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Flood Management Report

1-5 Rickard Road, North Narrabeen, NSW 2101

Prepared for: Gartner Trovato Architects

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Revisions

Revision	Description	Date	Prepared by	Approved by
01	Issue for client review	08/07/2024	E. L	K.P
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Review Panel

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1 Introduction

ACOR Consultants Pty Ltd (ACOR) has been engaged to undertake a Flood Management Report in accordance with the development controls outlined in Pittwater DCP Clause B3.11 for the proposed development of shop-top housing at 1-5 Rickard Street, North Narrabeen.

In the preparation of this report, ACOR has relied upon certain data and information contained within the following documents:

- Architectural drawings prepared by Gartner Trovato Architects (July 2024) – refer to Annexure A Proposed Architectural Plans
- Site Survey prepared by Stutchbury Jaques Pty Ltd (10 Aug 2023) - refer to Annexure B
- Pre-lodgement Meeting Notes prepared by Northern Beaches Council (07 Sept 2023) – refer to Annexure C
- Comprehensive Flood Information Report prepared by Northern Beaches Council (05 June 2024) – refer to Annexure D
- Flood Risk Assessment and Flood Emergency Response Plan (FERP) prepared by Martens Consulting Engineers (8 April 2024) – refer to Annexure E
- Pittwater 21 Development Control Plan (P21 DCP, 2004)
- Pittwater Local Environmental Plan (2014)
- Narrabeen Lagoon Flood Study prepared by BMT WBM Pty Ltd (Sep 2013)
- Ingleside, Elanora and Warriewood Overland Flow Flood Study prepared by WMA Water (June 2019)
- Northern Beaches Council Flood Hazard Map (Northern Beaches Mapping (nb-icongis.azurewebsites.net))
- Northern Beaches Council Guidelines for Development on Flood Prone Land (Guidelines for development on flood prone land | Northern Beaches Council (nsw.gov.au))

The purpose of this report is to support a development application (DA) for the proposed development and provide Northern Beaches Council with sufficient information to determine potential impacts on the proposed development located within the flood-affected land and assess the proposed development in compliance with Council requirements.

2 Site

The three land parcels are legally known as Lot 7 DP16212, Lot 8 DP16212 and Lot 9 DP13212, located within E1: Local Centre.

The site is bounded by Rickard Road to the North, Minarto Lane to the East, and residential and commercial properties to the South and West.

The site is a developed site, currently consisting of three lots and three low-rise free standing residential dwellings, in medium and high risk flood hazard precincts.

Figure 1: Existing Site - Areial Image and Locality (SIX Maps)

The proposed development is categorised as “residential” development use. It will involve the demolition of the existing structures on the site, the construction of a shop-top housing building, with a ground-floor parking level, a commercial/retail level and two residential levels, totalling to four storeys. The development will also include a sub-floor flood zone to allow flood waters to flow through the lot (refer to Annexure A).

This report will assess the flood impact of the proposed development on the site, noting the proposed sub-floor flood zone for flood storage and document management strategies to minimis the risks associated with flooding.

3 Flood Characteristics

The site is located within the wider Narrabeen Lagoon catchment. The entire site will be inundated during the 1% AEP and PMF events from flooding dominated by Narrabeen Lagoon.

A Comprehensive flood information report was obtained from the Northern Beaches Council for the proposed development, which provides flood data based on two previous flood studies: Narrabeen Lagoon Flood Study (BMT WBM, 2013) and Ingleside, Elanora and Warriewood Overland Flow Flood Study (WMA Water, 2019).

A summary of key data from the Council flood information report has been provided in Table 1.

Table 1: Council Flood Information Report Summary

Flood Information	Site Details
1% AEP Flood Level	3.03 m AHD
1% AEP (Climate Change) Flood Level	3.90 m AHD
PMF Flood Level	4.90 m AHD
FPL with climate change	4.40 m AHD

Flood Information	Site Details
Flood Risk Precinct	Medium Risk Precinct, High Risk Precinct
Flood Life Hazard Category	H5
1% AEP Hydraulic Category	Flood Storage

Based on two previous flood studies and Council's flood information report, the flood characteristics around the site have been identified as below:

3.1 1% AEP Flood Level and Flooding with Climate Change

The 1% AEP Narrabeen Lagoon catchment rainfall event (9-hour duration) produces a maximum water level of 3.03 m AHD, causing inundation of the site by a depth up to 0.93 m with a maximum velocity of 0.46 m/s.

The 1% AEP with climate change event, which includes additional 30% rainfall intensity and 0.9 m sea level rise, produces a maximum water level of **3.90 m AHD**, causing inundation depth up to 1.80 m.

3.2 PMF Level

The PMF Narrabeen Lagoon catchment rainfall event (5-hour duration) produces a maximum water level of 4.90 m AHD, causing inundation depth up to 2.80 m with a maximum velocity of 1.14 m/s.

3.3 Flood Planning Level

P21DCP Control B3.12 applies as the development is identified as an "intensification of development", which requires consideration of climate change impacts.

A freeboard of 0.5 m has been adopted. The flood planning level (FPL) should be set at 1% AEP climate change flood level plus 0.5 m freeboard, resulting in **4.40 m AHD.**

3.4 Flood Risk Precinct

The site has been assessed as Medium and High Risk Precincts.

Specifically Lot 7 is assessed as High Risk Precinct while Lots 8 and 9 are assessed as High Risk Precinct with partial areas as Medium Risk Precinct.

Figure 2: Flood Risk Precinct (Source: Northern Beaches Council Flood Hazard Map)

3.5 Flood Life Hazard Category

The flood life hazard category within the site is H5, therefore flood emergency response plan is required. Detailed emergency response plan is provided in Section 4.5.

MAP F: FLOOD LIFE HAZARD CATEGORY IN PMF

Figure 3: Flood Life Hazard Category (extracted from Northern Beaches Council Flood Information Report)

3.6 Hydraulic Category

The '1% AEP Flood Hydraulic Category Extent Map" has shown the entire site is located within Flood Storage.

MAP C: 1% AEP FLOOD HYDRAULIC CATEGORY EXTENT MAP

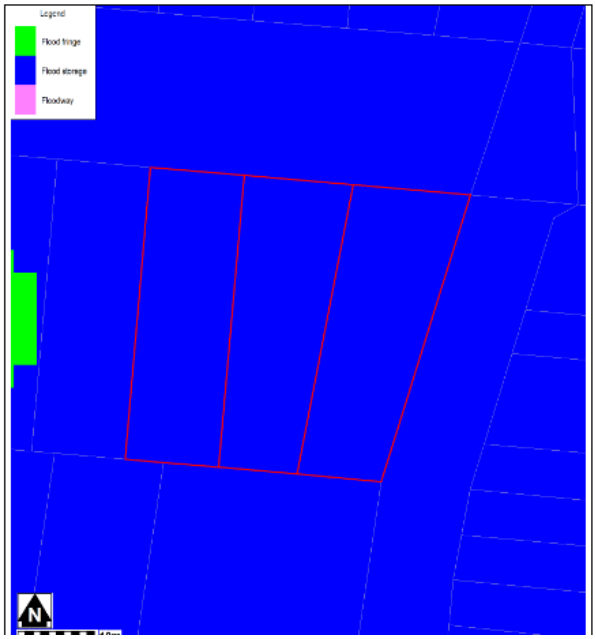

Figure 4: Hydraulic Category (extracted from Northern Beaches Council Flood Information Report)

4 Flood Planning Requirements

The site is subject to the provision of the Pittwater 21 DCP Clause B3.11: Flood Prone Land and B3.12 Climate Change.

According to Pittwater 21 DCP Clause b3.11, controls relate to category below apply to "Residential Use" within Medium and High Risk Precincts (Refer to Figure 5).

- 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

		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

		High 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 C8	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

Figure 5: DCP Development Control Matrix.

4.1 Flood Effects Caused by Development

Control 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; and
b) There are no adverse impacts on surrounding properties; and
c) It is sited to minimise exposure to flood hazard.

Major developments and developments 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.

The flood affectation of the site is not increased or made worse by the proposed development, in fact, the flood storage of the site will be increased by 161.84 m^3.

4.1.1 Pre-developed Flood Storage

The 1% AEP maximum water level within the site is RL 3.03 m, causing inundation of the site by an average depth of 0.93 m.

A total flood-affected area (blue hatch in Figure 6) is calculated to be approximately 837.67 m^2. With a conservative assumption that the entire flood-affected area depth is governed by the maximum inundation depth of 0.93 m, the pre-developed flood storage accounts for **779.03 m^3.**

Considering the 1% AEP with climate change event, the site will be inundated with a maximum depth of 1.80 m, and the pre-developed flood storage will be 1507.81 m^3.

Figure 6: Pre-developed Flood-affected Area

4.1.2 Post-developed Flood Storage

In the proposed development, the 1% AEP flood waters (with climate change) are anticipated to enter the site and temporarily store in the sub-floor flood zone and ground floor carpark.

The proposed level of the sub-floor flood zone is at RL 2.10, similar to the existing ground level, while the proposed ground-floor parking level is at RL 3.03. Assuming a 200 mm carpark pavement thickness, the sub-floor flood zone depth will be 0.73 m.

In Figure 7, the area of sub-floor flood zone, external landscaping and footpath is 1288.87 m^2, providing flood storage of 940.87 m^3 which is an increment of 161.84 m^3 of flood storage on site as compared to the existing condition.

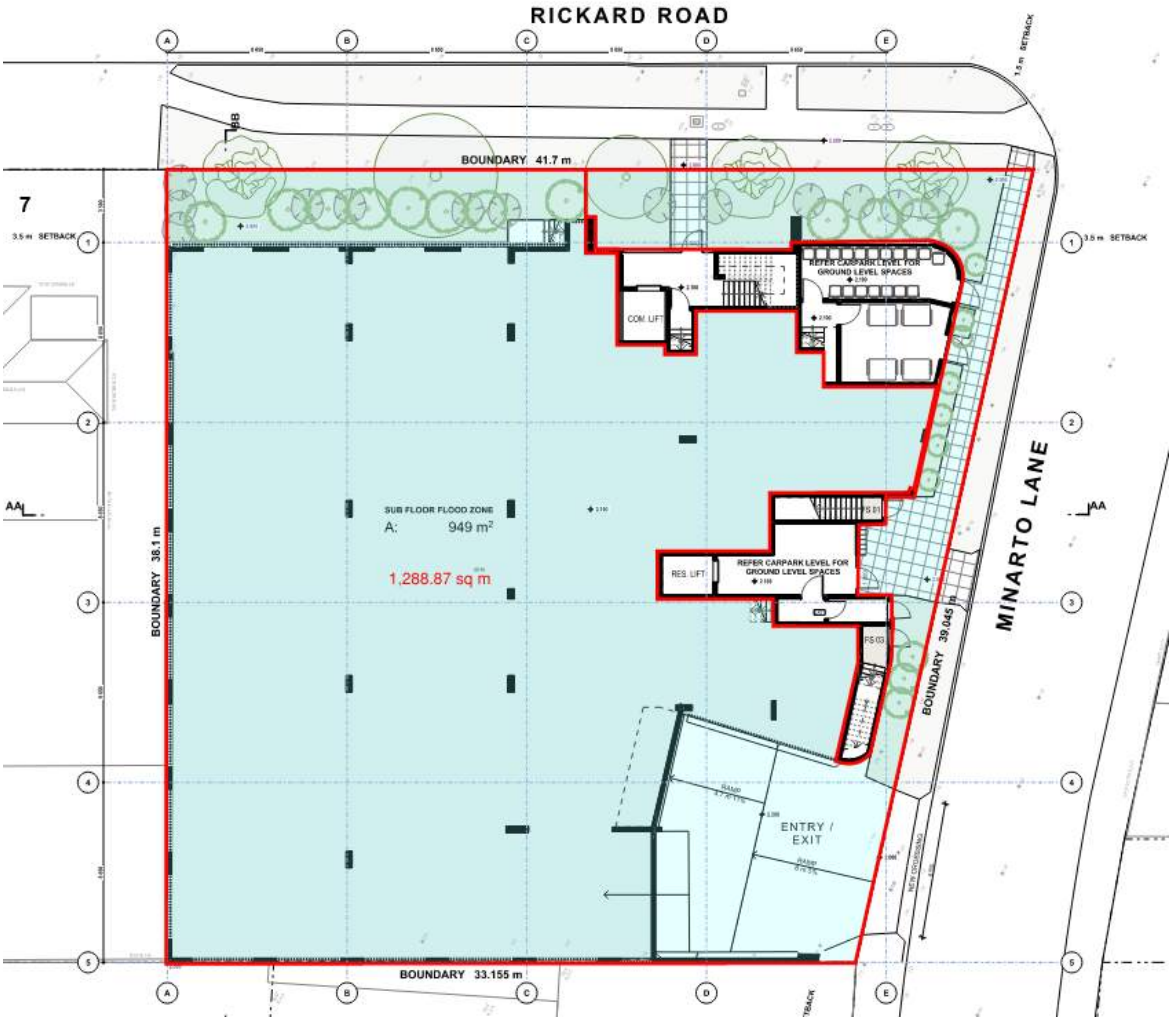

Figure 7: Post-developed Sub-Floor Flood-affected Area

Hence, the flood affectation of the site is not increased or made worse by the proposed development due to increasing flood storage and it will not create an increment in the flood level outside the site since the flood storage has not been compromised compared to the existing condition.

Control 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.

Considering the net increase of flood storage by 161.84 m^3 compared to the existing scenario, as explained above, the compensatory measure in the form of sub-floor void space adopted in the design assures there is no net loss of flood storage. Therefore, the development meets control A2

4.2 Building Components and Structural Soundness

Control B1:

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

The proposed development shall be constructed from flood compatible materials to elevation 4.40 m AHD (FPL) which will rely on adoption of the material based on the extensive guidance on flood compatible building materials and methods provided in 'Reducing Vulnerability of Buildings to Flood Damage: Guidance on Building in Flood Prone Areas' (HNFMSC 2006).

Control 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 for the refuge is to be up to the Probable Maximum Flood level. Structural certification shall be provided confirming the above.

The proposed building is to be constructed to withstand the loads imposed by the 4.40 m AHD, including hydrostatic, hydrodynamic, buoyancy and debris impact forces. The structural design should be certified by a practicing Structural Engineer with relevant experience designing structures on flood prone lands. The certificate will be furnished prior to the CC stage of the development.

Control 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 within the subject structure must have residual current devices installed that turn off all electricity supply to the property when flood waters are detected.

Connection to mains power supply, including metering equipment should be located above 4.40 m AHD. All electrical wiring, switches and outlets should, where possible be located above 4.40 m AHD. Earth core leakage systems or safety switches are to be installed. All wiring, connections and conduit below 4.40m AHD should be suitable for submergence in water. Conduits shall be installed so they will be self-draining in the event of flooding.

Heating and air-conditioning systems, including fuel supply and ducting, should be installed above 4.40 m AHD. Where this is not possible, they should be installed in such a manner as to minimise damage from submersion. This may be achieved through measures such as access for cleaning and draining of water after flood events, manually operated cut off valves for fuel supply lines and ducts, securely fastening heating equipment and fuel storage tanks to prevent buoyancy and movement and venting of fuel supply tanks at an elevation of 4.40 m AHD.

4.3 Floor Levels

Control C1:

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

A summary of proposed floor levels from architectural drawings and prescriptive control levels has been provided in Table 2.

Table 2: Building Levels and Prescriptive Control Levels

Floor	Adopted FFL (m AHD)	Prescriptive Level	Level (m AHD)
Sub-floor Flood Zone	2.10	N/A	N/A
Ground Floor Carpark	3.03	1% AEP	3.03
Commercial/ Retail	6.03	FPL	4.40
Residential Levels	≥ 9.63	FPL	4.40

Level 1 and residential levels are above the FPL (1% AEP climate change flood level plus 0.5 m freeboard).

Although the ground floor carpark is below the FPL, it is set at 1% AEP level which complies with controls D1-6 outlined in Section 4.4.

Control 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; and***
- ***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 It is sited to minimise exposure to flood hazard.***
- ***c) No solid areas of the perimeter of the underfloor area would be permitted in a floodway***

The site is located within Flood Storage during the 1% AEP event.

The pre-developed flood-affected area in Figure 6 is approximately 837.67 m^2. In the proposed development, the flood storage area will be increased by incorporating a sub-floor flood zone with an area of 949 m^2. The flood storage of site is 940.87 m^3

The total blockage offered by the walls and columns in the proposed building footprint at sub-floor void level (indicated by red lines in the figure below) measures to a total length of 65.12 m which is 46.95% of the total building perimeter of 138.67 m. This justifies the development provides opening of more than 50% to the perimeter of the building for the floodwater to pass through.

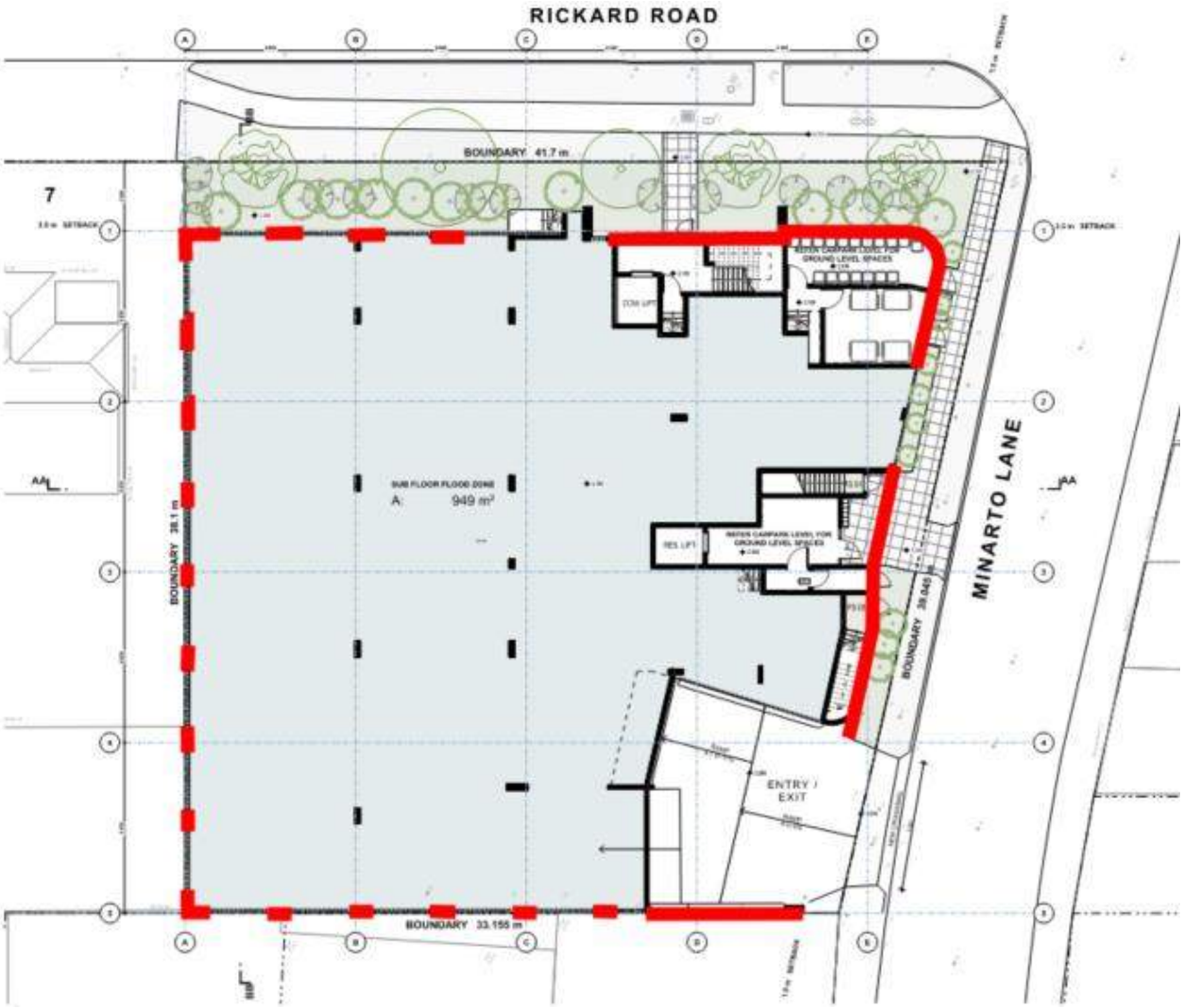

Figure 8: Blocked walls at the perimeter of Sub-Floor Area

Hence, the flood conveyance on the site will be improved and have no net loss of flood storage in all events up to the 1% AEP event.

Control 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; and***
- ***b) The Flood Planning Level is incompatible with the floor levels of the existing room; and***
- ***c) Out of the 30 square metres, not more than 10 square metres 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 floodproofed 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.

The proposed building levels are above FPL, so Control C4 is not applicable.

Control 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; and***
- ***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; and***
- ***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 floodproofed.***

The proposed building levels are above FPL, so Control C6 is not applicable.

4.4 Car Parking

Controls D1:

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

No proposed open carpark areas and carports, and the proposed enclosed carpark or garage on the ground floor is located above the 1% AEP flood level.

Therefore, control D1 is not applicable.

Controls 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.

There are no carports and carparks proposed below the 1% AEP level. The proposed level of the enclosed carpark is 3.03 m AHD, above the 1% AEP flood level.

Control D2 is not applicable.

Controls 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.

The carpark is enclosed and proposed above the 1% AEP flood level and hence does not obstruct the flood water.

Furthermore, incorporating of an open sub-floor space below the Ground floor carpark level with more than 50% of the perimeter open for floodwater to convey, the development has improved flood storage and conveyance through the site.

Controls 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.

The proposed level of the ground floor car park is 3.03 m AHD, providing flood protection for all events up to the 1% AEP flood event and hence does not warrant a barrier or restraints. However, a vehicle barrier is recommended at the top of the ramp to the ground level in order to restrict vehicles from exiting the carpark level during a flooding event.

Controls D5:

Enclosed Garages must be located at or above the 1% AEP level.

The proposed enclosed car park (or garage) is located at 1% AEP level of 3.03 m AHD to comply with this control.

Controls 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 carpark.

There is no proposed carpark below the 1% AEP level. The ground level carpark is above the 1% AEP flood level with a void under its slab facilitating flood storage and opening more than 50% of the building perimeter for smooth conveyance of the flood flow. The development does not rely on electrical, mechanical or manual exclusion of the floodwaters from entering the enclosed carpark.

4.5 Emergency Response

Controls 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; and***
- ***b) The floor space provides at least 2m2 per person where the flood duration is long (6 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.

The flood life hazard of the subject site has been assessed as H5 (refer to Figure 3). Flood Emergency Assessment has been included below. The effectiveness of the assessment/ plan is based on the reliance of evacuation for the subject site, and the plan is owned, understood and practiced by the site management, administration staff, and occupiers.

4.5.1 Flood Evacuation

The Premier can declare a state of emergency in NSW under the SERM Act if satisfied that particular circumstances exist. However, under the State Emergency Service Act 1989 (SES Act) the emergency powers may be exercised where a flood (or other hazards) occurs without the need for any declaration.

In the absence of a declaration, evacuation warnings or orders may be issued by the NSW SES or NSW Police Service.

The State Emergency Service of New South Wales (NSW SES) is responsible for providing flood updates and issuing Flood Evacuation Warnings and Flood Evacuation Orders. Flood information issued by the NSW SES may be received by local, radio and television news, SMS messaging, Facebook and door-knocking in affected communities. The timing for evacuation of persons is to be established in consultation with the NSW SES.

To increase the flood-readiness of the occupants of the property, owners/occupiers of the site should be made aware of FloodSafe kits developed by the NSW SES which aid household development of a Flood Emergency Plan. Information regarding FloodSafe kits is available from https://www.ses.nsw.gov.au/disaster-tabs-header/flood/.

There are two main forms of flood emergency response that may be adopted, evacuation and shelter-in-place strategy.

4.5.1.1 Evacuate Route

An evacuation route for vehicular access to a PMF flood-free location on Mona Vale Road is via Rickard Road shown in Figure 9.

The decision to evacuate should be made in consultation with emergency services. Once Rickard Road is inundated, evacuation of the site is no longer safe.

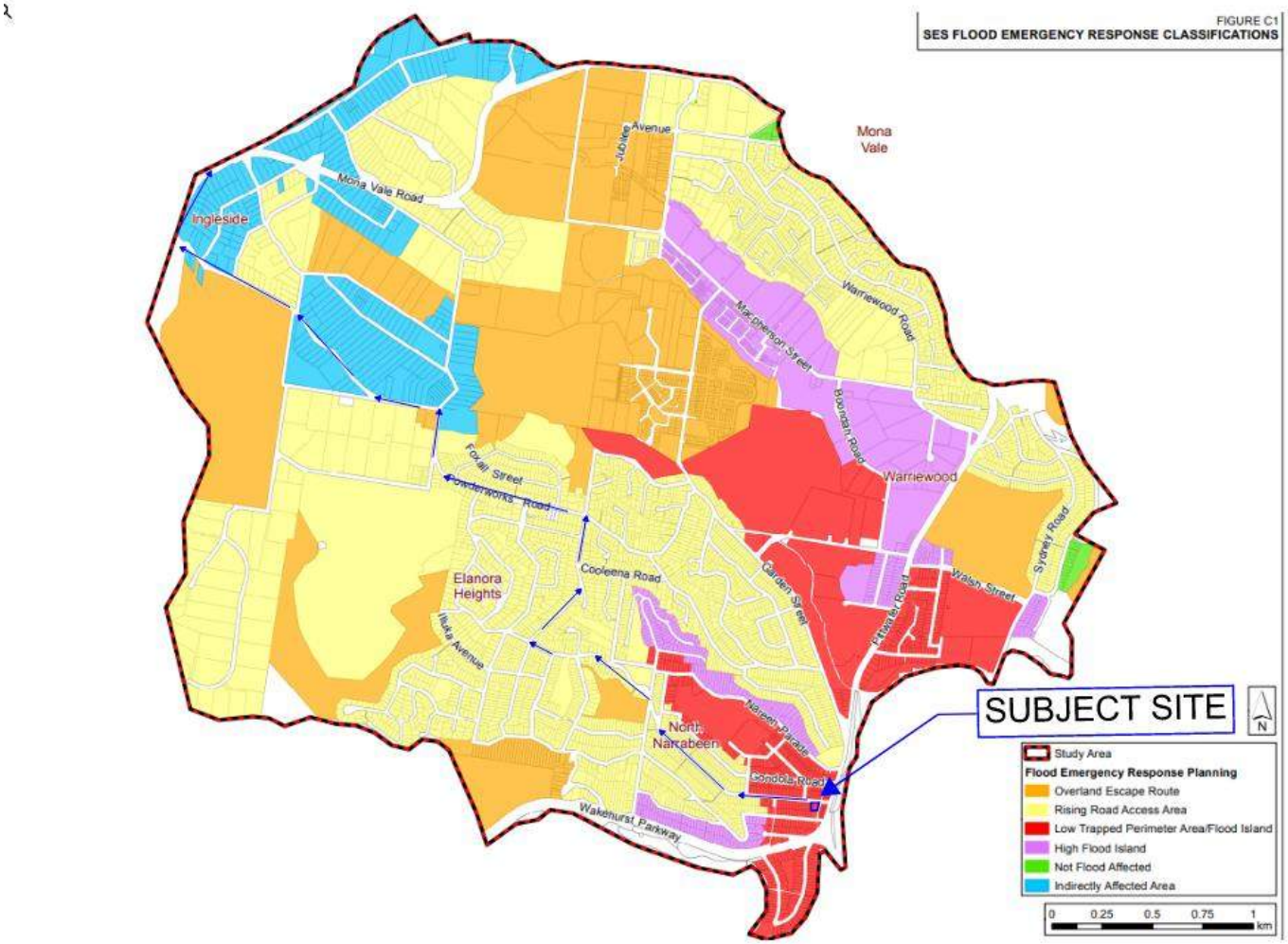

Figure 9: Evacuation Route (extracted from Ingleside, Elanora and Warriewood Overland Flow Flood Study)

4.5.1.2 Shelter-in-place Refuge

Evacuation can be an effective strategy if there is sufficient time available and evacuation is properly planned and executed. Evacuation is dependent on flood warning time and effective warning time and time to enact the evacuation before evacuation routes are cut or emergency services are no longer able to rescue the occupants due to unsafe weather or flood conditions or because they are overwhelmed.

The alternative solution to evacuating the building is to shelter within the building on the first floor or upper floors until floodwaters subside or emergency services advise otherwise.

The level 1 and upper levels of the building can be utilized as a flood-free communal refuge area. The stairs in the building will offer a reliable safe access route for all occupants to the refuge area. There should be sufficient clean water for all occupants, portable radio and torch with spare batteries and a first aid kit in the refuge area.

The proposed level 1 FFL (6.03 m AHD) and upper residential levels (≥ 9.63 m AHD) are located above the PMF (4.40 m AHD), allowing occupants to shelter within the building during any flood event up to and including the PMF.

Additionally, for the shelter-in-place strategy, a safe refuge area must be provided with a minimum of 2m^2 of floor space per person. The calculated number of occupants (based on the number of parking bays), required area, and available floor area are listed in Table 3.

Table 3 - Required Area and Available Floor Area

Floor	Number of Parking Bays	Occupants (assuming each car has four people)	Required Area	Available Floor Area
Level 1 Commercial/ Retail	8 commercial parking spaces	32	64 m^2	1180 m^2
2x Residential Levels	28 resident parking bays	112	224 m^2	2726 m^2

4.6 Fencing

Control 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.

All fencing around the tennis courts within the overland flow path shall be of an open type to allow for the free flow of floodwaters throughout the site.

4.7 Storage of Goods

Control 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.

Storage areas for hazardous materials and valuable goods are proposed to be stored at 3.03 m AHD or above, which is located above the 1% AEP level.

The proposed storage areas shall be constructed from flood compatible materials to elevation 4.40 m AHD (FPL) and protected from floodwaters in accordance with industry standards.

4.8 Pools

Control 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.

There is no proposed pool, so this control is not applicable to the site.

5 Conclusion

Based on available information, the proposed development has been assessed against Pittwater DCP Clause B3.11.

The site has been assessed as Medium and High Risk Precincts, and Flood Life Hazard Category in PMF has been assessed as H5.

It is anticipated the 1% AEP floodwaters impact the site at elevation 3.03 m AHD, causing inundation of the site up to 1.21 m depths, while the PMF floodwaters impact the site frontage at elevation 4.90 m AHD.

The first floor (6.03 m AHD) and habitable floor level (≥ 9.63 m AHD) are located above the FPL (4.40 m AHD), hence enabling shelter-in-place arrangements during all storms up to and including the PMF.

The flood affectation of the site is not increased or made worse by the proposed development due to a net increase of 161.84 m^3 in flood storage.

We trust the above complies with Northern Beaches Council's flood requirements upon the proposed development. If there are any queries or wish to discuss anything further, please do not hesitate to contact the undersigned.

Yours faithfully,

ACOR Consultants Pty Ltd

Kundan Pokharel

Senior Engineer - Civil

CPEng, NER, APEC Engineer, IntPE(AUS)

Appendix A Proposed Architectural Plans

DEVELOPMENT APPLICATION FOR NEW SHOP TOP HOUSING
1-5 RICKARD ROAD NORTH NARRABEEN

DEVELOPMENT APPLICATION DRAWING LIST	
No:	**Drawing Name**
DA 00	COVER
DA 01	CONTEXT ANALYSIS PLAN
DA 02	DEMOLITION PLAN
DA 03	SITE PLAN
DA 04	SUB FLOOR FLOOD ZONE
DA 05	GROUND PARKING LEVEL
DA 06	COMMERCIAL/RETAIL LEVEL
DA 07	RESIDENTIAL LEVEL 01
DA 08	RESIDENTIAL LEVEL 02
DA 09	ROOF LEVEL
DA 10	ELEVATIONS NORTH + EAST
DA 11	ELEVATIONS SOUTH + WEST
DA 12	SECTIONS
DA 13	AREA CALCULATIONS
DA 14	3D VIEWS
DA 15	SHADOW DIAGRAMS
DA 16	SUN ACCESS DIAGRAMS

APARTMENT SCHEDULE				
	BEDS	**AREA**	**SOLAR =**	**VENT =**
01	2 BED	80.86	YES	YES
02	3 BED	95.86	YES	NO
03	2 BED	76.92	YES	NO
04	3 BED	98.66	YES	YES
05	2 BED (A)	87.98	NO	NO
06	3 BED (A)	102.73	NO	YES
07	2 BED	77.14	NO	YES
08	2 BED	78.54	NO	NO
	LEVEL 01	698.69 m²		
09	3 BED	98.28	YES	YES
10	3 BED	95.85	YES	YES
11	2 BED	76.92	YES	YES
12	3 BED	98.67	YES	YES
13	2 BED (A)	88.01	YES	YES
14	3 BED	102.73	YES	YES
15	2 BED	77.14	YES	YES
16	2 BED	78.54	YES	YES
	LEVEL 02	716.14 m²	**12/16**	**12/16**
	TOTAL	**1 414.83 m²**	**75%** (70)	**75%** (60)

WALL TYPES LEGEND

A1 - LIGHT-WEIGHT EXTERNAL WALL
- FIBRE CEMENT WEATHERBOARD CLADDING
- 50 MM BATTEN
- VAPOUR PERMEABLE SARKING
- 16 MM THICK FIRE AND WATER-RESISTANT PLASTERBOARD
- 92 MM STEEL STUD
- GLASS WOOL INSULATION R = 2.5
- 16 MM THICK FIRE-RESISTANT PLASTERBOARD

A2 - STRUCTURAL EXTERNAL WALL WITH FRL
- FIBRE CEMENT CLADDING
- 50 MM BATTEN
- VAPOUR PERMEABLE SARKING
- 150 MM THICK AFS CONCRETE WALL
- 20 MM AIR GAP
- 64 MM STEEL STUD
- GLASS WOOL INSULATION R = 2.5
- 13 MM THICK PLASTERBOARD

A3 - STRUCTURAL WALL WITH FRL
- FIBRE CEMENT CLADDING
- 50 MM BATTEN
- VAPOUR PERMEABLE SARKING
- 150 MM THICK AFS CONCRETE WALL
- VAPOUR PERMEABLE SARKING
- 50 MM BATTEN
- FIBRE CEMENT CLADDING

B1 - INTERTENANCY WALL - NON-LOAD BEARING
- 13 MM PLASTERBOARD
- 35 MM CHANNEL
- 50 MM BRADFORD ACOUSTIGARD 11 ACOUSTIC INSULATION
- 75 MM HEBEL POWER PANEL
- 20 MM MINIMUM AIR GAP
- 64 MM STEEL STUD
- 75 MM BRADFORD ACOUSTIGARD 11 ACOUSTIC INSULATION
- 13 MM PLASTERBOARD

B2 - INTERTENANCY WALL - LOAD BEARING
- 13 MM PLASTERBOARD
- 35 MM CHANNEL
- 50 MM BRADFORD ACOUSTIGARD 11 ACOUSTIC INSULATION
- 150 MM MINIMUM AFS CONCRETE WALL
- 20 MM MINIMUM AIR GAP
- 64 MM STEEL STUD
- 75 MM BRADFORD ACOUSTIGARD 11 ACOUSTIC INSULATION
- 13 MM PLASTERBOARD

C1 - INTERNAL PARTITION WALL
- 13 MM PLASTERBOARD
- 64 MM STEEL STUD
- 75 MM BRADFORD ACOUSTIGARD 11 ACOUSTIC INSULATION
- 13 MM PLASTERBOARD

GARTNERTROVATO
ARCHITECTS
SEAN GARTNER 6072 | LUKE TROVATO 7094
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Date	Rev	Description	Drawn	Checked
JUL. 2024	A	ISSUE FOR DA		

1-5 RICKARD ROAD, NORTH NARRABEEN
SHOP TOP HOUSING
LOTS 7, 8, 9 DP 16212

COVER

SCALE	DRAWN BY	DATE
@ A1	DH	9/07/2024
PROJECT NO.	DRAWING NO.	REVISION
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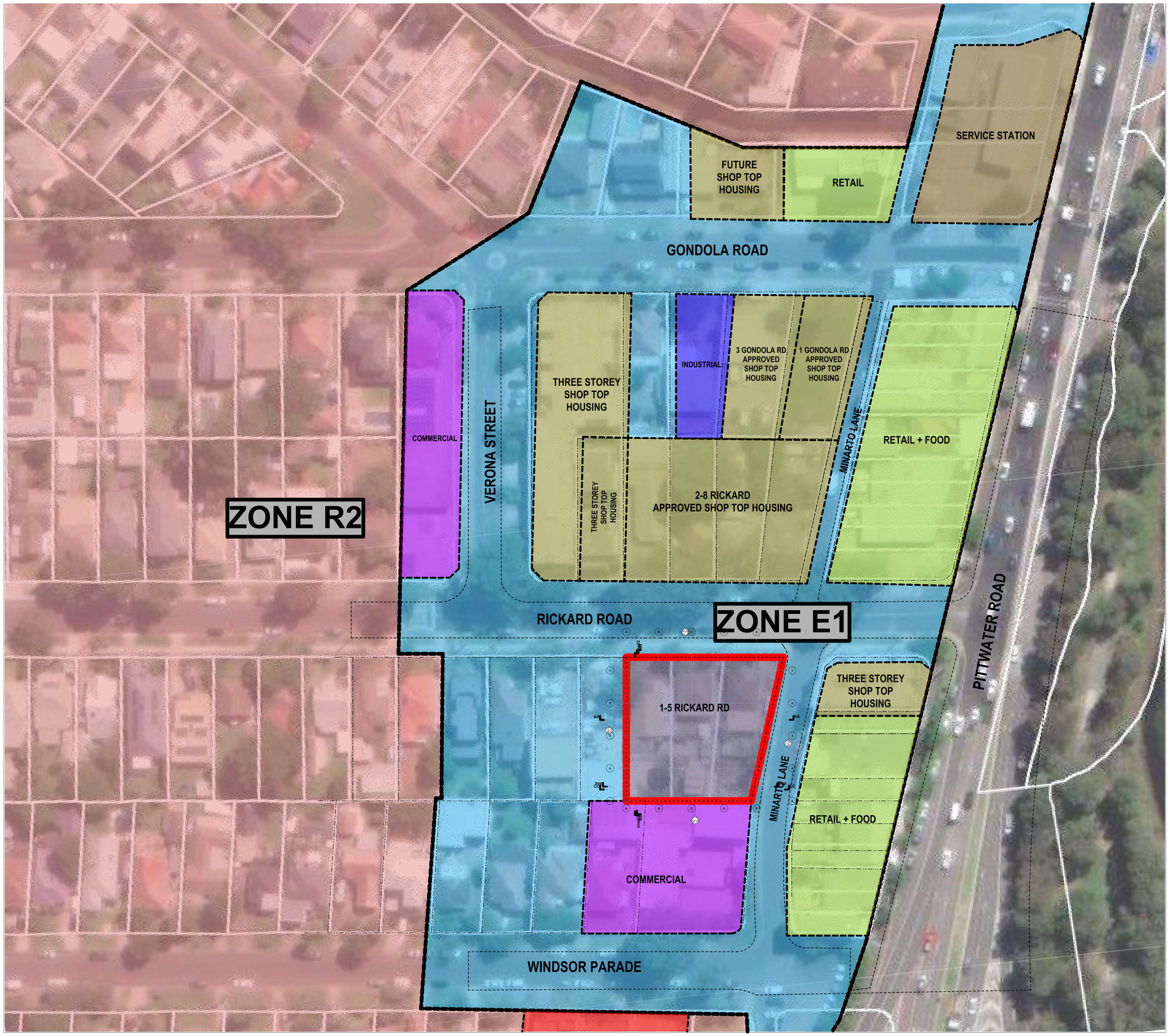

GARTNERTROVATO
ARCHITECTS
SEAN GARTNER 6072 | LUKE TROVATO 7094
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CONTEXT ANALYSIS PLAN

SCALE	DRAWN BY	DATE
1:500 @ A1	DH	9/07/2024
PROJECT NO.	DRAWING NO.	REVISION
2315	DA 01	A

RICKARD ROAD

7

BOUNDARY 41.7 m

TREE
0.4 Ø
7H
6S

CONCRETE PATH

TREE
0.3 Ø
5H
4S

TREE
0.3 Ø
3H
4S

PAVING

PAVING

CONCRETE

TREE
0.6 Ø
10H
14S

F/C RESIDENCE
METAL ROOF
No.3

F/C BUILDING
METAL ROOF
No.5

F/C RESIDENCE
METAL ROOF
No.1

CONCRETE
LANDING

BOUNDARY 38.1 m

MINARTO LANE

METAL
SHED

BOUNDARY 39.045 m

CONCRETE

CONCRETE

METAL
ROOF

METAL
SHED

TREE
1.0 Ø
10H
6S

METAL
ROOF

PALM
0.7 Ø
10H
6S

CONCRETE

METAL
SHED

METAL
SHED

METAL &
F/C ROOF

METAL
ROOF

METAL
SHED

BOUNDARY 33.155 m

1473
PITTWATER ROAD

1469

1465

1463

1461

DEMOLITION PLAN

GARTNERTROVATO
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1-5 RICKARD ROAD, NORTH NARRABEEN

SHOP TOP HOUSING

LOTS 7, 8, 9 DP 16212

DEMOLITION PLAN

SCALE	DRAWN BY	DATE
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PROJECT NO.	DRAWING NO.	REVISION
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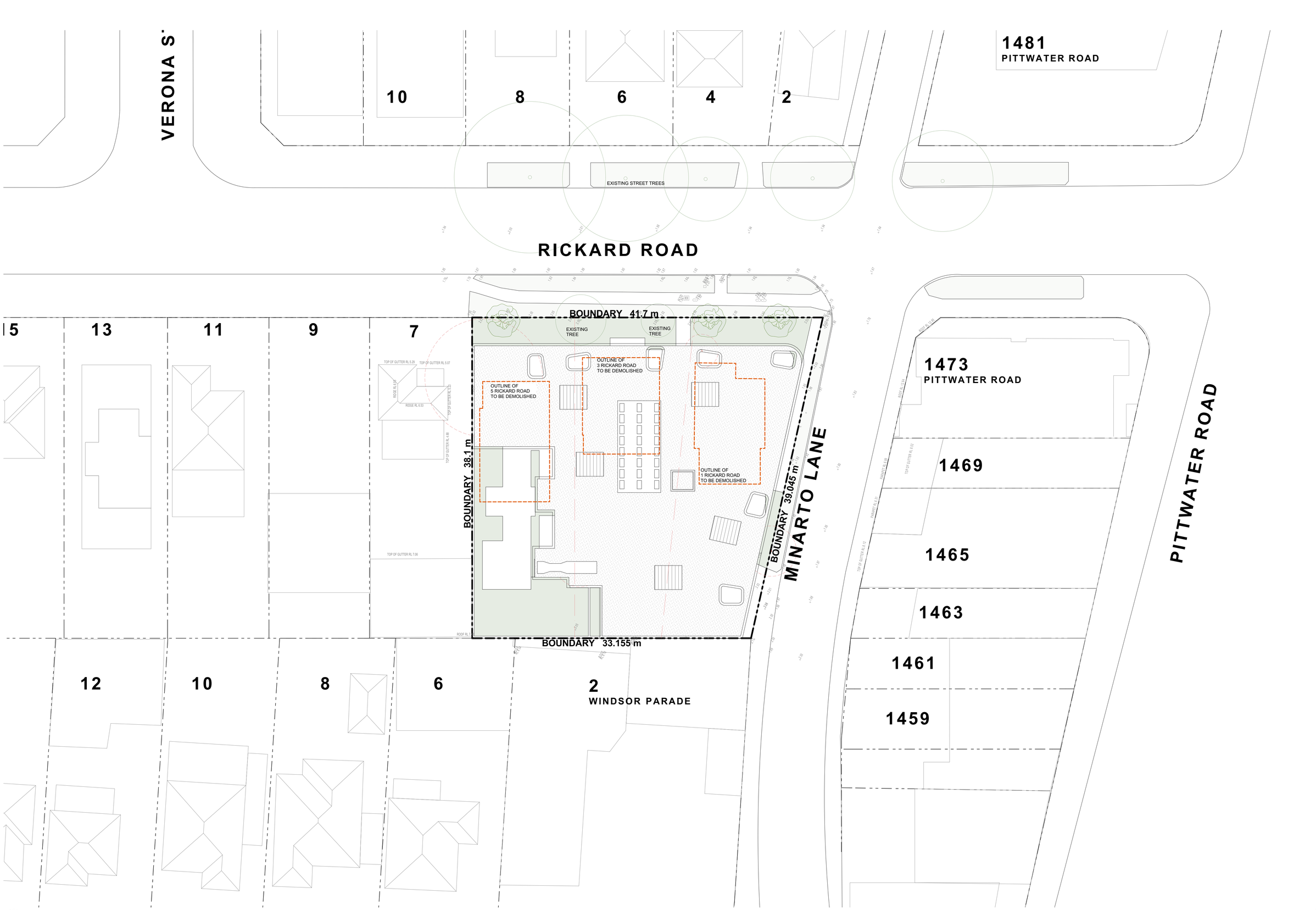

SITE PLAN

GARTNERTROVATO
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1-5 RICKARD ROAD, NORTH NARRABEEN

SHOP TOP HOUSING

LOTS 7, 8, 9 DP 16212

SITE PLAN

SCALE	DRAWN BY	DATE
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PROJECT NO.	DRAWING NO.	REVISION
2315	DA 03	A

GARTNERTROVATO
ARCHITECTS
NOMINATED ARCHITECTS
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1-5 RICKARD ROAD, NORTH NARRABEEN
SHOP TOP HOUSING
LOTS 7, 8, 9 DP 16212

SUB FLOOR FLOOD ZONE

SCALE	DRAWN BY	DATE
1:100 @ A1	DH	9/07/2024
PROJECT NO.	DRAWING NO.	REVISION
2315	DA 04	A

RICKARD ROAD

BOUNDARY 41.7 m

BOUNDARY 38.1 m

BOUNDARY 39.045 m

BOUNDARY 33.155 m

1.5 m SETBACK

3.5 m SETBACK

MINARTO LANE

NEW CROSSSING

EXISTING FOOTPATH

7

1473
PITTWATER ROAD

1469

1465

1463

1461

NEW TREE

EXISTING TREE

NEW TREE

EXISTING TREE

NEW TREE

NEW TREE

COMM. LOBBY
A: 19 m²

RES. BINS - 18

COM. LIFT

BIKES x 4

COM. 1100L BINS - 4

SHARED ZONE

RESIDENTIAL 15 SPACES
A: 630 m²

RES. STORAGE - 10

RES. LOBBY
A: 18 m²

RES. LIFT

FS 01

LETTERBOXES

SECURITY GATE

FS 03

BULKY GOODS
A: 19 m²

FIRE HYDRANT BOOSTER

COMMERCIAL 8 SPACES
A: 194 m²

SHARED ZONE

SIGHT LINE

2.0 m

0.5 m

ENTRY / EXIT

RAMP 5 m 12.5%

RAMP 4.7 m 11%

RAMP 6 m 5%

RAMP 25%

RAMP 18%

RAMP 11%

SECURITY GATE

SECURITY GATE

1 RESIDENT
2 RESIDENT
3 RESIDENT
4 RESIDENT
5 RESIDENT
6 RESIDENT
7 RESIDENT
8 RESIDENT
9 RESIDENT
10 RESIDENT
11 RESIDENT
12 RESIDENT
13 RESIDENT
14 RESIDENT
15 RESIDENT

1 COM.
2 COM.
3 COM.
4 COM.
2 VISITOR
5 COM.
6 COM.
7 COM.
8 COM.
1 VISITOR
3 VISITOR

AA

BB

GROUND FLOOR CARPARK

GARTNERTROVATO
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SHOP TOP HOUSING
LOTS 7, 8, 9 DP 16212

GROUND PARKING LEVEL

SCALE	DRAWN BY	DATE
1:100 @ A1	DH	9/07/2024
PROJECT NO.	DRAWING NO.	REVISION
2315	DA 05	A

RICKARD ROAD

BOUNDARY 41.7 m

1.5 m SETBACK

7

3.5 m SETBACK

COMMERCIAL 01 A: 64 m²

COMMERCIAL 02 A: 64 m²

COMMERCIAL 03 A: 64 m²

COM. LOBBY A: 52 m²

F. WC A: 9 m²

COM. LIFT

M. WC A: 7 m²

ELEC.

CLNR. STORE

ACC. WC A: 7 m²

COMMERCIAL 04 A: 64 m²

COMMERCIAL 05 A: 64 m²

EXIT

FS 01

STORE

RES. LOBBY A: 12 m²

RES. LIFT

MC 01

MC 02

RESIDENT 16

RESIDENT 17

RESIDENT 18

RESIDENT 19

RESIDENT 20

RESIDENT 21

RES. PARKING 16 A: 672 m²

MOTOR BIKES

RESIDENT 31

RESIDENT 22

RESIDENT 23

RESIDENT 24

RESIDENT 25

RESIDENT 26

RESIDENT 27

RESIDENT 28

RESIDENT 29

RESIDENT 30

BIKES x 6

FS 03

EXHAUST OVER

SERVICES

RAMP

VOID

SERVICES

RES. STORAGE - 6

BOUNDARY 38.1 m

BOUNDARY 39.045 m

BOUNDARY 33.155 m

1.5 m SETBACK

MINARTO LANE

1473 PITTWATER ROAD

1469

1465

1463

1461

COMMERCIAL RETAIL

GARTNERTROVATO ARCHITECTS

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1-5 RICKARD ROAD, NORTH NARRABEEN

SHOP TOP HOUSING

LOTS 7, 8, 9 DP 16212

COMMERCIAL/RETAIL LEVEL

SCALE	DRAWN BY	DATE
1:100 @ A1	DH	9/07/2024
PROJECT NO.	DRAWING NO.	REVISION
2315	DA 06	A

RICKARD ROAD

BOUNDARY 41.7 m

BOUNDARY 38.1 m

BOUNDARY 39.045 m

BOUNDARY 33.155 m

MINARTO LANE

1.5 m SETBACK

3.5 m SETBACK

7

1473
PITTWATER ROAD

1469

1465

1463

1461

12 noon
3 pm
9 am
10:30 am
9:30 am
8:30 am

01
2 BED
A: 81 m²
SOLAR: YES
VENT: YES

02
3 BED
A: 96 m²
SOLAR: YES
VENT: NO

03
2 BED
A: 77 m²
SOLAR: YES
VENT: NO

04
3 BED
A: 99 m²
SOLAR: YES
VENT: YES

05
2 BED (A)
A: 88 m²
SOLAR: NO
VENT: NO

06
3 BED (A)
A: 103 m²
SOLAR: NO
VENT: YES

07
2 BED
A: 77 m²
SOLAR: NO
VENT: YES

08
2 BED
A: 75 m²
SOLAR: NO
VENT: NO

LOBBY
A: 67 m²

RES. LIFT

FS 02

STORE

COMMUNAL SPACE
A: 77 m²

PARKING EXHAUST

RESIDENTIAL 01

GARTNERTROVATO
ARCHITECTS
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Date	Rev	Description	Drawn	Checked
JUL. 2024	A	ISSUE FOR DA		

1-5 RICKARD ROAD, NORTH NARRABEEN
SHOP TOP HOUSING
LOTS 7, 8, 9 DP 16212

RESIDENTIAL LEVEL 01

SCALE	DRAWN BY	DATE
1:100 @ A1	DH	9/07/2024
PROJECT NO.	DRAWING NO.	REVISION
2315	DA 07	A

RICKARD ROAD

12 noon
3 pm
9 am

A 8 650 B 8 650 C 8 650 D 8 650 E

1.5 m SETBACK

BB

BOUNDARY 41.7 m

7

3.5 m SETBACK

1 3.5 m SETBACK

2

AA

BOUNDARY 38.1 m

3

4

5

MINARTO LANE

BOUNDARY 39.045 m

10:30 am
9:30 am
8:30 am

3 pm

BOUNDARY 33.155 m

1.5 m SETBACK

1473
PITTWATER ROAD

1469

1465

1463

1461

TOP OF GUTTER RL 5.07
RIDGE RL 6.53
TOP OF GUTTER RL 5.33
TOP OF GUTTER RL 4.88
TOP OF GUTTER RL 7.06
ROOF RL 7.42
RIDGE RL 6.18
TOP OF GUTTER RL 6.13
TOP OF GUTTER RL 6.83

TERRACE A: 12 m²
TERRACE A: 10 m²
TERRACE A: 13 m²

BED 1 A: 12 m²
BED 1 A: 11 m²
BED 1 A: 13 m²
BED 1 A: 14 m²
BED 2 A: 10 m²
BED 2 A: 9 m²
BED 3 A: 10 m²
BED 3 A: 11 m²
BED 3 A: 9 m²

3 BED 09 A: 98 m² SOLAR:YES VENT:YES
3 BED 10 A: 96 m² SOLAR:YES VENT:YES
2 BED 11 A: 77 m² SOLAR:YES VENT:YES
3 BED 12 A: 99 m² SOLAR:YES VENT:YES
2 BED 13 A: 88 m² SOLAR:YES VENT:YES
3 BED 14 A: 103 m² SOLAR:YES VENT:YES
2 BED 15 A: 77 m² SOLAR:YES VENT:YES
2 BED 16 A: 79 m² SOLAR:YES VENT:YES

LOBBY A: 62 m²
FS 02
RES. LIFT
STORE
PARKING EXHAUST

RESIDENTIAL 02

GARTNERTROVATO
ARCHITECTS
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Date	Rev	Description	Drawn	Checked
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1-5 RICKARD ROAD, NORTH NARRABEEN
SHOP TOP HOUSING
LOTS 7, 8, 9 DP 16212

RESIDENTIAL LEVEL 02

SCALE	DRAWN BY	DATE
1:100 @ A1	DH	9/07/2024
PROJECT NO.	DRAWING NO.	REVISION
2315	DA 08	A

RICKARD ROAD

A B C D E

8 650 | 8 650 | 8 650 | 8 650

1.5 m SETBACK

BB

BOUNDARY 41.7 m

7

3.5 m SETBACK

1 2 3 4 5

3 500 | 8 650 | 8 650 | 8 650 | 8 650

GUTTER RL 5.29

TOP OF GUTTER RL 5.07

RIDGE RL 6.58

RIDGE RL 6.53

TOP OF GUTTER RL 5.23

TOP OF GUTTER RL 4.88

AA

BOUNDARY 38.1 m

15.930

VOID | VOID | VOID | VOID | VOID

W.441
2 450 x 800
METAL ROOF

W.442
2 450 x 800
METAL ROOF

15.930

W.445
2 450 x 800
17.130
METAL ROOF

A/C UNITS
15.930

17.470
LIFT

VOID

W.443
2 450 x 800
METAL ROOF

CAR PARK EXHAUST

METAL ROOF

VOID

IP OF GUTTER RL 7.06

ROOF RL 7.42

BOUNDARY 39.045 m

MINARTO LANE

BOUNDARY 33.155 m

ROOF RL 6.34 | ROOF RL 6.74 | ROOF RL 7.14

1.5 m SETBACK

BB

ROOF LEVEL

1473
PITTWATER ROAD

RIDGE RL 9.74

1469

RIDGE RL 8.86

TOP OF GUTTER RL 8.63

RIDGE RL 8.31

1465

TOP OF GUTTER RL 8.12

1463

1461

GARTNERTROVATO
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1-5 RICKARD ROAD, NORTH NARRABEEN

SHOP TOP HOUSING

LOTS 7, 8, 9 DP 16212

ROOF LEVEL

SCALE	DRAWN BY	DATE
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PROJECT NO.	DRAWING NO.	REVISION
2315	DA 09	A

NORTH ELEVATION

EAST ELEVATION

GARTNERTROVATO
ARCHITECTS
SEAN GARTNER 6072 | LUKE TROVATO 7094
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Date	Rev	Description	Drawn	Checked
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1-5 RICKARD ROAD, NORTH NARRABEEN

SHOP TOP HOUSING

LOTS 7, 8, 9 DP 16212

ELEVATIONS NORTH + EAST

SCALE	DRAWN BY	DATE
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PROJECT NO.	DRAWING NO.	REVISION
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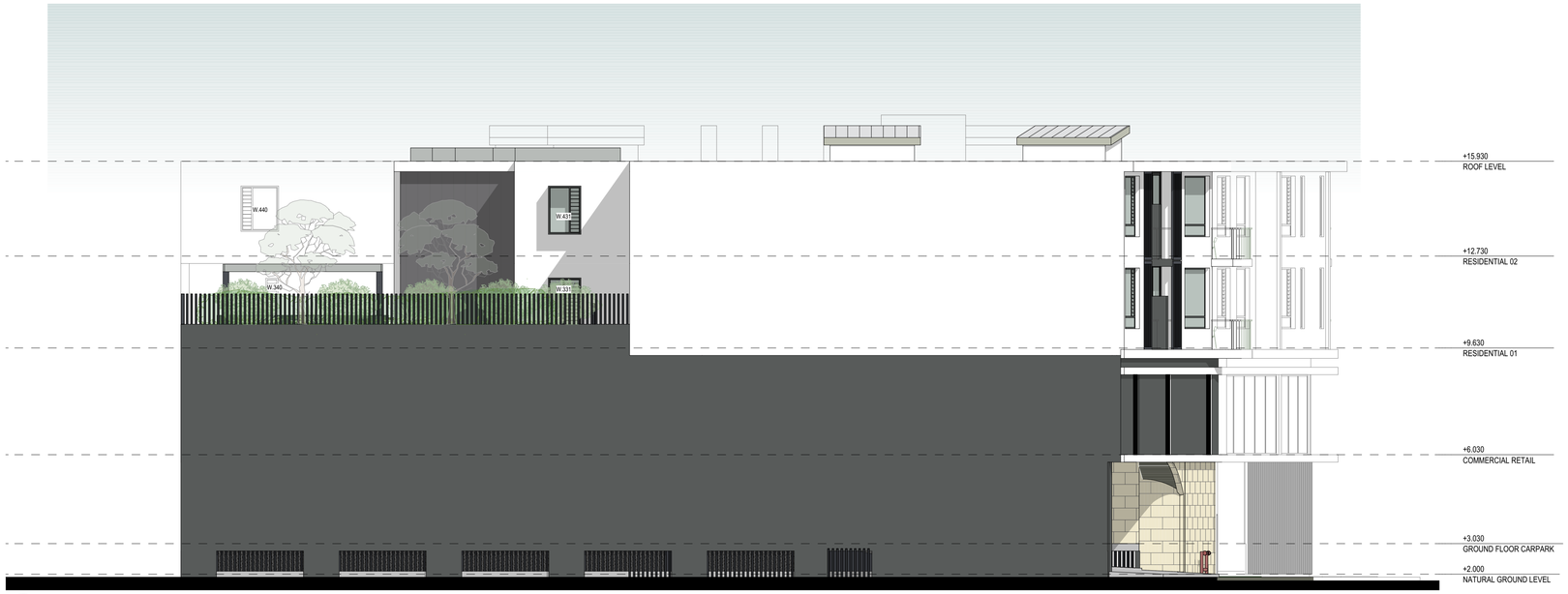

SOUTH ELEVATION

WEST ELEVATION

GARTNERTROVATO
ARCHITECTS
SEAN GARTNER 6072 | LUKE TROVATO 7094
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Date	Rev	Description	Drawn	Checked
JUL. 2024	A	ISSUE FOR DA		

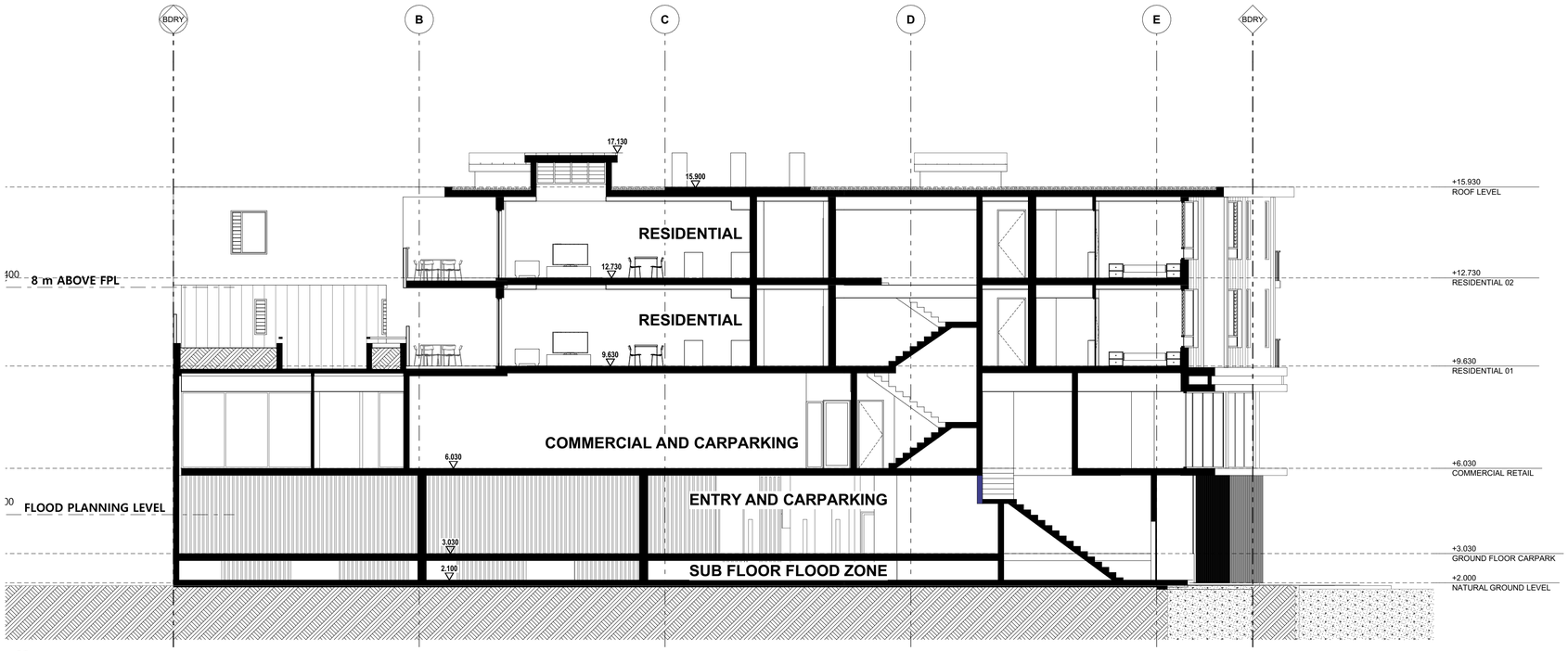
1-5 RICKARD ROAD, NORTH NARRABEEN

SHOP TOP HOUSING

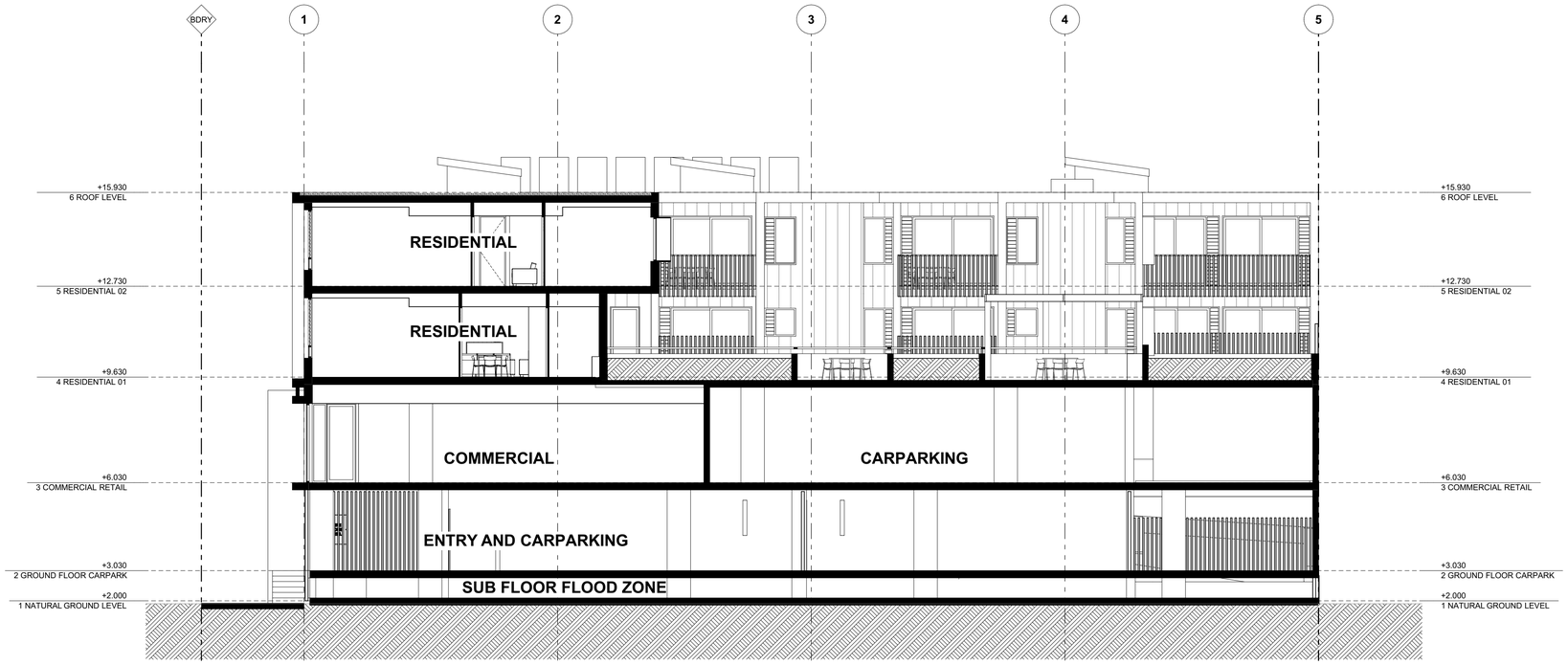
LOTS 7, 8, 9 DP 16212

ELEVATIONS SOUTH + WEST

SCALE	DRAWN BY	DATE
1:100 @ A1	DH	9/07/2024
PROJECT NO.	DRAWING NO.	REVISION
2315	DA 11	A



SECTION A



SECTION B

GARTNERTROVATO
ARCHITECTS
SEAN GARTNER 6272 | LUKE TROVATO 7094
A 1/113-10 PARK STREET
PITTWATER PLACE
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Date	Rev	Description	Drawn	Checked
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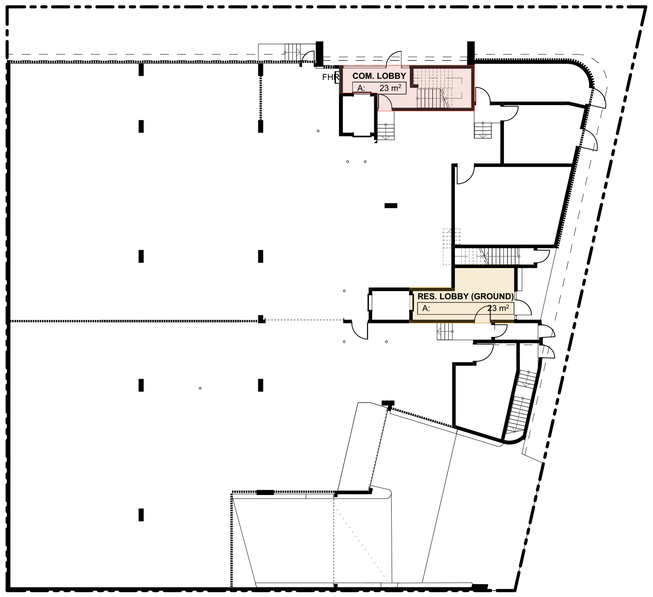
1-5 RICKARD ROAD, NORTH NARRABEEN

SHOP TOP HOUSING

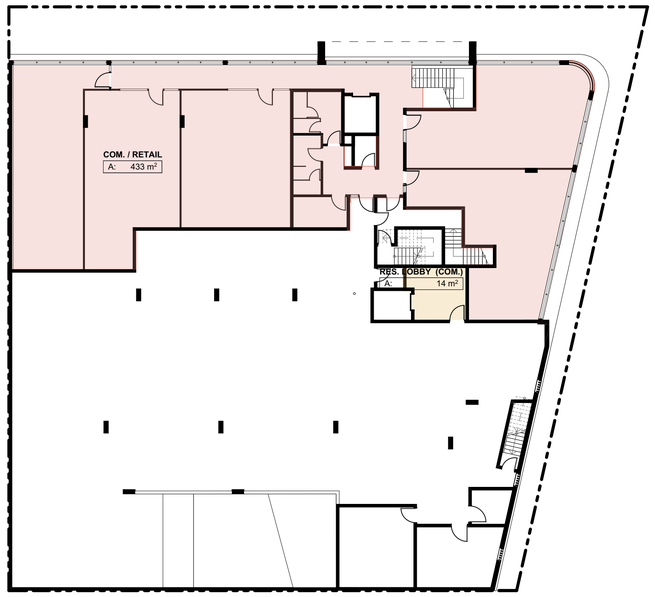
LOTS 7, 8, 9 DP 16212

SECTIONS

SCALE	DRAWN BY	DATE
1:100 @ A1	DH	9/07/2024
PROJECT NO.	DRAWING NO.	REVISION
2315	DA 12	A



CARPARK LEVEL GFA



COMMERCIAL RETAIL GFA

RESIDENTIAL 01 GFA

RESIDENTIAL 02 GFA

GFA SCHEDULE	
Zone Name	**Measured Area**
COM. / RETAIL	432.78
COM. LOBBY	23.35
RES. LEVEL 01	844.00
RES. LEVEL 02	857.96
RES. LOBBY (COM.)	13.59
RES. LOBBY (GROUND)	22.67
	2 194.35 m²

SITE AREA **1 425.8 m²**

COMMERCIAL 456 m² (21%)
RESIDENTIAL 1 738 m²

TOTAL GFA **2 194 m²**

FSR (PROPOSED) **1.54 : 1**

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Date	Rev	Description	Drawn	Checked
JUL. 2024	A	ISSUE FOR DA		

1-5 RICKARD ROAD, NORTH NARRABEEN
SHOP TOP HOUSING
LOTS 7, 8, 9 DP 16212

AREA CALCULATIONS

SCALE	DRAWN BY	DATE
1:200 @ A1	DH	9/07/2024
PROJECT NO.	DRAWING NO.	REVISION
2315	DA 13	A

RICKARD ROAD 02

RICKARD ROAD 03

RICKARD ROAD 01

MINARTO LANE 01

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Date	Rev	Description	Drawn	Checked
JUL. 2024	A	ISSUE FOR DA		

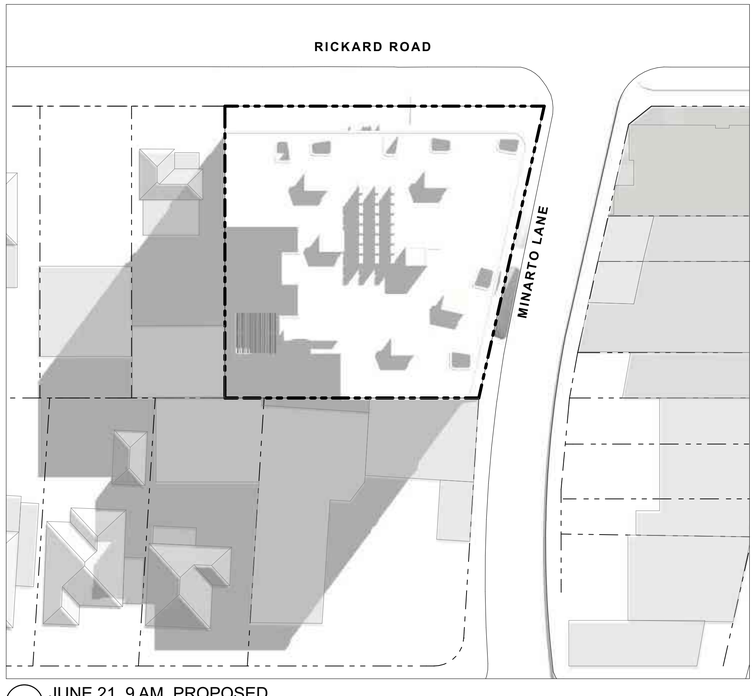
1-5 RICKARD ROAD, NORTH NARRABEEN

SHOP TOP HOUSING

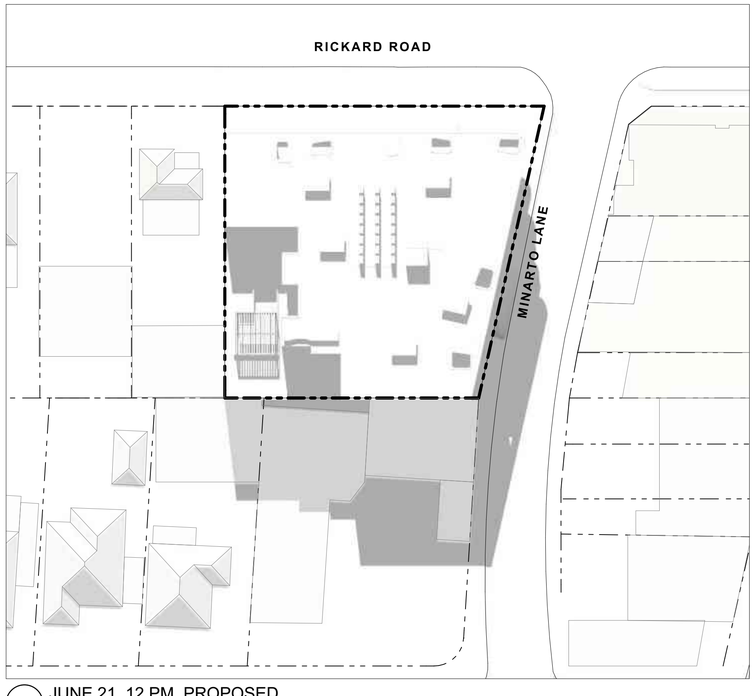
LOTS 7, 8, 9 DP 16212

3D VIEWS

SCALE	DRAWN BY	DATE
@A1	DH	9/07/2024
PROJECT NO.	DRAWING NO.	REVISION
2315	DA 14	A

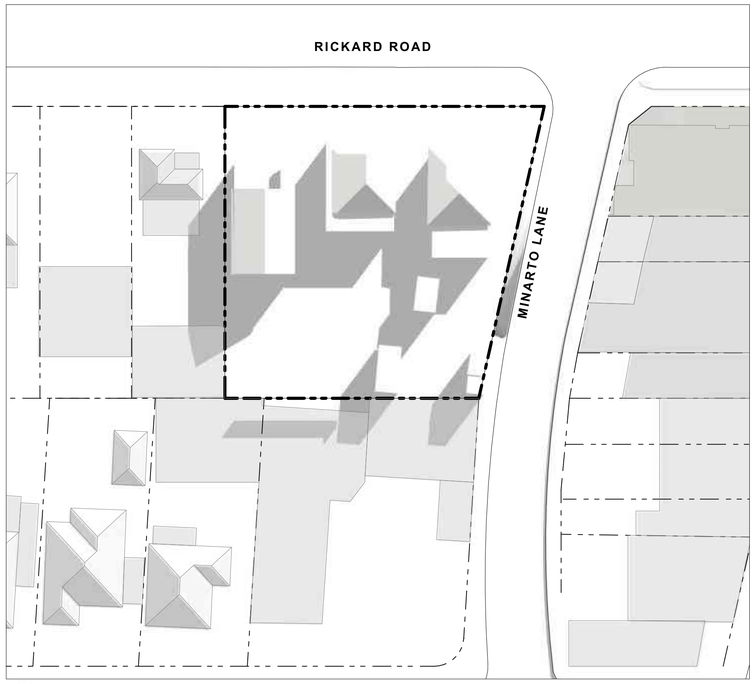


JUNE 21 9 AM PROPOSED

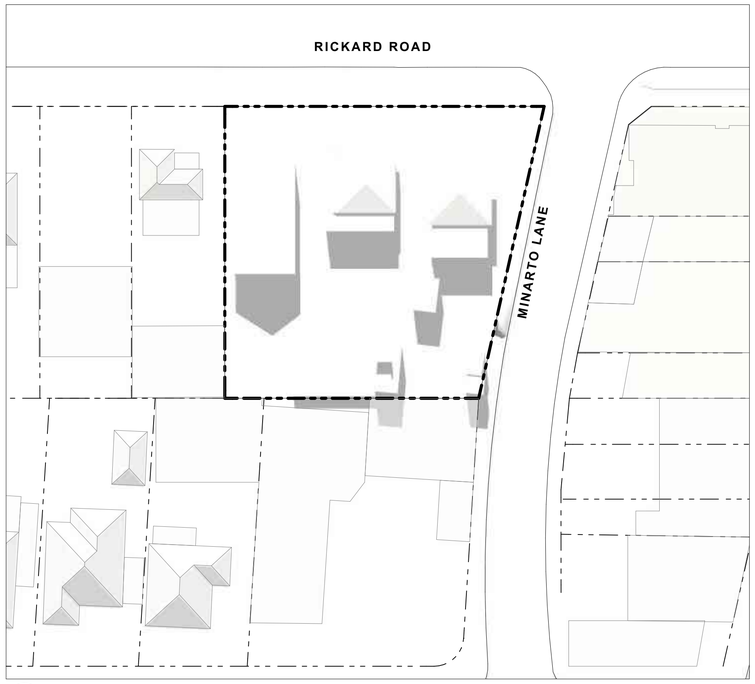


JUNE 21 12 PM PROPOSED

JUNE 21 3 PM PROPOSED



JUNE 21 9 AM EXISTING



JUNE 21 12 PM EXISITING

JUNE 21 3 PM EXISTING

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Date	Rev	Description	Drawn	Checked
JUL. 2024	A	ISSUE FOR DA		

1-5 RICKARD ROAD, NORTH NARRABEEN

SHOP TOP HOUSING

LOTS 7, 8, 9 DP 16212

SHADOW DIAGRAMS

SCALE	DRAWN BY	DATE
1:200 @ A1	DH	9/07/2024
PROJECT NO.	DRAWING NO.	REVISION
2315	DA 15	A

JUNE 21 8:30 AM VIEW FROM SUN

JUNE 21 9:30 AM VIEW FROM SUN

JUNE 21 10:30 AM VIEW FROM SUN

JUNE 21 9 AM VIEW FROM SUN

JUNE 21 10 AM VIEW FROM SUN

JUNE 21 11 AM VIEW FROM SUN

JUNE 21 12 PM VIEW FROM SUN

JUNE 21 1 PM VIEW FROM SUN

JUNE 21 2 PM VIEW FROM SUN

JUNE 21 3 PM VIEW FROM SUN

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Date	Rev	Description	Drawn	Checked
JUL. 2024	A	ISSUE FOR DA		

1-5 RICKARD ROAD, NORTH NARRABEEN

SHOP TOP HOUSING

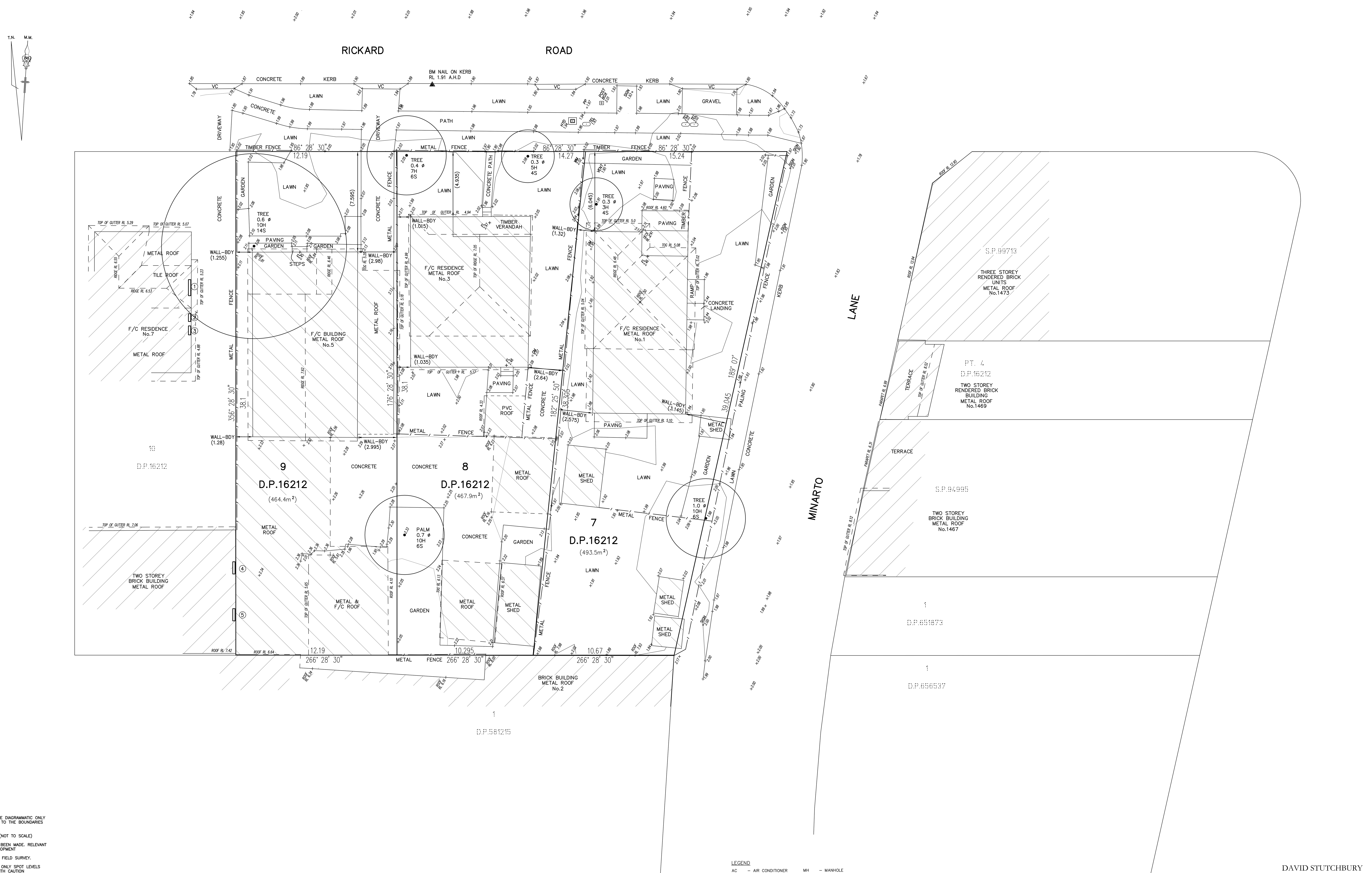
LOTS 7, 8, 9 DP 16212

SUN ACCESS DIAGRAMS

SCALE	DRAWN BY	DATE
@A1	DH	9/07/2024
PROJECT NO.	DRAWING NO.	REVISION
2315	DA 16	A

Appendix B Site Survey Plan

AO



SCHEDULE OF WINDOWS

No.	SILL RL	HEAD RL
1	3.53	4.70
2	4.12	4.68
3	4.13	4.68
4	NOT VISIBLE	6.78
5	NOT VISIBLE	6.78

NOTES:

1. THE POSITION OF IMPROVEMENTS TO BOUNDARIES ARE DIAGRAMMATIC ONLY UNLESS STATED. THE LOCATION OF BUILDINGS RELATIVE TO THE BOUNDARIES HAS BEEN DETERMINED AND ARE SHOWN ON THE PLAN.
2. POSITION OF RIDGE LINES ARE DIAGRAMMATIC ONLY (NOT TO SCALE)
3. NO INVESTIGATION OF UNDERGROUND SERVICES HAS BEEN MADE. RELEVANT AUTHORITIES ARE TO BE NOTIFIED PRIOR TO ANY DEVELOPMENT
4. BOUNDARIES OF THE SITE HAVE BEEN IDENTIFIED BY FIELD SURVEY.
5. CONTOURS ARE INDICATIVE OF GROUND FORM ONLY. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION
6. NO INVESTIGATIONS HAVE BEEN MADE OF BUILDING RESTRICTIONS WHICH MAY APPLY TO THIS LAND
7. CONTOUR INTERVAL 0.2m MINOR 1.0m MAJOR
8. ORIGIN OF LEVELS: SSM 3540 RL 1.829 A.H.D.
9. THE SPREAD AND HEIGHT OF TREES SHOWN ARE INDICATIVE ONLY AND CANNOT BE SHOWN ACCURATELY WITHOUT ADDITIONAL DETAILED SURVEY.
10. BEARINGS SHOWN ARE RELATED TO MAGNETIC MERIDIAN

DIAL 1100 BEFORE YOU DIG

LEGEND

AC	– AIR CONDITIONER	MH	– MANHOLE
DPC	– DAMP PROOF COURSE	PB	– POWER BOX
EBOX	– ELECTRICITY BOX	PC	– PRAM CROSSING
EP	– ELECTRICITY PIT	PP	– POWER POLE
FL	– FLOOR LEVEL	SMH	– SEWER MANHOLE
GM	– GAS METER	SO	– STORMWATER OUTLET
GS	– GAS SERVICE	SV	– STOP VALVE
GP	– GULLY PIT	S/W	– STORMWATER
HW	– HOT WATER HEATER	TEL	– TELECOMMUNICATIONS PIT
HYD	– HYDRANT	VC	– VEHICLE CROSSING
IC	– INSPECTION COVER	WM	– WATER METER
LH	– LAMP HOLE	WS	– WATER SERVICE
LP	– LIGHT POLE		

DAVID STUTCHBURY
REGISTERED SURVEYOR
IDENTIFICATION No: SU002051

REFERENCE: 11883/23 (11883/23 DETAIL.DWG)	STUTCHBURY JAQUES PTY LTD LAND SURVEYING CONSULTANTS P.O. BOX 7249 , BROOKVALE NSW 2100 PH: 8976 1600 E-MAIL: info@stutchbury.net.au	DATE: 10/8/2023	CLIENT: ALDA PROPERTIES PTY LTD
		SCALE: 1:100	PROJECT: LEVEL & DETAIL SURVEY LOTS 7, 8 & 9 D.P.16212 No.1–5 RICKARD ROAD, NORTH NARRABEEN
		DATUM: A.H.D.	
		TOTAL SITE AREA: 1426m²	
REG'D SURVEYOR		SHEET 1 OF 1 SHEETS	LGA: NORTHERN BEACHES

Appendix C Pre-lodgement Meeting Notes

Pre-lodgement Meeting Notes

Application No:	PLM2023/0102
Meeting Date:	7 September 2023
ame	1, 3 and 5 Rickard Road NORTH NARRABEEN
Proposal:	Shop Top Housing - Development Application Pre-lodgement Meeting
Attendees for Council:	Anne-Marie Young, Principal Planner Adam Croft, Principal Planner Lachlan Rose, Student Planner James Brocklebank, Transport Engineer Patrick Stuart, Flooding Engineer Jone Wright, Coast and Attachment Officer Rosemary Roche, Environmental Health Officer
Attendees for applicant:	Greg Boston, Boston Blyth & Fleming - Town Planner Luke Travato, Gartner Trovato Architects – Architect Joel Shanahan - Alda Property - Owner's Representative

General Comments/Limitations of these Notes

These notes have been prepared by Council's Development Advisory Services Team on the basis of information provided by the applicant and a consultation meeting with Council staff. Council provides this service for guidance purposes only.

These notes are an account of the advice on the specific issues nominated by the Applicant and the discussions and conclusions reached at the meeting.

These notes are not a complete set of planning and related comments for the proposed development. Matters discussed and comments offered by Council will in no way fetter Council's discretion as the Consent Authority.

A determination can only be made following the lodgement and full assessment of the application.

In addition to the comments made within these Notes, it is a requirement of the applicant to address the relevant areas of legislation, including (but not limited to) any State Environmental Planning Policy (SEPP) and any applicable sections of the **Pittwater Local Environmental Plan 2014 and Pittwater 21 Development Control Plan,** within the supporting documentation including a Statement of Environmental Effects, Modification Report or Review of Determination Report.

You are advised to carefully review these notes and if specific concern have been raised or non-compliances that cannot be supported, you are strongly advised to review your proposal and consider amendments to the design of your development prior to the lodgement of any development application.

PROPOSAL

The proposal is for a four-storey shop-top housing development comprising:

- Ground floor - on grade car parking, 39 spaces, waste storage, shared commercial and residential lobby, lifts and stair access;
- Level 1 - 635sqm commercial floor space in 3 units, 186sqm storage area and car stackers, lobby lift and stair access;
- Level 2 - 10 residential apartments with a common landscape area;
- Level 3 – 10 apartments; and
- Roof level – common open space, partially roofed with BBQ facilities, toilet and storage.

State Environmental Planning Policies (SEPPs) and State Regional Environmental Plans

(SREPs)

SEPP 65 - Design Quality of Residential Apartment Development

Council generally agree with the recommendations of the Design and Sustainability Advisory Panel (DSAP) who do not support the proposal.

The proposal does not respond to the existing context and neighbourhood character which consists of one to two storey buildings or the emerging character which comprises a three-storey built form as evident in recent Court approvals. It is noted that none of the Court approvals have been commenced. Both street frontages are dominated by car parking with no ground level street activation.

The height, built form, scale and absence of landscaping (deep soil planting) are incongruent with the existing and desired character of the street.

The development provides a poor level of amenity for future occupiers in terms of solar access, outlook, privacy, poor pedestrian entry to the residential units which is shared with the commercial units and therefore raises issues with safety, security and comfort.

Apartment Design Guide (ADG)

Given the conceptual nature of the proposal a detailed assessment of the ADG has not been completed. Despite this the applicant's attention is drawn to the following objectives of the ADG. A full assessment against the ADG will be required for any future DA:

Objective 2F Building separation - 12 m required to between units across courtyards

Objective 3C Public domain interface – The car park dominates the streetscape with no opportunities for activation. Council agrees with DSAP comment that the landscape treatment surrounding the building at ground level will be critical to the quality of the streetscape.

Objective 3E Deep soil zones – As above, areas of deep soil planting are required at ground level to soften the built form.

Objective 3F Privacy - Privacy and sound concerns between units 9&10 + 19/20 with COS common area need to be addressed. Insufficient separation of units across the courtyard.

Objective 3G Pedestrian access and entries – Dedicated separate lobbies are required for the residential and commercial uses.

Objectives 3H Vehicle access – The 2 driveway crossovers on Rickard Road are not supported. Access via the secondary street is preferred.

Objectives 3J bicycle and car parking - Car parking should be at a lower level to sit as below ground level to reduce the unacceptable visual impact to the street.

Objective 4A Solar and daylight access – Bedrooms cannot derive the only source of light from courtyards. Living areas are too small. Studies have no access to light and ventilation.

SEPP (Resilience and Hazards) 2021

Any future DA shall include an assessment against the relevant provisions of the SEPP.

PITTWATER LOCAL ENVIRONMENTAL PLAN 2014 (PLEP 2014)

PLEP 2014 can be viewed at https://www.legislation.nsw.gov.au/view/html/inforce/current/epi-2014-0320

Part 2 - Zoning and Permissibility	
Definition of proposed development: **(ref. PLEP 2014 Dictionary)**	Shop top Housing *means one or more dwellings located above ground floor retail premises or business premises.* *ground level (existing)* *means the existing level of a site at any point.*
Zone:	E1 Local Centre
Permitted with Consent or Prohibited:	Shop top housing is permissible within the E1 zone. However, the proposed commercial level is located 2.7m above ground level. As such, **the proposal does not meet the definition of shop top housing.** The proposal is inconsistent with the following objectives of the E1 zone: • *To encourage business, retail, community and other non-residential land uses on the ground floor of buildings.* • *To ensure that new development provides diverse and active street frontages to attract pedestrian traffic and to contribute to vibrant, diverse, and functional streets and public spaces.* • *To create urban form that relates favourably in scale and in architectural and landscape treatment to neighbouring land uses and to the natural environment.*

Clause 4.6 - Exceptions to Development Standards

Clause 4.6 enables the applicant to request a variation to the applicable Development Standards listed under Part 4 of the LEP pursuant to the objectives of the relevant Standard and zone and in accordance with the principles established by the NSW Land and Environment Court.

A request to vary a development Standard is not a guarantee that the variation would be supported as this needs to be considered by Council in terms of context, impact and public interest and whether the request demonstrates sufficient environmental planning grounds for the variation.

<table>
<tr><th colspan="4">Part 4 - Principal Development Standards</th></tr>
<tr><th>Standard</th><th>Permitted</th><th>Proposed</th><th>Compliance</th></tr>
<tr><td>4.3 Height of Building (HoB)</td><td>8.5m
cl4.3(2A) permits building height to be no more than 8.0m above FPL (RL4.4) therefore RL12.4</td><td>Uppermost Habitable Floor : RL14.3 (top of roof slab)

Roof Terrace/Shelter in Place : RL16.8 (approx)

Lift overrun: RL17.3 (approx)</td><td>No

No

No</td></tr>
<tr><td colspan="4"><u>Response:</u> The roof structures (terrace and shelter in place) fully breach the 8.5m height limit.
In addition, most of the upper habitable floor (level 4) breaches the height limit.
The proposal is inconsistent with the objectives of the E1 Local Centre zone and the height control. The excessive breach of the upper most habitable floor is not supported, and it is unlikely that sufficient environmental planning ground can be argued to support a Clause 4.6 variation to the height limit.
The site is mapped as high flood risk and it acknowledged that there are some challenges and associated cost to ensuring that the proposal meets the flood requirements while ensuring that a positive planning outcome is achieved.
Despite this the applicant’s argument that this wish to avoid the cost associated with excavation is not supported and it is therefore strongly recommended that some level of basement is considered to reduce the extent of the height breach and address issues relating to permissibility and street activation as suggested by DSAP.
It is acknowledged that several development applications have been approved by the Land and Environment Court (LEC) for shop top housing within the vicinity of the subject site that included a breach of the height limit. By comparison these LEC approvals included basement car parking and presented a three-storey typology with appropriate street activation. Note: The court approvals have not been activated.</td></tr>
<tr><td>4.5A Density controls for certain residential accommodation</td><td>Shop top housing
A maximum of 1 dwelling per 150 square metres of site area.

Site area – 1,410.1m^2
Permitted density = 9.4 dwellings</td><td>Proposed = 20 dwellings</td><td>No</td></tr>
</table>

Part 4 - Principal Development Standards
Response: The excessive breach of the density control proposal combined with the height breach and excessive bulk and scale represents overdevelopment of the site.

7.1 Acid sulfate soils

The site is mapped as Class 3

Class 3 - Works more than 1 metre below the natural ground surface

> *Works by which the watertable is likely to be lowered more than 1 metre below the natural ground surface.*
>
> *Development consent must not be granted under this clause for the carrying out of works unless an acid sulfate soils management plan has been prepared for the proposed works in accordance with the Acid Sulfate Soils Manual and has been provided to the consent authority.*

Response: Refer to comments from Council's Environmental Health Officer.

7.4 Floodplain risk management

(1) The objectives of this clause are as follows:

> *(a) in relation to developments with particular evacuation or emergency response issues - to enable the evacuation of land subject to flooding in events exceeding the flood planning level,*
>
> *(b) to protect the operational capacity of emergency response facilities and critical infrastructure during extreme flood events.*

(2) This clause applies to land between the flood planning level and the level of the probable maximum flood, but does not apply to land subject to the discharge of a 1:100 ARI (average recurrent interval) flood event plus 0.5 metre freeboard, or other freeboard determined by an adopted floodplain risk management plan.

Response: Refer to comments from Council's Flooding Officer.

PITTWATER 21 DEVELOPMENT CONTROL PLAN (P21DCP)

P21DCP can be viewed at
https://eservices.northernbeaches.nsw.gov.au/ePlanning/live/Pages/Plan/Book.aspx?exhibit=PDCP

The following notes the identified non-compliant areas of the proposal only.

Control	Permitted	Proposed
A4.11 North Narabeen Locality	*Any medium density housing will be located within and around commercial centres, public transport and community*	Four storey

	facilities. Retail, community and recreational facilities will serve the community. *Future development will maintain a building height limit below the tree canopy and minimise bulk and scale*.	
Response: The proposal presents a four-storey typology which is dominated with a car park at street level. The proposal is inconsistent with the existing and desired character. The height, bulk and scale are excessive and there is inadequate landscaping to help reduce the visual bulk of the development.		
B2.6 Dwelling Density and Subdivision - Shop Top Housing	*The commercial component of the development must be equivalent to 25% of the total gross floor area* *of the building.*	635sqm (24.8%) of commercial floor space is proposed
Response: The proposal represents a minor 0.2% breach of the control in relation to commercial floor area.		
B3.11 Flood Prone Land	*1.Development must comply with the prescriptive controls set out in the Matrix below. Where a property is affected by more than one Flood Risk Precinct, or has varying Flood Life Hazard Category across it, the assessment must consider the controls relevant at each location on the property.* *2. Development on flood prone land requires the preparation of a Flood Management Report by a suitably qualified professional.*	Refer to flooding comments below.
B3.12 Climate Change (Sea Level Rise and Increased Rainfall Volume)	*For land identified on Council's Flood Hazard Maps involving development to which this control applies, a Flood Risk Management Report shall be prepared in accordance with Appendix 8 - Flood Risk Management Policy for Development in Pittwater, which includes an assessment of climate change. This assessment*	Refer to flooding comments below.

	shall include the impacts of climate change on the property over the life of the development and the adaptive measures to be incorporated in the design of the project. The following climate change scenarios shall be considered: *Scenario 1: Impacts of sea level rise only* *Scenario 2: Impacts of sea level rise combined with increased rainfall volume* *Flood Planning Levels for Scenario 1 and 2 have not been adopted by Council to date.* *Applicants should contact Council to be directed to the source of the best available information to determine the likely increase in Flood Planning Levels as a result of climate change.*	
B5.15 Stormwater	*Stormwater runoff must not cause downstream flooding and must have minimal environmental impact on any receiving stormwater infrastructure, watercourse, stream, lagoon, lake and waterway or the like.* *The stormwater drainage systems for all developments are to be designed, installed and maintained in accordance with Council's Water Management for Development Policy.*	Refer to comments from Council's Development Engineer below.
C1.1 Landscaping **Refer also to C2.1 Landscaping**	*The front of buildings (between the front boundary and any built structures) shall be landscaped to screen those buildings from the street as*	A 3.2m wide planter is bed is provided along the Rickard Road frontage and a 1.5m – 3.5m landscape strip is provided along Minarto.

	follows: A planter or landscaped area with minimum dimensions of 4m2 for shop top housing developments, *For shop top housing, a minimum landscaped area of 20% of the site area, or 35m2 per dwelling, whichever is the greater, shall be provided.* *For shop top housing development landscaping is to be provided at the front and rear of the development.*	A landscaped courtyard is also provided at level 1.
Response: Council support the landscape recommendation of DSAP. Please also refer to the comments from Council's Landscape Officer below.		
C1.2 Safety and Security **Refer also to C2.2 Safety and Security**	*Crime Prevention through Environmental Design (CPTED) principles that need to be used in the assessment of development applications to minimise the opportunity for crime.*	See below
Response: Residential and commercial parking combined presents potential CPTED issues. In addition, issues are raised in respect of the configuration of lifts, and access to units via the courtyard, corridors and walkways.		
C1.3 View Sharing **Refer also to C2.5 View Sharing**	*All new development is to be designed to achieve a reasonable sharing of views available from surrounding and nearby properties.* *The proposal must demonstrate that view sharing is achieved though the application of the Land and Environment Court's planning principles for view sharing.* *Where a view may be obstructed, built structures within the setback areas are to maximise visual access through the structure e.g. by the provision of an open*	See below

	structure or transparent building materials. *Views are not to be obtained at the expense of native vegetation.*	
Response: Concern is raised regarding impacts on views because of the height breach. Refer to PLEP discussion above. A view loss assessment is required to be submitted with any future DA which addresses the Tenacity Principles.		
C1.4 Solar Access	*The main private open space of each dwelling and the main private open space of any adjoining dwellings are to receive a minimum of 3 hours of sunlight between 9am and 3pm on June 21st.* *Windows to the principal living area of the proposal, and windows to the principal living area of adjoining dwellings, are to receive a minimum of 3 hours of sunlight between 9am and 3pm on June 21st (that is, to at least 50% of the glazed area of those windows).*	See below
Response: Concern is raised to the internal amenity of the unit with respect to unacceptable solar access to habitable rooms, refer to SEPP 65 / ADG comments above and the DSAP recommendations. The proposal will overshadow the adjoining detached dwelling to the west at No. 7 Rickard Road. Shadow diagrams are required with any future DA.		
C1.5 Visual Privacy	*Private open space areas including swimming pools and living rooms of proposed and any existing adjoining dwellings are to be protected from direct overlooking within 9 metres by building layout, landscaping, screening devices or greater spatial separation as shown in the diagram below (measured from a height of 1.7 metres above floor level).* *Elevated decks and pools, verandahs and balconies should incorporate privacy screens where necessary*	See below

	and should be located at the front or rear of the building. *Direct views from an upper level dwelling shall be designed to prevent overlooking of more than 50% of the private open space of a lower level dwelling directly below.*	
Response: The relationship of access, common open space and private open space creates issues in respect of visual and acoustic privacy. In addition, the proposal provides insufficient separation between units across the courtyard to ensure that there is no unreasonable impacts relating to privacy. The proposal also has the potential to result in unreasonable privacy impacts to the residential dwelling to the immediate west. Refer to discussion under SEPP 65 above and the comments and recommendations from DSAP.		
C1.6 Acoustic Privacy	*Noise-sensitive rooms, such as bedrooms, should be located away from noise sources, including main roads, parking areas, living areas and communal and private open space areas and the like.* *Walls and/or ceilings of dwellings that are attached to another dwelling/s shall have a noise transmission rating in accordance with Part F(5) of the Building Code of Australia. (Walls and ceilings of attached dwellings must also comply with the fire rating provisions of the Building Code of Australia).* *Noise generating plants including pool/spa motors, air conditioning units and the like shall not produce noise levels that exceed 5dBA above the background noise when measured from the nearest property boundary.* *Developments must comply in all respects with the Protection of the Environment Operations*	See below

	Act 1997, and other relevant legislation.	
Response: Refer to C1.5 above. In addition, any future application shall be supported with an acoustic report to assess the impacts of the commercial use and plant on residential amenity. Refer to the comments from Council's Health Officer below.		
C1.12 Waste and Recycling Facilities **Refer also to C2.9**	*All development that is, or includes, demolition and/or construction, must comply with the appropriate sections of the Waste Management Guidelines and all relevant Development Applications must be accompanied by a Waste Management Plan.*	See below
Response: Refer also to the comments from Council's Waste Officer below.		
D11.1 Character as viewed from a public place	*Buildings which front the street must have a street presence and incorporate design elements (such as roof forms, textures, materials, the arrangement of windows, modulation, spatial separation, landscaping etc) that are compatible with any design themes for the locality. Blank street frontage facades without windows shall not be permitted.* *The bulk and scale of buildings must be minimised.* *Garages, carports and other parking structures including hardstand areas must not be the dominant site feature when viewed from a public place. Parking structures must be located behind the front building line, preferably set back further than the primary building, and be no greater in width than 50% of the lot frontage, or 7.5 metres, whichever is the lesser.*	See below

	Landscaping is to be integrated with the building design to screen the visual impact of the built form. In residential areas, buildings are to give the appearance of being secondary to landscaping and vegetation.	
Response: The proposed 4 storey development is inconsistent with the existing and emerging (2-3 storey) character of the North Narrabeen area. The proposal results in excessive height, bulk and scale and a street presence dominated by a car park on both frontage with no activation. The proposal provides limited vegetation buffers to help reduce the visual bulk and scale of the building. Council fully endorses the recommendations of DSAP and a completed redesign is required including some level of basement parking to help ensure that any future development is consistent with the character of the area.		
D11.6 Front building line	*Rickard Road 3.5m* *Minarto Lane 3.5m*	3.5m 1.5-3.5m
Response: The proposal is inconsistent with the front setback to Minarto Lane. Furthermore, the proposal is not stepped back from the frontages on the upper level which adds to unreasonable bulk, and scale.		

Refer below to the additional controls referenced in the referral comments.

Specialist Advice
Flooding Engineer
The Flood Planning Level (FPL) including climate change is 4.4mAHD. The Probable Maximum Flood (PMF) level is 4.9mAHD. The existing (without climate change) 1% AEP flood level is 3.03mAHD. The area is expected to get flooded every at least once every 2 years. The number of times flooded is expected to increase with climate change and sea level rise. 5.21 of the PLEP and B3.11 and B3.12 of the PDCP must be addressed for flooding. A Flood Management Report is Required. Guidelines for preparing a Flood Management Report are available on Council's website. The proposal submitted is not supported for flooding due to the following: - For a carpark to be located below the 1% AEP flood level, it needs to be completely open as per prescriptive control D1 in B3.11 of the PDCP. - The scale of the building must be considered as per 5.21 (3) of the PLEP. The number of dwellings and retail space introduced to the site is not considered satisfactory in accordance with 5.21(2) of the PLEP due to the number of people required to evacuate or shelter in place in a flood, along with the expected flood damages to vehicles. The number of vehicles spaces proposed below the 1% AEP flood level to accommodate the occupants for a development of this scale is considered to not satisfy 5.21(2) of the PLEP due to it being incompatible with the flood behaviour of the land in relation to the objective of minimising flood risk to life and property.

Specialist Advice

The flood referral recommended development for the E1 zoned area of North Narrabeen to be satisfied with 5.21 of the PLEP is for:

- Basement parking with driveway crest levels at the FPL (including climate change) with voids between the existing ground and FPL to avoid loss of flood storage.
- New floor levels at the FPL (including climate change).

The above were incorporated in approved developments at 1 Gondola Rd, 3 Gondola Rd and 2-8 Rickard Rd North Narrabeen.

A proposal involving a carpark (non-basement carpark) at the existing 1% AEP level (with voids for flood storage between the natural ground and 1% AEP flood level) also has the potential for being supported by the flood referral body. Two to three levels (including the level at the 1%AEP flood level) is the maximum that would be considered possible to satisfy considerations of 5.21 of the PLEP. It should be noted that retail street activation may be needed by the Planning referral. Prescriptive control C7 in B3.11 of the PDCP can be utilised for street activation, provided that a maximum of 5m from the primary street frontage is below the FPL. This would mean a maximum of 205m2 internal area below the FPL (based on 41m frontage). This must include all rooms including retail, foyers, lifts, stairwells, storage rooms etc. The floor level of all internal areas would be required to be at or above the existing 1% AEP flood level of 3.03mAHD.

Transport Engineer

The Pre-lodgement proposal is for a shop top housing development comprising 360m2 of commercial GFA, 16 x one bedroom units & 4 x two bedroom units

Parking numbers

Pittwater DCP requires 1 space for each 1 bedroom unit, 2 spaces for each 2 bedroom unit and 2.5 spaces per 100m2 of GFA for the commercial. Residential visitor parking at a rate of 1 per 3 dwellings is required and 1 x courier space and 1 x delivery vehicle space are required.

i.e 24 residential spaces, 7 visitor spaces, 9 commercial spaces, 1 courier space and 1 delivery space are required. No courier or delivery vehicle space has been provided and noting that most of the property frontage is bus stop, and no viable short term parking or Loading Zones are available or feasible in the vicinity the parking of such vehicles at kerb side is not practical. They must be accommodated offstreet.

It is also noted that a number of stacked parking spaces are proposed. These can only be allocated for residential parking with both spaces allocated to the same 2 bedroom unit i.e a maximum of 4 stacked parking spaces. There may be some scope for stacked spaces to be allocated for long term employee parking associated with the business premises as well.

There was a question at the PLM regarding the use of car share parking. This would be acceptable to a limited extent with an identified car share operator to be confirmed and the bay located in a publicly accessible location. 1 car share bay could be considered equivalent to 3 residential carparking spaces however the use of car share is to be limited.

There is also some scope for parking requirements to be slightly relaxed given the proximity to bus services on Pittwater Road although it is noted that the nearest B-line bus stop is over 600m walk from the site with bus stops nearer the site being serviced by less frequent services.

Specialist Advice
Circulation The circulation aisle appears to only be of sufficient width to accommodate one way circulation through the site. This then leads to a need for two driveways which is generally not Council's preferred outcome due to the increased level of impact upon on-street parking however as the frontage is primarily bus stop the second driveway does not impact significantly on parking. The DA will need to demonstrate that the one way circulation and reduced width of circulation aisle is still sufficient to facilitate access to and from all parking bays by a B85 vehicle in compliance with AS2890.1 requirements. Bus stop impacted The Bus Stop on the Rickard Road frontage of the development is to remain and is serviced regularly by the 182 bus service and school buses Driveways The Pre-lodgement plans propose two driveways. One driveway is much preferred as two driveways increase the level of impact upon on street parking and will impact upon operation of the bus stop. Driveway grades will need to be compliant with requirements details in AS2890.1 and also compliant with flooding requirements. There was some PLM discussion about relocating access to/from Minarto lane. This is not opposed subject to it being demonstrated as workable.
Environmental Health
Acid Sulfate Soils A Preliminary Soils Assessment will need to be undertaken by a suitably qualified person to assess if acid sulfate soils are likely to be exposed/impacted during the development. Depending on the results, an Acid Sulfate Soils Management Plan may be required. The ASSMP is to be provided with the DA. Noise An acoustic report will need to be completed by a suitably qualified person to assess potential noise impacts from the development on surrounding residential receivers and on the residential receivers in this development. Location and noise impact considerations to be reviewed in the acoustic report; - Plants rooms, service rooms, air con units, windows of residential receivers - Roof top terrace – is it to be accessed 24hrs. - Mechanical ventilation location. Commercial tenancies will require their own DA. If food premises were to occupy the spaces, then consideration at this stage should be given to space/void for mechanical extraction vent through the building to the roof. - Increase in vehicle movement close to 3 Rickard Road – any increase in noise?
Development Engineer
1. The subject site is flood affected and as such on-site stormwater detention (OSD) is not required.

Specialist Advice

2. Stormwater from the development is to be connected to the kerb with a maximum discharge of 25 litres per second with outlets to have a minimum spacing of 15 metres apart.
3. Where the above cannot be achieved, connection to Council's piped drainage system to the east is to be provided with details submitted with the DA.
4. The number of driveway crossings and the location is to be determined by Council's Traffic Team.
5. Comments for the ground level parking with respect to the flood level must be provided by Council's Flood Team.
6. The existing driveway crossings are to be reinstated to kerb and turf.
7. There is an existing bus stop and mail box in front of 1 Rickard Road which may be impacted by the proposal. Comments from Council's Traffic Team are to be provided with regard to this issue.
8. Council's Road Asset and Landscape Teams are to determine if the frontage to Minarto Lane is to be concrete footpath or turf, and if the Rickard Road frontage is to be full width paving of 1.5 metre wide concrete footpath and turf.

Landscape Officer

Landscape comments

The Statement of Environmental Effects shall include commentary of relevant landscape clauses of the DCP, and in this instance the following:

- State Environmental Planning Policy No. 65 – Design Quality of Residential Apartment Development,
- NSW Department of Planning – Apartment Design Guide, specifically Parts 3C Public Domain Interface, 3E Deep Soil Zones, 4O Landscape Design, and 4P Planting on Structures,
- B4.22 Preservation of Trees and Bushland Vegetation
- C1.1 Landscaping
- D11 North Narrabeen Locality, with reference to relevant controls

The land is zoned E1 Local Centre and as such the objectives of the zone shall be satisfied.

A Landscape Plan is required.

- a range of shrubs and canopy trees shall be retained or proposed to soften the built form,

- if trees are proposed to be removed, they shall be sufficiently replaced,

- canopy tree planting shall be locally native species,

- in addition to trees within the property boundary, small street trees shall be proposed along the Rickard Road frontage,

- tree planting shall be considered in the common area on Residential Level 01, and small trees for the Roof Top Terrace,

- the planted areas (deep soil) on the Parking Level shall be mass planted and not contain turf,

- deep soil shall be minimum 7% of the site area (more is desirable if available) of areas 3 metres wide as per the requirements of the ADG; deep soil areas shall not be covered by any awnings or overhead structures that could impede plant growth.

Specialist Advice

Any on slab planter or roof gardens shall comply with the following ADG soil depth guidelines:

- 200mm for turf
- 300-450mm for groundcovers
- 500-600mm for shrubs and accents
- 800-1200m for trees

B4.22 Preservation of Trees and Bushland Vegetation

The SoEE shall include discussion on the trees and vegetation within the site and within adjoining properties.

For prescribed (protected) trees under the DCP, ie. 5 metres and over, excluding Exempt Species, An Arboricultural Impact Assessment is required to provide clarification on which trees are to be retained, including tree protection measures, and which trees are to be removed. Regardless, should a report be prepared exempt species should be identified as a matter of course to assist Council in determining a development application and the landscape outcome in terms of retention or removal.

The Arboricultural Impact Assessment report shall indicate the impact of development upon the existing trees within the site, and for any existing tree on adjoining properties located 5 metres from the site (building and associated excavation or fill zones).

The report shall be prepared by a qualified Arborist AQF Level 5 and shall cover assessment of excavation and construction impacts upon the SRZ and TPZ, tree protection requirements, and recommendations. Recommendations shall include the setback distance from each tree where no construction impact is to occur to ensure the long term retention of the tree.

Any development impact shall be outside of the structural root zone, and impact to the tree protection zone, for trees retained, shall be limited to satisfy AS4970-2009.

Existing trees and vegetation within adjoining property and within the road verge is not permitted to be impacted upon. Council does not support the removal of street trees unless the street tree is proven to present an arboricultural risk.

No impact to existing trees and vegetation within adjoining properties is acceptable, regardless of species type.

As a general principle, the site planning layout shall be determined following arboricultural investigations and recommendations. Any proposal to remove existing trees of moderate to high retention value will not be supported by Council if an alternative design arrangement is available, as assessed by Council.

Waste Officer

An area marked as “bins” is shown on the parking/ground level of the proposal. This area is in a suitable location for bin storage.

Specific waste requirements for this proposal will be:

Residential Bin Room (20 units)

Specialist Advice

- Large enough to contain 18 x 240 litre bins. (each bin 600mm wide x 750mm deep)
- Aisles between rows of bins to be a minimum of 1 metre wide.
- Access to this bin room to be via a pathway that is separate from vehicular driveway. No steps or gradients steeper than 1in 8.
- Doors/gates used by service staff to access bins to unimpeded by any locks or other security devices. Doors/gates must swing outwards from the room and be able to be latched in the open position.

Residential Bulky Goods Room (20 units)

- A bulky goods storage room is to be provided with a minimum volume of 8 cu metres and minimum floor area of 4 sq metres. Minimum ceiling height of 2.1 metres.
- Doors/gates must swing outwards from the room and be able to be latched in the open position.

Commercial Unit Bin Storage Room

- A bin room is to be provided that is separate to the residential bin room.
- The room must be large enough to contain a minimum of 6 x 240 litre bins – 2 per commercial unit.

Riparian and Water Management

The proposal is subject to:

- State Environmental Planning Policy (Resilience and Hazards) 2021 (clauses 2.8 and 2.12);
- Northern Beaches Water Management for Development Policy (WM Policy); and
- Relevant LEP and DCP clauses, in particular Pittwater DCP B5.5 (Rainwater Tanks) and B5.15 (Stormwater)

The proposal is at concept stage and is for a mixed commercial and residential development close to Narrabeen Lagoon, with a lot area that exceeds 1000sqm.

Pittwater DCP requirements relevant to water management include B5.5 Rainwater Tanks and B5.15 Stormwater.

B5.5 Rainwater Tanks. The outcomes of this item include water conservation and reduction in mains water demand and development is compatible with Water Sensitive Urban Design principles. As this development is creating additional impervious area of greater than 50m2 it must provide a rainwater tank for non-potable use connected to external taps for the purpose of landscape watering and car washing and a functional water reuse system including, water supply for toilet flushing and other uses as permissible under the current Code of Practice for Plumbing and Drainage. For more information read B5.5 in full.

B5.15 Stormwater. The objectives of this item are that stormwater runoff must not cause downstream flooding and must have minimal environmental impact on any receiving stormwater infrastructure, watercourse, stream, lagoon, lake and waterway or the like. Additionally, the stormwater drainage systems for all developments are to be designed, installed and maintained in accordance with Council's Water Management for Development Policy. For more information read B5.15 in full.

Specialist Advice

Refer to Northern Beaches Water Management for Development Policy (WM Policy) for water management requirements. The outcomes Council seeks under the WM Policy include:

1. The integration of water sensitive urban design measures to address stormwater management;
2. Improvement of the quality of stormwater discharged;
3. Minimising impervious areas where possible, reusing rainwater and stormwater, and providing treatment measures that replicate the natural water cycle (e.g., infiltration).

Please note under the WM Policy, Table 5 – General Stormwater Quality Requirements apply. To demonstrate compliance a model, preferably Model for Urban Stormwater Improvement Conceptualisation (MUSIC), must be provided. Details of the modelling and all data files must be provided. Stormwater plans will also be required to assess this development. Refer to the Water Management for Development Policy for additional information.

Groundwater and construction dewatering

Currently the concept stage proposal is for street level parking with no excavation. However, should the development design be changed to incorporate basement carparking, then it is expected to interfere with groundwater and dewatering will be required. This will require a Geotechnical report to speak to groundwater issues. Should groundwater interference be identified, the development will be subject to the integrated development assessment process for construction dewatering and will need to be referred to WaterNSW.

- To undertake construction dewatering, the following approvals must be obtained from WaterNSW.
  - water supply work approval
  - water access licence (WAL) - unless the project qualifies for an exemption, please refer to the fact sheets for more information
  - water use approval
- Refer WaterNSW guidelines for dewatering construction https://www.waternsw.com.au/customer-services/water-licensing/dewatering and https://www.waternsw.com.au/__data/assets/pdf_file/0005/167279/Fact-sheet-Geotechnical-investigation-reports-Minimum-requirements-FA.pdf

Note: In order to avoid repetition the referral comments from Council's Development Assessment Officer are included in the body of the notes.

Documentation to accompany the Development Application

- Lodge Application via NSW Planning Portal
- Statement of Environmental Effects
- Clause 4.6 Variation Request
- Scaled and dimensioned plans:
  - Site Plan;
  - Floor Plans;
  - Elevations; and
  - Sections.
- Certified Shadow Diagrams (depicting shadows cast at 9am, Noon and 3pm on 21 June).
- Landscape Plan

- Cost of works estimate/ Quote prepared by a QS
- Survey Plan (Boundary Identification Survey)
- Site Analysis Plan
- Demolition Plan
- Excavation and fill Plan
- Waste Management Plan Construction & Demolition and Operational
- Driveway Design Plan (if any change is proposed to the driveway)
- Erosion and Sediment Control Plan / Soil and Water Management Plan
- Stormwater Management Plan / Stormwater Plans
- View impact assessment
- Arboricultural Impact Assessment
- Acoustic Report
- Traffic and Parking Report
- Preliminary Acid Sulfate Soils Assessment
- Flood Report
- Accessibility Report
- BCA Report
- Photomontage
- Landscape Plan
- Phase 1 Contamination Assessment
- Geotechnical Report (including assessment of groundwater – if excavation is proposed)

IMPORTANT NOTE FOR DA LODGEMENT

Please refer to the Development Application Lodgement Requirements on Council's website (link details below) for further detail on the above list of plans, reports, survey and certificates.

https://files.northernbeaches.nsw.gov.au/sites/default/files/documents/pdf-forms/development-application-da-modification-or-review-determination/2060-da-modification-lodgement-requirements-mar21.pdf

The lodgement requirements will be used by Council in the review of the application after it is lodged through the NSW Planning Portal to verify that all requirements have been met for the type of application/development.

Concluding Comments

These notes are in response to a pre-lodgement meeting held on 7 September 2023 to discuss shoptop housing at 1-5 Rickard Road, North Narrabeen. The notes reference the concept plans prepared by Gartner Trovato dated 22 August 2023.

The site is mapped as flood affected and this significant site constraint is noted. The commercial units are located 2.7m above ground level with no activation of the street. As such, the proposal does not meet the *"shoptop housing*" definition and the principle of the proposed development is therefore question.

The proposal represents a significant breach of the height limit and the results in an excessive proportioned and visually dominate building that is incongruent with its surroundings and inconsistent with the existing and emerging 2-3 storey character of the North Narrabeen locality. The proposal is also in breach of the Density Provision under the PLEP and the extent of this breach is not supported. The streetscape is dominate by the at grade car park to both frontage and the applicant's argument that it is too expensive to excavate the site to provide for basement car parking is appreciated, however, this does not provide sufficient justification to vary the planning controls and allow a development which is not in the public interest due to a poor planning outcome.

Concluding Comments
The proposal presents a wrath of SEPP 65 / ADG amenity issues and the recommendations from DSAP are fully supported by Council. A complete redesign is required to address the issues raised and it is strongly recommended that consideration be given to providing parking at basement level which will help address the height breach, bulk and scale and massing concerns in addition to issues with streetscape/ activation.
Question on these Notes? Should you have any questions or wish to seek clarification of any matters raised in these Notes, please contact the member of the Development Advisory Services Team at Council referred to on the front page of these Notes.

Appendix D Comprehensive Flood Information Report

COMPREHENSIVE
FLOOD INFORMATION REPORT

Property: 1 - 5 Rickard Road NORTH NARRABEEN NSW 2101
Lot DP: "Lot 7 DP 16212","Lot 8 DP 16212","Lot 9 DP 16212"
Issue Date: 05/06/2024
Flood Study Reference: Narrabeen Lagoon Flood Study 2013, BMT WBM, Ingleside, Elanora and Warriewood Overland Flow Flood Study 2019, WMAwater

Flood Information[1]:

Map A - Flood Risk Precincts
Maximum Flood Planning Level (FPL) [2, 3, 4]: 3.53 m AHD
Maximum Flood Planning Level with Climate Change (FPL) [2, 3, 4]: **4.40 m AHD**

Map B - 1% AEP Flood & Key Points
1% AEP Maximum Water Level [2, 3]: 3.03 m AHD
1% AEP Maximum Depth from natural ground level[3]: 1.21 m
1% AEP Maximum Velocity: 0.46 m/s

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

Map D - Probable Maximum Flood
PMF Maximum Water Level (PMF) [4]: 4.90 m AHD
PMF Maximum Depth from natural ground level: 3.08 m
PMF Maximum Velocity: 1.14 m/s

Map E - Flooding with Climate Change
1% AEP Maximum Water Level with Climate Change [3]: 3.90 m AHD
1% AEP Maximum Depth with Climate Change[3]: 2.09 m

Map F - Flood Life Hazard Category in PMF
H5

Map G - Indicative Ground Surface Spot Heights

(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

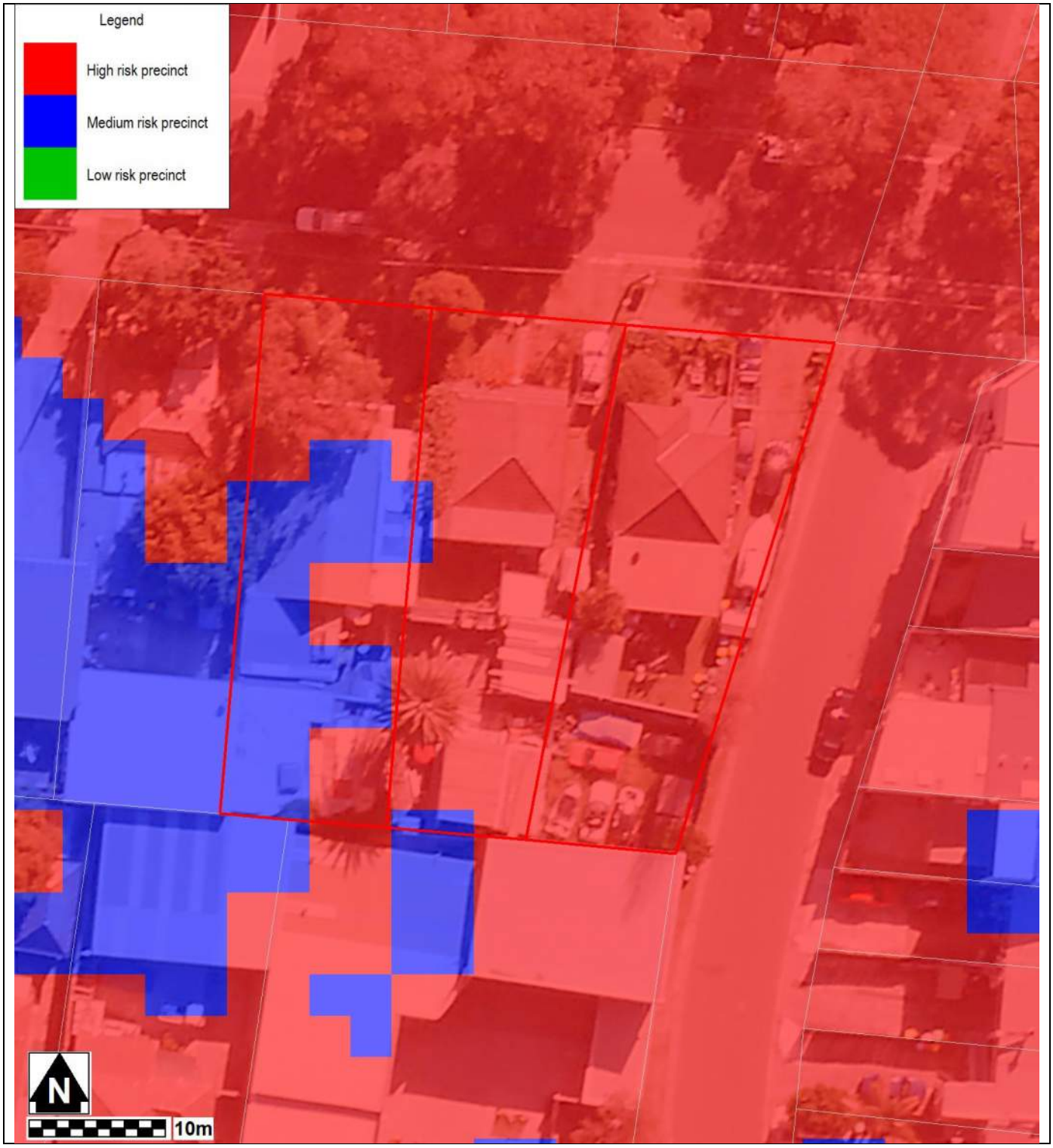
General

- 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.

Property Notes

- Please note that control B3.12 from the PDCP will apply where intensification of development is proposed. Intensification of development includes but may not be limited to:
    - An increase in the number of dwellings
    - An increase in commercial retail floor space

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.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Narrabeen Lagoon Flood Study 2013, BMT WBM, Ingleside, Elanora and Warriewood Overland Flow Flood Study 2019, WMAwater) and aerial photography (Source: NearMap 2014) are indicative only.

MAP B: FLOODING - 1% AEP EXTENT & KEY POINTS

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: Narrabeen Lagoon Flood Study 2013, BMT WBM, Ingleside, Elanora and Warriewood Overland Flow Flood Study 2019, WMAwater) and aerial photography (Source Near Map 2014) are indicative only.

Flood Levels

ID	5% AEP Max WL (m AHD)	5% AEP Max Depth (m)	1% AEP Max WL (m AHD)	1% AEP Max Depth (m)	1% AEP Max Velocity (m/s)	Flood Planning Level (m)	PMF Max WL (m AHD)	PMF Max Depth (m)	PMF Max Velocity (m/s)
1	2.68	0.60	3.03	0.95	0.10	3.53	4.89	2.82	0.34
2	2.68	0.45	3.03	0.80	0.15	3.53	4.90	2.66	0.21
3	2.68	0.37	3.03	0.73	0.02	3.53	4.90	2.59	0.06
4	2.68	0.70	3.03	1.05	0.07	3.53	4.89	2.92	0.18
5	2.68	0.49	3.03	0.84	0.04	3.53	4.90	2.71	0.31
6	2.68	0.63	3.03	0.98	0.10	3.53	4.90	2.84	0.32
7	2.68	0.73	3.03	1.08	0.18	3.53	4.89	2.95	0.37
8	2.68	0.74	3.03	1.09	0.16	3.53	4.89	2.95	0.30
9	2.68	0.74	3.03	1.09	0.13	3.53	4.90	2.95	0.28

Climate Change Flood Levels (30% Rainfall intensity and 0.9m Sea Level Rise)

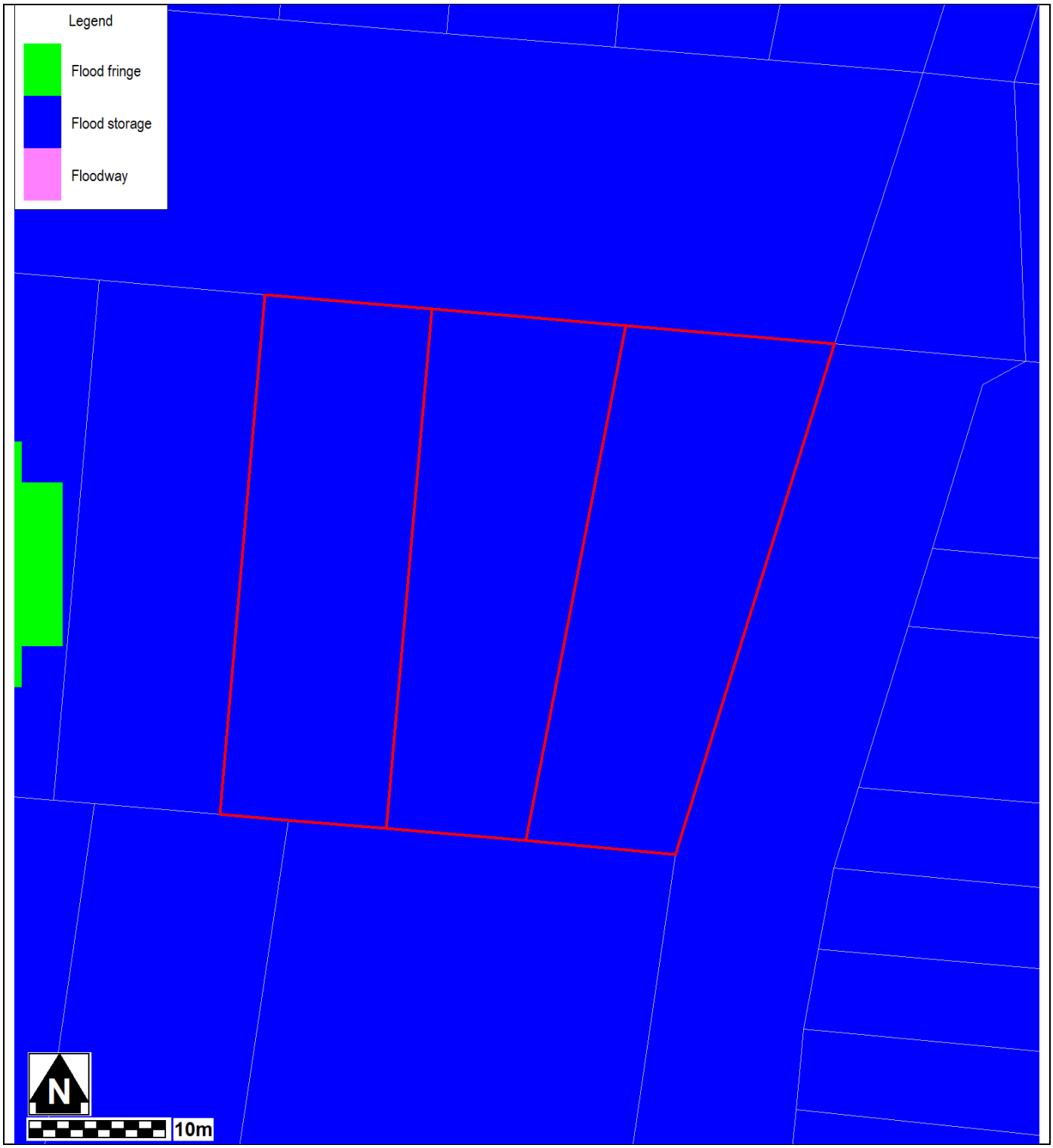
ID	CC 1% AEP Max WL (m AHD)	CC1 % AEP Max Depth (m)
1	3.90	1.82
2	3.90	1.67
3	3.90	1.60
4	3.90	1.92
5	3.90	1.71
6	3.90	1.85
7	3.90	1.95
8	3.90	1.96
9	3.90	1.96

WL – Water Level
PMF – Probable Maximum Flood
N/A - No Peak Water Level/Depth/Velocity Available.

Notes:

- The flood planning levels above are calculated by adding a 0.5m freeboard to the 1% AEP water level. However, if the depth of flow is less than 0.3m and a Velocity X Depth product is less than 0.3m^2/s, a freeboard of 0.3m may be able to be justified for development.

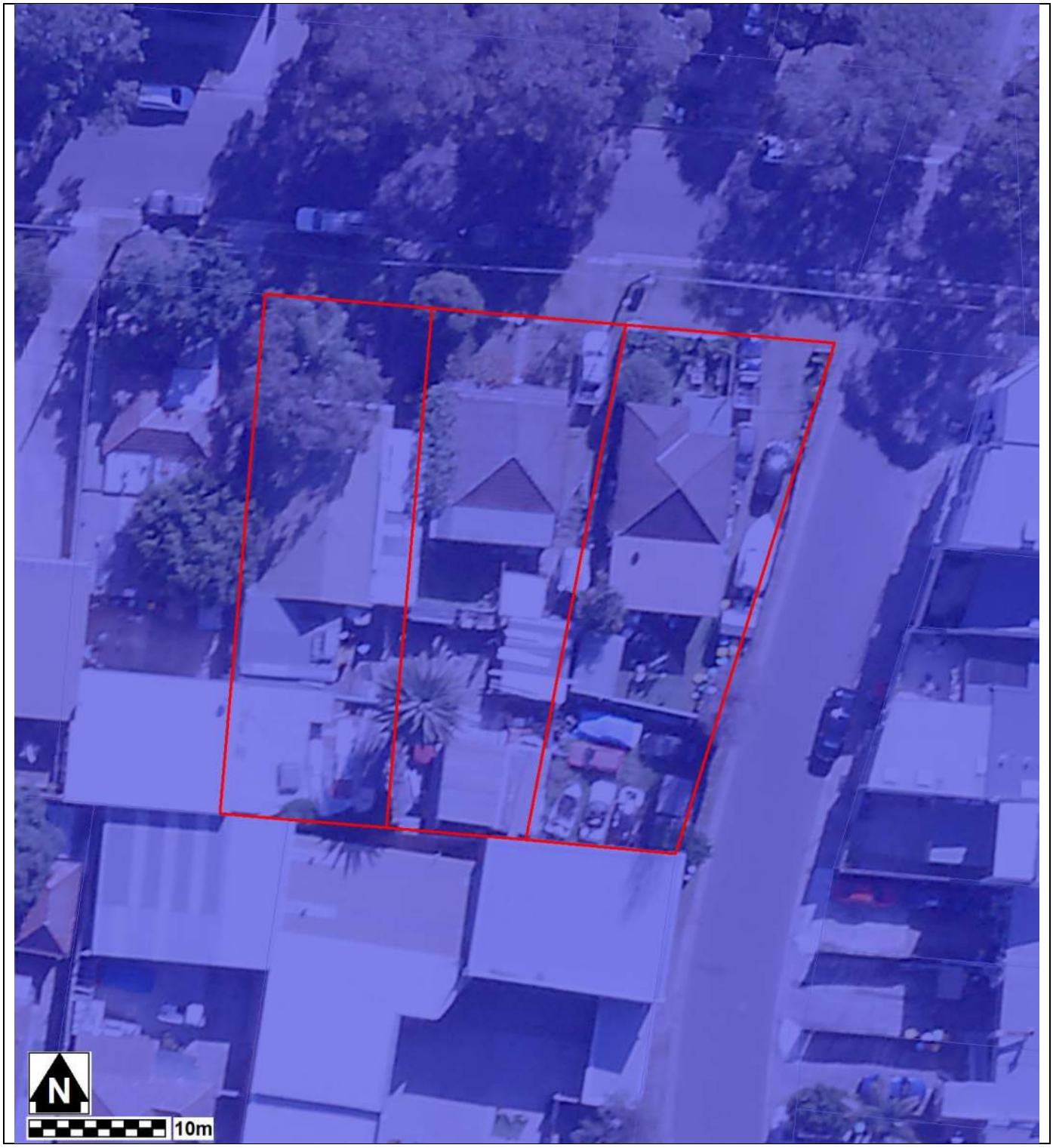
MAP C: 1% AEP FLOOD HYDRAULIC CATEGORY EXTENT MAP



Notes:

- Extent represents the 1% Annual Exceedance Probability (AEP) flood event
- Extent does not include climate change
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Narrabeen Lagoon Flood Study 2013, BMT WBM, Ingleside, Elanora and Warriewood Overland Flow Flood Study 2019, WMAwater) and aerial photography (Source: NearMap 2014) are indicative only

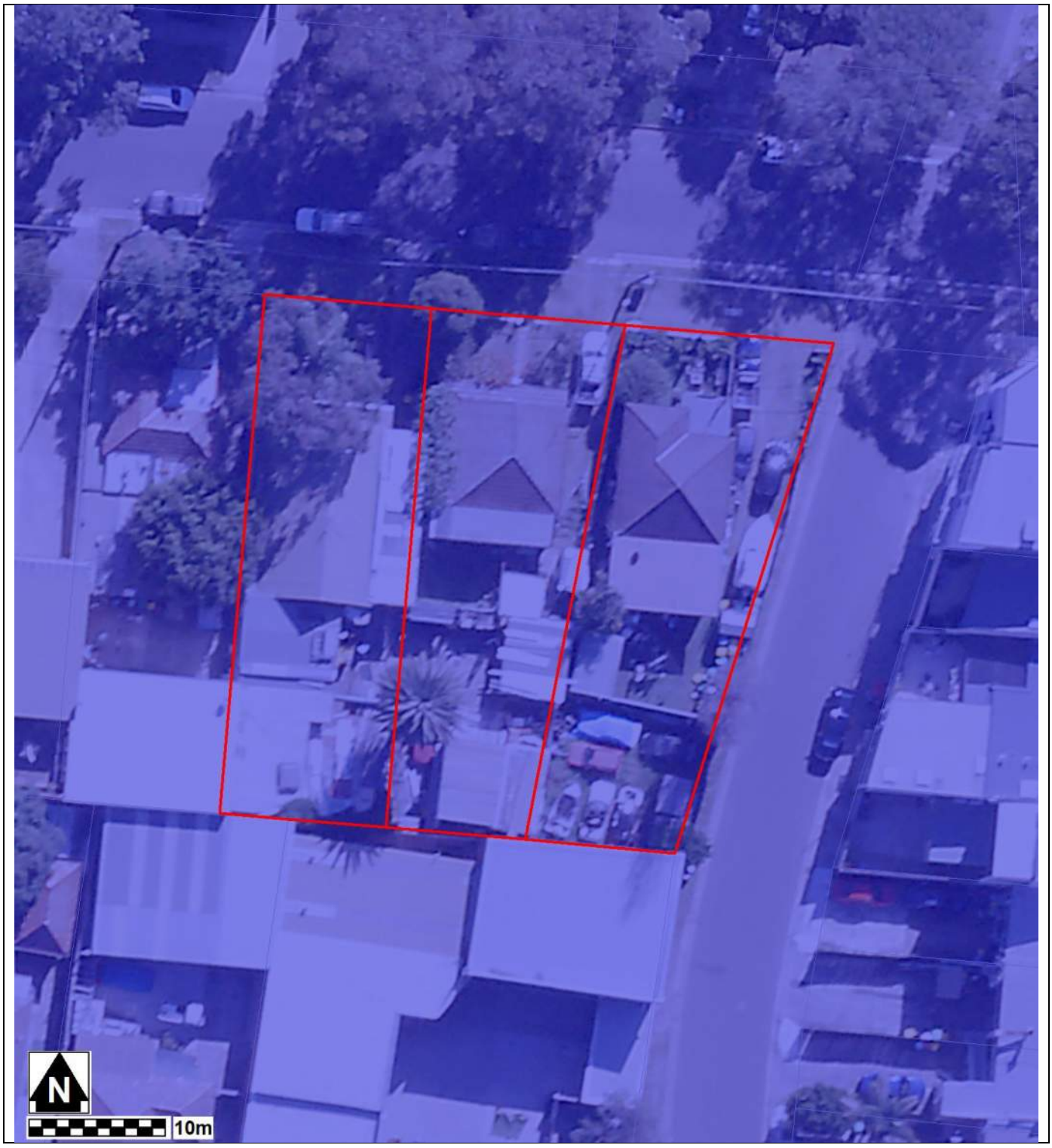
MAP D: PMF EXTENT MAP



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: Narrabeen Lagoon Flood Study 2013, BMT WBM, Ingleside, Elanora and Warriewood Overland Flow Flood Study 2019, WMAwater) and aerial photography (Source: NearMap 2014) are indicative only

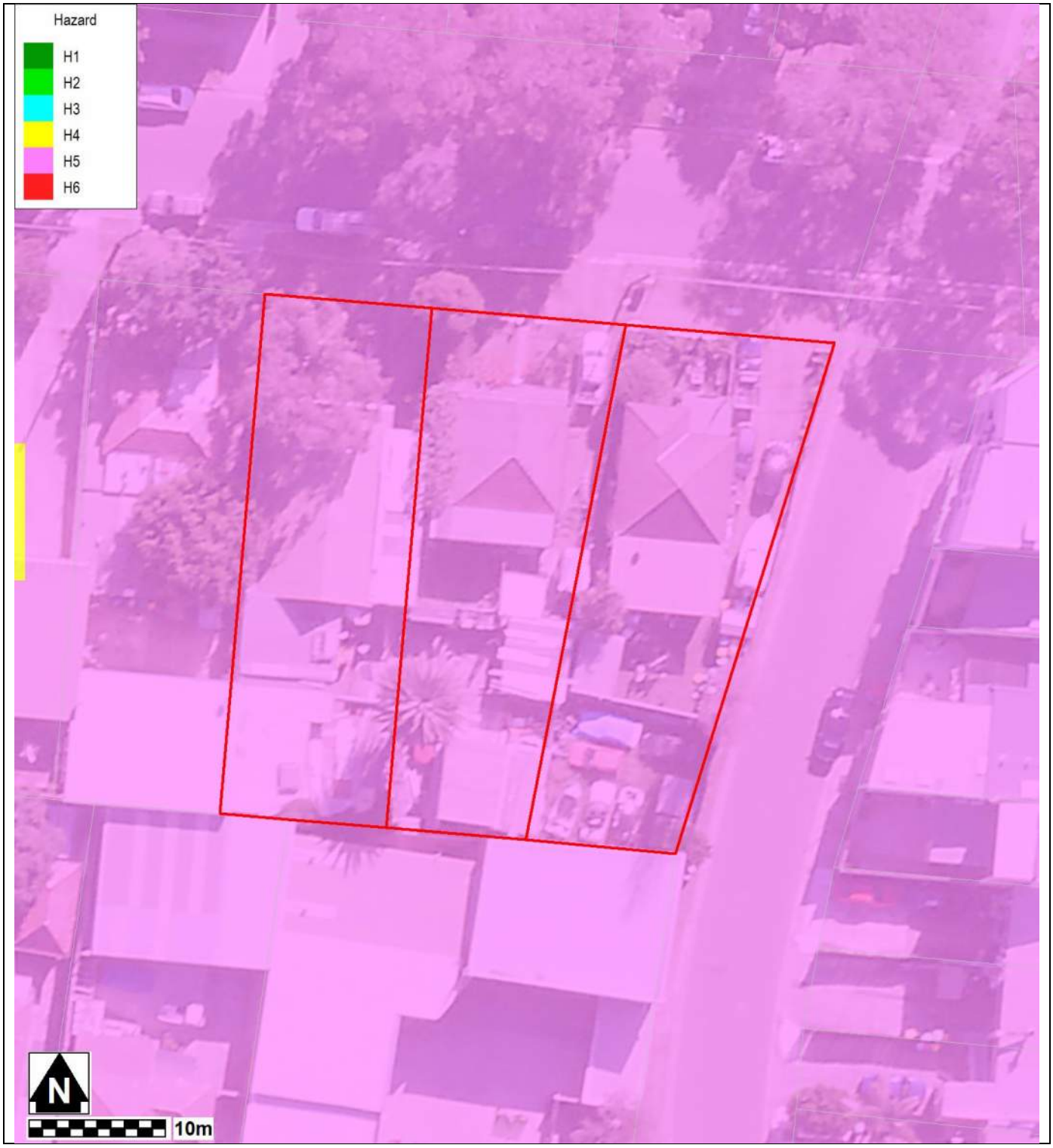
MAP E: FLOODING – 1% AEP EXTENT PLUS CLIMATE CHANGE



Notes:

- Extent represents the 1% annual Exceedance Probability (AEP) flood event including 30% rainfall intensity and 0.9m Sea Level Rise climate change scenario
- Flood events exceeding the 1% AEP can occur on this site.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Narrabeen Lagoon Flood Study 2013, BMT WBM, Ingleside, Elanora and Warriewood Overland Flow Flood Study 2019, WMAwater) and aerial photography (Source: NearMap 2014) are indicative only

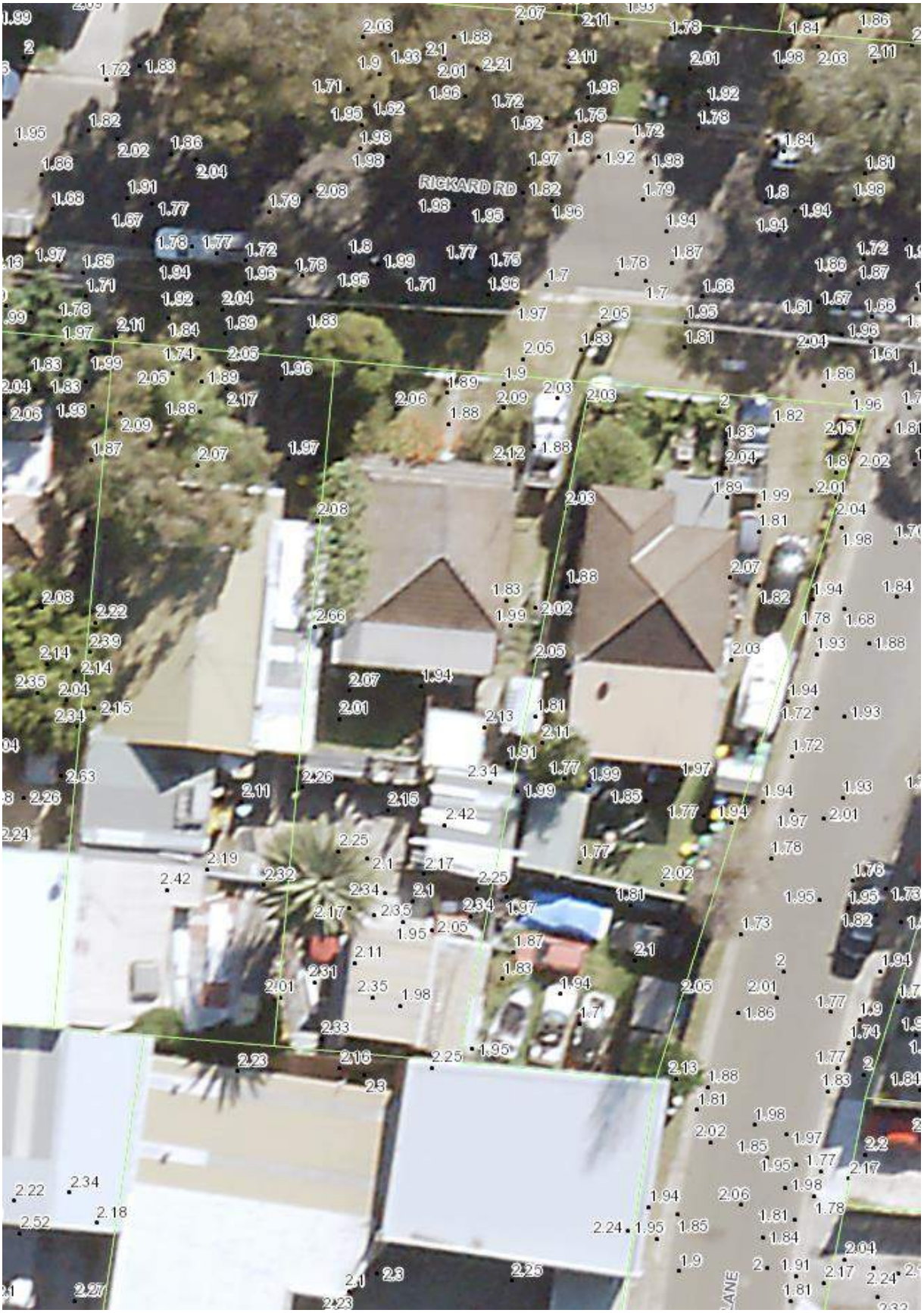
MAP F: FLOOD LIFE HAZARD CATEGORY IN PMF



Notes:

- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Narrabeen Lagoon Flood Study 2013, BMT WBM, Ingleside, Elanora and Warriewood Overland Flow Flood Study 2019, WMAwater) and aerial photography (Source Near Map 2014) are indicative only.

MAP G: INDICATIVE GROUND SURFACE SPOT HEIGHTS



Notes:

- The surface spot heights shown on this map were derived from Airborne Laser Survey and are indicative only.
- Accuracy is generally within ± 0.2m vertically and ± 0.15m horizontally, and Northern Beaches Council does not warrant that the data does not contain errors.
- If accuracy is required, then survey should be undertaken by a registered surveyor.

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 .