



northern
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council



NORTHERN BEACHES FLOOD EMERGENCY SUB PLAN

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

Volume 1 of the Northern Beaches Local Flood Plan


Endorsed by the Northern Beaches Emergency Management

Committee 26th April 2021

AUTHORISATION

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

Recommended

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NSW SES Northern Beaches Cluster, Commander

Date: 30-4-21

Approved



Ben Fallowfield

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Committee Date: 26/04/2021

AMENDMENT LIST

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

Amendment Number	Description	Updated by	Date
01	Incorporated the Hazard & Risk Overview from Volume 2 to Volume 1 as an interim measure until such a time a template for flash flooding is available	Shelly Stingmore	Sept 19
02	Feedback from NSW SES WPW Unit and Manly Unit	Shelly Stingmore	Oct 19
03	Feedback from North West Metropolitan (Jamie Horsfield and Michael Brown)	Shelly Stingmore	Dec 19
04	Feedback from Metro zone (Stuart Fisher and Peter Cinque)	Shelly Stingmore	Sept 20
05	Feedback from Northern Beaches Council – Ben Fallowfield	Shelly Stingmore	Nov 20
06	Feedback from Northern Beaches Council Duncan Howley	Northern Beaches Council	Jan 21
07	Feedback from LEMC	Shelly Stingmore	Mar 21

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1 OUTLINE AND SCOPE

1.1 Purpose

- 1.1.1 The purpose of this plan is to set out the multi-agency arrangements for the emergency management of flooding in the Northern Beaches Council 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 Northern Beaches Council Local Emergency Management Plan (EMPLAN) and is endorsed by the Northern Beaches 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 EMPLAN is always active 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 Northern Beaches Council LGA. The Northern Beaches 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 Metro Zone and for emergency management purposes is part of the North West Metropolitan Emergency Management Region.
- 1.4.3 The Plan sets out the local emergency management arrangements for prevention, preparation, response and initial recovery for flooding in the Northern Beaches Council LGA. An Overview of the Flood Hazard and Risk information can be found under Section 2 of this document.
- 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 The arrangements for dealing with episodes of coastal erosion by severe weather, are described in the "*NSW State Storm Plan*" and the "*Northern Beaches EMPLAN*".

1.4.6 The arrangements for the emergency management of tsunamis are dealt with in the *"NSW State Tsunami Emergency Sub Plan"*.

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; and
- h. Protection of the environment and conservation values considering the cultural, biodiversity and social values of the environment.

1.6 Roles and Responsibilities

1.6.1 General responsibilities of emergency service organisations and functional areas are set out in the State EMPLAN and the Northern Beaches EMPLAN.

1.6.2 The roles and responsibilities of agencies in flood are described in Appendix A to the State Flood Plan 2018.

1.6.3 Additional roles and responsibilities under this plan for agencies, functional areas and organisations in relation to flooding within Northern Beaches Local Government Area are detailed within this Plan, Appendix B.

1.6.4 Any agency with agreed responsibilities in this Plan that are temporarily, or no longer able to fulfil their responsibilities must as soon as possible notify the:

- a. NSW SES Incident Controller (for local level responsibilities during response operations).
- b. NSW SES Local Commander (for local level responsibilities outside of response operations); and
- c. NSW SES Zone Commander (for regional level responsibilities outside of response operations).

1.7 Plan Maintenance and Review

1.7.1 The NSW SES will maintain the currency of this plan by:

- a. Ensuring that all supporting emergency services and functional areas, organisations and officers mentioned in it are aware of their roles and responsibilities.
- b. Conducting exercises to test arrangements.
- 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 from after action reviews, reports, or inquiries; and
 - As determined by the NSW SES Commissioner.
- d. The plan is to be reviewed no less frequently than every five years.

1.8 Supplementary Documents

1.8.1 Supplementary material published in previous versions of the Local Flood Plan is now maintained on the NSW SES website at: <https://www.ses.nsw.gov.au/about-us/flood-storm-and-tsunami-plans/> including:

- a. [Flood Plan Glossary](#).
- b. Dam Failure Notification Flowchart.
- c. [NSW SES Resupply Flowchart](#).

2 PREVENTION/ MITIGATION

2.1 Introduction

2.1.1 The Floodplain Development Manual outlines the NSW Government's Flood Prone Lands 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.

2.2 Land Use Planning

Strategy

2.2.1 Work with land use planning and consent authorities to advocate that the risks arising from floods are considered to prevent the creation of intolerable impacts of these hazards on the community.

Actions

- a. NSW SES will provide strategic input on land use planning matters that have or will create significant flood risk; and
- b. NSW SES will provide responses on land use planning proposal referrals that have or will create significant flood risk.

2.3 Floodplain Risk Management

Strategy

- 2.3.1 NSW SES advocates for the recognition of emergency management considerations through participation in the floodplain risk 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; and
- b. NSW SES will provide advice, support, and technical resources for NSW SES representatives to contribute effectively on local Floodplain Management Committees.

3 PREPARATION

3.1 Introduction

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

3.2 Flood Emergency Planning

Strategy

- 3.2.1 NSW SES develops, reviews, and maintains flood sub-plans.

Actions

- a. Develop and review this NSW SES Local Flood Plan as required. Local Flood Plans outline the specific arrangements for management of flood events within a Local Government Area (LGA), and may include cross boundary arrangements; and
- b. Review plans as per Section 1.7.

3.3 Flood Intelligence Systems

Strategy

- 3.3.1 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; and
- c. Share flood intelligence information with supporting agencies.

3.4 Development of Warning Systems

Strategy

- 3.4.1 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 State Flood Plan (see Section 1.8).
- c. The NSW SES will recommend new warning services and changes to warning alert levels for gauges to the NSW 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. MHL hosts and maintains an online flood information system for the LGA on behalf of the Northern Beaches Council.
- f. Dam Owners will provide Dam Failure Warning Systems (where required) and consult NSW SES on alert levels and messaging. Alert level definitions are listed in Dam Safety Emergency Plans.
- g. NSW SES will maintain through State Operations Centre a dedicated dam failure hotline and procedures to ensure priority dissemination of dam failure warnings; and
- h. NSW SES will develop and maintain warning and flood information products by:
 - Utilising flood intelligence data.
 - Developing pre-written warning and flood information products.

- Continuously reviewing warning and flood information products; and
- Consulting with affected communities, key stakeholders, the Dam Safety Committee, and the NSW Flood Warning Consultative Committee; and Operational Readiness

Strategy

- 3.4.2 Ensure NSW SES, supporting agencies, functional areas and the community are prepared and familiar with the strategies and arrangements within the Flood Sub-Plan and supporting documents.

Actions

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

3.5 Community Resilience to Flooding

Strategy

- 3.5.1 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.

Strategy

- 3.5.2 NSW SES works with individuals, communities, businesses, and government agencies to build flood resilience.

Actions

- a. Work with communities to understand and manage the risks associated with floods, including providing business continuity guidance (NSW SES Business Floodsafe), family preparedness (NSW SES Home Floodsafe), and other engagement strategies.
- b. NSW SES will collate, assess, and disseminate flood information to the community.
- c. Collaborate with individuals, businesses, government agencies and communities when developing flood intelligence, preparedness, and response information.

- d. Plan for floods collaboratively with communities through community and stakeholder participation and engagement.

4 RESPONSE

4.1 Introduction

4.1.1 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.

4.2 Incident Management Arrangements

Strategy

4.2.1 Maintain effective control of flood operations across New South Wales.

Actions

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

Strategy

4.2.2 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; and
- Coordinate information flow, including warnings, public information, and social media.

Strategy

4.2.3 Provide effective liaison between the 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 Centres and/or Emergency Operation Centres as required; and
- b. NSW SES will provide Liaison Officer(s) to Emergency Operations Centres as required.

Strategy

4.2.4 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-deployment of resources.
- b. The NSW SES may request resources and logistics support directly from a supporting emergency service or Functional Area.
- c. Wherever possible, supporting organisations are to provide their own logistic support in consultation with 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.

4.3 Use of Information and Collection of Intelligence

Strategy

4.3.1 Ensure flood information is effectively communicated and collected during a flood.

Actions

- a. Information relating to the consequences of flooding, response strategies, situational awareness and operational updates will be collected and distributed by NSW SES to supporting emergency services and Functional Areas listed under this Plan.
- b. All supporting emergency services, functional areas and supporting agencies will accurately record and report information relevant to their activities and any other flood information (including road closure information) to the NSW SES Incident Controller. This may be in the form of a combined EOC report, or direct from agencies where an EOC has not been established.
- c. The NSW SES will monitor flood intelligence.
- d. The NSW SES may establish and operate a Joint Intelligence Unit to coordinate the collection, collation, interpretation, mapping, actioning, and dissemination of information; and
- e. 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.

Strategy

4.3.2 Ensure flood intelligence is incorporated into operational decision-making.

Actions

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

4.4 Provision of Information and Warnings to the Community

Strategy

4.4.1 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 with reference to heavy rainfall
 - Regional Severe Thunderstorm Warnings with reference to heavy rainfall
 - Detailed Severe Thunderstorm Warnings (for Sydney / Newcastle / Wollongong) with reference to heavy rainfall,
 - Severe Weather Warnings with reference to heavy rainfall and/or storm surge,
 - Flood Watches, and

- Flood Warnings.
- b. Northern Beaches Council uses the established Northern Beaches flood Information System (provided by MHL) to provide information to NSW SES, key stakeholders, and the community. MHL hosts and maintains a public online flood information system for the LGA on behalf of the Northern Beaches Council. This system provides alerts on heights and rainfall to NSW SES and key stakeholders.
 - c. Dam Owners will utilise Dam Failure Warning Systems to provide warnings and information to NSW SES and communities (where appropriate).
 - d. NSW SES Incident Controllers will issue the following NSW SES flood information products incorporating warnings from the above, expected consequences and safety messages:
 - Livestock and Equipment Warnings
 - Local Flood Advices
 - Flood Bulletins
 - NSW SES Evacuation Warning
 - NSW SES Evacuation Order
 - NSW SES All Clear
 - e. NSW SES will contact the Bureau of Meteorology to discuss the development of flood warnings as required.
 - f. NSW SES will provide alerts and deliver flood information to affected communities using a combination of some of the following methods:
 - Mobile and fixed public address systems.
 - Two-way radio.
 - Emergency Alert (SMS and voice message alerting system).
 - Telephony (including Auto dial systems).
 - Facsimile
 - Standard Emergency Warning Signal.
 - Doorknocking.
 - Mobile and fixed sirens.
 - Variable message signs.
 - Community notices in identified hubs.
 - Distribution through established community liaison networks, partnerships, and relationships; and
 - NSW SES social media and website
<https://www.emergency.nsw.gov.au/Pages/for-the-community/alert-NSW/SEWS.aspx>
 - 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:
- Transport for NSW 'Live Traffic' website: www.livetraffic.com or 'Transport Info Line': 131 500. Additionally, Transport NSW fixed Variable Message Boards on the road network may also be used.
 - Northern Beaches Council variable message boards may be used.
 - The Public Information and Inquiry Centre will be established by the NSW Police Force where required to provide information regarding evacuees and emergency information.
 - The Disaster Welfare Assistance Line will be established by Disaster Welfare Services where required to provide information on welfare services and assistance.

4.5 Protection of Property

Strategy

- 4.5.1 Coordinate the protection of property from destruction or damage arising from floods.

Actions

- 4.5.2 NSW SES, supporting agencies, and community volunteers will assist the community (where resources are available and where feasible) in:
- a. The protection of properties through flood protection systems (e.g. sandbagging) to minimise entry of water into buildings; and
 - b. The lifting or moving of household furniture and commercial stock/equipment.

4.6 Road and Traffic Control

Strategy

- 4.6.1 Coordinate the closing and re-opening of flood affected roads.

Actions

- a. Northern Beaches Council will coordinate the closure and reopening of council managed roads.
- b. The Transport Management Centre (TMC) in coordination with Police will coordinate the closure and reopening of the state road network.
- c. The NSW Police Force may close and re-open roads but will normally only do so (if the Northern Beaches Council or the TMC have not already acted) and if public safety requires such action.
- d. NSW SES will assist with erecting road closure signs and barriers when required.

Strategy

4.6.2 Coordinate traffic control measures in flood affected areas.

Actions

- 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 personnel to assist with traffic coordination.

4.7 Protection of Essential Services

Strategy

- 4.7.1 Minimise disruption to the community by ensuring protection of infrastructure and supply of essential energy and utility services.

Actions

- a. Transport Services Functional Area will keep the NSW SES informed of the status of transport infrastructure.
- b. The Energy and Utility Services Functional Area is to facilitate the coordination of the assessment and restoration of essential energy and utility services (not including telecommunications).
- c. The Telecommunications Services Functional Area is to coordinate the assessment and restoration of telecommunications and the Government Radio Network.
- d. The Engineering Services Functional Area is to coordinate the assessment and restoration of critical public buildings for example hospitals; and
- e. Functional Areas will keep the NSW SES informed of the status of utilities and infrastructure.

4.8 Evacuation

Strategy

- 4.8.1 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; and

- Evacuation of people where essential energy and/or utility services are likely to fail or where buildings have been or may be made uninhabitable; and
- b. The NSW SES will consider the following in evacuation decisions:
 - Duration of evacuation.
 - Characteristics of the community.
 - Numbers requiring evacuation.
 - Availability of evacuation routes and transport.
 - Time available for evacuation.
 - Evacuee management requirements; and
 - Resources and delivery of evacuation information.
 - c. NSW SES Incident Controllers, and flood planners will carefully consider the risks involved in conducting evacuations.
 - d. All evacuation decisions will be made as per the NSW SES Communication and Dissemination of Evacuation Decisions Standard Operating Procedure and Evacuation operations are to be consistent with the NSW Evacuation Management Guidelines.
 - e. Potential evacuation centres are located in the Local EMPLAN; and
 - f. The NSW Police Force will coordinate the provision of overall security for evacuated areas.

Strategy

4.8.2 Evacuate people pre-emptively from dangerous or potentially dangerous places created by the flood hazard to safer locations away from the hazard.

Actions

- a. NSW SES will control and coordinate the evacuation of affected communities.
- b. The NSW SES Incident Controller will warn communities to prepare for a possible evacuation, where circumstances allow such lead time.
- c. The NSW SES Incident Controller 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 local EMPLAN and supporting plans.
- e. Health Services Functional Area will coordinate the evacuation of hospitals, health centres and aged care facilities (including nursing homes) in consultation with the NSW SES and Welfare Services.
- f. School administration offices (Department of Education, Catholic Education Office, and Private Schools) will coordinate the evacuation of schools in consultation with the 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 Evacuation Order will be referred to the NSW Police Force.

4.9 Evacuee Management and Welfare

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

Strategy

- 4.9.2 Maintain the welfare of communities and individuals affected by the impact of a flood.

Actions

- a. NSW SES will provide initial welfare for evacuees where required but will hand the responsibility over to the Welfare Services Functional Area as soon as possible. In these cases, the NSW SES will brief the Welfare Services Functional Area at the earliest opportunity regarding the assistance required.
- b. Welfare Services Functional Area will manage evacuation centres for affected residents and travellers in accordance with the Welfare Services Functional Area Supporting Plan.
- c. The Department of Education will manage the safety of students directly affected by flooding, will work with the NSW SES in the temporary closure of schools and will work with NSW SES and Welfare Services in the management of school evacuees.
- d. Disaster Victim Registration will be controlled and coordinated by the NSWPF, with the assistance of NSW SES and 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 SEOCN may establish Major Evacuation Centres or Mass Care facilities; and
- g. The decision to establish Major Evacuation Centres or Mass Care Facilities will be made by the NSW SES and SEOCN in consultation with members of the State Emergency Management Committee.

Strategy

4.9.3 Coordinate available and accessible health services for flood affected communities.

Actions

- a. 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.

Strategy

4.9.4 Coordinate maintenance of food supplies for flood affected communities.

Actions

- a. All matters relating to the primary production, manufacturing, processing and handling of all food from primary industries to retail, inclusive of all restaurants, food services and catering businesses should be referred to the NSW Food Authority through the Agriculture and Animal Services Functional Area.

Strategy

4.9.5 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; and
- b. Agriculture and Animal Services Functional Area role will assist with 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.

4.10 Flood Rescue

Strategy

4.10.1 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 Land Rescue Policy and the NSW State Rescue Board Flood 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 the 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 the NSW SES. Notification arrangements with NSW Police Force are outlined in the NSW State Rescue Board Flood Rescue Policy; and
- d. Rescue agencies will conduct rescue of domestic small and large animals as per the State Rescue Board Land 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.

4.11 Resupply

Strategy

4.11.1 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 deliver 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.

Strategy

4.11.2 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; and
- c. Isolated households unable to afford resupply items will be referred to Welfare Services Functional Area for assistance.

4.12 All Clear and Return

Strategy

4.12.1 Coordinate the safe return of communities to flood affected areas when the immediate danger to life and property has passed.

Actions

- a. 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 impact on the following:
 - Access and egress.
 - Communications.
 - Power supply.
 - Gas supply.
 - Infrastructure damage.
 - Hazardous materials; and
 - Public health risks.
- b. NSW SES Incident Controller will specify the level of access to affected communities as the following:
 - Not suitable for access.
 - Limited access by emergency services and response agencies.
 - Limited access by residents and/or business operators; or
 - Full access.
- c. NSW SES Incident Controller will issue an 'All Clear' message when the immediate danger to life and property has passed for areas assessed as safe; and
- d. The NSW SES will facilitate the return of evacuees to their homes.

4.13 End of Response Operations

4.13.1 Response operations will conclude when:

- a. The physical impact of the flood has ceased.
- b. All requests for assistance related to the flood have been completed.
- c. The need for warning and evacuation no longer exist.
- d. There is no further prospect of rescuing people.
- e. Resupply is no longer required (resupply operations may occur concurrently with the recovery phase).

- f. Response to fire and hazardous material incidents have concluded (not including subsequent clean-up of contaminated sites); and
- g. All affected areas have had an 'All Clear' issued.

4.14 Post Impact Actions

Strategy

4.14.1 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 of Meteorology, Welfare Services and Northern Beaches Council representatives.
- b. NSW SES will ensure that damage assessment information is provided to the relevant Emergency Operations Controller to inform the recovery impact assessment.
- c. NSW SES will conduct After Action Reviews, wherever possible, within three weeks of the end of response operations, which will involve all stakeholders. Findings will be shared and incorporated into improved disaster resilience planning.
- d. NSW SES will undertake/coordinate a comprehensive review of intelligence and plans following significant flood events.

Strategy

4.14.2 Participate in post flood data collection analysis.

Actions

- a. NSW SES will work with the Office of Environment and Heritage and Northern Beaches Council on post flood data collection analysis including review of flood intelligence where necessary.

5 RECOVERY OPERATIONS

5.1 Introduction

5.1.1 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.

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

5.2 NSW SES Recovery Role

Strategy

5.2.1 NSW SES will support recovery operations and established Recovery Committees.

Actions

- a. NSW SES will provide representation to Recovery Committees as required and may have an ongoing role in the Recovery phase through its community engagement personnel.
- 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.
- c. NSW SES will provide information to Resilience NSW to support applications to Treasury for Natural Disaster Relief and Recovery Arrangements.
- d. The NSW SES, in conjunction with a Recovery Committee will provide a service to support the information needs of a community immediately following a flood; and
- e. NSW SES will assist with clean-up operations after floods where possible.

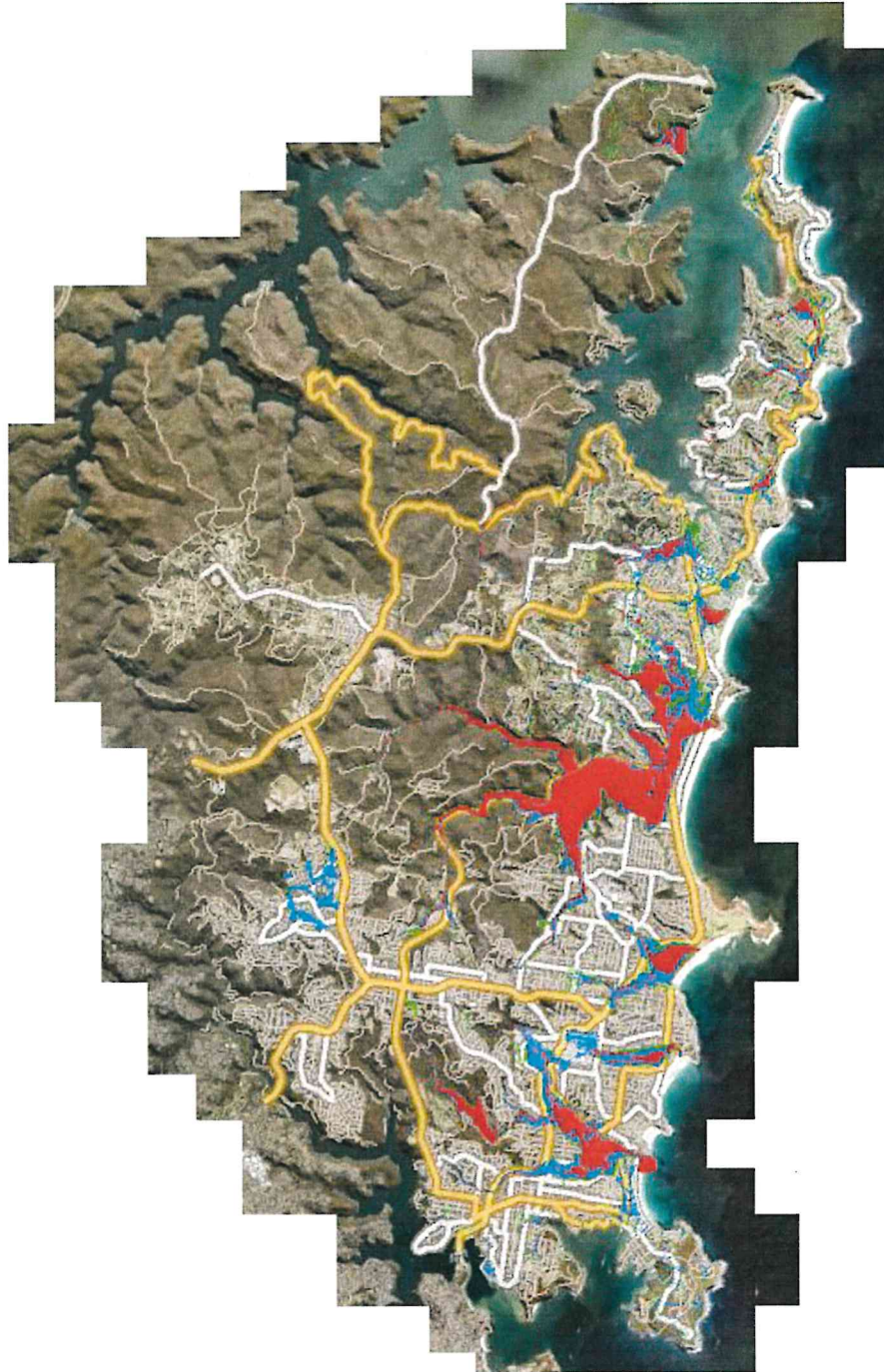
6 REFERENCES

REPORT Date	SOURCE	AUTHOR	PUBLISHER
June 2017	<i>Avalon to Palm Beach Floodplain Risk Management Study</i>	<i>Manly Hydraulic Laboratory</i>	<i>Northern Beaches Local Council</i>
2002	<i>Newport Beach Flood Study Report</i>	<i>Lawson and Treloar Pty Ltd</i>	<i>Northern Beaches Local Council</i>
2019	<i>Newport Beach Flood Study Report</i>	<i>Catchment Simulations Solutions</i>	<i>Northern Beaches Local Council</i>
2010	<i>Great Mackerel Beach Flood Study</i>	<i>WMA Water</i>	<i>Northern Beaches Local Council</i>
2017	<i>McCarrs Creek, Mona Vale and Bayview Flood Study</i>	<i>Royal Haskoning DHV</i>	<i>Northern Beaches Local Council</i>
2013	<i>Pittwater Overland Flow Flood Study</i>	<i>Cardno (NSW/ACT) Pty Ltd</i>	<i>Northern Beaches Local Council</i>
2005	<i>Dee Why and Curl Curl Lagoons Floodplain Risk Management Study Report</i>	<i>Lyall & Associates Consulting Water Engineers</i>	<i>Northern Beaches Local Council</i>
2010	<i>Frenchs Creek, Flood Study Report</i>	<i>DHI Water & Environment</i>	<i>Northern Beaches Local Council</i>
2013	<i>Manly Lagoon Flood Study</i>	<i>BMT WBM</i>	<i>Northern Beaches Local Council</i>
2018	<i>Manly Lagoon Floodplain Risk Management Study & Plan</i>	<i>WMA Water</i>	<i>Northern Beaches Local Council</i>
2019	<i>Manly Lagoon Flood Risk Management Study and Plan</i>		<i>Northern Beaches Local Council</i>
2019	<i>Narrabeen Lagoon Flood Study</i>	<i>Cardno (NSW/ACT) Pty Ltd</i>	<i>Northern Beaches Local Council</i>
2019	<i>Manly to Seaforth Flood Study</i>	<i>Cardno (NSW/ACT) Pty Ltd</i>	<i>Northern Beaches Local Council</i>
2019	<i>Ingleside, Elanora, and Warriewood Flood Study</i>	<i>WMA Water</i>	<i>Northern Beaches Local Council</i>
<i>Internal Sources utilised - GEMS Planning System and Intelligence System</i>			

Annex A - Flood Hazard and Risk Overview

1. The Flood Threat

- 1.1 The [Flood Hazard Map](#) on the Northern Beaches Council website (refer Map 1 below) shows the extent of Flood Prone Land identified in the LGA. There are two kinds of floods that occur naturally on the Northern Beaches, lagoon flooding and flash flooding. Both types can create risk to life and property.



Map 1 – Flood Hazard Map

- 1.2 **Lagoon flooding** occurs when creeks and stormwater networks drain into the lagoon and water cannot escape quickly enough. This generally occurs during major storms with high rainfall runoff, where the escape of floodwaters is impeded by the build-up of sand at the entrance and/or high ocean levels, resulting in flooding on the surrounding floodplain. Tide, storm surge, wave movement and the state of the entrance berm can all have a significant impact on flooding.
- 1.3 There are five coastal lagoons in the LGA which can flood. Council manages the entrances of Narrabeen, Dee Why, Curl Curl and Manly Lagoons to mitigate the risk of flooding, however, the risk can still, remain high. The lagoon at Great Mackerel Beach is managed by NSW National Parks rather than Council.
- 1.4 Council maintains and operates the [Northern Beaches Flood Information Network](#), which includes a number of rainfall, water level and flow gauges with the data published on a public webpage. Specific gauges have threshold levels which if exceeded trigger SMS alerts to key Council staff and emergency response agencies.
- 1.5 Council also uses a flood and coastal intelligence tool before and during flooding which provides a predictive capacity of future peak flooding conditions in Narrabeen, Dee Why, Curl Curl and Manly Lagoon. The tool accounts for antecedent moisture content, lagoon entrance conditions, individual catchment characteristics and a range of future rainfall scenarios.
- 1.6 Sediment in the entrance area of Narrabeen Lagoon is removed, in a large-scale excavation operation approximately every 3 to 5 years, to reduce flood risk.
- 1.7 If a lagoon entrance is closed, once water levels are high enough and rain is forecast, a mechanical breakout can be undertaken in line with Council guidelines. The trigger levels for opening the lagoons are:

Lagoon	Trigger Level
Narrabeen Lagoon	1.3m AHD
Dee Why Lagoon	2.2m AHD
Curl Curl Lagoon	2.2m AHD
Manly Lagoon	1.4m AHD
Great Mackerel Beach Lagoon	-

- 1.8 In most cases this will allow the lagoon to drain and reduce the risk of flooding. In heavy weather conditions however, many properties may still be prone to flooding even when the entrance is open. Attempting to open the lagoons below these predetermined levels often proves unsuccessful and can adversely impact the ecosystem.
- 1.9 **Flash flooding** occurs when heavy rainfall causes creeks to break their banks or the stormwater network to exceed its capacity and overflow. Flash floods happen suddenly with little or no warning and recede relatively quickly and can occur in locations which local residents may not expect.

1.10 Council follows the NSW Government’s floodplain risk management process to identify and manage flood risk. Flood related studies for the following areas are available on Council’s website on the [Flood Study Documents](#) page:

- Avalon to Palm Beach
- Great Mackerel Beach
- Newport Beach
- McCarrs Creek, Mona Vale and Bayview
- Narrabeen Lagoon
- Ingleside, Elanora, and Warriewood
- Frenchs Creek
- Dee Why and Curl Curl Lagoons
- Dee Why South (including business district)
- Manly Lagoon
- Manly to Seaforth

1.11 The [Northern Beaches All Hazards Story Map](#) on the SES web site provides a map enabled presentation of photos of flooding in the Northern Beaches LGA.

2. Dams

2.1 There are four declared dams (under the NSW Dam Safety Act) located within the Northern Beaches LGA:

Dam Name	Owner
Manly Dam	Sydney Water Corporation
Warringah Reservoir	Sydney Water Corporation
Howell Close Retarding Basin	Northern Beaches Council
Elanora Country Club Main	Elanora Country Club

2.2 Manly Dam has a scour valve which is managed by Council. The release of water before and during flooding needs to be carefully timed to fit in with the forecast rainfall pattern as well as the state of the Manly Lagoon entrance and ocean conditions affecting Manly Lagoon.

2.3 Each Dam has a Dam Safety Emergency Plan with direct input from NSW SES to ensure adequate alert levels are adopted to provide enough time to disseminate Emergency Warnings to the at-risk downstream community.

3. Coastal Erosion & Inundation

3.1 Coastal erosion and inundation is another risk within the Northern Beaches area following combinations of high tides and high swells resulting from super-elevated sea levels and/or waves (including tsunami) overtopping coastline. Areas of high risk include:

- Collaroy – Narrabeen Beach
- Great Mackerel Beach
- Basin Beach, Mona Vale
- Bilgola Beach
- Mona Vale Beach, and

- Low lying areas within Pittwater, Narrabeen, Manly & Sydney Harbour

4. Extent of Flood Risk

- 4.1 Rainfall conditions required to produce peak flooding conditions vary across the Northern Beaches with intense thunderstorms critical in small steep catchments, and longer east coast lows responsible for the worst flooding in Narrabeen and Manly Lagoons.
- 4.2 Approximately 20% of all properties in the LGA have been mapped as being at risk of flooding. The table below details the number of properties at risk of flooding for each assessed catchment. The numbers include individual units and strata's therefore are comparatively higher in catchments dominated by higher density development such as Dee Why South, Manly to Seaforth and parts of the Manly Lagoon catchment. Catchments which are subject to overland flows also have a higher number of properties impacted by flooding.

Table 1 - Properties at risk of flooding and dominant flooding mechanism by catchment

Catchment	Number flood-prone properties	Dominant flooding mechanism
Avalon to Palm Beach	1788	Overland flow and creek flooding
Newport	4138	Overland flow and creek flooding
McCarrs Creek, Mona Vale & Bayview	1631	Overland flow and creek flooding
Narrabeen Lagoon	1,617	Creek flooding in the upper catchment and lagoon flooding in the lower reaches
Ingleside, Elanora, Warriewood		Overland flow and creek flooding
Frenchs Creek	741	Overland flow and creek flooding
Dee Why North Catchment	235	Creek flooding
Dee Why South Catchment	4,600	Overland flow
Curl Curl Lagoon	706	Overland flow in Brookvale Industrial Estate and lagoon flooding around Curl Curl lagoon
Manly Lagoon	2,865	Overland flow in Brookvale industrial area, creek flooding in the upper catchment and lagoon flooding in the lower reaches
Manly to Seaforth	5750	Overland flow
Remaining Overland Flow areas	160	Overland flow
Total	22,454	-

- 4.3 Pertinent details in each of these catchments where flood related studies have been undertaken are provided below, listed generally from north to south.

5. Avalon to Palm Beach - Flash Flooding

- 5.1 The area has experienced serious overland flow flooding and mainstream creek flooding in the past and / or from waves and king tides from Pittwater Estuary during a severe ocean storm.
- 5.2 Flood levels rise rapidly (e.g. peaking in Avalon CBD 0.5-1.0 hour) after the storm commences. Time available to disseminate flood warning is limited, and emergency response may occur after the event.
- 5.3 A detention basin has been built in Avalon Golf Course, culverts to carry Careel Creek flow under Barrenjoey Road at North Avalon have been built.

6. Great Mackerel Beach – Lagoon and Flash Flooding

- 6.1 The lower reaches of Great Mackerel Beach Creek form a lagoon behind the dune that holds brackish water and discharges to the ocean via a berm at the northern end of Beach. The residential area in the catchment has no underground stormwater drainage system, which contributes to the flooding.
- 6.2 The extent of flooding is influenced by the level of the beach berm at the entrance as well as elevated ocean levels in Pittwater.
- 6.3 There are approximately 100 flood affected properties, with the worst affected areas being along Monash Avenue, Ross Smith Parade, and the valley floor.

7. Newport – Flash Flooding

- 7.1 Newport is subject to flash flooding following bursts of intense rainfall. The main impact areas are along Barrenjoey Rd, Ross St, The Boulevarde, Howell Cl, Seaview Ave, Ocean St, Foamcrest Av, Newport Shopping Centre and adjacent areas. Flood waters from the catchment accumulate near the commercial area and discharge into the Tasman Sea at Newport Beach.
- 7.2 In the past many major flooding events have occurred, which have caused extensive damage to public and private properties in low-lying areas, restricted access and have been a general inconvenience to the residents.
- 7.3 The catchment is fan-type where the travel time of floodwater from the northern, southern, and western parts of the catchment to the area near Ross Street and the Council car park near Bramley Avenue is approximately the same. These flows are very fast and can carry significant debris loads resulting in blocked drainage inlets and culverts. The physical aspects of the catchment and the presence of the control at the beach dune result in severe flooding in the Ross Street and car park areas.

8. McCarrs Creek, Mona Vale and Bayview - Flash Flooding

- 8.1 The main tributaries that drain the catchment are Mona Vale Main Drain (eastern floodplain) and Cahill Creek (south-western floodplain, also referred to as the 'Bayview' catchment or the Bayview Creek catchment). These two systems drain to the Pittwater Estuary at Winnererremy Bay. The main roads recorded with significant flooding in the past are Barrenjoey Rd, Parkland Rd, Samuel St, Old Samuel St, and Darley Street.

- 8.2 Rainfall within the locality can be extremely intense. For example, the 1% AEP event for a 1-hour storm duration has an intensity of approximately 90mm/hr. For an extreme event such as the Probable Maximum Flood, the intensity of a similar duration event is substantially greater at 480mm/hr.

9. Narrabeen Lagoon Floodplain – Lagoon Flooding

- 9.1 The limit of the Lagoon water level influence on Narrabeen Creek is approximately around the Macpherson Street Bridge in the 1% AEP event. Flooding in Narrabeen Lagoon can occur after heavy rain in the catchment or from waves and king tides from the ocean during a severe ocean storm or a combination of both. Flood waters can rise quite quickly and there may be little opportunity for warning or assistance before or during a flood. Depending on entrance conditions and ocean levels, flood waters can remain elevated for many hours.
- 9.2 The primary flood affected areas are:
- a. The eastern side of the entrance channel.
 - b. Lakeside Caravan Park and the residential area north of the lagoon entrance.
 - c. Garden St and the Mullet Creek area, from Pittwater Road to Jacksons Road.
 - d. Narrabeen Creek floodplain including Warriewood Shopping Centre.
 - e. The Wimbledon Avenue peninsula.
 - f. Wakehurst Parkway near Bristol Lane / Wimbledon Ave.
 - g. NSW Academy of Sport; and
 - h. The southern foreshore of the Central Basin.

10. Ingleside, Elanora, and Warriewood (upper catchment) - Flash Flooding

- 10.1 The “Ingleside, Elanora and Warriewood” covers the upper catchment of Narrabeen Lagoon, north of the lagoon. Critical storm duration is around 1 - 2 hours.
- 10.2 The most notable flood locations in this area are the corner of Powderworks Road and Elanora Road at the outlet of the Elanora Country Club golf course, the Ponderosa Parade crossing at Narrabeen Creek, along the stretches where Nareen Creek is piped, with heavy inundation between Tatiara Crescent and Nareen Parade as well as between Narroy Road and Pittwater Road.

11. Frenchs Creek – Flash Flooding

- 11.1 Flash flooding occurs in this high rainfall catchment due to overland flows exceeding the capacity of the drainage infrastructure. Some areas were developed over the top of gullies with insufficient drainage, particularly the area east of Pringle Ave. A number of properties have been affected by above floor level flooding in the past, including in Knightsbridge Ave.
- 11.2 The flooding over Elm Ave where it crosses the creek near Calool Crescent can be very dangerous if cars attempt to drive through.

12. Dee Why Lagoon and Dee Why North – Flash Flooding

- 12.1 Dee Why Lagoon flooding is influenced by the state of the entrance berm and ocean conditions.
- 12.2 On the northern bank of the creek, in the vicinity of Billarong Avenue and Tarra Crescent, several residential properties are also subject to inundation by floodwaters during heavy rainfall events which cause stormwater to bank up behind the Pittwater Road culvert.

13. Dee Why South - Flash Flooding

- 13.1 The Dee Why South catchment includes the Dee Why Town Centre and Narraweena.
- 13.2 The town centre and outer catchment area have in the past been affected by significant overland flow, with very hazardous flooding conditions along the major flow paths characterised by significant depth of flood water and rapid flow.

14. Curl Curl Lagoon (Greendale Creek) – Flash Flooding

- 14.1 Curl Curl Lagoon flooding is influenced by the state of the entrance berm and ocean conditions. The lagoon influences flood levels as far upstream as Harbord Road.
- 14.2 Greendale Creek has been mainly built over in Brookvale between Pittwater and Harbord Roads, where the industrial area has mostly impervious surfaces. During major storm events, flood waters flow overland and are above floor level in numerous properties, particularly in the Winbourne Industrial Estate.

15. Manly Lagoon – Flash Flooding

- 15.1 Flooding within the Manly Lagoon catchment can result from either elevated ocean conditions, catchment flooding, or a combination of both, however catchment flood events represent the dominant flooding mechanism. The state of the entrance can also influence flood behaviour.
- 15.2 The areas worst affected by flooding are those in the lower lying areas of the catchment, closer to Manly Lagoon. The four main hotspot locations are Kenneth and Balgowlah Roads, Balgowlah, Manly Lagoon North Bank and Brookvale. Warringah Mall and the Industrial area (west of Pittwater Rd/Condamine St) are also affected by flooding within the Manly Lagoon floodplain. The rise in flood waters can be relatively fast. Peak flood levels in Manly Lagoon are recorded less than 30 minutes after the flood peaks at Brookvale and in the Burnt Creek deviation.
- 15.3 The lagoon entrance at the beach has artificial twin concrete low flow pipes, and a channel through the sand which is manually opened in the event of a flood if the raised water level in the lagoon does not naturally scour a channel.
- 15.4 Manly Dam provides some flood storage, which can be managed by valves. The release of water before and during flooding needs to be carefully timed to fit in with the forecast rainfall pattern as well as the state of the Manly Lagoon entrance and ocean conditions affecting Manly Lagoon.

16. Manly to Seaforth – Flash Flooding

- 16.1 This area covers the southern part of the Northern Beaches LGA, except for the Manly Lagoon catchment.
- 16.2 Locations reported by residents as having previously experienced above-floor flooding included: College Street, Reddall Street, The Crescent and North Steyne in Manly; Battle Boulevard and Ponsonby Parade in Seaforth; and Monash Crescent in Clontarf and Gourlay Avenue in Balgowlah

Appendix B - 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>.

Appendix C – Roles and Responsibilities

General responsibilities of emergency service organisations and functional areas are set out in the State EMPLAN, Northern Beaches EMPLAN and Consequence Management Guides.

The roles and responsibilities of agencies in flood are described in Appendix A to the State Flood Plan 2018.

Additional roles and responsibilities under this plan for agencies, functional areas, and organisations in relation to flooding within Northern Beaches Council are detailed below.

AGENCY	RESPONSIBILITIES
NSW State Emergency Service	<ul style="list-style-type: none"> The 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 detailed within the New South Wales State Flood Plan.
Northern Beaches Council	<p>Preparedness</p> <ul style="list-style-type: none"> Establish and maintain floodplain and coastal risk management committees and ensure that key agencies are represented. Develop and implement floodplain risk management plans in accordance with the NSW Government’s Flood Prone Land Policy and the Floodplain Development Manual. Provide levee studies, flood studies and floodplain management studies to the NSW SES. Maintain Dam Safety Emergency Plans for the council owned dams and provide copies to the NSW SES. Provide information on the consequences of dam failure for Council owned dams to the NSW SES for incorporation into planning and flood intelligence. Coordinate the development of warning services for catchments prone to flash flooding (small catchments). Where appropriate: <ul style="list-style-type: none"> Maintain council-owned flood warning networks and flood mitigation works. Participate in NSW SES-led flood emergency planning meetings, to assist in the preparation of Flood Sub-Plans. Maintain a plant and equipment resource list for the council area. Contribute to community engagement activities. <p>Response</p>

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

AGENCY	RESPONSIBILITIES
	<ul style="list-style-type: none"> • Provide for the management of health hazards associated with flooding including removing debris and waste. • Ensure Council owned premises are fit and safe for reoccupation and assess any need for demolition. • Provide services, assistance, and advice to State Government in accordance with the State Recovery Plan.
Local Emergency Operations Controller	<ul style="list-style-type: none"> • Monitor flood operations. • If requested, coordinate support for the NSW SES Incident Controller.
Local Emergency Management Officer	<ul style="list-style-type: none"> • If requested by the NSW SES Incident Controller, advise appropriate agencies and officers of the start of response operations.
Dam Owners	<p>Preparedness</p> <ul style="list-style-type: none"> • Assist the NSW SES with community engagement programs. • Provide NSW SES with information necessary for response planning and warning distribution. • Assist the NSW SES identify correlations between water level and/or discharges at the dam for use in flood response operations (warning and evacuation); and • Consult with the NSW SES in the development of Dam Emergency Plans, including the development of dam failure alerts, in accordance with the Dam Safety Committee Guidelines. <p>Response</p> <ul style="list-style-type: none"> • Where water level monitoring or other instrumentation allows, provide NSW SES with flood advices as per pre-agreed thresholds for use in downstream flood response operations (warnings). • Notify NSW SES of potential or actual dam failures in accordance with the Dam Safety Emergency Plan and Dam Safety NSW Guidelines. • Close at-risk camping grounds / recreational areas within their managed areas. • In the case of declared dams whose risks are intolerable, assist the NSW SES in planning to warn and evacuate people at risk of dam failure and maintain and operate any special Dam Failure Warning Systems and/or automatic telemetered monitoring devices to assist with early detection of incidents which are installed until such time

AGENCY	RESPONSIBILITIES
	<p>that the risks have been lowered to an acceptable level; and Owners of gated dams:</p> <ul style="list-style-type: none"> • Provide all available information to the BoM and the NSW SES on storage levels and actual and prospective water releases and their likely impacts on downstream river levels. • Advise the downstream community of prospective and actual water releases, except in those circumstances where the BoM would issue flood warnings; and • Where possible actively work with NSW SES and the BoM to reduce the impacts of flooding on communities through management of water releases within identified safe parameters and within statutory licencing provisions under the Water Management Act 2000 and Water NSW Act 2014.
<p>Surf Life Saving NSW (as per NSW State Flood Plan)</p>	<p>Preparedness</p> <ul style="list-style-type: none"> • Contribute to NSW SES reviews into plans, policies and procedures as required. • Participate in NSW SES briefings, training and exercises as required. <p>Response</p> <ul style="list-style-type: none"> • Assist the NSW SES with the warning and/or evacuation of at-risk communities. • Provide accommodation in Surf Life Saving facilities for evacuation centres where required. • Assist the NSW SES with flood rescue operations, where training and equipment are suitable.
<p>Community Members</p>	<p>Preparedness</p> <ul style="list-style-type: none"> • Understand the potential risk and impact of flooding. • Prepare homes and property to reduce the impact of flooding. • Understand warnings and other triggers for action and the safest actions to take in a flood. • Households, institutions, and businesses develop plans to manage flood risks, sharing and practicing this with family, friends, employees, and neighbours. • Have an emergency kit. • Be involved in local emergency planning processes.