

Flood Emergency Response Planning for Development in Pittwater Policy

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1 Flood Emergency Response Planning for Development in Pittwater Policy

1.1 Purpose

In accordance with the Floodplain Development Manual (FDM) (NSW Government, 2005), in flood prone land the responsibility lies with Council to ensure new developments minimise flood risk through the implementation of effective flood emergency response measures.

To help minimise the flood risk to occupants, it is important that developments have provisions to facilitate flood emergency response. There are two main forms of flood emergency response that may be adopted by people within the floodplain:

- > Evacuation: The movement of occupants out of the floodplain before the property becomes flood affected; and,
- > Shelter-in-place: The movement of occupants to a building that provides vertical refuge on the site or near the site before their property becomes flood affected.

By establishing minimum requirements for evacuation and shelter-in-place strategies for new developments, including additions and alterations to existing developments, Council ensures that:

- > Flood risk associated with development is clearly identified; and,
- > Flood risk to life for development is appropriately managed.

In assigning what is an acceptable emergency response measure for a development, Council has taken into consideration:

- > Flood Life Hazard Category: Life hazard accounts for the potential hazard relating to the flood behaviour throughout the Local Government Area (LGA). If the floodplain were occupied at the time of flooding then the flood life hazard categories indicate the hazard occupants would be exposed to. Flood life hazard categories have been mapped for the entire former Pittwater LGA (and available through Council Flood Information Request service);
- > Land-use: The land-uses within the floodplain provide an indication of the occupation of the floodplain which will influence the number and demographic of people exposed to flood risk. Therefore emergency response requirements should be tailored to each land-use; and,
- > Proposed emergency response: Consideration of emergency response measures relates to the likelihood of occupants within the floodplain being directly exposed to flood hazard. The emergency response requirements are dependent on if evacuation or shelter-in-place is the adopted emergency response.

By adjusting emergency response requirements for each development based on these considerations, the flood risk to life may be addressed in a targeted way while not being needlessly onerous on the developer / land owner.

1.2 Risk Assessment Categories

There are three subjective risk assessment categories:

- > Acceptable risk: Flood risk to life is considered negligible and the flood emergency response planning policy does not apply;
- > Tolerable risk: Flood risk to life is significant and the flood emergency response planning policy applies for all developments;
- > Unacceptable risk: Flood risk to life is severe, developments should not be permitted on a flood risk to life basis.

A graphical representation of the risk categories as they relate to flood life hazard categories are shown in Table 1-1. As seen in Table 1-1 this flood emergency response planning policy applies to all land assigned a flood life hazard category of H3-H4 or greater.

Table 1-1 Flood Risk Assessment Outcomes Summary

Adopted Emergency Response	Flood Life Hazard Category			
	H1 - H2	H3 – H4	H5	H6
Evacuation				
Shelter-in-Place				

Where, Green = Acceptable risk, flood emergency response planning policy does not apply;

Yellow = Tolerable risk, flood emergency response planning policy applies for all development; and,

Orange = Unacceptable risk, no development should be permitted in these areas due to severe flood risk.

1.3 Complying Development Certification (CDC)

In accordance with Clause 3.36C of the Exempt and Complying Development Codes SEPP (NSW Government, 2008), flood affected properties may be eligible for a complying development certificate if the development does not lie within a “high risk area”.

For developments within the former Pittwater LGA, “high risk areas” are defined as areas of flood life hazard category H3-H4 or greater. Therefore areas of flood life hazard category H1-H2 are considered “low risk areas” and Complying Development Certification may still be possible in these areas.

1.4 Developments to Which This Policy Applies

A summary of the land-use groups is included in Table 1-2.

Table 1-2 Land Use Groups

Critical	Vulnerable Uses	Residential
emergency services facility	child care centre	boarding house
hospital	educational establishment	dual occupancy
public administration building	home-based child care	dwelling house
sewerage system	Community health service facility	exhibition home
Telecommunications facility (SP2)	information and education facility	exhibition village
Public Utility Undertaking (SP2)	respite day care centre	hostel
electricity generating works	seniors housing	residential flat building
	caravan park	rural worker's dwelling
	group home	secondary dwelling
	residential care facilities	semi-detached dwelling
	correctional centre	multi dwelling housing
	tourist and visitor accommodation	shop top housing
		attached dwelling

Business & industrial		
boat building and repair facility	medical centre	waste or resource management facility
business premises	mortuary	management facility
car park	neighbourhood shop	waste water disposal system
crematorium	office premises	water recreation structure
depot	Patient Transport facilities	water supply system
entertainment facility	passenger transport facility	wharf or boating facilities
freight transport facility	place of public worship	wholesale supplies
function centre	port facility	animal boarding or training establishment
general industry	recreation facility (indoor)	charter and tourism boating facility
health consulting rooms	registered club	home business
heavy industrial storage establishment	restricted premises	home occupation
highway service centre	retail premises	home occupation (sex services)
industrial retail outlet	rural industry	community facility
industrial training facility	service station	research station
industries	sex services premises	camping ground
	storage premises	eco-tourist facilities
	transport depot	marina
	truck depot	cemetery
	turf farming	
	vehicle body repair workshop	
	vehicle repair station	
	veterinary hospital	
	warehouse or distribution centre	
	waste disposal facility	

Recreational and Environmental	Subdivision	Concessional	No controls
aquaculture	subdivision	occupation/change of use of an existing premises	signage
boat shed			intensive livestock agriculture
environmental facility			intensive plant agriculture
environmental protection works			open cut mining
extensive agriculture			jetty
extractive industry			mooring
farm building			mooring pen
flood mitigation works			recreation area
forestry			tree and/or bushland removal
horticulture			earthworks
recreation facility (major)			road
recreation facility (outdoor)			boat launching ramp
viticulture			demolition
			development/subdivision of a sector, buffer area or development site in a Release Area
			Class 10 buildings or Structures as defined by the Building Code of Australia

The flood risk to life is considered significant for all developments under Land use categories “Critical and Vulnerable Uses”, therefore it is preferred that these development types not be located within the PMF flood extent. Note that any alterations or additions to existing dwellings must consider this flood policy.

Class 10 buildings are non-habitable buildings or structures. Class 10 includes three sub classifications:
Class 10a buildings are non-habitable buildings including sheds, carports, and private garages.
Class 10b is a structure being a fence, mast, antenna, retaining wall, swimming pool, or the like.
Class 10c building is a private bushfire shelter. A private bushfire shelter is a structure associated with, but not attached to, a Class 1a building

1.4.1 Land Release Developments

This Flood Emergency Response Planning for Development in Pittwater policy and the associated development controls does not apply to Development/subdivision of a sector, buffer area or development site in a Release Area. Flood affected land release developments such as those identified in the Warriewood Urban Land Release are expected to have a more significant impact on flood risk to life.

The development controls specified in this policy address flood risk to life accounting for moderate intensification of development within the floodplain. Development/subdivision of a sector, buffer area or development site in a Release Area are more likely to result in previously low density or unoccupied flood affected land having a major increase in occupation and therefore flood risk to life. The controls specified in this policy therefore do not address flood risk to life adequately to account for land release developments.

Development/subdivision of a sector, buffer area or development site in a Release Area should adopt the same emergency response principles within this policy however to a greater extent incorporating a more complex assessment to ensure future flood risk is not increased as a result of Development/subdivision of a sector, buffer area or development site in a Release Area.

1.5 Evacuation Requirements

1.5.1 Evacuation Feasibility

The assessment of evacuation feasibility for a development needs to also account for the Flood Life Hazard Category of the site, to determine if evacuation is feasible refer to the Developer Decision Tree in Attachment A.

1.5.2 Flood Risk Emergency Assessment

For evacuation to be considered an acceptable emergency response development and alterations and additions to existing development should demonstrate all occupants may evacuate safely through a Flood Risk Emergency Assessment that considers:

- > Council's guideline document for preparing Flood Risk Emergency Assessments,
- > Proposed evacuation route and mode of transport, and the flood hazard along the route in the PMF.
Note that:
 - Evacuation routes must not be through private property that is not a part of the subject site;
 - Evacuation route must be flood free in the Probable Maximum Flood event
 - Preferable evacuation routes are rising road access
 - Evacuation must be to a public area with shelter located above the Probable Maximum Flood Level
- > Evacuation timeline including time required vs time available based on principles established in the NSW SES Evacuation Timeline Model and adapted for local evacuation ;
- > Intended evacuation destination, the flood hazard at the destination, the level of service provided by evacuation destination (medical, food, water, communication lines), and duration of isolation of the destination in the PMF event from any of these services;
- > Consideration of vulnerability of likely occupants, and their ability to evacuate;
- > Consideration of the number of occupants, ensuring sufficient capacity of evacuation route, and evacuation destination to facilitate all occupants;
- > Intended flood warning mechanism, potentially outlining concept design of warning systems taking into account flooding at all times of the day;
- > Identification of the depth of floodwater along the evacuation route in the 1% AEP and PMF events;
- > Intended flood evacuation awareness, if no obvious evacuation route is available then signage should assist occupants, particularly for business and commercial land uses; and

- > Identification of any buildings on site that are appropriate for shelter-in-place as an alternative emergency response (see **Section 1.6** for further details).

The combination of all these factors contribute to the acceptability of evacuation as an emergency response. Council's assessment of evacuation strategies will involve a merits based assessment based on the factors listed above.

1.6 Shelter-in-Place Requirements

The following sections outline the shelter-in-place requirements and to which development types the controls are relevant.

1.6.1 Flood Risk Emergency Assessment

For shelter-in-place to be considered an acceptable emergency response, a development should demonstrate that the development controls summarised in the following sections have been addressed through a Flood Risk Emergency Assessment report.

1.6.2 Minimum Floor Level for Shelter in Place

The adopted requirements for shelter in place minimum floor levels are equal to the PMF flood event. These requirements apply to all tolerable life hazard categories, H3-H4 and H5 categories.

1.6.3 Floor Space

The adopted requirements for shelter in place minimum floor space are:

- A floor space of the shelter-in-place area 2 m² per person is required for all long duration flooding unless it can be shown the development lies within this region but is only inundated for a “short duration” (less than 6 hours in the PMF); or,
- A floor space of the shelter-in-place area 1 m² per person is required for development located in short duration flooding (less than 6 hours in the PMF).

These requirements apply to all tolerable flood life hazard categories, H3-H4 and H5 categories, and all development types.

The definition of sufficient capacity is defined as floor space of 1 m² per person for short duration (less than 6 hours), and 2 m² per person for long duration (greater than 6 hours).

1.6.4 Accessibility

The adopted requirements for shelter in place for all developments are:

- > Shelter-in-place refuge must be accessible to all people on the site, plainly evident, and self-directing, with sufficient capacity of access routes for all occupants.
- > There must be sufficient time for all occupants to access shelter-in-place refuges, with fail safe access provided with no reliance on elevators. Flood warning systems should be considered where the number of occupants is significant.

1.6.5 Building Stability

For all shelter-in-place refuge buildings proposed within flood risk to life category H3-H4:

- > Structural stability of the refuge building is to be verified by a suitably qualified structural engineer considering lateral flood flow, buoyancy, suction effects, and debris load impact of 1% AEP design flood depths and velocities; and
- > Refuge must comply with Building Code of Australia requirements, with external components rated appropriately for storm, wind, and moisture.

This requirement is relevant for all land-use types.

For all shelter-in-place refuge buildings proposed within flood risk to life category H5:

- > Structural stability of the refuge building is to be verified by a suitably qualified structural engineer considering lateral flood flow, buoyancy, suction effects, and debris load impact of PMF design flood depths and velocities; and
- > Refuge must comply with Building Code of Australia requirements, with external components rated appropriately for storm, wind, and moisture.

This requirement is relevant for all land-use types.

1.6.6 Serviceability

The following serviceability requirements only apply to long duration flooding unless it can be shown the development lies within this region but is only inundated for a “short duration” (less than 6 hours in the PMF). The serviceability requirements apply for all land-uses with the exception of subdivision:

- > Sufficient clean water; and
- > First Aid Kit; and
- > Portable radio with spare batteries; and
- > Torch with spare batteries.

In addition, land-use groups listed under Critical and Vulnerable Uses must also provide:

- > a practical means of medical evacuation; and
- > Emergency power.

1.7 Variation to the controls

The following variations may apply to a change of use of an existing premises and minor alterations and additions to existing residential and commercial premises (as defined in the DCP):

A variation to the controls requiring a Flood Risk Emergency Assessment Report and/or shelter in place refuge shall only be considered if justified appropriately by a suitably qualified professional.

A completed Form 1 (Attachment A of the Flood Emergency Response Planning for Development in Pittwater Policy), must also be submitted with the development application.

A section 88b instrument (or similar) will be required to be placed on the lot that outlines that the property has no ‘shelter-in-place refuge’ and that there is a risk of persons being inundated by floodwaters with no place to seek refuge on the lot.

2 Attachment A – Evacuation Feasibility

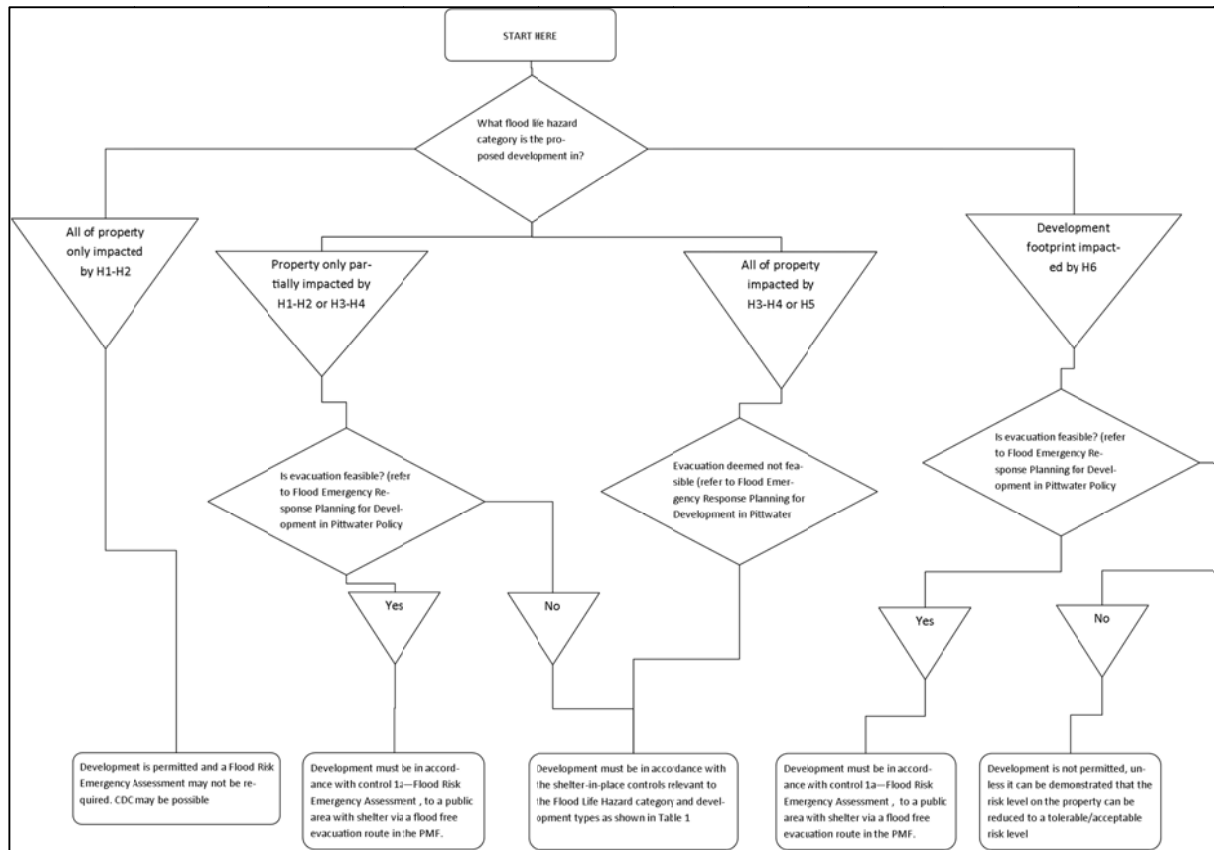


Figure 1 Developer Decision Tree

3 Attachment C – Form 1

FLOOD EMERGENCY RESPONSE PLANNING FOR DEVELOPMENT IN PITTWATER POLICY
FORM NO. 1 – To be submitted with Development Application

Development Application for

(Name of Applicant)

Address of site: _____

Declaration made by hydraulic engineer or engineer specialising in flooding/flood emergency response as part of a Flood Risk Emergency Assessment:

I, _____ on behalf of _____
(Insert Name) (Trading or Business/ Company Name)

on this the _____ certify that I am a engineer or
(Date)

consultant specialising in flood emergency response and I am authorised by the above organisation/ company to issue this document and to certify that the organisation/ company has a current professional indemnity policy of at least \$2million.

Flood Risk Emergency Assessment Details:

Report Title:

.....

Report Date:

Author:

Author's Company/Organisation:

I: _____
(Insert Name)

Please tick appropriate box (more than one box can be marked)

☐ have followed Councils guidelines for 'Flood Risk Emergency Assessment Report (FREA)'

☐ have prepared the Flood Risk Emergency Assessment referenced on Form 1 in accordance with Council's guidelines and the Flood Emergency Response Planning for Development in Pittwater Policy.

☐ am willing to technically verify that the detailed Flood Risk Emergency Assessment referenced on Form 1 has been prepared in accordance with Council's guidelines and the Flood Emergency Response Planning for Development in Pittwater Policy.

☐ have examined the site and the proposed development in detail and have carried out a risk assessment (which has been attached to this form), and can confirm that:

☐ The addition/dwelling/building is located outside of the extents for Flood Life Hazard Categories H3-H4, H5 and H6 and a Flood Risk Emergency Assessment is not required.

☐ confirm that the results of the risk assessment for the proposed development are in compliance with the Flood Risk Management Policy for Development in Pittwater and a detailed risk assessment is not required for the subject site.

☐ have examined the site and the proposed development/alteration/addition in detail and I am of the opinion (after carrying out a risk assessment) that the Development Application does not require a Flood Risk Emergency Assessment and I have attached the risk assessment to this form.

☐ have reviewed (provide details of Report) the Flood Risk Emergency Assessment previously prepared for this property and can confirm it is up to date and is still current.

Declaration by engineer/consultant:

I am aware that the Flood Risk Emergency Assessment referenced on Form 1, prepared for the abovementioned site is to be submitted in support of a Development Application for this site and will be relied on by Northern Beaches Council as the basis for ensuring that the Flood Risk Management aspects of the proposed development have been adequately addressed to achieve an "Acceptable or Tolerable Risk" level for the life of the structure, taken as at least 100 years unless otherwise stated and justified in the Report and that reasonable and practical measures have been identified to remove foreseeable risk.

Signature

Name

Chartered Professional Status.....

Membership No.

Company.....

Number of years specialising in flood emergency response.....