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FloodMit Pty Ltd
ABN 46 148 958 696

P: PO Box 936 Epping NSW 1710
M: 0402 644 879
E: postmaster@floodmit.com.au
www.floodmit.com.au

The General Manager
Dicker Data Limited
238-258 Captain Cook Drive,
Kurnell, NSW, 2231

FLOOD EMERGENCY RESPONSE PLAN

Purpose of this Plan

This Flood Emergency Response Plan aims to alert the owner and occupants of the risk of stormwater flooding in the immediate vicinity of the above property, and the most appropriate response measures to take if flooding is experienced.

The Plan is a requirement of Development Consent Conditions provided by the Minister for Planning for the construction and operation of a warehouse and distribution centre at 238-258 Captain Cook Drive, Kurnell. It is to form part of the Construction Environment Plan (CEMP) and the Operational Environment Plan (OEMP) for the development. It is also recommended that it is included in the Work Health and Safety Manual to be provided for this workplace.

Source of Information

This property is located within a small, unnamed local catchment that drains towards culverts under Captain Cook Drive, and into Quibray Bay, and ultimately Botany Bay.

Information on flooding in the vicinity of the property has been drawn from a number of sources, including:

- i) Lower Georges River Floodplain Risk Management Study & Plan (Bewsher, 2011)
- ii) Kurnell Township Flood Study (WMA Water, 2009);
- iii) Woolooware Bay Catchment Flood Study (WMA Water, 2014);
- iv) Gwawley Bay Catchment Floodplain Risk Management Study & Plan (FloodMit, 2015);
- v) Dicker Data Warehouse & Dist. Centre: Flood Study (Taylor Thomson Whitting, 2018).

The first report provides information on design flood levels and flood extents in the Georges River and Botany Bay as a result of tidal inundation and storm tide events. The Kurnell, Woolooware Bay and Gwawley Bay reports provide detailed information on stormwater flooding in nearby catchment areas. The final report provides specific information on local flood conditions within the subject property.

Floodplain Risk Management Guidelines (OEH 2007)

This Plan relies on the results of a number of previous flood studies, as noted above. The methodology adopted in these studies is generally consistent with recommendations provided in Floodplain Risk Management Guidelines issued by the Office of Environment and Heritage (OEH) for the preparation of such studies.

The Flood Risk

The local catchment contributing to flooding is largely confined to the site itself, and part of the property to the rear. This area is drained by a channel within the existing bushland along the western boundary of the property, which leads to twin 1.25m diameter stormwater pipes under Captain Cook Drive, and eventually into Quibray Bay. Other parts of the development drain to water quality ponds along the eastern boundary of the site. These drain to a second (0.45m x 0.3m) culvert under Captain Cook Drive.

The site is not directly affected by tidal flooding or storm tide conditions in Botany Bay.

Onsite flooding occurs when the intensity of rainfall exceeds the capacity of the stormwater drainage network. This will typically occur during intense, short duration, thunderstorm conditions. Flooding will mostly be shallow (less than 0.3m in depth) across the site, except in the water quality ponds and stormwater channel where deeper inundation depths will be experienced. Captain Cook Drive may be overtopped near the main (eastern) entrance to the site. There is no risk of flooding to the office and factory.

Predicted Flood Levels

Flood levels and depths at key locations are provided below:

Location	Level ¹	100 Year Storm		Extreme (PMF) ³		Comment
		Level ²	Depth	Level ²	Depth	
Main (east) Entrance at Capt Cook Dr	2.8	2.9	0.1m	3.0	0.2m	Road is likely to be inundated in a 100 year Storm event.
Eastern Carpark	3.0 avg	2.9	-	3.0	0.0m	The Carpark is not inundated in an extreme storm
Western Carpark	3.2 min	3.2	0.0m	3.4	0.2m	Shallow inundation of the Carpark could occur in an extreme storm
Office	3.7	3.2	-	3.4	-	There is no risk of flooding to the office floor level
Warehouse	3.7	3.3	-	3.4	-	There is no risk of flooding to the warehouse floor level
Secondary (west) exit at Capt Cook Dr	3.0	2.7	-	3.3	0.3m	Road not inundated in 100 year storm, but could be inundated in more extreme events

1. Ground and Floor Levels (m AHD) from Site Survey (Masters Surveying, 2018) & Architectural Plans (WMK, 2018) with advised amendments

2. Flood Levels extracted from Dicker Data Flood Study (Taylor Thomson Whitting, 2018)

3. The Extreme Storm is based on the Probable Maximum Flood (PMF) Event, which is the largest event that could conceivably occur

Flood Warning Time and Flood Notification

Flooding is from short duration storm events, in which there will be little or no warning of impending flooding. Flooding will typically occur over a period of less than 2 hours.

No formal flood warning is provided for this area due to its small size and the fact that flooding may occur immediately following heavy rainfall.

More generalised advice may be provided through the Bureau of Meteorology for “severe weather alerts” or “severe thunderstorm warnings”. Approaching heavy rainfall can be monitored through weather radars on the Bureau’s web site at www.bom.gov.au

Other advice and assistance may be available from the State Emergency Service www.ses.nsw.gov.au or telephone 132-500.

Access and Evacuation Protocols

The main point of access to the site is via Captain Cook Drive.

Captain Cook Drive is not affected by storm tide events that lead to elevated levels within Botany Bay, except in the vicinity of Cronulla Golf Club, where road access could be cut for several hours.

Captain Cook Drive is more likely to be impacted from thunderstorm activities occurring over local catchment areas that drain towards Captain Cook Drive and into Botany Bay. Potential problem sites include areas adjacent to Woolooware Golf Club, Shark Park, and Cronulla Golf Club.

There is no need to evacuate this site in response to flooding that may be experienced. The factory and warehouse floor level is not predicted to be inundated, even in extreme flood events. It is safer to shelter within the office and warehouse until the flood threat abates than to try and evacuate the site.

For cases where staff are currently in transit, or evacuation is unavoidable, the preferred evacuation route which avoids known flood threats is shown on Figure 1.

Site Emergency Response Measures

The recommended strategy for major storm events, or where flooding is experienced, includes:

- i) The operational manager, or delegated staff member, should assume responsibility for monitoring flood conditions and communicating with staff whenever there is a severe weather alert issued for the area, or when heavy rain is experienced.
- ii) Staff should shelter in the office or warehouse until the flood threat abates. There is no risk of flooding above floor level, and it is safer to remain here than attempt to leave the site. It is likely that flooding will occur over a period of less than 2 hours.
- iii) Avoid all travel by car during storms that result in roads being flooded. If this is unavoidable, or you are currently driving, the most flood accessible route, that avoids known problem areas, is shown on Figure 1. When travelling away from the site, you should turn off Captain Cook Drive at Elouera Road and head towards the Kingsway.
- iv) Never drive through roads that are flooded.
- v) Where it is safe to leave the site, the preferred vehicular exit is from the western exit gate, which avoids potential road inundation problems in the vicinity of the main (eastern) entry location.
- vi) This Strategy should be reviewed following any significant storm event or as further experience of local flood behaviour becomes available.
- vii) This strategy should be included in the Work, Health & Safety Manual prepared for this workplace. The strategy should be communicated to all new staff members as part of their induction process.

Awareness & Training

The Operational Manager, or delegated staff member, shall assume responsibility for maintaining awareness of the content of this Plan; monitoring flood conditions when there is a threat of flooding; and communicating the appropriate measures to be taken to other staff members should flooding be experienced in the vicinity of the site.

The Plan should be included in the Work, Health & Safety Manual prepared for this workplace, and communicated to new staff members as part of their normal induction process. Additionally, the Plan should be displayed in a prominent location within the workplace.

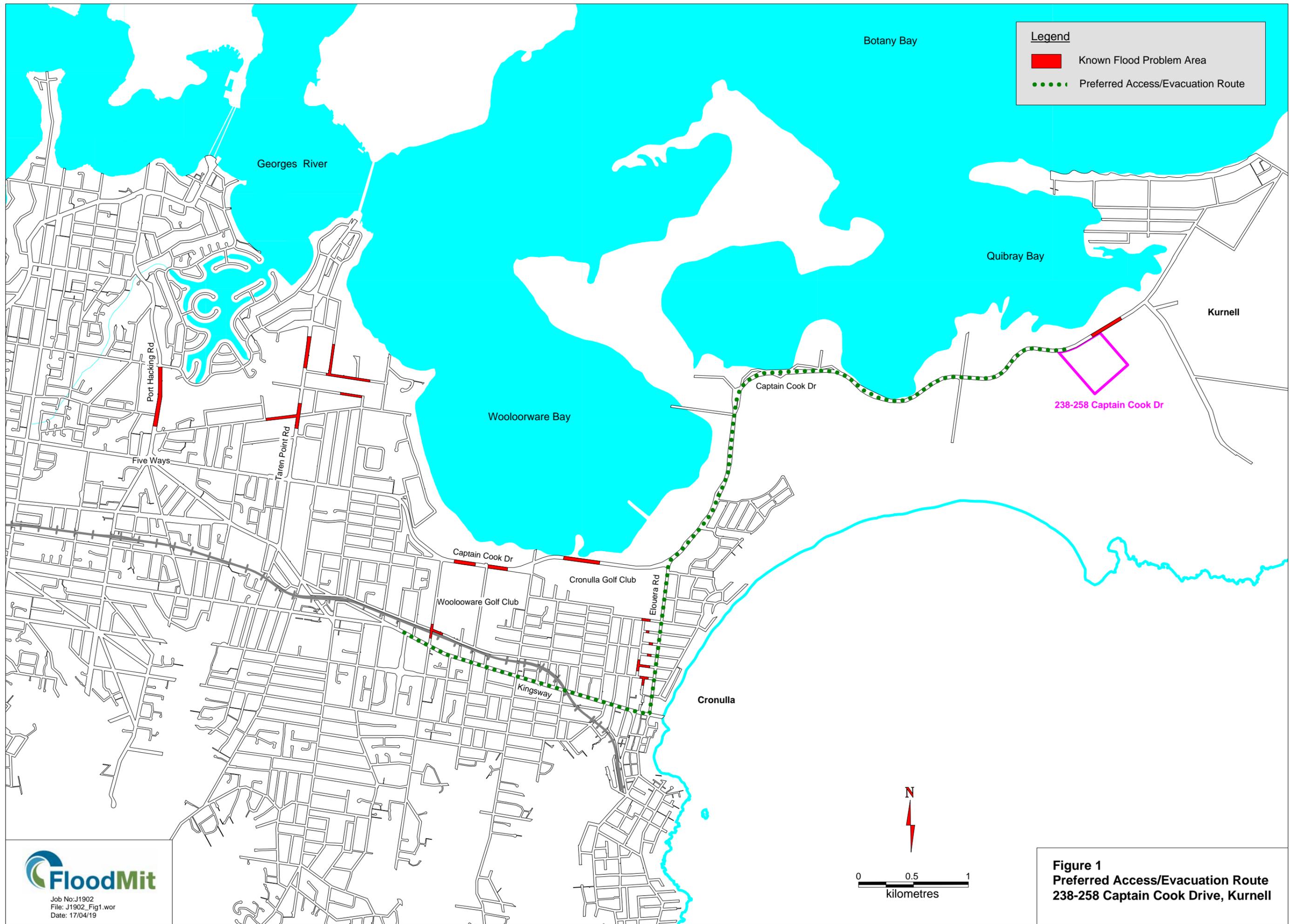
Prepared by:

A handwritten signature in black ink, appearing to read 'J Maddocks', with a large, sweeping flourish at the end.

John Maddocks
Director

Attachments

Figure 1 – Preferred Access/Evacuation Route



Legend

- Known Flood Problem Area
- Preferred Access/Evacuation Route

238-258 Captain Cook Dr



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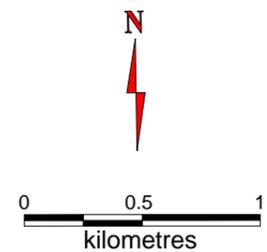


Figure 1
 Preferred Access/Evacuation Route
 238-258 Captain Cook Drive, Kurnell