



Job Number: 190006
Date: 8 October 2019

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Dear Jeff,

Re: Planning Proposal – Flood Report - 187 Slade Road, Bexley North

Introduction

A Planning Proposal is to be submitted for the subject site located at 187 Slade Road, Bexley North. The site lies at the downstream end a 20-hectare catchment and under current conditions is affected by flow from the carpark to the south-west as well as from Sarsfield Circuit.

GRC Hydro have been engaged by Planning Ingenuity to investigate the Site's existing flood liability in relation to applicable Council development controls (DCP and LEP).

Previous Studies

The Bardwell Creek 2D Flood Study Review was undertaken by WMAwater in 2018. This study produced a WBNM/TUFLOW hydrologic/hydraulic modelling system to model design flood behaviour for events ranging from the 20% AEP to the PMF. The modelling system was calibrated and validated to historic events. These models were found to adequately model flood behaviour in the study area.

The TUFLOW model results were used as the basis for flood investigatory works as part of this study.

Existing Flood Behaviour

The site has flood liability as per Figure 1 attached. Note that flood liability changed significantly following the construction of a building at the corner of Sarsfield Cct and Bexkely Road in 2010.

The site is currently traversed by drainage and any re-development of the site would provide an opportunity to re-direct this asset into public land so it is better able to be accessed should the need arise for maintenance etc.

Minor model amendments were made by GRC Hydro, in the vicinity of the subject site based on observations from site visits and local knowledge of the area. The key model amendment was to facilitate the existing overland flow path through 232 Slade Road which had previously been blocked out of the model and exacerbated flood levels.

Figure 1 provides the existing peak flood levels and depths in the 1% AEP event.

Figure 2 presents the existing peak flood hazard for the 1% AEP event, calculated in accordance with the Australian Emergency Management Handbook 7 Guideline and ARR2016.

Considerations for Proposed Development

The planning proposal is for a mixed use development comprised of Hotel, residential and commercial property. Given existing use for same it is not the case then that a change of use is being discussed.

Whilst the site is, in its current form, flood liable in the 1% AEP event, flood risk itself is minimal. Flood depths are transitory (duration is limited), hazard is relatively minor owing to relative shallowness of flood waters (see Figure 2). Flood waters, which might more accurately be characterised as overland flow or stormwater, do not create a risk to life. The main issue for any development will be achieving a complaint outcome in regard to flood impact. Other issues related to flood related development controls that seek to ensure appropriate development inclusive of levels etc. will be readily achieved. For example:

- Compliance with floor height controls (1% AEP plus freeboard);
- Compliance with controls relating to building resilience.

The Probable Maximum Flood (PMF) is a consideration in building design and risk management and for this reason the PMF has been modelled. The PMF does not scale excessively at the site with PMF levels being only 0.1 m higher than 1% AEP levels at the Sarsfield Circuit frontage of the building. Such a minor change in flood behaviour indicates a lack of scaling for rarer events and hence an absence of risk.

Relevant Planning Policy

Rockdale Development Control Plan

The Rockdale Development Control Plan (DCP) 2011 was adopted Rockdale Council (now Bayside Council) in May 2011 and is applicable for this development. Development control pertaining to Flood Risk Management can be found in Section 4.1.3 Water Management and are outlined below:

3. *Development must comply with Council's – Flood Management Policy which provides guidelines of controlling developments in different flood risk areas. It should be read in conjunction with the NSW Government's 'Floodplain Development Manual 2005'.*
4. *The filling of land up to the 1:100 Average Recurrence Interval (ARI) flood level (or flood storage area if determined) is not permitted, unless specifically directed by Council in very special and limited locations. Filling of land above the 1:100 ARI up to the Probable Maximum Flood (PMF) (or in flood fringe) is discouraged however it will be considered providing it does not adversely impact upon flood behaviour.*
5. *Development should not adversely increase the potential flood affectation on other development or properties, either individually or in combination with the cumulative impact of similar developments likely to occur within the same catchment.*
6. *The impact of flooding and flood liability is to be managed, to ensure the development does not divert the flood waters, nor interfere with flood water storage or the natural functions of waterways. It must not adversely impact upon flood behaviour.*
7. *A flood refuge may be required to provide an area for occupants to escape to for developments where occupants require a higher standard of care. Flood refuges may also be required where there is a large difference between the PMF and the 1 in 100 year flood level that may place occupants at severe risk if they remain within the building during large flood events.*

Rockdale Local Environmental Plan 2011

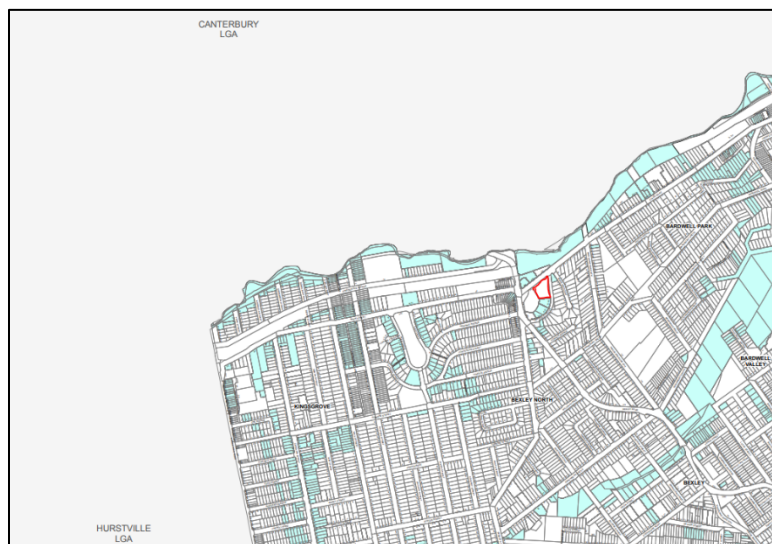
Section 6.6 Flood Planning for the Rockdale Local Environmental Plan (LEP) outlines flood related controls relevant to the proposed development. These controls are provided below.

6.6 Flood planning

- (1) *The objectives of this clause are as follows:*
 - (a) *to minimise the flood risk to life and property associated with the use of land,*
 - (b) *to allow development on land that is compatible with the land's flood hazard, taking into account projected changes as a result of climate change,*
 - (c) *to avoid significant adverse impacts on flood behaviour and the environment.*
- (2) *This clause applies to:*
 - (a) *land that is shown as "Flood planning area" on the Flood Planning Map, and*
 - (b) *other land at or below the flood planning level.*
- (3) *Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development:*
 - (a) *is compatible with the flood hazard of the land, and*
 - (b) *is not likely to significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties, and*
 - (c) *incorporates appropriate measures to manage risk to life from flood, and*
 - (d) *is not likely to significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses, and*
 - (e) *is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding.*
- (4) *A word or expression used in this clause has the same meaning as it has in the Floodplain Development Manual (ISBN 0 7347 5476 0), published in 2005 by the NSW Government, unless it is otherwise defined in this clause.*
- (5) *In this clause:*
flood planning level *means the level of a 1:100 ARI (average recurrent interval) flood event plus 0.5 metre freeboard.*
Flood Planning Map *means the Rockdale Local Environmental Plan 2011 Flood Planning Map.*

The Flood Planning Map from the Rockdale LEP does not highlight the subject site as within the Flood Planning Area. This map is shown in Image 1.

Image 1: Rockdale LEP Flood Planning Area (subject site outlined in red – not tagged)



Conclusion and Recommendations

In summary then:

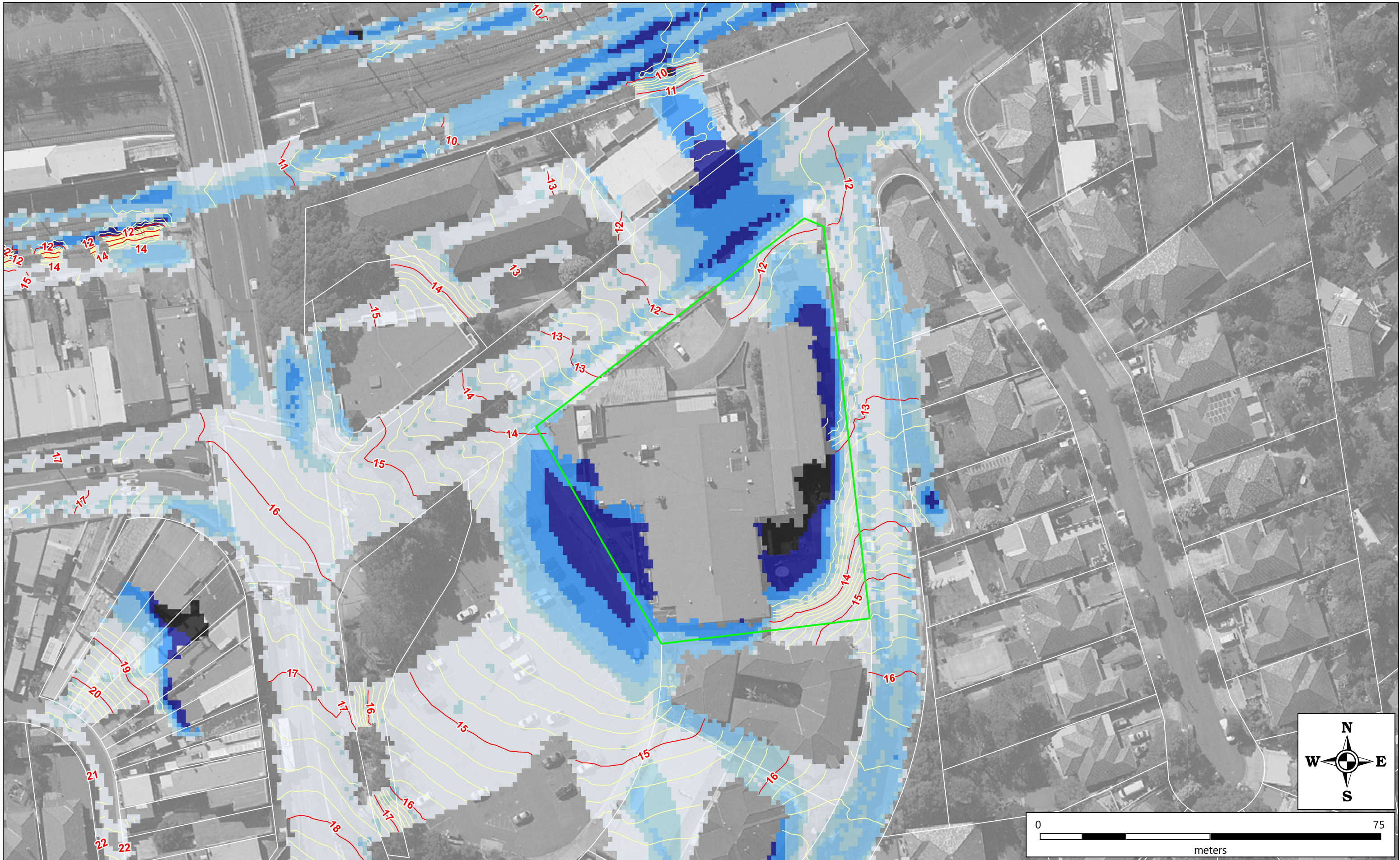
- GRC Hydro have done extensive work on flood modelling at the site for a previous Development Application;
- Since that time Council have provided an improved Council modelling tool that is suitable for site analysis;
- The site is flood liable albeit to overland flows or what would tend to be called stormwater;
- Council stormwater assets on the site currently lie under buildings – the re-development is an opportunity to put such assets in locations where they can be accessed should maintenance be required;
- Site's flood liability is very much affected by a re-distribution of flow that resulted from a 2010 development approved at the corner of Sarsfield Circuit and Bexley Road;
- Flood liability of the site means that compliance with DCP controls is required to be achieved by any development;
- Compliance with risk management requirements (appropriate floor levels, building materials etc.) is straightforward; and
- Compliance with impact consent conditions will likely require manipulation of the following:
 - Site storage;
 - Pipe conveyance in Sarsfield Circuit; and
 - Pipe on Slade Road (to be re-laid in conjunction with the development in any case.)

Yours Sincerely,

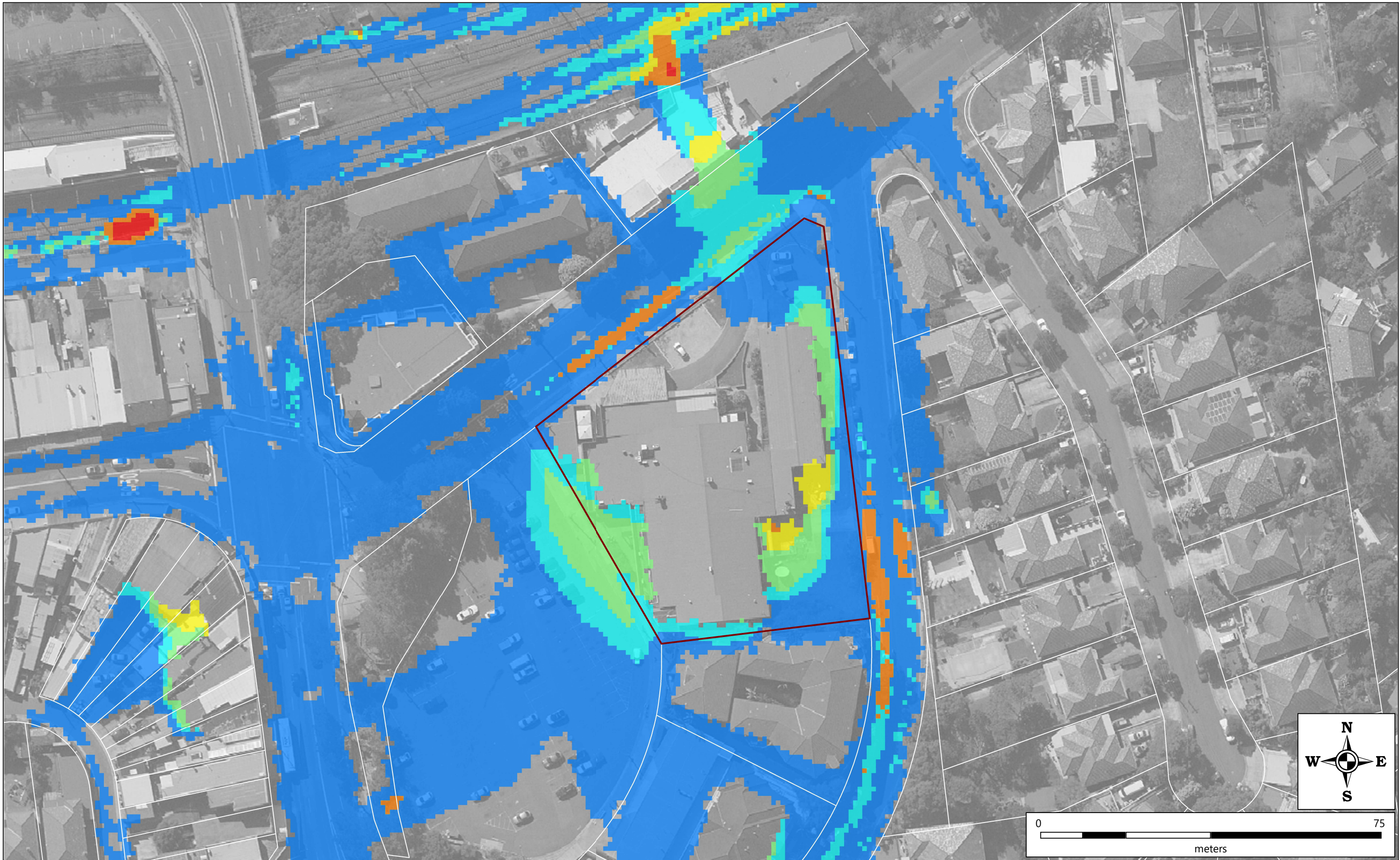


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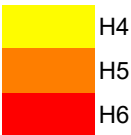
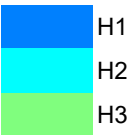
	<div><div><div></div></div><div>Subject Site</div></div> <div><div></div><div>Cadastral Boundaries</div></div>	<div><div><div></div><div>Major Flood Level Contours (1 m spacing)</div></div><div><div></div><div>Minor Flood Level Contours (0.2 m spacing)</div></div></div>	<div>Flood Depths (m)</div> <div><div><div></div><div>0 to 0.1</div></div><div><div></div><div>0.1 to 0.1</div></div><div><div></div><div>0.1 to 0.3</div></div><div><div></div><div>0.3 to 0.5</div></div><div><div></div><div>0.5 to 1</div></div><div><div></div><div>> 1</div></div></div>	TITLE : Existing 1% AEP Peak Flood Depths & Levels			<div><div>grc</div><div>HYDRO</div></div>
				PROJECT: Flood Assessment - 187 Slade Road, North Bexley			
				PROJECT No. 190006			
DATE: October 2019		SCALE: 1 : 750		FIGURE NUMBER: 1			



Subject Site

Cadastral Boundaries

Flood Hazard Classification



TITLE : **Existing 1% AEP Peak Flood Hazard**

PROJECT: Flood Assessment - 187 Slade Road, North Bexley

PROJECT No. 190006

DATE: October 2019

SCALE: 1 : 750

FIGURE NUMBER: 2

