

NL151532_B02v1

25th October 2016

Bupa Care Services

C/o Jackson Teece

Attention: Rebekah Martin

744 Hunter Street

NEWCASTLE WEST NSW 2302

Dear Rebekah,

Re: 64-72 Warners Bay Road, Cardiff – Preliminary Flooding Advice

The following information has been compiled to provide additional information in response to a request from Lake Macquarie City Council (LMCC) on the 14/10/2016 regarding the assessment of the proposed Aged Care Facility at 64-72 Warners Bay Road, Cardiff.

In relation to flooding the following comment has been made by Council;

- *The flood impact from the Warners Bay Road catchment is shown on the figures contained within Attachment 3 of the July 2016 Northrop report. These figures show that the western portion of the site is impacted by 100 year and PMF flows. Council is concerned that the constriction of these flows, by the development footprint, may increase impacts to the existing properties to the west of the development site. The last dot point of the Northrop report also highlights this. The South Creek Flood Study referenced in the Northrop report is the source of the flooding maps. These appear to have been based on the site in its current condition and without kerb and gutting in Warners Bay Road. The flooding extent needs to be analysed based on the development proposal footprint and the works in Warners Bay Road. The current level of information provided is inconclusive as to whether those existing properties to the west will suffer additional inundation.*

The above referenced dot point previously issued in our July 2016 report stated the following;

- *The current development footprint extends into the 1% AEP extents for the south Creek and western drainage corridor. Any Development Application would need to address the impact on the peak 1% AEP flood and show no impact on adjoining properties due to the development.*

Impact of Development Footprint on Western Drainage Channel

To further assess the impact of the development footprint on the 1% AEP flows from the western catchment, cross-sections of the flow path have been taken at two locations where the building impediment is at its greatest. The section locations are shown below in Figure 1 with the cross sections provided in Attachment 1, NL151532_SK01_[1].



Egress paths are also proposed from this area of the building. The location of the paths is shown in Figure 2. The pathway is to follow the natural contours along the western boundary and avoid the use of fill to minimise any impact to flood levels. In addition the link bridges shown traversing the drainage channel are to be suspended above the 1% AEP flood level and be designed as removable grate crossings to allow clear access for maintenance.



Impact of Warners Bay Road Upgrades on Flooding

The impacts of providing kerb and guttering along the site frontage are considered be two fold. Firstly runoff will be more effectively contained within the road reserve with increased head allowing greater conveyance within the piped network to the open channel. Secondly, as illustrated by the levels shown in Figure 3, should flow depths exceed approximately 200mm above the new kerb runoff will flow into Jonathan Street. It is reasoned that the additional ponding volume within Warners Bay Road in conjunction with the possible diversion of flows via Jonathan Street will not result in additional inundation of the western drainage channel but rather aid in its reduction within the neighboring properties.



Figure 3 – Detailed Survey of Existing Levels in Warners Bay Road



Conclusion

Based on the information above the proposed development of the site will have no significant impact on flooding in the western channel and will not inflict further inundation to neighboring properties during the 1% AEP storm event.

We trust this meets your requirements, however if you have any concerns or require further information please do not hesitate to contact the undersigned.

Yours sincerely

Er Clark

Ben Clark
Principal

BE (Civil) CPEng RPEQ