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FLOOD IMPACT ASSESSMENT REPORT

Proposed Residential Development

At

21 BASSETT STREET, MONA VALE NSW 2103

For

Wattle Court

WATTLE COURT
HOMES BUILT FOR LIFE

REF: **48763 - Revision A**

DATE: **03.09.2025**

SIGNED

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GLOSSARY

Annual Exceedance Probability (AEP)
The chance of a flood of a given or a larger size occurring in any one year, usually expressed as a percentage.

Australian Height Datum (AHD)
A common national surface level datum approximately corresponding to mean sea level.

Average Recurrence Interval (ARI)
The long-term average number of years between the occurrence of a flood as big as or larger than the selected event.

Catchment
The land area draining through the main stream, as well as tributary streams, to a particular site. It always relates to an area above a specific location.

Flood
Relatively high stream flow which overtops the natural or artificial banks in any part of a stream, river, estuary, lake or dam, and/or local overland flooding associated with major drainage before entering a watercourse.

Flood Liable Land or Flood Prone Land
Land susceptible to flooding by the PMF.

Flood Planning Levels (FPLs)
Are the combinations of flood levels and freeboards selected for floodplain risk management purposes.

Freeboard
Is a factor of safety typically used in relation to the setting of floor levels.

Habitable Room
In industrial or commercial situation: an area used for offices or to store valuable possessions susceptible to damage in the event of a flood.

Peak Discharge
The maximum discharge occurring during a flood event.

Probable Maximum Flood
PMF is the largest flood that could conceivably occur at a location, usually estimated from probable maximum precipitation.

Probable Maximum Precipitation
PMP is the greatest depth of precipitation for a given duration meteorologically possible over a given size storm area at a particular location at a particular time of the year.

Runoff
The amount of rainfall which actually ends up as stream flow.

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1 INTRODUCTION AND LIMITATIONS

In accordance with Northern Beaches Council Policy, Nastasi Consulting Group Pty Ltd has been engaged to prepare a Flood Impact Assessment Report to accompany the Development Application submitted for 21 BASSETT STREET, MONA VALE NSW 2103. The following documents pertaining to the proposed development and applicable Council requirements:

- McCarrs Creek, Mona Vale and Bayview Flood Study Review 2017, Royal Haskoning DHV
- Flood information Plan by Northern Beaches Council, dated 25.03.2025
- Architectural plan by Wattle Court, Revision C, Job No. NSN0017, dated 25.07.2025
- Survey plan by Total Surveying Solution, Ref: 250135, Rev 0, Dated 19.03.2025

This report is intended solely for Wattle Court as the client of Nastasi Consulting Group, and no liability will be accepted for use of the information contained in this report by other parties than this client. This report is limited to visual observations and to the information including the referenced documents made available at the time when this report was written.

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2 EXISTING SITE CONDITIONS

The subject site – 21 BASSETT STREET, MONA VALE NSW 2103, is currently contained a single storey brick residence with metal roof. The profile of the site falls towards the front boundary from rear boundary at a grade of approximately 0.367%, moreover, Bassett street in front of the property is sloped from West to East.

Figure 1: Frontage view

As per Northern Beaches Council flood information, the existing building footprint is located within flood zone at 100-year ARI. **(**Refer below **Figure 2)**

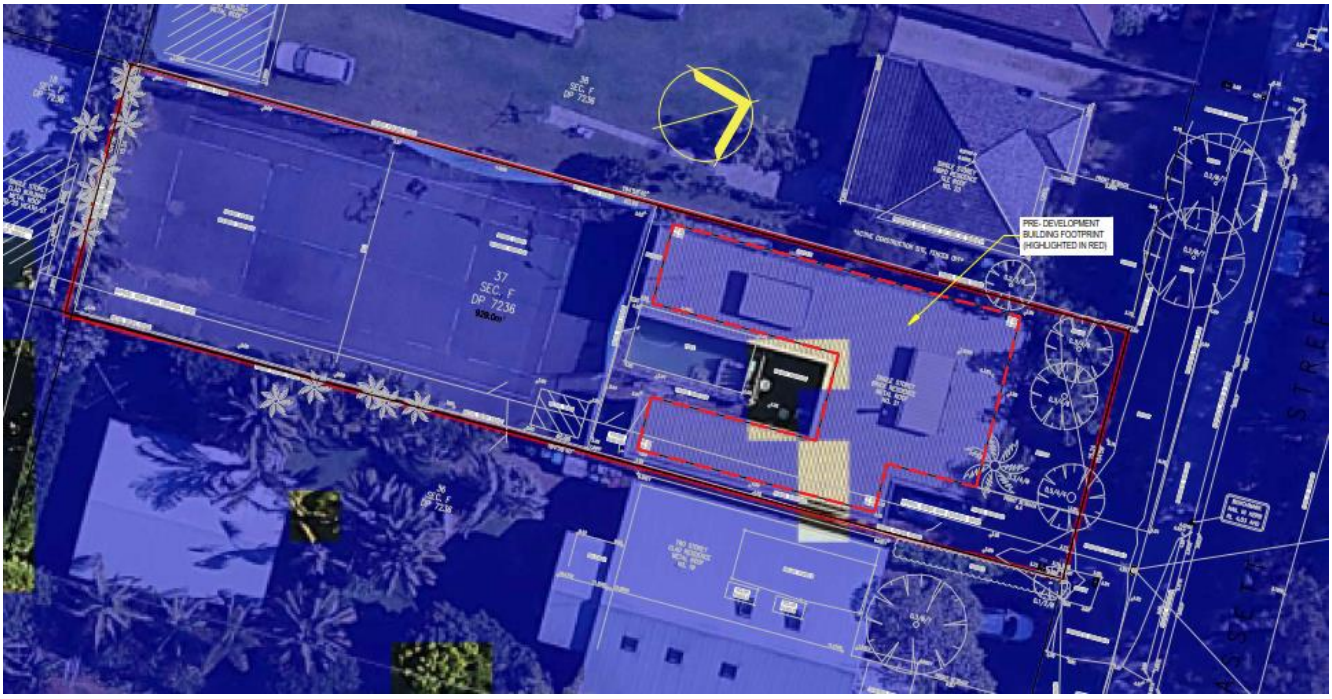

Figure 2 Pre-Development Flooding conditions

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3 SITE SPECIFIC FLOOD INFORMATION

The flood information for the subject site, presented in **Figure 2** below has been provided by Northern Beaches Council on 25.03.2025. In details, the maximum 100-year flood level observed at RL 4.34 m AHD based on flood information from Council and subject site is almost fully affected by 100-year flooding as per below Flood Extent Map at 100-year event.

Figure 3: 100-year Flood Extent Map

Flood Information[1]:

Map A - Flood Risk Precincts
Maximum Flood Planning Level (FPL) [2, 3, 4]: 4.84 m AHD

Map B - 1% AEP Flood
1% AEP Maximum Water Level [2, 3]: 4.34 m AHD
1% AEP Maximum Depth from natural ground level[3]: 0.65 m
1% AEP Maximum Velocity: 0.36 m/s

Map C - 1% AEP Hydraulic Categorisation
1% AEP Hydraulic Categorisation: Flood Storage / Flood Fringe

Map D - Probable Maximum Flood (PMF)
PMF Maximum Water Level [4]: 4.91 m AHD
PMF Maximum Depth from natural ground level: 1.22 m
PMF Maximum Velocity: 0.44 m/s

Map E - Flood Life Hazard Category in PMF
H4 – H3

Table 1 Flood Levels

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4 PROPOSED DEVELOPMENT

The proposed development is described as new two-story dual occupancy development. The finish floor level is at RL 4.84 mAHD, and the finish garage level and Alfresco level proposed at RL 4.34 mAHD and RL 4.74 mAHD respectively. The proposed development is located within 100-year flood extent.

Figure 3. provides the information about proposed site plan at 21 BASSETT STREET, MONA VALE NSW 2103, and **Table 2** represents the proposed levels for Habitable, non-habitable and enclosed Garage.

Description	1% AEP Flood Level-point 11	Proposed Floor Level
Habitable Floor level	4.34m AHD	4.84m AHD
Non-habitable Floor level	4.34m AHD	4.74m AHD
Enclosed Garage Floor level	4.34m AHD	4.34m AHD

Table 2 Summary of Flood level and proposed FFL levels

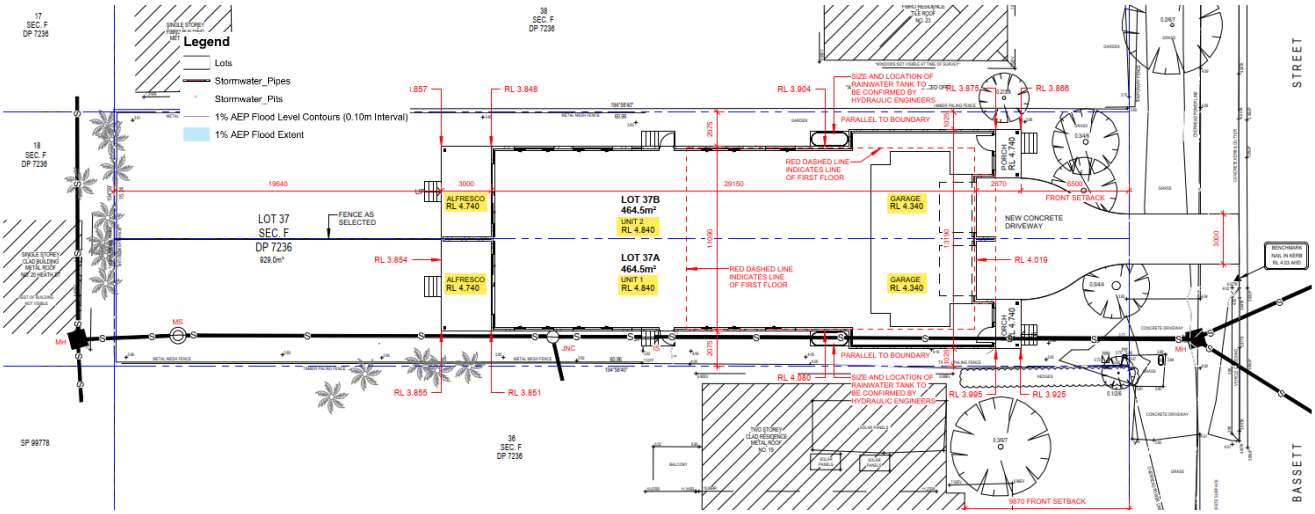

Figure 4: Site Plan for Proposed Development

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Since the proposed development is affected by 100-year flood, the proposed building has been raised on open-suspended floor to RL 4.84 mAHD (100-year flood level plus 500mm freeboard). Below (**Figure 5**) provides the flood mapping with proposed building footprint, the 100-year flood zone has been extracted from flood information provided by Northern Beaches Council and overlayed with proposed building footprint.

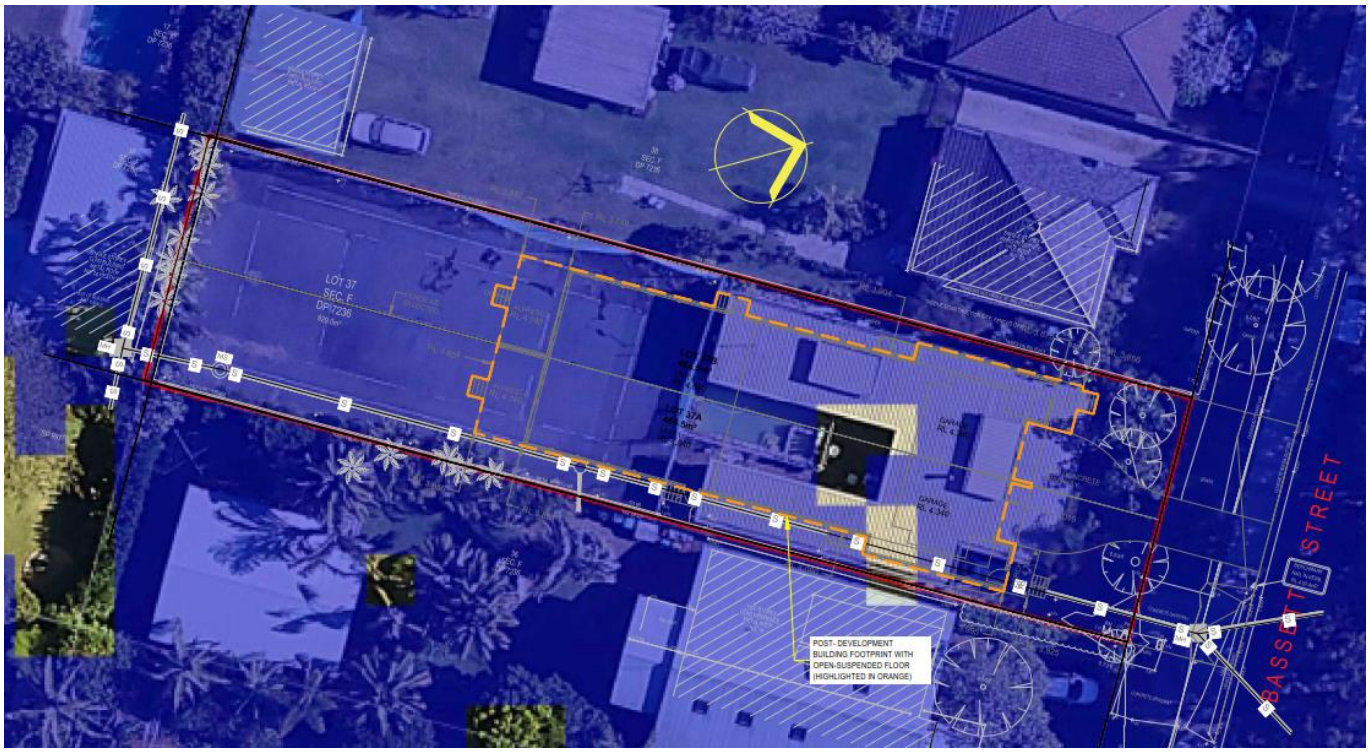
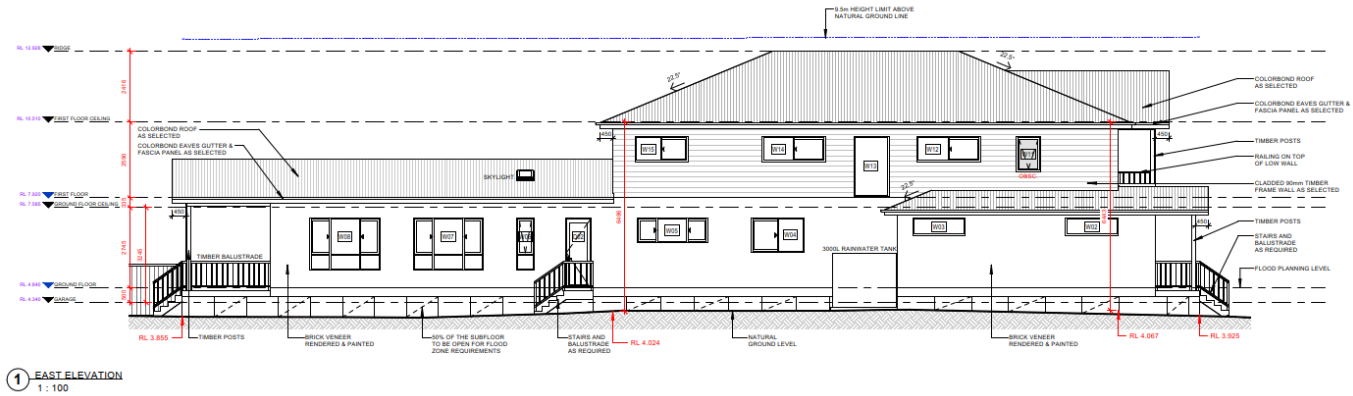


Figure 5: Post-Development Flooding conditions

Below **Figure 6** and **Figure 7** depicts that the proposed building footprint is provided with open-suspended floor system at 100-year flood level plus 500mm freeboard.



1 EAST ELEVATION
1 : 100

Figure 6: East Elevation

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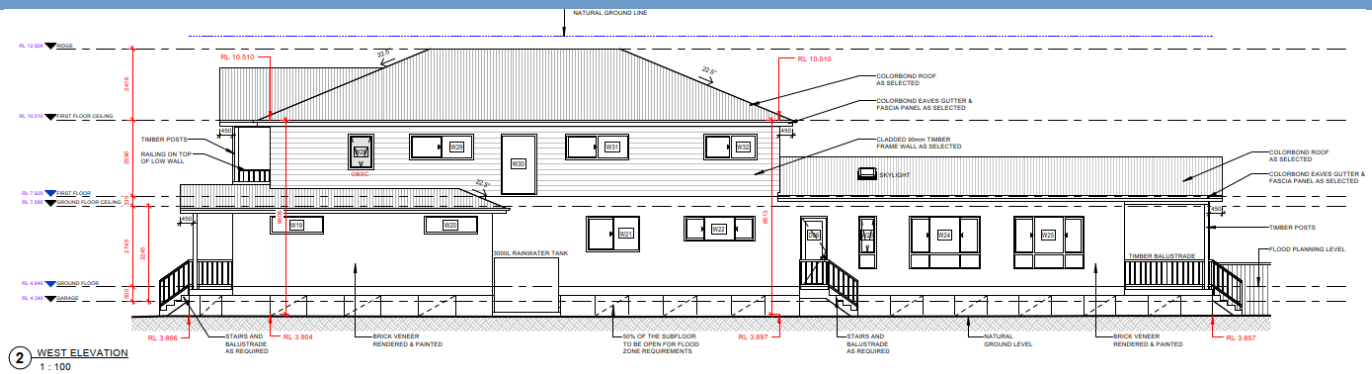

Figure 7: West elevation

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5 FLOOD ANALYSIS AND IMPACT ASSESSMENT

As per Northern Beaches Council- Pittwater 21 DCP (2014) – B3.11 Flood Prone Land, the flood analysis and impact assessment has been carried out as below-

- Land use Category: **Residential**
- 1% AEP flood level (**Figure 5**) : **RL 4.34 mAHD**
- Flood Planning Level (FPL): **RL 4.84 mAHD** (100-year flood level plus 500mm freeboard)
- Probable Maximum Flood (PMF) level: **RL 4.91 mAHD**
- Flood Risk Precinct: **Medium**
- Flood Life Hazard Category: **H4-H3** (As per **Appendix A)**

		Medium Flood Risk Precinct				
		Vulnerable & Critical Use	Residential Use	Business & Industrial Use	Recreational & Environmental Use	Subdivision & Civil Works
A	Flood effects caused by Development	A1 A2	A1 A2	A1 A2	A1 A2	A1 A2
B	Building Components & Structural	B1 B2 B3	B1 B2 B3	B1 B2 B3	B1 B2 B3	
C	Floor Levels	C2 C3	C1 C3 C4 C6	C1 C3 C4 C6 C7	C3	C5
D	Car Parking	D1 D2 D3 D4 D7	D1 D2 D3 D4 D5 D6	D1 D2 D3 D4 D5 D6	D1 D2 D3 D4 D5 D6	D1
E	Emergency Response	E1 E2	E1	E1	E1	E3
F	Fencing	F1	F1	F1	F1	F1
G	Storage of Goods	G1	G1	G1	G1	
H	Pools	H1	H1	H1	H1	H1

Since, the subject site is within Medium Flood Risk Precinct, the following controls from Pittwater 21 DCP (2014) – B3.11 Flood Prone Land, have been considered to assess the flood impact for the subject site which is residential use category.

5.1 Flood Effects

The subject site is located within the 100-year flood zone, however, the building at post-development has been proposed with open-suspended floor system at 100-year flood level plus 500mm freeboard (RL 4.84 mAHD).

After analysing the flood condition with pre-development scenario (**Figure 2**) and post-development scenario (**Figure 5**), it is noted that the floodwaters at post-development condition will not be blocked compared to pre-development condition since open-suspended floor with clear passage underfloor provided to allow free flow, as a consequence, there will be no adverse effects to floodwaters. Hence, the proposed development will not cause any negative impact on the existing flooding condition elsewhere, therefore, it is complying with flood planning requirements from Pittwater DCP 2014.

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5.2 Building Components

New development works subject to flooding and overflow flows should be constructed of flood compatible materials to ensure the structural integrity of the works is maintained throughout and after a flood event.

All new electrical equipment, power points, wiring, fuel lines, sewerage systems or any other service pipes and connections must be waterproofed and/or located above the Flood Planning Level.

5.3 Structural Soundness

Structural engineer plans will be submitted at the construction certificate stage to ensure that the structure can withstand the force of floodwater, debris and buoyancy up to and including 100-year flood level, or a PMF.

5.4 Floor Levels

The proposed habitable floor level is at Flood Planning Level (RL 4.84 mAHD), since, the proposed building footprint is proposed at nominated Flood Planning Level, which is 500mm higher than maximum 100-year flood level as per **Figure 5**. Moreover, the development is proposed with Open-suspended floor system, hence, it will not impede the floodwaters due to clear passage provided underfloor of the development below 100-year flood level.

5.5 Car Parking

The proposed garage is enclosed and is proposed at RL 4.34 mAHD which is at 1% AEP level, and proposed driveway is sloping towards Bassett Street, therefore, it is complying with flood planning requirements from Pittwater DCP 2014 as it is protected from inundation up to the Flood Planning Level

5.6 Emergency Response

The subject site is affected by H4-H3 Life Hazard Category (**Appendix A**), hence, during flood emergencies, it is recommended to follow Chapter 7: Flood Risk Management Plan of this report.

5.6 Fencing

For the new fencing, it is recommended to provide open-style new fencing with horizontal louvers at bottom as per **Figure 8**.

5.6 Storage of Goods

Hazardous or potentially polluting materials shall not be stored below the Flood Planning Level unless adequately protected from floodwater in accordance with industry standards, however, since the subject site is located outside of 1% AEP flood extent, no negative impact will be caused with storage of goods.

5.6 Pool

No Swimming pool has been proposed at this site, hence, flood controls related to pool do not considered for this site.

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6 RECOMMENDATIONS AND CONCLUSION:

This investigation has been undertaken by Nastasi Consulting Group based on the information provided by Northern Beaches Council and the available architectural plan. The development will have no negative impact on existing flooding condition to the subject site and neighbouring properties due to the post-development building footprint provided with open-suspended floor system with 500mm above flood level at 100-year maximum.

However, to ensure compliance with the Northern Beaches Council- Pittwater 21 DCP (2014) – B3.11 Flood Prone Land and SEPP, the following is to be adopted:

- The finish floor for habitable and non-habitable floor area shall be in accordance with **Table 1**.
- No cut or fill at the front boundary of the properties, maintain the natural surface.
- For new fencing, it is recommended that open style fencing with horizontal louvers at bottom to be adopted to ensure no blockages/obstructions to external flows. It is also recommended that no garden beds, landscaping etc. impede flows within the floodway. Refer **Figure 8** for example of open style fencing with horizontal louvers at bottom
- It is also recommended to follow chapter 7: Flood Risk Management Plan during extreme storm event.

Figure 8: Open fence style example

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7 FLOOD RISK MANAGEMENT PLAN

a. At the first signs that there may be a rainfall event, check any form of weather reports (i.e. Bureau of Meteorology, ABC Radio 702) for any possible forecast warnings issued. If any storm warnings have been forecast, this Flood Risk Management Plan must be actioned following the proceeding steps below.
b. During flood events many local, major streets and roads will be cut off by floodwaters that may make the escape by vehicle extremely difficult. Travelling through floodwaters on foot or in a vehicle can be very dangerous as obstructions can be hidden under the floodwaters, or it is possible to be swept away, even if in a car, or the water may be polluted.
c. It is recommended that during any flood event, staying within the building as much as practical is always the safest option. If the rainfall event has occurred, do not evacuate the building unless instructed by the State Emergency Services (SES) or police.
d. Develop your own 'Family Flood Plan' generally in accordance with this Flood Emergency Response Plan. In the case that flooding should occur and children are home alone, arrangements should be ensured the children are aware not to leave the premises and to follow the 'Family Flood Plan'.
e. If flood levels appear to approach the dwelling of the residence:
    (i) Move important documents, personal items, precious photographs, and vital medical supplies to a safe and easily accessible place with a pre-prepared 'Emergency Flood Kit'.
    (ii) Gather medicines, special requirements for infants or elderly, mobile phones, first aid kit, special papers, battery operated torch and radio, fresh water, canned food, water proof or easy dry clothing all packed in one location.
    (iii) Locate any pets and gather special requirements for them
    (iv) Put on strong shoes, raise any items within the home that may be damaged by water to a high level as possible, with electrical items on top. Turn off any large electrical items at the power point such as a TV that cannot be raised.

NOTE: SUITABLE STORAGE AREAS MAY BE ON TOP OF DESKS/TABLES/BENCH TOPS/ATTICS AND BEDS

f. In the event that flood waters appear they may enter the dwelling:

    (i) Switch off electricity at the switchboard
    (ii) Turn off gas at the meter
    (iii) Turn off water at the meter
    (iv) Block toilet bowls with a strong plastic bag filled with earth or sand
    (v) Cover drains in showers, baths and laundry with a string plastic bag filled with earth or sand.
    (vi) Once flood waters have been entered the building, all occupants residing within the dwelling must move to the 'First Floor' for refuge from a possible PMF storm event. It is only safe to leave this 'Safe Zone' once the flood water being to reside away from the dwelling.

g. In the event that flood waters have risen up to the building, do not evacuate the building under any circumstances, unless instructed by SES or police personnel. Floodwaters are much deeper, run much faster and are dangerous outside.
h. Continue to monitor the Bureau of Meteorology forecasts and warnings, listen to ABC 702 radio.
i. In the case of medical or life-threatening emergency ring 000 as normal, but explain about the flooding.

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j. A laminated copy of this Flood Emergency Response Plan should be permanently attached to an inside cupboard door in the kitchen and/or laundry of the main dwelling and to the inside of the electrical meter box.
k. This Flood Emergency Response Plan should be reviewed every 5 years, particularly with the potential sea level rise due to the greenhouse effect.

Important Phone Numbers

State Emergency Service: Emergency 132 500 General Enquires: 4251 6111

Police, Fire, Ambulance: Emergency 000

Bureau of Meteorology (Website): http://www.bom.gov.au/weather

Land, Weather and Flood Warnings, phone: 1300 659 215

DR/Hospital: .....

Family: .....

Friends: .....

Other: .....

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8 FLOOD INFORMATION BACKGROUND

- Stay tuned to ABC 702 on a battery powered radio for official advice and warnings.
- Don't allow any children to play in or near flood waters.
- Avoid entering flood waters in all circumstances unless it is necessary. Check the depth in front of you before every step using a stick/pole or similar.
- Stay away from drains, culverts, and areas where the water is deeper than your knee.
- Don't turn on your gas or electricity until it has been checked by a professional/licensed repairer.
- Avoid using gas or electrical appliances which have been in flood water until checked for safety.
- Do not consume food that has been in flood waters.
- Boil tap water until supplies have been declared safe.
- Watch for trapped animals.
- Beware of fallen power lines.
- Take as many photos as possible of the damages for insurance purposes.
- Notify family and friends of your whereabouts

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Appendix A: Flood Information

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Appendix B Architectural Plan

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Appendix C Survey Plan

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Appendix D Flood Mapping with proposed building footprint