Flood Risk Management Plan

21 February 2025
Revision: A

Alterations and additions
66 Barrenjoey Road
Mona Vale, 2103, NSW

We acknowledge the Guringai, Darkinjung, Darug, Dharawal, Gundungurra, Wanaruah and Wiradjuri people of the land of the Garigal and Ngurra, upon those ancestral lands we work & live. We acknowledge the Traditional Custodians as the first place makers on this land. We pay our respects to Elders past and present, acknowledging them as the Traditional Custodians of knowledge of these lands, waterways and Country.

TAYLOR

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1.0 INTRODUCTION

66 Barrenjoey Road, Mona Vale is identified by the Northern Beaches Council as being flood-affected for the 1% Annual Exceedance Probability (AEP) and Probable Maximum Precipitation (PMP) storm events. This document details the measures to ensure that the flooding risks to both the building and occupants are managed and minimised per Section B3.11 Flood Prone Land of the Pittwater 21 Development Control Plan.

The author intends that a copy of this plan be kept on site by The Owner so that it can be produced for action in case of a significant storm event.

The emergency response signage is also intended to be fixed to a wall in a clearly visible location. The Owner will ultimately be responsible for implementing this plan. The Owner will also be responsible for ensuring tasks are undertaken (or the delegation of those tasks) for major flood events.

The technical data referred to in this Section is drawn from the Mccarrs Creek, Mona Vale and Bayview Flood Study Review 2017, Royal HaskoningDHV.

2.0 SITE DESCRIPTION

The site is located in the suburb of Mona Vale, on the eastern side of Barrenjoey Road. A site locality map is included in Appendix A.

The site covers 693.82 m^2 and is relatively level. The site currently contains an existing one storey brick dwelling.

2.1 PROPOSED WORKS

The proposed works could be summarised as:

- Construction of a detached single storey studio at the rear of the site.

Architectural plans for the proposed works are attached in Appendix B.

3.0 FLOOD EVENTS

The site is identified as being flood affected for the 1 in 100 year and Probable Maximum Precipitation (PMP) storm events. Maps illustrating subsequent flood extents for the site are contained within Appendix D.

3.1 FORECASTS AND WARNINGS

The Bureau of Meteorology usually does not issue specific warnings for Mona Vale, and as such, monitoring general warnings for the Sydney metropolitan area regarding severe weather warnings will be critical in managing risks to the site.

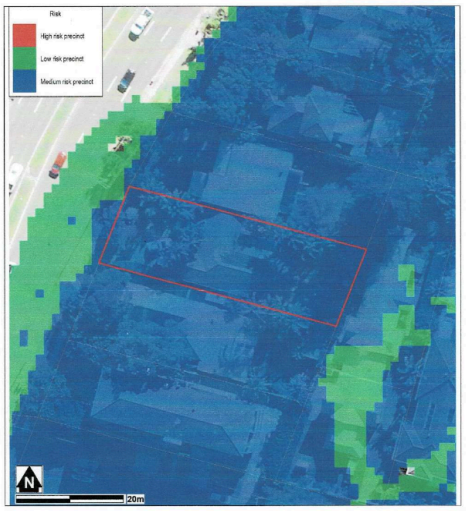
The Bureau of Meteorology website (www.bom.gov.au) has rainfall forecast maps and also warnings for predicted severe weather events.

The Owner should have their mobile phone number added to the State Emergency Services (SES) contact list for SMS alerts for severe weather warnings.

3.2 FLOOD DATA FOR THE SITE

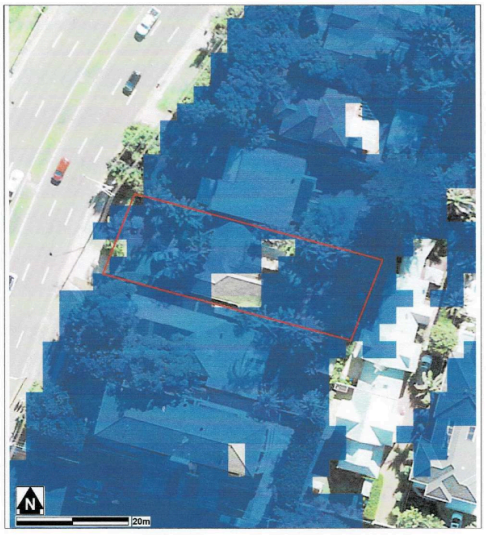
The 2017 McCarrs Creek, Mona Vale and Bayview Flood Study Review categorises the site as being affected by the 1 in 100-year and Probable Maximum Flood (PMF) events.

MAP A: FLOOD RISK PRECINCTS



Notes:
- **Low Flood Risk precinct** means all flood prone land not identified within the High or Medium flood risk precincts.
- **Medium Flood Risk precinct** means all flood prone land that is (a) within the 1% AEP Flood Planning Area; and (b) is not within the high flood risk precinct.
- **High Flood Risk precinct** means all flood prone land (a) within the 1% AEP Flood Planning Area; and (b) is either subject to a high hydraulic hazard, within the floodway or subject to significant evacuation difficulties (H5 or H6 Life Hazard Classification)
- The **Flood Planning Area** extent is equivalent to the Medium Flood Risk Precinct extent and includes the High Flood Risk Precinct within it. The mapped extent represents the 1% annual Exceedance Probability (AEP) flood event + freeboard.
- None of these mapped extents include climate change.

MAP B: FLOODING - 1% AEP EXTENT



Notes:
- Extent represents the 1% Annual Exceedance Probability (AEP) flood event.
- Flood events exceeding the 1% AEP can occur on this site.
- Extent does not include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: McCarrs Creek, Mona Vale and Bayview Flood Study Review 2017, Royal HaskoningDHV) and aerial photography (Source: NearMap 2014) are indicative only.

A summary of Council flood information for the proposed development is as follows:

- Flood Risk Precinct: **Medium risk precinct**
- Flood Life Hazard Category: **H3** (within the proposed development area.)
- 1% AEP Flood Level: **3.99 m A.H.D.**
- 1% AEP Depth: **0.44 m**
- Maximum FPL (FPL): **4.49 m A.H.D.**
- Probable Maximum Flood level (PMF): **4.59 m A.H.D.**

Note that the Council-issued flood data for the site is contained within Appendix C.

3.3 FLOOD BEHAVIOUR

In a major flood event, the site is expected to experience inundation due to the inadequate capacity of the local Council drainage infrastructure, with surface flows from Barrenjoey Road through the subject property.

A major flood event is anticipated to involve low-velocity flood waters rising and falling over a duration of less than 2 hours.

4.0 EMERGENCY RESPONSE

This Flood Risk Management Plan recognises that the protection of life is of primary importance, followed by a secondary philosophy of attempting to minimise damage to the proposed structures on the site.

The emergency response to a potential flood event will be initiated upon the occurrence of a certain 'trigger' threshold, upon which the emergency response plan will be actioned.

4.1 THE EMERGENCY TRIGGER

It is critical to this plan's success that The Owner can closely monitor the drainage conditions on the site during extremely heavy and intense rainfall events.

The initial trigger for the commencement of the emergency response plan follows the observation of stormwater beginning to flow across the front boundary at Barrenjoey road following extremely heavy and intense rainfall events.

Upon the visual confirmation of this trigger event, the emergency responses described in Section 5 should be enacted.

4.2 TIME NEEDED TO RESPOND

It is considered that a total period of 5 minutes would be required for The Owner to turn off the relevant mains services and ensure that all persons within the premises have been notified and are located at the nominated emergency assembly point.

4.3 THE EMERGENCY ASSEMBLY POINT

The emergency response to a flood event is to 'shelter in place' within the proposed studio or follow the directions of emergency services (including the SES).

5.0 OWNER/SITE MANAGER RESPONSIBILITIES

The following section describes the ongoing responsibilities of The Owner with respect to flood risk management.

5.1 BEFORE THE FLOOD

TRIGGER FOR ACTION: Always

- The Owner will ultimately be responsible for the implementation of this plan. The Owner will be responsible for ensuring tasks are undertaken or delegating those tasks;
- Through a systematic induction process, all occupants are to be made aware of the possibility of flooding and the procedures to be followed if a flood were to occur;
- A copy of this plan is to be provided to all occupants, together with a single-page notice (Appendix D) and an Actions Checklist (Appendix E);
- The Owner should continue to develop detailed procedures to support the actions required by this plan. Procedures will include clear responsibilities in the event of a flood and backup resources should key persons not be present;
- The emergency response sign must be permanently affixed to a wall in a highly visible external location.
- Check the supplies on the first floor for use in a flood emergency. If occupants need to take shelter there, these supplies should, at a minimum, include drinking water, blankets, and emergency lighting.

5.2 WHEN A FLOOD IS LIKELY

TRIGGER FOR ACTION: When the forecasts predict severe weather or significant amounts of rainfall (land is saturated) are observed.

- The Owner will monitor weather forecasts and warnings;
- The Owner to enact the emergency response plan; and
- The Owner should prepare for the emergency evacuation to the assembly area.

5.3 DURING A FLOOD

TRIGGER FOR ACTION: When floodwaters reach the kerb and gutter in Barrenjoey Road or significantly inundate any portion of the site:

The phases of the emergency response shall be:

- The Owner is to request all occupants to evacuate to the emergency assembly area on the first level of the main building.
- Follow directions of emergency services, including SES.
- All occupants should be at the emergency assembly area before the flood waters significantly inundate the site.
- The Owner is to sweep the premises following emergency response to ensure that all occupants have sought refuge in the emergency assembly area.
- The Owner must turn off all power, water, and other relevant services.
- The Owner is to retreat to the emergency assembly area.
- Emergency services are to be notified by The Owner of the situation at the site (Appendix E).

5.4 AFTER A FLOOD

TRIGGER FOR ACTION: When emergency services give the all-clear to return to the site.

- No occupants should be allowed to leave the site while flooding is occurring or has recently occurred;
- Occupants can enter the site only after emergency services or the Council has given the all-clear;
- Where necessary, the site is to be checked by professionals before any re-use of the site;
- Where possible, The Owner is to organise the safe removal of any flood debris from the site;
- The Owner is to arrange an inspection of the lower ground floor area under the building and remove any flood debris if required.
- A debrief between the occupants and The Owner will be held and may involve emergency services and/or Council staff. The flood event and response procedures, including the use of this plan, are to be reviewed, and
- Changes may be made to the plan, and the requirements for future emergency evacuations should be reviewed. Any improvements that may be necessary should be identified.

6.0 FLOOD COMPLIANCE

The site is proposed to be developed in a way that meets the objectives of the Council's Flood Risk Management Policy.

6.1 SPECIFIC CONTROLS

Section B3.11 Flood Prone Land of the Pittwater 21 DCP controls will be applied.

Medium Flood Risk Matrix – Residential use Category

		Medium Flood Risk Precinct				
		Vulnerable & Critical Use	Residential Use	Business & Industrial Use	Recreational & Environmental Use	Subdivision & Civil Works
A	Flood effects caused by Development	A1 A2	A1 A2	A1 A2	A1 A2	A1 A2
B	Building Components & Structural	B1 B2 B3	B1 B2 B3	B1 B2 B3	B1 B2 B3	
C	Floor Levels	C2 C3	C1 C3 C4 C6	C1 C3 C4 C6 C7	C3	C5
D	Car Parking	D1 D2 D3 D4 D7	D1 D2 D3 D4 D5 D6	D1 D2 D3 D4 D5 D6	D1 D2 D3 D4 D5 D6	D1
E	Emergency Response	E1 E2	E1	E1	E1	E3
F	Fencing	F1	F1	F1	F1	F1
G	Storage of Goods	G1	G1	G1	G1	
H	Pools	H1	H1	H1	H1	H1

Flood Effects Caused By Development

A1 – ***Development shall not be approved unless it can be demonstrated in a Flood Management Report that it has been designed and can be constructed so that in all events up to the 1% AEP event:***

- ***a. There are no adverse impacts on flood levels or velocities caused by alterations to the flood conveyance;***
- ***b. There are no adverse impacts on surrounding properties; and***
- ***c. It is sited to minimise exposure to flood hazard***

Major developments and developments which are likely to have a significant impact on the PMF flood regime will need to demonstrate that there are no adverse impacts in the Probable Maximum Flood.

Outcome – The provisions of this Flood Risk Management Report demonstrate that the flood risks have been adequately addressed in accordance with the provisions of the Flood-Prone Land Design Standard.

A2 – Development shall not be approved unless it can be demonstrated in a Flood Management Report that in all events up to the 1% AEP event there is no net loss of flood storage.

Consideration may be given for exempting the volume of standard piers from flood storage calculations.

If Compensatory Works are proposed to balance the loss of flood storage from the development, the Flood Management Report shall include detailed calculations to demonstrate how this is achieved.

Outcome—Complies as the proposed works are proposed to be above the Flood Planning Level **R.L. 4.49 m A.H.D.**. It is proposed to have the studio elevated with a suspended floor design, hence no net loss of flood storage or conveyance area.

Building Components and Structural Soundness

B1 - ***All buildings shall be designed and constructed as flood-compatible buildings in accordance with Reducing Vulnerability of Buildings to Flood Damage: Guidance on Building in Flood Prone Areas, Hawkesbury-Nepean Floodplain Management Steering Committee (2006).***

Outcome – All new building elements below the Flood Planning Level shall be constructed from flood-compatible materials.

A table of equivalent flood-compatible materials is contained in Appendix G.

B2 – ***All new development must be designed and constructed to ensure structural integrity up to the Flood Planning Level, taking into account the forces of floodwater, wave action, flowing water with debris, buoyancy and immersion. Where shelter-in-place refuge is required, the structural integrity of the refuge is to be up to the Probable Maximum Flood level. Structural certification shall be provided confirming the above.***

Outcome – All new building elements are to be designed, constructed and/or modified to ensure structural integrity or immersion and impact of velocity and debris up to the level of the Probable Maximum Flood level of **R.L. 4.59 m A.H.D.**

B3 – ***All new electrical equipment, power points, wiring, fuel lines, sewerage systems or any other service pipes and connections must be waterproofed and/or located above the Flood Planning Level.***

All existing electrical equipment and power points located below the Flood Planning Level must have residual current devices installed that turn off all electricity supply to the property when flood waters are detected.

Outcome – All new electrical equipment, wiring, fuel lines, and other service pipes and connections will be waterproofed to the Flood Planning Level of **R.L. 4.49 m A.H.D.**

All existing/proposed electrical equipment and power points located below the Flood Planning Level will have residual current devices installed that turn off the property's electricity supply when flood waters are detected.

Floor Levels

C1 – ***New floor levels within the development shall be at or above the Flood Planning Level.***

Outcome—Complies as the proposed habitable area of the studio will be constructed above the Flood Planning Level. Refer to the architectural drawings in Appendix B.

C3 – ***All new development must be designed and constructed so as not to impede the floodway or flood conveyance on the site, as well as ensuring no net loss of flood storage in all events up to the 1% AEP event.***

For suspended pier/pile footings:

a. ***The underfloor area of the dwelling below the 1% AEP flood level is to be designed and constructed to allow clear passage of floodwaters, taking into account the potential for small openings to block;***
b. ***At least 50% of the perimeter of the underfloor area is of an open design from the natural ground level up to the 1% AEP flood level; and***
c. ***No solid areas of the perimeter of the underfloor area would be permitted in a floodway.***

Outcome – Complies as the proposed studio is a piered structure with timber flooring allowing clear passage of floodwaters. Furthermore, the Floor Planning Level at **R.L. 4.59m A.H.D.** is above the 1% AEP flood level of **R.L. 3.99m A.H.D.** Refer to the architectural drawings in Appendix B.

C4 - *A one-off addition or alteration below the Flood Planning Level of less than 30 square metres (in total, including walls) may be considered only where:*

a. ***It is an extension to an existing room;***
b. ***The Flood Planning Level is incompatible with the floor levels of existing room; and***
c. ***Out of the 30sqm, not more than 10 sqm is below the 1% AEP flood level.***

This control will not be permitted if this provision has previously been utilised since the making of this Plan.

The structure must be flood-proofed to the Flood Planning Level, and the Flood Management Report must demonstrate that there is no net loss of flood storage in all events up to the 1% AEP event.

Outcome – Not Applicable - It is proposed that a new studio above the Flood Planning Level be constructed. Refer to the architectural drawings in Appendix B.

C6 - *Consideration may be given to the retention of an existing floor level below the Flood Planning Level when undertaking a first-floor addition provided that:*

a. ***It is not located within a floodway;***
b. ***The original foundations are sufficient to support the proposed final structure above them. The Flood Management Report must include photos and the structural certification required as per Control B2 must consider whether the existing foundations are adequate or should be replaced;***
c. ***None of the structural supports/framing of existing external walls of are to be removed unless the building is to be extended in that location; and***
d. ***The ground floor is flood-proofed.***

Outcome – Not Applicable - It is proposed that a new studio at the Flood Planning Level be constructed. Refer to the architectural drawings in Appendix B.

Car Parking

D1 - *Open carpark areas and carports shall not be located within a floodway.*

Outcome—Not Applicable—The existing driveway to be retained. Refer to the architectural drawings in Appendix B.

D2 - *The lowest floor level of open carparks and carports shall be constructed no lower than the natural ground levels, unless it can be shown that the carpark or carport is free draining with a grade greater than 1% and that flood depths are not increased.*

Outcome—Not Applicable—The existing driveway to be retained. Refer to the architectural drawings in Appendix B.

D3 ***- Carports must be of open design, with at least 2 sides completely open such that flow is not obstructed up to the 1% AEP flood level. Otherwise it will be considered to be enclosed.***

When undertaking a like-for-like replacement and the existing garage/carport is located on the street boundary and ramping is infeasible, consideration may be given for dry floodproofing up to the 1% AEP flood level.

Outcome—Not Applicable—The existing driveway to be retained. Refer to the architectural drawings in Appendix B.

D4 ***- Where there is more than 300mm depth of flooding in a car park or carport during a 1% AEP flood event, vehicle barriers or restraints are to be provided to prevent floating vehicles leaving the site. Protection must be provided for all events up to the 1% AEP flood event.***

Outcome—Not Applicable—The existing driveway to be retained. Refer to the architectural drawings in Appendix B.

D5 ***- Enclosed Garages must be located at or above the 1% AEP level***

Outcome—Not Applicable—The existing driveway to be retained. Refer to the architectural drawings in Appendix B.

D6 ***- All enclosed car parks (including basement carparks) must be protected from inundation up to the Flood Planning Level. All access, ventilation, driveway crests and any other potential water entry points to any enclosed car parking shall be above the Flood Planning Level.***

Where a driveway is required to be raised it must be demonstrated that there is no net loss to available flood storage in any event up to the 1% AEP flood event and no impact on flood conveyance through the site.

Council will not accept any options that rely on electrical, mechanical or manual exclusion of the floodwaters from entering the enclosed car park

Outcome—Not Applicable—The existing driveway to be retained. Refer to the architectural drawings in Appendix B.

<u>Emergency Response</u>

E1 ***– If the property is affected by a Flood Life Hazard Category of H3 or higher, then Control E1 applies and a Flood Emergency Assessment must be included in the Flood Management Report.***

If the property is affected by a Flood Life Hazard Category of H6, then development is not permitted unless it can be demonstrated to the satisfaction of the consent authority that the risk level on the property is or can be reduced to a level below H6 or its equivalent.

If the property is flood affected but the Flood Life Hazard Category has not been mapped by Council, then calculations for its determination must be shown in the Flood Management Report, in accordance with the "Technical Flood Risk Management Guideline: Flood Hazard", Australian Institute for Disaster Resilience (2012).

Where flood-free evacuation above the Probable Maximum Flood level is not possible, new development must provide a shelter-in-place refuge where:

- ***a. The floor level is at or above the Probable Maximum Flood level;***
- ***b. The floor space provides at least 2m^2 per person where the flood duration is long (six or more hours) in the Probable Maximum Flood event, or 1m2 per person for less than 6 hours;***
- ***c. It is intrinsically accessible to all people on the site, plainly evident, and self-directing, with sufficient capacity of access routes for all occupants without reliance on an elevator; and***
- ***d. It must contain as a minimum: sufficient clean water for all occupants; portable radio with spare batteries; torch with spare batteries; and a first aid kit.***

Class 10 classified buildings and structures (as defined in the Building Codes of Australia) are excluded from this control.

In the case of change of use or internal alterations to an existing building, a variation to this control may be considered if justified appropriately by a suitably qualified professional.

Note that in the event of a flood, occupants would be required to evacuate if ordered by Emergency Services personnel regardless of the availability of a shelter-in-place refuge.

Outcome – As detailed in this report, the emergency response is to 'shelter-in-place' within the proposed studio for significant flood events or otherwise off-site as directed by Emergency Services.

The proposed studio floor level is at **R.L. 4.59 m A.H.D.**, which is above the FPL of **R.L. 4.49 m A.H.D.**, and at the PMF level of **R.L. 4.59 m A.H.D.** (established in the Mccarrs Creek, Mona Vale and Bayview Flood Study Review 2017, Royal HaskoningDHV, Report dated 01/08/2024). The floor space provided by the proposed **35m^2** studio is sufficient for the number of persons sheltering in place and is intrinsically accessible to all people on the site.

The Owner should provide items as per d) to provide for a shelter-in-place scenario in potential extreme storm events.

Fencing

F1 ***- Fencing, (including pool fencing, boundary fencing, balcony balustrades and accessway balustrades) shall be designed so as not to impede the flow of flood waters and not to increase flood affectation on surrounding land. At least 50% of the fence must be of an open design from the natural ground level up to the 1% AEP flood level. Less than 50% of the perimeter fence would be permitted to be solid. Openings should be a minimum of 75 mm x 75mm.***

Outcome – Complies as the deck fence elements are proposed to be open style. Refer to the architectural drawings in Appendix B.

Storage of Goods

G1 ***– Hazardous or potentially polluting materials shall not be stored below the Flood Planning Level unless adequately protected from floodwaters in accordance with industry standards.***

Outcome – The Owner is to ensure storage of toxic or potentially polluting goods, materials or other products, which may be hazardous or pollute floodwaters, will not be permitted below the Flood Planning Level.

Pools

H1 ***- Pools located within the 1% AEP flood extent are to be in-ground, with coping flush with natural ground level. Where it is not possible to have pool coping flush with natural ground level, it must be demonstrated that the development will result in no net loss of flood storage and no impact on flood conveyance on or from the site.***

All electrical equipment associated with the pool (including pool pumps) is to be waterproofed and/or located at or above the Flood Planning Level.

All chemicals associated with the pool are to be stored at or above the Flood Planning Level.

Outcome – Complies as no new pool is proposed.

7.0 SUMMARY

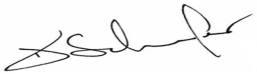
This report is a plan for the site for major flood events to be incorporated by The Owner into the on-going management protocols for the site to manage the flood risks.

The report contains procedural information to ensure the safety of occupants during flood events and also to ensure the satisfactory performance of any new building elements.

The recommendations and strategies within this report ensure compliance with Pittwater 21 DCP Flood Prone Land.

Should you have any questions or queries, please do not hesitate to contact the undersigned.

TAYLOR CONSULTING



D M SCHAEFER - Director
B.E. Civil (Hons) M.I.E. Aust. N.E.R.

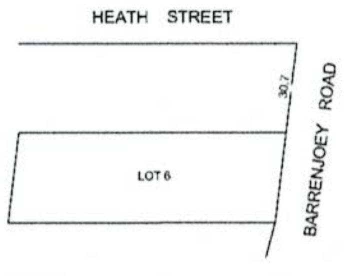
Appendix A

Locality Map - 66 Barrenjoey Road, Mona Vale .

Appendix B

LOCATION PLAN
(NOT TO SCALE)

LATITUDE: -33.674622
LONGITUDE: 151.310803

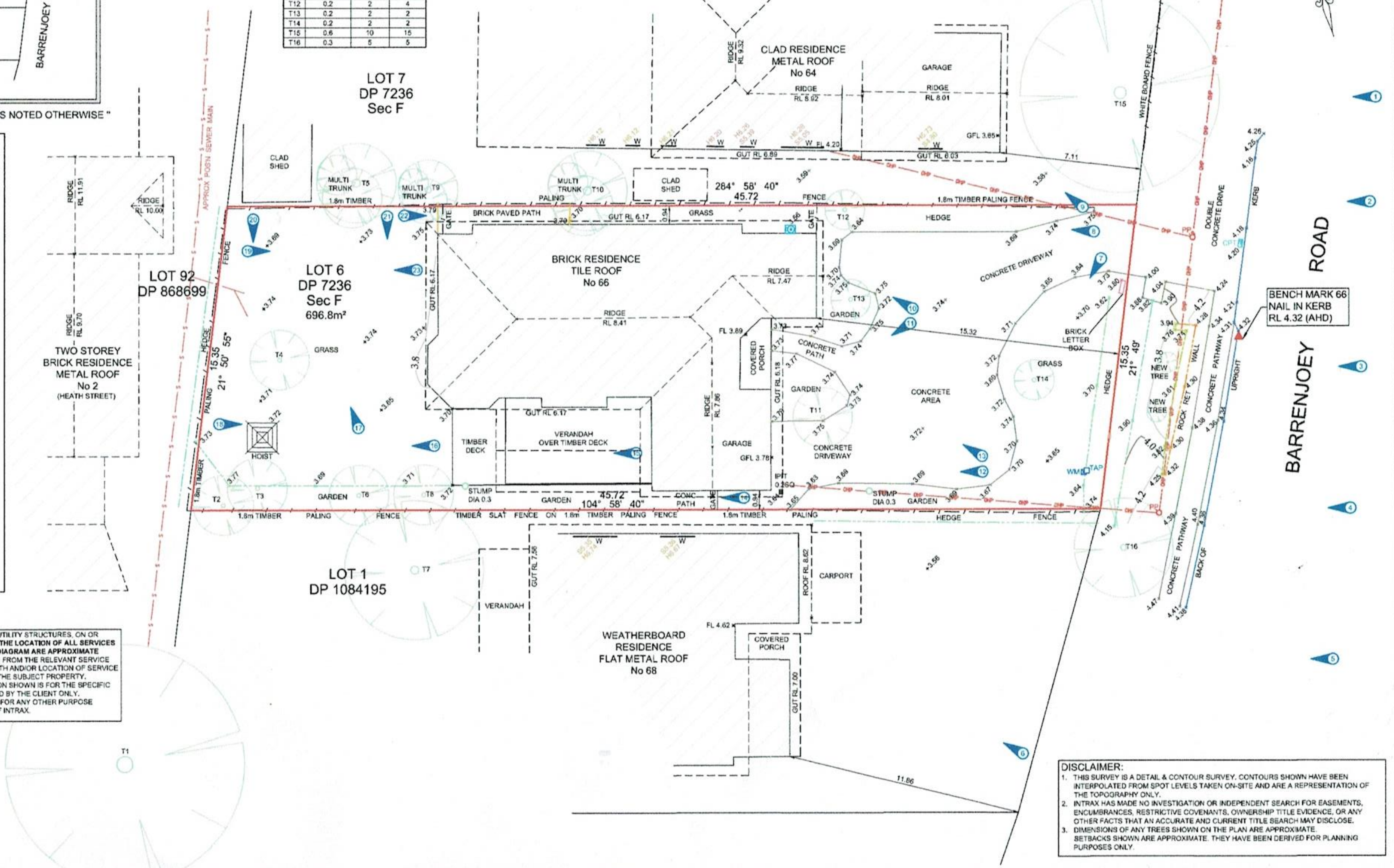


"ALL BOUNDARIES NOT FENCED UNLESS NOTED OTHERWISE"

TREE SCHEDULE (APPROX)			
NO.	DIAMETER	SPREAD	HEIGHT
T1	0.8	12	16
T2	0.2	3	4
T3	0.2	3	7
T4	0.2	3	3
T5	0.4	4	0
T6	0.2	3	4
T7	0.4	7	6
T8	0.2	3	10
T9	0.3	3	0
T10	0.4	4	0
T11	0.2	3	4
T12	0.2	2	4
T13	0.2	2	2
T14	0.2	2	2
T15	0.6	10	15
T16	0.3	5	5

LEGEND:

- Major Contour
- Minor Contour
- S — Approx. Location Underground Sewer Mains
- W — Approx. Location Underground Water Mains
- T — Approx. Location U'ground Telecommunications Line
- OT — Approx. Location Overhead Telecommunications Line
- G — Approx. Location Underground Gas Mains
- OHP — Approx. Location Overhead Power Supply
- Back of Kerb
- Edge of Bitumen
- PP — Power Pole
- PB — Power Box
- SP — Service Pole
- LP — Light Pole
- HYD — Hydrant
- WM — Water Meter
- SV — Stop Valve
- SMH — Sewer Maintenance Hole
- SIO — Sewer Inspection Opening
- SEVT — Sewer Vacuum Tank
- SEPIT — Sewer Control Pit
- CPT — Telecommunications Pit
- Gas Meter
- Kerb Inlet Stormwater Pit
- Grated Stormwater Pit
- Benchmark
- Photo Aspect
- Gutter Level
- Ridge Level
- Tree
- GDN — Garden



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I HEREBY CERTIFY THE BOUNDARIES SHOWN HEREON ARE TRUE AND CORRECT AND ARE SURVEYED BOUNDARIES.

BLAKE YOUNG
REGISTERED LAND SURVEYOR
SURVEYOR ID No. SUO09244
SURVEYING & SPATIAL INFORMATION ACT 2002

REV	REVISION DETAILS	DATE

REDUCTION RATIO 1:100 @ A1 & 1:200 @ A3

DRAWING No: 226281_SUR_DETAIL_66 BARRENJOEY ROAD, MONA VALE

[redacted]	CLIENT No. -
REF: S#226281	SURVEY FILE: 226281_JBBL_240605_DEIDENT
SURVEYED BY: J BECHARA	DATE OF SURVEY: 05.06.2024
DRAWN BY: T DO	CHECKED BY: D JOHNSON

LOT No.	6
SECTION	F
PLAN No.	DP 7236
SUBURB	MONA VALE
LGA	NORTHERN BEACHES
PARISH	NARRABEEN
COUNTY	CUMBERLAND

CONTOUR INTERVAL	0.2m
DATUM	AHD (AUSTRALIAN HEIGHT DATUM)
ORIGIN OF LEVELS	PM 46129
R.L.	4.125 (SCIMS)

Intrax LAND
www.intrax.com.au
Intrax Consulting Group
VIC | NSW | SA | QLD

PLAN SHOWING LEVELS, FEATURES & CONTOURS FOR LOT 6 SEC F IN DP 7236 "No. 66" BARRENJOEY ROAD, MONA VALE

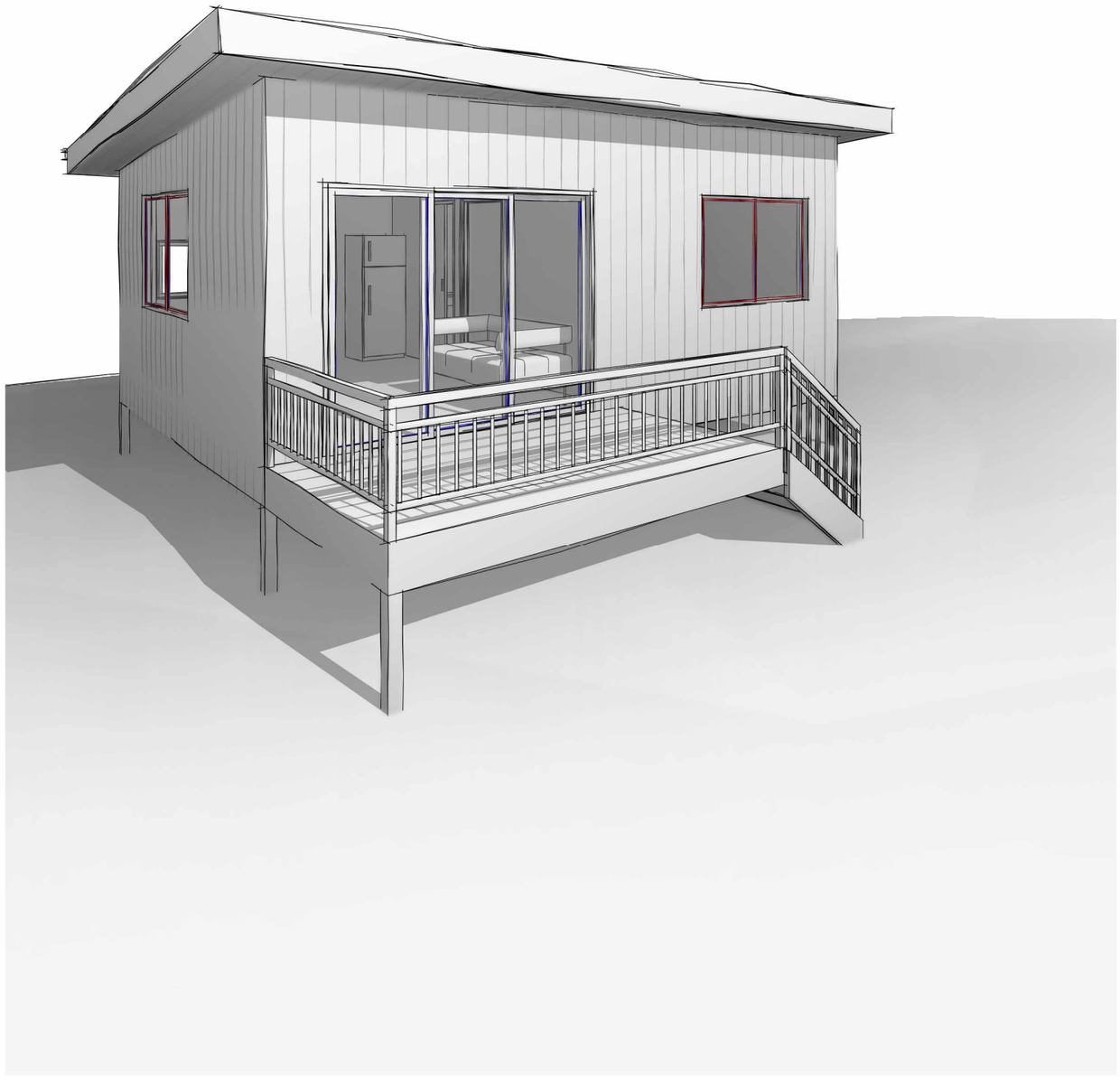
SHEET No.	1
No. of SHEETS:	1
SITE No.	S#226281
REV:	-

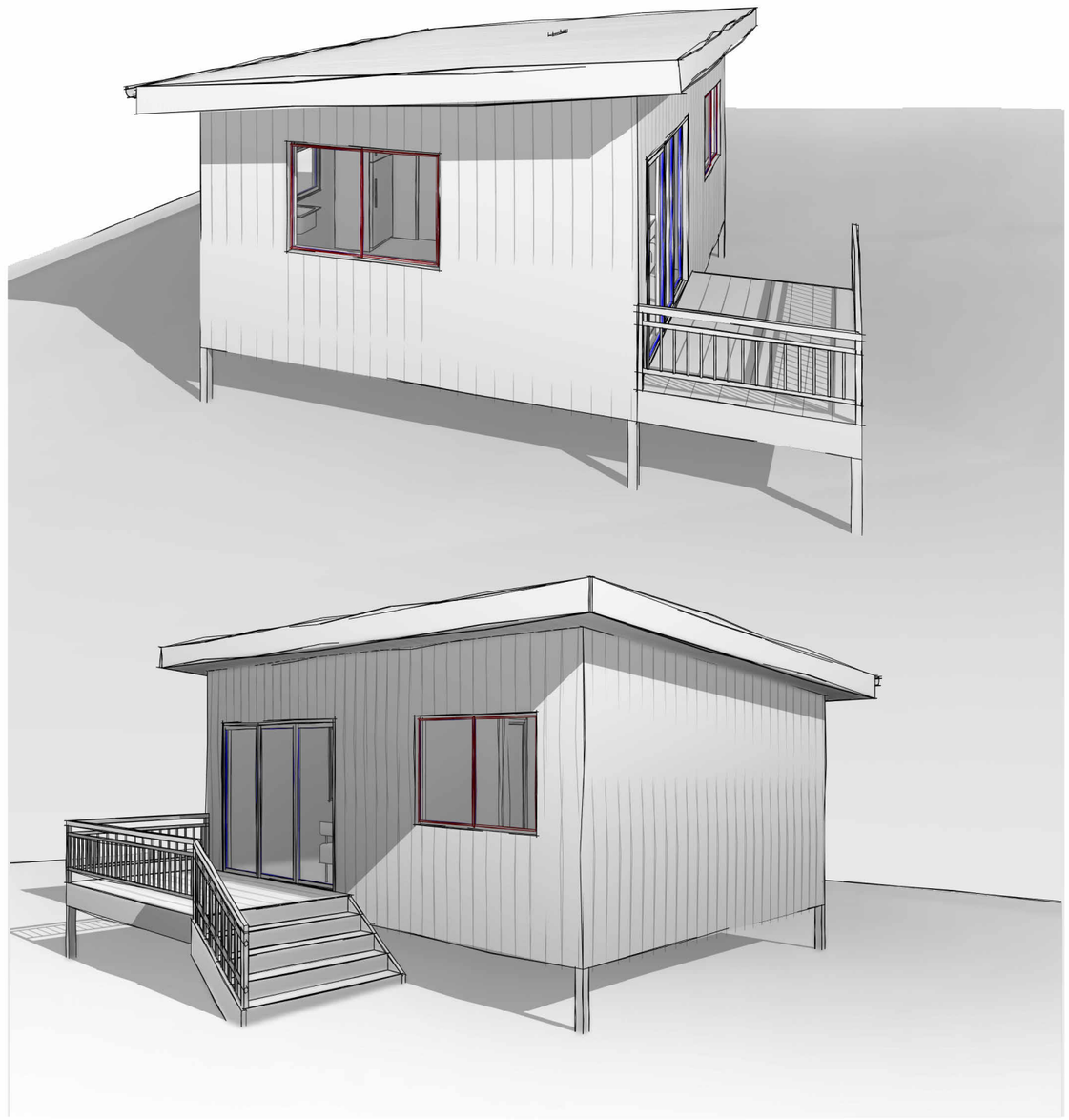
ADDRESS **66 BARRENJOEY ROAD MONA VALE**

RESIDENCE

SHEET LIST (A)

SHEET NUMBER	SHEET NAME	ISSUE
A 0	COVER PAGE	C
A 1	NOTES	C
A 2	SITE AND ROOF PLAN	C
A 3	GROUND FLOOR PLAN	C
A 4	ELEVATIONS AND SECTION	C
A 5	AREA CALCULATIONS	C
A 6	BASIX COMMITMENTS	C





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LS	29/11/24	B	ISSUE FOR DA
LS	20/01/25	C	ISSUE FOR DA

project
PROPOSED CONSTRUCTION OF A STUDIO AT 66 BARRENJOEY ROAD MONA VALE NSW 2103 LOT 6/F/DP7236

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client
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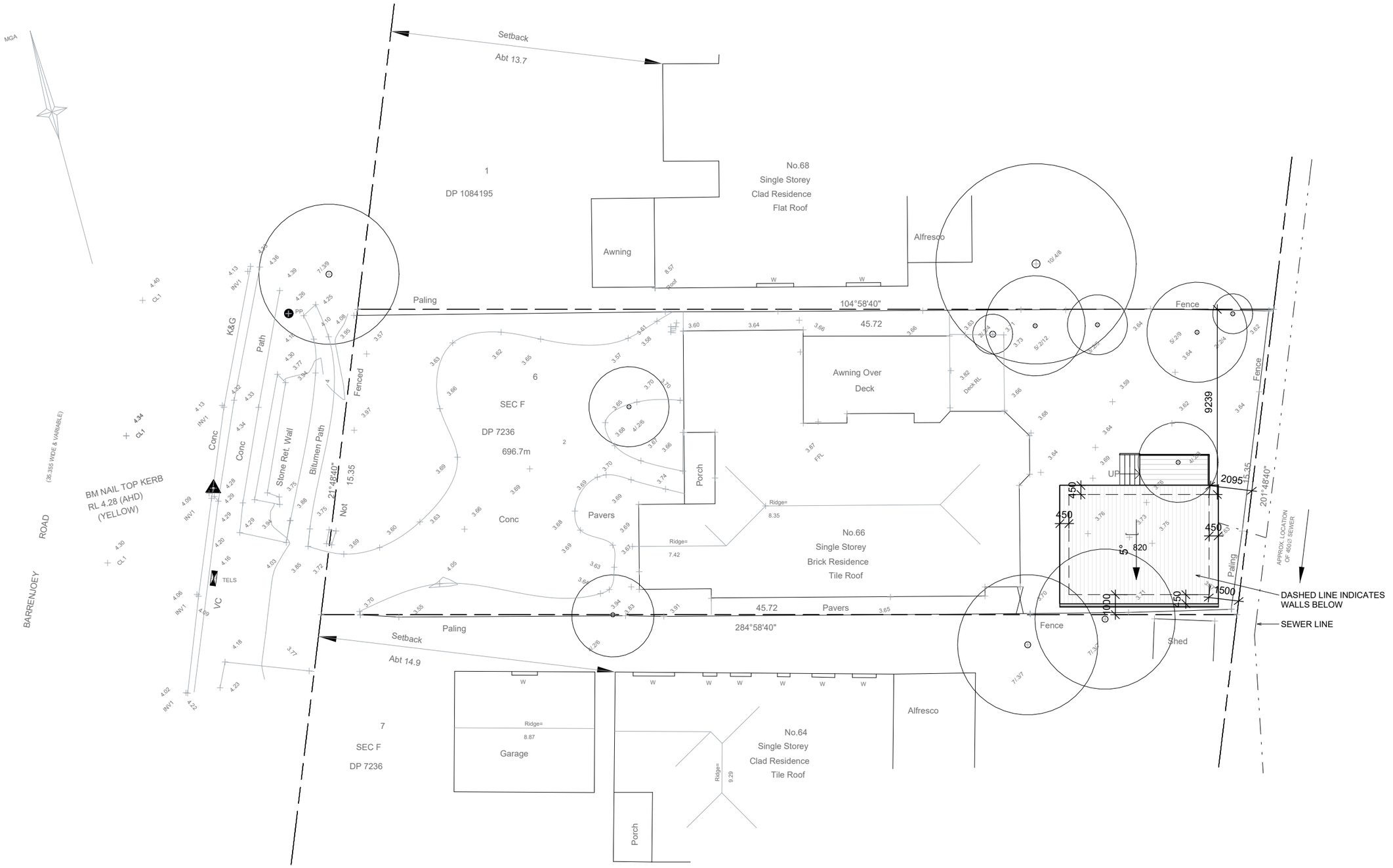
Bungalow Homes

true north

drawing
COVER PAGE

project no	date	sheet no.	scale @ A3	issue	checked
24-80	18/11/24	A 0		C	?

RK DESIGNS



PRELIMINARY
DO NOT USE FOR CONSTRUCTION

1 SITE AND ROOF PLAN

1 : 200

DIAL BEFORE YOU DIG www.1100.com.au

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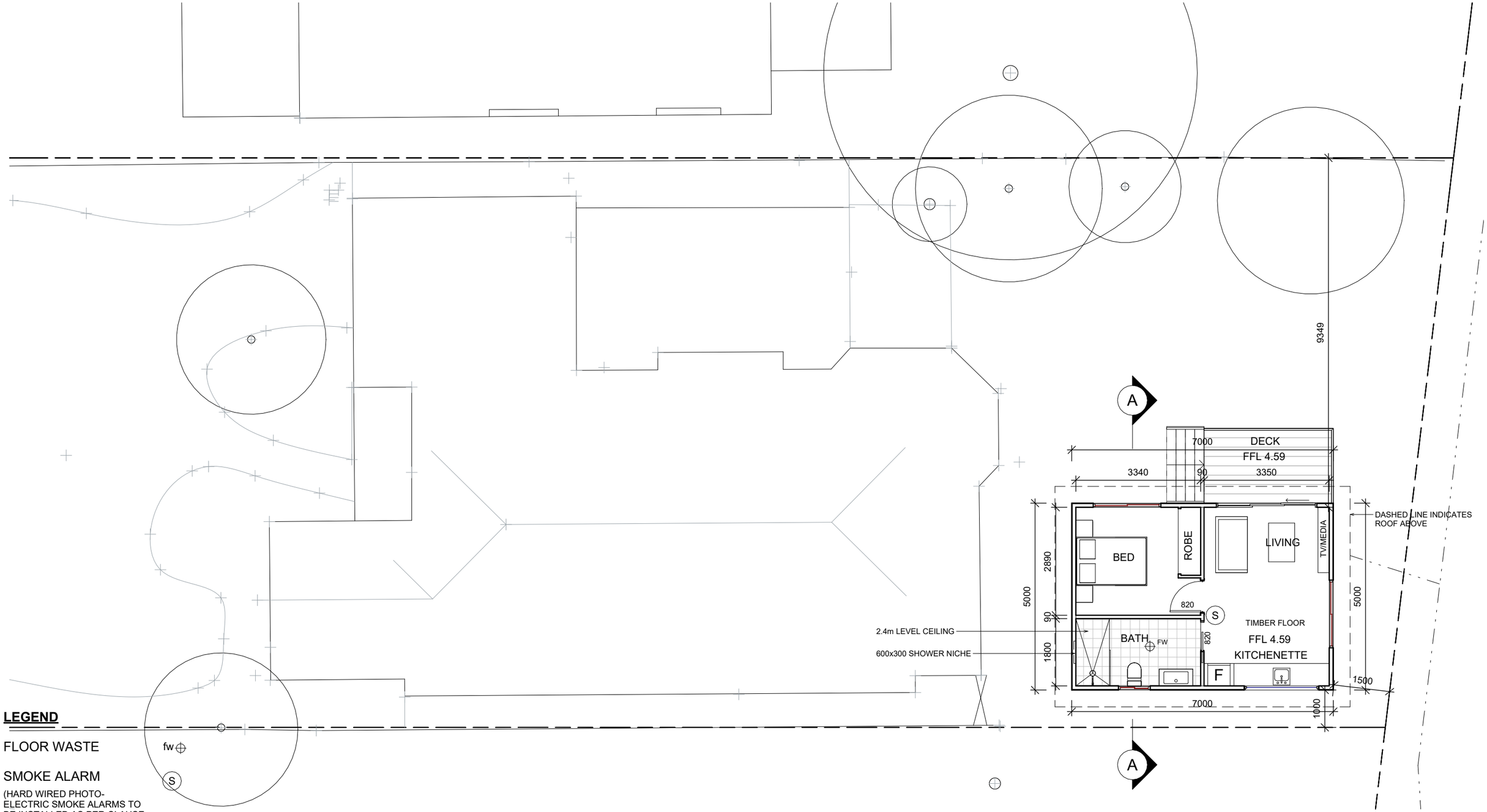

LEGEND

FLOOR WASTE fw

SMOKE ALARM S

(HARD WIRED PHOTO-ELECTRIC SMOKE ALARMS TO BE INSTALLED AS PER CLAUSE 9.5.4 OF THE HOUSING PROVISIONS 2022 & AS 3786)

PRELIMINARY
DO NOT USE FOR CONSTRUCTION

1 GROUND FLOOR PLAN

1 : 100

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drawing
GROUND FLOOR PLAN

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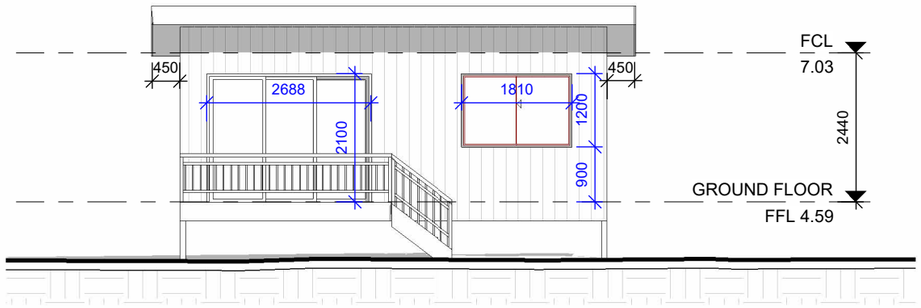
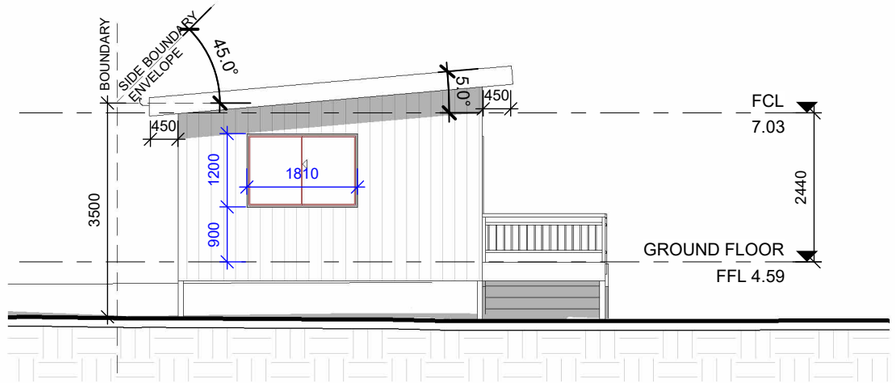


1 NORTH ELEVATION

1 : 100

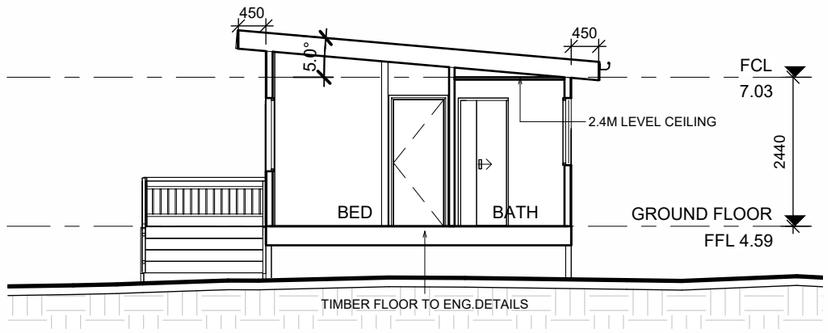


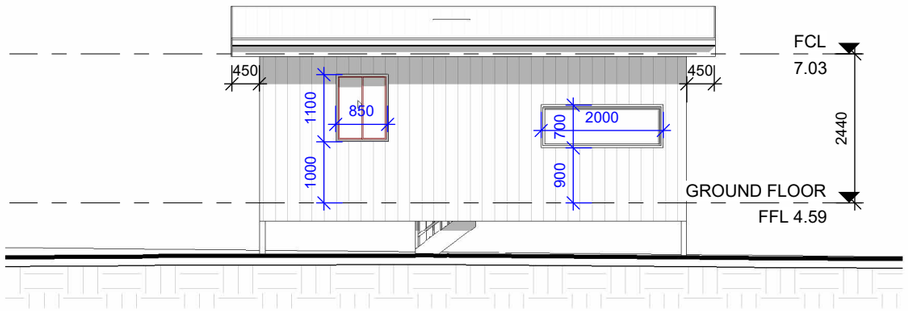
2 EAST ELEVATION

1 : 100

5 SECTION A-A

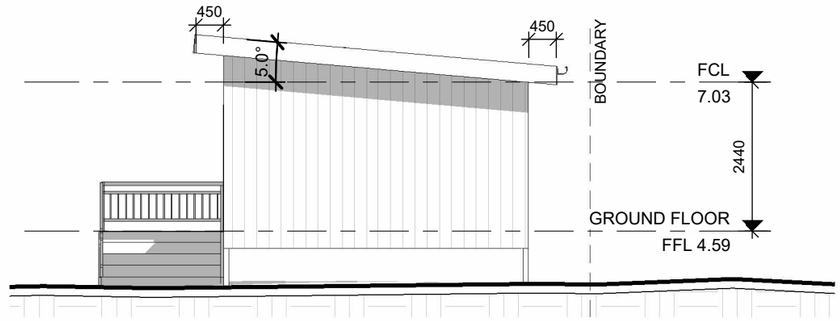
1 : 100





3 SOUTH ELEVATION

1 : 100



4 WEST ELEVATION

1 : 100

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Bungalow Homes

true north

drawing
ELEVATIONS AND SECTION

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24-80	18/11/24	A 4	1 : 100	C	?

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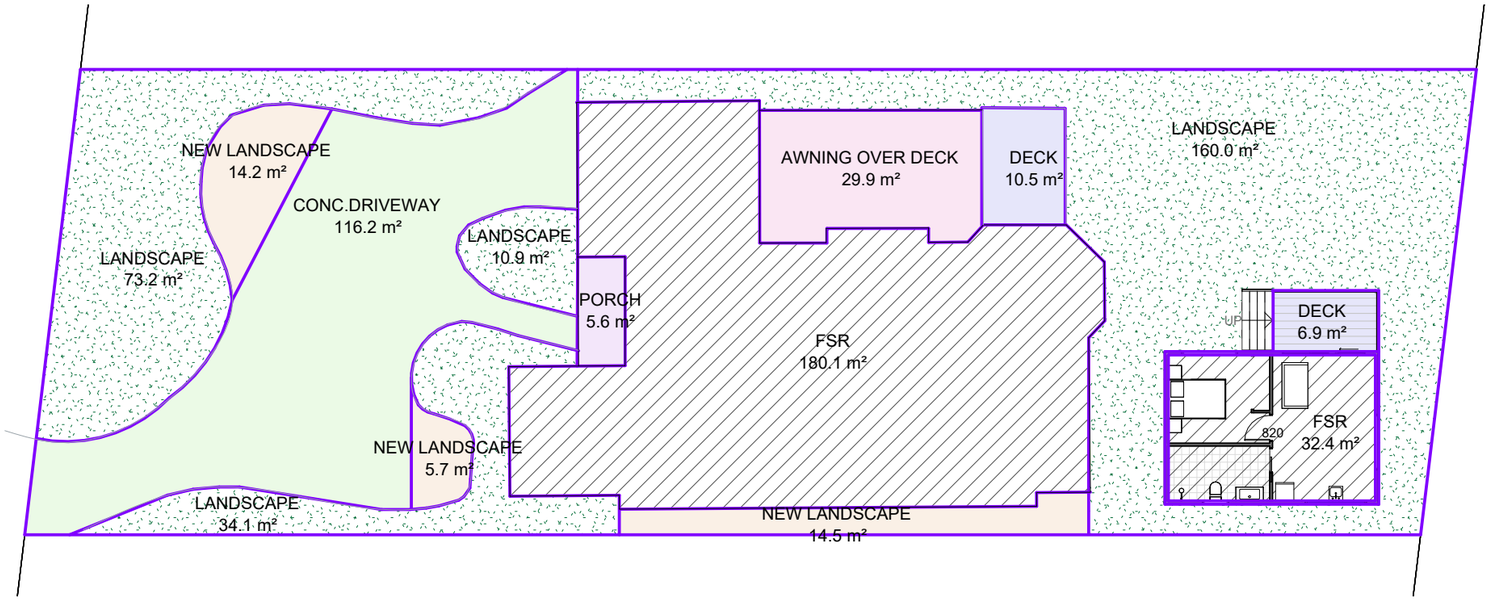

1 GROUND FLOOR

1 : 200

SITE AREA = 696.7 SQM

MINIMUM REQUIRED LANDSCAPED AREA = 50% WITH A MINIMUM 1M WIDTH

MINIMUM REQUIRED LANDSCAPED AREA = 348.35 SQM

PROPOSED LANDSCAPED AREA = 312.6SQM

THEREFORE, THE PROPSAL DOES NOT COMPLY WITH PDCP

AREA CALCULATIONS SCHEDULE

NAME	LEVEL	COUNT	TOTAL
AWNING OVER DECK	GROUND FLOOR	1	29.9 m²
AWNING OVER DECK: 1			29.9 m²
CONC.DRIVEWAY	GROUND FLOOR	1	116.2 m²
CONC.DRIVEWAY: 1			116.2 m²
DECK	GROUND FLOOR	2	17.4 m²
DECK: 2			17.4 m²
FSR	GROUND FLOOR	2	212.5 m²
FSR: 2			212.5 m²
LANDSCAPE	GROUND FLOOR	4	278.2 m²
LANDSCAPE: 4			278.2 m²
NEW LANDSCAPE	Not Placed	1	0.0 m²
NEW LANDSCAPE	GROUND FLOOR	3	34.4 m²
NEW LANDSCAPE: 4			34.4 m²
PORCH	GROUND FLOOR	1	5.6 m²
PORCH: 1			5.6 m²

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client
LINDA AND GARY CALVERT
Bungalow Homes

true north

drawing
AREA CALCULATIONS

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24-80	18/11/24	A 5	1 : 200	C	?

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Appendix C

northern beaches council

BASIC
FLOOD INFORMATION REPORT

Property: 66 Barrenjoey Road MONA VALE NSW 2103
Lot DP: Lot 6 Sec F DP 7236
Issue Date: 01/08/2024
Flood Study Reference: McCarrs Creek, Mona Vale and Bayview Flood Study Review 2017, Royal HaskoningDHV

Flood Information[1]:

Map A - Flood Risk Precincts
Maximum Flood Planning Level (FPL) [2, 3, 4]: 4.49 m AHD

Map B - 1% AEP Flood
1% AEP Maximum Water Level [2, 3]: 3.99 m AHD
1% AEP Maximum Depth from natural ground level[3]: 0.44 m
1% AEP Maximum Velocity: 0.62 m/s

Map C - 1% AEP Hydraulic Categorisation
1% AEP Hydraulic Categorisation: Flood storage

Map D - Probable Maximum Flood (PMF)
PMF Maximum Water Level [4]: 4.59 m AHD
PMF Maximum Depth from natural ground level: 1.06 m
PMF Maximum Velocity: 0.62 m/s

Map E - Flood Life Hazard Category in PMF
H3

(1) The provided flood information does not account for any local overland flow issues nor private stormwater drainage systems.
(2) Overland flow/mainstream water levels may vary across a sloping site, resulting in variable minimum floor/ flood planning levels across the site. The maximum Flood Planning Level may be in a different location to the maximum 1% AEP flood level.
(3) Intensification of development in the former Pittwater LGA requires the consideration of climate change impacts which may result in higher minimum floor levels.
(4) Vulnerable/critical developments require higher minimum floor levels using the higher of the PMF or FPL.

Notes

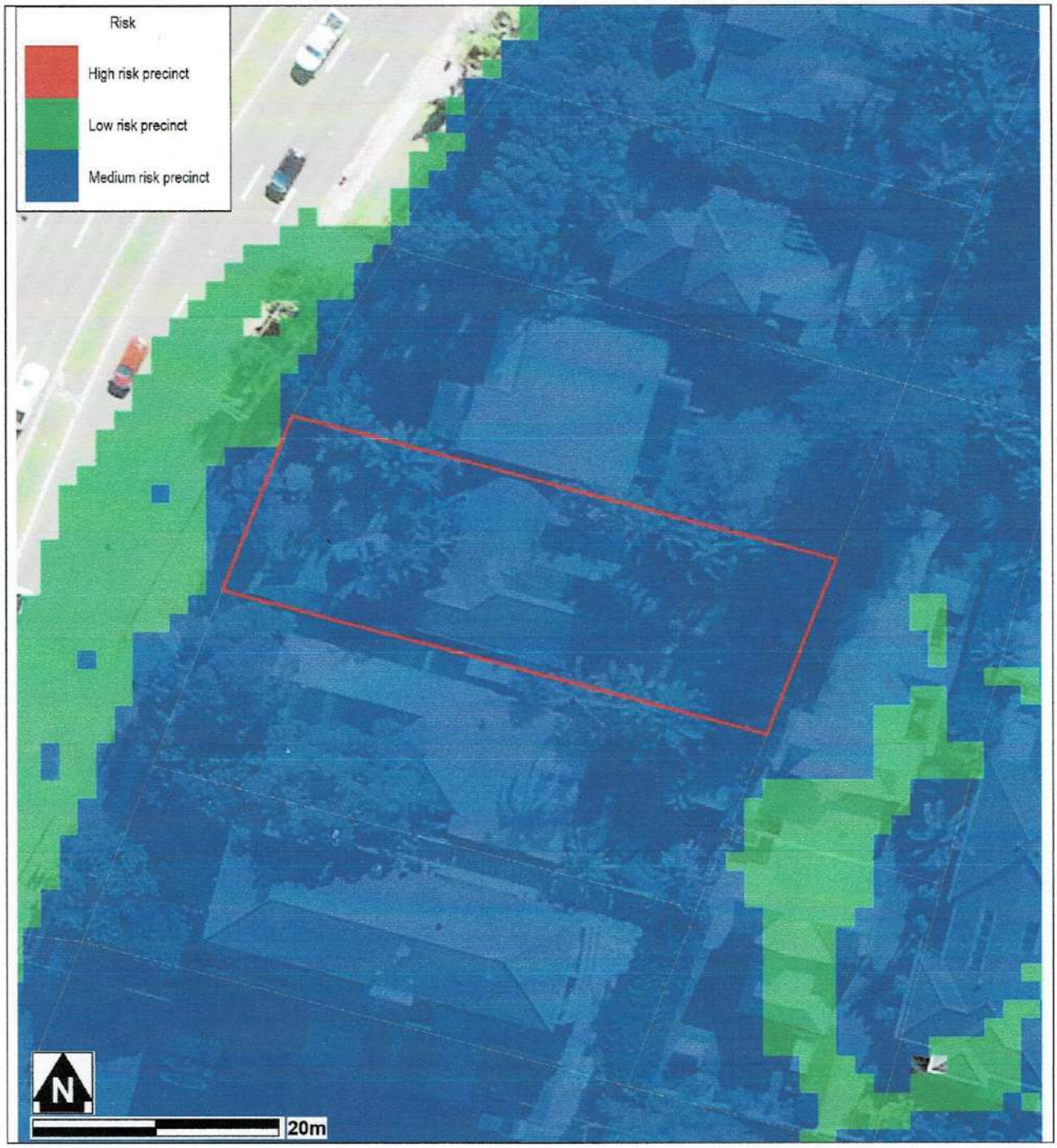
General

- All levels are based on Australian Height Datum (AHD) unless otherwise noted.
- This is currently the best available information on flooding; it may be subject to change in the future.
- Council recommends that you obtain a detailed survey of the above property and surrounds to AHD by a registered surveyor to determine any features that may influence the predicted extent or frequency of flooding. It is recommended you compare the flood level to the ground and floor levels to determine the level of risk the property may experience should flooding occur.
- Development approval is dependent on a range of issues, including compliance with all relevant provisions of Northern Beaches Council's Local Environmental Plans and Development Control Plans.
- Please note that the information contained within this letter is general advice only as a detail survey of the property as well as other information is not available. Council recommends that you engage a suitably experienced consultant to provide site specific flooding advice prior to making any decisions relating to the purchase or development of this property.
- The Flood Studies on which Council's flood information is based are available on Council's online Flood Study Reports webpage.
- If the FPL is higher than the PMF level, then the FPL should still be used as the FPL, as it includes freeboard which the PMF does not.
- If the property is affected by an Estuarine Planning Level (EPL) which is higher than the FPL, then the EPL should be used as the FPL.
- Areas affected by an EPL in the former Pittwater LGA are mapped on Council's online Estuarine Hazard Map. Note that areas in the former Manly LGA affected by an EPL have been identified and will be soon added to this map.
- Council's drainage infrastructure is mapped on Council's Stormwater Map. Note that locations are indicative only and may not be exactly as shown.

Notes

- Please note that this report contains Basic Flood Information. A Comprehensive report may be more appropriate for preparing a Flood Management Report for any future development. Should you need to prepare a Flood Management Report, we recommend you contact an independent hydraulic engineering consultancy who will be able to provide specific advice.

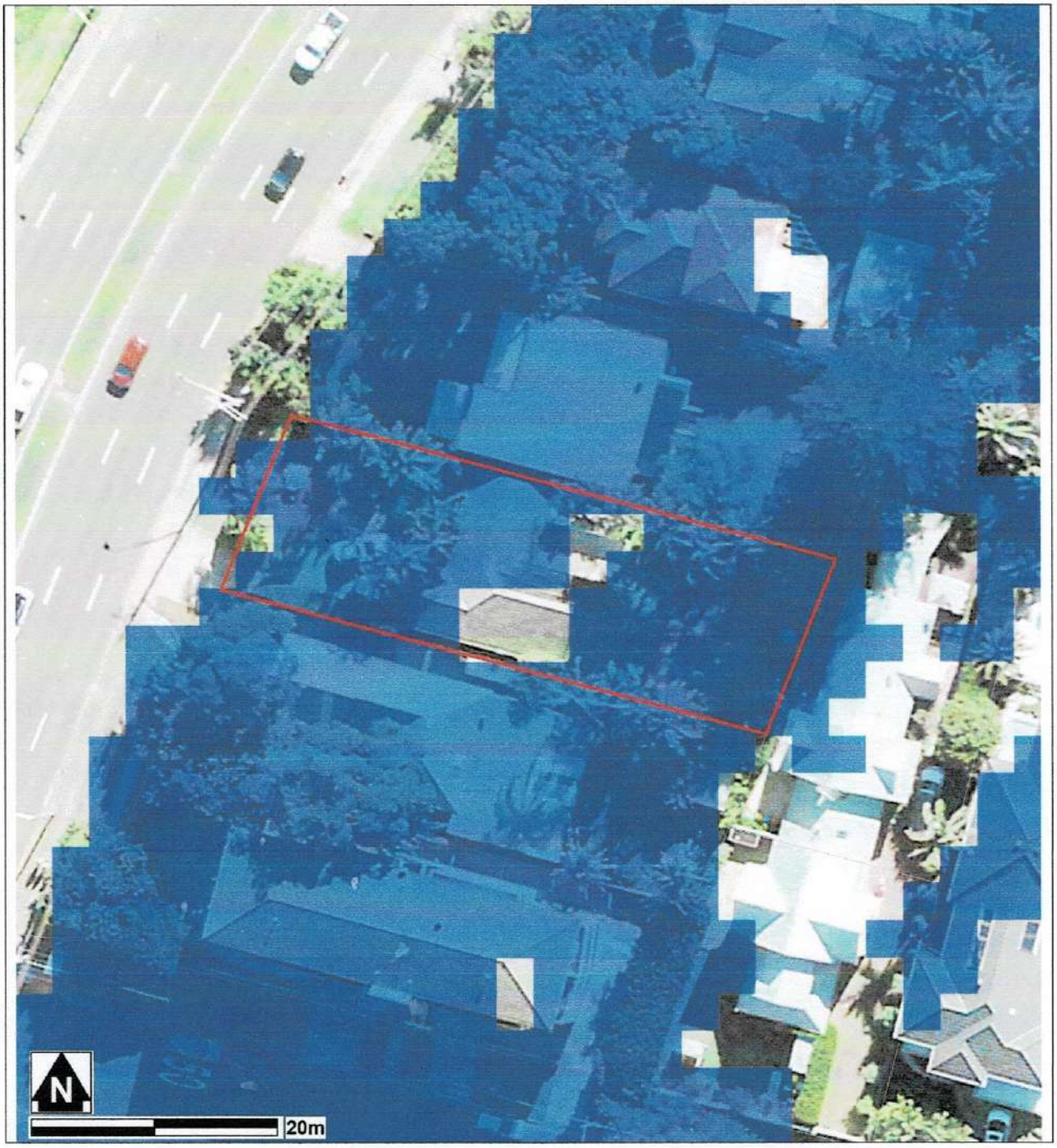
MAP A: FLOOD RISK PRECINCTS



Notes:

- **Low Flood Risk precinct** means all flood prone land not identified within the High or Medium flood risk precincts.
- **Medium Flood Risk precinct** means all flood prone land that is (a) within the 1% AEP Flood Planning Area; and (b) is not within the high flood risk precinct.
- **High Flood Risk precinct** means all flood prone land (a) within the 1% AEP Flood Planning Area; and (b) is either subject to a high hydraulic hazard, within the floodway or subject to significant evacuation difficulties (H5 or H6 Life Hazard Classification)
- The **Flood Planning Area** extent is equivalent to the Medium Flood Risk Precinct extent and includes the High Flood Risk Precinct within it. The mapped extent represents the 1% annual Exceedance Probability (AEP) flood event + freeboard.
- None of these mapped extents include climate change.

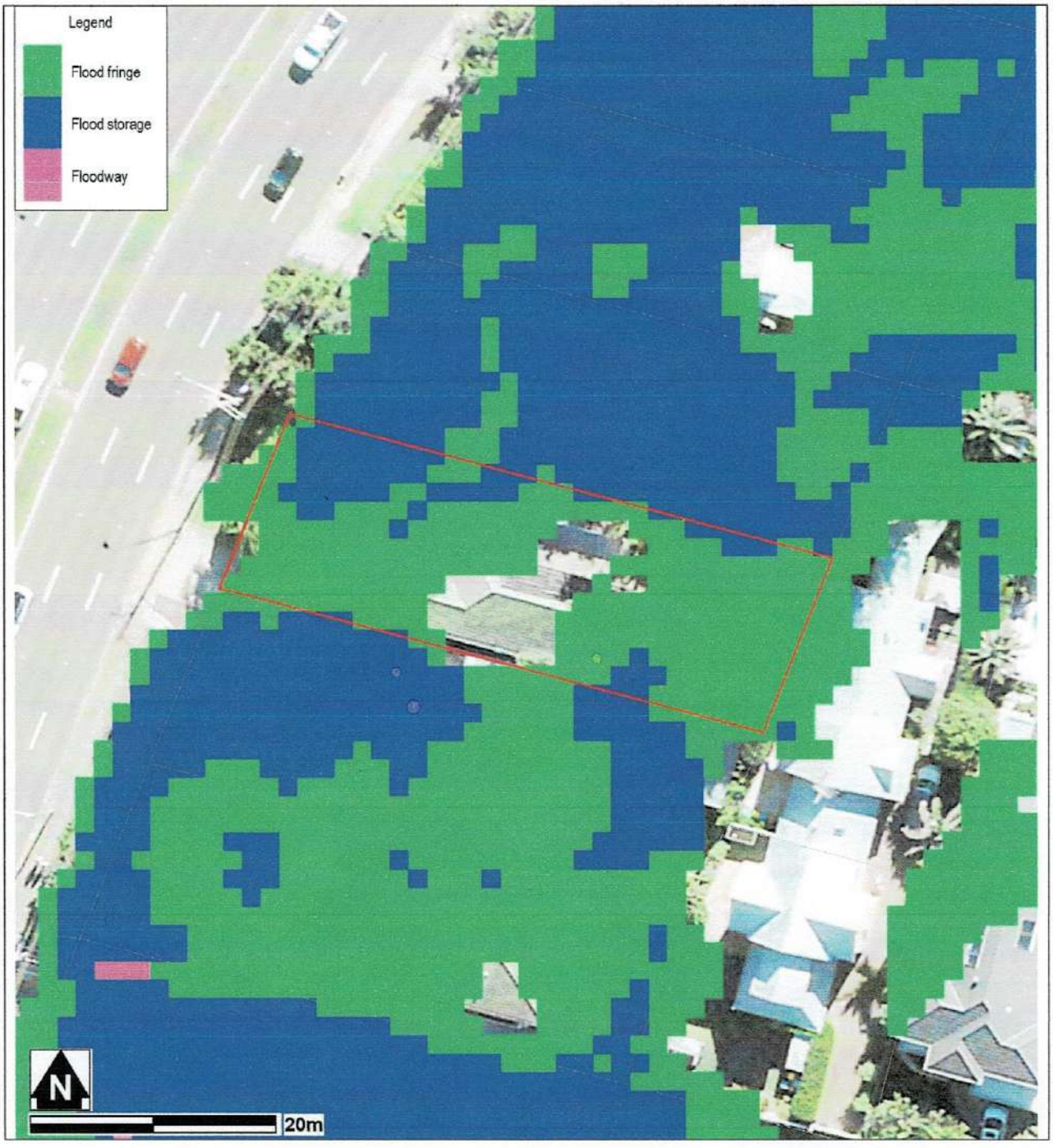
MAP B: FLOODING - 1% AEP EXTENT



Notes:

- Extent represents the 1% Annual Exceedance Probability (AEP) flood event.
- Flood events exceeding the 1% AEP can occur on this site.
- Extent does not include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: McCarrs Creek, Mona Vale and Bayview Flood Study Review 2017, Royal HaskoningDHV) and aerial photography (Source: NearMap 2014) are indicative only.

MAP C: 1% AEP FLOOD HYDRAULIC CATEGORY EXTENT MAP



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- Extent does not include climate change.
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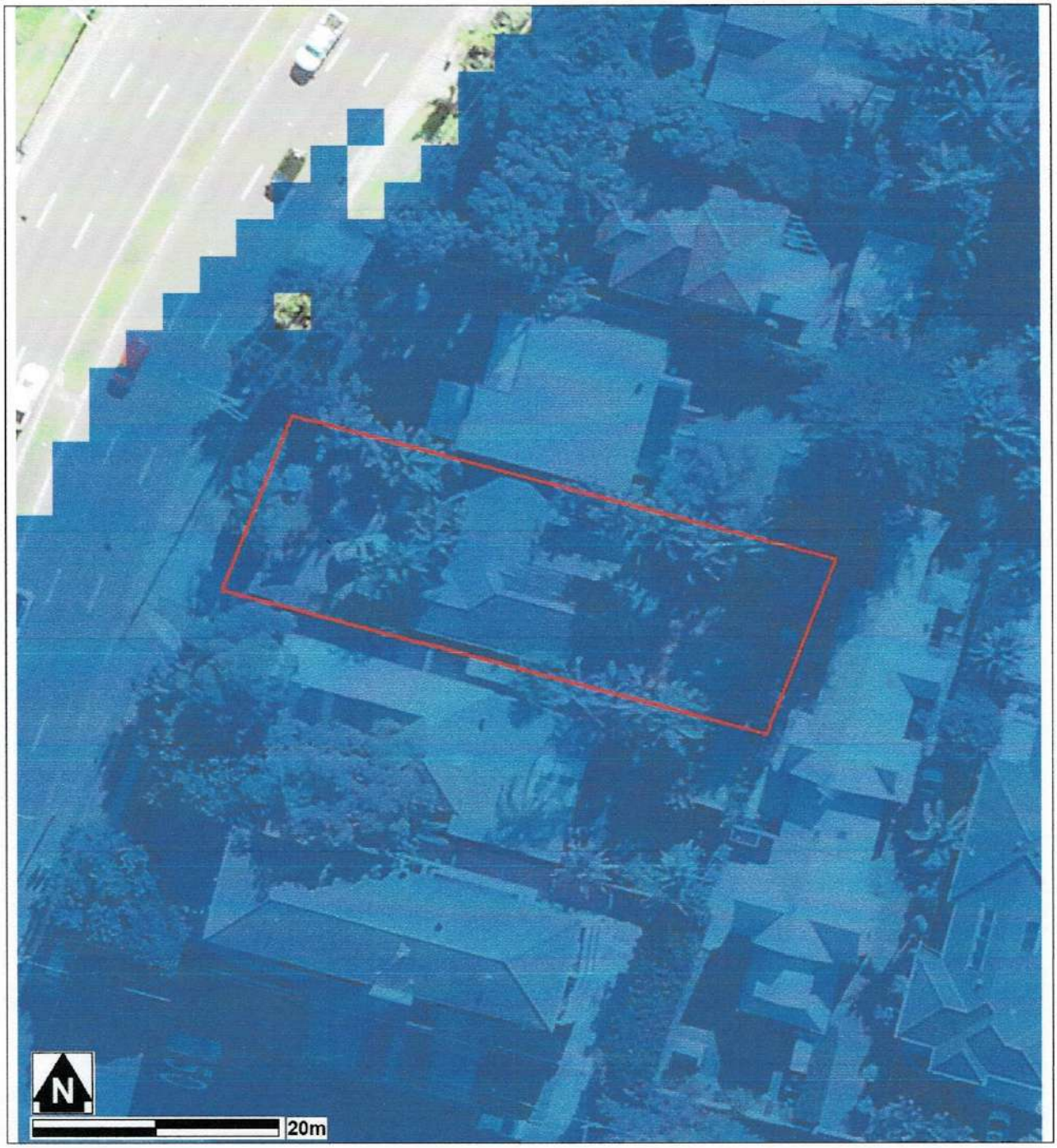
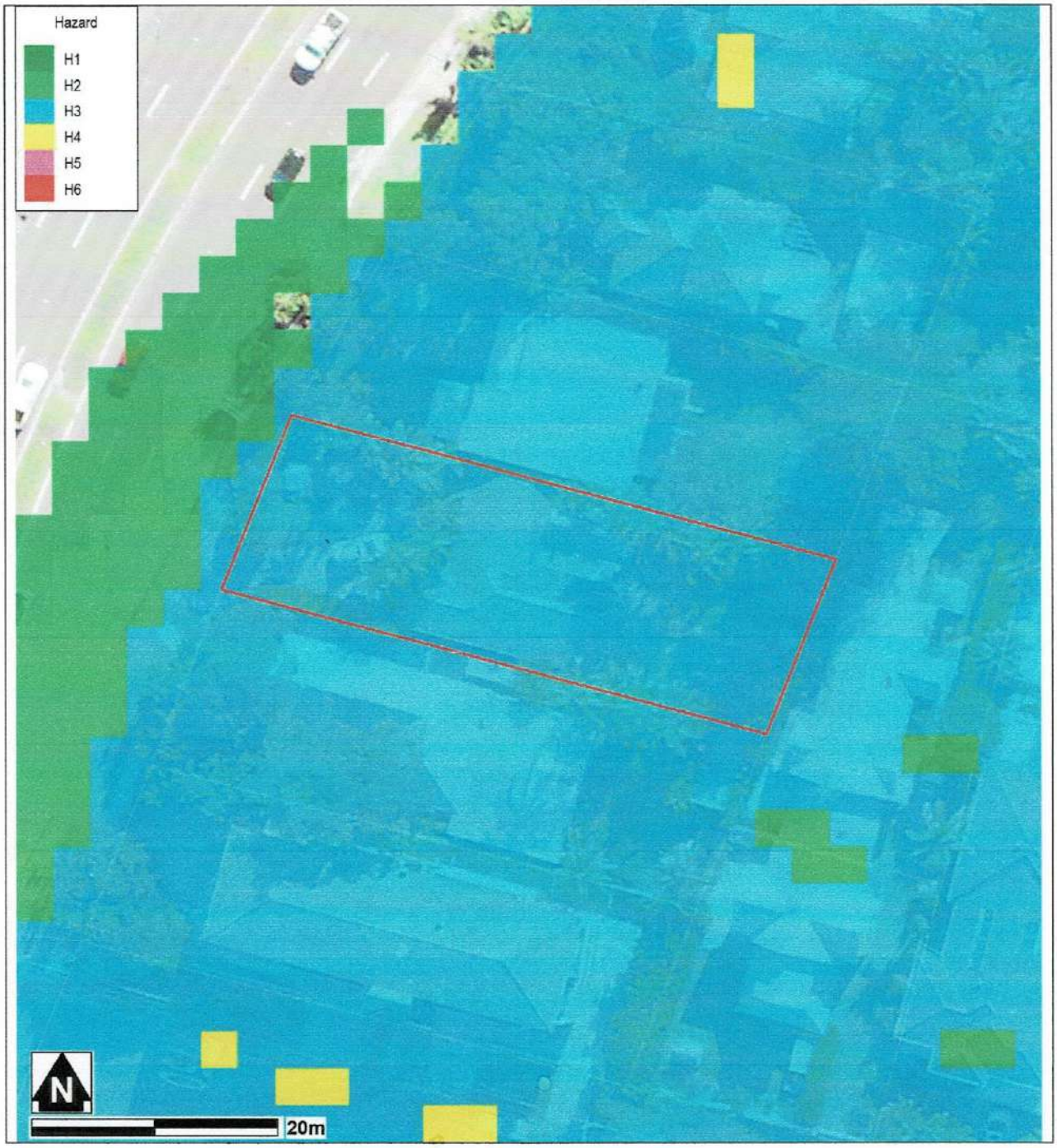
MAP D: PROBABLE MAXIMUM FLOOD EXTENT



Notes:

- Extent represents the Probable Maximum Flood (PMF) flood event.
- Extent does not include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: McCarrs Creek, Mona Vale and Bayview Flood Study Review 2017, Royal HaskoningDHV) and aerial photography (Source: NearMap 2014) are indicative only.

MAP E: FLOOD LIFE HAZARD CATEGORY IN PMF



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Preparation of a Flood Management Report

Introduction

These guidelines are intended to provide advice to applicants on how to determine what rules apply on flood prone land, and how to prepare a Flood Management Report. The purpose of a Flood Management Report is to demonstrate how a proposed development will comply with flood related planning requirements.

Planning Requirements for Flood Prone Land

Development must comply with the requirements for developing flood prone land set out in the relevant Local Environment Plan (LEP) and Development Control Plan (DCP). There are separate LEPs and DCPs for each of the former Local Government Areas (LGAs), although preparation of a LGA-wide LEP and DCP is currently under way.

The clauses specific to flooding in the LEPs and DCPs are as follows:

LEP Clauses	DCP Clauses
Manly LEP (2013) – 5.21 Flood Planning Manly LEP (2013) – 5.22 Special Flood Considerations	Manly DCP (2013) – 5.4.3 Flood Prone Land
Warringah LEP (2011) – 5.21 Flood Planning Warringah LEP (2011) – 5.22 Special Flood Considerations Warringah LEP (2000) – 47 Flood Affected Land *	Warringah DCP (2011) – E11 Flood Prone Land
Pittwater LEP (2014) – 5.21 Flood Planning Pittwater LEP (2014) – 5.22 Special Flood Considerations	Pittwater 21 DCP (2014) – B3.11 Flood Prone Land Pittwater 21 DCP (2014) – B3.12 Climate Change

* The Warringah LEP (2000) is relevant only for the "deferred lands" which affects only a very small number of properties, mostly in the Oxford Falls area.

Development on flood prone land must also comply with Council's Water Management for Development Policy, and if it is in the Warriewood Release Area, with the Warriewood Valley Water Management Specification and Clause C6.1 of the Pittwater 21 DCP (2014). Guidelines for Flood Emergency Response Planning are available for addressing emergency response requirements in the DCP. These documents can be found on Council's website on the Flooding page.

Note that if the property is affected by estuarine flooding or other coastal issues, these need to be addressed separately under the relevant DCP clauses.

When is a Flood Management Report required?

A Flood Management Report must be submitted with any Development Application on flood prone land (with exceptions noted below), for Council to consider the potential flood impacts and applicable controls. For Residential or Commercial development, it is required for development on land identified within the Medium or High Flood Risk Precinct. For Vulnerable or Critical development, it is required if it is within any Flood Risk Precinct.

There are some circumstances where a formal Flood Management Report undertaken by a professional engineer may not be required. However the relevant parts of the DCP and LEP would still need to be addressed, so as to demonstrate compliance. Examples where this may apply include:

- If all proposed works are located outside the relevant Flood Risk Precinct extent
- First floor addition only, where the existing ground floor level is above the FPL

- Internal works only, where habitable floor areas below the FPL are not being increased

Note that development on flood prone land will still be assessed for compliance with the relevant DCP and LEP, and may still be subject to flood related development controls.

What is the purpose of a Flood Management Report?

The purpose of a Flood Management Report is to demonstrate how a proposed development will comply with flood planning requirements, particularly the development controls outlined in the relevant LEP and DCP clauses. The report must detail the design, measures and controls needed to achieve compliance, following the steps outlined below.

A Flood Management Report should reflect the size, type and location of the development, proportionate to the scope of the works proposed, and considering its relationship to surrounding development. The report should also assess the flood risk to life and property.

Preparation of a Flood Management Report

The technical requirements for a Flood Management Report include (where relevant):

1. Description of development
   - Outline of the proposed development, with plans if necessary for clarity
   - Use of the building, hours of operation, proposed traffic usage or movement
   - Type of use, eg vulnerable, critical, residential, business, industrial, subdivision, etc

2. Flood analysis
   - 1% AEP flood level
   - Flood Planning Level (FPL)
   - Probable Maximum Flood (PMF) level
   - Flood Risk Precinct, ie High, Medium or Low
   - Flood Life Hazard Category
   - Mapping of relevant extents
   - Flood characteristics for the site, eg depth, velocity, hazard and hydraulic category, and the relevance to the proposed development

   If the property is affected by an Estuarine Planning Level (EPL) which is higher than the FPL, then the EPL should be used as the FPL. If the FPL is higher than the PMF level, then the FPL should still be used as the FPL, as it includes freeboard which the PMF does not.

3. Assessment of impacts
   - Summary of compliance for each category of the DCP, as per the table below.

	Compliance		
	N/A	Yes	No
A) Flood effects caused by Development			
B) Building Components & Structural Soundness			
C) Floor Levels			
D) Car parking			
E) Emergency Response			
F) Fencing			
G) Storage of Goods			

H) Pools			

- Demonstration of how the development complies with any relevant flood planning requirements from the DCP, LEP, Water Management for Development Policy, and if it is in the Warriewood Valley Urban Land Release Area, with the Warriewood Valley Water Management Specification (2001)
- For any non-compliance, a justification for why the development should still be considered.
- Calculations of available flood storage if compensatory flood storage is proposed
- Plan of the proposed development site showing the predicted 1% AEP and PMF flood extents, as well as any high hazard or floodway affectation
- Development recommendations and construction methodologies
- Qualifications of author - Council requires that the Flood Management Report be prepared by a suitably qualified Engineer with experience in flood design / management who has, or is eligible for, membership to the Institution of Engineers Australia
- Any flood advice provided by Council
- Any other details which may be relevant

Further information and guidelines for development are available on Council's website at:

https://www.northernbeaches.nsw.gov.au/planning-and-development/building-and-renovations/development-applications/guidelines-development-flood-prone-land

Council's Flood Team may be contacted on 1300 434 434 or at floodplain@northernbeaches.nsw.gov.au .

Appendix D

EMERGENCY FLOOD RESPONSE PROCEDURE

Flood waters can rise very rapidly on this site

Once a warning is received for a possible flood or when floodwaters start to inundate Barrenjoey Road or any portion of the site:

1. All residents should be at the designated assembly point by the time flood waters are observed to have inundated Barrenjoey Road or any portion of the site.
2. The Owner is to turn off all power, water and other relevant services.
3. Nominated occupants to sweep the promises to ensure that all occupants have sought refuge at the emergency assembly point in the studio.
4. Emergency services to be notified by The Owner of the situation at site.

THIS SITE CAN FLOOD

NEVER DRIVE, WALK OR RIDE THROUGH FLOODWATERS

When emergency services give the all clear to leave:

The site will only be opened for Occupants to leave once floodwaters have subsided and the emergency services have given the all clear.

Appendix E

Flood Checklists

BEFORE A FLOOD

Trigger for action: Always

Action	Status
• All Occupants to be made aware of site flooding potential	
• Develop detailed emergency procedures, responsibilities and resources	
• Provide all Occupants with an emergency response plan and advise of their responsibilities and delegations	
• Maintain an emergency contacts list	
• Update emergency response procedures annually	

WHEN A FLOOD IS LIKELY

Trigger for action: When the forecasts predict severe weather or significant amounts of rainfall are observed:

Action	Status
• Monitor the severe weather forecasts and predictions	
• The Owner to monitor conditions at the rear of the site	
• The Owner to notify Occupants to proceed to the emergency response area	
• The Owner to shut off nominated services	

DURING A FLOOD

Trigger for action: When floodwaters reach the kerb and gutter in Barrenjoey Road or significantly inundate any portion of the site:

Action	Status
• Emergency response to be undertaken in an orderly fashion	
• The phases of the emergency response shall be:	
☐ The Owner to request all occupants to proceed to the emergency assembly point.	
☐ All occupants should be at the assembly point by the time the flood waters reach the rear boundary of the site.	
☐ The Owner to sweep premises for remaining persons	
☐ The Owner to retreat to the emergency assembly area.	
• Emergency services to be notified by The Owner of the situation at site.	

Appendix F

Emergency Contacts

Organisation	Role	Contact
Emergency Services	Fire/ambulance/ police	000
Northern Beaches Council	Disaster Coordination Centre	1300 434 434
State Emergency Service	SES Local Controller	132 500
Northern Beaches Hospital		02 9105 5000

Appendix G

Flood Compatible Materials and Building Components for New Works

BUILDING COMPONENT	FLOOD COMPATIBLE MATERIAL	BUILDING COMPONENT	FLOOD COMPATIBLE MATERIAL
Flooring and Sub-floor Structure	▪ concrete slab-on ground monolith construction ▪ suspended reinforced concrete slab	Doors	▪ solid panel with water proof adhesives ▪ flush door with marine ply filled with closed cell foam ▪ painted metal construction ▪ aluminium or galvanised steel frame
Floor Covering	▪ clay tiles ▪ concrete, precast or in situ ▪ concrete tiles ▪ epoxy, form-in-place ▪ mastic flooring, formed in-place ▪ rubber sheets or tiles with chemical-set adhesives ▪ silicone floors formed in-place ▪ vinyl sheets or tiles with	Wall and Ceiling Linings	▪ fibro-cement board ▪ brick, face or glazed ▪ clay tile glazed in waterproof mortar ▪ concrete ▪ concrete block ▪ steel with waterproof applications ▪ stone, natural solid or veneer, waterproof grout ▪ glass blocks ▪ glass

	chemical-set adhesive ▪ ceramic tiles, fixed with mortar or chemical-set adhesive ▪ asphalt tiles, fixed with water resistant adhesive ▪ linoleum		▪ plastic sheeting or wall with waterproof adhesive
Wall Structure	▪ solid brickwork, blockwork, reinforced, concrete or mass concrete	Insulation Windows	▪ foam (closed cell types) ▪ aluminium frame with stainless steel ▪ rollers or similar corrosion and water resistant material
Roofing Structure (for Situations where the Relevant Flood Level is Above the Ceiling)	▪ reinforced concrete construction ▪ galvanised metal construction	Nails, Bolts, Hinges and Fittings	▪ brass, nylon or stainless steel ▪ removable pin hinges ▪ hot dipped galvanised steel wire, nails or similar.

Electrical and Mechanical Equipment For buildings constructed on land to which this Plan applies, the electrical and mechanical materials, equipment and Installation should conform to the following requirements.	**Heating and Air Conditioning Systems** Heating and air conditioning systems should, to the maximum extent possible, be installed in areas and spaces of the building above the relevant flood level. When this is not feasible every precaution should be taken to minimise the damage caused by submersion according to the following guidelines.
Main power supply Subject to the approval of the relevant authority the incoming main commercial power service equipment including all metering equipment, shall be located above the relevant flood level. Means shall be available to easily disconnect the building from the main power supply.	**Fuel** Heating systems using gas or oil as a fuel should have a manually operated valve located in the fuel supply line to enable fuel cut-off.
Wiring All wiring, power outlets, switches, etc, should to the maximum extent possible, be located above the relevant flood level. All electrical wiring installed below the relevant flood level should be suitable for continuous submergence in water and should contain no fibrous	**Installation** The heating equipment and fuel storage tanks should be mounted on and securely anchored to a foundation pad of sufficient mass to overcome buoyancy and prevent movement that could damage the

components. Earth core linkage systems (or safety switches) are to be installed. Only submersible-type splices should be used below the relevant flood level. All conducts located below the relevant designated flood level should be so installed that they will be self draining if subjected to flooding.	fuel supply line. All storage tanks should be vented to the FPL.
Equipment All equipment installed below or partially below the relevant flood level should be capable of disconnection by a single plug and socket assembly.	Ducting All ductwork located below the relevant flood level should be provided with openings for drainage and cleaning. Self draining may be achieved by constructing the ductwork on a suitable grade. Where ductwork must pass through a water-tight wall or floor below the relevant flood level, the ductwork should be protected by a closure assembly operated from above relevant flood level.
Reconnection Should any electrical device and/or part of the wiring be flooded it should be thoroughly cleaned or replaced and checked by an approved electrical contractor before reconnection.	Ancillary Structures (steps, pergolas, etc) Suitable water tolerant materials should be used such as reinforced concrete, masonry, sealed hardwood and corrosive resistant metals. Copper Chrome Arsenate (CCA) treated timber is not a suitable material.