Level 1, 215 Pacific Highway
Charlestown NSW 2290
02 4943 1777
newcastle@northrop.com.au
ABN 81 094 433 100

24 January 2020

NL171278-04

The Doma Group
Alex Moulis
PO Box 5419
Kingston ACT 5419

Dear Alex,

Re: 42 Honeysuckle Drive, Newcastle – Flooding Assessment

Northrop Consulting Engineers have been engaged to undertake a flooding assessment at the aforementioned address to satisfy Clause 9 of the Secretary's Environmental Assessment Requirements (SEARs) for SSD 10378. This correspondence outlines the requirements of the clauses, the assessment methodology, a description of the existing site and development proposal, and responses to the clauses.

The SEARs for SSD 10378 requires:

> *The EIS is to include an assessment of any potential flood risk on site in accordance with any relevant provisions of the NSW Floodplain Development Manual (2005), The Throsby, Cottage and CBD Flood Study 2004, the Newcastle Floodplain Risk Study 2012 and the Honeysuckle Redevelopment Area Flood Study including an:*
>
> - *Assessment of existing flood behaviour and impact of sea level rise, climate change, and ecosystem migration*
> - *Assessment of potential flood impacts on the proposed development and measures to mitigate any potential flooding*
> - *Assessment of potential impacts of the proposed development on flood behaviour at the site and impacts on adjacent land, and measures to mitigate any potential flooding*
> - *Emergency management measures and evacuation*
> - *Consistency with any floodplain risk management plans*
> - *Compatibility with the flood hazard of the land*
> - *Assessment of whether the proposal will 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*
> - *Detailed consideration of the proposed drainage associated with the proposal, including stormwater and drainage infrastructure*

		Date
Prepared by	GW	24/01/2020
Checked by	CP	24/01/2020
Admin	HB	24/01/2020

In order to address this clause, a review of the guideline documents, flood studies affecting the development, and the site-specific Flood Information Certificate was undertaken. Guideline documents reviewed include:

- The NSW Floodplain Development Manual (2005).
- Newcastle City-wide Floodplain Risk Management Study and Plan (2012).
- Newcastle DCP 2012 Section 4.01 Flood Management.
- Waterfront and Cottage Creek Flood Management Plan (1999).
- Honeysuckle Redevelopment Area Flood Study (2018).
- Flood Information Certificate FL2020/00005.

Existing Site

The existing site, 42 Honeysuckle Drive is also known as Lot 22 DP 1072217 and is located between Honeysuckle Dr and the Newcastle Light Rail to the east of the Cottage Creek Floodway (separated by Lot 40 DP 1251908).

The existing 0.37Ha site is mostly cleared, with various below ground electrical/telecommunication services traversing the site. The site is bordered by a chain wire fence on the southern boundary, and a retaining wall on the eastern boundary (bordering the Hunter Water Corporation site).

An existing ridge is located near the centre of the site, falling away towards the north (Honeysuckle Dr), south (Newcastle Light Rail) and west (Cottage Creek Floodway). The site is generally elevated in comparison to the adjacent Honeysuckle Dr roadway. The existing site levels vary between approximately 4.0m AHD at the ridge point, to approximately 2.0m-2.4m AHD at the boundary.

In 2018, construction works for the previous DA commenced, resulting in regrading of the site and the installation of piling. This has since ceased.

Proposed Development

The proposed development consists primarily of a mixed-use ground floor level which covers the majority of the site and seven hotel levels. The proposed development includes a multi-level above ground car park incorporated into the first four levels. In addition to this there is a communal courtyard, a gym, various lobby and storage rooms and external landscaping.

The development also includes a new vehicular access point to Honeysuckle Drive, a drop-off zone on Honeysuckle Dr and various pedestrian access points. The ground floor architectural drawing is included as an attachment to this correspondence.

Existing Flood Behaviour and Impact of Climate Change

Existing flood behaviour has been obtained from Flood Information Certificate No. FL2020/00005, included as an attachment to this correspondence. The subject site is affected by ocean and local catchment flooding.

The peak PMF water level as a result of Ocean flooding is 3.40m AHD, which is less than from local flooding. Similarly, in the 1% AEP (Annual Exceedance Probability) event, the maximum water level is 2.2m AHD, which is less than local catchment flooding. Flood waters for the ocean flooding are expected to rise slowly relative to the local catchment flood and enter the site from the northern, western and southern boundary.

Local catchment flooding affects the site in both the 1% AEP event and PMF event, with a maximum water level of 2.49m AHD and 3.62m AHD respectively. Flood waters for local catchment flooding are expected to rise quickly to the peak, relative to ocean flooding.

A sea level rise of 90cm has been incorporated into the above estimate of ocean flooding and as such it is assumed that this information adequately estimates the impact due to climate change.

Life hazards describe the danger that flood waters might pose to the lives of persons affected by flooding. The Flood Information Certificate indicates that the Highest Life Hazard Category for the overall site is L4 for local catchment flooding. An L4 hazard classification is commensurate with flash flooding and requires evacuation to a suitable flood free refuge within the proposed development site. This is discussed further in the section below.

For ocean flooding, the Highest Life Hazard Category is L1. An L1 hazard classification is commensurate with slow rising flood waters, and requires evacuation to flood free land outside of the entire flood.

The overall site has various flood classifications, however, as stated in the Flood Information Certificate No. FL2020/00005, the floodway is outside the development footprint, therefore, the most critical classification within the development footprint is flood fringe. Flood fringe areas are described in The City of Newcastle DCP as "*the remaining areas of floodplain not included in flood storage areas and floodways. Flood fringe areas can usually be developed without reference to how that development will affect the flood behaviour either upstream or downstream*."

Proposed Impact of the Development on Flooding and the Environment

The proposed building footprint does not cover the entirety of the subject site, therefore flood water will be able to enter the development site in some locations most notably the western and southern boundary, and localised locations along the northern boundary including the pedestrian and vehicular access points. This is similar to the behaviour in the current scenario.

The proposed building footprint has been accounted for in the Honeysuckle Redevelopment Area Flood Study (2018), which has been endorsed by Council to support development in the Honeysuckle area. As shown in the Flood Information Certificate and Figure D-9 of the Honeysuckle Redevelopment Area Flood Study (2018), the most critical flood classification for the subject area is floodway, being the Cottage Creek Floodway. The proposed development is to remain outside of these floodways, and therefore, the most critical flood classification within the development footprint is flood fringe. City of Newcastle DCP describes flood fringe area as the remaining areas of floodplain not included in flood storage areas and floodways. Flood fringe areas can usually be developed without reference to how the development will affect the flood behaviour either upstream or downstream. As such it is expected that the development will have no significant adverse impact on the flood behaviour both onsite and on the adjacent properties.

The Waterfront and Cottage Creek Flood Management Plan (1999) depicts a floodway to the west of the proposed development site (separated by Lot 40 DP 1251908), referred to as Cottage Creek Floodway. The proposed development footprint does not impede on the floodway, as shown in the attached detailed site survey. The development is therefore considered to be consistent with the flood management plan.

Given the highly-modified nature of the waterfront land, it is not expected ecosystem migration will occur in the vicinity of the proposed development. Furthermore, it is expected that this development will not cause avoidable stream erosion, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses given its location close to the outlet of the catchment and due to the fact that flow from the site will be conveyed by formal drainage infrastructure, being below ground pipes and through road carriageway for overland flow.

Compatibility with Floodplain Risk Management Plans and Flood Hazard for the Site

The proposed development is generally compatible with the Newcastle DCP 2012 and Newcastle City-wide Floodplain Risk Management Study and Plan with respect to habitable floor levels, vehicular access and parking, and on-site refuge.

The ground floor level for all occupiable rooms is set at the *Flood Hazard Level* of 3.0m AHD, which equates to the 1% AEP plus 510mm freeboard. Non-occupiable ground floor rooms, and the ground floor carpark are set above the critical 1% AEP flood level of 2.49m AHD.

The P2 property hazard category for the site assumes a floodwater depth greater than 0.3m, commensurate with a H2 hydraulic behaviour threshold. The floodwater depth in the ground floor carpark is not anticipated to exceed 0.3m in the 1% AEP storm event, therefore is consistent with a P1 classification.

The L4 hazard category does necessitate refuge to be sought on-site and is to be accommodated within all levels of the building above the ground flood. Details of onsite refuge will be included in a Flood Emergency Response Plan to be provided prior to release of the Occupation Certificate.

A summary of flooding characteristics is shown below in Table 1.

Table 1 - Summary of flooding characteristics and proposed development

1% AEP Ocean Flooding	2.20m AHD
1% AEP Local Catchment Flooding	2.49m AHD
PMF Ocean Flooding	3.40m AHD
PMF Local Catchment Flooding	3.62m AHD
Existing site surface levels	
North east	2.10m AHD
South east	2.01m AHD
South west	2.36m AHD
North west	2.34m AHD
Proposed Ground Floor Level (Occupiable)	3.0m AHD
Proposed Ground Floor Level (Non-Occupiable)	2.77m AHD

Emergency Management and Evacuation

On-site refuge is not necessary for ocean dominated flooding, but is required due to local catchment flooding. On-site refuge may be sought on all levels above the ground floor. Any evacuation or refuge is to be self-directed and not reliant on emergency services or SES.

Regardless of the type or magnitude of flooding, no evacuation should be attempted through flood waters by foot or vehicle. It is expected that prior to occupation, emergency response for a range of scenarios will be developed and displayed at prominent locations around the building in the form of a Flood Emergency Management Plan.

Detailed Consideration of the Proposed Drainage

Please refer to the Stormwater Management Report for detail of the proposed drainage infrastructure.

Conclusions

From the flooding assessment undertaken, it has been concluded that the proposed development:

- Is compatible with the flood hazard onsite and floodplain risk management plans that apply to the site.
- Is not likely to cause significant adverse impacts on flood behaviour on adjacent properties.
- Incorporates design features to minimise risk to property and life from flooding.
- Will have a Flood Emergency Management Plan prepared and implemented prior to occupation of the building.
- Is not expected to cause migration of the ecosystem in the vicinity of the development.
- Is not expected to cause avoidable stream erosion, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.

We trust that this meets your requirements, however, should you require anything further, please do not hesitate to contact the undersigned on (02) 4943 1777.

Yours sincerely,

Gemma Wood
Civil Engineer
BEng (Environmental)

Attachments

Architectural Ground Floor Plan

Detailed Survey Plan

City of Newcastle – Flood Information Certificate FL2020/00005

Check all dimensions and site conditions prior to commencement of any work, the purchase or ordering of any materials, fittings, plant, services or equipment and the preparation of shop drawings and/or the fabrication of any components.

All drawings to be read in conjunction with all architectural documents and all other consultants documents.

Do not scale drawings - refer to figured dimensions only. Any discrepancies shall immediately be referred to the architect for clarification.

All drawings may not be reproduced or distributed without prior permission from the architect.

	Carpark	ACC Carpark	Motorbike
GL	18		
L01	34	6	2
L02	34	6	2
L03	34	6	2
L04-CP	31		6

TOTAL	151	18	12

TOTAL Carpark Spaces	169
TOTAL Motorbike Spaces	12

Revision	Date	Description	Initial	Checked
2	06.01.20	For Information	DE	DE
1	10.12.19	For Information	EN	DE

S12109_ Doma
Honeysuckle Drive, Newcastle

Ground Level Plan

Scale	1:200 @A1 1:400 @ A3
Drawn	Checked
Project No.	S12109
Status	FOR INFORMATION
Plot Date	8/1/2020 8:49 PM
Plot File	S:\12100-12199\s12109_doma_honeysuckle\n70_CAD\Plots\DA\...\A03.000[1].dwg
Drawing No.	A03.000[2] [Revision]

Melbourne 1 Nicholson Street
Melbourne VIC 3000 Australia
T 03 8664 6200 F 03 8664 6300
email melb@batessmart.com.au
http://www.batessmart.com.au

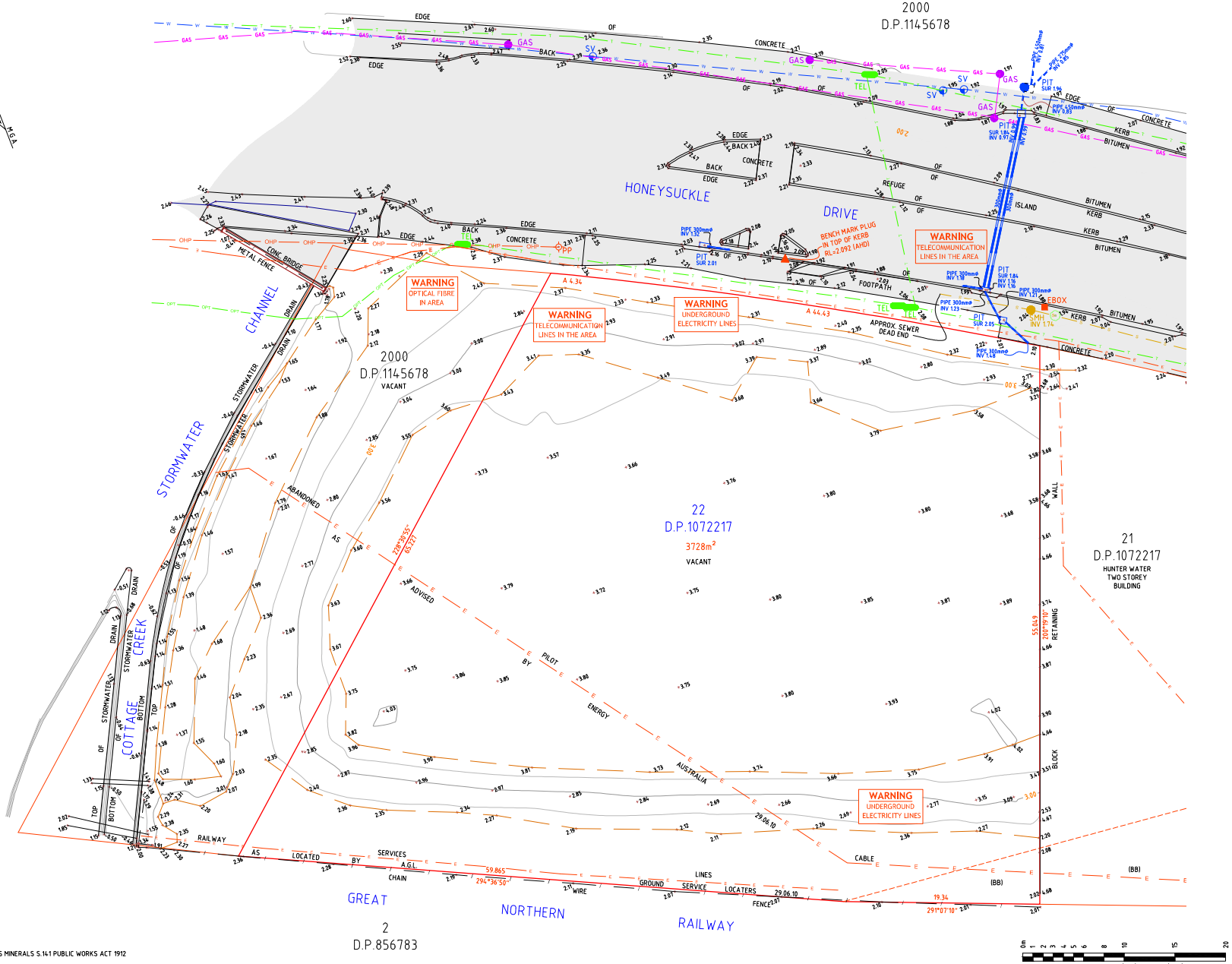
Sydney 43 Brisbane Street
Surry Hills NSW 2010 Australia
T 02 8354 5100 F 02 8354 5199
email syd@batessmart.com.au
http://www.batessmart.com.au

Bates Smart Architects Pty Ltd ABN 68 094 740 986

BATESSMART

LEGEND

- BOUNDARY LINE
- ADJACENT BOUNDARY
- MINOR CONTOUR LINE
- MAJOR CONTOUR LINE
- EASEMENT
- FENCE LINE
- TOP & TOE OF BANKS
- OVERHEAD POWER LINE
- BENCH MARK
- PP POWER POLE
- PIT DRAINAGE PIT
- SV STOP VALVE
- SMH SEWER MAN HOLE
- GAS NATURAL GAS MARKER
- TEL TELSTRA PIT
- DENOTES TREE
- STORMWATER PIPE
- UNDERGROUND WATER LINE (DBYD)
- UNDERGROUND ELECTRICAL LINE (DBYD)
- UNDERGROUND TELSTRA LINE (DBYD)
- UNDERGROUND OPTICAL FIBRE (DBYD)
- UNDERGROUND SEWER LINE (DBYD)
- UNDERGROUND GAS LINE (DBYD)



NOTES:

1. FEATURES SHOWN TO SCALE ACCURACY.
2. THIS PLAN IS SUITABLE FOR DETAILED PLANNING AND DESIGN AT THE SCALE/S STATED. THE PLAN MAY NOT BE SUITABLE FOR ANY OTHER PURPOSE OR FOR USE AT ANY OTHER SCALE/S.
3. THE LOCATION OF ALL UNDERGROUND SERVICES WHETHER SHOWN ON THE PLAN OR NOT, SHOULD BE PRECISELY DETERMINED BEFORE ANY CONSTRUCTION WORK COMMENCES AND MEASURES TAKEN TO PROTECT THESE SERVICES FROM DAMAGE.
4. UNDERGROUND SERVICES SHOWN HAVE BEEN SCALED FROM DIAL BEFORE YOU DIG PLANS DATED 05.07.2017.
5. CONTOUR INTERVAL - 0.5m
6. THE BOUNDARIES SHOWN ARE APPROXIMATE ONLY. THE BOUNDARIES SHOWN HAVE BEEN COMPILED FROM THE RELEVANT DEPOSITED PLANS. FURTHER SURVEY WILL BE REQUIRED IF CONSTRUCTION IS TO TAKE PLACE ON OR ADJACENT TO THE BOUNDARIES.
7. DURING THE COURSE OF THIS SURVEY NO INVESTIGATION HAS BEEN UNDERTAKEN TO DETERMINE THE EXISTENCE OF ANY POSSIBLE SUBTERRANEAN ENCROACHMENTS.
8. THE SUBJECT PROPERTY IS AFFECTED BY A COVENANT. THE RELEVANT CONDITIONS OF THE COVENANT SHOULD BE CHECKED FOR COMPLIANCE PRIOR TO DESIGN & CONSTRUCTION.

DIAL BEFORE YOU DIG www.1100.com.au

(BB) LAND EXCLUDES MINERALS S.14.1 PUBLIC WORKS ACT 1912

Bar Scale 1: 200 (A1) 1: 400 (A3)

de Witt Consulting
planning ■ surveying ■ project management
HUNTER REGION
7 Canberra Street Charlestown
PO Box 850 Charlestown NSW 2290
P 02 4942 5441 F 02 4942 5301
E admin@dewittconsulting.com.au
WESTERN REGION
87 Herbert Street Gulgong
PO Box 232 Gulgong NSW 2852
P 02 6374 2911 F 02 6374 2922
ABN 23 104 067 405

TITLE

DETAIL SURVEY OF

LOT 22 D.P.1072217

Ed.	Date	Amendment
A	27.07.17	INITIAL ISSUE

JOB ADDRESS: 42 HONEYSUCKLE DRIVE, NEWCASTLE
CLIENT: DOMA HOLDINGS
PLAN No 001
JOB REF: 7768
SCALE: A1 1:200 A3 1:400
SURVEY DATE: 18.07.17
PLAN DATE: 27.07.17
DATUM: AHD
CAD REF: 7768DETAILgp.mjo
ORIGIN OF LEVELS: SSM 135836 RL 2.071
DRAWN CJ
SURVEYOR NB/GP
CHECKED WS
APPROVED WS
SHEET No 1/1
DRAWING REF: 7768-DET-27.07.17

13 January 2020

Northrop Consulting Engineers P/L
C/- Doma Group
Po Box 5419
KINGSTON ACT 2604

Flood Information Certificate No:	FL2020/00005
Land:	Lot 22 DP 1072217
Property Address:	42 Honeysuckle Drive Newcastle NSW 2300

Thank you for your recent enquiry regarding flood behaviour at the above property. This letter confirms the property is located in a flood prone area.

The flood information comes from the Honeysuckle Redevelopment Area Flood Study prepared by BMT (Revision 8 dated 8/03/18). A copy of this flood study is available on Council's website. The flood information provided is generally for the proposed sites noted as Sites 11-15 on Figure 6-6 of the report (Honeysuckle Central & Sites 1-4).

https://www.newcastle.nsw.gov.au/Newcastle/media/Documents/environment/Flooding/Honeysuckle-Redevelopment-Area-Flood-Study_March-2018.pdf

The pertinent features of the flood behaviour are estimated as follows:

Ocean Flooding

Is any part of the site affected by a floodway?	No
Is any part of the site affected by a flood storage area?	No
Estimated 1% Annual Exceedance Probability event level: (equivalent to the "*Defined Flood Level*" in the Building Code of Australia)	2.2m AHD
Highest Property Hazard Category	P1
Estimated Probable Maximum Flood Level	3.4m AHD (velocity 0.1m/s)
Highest Life Hazard Category	L1 (H3)

Local Catchment Flooding

Is any part of the site affected by a floodway?	Yes (See Table 1 below) Floodway is outside development footprint
Is any part of the site affected by a flood storage area?	No
Estimated 1% Annual Exceedance Probability event level: (equivalent to the "*Defined Flood Level*" in the Building Code of Australia)	2.49m AHD
Estimated Maximum Flow Velocity of floodwaters (in the "*Defined Flood Event*" as per the Building Code of Australia)	0.7m/s
Highest Property Hazard Category	P2
Estimated Probable Maximum Flood Level	3.62m AHD (velocity 1.8m/s)
Highest Life Hazard Category	L4

The flood study from which the above information is derived is part of a Newcastle City Wide Floodplain Management Plan. The above advice may change in the future, however the advice is based on the best information held by Council at the time of issue of this certificate.

The above ocean flood level estimates include a sea level rise relative to 1990 mean sea levels of 90cm by 2100, as used in the Newcastle City-wide Floodplain Risk Management Study and Plan (June 2012).

The Newcastle Development Control Plan 2012 addresses the issues of flood management for new development. You can view the development control plan at www.newcastle.nsw.gov.au. In summary, the following requirements apply for all future development applications on the site.

Development in a floodway is not generally allowable due to likely redistribution of flood water.	Applicable
Filling of a flood storage area by more than 20% is not generally allowable due to redistribution of flood water.	Not Applicable
Minimum floor level for occupiable rooms in a new development on this site is: (equivalent to the "*Flood Hazard Level*" in the Building Code of Australia)	2.9m AHD
Is onsite flood refuge required?	Yes

Council holds no information concerning floor levels of existing structures on the site. Site levels and floor levels should be verified by survey based on the Australian Height Datum.

It is estimated that, during the June 2007 storms, flood waters reached a level of approximately 2.7m AHD in the vicinity of the specified land.

Please note that:

1. No assessment of the lot's suitability for the purposes of making an application for a complying development certificate under the Housing Code or Rural Housing Code of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, or for a Secondary Dwelling under *State Environmental Planning Policy (Affordable Rental Housing) 2009,* has been made. This type of flood information can also be obtained from Council via a Flood Information Application. There are two services provided by Council relating to Complying Development flood criteria, as follows:

    a) Identification of lots affected by any of the flood control lot exclusions identified in subclause 3.5(1) or 3A.38(1) of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.* If this information is required, select Box 4. b) (i) on the Flood Information Application form and pay the required fee.

    b) An assessment of a proposal for development of the lot for compliance with the requirements of subclause 3.36(2) or 3A.38(2) of *State Environmental Planning Policy (Exempt and Complying Development Codes*) *2008.* If this information is required, select Box 4. b) (ii) on the Flood Information Application form, submit plans and other relevant documentation for the proposal and pay the required fee.

2. The information contained in this certificate may alter in the future. The applicant should at all times ensure the currency of this information.

Should you require any further clarification please contact Rajnesh Prakash on 4974 2137.

Yours faithfully

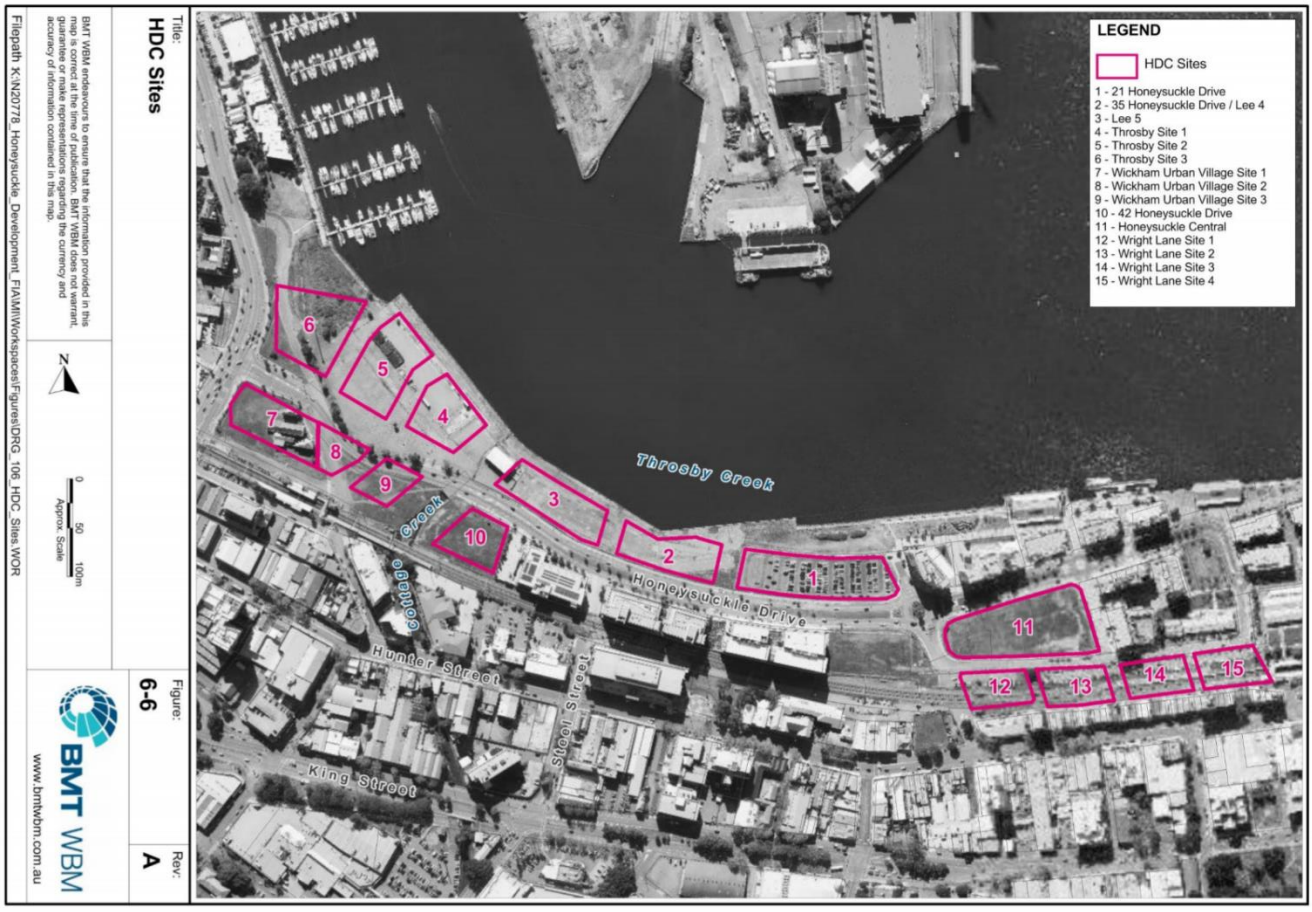
Rajnesh Prakash
SENIOR DEVELOPMENT OFFICER (Engineering)

Table 6-7 Flood Planning Information for HDC Development Sites

Site Location	1% AEP with ARR 2016 Blockage Post-Development Levels (m AHD)	PMF Level (m AHD)	FPL[1] (m AHD)	Post-Development Flood Classification		Risk to Property	Risk to Life	Velocity (m/s)			
				1% AEP	PMF			1% AEP	0.5% AEP	0.2% AEP	PMF
21 Honeysuckle Drive	2.50	3.44	2.90	Fringe	Floodway	P1	L4	0.8	1.4	1.6	2.2
35 Honeysuckle Drive / Lee 4	2.50	3.43	2.90	Storage	Floodway	P2	L4	0.7	1.1	1.7	3.0
Lee 5	2.50	3.38	2.90	Storage	Floodway	P2	L4	0.7	1.0	1.5	3.3
Throsby – Site 1	2.40	3.50	2.80	Fringe	Floodway	P1	L4	0.3	0.6	1.3	2.8
Throsby – Site 2	2.40	3.50	2.80	Fringe	Floodway	P1	L4	0.2	0.4	1.0	2.9
Throsby – Site 3	2.37	3.47	2.80	Fringe	Floodway	P1	L4	0.1	0.4	1.0	2.5
Wickham Urban Village – Site 1	2.48	3.49	2.90	Fringe	Storage	P2	L4	0.4	0.5	0.7	1.1
Wickham Urban Village – Site 2	2.46	3.49	2.90	Fringe	Floodway	P2	L4	0.3	0.5	0.7	1.3
Wickham Urban Village – Site 3	2.45	3.49	2.90	Fringe	Floodway	P1	L4	0.3	0.5	0.7	1.9
42 Honeysuckle Drive	2.49	3.62	2.90	Fringe	Floodway	P2	L4	0.7	1.0	1.3	1.8
Honeysuckle Central	1.86	3.29	2.80	Fringe	Floodway	P1	L5	0.1	2.0	2.1	2.9
Wright Lane – Site 1	2.42	3.31	2.80	Fringe	Floodway	P1	L4	0.3	1.4	2.4	2.6
Wright Lane – Site 2	2.43	3.19	2.80	Fringe	Floodway	P1	L4	0.2	1.3	1.4	2.0
Wright Lane – Site 3	2.34	3.05	2.80	Fringe	Floodway	P1	L4	-	0.1	0.4	2.0
Wright Lane – Site 4	2.34	3.05	2.80	Fringe	Fringe	P1	L4	-	0.0	0.5	1.1

[1] Note that where the 1% AEP post-development level + 0.4 m freeboard is less than 2.8 m AHD, a FPL of 2.8 m has been adopted in accordance with Council's ocean planning level of 2.8 m AHD. FPLs have been rounded to 1 decimal place.

Table 1 – Flood Planning Information for HDC Development Sites



HDC Site Locations

13 January 2020

Northrop Consulting Engineers P/L
C/- Doma Group
Po Box 5419
KINGSTON ACT 2604

Flood Information Certificate No:	FL2020/00005
Land:	Lot 22 DP 1072217
Property Address:	42 Honeysuckle Drive Newcastle NSW 2300

Thank you for your recent enquiry regarding flood behaviour at the above property. This letter confirms the property is located in a flood prone area.

The flood information comes from the Honeysuckle Redevelopment Area Flood Study prepared by BMT (Revision 8 dated 8/03/18). A copy of this flood study is available on Council's website. The flood information provided is generally for the proposed sites noted as Sites 11-15 on Figure 6-6 of the report (Honeysuckle Central & Sites 1-4).

https://www.newcastle.nsw.gov.au/Newcastle/media/Documents/environment/Flooding/Honeysuckle-Redevelopment-Area-Flood-Study_March-2018.pdf

The pertinent features of the flood behaviour are estimated as follows:

Ocean Flooding

Is any part of the site affected by a floodway?	No
Is any part of the site affected by a flood storage area?	No
Estimated 1% Annual Exceedance Probability event level: (equivalent to the "*Defined Flood Level*" in the Building Code of Australia)	2.2m AHD
Highest Property Hazard Category	P1
Estimated Probable Maximum Flood Level	3.4m AHD (velocity 0.1m/s)
Highest Life Hazard Category	L1 (H3)

Local Catchment Flooding

Is any part of the site affected by a floodway?	Yes (See Table 1 below) Floodway is outside development footprint
Is any part of the site affected by a flood storage area?	No
Estimated 1% Annual Exceedance Probability event level: (equivalent to the "*Defined Flood Level*" in the Building Code of Australia)	2.49m AHD
Estimated Maximum Flow Velocity of floodwaters (in the "*Defined Flood Event*" as per the Building Code of Australia)	0.7m/s
Highest Property Hazard Category	P2
Estimated Probable Maximum Flood Level	3.62m AHD (velocity 1.8m/s)
Highest Life Hazard Category	L4

The flood study from which the above information is derived is part of a Newcastle City Wide Floodplain Management Plan. The above advice may change in the future, however the advice is based on the best information held by Council at the time of issue of this certificate.

The above ocean flood level estimates include a sea level rise relative to 1990 mean sea levels of 90cm by 2100, as used in the Newcastle City-wide Floodplain Risk Management Study and Plan (June 2012).

The Newcastle Development Control Plan 2012 addresses the issues of flood management for new development. You can view the development control plan at www.newcastle.nsw.gov.au. In summary, the following requirements apply for all future development applications on the site.

Development in a floodway is not generally allowable due to likely redistribution of flood water.	Applicable
Filling of a flood storage area by more than 20% is not generally allowable due to redistribution of flood water.	Not Applicable
Minimum floor level for occupiable rooms in a new development on this site is: (equivalent to the "*Flood Hazard Level*" in the Building Code of Australia)	2.9m AHD
Is onsite flood refuge required?	Yes

Council holds no information concerning floor levels of existing structures on the site. Site levels and floor levels should be verified by survey based on the Australian Height Datum.

It is estimated that, during the June 2007 storms, flood waters reached a level of approximately 2.7m AHD in the vicinity of the specified land.

Please note that:

1. No assessment of the lot's suitability for the purposes of making an application for a complying development certificate under the Housing Code or Rural Housing Code of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, or for a Secondary Dwelling under *State Environmental Planning Policy (Affordable Rental Housing) 2009,* has been made. This type of flood information can also be obtained from Council via a Flood Information Application. There are two services provided by Council relating to Complying Development flood criteria, as follows:

    a) Identification of lots affected by any of the flood control lot exclusions identified in subclause 3.5(1) or 3A.38(1) of *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.* If this information is required, select Box 4. b) (i) on the Flood Information Application form and pay the required fee.

    b) An assessment of a proposal for development of the lot for compliance with the requirements of subclause 3.36(2) or 3A.38(2) of *State Environmental Planning Policy (Exempt and Complying Development Codes*) *2008.* If this information is required, select Box 4. b) (ii) on the Flood Information Application form, submit plans and other relevant documentation for the proposal and pay the required fee.

2. The information contained in this certificate may alter in the future. The applicant should at all times ensure the currency of this information.

Should you require any further clarification please contact Rajnesh Prakash on 4974 2137.

Yours faithfully

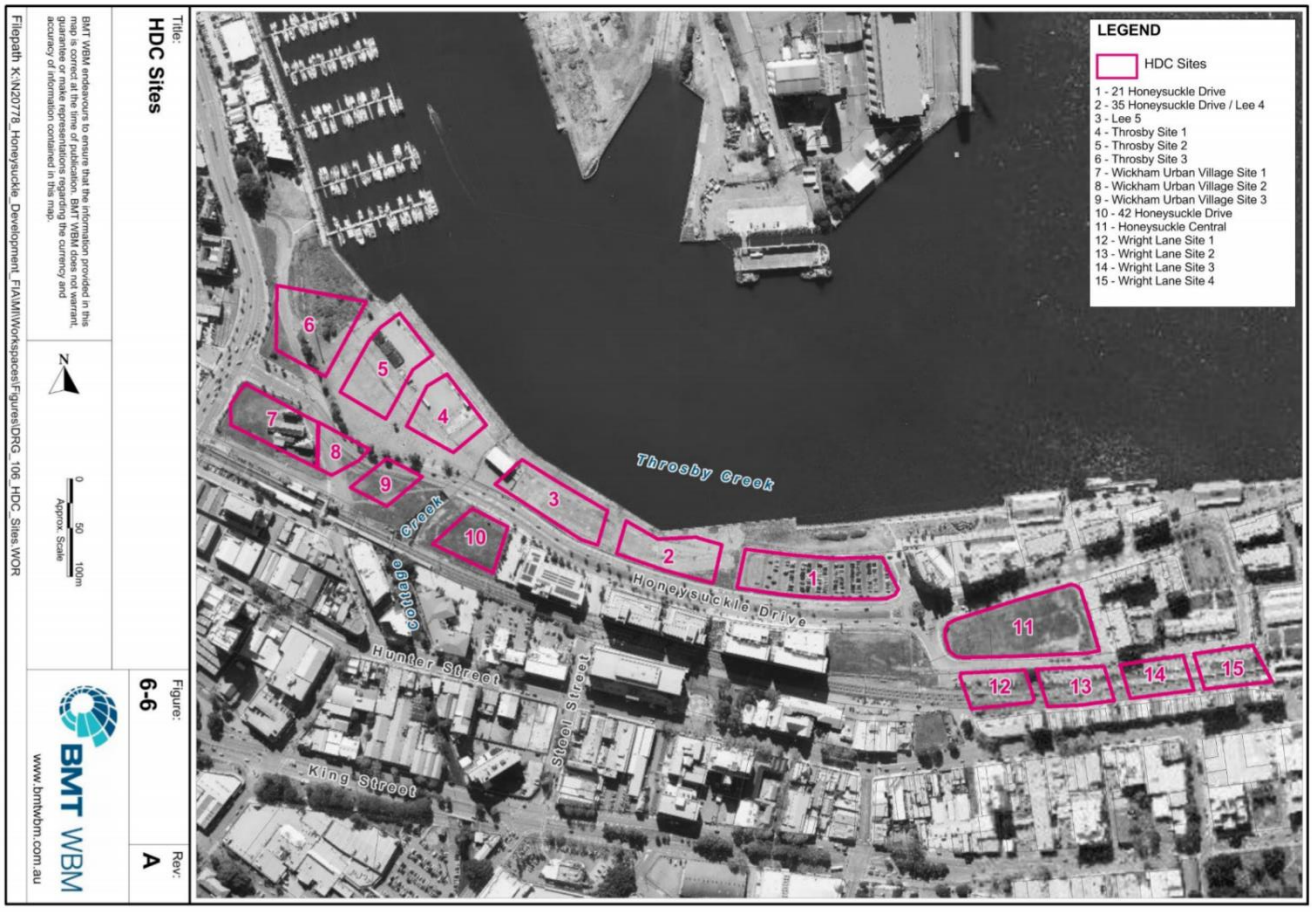
Rajnesh Prakash
SENIOR DEVELOPMENT OFFICER (Engineering)

Table 6-7 Flood Planning Information for HDC Development Sites

Site Location	1% AEP with ARR 2016 Blockage Post-Development Levels (m AHD)	PMF Level (m AHD)	FPL[1] (m AHD)	Post-Development Flood Classification		Risk to Property	Risk to Life	Velocity (m/s)			
				1% AEP	PMF			1% AEP	0.5% AEP	0.2% AEP	PMF
21 Honeysuckle Drive	2.50	3.44	2.90	Fringe	Floodway	P1	L4	0.8	1.4	1.6	2.2
35 Honeysuckle Drive / Lee 4	2.50	3.43	2.90	Storage	Floodway	P2	L4	0.7	1.1	1.7	3.0
Lee 5	2.50	3.38	2.90	Storage	Floodway	P2	L4	0.7	1.0	1.5	3.3
Throsby – Site 1	2.40	3.50	2.80	Fringe	Floodway	P1	L4	0.3	0.6	1.3	2.8
Throsby – Site 2	2.40	3.50	2.80	Fringe	Floodway	P1	L4	0.2	0.4	1.0	2.9
Throsby – Site 3	2.37	3.47	2.80	Fringe	Floodway	P1	L4	0.1	0.4	1.0	2.5
Wickham Urban Village – Site 1	2.48	3.49	2.90	Fringe	Storage	P2	L4	0.4	0.5	0.7	1.1
Wickham Urban Village – Site 2	2.46	3.49	2.90	Fringe	Floodway	P2	L4	0.3	0.5	0.7	1.3
Wickham Urban Village – Site 3	2.45	3.49	2.90	Fringe	Floodway	P1	L4	0.3	0.5	0.7	1.9
42 Honeysuckle Drive	2.49	3.62	2.90	Fringe	Floodway	P2	L4	0.7	1.0	1.3	1.8
Honeysuckle Central	1.86	3.29	2.80	Fringe	Floodway	P1	L5	0.1	2.0	2.1	2.9
Wright Lane – Site 1	2.42	3.31	2.80	Fringe	Floodway	P1	L4	0.3	1.4	2.4	2.6
Wright Lane – Site 2	2.43	3.19	2.80	Fringe	Floodway	P1	L4	0.2	1.3	1.4	2.0
Wright Lane – Site 3	2.34	3.05	2.80	Fringe	Floodway	P1	L4	-	0.1	0.4	2.0
Wright Lane – Site 4	2.34	3.05	2.80	Fringe	Fringe	P1	L4	-	0.0	0.5	1.1

[1] Note that where the 1% AEP post-development level + 0.4 m freeboard is less than 2.8 m AHD, a FPL of 2.8 m has been adopted in accordance with Council's ocean planning level of 2.8 m AHD. FPLs have been rounded to 1 decimal place.

Table 1 – Flood Planning Information for HDC Development Sites



HDC Site Locations