NSW STATE EMERGENCY SERVICE

Dungog Shire

Local Flood Emergency Sub Plan

FloodSafe

DUNGOG SHIRE COUNCIL FLOOD EMERGENCY SUB PLAN

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

Volume 1 of the Dungog Shire Council Flood Emergency Sub Plan

Endorsed by the Dungog Shire Council Local Emergency Management Committee

November 2023

AUTHORISATION

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

Authorised

Signature: 

NSW SES Deputy Zone Commander

Print Name: Peter Keegan

Date: 12/01/2024

Endorsed

Signature:  Acting General Manager.

Chair, Local Emergency Management Committee

Print Name: Shane Chandler

Date: 10 January 2024

VERSION HISTORY

Version Number	Description	Date
	Dungog Shire Local Flood Plan	May 2011
	Dungog Flood Emergency Sub Plan	May 2017

AMENDMENT LIST

Suggestions for amendments to this plan should be forwarded to:

Manager Emergency Planning
NSW State Emergency Service
PO Box 6126, Wollongong NSW 2500
nswses.communityplanning@ses.nsw.gov.au

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

CONTENTS

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 Dungog Shire Council 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 Dungog Shire Council Local Emergency Management Plan (EMPLAN) and is endorsed by the Dungog Shire Council 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 Dungog Shire Council 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 Dungog Shire Council LGA. The Dungog Shire Council 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 Northern Zone and for emergency management purposes, is part of the Hunter and Central Coast Emergency Management Region.

1.4.3 The plan sets out the Dungog Shire Council level emergency management arrangements for prevention, preparation, response and initial recovery for flooding in the Dungog Shire Council LGA. Hazard and Risk information can be found in Volume 2 (2017) of this document, and NSW SES Response Arrangements can be found in Volume 3 (2017).

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 Dungog Shire Council are detailed within this plan, Appendix B and Appendix C.

1.7.3 Any agency with agreed responsibilities in this plan that are temporarily unable, or no longer able to fulfil their responsibilities in response operations must as soon as possible notify:

a. The NSW SES Incident Controller (for local or zone level responsibilities during response operations).

b. The NSW SES Zone Duty Commander (for regional level responsibilities outside of response operations).

1.8 PLAN MAINTENANCE AND REVIEW

1.8.1 NSW SES will maintain the currency of this plan by:

a. Ensuring that all supporting emergency services and functional areas, organisations and officers mentioned in it are aware of their roles and responsibilities.

b. Conduct a minimum of one exercise every five years or within two years of the plan being reviewed.

c. Reviewing the contents of the plan:

- When there are changes which alter agreed plan arrangements.
- When changes to land use strategic plans and policies increase the population at risk.
- After a flood including recommendations from after action reviews, reports, or inquiries.
- As determined by the NSW SES Commissioner.

d. The plan is to be reviewed no less frequently than every five years or after a significant flood event.

1.9 SUPPLEMENTARY DOCUMENTS

1.9.1 Supplementary and supporting material of the Local Flood Emergency Sub Plan is maintained on the NSW SES website Flood, Storm and Tsunami Plans including:

a. Flood Plan Glossary.

b. NSW SES Dam Failure Notification Flowchart.

c. NSW SES Resupply Flowchart.

2 OVERVIEW OF NSW FLOOD HAZARD AND RISK

2.1 THE FLOOD THREAT

2.1.1 NSW SES maintains information on the nature of flooding and effects of flooding on the community in the Dungog Shire Council LGA. This is outlined in Volume 2 – Hazard and Risk (2017) in Dungog Shire Council.

2.1.2 Declared dams in or upstream of the Dungog Shire Council Local Government Area.

Dam Name	Owner	Above Safety Threshold
Chichester Dam	Hunter Water Corp	No
Lostock Dam	Water NSW	No

3 PREVENTION/ MITIGATION

3.1 INTRODUCTION

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

3.2 LAND USE PLANNING

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

Actions:

a. NSW SES will provide strategic input about land use planning matters which have or will create significant flood risk to life and/or property due to flooding.

b. NSW SES will provide responses to land use planning proposal referrals that have or will create significant flood risk to life and/or property due to flooding.

3.3 FLOODPLAIN RISK MANAGEMENT

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

Actions:

a. NSW SES will provide coordinated and consistent emergency management advice to councils and other agencies in relation to the management of land that is subject to flooding or coastal inundation.

b. NSW SES will provide advice, support, technical resources and training for NSW SES representatives to contribute effectively on local Floodplain Management Committees.

4 PREPARATION

4.1 INTRODUCTION

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

4.2 FLOOD EMERGENCY PLANNING

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

Actions:

a. Develop and review this NSW SES Local Flood Emergency Sub Plan as required. Local Flood Emergency Sub Plans outline the specific arrangements for management of flood events within an LGA, and may include cross boundary arrangements.

b. Review plans as per Section 1.8.

4.2.2 Local EMPLAN Consequence Management Guides (CMG's) for flood are not required for communities covered by NSW SES Local Flood Emergency Sub Plans however may be utilised in place of Local Flood Emergency Sub Plan if agreed to by NSW SES.

4.3 FLOOD INTELLIGENCE SYSTEMS

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

Actions:

a. Gather and assess flood information for the full range of flood types and severities.

b. Collect, collate, and assess information on the characteristics of communities at risk and the potential effects of flooding on communities at risk.

c. Share flood intelligence information with supporting agencies.

4.4 DEVELOPMENT OF WARNING SYSTEMS

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

Actions:

a. All levels of government work in partnership to develop and maintain flood warning infrastructure.

b. NSW SES maintains a list of the requirements for flood warnings for flood gauges in NSW (including flood classifications, warning times required and key statistics) and can be found in the supplementary document to the NSW State Flood Plan (see Section 1.9). Gauges of relevance within the Dungog Shire Council LGA are also listed in Volume 3 (2017) of this plan.

c. NSW SES will recommend new warning services and changes to warning alert levels for gauges to the NSW and ACT Flood Warning Consultative Committee.

d. The State Government, in partnership with Local Government, is responsible for developing and maintaining flash flood warning systems for local catchments where required.

e. Dungog Shire Council has developed and maintains a flash flood warning system for Myall Creek.

f. Dam Owners will provide Dam Emergency Plans (where required) and consult with NSW SES on alert levels and messaging. Alert level definitions are listed in Dam Emergency Plans.

g. NSW SES maintains a dedicated dam failure hotline and procedures to ensure priority dissemination of dam failure warnings.

h. 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 NSW SES.

4.5 BRIEFING, TRAINING AND EXERCISING

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

Actions:

a. NSW SES will consult stakeholders throughout the development of plans.

b. NSW SES will inform stakeholders of content changes after revisions.

c. NSW SES will ensure their facilities and resources are maintained and operationally ready.

d. NSW SES will train personnel for their expected flood operation roles.

e. NSW SES will regularly brief stakeholders on the exercise arrangements contained in the NSW Flood Emergency Sub Plan.

4.6 COMMUNITY RESILIENCE TO FLOODING

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

Actions:

a. Ensure ongoing recruitment and training of a diverse range of volunteers.

b. Ensure pre-planning to facilitate the management of spontaneous volunteers and community members during a flood.

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

Actions:

a. 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. 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. NSW SES uses the Australasian Inter-service Incident Management System (AIIMS) to manage the flood response.

b. Control of flood response will be at the lowest effective level and may be scaled to suit the incident.

c. The NSW SES State Controller (or delegate) will appoint Incident Controllers and establish Incident Control Centres (see NSW SES facilities on map in Appendix A).

d. The NSW SES Incident Controller, in consultation with participating supporting emergency services and functional areas will determine the appropriate breakdown of an Area of Operations into Divisions and/or Sectors in accordance with the principles of AIIMS.

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

Actions:

a. NSW SES will operate Incident Control Centre(s) as required.

b. The NSW SES Incident Control Centre(s) will:

- Control resources from NSW SES and coordinate resources of supporting emergency services and functional areas.
- Manage Request for Assistance (RFA) tasking and ensure they are actioned in a timely manner.
- Undertake response planning and determine future resourcing requirements.
- Coordinate information flow, including warnings, public information and social media.

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

Actions:

a. Supporting emergency services and functional areas should provide Liaison Officers to NSW SES Incident Control Centre(s) and/or Emergency Operation Centres as required.

b. NSW SES will provide Liaison Officer(s) to Emergency Operations Centres as required.

c. Where possible Emergency Operation Centres to be co-located with NSW SES Incident Control Centres for Flood Emergency Response.

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

Actions:

a. The NSW SES Incident Controller will notify agencies of potential access issues between locations, for the consideration of pre-deploying of resources.

b. NSW SES may request resources and logistics support directly from a supporting emergency service or functional area.

c. Wherever possible, supporting organisations are to provide their own logistic support in consultation with NSW SES where appropriate.

d. The NSW SES Incident Controller will control air support operations and may utilise supporting agencies in the management of aircraft.

5.3 USE OF INFORMATION AND COLLECTION OF INTELLIGENCE

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

Actions:

a. Information relating to the consequences of flooding, response strategies, situational awareness and operational updates will be distributed by NSW SES to supporting emergency services and functional areas listed under this Plan.

b. All supporting emergency services , functional areas and Council will accurately record and report information relevant to their activities and any real time flood information (including road closure information) to the NSW SES Incident Controller. This may be in the form of a combined Emergency Operations Centre (EOC) report, or direct from agencies where an EOC has not been established.

c. NSW SES may establish and operate a Joint Intelligence Unit to coordinate the collection, collation, interpretation, mapping, actioning and dissemination of information.

d. Reconnaissance, mapping, damage assessments, intelligence validation and post flood evaluation will be coordinated by NSW SES. This may occur post impact and continue into the recovery phase.

e. NSW SES may request Engineering to assist with the gathering of flood intelligence including (not limited to) maximum flood extents, peak flood heights, recording major flood damage at key high velocity locations and preparation of After-Flood Report.

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

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

5.4 PROVISION OF INFORMATION AND WARNINGS TO THE COMMUNITY

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

Actions:

a. The Bureau issues public weather and flood warning products before and during a flood. These may include:

- Severe Thunderstorm Warnings – Detailed - issued for all capital cities and surrounding areas when individual severe thunderstorms are within range of the capital city radars.
- Severe Thunderstorm Warnings - Broad-based - issued for the entire Australian State or territories affected highlighting broad areas where severe storms may occur within the next 3 hours.
- Severe Weather Warnings with reference to heavy rainfall and/or storm surge.
- Flood Watches.
- Flood Warnings.

b. Councils will use the following established flash flood warning system for Myall Creek to provide warnings and information to NSW SES, key stakeholders and the community.

c. Dam Owners will utilise the Dam Emergency Plan to provide warnings and information to 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. NSW SES liaises with the Bureau to discuss the development of flood warnings as required.

f. NSW SES provides alerts and deliver flood information to affected communities using a combination of public information.

g. 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 Council 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 Disaster Welfare Services where required to provide information on welfare services and assistance. Assistance line contact details will be broadcast once Disaster Welfare Services commence.

5.5 PROTECTION OF PROPERTY

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

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

a. The protection of properties including critical infrastructure through flood protection systems (e.g. sandbagging) to minimise entry of water into buildings.

b. The raising or moving of household furniture and commercial stock/equipment.

5.6 ROAD AND TRAFFIC CONTROL

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

Actions:

a. Dungog Shire Council will coordinate the closure and reopening of council managed roads once inspections have been carried out by the relevant authority.

b. Transport for NSW will coordinate the closure and reopening of the state road network.

c. NSW Police Force may close and re-open roads but will normally only do so (if the Dungog Shire Council or Transport for NSW have not already acted and if public safety requires such action.

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

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

a. The NSW SES Incident Controller may direct the imposition of traffic control measures into flood affected areas in accordance with the provisions of the *State Emergency Service Act, 1989* and the *State Emergency Rescue Management Act, 1989.*

b. The NSW SES Incident Controller may request the Local Emergency Operations Controller provide suitable personnel to assist with traffic coordination.

5.7 PROTECTION OF ESSENTIAL SERVICES

5.7.1 Arrangements for the protection of local assets are outlined in Volume 3 (2017) of this NSW SES local Flood Emergency Sub Plan. In addition, Local and Region EMPLAN's contain infrastructure inventories.

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

Actions:

a. 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 Council will keep NSW SES informed of the status of utilities and infrastructure.

5.8 EVACUATION

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

5.8.2 Community specific evacuation arrangements are located in Volume 3 (2017) of this Plan.

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

Actions:

a. Evacuations will take place when there is a risk to public safety. Circumstances may include:

- Evacuation of people when their homes or businesses are likely to flood.
- Evacuation of people who are unsuited to living in isolated circumstances, due to flood water closing access.
- Evacuation of people where essential energy and/or utility services are likely to fail or where buildings have been or may be made uninhabitable.

b. NSW SES will consider the following in evacuation decisions:

- Duration of evacuation.
- Characteristics of the community.
- Numbers requiring evacuation.
- Availability of evacuation routes and transport.
- The ability for existing levees or other flood protection works to fulfil their intended function.
- Time available for evacuation.
- Evacuee management requirements.
- Resources and delivery of evacuation information.
- Length of isolation.

c. NSW SES Incident Controllers, planning and intelligence officers will carefully consider the risks involved in conducting evacuations.

d. All evacuation decisions will be made as per the current NSW SES policies and procedures, and consistent with the NSW Evacuation Management Guidelines.

e. Potential Evacuation Centres are located in Volume 3 (2017) / Local EMPLAN.

f. NSW Police Force will coordinate the provision of overall security for evacuated areas.

5.8.4 **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 NSW SES and Welfare Services.

f. School administration offices (Government and Private) will coordinate the evacuation of schools in consultation with NSW SES and Welfare Services, if not already closed.

g. Caravan Park proprietors will inform the NSW SES Incident Controller when caravan park evacuations have been completed.

h. People who are reluctant or refuse to comply with any Emergency Warning will be referred to NSW Police Force.

5.9 EVACUEE MANAGEMENT AND WELFARE

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

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

Actions:

a. NSW SES will provide initial welfare for evacuees where required but will hand the responsibility over to Welfare Services Functional Area as soon as possible. NSW SES will brief Welfare Services Functional Area at the earliest opportunity regarding the level of assistance required.

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

d. Disaster Victim Registration will be controlled and coordinated by NSW Police Force with the assistance of NSW SES and the Welfare Services Functional Area.

e. NSW SES will provide details of all residents assisted in evacuations to the Welfare Services Functional Area as early as possible.

f. Where the expected remaining number of evacuees and the duration of evacuation is assessed to be beyond the capability and capacity of the established evacuation centre arrangements the SEOCON may establish Major Evacuation Centres or Mass Care facilities.

g. The decision to establish Major Evacuation Centres or Mass Care Facilities will be made by NSW SES and SEOCON in consultation with members of the State Emergency Management Committee.

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

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

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

Actions:

a. 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. Agriculture and Animal Services Functional Area role will coordinate the evacuation, emergency care of animals and assessment, humane destruction and disposal of affected animals, and supply of emergency fodder, water and aerial support where necessary.

5.10 FLOOD RESCUE

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

Actions:

a. NSW SES will perform flood rescue, where training and equipment is suitable and where a risk assessment has indicated that the risk to rescuers is acceptable.

b. Flood rescue operations will be conducted in accordance with the State Rescue Board NSW State Rescue Policy which sets out the framework, governance, responsibilities and requirements for the management and conduct of flood rescue in NSW.

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

d. Rescue agencies will conduct rescue of domestic small and large animals as per the State Rescue Board NSW State Rescue Policy (and may include Large Animal

Rescue of family horses and cows at a residence or property). The rescue of livestock (which includes commercial animals found on farming and breeding enterprises) will be coordinated through Animal and Agriculture Services Functional Area.

5.11 RESUPPLY

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

Actions:

a. NSW SES will advise communities and businesses if flood predictions indicate that areas are likely to become isolated, and indicative timeframes where possible.

b. Retailers should be advised to ensure sufficient stock is available for the duration of the flood.

c. When isolation occurs, NSW SES will establish loading points where retailers can instruct suppliers to deliver goods.

d. NSW SES will endeavour to support the delivery of mail to isolated communities but may not be able to do so according to normal Australia Post timetables.

e. NSW SES will assist hospitals with resupply of linen and other consumables where able.

f. NSW SES may request resupply assistance from supporting agencies.

g. NSW SES may conduct resupply operations as per the designated resupply plan for the event.

h. Where additional supplies are required Engineering Services Functional Area be requested to coordinate the supply of goods and services in response to and recovery from the emergency.

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

Actions:

a. When requested, NSW SES will establish a resupply schedule and coordinate the resupply for isolated rural properties.

b. NSW SES will provide local suppliers with designated loading points. Resupply items are to be packaged by the supplier.

c. Isolated households unable to afford resupply items will be referred to 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. NSW SES will facilitate the return of evacuees to their homes.

5.13 END OF RESPONSE OPERATIONS

5.13.1 **Strategy**: Conclude response operations.

Actions:

a. Response operations will conclude when:

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

5.14 POST IMPACT ACTIONS

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

Actions:

a. NSW SES will continue to engage with communities after significant floods through convening one or more community forums, workshops or other opportunities to provide communities a chance to provide feedback, address any concerns and provide input into the recovery process. These will typically include other agencies such as the Bureau, Welfare Services and Dungog Shire Council representatives.

b. NSW SES will conduct After Action Reviews, at the conclusion of response operations, which will involve all stakeholders. Findings will be shared and incorporated into improved disaster resilience planning.

c. NSW SES will provide information and data throughout the emergency response to inform community recovery. A report will be developed at the request of the SERCON at the conclusion of the response within an area. Should a response summary report be required it will include the following:

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

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

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

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

6 RECOVERY OPERATIONS

6.1 INTRODUCTION

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

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

6.2 NSW SES RECOVERY ROLE

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

6.2.2 **Actions**:

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

b. NSW SES roles on Recovery Committees may include providing information about any continuing response, guidance on mitigation strategies and general advice and assistance to the committee as a subject matter specialist and/ or expert.

c. NSW SES will provide information to NSW Reconstruction Authority to support applications to Treasury for Natural Disaster Relief and Recovery Arrangements.

d. NSW SES, in conjunction with a Recovery Committee, will provide a service to support the information needs of a community immediately following a flood.

e. NSW SES and where required supporting agencies will assist with clean-up operations after floods, where possible when resources and personnel permit.

f. NSW SES may coordinate immediate relief in collaboration with SEOCON and SERCON.

7 ABBREVIATIONS

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

8 GLOSSARY

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

Readers should refer to EMPLAN Annex 9 – Definitions.

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

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

9 Appendix A – Map of Dungog Shire Council Council Area

Dungog Shire Council
LGA Local Flood Plan
Volume 1 Appendix A

NSW STATE EMERGENCY SERVICE

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10 Appendix B – Roles and Responsibilities

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

AGENCY	RESPONSIBILITIES
Agriculture and Animal Services Functional Area	The roles and responsibilities for Agriculture and Animal Services are outlined in the Agriculture and Animal Services Supporting Plan and NSW State Flood Plan.
Australian Government Bureau of Meteorology	The roles and responsibilities for the Australian Government Bureau of Meteorology (Bureau) are outlined in the NSW State Flood Plan.
Dungog Shire Council	**Preparedness** • 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 Development Manual. • Provide levee studies, flood studies and floodplain management studies to NSW SES. • Coordinate the development of warning services for catchments prone to flash flooding (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. **Response** • Subject to the availability of council resources, assist NSW SES with flood operations including: – Traffic management on council managed roads. – Provision of assistance to NSW SES (plant, equipment and personnel where able and requested). – Property protection tasks including sandbagging. – Assist with the removal of caravans from caravan parks.

AGENCY	RESPONSIBILITIES
	– 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 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. • Assist with making facilities available for domestic pets and companion animals of evacuees during evacuations. • Operate Myall Creek flash flood warning systems. • Operate flood mitigation works including critical structures such as detention basins and levees and advise NSW SES regarding their operation. • Manage and protect council-owned infrastructure facilities during floods. • Provide advice to NSW SES and the Health Services Functional Area during floods about key council managed infrastructure such as sewerage treatment and water supply. • Advise the Environmental Protection Authority of any sewerage overflow caused by flooding. • Work with NSW SES and NSW Department of Planning and Environment to collect flood related data during and after flood events. **Recovery** • Provide for the management of health hazards associated with flooding including removing debris and waste. • Ensure premises are fit and safe for reoccupation and assess any need for demolition. • Provide services, assistance and advice to State Government in accordance with the State Recovery Plan.
Caravan Park Proprietor(s)	• 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.

AGENCY	RESPONSIBILITIES
	• Ensure that owners and occupiers of movable dwellings are aware that if they are expecting to be absent for extended periods, they should: – 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: – Ensure that they have spare batteries for their radios. – Listen to a local radio station for updated flood information. – Prepare for evacuation and movable dwelling (cabins) relocation. • Ensure that owners and occupiers of caravans are aware of what they must do to facilitate evacuation and movable dwelling relocation when flooding occurs. • Coordinate the evacuation of people and the relocation of movable dwellings when floods are rising and their return when flood waters have subsided. Movable dwellings will be relocated back to the caravan park(s) by owners or by vehicles and drivers arranged by the park managers. • Secure any movable dwellings that are not able to be relocated to prevent floatation. • Inform NSW SES of the progress of evacuation and/or movable dwellings relocation operations and of any need for assistance in the conduct of these tasks.
Childcare Centres and Preschools	• When notified of possible flooding or isolation, childcare centres and preschools should. – Liaise with NSW SES and arrange for the early release of children whose travel arrangements are likely to be disrupted by flooding and/or road closures. – Assist with coordinating the evacuation of preschools and childcare centres.
Dams Safety NSW	The roles and responsibilities for Dams Safety NSW (formerly NSW Dam Safety Committee) are outlined in the NSW State Flood Plan.
Department of Defence	Arrangements for Defence Assistance to the Civil Community are detailed within the State EMPLAN (section 448).
Energy and Utilities Services Functional Area	The roles and responsibilities for Energy and Utilities Services are outlined in the Energy and Utility Services Supporting Plan (EUSPLAN).

AGENCY	RESPONSIBILITIES
	Roles and responsibilities in addition to the Supporting Plan are: • Assist NSW SES with identification of infrastructure at risk of flood damage where resources are available. • Facilitate local utility service distribution providers (electricity, gas, water, wastewater) to: – Provide advice to NSW SES of any need to disconnect power/gas/water/wastewater supplies or of any timetable for reconnection. – Advise NSW SES of any hazards from utility services during flooding and coastal erosion/inundation. – Advise the public 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 NSW SES to identify infrastructure at risk of flooding for incorporation into planning and intelligence.
Engineering Services Functional Area	The roles and responsibilities for Engineering Services are outlined in the Engineering Services Supporting Plan and NSW State Flood Plan.
Environmental Services Functional Area	The roles and responsibilities for Environmental Services are outlined in the Environmental Services (ENVIROPLAN) Supporting Plan.
Floodplain Management Australia	The roles and responsibilities for Floodplain Management Australia are outlined in the NSW State Flood Plan**.**
Fire and Rescue NSW	The roles and responsibilities for Fire and Rescue NSW are outlined in the NSW State Flood Plan.
Forestry Corporation of NSW	The roles and responsibilities for Forestry Corporation of NSW are outlined in the NSW State Flood Plan.
Health Services Functional Area	The roles and responsibilities for Health Services are outlined in the Health Services (HEALTHPLAN) Supporting Plan and NSW State Flood Plan.
Hunter Water Corporation	**Preparedness** • Maintain and operate the Dam Failure Warning System for Chichester Dam. • Contribute to the development and implementation of a public education program on flooding within the council area. • Consult with NSW SES on the determination of dam failure alert levels and notification arrangements when developing Dam Emergency Plans. • Maintain a Dam Emergency Plan and provide copies to the NSW SES.

AGENCY	RESPONSIBILITIES
	• Provide information on the consequences of dam failure to the NSW SES for incorporation into planning and flood intelligence. **Response** • Close and evacuate at risk camping grounds/recreational areas in State Water managed areas. **Recovery** • Provide services, assistance and advice to State Government in accordance with the State Recovery Plan.
Local Emergency Operations Controller (LEOCON)	• Monitor flood operations. • If requested, coordinate support for the NSW SES Incident Controller.
Local Emergency Management Officer (LEMO)	• 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).
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. Owns and manages the **Hunter Valley Flood Mitigation Scheme (HVFMS).** **Prevention** • Maintains the Hunter Valley Flood Mitigation Scheme in a flood ready state. • Maintains operational capability in relation to emergency management. **Preparedness**

AGENCY	RESPONSIBILITIES
	• Closes flood gates in response to flood watches and warnings issued by the Bureau in accordance with the Flood Emergency Response Plan. **Response** • Advises NSW SES on status of scheme infrastructure. • Monitors the functioning of the scheme. • Provides intelligence in terms of real time flood modelling, high risk assets and surveillance of operation of scheme. • Responds to community calls regarding damage to scheme infrastructure or malfunctioning of infrastructure. **Recovery** • Undertakes post flood damage assessment of Scheme infrastructure. • Responds to community calls regarding damage and debris. • Prioritises repairs on based risk. • Builds back better.
NSW Food Authority	The roles and responsibilities for NSW Food Authority are outlined in the Food Safety Emergency Sub Plan.
NSW National Parks and Wildlife Services	The roles and responsibilities for NSW National Parks and Wildlife Services are outlined in the NSW State Flood Plan.
NSW Police Force	The roles and responsibilities for NSW Police Force are outlined in the NSW State Flood Plan.
NSW Reconstruction Authority	The roles and responsibilities for NSW Reconstruction Authority are outlined in the NSW State Flood Plan.
NSW Rural Fire Service	The roles and responsibilities for NSW Rural Fire Service are outlined in the NSW State Flood Plan.
Owners of Declared Dams within or upstream of the LGA	The roles and responsibilities for Owners of Declared Dams are outlined in the NSW State Flood Plan.
Public Information Services Functional Area	The roles and responsibilities for Public Information Services are outlined in the Public Information Services Supporting Plan and NSW State Flood Plan**.**
SEOCON/SEOC	The roles and responsibilities for the SEOCON/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.

AGENCY	RESPONSIBILITIES
Telecommunications Services Functional Area	The roles and responsibilities for Telecommunications Services are outlined in the Telecommunications Services (TELCOPLAN) Supporting Plan.
Transport for NSW (TfNSW)	• Transport for NSW coordinates information on road conditions for emergency services access. • Transport for NSW coordinates the management of the road network across all modes of transport. • Transport for NSW in conjunction will assist NSW SES with the evacuation of at-risk communities by maintaining access and egress routes. • Assist NSW SES with the communication of flood warnings and information provision to the public through Live Traffic and Social Media according to the VMS protocols and procedures. • Assist NSW SES with identification of road infrastructure at risk of flooding.
Transport Services Functional Area	The roles and responsibilities for Transport Services are outlined in the Transport Services Functional Area Supporting Plan and NSW State Flood Plan.
VRA Rescue NSW	The roles and responsibilities for VRA Rescue NSW are outlined in the NSW State Flood Plan.
Water NSW	The roles and responsibilities for Water NSW are outlined in the NSW State Flood Plan.
Welfare Services Functional Area	The roles and responsibilities for Welfare Services are outlined in the Welfare Services Functional Area Supporting Plan and NSW State Flood Plan.

11 Appendix C – Community Specific Roles and Responsibilities

Community Members	**Preparedness** • 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. **Recovery** • Assist with community clean-up if required and able to do so. • Participate in After Action Reviews if required.
Aboriginal organisations or groups	• Act as the point of contact between NSW SES and the Koori and Gringai communities. • Inform the NSW SES Dungog Unit Commander about flood conditions and response needs. • Disseminate flood information, including flood and evacuation warnings, to the Koori and Gringai communities.

HAZARD AND RISK IN DUNGOG

Volume 2 of the Dungog Local Flood Plan

Last Update: May 2017

AUTHORISATION

The Hazard and Risk in Dungog has been prepared by the NSW State Emergency Service (NSW SES) as part of a comprehensive planning process. The information contained herein has been compiled from the latest available technical studies.

Approved

Manager Emergency Risk Management

Date: 26 May 2017

Approved

NSW SES Hunter Region Controller

Date: 26/05/2017

Tabled at LEMC

Date: 01/05/2017

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VERSION LIST

The following table lists all previously approved versions of this Volume.

Description	Date
Dungog Shire Local Flood Plan – Annexes A and B	May 2011

AMENDMENT LIST

Suggestions for amendments to this Volume should be forwarded to:

The Dungog Local Controller

NSW State Emergency Service

Clarence Town Road

DUNGOG NSW 2420

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

Amendment Number	Description	Updated by	Date

Document Issue: Version 3-02052016

1 THE FLOOD THREAT

1.1 OVERVIEW

a. The Dungog LGA is located in the Hunter Region of New South Wales north of Newcastle in the Lower Hunter Valley. The main population centres in the Dungog LGA are Dungog, Gresford, Paterson, Vacy, Martins Creek and Clarence Town.

b. The Dungog LGA is located in the Hunter River Basin, with some land in the south east of the LGA falling into the Karuah River Basin. All of the population centres are located in the Hunter River Basin.

c. The Hunter River Basin is shown on Map 1.

1.2 LANDFORMS AND RIVER SYSTEMS

a. The main river systems located in the Dungog LGA are the Paterson River, Allyn River, Chichester River, Williams River and Myall Creek within the Hunter River Basin.

b. The Paterson, Allyn, Williams and Chichester Rivers drain an area of approximately one-tenth of the entire Hunter Basin however they contribute almost half of its annual flow (1).

c. The river systems are shown on Map 2.

Allyn River System

a. The Allyn River is located to the east of the Paterson River in the Hunter River Basin. The headwaters of the Allyn River rise in the Mt. Royal and Allyn Ranges at high elevations (1).

b. The Allyn River flows parallel to the Paterson River in a southerly direction through a steep walled narrow valley. The valley gradually widens and becomes less steep in the vicinity of East Gresford. The steeper areas of the catchment are characterised by forests, with pastures in the lower lying areas of the catchment (1).

c. The Allyn River flows into the Paterson River at Vacy (1).

d. Tributaries of the Allyn River are Shell Brook, Masseys Creek and Lewingbrook Creek (1).

Paterson River System

e. The Paterson River is located in the Hunter River Basin in a long narrow catchment covering approximately 1,000 square kilometres. The headwaters of the Paterson River rise in the Mt. Royal and Allyn Ranges at high elevations. The river flows in a generally southerly direction through a steep-walled narrow valley which gradually

widens and becomes less steep in the vicinity of Gresford. The steeper areas are characterised by forests, with pastures in the remainder of the catchment (1).

f. The Paterson River then flows through a major storage reservoir, Lostock Dam, and continues to flow south, past Gresford (1).

g. The Paterson River is joined by the Allyn River at Vacy, approximately 18 kilometres downstream of Gresford. The Paterson River maintains its southerly course through the town of Paterson and joins the Hunter River near Morpeth in the Maitland City Council area (1).

h. Other tributaries of the Paterson River are the Boonabilla and Webbers Creeks (1).

Chichester River System

a. The Chichester River System is located in the Hunter River Basin. The headwaters of the Chichester River are on the slopes of Careys Peak, Mt McKenzie and Mt Nelson in the Barrington Tops and Chichester State Forests to the east of the Williams River Headwaters. The headwaters are located in rugged heavily vegetated areas (1).

b. The Chichester River flows into Lake Chichester and then through Chichester Dam. The river flows south past Bandon Grove before flowing into the Williams River approximately 21 kilometres upstream of the town of Dungog (1).

Myall Creek

a. The Myall Creek catchment is located in the Hunter River Basin and drains a catchment area of approximately 74.5km^2. Sugarloaf Creek is a tributary of Myall Creek and joins with Myall Creek 1.5km upstream of Dungog (2).

b. Myall Creek flows in a south-easterly direction where it joins the Williams River at Dungog (2).

Williams River System

c. The Williams River System is located in the Hunter River Basin. The Williams River system drains a catchment area of 131,000 hectares. The catchment is approximately 100km long and 40km wide (1).

d. The headwaters of the Williams River are on the slopes of Careys Peak, Mt McKenzie and Mt Nelson in the Barrington Tops and Chichester State Forests to the east of the Allyn River Headwaters (1).

e. The upper reaches of the Williams River catchment are approximately 20,000 hectares in size and flow through the predominantly cleared, hilly and rolling Tillegra Valley in a generally south east direction. This floodplain gradually widens and become less rugged as the river progresses (1).

f. The Williams River is joined by the Chichester River approximately 21km upstream of Dungog. The river then flows in a southerly direction to Fosterton where the valley

narrows. Upstream of Dungog, the Williams River is joined by several other streams including Carowiry and Main Creeks from the north and Myall Creek from the west. South of Dungog, the river is joined by the Wallarobba Creek from the west and Black Camp Creek from the east. The Williams River takes a meandering path through broad swampy lowlands near Clarence Town.

g. Thalaba and Verges Creeks are also tributaries of the Williams River (1).

h. A network of levee banks have been constructed along the banks of the Williams River between Seaham and the confluence with the Hunter River (3).

i. The Williams River joins the Hunter River at Raymond Terrace in the Port Stephens Council area (1).

1.3 STORAGE DAMS

a. Dam locations are shown on Map 1 and Map 2.

Table 1: Prescribed Dams in Dungog LGA; summary of information about each storage.

Chichester Dam (4)	
Owner / Operator	Hunter Water Corporation Ltd
Description of Dam	Chichester Dam is a 44m high and 262m long mass gravity cyclopean concrete (interlocking blocks of varying height and dimensions) dam, with a centrally located ungated spillway (crest RL 156.2m AHD). The dam has a storage capacity of 21,500ML and a catchment area of approx 197km2. The primary purpose is water supply for the lower Hunter Valley.
Location	Chichester Dam is located at the confluence of the Chichester and Wangat (Little) Rivers, upstream of the town of Dungog in the Hunter River Basin.
Communities Downstream	Dusodie, Bandon Grove, Fosterton, Dungog and Clarence Town.
Monitoring System	Water levels at Chichester Dam are monitored by Hunter Water Corporation's SCADA system. There are a number of flow and level gauges on the Chichester and Williams Rivers which provide information regarding river conditions.
Warning System	Alarms from the dam site to the Hunter Water Corporation (HWC) for actioning (4). The message is then relayed through to NSW SES HQ which filters through to NSW SES Hunter Region then through to NSW SES Dungog Unit.
Other	In a PMF event were to occur, the flood wave resulting from failure would reach Dusodie after 10 minutes, Bandon Grove after 30 minutes and Dungog after one hour.

Lostock Dam (5)	
Owner / Operator	WaterNSW
Description of Dam	Lostock Dam is used for irrigation, urban, and stock and domestic purposes in the Paterson Valley. It has a 38m high earth and rockfill embankment with a central impervious clay core and an adjacent uncontrolled concrete lined spillway; crest length of 701m; storage volume of 20,000ML at Full Supply Level (RL 155.58m AHD) and surface area of 220 hectares.
Location	Situated on the Paterson River in the Hunter River Basin, a major tributary of the Hunter River, approximately 65kms from either Maitland or Singleton and 21kms from Gresford.
Communities Downstream	Lostock, Gresford, Vacy, Martins Creek, Paterson, Bolwara Heights.
Monitoring System	Visual surveillance, Piezometeres, Embankment settlement Crossarms, Casagrande Spear Point Piezometer Bores, seepage monitoring, Deformation Surveys.
Warning System	WaterNSW has an Early Warning Network electronic notification system that will be used to alert identified downstream landholders at risk as well as other self-enrolling members of the public.
Other	Lostock Dam cannot safely handle the PMF flood event.

1.4 WEATHER SYSTEMS AND FLOODING

a. Average annual rainfall exceeds 1,000 mm over most of the catchment areas of the Paterson and Williams Rivers. The headwaters receive about 1,500mm per annum whilst Dungog receives the lowest rainfalls in the area (about 994mm on average). The comparatively low rainfalls received at Dungog can be attributed to the absence of the influences of the coast and highlands which affect rainfalls in the lower and upper catchments respectively (1).

b. Rainfall is fairly evenly distributed across the seasons, although the July-October period is generally drier than others. Heavier falls are usually recorded in the period between December and April (in part due to increased thunderstorm activity) and over 50 percent of the annual average rainfall is received during these months. High rainfall totals are also received in the Chichester catchment from January to March as a result of much higher summer rainfall in this part of the upper catchment (1).

c. Heavy rainfall may occur however, at any time of year and some very heavy one-day and three-day falls have been recorded. For example, Clarence Town received 525mm in a three-day period in January, 1971 (1). In the April 2015 event Dungog received 312mm in a 24 hour period.

d. Long periods of drought are also experienced, and the Williams River has been known not to flow for as long as seven months at Glen Martin, downstream of Dungog (1).

e. Numerous flood-producing mechanisms can be responsible for flooding in the Dungog LGA. These are:

i. **East coast low-pressure systems**. When these depressions are deep and stationary, a cool, moist, south-easterly airstream produces heavy rain over the catchments of the Paterson and Williams Rivers. This mechanism is especially prevalent in the autumn and winter months, particularly between March and July, though such systems can occur at other times. Recent examples which have caused minor to major flooding within the Council area were in June 2007, April 2008 and 2015 (1).

ii. **Ex-tropical cyclonic systems**. These systems originate in the Coral Sea and move southwards along the Queensland and NSW coasts. Occasionally, such systems move far enough south to bring heavy rain to the Dungog LGA resulting in major flooding in the Williams and Paterson rivers. Ex-tropical cyclonic systems occur in the summer and early autumn months, particularly in February and March. Ex-tropical cyclone Nancy, in February 1990, is a recent example. This weather system resulted in major flooding in the Dungog LGA causing numerous road closures, extensive inundation of rural land and inundation of properties in the town of Dungog (1).

iii. **Monsoonal depressions** forming over tropical Australia and moving in a south-easterly direction, depositing heavy rain as they do so and intensifying as they approach the coast. On rare occasions, such depressions may penetrate as far south and east as the Dungog LGA. These systems occur in the summer and early autumn months. The catastrophic flood in the Hunter River catchment in February, 1955 was caused by such a weather system resulting in major flooding on the Paterson River at the Gostwyck Bridge gauge and moderate flooding on the Williams River at the Mill Dam Falls gauge (1).

iv. **High-intensity, short-duration convective thunderstorms**. These bring intense rain for very short periods over limited areas, causing flash flooding on minor creeks and the surcharging of artificial drainage systems in built-up areas. These systems don't last long enough or cover sufficiently large areas to cause significant rises on the Paterson and Williams Rivers. Thunderstorm activity is largely confined to the late spring, summer and early autumn months (1).

1.5 CHARACTERISTICS OF FLOODING

a. In general, floods in the Council area are relatively fast to rise (less than twelve hours from the onset of rainfall) and fall. Inundation lasting a few days could however occur in the southern low-lying areas in more serious events. Warning times are short, especially in the upper areas of the Paterson and Williams River catchments (1).

b. Flooding in the Williams River and Paterson River is classified as riverine flooding, however flooding on tributaries (such as Myall Creek) and within local catchments is generally flash flooding which can coincide with riverine flooding in towns.

c. River basin schematics are located in Annex 1.

Williams River

d. Flooding from the Williams River originates from one or more of the following sources (3):

   i. Heavy prolonged rainfall over the Williams River catchments (3);

   ii. Flooding of the Hunter River causing backflow and/or backwater effect in the Williams River. This has more influence in the lower reaches. The Seaham Weir spillway prevents back flow in smaller events (3).

   iii. Localised rainfall not being able to drain because of high river levels and/or constrictions caused by flood drainage structures (3).

e. Floodways are generally contained to the undeveloped floodplain in the Williams River. In Clarence Town in the 0.5% AEP event the floodway may impact properties adjacent to the river and Properties at risk in the floodway are described in more detail in the Specific Risk Areas below (3) (2) (6).

f. Flood storage areas can be found in the Williams River floodplain which primarily impact farm and agricultural land. Flood Storage areas also impact properties in the north and east of Dungog and on the southern and eastern sides of Clarence Town (3) (2) (6).

g. Indicative peak travel times for floods are given in Table 2 below. It should be noted that flow times vary significantly from event to event and are usually shorter in the more severe floods as flow velocities and volumes will be higher (1).

Table 2: Indicative Flow Travel Time for the Williams River (7)

Locations	Travel Time
Dungog to Clarence Town (35km)	3 ½ hrs
Clarence Town to Seaham (27km)	3 hrs

h. Design flood heights at Dungog on the Williams River are shown in Table 3 and 4 below:

Table 3: Annual Exceedance Probabilities at Dungog gauge (210903) (3)

Level (m AHD)	Gauge Staff Height (m)	DNR Gauge Level (m)	Annual Exceedance Probability –(AEP)
49.91	8.81	8.69	20%
50.35	9.25	9.13	10%
50.87	9.77	9.65	5%
51.35	10.25	10.13	2%
51.88	10.78	10.66	1%
52.40	11.30	11.18	0.5%
56.63	15.53	15.41	PMF

Table 4: Annual Exceedance Probabilities at Mill Dam Falls Gauge (210010) (3)

Gauge Height (m)	AEP	mAHD
10.68	20	10.57
11.83	10	11.72
13.02	5	12.90
13.92	2	13.81
14.55	1	14.43
15.20	0.5	15.08
20.82	PMF	20.71

Myall Creek

a. Myall Creek, which joins the Williams River upstream of Dungog, has a major influence on flooding within Dungog and can be flash flooding in some instances. Myall Creek can flood independently of the Williams River, but this flooding can be made worse when the Williams River is in flood as the River floodwaters restrict the Creeks ability to discharge (1). Modelling completed for Myall Creek assumes a Williams River water level equivalent to a 20% AEP. Thus impacts described in this document for the Myall Creek catchment should be used as estimates only as impacts could be of a higher magnitude if Williams River flooding is larger than a 20% AEP event (2).

b. Floodways will also develop in north Dungog in the estimated 5% AEP Myall Creek catchment event (2).

Paterson River

c. The Paterson River floodway is generally confined to the undeveloped floodplain with some properties located to the east of Paterson forming part of the floodway in the

1% AEP event. Properties located in the floodway are discussed in detail in the Specific Risk Areas below (8).

d. Indicative peak travel times for floods are given in Table 5 below. It should be noted that flow times vary significantly from event to event and are usually shorter in the more severe floods as flow velocities and volumes will be higher (1).

Table 5: Indicative Flow Travel Time for the Paterson River (7)

Locations	Travel Time
Gresford to Paterson (29km)	3 hrs
Paterson to Hinton (21km)	2 ¼ hrs
Gostwyck to Hinton (40km)	8-12 hrs

e. The return frequency of floods in the Paterson area is shown in Table 6 below:

Table 6: Return Frequency of Historical Floods at the Gostwyck Bridge Gauge (210902)

Year	Height (m)	Average Recurrence Interval - ARI (years)	Annual Exceedance Probability - AEP
March 1978	15.24	1 in 100	1%
March 1963	14.50	1 in 75	1.5%
February 1990	14.72	1 in 33	3%
February 1955	12.98	Not known	Not known

1.6 FLOOD HISTORY

a. Most floods in Dungog LGA have occurred in the January to July period. Approximately 80% of the floods above minor recorded on the Paterson and Williams Rivers have occurred in the first seven months of the year (1).

Williams River

b. During the April/May 2015 flood event Dungog experienced major flooding with a recorded rainfall peak intensity of 180.0 mm/h. The scenario that occurred in the April 2015 flood event was short-duration flooding of Myall Creek, compounded by severe local overland flows from the surrounding hills (9) (10). Flooding along Myall Creek was estimated as being a 0.1% AEP event, while Williams River experienced a 20% AEP event. During this event 59 properties in Dungog were affected by floodwaters with four houses being washed away and the loss of three lives (11) (12).

c. Four floods above the major flood level (8.50 metres) have been recorded at the Dungog Gauge (210903) on the Williams River since it was installed in 1950, as shown in Figure 1 below (1).

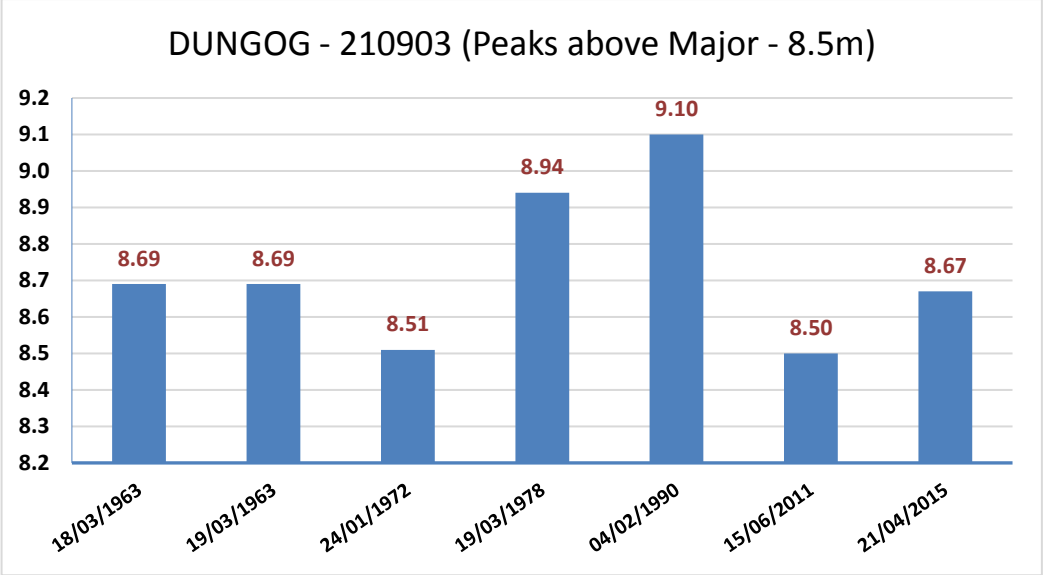


Figure 1: Floods above the major flood classification level (8.50 metres) recorded at Dungog Gauge (210903)

d. The worst flood in recent times on the Williams River at Mill Dam Falls (Glen Martin) occurred in 2012 which reached 12.13 metres on the gauge (1).

e. Fourteen major floods have been recorded at the Mill Dam Falls gauge since 1927, with the most recent being in June 2007 (9.15 metres). The February 1955 flood on the Williams River was comparatively small (8.84 metres), with less than half the flow that was recorded at Mill Dam Falls in 1963 (1).

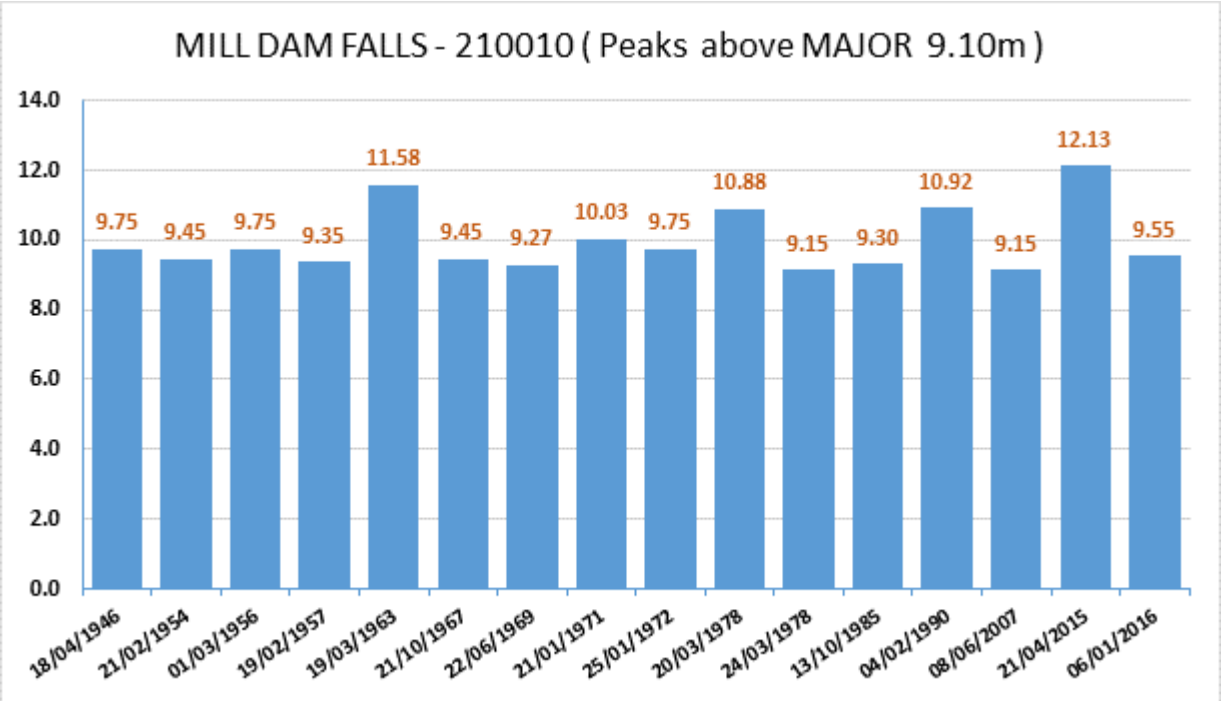


Figure 2: Floods above the major flood classification level (9.10 metres) recorded at the Mill Dam Falls Gauge (210010) Williams River

Paterson / Allyn Rivers

f. The largest flood recorded on the Paterson River, was the March 1978 flood which peaked at 15.24 metres at the Gostwyck Bridge Gauge (210902). This flood resulted from high rainfall over the Paterson River catchment with a short duration. The 1978 flood on the Paterson River is estimated at a 1% AEP event (1).

g. In 2015 flooding on the Allyn River caused the failure of the Torryburn Road Bridge. This resulted in the long term isolation of properties on Torryburn Road, with the only access via low lying causeways which were flooded often. The bridge was replaced in 2016.

h. In the April 2015 flood event 8 properties in Paterson were affected by over floor flooding (11).

i. Twenty seven major floods have been recorded on the Gostwyck Bridge gauge on the Paterson River since it's installation in 1928. They are shown on the graph below (3).

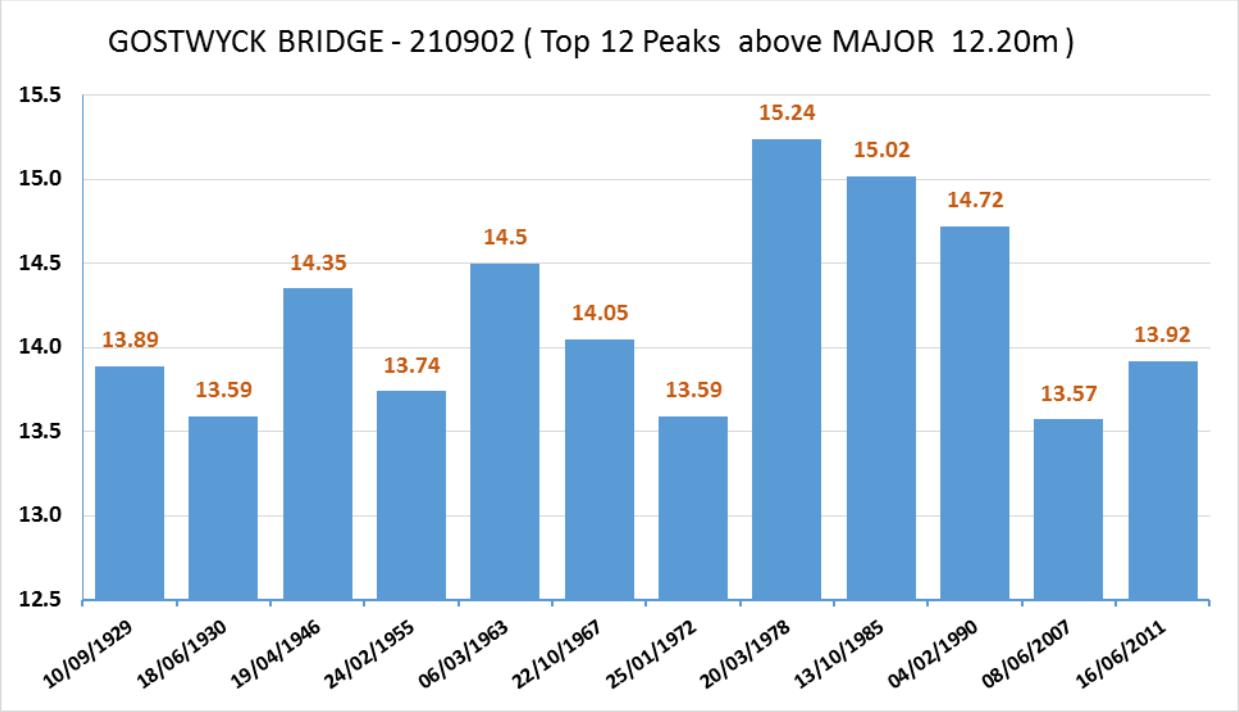


Figure 3: Floods above the major flood classification level (12.20 metres) recorded at the Gostwyck Bridge Gauge (210902) Paterson River

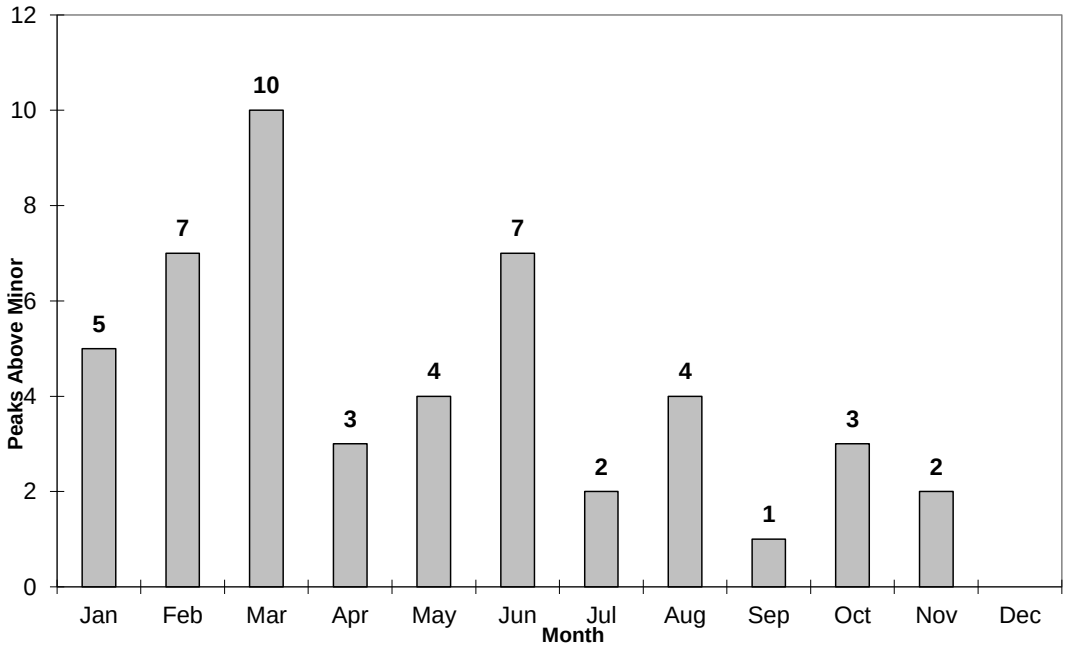


Figure 4: Floods above the minor flood classification level (9.10 metres) recorded on the Gostwyck Bridge gauge (210902) since 1928 by month

1.7 FLOOD MITIGATION SYSTEMS

a. There are no flood mitigation systems located within the Dungog LGA.

b. There are flood mitigation systems located downstream of the Dungog LGA on the Paterson, Williams and Hunter Rivers.

c. The construction in 1967 of Seaham Weir (downstream of the Dungog LGA) substantially increased the magnitude, frequency and duration of minor flooding on the nearby upstream farm properties on the Williams River. Although floodgates constructed in 1978 have reduced the length of flooding and resulted in no increases of large floods, minor flooding is still substantially above pre-weir conditions (1).

1.8 EXTREME FLOODING

a. The worst floods ever recorded in the Dungog LGA since European settlement should not be regarded as the most severe which can occur there. Floods worse than have been seen by present residents are possible. Such floods will be rare, but they may reach considerably greater heights than have previously been experienced. In addition, they are likely to be both faster to rise and more dangerous in terms of depth and velocity than previous events (1).

b. In the PMF event on the Paterson River the majority of properties in Paterson are affected by floodwaters with only a few properties located on the high ground in the west of the town unaffected. The difference between the 1% AEP flood level (15.24 metres) and the extreme flood level is 7.5 metres (ie. three building storeys) and extreme flooding could lead to extensive building damage (including complete destruction) and closure of evacuation routes from isolated communities and individual houses (1) (8).

c. Extreme flooding on the Williams River and in Myall Creek will lead to significant impacts in the north and east of Dungog with flood levels reaching over roof level on some properties. A PMF event on the Williams River in conjunction with a PMF event in the Myall Creek catchment has not been modelled but will be higher in level and cause greater impacts then the existing PMF for the Myall Creek catchment model shows. Additionally a PMF event on the Williams River in Clarence Town will cause over floor flooding of approximately 127 properties located in the south and east of the town.

d. There is a remote possibility, in an extreme flood on the Chichester and Wangat (Little) Rivers, that Chichester Dam could fail leading to unprecedented flooding in the Dungog LGA. Further information on the potential effects of dam failure flooding on the downstream community is included in sections 2.2.8 and 2.2.9.

2 EFFECTS ON THE COMMUNITY

2.1 COMMUNITY PROFILE

Table 7: Census of Housing and Population data (2011)

Census Description	Dungog LGA	Clarence Town	Dungog	Gresford East & Gresford West	Paterson
Total Persons	**8,318**	**1,712**	**2,892**	**621**	**801**
Aged 0-4 yrs	486	105	166	38	52
Aged 5-14 yrs	1,074	238	344	58	123
Aged 65 + yrs	1,467	212	661	135	108
Of Indigenous Origin	266	63	104	19	8
Who do not speak English well	0	0	0	0	0
Have a need for assistance (profound/severe disability)	491	68	244	49	28
Living alone (Total)	742	89	370	60	43
Living alone (Aged 65+)	360	29	202	41	17
Residing in caravans, cabins or houseboats or improvised dwellings	23	6	0	6	0
Occupied Private Dwellings (Households)	**3,115**	**598**	**1,190**	**240**	**271**
No Motor Vehicle	143	15	102	13	4
Caravan, cabin, houseboat or improvised dwell	17	4	0	0	0
Rented via State or Housing Authority	36	0	32	0	0
Rented via Housing Co-Op or Community Church Group	16	0	19	0	0
No Internet Connection	830	127	404	78	38
Unoccupied Private Dwellings	**580**	**74**	**194**	**52**	**40**
Average persons per occup dwelling	**2.5**	**2.7**	**2.3**	**2.4**	**2.7**
Average vehicles per occup dwelling	**2.0**	**2.1**	**1.7**	**2.1**	**2.2**

SPECIFIC RISK AREAS - FLOOD

Williams River Valley

2.2 DUNGOG

2.2.1 Community Overview

a. Dungog is a country town located at the convergence of Myall Creek and the Williams River approximately 76km north of Newcastle. Located in the middle of dairy and timber country, it lies in the centre of Dungog LGA. At the 2011 census it had a population of 2,131 (13).

b. The town is situated on undulating topography which rises from quite flat countryside close to Myall Creek and the Williams River to steep terrain at the southern end of the town. Dungog's building stock consists of a core of older buildings, many predating World War 1, surrounded by residential buildings of all ages up to the present day (14).

c. Dungog is located on Map 3.

2.2.2 Characteristics of flooding

a. Dungog is affected by riverine flooding from the Williams River and Myall Creek, as well as overland and flash flooding.

2.2.3 Flood Behaviour

a. Myall Creek is a tributary of the Williams River with the confluence located immediately east of Dungog. Common Creek is a tributary of Myall Creek and flows past the north western section of Dungog (2).

b. Flood levels along Myall Creek are highly dependent on flood levels in the Williams River. Additionally the main road and railway bridge over Myall Creek and the Williams River can influence flood behaviour, restricting flood flow. Flows from Myall Creek into the Williams River begin to become restricted when the Williams River reaches 6.0m at the Dungog Gauge (210903) (2) (15).

c. The majority of flood effects in the north of Dungog are from flash flooding along Myall Creek. This can flood areas of Dungog independent of riverine flooding from the Williams River. Flooding on the south eastern section of the town is from the Williams River and flooding in the north west of the town can be caused by Common Creek (3) (2).

d. Mackay Street in Dungog represents the approximate limit of the backwater influence caused by the bridge crossings on Myall Creek. Upstream of Mackay Street, the flooding is from overland flows to the south (2).

e. NOTE: Flooding of Myall Creek and Williams River can happen independently (i.e. there can be a 1% AEP event in the Myall Creek catchment but only a 10% AEP event in Williams River). The magnitude of flooding can however be influenced by the other system (i.e. a 1% AEP event in Williams River can amplify flood impacts of Myall Creek catchment flooding). All impacts related to flooding from Myall Creek described in this plan are derived from modelling of the Creek with an assumed corresponding 20% AEP flood event on Williams River. It is therefore possible that flood impacts from Myall Creek can be greater than described if Williams River is experiencing more extreme flooding (2).

Floodways

f. In the 5% AEP event in the Myall Creek catchment the floodway is located in the Myall Creek floodplain, within the drainage structure between Dowling Street and Lord Street and through properties located on the north western side of Dowling Street (2).

g. Between the 10% and 0.5% AEP events in the Myall Creek catchment, floodway areas are located along Myall Creek and may impact properties located on Hooke Street and Dowling Street adjacent to the Creek (2).

h. In the 0.2% AEP event in the Myall Creek catchment a section of floodway crosses the northern end of Dowling Street, impacting properties in this area. The floodway also crosses Hooke Street flowing towards the Lord Street intersection (2).

i. In the PMF event in the Myall Creek catchment the floodway impacts properties located on Hooke Street, Lord Street, Brown Street and Mackay Street (2).

j. On Williams River the floodway is contained to the floodplain in all events (3).

Flood Storage

k. In the 5% AEP event in the Myall Creek catchment, properties located on Hooke Street and Fosterton Road are located in flood storage areas. Additionally the low lying parkland between Lord and Dowling Streets to MacKay Street becomes flood storage (2).

l. In the 1% AEP event up to the PMF event in the Myall Creek catchment, properties located on Hooke, Abelard, Lord, Brown and Mackay Streets are located within flood storage areas (2).

m. From the 20% AEP event to the PMF event on the Williams River, flood storage is located between Williams River and the intersection of Windeyer and Myles Streets. Flooding may impact properties located in this area (3).

2.2.4 Classification of Floodplain

a. Dungog has rising road access in all events up to the PMF (2).

2.2.5 Inundation

a. Inundation described below will be discussed sequentially as many combinations of events can cause the impacts. Impacts below include a description of the source of flooding. Flooding impacts from Myall Creek and Commons Creek are generally flash flooding and can occur within hours from the onset of heavy rainfall.

b. Inundation in Dungog generally begins at 6.1m at the Dungog Gauge (210903) and occurs on the northern and eastern edges of the town with areas around Frank Robinson Memorial Park flooding first. This is also the height that the Williams River begins to cause Myall Creek to back up.

c. Properties located on Hooke Street are the first to be impacted by flooding from the Myall Creek catchment. Properties located on Brown Street are impacted next, followed by properties on Lord, Mackay, Dowling and Abelard Streets. As the flood levels increase, the depth of inundation and the number of properties affected by flooding increases (2).

d. Properties located on Windeyer, Myles, Baird and Chapman Streets are affected by flooding from the Williams River (3).

e. Properties located on Hillview Avenue can be impacted by flooding from Commons Creek (14) (9).

f. The Bureau of Meteorology provides flood warnings to the Dungog Gauge (210903) on the Williams River. This gauge is located upstream of the confluence of Myall Creek and Williams River so does not reflect the flooding behaviour in Dungog caused by Myall Creek and its influence on the Williams River flooding.

2.2.6 Isolation

a. Fosterton Road (Dungog to Fosterton) may close at approximately 8.0 metres on the Dungog Gauge (210903), isolating up to 32 residential properties north of Dungog for up to 24 hours. This road can also close in a number of locations because of localised flooding (1).

b. Dungog can be cut in half when flooding in the local catchment occurs. This only occurs for short durations (up to 4 hours).

c. Historically Dungog became isolated at approximately 9.0 metres on the Dungog gauge, when floodwaters closed Clarence Town Road at Union Bridge, Wirragulla. Union Bridge was replaced in 2010 and the new bridge is higher than its predecessor. The height at which the new bridge will close is not known (1).

d. When main access routes out of Dungog are closed due to flooding, rural roads become the main access from Dungog however as these pass through heavily forested areas they can become closed due to fallen trees prior to being closed by floodwaters.

2.2.7 Flood Mitigation Systems

a. There are no flood mitigation systems located in Dungog.

2.2.8 Dams

a. There is a remote chance, in an extreme flood on the Chichester and Wangat (Little) Rivers that Chichester Dam could fail. If this occurred the following areas within the Dungog LGA may be at risk from extreme flooding and substantial evacuations would be required:

   i. The Ferndale Caravan Park, located just below the dam.

   ii. 23 dwellings located in rural areas between the dam and Dungog.

   iii. Frank Robinson Memorial Park (Cooreei Bridge, Dungog).

   iv. Up to 100 homes in Dungog, mainly in the northern and eastern sections of town.

   v. A small number of farm houses downstream of Dungog (1).

2.2.9 At Risk Facilities

a. Alison Court in Dungog at risk of flooding and is described in Annex 2.

2.2.10 Other Considerations

a. The Frank Robinson Memorial Park which begins to be impacted by floodwaters at 6.1m at the Dungog Gauge (210903) is often used as a rest stop, with vehicles often remaining overnight.

2.3 CLARENCE TOWN

2.3.1 Community Overview

a. Clarence Town is located 54km north of Newcastle and is situated on the Williams River downstream of Dungog. In 2011 the population was 1,667 (13).

b. Clarence Town is shown on Map 4.

2.3.2 Characteristics of Flooding

a. Clarence Town is affected by riverine flooding from the Williams River in addition to flash flooding from local catchment runoff from Town Creek and a number of smaller watercourses which run through the urban areas discharging into the Williams River (6).

b. Clarence Town is also affected by overland flooding due to the steep nature of the town and water being unable to enter the drainage system in heavy rainfalls.

2.3.3 Flood Behaviour

a. The Williams River flows to the east and south of Clarence Town. The local catchment is drained by Town Creek and a number of smaller watercourses running through the urban areas of Clarence Town. The confluence of Town Creek with the Williams River is approximately 80m east of the southern end of Rifle St. Flooding in the lower reaches of the Town Creek catchment is highly influenced by the conditions in the Williams River (6).

b. In the 1% AEP event (14.55m at the Mill Dam Falls Gauge (210010)) floodway areas are generally limited to the floodplain areas to the east and south east of the Clarence Town catchment area. An additional floodway is contained to the Town Creek. There is no existing development located within the floodway areas (6).

c. In the 0.5% AEP (15.2m at the Mill Dam Falls Gauge (210010)) the floodway breaks out of the floodplain and impacts parkland between Rifle Street and Grey Street and backyards of properties located adjacent to the Williams River in King Street, Durham Street and Russell Street (3).

d. In the 1% AEP event (14.55m at the Mill Dam Falls Gauge (210010)) flood storage and flood fringe areas extend up Town Creek to the Queen and Rifle Street intersection. Properties located within this area are located on Durham Street and King Street (on south side of King Street) and on Rifle Street and Grey Street (south of Queen Street) (6).

e. In the 0.5% AEP event (15.2m at the Mill Dam Falls Gauge (210010)) additional flood storage and flood fringe areas can be found north of the caravan park, the north side of Queen Street between Grey Street and Marshall Street, and the northern end of Fotheringay Road adjacent to the Williams River (3).

2.3.4 Classification of Floodplain

a. Clarence Town has rising road access in all events up to the PMF (20.82m at the Mill Dam Falls Gauge (210010)) (6).

2.3.5 Inundation

a. Inundation in Clarence Town can result from two types of flooding – riverine flooding from the Williams River or overland flooding from the Town Creek catchment. The inundation impacts are described separately for each scenario.

b. The key warning gauge for Clarence Town is the Mill Dam Falls gauge (210010) located 9km upstream of Clarence Town however it is only relevant for flooding from the Williams River (6).

Williams River Flooding

Table 8: Estimated number of properties inundated above floor level in Clarence Town related to the Mill Dam Falls Gauge (210010) (6)

Gauge Height (AEP%)	Residential Properties with Over Flood Flooding	Commercial Properties with Over Floor Flooding
10.68m (20% AEP)	1	0
13.02m (5% AEP)	2	0
13.92m (2% AEP)	4	1
14.55m (1% AEP)	6	1
15.20m (0.5% AEP)	13	2
20.82m (PMF)	107	20

c. Inundation occurs from the southern edge of the village, mostly from backwater flooding. The main areas of Clarence Town impacted by Williams River flooding are the lower floodplain areas between Grey Street and Marshall Street (encompassing King Street) extending up to Queen Street as well as the southern end of Durham Street. In larger design flood events flooding extends from Queen Street up to Prince Street (6).

d. In the 5% AEP event (13.02m at the Mill Dam Falls Gauge (210010)) properties affected by over floor flooding are located on King Street adjacent to the Williams River (6).

e. In the 1% AEP event (14.55m at the Mill Dam Falls Gauge (210010)) properties affected by over floor flooding are located on the lower end of Grey Street, the southern end of Durham Street and near the intersection of Queen Street and Rifle Street (6).

f. In the PMF event (20.82m at the Mill Dam Falls Gauge (210010)) properties affected by over flood flooding are located the southern end of Lowe Street, Rifle Street, Marshall Terrace and Marshall Street, Queen Street east of Marshall Street, Prince

Street east of Rifle Street, the eastern side of Russell Street, Grey Street south of Duke Street, the eastern end of Duke Street, and King Street and Durham Street (6).

g. Rural properties in Clarence Town located adjacent to the Williams River and smaller watercourses may also be affected by flooding (6).

Local Catchment Flooding

h. The local catchment in Clarence Town is ungauged.

Table 9: Estimated number of properties inundated above floor level in Clarence Town related to the Local Catchment Flooding (6)

% AEP	Residential Properties with Over Floor Flooding	Commercial Properties with Over Floor Flooding
20% AEP	0	0
5% AEP	0	0
2% AEP	0	1
1% AEP	0	1
0.5% AEP	0	1
PMF	5	3

i. There are no properties affected by over floor flooding in events below the 1% AEP (6).

j. In the 1% AEP only one property is affected by over floor flooding, located on the corner of Grey and Prince Streets (6).

k. In the PMF event properties affected by over floor flooding are located on the southern end of Lowe Street, the western end of King Street, the corner of Prince and Grey Streets and on the western end of Duke Street (6).

2.3.6 Isolation

a. Rural properties accessing the town via Fotheringay Road and Limeburners Creek Road may become isolated due to road closures. Closures may last for up to 72 hours (6).

b. For more information on isolations refer to section 2.9.

2.3.7 Flood Mitigation Systems

a. There are privately constructed on-ground works such as levees/embankments, drainage channels, and culverts for access roads to alleviate flood risk on private property. These structures can have an influence on the flooding behaviour in Clarence Town itself (6).

2.3.8 Dams

a. There is a remote chance, in an extreme flood on the Chichester and Wangat (Little) Rivers that Chichester Dam could fail. If such an event were to occur the following areas within the Dungog LGA may be at risk from extreme flooding and substantial evacuations would be required including the school and a small number of homes in Clarence Town particularly towards the lower end of King Street (between Sheriff and Marshall Streets) (1).

2.3.9 At Risk Facilities

a. Clarence Town Public School, Williams River Holiday Park and some local infrastructure are impacted by flooding in Clarence Town. They are further described in Annex 2.

2.3.10 Other Considerations

a. There are no other considerations for Clarence Town.

2.4 PATERSON

2.4.1 Community Overview

a. Paterson is located on the Paterson River in the Dungog LGA and is the largest of the flood affected settlements on the Paterson River within the Dungog LGA 23 kilometres upstream of the confluence of the Paterson and Hunter Rivers (1).

b. At the 2011 census, Paterson had a population of 802 (13).

c. Paterson is shown on Map 5.

2.4.2 Characteristics of Flooding

a. Paterson is affected by riverine flooding from the Paterson River.

b. The Paterson River can be influenced by flooding in the Paterson River catchment and from flooding along the Hunter River (8).

2.4.3 Flood Behaviour

a. The Paterson River joins the Hunter River south of Paterson, at Morpeth which can influence flooding at Paterson. Elevated flood levels in the Hunter River can cause flooding in the lower reaches of the Paterson River and also restrict the free flow of water from the Paterson River (8).

b. In the 1% AEP event the floodway at Paterson is generally contained to the floodplain with breakout sections at the south end of Duke Street and on the south side of William Street (8).

2.4.4 Classification of Floodplain

a. Paterson becomes a high flood island at approximately 11.7m at the Gostwyck Bridge gauge (210402) due to road closures (8).

2.4.5 Inundation

a. Rural properties located outside the town of Paterson on Martins Creek Road and Gresford Road may be affected by floodwaters from the 5% AEP to the PMF events. There is potential for destruction of crops, pasture and infrastructure by inundation (8).

b. In the 1% AEP event properties affected by floodwaters are located on King Street and Maitland Street adjacent to the Paterson River, along with some properties on Duke Street William Street and Albert Street. Of these only two properties are affected by over floor flooding of habitable buildings (8).

c. In the PMF event the majority of properties in Paterson are affected by floodwaters with only properties located on the high ground surrounding Count Street and Boulton Drive, and properties near the North Coast Railway on Victoria Street and Railway

Street remaining unaffected by floodwaters. The number of properties affected by over floor flooding is not known (8).

d. The Bureau of Meteorology provides flood warnings for the Gostwyck Bridge gauge (210402), located approximately 4km upstream of Paterson. There is a gauge located at Paterson (210406) however the Bureau does not provide warnings to this gauge due to the influence on Hunter River flows at Paterson (8).

2.4.6 Isolation

a. Paterson can be completely isolated by road in flood events when the river reaches 11.8 metres on the Gostwyck Bridge gauge (210402) (1). Tocal Road, south of Paterson is the first road to close at 11.7m on the Gostwyck Bridge gauge (210402) (16).

b. 20-25 properties located to the west of Paterson off Webbers Creek Road can become isolated when Webbers Creek Road is closed. There is no gauge on Webbers Creek so the level this occurs and the duration of isolation is unknown.

2.4.7 Flood Mitigation Systems

a. There are privately owned levees located on rural properties in the vicinity of Paterson. The height of these levees are unknown however it has been estimated that they may begin to overtop at 11.7m at the Gostwyck Bridge gauge (210402) (16).

2.4.8 Dams

a. Lostock Dam is located upstream of Paterson and failure of the dam would result in flooding impacts at Paterson (17).

b. In a Sunny Day failure the start of the flood wave would take 5h10min to reach Paterson with the peak of the flood wave taking 9h to arrive. Areas affected are located in the block bounded by King, Duke and Queen Streets. Depths could reach 3m in some locations close to the Paterson River (17).

c. A PMF failure of Lostock Dam would result in flooding impacting the north east corner of Paterson, properties on Albert Street, Maitland Road, William Street, Sloane Street and the eastern end of Victoria Street. These areas would already be impacted by PMF flooding, however in the event of dam failure it is expected that the water levels will be higher (17).

2.4.9 At Risk Facilities

a. Facilities at risk of flooding are described in Annex 2 below.

2.4.10 Other Considerations

a. The railway level crossing located on King Street centre of town is the only access point between the east and west sides of the town. Emergency services access can be lost when this crossing is activated.

2.5 VACY/MARTINS CREEK

2.5.1 Community Overview

a. Vacy is located on the western side of the Paterson River at the confluence with the Allyn River. Martins Creek is located on the eastern side of the Paterson River approximately 4km south east of Vacy. The areas consists of primarily small hobby farms. In 2011 the population of Martins Creek was 341 with the population of Vacy being 547 (13).

b. Vacy and Martins Creek are shown on Map 6.

2.5.2 Characteristics of Flooding

a. Vacy and Martins Creek are affected by riverine flooding from the Paterson River (8).

2.5.3 Flood Behaviour

a. In the 1% AEP event the floodway is generally contained within the Paterson River floodplain however some properties located adjacent to the river and on Gresford Road may also form part of the floodway (8).

b. The Allyn River flows into the Paterson River at Vacy.

2.5.4 Classification of Floodplain

a. Martins Creek and Vacy have rising road access in all events up to the PMF event (8).

2.5.5 Inundation

a. In the 1% AEP the majority of water is contained to the floodplain, only impacting farming land however some properties located on Gresford Road and Dungog Road, Mowbray Lane may be impacted by floodwaters. The number of properties affected by overfloor flooding is unknown (8).

b. In the PMF event floodwaters breakout of the floodplain and will impact additional properties located on Gresford Road, Mowbray Lane, Cook Street, Dungog Road and Cory Street. The number of properties affected by over floor flooding is unknown (8).

2.5.6 Isolation

a. Properties in Glenburn and Keppies Roads can become isolated by ungauged creek rises along Martins Creek Road (1).

2.5.7 Flood Mitigation Systems

a. There are privately owned levees located on rural properties in the vicinity of Martins Creek and Vacy. The height of these levees are unknown (16).

2.5.8 Dams

a. Lostock Dam is located upstream of Vacy and Martins Creek and failure of the dam would result in flooding impacts at Vacy and Martins Creek (17).

b. In a Sunny Day failure the start of the flood wave would take 3 hours to reach Vacy with the peak of the flood wave taking 6h20min to arrive. In a Sunny Day Failure floodwaters would be contained to the Paterson River with only small impacts in the floodplain (17).

c. A PMF failure of Lostock Dam would result in flooding of areas already impacted by PMF flooding, however in the event of dam failure it is expected that the water levels will be higher (17).

2.5.9 At Risk Facilities

a. Facilities at risk of flooding are described in Annex 2 below.

2.5.10 Other Considerations

a. No other considerations

2.6 GRESFORD /EAST GRESFORD

2.6.1 Community Overview

a. East Gresford and Gresford are located 42km southwest of Singleton in the Dungog LGA. Gresford is located on the Paterson River while East Gresford is located on the Allyn River. The towns had a population of 621 in 2011.

b. Gresford and East Gresford are shown on Map 7.

2.6.2 Characteristics of Flooding

a. Gresford and East Gresford are affected by riverine flooding from the Paterson and Allyn Rivers however can also be impacted by flash and overland flooding.

2.6.3 Flood Behaviour

a. Flood behaviour at Gresford and East Gresford is yet to be modelled.

2.6.4 Classification of Floodplain

a. Classification of the floodplain in Gresford and East Gresford has not been undertaken.

2.6.5 Inundation

a. There is no information available on inundation impacts in Gresford or East Gresford.

2.6.6 Isolation

a. Historically Gresford and East Gresford have not become isolated however modelling has not yet been undertaken for large design events.

2.6.7 Flood Mitigation Systems

a. There are no flood mitigation systems located in Gresford or East Gresford.

2.6.8 Dams

a. Gresford is located downstream on Lostock Dam on the Paterson River.

b. A sunny day dam failure would not impact the town of Gresford however rural properties located in the floodplain may be impacted. A PMF Dam failure would result in inundation of properties on the western half of Short and Church Streets. Low lying properties on Glendonbrook Road, Willows Road and Paterson River Road will also be impacted.

c. In a sunny day failure the flood wave would take 1hr40min to reach Gresford with the flood wave peak taking 2hr50min to reach the town (17).

2.6.9 At Risk Facilities

a. One school in East Gresford is at risk of flooding. For more information refer to Annex 2.

2.6.10 Other Considerations

a. There are no other considerations for Gresford or East Gresford.

2.7 RURAL AREAS

2.7.1 Community Overview

a. Many rural areas in the Dungog LGA are located within floodplain areas.

2.7.2 Characteristics of Flooding

a. Rural areas are predominately affected by riverine flooding from the Williams and Paterson Rivers, however can also be impacted by flash and overland flooding (3) (8).

2.7.3 Flood Behaviour

a. Both the Paterson and Williams Rivers flow in a generally north-south direction to join the Hunter River downstream of the Council area, the Paterson River near Morpeth and the Williams at Raymond Terrace. The channels which the Williams and Paterson Rivers have cut in the previously submerged valley floors are not large enough to accommodate the high flow rate occurring periodically as a result of heavy rains on the catchments. As a consequence, these flows frequently spill over the banks, flooding large areas of the river flats (1).

2.7.4 Classification of Floodplain

a. Classification of the floodplain has not been undertaken.

2.7.5 Inundation

a. Farmlands are especially prone to inundation, with stock and pumps needing to be relocated in advance of flooding and fences and irrigation pipes periodically being damaged. It is likely that the expansion of hobby farming and rural residential development is increasing the number of people exposed to the flood risk in the rural parts of the Council area (1).

2.7.6 Isolation

a. Some rural dwellings in the Council area may also be isolated for short periods (1).

2.7.7 Flood Mitigation Systems

a. There are privately owned levees located on rural properties in the vicinity of Paterson. The height of these levees are unknown however it has been estimated that they may begin to overtop at 11.7m at the Gostwyck gauge (210902) (16).

b. There are privately owned levees located on rural properties in the vicinity of Clarence Town, Martins Creek and Vacy. The height of these levees are unknown (16).

2.7.8 Dams

a. Rural areas in the Dungog LGA are located within floodplains below Lostock and Chichester Dams.

b. In the event of failure of either of these Dams, rural properties could be at risk of inundation.

2.7.9 At Risk Facilities

a. Facilities at risk of flooding in rural areas of the Dungog LGA include Glen William Public School and tourist facilities at Bandon Grove. For more information refer to Annex 2.

2.7.10 Other Considerations

a. No other considerations

ROAD CLOSURES AND ISOLATED COMMUNITIES

2.8 ROAD CLOSURES

a. A number of roads within the Council area can be closed by flooding, though usually only for periods of several hours. Major floods on the Lower Hunter River, however, could isolate the Council area from Maitland for a number of days due to road closures in the Maitland City Council. If roads and bridges are damaged by flood water, the period of isolation may be even longer (1).

b. Tables 10 – 13 lists roads liable to flooding in the Dungog LGA.

Table 10: Roads liable to flooding in Rural Areas of the Dungog LGA (1).

Road	Closure location	Consequence of closure	Alternate Route	Indicative gauge height
Main Creek Road (from Dungog to Main Creek) (1)	Carowiry Creek at The Cedars (Cox's Bridge)	Up to 30 rural properties may be isolated in the Main Creek area.		
Alison Road (from Dungog to Alison, off MR 101) (1)	Near the Frank Robinson Memorial Park, adjacent to the Cooreei Bridge, Dungog			Closes between 8.5 and 9.0m on Dungog gauge (210903) (may close earlier due to local creek flooding).
Alison Road (from Dungog to Alison, off MR 101) (1)	At the Thalaba Bridge, Alison		No isolation of Alison as there are alternate routes available.	
MR 101 (from Dungog to Stroud) (1)	At the Frank Robinson Memorial Park adjacent to the Cooreei Bridge, Dungog			May close at 7.6m on Dungog gauge (210903).
Pine Brush Road (from Glen William to Glen Martin) (1)	Banfield Bridge, Glen Martin (over the Williams River)		No alternatives available.	
Glen William Road (from Dungog to Glen William) (1)	Glen William			Closes at 3.0 metres on the Mill Dam Falls gauge (210010).
Seaham Road (1)	Seaham	This is the normal road access	An alternative route may be	It closes at 8.6 metres on the

Road	Closure location	Consequence of closure	Alternate Route	Indicative gauge height
		between Clarence Town and Maitland/Raymond Terrace.	available via Limeburners Creek Road.	Mill Dam Falls gauge (210010).
Glen Martin Road (1)	Boatfall Bridge (2km from intersection with Limeburner Creek Road)			May close at heights above approximately 9.0 metres on the Mill Dam Falls gauge (210010).
MR 7764: Bingleburra Road (from Dungog to Gresford) (1)	0.5km from the T-intersection of the Allyn River Road.	Closes intermittently.	Detour may be available via MR 101 and Gresford Road via Vacy.	
Woodville – Seaham Road (1)	Taylors Bridge (Woodville)			Closes at approximately 11.70 metres on the Gostwyck Bridge gauge (210402).

Table 11: Roads liable to flooding in Dungog (1).

Road	Closure location	Consequence of closure	Alternate Route	Indicative gauge height
MR 101 (from Dungog to Stroud) (1)	At the Frank Robinson Memorial Park, adjacent to the Cooreei Bridge			May close at 7.6m on the Dungog Gauge (210903)
Fosterton Road (from Dungog to Fosterton) (1)	Newell Crossing at Fosterton (over the Williams River)	This is a loop road and access will still be available to properties until the moderate flood level of 8.0 metres on the Dungog gauge is reached and access to Dungog is lost. This will result in 32 residential properties being isolated for up to 24 hours.		Closes around the moderate flood level of 8.0 metres on the Dungog Gauge (210903).
Alison Road (from Dungog	Near the Frank Robinson Memorial			Closes between 8.5 and 9.0m on Dungog Gauge (210903) (may

Road	Closure location	Consequence of closure	Alternate Route	Indicative gauge height
to Alison, off MR 101) (1)	Park, adjacent to the Cooreei Bridge,			close earlier due to local creek flooding
MR 301 (from Clarence Town to Wirragulla) (1)	Union Creek Bridge over the Union Creek (a tributary of the Williams River)			Historically closes at approx. 9.0m on the Dungog Gauge (210903), however a new higher bridge was installed in 2010 with an unknown closure height

Table 12: Roads liable to flooding in Clarence Town (1).

Road	Closure location	Consequence of closure	Alternate Route	Indicative gauge height
Clarence Town Road (1)	At the intersection of Woerdens Road	Closure of road from Dungog to Clarence Town		Flooding occurs from the ungauged Stoney Creek
Rifle Street, Clarence Town (6)	Southern end	Properties on the southern end of Rifle Street lose access. Depths can be 5.5m and the road can be inundated for 72hrs		Closes prior to the 1% AEP event (14.55m at the Mill Dam Falls Gauge (210010))
Rifle Street, Clarence Town (6)	At the Queen Street intersection	Depths can be 3m and inundation can last 20hrs	Alternate access via local roads	Closes prior to the 1% AEP event (14.55m at the Mill Dam Falls Gauge (210010))
Grey Street, Clarence Town (6)	Southern end	Causes the isolation of some properties on Grey Street. Depths can be 2.8m and inundation can last for 18hrs		Closes prior to the 1% AEP event (14.55m at the Mill Dam Falls Gauge (210010))
Durham Street, Clarence Town (6)	Southern end	Causes the isolation of some properties on the southern end of Durham Street		Closes prior to the 1% AEP event (14.55m at the Mill Dam Falls Gauge (210010))
Fotheringay Road,				Closes prior to the 1% AEP event (14.55m

Road	Closure location	Consequence of closure	Alternate Route	Indicative gauge height
Clarence Town (6)				at the Mill Dam Falls Gauge (210010))
Marshall Street, Clarence Town (6)	Near the Fotheringay Road intersection			Closes prior to the 1% AEP event (14.55m at the Mill Dam Falls Gauge (210010))
Durham Street, Clarence Town (6)	Northern end	Depths can be 2.1m and inundation can last for 15hrs		Closes prior to the 1% AEP event (14.55m at the Mill Dam Falls Gauge (210010))
Limeburners Creek Road, Clarence Town (6)	Western end			Closes prior to the 1% AEP event (14.55m at the Mill Dam Falls Gauge (210010))
Rifle Street, Clarence Town (6)	North of the Prince Street intersection			Closes prior to the 1% AEP (local overland flooding only)
Prince Street, Clarence Town (6)	Between Grey Street and Rifle Street			Closes prior to the 1% AEP (local overland flooding only)
Lowe Street, Clarence Town (6)	Southern end			Closes prior to the 1% AEP (local overland flooding only)

Table 13: Roads liable to flooding in Paterson (1).

Road	Closure location	Consequence of closure	Alternate Route	Indicative gauge height
King Street (8)	North of Paterson	Depths can be up to 2m and last for 1 to 2 days		Closes in the 5% AEP event
MR 101 – Tocal Road (from Dungog to Maitland)	John Tucker Park (Swamp Hollow) at the dip below Albert Street, Paterson		Detour is available via Sloane Street until the road closes at Clements Bridge	Closes at approx. 11.5m on Gostwyck Bridge gauge (210402) (8.6m on the Paterson gauge)
Paterson Road (from Woodville to Paterson) (8)	Dunns Creek and Iona	When this road closes, Paterson is isolated. Can be closed for 1-2 days		Closes at approximately 11.7m on the Gostwyck Bridge gauge (210402)
MR 101 – Tocal Road (from Dungog to Maitland)	Between 1 and 3 km south of Paterson, before Clements Bridge	Can close for 1-2 days	Alternate route via Paterson Road, depending on local flooding	Closes at approx. 11.8m on the Gostwyck Bridge Gauge (210402) (9.0m on the Paterson gauge)

NOTE: The list of road closures in this table is not comprehensive and many other minor roads and private roads in the upland areas are subject to closure at low causeways and as a result of land slips, even during minor flooding. There is also a possibility that additional roads that have remained flood free in past events will be closed during major floods.

2.9 SUMMARY OF ISOLATED COMMUNITIES AND PROPERTIES

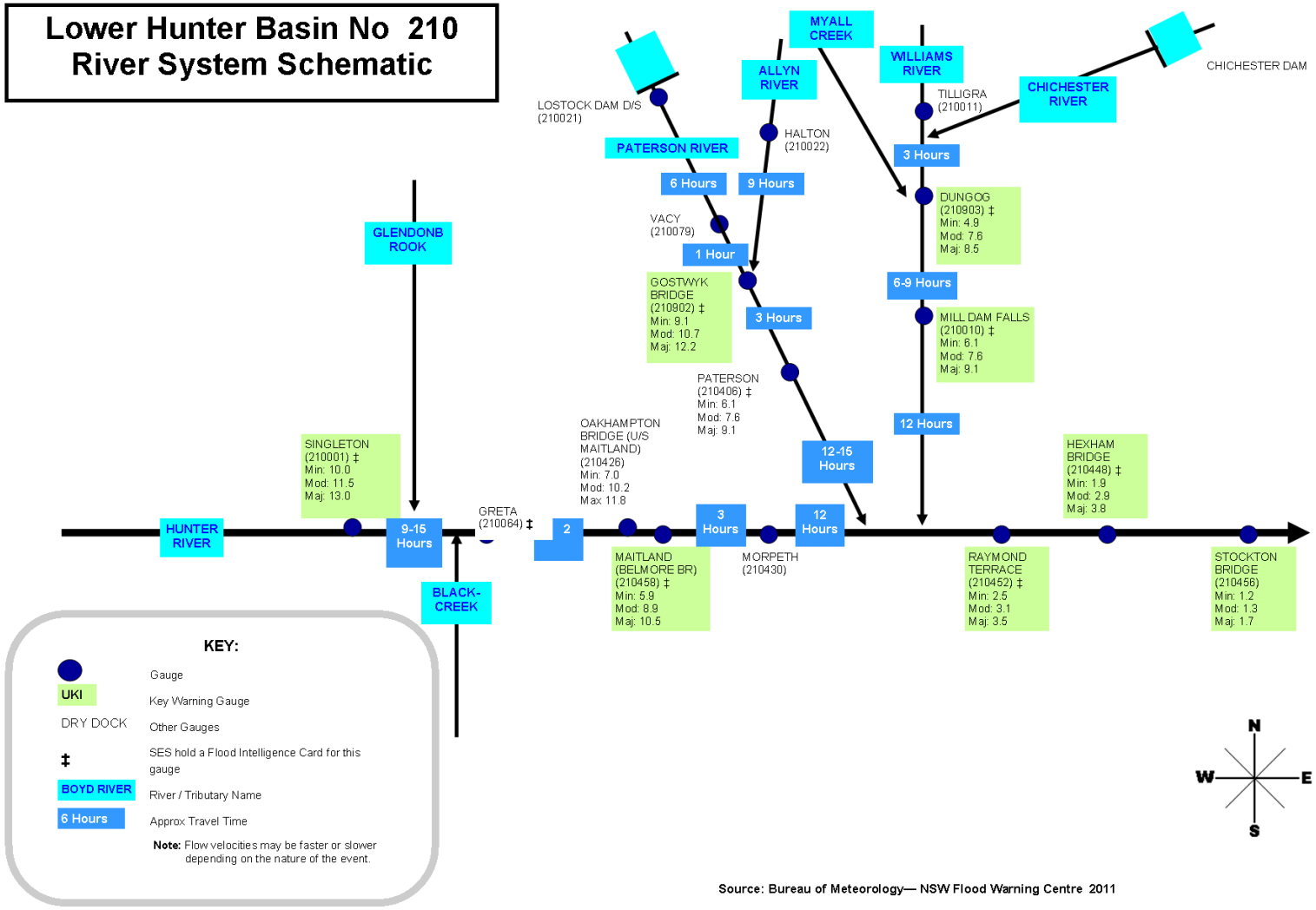
a. Table 14 lists communities liable to isolation and potential periods of isolation. Information presented here is based on [describe source of info – historical, design events etc.] and does not reflect the duration of isolation expected in larger and extreme events.

Table 14: Potential Periods of Isolation for communities in the Dungog LGA

Town / Area (River Basin)	Population/ Dwellings	Flood Affect Classification	Approximate period isolation	Days								NOTES
				1	2	3	4	5	6	7	8	
Fosterton Road (Dungog to Fosterton)	32 residential properties	High flood island	0 – 1 day									May close at approximately 8.0 metres on the Dungog gauge (210903). This road can also close in a number of locations because of localised flooding.
Paterson		High Flood Island	1-2 days									Paterson can be completely isolated by road in flood events when the river reaches 11.7 metres on the Gostwyck gauge (210402) (1).
Fosterton Road, Dungog	32 residential properties	High Flood Island	1-2 days									Properties become isolated from 8.0m at the Dungog Gauge (210903).
Dungog		High Flood Island	1-2 days									
Limeburners Creek Road, Clarence Town	unknown	High Flood Island	1-2 days									The gauge height this occurs is unknown
Fotheringay Road, Clarence Town	unknown	High Flood Island	1-2 days									The gauge height this occurs is unknown
Webbers Creek Road, Paterson	20-25 residential properties	High Flood Island	1-2 days									The height this occurs is unknown as there are no gauges located in the vicinity
Glenburn & Keppies Road, Martins Creek	unknown	High Flood Island	1-2 days									The gauge height this occurs is unknown

Note: Periods of isolation are a guide only. Liaison with the Local Controller and communities/residents involved is essential during periods of potential and actual isolation.

ANNEX 1: LOWER HUNTER RIVER BASIN SCHEMATIC



Source: Bureau of Meteorology— NSW Flood Warning Centre 2011

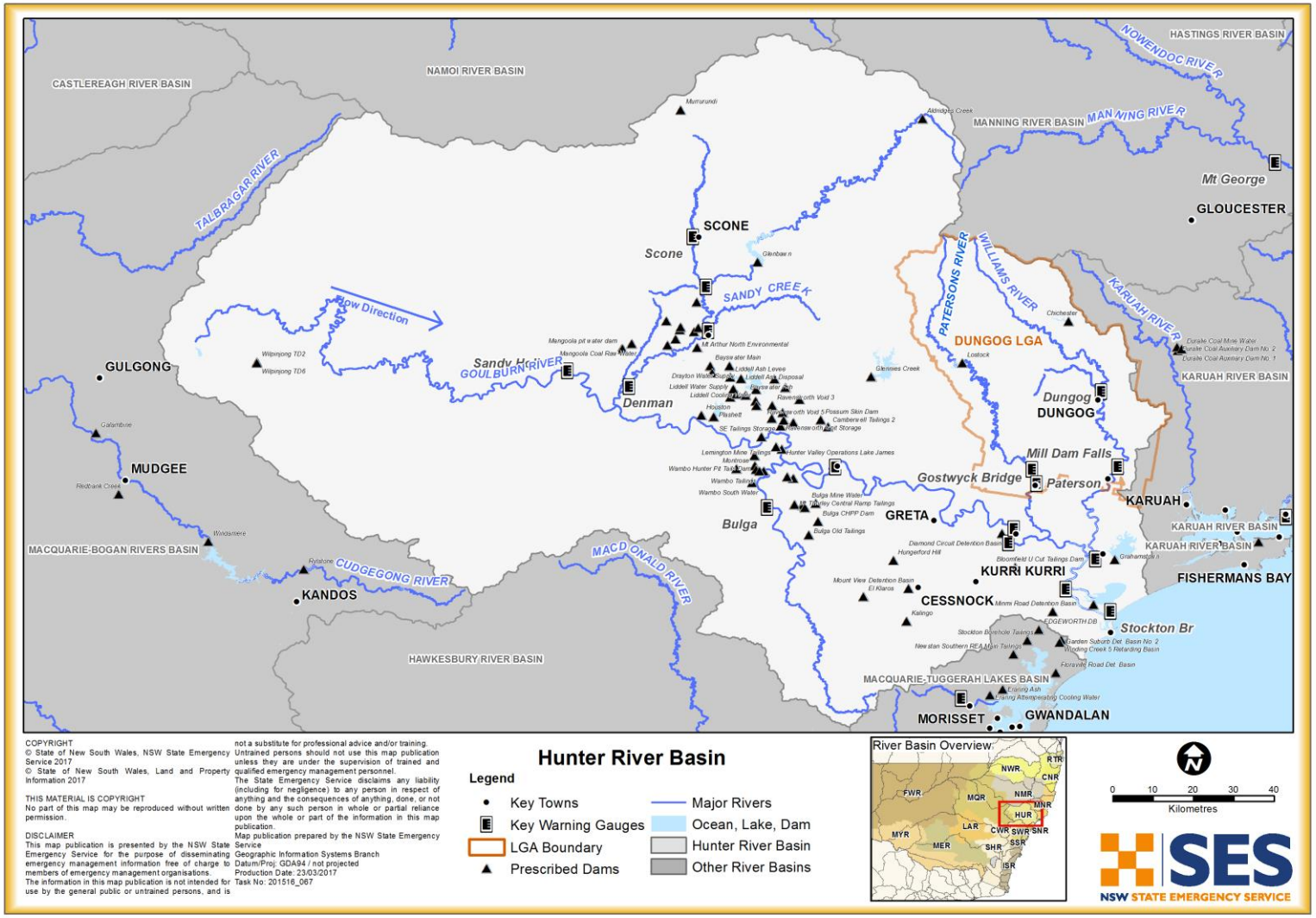
ANNEX 2: FACILITIES AT RISK OF FLOODING AND/OR ISOLATION

Dungog LGA Valley

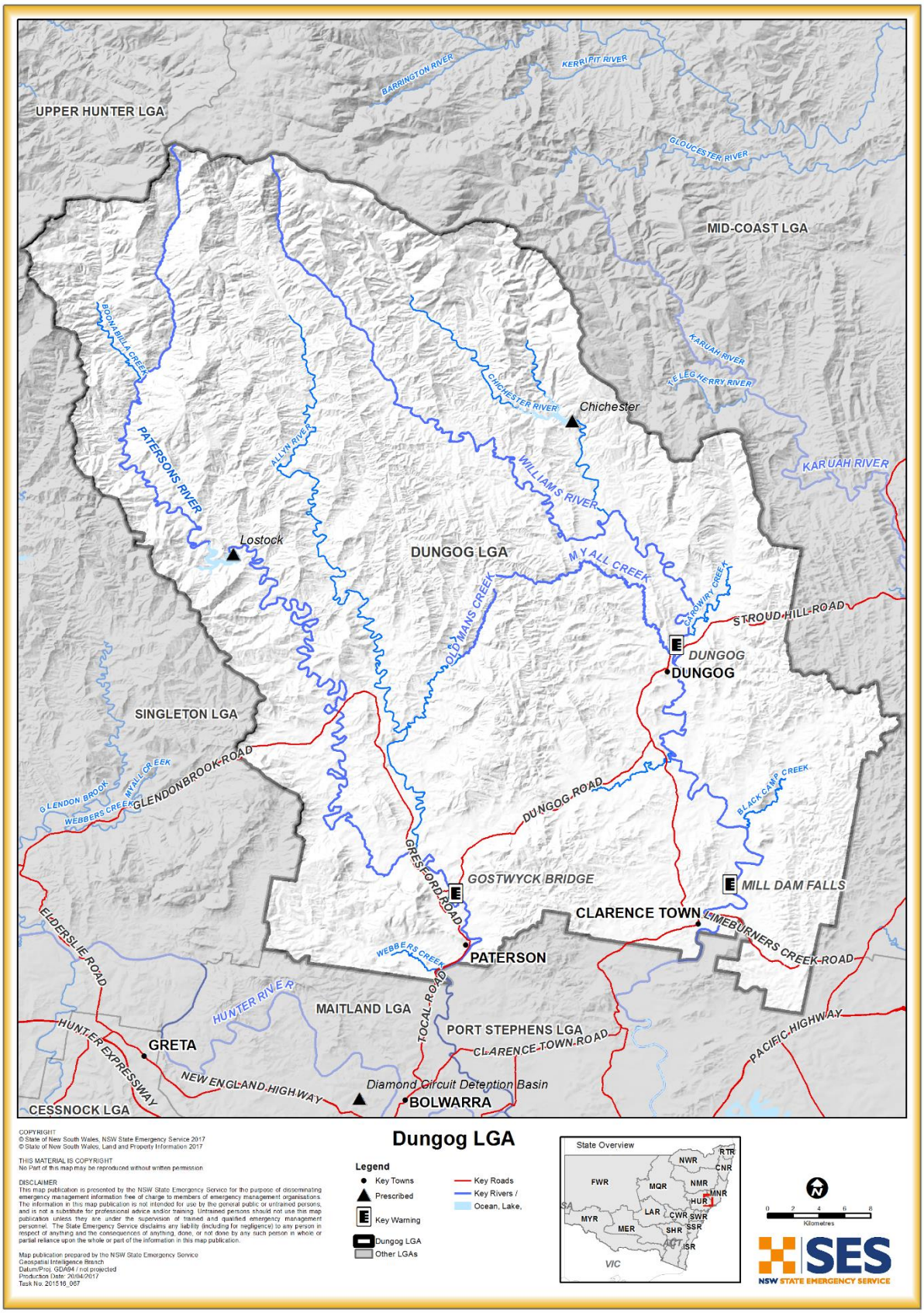
Facility Name	Street	Suburb	Comment
Schools			
Clarence Town Public School	Queen Street	Clarence Town	Is impacted by flooding in the PMF event. 5 buildings experience over floor flooding (6).
Glen William Public School (1)	Clarence Town Road	Glen William	
Gresford Public School (1)	Durham Road	Gresford	
Vacy Public School	Gresford Road	Vacy	Is impacted by floodwaters in the PMF flooding event (8).
Child Care Centres			
N/A			
Facilities for the aged and/or infirm			
Alison Court Retirement Village	Brown Street	Dungog	Is impacted by floodwaters from Myall Creek in the 5% AEP event (2)
Community Facilities			
Clarence Town Swimming Pool	Durham St	Clarence Town	
Clarence Town Senior Citizens Centre	Prince St	Clarence Town	Is affected by over floor flooding in the PMF event (6)
Utilities and infrastructure			
Clarence Town Telephone Exchange	Grey Street	Clarence Town	Is affected by floodwaters in the PMF event (6).

Facility Name	Street	Suburb	Comment
North Coast Railway Line		Dungog LGA	Water may begin to overtop the line at an estimated 13.0m on the Gostwyck gauge (210402) (10.3m on the Paterson Gauge(210406)), resulting in the possible closure of the line (1).
Paterson Telephone Exchange	6 Duke Street	Paterson	Is affected by flooding between the 1% AEP event and the PMF event (8).
Animal Facilities			
Williams River Veterinary Clinic	Grey St	Clarence Town	Is affected by over floor flooding in the PMF event (6)
Camping Ground / Caravan Parks			
Ferndale Caravan Park (1)	1940 Chichester Dam Rd	Bandon Grove	
Chichester Dam Picnic Area (1)	1941 Chichester Dam Rd	Bandon Grove	
Dusodie Holiday Farm (1)	1707 Chichester Dam Rd	Bandon Grove	
Williams Creek Caravan Park	Limeburners Creek Road	Clarence Town	Begins to be affected by floodwaters at 5.5m at the Mill Dam Falls gauge (201010) (18)

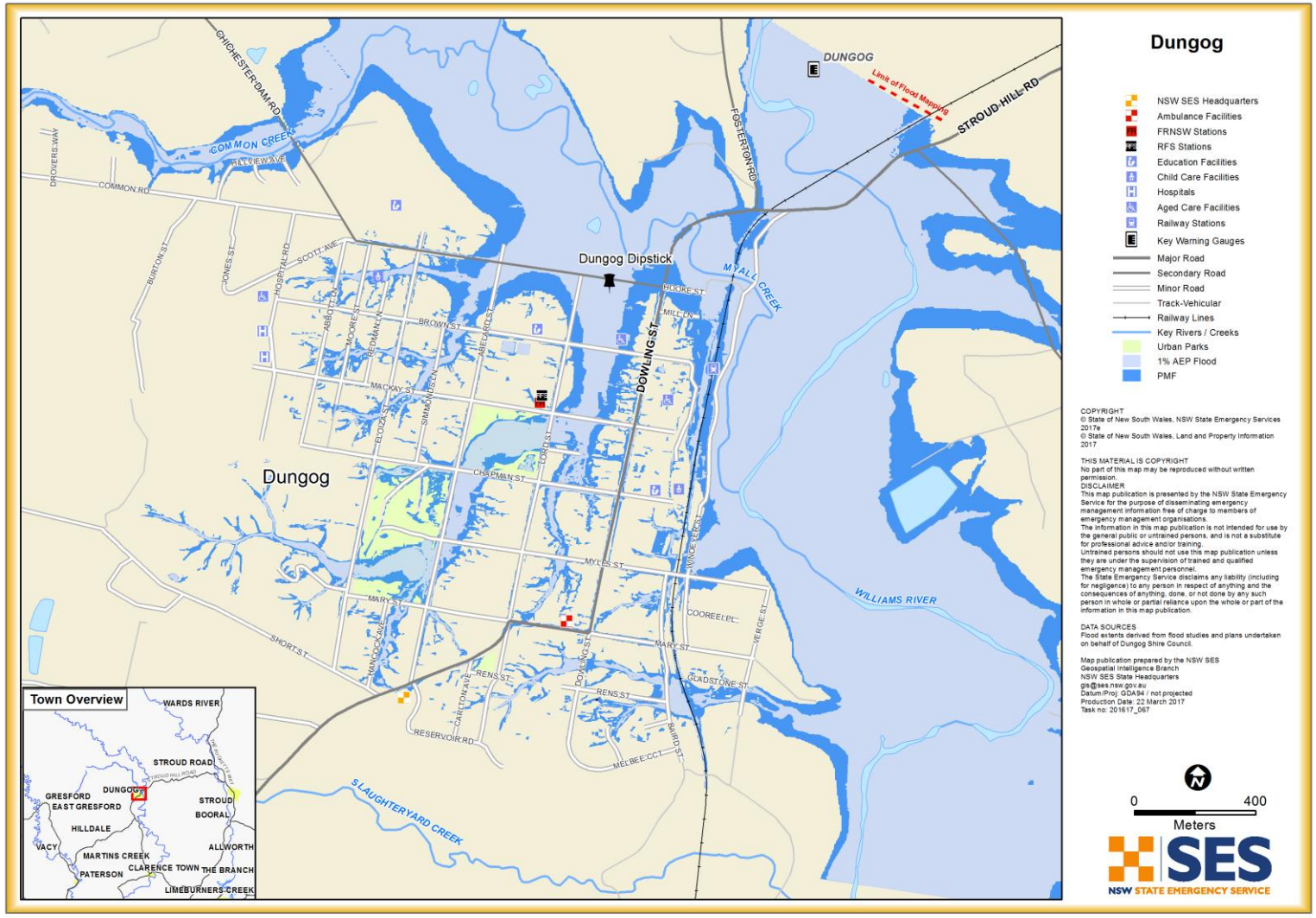
MAP 1 - HUNTER RIVER BASIN



MAP 2 - DUNGOG LGA



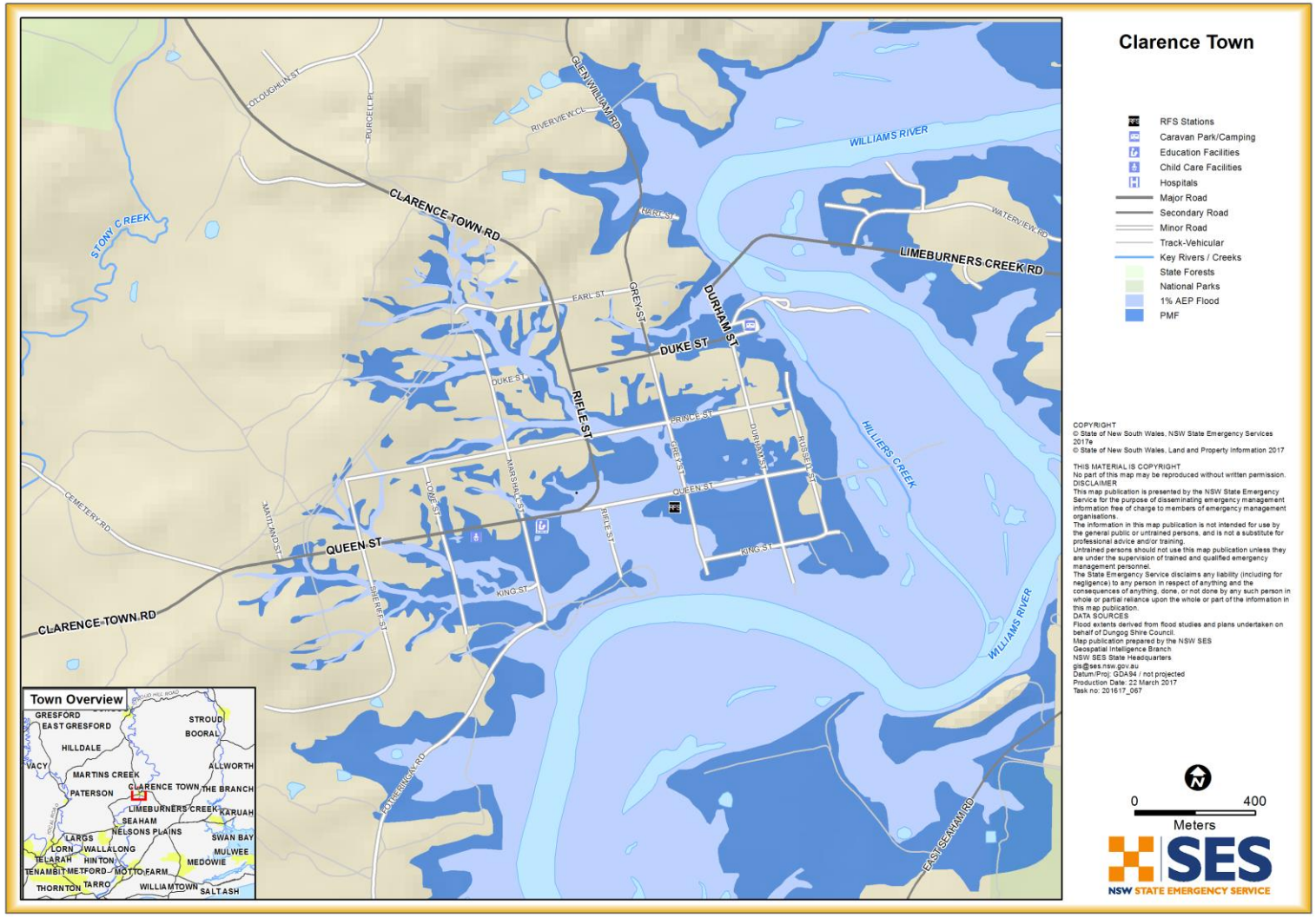
MAP 3 - DUNGOG TOWN MAP



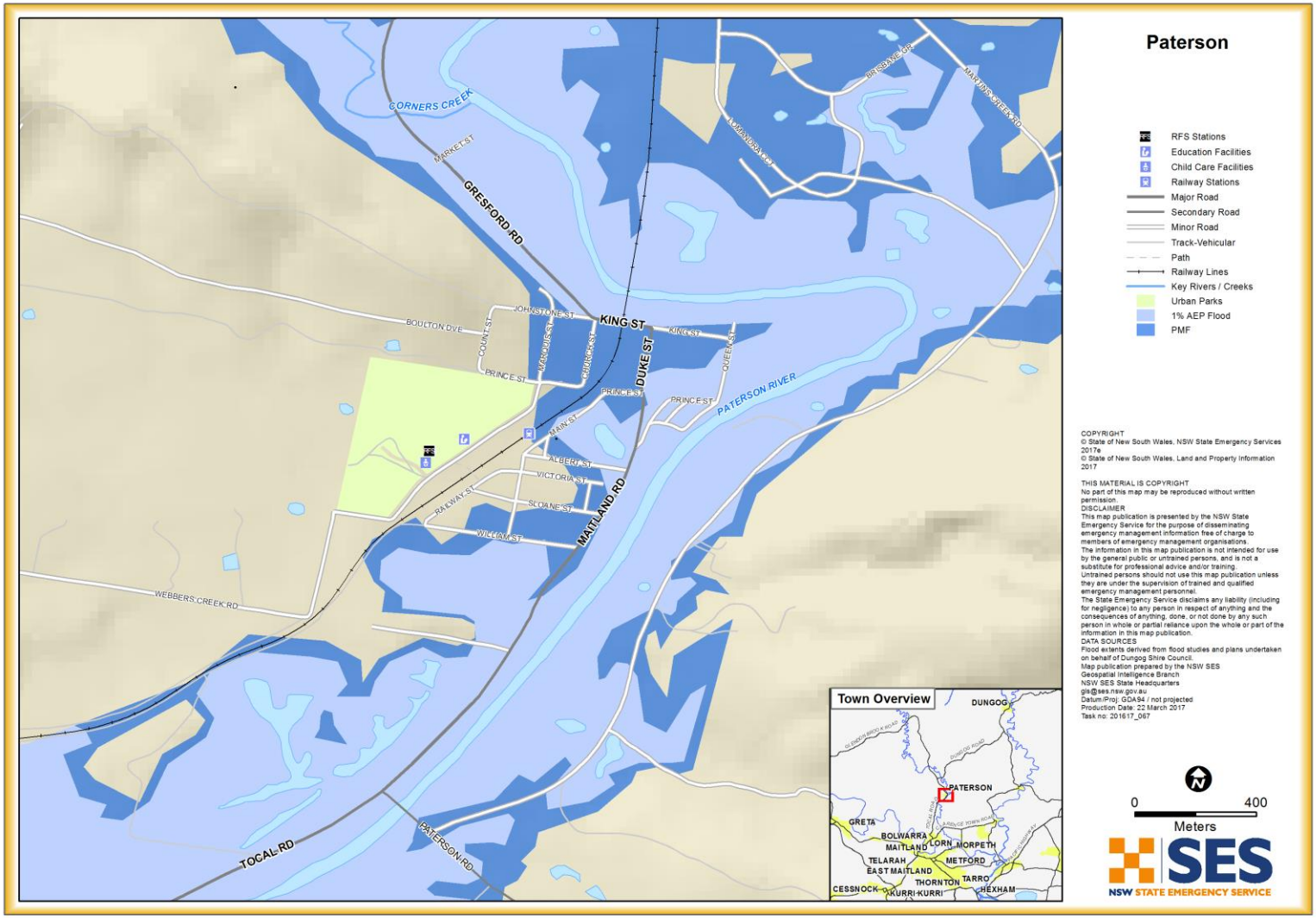
DATA SOURCES
Flood extents derived from flood studies and plans undertaken on behalf of Dungog Shire Council.

Map publication prepared by the NSW SES
Geospatial Intelligence Branch
NSW SES State Headquarters
gis@ses.nsw.gov.au
Datum/Proj: GDA94 / not projected
Production Date: 22 March 2017
Task no: 201617_067

MAP 4 - CLARENCE TOWN MAP



MAP 5 - PATERSON TOWN MAP



DATA SOURCES
Flood extents derived from flood studies and plans undertaken on behalf of Dungog Shire Council.
Map publication prepared by the NSW SES
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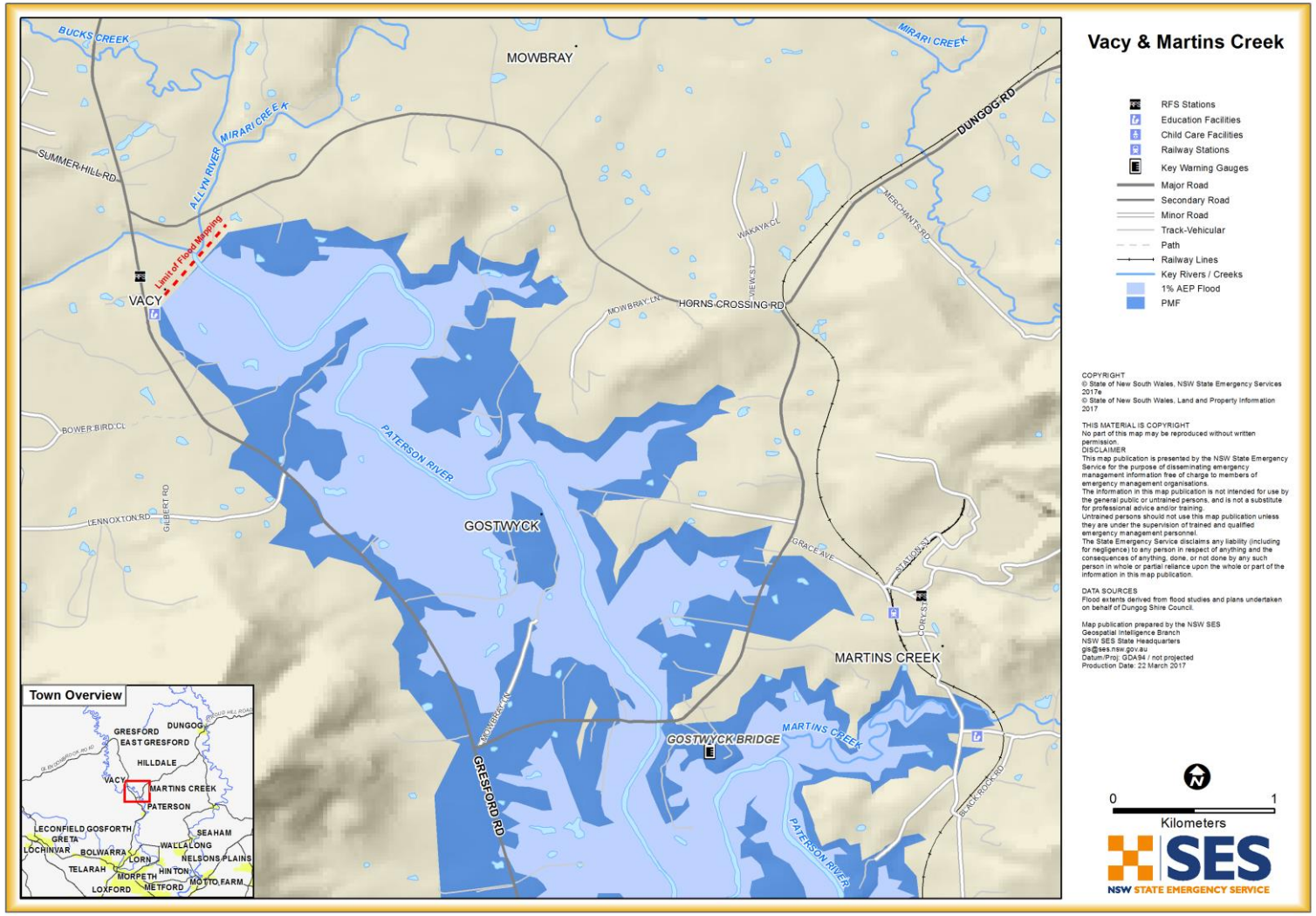
NSW SES State Headquarters
gis@ses.nsw.gov.au
Datum/Proj: GDA94 / not projected
Production Date: 22 March 2017
Task no: 201617_067

MAP 6 - VACY AND MARTINS CREEK TOWN MAP



DATA SOURCES
Flood extents derived from flood studies and plans undertaken on behalf of Dungog Shire Council.

Map publication prepared by the NSW SES
Geospatial Intelligence Branch
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gis@ses.nsw.gov.au
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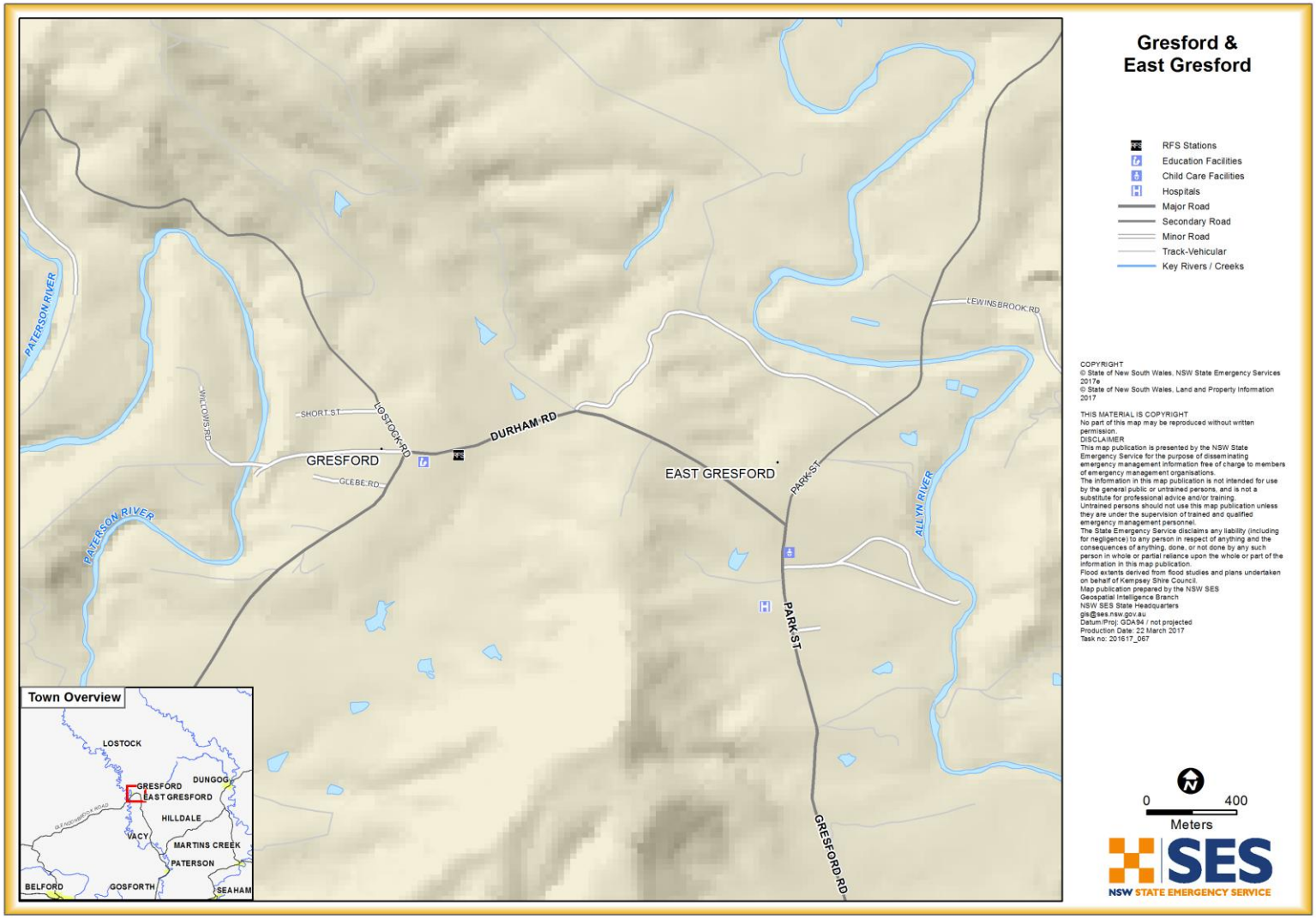
Production Date: 22 March 2017

MAP 7 - GRESFORD AND EAST GRESFORD TOWN MAP



Flood extents derived from flood studies and plans undertaken on behalf of Kempsey Shire Council.
Map publication prepared by the NSW SES
Geospatial Intelligence Branch
NSW SES State Headquarters
gis@ses.nsw.gov.au
Datum/Proj: GDA94 / not projected
Production Date: 22 March 2017
Task no: 201617_067

LIST OF REFERENCES

1. **NSW State Emergency Service.** *Dungog Shire Local Flood Plan.* May 2011.

2. **BMT WBM Pty Ltd.** *Post Event Flood Behaviour Analysis and Review of Flood Intelligence Dungog Township Myall Creek Catchment and Tributaries.* Dungog : Office of Environment and Heritage, 2015. R.N20485.001.00_Draft.docx.

3. **BMT WBM.** *Williams River Flood Study.* 2008.

4. **Hunter Water Corporation.** *Chichester Dam Safety Emergency Plan.* 2012.

5. **Water NSW.** *Lostock Dam Safety Emergency Plan.* 2015.

6. **BMT WBM.** *Clarence Town Floodplain Risk Management Study and Plan.* Clarence Town : Dungog Shire Council, 2014. R.N20044.001.00.docx.

7. **Perry, Gregory L.** *Flow Times and Distances - All Rivers - March 2005.pdf.* Hunter : SES State Emergency Services, 2010.

8. **Bewsher Consulting Pty Ltd.** *Paterson River Floodplain Management Study and Plan.* PORT STEPHENS COUNCIL AND DUNGOG COUNCIL : PORT STEPHENS COUNCIL AND DUNGOG COUNCIL, 2001. J810-4.R#.

9. **(longtime SES Member of Dungog), Clay.** Local SES Knowlegde with past Flood Events. Dungog : Adam Rollinson, June 22, 2016.

10. **Stephen Yeo, Director of Flood Focus Consulting Pty Ltd.** *Lessons from the April 2015 Dungog flood.* Dungog : Disaster Resilient Australia: Get Ready, 2015.

11. **Fire Rescue NSW.** *Damage Assessment Reporting System spreadsheet.* Dungog LGA : Fire Rescue NSW, 2015.

12. **Royal Haskoning DHV.** *Draft Dungog Flood Study.* s.l. : Royal Haskoning DHV, 2017.

13. **Australian Bureau of Statistics.** Australian Bureau of Statics. *http://www.abs.gov.au/.* [Online] Australian Bureau of Statics, June 21st, 2016. http://www.abs.gov.au/.

14. **Wehner, M. and Maqsood, T.** *Dungog Flood, 20-21 April, 2015 Post-flood Damage Survey.* Dungog : Australian Government Geoscience Australia, 2015 . RECORD 2015/21.

15. **NSW State Emergency Services.** *Flood Intelligence Card (showing Referencing) DUNGOG 210903 (210 Hunter River).* Dungog : SES State Emergency Services NSW, 2008.

16. **NSW State Emergency Service.** *Flood Intelligence Card - Gostwyck Bridge.*

17. **Water NSW.** *Lostock Dam Safety Emergency Plan.* s.l. : Water NSW, 2015.

18. **NSW State Emergency Service.** *Flood Intelligence Card - Mill Dam Falls Gauge.* 2008.

NSW STATE EMERGENCY SERVICE

SES RESPONSE ARRANGEMENTS FOR DUNGOG

Volume 3 of the Dungog Local Flood Plan

FloodSafe

CONTENTS

VERSION LIST

The following table lists all previously approved versions of this Volume.

Description	Date
Dungog Local Flood Plan – Annexes C-F	May 2011

AMENDMENT LIST

Suggestions for amendments to this Volume should be forwarded to:

The Dungog Local Controller

NSW State Emergency Service

Clarence Town Road

DUNGOG, NSW 2420

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

Amendment Number	Description	Updated by	Date

DUNGOG: FLOOD WARNING SYSTEMS AND ARRANGEMENTS

Chapter 1 of Volume 3 (NSW SES Response Arrangements for Dungog) of the Dungog Local Flood Plan

Last Update: **May 2017**

AUTHORISATION

Dungog: Flood Warning Systems and Arrangements has been prepared by the NSW State Emergency Service (NSW SES) as part of a comprehensive planning process.

Approved

Manager Emergency Risk Management

Date: 26 May 2017

Approved

NSW SES Hunter Region Controller

Date: 26/05/2017

Tabled at LEMC

Date: 01/05/2017

Document Issue: 3.1-07042014

CONTENTS

LIST OF TABLES

1. GAUGES MONITORED BY THE NSW SES DUNGOG LOCAL UNIT

Table 1: Gauges monitored by the NSW SES Dungog Local Unit

Gauge Name	Type	AWRC No.	Bureau Gauge No.	Stream	Flood level classification in metres			Special Reading Arrangements	Owner
					MIN	MOD	MAJ		
Tilligra	Automatic	210011	561033	Williams River	-	-	-		Water NSW
Dungog*‡	Automatic	210903	61267	Williams River	4.9	7.6	8.5		Water NSW
Mill Dam Falls*‡	Automatic	210010	61339	Williams River	6.1	7.6	9.1		Water NSW
Seaham	Automatic	210462	561087	Williams River	-	-	-	In Port Stephens LGA	Manly Hydraulics Laboratory
Halton	Automatic	210022	561019	Allyn River	-	-	-		Water NSW
Lostock Dam Water Level	Automatic	210102	561013	Paterson River	-	-	-		Water NSW
Lostock Dam D/S	Automatic	210021	561011	Paterson River	-	-	-		Water NSW
Vacy	Automatic	210079	561020	Paterson River	-	-	-		Water NSW
Gostwyck Bridge*‡	Automatic	210402	61349	Paterson River	9.1	10.7	12.2		Manly Hydraulics Laboratory
Paterson†‡	Automatic	210406	561032	Paterson River	6.10	7.60	9.10		Manly Hydraulics Laboratory
Dunmore	Automatic	210409	561075	Paterson River					Manly Hydraulics Laboratory
Hinton Bridge†‡	Automatic	210410	561023	Paterson River	-	-	-	In Port Stephens LGA	Manly Hydraulics Laboratory

Notes: The Bureau of Meteorology provides flood warnings for the gauges marked with an asterisk (*).

NSW SES Local Flood Advices are provided for the gauges marked with a single cross (†).

The NSW SES holds a Flood Intelligence Card for the gauges marked with a double cross (‡)

2. DISSEMINATION OPTIONS FOR NSW SES FLOOD INFORMATION AND WARNING PRODUCTS

The NSW SES Hunter Region Headquarters distributes NSW SES Flood Bulletins, NSW SES Evacuation Warnings and NSW SES Evacuation Orders to the following regional media outlets and agencies:

Television Stations:

Station	Location
NBN Hunter	Newcastle
Prime7 News – Newcastle and Central Coast	Newcastle
Southern Cross Ten	Lake Macquarie

Radio Stations:

Station	Location	Frequency	Modulation
2HD	Newcastle	1143	AM
2HD	Port Stephens	97.5	FM
KO FM	Lake Macquarie	102.9	FM
NEWFM	Newcastle	105.3	FM
Hit FM	Newcastle	106.9	FM
2NM	Muswellbrook	981	AM
2NUR	Newcastle	103.7	FM
Power FM	Muswellbrook	98.1	FM
ABC Newcastle	Newcastle	1223	AM
Great Lakes Radio	Tuncurry	101.5	FM
Radio 2 MG	Mudgee	1449	AM
Real FM	Mudgee	93.1	FM

Newspapers:

Name	Location
Maitland Mercury	Maitland
Newcastle Herald	Newcastle
Dungog Chronicle	Dungog

Other Agencies:

Agency	Representative	Notification Type
NSW Police Force	Local Emergency Operations Controller	Email
Dungog Shire Council	Local Emergency Management Officer	Email
Dungog Community Centre	Manager	Email
Dungog Information Centre	Manager	Email
Local Emergency Management Committee	Agency Representatives	Email – Disseminated by LEOCON or LEMO

DUNGOG: NSW SES LOCALITY RESPONSE ARRANGEMENTS

Chapter 2 of Volume 3 (NSW SES Response Arrangements for Dungog) of the Dungog Local Flood Plan

Last Update: May 2017

AUTHORISATION

NSW SES Locality Response Arrangements in Dungog has been prepared by the NSW State Emergency Service (NSW SES) as part of a comprehensive planning process.

Approved

NSW SES Manager Emergency Risk Management

Date: 26 May 2017

Approved

NSW SES Hunter Region Controller

Date: 26/05/2017

01/05/2017

Tabled at LEMC

Date:

Document Issue: V3.2-07042014

CONTENTS

LIST OF TABLES

SECTOR OVERVIEW

Table 1: Overview of Sectors in the Dungog LGA.

Sector Name	Community	Sector Basis	Total properties	Estimated Properties potentially at risk
Dungog	Dungog	Overland Access	1384	200 (PMF)
Clarence Town	Clarence Town	Rising Road Access	672	135 (PMF)
Paterson	Paterson	Overland Access	311	95 (PMF)
Vacy/Martins Creek	Vacy and Martins Creek	Rising Road Access	362	No information available at this time

1. DUNGOG SECTOR

DUNGOG RESPONSE ARRANGEMENTS

- These response arrangements should be read in conjunction with the NSW SES Hunter Region Flood Action Cards for the Williams River – Dungog Gauge (210903).
- For more information about this sector refer to the Dungog Local Flood Plan, Volume 2: Hazard and Risk.

Sector Description **Sub Sectors –** **1. Dungog – West** **2. Dungog – East**	This sector includes the township of Dungog bound by the Williams River on the east, Myall and Common Creeks to the north and Slaughterhouse Creek to the south. The sector is classified as Overland Access. The sector has two sub-sectors for operational management: 1. Dungog – West 2. Dungog - East The division between the two sub-sectors is the normally dry watercourse that progresses from the Dungog Showground across Abelard and Chapman Streets, through the sports fields and behind Dowling Street before entering Myall Creek. The distinction between these two sub-sectors is only required when floods are in a 1% AEP or higher flood characterised by intense local rainfall resulting in overland flows from the south. In circumstances where flooding is the result of rainfall in the Myall Creek or Williams River catchments the backwater influence of Myall Creek is limited to between Myall Creek and Mackay Street. In these instances access can be gained to the whole sector at any time. The Dungog sector and subsectors are shown on Map 1.		
Hazard	Independent or coincidence riverine flooding from the Williams River and flash flooding from Myall and Commons Creek, lead to the progressive inundation of properties on Hooke, Brown, Lord, Mackay, Downing, Abelards, Windemeyer, Myles, Baird and Chapman Streets from 6.1m on the Dungog Gauge (210903). If these flood heights coincide with intense local rainfall there is a risk that the township will become divided by the overland flow that reaches from the Dungog Showground, through low-lying areas, to Myall Creek.		
Flood Affect Classification	Rising road access within the sector		
Estimated Properties at Risk of Inundation	200 (PMF)	**Total number of properties within Sector/Community**	1384

<table>
<tr><td>Sector Control</td><td>Control - The NSW SES Incident Controller will control operations and evacuations in this sector.

Command – The NSW SES Incident Controller will command NSW SES assets in this sector. Agency Commanders will retain command of their own assets.

Coordination – Where coordination of functional areas and support agencies is required, the Local Emergency Operations Controller will perform this role through the activation of an Emergency Operations Centre.</td></tr>
<tr><td>Key Warning Gauge Name</td><td>
<table>
<tr><th>Name</th><th>AWRC No.</th><th>Min (m)</th><th>Mod (m)</th><th>Maj (m)</th></tr>
<tr><td>Dungog Gauge</td><td>210903</td><td>4.9</td><td>7.6</td><td>8.5</td></tr>
</table>
</td></tr>
<tr><td>General Strategy</td><td>
• Provision of flood rescue assets to the sector to ensure an appropriate standard of coverage.
• Undertaking of specific actions in response to heights predicted by the Bureau, supported by Flood Intelligence and Action Cards.
• Timely issuing of Flood Bulletins that inform the community of likely impacts.
• Evacuation and registration of at risk population:
  o Self-evacuation to friends/family outside of the impact area. These community members should still register at the identified Assembly Area.
  o Establishment of an Assembly Area/Evacuation Centre in consultation with the Welfare Services Functional Area Coordinator.
• Establishment of a helicopter landing zone at one of the following locations:
  o Dungog Hospital –
  S 32º 24.070” E 151º 44.747”
  o Dungog RFS Shed* –
  S 32º 24.167” E 151º 45.272”
  o Bennett Park, Abelard Street* –
  S 32º 24.251” E 151º 45.179”
  o Dungog Showground, Cnr Abelard and Chapman Streets* –
  S 32º 24.440” E 151º 45.022”

* Note that the landing zones at Bennett Park, Dungog Showground and the RFS Shed are impacted by local catchment flooding in the 1% AEP event. They are not impacted by flooding from Myall Creek or Williams River.
</td></tr>
</table>

Key Risks / Consequences	Flooding in Dungog can arise from many sources, and the prevalence of coincidence flash flooding alongside flooding on the Williams River makes the prediction of flood consequences and peak times against the Dungog Gauge difficult. Key risk areas are described below based on the origin of the floodwaters and can occur simultaneously: **Williams River** • From 2.0m at the Dungog Gauge, low lying rural areas become inundated with some local isolations. • At 6.1m at the Dungog Gauge, backwater in Myall Creek breaks its banks and begins to progressively inundate properties, as described below. • At approximately 8.65m at the Dungog Gauge, properties on Windeyer and Myles Streets progressively begin to become inundated by floodwaters. A total of 18 properties are at risk of inundation by floodwaters on these streets. **Myall Creek (no gauge relationship available)** • Flooding progressively impacts properties located on Hooke, Brown, Lord, Mackay, Dowling and Abelard Streets including Alison Court located on Brown Street. This begins at 6.1m at the Dungog Gauge, when the Williams River causes Myall Creek to begin back up. • In a 1% AEP event on Myall Creek, an estimated 37 properties will be impacted by flooding. • In a PMF event on Myall Creek, an estimated 109 properties will be impacted by flooding. **Commons Creek (no gauge relationship available)** • No properties are affected by flooding in a 1% AEP event, however an estimated 9 properties located in Hillview Avenue and Industrial Close will be affected in the PMF event. **Local Catchment (no gauge relationship available)** • In a 1% AEP event an estimated 20 properties located adjacent to the normally dry natural depressions throughout the town will be impacted by flooding. • In a PMF event an estimated 64 properties located adjacent to the normally dry natural depressions throughout the town will be impacted by flooding.

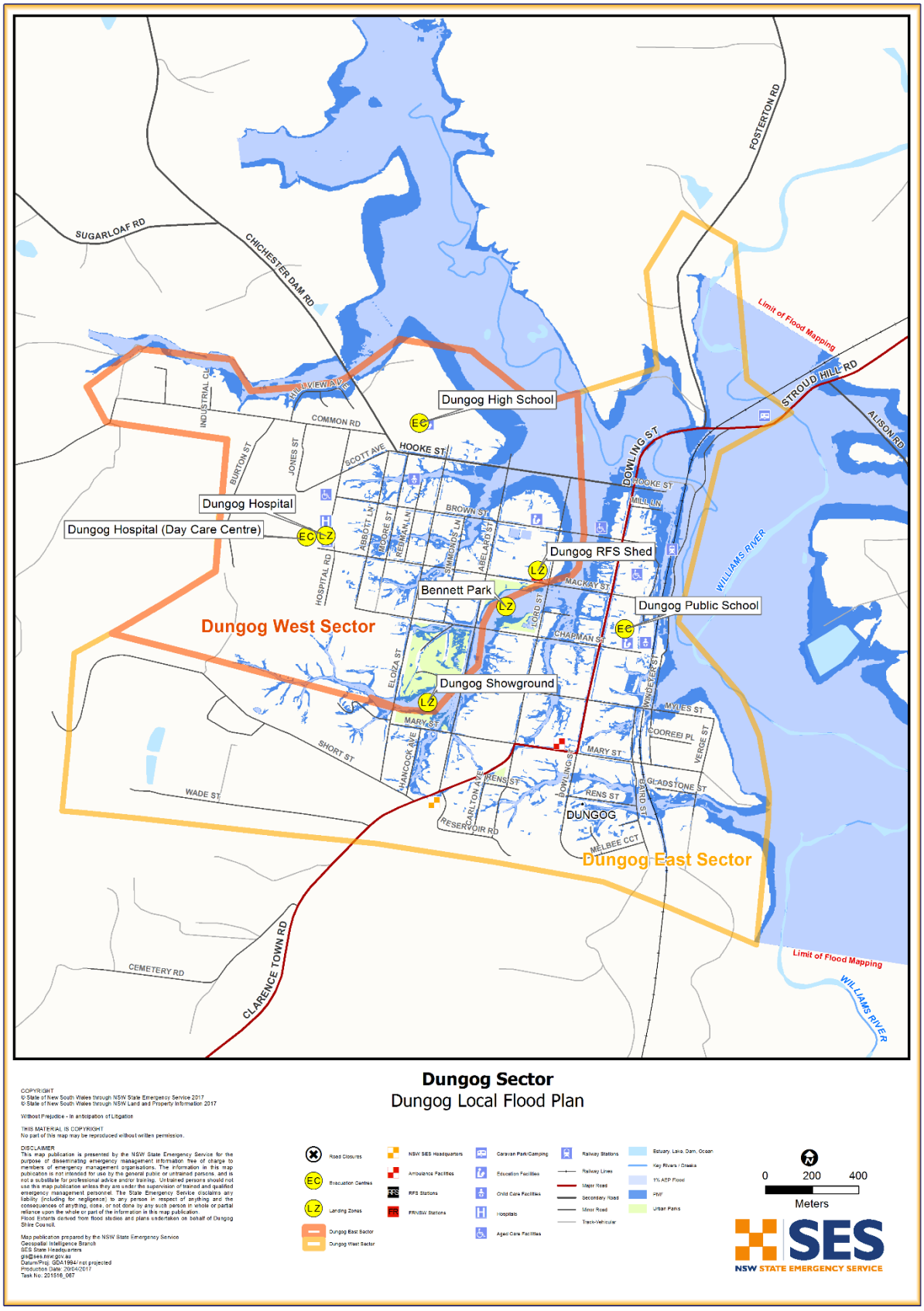
Information and Warnings	The NSW SES will issue the following relevant and contextualised information to the public:
	• NSW SES Bulletins
	  ○ Flood Watch
	  ○ Local Flood Advice
	  ○ Flood Warning
	  ○ Equipment and Livestock Warning
	  ○ Media Releases
	• Evacuation Warning
	• Evacuation Order
	• Evacuation All Clear
	NSW SES Flood Bulletins will associate flood heights predicted by the Bureau with possible local consequences.
	The NSW SES will use the following methods of delivery to provide flood information to the public:
	• Sequenced door knocking
	• Emergency Alert
	• Standard Emergency Warning Signal (SEWS)
	• Media briefing
	• Interagency briefings – LEMC or EOC
	• Social Media
	• Radio
	All NSW SES Bulletins, Evacuation Warning and Orders will be posted to the following social media forums:
	• Facebook: NSW SES – Hunter Region
	• Facebook: NSW SES – Dungog Unit
	Bureau products, such as Flood Watches and Flood Warnings will include NSW SES safety advice.
	For more information refer to the Dungog Local Flood Plan Chapter 1 of Volume 3 – Flood Warning Systems and Arrangements.

Property Protection	**Assistance with property protection** NSW SES will monitor rising flood waters and provide the following assistance for flood-threatened properties where time and resources permit: • Relocation of personal property for at risk locations • Relocation of movable at-risk public assets • Protection of property through sandbagging • Monitoring the integrity of dwellings surrounded by flood waters Specific requests for assistance are received through the 132 500 centralised call-taking system. **Protection of essential infrastructure** Dungog Shire Council (Roads, Water and Sewerage services) and Essential Energy (Electricity) have responsibility for preparing and implementing emergency response arrangements for the protection of essential infrastructure within this sector.
Isolation Triggers	The Dungog Sector is not expected to have long term isolations at any time, although short-term isolations of a few hours may occur as a result of overland flow. This sector may become cut off due to a combination of roads inundated by flood water and roads closed due to associated storm damage. Several rural roads in the area immediately surrounding the Dungog Township become inundated by flood water at various flood heights. Rural properties may become isolated for periods of 1-2 days, depending on the flood behaviour and severity. The above flood behaviours do not trigger an isolation warning.
Evacuation Triggers	Evacuations in this sector will be conducted incrementally as predicted flood heights become known and the expected impact extent is established. Evacuations in this sector may also be conducted in response to previously unidentified flood behaviour that puts members of the public at risk. **If the flood height is expected to reach or exceed 6.00m on the Dungog Gauge, evacuation will be considered for:** • Some residential properties in Hooke Street **If the flood height is expected to reach or exceed 7.40m on the Dungog Gauge, evacuation will be considered for:** • Some residential properties in Dowling Street and Brown Street • Some residential units in Alison Court Retirement Village off Brown Street. **If the flood height is expected to reach or exceed 8.5m on the Dungog Gauge, evacuation will be considered for:** • Some residential properties on Windeyer Street.

Sequencing of evacuation	Evacuation sequencing will be as per the triggers for identified at risk properties. Due to the nature of overland flows and small catchment flash flooding a number of properties outside of the identified evacuation area may need to be evacuated. In most cases this will only involve a small number of properties. The decision to evacuate properties outside of identified evacuation areas will be made in response to on-the-ground intelligence and observations of the flood behaviour.
Evacuation Routes	There is no requirement to predefine evacuation routes for this sector. Evacuees will be instructed to proceed to the identified Evacuation Centre/Assembly Area via higher ground. Local detours will be in place where required. These will be communicated in the Evacuation Order where appropriate.
Evacuation Route Closure	Overland flow may cause the closure of roads accessing the preferred Evacuation Centres/Assembly areas in the Dungog – West subsector from the Dungog – East subsector. In these instances an Evacuation Centre will need to be established in the Dungog – East subsector.
Method of Evacuation	• Evacuations should reflect the principles outlined in the Evacuation Planning Handbook (Attorney-General's Department – Australian Emergency Management Institute) • At risk residents will be advised of Evacuation Warnings and Evacuation Orders via warnings issued and/or doorknocks from emergency services personnel advising them of the arrangements. • Self-evacuation by private transport to family/friends or an Evacuation Centre/Assembly Area is the preferred method of withdrawal. • An Evacuation Centre may be established as required. • Evacuation will be conducted by the NSW SES and can be supported by the NSW RFS, NSW Police Force, NSW Ambulance and/or the Transport Services Functional Area Coordinator where required. • NSW Police will be responsible for security of evacuated areas.
Evacuation Centre/Assembly Point	Evacuation Centres/Assembly Areas will be determined by the Welfare Services Functional Area Coordinator and the NSW SES. Potential locations include: **Dungog – West** • Dungog High School Multi-Purpose Centre, Eloiza Street, Dungog • Dungog Hospital Day Care Centre, Hospital Road, Dungog **Dungog – East** • Dungog Public School, Dowling Street, Dungog In situations where access between Dungog – West and Dungog – East subsectors is not lost, only one Evacuation Centre/Assembly Area will be selected.

Rescue	NSW SES will ensure flood rescue assets are present in this sector. These assets will be managed by the NSW SES Incident Controller. Flood Rescue hotspots within the Dungog Sector include
Resupply	There is no requirement for resupply operations to be undertaken in this sector. In unusually protracted flood operations a resupply strategy may be developed for rural areas surrounding this sector. Table 2, in Volume 2 provides information about isolated communities in the Dungog Shire area and potential periods of isolation. A flowchart illustrating the Resupply process is shown in Volume 1 of the Local Flood Plan, Attachment 1
Aircraft Management	Aircraft will be tasked by the NSW SES at a Region or State Level. **Helicopter Landing Points:** Suitable landing points are located at: ▪ Dungog Hospital ▪ Dungog RFS Shed ▪ Bennett Park, Abelard Street ▪ Dungog Showground Note that the landing zones at Bennett Park, Dungog Showground and the RFS Shed are impacted by local catchment flooding in the 1% AEP event. They are not impacted by flooding from Myall Creek or Williams River. **Airports** Airports that service this sector and can provide helicopter refuelling include: ***Newcastle Airport*** Location: 32°47'42"S 151°50'04"E 1 Williamtown Drive, Williamtown Owners: Newcastle City Council, Port Stephens Council ***Taree Airport*** Location: 31°53'19"S 152°30'50"E 1 Landsdowne Rd, Cundletown Owner: Mid-Coast Council

MAP 1. DUNGOG SECTOR MAP



2. CLARENCE TOWN SECTOR

CLARENCE TOWN RESPONSE ARRANGEMENTS

Refer to Volume 2: Hazard and Risk in Dungog for more information about this Sector.

Sector Description	This sector includes the township of Clarence Town, bound by East Seaham Road to the south and east. It extends along Glen William Road as far as the intersection with Fords Road, Clarence Town Road to the north as far as O'Loughlin St and Clarence Town Road to the west as far as Cemetery Road. This sector is classified as Overland Access. This sector is shown on Map 2.		
Hazard	The sector is predominately affected by riverine flooding on the Williams River. It is also affected by overland flows through town from the west to the Williams River and flash flooding of Town Creek.		
Flood Affect Classification	Rising Road Access within the sector.		
Properties at Risk of Inundation	127 (PMF)	**Total number of properties within Sector/Community**	672
Sector Control	**Control -** The NSW SES Incident Controller will control operations and evacuations in this sector. **Command –** The NSW SES Incident Controller will command NSW SES assets in this sector. Agency Commanders will retain command of their own assets. **Coordination –** Where coordination of functional areas and support agencies is required, the Local Emergency Operations Controller will perform this role through the activation of an Emergency Operations Centre.		

Key Warning Gauge Name

Name	AWRC No.	Min (m)	Mod (m)	Maj (m)
Mill Dam Falls	210010	6.1	7.6	9.1

General Strategy

- Provision of flood rescue assets to the sector to ensure an appropriate standard of coverage.
- Undertaking of specific actions in response to heights predicted by the Bureau, supported by Flood Intelligence and Action Cards.
- Timely issuing of Flood Bulletins that inform the community of likely impacts.
- Evacuation and registration of at risk population:

	○ Self-evacuation to friends/family outside of the impact area. These community members should still register at the identified Assembly Area. ○ Establishment of an Assembly Area/Evacuation Centre in consultation with the Welfare Services Functional Area Coordinator. ○ Evacuation of the Williams River Holiday Park. • Establishment of a helicopter landing zone at: ○ Reg Ford Oval, Durham Street – S 35° 35.120" E 151° 46.580" Note that Reg Ford Oval becomes affected by floodwaters from the Williams River from 14.6m at the Mill Dam Falls Gauge.
Key Risks / Consequences	**Localised Rainfall** • Localised rainfall may cause overland flooding regardless of the predicted or actual height of the Williams River at the Mill Dam Falls Gauge. The local catchment is ungauged. • Depending on the severity of local catchment rainfall, access through the sector may be seriously compromised. **Riverine Flooding** **From 5.50m on the Mill Dam Falls Gauge –** • Floodwater from the Williams River begins to inundate the Williams River Holiday Park. **Between 10.70m (20% AEP) and 14.00m (5% AEP) on the Mill Dam Falls Gauge –** • Two properties in King Street are affected by over-floor flooding. **Between 14.00m (5% AEP) and 14.60m (1% AEP) on the Mill Dam Falls Gauge –** • Properties in the lower end of Grey Street, the southern end of Durham Street and near the intersection of Queen Street and Rifle Street experience over-floor flooding. • Access through the sector may be compromised by a combination of overland flow and riverine backwater cutting most access roads. **Between 15.20m (0.5% AEP) and 20.80m (PMF) on the Mill Dam Falls Gauge –** • 127 properties become inundated in Lowe Street, Rifle Street, Marshall Terrace, Marshall Street, Queen Street, Prince Street, Russell Street, Grey Street, Duke Street and Durham Street. This figure includes the properties listed at lesser heights. • Clarence Town Public School and the Clarence Town Veterinary Clinic are impacted by over floor flooding in the PMF event.

Information and Warnings	NSW SES Flood Bulletins will associate flood heights predicted by the Bureau with possible local consequences. The NSW SES will issue timely, relevant and tailored information to the public in the following formats:
	• NSW SES Bulletins
	  ○ Flood Watch
	  ○ Flood Warning
	  ○ Equipment and Livestock Warning
	  ○ Media Releases
	• Evacuation Warning
	• Evacuation Order
	• Evacuation All Clear
	• Emergency Alert
	• Standard Emergency Warning Signal (SEWS)
	• Sequenced door knocking
	• Media briefing
	• Interagency briefings – LEMC or EOC
	All NSW SES Bulletins, Evacuation Warning and Orders will be posted to the following social media forums:
	• NSW SES – Hunter Region
	• NSW SES – Dungog Unit
	Bureau products, such as Flood Watches and Flood Warnings will include NSW SES safety advice.

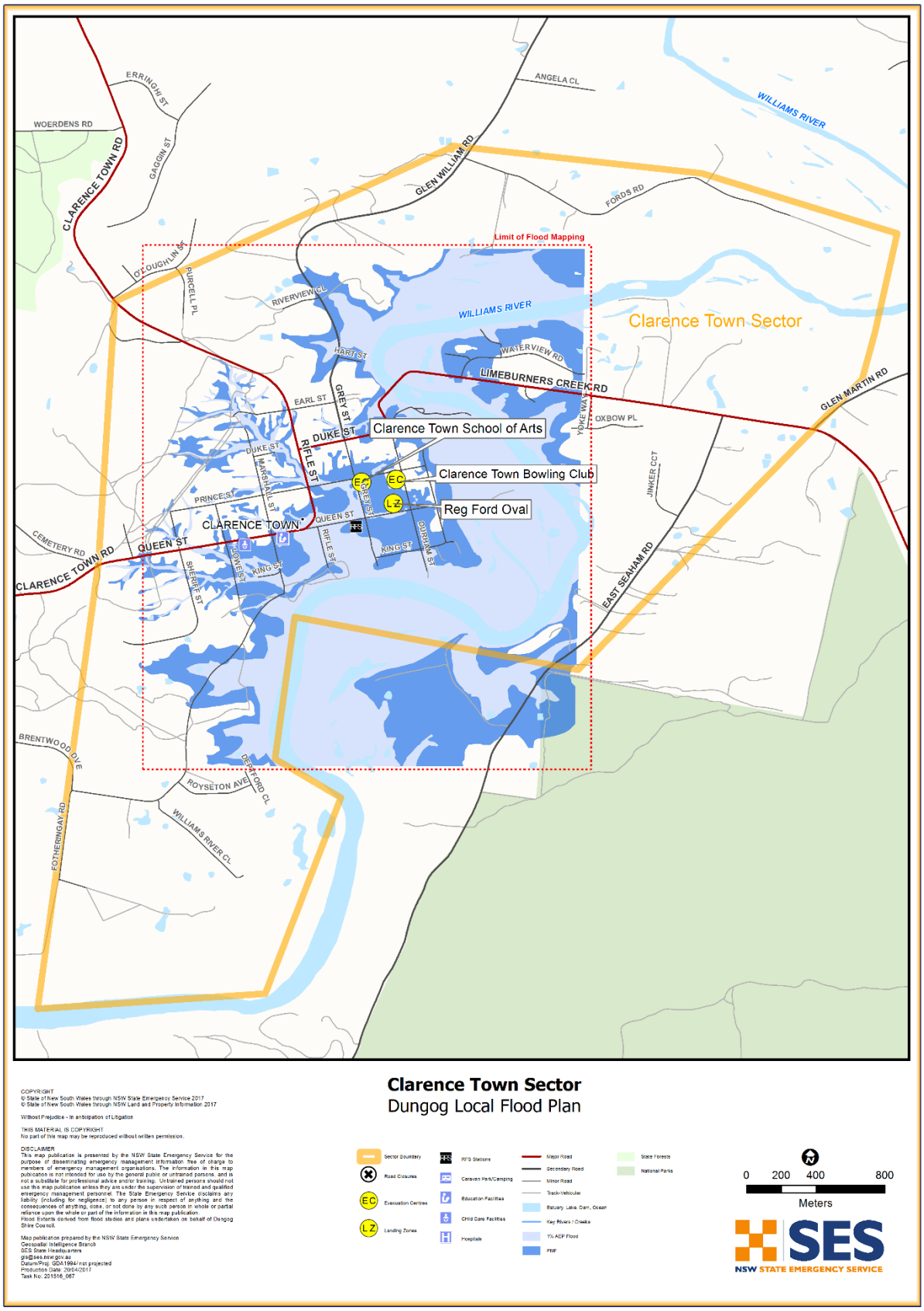
Property Protection	**Assistance with property protection** NSW SES will monitor rising flood waters and provide the following assistance for flood-threatened properties where time and resources permit: • Relocation of personal property for at risk locations • Relocation of movable at-risk public assets • Protection of property through sandbagging • Monitoring the integrity of dwellings surrounded by flood waters Specific requests for assistance are received through the 132 500 centralised call-taking system.

	Protection of essential infrastructure Dungog Shire Council (Roads, Water and Sewerage services) and Essential Energy (Electricity) have responsibility for preparing and implementing emergency response arrangements for the protection of essential infrastructure within this sector.
Isolation Triggers	This sector may become isolated due to a combination of roads inundated by flood water and roads closed due to associated storm damage. Coincidence flooding of the Paterson and Williams Rivers can potentially cause the isolation of this sector. This may happen when the following gauge heights are reached: • Mill Dam Falls (Williams River) – 9.00m • Gostwyck Bridge Gauge (Paterson River) – 11.50m
Evacuation Triggers	Evacuations in this sector will be conducted incrementally as predicted flood heights become known and the expected impact extent is established. Evacuations in this sector may also be conducted in response to previously unidentified flood behaviour that puts members of the public at risk. **If the flood height is expected to exceed 5.50m on the Mill Dam Falls Gauge, evacuation will be considered for:** • The Williams River Holiday Park. **If the flood height is expected to exceed 10.70m on the Mill Dam Falls Gauge, evacuation will be considered for:** • Two properties in King Street. **If the flood height is expected to exceed 14.00m on the Mill Dam Falls Gauge, evacuation will be considered for:** • Properties in the lower end of Grey Street, the southern end of Durham Street and near the intersection of Queen Street and Rifle Street. **If the flood height is expected to exceed 15.20m on the Mill Dam Falls Gauge, evacuation will be considered for:** • 127 properties in Lowe Street, Rifle Street, Marshall Terrace, Marshall Street, Queen Street, Prince Street, Russell Street, Grey Street, Duke Street and Durham Street. This figure includes the properties listed at lesser heights.
Sequencing of evacuation	Evacuation sequencing will be as per the triggers for identified at risk properties. Due to the nature of overland flows and small catchment flash flooding a number of properties outside of the identified evacuation area may need to be evacuated. In most cases this will only involve a small number of properties. The decision to evacuate properties outside of identified evacuation areas will be made in response to on-the-ground intelligence and observations of the flood behaviour.

Evacuation Routes	There is no requirement to predefine evacuation routes for this sector. Evacuees will be instructed to proceed to the identified Evacuation Centre/Assembly Area via higher ground.
Evacuation Route Closure	Overland flows may cause direct routes from affected properties to the identified evacuation centre to close. These will be managed through the timely identification of suitable detours, responsive to the evolving situation.
Method of Evacuation	• Evacuations should reflect the principles outlined in the Evacuation Planning Handbook (Attorney-General's Department – Australian Emergency Management Institute) • At risk residents will be advised of Evacuation Warnings and Evacuation Orders via warnings issued and/or doorknocks from emergency services personnel advising them of the arrangements. • Self-evacuation by private transport to family/friends or an Evacuation Centre/Assembly Area is the preferred method of withdrawal. • An Evacuation Centre may be established as required. • Evacuation supported by the NSW SES, NSW Police Force, NSW Ambulance, NSW Rural Fire Service or the Transport Services Functional Area Coordinator can be utilised where a requirement is identified. • NSW Police will be responsible for security of evacuated areas.
Evacuation Centre/Assembly Point	Evacuation Areas/Assembly Areas will be determined by the Welfare Services Functional Area Coordinator and the NSW SES. The Evacuation Centre/Assembly Area for the Clarence Town Sector is: • Clarence Town School of Arts, 48 Grey Street, Clarence Town. This centre is only suitable to 14.6m at the Mill Dam Falls Gauge. • Clarence Town Bowling Sport and Recreation Club, 130-138 Prince Street, Clarence Town.
Rescue	NSW SES will ensure flood rescue assets are present in this sector. These assets will be managed by the NSW SES Incident Controller.

Resupply	There is no requirement for resupply operations to be undertaken in this sector. In unusually protracted flood operations a resupply strategy may be developed for rural areas surrounding this sector. Table 2, in Volume 2 provides information about isolated communities in the Dungog Shire area and potential periods of isolation. A flowchart illustrating the Resupply process is shown in Volume 1 of the Local Flood Plan, Attachment 1.
Aircraft Management	Aircraft will be tasked by the NSW SES at a Region or State Level. **Helicopter Landing Points:** A suitable landing points is located at: ▪ Reg Ford Oval, Durham Street Note that Reg Ford Oval becomes affected by floodwaters from the Williams River from 14.6m at the Mill Dam Falls Gauge. **Airports** Airports that service this sector and can provide helicopter refuelling include: ***Newcastle Airport*** Location: 32°47'42"S 151°50'04"E 1 Williamtown Drive, Williamtown Owners: Newcastle City Council, Port Stephens Council ***Taree Airport*** Location: 31°53'19"S 152°30'50"E 1 Landsdowne Rd, Cundletown Owner: Mid-Coast Council

MAP 2. CLARENCE TOWN SECTOR MAP



Map publication prepared by the NSW State Emergency Service
Geospatial Intelligence Branch
SES State Headquarters
gis@ses.nsw.gov.au
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3. PATERSON SECTOR

PATERSON RESPONSE ARRANGEMENTS

Refer to Volume 2: Hazard and Risk in Dungog for more information about this Sector.

Sector Description	This sector includes the township of Paterson, bound to the east by Martins Creek Road. It extends along Tocal Road as far as the intersection with Paterson Road, Webbers Creek Road to Cabbage Tree Creek and three kilometres along Gresford Road to the north. This sector is shown on Map 3.		
Hazard	The sector is predominately affected by riverine flooding on the Paterson River.		
Flood Affect Classification	Overland Access		
Estimated at risk properties of inundation	65 (PMF)	**Estimated number of properties within Sector/Community**	300
Sector Control	**Control -** The NSW SES Incident Controller will control operations and evacuations in this sector. **Command –** The NSW SES Incident Controller will command NSW SES assets in this sector. Agency Commanders will retain command of their own assets. **Coordination –** Where coordination of functional areas and support agencies is required, the Local Emergency Operations Controller will perform this role through the activation of an Emergency Operations Centre.		

Key Warning Gauge Name

Name	AWRC No.	Min (m)	Mod (m)	Maj (m)
Gostwyck Bridge	210402	9.1	10.7	12.2

General Strategy

- Provision of flood rescue assets to the sector to ensure an appropriate standard of coverage.
- Undertaking of specific actions in response to heights predicted by the Bureau, supported by Flood Intelligence and Action Cards.
- Timely issuing of Flood Bulletins that inform the community of likely impacts.
- Evacuation and registration of at risk population:
  - Self-evacuation to friends/family outside of the impact area. These community members should still register at the identified Assembly Area.

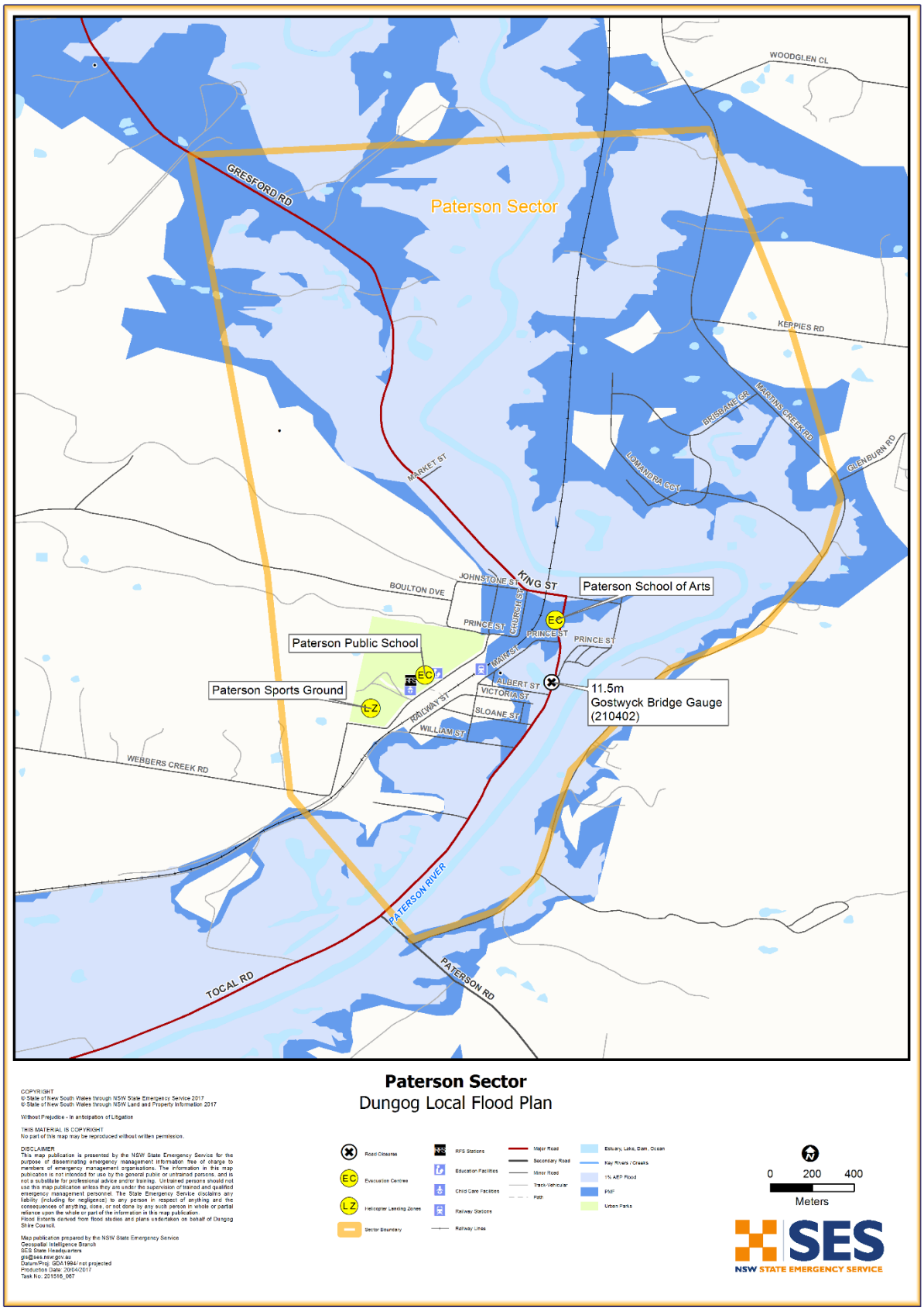
	○ Establishment of an Assembly Area/Evacuation Centre in consultation with the Welfare Services Functional Area Coordinator. • Establishment of a helicopter landing zone at: ○ Paterson Sportsground, Webber Creek Road – S 32° 36.216" E 151° 36.616"
Key Risks / Consequences	**Riverine Flooding** **From 10.70m on the Gostwyck Bridge Gauge (Approximately 7.90m on the Paterson Gauge)–** • Tocal Road may close at John Tucker Park in Paterson. Alternate routes are available. **From 9.00 M on the Paterson Gauge –** • Tocal Road may 100m north of Clements Bridge. **From 11.70m on the Gostwyck Bridge Gauge –** • Paterson Road between Paterson and Woodville may close. This will result in the isolation of Paterson. *The order in which Tocal Road at Clements Bridge and Paterson Road between Paterson and Woodville is subject to flood behaviour. This affects the duration of the isolation of Paterson township.* **In a 1% AEP event–** • An estimated 30 properties on King and Maitland Streets, adjacent to the Paterson River, as well as properties on Duke, William and Albert Streets. Of these, only two properties are affected by over floor flooding of habitable buildings. **In a PMF event –** • An estimated 65 properties in the township of Paterson may be affected by floodwater. Only properties located on the high ground surrounding Count Street and Boulton Drive, and properties near the North Coast Railway on Victoria and Railway Street remain unaffected.
Information and Warnings	NSW SES Flood Bulletins will associate flood heights predicted by the Bureau with possible local consequences. The NSW SES will issue timely, relevant and tailored information to the public in the following formats: • NSW SES Bulletins ○ Flood Watch ○ Flood Warning ○ Equipment and Livestock Warning ○ Media Releases • Evacuation Warning • Evacuation Order • Evacuation All Clear • Emergency Alert

	• Standard Emergency Warning Signal (SEWS) • Sequenced door knocking • Media briefing • Interagency briefings – LEMC or EOC All NSW SES Bulletins, Evacuation Warning and Orders will be posted to the following social media forums: • NSW SES – Hunter Region • NSW SES – Dungog Unit Bureau products, such as Flood Watches and Flood Warnings will include NSW SES safety advice.
Property Protection	**Assistance with property protection** NSW SES will monitor rising flood waters and provide the following assistance for flood-threatened properties where time and resources permit: • Relocation of personal property for at risk locations • Relocation of movable at-risk public assets • Protection of property through sandbagging • Monitoring the integrity of dwellings surrounded by flood waters Specific requests for assistance are received through the 132 500 centralised call-taking system. **Protection of essential infrastructure** Dungog Shire Council (Roads, Water and Sewerage services) and Essential Energy (Electricity) have responsibility for preparing and implementing emergency response arrangements for the protection of essential infrastructure within this sector.
Isolation Triggers	The township of Paterson is expected to become isolated when both Tocal and Paterson Roads close. Depending on the flood behaviour, this may occur at heights greater than 9.00m on the Paterson Gauge. The likely period of isolation is 1-2 days however the town is self-sufficient and is unlikely to require resupply.
Evacuation Triggers	Evacuations in this sector will be conducted incrementally as predicted flood heights become known and the expected impact extent is established. Evacuations in this sector may also be conducted in response to previously unidentified flood behaviour that puts members of the public at risk. **If the flood height is expected to reach or exceed 12.00m on the Paterson Gauge, evacuation will be considered for:** • Some properties on King, Maitland, Duke, William and Albert Streets.

	If the flood height is expected to reach or exceed 13.00m on the Paterson Gauge, evacuation will be considered for: • The majority of the township of Paterson, excluding the high ground surrounding Count Street and Boulton Drive, and properties near the North Coast Railway on Victoria and Railway Street.
Sequencing of evacuation	Evacuation sequencing will be as per the triggers for identified at risk properties. Due to the nature of overland flows and small catchment flash flooding a number of properties outside of the identified evacuation area may need to be evacuated. In most cases this will only involve a small number of properties. The decision to evacuate properties outside of identified evacuation areas will be made in response to on-the-ground intelligence and observations of the flood behaviour.
Evacuation Routes	There is no requirement to predefine evacuation routes for this sector. Evacuees will be instructed to proceed to the identified Evacuation Centre/Assembly Area via higher ground.
Evacuation Route Closure	Overland flows may cause direct routes from affected properties to the identified evacuation centre to close. These will be managed through the timely identification of suitable detours, responsive to the evolving situation. When Main Street closes at Allan Fairhall Reserve, the primary vehicular evacuation route for south Paterson is lost however access to the evacuation centre can occur via the pedestrian overpass over the train line (150m to the evacuation centre). This route contains stairs.
Method of Evacuation	• Evacuations should reflect the principles outlined in the Evacuation Planning Handbook (Attorney-General's Department – Australian Emergency Management Institute) • At risk residents will be advised of Evacuation Warnings and Evacuation Orders via warnings issued and/or doorknocks from emergency services personnel advising them of the arrangements. • Self-evacuation by private transport to family/friends or an Evacuation Centre/Assembly Area is the preferred method of withdrawal. • An Evacuation Centre may be established as required. • Evacuation supported by the NSW SES, NSW Police Force, NSW Ambulance or the Transport Services Functional Area Coordinator can be utilised where a requirement is identified. • NSW Police will be responsible for security of evacuated areas.
Evacuation Centre/Assembly Point	Evacuation Areas/Assembly Areas will be determined by the Welfare Services Functional Area Coordinator and the NSW SES. Potential locations include: • Paterson Public School, Webbers Creek Road, Paterson

	• Paterson School of Arts, 8 Duke Street, Paterson. Note that this facility becomes isolated in the 1% AEP event and inundated in the PMF.
Large scale evacuations	Due to the early isolation and considerable inundation in the Paterson Sector, if sufficient warning is provided that flooding may reach or exceed 15m at the Gostwyck Bridge Gauge, the NSW SES may issue an Evacuation Warning that recommends affected residents leave the township before road closures are put in place.
Rescue	NSW SES will ensure flood rescue assets are present in this sector. These assets will be managed by the NSW SES Incident Controller.
Resupply	There is no requirement for resupply operations to be undertaken in this sector. In unusually protracted flood operations a resupply strategy may be developed for rural areas surrounding this sector. Table 2, in Volume 2 provides information about isolated communities in the Dungog Shire area and potential periods of isolation. A flowchart illustrating the Resupply process is shown in Volume 1 of the Local Flood Plan, Attachment 1
Aircraft Management	Aircraft will be tasked by the NSW SES at a Region or State Level. **Helicopter Landing Points:** A suitable landing point is located at: ▪ Paterson Sportsground, Webber Creek Road **Airports** Airports that service this sector and can provide helicopter refuelling include: ***Newcastle Airport*** Location: 32°47'42"S 151°50'04"E 1 Williamtown Drive, Williamtown Owners: Newcastle City Council, Port Stephens Council ***Taree Airport*** Location: 31°53'19"S 152°30'50"E 1 Landsdowne Rd, Cundletown Owner: Mid-Coast Council

MAP 3. PATERSON SECTOR MAP



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Geospatial Intelligence Branch
SES State Headquarters
gis@ses.nsw.gov.au
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4. VACY/MARTINS CREEK SECTOR

VACY/MARTINS CREEK RESPONSE ARRANGEMENTS

Refer to Volume 2: Hazard and Risk in Dungog for more information about this Sector.

Sector Description	This sector includes the rural land serviced by Gresford Road from the intersection of Gresford Road and Dungog Road to the south and the locality boundary of Vacy to the north. It follows the Paterson River upstream of the Allyn River, Paterson confluence to the intersection of Summer Hill Road and Lennoxton Road. The sector is bounded by the Hunter Rail Line to the east. This sector is shown on Map 4.		
Hazard	The sector is predominately affected by riverine flooding on the Paterson and Allyn Rivers.		
Flood Affect Classification	Rising Road Access		
At risk properties	Unknown	**Total number of properties within Sector/Community**	350

Sector Control

Control - The NSW SES Incident Controller will control operations and evacuations in this sector.

Command – The NSW SES Incident Controller will command NSW SES assets in this sector. Agency Commanders will retain command of their own assets.

Coordination – Where coordination of functional areas and support agencies is required, the Local Emergency Operations Controller will perform this role through the activation of an Emergency Operations Centre.

Key Warning Gauge Name

Name	AWRC No.	Min (m)	Mod (m)	Maj (m)
Gostwyck Bridge	210402	9.1	10.7	12.2

General Strategy

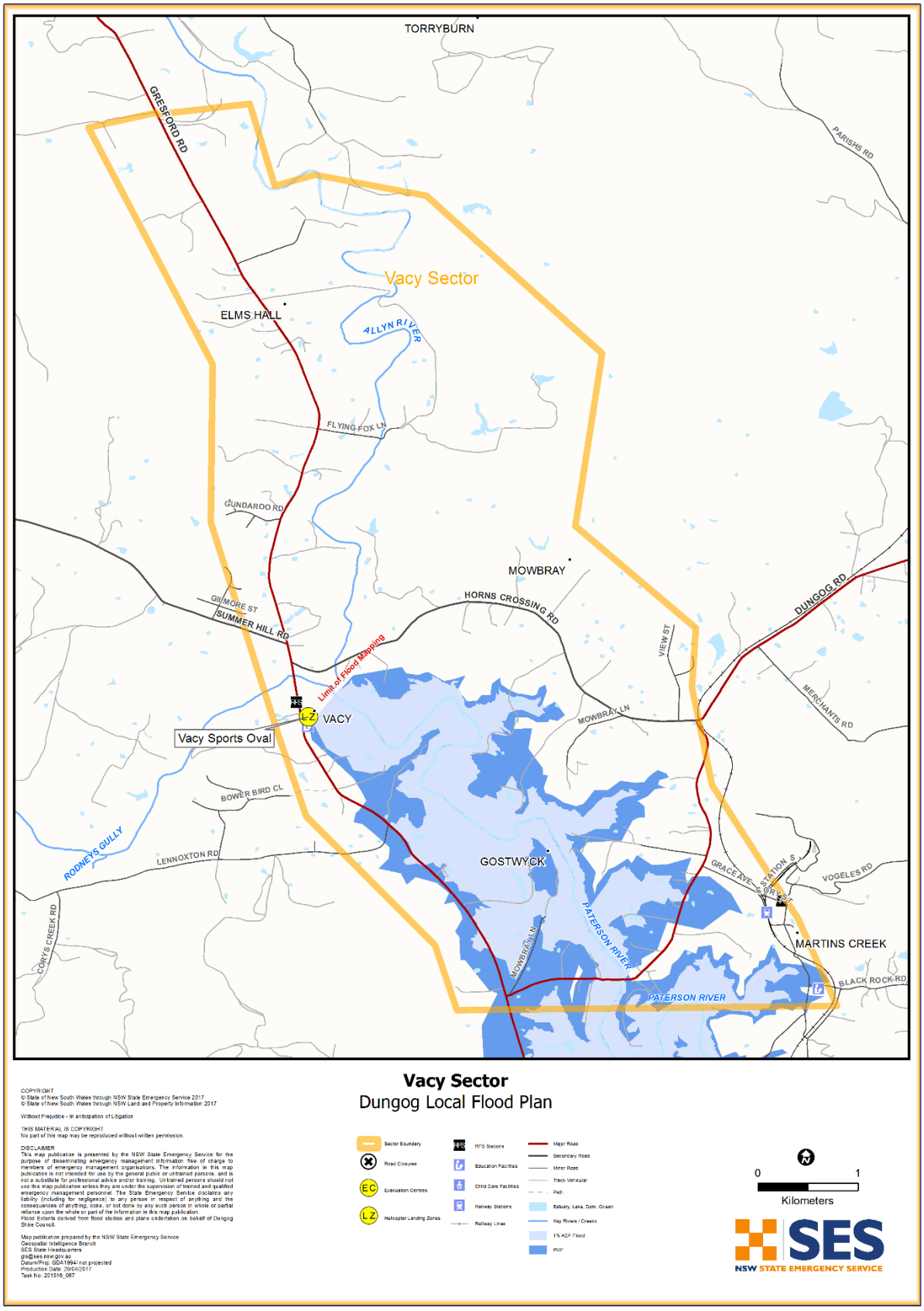
- Provision of flood rescue assets to the sector to ensure an appropriate standard of coverage.
- Undertaking of specific actions in response to heights predicted by the Bureau, supported by Flood Intelligence and Action Cards.
- Timely issuing of Flood Bulletins that inform the community of likely impacts.
- Evacuation and registration of at risk population:
    - Self-evacuation to friends/family outside of the impact area. These community members should still register at the identified Assembly Area.

	○ Establishment of an Assembly Area/Evacuation Centre in consultation with the Welfare Services Functional Area Coordinator. • Establishment of a helicopter landing zone at: ○ Vacy Sports Oval – S 32° 32.470 E 151° 34.637"
Key Risks / Consequences	The impacts described below only include areas south of the Paterson/Allyn River confluence. Flood modelling is yet to be completed for areas to the north. **Inundation** • In the 1% AEP the majority of water is contained to the floodplain, only impacting farming land however some properties located on Gresford Road and Dungog Road, Mowbray Lane may be impacted by floodwaters. The number of properties affected by over floor flooding is unknown. • In the PMF event floodwaters breakout of the floodplain and will impact additional properties located on Gresford Road, Mowbray Lane, Cook Street, Dungog Road and Cory Street. The number of properties affected by over floor flooding is unknown. **Isolation** • Properties in Glenburn and Keppies Roads can become isolated by ungauged creek rises along Martins Creek Road.
Information and Warnings	NSW SES Flood Bulletins will associate flood heights predicted by the Bureau with possible local consequences. The NSW SES will issue timely, relevant and tailored information to the public in the following formats: • NSW SES Bulletins ○ Flood Watch ○ Flood Warning ○ Equipment and Livestock Warning ○ Media Releases • Evacuation Warning • Evacuation Order • Evacuation All Clear • Emergency Alert • Standard Emergency Warning Signal (SEWS) • Sequenced door knocking • Media briefing • Interagency briefings – LEMC or EOC All NSW SES Bulletins, Evacuation Warning and Orders will be posted to the following social media forums:

	• NSW SES – Hunter Region • NSW SES – Dungog Unit Bureau products, such as Flood Watches and Flood Warnings will include NSW SES safety advice.
Property Protection	**Assistance with property protection** NSW SES will monitor rising flood waters and provide the following assistance for flood-threatened properties where time and resources permit: • Relocation of personal property for at risk locations • Relocation of movable at-risk public assets • Protection of property through sandbagging • Monitoring the integrity of dwellings surrounded by flood waters Specific requests for assistance are received through the 132 500 centralised call-taking system. **Protection of essential infrastructure** Dungog Shire Council (Roads, Water and Sewerage services) and Essential Energy (Electricity) have responsibility for preparing and implementing emergency response arrangements for the protection of essential infrastructure within this sector.
Isolation Triggers	This sector is not expected to have long term isolations at any time, although short-term isolations may occur as a result of overland flow. This sector may become isolated due to a combination of roads inundated by flood water and roads closed due to associated storm damage. Several rural roads in the Vacy/Martins Creek Sector become inundated by flood water at various flood heights. Rural properties may become isolated for periods of 1-2 days, depending on the flood behaviour and severity. The above flood behaviours do not trigger an isolation warning.
Evacuation	Due to a lack of intelligence, evacuation strategies will only be implemented in response to real time flood effects. This will be reviewed if flood modelling is undertaken, or flood intelligence becomes available.

Evacuation Centre/Assembly Point	Evacuation Areas/Assembly Areas will be determined by the Welfare Services Functional Area Coordinator and the NSW SES. Potential locations include: • Martins Creek School of Arts, 58 Grace Avenue, Martins Creek • Vacy Public School, Gresford Road, Vacy • Vacy School of Arts, 779 Gresford Road, Vacy
Rescue	NSW SES will ensure flood rescue assets are present in this sector. These assets will be managed by the NSW SES Incident Controller.
Resupply	There is no requirement for resupply operations to be undertaken in this sector. In unusually protracted flood operations a resupply strategy may be developed for rural areas surrounding this sector. Table 2, in Volume 2 provides information about isolated communities in the Dungog Shire area and potential periods of isolation. A flowchart illustrating the Resupply process is shown in Volume 1 of the Local Flood Plan, Attachment 1
Aircraft Management	Aircraft will be tasked by the NSW SES at a Region or State Level. **Helicopter Landing Points:** Suitable landing points are located at: ▪ Vacy Sports Oval, Gresford Road **Airports** Airports that service this sector and can provide helicopter refuelling include: ***Newcastle Airport*** Location: 32°47'42"S 151°50'04"E 1 Williamtown Drive, Williamtown Owners: Newcastle City Council, Port Stephens Council ***Taree Airport*** Location: 31°53'19"S 152°30'50"E 1 Landsdowne Rd, Cundletown Owner: Mid-Coast Council

MAP 4. VACY/MARTINS CREEK SECTOR MAP



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DUNGOG NSW SES
CARAVAN PARK ARRANGEMENTS

Chapter 3 of Volume 3 (NSW SES Response Arrangements for Dungog) of the Dungog Local Flood Plan

Last Update: May 2017

AUTHORISATION

The Dungog NSW SES Caravan Park Arrangements have been prepared by the NSW State Emergency Service (NSW SES) as part of a comprehensive planning process.

Approved

Manager Emergency Risk Management

Date: 26 May 2017

Approved

NSW SES Hunter Region Controller

Date: 26/05/2017

Tabled at LEMC

01/05/2017

Date:

Document Issue: V3.3-21102014

CONTENTS

LIST OF TABLES

1 ARRANGEMENTS FOR THE EVACUATION OF CARAVAN PARKS/CAMPING GROUNDS AND THE RELOCATION OF MOVABLE DWELLINGS

1.1 GENERAL

1.1.1 The following parks are flood liable:

a. Ferndale Camping Park

b. Williams River Holiday Park.

1.1.2 For more information on individual caravan parks see Table 1 at the end of this Chapter.

1.2 ADVISING PROCEDURES

1.2.1 Park proprietors will ensure that the owners and occupiers of movable dwellings are:

a. Made aware that the park is flood liable by:

- Providing a written notice to occupiers taking up residence. The notice will indicate that the caravan park is liable to isolation from flooding.
- Displaying this notice and the emergency arrangements for the Park prominently in the park.

b. Made aware that if they are expecting to be absent for extended periods, they should:

- Provide the manager of the 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).

c. Informed of Flood Warning Information. At this time, occupiers will be advised to:

- Ensure that they have spare batteries for their radios.
- Listen to a local radio station for updated flood information.
- Prepare for Isolation period.
- Prepare for evacuation and movable dwelling relocation if able.

1.2.2 The NSW SES Incident Controller will ensure that the managers of caravan parks are advised of Flood Information.

1.3 EVACUATION OF OCCUPANTS AND RELOCATION OF MOVEABLE DWELLINGS

1.3.1 When an advice is given park occupants should follow the flood evacuation/isolation procedures for the park under the direction of the park management. This should include advice to:

a. Isolate power to moveable dwellings as required.

b. Collect personal papers, medicines, a change of clothing, toiletries and bedclothes.

c. Lift the other contents in any remaining dwellings as high as possible.

d. Move to friends, relatives or a designated evacuation centre if they have their own transport, or move to the caravan office to await transport.

e. If undertaking self-managed evacuation, register their movements with the park management upon leaving the park.

1.3.2 Where possible, movable dwellings that can be moved will be relocated by their owners. Park managers will arrange for the relocation of movable dwellings as required.

1.3.3 Park managers will:

a. Secure any movable dwellings that are not able to be relocated to prevent floatation caused form flash flooding.

b. Ensure that their caravan park is capable of being evacuated in a timely and safe manner.

c. Advise the NSW SES Incident Controller of:

- Details of any medical evacuations required.
- Whether additional assistance is required to effect the evacuation.

d. Check that all residents and visitors are accounted for.

e. Inform the NSW SES Incident Controller when the evacuation of the caravan park has been completed.

f. Provide the NSW SES Incident Controller with a register of people that have been evacuated or remain isolated.

1.4 RETURN OF OCCUPANTS AND MOVEABLE DWELLINGS

1.4.1 The NSW SES Incident Controller, will advise when it is safe for the parks to be re-occupied.

1.4.2 Moveable dwellings will be returned back to the park(s) by owners or by vehicles and drivers arranged by the park managers.

Table 1: Caravan Parks at risk of Isolation from Flooding.

Name	Address/Location description	Town/Sector	Number of sites	Risk	Evacuation route	Evacuation route closure	Moveable dwelling relocation location	Evacuation centre	Notes
Ferndale Camping Park	Chichester Dam Rd Bandon Grove	Dungog	300 peole	Isolation	N/A	7.0m	N/A	In Dungog – Final Location Determined by WELFAC.	High Flood Island causing Isolation
Williams River Holiday Park	8 Durham St	Clarence Town	150 Camping Sites (Flood Threatened) 24 Powered Sites (Not Flood Threatened)	Isolation	N/A	N/A	N/A	Clarence Town School of Arts	Rising Road Access

LIST OF REFERENCES

1. **NSW Government.** *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005 Part 3 Division 3 Subdivision 7 Clause 123.* 2005.