

DEVELOPMENT ENGINEERING SOLUTIONS
21 GRAND AVE, WESTMEAD NSW 2145
Ph: 8898 9830 Mob 0411 506738

FLOOD RISK ASSESSMENT REPORT

2 The Crescent, NORTH NARRABEEN

For: Brendan Worsley

21 December 22

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INTRODUCTION

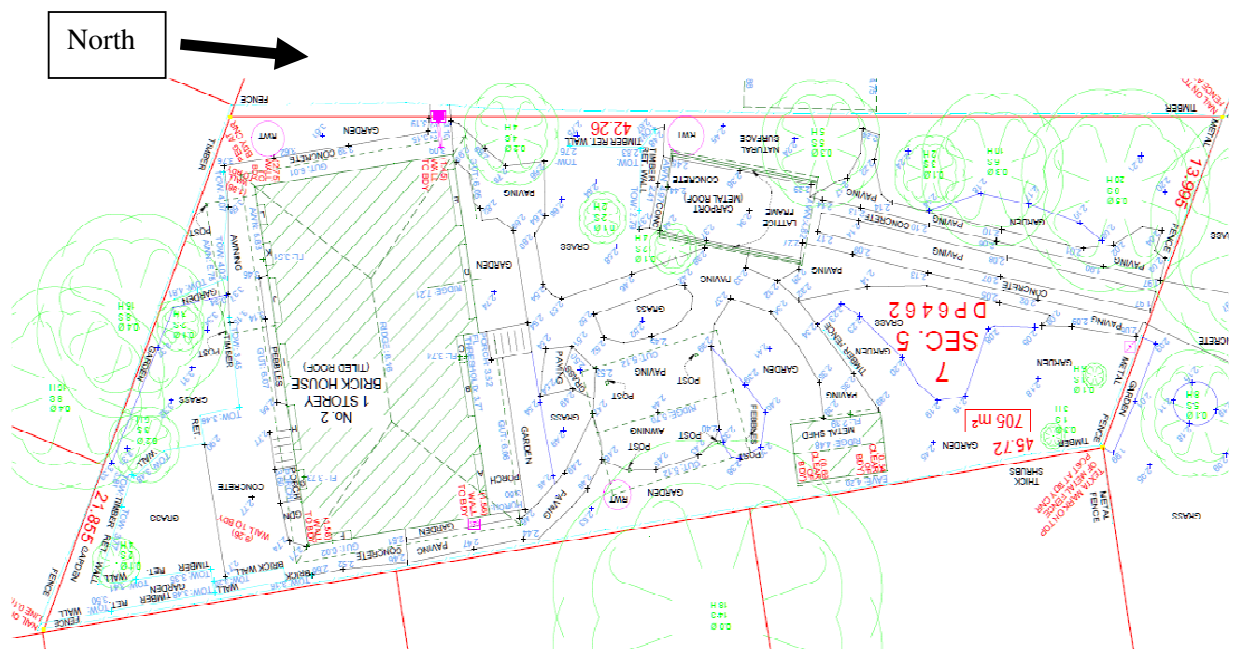
Development Engineering Solutions has been commissioned by Mr Brendan Worsley of Sago Build to prepare a Flood Risk Assessment Report in support of a development application for alterations and additions to an existing residence at 2 The crescent, North Narrabeen.

The aim of this report is to assess the development compliance against controls as specified in Section B3.11 – Flood Prone Lane of Northern Beaches Council's DCP.

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THE SITE

The development is located on a 700 m² allotment with natural fall to The Crescent. The rear and front boundary existing levels are 3.5 and 2.1 AHD respectively. The site currently contains an existing single storey dwelling with open carport, gazebo and sheds. Refer to Aerial photo and survey below.



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The site is mapped by Northern Beaches Council as being affected by flooding in both the 1% AEP and PMF storm event.

Below are essential flood characteristics extracted from Council's Flood Information Report.

FLOOD INFORMATION REPORT - BASIC

Property: 2 The Crescent NORTH NARRABEEN NSW 2101
Lot DP: Lot 7 Sec 5 DP 6462
Issue Date: 02/10/2022
Flood Study Reference: Narrabeen Lagoon Flood Study 2013, BMT WBM, Ingleside, Elanora and Warriewood Overland Flow Flood Study 2019, WMAwater

Flood Information for lot 1:

Flood Risk Precinct – See Map A

Flood Planning Area – See Map A

Maximum Flood Planning Level (FPL) ^{2,3,4}: 3.53 m AHD

1% AEP Flood – See Flood Map B

1% AEP Maximum Water Level ^{2,3}: 3.03 m AHD

1% AEP Maximum Depth from natural ground level³: 1.08 m

1% AEP Maximum Velocity: 0.50 m/s

1% AEP Hydraulic Categorisation: N/A See Flood Map D

Probable Maximum Flood (PMF) – See Flood Map C

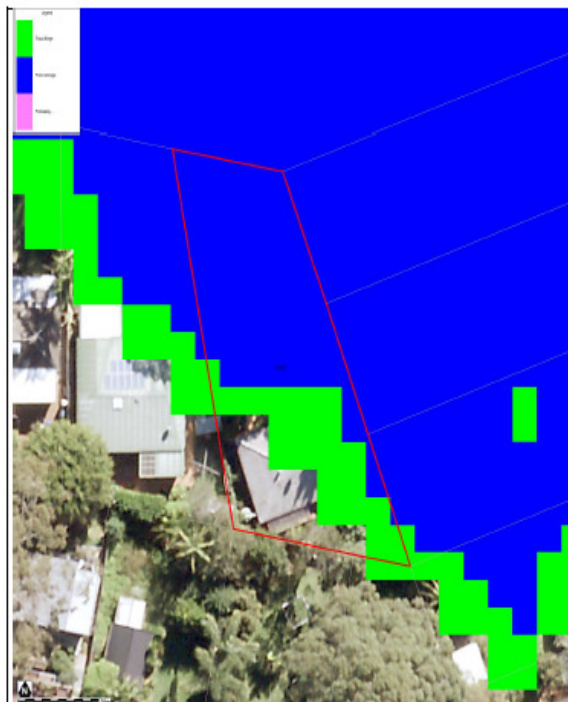
PMF Maximum Water Level ⁴: 4.87 m AHD

PMF Maximum Depth from natural ground level: 2.91 m

PMF Maximum Velocity: 0.66 m/s

Flood Life Hazard Category – See Map E

FLOOD MAP D: 1% AEP FLOOD HYDRAULIC CATEGORY EXTENT MAP



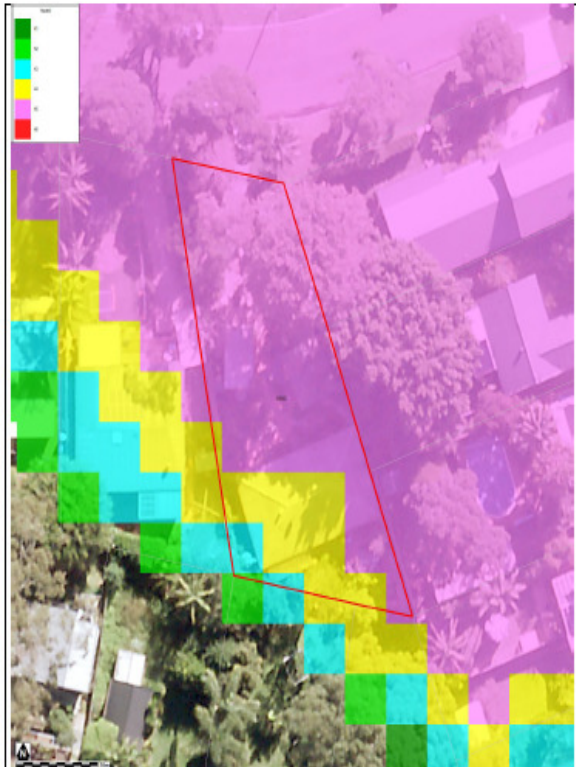
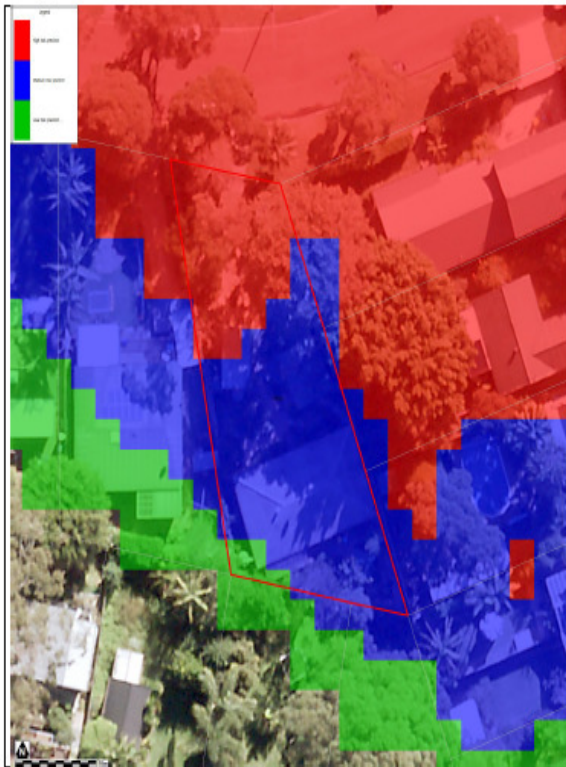
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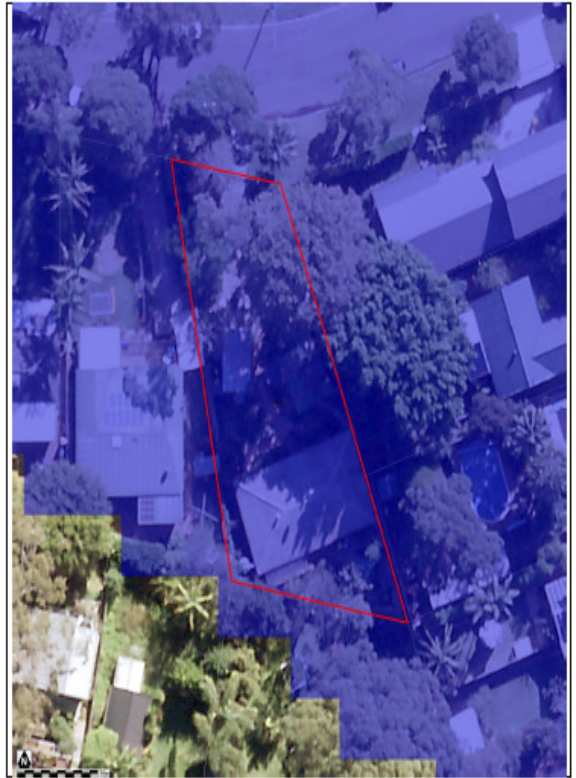
FLOOD MAP A: FLOOD RISK PRECINCT MAP

FLOOD MAP E: FLOOD LIFE HAZARD CATEGORY



FLOOD MAP B: FLOODING - 1% AEP EXTENT

FLOOD MAP C: PROBABLE MAXIMUM FLOOD EXTENT



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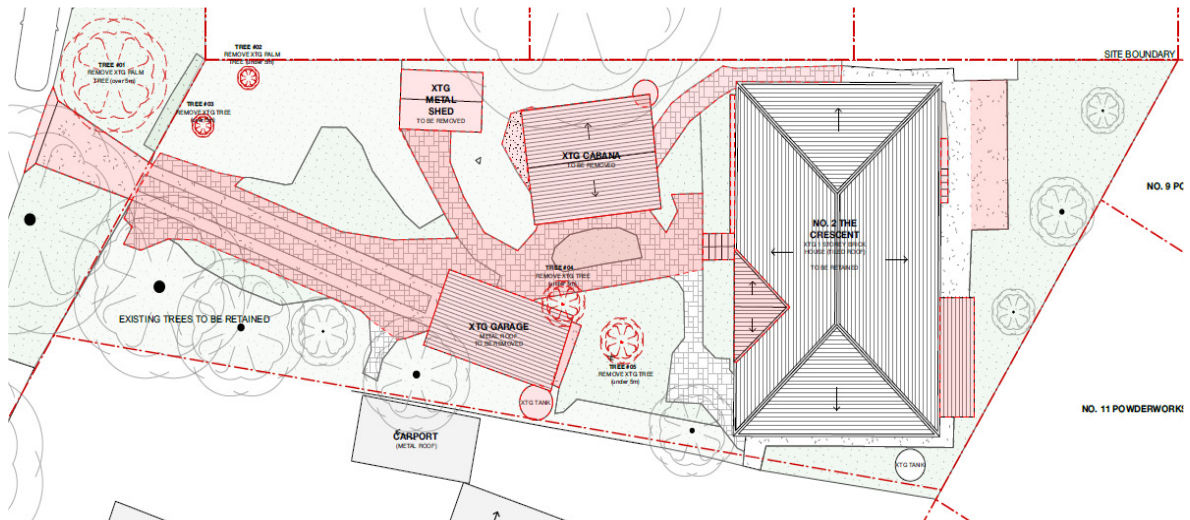
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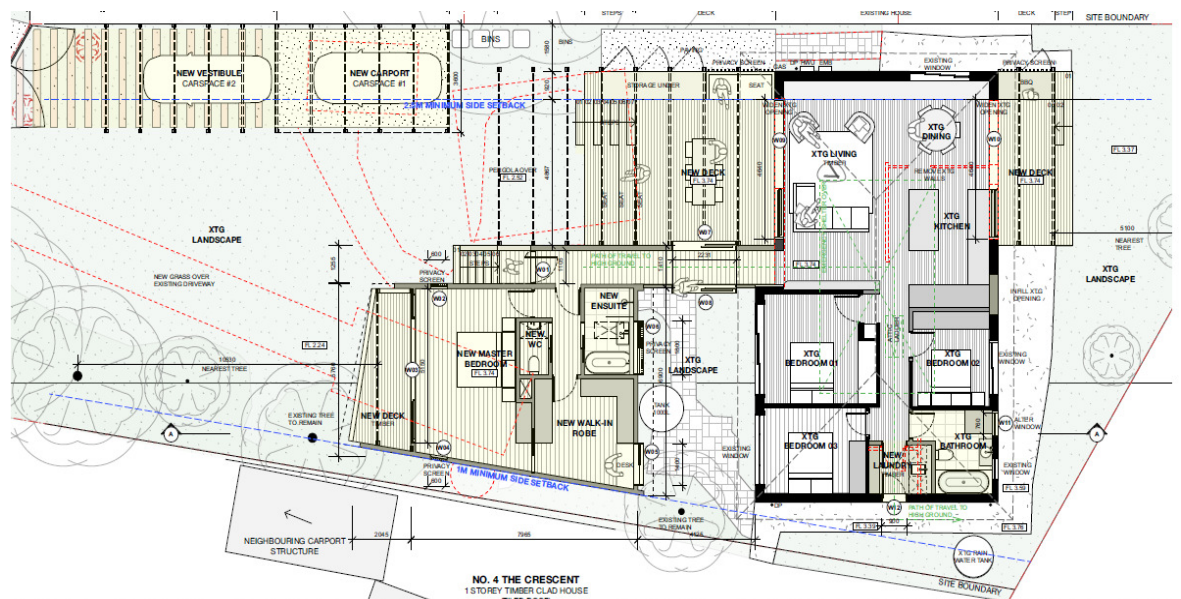
THE DEVELOPMENT PROPOSAL

The following is proposed:

- a. Demolition of the existing carport, cabana, sheds, and existing impervious area as shown in the red in the diagram below:



- b. Northern extension of the existing dwelling to accommodate a new master bedroom with ensuite, a new study room, a 12m² attic space and a carport plus outdoor entertainment area. Minor internal alterations to the existing dwelling are also proposed. It is proposed to maintain the existing floor level at RL 3.74 for the new extension.



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COMPLIANCE ASSESSMENT

As the site is in a medium to high flood risk category, it is proposed to conservatively assess the site as being in a High flood risk precinct.

The following is a detailed compliance assessment of the development proposal against the various requirements as stipulated in Northern Beaches Council DCP Section B3.11 – Flood Prone Land.

Requirement	Residential	Assessment	Comply? (Y/N)
A. Flood Effects	A1 A2	The building extension is proposed with open subfloor to allow for free passage of flood water flow. The proposed finished floor level at RL 3.74 is above the site FPL of 3.53, accordingly there would be negligible exacerbation to existing flood characteristics and loss of flood storage.	Y
B. Building Components & Structural	B1 B2 B3	All new building areas below the FPL are constructed on concrete piers & footings or other flood compatible materials, subject to structural engineer design. Structural engineer will design and certify the building can resist water forces up to the FPL of RL 3.53. Where the building contains a safe refuge, the building will need be designed to resist the PMF water forces All new wiring, electrical equipment etc will be flood proofed up to the FPL of RL 3.53 These above requirements can be enforced as a condition of DA consent for compliance prior to C.C approval	Y Y Y
c. Floor Levels	C1 C3 C4 C6	All existing and proposed new extension habitable FFL are located above the FPL of 3.53 The proposed extension will be constructed with open subfloor for free passage of flow, accordingly there will be no loss of flood storage and exacerbation of existing flood characteristics. C4. This is not applicable There is no first-floor addition proposed. Only an attic space for safe PMF refuge, hence not applicable	Y Y N/A N/A
D. Carparking	D1 D2	D1. The proposed carport is in a flood storage area and NOT a flood way. Accordingly complies The carport is proposed to be constructed generally on existing levels, accordingly compliant with this	Y Y

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	D3	requirement The Carport is open on all sides, accordingly, complies	Y
	D4	The flood depth at the carport is above 300mm, accordingly structural engineer will design vehicle barriers to prevent floating vehicle leaving the site. This can be enforced as a condition of consent for compliance prior to C.C.	Y
	D5	D5. There is no enclosed garage proposed, hence not applicable.	N/A
	D6	Not applicable as there is no enclosed carpark	N/A
E. Emergency Response	E1	The property has a Flood Life Hazard category of H5 > H3 with no safe evacuation away from the site as flood depth is excessive at 2.97m. Accordingly a safe on-site refuge above the PMF of 4.87 of at least 12m2 has been provided in the attic space. Accordingly, the development is compliant	Y
F. Fencing	F1	No new fencing is proposed	N/A
G. Storage of Goods	G1	Hazardous and polluting materials can be stored above the FPL. This can be enforced as a condition of DA consent.	Y
H. Pools	H1	No pool is proposed.	N/A

Section B3.12 controls of DCP does not apply to this development as it is not considered as a dwelling intensification under this part of the DCP.

In view of the above, the application is considered compliant with the requirements of Section B3.11 of Council's DCP



Morgan Nguyen,
Chartered Professional Engineer,
B.E(UTS), M.Eng.Sc(USyd), NER