suma Park Dam is currently in good condition but has the potential for failure in extreme circumstances. It has been assessed as not being able to safely pass a PMF event and there is concern over the structural stability of the main wall. For these reasons, the dam is currently operated with the storage level lowered.
2. Failure of Suma Park Dam is unlikely except under the following conditions:
 - a. Failure due to extreme flood overtopping the concrete arch dam.
 - b. Failure may also be due to a rapidly deteriorating structural deficiency such as may be induced by an extreme earthquake or internal erosion. (This is sunny day failure in which the dam fails under a normal inflow condition).
 - c. Downstream flood inundation would result from water held in the storage, with possible impacts on 25 identified dwellings.
 - d. Special arrangements have been devised to protect residents at risk from potential dam failure flooding and to facilitate their evacuation should failure of Suma Park Dam become possible.

Operation and Procedures

3. The prime means of detecting the development of a potential emergency condition is through regular visual inspections of Suma Park Dam by members of Orange City Council staff and frequently by specialist engineers from the NSW Office of Water.
 - a. During floods, Suma Park Dam storage levels will be monitored. A series of alerts will be sent to the SES Orange City Local Controller.
 - b. The SES Orange City Local Controller will:
 - i. Notify the SES State Operations Centre and the Central West Region Controller. The main thrust of these notifications is to advise the SES as soon as possible so that persons at risk can be evacuated without delay.
 - ii. Manage the effects of flooding on the downstream community.
 - iii. Issue immediate warnings through the media, etc.
 - iv. Mobilise resources for the response.
4. As the rate of flow increases over the spillway, a system of escalating notifications is activated with three levels of alert, as shown below:

WHITE Level (Emergency Services activation level).

- Dam condition is normal with water level at the spillway crest with no flow over the spillway with the water level rising, or
- Rainfall intensity of 25mm or more in an hour recorded in the Spring Creek or Summer Hill Creek catchments, or
- Water level at dam rising at a rate of 200mm or more in an hour.
- The dam requires repairing – visible damage not serious enough to cause immediate failure of the embankment -
 - Increased seepage.
 - Increased turbidity.
 - Increased pore pressure.
 - Wide and/or extensive cracks.

AMBER Level –

- Dam condition is normal with water overtopping the spillway crest at a height of 230mm and water level rising in the storage and rain still falling in the catchment, or
- Water level at the dam is rising at a rate of 400 mm or more in an hour.

RED Level –

- Dam condition is normal with water overtopping the spillway crest at a height of 1230mm and water level is rising in the storage and rain still falling in the catchment, or
 - Water level at the dam is rising at a rate of 800 mm or more in an hour, or
 - Dam failure is in progress or dam has suffered severe damage with major increases to seepage, turbidity, pore pressure or cracking, or
 - Seepage through cracks and joints.
 - Seepage through abutments, downstream face and galleries.
 - Cracks in concrete with vertical displacement.
 - Major movements in outlet works and tunnels.
5. In a potential emergency situation it may become necessary to lower the storage level to decrease seepage and/or loading on the structure to minimise the impact of any failure. This would need to occur early in the emergency, within the constraints of maximum possible releases and the impacts of downstream flooding at Clifton Grove.

Impacts of Dam Failure

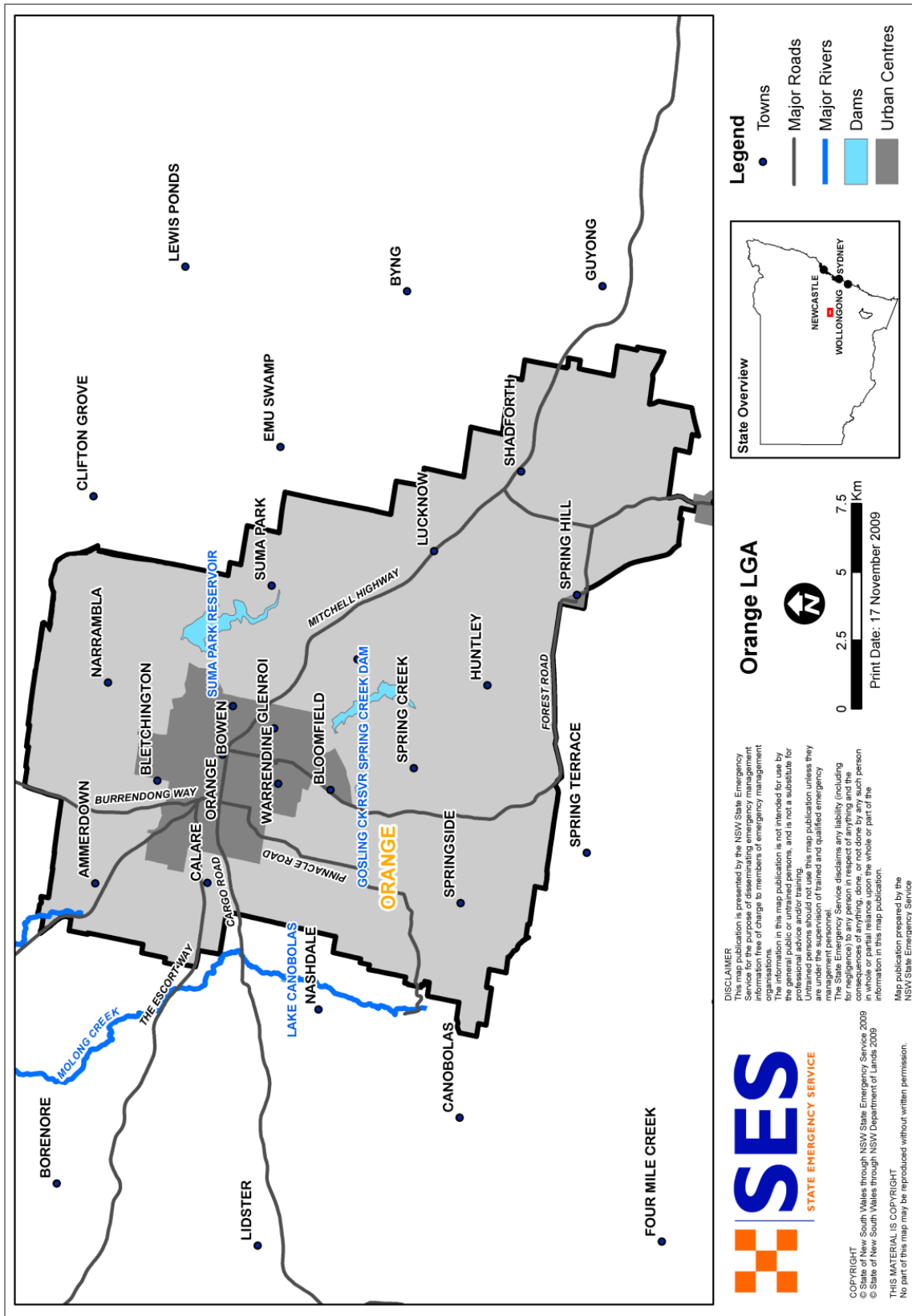
6. A sunny day dam break of Suma Park Dam could flood a maximum of 25 dwellings downstream at Clifton Grove at Kileys Run, Old Regret Road, Trooper Place, Kennett Lane, Coolabah Drive and other properties along lower Banjo Paterson Way, Ophir Road and downstream to Fourth Crossing.

Prior Advice to People Potentially at Threat

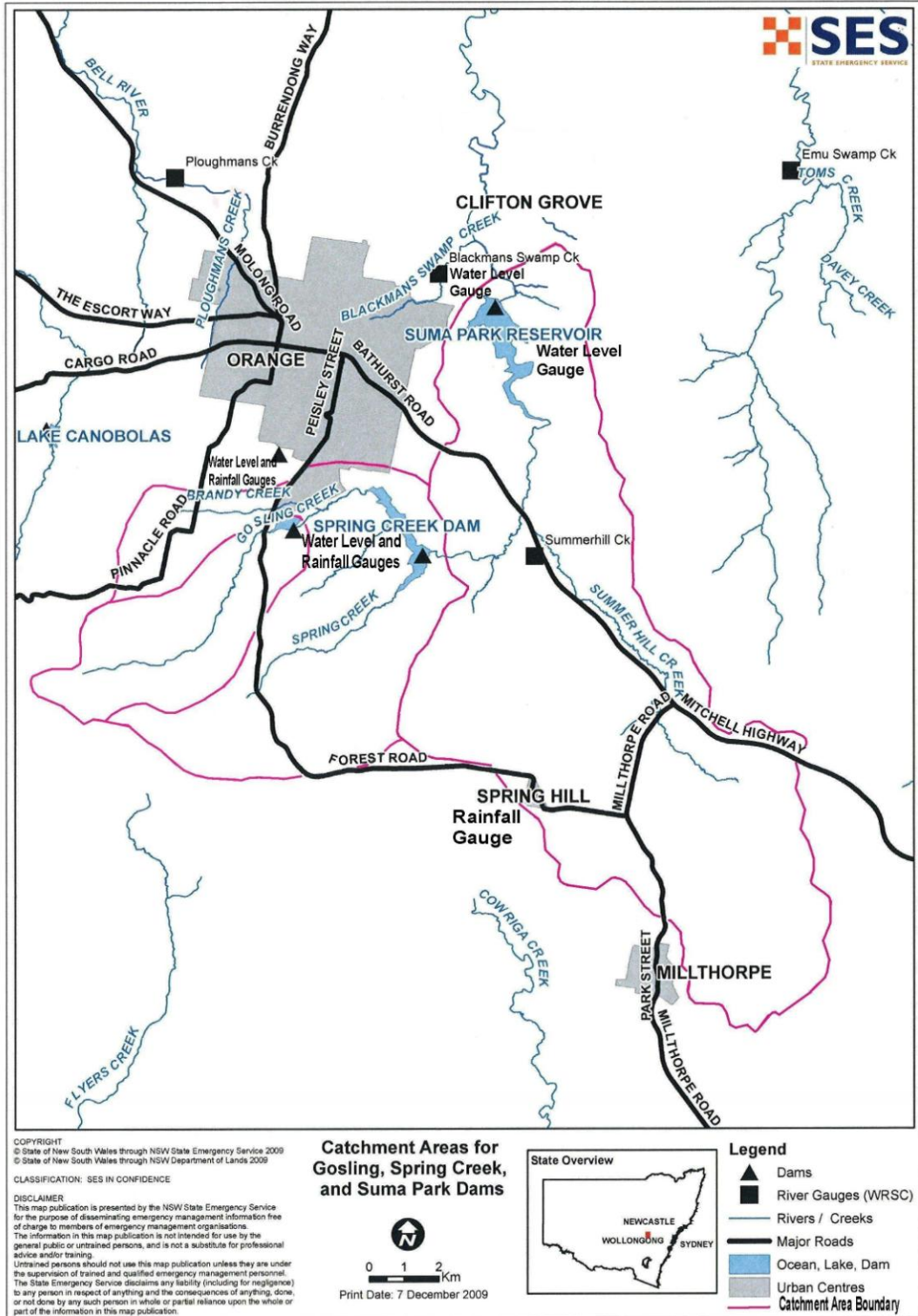
9. In any flood event not involving the failure of Suma Park Dam, no specific properties have been identified as being at threat.

10. Residents downstream of Suma Park Dam have been the subject of a community education program and have been supplied with flood information specific to the flood threat.

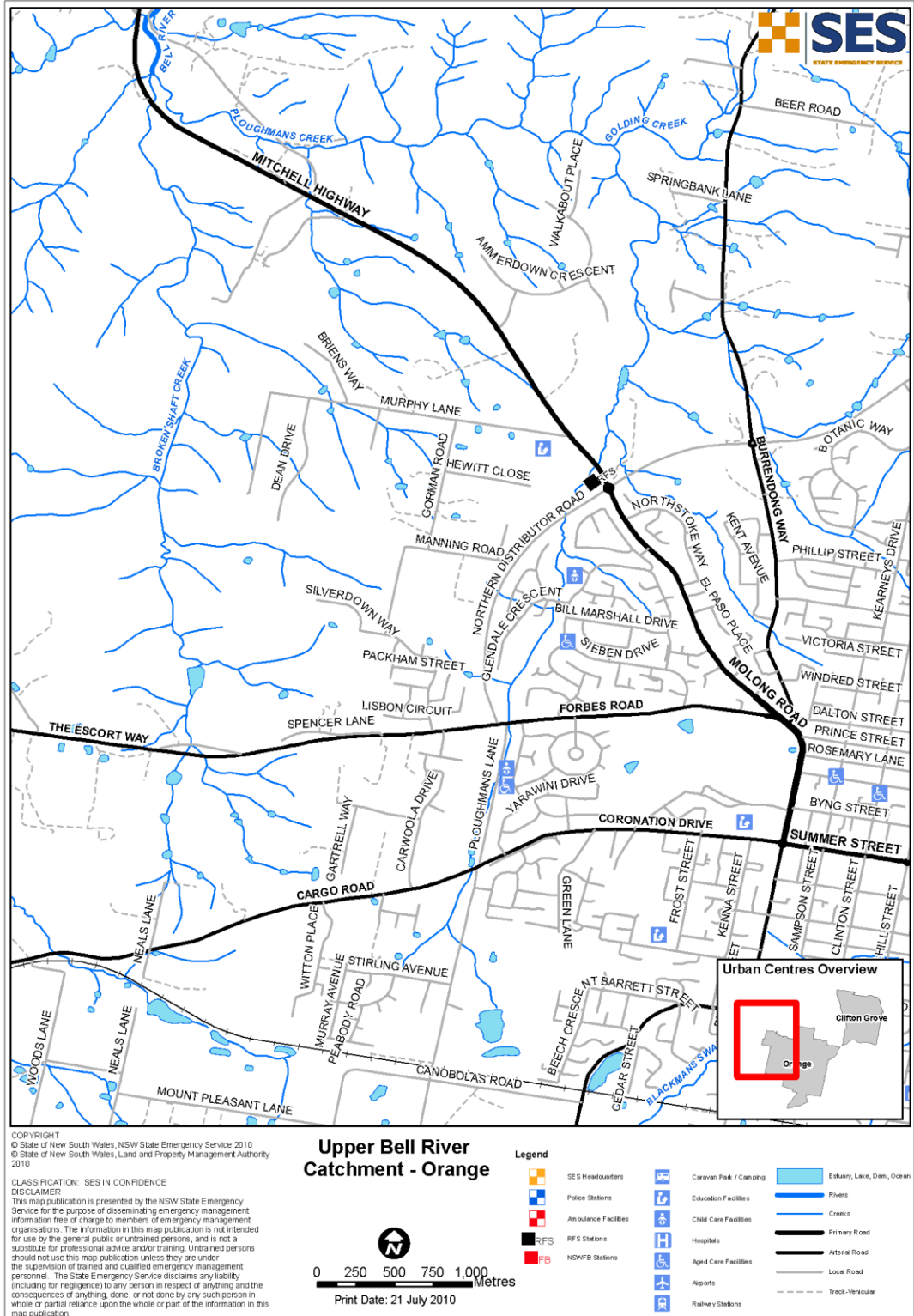
MAP 1 - ORANGE CITY COUNCIL AREA



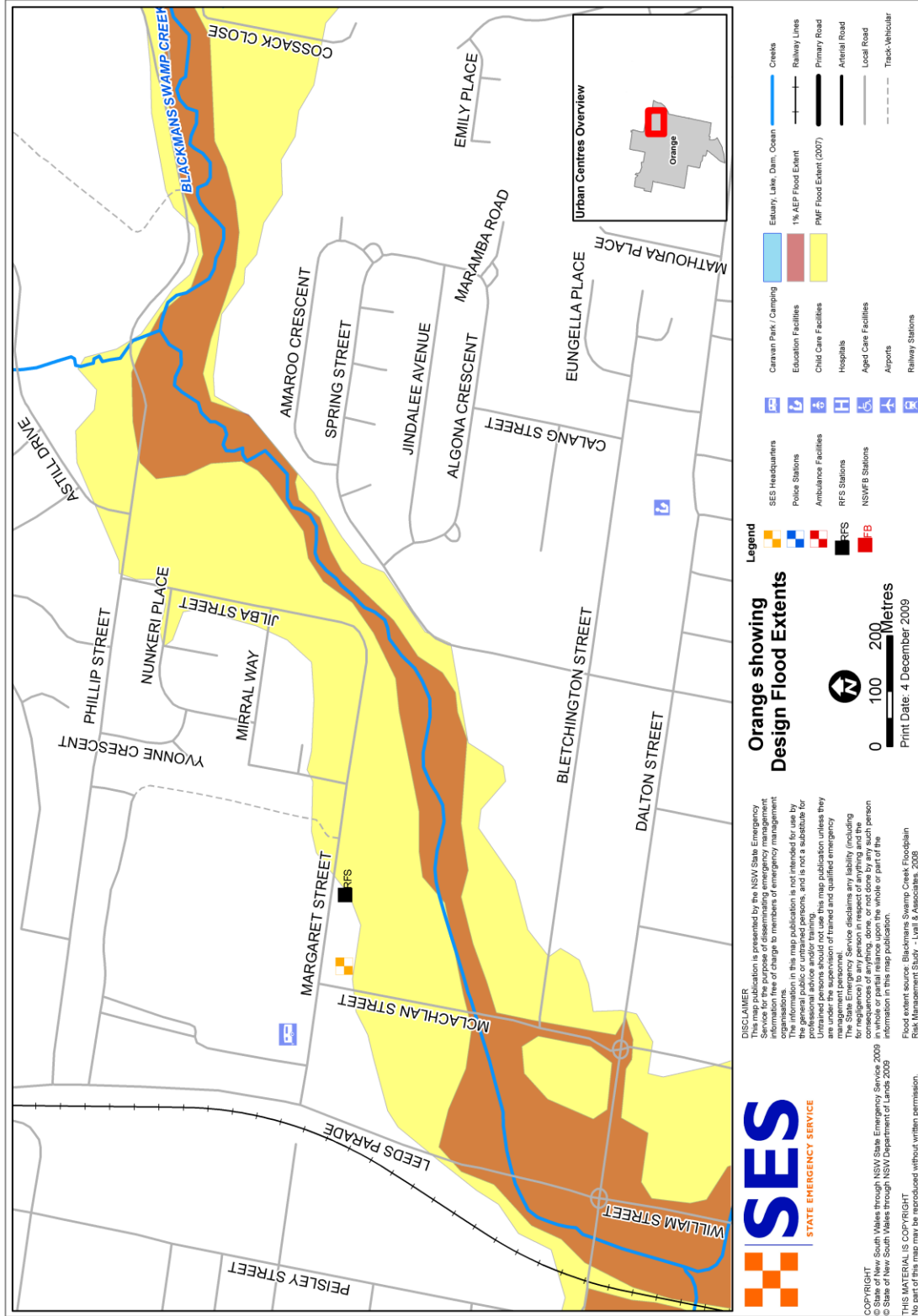
MAP 2 – CATCHMENT AREA MAP



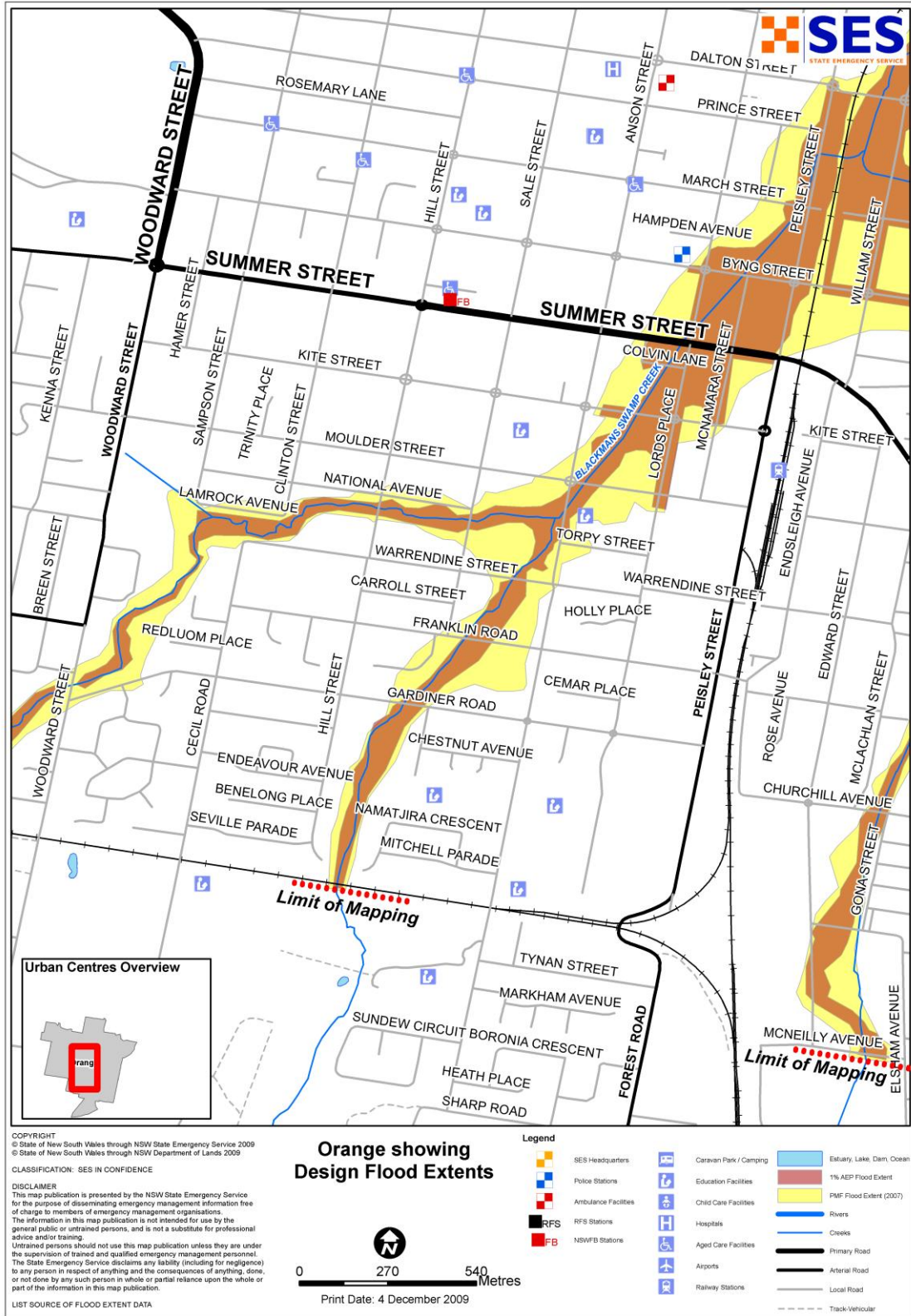
MAP 3 – UPPER BELL RIVER CATCHMENT MAP



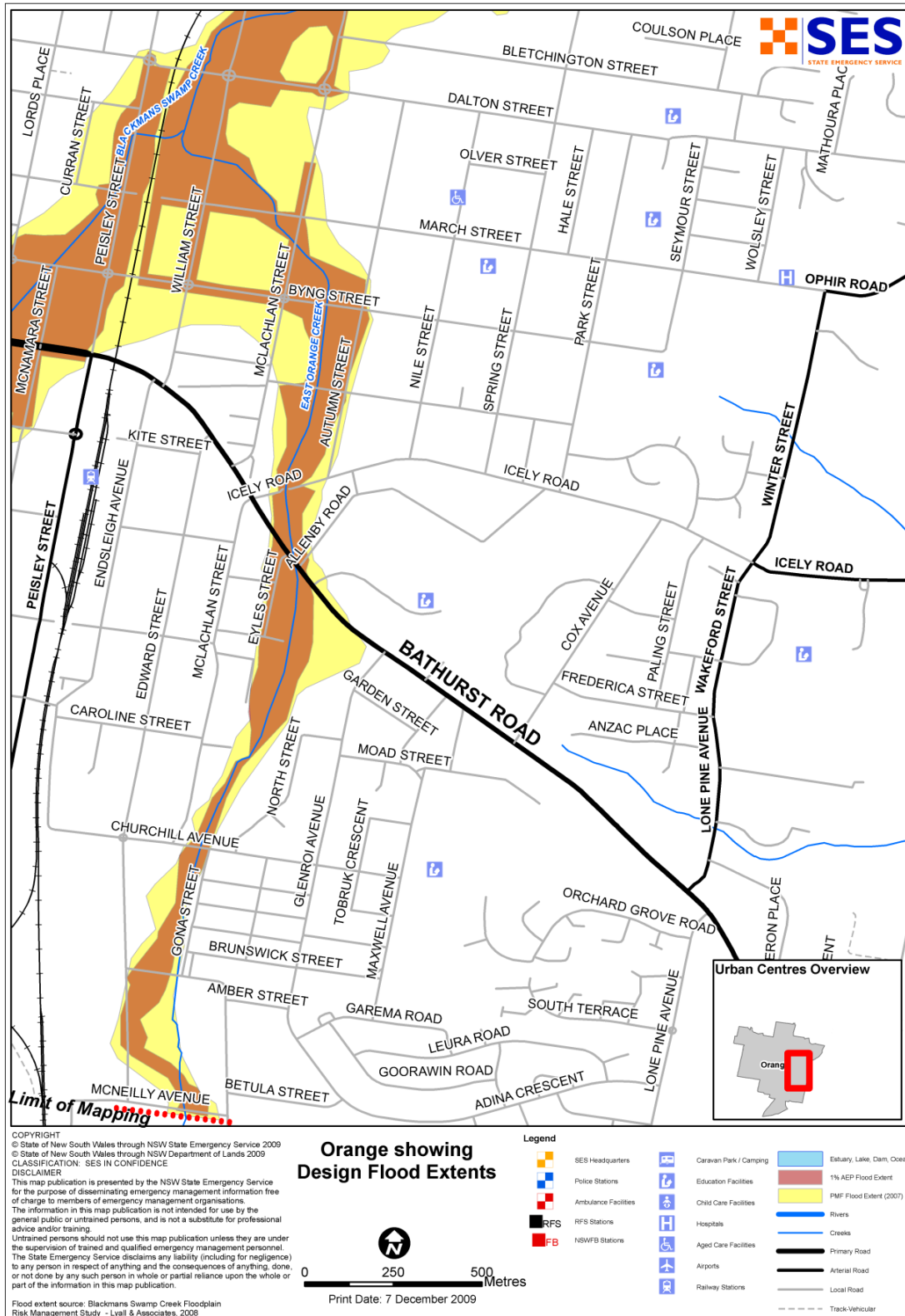
MAP 4 -CITY OF ORANGE – BLETCHINGTON AREA MAP SHOWING FLOOD EXTENTS



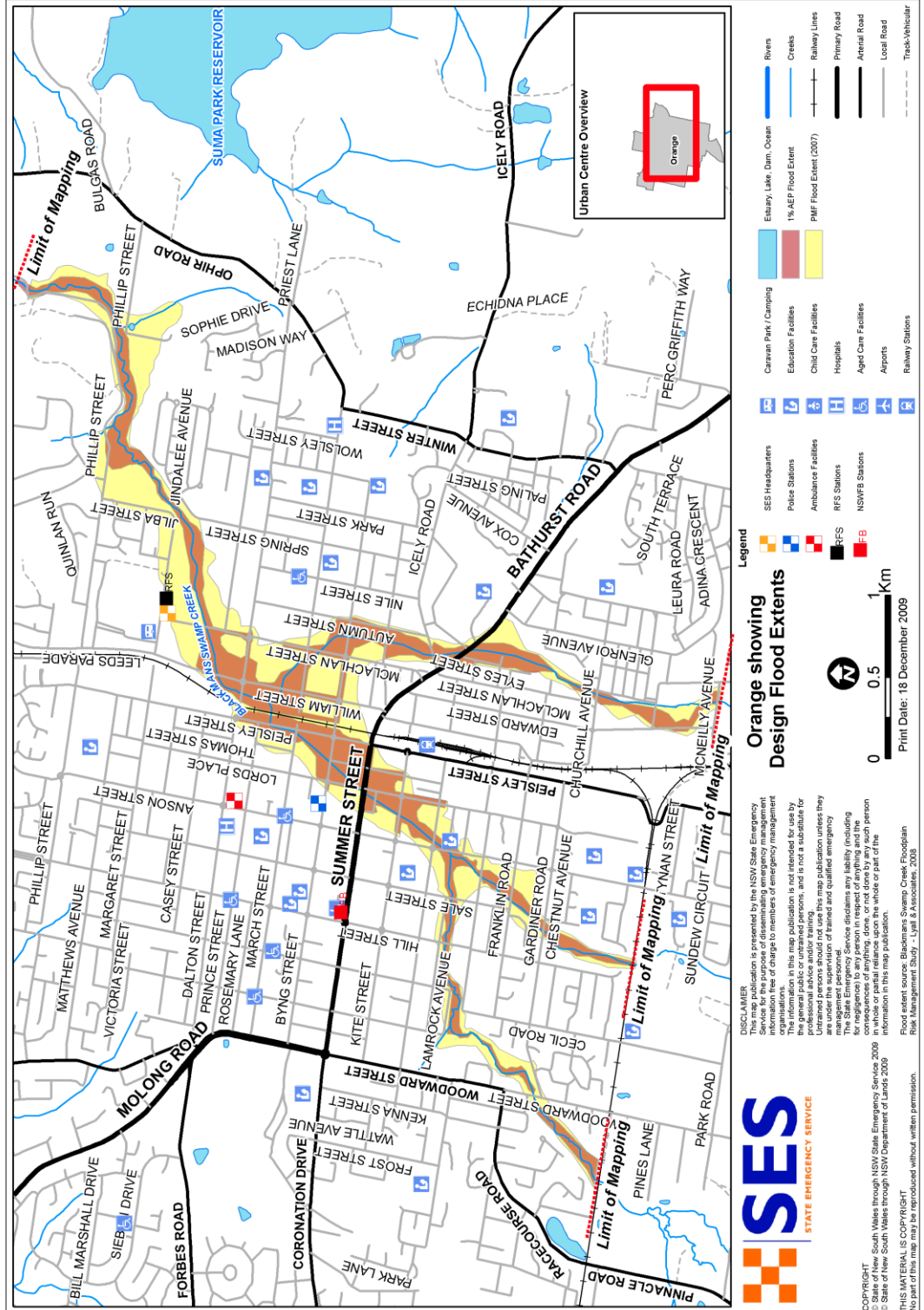
MAP 5 – CITY OF ORANGE – ORANGE WARRENDINE AREA MAP SHOWING FLOOD EXTENTS



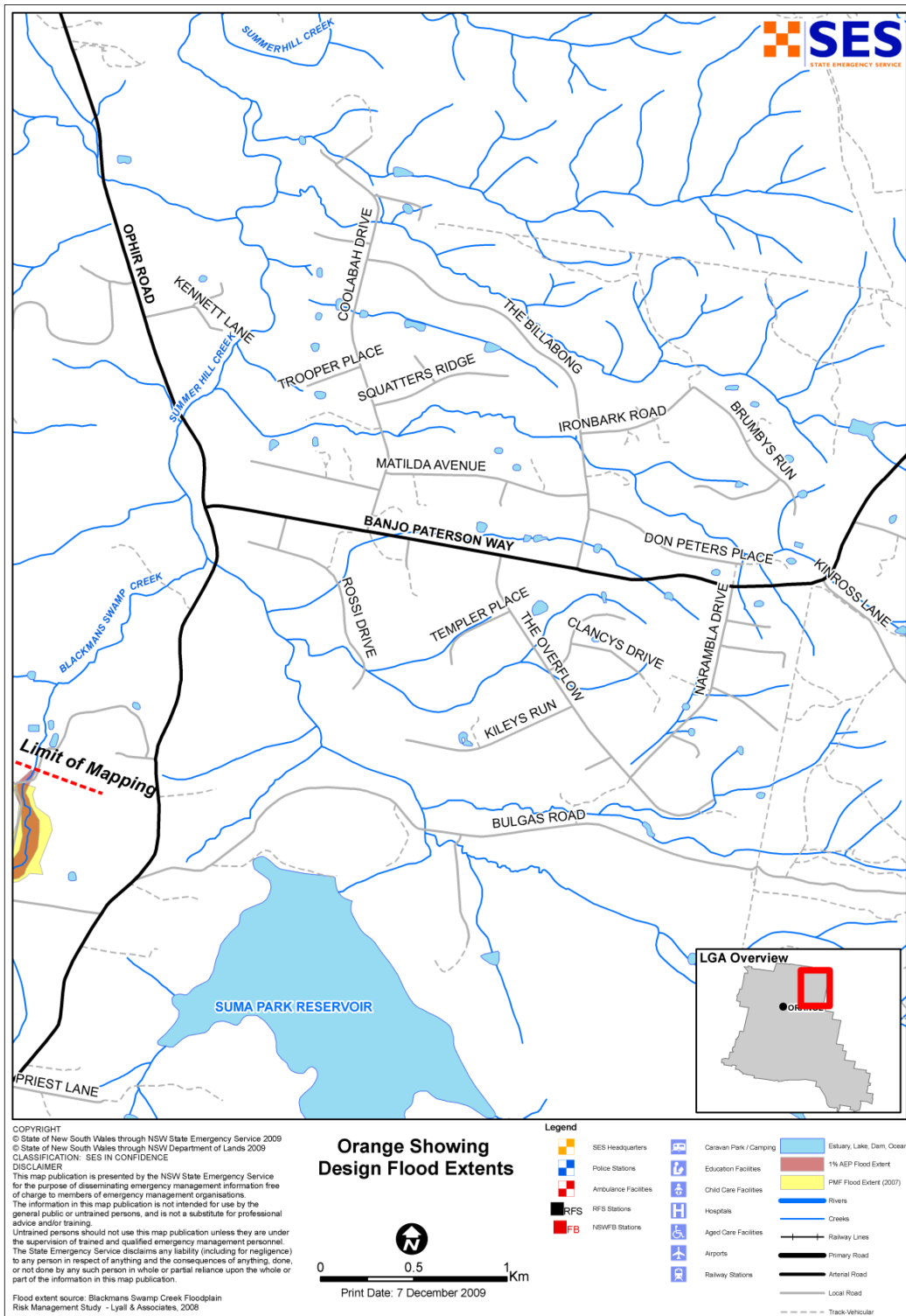
MAP 6 - CITY OF ORANGE – BOWEN GLENROI AREA MAP SHOWING FLOOD EXTENTS



MAP 7 - CITY OF ORANGE CBD MAP SHOWING FLOOD EXTENTS



MAP 8 - CITY OF ORANGE – CLIFTON GROVE AREA MAP SHOWING FLOOD EXTENTS



PART 5 - REFERENCES USED FOR ORANGE CITY LOCAL FLOOD PLAN

- Australian Bureau of Statistics (2006) NSW Regional Statistics.
- Orange Agricultural Institute (2009) Research Station Dam DSEP.
- Public Works Department, December 1992. Orange Water Supply Augmentation Dambreak Study, Interim Report.
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- Central Western Daily (2002 – 2006), various issues and articles -
‘Orange hit by tremor, torrent’ 19 Feb 2002.
‘Shops and homes flooded’ 24 November 2005.
‘Another storm batters district’ 28 November 2005.
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