Rose Group Pty Ltd

Flood Emergency Response and Evacuation Plan

51 Riley Street

November 2024

ENGINEERING
PLANNING
SURVEYING
CERTIFICATION
PROJECT MANAGEMENT

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1 Introduction

Barker Ryan Stewart Pty Ltd has been engaged by Rose Group Pty to prepare a Flood Emergency Response and Evacuation Plan for the proposed development at 51 Riley Street, Woolloomooloo.

This report has been prepared to identify the flooding risks associated with the development and how to respond including awareness and preparation prior to, and procedures during an emergency flood event.

In preparation of this report, the investigation will consider the following:

1. 6642_51 Riley Street– Architectural Plans Rev 3 prepared by SJB Dated 20/02/2024
2. Detail Site Survey – Denny Linker & Co Dated 26/10/2022
3. The location of the site and its surroundings and the likely impact of flooding on the site.
4. Woolloomooloo Catchment Floodplain Risk Management Plan (WMAWater 2016)
5. Flood modelling results obtained from council for the Woolloomooloo Catchment Floodplain Risk Management Study (WMAWater 2016)
6. Sydney Development Control Plan (2012)
7. Sydney Local Environment Plan (2012)
8. Sydney Interim Floodplain Management Policy
9. Australian Rainfall and Runoff 2019
10. Flood Evacuation procedures as recommended by the SES

2 Site Location and Development Proposal

2.1 Existing Site & Location

The site is located at 51 Riley Street, Woolloomooloo and is presently occupied by a two-storey office building development. The site is fronted by Riley Street to the east, backs onto Busby Lane to the west, and is adjoined to neighbouring commercial buildings on the northern and southern boundaries.

The location of the site is shown in Figure 1 below.

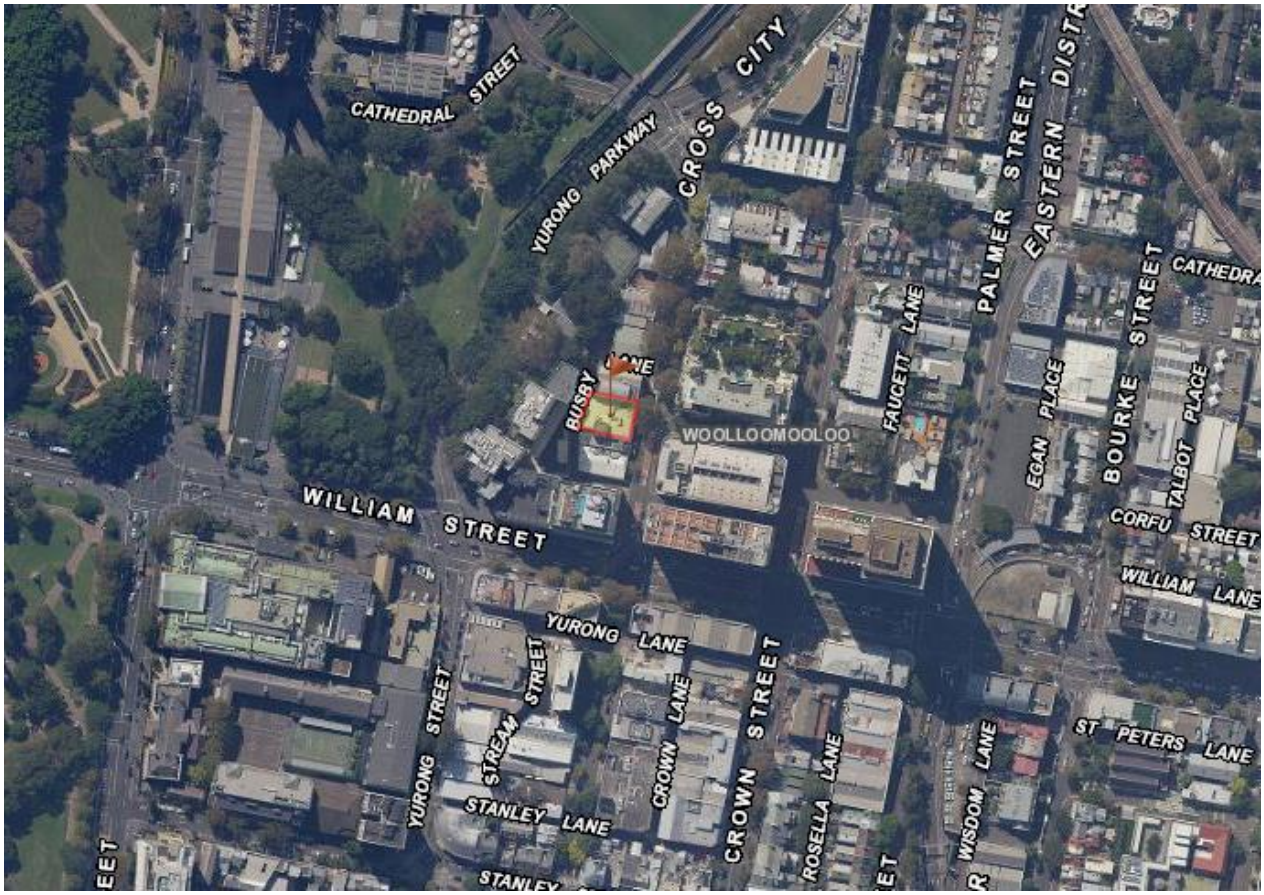

Figure 1. Location of Subject Site (Source: SIXmaps)

The site is currently developed to the boundary along all site fronts, and the surrounding land has a natural fall to the north.

2.2 Proposed Development

This Flood Emergency Response and Evacuation Plan has been prepared to support a Planning Proposal to amend the Sydney Local Environment Plan 2012 which would support development of the site involving the construction of a multi-storey development consisting of 5 storeys, rooftop and basement parking level. It seeks to stitch together the shopfronts that exist on the block and contribute to the sense of place in this highly diverse, historic and dynamic part of Sydney.

A section view of the of the proposed development is shown below.

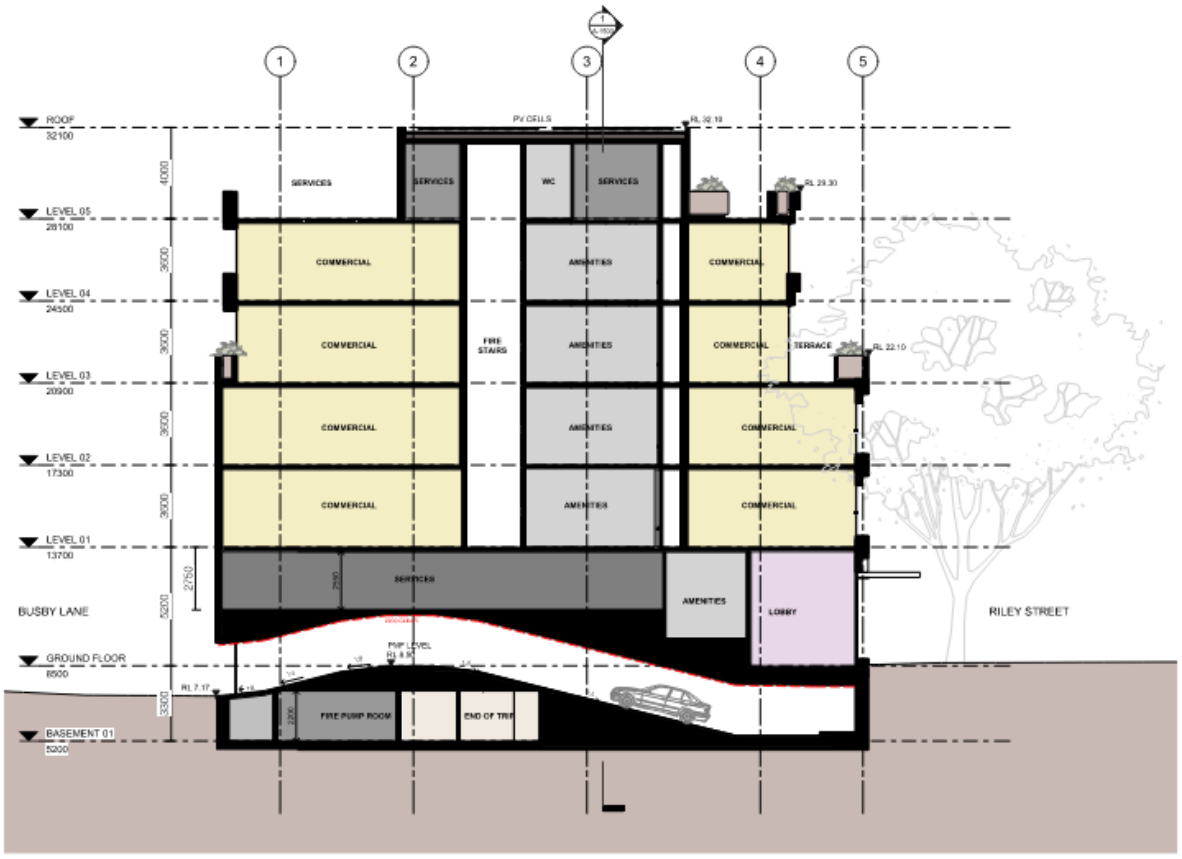

Figure 2. Proposed Development (Source: SJB Plans)

3 Flood Information

3.1 Extent & Land Use

The proposed development is located within the Woolloomooloo catchment which includes the suburbs of Potts Point, Darlinghurst, Sydney, Surry Hills, and Woolloomooloo. The catchment covers an area of approximately 160 hectares. The catchment is fully developed and consists of medium to high-density housing and commercial development with some large open spaces that include Hyde Park, Sandringham Gardens, Fragrance Garden, The Domain Park, the Royal Botanic Gardens, Daffodil Park, and several other smaller parks.

4 Flood Hazard

4.1 General

The flood hazard, which is a relationship between flood depth and flood velocity varies around the proposed development site. Riley street can be seen to be classed as high hazard is both the 1% AEP and PMF storm events. Areas shown as high hazards are generally corresponding to where the major overland flow paths are occurring.

Refer to figures 3 and 4 below for the 1% AEP and PMF hazard maps respectively.

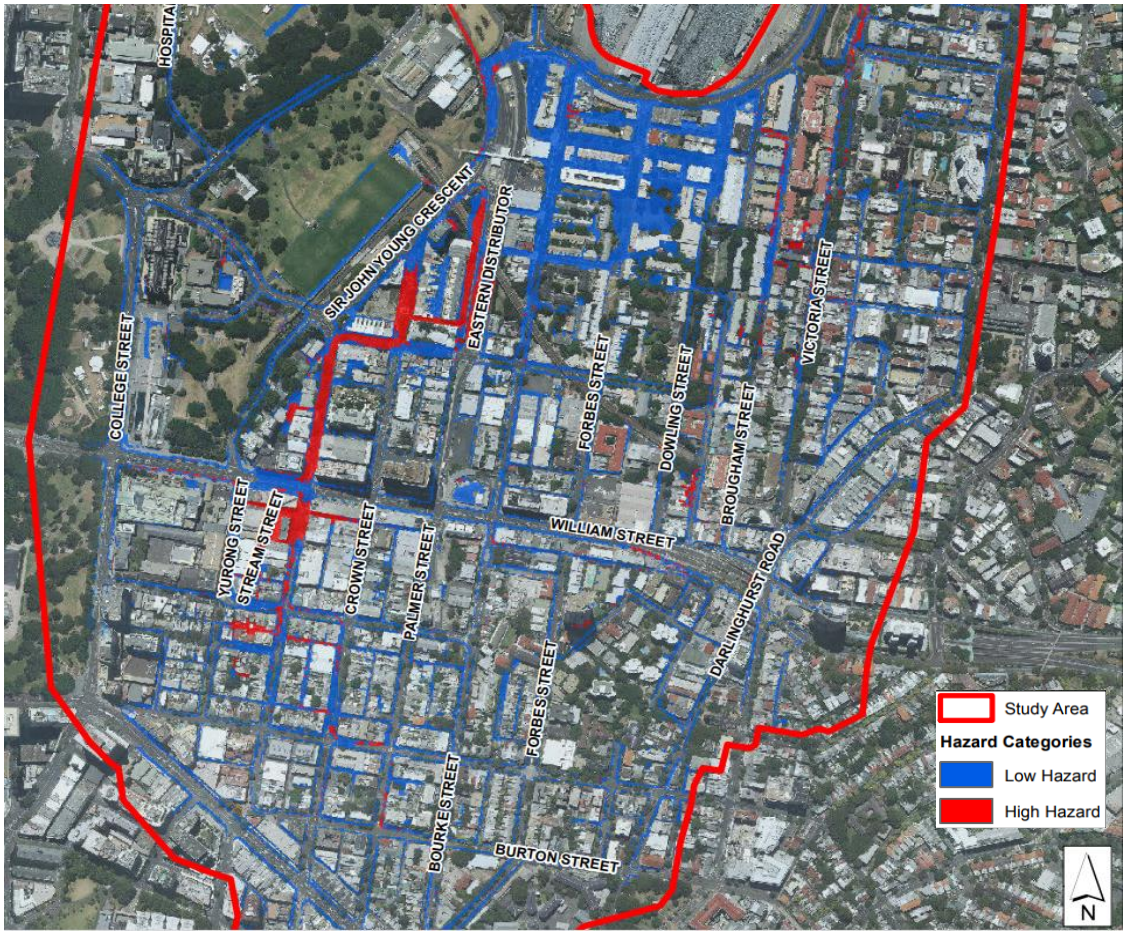

Figure 3. Woolloomooloo 1% AEP Flood Hazard Category (WMAwater FRMP)

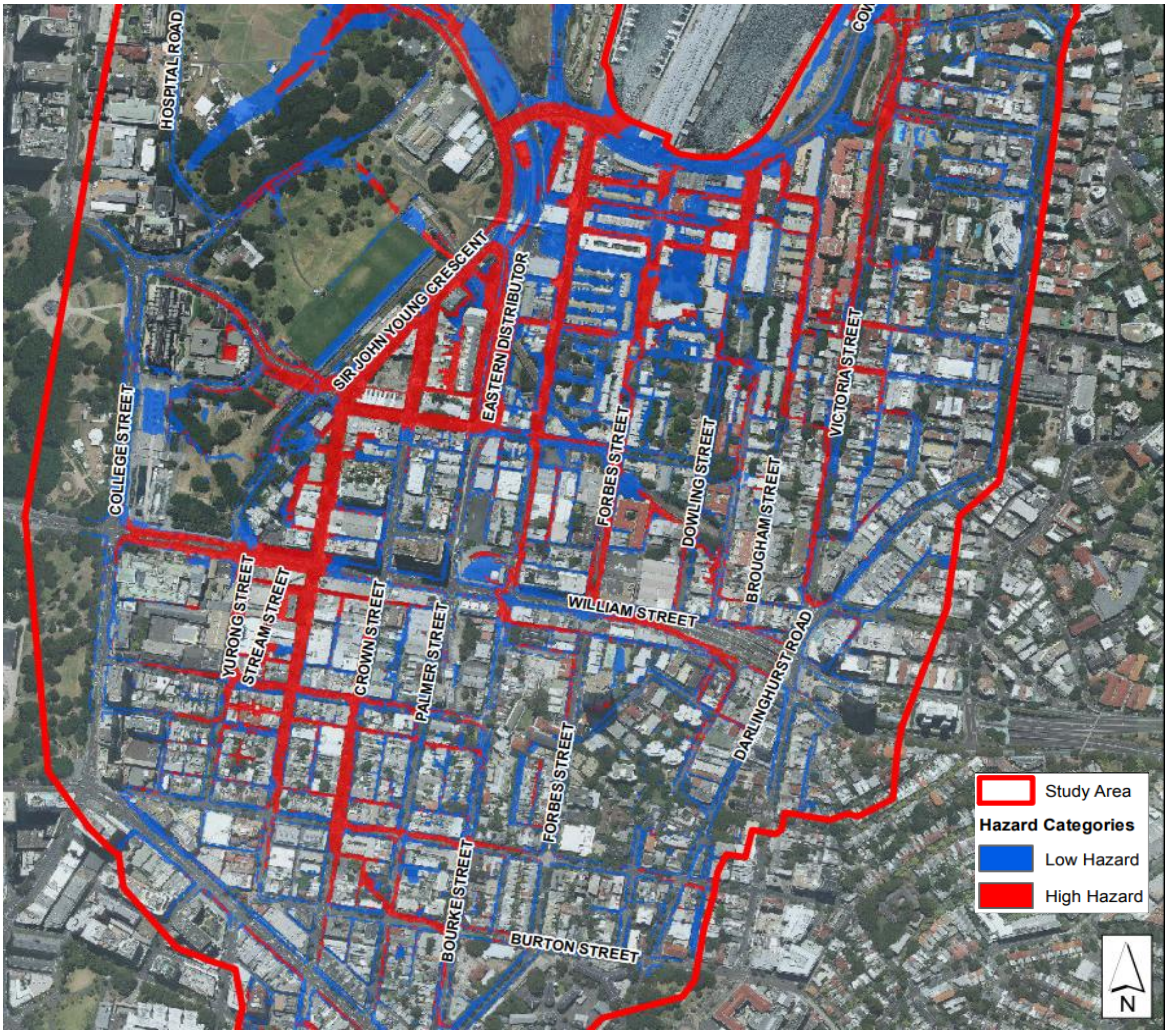

Figure 4. Woolloomooloo PMF Flood Hazard Category (WMAwater FRMP)

5 Site Flood Emergency Response Plan

5.1 General

The following is provided as guidance for owners and occupants who may be present at the premises at the time of a flood. It does not provide details of every possible sort of flood event, just the sort of event that is most likely going to occur at this premises, with respect to the 1:100 ARI. With particular focus on the major flood event for Woolloomooloo Catchment. For further information especially for those individuals of non-English speaking and writing background that further information be sort from the NSW SES website:

https://www.ses.nsw.gov.au/about-us/diversity-inclusion/diversity-inclusion/in-your-language/

or by phone **132 500**

Flood warning time and evacuation procedures used by the State Emergency Service (SES) are widely used throughout NSW to reduce flood damage and to protect lives. The objective of a Flood Emergency Response Plan is to ensure that the occupants are aware of the possibility of flooding and are aware of the plan for evacuation and procedures to follow if a flood occurs.

The main reason to provide an appropriate flood emergency response plan and evacuation route to or from affected areas and flood evacuation procedure are to ensure that:

1. Occupants and staff members have a chance to evacuate themselves and valuables/belongings before becoming inundated or trapped by rising floodwaters.

2. Emergency Services such as the SES, ambulance and police are not restricted or exposed to unnecessary hazards in carrying out their duties.

3. Isolated areas for extended periods of time are to be minimised wherever possible.

5.2 Flood Awareness

Flood warning systems, emergency management and flood awareness are the most cost-effective means of reducing the flood danger to premises, occupants and staff within the offices, buildings and common areas. It is therefore recommended that businesses ensure they have in place an appropriate evacuation plan and that all occupants be made aware of the flood threat in the locality as well as:

1. At what time the site might be inundated,
2. What will likely happen during an extreme flood,
3. Prepare the premises in a way that will minimise damage and loss,
4. Be aware of where and how storm warnings will be issued,
5. Know what procedures to follow in a flood event,
6. Safe areas and comparatively non safe areas for the site, and
7. Evacuation routes should the need arise (in particular for the PMF event)

Critical storm durations within the catchment are generally under 2 hours meaning time to flood peaks are generally quite short. The nature of flooding surrounding the site can be considered "flash flooding" where occupants may receive little to no warning of impending flood peak.

The New South Wales State Emergency Services provide resources and information regarding general and flash flooding on their website (www.ses.nsw.gov.au). A copy of their Floodsafe guide for flash flooding can also be found on their website. This document should be distributed and instructed to all occupants as well as placed in a clear common area for future reference.

The Bureau of Meteorology (BOM) (www.bom.gov.au) provides generic warnings for likely flooding in specific forecast areas (e.g. the Sydney basin). These warnings are also relayed on local television and radio stations. However, these warnings are not targeted at any specific river system, nor do they advise times or severity of likely flash flooding. Therefore, it is recommended that evacuation of the premises should be carried out and occupants proceed out of the area once the early warning have been made by the above-mentioned agencies.

It is also recommended that in addition to the advance warning offered by the SES and BOM owners and occupants be proactive and mindful of early warning signs that indicate an impeding flood event. Including but not limited to observing:

5.2.1 Adjacent Road Conditions

Observation of nearby road conditions or neighbouring drainage systems, in particular Palmer Street, Crown Street and Riley Street is one such means of monitoring rainfall and the likelihood of a major flooding event. Once heavy rain is experienced in which flows begin overtopping roads in unrelieved sag areas and it appears likely further rainfall anticipated, than the emergency response plan should be initiated.

5.2.2 Trapped Low Points

During a major flood event, flood waters will overtop local roads and spill into trapped low points, such as Busby Lane. These trapped flows are unable to discharge via overland flow paths creating significant drainage problems in many areas throughout the catchment.

However, it is important to reiterate the nature of flooding is highly variable, and influenced by several factors that can result in rapid change. Therefore, care should be taken, and priority given to avoid flood waters and evacuated prior to forecasted heavy rainfall.

5.3 Preparation

5.3.3 General Preparation

Given the nature of flooding occurring through the site and surrounding areas as well as the characteristics of flows for the Woolloomooloo catchment, it is the recommendation of this report that the flood response plan adopt a "Stay in Place" approach given the occurrence of short duration flood events with little to no warning.

To prepare for future flooding at the site, the following tasks should be undertaken:

1. Owners and occupants are aware of their responsibility for communicating and directing of all employees as well as visitors, with respect to making them aware of potential flood hazards and the Flood Emergency Response Plan.
2. Determine which member/s of the business or otherwise will be responsible for monitoring weather forecasts, flood warnings, rainfall and stormwater levels during periods of significant rainfall.
3. Ensure that basic supplies such as bottled water and first aid kits are available and sufficient to cater for both occupants and visitors, Stored on site in preparation for evacuation.
4. A safety kit is to be available at all times in a prominent position and is to include a torch with spare batteries, a first aid kit and manual, battery-operated radio, waterproof bags (for storage), a mobile phone and a list of emergency numbers.
5. Determine what plant/materials or objects need to be raised off the ground during a flood or otherwise secured. Especially items such as oils and greases which might contaminate flood waters that are not secure within common and private open areas. Determine how long this operation will take and which person/s will be responsible. Note such activities should be done prior to a storm event to minimise risk and potential harm. Or otherwise, systems be implemented to ensure when such objects are not in use they are effectively stored and secured from the effects of flooding.
6. Ensure that the Flood Evacuation Plan and procedures plan is located within prominent positions within the premises.
7. Details regarding evacuation centres and areas outside the PMF flood extents is to be obtained from the SES on 132 500
8. Obtain and update occupant and other emergency contact numbers.
9. Ensure employees and visiting bodies are aware of the primary response to stay put and wait out flood waters. If evacuation cannot be taken place prior to forecasted heavy rainfall, it is advised for occupants on the ground floor to seek refugee within the building on the higher levels (i.e. ground level commercial/services area or proceed to level 1)
10. Occupants should, if possible, ensure that any fellow occupants are safe and know that the order to stay put and wait out flood waters is in place as well as to follow the direction of emergency services.
11. If possible, when storm and extreme heavy rainfall is forecasted for the area, a work from home solution is to be implemented to avoid individuals being unnecessarily situated within flood waters.
12. If travelling towards the site and extreme heavy rainfall is present, warning should be given to all other personal travelling to the site and advise to return home if possible.

13. Unless necessary stay off the roads during a major storm event and avoid driving or walking into flood waters. Owners and occupants should delegate a person to be responsible for making the decision to and communicate the evacuation order and ensure this has been communicated with everyone on the site or potentially travelling to the site. If evacuation is necessary for whatever reason, occupants should evacuate out of the area earlier prior to forecasted rainfall and ensure not to travel flood flow paths and other such areas. If heavy rainfall is anticipated or has commenced triggering an evacuation event any occupant should seek higher ground located on levels 1 and up.
14. Determine how the order to evacuate will be communicated to other occupants or visiting bodies. Ensuring the severity of using public road systems during a major flooding event is communicated and understood to be highly hazardous.
15. Discuss a flood response plan or otherwise pre rainfall evacuation path, when required with any occupant or visitor utilising the building and site.
16. Be aware of emergency contact numbers:

Life-threatening emergencies	000 (triple zero)
NSW SES	132500
NSW SES Facebook	www.facebook.com/nswses
NSW SES twitter	https://www.twitter.com/nswses
Local Government Authority	
Name:	CITY OF SYDNEY COUNCIL
Phone:	Phone: 02 9265 9333 (Any day, Anytime)
Website:	https://www.cityofsydney.nsw.gov.au/

5.3.4 **Immediately Prior to Flooding Occurring**

In the event that it is deemed a flood is likely to occur at the site, the following tasks should be undertaken:

1. Monitor flood warnings, rainfall and stormwater levels.
2. Seek instructions from relevant authorities.
3. Inform all occupants of the flooding situation.
4. Move necessary plant/materials to higher ground/ levels in the building where applicable if time permits.
5. Secure elements that are susceptible flood conveyance such as bins, furniture and alike that are unable to be relocated to high ground.
6. Shutdown and turn off any gas, water, electrical and computer equipment that may be in use outside and place inside if time permits.
7. Relocate all occupants to higher levels within the building. Levels 1-5 should be used for refuge.
8. For emergency help contact the SES on 132 500.
9. Avoid driving or walking through flood waters.

5.4 Evacuation Procedures

5.4.5 Flood Evacuation Procedure

Due to the nature of flooding surrounding the site is "flash flooding" where occupants may receive little to no notice of an impending flood peak, it is advised that all occupants stay put and wait out flood waters. Unless evacuation is taken prior to heavy rainfall occurring due to forecasted weather, occupants should seek refuge on the higher levels on the building and wait for flood waters to disperse.

5.5 Flood Emergency Response Plan

It is recommended that site owners and occupants further review and become familiar with information provided by the SES (State Emergency Services) through websites such as; https://www.ses.nsw.gov.au/emergency-plan/, to prepare a detailed response plan tailored to their needs, the recommendations of that document and this Flood Emergency Response Plan. Including but not limited to addressing the following:

Preparation – Prior to flood

1. Ensure that a Flood Evacuation and Procedure Plan is located in a prominent position within the premises.
2. Owners and senior employees are responsible for instructing occupants with respect to making them aware of the potential flood hazards and the Flood Emergency Response Plan.
3. The owners are to be responsible for the implementation of the plan.
4. Warnings, evacuation awareness and communication means are to be established so that everyone is aware of how the decision to evacuated will be communicated.
5. A safety kit is to be available at all times in a prominent position and is to include a torch with spare batteries, a first aid kit and manual, battery operated radio, waterproof bags (for storage), a mobile phone and a list of emergency contact numbers.
6. Obtain and update management and other emergency contact numbers.

Responding – When a flood is likely

The flood Emergency response Plan is to be triggered once a warning has been given by the Bureau of Meteorology or the State Emergency Service or at the first sighting of rising flood waters of the river system.

Responding – During a flood prior to impacting the site

1. Respond to river fluctuations, media reports and official warnings concerning the possibility of flooding. Remain vigilant and respond to signs of flooding even where official warnings are not forthcoming.
2. Seek instructions from Local Council, emergency services or alike.
3. Inform all occupants and visitors of flooding situation.
4. Remind all occupants of safe procedures relating to flooding.
5. Assist neighbours if required.
6. Secure all plant and other equipment to prevent it being swept away in flood waters. Remove sensitive equipment where necessary.
7. Turn off electricity, gas and water before vacating the property.
8. Evacuate all occupants via the specified evacuation route.
9. For emergency help contact the SES on 132 500.
10. Avoid driving or walking through flood waters.

Recovery – After a flood

1. Check the stability of and any damage to the property prior to entering.
2. Ensure electricity and gas are turned off.
3. Wear protective clothing when cleaning.

The plan is to be located in an easily located prominent position and another copy kept off site.

The SES also publishes flood awareness brochures in various languages other than English. It is recommended that these be obtained and kept on the premises for the information of those from non-English speaking backgrounds if required. The plan is to be reviewed on an annual basis or immediately after a flood event that activates the plan.

6 Recommendations

Barker Ryan Stewart has assessed the proposed development at 51 Riley Street, Woolloomooloo and its surrounding flood behaviour concluding that:

1. The nature of flooding surrounding the development is flash flooding with little to no warning time.
2. Occupants are to avoid attending the site where heavy rainfall is forecast or evacuate prior to any heavy rainfall falling in the catchment area.
3. In the event of rising flood waters all occupants are advised to stay put and wait it out.
4. Owners are to prepare a detailed Flood Emergency response plan as per advice from the SES website tailored to their specific needs.