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# Flood Emergency Response Plan

*for*

# 10 Young Street, West Gosford

# Contents

# Report Details

**Project:** Mixed-Use Development at 10 Young Street, West Gosford, NSW

**Project Ref:** NL200900_E01

**File Location:** Y:\YEAR 2020 Jobs\NL200900 - 10 Young Street\E - Reports\FERP

**Revision History**

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# 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 and the recommended flood response actions. Additional information is available in the body of the Flood Emergency Response Plan.

## Flood Levels

**Table 1 – Summary of Flood Behaviour (Subject Site)**

| Flood Event | Racecourse Road (SW Corner) (m AHD) | Young Street (NE Corner) (m AHD) | Flooding Mechanism |
|---|---|---|---|
| 10% AEP | 1.60 | 2.44 | Local Catchment |
| | - | - | Narara Creek |
| 1% AEP | 1.64 | 2.46 | Local Catchment |
| | 2.11 | - | Narara Creek |
| | 1.74 | - | Brisbane Water |
| PMF | 1.76 | 2.67 | Local Catchment |
| | 4.09 | 4.16 | Narara Creek |
| | 2.23 | - | Brisbane Water |

## Floor Levels

**Table 2 - Internal Floor Levels**

| Floor | Level (m AHD) | Relationship to Flood Levels |
|---|---|---|
| **Level 00 (showroom, hotel lobby, residential lobby)** | 2.59 | Above all 1% AEP events<br>Below Narara Creek and Local Catchment PMF |
| **Level 1 (parking)** | 7.19 | Above all 1% AEP and PMF |
| **Level 3 (hotel apartments)** | 13.20 | Above all 1% AEP and PMF |
| **Level 5+ (residential)** | 20.00 | Above all 1% AEP and PMF |

## Flood Response Actions Summary

**Table 3 – Flood Response Actions Summary**

| WHEN | WHAT | BY WHO |
|---|---|---|
| **Prior to Flooding** | Assemble **Emergency Kit** | Flood Wardens |
| | Check Floodsafe Kit every three months | Flood Wardens |
| | Coordinate **Evacuation Drills** twice per year (minimum) | Chief Flood Warden |
| | Sign up, maintain and review **Early Warning Network** subscription and warnings. | Chief Flood Warden<br>Flood Wardens |
| | **Monitor weather situation daily**<br>**(Hazards Near Me App / Hazard Watch / CCC Disaster Dashboard)** | Chief Flood Warden<br>Flood Wardens |
| | **Perform inductions** for new Residents, Tenants & Staff to include flood risk associated with the subject site and evacuation procedures.<br>**Provide signage** informing guests of flood procedures. | Chief Flood Warden<br>Flood Wardens |
| **Limit Access to Racecourse Road / Central Coast Highway** | **Receive Notification** from the Bureau / Early Warning Network / Hazards Near Me App with rainfall predicted to be greater than:<br>• **41.0mm over a period of 30 minutes**<br>• **53.7mm over a period 1 hour**<br>• **79.7mm over a period 3 hours**<br>• **124mm over a period 9 hours** | Chief Flood Warden |
| | **Communicate decision to limit access to Racecourse Road / Central Coast Highway** to all users.<br>This may be through activation of an alarm system, notification through PA or direct notification via Flood Wardens. | Chief Flood Warden |
| | **Access and Egress remains open via Young Street.** | All |
| | Maintain regular communication with residents and hotel operator. | Chief Flood Warden |
| | **Do not attempt to drive or walk through floodwater. If stranded on-site and water inundates the area, call 000 immediately.** | All |
| **Vertical Evacuation** | **Notification from Early Warning Network received from the BOM** with rainfall predicted to be greater than;<br>• **70.5mm over a period of 30 minutes**<br>• **92.1mm over a period 1 hour**<br>• **135mm over a period 3 hours**<br>• **206mm over a period 9 hours** | Chief Flood Warden |
| | Make decision to **seek refuge on site and notify** Police & SES. | Chief Flood Warden |

| | | |
|---|---|---|
| | **Communicate decision for residents to seek refuge within their Units**. This may be through activation of an alarm system or direct notification. | Chief Flood Warden |
| | **Make decision to close commercial premises**. If time permits, staff to return home. If rainfall has commenced, staff to take Flood Emergency Kits and seek refuge in upper levels of the facility. | Chief Flood Warden<br>Commercial Tenants |
| | **Notify expected visitors** that may attend the site not to visit and to remain where they are / seek refuge in accordance with advice provided by emergency services. | All |
| | **If off-site,** seek refuge in accordance with emergency services advice and never **attempt to drive or walk through floodwater.** | Residents |
| | **Remain at on-site unless advised otherwise by emergency personnel.**<br>**Do not attempt to drive or walk through floodwater. In life threatening emergencies, call 000 immediately.** | All |
| **Once Risk has Passed / After a Flood** | Check all services and structural stability of building. | Qualified persons |
| | Return to operation. | All |

## Key Personnel

**Table 4 – Key Personal Summary**

| Person Organisation | Name | Number |
|---|---|---|
| Chief Flood Warden<br>(Building Manager) | | |
| Flood Warden | | |
| SES | - | 132 500 |
| Police / Fire / Ambulance | - | 000 |
| Central Coast Council Emergency Hotline | - | (02) 4306 7900 |

## Flood Response Summary

All residents and hotel apartments are located above worst case PMF levels. As such, on site refuge is recommended for all residents and hotel guests during a rare or extreme flood event.

Commercial premises is to close if notification is received prior to the commencement of operations for the day. If notification is received after the commencement of operations, staff are to return home (if safe to do so) or proceed seek refuge in the upper levels of the building.

Access to Racecourse Road / Central Coast highway is to be limited during a 10% AEP (or larger event) as non-trafficable conditions are likely in this area.

# Introduction

Northrop Consulting Engineers have been engaged by Japrico Developments to prepare a Flood Emergency Response Plan (FERP) for the proposed multi-use development located at 10 Young Street, West Gosford, NSW 2250 herein referred to as “the subject site” or “the site”.

This plan has been prepared to support the Development Application submission to the Department of Planning and Environment (REF: DA 10609).

The purpose of this FERP is to:

- Promote satisfactory awareness of expected flood behaviour and flood risk 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 if appropriate and flood refuge opportunities.

This FERP has been prepared generally in accordance with the latest Department of Planning and Environment Draft Shelter in Place guidelines.

## Subject Site

The subject site is contained within Lot 1 DP 1194024 and part of Lots 11 DP1201715 and Lot 201 DP 1201057 (refer to Figure 1).
The site has an approximate area of 0.44 hectares and is bound largely by existing commercial premises. The site has frontages of approximately 24 metres to Racecourse Road to the west and 12 metres to Young Street to the north-east.

The existing site is largely made up of hardstand pavements and is currently used for the storage of vehicles by the adjacent car dealership. An existing private laneway also exists along the northern boundary which is used for access into the subject site and the adjacent property to the north. Elevations of the site range approximately from 1.20m Australian Height Datum (AHD) to 2.50m AHD and fall generally from the north east to the south with approximate average grade of 2 percent.

The land use in the vicinity of the site includes commercial, industrial and residential land uses with large areas of open space and recreational land uses. Gosford Racecourse (west), Gosford Golf Course (north), Garnet Adcock Memorial Park (south), Carawah Reserve (south-east) and Waterview Park (north-east) are all located in close proximity to the subject site. The Central Coast Highway is also located approximately 50 metres from the southern boundary of the site.

## Proposed Development

The proposed development consists of a multi-storey mixed-use facility, including a car showroom, hotel apartments and residential units (refer to Architectural drawings prepared by Marchese Partners). A new access road is proposed along the eastern and southern boundaries, linking Young Street with Racecourse Road. The proposed land use and terrain around the building is largely hardstand with elevations ranging from 1.25m AHD to 2.60m AHD.

As part of the development, it is proposed to upgrade the stormwater drainage network in the vicinity of the site to mitigate the potential flood impact of the proposed development during minor and major flood events. The upgrade includes a diversion of the existing underground pipes extending from the south, running beneath the proposed new road before connecting into Racecourse Road.


**Legend**

- Subject Site
- Suburbs Boundary
- Cadastre

0 200 400 Metres

1:12,000

# Figure 1

**Locality**

10 Young Street, West Gosford

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Data Source: NSW LPI - cadastre, NSW Imagery and Near map - aerial

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# Methodology and Available Data

This plan was developed using the flood information prepared for the purposes of the Development Application. Additional flood data has been obtained from Central Coast Council and used under a Data Sharing Agreement (DSA) for the purposes of this study. A summary of flood information used in the preparation of this study is presented below:

- Gosford CBD Local Overland Flow Flood Study (Cardno, 2013).
- Updated Narara Creek Flood Study (Golder, 2018).
- Brisbane Water Foreshore Floodplain Risk Management Plan (Cardno, 2015).
- Flood Information Certificate for 10 Young Street, West Gosford provided by Central Coast Council and dated 28th of May 2020.
- Flood Impact Assessment prepared by Northrop Consulting Engineers (April, 2024) for Development Application submission to the Department of Planning and Environment (DPE).

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), State Emergency Service (SES) and Central Coast Council resources 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 site and nearby topography, in combination with the likely flood behaviour has informed the on-site refuge points nominated in the **Site Floor Levels**, **Flood Immunity** and **On-Site Refuge** sections of this plan.

Contact numbers for relevant emergency response agencies are noted in the **Emergency Contact** section of this plan.

Finally, a review of the Central Coast Council Development Control Plan 2022, aforementioned flood study, NSW State Flood Plan and Emergency Business Continuity Plan and NSW draft Shelter in Place Guideline 2022 have contributed to the recommended preparation and response actions outlined in the **Flood Response Preparation** and **Flood Response Actions** sections of this plan.

# Flood Behaviour

## Flood Source and Behaviour

Flooding of the subject site occurs through three major mechanisms namely, the regional Brisbane Water Foreshore, the regional Narara Creek mechanism and the local Gosford Central Business District (CBD) mechanism.

Flood levels contained in the Flood Information Certificate provided by Council suggests flooding of the subject site is largely dominated by the Narara Creek and Gosford CBD mechanisms, with the Brisbane Water Foreshore Mechanism producing lower flood levels during the 1% AEP design storm event.

As outlined in the Flood Impact Assessment (Northrop, 2024), flooding across the eastern portion of the site is expected to be governed by the local Gosford CBD catchment while flooding across the western portion of the site is governed by the regional Narara Creek catchment.

Although flooding of the subject site is largely dominated by the Narara Creek and Gosford CBD catchments the Brisbane Water Foreshore event still has the potential to occur, independently to the Narara Creek and Local catchment mechanisms. As such, a review of the Brisbane Water Foreshore flood behaviour is included below. Expected flood behaviour during all three mechanisms is discussed further below.

### Brisbane Water Foreshore

Flood behaviour in the Brisbane Water catchment is outlined in the Brisbane Water Foreshore Flood Risk Management Study (Cardno, 2015). Flooding during this mechanism is expected to occur over a prolonged period of time with the Brisbane Water Foreshore Flood Risk Management Study (Cardno, 2015; Section 9.1) suggesting an estimated time to peak of approximately 18 hours during a 1% AEP flood event.

During this time a relatively slow rate of rise is also expected with the Brisbane Water Flood Risk Management Study (Cardno, 2015; Table 6.4) suggesting a rate of rise of up to 0.17m/hr is expected during the worst case PMF event. In addition, the Brisbane Water Flood Risk Management Study (Cardno, 2015; Figure 6.3) suggests the duration of inundation at the site is expected to be in the order of approximately 1-5 hours during the 1% AEP.

Sufficient warning time is expected to be available in the event where evacuation is required due to a Brisbane Water flood event, with the Brisbane Water Foreshore Flood Risk Management Study (Cardno, 2015; Section 6.2.5.2) suggesting a warning time of up to a “few” days in advance may be available prior to the event.

### Narara Creek

Flood behaviour derived by the Narara Creek mechanism is expected to be different to that of the aforementioned Brisbane Water Foreshore flood event. A faster rate of rise and fall, and shorter warning time is expected to occur during this flooding mechanism.

Review of the Updated Narara Creek Flood Study (Golder, 2018; Section 6.2) suggests a time to peak at the subject site, is expected to be in the order of 6-7.5 hours during the 1% AEP.

Similarly, a critical duration of 3 hours is noted for the PMF suggesting that the flood peak during the PMF may occur within 3 hours following commencement of rainfall. As the rate of rise and warning time is expected to be short, limited opportunity is expected to be available for users of the facility to evacuate the site during a Narara Creek flood event.

### Local Catchment

Similar to the Narara Creek catchment, the local catchment event is expected to experience a quick response time following the commencement of rainfall with flood behaviour more congruous with a Flash Flood event.

This is demonstrated by a critical duration ranging from 15 minutes during the PMF and up to one hour during the 10% AEP noted in the Flood Impact Assessment (Northrop, 2024).

Flood water is expected to rise and fall quickly during a Local Catchment flood event and as such, limited warning time likely to be available prior to the event.

## Flood Depth, Velocity and Hazard

Figures presenting the maximum modelled flood depth, elevation, velocity and hazard during a combined Narara Creek and Local Catchment flood event 10% AEP, 1% AEP and PMF flood events are presented in the Flood Impact Assessment (Northrop, 2024).

The following **Table 5** presents a summary of the flood elevations at the site interface with Racecourse Road and Young Street.

**Table 5 - Flood Elevations (Young Street and Racecourse Road)**

| Flood Event | Racecourse Road (SW Corner) (m AHD) | Young Street (NE Corner) (m AHD) | Flooding Mechanism |
|---|---|---|---|
| 10% AEP | 1.60 | 2.44 | Local Catchment |
| | - | - | Narara Creek |
| 1% AEP | 1.64 | 2.46 | Local Catchment |
| | 2.11 | - | Narara Creek |
| | 1.74 | - | Brisbane Water |
| PMF | 1.76 | 2.67 | Local Catchment |
| | 4.09 | 4.16 | Narara Creek |
| | 2.23 | - | Brisbane Water |

Similarly, the following **Table 6** presents a summary of the flood depth, velocity and hazard conditions across the subject site during the 10%, 1% AEP and PMF design storm events for both the local and regional flood events. Flood hazard is based on the latest AR&R 2019 and Australian Institute of Disaster Resilience (AIDR) hazard categories presented in the **Figure 2** below.

**Table 6 - Flood Depth, Velocity and Hazard across the Subject Site**

| Flood Event | Depth (m) | Velocity (m/s) | Hazard (ARR 2019) | Flooding Mechanism |
|---|---|---|---|---|
| 10% AEP | 0.39 | 0.98 | H2 | Local Catchment |
| | - | - | - | Narara Creek |
| 1% AEP | 0.52 | 1.20 | H2 | Local Catchment |
| | 0.90 | 0.93 | H3 | Narara Creek |
| | 0.62 | 0.2[1] | H3 | Brisbane Water[2] |
| PMF | 0.79 | 2.30 | H5 | Local Catchment |
| | 2.86 | 2.13 | H6 | Narara Creek |
| | 1.11 | 0.2[1] | H3 | Brisbane Water[2] |

[1] Extracted from Brisbane Water Foreshore FRMS&P (Cardno, 2015: Sec 6.2.5.2)

[2] Flood behaviour estimated based on predicted depths (determined using survey)

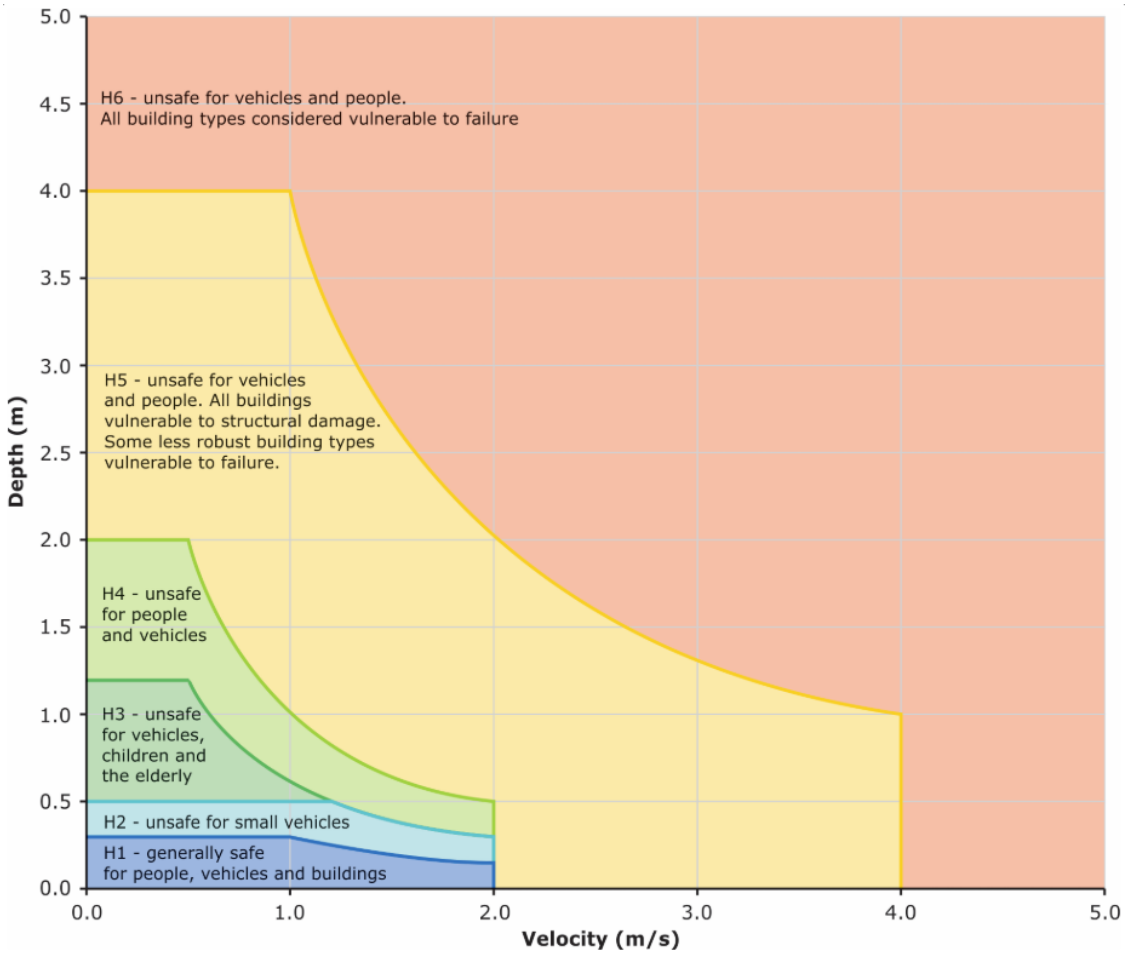


**Figure 2 - Australian Rainfall and Runoff (2019) Hazard Categories**

# Flood and Evacuation Warnings

A network of rainfall gauge stations is maintained throughout the Central Coast region. Ten rainfall gauge stations are maintained within the Central Coast LGA region and provide information to the Bureau of Meteorology (BoM) as a source of information informing their flood warning system.

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.

It is recommended that Flood Wardens (described below) register for automatic text and email notifications from the Early Warning Network Service which filters and passes on BoM warnings. In addition, the SES Hazard Watch website and Bureau of Meteorology Weather App/ Website provides information for current flood warnings.

## Bureau of Meteorology

### 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.

### 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 3.13” (Bureau of Meteorology, 2013).

This is the most likely warning type for the subject site should evacuation need to occur.

### Minor/ Moderate/ Severe Flood Warning

A more detailed flood warning may be issued based on any additional information available. Three hours warning time is expected from issue of warning to peak flood level.

All warnings will be issued through the SES/BOM website, radio and television. Radio frequencies include 702 ABC Sydney (702 AM), 2CG (1170AM), 2DAY FM, (104.1FM), 2GB (873AM), 2ME, 1638AM, 2SM/Gorilla (1269AM), 2UE (954AM), 2VTR Hawkesbury (89.9FM), BLU FM (89.1FM), MIX 106.5 (106.5FM), NOVA (96.9FM), Radio 2Moro (1620FM), Radio 2RDJ (88.1FM), SBS Radio (97.7FM), Sydney’s 95.3 (95.3FM), Triple M (104.9FM) and WSFM (101.7FM).

All public and commercial television stations should broadcast warnings.

## 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.

### Advice

The SES will issue flood advice acknowledging that an incident has started and informing people to stay up to date in case the situation changes.

### Watch and Act

The SES will issue a Watch and Act warning when flood conditions are changing and the purpose of his warning to prepare for evacuation / isolation or avoid the area that is expected to impact by flooding.

### Emergency Warning

The SES will issue an Emergency Warning if evacuation is required. If this occurs evacuation must be undertaken. Broadcast will be via radio/ TV, door knock, automated telephone message or SMS.

Broadcast will be via radio/ TV, door knock, automated telephone message or SMS or the SES website.

## Other Warning Types / Resources

### Standard Emergency Warning Signal

This signal may be played over radio and television stations to alert communities to Evacuation Warnings Evacuation Orders or Special Warnings or Dam-Failure Warnings.

### Early Warning Network Automated Text and Email Service

The Chief Flood Warden and Flood Wardens are to register for automatic alerts with the Early Warning Network which will filter the above BoM warnings and send texts and emails to registered users to notify them of the situation.

### Hazards Near Me App

Recently the NSW SES and NSW Public Works have created a new tool called Hazards Near Me App NSW which is both a webpage and Phone Application. The application filters BoM and RFS warnings relevant to the user and may be used by the Village Manager and Residents as an additional resource. The Application is free and allows the user to input a radius of interest for receiving notifications. The application is expected to also filter BoM warnings relevant to the user and may be used by the Chief Flood Warden and Flood Wardens as an additional resource.

### Hazard Watch

The NSW SES and Australian Federal Government have prepared the HazardWatch portal that filters BoM warnings and provides advice on locations and magnitude of predicted hazards. This resource is also free and can be accessed via a smart phone, tablet or laptop.

### Central Coast Council Online Flood Warning System

Central Coast Council have an online flood warning system which can provide “up to the minute” news on current rainfall, flood warnings and safety advice. The system also provides advice as to what roads may be closed nearby and is free and can be accessed via a smart phone, tablet or laptop.

## On-Site Emergency Communication

### Onsite Public Address System

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

### Air Horn / Loudspeaker

Should a PA system be unavailable or inoperable in the event of an emergency, a two-way radio, air horn and handheld loudspeaker is located within each Flood Warden's Flood Emergency Kits. These will be used to obtain people's attention and direct them to evacuation offsite. The contact details for each Flood Warden should also be contained within the Flood Safe Emergency Kit.

# Flood Response Personnel

Summarised in **Table 7** below are the facilities nominated emergency personnel, their location and responsibilities in managing flood response.

**Table 7 - Flood Response Personnel**

| Role | Location | Responsibilities |
|---|---|---|
| **Chief Flood Warden** | On-site | • Ensure residents and tenants are notified of existing site flood conditions and are trained for vertical evacuation.<br>• Ensure flood signage is maintained and is visible.<br>• Coordinate flood drills.<br>• Monitor weather daily for upcoming major or extreme rainfall events.<br>• Receive and review notifications from the Early Warning Network / Hazards Near Me App / Council's Disaster Dashboard.<br>• Prepare and coordinate assistance for residents with mobility difficulties.<br>• Decide when vertical evacuation is required.<br>• Communicate decision for vertical evacuation to Flood Wardens and activate alarm and evacuation message.<br>• Remain calm and direct staff, residents, customers, and visitors and through the vertical evacuation procedures.<br>• Liaison with SES or Emergency Services personnel if they attend site. |
| **Deputy Chief Flood Warden** | On-Site | • Undertake Chief Flood Warden duties when Chief Flood Warden is unavailable.<br>• Remain calm and direct staff, residents, customers, and visitors through the vertical evacuation procedures. |
| **Flood Wardens** | On-Site | • Assist Chief and Deputy Chief Flood Warden with vertical evacuations.<br>• Prepare and maintain Flood Emergency Kits.<br>• Monitor weather daily for upcoming major or extreme rainfall events.<br>• Receive and review notifications from the Early Warning Network / Hazards Near Me App / Council's Disaster Dashboard. |

| Role | Location | Responsibilities |
|---|---|---|
| | | • Remain calm and direct staff, customers, and visitors and through the vertical evacuation procedures.<br>• Prepare and coordinate assistance for staff, residents, customers, and visitors with mobility difficulties. |
| **Staff, Residential Tenants and Hotel Guests** | On-site | • Maintain calm, follow vertical evacuation process and assist to direct visitors onsite through vertical evacuation processes. |

It is anticipated the Building Manager (or similar), will be nominated the role of Chief Flood Warden. It is recommended the Chief Flood Warden be assigned to someone who is on-site on a regular basis.

Similarly, staff members and residents who are on-site on a regular basis should be nominated the role of Deputy Chief Flood Warden and general Flood Wardens. It is recommended that at least one Flood Warden is assigned in each retail/commercial tenancy and the hotel.

Additional emergency management training is strongly recommended for all Flood Wardens.

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

Flood  drills are to be made available to all building occupants.

# Floor Levels and On-Site Refuge

## Floor Levels

The proposed development contains multiple floors, including commercial and non-residential habitable spaces. The level of each floor is presented below in **Table 7.** The floor levels with respect to the 1% AEP and PMF flood events are also presented in the below **Table 7.**

**Table 7 - Internal Floor Levels**

| Floor | Level (m AHD) | Relationship to Flood Levels |
|---|---|---|
| **Level 00 (showroom, hotel lobby, residential lobby)** | 2.59 | Above all 1% AEP events<br>Below Narara Creek and Local Catchment PMF |
| **Level 1 (parking)** | 7.19 | Above all 1% AEP and PMF |
| **Level 3 (hotel apartments)** | 13.20 | Above all 1% AEP and PMF |
| **Level 5+ (residential)** | 20.00 | Above all 1% AEP and PMF |

## On-Site Refuge

**On-site refuge is recommended during a flood event, on any suitable level above Level 00 (i.e. Ground Floor level)**.

All residents and hotel apartments are located above the 1% AEP and PMF levels. As such, on site refuge is recommended for all residents and hotel guests during a rare or extreme flood event. Staff and visitors of the commercial premises located on Level 00, within reach of a rare or extreme flood event are to seek refuge on higher levels of the building. The Flood Safe Kit will provide the required access keys for these patrons to have access to the gym on Level 03. The building is to be designed to withstand flood forces and debris impact in the PMF to facilitate this approach.

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

**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) 4306 7900.

# Flood Response Actions

## Limit access to Racecourse Road

### Trigger

Up to H3 hazard conditions are expected in Racecourse Road and the Central Coast Highway during the 10% AEP meaning it is unlikely this road network will be trafficable for vehicles during this event.

In the event where access to Racecourse Road and the Central Coast highway is cut, it is recommended that access and egress to and from the facility occur via Young Street as an alternative.

Access to Racecourse Road and the Central Coast highway should be limited following receipt of a Generalised Flood Warning or Severe Weather Warning with nominated rainfall depths equivalent to or in excess of **Table 8** below.

**Table 8 - Rainfall Trigger to Limit Access to Racecourse Road (10% AEP)**

| Rainfall Depth (mm) | Timescale |
|---|---|
| 41.0 | 30 minutes |
| 53.7 | 1 hour |
| 79.7 | 3 hours |
| 124 | 9 hours |

### Procedure

The procedure to notify users of the facility of limited access to Racecourse Road and the Central Coast Highway should generally follow the below:

- **Chief Flood Warden** receives Generalised Flood Warning or Severe Weather Warning with depths noted in **Table 8** above.
- **Chief Flood Warden** to notify residents, staff, customers and visitors that access to Racecourse Road may be cut and to use Young Street as an alternative via message on PA system to
- **Residents, Staff and Visitors to use Young Street for access and egress.**
- Once floodwater has receded in Racecourse Road and the Central Coast highway and rainfall has stopped, **Chief Flood Warden** to give the all clear to users of the facility.

**Do not Drive or Walk through Floodwater.**

**Remember, If It's Flooded, Forget It!**

## Vertical Evacuation (On-site Refuge)

### Trigger

It is possible the regional road network may become compromised during a 1% AEP design storm event and as such, it is recommended that users of the facility remain within the facility following commencement of rainfall.

To discourage visitors accessing the site and entering the compromised road network, it is recommended that commercial premises be closed and access / egress to the facility be restricted during a 1% AEP design storm event.

Closure of the commercial premises should occur following receipt of a Generalised Flood Warning or Severe Weather Warning with nominated rainfall depths equivalent to or in excess of the 1% AEP design storm event. The expected rainfall depths associated with this event are presented in **Table 9** below.

**Table 9 - Rainfall Trigger for Vertical Evacuation**

| Rainfall Depth (mm) | Timescale |
|---|---|
| 70.5 | 30 minutes |
| 92.1 | 1 hour |
| 135 | 3 hours |
| 206 | 9 hours |

It is recommended users of the hotel and residential apartments remain within the upper levels of the facility and wait out the flood event.

### Procedure

The evacuation procedure should generally follow:

- **Chief Flood Warden** receive Generalised Flood Warning or Severe Weather Warning with depths noted in **Table 9** above.
- **Chief Flood Warden** to make decision to vertically evacuate ground floor
- Chief Flood Warden to relay decision to vertically evacuate via message on PA system to residents, staff, customers and visitors
- **Staff and Visitors in the Commercial tenancies may Return home** if it is safe to do so and wait out the storm event (otherwise follow vertical evacuation requirements as advised by the Chief Flood Warden).
- **Flood Wardens** clear commercial tenancies.
- **If staff or customers are unable to return home**, they are to gather the FloodSafe Kit and belongings and **proceed to the upper levels of the facility**.
- **Wait it out** at the designated refuge points.

The aim is to eliminate/reduce the risk to life by removing as many staff and visitors from the flood prone area as possible.

The Chief Flood Warden is responsible for reviewing the weather forecasts daily and notifying facility users, staff and residents of the decision to close the building.

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

- Cancelling services and appointments for the day of the event (Commercial Areas).
- Blocking floor wastes and toilets on lower levels.
- Securing objects that are likely to float and cause damage.
- Relocating chemicals above the predicted water level.
- Moving vehicles away from the site where possible.

### Horizontal Evacuation

It is noted that horizontal evacuation is not recommended however, if evacuation is required due to a cascading or coincident emergency (e.g. medical emergency or fire), residents should proceed north along Young Street. This evacuation route is shown in **Figure 3** overleaf.

Do not attempt to evacuate via Racecourse Road / Central Coast Highway. These roads are expected to become inundated during frequent events.

**It is important to review the flood conditions prior before evacuating.**

**Never attempt to enter flood water.**

### Emergency Services Attending Site

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

### After a Flood

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.
- Advice should be sought from a suitably qualified engineer as to the structural integrity of buildings prior to their use.
- 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 qualified persons.

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


**Legend**

- Subject Site
- BW PMF (2.23m AHD)
- Design Surface Extent
- Proposed Building
- Evacuation Route

**Narara Creek & Local Depth (m)**

- <= 0.02
- 0.02 - 0.10
- 0.10 - 0.25
- 0.25 - 0.50
- 0.50 - 1.00
- 1.00 - 2.00
- 2.00 - 4.00
- 4.00 >

0 40 80 Metres

1:2,000

# Figure 3

**Evacuation Path**
**1% AEP Narara and Local and BW PMF**

10 Young Street, West Gosford

NORTHROP

Data Source: NSW LPI - cadastre, NSW Imagery and Near map - aerial

23/4/2024 X:\PROJECTS\NEWCASTLE\YEAR 2020 Jobs\NL200900 - 10 Young Street\FIGURES2\Figures_REV3.qgz

# 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 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 the hazard. This should be displayed in conjunction with other emergency information (such as fire, etc.) throughout the facility.

### Notification to Residents and Commercial Tenants of Site Flood Conditions

Prospective residents and commercial tenants are to be notified that the site is flood prone with the site flood emergency information and procedures relayed prior to issue of a lease agreement and contract.

### Induction Training

Induction training is also recommended for all new residents and commercial staff which is to occur on the first day of occupation or employment. Induction training should identify the site flooding conditions and expected flood behaviour. The evacuation procedures are also to be relayed to the residents and staff during the induction training as well as all additional information contained within this plan.

Records should be kept which detail who has had the training, when they were trained, the name of the trainer as well as reference to the material used in the training course.

### Evacuation Drills

Evacuation drills are designed to increase flood awareness within the facility. 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/.

Additional guidance is provided by the Australian Disability Network and if required, a Personal Emergency Evacuation Plan (PEEP) may be prepared. 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

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 an initial site induction.

Education and awareness are considered two critical aspects of Disaster Risk Reduction. These two elements are introduced through notification and induction training and further reinforced through evacuation drills.

### Floodsafe Emergency Kit

A Floodsafe Emergency Kit should be prepared for each of the commercial and retail tenancies that may be brought along during any evacuation. It is recommended resitenail tenancies also prepare a Floodsafe Emergency Kit.

Potential items for a floodsafe 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.
- Individual Health Care Plans including asthma puffers, diabetes medication, epi pens, etc.

Commercial tenancies may also consider packing the below:

- Register of Staff and Visitors on-site.
- Sign in book for visitors and contractors.

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.

**BY WHO**: Chief Flood Warden and Tenants

## 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 below the Flood Planning Level (i.e. 2.59m AHD). The first floor level is above the PMF level and is therefore considered the most appropriate place to store goods which are sensitive to water.

## Monitoring of Weather Situation

It is the responsibility of the Chief and Deputy 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. The Hazards Near Me app, Hazard Watch website and/or Council's Disaster Dashboard may also be used to monitor the flood situation.

It is recommended that each individual resident, commercial tenant and the nominated Flood Wardens also monitor the weather situation to ensure they remain informed and prepare appropriately for any upcoming flood events.

**TRIGGER FOR MONITORING:**

- Continuous, 4pm daily

**BY WHO:** All Flood Wardens and Residents

## Signage

Flood warning signage is to be placed throughout common areas in the facility (i.e. lift lobbies and common halls). It is also recommended that a copy of the Flood Response Summary provided at the beginning of this plan be placed within each individual tenancy and in all hotel apartments. All flood warning signage is to be laminated and must identify that the site is flood prone.

It is the responsibility of each individual tenant to ensure signage within the tenancies is up to date and displayed as recommended above.

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

# Revision of this Flood Evacuation Plan

This plan has been prepared as a preliminary plan for the purposes of the approval. It is anticipated this plan will be updated prior to Construction Certificate to incorporate additional available information such as more detailed floor plans and further standard emergency procedures.

Proceeding the aforementioned update, this plan should be revised if any of the following flood studies are updated:

- Updated Narara Creek Flood Study (Golder, 2018).
- Brisbane Water Foreshore Floodplain Risk Management Study (Cardno, 2015).
- Gosford CBD Local Overland Flow Flood Study (Cardno, 2013)

These studies may be updated to capture changes in the catchment or changes design rainfall patterns developed as part of Australian Rainfall and Runoff 2019. Additionally, revisions in conjunction with the SES notification systems should be made.

Notwithstanding the above, this plan shall be **reviewed every three years** or when there is a major operational change or an evacuation event.

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

# Conclusion

The subject site is affected by flooding generated by both regional and local catchments. A review of the proposed development has been undertaken in conjunction with the expected flood behaviour and it was concluded that:

- **Access to Racecourse Road and the Central Coast highway should be limited** following receipt of a Generalised Flood Warning or Severe Weather Warning with nominated rainfall depths equivalent to or in excess of
- **Vertical Evacuation (i.e. on site refuge)** shall occur for all residents and hotel guests following receipt of a Generalised Flood Warning or Severe Weather Warning with nominated rainfall depths equivalent to or in excess of the 1% AEP design storm event.
- **Closure of the Ground Floor Commercial premises** shall occur following receipt of a Generalised Flood Warning or Severe Weather Warning with nominated rainfall depths equivalent to or in excess of the 1% AEP design storm event. Any staff and visitors that are unable to return home following receipt of the aforementioned flood warning shall proceed into the upper levels of the facility until flood water recedes.
- The Chief Flood Warden shall provide adequate direction during a Flood Emergency.

Through adoption of this plan, the existing flood risk on the subject site is expected to be reduced. The recommendations contained herein assist in managing the risk to life of the residents, staff and visitors on the subject site.

# References


| | | |
|---|---|---|
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