Attachment A - Emergency Response and Evacuation Plan

Flood Emergency Response Plan

for

51 – 57 Masons Parade, Point Frederick

for Grindley Construction Pty Ltd.

NL201088 / 20 June 2022 / Version A

Contents

Report details

Project: 51 Masons Parade, Point Frederick

Project Ref: NL201088

File Location: Y:\2020_Newcastle Business Unit\NL201088_51 Masons Parade Point Frederick\E_Reports\NL201088_Flood_Emergency_Response_Plan_[A].docx

Revision History

Revision	Report Status	Prepared	Reviewed	Issue Date
1	Draft for Review	R Suckling	A Brien	23 May 2022
A	For Approval	R Suckling	A Brien	20 June 2022

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		Date
Prepared by	RS	20/05/22
Checked by	GB	20/05/22
Admin	LE	23/05/22

Flood Response Summary

The following provides a summary of the findings of this Flood Emergency Response Plan including a summary of the flood behaviour, floor levels with respect to the flood behaviour, the recommended flood response actions, and the recommended on-site and off-site flood refuge locations.

Flood Levels

Local Catchment Flooding

Table 1 presents a summary of the flood behaviour within the subject site and vicinity during the local catchment flooding event.

Table 1 – Summary of Flood Behaviour (subject site and vicinity)

Event	5% AEP	1% AEP	PMF
Flood Level (m AHD)	1.75	1.86	2.78
Flood Depth (m)	~0.62	~0.73	~1.65
Velocity (m/s)	0.60	0.70	2.25
Hazard Category	High Hazard*	High Hazard*	High Hazard

*Note: The high hazard category is located along the Masons Parade street frontage.

Brisbane Water Foreshore Flooding

Table 2 presents a summary of the flood levels during flooding of the Brisbane Water Foreshore.

Table 2 - Brisbane Water Foreshore Flood Levels

Event	Flood Level (mAHD)
Mean High Water Springs (MHWS)	0.39
20% AEP	1.39
10% AEP	1.47
5% AEP	1.55
2% AEP	1.65
1% AEP	1.75
1 in 200 AEP	1.83
PMF	2.23

Floor Levels

Table 3 presents a summary of the internal floor levels of the building and road access.

Table 3 - Internal Floor Levels

Floor	Level (m AHD)	Relationship to Flood Levels
Street Access	1.13m	Below the 20% AEP
Ground Floor	2.78m	Above the 1% AEP and PMF
Level 1	6.95m	Above the 1% AEP and PMF
Level 2+	10.15m	Above the 1% AEP and PMF

Flood Response Actions

Table 4 – Flood Response Actions Summary

WHEN	WHAT	BY WHO
Prior to Flooding	Assemble **Emergency Kit**	Residents
	Check Floodsafe Kit every three months	Residents
	Coordinate **Evacuation Drills** twice per year (minimum)	Building Manager
	Sign up and maintain **Early Warning Network** subscription and warnings.	Building Manager
	Monitor weather situation daily	Building Manager Residents
	Perform Inductions for new residents and staff to include expected flood behaviour and evacuation procedures.	Building Manager
Evacuation	Receive warning of a flood event at the Brisbane Water Foreshore with a predicted gauge height equal to **1.60m or higher**. Make decision to **Close and Evacuation the Facility**.	Chief Flood Warden
	Immediately call ahead to Nominated Evacuation Centres / SES to confirm evacuation centre can accept all persons on-site.	Chief Flood Warden
	Sound Alert on PA System / Air Horn notifying tenants of flood emergency and nominated Evacuation Centre	Chief Flood Warden
	Contact Tenants individually to confirm receipt of evacuation notification and confirm nominated evacuation centre.	Chief Flood Warden
	Notify Police / SES of planned evacuation of the facility.	Chief Flood Warden
	Collect Floodsafe Kit and any additional items. Note that off-site refuge is likely to last up to 9 hours but may continue for several days.	Chief Flood Warden
	Leave signage notifying any responders attending the site that evacuation has been undertaken	Chief Flood Warden Residents
	Evacuate to Nominated Evacuation Centre and remain until given all clear.	All
	Staff and Visitors are to return home if it is safe to do so. If unable to do so, staff and visitors to also proceed to the Nominated Evacuation Centre**.**	Staff/Visitors
On-site Refuge	**Warning has been issued triggering evacuation, but evacuation is unsafe to Commence.**	Chief Flood Warden
	Receive Warning of Severe Storm Warning or Flash Flooding Warning with rainfall predicted to be greater than: **44mm over 30 minutes**	Chief Flood Warden Residents

	61mm over 1 hour **83.2mm over 2 hours** **99mm over 3 hours.**	
	Communicate decision to remain on-site and organise seating and lighting.	Chief Flood Warden
	Wait it out at nominated refuge point	All
	Maintain regular communication with staff, residents and visitors.	Chief Flood Warden
	Do not attempt to drive or walk through floodwaters. If stranded on-site and water inundates floor level, call 000 immediately.	All
Once Risk has Passed / After a Flood	Check all services and structural stability of buildings.	Qualified persons
	Return to operation.	Chief warden

Evacuation Centres & Routes

Table 5 - Potential Evacuation Centres

Location	Address
Gosford/Narara Community Centre	**2 Panadala Road, Narara**
Wyoming Community Centre	147 Maidens Brush Road, Wyoming
Gosford City Sports Stadium	Duffy's Road, Terrigal
Green Point Community Centre	96 Kooland Road, Green Point
Kariong Community Centre	10 Langford Drive, Kariong
Kincumber and District Neighbourhood Centre	20 Kincumber Street, Kincumber
La Salle Youth Camp	1 Mackillop Road, Kincumber South
Niagara Park Community Centre	Washington Avenue, Niagara Park
Peninsula Community Centre	93 McMasters Road, Woy Woy
Senior Citizens Centre, Terrigal	Crn Terrigal Drive and Duffys Road, Terrigal
Umina Beach PCYC	101 Osborne Ave, Umina Beach

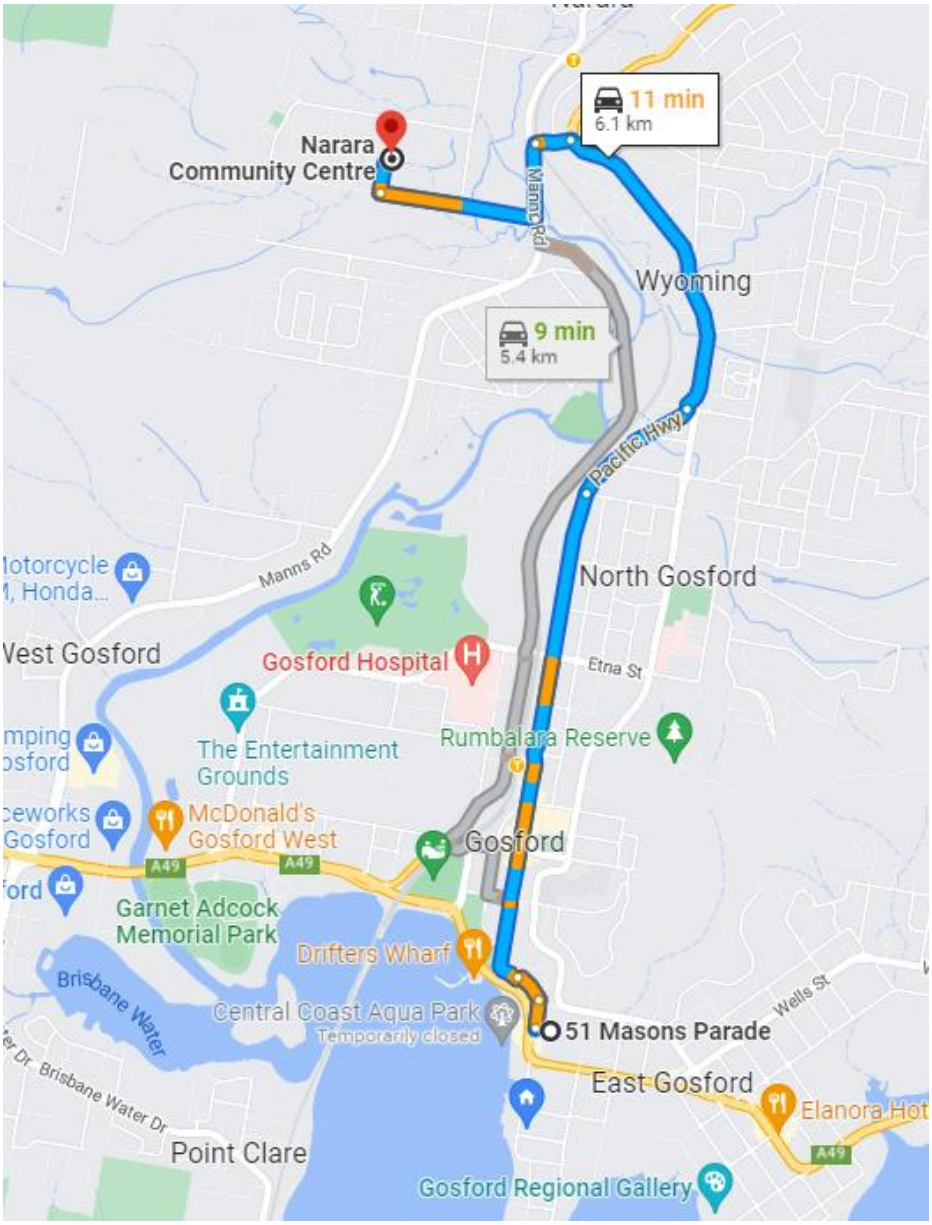


Figure 1 - Recommended Evacuation Route to Gosford/Narara Community Centre (Google Maps)

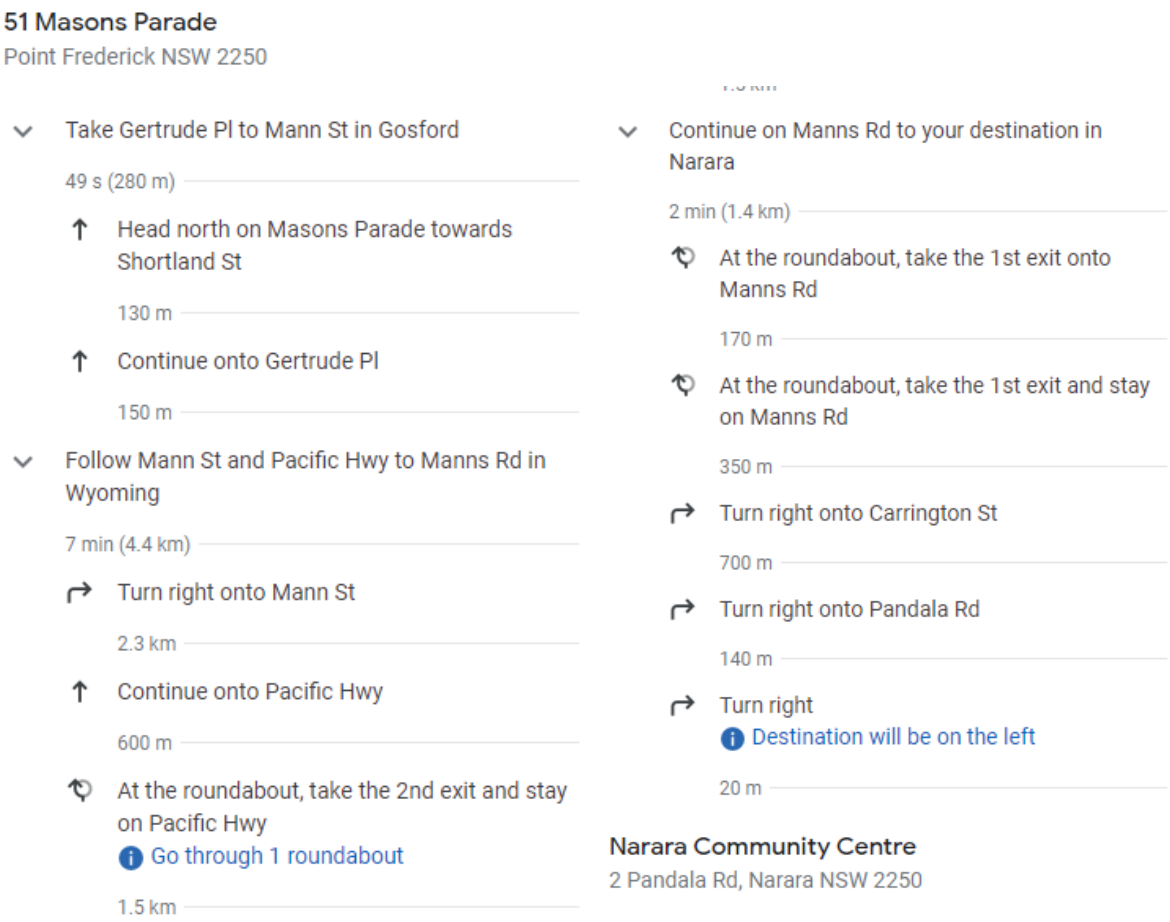


Figure 2 - Directions to Nominated Evacuation Centre

On-site Refuge

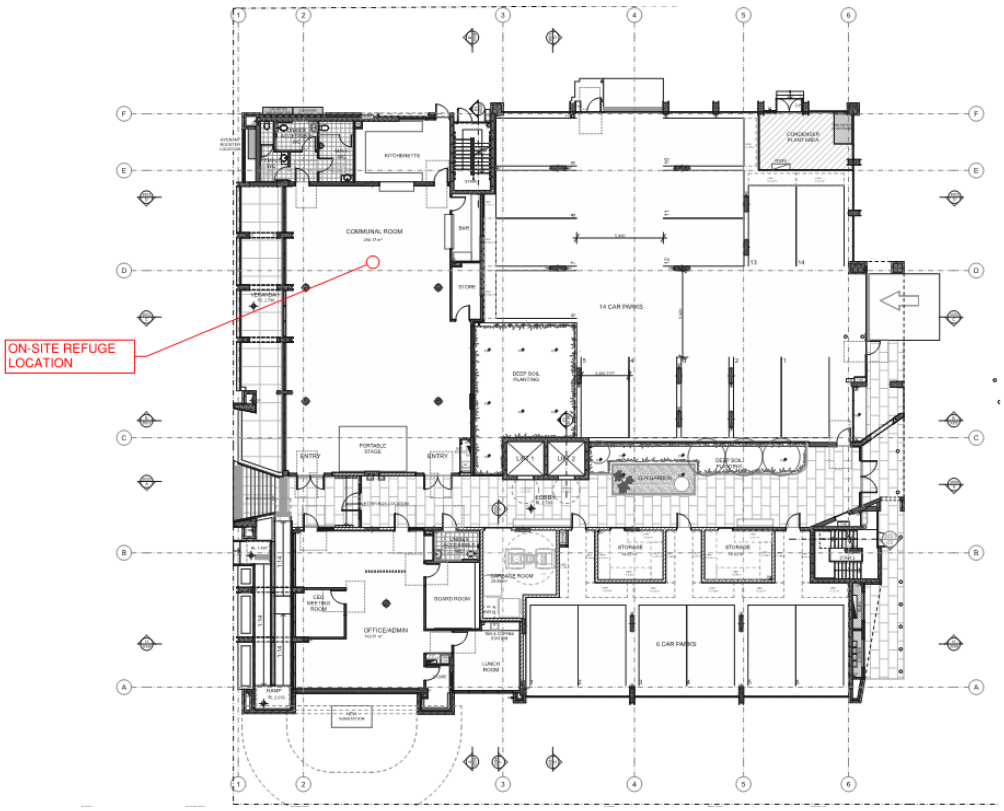


Figure 3 - On-site Refuge Location (Ground Floor)

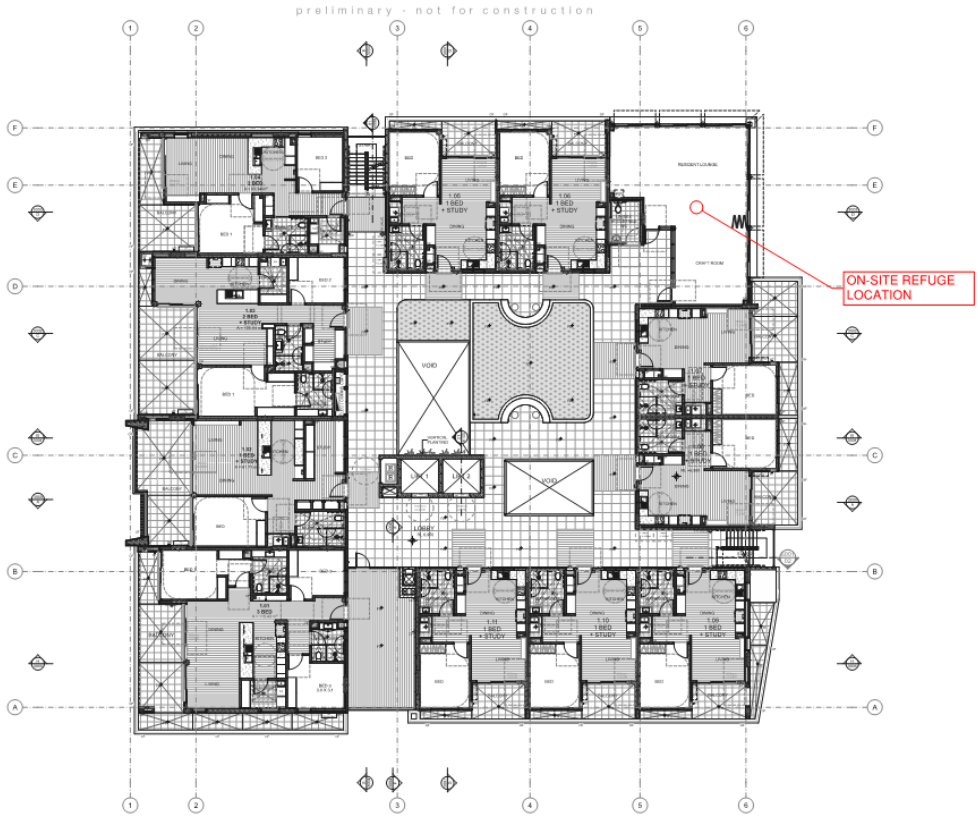


Figure 4 - Additional On-Site Refuge Location (First Floor)

Introduction

Northrop Consulting Engineers have been engaged by Grindley Constructions to prepare a Flood Emergency Response Plan for the proposed development located at 51-57 Masons Parade, Point Frederick NSW (Lot 8, DP218157 and Lot 51, DP732632).

The report has been prepared to support the Development Application to NSW Department of Planning & Environment.

Subject Site

The subject site is bounded by multi-storey residential developments to the north, east and south; and Masons Parade to the west. The site currently contains an existing low-rise retirement living facility, with an open channel running through the northern extent of the site. Figure 5 presents an aerial overview of the site.

Figure 5 - Locality Plan (obtained from SIX Maps www.maps.six.nsw.gov.au)

This Flood Emergency Response Plan (FERP) has been prepared to:

- Promote satisfactory awareness of expected flood behaviour and flood risks associated with the subject site.
- Nominate roles and responsibilities when preparing for and responding to a flood emergency.
- Identify measures to monitor weather forecasts and highlight warning systems available.
- Provide education and awareness material for training programs with respect to flooding of the subject site.
- Identify potential evacuation and evasion procedures including evacuation routes and flood refuge opportunities.

Contained herein is a description of the methodology and information used to prepare this report, a summary of the likely flood behaviour, recommendations for flood preparation and recommended response actions during a flood event.

Methodology and Available Data

This plan was developed based on the flood information with respect to the flood behaviour and evacuation strategies which has been obtained from the following locations:

- Brisbane Water Foreshore Floodplain Risk Management Study, (REF: LJ2828/Rep2584), Prepared by Cardno, March 2015.
- Brisbane Water Foreshore Flood Study (Ref: LJ2523/R2353), prepared by Cardno, July 2013.
- Gosford CBD Local Overland Flow Flood Study, (Ref: W4816) prepared by Cardo, September 2013.
- Hunter-Central Coast Regional Emergency Management Plan (EMPLAN), (2021).
- Central Coast Council Flood Emergency Sub Plan (2021).

The expected flood behaviour for the subject site is based on the above flood information and is summarised in the **Flood Behaviour** section of this plan.

A review of the Bureau of Meteorology (BoM) and State Emergency Service (SES) guidelines and Central Coast Council Website have been undertaken to report on the likely warning types described in the **Flood and Evacuation Warnings** section of this plan.

Consideration has been given to the personnel most likely to be on-site and responsible for flood emergency response. This is outlined in the **Flood Response Personnel** section of this plan.

Analysis of the SES Flood Plan has informed evacuation centres and evacuation routes nominated in the **Evacuation Centres, Evacuation Routes** and **Floor Levels and On-site Refuge** sections of this plan.

Contact numbers for relevant emergency response agencies and the proposed local evacuation centre are noted in the **Emergency Contact** section of this plan.

Finally, a review of the Central Coast Council Development Control Plan and aforementioned flood studies and NSW State Flood Plan have contributed to the recommended preparation and response actions outlined in the **Flood Response Preparation** and **Flood Response Actions** sections of this plan.

Disclaimer

This Flood Emergency Response Plan has been prepared based on the estimated flooding events that occur in the present day. It is noted that the provision of sea level rise and additional climate change effects will alter the flood levels and flooding behaviour of the site. All future revisions of the Flood Emergency Response Plan are to consider the impact of climate change and their effects to the present-day risks and adoption of the most appropriate flood response.

Flood Behaviour

Flood Source and Behaviour

The site is impacted by two separate flood events, the first being the overland surface flow generated from the upstream local catchment and the second being storm surge and coastal flooding from the Brisbane Water Foreshore.

Peak Flood Levels, Depth and Velocities

Overland Surface Flow

Overland surface flow flooding is derived from large volumes of runoff that result from extreme rainfall over the local catchment. This type of flood event is detailed in the 'Gosford CBD Local Overland Flow Flood Study' prepared by Cardno (2013). The duration of this of event is relatively short with a critical duration for the upstream catchment of approximately 45mins to 2 hours.

The storm systems are often typical of micro-burst, or isolated storm events which can be often difficult to predict, resulting is little to no warnings prior to the rainfall event and can result in the occurrence of flash flooding.

Figure 6 presents the 1% AEP peak flood depths for the site extracted from the 'Gosford CBD Local Overland Flow Flood Study' prepared by Cardno (2013).

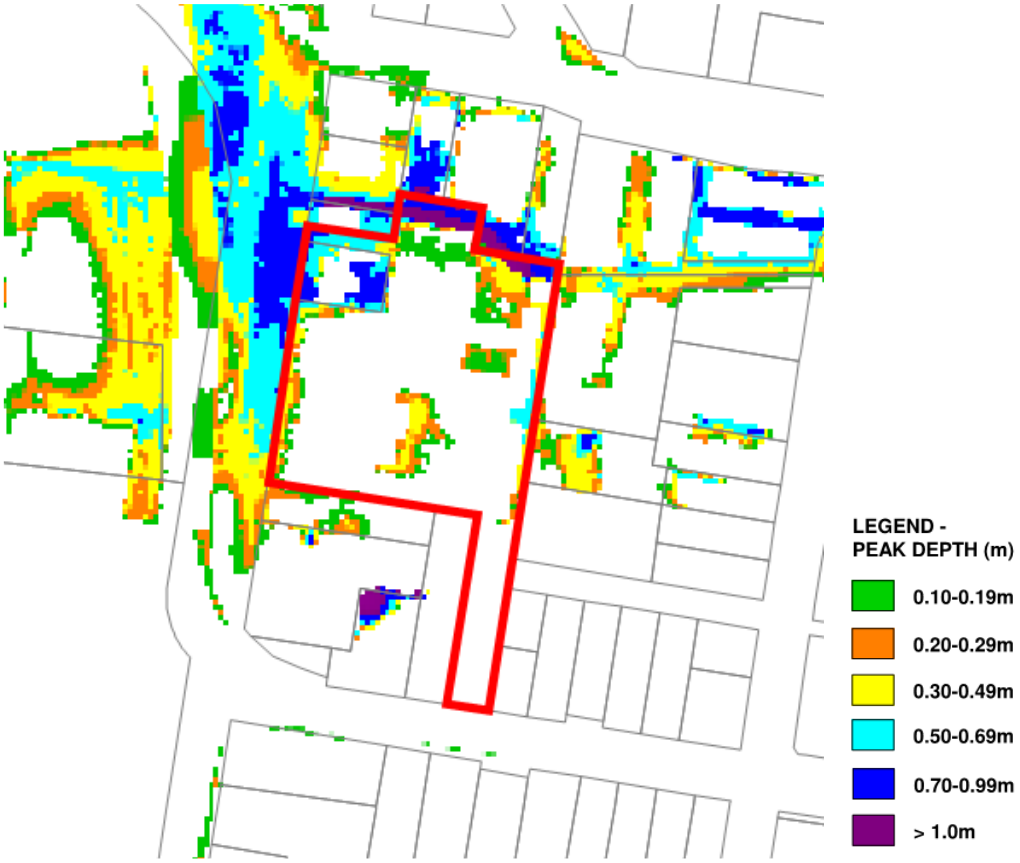


Figure 6 - 1% AEP Pre-Developed Peak Flood Depths (Cardno 2013)

It is observed that the site is impacted by overland surface flow flooding, with the flood extents contained within the existing channel along the northern boundary, and an extent of flooding observed along the street frontage of Masons Parade to the west. Additional pockets of ponding are identified in the centre of the site; however, these are attributed to localised trapped low points created by the obstruction of existing buildings.

The flood depths for the PMF overland surface flow storm event is presented in Figure 7.

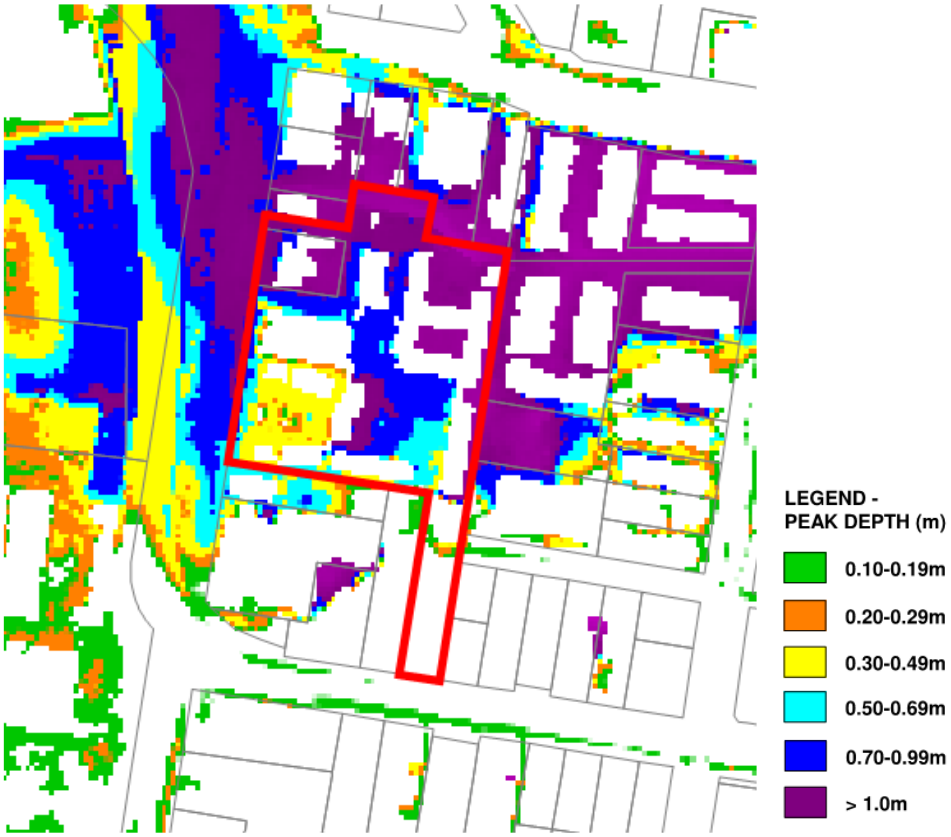


Figure 7 - PMF Pre-Developed Peak Flood Depths (Cardno 2013)

It is observed that the site is impacted by the PMF event. The peak depths observed are a result of the impedance and restriction of flow modelled for the existing dwellings on site.

The flood levels generally vary across the extent of the development reflective of the various surface elevations of the site. The following flood levels were obtained from the flood mode data at the location of the building footprint in the predeveloped scenario.

- 5% AEP = 1.75m AHD
- 1% AEP = 1.86m AHD
- 1% AEP +0.4m SLR = 1.94m AHD
- 1% AEP +0.9m SLR = 1.96m AHD
- PMF = 2.78m AHD

Brisbane Water Foreshore Flooding

The other major flood event that affects the subject site has been detailed in the 'Brisbane Water Foreshore Flood Study' prepared by Cardno (2013). The report details the impacts of foreshore flooding as a result of the Brisbane Water Foreshore, including storm surge, wave effects and sea level rise.

For the 1% AEP flood event in Brisbane Water, the time to peak is approximately 18 hours. The majority of the floodplain is anticipated to be inundated for approximately 5 hours, with a maximum duration of 9 hours. The time to peak represents a moderate to long amount of time before the peak of the flood event and warning and mobilisation time is therefore likely to be relatively long.

Forecasts for storm surge and coastal flooding are generally available further in advance than for catchment flooding due to the nature of meteorological predictions. The flood inundation extents for the subject site are presented in Figure 8.

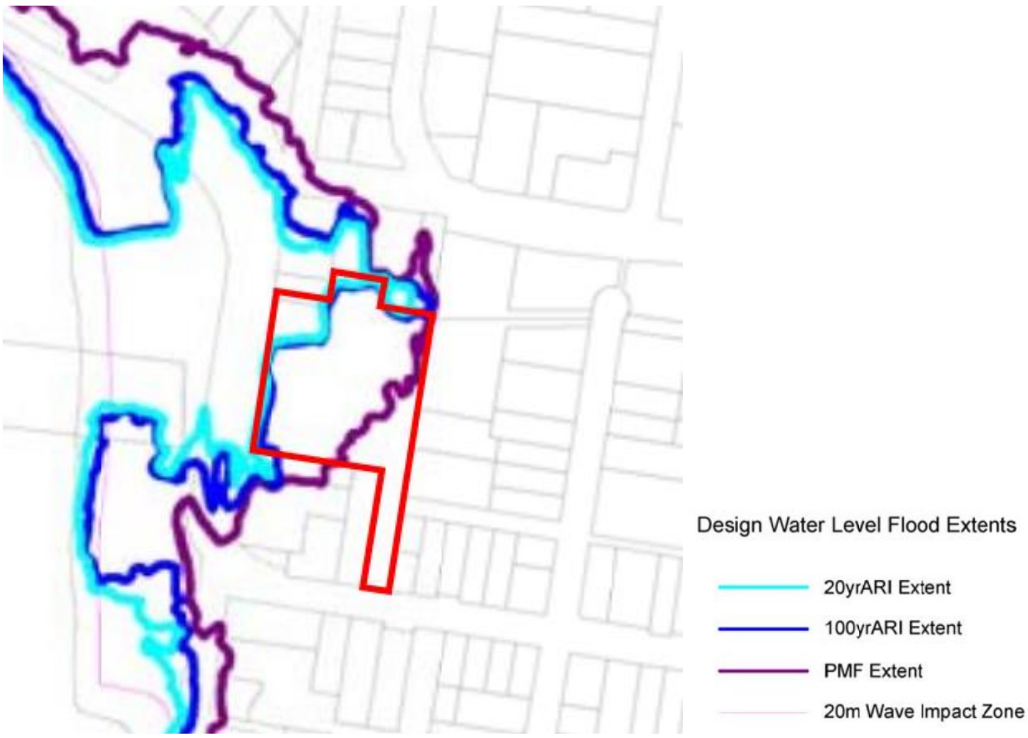


Figure 8 - Design Water Level Flood Extents (Cardno 2013)

It is observed that the site is only affected on the fringes of the site boundary in both the 5% and 1% AEP storm events. The PMF storm event is seen to inundate the majority of the site. The road frontage of Masons Parade is shown to be inundated in all events assessed as part of the study.

The flood levels were extracted from the flood study in the approximate location of the subject site and are presented in Table 6.

Table 6 - Brisbane Water Foreshore Flood Levels

Event	Flood Level (mAHD)
Mean High Water Springs (MHWS)	0.39
20% AEP	1.39
10% AEP	1.47
5% AEP	1.55
2% AEP	1.65
1% AEP	1.75
1 in 200 AEP	1.83
PMF	2.23

Table 7 presents the Brisbane Water Foreshore flood levels with provision of climate change induced Sea Level Rise (SLR).

Table 7 - Brisbane Water Foreshore Flood Levels with Sea Level Rise

Event	Flood Level (mAHD)
MHWS + 0.4m SLR	0.79
MHWS +0.9m SLR	1.29
20% AEP + 0.9m SLR	2.26
1% AEP + 0.4m SLR	2.15
1% AEP+ 0.9m SLR	2.59
PMF + 0.9m SLR	3.02

Flood Hazard and Risk to Property and Life

Both existing flood studies apply the NSW Floodplain Development Manual (April 2005) provisional hydraulic hazard categories which identify Low, Transitional and High Hazard. These categories present the relative risk to property and life during major and extreme events and are defined for the site using the flood depth and velocity identified in each of the flood studies. The following Figure 9 provides a summary of the relationship between these elements demonstrating how the Hazard risk is defined.

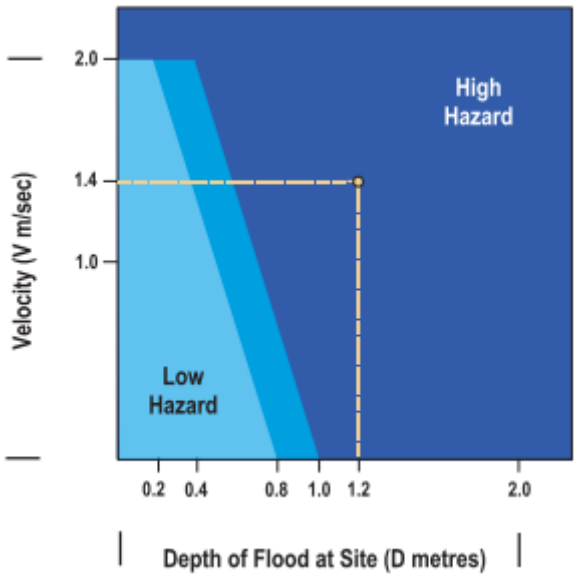


Figure 9 - Provisional Hydraulic Hazard Categories (NSW Floodplain Development Manual (April 2005))

Overland Surface Flow

The provisional flood hazard for the 1% AEP storm event is presented in Figure 10.

Figure 10 - 1% AEP Provisional Flood Hazard (Cardno, 2013)

High hazard is identified within the open channel within the northern extents of the site as well as along the road frontage of Masons Parade. It is also observed that from review of the model data, transitional hazard is present within the street frontage of Masons Parade in the 5% AEP event.

Brisbane Water Foreshore Flooding

The provisional flood hazard for the 1% AEP event is presented in Figure 11.

Figure 11 - 1% AEP Provision Hazard Category (Cardno, 2013)

The NSW Floodplain Development Manual, in particular Section L5 – Determination of Hazard Categories defines the high hazard category as:

> *"Possible danger to personal safety; evacuation by trucks difficult; able-bodied adults would have difficulty in wading to safety; potential for significant structural damage to buildings"*

To determine the trigger for evacuation during the foreshore flood event the provisional hydraulic hazard category in accordance with the Australian Rainfall and Runoff hazard categories (AR&R 2016, Book 6, Chapter 7) was utilised. Figure 12 presents a summary of the hazard categories as well as a brief description for each classification.

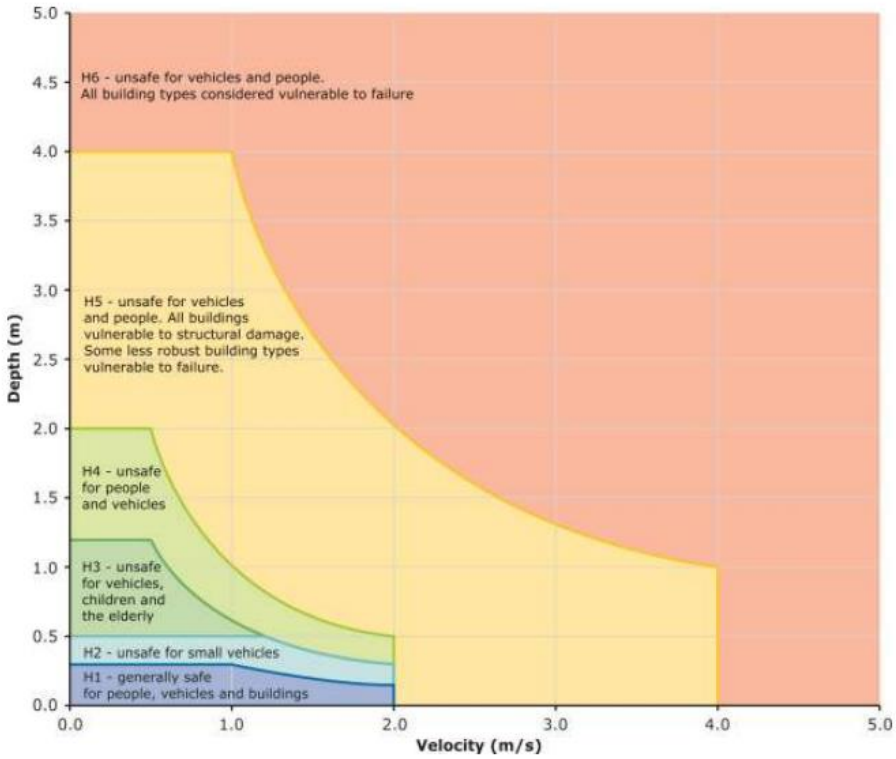


Figure 12 - Hydraulic Hazard Classification (AR&R 2016)

Access for emergency vehicles can be provided in H1 and H2 categories but otherwise are considered unsafe for H3 and above. As the velocities for the foreshore flood event are low, the depth is the primary factor in determining the hazard category.

Do not Drive or Walk through Floodwater.

Remember, If It's Flooded, Forget It!

Flood and Evacuation Warnings

The site is located along the Brisbane Water Foreshore and is subject to the Central Coast Council Flood Emergency Sub Plan. Brisbane Water contains a number of tidal and flood gauges that are used in conjunction with additional sources of information including SES notifications, observational rainfall, Manly Hydraulics Laboratory, the Bureau of Meteorology, Police and Local television stations and radio stations.

The Bureau should issue one of five types of warnings through local radio, television and through their website *http://www.bom.gov.au*. In addition, the SES may issue a flood bulletin, evacuation warning or evacuation order.

The warning types are as follows:

Severe Weather Warning

Severe weather warnings are issued by the Bureau for potentially dangerous weather conditions. A description of the threat will be included in the warning along with the time for next issue. It is noted that a severe weather warning does not imply that flooding will eventuate. Warnings are generally updated every six hours, or as the event dictates.

Severe Thunderstorm Warning

A severe thunderstorm warning will be issued if there is strong evidence that a severe thunderstorm will develop, or if a severe thunderstorm is reported. These storms can occur for a range of events from short-lived localised events to long-lasting widespread storm systems. Weather phenomena accompanying these storms include any combination of large hail, damaging or destructive winds, tornadoes and intense rainfall leading to local flash flooding. Warnings are generally updated every three hours or shorter as required.

Flood Alert/ Watch/ Advice

A flood alert/ watch/ advice will be issued if flood producing rain is expected. This provides an early warning that flooding may occur based on an assessment of catchment conditions and forecast rainfall. This information is incorporated into NSW SES flood bulletins for distribution to media outlets.

Quantitative Flood Warning

A quantitative flood warning is to be issued when flooding is expected to occur in a given area. 12 to 24 hours warning time is expected from issue of warning to peak flood level as per the “Service Level Specification for Flood Forecasting and Warning Services for New South Whales – Version 3.13” (Bureau of Meteorology, 2013).

Generalised Flood Warning

A generalised flood warning is to be issued when flooding is expected to occur in a given area. Three hours warning time is expected from issue of warning to peak flood level as per the “Service Level Specification for Flood Forecasting and Warning Services for New South Wales – Version 3.1” (Bureau of Meteorology, 2013).

Minor/ Moderate/ Severe Flood Warning

A more detailed flood warning may be issued based on any additional information available.

All warnings will be issued through the SES/BOM website, radio and television. Radio frequencies include ABC (92.5FM), 2GO (107.7FM), SEA-FM (101.3FM), ABC (702AM), 2GB (873AM) and STAR-FM (104.5FM).

SES Flood Bulletins

The SES may issue a flood bulletin to radio stations or other media outlets informing people about what is expected to happen during flooding. These bulletins contain information on the likely flood consequences and recommended actions to protect persons and property.

Evacuation Warning

The SES may issue an evacuation warning, advising the community to prepare for likely evacuation. The warning advises people what to do and what to prepare to take with them.

Evacuation Order

The SES will issue an Evacuation Order if evacuation is required. If this occurs **evacuation must be undertaken**. The orders will advise the community, or specific parts of a community to evacuate by a specified time in response to an imminent threat. The evacuation order will advise where people should go and may advise which evacuation routes to take.

Broadcast will be via radio/ TV, door knock, automated telephone message or SMS. SES or other emergency services may also doorknock to advise residents of what to do and where to go.

All Clear

The NSW SES will advise the evacuated community that it is safe for people to return to the area and inform people of any residual risks that may be present.

On-Site Emergency Communication

The PA system is recommended it be configured to sound an emergency tone meaning all staff, residents and visitors are to prepare for evacuation of the facility. The tone will be tested every three months as a minimum.

Should a PA system be unavailable or inoperable in the event of an emergency, an air horn and handheld loudspeaker is located within the Flood Emergency Kit. These will be used to obtain people's attention and direct them to evacuation offsite.

Early Warning Network Automated Text and Email Service

The Building Manager and residents are to register for automatic alerts with the Early Warning Network (www.ewn.com.au) which will filter the above BoM warnings and send texts and emails to the Building Manager to notify them of the situation.

Flood Response Personnel

Summarised in Table 8 below are the facilities nominated emergency personnel, their location and responsibilities in managing flood response.

Table 8 - Flood Response Personnel

	Location	Responsibilities
Chief Flood Warden (Building Manager)	Both On-site & Off-site	• Ensure tenants (including residential & commercial) are notified of existing site flood conditions and are trained for evacuation. • Coordinate flood evacuation drills. • Monitor weather daily for upcoming major or extreme rainfall events. • Receive notifications from the Early Warning Network • Decide when cancellation of activities or evacuation is required. • Communicate cancellation and evacuation to staff, residents and visitors. • Liaison with SES or Emergency Services personnel if they attend site. • Remain calm and direct visitors and staff through the evacuation procedures. • Confirm evacuation centre is ready to accept staff and residents.
Deputy Chief Flood Warden	On-Site	• Undertake Chief Flood Warden duties when Chief Flood Warden is unavailable. • Maintain calm and direct staff and visitors through the evacuation process.
Flood Wardens (Residents)	On-Site	• Assist Chief and Deputy Chief Flood Warden with evacuations. • Prepare and maintain Flood Emergency Kit. • Prepare and coordinate assistance for staff, other residents and visitors with mobility difficulties. • Receive notifications from the Early Warning Network. • Remain calm and follow evacuation procedures as required. • Liaison with SES or Emergency Services personnel if they attend site.
Staff	On-site	• Maintain calm and direct visitors onsite through evacuation or refuge processes. • Assist Chief and Deputy Chief Flood Warden with evacuations.

It is anticipated the Building Manager (or similar), will be nominated the role of Chief Flood Warden. It is recommended that at least one or more residents are nominated as the Deputy Chief Flood Warden to undertake duties in the event the Chief Flood Warden is not on-site or unavailable (i.e. weekends, after hours).

All remaining staff and residents are to assist the Flood Wardens with evacuation during a flood emergency.

Evacuation Centres and Routes

Evacuation Centres

A number of potentially suitable facilities may be nominated by the SES during flood events based on the circumstances of the event. Only one or two of these centres may be opened at any one time based on the requirements of the event.

The recommended centre for evacuation is the Gosford/Narara Community Centre, as it is located nearest to the subject site and has adequate capacity, and the evacuation route is not required to travel on roads which may become flood affected during a flood event.

Table 9 presents potential facilities as outlined in the Brisbane Water Foreshore Floodplain Risk Management Study, that may be used as evacuation centres within the Central Coast LGA which are located outside of the Brisbane Water Floodplain.

Table 9 - Potential Evacuation Centres

Location	Address
Gosford/Narara Community Centre	**2 Panadala Road, Narara**
Wyoming Community Centre	147 Maidens Brush Road, Wyoming
Gosford City Sports Stadium	Duffy's Road, Terrigal
Green Point Community Centre	96 Kooland Road, Green Point
Kariong Community Centre	10 Langford Drive, Kariong
Kincumber and District Neighbourhood Centre	20 Kincumber Street, Kincumber
La Salle Youth Camp	1 Mackillop Road, Kincumber South
Niagara Park Community Centre	Washington Avenue, Niagara Park
Peninsula Community Centre	93 McMasters Road, Woy Woy
Senior Citizens Centre, Terrigal	Crn Terrigal Drive and Duffys Road, Terrigal
Umina Beach PCYC	101 Osborne Ave, Umina Beach

It is critical to follow SES instructions and issued information for relevant evacuation centres that may be established. Any evacuation orders will provide advice about which evacuation route they should take and the location of any evacuation centres and animal holding areas they may wish to access.

It is the responsibility of the Chief Flood Warden to activate the evacuation procedure with all staff, residents and visitors to evacuate early following the instructions of the SES. The Chief Flood Warden is to call the nominated evacuation centre prior to evacuation in the event of self-motivated evacuation, to ensure the centre is ready to accommodate evacuated personnel.

Evacuation Route

Once everyone is accounted for and the access and availability of the evacuation centre is confirmed, evacuation should be undertaken to the nominated Evacuation Centre. As the road frontage becomes inundated in the 5% AEP event, it is critical that evacuation occurs prior to flooding occurring.

It is recommended that tenants with vehicles on-site, drive to the nominated off-site evacuation centre. Carpooling is also encouraged to ensure all tenants evacuate the site in a timely manner. The Chief Flood Warden may facilitate additional transport for residents or staff that do not have access to a personal vehicle or are mobility impaired, in collaboration with the SES and emergency services.

It is recommended that people utilise carpooling to limit traffic on the roads and to provide transportation to those who may otherwise not have access to a car. Buses are likely to still be in operation along evacuation routes, however some routes may be impacted by road closures or flood affected roads once the flood event has begun. Figure 13 presents the recommended evacuation route to the Nominated Evacuation Centre, however it is noted that the evacuation centre may be different as nominated by the SES during an evacuation.

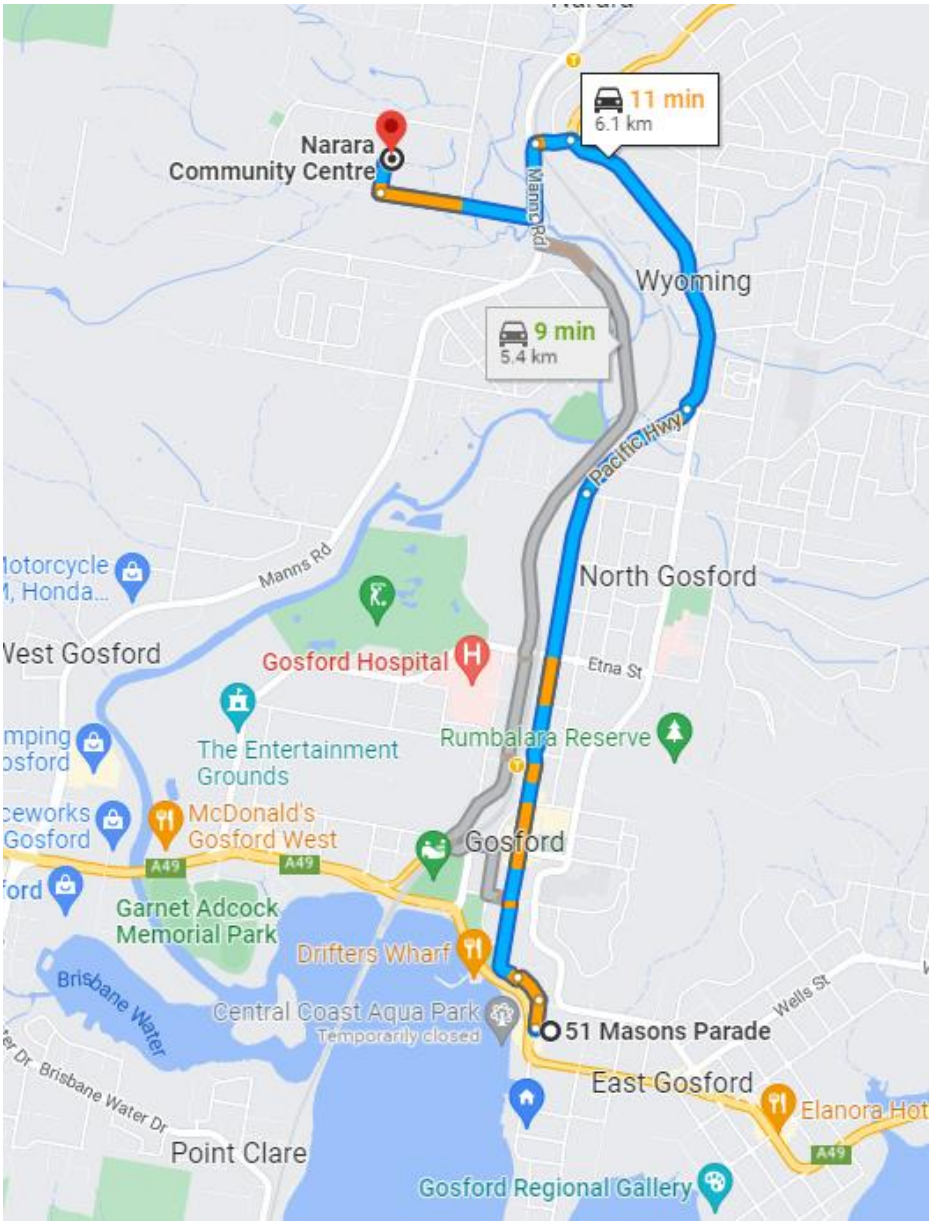


Figure 13 - Recommended Evacuation Route to Gosford/Narara Community Centre (Google Maps)

Figure 14 provides the directions to the nominated evacuation centre.

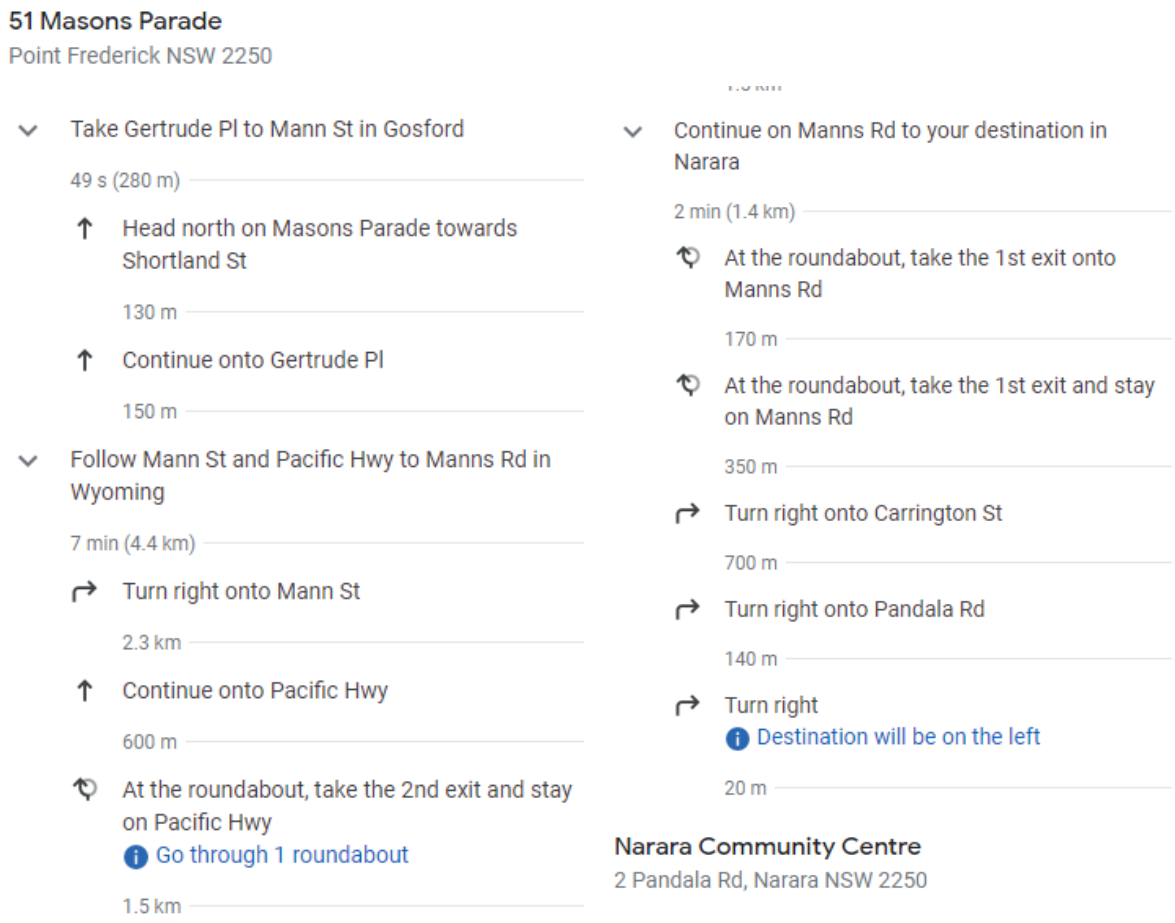


Figure 14 - Directions to Nominated Evacuation Centre

Additional directions to other nominated evacuation centres may be provided by SES or obtained from online services such as Google Maps.

Special arrangements may need to be organised by the Flood Warden for evacuation of any children that cannot be safely collected prior to the evacuation time.

From the northern Road Evacuation Route, the Sector will either be directed onto the Great Western Highway Evacuation Route or the M4 Western Motorway Evacuation Route. This will depend on what other sectors are also being evacuated at the same time and will be directed by the SES.

Floor Levels and On-Site Refuge

Floor Levels

The proposed development contains multiple floors, including office spaces and communal habitable areas. The level of each floor with respect to the 1% AEP and PMF flood events is presented in the below Table 10.

Table 10 - Internal Floor Levels

Floor	Level (m AHD)	Relationship to Flood Levels
Ground Floor	2.78m	Above the 1% AEP and PMF
Level 1	6.95m	Above the 1% AEP and PMF
Level 2+ (Residential only)	10.15m	Above the 1% AEP and PMF

On-Site Refuge

In the event where rainfall has commenced or staff, visitors or residents become trapped on-site, refuge may be sought on-site. As shown in Figure 15 the nominated on-site refuge point is the communal room on the ground floor with the resident lounge and craft room to provide additional Refuge Spill Over as presented in Figure 16.

It is estimated that a maximum of approximately 130 people may be on site at one time including up to 10 staff and 12 visitors. Dependant on the storm event that is occurring the duration of the flood may range anywhere from less than an hour to up to 9 hours.

Residents may seek refuge within their own units to ease the space requirements and seating for additional staff and visitors that may require refuge onsite.

The structure of the building shall be designed to withstand the flood forces during all storm events including the PMF event.

Should you become isolated on-site, seek refuge in one of the nominated refuge locations of the building and do not try to evacuate by foot or vehicle and never enter rising flood water. **Call the SES on 132 500 if emergency supplies are getting low, or 000 if in a life-threatening situation. Remember if its flooded, forget it.**

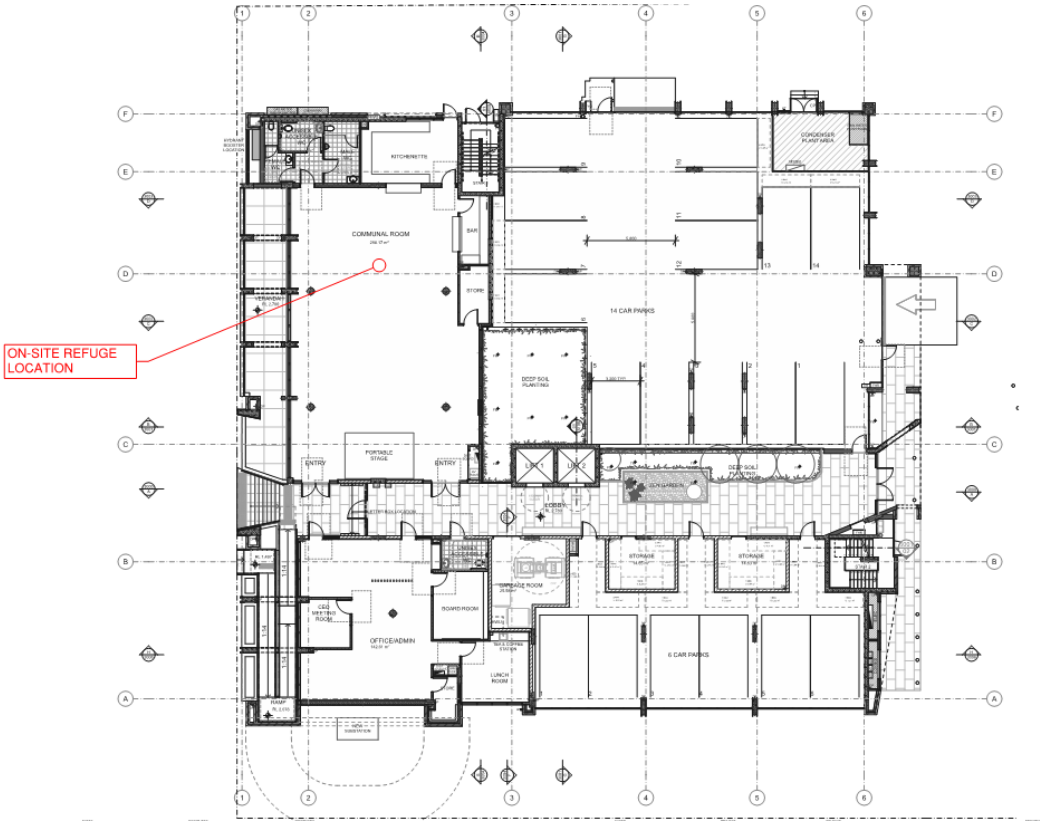


Figure 15 - On-site Refuge Location (Ground Floor)

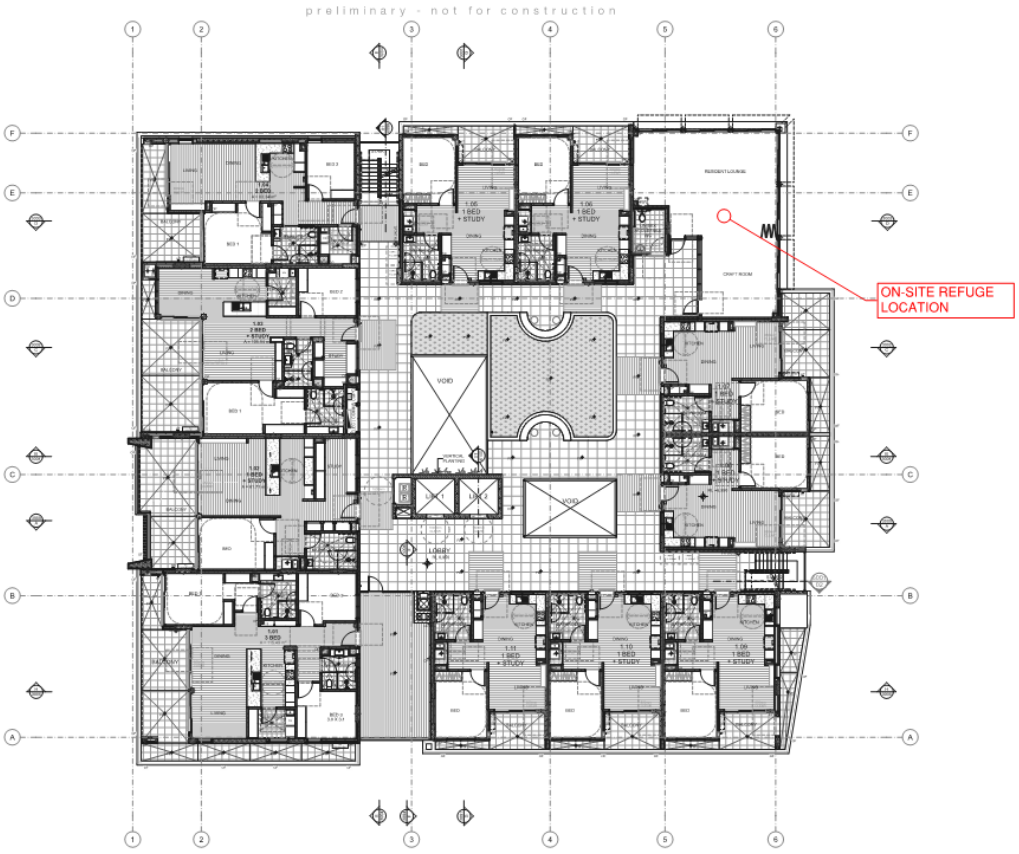


Figure 16 - Additional On-Site Refuge Location (First Floor)

Do not Drive or Walk through Floodwater.

Remember, If It's Flooded, Forget It!

Emergency Contact

For emergency assistance during flood events, please call the **SES** on **132 500.**

If you are in a life-threatening situation please call **Police, Fire or Ambulance** on **000.**

For road blockages, fallen trees and other local asset issues, please call **Central Coast Council's Emergency Hotline** on (02) 1300 463 954.

Flood Response Preparation

It is the responsibility of the Chief Flood Warden to prepare the facility for a flood event. This will be achieved through; induction training provided by the operator, nomination of flood wardens, education of flood risks and behaviour, Personal Emergency Evacuation Plan (PEEP) and the preparation and maintenance of *Floodsafe Emergency Kits.*

The information presented above is a summary of the flood behaviour and considered key to understanding the risks associated with flooding. This should be displayed in conjunction with other emergency information (such as fire, etc.) throughout the facility.

Personal Emergency Evacuation Plan (PEEP)

It is noted that emergency evacuation is preferably undertaken by road, and thus has the potential that this may create issues for people with disabilities. As such, a Personal Emergency Evacuation Plan (PEEP) is recommended for any users of the facility with a disability. A PEEP includes a personalised plan and provision for emergency evacuation for any users of the facility that may have difficulty evacuating.

With limited options available for disabled persons, or those who may not have vehicle access, PEEP provides the actions to be undertaken in an emergency. The Chief Flood Warden and/or the Centre Manager will be responsible for preparing the individualised PEEP, along with coordinating any assistance required during an event.

Additional information for preparation of a PEEP can be found on the Australian Network on Disability website: https://www.and.org.au/pages/evacuation-procedures.html

Evacuation Drills

Evacuation drills are designed to increase flood awareness within the centre. These drills are to be undertaken twice per year to familiarise staff, residents and facility users of the procedures when responding to a flood event.

It is also an opportunity to outline expected flood levels and dangers of entering flood water. The following link can be used as a resource for evacuating personnel that are mobility impaired: https://www.ses.nsw.gov.au/floodsafe/what-floodsafe-means-for-you/mobility-impaired/.

For new staff it is expected they will be made familiar with the site flooding conditions and made familiar with the emergency procedures and response during the initial site induction.

Floodsafe Emergency Kit

Whilst on-site refuge is not recommended, a Floodsafe Emergency Kit should be prepared for each of the commercial and retail tenancies that nay be brought along during any evacuation.

Potential items for a flood emergency kit are outlined at; https://www.ses.nsw.gov.au/floodsafe/prepare-your-home/emergency-kit/. Items outlined on the SES website and some additional items are presented below:

- Drinking water, medicines and non-perishable food items.
- A copy of the facilities emergency management plan.
- Chemical register.
- Air horn and hand-held loudspeaker.
- Portable radios with spare batteries.

- Torches with spare batteries.
- Lanterns with spare batteries.
- Two-way radio with spare batteries.
- A first aid kit.
- Candles and waterproof matches.
- Waterproof bag for valuables.
- A copy of emergency numbers.
- Additional/spare clothing
- Register of Staff, Patients and Visitors on-site.
- Sign in book for visitors and contractors.
- Individual Health Care Plans including asthma puffers, diabetes medication, epi pens, etc.

When flooding and evacuation is likely and if time permits, it is recommended all residential tenants consider adding the following items to their Floodsafe Emergency Kit prior to leaving the site

- Enough clothes for several days.
- Any special requirements for babies and the disabled, infirm or elderly.
- Strong covered shoes.
- Fresh food and drinks.
- Toiletries
- Important papers, valuables and mementoes.
- Electronic devices and charges as required.

It is the responsibility of the tenants to maintain their individual Floodsafe Emergency Kits, which are to be prepared immediately following occupation.

TRIGGER FOR REVIEW AND EDUCATION:

- Three monthly checking of the emergency kit to ensure all items are in suitable working order.
- Six monthly evacuation drills and reminder of the flood risks.
- Inductions for new staff, highlighting the flood risk associated with the subject site.

Storage of Sensitive Goods

All sensitive goods which are susceptible to damage from flood waters or, if exposed to floodwaters would have significant ramifications to the surrounding area, must not be stored in the external storage shed which may be subject to flooding. The ground floor of the main building is above the PMF level and are therefore considered appropriate places to store goods which are sensitive to water.

Monitoring of Weather Situation

It is the responsibility of the Chief Flood Warden to monitor the weather situation and be aware if a warning has been issued. This will be achieved through automatic text messages and emails from the Early Warning Network and checking of the local radio stations and the Bureau website.

It is recommended that each individual tenant also monitor the weather situation to ensure they remain informed and prepare appropriate for upcoming flood events.

TRIGGER FOR MONITORING:

- Continuous, 4pm daily

BY WHO: Chief Flood Warden

Monitoring of Weather Situation

Flood warning signage, such as the information fact sheets provided by the SES provided in Appendix A is to be placed throughout common areas in the facility (i.e. lift lobbies and common halls). All flood warning signage is to be laminated and must identify that the site is flood prone.

The Chief Flood Warden is to ensure signage throughout the common areas are displayed and maintained as recommend above.

Flood Response Actions

Cancellation of Operations & Evacuation

The primary mechanism driving flooding of the Brisbane Water are the ocean storm events and storm surge. The warning times are likely to be moderate to long, enabling early evacuation to occur prior to the event.

Whilst refuge above the PMF flood event is still provided by the ground floor of the building, the period of isolation is likely to be significantly longer than during a flash flood event. The period of isolation is estimated to be approximately 5 hours, up to a maximum of 9 hours, however longer periods of isolation may occur due to the specific nature of the storm and flooding event.

In order to minimise the risk to life, it is recommended the building be closed if a **Generalised Flood Warning** or **Severe Weather Warning** with predicted flood level of 1.60m or higher within the Brisbane Water Foreshore.

Evacuation and closure should be undertaken well in advance of flooding occurring. If determined that conditions are not safe to perform evacuation procedures, refuge is to be sought on site.

The aim is to eliminate/reduce the risk of isolation by evacuating staff, residents and visitors prior to the commencement of flooding occurring, provided there is adequate time for them to return home, a safe place of residence or evacuation centre.

The Chief Flood Warden is responsible for reviewing the weather forecasts daily and notifying facility users and staff of the decision to close the facility or seek refuge on-site.

When a warning is received and evacuation is to occur, consideration should be given to:

- Cancelling services and appointments for the day of the event.
- Securing objects that are likely to float and cause damage.
- Turning off mains power, water and gas and other hazardous materials.
- Relocating chemicals above the predicted water level.
- Moving vehicles away from the site where possible.

If time permits the evacuation procedure should generally follow:

- **Chief Flood Warden** and **Tenants** receive Quantitative Flood Warning with predicted Flood level for Brisbane Water of 1.60m AHD or greater.
- **Chief Flood Warden/Building Manager to Sound** alarm on PA system to notify residents of evacuation.
- **Residents to gather FloodSafe Kit and belongings and proceed** to the nominated evacuation route and/or evacuation centre if nominated by the SES.
- **Staff and Visitors in the to return home** if it is safe to do so and wait out the storm event (otherwise follow evacuation requirements as advised by the SES).
- When evacuating the facility, **Flood Wardens** are to leave signage undercover, and notify Police/SES that evacuation has occurred, and to where.
- **Flood Wardens** clear the building and outdoor spaces onsite.

- **If staff or visitors are unable to return home, they shall also proceed to the nominated evacuation routes**. The Chief Flood Warden is to assist in facilitating additional transport if required.
- **Wait it out** at the designated refuge points.

TRIGGERS FOR EVACUATION

- Weather forecast with a **predicted water level of 1.60m AHD or above** in Brisbane Water Foreshore.

  or

- SES Issued Evacuation Order

On-Site Refuge

Due to the local site topography, flash flooding can occur rapidly during extreme weather events with limited prior warnings. The building ground floor level will provide flood refuge above the PMF, with adequate space for staff and visitors to seek refuge on-site. The highest risk to life occurs for pedestrians outside of the building footprint, particularly along the Masons Parade Street Frontage, and access driveways.

The critical storm events are relatively short duration (45min-2hours), and isolation from the road network can occur for up to approximately 2-3 hours.

The most appropriate course of action during a flash flooding event derived from overland surface flow and local catchment flooding is as follows:

If an evacuation order is issued by the SES evacuation is to occur immediately as outlined by the above process, unless it is determined that it is unsafe to do so or if rainfall has already commenced.

In the event where rainfall has commenced and it is determined that staff, patients and visitors cannot return home refuge may be sort on-site. The procedure for refuge on site should be carried out as the following:

- **Chief Flood Warden/Building Manager to Sound** alarm on PA system to notify residents of imamate risk.
- Direct everyone to the Emergency Assembly Point within the building (not to occur outside).
- Roll call to ensure everyone is accounted for.
- Explain that refuge is being sought on-site and the measures in place to make this safe to maintain calm.
- Seek Refuge and Wait it Out.

TRIGGERS FOR REFUGE ONSITE:

- Weather forecast with a **rainfall depth as below:**
  - **44mm over a period of 30 minutes**
  - **61mm over a period of 1 hour**
  - **83.2mm over a period of 2 hours**

Emergency Services Attending Site

It is noted self-motivated evacuation, such as that proposed in this plan, reduces strain on emergency services. There is a possibility that emergency services such as Police, Fire, Ambulance or SES may attend site and assume control from the Chief Flood Warden. Once this has occurred, they are in control of the site and any response operations.

TRIGGERS FOR EMERGENCY SERVICES TAKE CONTROL:

- Police, Fire, Ambulance or SES attending site.

RESPONSIBLE FOR THE DECISION; Chief Flood Warden

Once a Final Flood Warning or SES "All Clear" has been received:

- A thorough check of services such as electricity, sewer, water and gas should be undertaken by qualified persons.
- Personal protective equipment should be worn during the clean-up and disinfectant used.

TRIGGER FOR RETURN:

- All clear given by SES or emergency services and building inspected by representatives appointed by the department of education.

BY WHO: SES, Emergency services, Flood wardens, Suitably Qualified Engineer

Revision of this Flood Evacuation Plan

This plan should be revised if any of the below studies are revised or if a new flood study is prepared for the area.

- Brisbane Water Foreshore Flood Study Prepared by Cardno & Central Coast Council dated July 2013.
- Gosford CBD Overland Flow Flood Study Prepared by Cardno & Central Coast Council dated September 2013.
- Central Coast Council Flood Emergency Sub Plan dated September 2021.

Notwithstanding the above, this plan shall be **revised every three years** or when there is a major operational change or flood event. Future revisions of this Flood Evacuation Plan should consider the impact of climate change, and rising sea levels and their impact to the adopted evacuation or on-site refuge strategy.

Revisions should be undertaken by a suitably qualified flood emergency response consultant.

Conclusion

The subject site is affected by two separate flooding events, being local catchment flooding and storm surge coastal flooding. A review of the proposed development has been undertaken in conjunction with the expected flood behaviour and it was concluded that:

- Evacuation of the facility is required where a **Quantitative Flood Warning with predicted flood level for Brisbane water of 1.60m AHD or greater** is received or an Evacuation order is issued by NSW SES.
- **Closure and evacuation of the facility via the nominated evacuation routes to** areas not affected by flooding or to evacuation centres as established and advised by NSW SES shall occur with residents and staff that are unable to return home following receipt of the aforementioned flood warning.
- If rainfall has commenced for a predicted major or extreme event, **shelter in place on-site**, refuge is available on the ground floor and level 1 of the building.

Through adoption of this plan, the proposed development adequately minimises the flood risks associated with the subject site. The recommendations contained herein assist in managing the risk to life of the staff, facility users and visitors to the subject site.

References

Cardno	(2015)	Brsibane Water Foreshore Foodplain Risk Management Study (REF: LJ2828/Rep2584) March 2015
Cardno	(2013)	Brisbane Water Foreshore Flood Study (Ref: LJ2523/R2353) July 2013
Cardno	(2013)	Gosford CBD Local Overland Flow Flood Study, (Ref: W4816) September 2013
Emergency Management	(2021)	Hunter-Central Coast Regional Emergency Management Plan March 2021
SES	(2018)	*Flood Planning for the Mobility impaired* accessed from: https://www.ses.nsw.gov.au/floodsafe/what-floodsafe-means-for-you/mobility-impaired/ 8 September 2021
Bureau of Meteorology	(2013)	Service Level Specification for Flood Forecasting and Warning Services for New South Wales – Version 3.13 accessed from: http://www.bom.gov.au/nsw/NSW_SLS_Current.pdf 8 September 2021
Central Coast Council	(2021)	Central Coast Council Flood Emergency Sub Plan 30 September 2021

Appendix A – FloodSafe Fact Sheets

Evacuating

When flooding is likely to cut evacuation routes or inundate property, the SES may issue an Evacuation Warning to indicate that you should get prepared to evacuate. This means that flooding is imminent in your area. Being prepared will allow you to respond quickly.

The SES will issue an Evacuation Order advising people of what to do and where to go. There are a number of ways you might hear about the need to evacuate including, but not limited to, doorknock (by SES or other emergency services), through radio stations, or by automated telephone and/or SMS.

You must evacuate immediately. You should try to seek shelter with family or friends well away from flood impacted areas. In larger floods, evacuation centres may be established to help people affected by the flooding. Assistance may include:

- Temporary accommodation
- Financial help
- Personal support
- Refreshments and meals
- Clothing and personal needs
- Help in contacting family and friends

During a flood

- Never enter or travel through floodwater - this is the main cause of death during floods as water may be deeper or faster flowing than people think and may contain hidden snags and debris
- Keep listening to the radio station for information, updates and advice
- Follow your Home or Business FloodSafe Plan
- Follow all instructions given to you by emergency services

Specific advice for flash flooding:

- If you become trapped in your home or a building, seek refuge in the highest part and call 000 (triple zero) for assistance

Specific advice for riverine flooding:

- Locate and prepare pets for possible evacuation
- Keep in contact with your neighbours
- Be prepared to evacuate if advised

After a flood

Severe weather and flash flooding can result in major damage to property, potentially causing a range of health and safety issues.

When returning to your property:

- Ensure the structural stability of your property before entering. Check for damage to windows, walls and the roof and be especially cautious of potential contaminants including asbestos
- Make sure the electricity and gas are turned off before going inside. Use a torch to carry out inspections inside buildings
- If power points, electrical equipment, appliances or electrical hot water systems have been exposed to floodwater or are water damaged in any way, they must be inspected by a qualified electrician before use
- Gas appliances and gas bottles that have been exposed to floodwater should be inspected for safety before use
- Wear suitable protective clothing, including boots and gloves, when cleaning up
- Be aware of any slip, trip or fall hazards
- Never eat food which has been in contact with floodwater
- Only use clean utensils and personal items
- Have a supply of fresh drinking water

Disaster Recovery Centres may be established following some disasters. Recovery centres may provide a range of welfare services including financial assistance, personal support, organising temporary accommodation and providing information and referrals. If you have been affected by floods and require assistance, contact Disaster Welfare Services on **1800 018 444.**

Chittaway Point, June 2007

How the Local Council can help you

Local Government is responsible for planning future development and protecting existing development from flooding. It does this with technical and financial assistance from the State and Federal Governments. Councils undertake investigations and studies to identify areas of flood prone land to determine risks, set future development restrictions, as well as investigate and implement options to mitigate the affect of floods on existing development.

Councils provide information to the public and local emergency services to assist with understanding and addressing the various types of flood impacts for each area. Councils may also be able to provide specific information on the potential extent of flooding to your property and in your area.

This brochure and other general information on preparing for floods, can be found at the SES website at

www.ses.nsw.gov.au

FOR EMERGENCY HELP IN FLOODS AND STORMS CALL THE SES ON

132 500

FOR LIFE-THREATENING EMERGENCIES CALL 000 (TRIPLE ZERO)

SES website	www.ses.nsw.gov.au
Gosford City Council	4325 8222
Website	www.gosford.nsw.gov.au
Wyong City Council	4350 5555
Website	www.wyong.nsw.gov.au
Bureau of Meteorology website	www.bom.gov.au

Gosford City Council Central Coast · Wyong Shire Council Central Coast · NSW Government · SES

Brochure printed August 2011

FloodSafe Central Coast

Better FloodSafe than Sorry

Protecting yourself from a flood

SES

NSW Government

Top: Wyong Nursing Home 2007
Bottom: Wamberal Lagoon 2007

Central Coast

Are you at risk from floods?

If you live close to a creek, river or major stormwater drain or in a low-lying area, you may be at risk from flooding, even if you have not experienced it personally. This brochure contains information that can help you protect your life, property and belongings. It also provides general information on the types of flooding experienced on the Central Coast and suggests where to obtain further information to help you prepare for floods.

Flooding on the Central Coast

The most densely populated areas of the Central Coast are located in low-lying areas near creeks, estuaries, lagoons, coastal beaches or other water bodies. These areas are popular as they allow access to the water and are an attractive lifestyle choice. However, in periods of severe flooding they are also the areas where floodwater has the most impact.

Areas on the Central Coast experience flooding regularly. Since the 1940s approximately 20 major flood events have occurred in the area. Some of these floods have resulted in above floor level flooding, property damage and in some cases serious injury or death.

Flash flooding results from very heavy rainfall during short intense storms and can occur with little or no warning. Areas with a flash flood risk can be very dangerous as flash floods may be sudden and unexpected and can occur within minutes to only a few hours from the beginning of a heavy rainfall or storm event. The depth or arrival time of floodwater is not usually possible to predict in many flash flood environments.

Flash flooding is generally associated with creeks, water courses and drainage systems which overflow into surrounding areas, often with great speed. Even shallow water is very powerful and can carry large amounts of debris. People are often swept away after entering flash floodwater on foot or in vehicles. This is the leading cause of death during floods. Erina Creek, Narara Creek and Tumbi Umbi Creek have a history of flash flooding.

Riverine flooding is associated with large bodies of water like the Hawkesbury and Wyong Rivers. Flooding on these river systems can last for several days and may result in isolation of families and communities. Floodwater from this type of flooding is largely a result of rainfall run-off over a large river catchment area. An example of this type of flooding occurred in June 2007 where areas such as South Tacoma and Chittaway were isolated for days due to flooding of Tuggerah Lakes by river inflows from adjoining catchments.

Coastal Storm Surge on the Central Coast is associated with low pressure weather systems off the east coast. These weather systems can cause several days of increased seawater levels, an increase in onshore winds and increased wave heights. These conditions cause damage to the foreshore area of coastal beaches and also within estuaries affected by such events.

Dam Failure Flooding results from the uncontrolled release of water from a water storage area. Dam failure can be caused by flooding, structural issues or factors other than a flood (landslide or earthquake).

Stay informed

The Bureau of Meteorology (Bureau) issues Severe Thunderstorm Warnings and Severe Weather Warnings when heavy rainfall or storms are predicted. These warnings can indicate weather which can possibly cause flash flooding. Monitor weather conditions and environmental cues. In flash flood areas, these may be the only notice of possible flash flooding.

Where flooding is expected on the larger river systems such as the Hawkesbury and Wyong Rivers, the Bureau will issue Flood Watches and Flood Warnings. A Flood Watch is a notice that flooding is potentially going to occur. Flood Warnings are issued when flooding is expected and give predicted river heights and times when these may be exceeded, reached or peak.

Flood information including, safety advice, evacuations and road closures will be broadcast over local radio stations.

ABC FM 92.5	2GO FM 107.7	SEA-FM FM 101.3
ABC AM 702	2GB AM 873	STAR-FM FM 104.5

- Keep listening to the radio for information, updates and advice
- Check with friends and neighbours to make sure they are aware of any warnings

Prepare yourself

All floods are potentially life-threatening. Preparing now can help reduce the loss associated with floods and the impact on you, your family, property or business. Find out about your local flood risk and check your insurance policy.

If you own or manage a business in a flood-prone area, put together a Business FloodSafe Plan. An interactive 'Business FloodSafe Toolkit' is available on the SES website – www.ses.nsw.gov.au. You can use this toolkit to develop your Business FloodSafe Plan.

The SES also has a Home FloodSafe Toolkit to help householders prepare for, respond to and recover from flash and riverine floods. This toolkit is available from the SES. Maintain your plan and update it after every flood.

Remember, you can still be affected by floods even if your property is not flooded. You may become isolated and essential services or access to areas may be cut.

Some basic measures you can take right now include keeping a list of emergency numbers near the telephone or on the fridge and assemble an Emergency Kit.

Your Emergency Kit contents:

- A portable radio with spare batteries
- A torch with spare batteries
- A first aid kit
- Candles and waterproof matches
- A waterproof bag for valuables
- Emergency contact numbers

When flooding is likely, place in your Emergency Kit:

- Important papers and photos
- A good supply of required medications
- Any special requirements for babies and the disabled, infirm or elderly
- Strong shoes
- Suitable food and drinks

Every family and business should make an Emergency Kit.

When flooding is likely

Flash Flooding

If you live in an area at risk of flash flooding, there will not be enough time to make the preparations that are suggested for people who live in flood risk areas that have longer lead times. It is important to know whether you live in an area at risk of flash floods. It is likely you will need to use environmental cues to initiate your evacuation rather than to wait for official advice so it is important to monitor the weather conditions.

When flash flooding is likely, leaving low-lying homes and businesses well before flash flooding begins (evacuation) is the best action to take, but only if it is safe to do so. If you are trapped by rising floodwater, seek refuge in the highest part of a sturdy building. Stay there and call '000' (triple zero) if you need rescue.

Prepare and plan now so you can act quickly when flash flooding is likely.

Riverine Flooding

If you live in an area susceptible to flooding from larger river systems and lakes, be alert and keep an eye on the weather. Be prepared to act:

- Listen to your local radio station for information, updates and advice
- Locate and activate your Business or Home FloodSafe Plan and check your Emergency Kit
- Ensure neighbours are aware of Flood Watches or Flood Warnings and are prepared to act if necessary
- Stack possessions, records, stock or equipment on benches and tables, placing electrical items on top
- Relocate waste containers, chemicals and poisons well above floor level
- Move livestock and agisted animals, especially horses, to high ground and prepare pets for possible evacuation
- Secure objects that are likely to float and cause damage
- Ensure employees are able to get home before evacuation routes are closed. Act early as roads may be congested or close
- Locate and check your Emergency Kit (see the 'Prepare yourself' section of this guide)
- Locate important papers, valuables and mementoes and place them in your Emergency Kit

SES
STATE EMERGENCY SERVICE

FloodSafe

FloodSafe Fact Sheet

During a Flood

How will I be warned that flooding is about to happen?

A Flood Warning is issued by the Bureau of Meteorology when flooding is about to happen or is happening.

Flood Warnings provide a predicted flood level and time at which a river will reach that level.

Flood Warnings are issued in relation to flood gauges which are situated at a certain point on a river.

Call 132 500 for emergency help in floods and storms

How do I prepare when flooding is about to happen?

- Never drive, ride or walk through floodwater
- Listen to your local radio station for information, updates and advice
- Locate and check you Emergency Kit
- Move pets and agisted animals to high ground
- Stack possessions, records, stock or equipment on benches and tables, placing electrical items on top
- Secure objects that are likely to float and cause damage
- Relocate waste containers, chemicals and poisons well above floor level
- Activate your Home or Business FloodSafe Plan
- Keep in contact with your neighbours and make sure they are aware of the Flood Warning
- Be prepared to evacuate if advised by emergency services
- Act early as roads may become congested or close

FOR EMERGENCY HELP IN FLOODS AND STORMS CALL

132 500

For more info: www.ses.nsw.gov.au

Find us on: Follow us on: See us on:

Principal Partner

NRMA INSURANCE

Are you at risk?

Storms can happen anywhere, at any time of the year. It is important to prepare your family and property now and stay prepared all year round. Storms are the most costly natural disaster to affect NSW, causing an estimated average of $217 million dollars damage annually (source: Bureau of Transport Economics, 2008).

During storms, it is important to protect your family and property from the major impacts such as high winds, hail, and rising water levels (flash flooding).

- **Damaging winds** can bring down trees, branches, powerlines, remove roofs and blow around outdoor items
- **Hail** can injure people and damage property
- **Heavy rainfall** can cause water to:
  - damage exposed homes and belongings
  - rise rapidly, flooding homes, property and roads
  - drain rapidly making floodwater, drains and other water courses a safety hazard
- **Damaging surf** can be unsafe and flood homes and properties in coastal areas

You may also be indirectly affected by storms; access roads may be blocked or you may have no power or telephone connection.

NEVER ENTER FLOODWATER

Never enter or travel through floodwater, including flash floodwater. This includes walking, driving, riding and playing. Entering floodwater is the leading cause of death during floods.

How the NSW SES can help you

The NSW State Emergency Service (NSW SES) is responsible for responding to storms in NSW. This includes planning for storms and educating people about how to protect themselves and their property.

The NSW SES can give safety advice, place tarpaulins on damaged roofs, remove fallen trees and branches from buildings, roads or property and rescue people trapped or injured by storm activity.

NSW SES volunteers can clear access and carry out temporary repairs to damaged property; however, you will need to engage professional tradespeople to carry out permanent repairs.

NSW GOVERNMENT

SES NSW STATE EMERGENCY SERVICE

Principal Partner NRMA INSURANCE

FOR EMERGENCY HELP IN FLOOD, STORM AND TSUNAMI CALL

132 500

In life-threatening emergencies call 000 (triple zero)

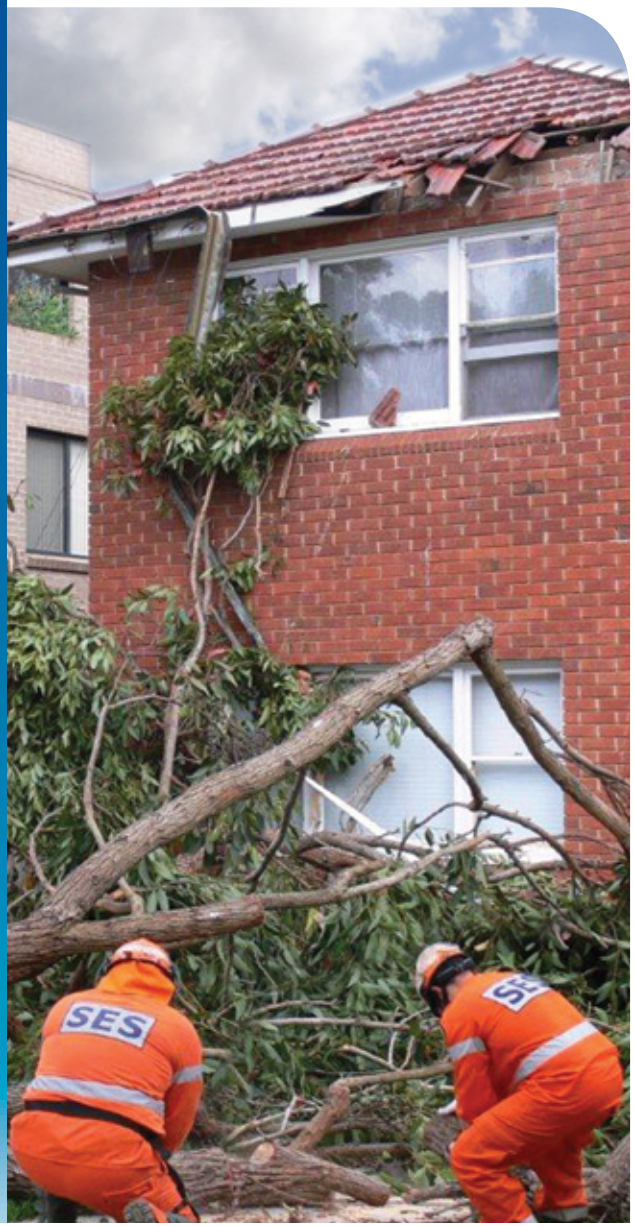
For more information call the NSW SES on 1800 201 000

or visit: www.stormsafe.com.au

#NSWSES /NSWSES /NSWSES

StormSafe

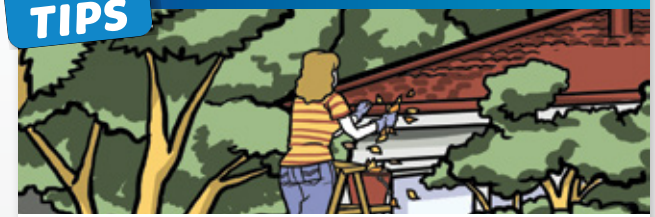
SES NSW STATE EMERGENCY SERVICE



StormSafe

Principal Partner NRMA INSURANCE

8 TIPS YOU CAN DO NOW TO PREPARE FOR STORMS



There are a few simple things that you can do now to help reduce the potential damage caused by severe storms:

1. Maintain your yard and balcony by securing or putting away items that could blow around in strong winds
2. Clean your gutters, downpipes and drains regularly to prevent blockages
3. Trim trees and branches that could potentially fall on your home or property
4. Fix any damage to your roof including broken or missing tiles
5. Check your insurance policy is current and adequate
6. Make a plan for your family that outlines what you would do in an emergency
7. Put together an emergency kit
8. Listen to your local radio station and other media for weather warnings

When a STORM WARNING is broadcast

Severe Weather Warnings and Severe Thunderstorm Warnings are issued by the Bureau of Meteorology to alert communities to the threat of severe weather.

When a warning is issued for your area (but before the storm arrives), there are a few things you can do to help protect your family and property:

- ✓ Move indoors, bringing children and pets with you
- ✓ Park your car under secure cover and away from trees, powerlines and drains
- ✓ Secure or put away any items from around the house, yard or balcony that could blow around in strong winds
- ✓ Check to see if your neighbours are aware of the warning
- ✓ When flash flooding is likely, leaving low-lying homes and businesses well before flash flooding begins (evacuation) is the best action to take, but only if it is safe to do so. If you are trapped by rising floodwater, seek refuge in the highest part of a sturdy building. Stay there and call '000' (triple zero) if you need rescue
- ✓ Listen to your local radio station and other media for information, updates and advice
- ✓ Unplug and avoid using electrical equipment connected to mains power, landline phones or modems
- ✓ Have your emergency kit handy in case you lose power or need to leave

✓ YOUR EMERGENCY KIT CHECKLIST

Your emergency kit provides items you might need if you lose power or need to leave your home in a hurry. Your emergency kit contents:

- ☐ A portable radio with spare batteries
- ☐ A torch with spare batteries
- ☐ A first aid kit
- ☐ Candles and waterproof matches
- ☐ Important papers including emergency contact numbers
- ☐ Copies of any emergency plans
- ☐ A waterproof bag for valuables

When leaving or evacuating your property, place into your emergency kit:

- ☐ Medications
- ☐ Supplies for your baby
- ☐ Supplies for any other people in your care
- ☐ Appropriate clothing and footwear
- ☐ Food and drinking water

DURING a storm

During a storm, there are simple things you can do to help protect your family:

- ⚠ Never enter or travel through floodwater
- ✓ Stay indoors, clear of windows
- ⚠ Stay clear of creeks, drains, causeways, gutters, streams, fallen trees or powerlines and damaged buildings
- ✓ If driving, put your hazard lights on and pull over to the side of the road keeping clear of drains, causeways, streams, creeks, trees and powerlines
- ✓ If outdoors, seek secure cover away from drains, causeways, gutters, streams, creeks, trees and powerlines
- ✓ Listen to your local radio station and other media for information, updates and advice
- ✓ For emergency help in floods and storms, call the NSW SES on 132 500

AFTER the storm

- ✓ Keep listening to your local radio station for information, updates and advice
- ✓ Check your house or property for damage
- ⚠ Stay clear of creeks, drains, causeways, gutters, streams, fallen trees or powerlines and any damaged buildings
- ✓ Check to see if your neighbours need help
- ⚠ Do not go sightseeing as this may hinder recovery efforts or put yourself and others at risk