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LAHC

Date 22.07.2022

Job Number 220215

Flood Review for proposed Residential Development [Rev#2] 71-73 Vicliffe Ave, CAMPSIE NSW

Dear Sir/Madam,

Please find following our flood review for the proposed development. The subject site is located on the western side of Vicliffe Ave, refer **Figure A** and comprises Lot 20 DP 35130 and Lot 18 DP 35848 with an area of approximately 1206m². The site grades from the north corner (around RL +22.9 mAHD) to the south corner (RL +20.6 mAHD). The subject is close to mapped flowpaths (being an open channel to the south of the site, which is Cup & Saucer Creek, a tributary of the Cooks River) but is itself flood free in the 1%AEP (100yr ARI) event. The subject site currently contains 2 single residential dwellings.



Figure A: Site Location



The development as proposed consists of demolition of the existing structures and construction of a new townhouse development.

The subject site is outside the 1%AEP (100yr ARI) flood extents and Council's attached flood advice letter does not provide any required minimum floor level; that is, the development as proposed does not attract specific floor level controls with respect to flooding, however it is recommended that the floor be set +150-200mm above the adjacent finished surface levels to avoid nuisance flows entering the proposed dwellings.

FLOOD INFORMATION & BEHAVIOUR

The site is located within the wider Cooks River catchment, which has been modelled and described in Council's adopted flood study, being the "Cooks River Catchment Study" [Cardno 2016]. This study indicates that, at the subject site:

- 1. 1%AEP (100yr ARI) flood level:
- 2. PMF flood level:
- 3. 1%AEP Hazard:

flood free not available, shallow flooding N/A



Figure B: 1%AEP flood depths [extract]



NSW FDM HAZARD

With respect to flood hazard, the NSW Floodplain Development Manual (2005) provides guidelines for determining the hydraulic flood hazard. A provisional hazard can be assigned to an area using Figure L2 and the combined impact of flood velocity and flood depth. In general, an area will be (provisionally) assigned High Hazard if any of the following criteria are satisfied:

- The flood depth (D) is greater than 1.0 m;
- The flood velocity (V) is greater than 2.0 m/s;
- The combination of V and D lie in the dark blue region (mathematically this is approximately where V + 3.33D is greater than 3.33).

The site has no hazard category in the 1%AEP event as it is flood free; flows in the local vicinity are low hydraulic hazard, refer **Figure C**.



Figure C: 1%AEP flood hazards to NSW FDM [extract]

ARR 2019 HAZARD

ARR2019 provides updated Hazard curves as described in Table 6.7.3 and 6.7.4 of ARR2019 Chapter 6, with the definitions as follows:

H1: Generally safe for vehicles, people and buildings [D<0.3m, V< 2m/s, V*D < 0.3].

H2: Unsafe for small vehicles [D<0.5m, V< 2m/s, V*D < 0.6].

H3: Unsafe for vehicles. children and the elderly [D<1.2m, V< 2m/s, V*D < 0.6].

H4: Unsafe for vehicles and people [D<2.0m, V< 2m/s, V*D < 1.0].

H5: Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust buildings subject to failure [D<4.0m, V<4m/s, V*D<4.0].

H6: Unsafe for vehicles and people. All building types considered vulnerable to failure.

The site has no hazard category in the 1%AEP event as it is flood free in this event.



FLOOD RISK

Some Council's adopt Flood Risk Precinct categories for the purpose of assessing flood risk at a particular site. These typically relate to (but do not necessarily correlate with) the Hydraulic Hazard zones discussed above. As far as we are aware, there are no specific Flood Risk Precincts defined in (former) Canterbury Council's DCP part B.

Typical risk precincts adopted by other Councils are as follows:

High Risk:

Areas greater than H3 hazard conditions during a 1% AEP flood.

Areas mapped as Floodways.

Medium Risk: land below the 1% AEP level that is not High Risk

Low Risk:

All other areas within the floodplain (i.e. within the extent of the PMF)

We highlight that:

- The site is flood free in the 1%AEP event.
- The site is subject to shallow flooding in the PMF event.

We therefore conclude that the site would typically be classified as Low Flood Risk.

HYDRAULIC CATEGORIES

The NSW Floodplain Development Manual (FDM, 2005) categorises the floodplain into three groups as noted below:

Floodways are those areas of the floodplain where a significant discharge of water occurs during floods. They are often aligned with obvious naturally defined channels. Floodways are the areas that, even if only partially blocked, would cause a significant redistribution of flow, or a significant increase in flood level which may in turn adversely affect other areas. They are often, but not necessarily, areas with deeper flow of areas where higher velocities occur.

Flood Storage areas are those parts of the floodplain that are important for the temporary storage of floodwaters during the passage of a flood. If the capacity of a flood storage area is substantially reduced by, for example, the construction of levees or by landfill, flood levels in nearby areas may rise and the peak discharge downstream may be increased. Substantial reduction of the capacity of a flood storage area can also cause a significant redistribution of flood flows.

Flood Fringe is the remaining area of land affected by flooding, after floodway and flood storage areas have been defined. Development in flood fringe areas would not have any significant effect on the pattern of flood flows and/or flood levels.

We highlight that the NSW Floodplain Development Manual does not provide specific criteria for ascertaining or defining these areas; these are typically determined by the flood modeller / hydraulic consultant based on the specific nature of flooding in the creek or waterway. The site is flood free in the 100yr ARI event and by inference cannot contain any of the above categories in this event.

PRACTICAL CONSIDERATIONS

Floor Levels

The site is located outside the 1%AEP flood extents and thus does not attract floor level controls.

Building Components

The site is located outside the 1%AEP flood extents and thus does not attract building component controls.

Structural Soundness

The site is located outside the 1%AEP flood extents and thus does not attract structural soundness controls.





Figure D: 1%AEP flood categories [extract]



Figure E: PMF Flood Depths [extract]



CONCLUSIONS

We therefore conclude that:

- The subject site is flood free in the 1%AEP event and subject to shallow inundation in the PMF event.
- There will be no offsite impacts or adverse affection on adjoining lots in the 1%AEP event or smaller as the subject is flood free during this event.
- Minimum floor levels and other flood mitigation measures are not required for the development.

Yours faithfully,

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CITY OF CANTERBURY BANKSTOWN

To: Jesse Wilson 201/531 Kingsway MIRANDA NSW 2228

STORMWATER SYSTEM REPORT 71 - 73 Vicliffe Avenue, CAMPSIE NSW 2194

Date: Ref: Development type: 17-Jun-2022 WP-SIA-1337/2022 Villas / Town Houses



FLOOD/OVERLAND FLOW STUDY REQUIRED

The site is affected by the following Council stormwater system components:

• 450 mm diameter stormwater pipeline (according to Council records) and associated 1.52m wide easement located within the site.

• 450 mm diameter stormwater pipeline (according to Council records) and associated drainage reserve located along the western site boundary adjacent to the site.

• Overland flowpath for excess stormwater runoff from the upstream catchment and associated with this drainage system.

The site will be subject to stormwater inundation from this overland flowpath during large storm events. Refer to the attached "PMF Extent Maps from Cooks River Catchment Study".

The property is not affected by 100 year ARI flooding.

The proposed development including floor levels, shall comply with the development controls specified in Part B, Section B5 of former Canterbury Council's Development Control Plan 2012- Catchments Affected by Stormwater Flooding.

Runoff on the site, and naturally draining to it is to be collected and disposed of to Council's requirements detailed **Part B**, Section B5 of former Canterbury Council's **Development Control Plan 2012**.

All structures and buildings must be located clear of pipelines and easements [existing or required by Council DCP 2012]. Proposed structures may require special footings due to their proximity to stormwater easements and pipelines. Refer to Bankstown Council's *Development Engineering Standards****.

This report relates to the exposure of the subject site to Council's stormwater system, both underground and overland. It does not assess the suitability or otherwise of this site for the proposed development.

- * Average Recurrence Interval
- ** Australian Height Datum
- PMF Probable Maximum Flood

Pushpa Goonetilleke ENGINEER



Legend	
	Suburb
	Stormwater Drains MD
	Stormwater Pits MD
	Sydney Water
	Contour Major 5m
	Contour Intermediate 2.5m
	Contour Minor 0.5m
	_25cm Contour Interval (Major)
	_25cm Contour Interval (Basic)
	_25cm Contour Interval (Minor)
	Parcel
	Parcel Associate
Z	Parcel Vinculum
	Jetty
	Easements
	Road Boundaries
	Flooding_PMFEXTENT
	Aerial Photo 14052019
SMITH RD	Road Names
	Airport Internal Road
	Water Boundary
	Airport Taxiway



