

# Memorandum

Project:	2-8 Rickard Road, Narrabeen	Project No:	24143		
To:	Copy: Name: Anthony Gleeson	Organisation:	Ant Building Pty Ltd		
From:	Hyve Designs Pty Ltd	Date:	05 September 2024	Revision:	B
Subject:	Flood Storage Certification 2-8 Rickard Road, Narrabeen				

## 1 Introduction / background

On 13<sup>th</sup> July 2024, the Client requested Hyve Design to review the flood storage volume as requested by Northern Beaches Council, DA No. MOD2023/0473 for the proposed development at 2 – 8 Rickard Road, Narrabeen. The following information was made available for certification:

- SECTION 4.55 MODIFICATION - N0267/16. SHOP-TOP DEVELOPMENT NO.2 - 8 RICKARD ROAD NARRABEEN N.S.W. 2101 DA Drawings by Design Vines, Ref: 10090\_DACS, Dated 26.07.23
- Land and Environment Court Sydney Judgement/Order Case No. 2016/00302237, Dated 28<sup>th</sup> April 2017
- Flood Risk Assessment & Flood Emergency Response Plan: 2-8 Rickard Road, North Narrabeen by Martens Consulting Engineers Ref: P1605216JR01V03, Dated March 2017
- Development Application No: Mod2023/0473 for Modification of Development Consent Land and Environment Court for N0267/16 at 2, 4, 6 & 8 Rickard Road NORTH NARRABEEN by Northern Beaches Council Dated 5<sup>th</sup> July 2024

A summary of the quotes is provided below:

- Utilise spaces under carpark ramps for flood storage.
- All flood water storage tanks, existing and proposed, invert level to be minimum RL 0.3.

## 2 Methodology

Under Northern Beaches Council requirements (Refer to Appendix E), and quoted:

*In accordance with Part A2 of Section B3.11 of the Pittwater 21 Development Control Plan, Council requires demonstration that there is no reduction in flood storage area below the 1% AEP (100 year not including freeboard or climate change) flood level of 3.03m AHD, as compared to the Court approved plans. This is also required to demonstrate compliance with Clause 5.21 Flood Planning of the Pittwater Local Environmental Plan 2014.*

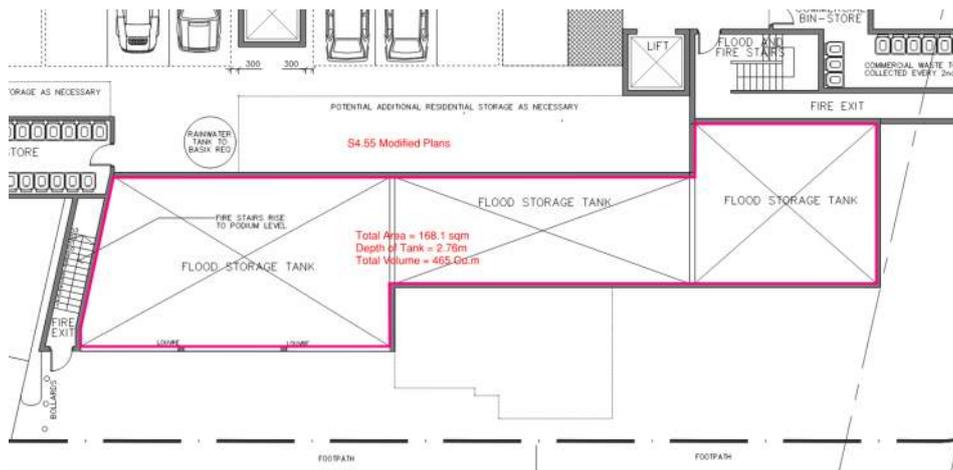
As a result, the certification of flood storage was specified to flood level of 3.03 m AHD without including future and climate change factors. The flood storage volume required and calculated was according to the court approved plans of 877m<sup>3</sup>, as shown in Figure 1. See Appendix A for Court Approved Plans.



Areas	
Existing 'built' footprint	695
Proposed 'built' footprint	1572
<b>Flood Data</b> <span style="float: right;">Current 1% AEP</span>	
Ground Level (mAHD)	2
Flood Level (mAHD)	3
Flood Depth (m)	1
<b>Flood storage occupied</b> <span style="float: right;">Current 1% AEP</span>	
Existing (m3)	695
Developed (m3)	1572
Storage shortfall (m3)	877
Proposed storage volume (m3)	

**Figure 1 1% AEP Flood Storage Requirement**

In the current revision of architectural drawings, the flood storage was modified, and the designed flood storage has a capacity of 465 m<sup>3</sup>. See Appendix B for the Section 4.55 Updated Drawings.



**Figure 2 Proposed Storage Tanks**

For the storage volume to achieve Council’s requirements, the following was proposed:

- Increase existing proposed storage tanks depth, tank invert increased from RL 1.3 to RL 0.3.
- Utilise void under driveway ramps for flood water storage

Table 1 shows the Flood Storage Volume after incorporating the proposed volume to meet Council requirements.

**Table 1 Proposed Flood Storage Volume**

Storage	Volume
Proposed Storage Tank Volume	630 m <sup>3</sup>
Under Entry Ramp	110 m <sup>3</sup>
Under Residential Ramp	190 m <sup>3</sup>
<b>Total Provided</b>	<b>930 m<sup>3</sup></b>
Required Storage to RL3.03 mAHD	877 m <sup>3</sup>

Below shows the indicative sketches of the new proposed storage tanks under the driveway ramps.

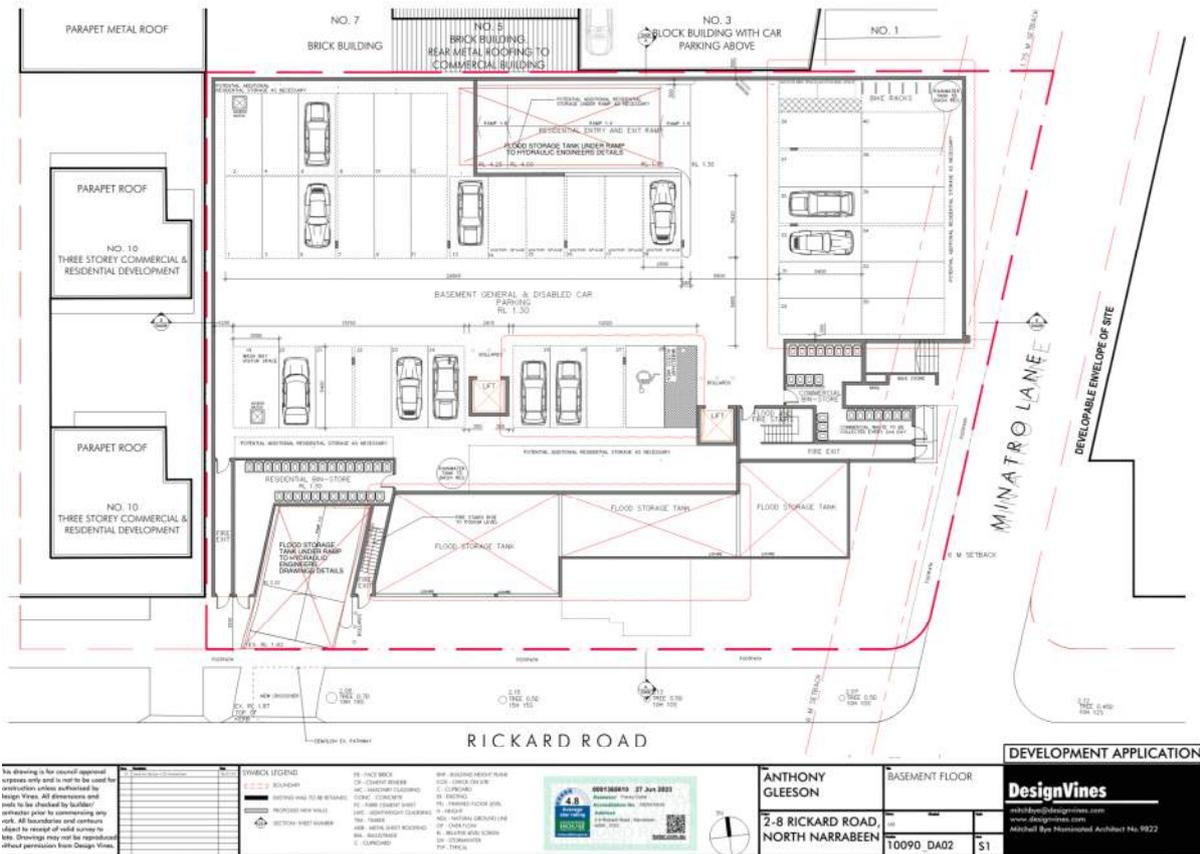


Figure 3 a,b,c Indicative sketch of the new proposed volume for flood storage requirement

### 3 Discussion and Conclusion

Hyve Designs certifies the satisfaction of the Flood Storage Requirements as outlined from the Northern Beaches Council Letter, in the condition that the construction of the flood storage tank conform to the updated Architectural Drawings, and adhere to the proposed methodology from this memorandum and demonstrate with clear calculations of the flood storage volume. The Flood Storage Volume must be greater than 877m<sup>3</sup>.

On behalf of Hyve Designs,



Paul Hovagimian | Hyve Designs | Civil Engineer

BEng(Civil) Hons, Cert IV (Cons.Mgmt), CPeng, NER

E: [paul@hyvedesigns.com](mailto:paul@hyvedesigns.com)

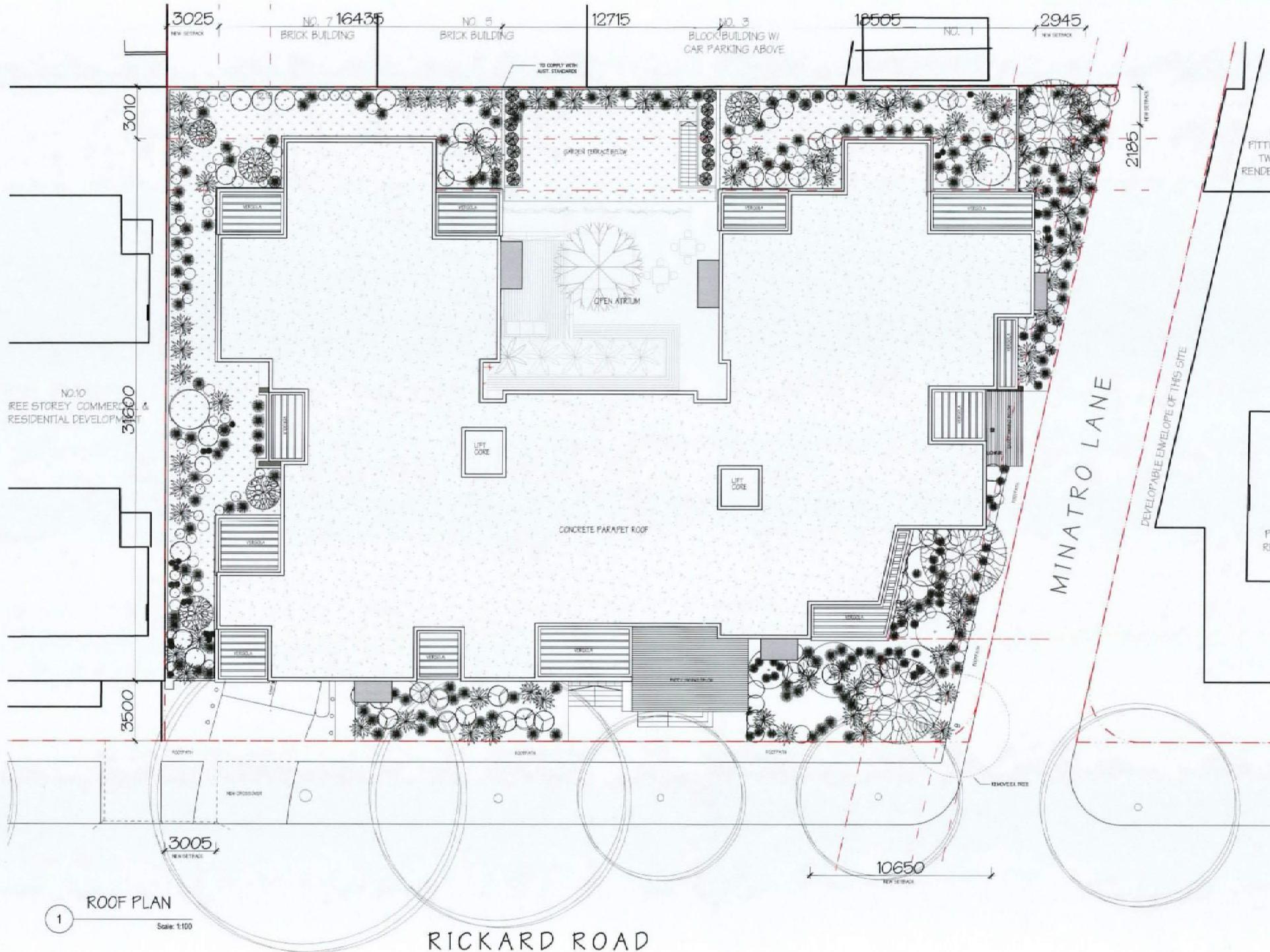
M: [0413 820 906](tel:0413820906)



# Appendix A

## Court Approved Drawings





**NOTE**  
 Do not scale off-drawings to derive measurements.  
 All dimensions in millimetres unless otherwise stated.  
 Verify all dimensions on site. Promptly notify the architect of any discrepancies or omissions in this or any related document before proceeding with the works. All users to be in accordance with the provisions of the Australian Standards, Building Code of Australia, and comply with any statutory authority having jurisdiction over any of the proposed work.  
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- LEGEND**
- BOUNDARY
  - - - HIDDEN OVER
  - - - HIDDEN UNDER
  - ..... DEMOLISHED
  - █ EXISTING WALL
  - ▬ PROPOSED WALL
  - RL 00.000 EXISTING LEVEL
  - FL 00.000 PROPOSED LEVEL
  - BHP BUILDING HEIGHT PLANE
  - FB FACE BRICK
  - MR METAL ROOF
  - RT ROOF TILE
  - DP DOWNPIPE
  - MGL NATURAL GROUND LEVEL

ISSUE DATE	DESCRIPTION

*[Signature]*

SHEET: A1  
 SCALE: 1:100  
 DRAWN: CCEKDRAC  
 PROJECT NO: 881  
 APPLICANT/OWNER: ANTHONY GLEESON  
 PROJECT ADDRESS: 2-8 RICKARD RD, NORTH NARRABEEN  
 TITLE: ROOF PLAN  
 PROJECT STATUS: FOR COURT: S34  
 DRAWING NUMBER: DA01  
 ISSUE: C

HAVILAND ARCHITECTS  
 2/100 GERRARD STREET WEST, MELBOURNE VIC 3000  
 TEL: 03 9437 1000 FAX: 03 9437 1001  
 WWW.HAVILANDARCHITECTS.COM.AU

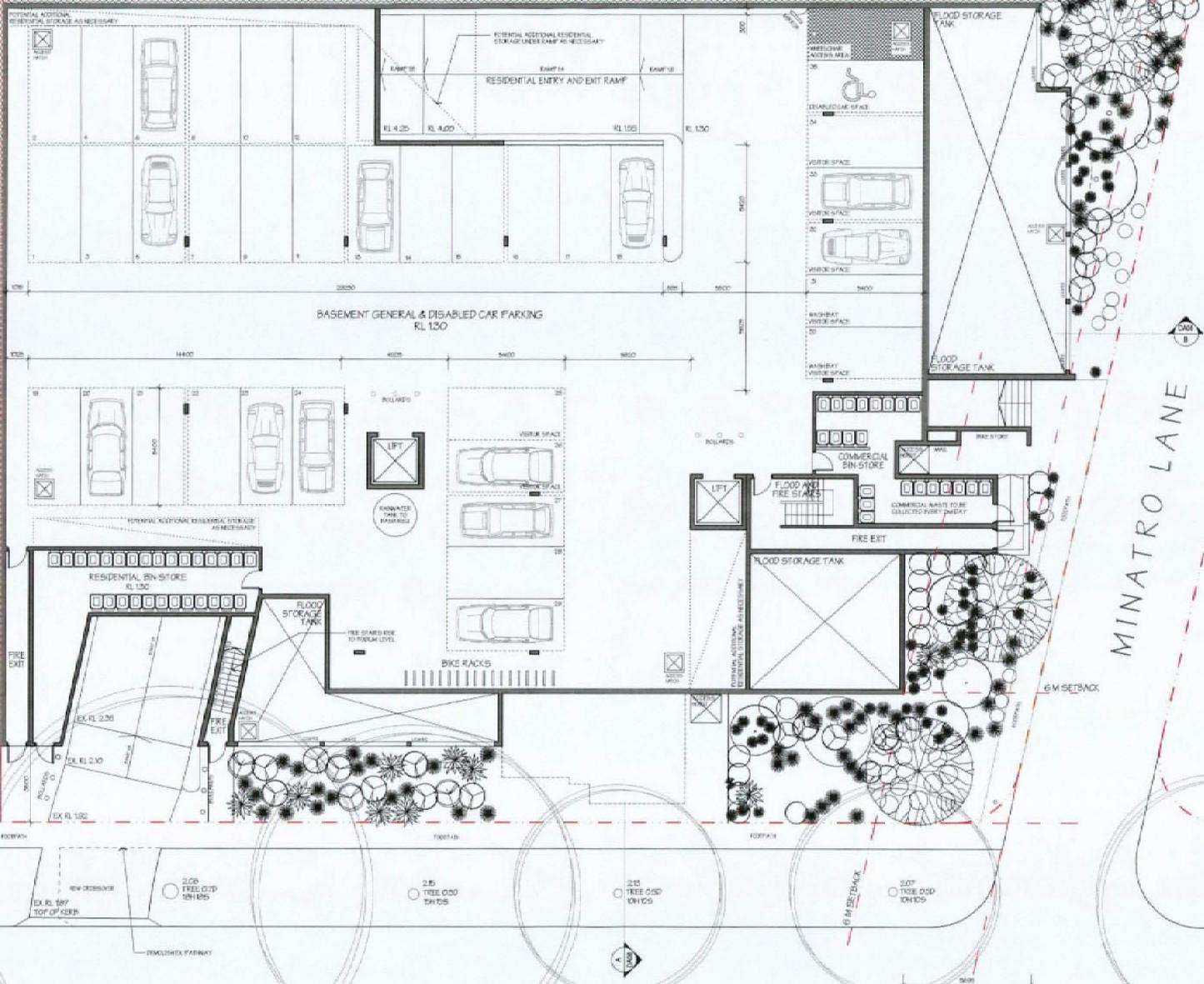
1 ROOF PLAN  
 Scale: 1:100

NO. 7  
BRICK BUILDING

NO. 5  
BRICK BUILDING

NO. 3  
BLOCK BUILDING W/  
CAR PARKING ABOVE

NO. 1



NO.10  
THREE STOREY COMMERCIAL &  
RESIDENTIAL DEVELOPMENT

**BASEMENT FLOOR PLAN**

Scale: 1:100

1

RICKARD ROAD

MINATRO LANE

DEVELOPABLE ENVELOPE OF THIS SITE

**NOTE**

Lot set back off the plan to derive measurements. All dimensions in millimetres unless otherwise stated. Verify all dimensions on site. Priority works to the extent of any discrepancies or omissions in the or any related document before proceeding with the works. All work to be done in accordance with the provisions of the Australian Standard Building Code of Australia, and comply with any statutory Authority having jurisdiction over any of the proposed work. Copyright reserved. HAVILAND



**LEGEND:**

- BOUNDARY
- - - HIDDEN OVER
- HIDDEN UNDER
- DEMOLISHED
- EXISTING WALL
- PROPOSED WALL
- RL 00.000 EXISTING LEVEL
- FL 00.000 PROPOSED F.F.V.R.
- BHP BUILDING HEIGHT PLANE
- FB FACE BRICK
- MR METAL ROOF
- RT ROOF TILE
- DP DOWNPIPE
- MGL NATURAL GROUND LEVEL

ISSUE DATE	DESCRIPTION
D	09/04/2017 FOR COURT - S34
C	26/03/2017 FOR CONSULTANTS
B	06/02/16 DEVELOPMENT APPLICATION
A	06/02/16 DEVELOPMENT APPLICATION

*[Handwritten signature]*

SHEET: A1

SCALE: AS INDICATED

DRAWN: CCE/KB/AC

PROJECT No: 801

OWNER/APPLICANT: ANTHONY GLEESON

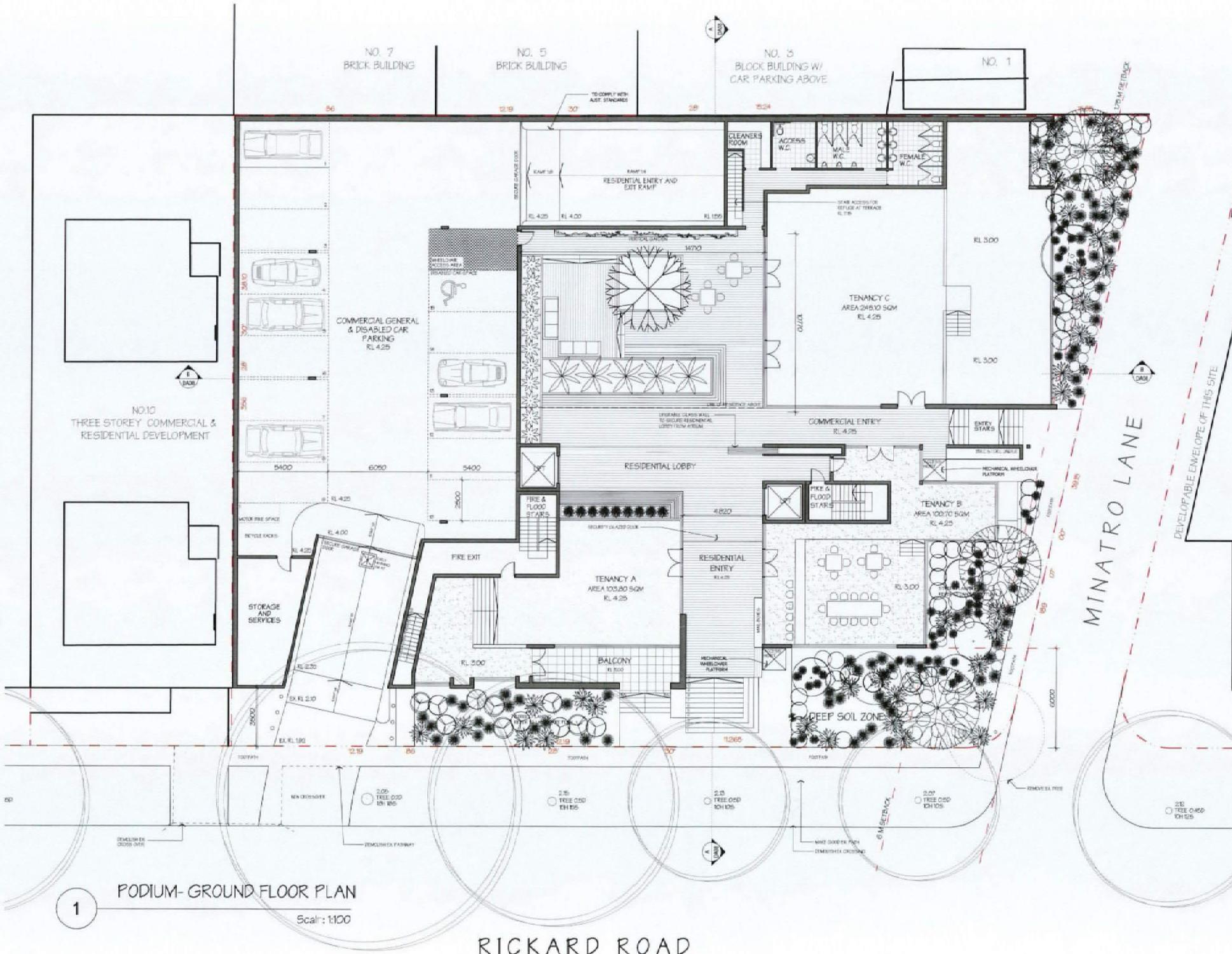
PROJECT ADDRESS: 2-8 RICKARD ROAD NORTH NARRABEEN

TITLE: BASEMENT FLOOR PLAN

PROJECT STATUS: FOR COURT - S34

DRAWING ISSUE DA02 C

**HAVILAND ARCHITECTS**  
287 High Street North Narrabeen NSW 2586 T: 0437 178 178 F: 0437 178 178 E: hrc@havl.com.au W: www.havl.com.au  
Registration No. 3025 Business Architect - Queensland



**NOTE**  
 Check scale of this plan to derive measurements as dimensions or reference areas of the building. Verify all dimensions on site. Particular note the vertical level of all dimensions or elevations. No. 10 is a related document and should be read in conjunction with this plan. All work to be done in accordance with the provisions of the Australian Standards Building Code of Australia, and comply with any applicable authority having jurisdiction over any of the proposed work.  
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- LEGEND:**
- BOUNDARY
  - - - HIDDEN OVER
  - - - HIDDEN UNDER
  - DEMOLISHED
  - EXISTING WALL
  - PROPOSED WALL
  - EXISTING LEVEL
  - PROPOSED LEVEL
- BHP** BUILDING HEIGHT PLANE  
**FB** FACE BRICK  
**MR** METAL ROOF  
**RT** ROOF TILE  
**DP** DOWNPIPE  
**NPL** NATURAL GROUND LEVEL

ISSUE DATE	DESCRIPTION
D	ISSUED FOR COURT - S34
C	ISSUED FOR CONSULTANTS
B	ISSUED FOR DEVELOPMENT APPLICATION
A	ISSUED FOR DEVELOPMENT APPLICATION

*[Handwritten signature]*

SHEET: A1  
 SCALE: AS INDICATED  
 DRAWN: CCE/M/RAC  
 PROJECT No: 801  
 OWNER/APPLICANT: ANTHONY GLEESON  
 PROJECT ADDRESS: 2-8 RICKARD ROAD, NORTH NARRABEEN  
 TITLE: PODIUM-GROUND FLOOR PLAN  
 PROJECT STATUS: FOR COURT-S34  
 DRAWING: DA03  
 ISSUE: C

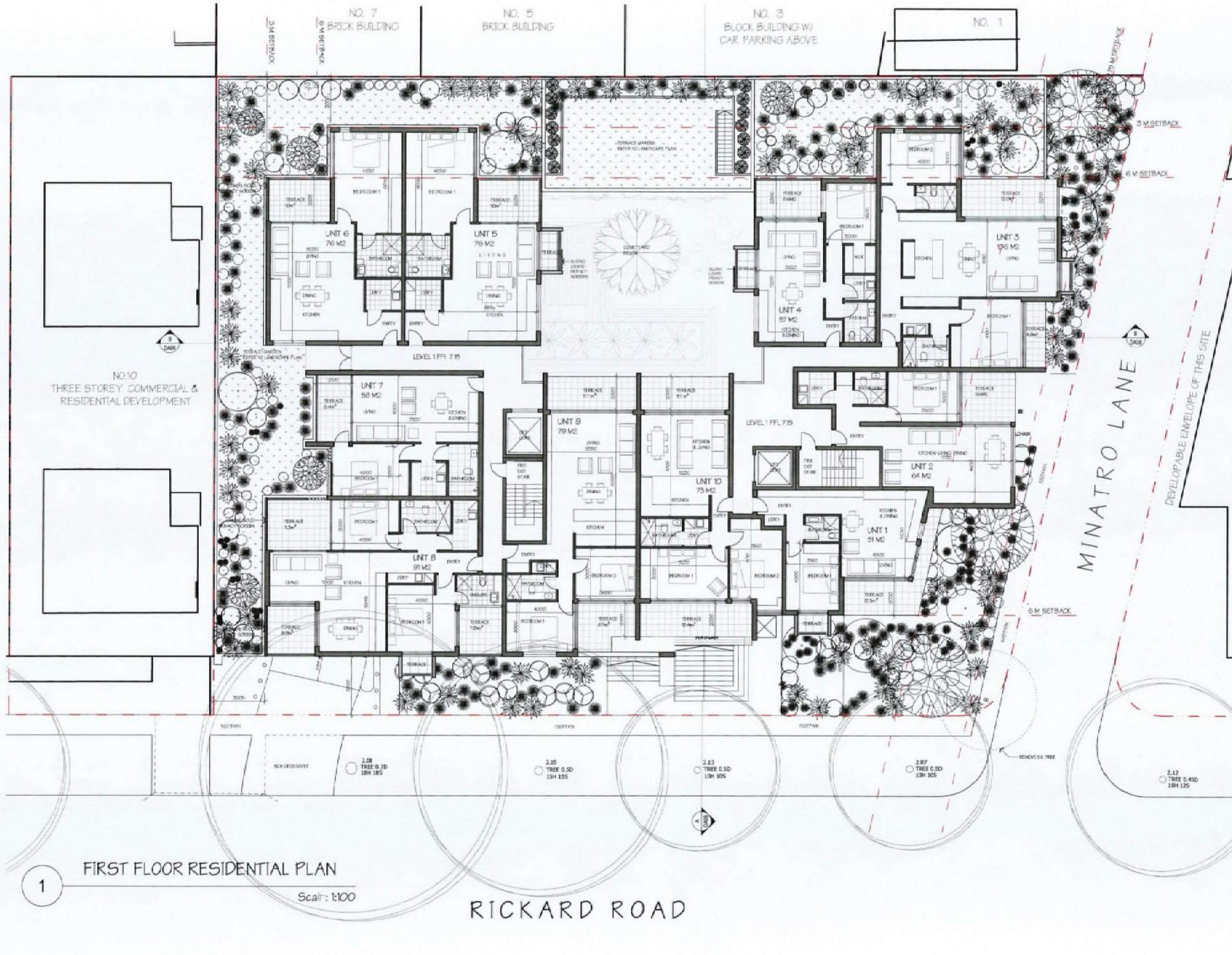
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 Registration No. 3505 Building Practitioner Order Issued

PODIUM-GROUND FLOOR PLAN

Scale: 1:100

1

RICKARD ROAD



**NOTE**  
 To view a set of 3D renderings of this development, please refer to the 3D rendering set provided with the application. All dimensions are in meters unless otherwise stated. All dimensions are to the center of the wall unless otherwise stated. The architect is not responsible for any discrepancies or omissions in this or any related documents unless proceeding with the work. All work is to be done in accordance with the provisions of the Australian Standards Building Code of Australia and comply with any regulatory authority having jurisdiction over any of the project work. Copyright Haviland Architects



- LEGEND**
- BOUNDARY
  - - - - - HYDROM OWNER
  - HIDDEN UNDER
  - DEMOLISHED
  - EXISTING WALL
  - PROPOSED WALL
  - RL 00.000 EXISTING LEVEL
  - FFL 00.000 PROPOSED LEVEL
  - BHP BUILDING HEIGHT PLANE
  - FB FACE BRICK
  - MR METAL ROOF
  - RT ROOF TILE
  - DP DOWNPIPE
  - NGL NATURAL GROUND LEVEL

ISSUE DATE	DESCRIPTION
D	COMB-17 FOR COURT-S34
C	28M35-17 FOR CONSULTANTS
B	28M35-17 FOR CONSULTANTS
A	COMB-18 DEVELOPMENT APPLICATION

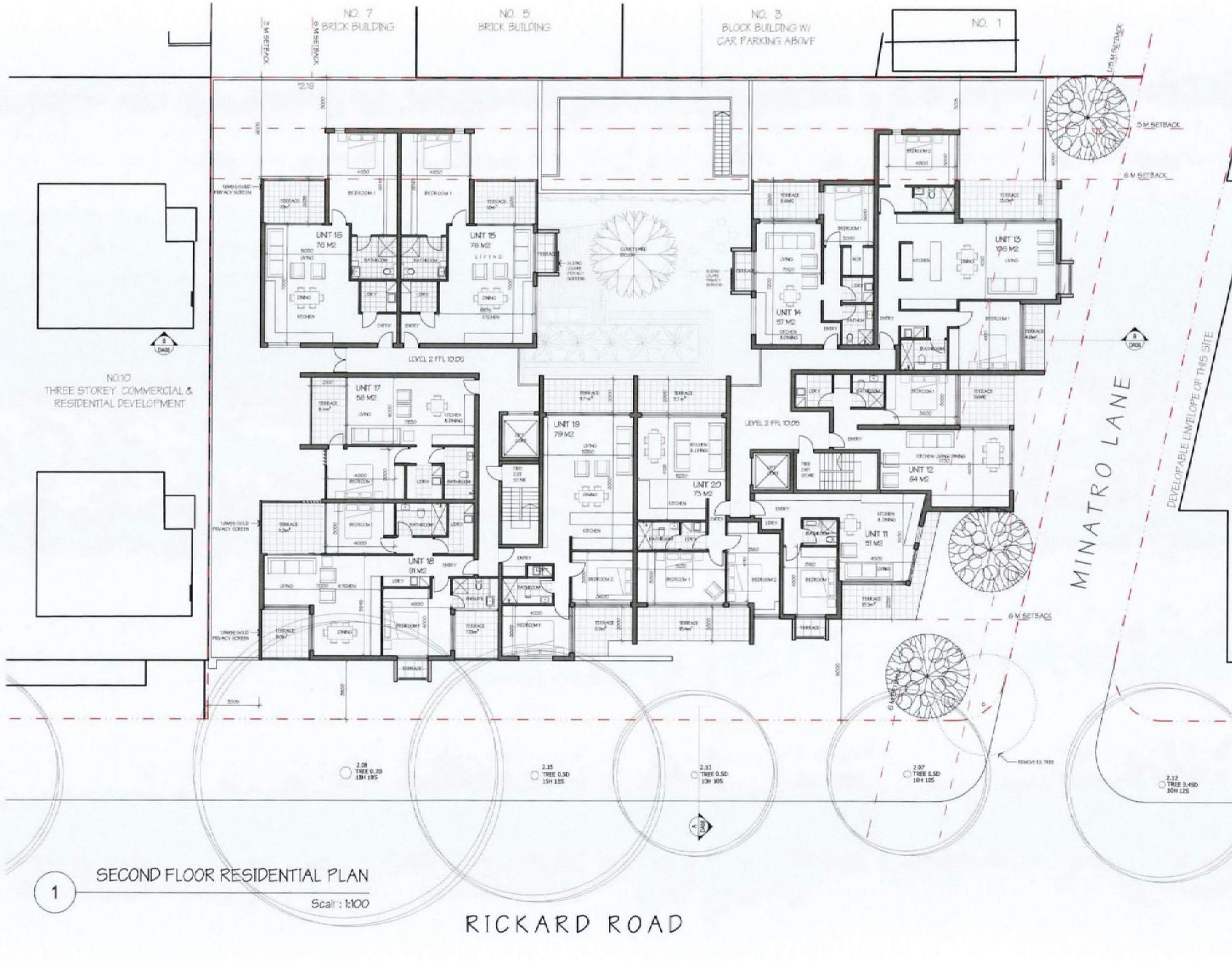
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SHEET: A1  
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 DRAWN: COCKORAC  
 PROJECT No: 801  
 OWNER/APPLICANT: ANTHONY GLEESON  
 PROJECT ADDRESS: 2-8 RICKARD ROAD, NORTH NARRABEEN  
 TITLE: FIRST FLOOR RESIDENTIAL  
 PROJECT STATUS: FOR COURT-S34  
 DRAWING: DA04  
 ISSUE: C

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 Registration No. 2552 (New South Wales) Architect - Geoff Hilditch

1 FIRST FLOOR RESIDENTIAL PLAN  
 Scale: 1:100

RICKARD ROAD



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- LEGEND**
- BOUNDARY
  - - - HIDDEN OVER
  - - - HIDDEN UNDER
  - DEMOLISHED
  - EXISTING WALL
  - PROPOSED WALL
  - FL 00.000 EXISTING LEVEL
  - FFL 90.000 PROPOSED LEVEL
  - BHP BUILDING HEIGHT PLANE
  - FB FACE BRICK
  - MR METAL ROOF
  - RT ROOF TILE
  - DP DOWNPIPE
  - NGL NATURAL GROUND LEVEL

ISSUE DATE	DESCRIPTION
D	02/04/2017 FOR COURT-324
C	28/05/17 FOR CONSULTANTS
B	28/05/17 FOR CONSULTANTS
A	03/04/18 DEVELOPMENT APPLICATION

*[Handwritten Signature]*

SHEET: A1  
 SCALE: AS INDICATED  
 DRAWN: CCKE/KRW/C  
 PROJECT No: 801  
 OWNER/APPLICANT: ANTHONY GLEESON  
 PROJECT ADDRESS: 2-8 RICKARD ROAD, NORTH NARRABEEN  
 TITLE: SECOND FLOOR RESIDENTIAL  
 PROJECT STATUS: FOR COURT-324  
 DRAWING: DA05  
 ISSUE: C

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 Registration No. 2010 ARCHITECT A 0100101 - David Phillips

1

SECOND FLOOR RESIDENTIAL PLAN

Scale: 1:100

RICKARD ROAD

**LEGEND**

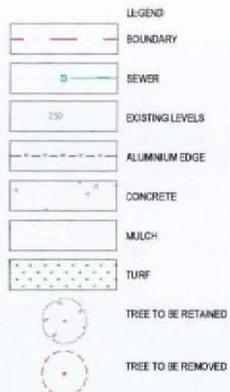
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[Blue line with 'S']	SEWER
[Grey box]	EXISTING LEVELS
[Dashed line]	ALUMINUM EDGE
[Grey box]	CONCRETE
[Green box]	MULCH
[Brick pattern]	PAVING
[Green circle]	TREE TO BE RETAINED
[Red circle]	TREE TO BE REMOVED

**PROPOSED PLANT SCHEDULE**

KEY	BOTANICAL NAME	COMMON NAME	QTY	MATURE HGT	PCT. SIZE
<b>TREES</b>					
BC	BACCHARIS OBTUSIFLORA	LEMON MYRTLE	1	5m	75Lr
BS	BANKSIA SERRATA	OLD MAN BANKSIA	1	7m	400Lr
ER	ELAEAGARUS RETICULATUS	BLUESBERRY ASH	3	6m	75Lr
ML	MELALEUCA LINEARIFOLIA	SNOW ON SUMMER	1	8m	400Lr
TL	TRISTANOPSIS LAURINA LILICIFOLIA	LUSCIOUS WATER GUM	1	8m	400Lr
<b>SHRUBS</b>					
AA	ASPLENUM AUSTRALASICUM	BIRD'S NEST FERN	5	1m	250mm
AC	AGAVE SMITHII MINOR 'CHERRY SURPRISE'	CHERRY SURPRISE	6	2.5m	25Lr
AW	ALPINA MURICA FALSE CARDAMOM	MATTIE GINGER	2	2m	250mm
BM	BAMBUSA TEXTILIS GRACILIS	SLENDER NEAVESS BAMBOO	5	6m	75Lr
CA	CORRICA ALBA	WHITE CORREA	3	1.5m	250mm
CL	CALLISTEMON LINEARIS	NARROW LEAF BOTTLEBRUSH	2	3m	25Lr
CM	CALLISTEMON VIMINALIS 'MCCARTHUR'	MCCARTHUR BOTTLEBRUSH	6	1.8m	250mm
CP	CRINUM PEDUNCULATUM	RIVER LILY	9	2m	200mm
CR	CYDOD REVOULTA	CRICK	1	1m	250mm
CC	COOTHAMMUS DICSMIDOLIUM	EVERLASTING PAPER DAISY	4	2m	250mm
PG	PITTOSPORIUM 'GOLF BALL'	GOLF BALL PITTOSPORIUM	4	0.7m	250mm
RE	RHAPIS EXCELSA	RHAPIS PALM	6	2m	45Lr
WB	WESTRINGIA FRUTICOSA 'GREY BOX'	GREY BOX	75	0.4m	250mm
<b>GRASSES / GROUND COVERS</b>					
CG	CARPENBROTUS GLAUDESCENS	PUR PACE	44	0.2m	200mm
DS	DIANELLA SILVER STRIKE	VARIATED FLAX LILY	21	0.5m	140mm
DT	DIANELLA 'TAS RED'	TAS RED FLAX LILY	25	0.4m	200mm
LL	LOMANERA LONGIFOLIA	SPRINK-HEADED MAT-RUSH	19	1m	200mm
LV	LOMANERA LONGIFOLIA 'WALLA'	WALLA	14	0.7m	200mm
LR	LOMANERA LONGIFOLIA 'JUST RIGHT'	JUST RIGHT	9	0.5m	140mm
LT	LOMANERA LONGIFOLIA 'TANIKA'	TANIKA	10	0.5m	200mm
PN	POCIMA NODOSA	KOENIG CLUB-RUSH	3	0.5m	200mm
ST	SANSEVIERIA TRIFASCIATA LAURENTII	MOTHER-IN-LAW'S TONGUE	14	0.3m	200mm
TA	THELYDIA AUSTRALIS	KANGAROO GRASS	8	1m	200mm
ZT	ZOYSIA TENAXIFOLIA	NO MOW GRASS	20	0.1m	200mm

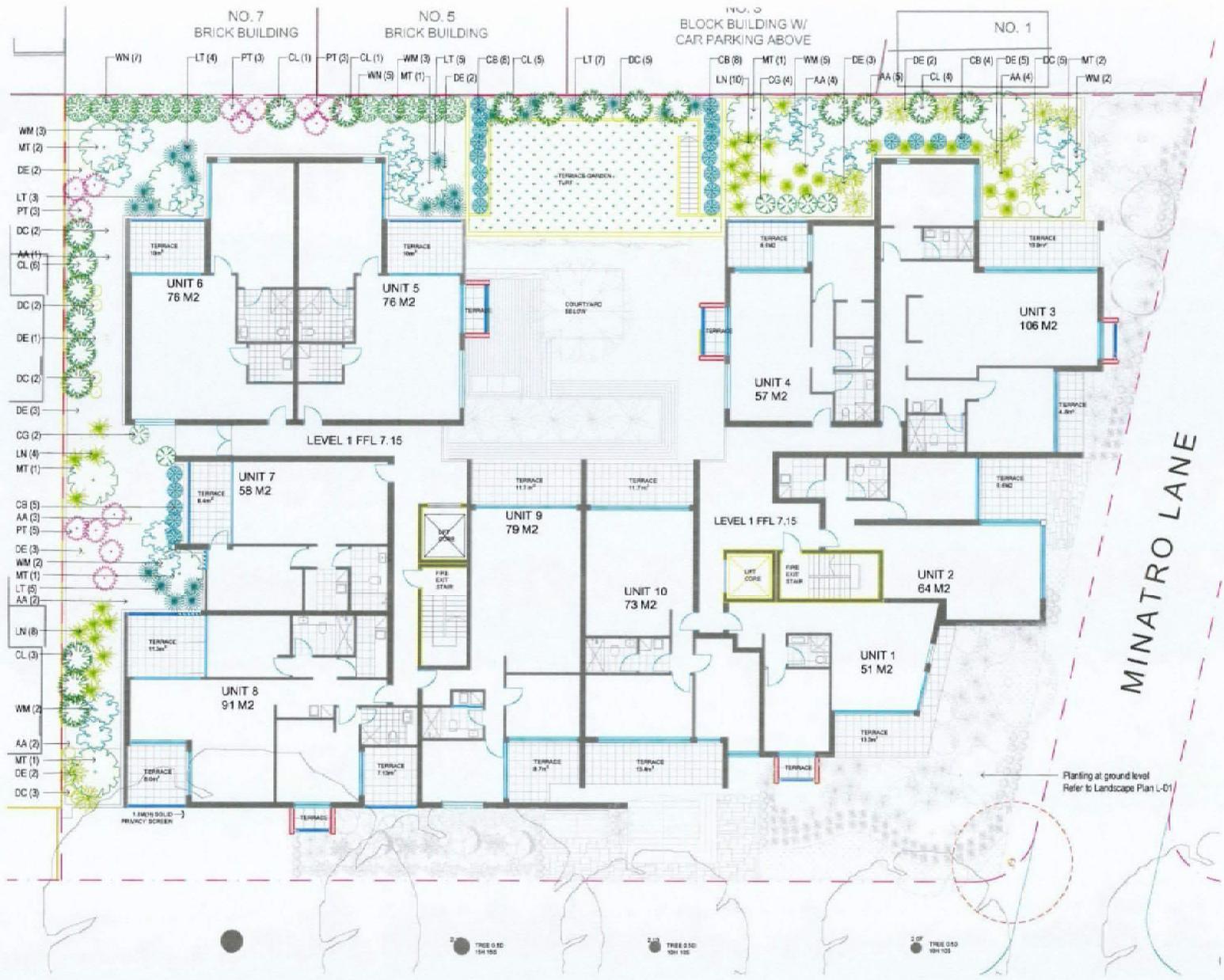
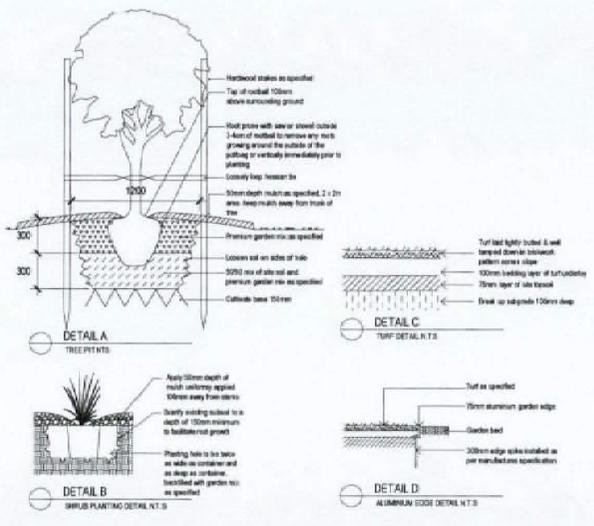
\* DENOTES PLANT FROM COUNCIL'S LOWLAND VEGETATION LIST





**PROPOSED PLANT SCHEDULE**

KEY	BOTANICAL NAME	COMMON NAME	QTY	MATURE HGT	POT SIZE
<b>TREES</b>					
MT	MAGNOLIA GRANDIFLORA TEDDY BEAR	TEDDY BEAR MAGNOLIA	9	3m	45Ltr
<b>SHRUBS</b>					
CB	CRASSULA OVATA BLUE BIRD	BLUE BIRD	25	0.6m	35Ltr
CS	CALLISTEMON VIMINALIS GREEN JOHN	GREEN JOHN BOTTLEBRUSH	8	1m	35Ltr
CL	CALLISTEMON VIMINALIS SLIM	SLIM SKIFF FLEBRUSH	29	3m	35Ltr
DE	DORYANTHES EXCELSA	DYNEA LILY	23	1.5m	35Ltr
WN	WESTRINGIA FRUTICOSA NARINGA	NARINGA	12	2m	35Ltr
<b>GRASSES / GROUND COVERS</b>					
AA	AGAVE ATTENUATA	AGAVE	22	0.5m	200mm
DC	DANIELLA CAUSA BLUE	CASSIA BLUE FLAX LILY	19	0.4m	200mm
LN	LOMANDRA LONGIFOLIA NYVALIA	NYVALIA	22	0.7m	200mm
PT	PHORMIUM TENAX FLAMIN	FLAMIN	14	0.8m	200mm
ST	LOMANDRA LONGIFOLIA TANAKA	TANAKA	24	0.5m	200mm
WM	WESTRINGIA FRUTICOSA WUNDF	WUNDF	17	0.5m	200mm



**LANDSCAPE SPECIFICATION NOTES**

**SITE PREPARATION**  
 Locate any underground and overhead services & ensure no damage occurs. Levels or plan as received only. All dimensions to be checked on site prior to commencement. Final structural integrity of all items shall be the sole responsibility of landscape contractor.

**PROTECTION OF EXISTING TREES**  
 Protect all trees retained by demolition & construction. Take necessary precautions to protect the Structural Root Zone (SRZ) as per AS 4970-2009 Australian Standard for Protection of Trees on Development Sites. Tree protection measures shall remain until the completion of all construction works. Prohibited Works or material storage within the SRZ as per AS 4970-2009 except with approval of: entry of machinery or storage of building materials, parking of any kind of vehicle or other placement of site facilities, removal or modification of soil or site debris, disposal of liquid waste (including paint) & concrete with containment or breaching of any kind (including irrigation or electrical connections) extracting any signs or any other objects to be fixed, placement of waste disposed or skip bins permanent removal of branches, other than those by a qualified Arborist.

Compacted Ground/Compacted Audit completion of the ground under trees. If compaction nevertheless occurs loosen the soil by Coreing. Coreing to be carried out by a qualified Arborist.

**REMOVAL OF EXISTING TREES**  
 All trees to be removed shall be carried out by a qualified arborist and work shall conform to the provisions of AS 4373-2007 Australian Standards for the Pruning of Amenity Trees.

**ELIMINATE WEEDS**  
 Remove all existing weeds by hand, digging or spraying with a glyphosate based herbicide. Weeds control shall never be performed by mechanical cultivation or by burning. Herbicide spraying is to be used to eliminate all existing weeds. All days prior to planting.

**EXCAVATION & SUB SOIL PREPARATION**  
 Excavate garden beds to the depth required and top or scarify loose & sieve of soil to a minimum depth of 150mm.

**REMOVE EXISTING TOPSOIL**  
 Existing site-topsoil should be salvaged & appropriately stockpiled where possible.

**IMPORTED TOPSOIL**  
 Quality System: AS 4143. Turf Area: Turf Underlay, Top Fill and Drain Filling. Perimeter Garden Mix as specified by, AML p. 02 3450 1444 or approved alternative. Planting in Planter Boxes: Sulmix A - Planter Box Mix supplied by AML p. 02 3450 1444 or approved alternative.

**PLANTING**  
 Health & Vigour: Supply plants with foliage, buds, texture & colour consistent with that shown in healthy specimens of the species. Season of Order: Supply plants with roots, retention in crown-bulk on opposite side of stem axis, < 20%. Stock selection should be based on NATSPEC Guide. Supplying Trees: a Guide to Assessment of Tree Quality.

**STAKING**  
 Install 2 x 100mm 4x4 hardwood timber stakes with tension ties to all trees. Provide appropriate support considering exposure to prevailing winds. Stakes and tension ties to be removed as soon as the tree is self supporting.

**ALUMINUM GARDEN EDGING**  
 Supply and install Link Edge 75mm as per Landscape Plan. Compound level the base in the required area as indicated on Landscape Plan. Half hammer spikes into prepared holes approx 4 cables every 2m length starting from the first hole in the end of the Link Edge. Use spike washers supplied by manufacturer. Half hammer subsequent spikes in parallel across along the length. Especially at points where curves are required. Connect lengths together by using 4x4 cable connectors supplied by manufacturer. Check position of Link Edge is correct before hammering spikes firmly into ground.

**MULCHING**  
 Quality system: AS 4824. All planting area inspected by building works to receive 50-75mm of garden Mulch. Designation: AML p. 02 3450 1444 or approved alternative. Keep mulch 100mm away from plant stem & 1m x 1m well to stop excessive water runoff. Fresh flush with adjacent surfaces.

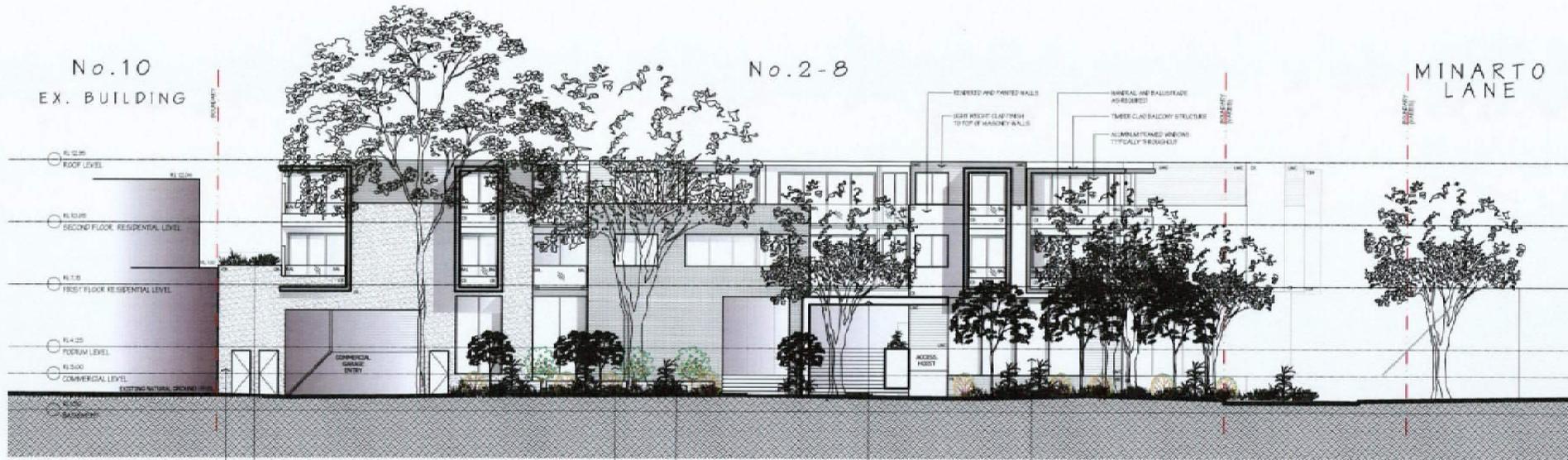
**TURFING**  
 New turf: Use Water-Soluble Latched Subso. Excavate / grade all areas to be turfed to 120mm below finished levels. Ensure that all surface runoff is directed away from buildings. Ensure that no pooling or ponding will occur. Further up through to 150mm. Install 100mm of imported turf substrate. Rolls to be closely butted and laid in a brickwork pattern. Fill any small gaps with topsoil and water thoroughly.

**WATERING**  
 Water in immediately after plant installation. Allow for soil settlement. For the first 2 to 4 weeks after planting the root zone & immediate surrounds must be kept moist. Continue watering until plants have established.

No.10  
EX. BUILDING

No.2-8

MINARTO LANE



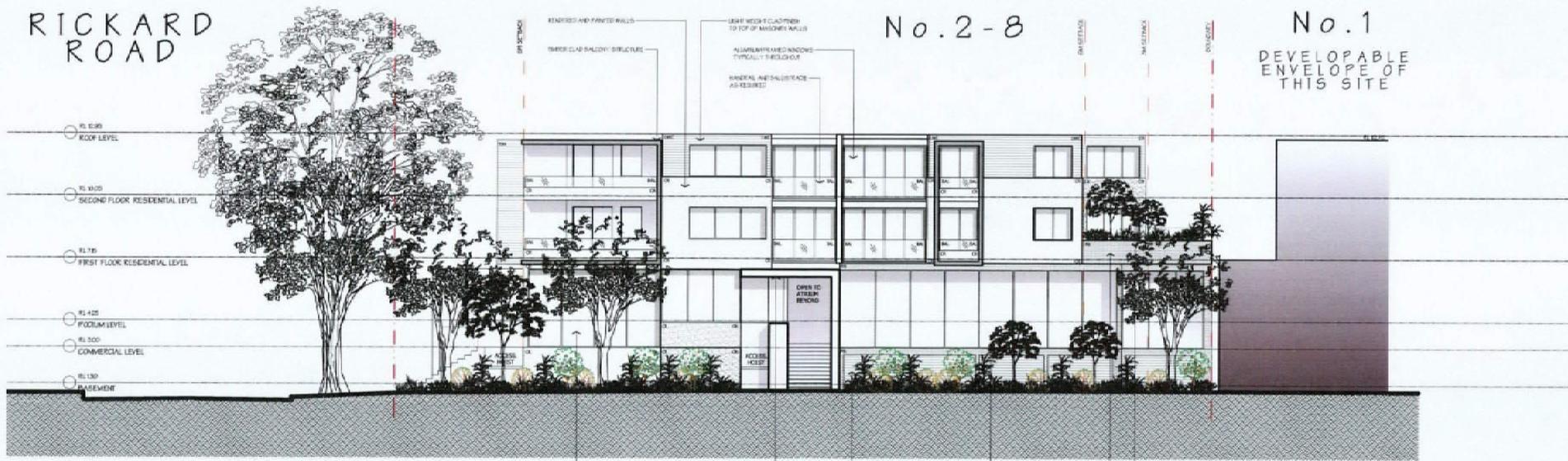
1 SOUTHERN ELEVATION

Scale: 1:100

RICKARD ROAD

No.2-8

No.1  
DEVELOPABLE ENVELOPE OF THIS SITE



2 EASTERN ELEVATION

Scale: 1:100

**NOTE**  
Based on scale of this plan to derive measurements. All dimensions in millimetres unless otherwise stated. Verify all dimensions on site. Properly notify the architect of any discrepancies or omissions in this or any related documentation proceeding with the works. All work to be in accordance with the provisions of the Australian Standards, Building Code of Australia and comply with any existing authority having jurisdiction over any of the proposed work.  
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- LEGEND:**
- - - BOUNDARY
  - - - HIDDEN OVER
  - - - HIDDEN UNDER
  - - - DEMOLISHED
  - █ EXISTING WALL
  - █ PROPOSED WALL
  - █ EXISTING LEVEL
  - █ PROPOSED LEVEL

- BHP BUILDING HEIGHT PLANE
- FB FACE BRICK
- MR METAL ROOF
- RT ROOF TILE
- DP DOWNPIPE
- NGL NATURAL GROUND LEVEL

E		
D		
C	EMERGEIT	FORCELINE: 50M
B	EMERGEIT	FORCELINE: 100M
A	EMERGEIT	FORCELINE: 150M
	ISSUE DATE:	DESCRIPTION:

SHEET: A1  
SCALE: 1:100  
DRAWN: CDE/KDR/AC  
PROJECT No: 881  
APPLICANT/OWNER: ANTHONY GLEESON

PROJECT ADDRESS:  
2-8 RICKARD RD, NORTH NARRABEEN

TITLE:  
SOUTH & EAST ELEVATIONS

PROJECT STATUS:  
FOR COURT: S34  
DRAWING NUMBER: DA06  
ISSUE: C

HAVILAND ARCHITECTS

No. 7  
DEVELOPABLE  
ENVELOPE OF  
THIS SITE

No. 2-8

RICKARD  
ROAD



WESTERN ELEVATION

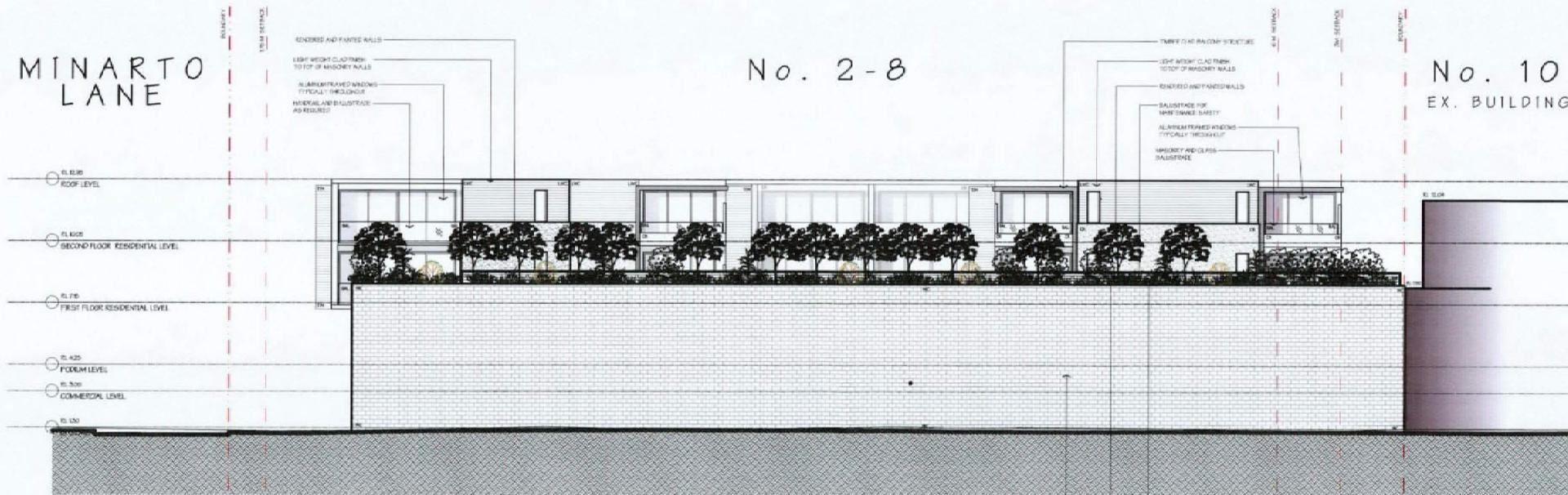
Scale 1:100

1

MINARTO  
LANE

No. 2-8

No. 10  
EX. BUILDING



NORTHERN ELEVATION

Scale 1:100

2

NOTE

Do not scale off this plan to derive measurements.  
All dimensions in millimetres unless otherwise stated.  
Verify all dimensions on site. Promptly notify the architect of any discrepancies or omissions in this or any related document before proceeding with the works. All work to be in accordance with the provisions of the Australian Standards, Building Code of Australia, and comply with any statutory authority having jurisdiction over any of the proposed work.  
© Copyright Haviland Architects

- LEGEND:
- BOUNDARY
  - HIDDEN OVER
  - HIDDEN UNDER
  - DEMOLISHED
  - EXISTING WALL
  - PROPOSED WALL
  - RL 00.000 EXISTING LEVEL
  - PFL 00.000 PROPOSED LEVEL

- BHP BUILDING HEIGHT PLANE
- FB FACE BRICK
- MR METAL ROOF
- RT ROOF TILE
- DP DOWNPIPE
- NGL NATURAL GROUND LEVEL

REV	DATE	DESCRIPTION
E		
D	28/04/2017	FOR COURT-5M
C	28/04/2017	FOR CONSULTANTS
B		
A	28/04/2018	DEVELOPMENT APPLICATION
		ISSUE DATE DESCRIPTION

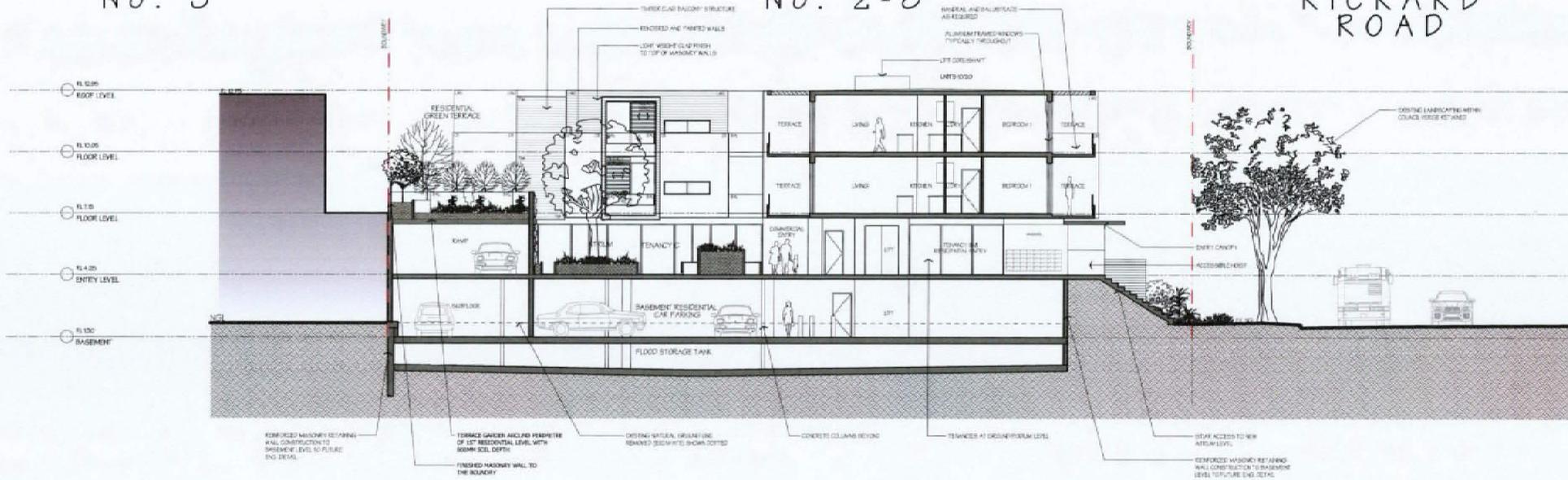
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APPLICANT/OWNER: ANTHONY GLEESON  
PROJECT ADDRESS: 2-8 RICKARD RD, NORTH NARRABEEN  
TITLE: NORTH & WEST ELEVATIONS  
PROJECT STATUS: FOR COURT-5M  
DRAWING NUMBER: DA07  
ISSUE C

HAVILAND ARCHITECTS  
101-103 North Narrabeen Road, North Narrabeen NSW 2256  
Tel: 02 4393 1000 Fax: 02 4393 1001 Email: info@haviland.com.au www.haviland.com.au

No. 3

No. 2-8

RICKARD ROAD

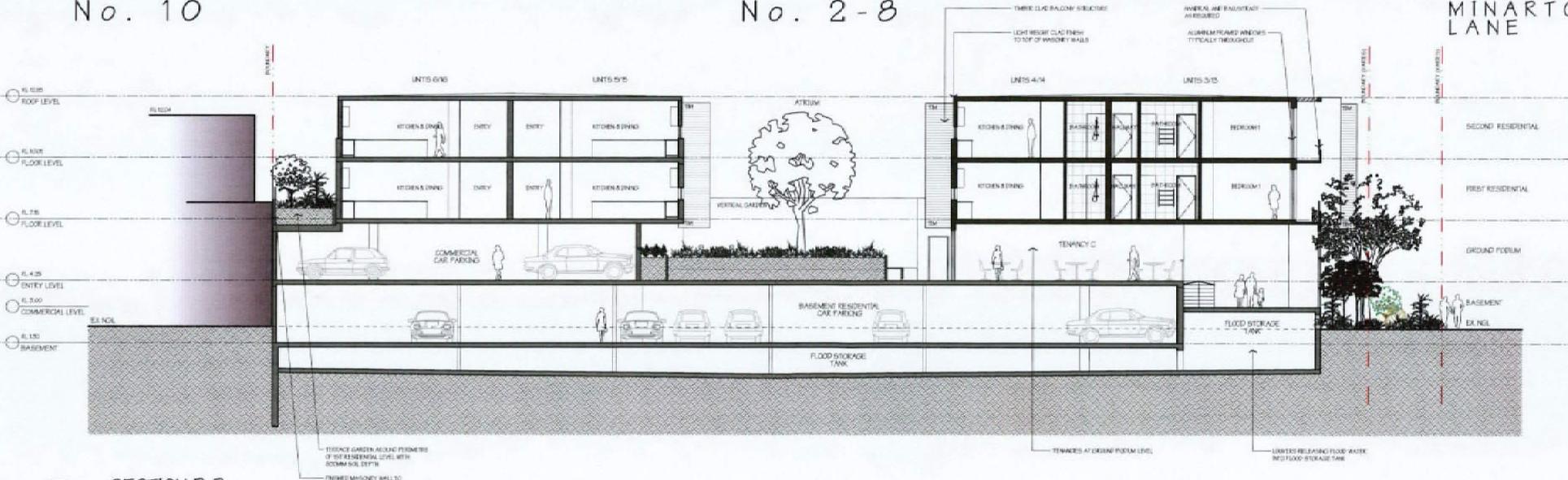


1 SECTION A-A  
Scale: 1:100

No. 10

No. 2-8

MINARTO LANE



2 SECTION B-B  
Scale: 1:100

**NOTE**  
The site owner is the client in these measurements. All dimensions are indicated unless otherwise stated. Study all dimensions carefully. The client must be satisfied that any dimensions or positions shown in any related documents before proceeding with the works. All work to be in accordance with the provisions of the Australian Standard Building Code of Australia, and comply with any statutory authority having jurisdiction over any of the proposed works.  
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- LEGEND:**
- - - BOUNDARY
  - - - HIDDEN OVER
  - - - HIDDEN UNDER
  - - - DEMOLISHED
  - █ EXISTING WALL
  - ▬ PROPOSED WALL
  - ▬ RL 90.000 EXISTING LEVEL
  - ▬ FTL 90.000 PROPOSED LEVEL
- BHP BUILDING HEIGHT PLANE  
FB FACE BRICK  
MR METAL ROOF  
RT ROOF TILE  
DP DOWNPIPE  
NGL NATURAL GROUND LEVEL

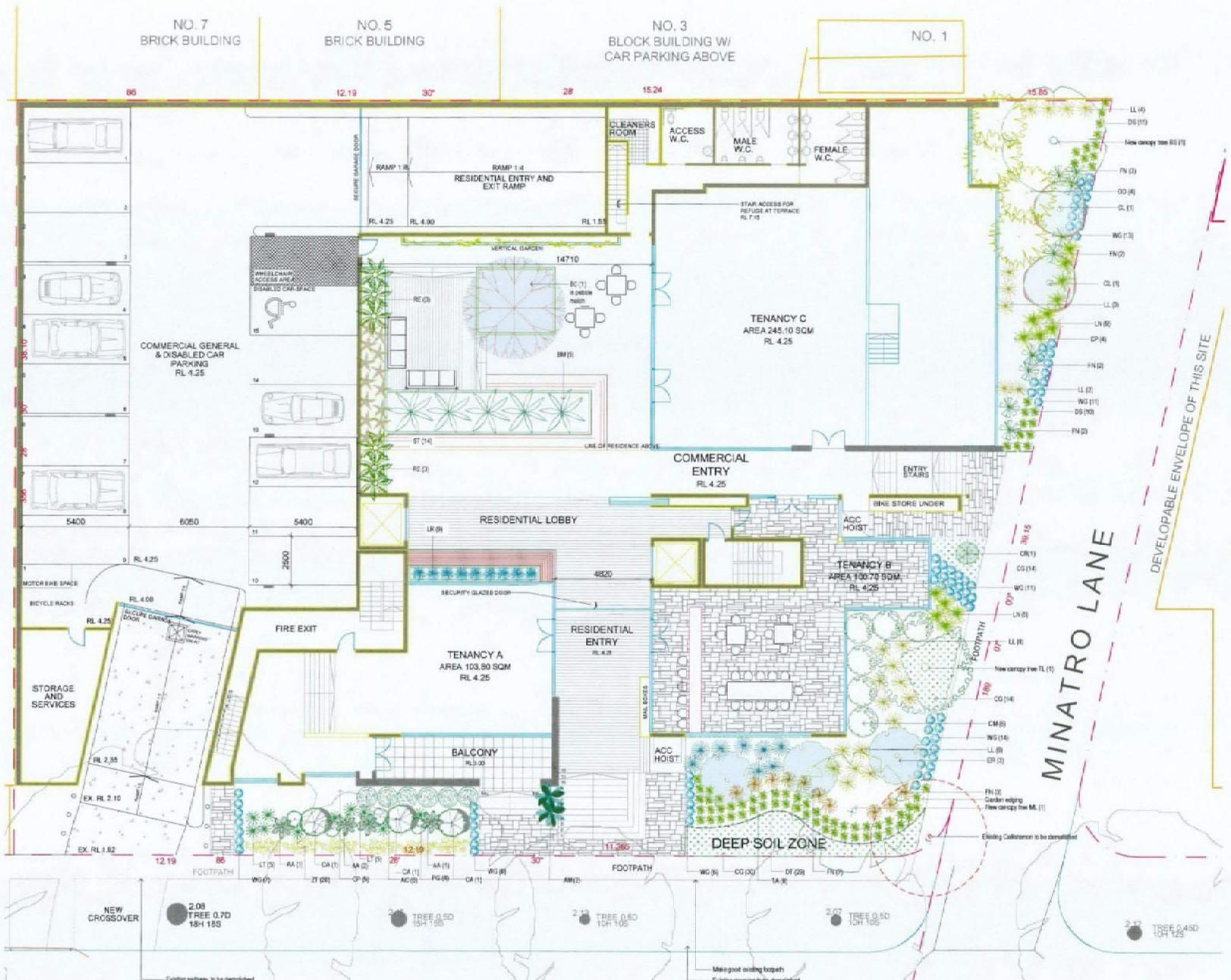
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C	28/05/17	FOR CONSULTANTS
B	28/05/17	DEVELOPMENT APPLICATION
A	28/05/17	DEVELOPMENT APPLICATION
ISSUE DATE		DESCRIPTION

*[Handwritten signature]*

SHEET: A1  
SCALE: AS INDICATED  
DRAWN: CD/CK/DRAC  
PROJECT No: 881  
OWNER/APPLICANT: ANTHONY GLEESON  
PROJECT ADDRESS: 2-8 RICKARD ROAD, NORTH NARRABEEN  
TITLE: SECTION AA & BB  
PROJECT STATUS: FOR COURT - S34  
DRAWING ISSUE  
DA08 C

**HAVILAND ARCHITECTS**  
 2nd Floor, 100 West Wharf, Narrabeen NSW 1587. T: 002 927 1010. E: harchitects@haviland.com.au. www.haviland.com.au  
 Registration No. 3005. Incorporation: Australia.

- LEGEND**
- BOUNDARY
  - SEWER
  - EXISTING LEVELS
  - ALUMINUM EDGE
  - CONCRETE
  - MULCH
  - PAVING
  - TREE TO BE RETAINED
  - TREE TO BE REMOVED



**PROPOSED PLANT SCHEDULE**

KEY	BOTANICAL NAME	COMMON NAME	QTY	NATURE HGT	POT SIZE
<b>TREES</b>					
SC	BACHOUSSIA CTRIOIDORA	LEMON MYRTLE	1	5m	75Lp
RS	BANKSIA TERRATA	OLD MAN BANKSIA	1	7m	400Lp
ER	ELAEAGARUS BICUCILLATUS	SILVERBERRY ASH	3	6m	75Lp
ML	MELALEUCA LINEARIFOLIA	SNOW IN SUMMER	1	6m	400Lp
TL	TRISTANOPSIS LAURINA 'LUSCIOUS'	LUSCIOUS WATER GUM	1	6m	400Lp
<b>SHRUBS</b>					
AA	ASPENIUM AUSTRALASICUM	BIRDS NEST FERN	5	1m	250mm
AC	ACHENA SMITHI 'MIRCH CHERRY SURPRISE'	CHERRY SURPRISE	6	2.5m	35Lp
JM	ALPINA MEXICANA 'FALSC CARDAMOM'	NATIVE GINGER	2	2m	200mm
BA	BAMBUSA TEXTILIS GRACILIS	SLENDER WEAVERS BAMBOO	5	5m	75Lp
CM	CORREA ALBA	WHITE CORREA	3	1.5m	250mm
CL	CALLISTEMON LINEARIS	NARROW LEAF BOTTLEBRUSH	2	2m	35Lp
CM	CALLISTEMON VIBRANS 'MACARTHUR'	MACARTHUR BOTTLEBRUSH	6	1.8m	250mm
CP	CRINUM PEDUNCULATUM	RIVER LILY	9	2m	250mm
CP	CYCAD REVOLUTA	CYCAD	1	1m	250mm
OD	ODONTARRIS DROMOPOLIUM	EVERLASTING PAPER DASY	4	2m	250mm
PS	PITTOCORPUS GOLF BALL	GOLF BALL PITTOCORPUS	4	0.7m	250mm
RE	RHAPIS EXCELSA	RHAPIS PALM	6	2m	45Lp
WG	WESTRINGIA FRUTICOSA 'GREY BOX'	GREY BOX	75	0.4m	250mm
<b>GRASSES / GROUND COVERS</b>					
CO	CARPICOCTUS GLAUCCENS	POI FACE	44	0.2m	200mm
DS	DIANELLA 'SILVER STREAK'	VARIAGATED FLAX LILY	21	0.5m	140mm
DT	DIANELLA 'TAS RED'	TAS RED FLAX LILY	29	0.6m	200mm
LL	LOXANDERA LONGIFOLIA	SPINY HEADED NAT RUSH	19	1m	200mm
LN	LOXANDERA LONGIFOLIA 'NYALLA'	NYALLA	14	0.7m	200mm
LR	LEPOPE MUCOSAR 'JUST RIGHT'	JUST RIGHT	9	0.5m	140mm
LT	LOXANDERA LONGIFOLIA 'TANKA'	TANKA	10	0.5m	200mm
FN	FINCHIA NICCOSSA	FINCHBY CLUBRUSH	9	0.5m	200mm
ST	SAUSEVERIA TRIFASCATA 'LAURENTI'	MOTHER IN LAWS TONGUE	14	0.5m	250mm
TA	THEMEDA AUSTRALIS	HANGAROO GRASS	8	1m	200mm
ZT	ZONISA TENUIFOLIA	NO MON GRASS	29	0.1m	200mm

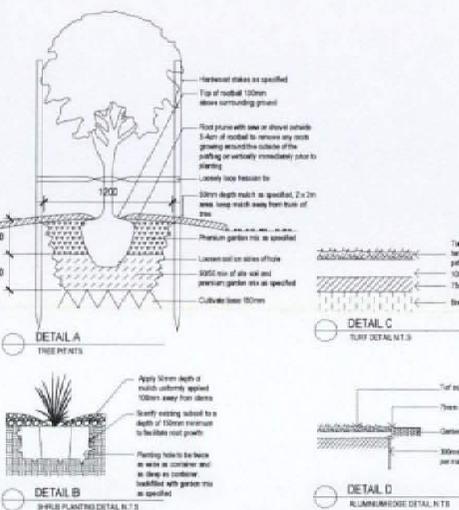
IDENTIFIES PLANT FROM COUNCIL'S LOWLANDS VEGETATION LIST

**LEGEND**

[Symbol]	BOUNDARY
[Symbol]	R/W/R
[Symbol]	EXISTING LEVELS
[Symbol]	ALUMINUM EDGE
[Symbol]	CONCRETE
[Symbol]	MULCH
[Symbol]	TURF
[Symbol]	TREE TO BE RETAINED
[Symbol]	TREE TO BE REMOVED

**PROPOSED PLANT SCHEDULE**

KEY	BOTANICAL NAME	COMMON NAME	QTY	MATURE HGT	POT SIZE
<b>TREES</b>					
MT	MAKOLA GRANDIFLORA 'TEDDY BEAR'	TEDDY BEAR MAGNOLIA	9	3m	45Ltr
<b>SHRUBS</b>					
CB	ORABSLUA OVATA 'BLUE BIRD'	BLUE BIRD	25	0.8m	25Ltr
CG	CALLISTEMON VINALIS 'GREEN JOHN'	GREEN JOHN BOTTLEBRUSH	15	1m	25Ltr
CL	CALLISTEMON VINALIS 'SLIM'	SLIM BOTTLEBRUSH	20	3m	25Ltr
DE	CORYANTHES EXCELSA	GYMERA LILY	23	1.5m	35Ltr
WN	WESTRINGIA FRUTICOSA 'NARRINGA'	NARRINGA	12	2m	35Ltr
<b>GRASSES / GROUND COVERS</b>					
AA	AGAVE ATTENUATA	AGAVE	22	0.5m	200mm
DC	DANIELA 'CASSIA BLUE'	CASSIA BLUE FLAXLILY	19	0.4m	200mm
LN	LOMANCOLA LONGIFOLIA 'NYALLA'	NYALLA	22	0.7m	200mm
PT	PHORMIUM TENAX 'FLAMIN'	FLAMIN	14	0.8m	200mm
LT	LOMBARDIA LONGIFOLIA 'TANIKO'	TANIKA	24	0.5m	200mm
WM	WESTRINGIA FRUTICOSA 'MUNDI'	MUNDI	17	0.2m	200mm



**LANDSCAPE SPECIFICATION NOTES**

**SITE PREPARATION**  
Locate and clear ground and overhead services & ensure no damage occurs. Levels on plan are nominal only & all dimensions to be checked on site prior to commencement. Final structural integrity of all forms shall be the sole responsibility of landscape contractor.

**PROTECTION OF EXISTING TREES**  
Protect all trees affected by demolition & construction. Take necessary precautions to protect the Structural Root Zone (SRZ) as per AS 4970-2009 Australian Standard for Protection of Trees on Development Sites. These protection measures shall remain intact until the completion of all construction works. Prohibited works or material storage within the SRZ as per AS 4970-2009 except with approval of Council.

**REMOVE EXISTING TREES**  
- remove any signs or any other objects to be free placement of waste disposal or sign placement and removal of branches, after trees have been fully qualified & assessed.

**COMPACTED GRAVEL/CONCRETE**  
Avoid compaction of the ground under trees. If compaction nevertheless occurs between the soil/Grass/Cony to be carried out by a qualified Abor.

**REMOVAL OF EXISTING TREES**  
All trees to be removed shall be carried out by a qualified arborist and work shall conform to the provisions of AS4373-2007 Australian Standards for The Pruning of Amenity Trees.

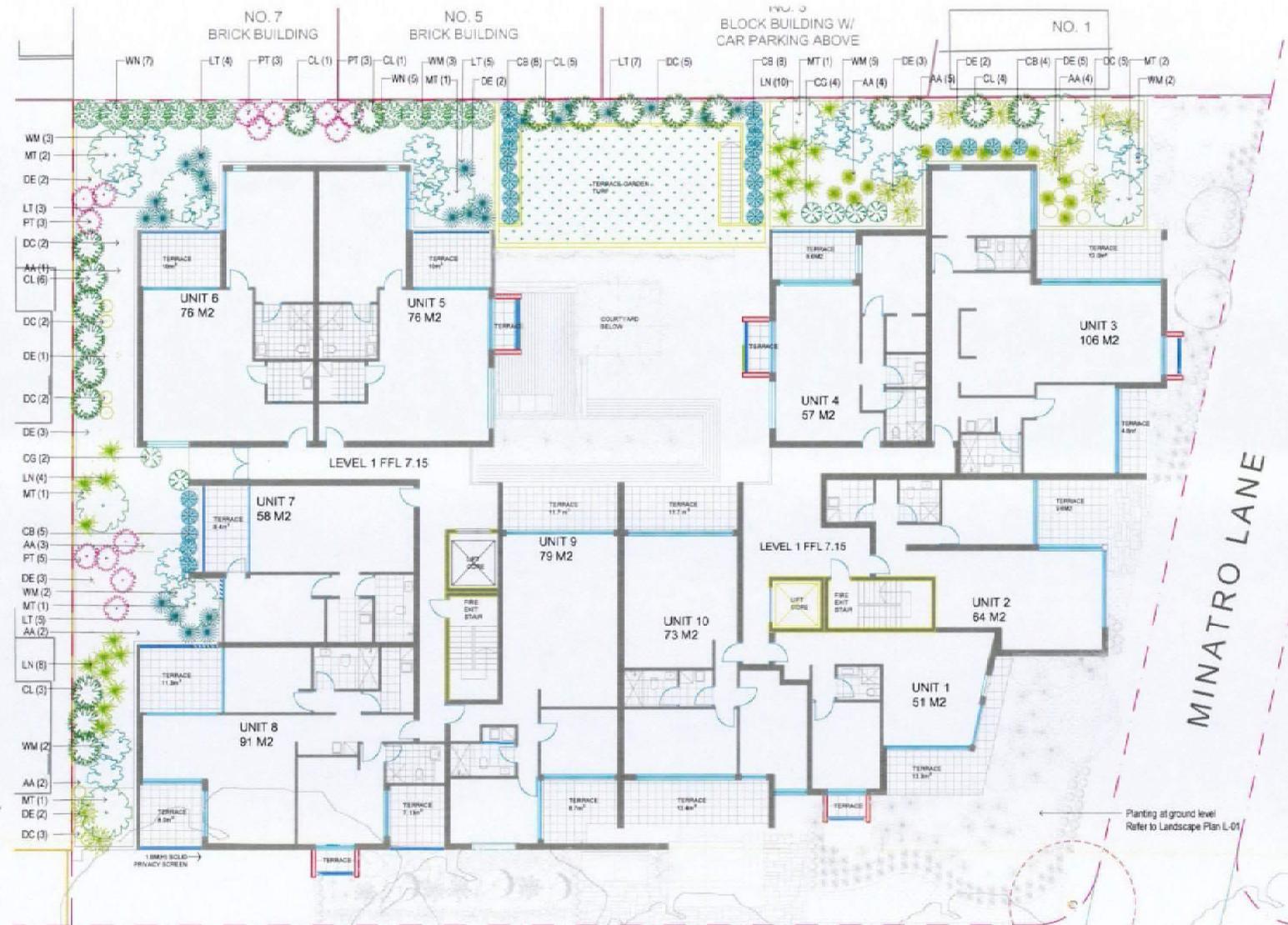
**ELIMINATE WEEDS**  
Remove all existing weeds by hand, wiping or spraying with a glyphosate based herbicide. Weed control shall never be performed by mechanical cultivation or by spraying herbicides; spraying is to be used in extreme all existing weeds 30 days prior to planting.

**EXAMINATION & SUB-SOIL PREPARATION**  
Excavate garden beds to the depth required and rip or scarify beds & sides of pit to a minimum depth of 150mm.

**REMOVE EXISTING TERRACES**  
Existing site topsoil should be salvaged. Appropriately stockpiled where possible.

**IMPORTED TOPSOIL**  
Quality System: AS 4919 'Turf Areas', 'Turf Industry', 'Turf Fit and Stack Planting', 'Premium Garden Mix' as supplied by, ARL p. 02 9450 1444 or approved alternative. Planting in 'Plaster' Boxes: Solignum A - 'Plaster Box Mix' supplied by, ARL p. 02 9450 1444 or approved alternative.

**PLANTING**  
Health & Vigour: Supply plants with foliage, texture & colour consistent with that shown in healthy specimens of the species. Branches of Decid. Supply plants with new, variation in colour back on opposite side of stem axis, > 20%. Stock selection should be based on NATS/SPCC Guide (Specifying Trees: A Guide to Assessment of Tree Quality).



**STAKING**  
Install 2 x 150mm 42x4 hardwood timber stakes with rebar ties to all trees. Provide appropriate support considering exposure to prevailing winds. Stakes and bracing ties to be removed as soon as the tree is well supporting.

**ALUMINUM GARDEN EDGING**  
Supply and install Link Edge 75mm as per Landscape Plan. Compact and level the base in the required areas as indicated on Landscape Plan. Half hammer spades into prepared holes, support 4 spikes every 2m length, starting from the first hole in the end of the Link Edge. Use spike washers supplied by manufacturer. Hammer subsequent spikes in parallel areas along the length. Especially at points where a curve is required. Connect lengths together by using fish-plate connectors supplied by manufacturer. Check position of Link Edge is correct before hammering spikes into ground.

**MULCHING**  
Quality system: AS 4854. All planting areas impacted by building works to receive 50-75mm of garden Mulch: Compostweaver, ARL p. 02 9450 1444 or approved alternative. Keep mulch 100mm away from plant stems & form a well to stop excessive water runoff. Finish flush with adjacent surfaces.

**TURFING**  
New turf or Weather Sealed Laid Turf. Excavate / grade all areas to be turfed to 120mm below finished levels. Ensure that all surface runoff is directed away from buildings. Ensure that no ponding or pooling will occur. Further to the subgrade to 150mm. Install 100mm of imported turf underlay. Rolls to be closely butted and laid in a staggered pattern. Fill any small gaps with topsoil and water thoroughly.

**PLANTING**  
Water immediately after plant installation & allow for soil settlement. For the first 2 to 4 weeks after planting, the root zone & immediate surrounds must be kept moist. Continue watering until plants have established.

# Appendix B

## Section 4.55 Architectural Drawings



# SECTION 4.55 MODIFICATION - N0267/16. SHOP-TOP DEVELOPMENT NO.2 - 8 RICKARD ROAD NARRABEEN N.S.W. 2101

ARCHITECTURAL DOCUMENTATION - PREPARED BY DESIGN VINES

10090_DACS	S1	COVER SHEET
10090_DA00	S1	LOCATION PLAN
10090_DA01	S1	PROPOSED PLANS - ROOF
10090_DA02	S1	PROPOSED PLANS - BASEMENT
10090_DA03	S1	PROPOSED PLAN - GROUND
10090_DA04	S1	PROPOSED PLAN - FIRST
10090_DA05	S1	PROPOSED PLANS - SECOND FLOOR
10090_DA06	S1	PROPOSED - ELEVATIONS
10090_DA07	S1	PROPOSED - ELEVATIONS
10090_DA08	S1	PROPOSED - SECTIONS
10090_SD01	S1	SHADOW DIAGRAM ANALYSIS 9am
10090_SD02	S1	SHADOW DIAGRAM ANALYSIS 12pm
10090_SD03	S1	SHADOW DIAGRAM ANALYSIS 3pm
10090_SD26		VIEW NORTH EAST ACROSS RICKARD ROAD AND THE SITE
10090_SD27		VIEW WEST ALONG MINATRO LANE AND THE SITE
10090_SD28		VIEW EAST ACROSS RICKARD ROAD AND THE SITE
10090_SD29		VIEW NORTH UP MINATRO LANE
10090_SD30		VIEW WEST ALONG RICKARD ROAD AND THE SITE
10090_SD31		VIEW EAST ALONG RICKARD ROAD AND THE SITE



EXTERNAL FINISHES SCHEDULE  
DESIGN VERIFICATION STATEMENT

FURTHER DOCUMENTATION:  
GK WILSON - SURVEY  
VAUGHAN MILLIGAN DEVELOPMENT ( TOWN PLANNER)  
ACOR CONSULTANTS - FLOOD  
SPACE LANDSCAPE DESIGNERS  
BASIX - EFFICIENT LIVING

## NOTES & LEGEND

- NOTE 1: DEMOLISH ALL EXISTING DWELLING, PATHS, ANCILLARY STRUCTURES AND TREES INDICATED. PREPARE SITE FOR THE CONSTRUCTION OF THE NEW BUILDING AND ASSOCIATED ANCILLARY WORKS REQUIRED.
- NOTE 2: PROVIDE NEW BUILDING STRUCTURE, ROOF AND FLOORS AS REQUIRED AND TO FUTURE ENGINEERS DETAILS.
- NOTE 3: PROVIDE NEW CONCRETE SLAB AND MASONRY WALL STRUCTURE GENERALLY.
- NOTE 4: PROVIDE EXTERNAL CLADDING, MASONRY AND OTHER FINISHES AS INDICATED IN THE DRAWINGS AND ATTACHED DOCUMENTATION.
- NOTE 5: PROVIDE PLASTERBOARD CEILINGS AND WALLS INTERNALLY GENERALLY. ALLOW FOR FC SHEET LINING TO WET AREAS.
- NOTE 6: PROVIDE INSULATION WITH MINIMUM INSULATING PROPERTIES AS SPECIFIED IN THE 'BASIX' CERTIFICATION ATTACHED TO THIS APPLICATION.
- NOTE 7: PROVIDE NEW METAL SHEET ROOFING ON SARKING AND INSULATION. WHERE INDICATED PROVIDE FLAT CONCRETE ROOF TO ROOF LEVEL.
- NOTE 8: PROVIDE NEW ALUMINIUM FRAMED WINDOWS IN ACCORDANCE WITH REQUIREMENTS OUTLINED IN THE BASIX CERTIFICATE AND THE 'ABSAS BASIX THERMAL COMFORT SIMULATION METHOD' REPORT.
- NOTE 9: ALLOW FOR GUTTERS, DOWNPIPES AS REQUIRED TO CONNECT TO THE PROPOSED NEW STORMWATER SYSTEM IN ACCORDANCE WITH THE ENGINEERING DOCUMENTATION.
- NOTE 10: PROPOSED ROOF DRAINAGE IN ACCORDANCE WITH ENGINEERING STORMWATER DOCUMENTATION.
- NOTE 11: ALLOW TO PROVIDE NEW ELECTRICAL, WATER AND SEWERAGE SYSTEMS. ALLOW TO UPGRADE AS REQUIRED BY RELEVANT AUTHORITIES.
- NOTE 12: REFER TO ENGINEERING, LANDSCAPE AND ALL OTHER ATTACHED DOCUMENTATION FOR FURTHER INFORMATION
- NOTE 13: CONFIRM ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION.
- NOTE 14: ALL WORK TO BE COMPLETED IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND B.C.A. REQUIREMENTS.
- NOTE 15: REFER TO ALL OTHER ATTACHED DOCUMENTATION FOR FURTHER DETAIL ON THE DEVELOPMENT PROPOSAL.

## BASIX REQUIRMENTS

Thermal comfort inclusions	
Glazing Doors/windows	Aluminium framed single clear glazing to all units: U-Value: 6.70 (equal to or lower than) SHGC: 0.57 (±10%) A – awning windows, casement windows & hinged glazed doors U-Value: 6.70 (equal to or lower than) SHGC: 0.70 (±10%) B – Fixed glazing, glazed sliding doors & louvres windows.  Aluminium framed performance glazing <b>as per assessor certificate</b> : U-Value: 4.8 (equal to or lower than) SHGC: 0.59 (±10%) B – Fixed glazing, glazed sliding doors & louvres windows. Given values are NFRC, total window values
Roof	Concrete roof no insulation Default light colour
Ceiling	Plasterboard ceiling, an R1.8 insulation where exposed roof above Plasterboard ceiling, no insulation where neighbouring units are directly above Note: Loss of ceiling insulation due to penetrations from down lights have been accounted for in accordance with BCA Technical Notes, assume non-ventilated LED down lights IC abutted and covered.
External wall	Cavity brick with polystyrene insulation – total wall system R-value R1.49 first floor units Reverse brick veneer with cladding, R1.5 insulation to second floor units 200mm Concrete wall with plasterboard internally, R1.0 insulation (insulation only value) <b>as per assessor certificate</b> Default medium colour
Inter tenancy walls	200mm dincell concrete, plasterboard lined direct stick both sides with R1.0 insulation to walls shared to corridor, lift shaft and stair well
Walls with-in dwellings	Plasterboard on studs – no insulation
Floors	Concrete – R1.2 subfloor insulation required to units with floor exposed to outside & garage soffit <b>as per assessor certificate</b> Concrete between levels no insulation
Floor coverings	Carpet to bedrooms, and tiles elsewhere
BASIX water inclusions	
Central rainwater storage	Tank size 5,000L Collecting from 200m <sup>2</sup> roof area Connected to outdoor tap for irrigation of common landscaping
BASIX energy inclusions	
Hot water system	Individual gas instantaneous hot water systems – 6 stars
Alternative energy	3.0kWp photovoltaic (PV) system

This drawing is for council approval purposes only and is not to be used for construction unless authorised by Design Vines. All dimensions and levels to be checked by builder/contractor prior to commencing any work. All boundaries and contours subject to receipt of valid survey to date. Drawings may not be reproduced without permission from Design Vines.

Issue	Description	Date
S1	Issue for Section 4.55 Amendment	26.06.23

### SYMBOL LEGEND

	BOUNDARY	FB - FACE BRICK	BHP - BUILDING HEIGHT PLANE
	EXISTING WALL TO BE RETAINED.	CR - CEMENT RENDER	COS - CHECK ON SITE
	PROPOSED NEW WALLS	MC - MASONRY CLADDING	C - CUPBOARD
	SECTION/ SHEET NUMBER	CONC - CONCRETE	EX - EXISTING
		FC - FIBRE CEMENT SHEET	FFL - FINISHED FLOOR LEVEL
		LWC - LIGHTWEIGHT CLADDING	H - HEIGHT
		TIM - TIMBER	NGL - NATURAL GROUND LINE
		MSR - METAL SHEET ROOFING	OF - OVER FLOW
		BAL - BALUSTRADE	RL - RELATIVE LEVEL SCREEN
		C - CUPBOARD	SW - STORMWATER
			TYP - TYPICAL



Client	ANTHONY GLEESON
Project	2-8 RICKARD ROAD, NORTH NARRABEEN

Title	COVER SHEET
Drawn	MB
Number	10090_DACS
Issue	S1

## DEVELOPMENT APPLICATION

**DesignVines**  
mitchbye@designvines.com  
www.designvines.com  
Mitchell Bye Nominated Architect No.9822



NO. 10 - THREE STOREY COMMERCIAL & RESIDENTIAL DEVELOPMENT



SIDE SETBACK BLANK WALL  
NO. 10 - THREE STOREY COMMERCIAL & RESIDENTIAL DEVELOPMENT



VIEW EAST ACROSS RICKARD ROAD AND THE SITE.



VIEW WEST ACROSS RICKARD ROAD AND THE SITE.



OVERLOOKING THE OPEN SPACE AND FUTURE DEVELOPMENT OF 1 GONDOLA TO 3 GONDOLA REAR CARPARK



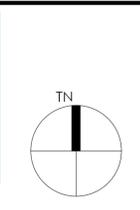
VIEW NORTH UP MINATRO LANE - NO STREET ACTIVATION OR PREDESTINATION AMENITY.

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Issue	Description	Date
S1	Issue for Section 4.55 Amendment	16.06.23

SYMBOL LEGEND	
	BOUNDARY
	EXISTING WALL TO BE RETAINED.
	PROPOSED NEW WALLS
	SECTION/ SHEET NUMBER
FB - FACE BRICK	BHP - BUILDING HEIGHT PLANE
CR - CEMENT RENDER	COS - CHECK ON SITE
MC - MASONRY CLADDING	C - CUPBOARD
CONC - CONCRETE	EX - EXISTING
FC - FIBRE CEMENT SHEET	FFL - FINISHED FLOOR LEVEL
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C - CUPBOARD	SW - STORMWATER
	TYP - TYPICAL

0001365610 27 Jun 2023  
 Assessor Tracey Coats  
 Accreditation No. HERA10033  
 Address  
 2-8 Rickard Road, Narrabeen, NSW, 2101  
 4.8 Average star rating  
 NATIONWIDE HOUSE  
 www.nathers.gov.au  
 hstar.com.au

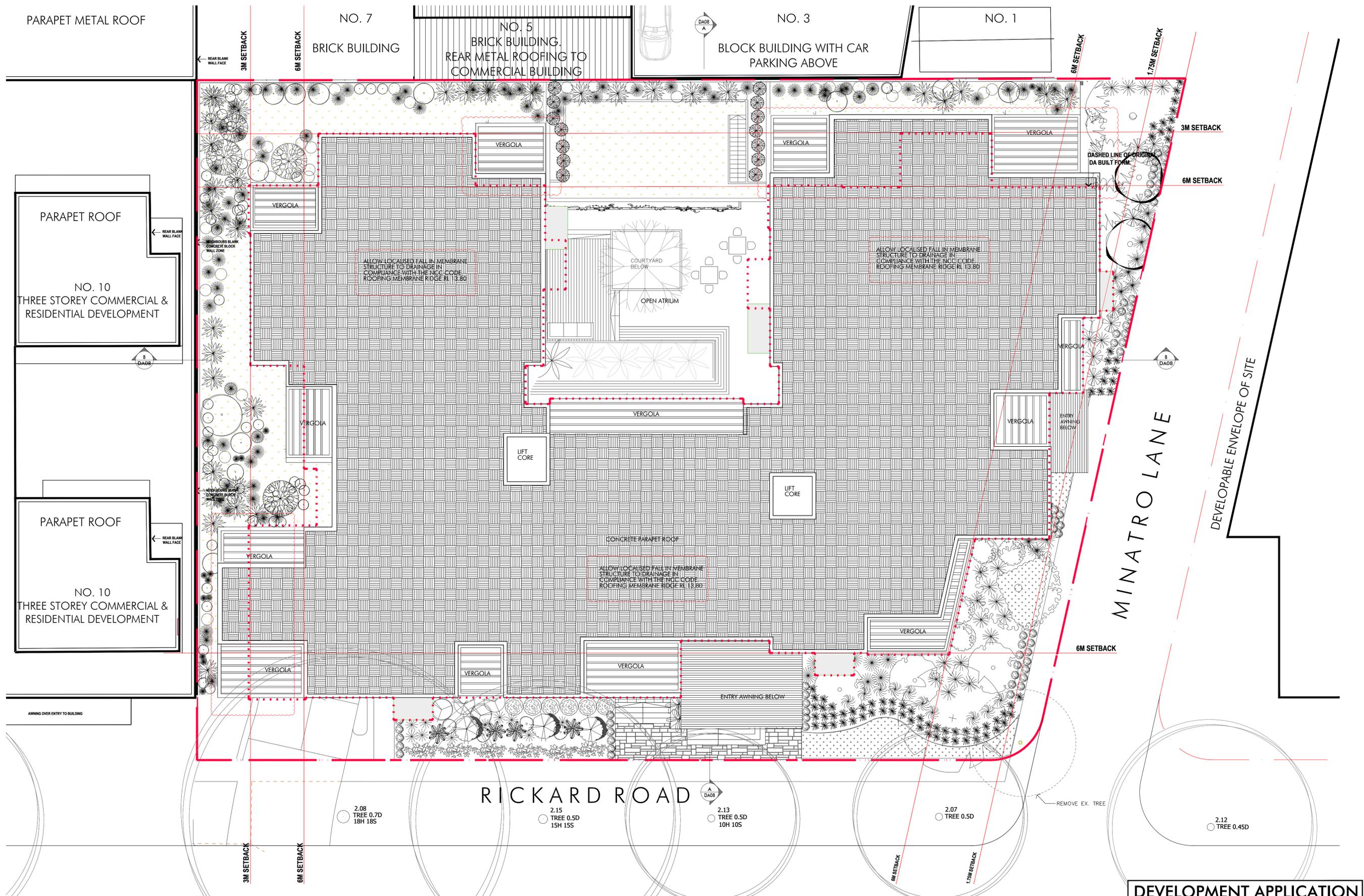


Client  
**ANTHONY GLEESON**  
 Project  
**2-8 RICKARD ROAD, NORTH NARRABEEN**

Title  
 LOCATION PLAN  
 Drawn  
 MMB  
 Checked  
 Date  
 Number  
 10090\_DA00  
 Issue  
 S1

**DEVELOPMENT APPLICATION**

**DesignVines**  
 mitchbye@designvines.com  
 www.designvines.com  
 Mitchell Bye Nominated Architect No.9822



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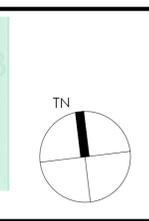
Issue	Description	Date
51	Issue for Section 4.55 Amendment	26.07.23

**SYMBOL LEGEND**

- BOUNDARY
- EXISTING WALL TO BE RETAINED.
- PROPOSED NEW WALLS
- ⊕ SECTION/ SHEET NUMBER

FB - FACE BRICK	BHP - BUILDING HEIGHT PLANE
CR - CEMENT RENDER	COS - CHECK ON SITE
MC - MASONRY CLADDING	C - CUPBOARD
CONC - CONCRETE	EX - EXISTING
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 4.8 Average star rating  
 NATIONALWIDE HOUSE  
 www.nathans.gov.au  
 hstar.com.au

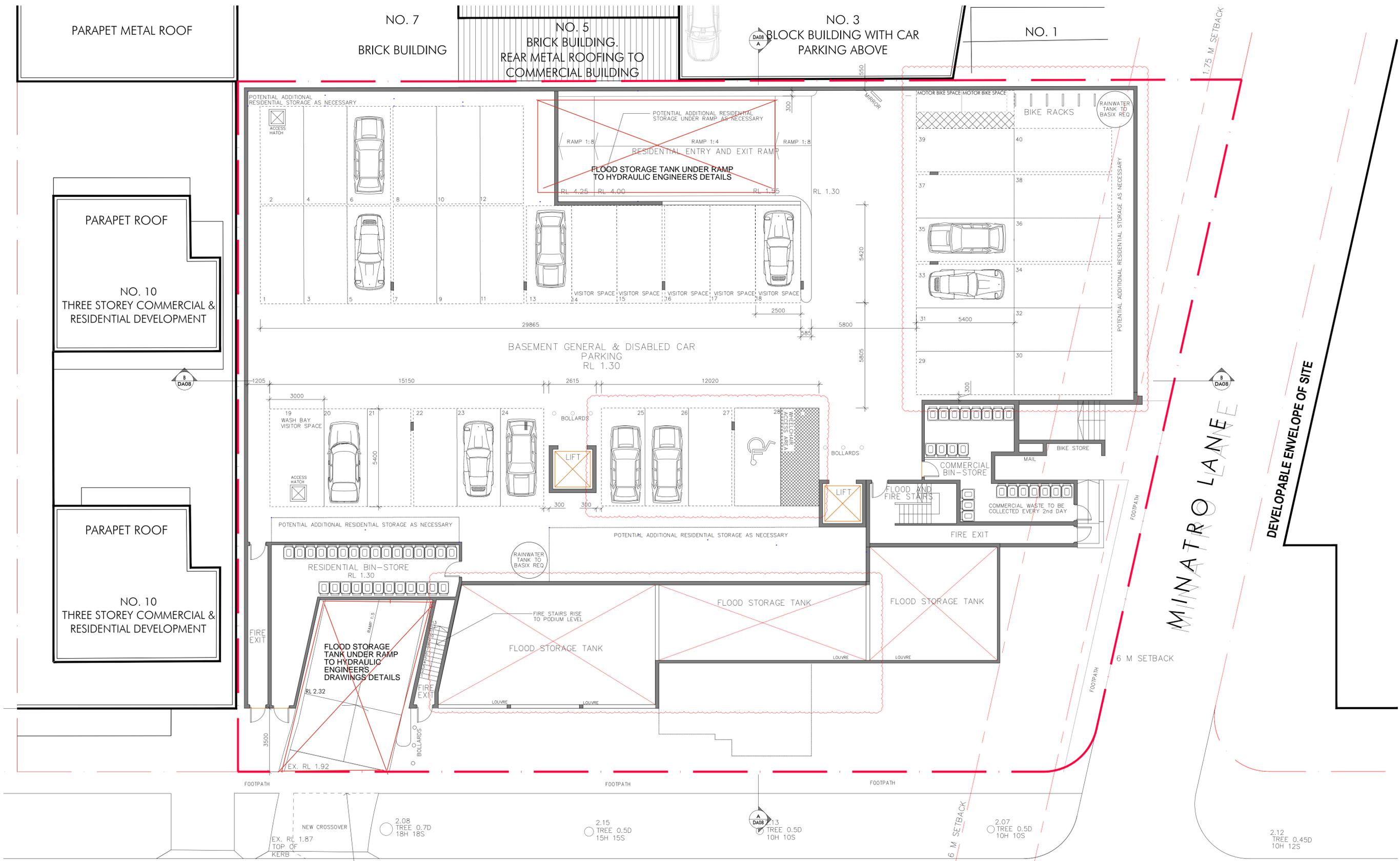


Client  
**ANTHONY GLEESON**  
 Project  
**2-8 RICKARD ROAD, NORTH NARRABEEN**

Title  
**ROOF PLAN**  
 Drawn  
 MB  
 Number  
**10090\_DA01**  
 Date  
**S1**

**DEVELOPMENT APPLICATION**

**DesignVines**  
 mitchbye@designvines.com  
 www.designvines.com  
 Mitchell Bye Nominated Architect No.9822



RICKARD ROAD

DEVELOPMENT APPLICATION

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Issue	Description	Date
S1	Issue for Section 4.55 Amendment	26.07.23

**SYMBOL LEGEND**

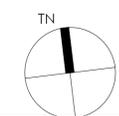
- BOUNDARY
- EXISTING WALL TO BE RETAINED.
- PROPOSED NEW WALLS
- ⊕ SECTION/ SHEET NUMBER

FB - FACE BRICK	BHP - BUILDING HEIGHT PLANE
CR - CEMENT RENDER	COS - CHECK ON SITE
MC - MASONRY CLADDING	C - CUPBOARD
CONC - CONCRETE	EX - EXISTING
FC - FIBRE CEMENT SHEET	FFL - FINISHED FLOOR LEVEL
LWC - LIGHTWEIGHT CLADDING	H - HEIGHT
TIM - TIMBER	NGL - NATURAL GROUND LINE
MSR - METAL SHEET ROOFING	OF - OVER FLOW
BAL - BALUSTRADE	RL - RELATIVE LEVEL SCREEN
C - CUPBOARD	SW - STORMWATER
	TYP - TYPICAL

**4.8** Average star rating  
NATIONWIDE HOUSE

0001365610 27 Jun 2023  
Assessor Tracey Coole  
Accreditation No. HERA10033  
Address  
2-8 Rickard Road, Narrabeen, NSW, 2101

hstar.com.au



Client  
**ANTHONY GLEESON**

Project  
**2-8 RICKARD ROAD, NORTH NARRABEEN**

The  
**BASEMENT FLOOR**

Drawn  
MB

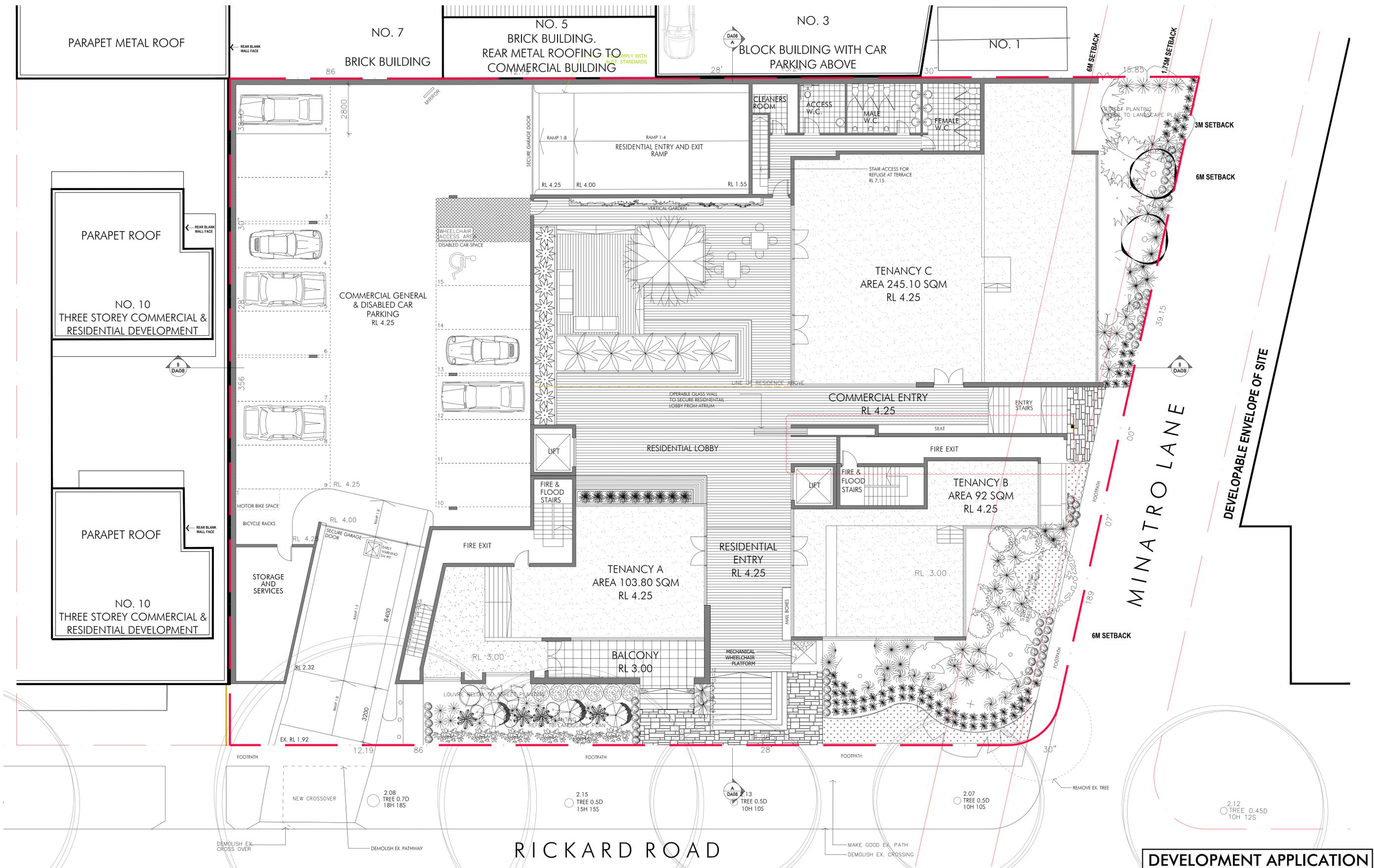
Checked  
MB

Date  
10090\_DA02

Issue  
S1

**DesignVines**

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RICKARD ROAD

MINATRO LANE

DEVELOPMENT APPLICATION

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Issue	Description	Date
S1	Issue for Section 4.55 Amendment	26.07.23

**SYMBOL LEGEND**

- BOUNDARY
- EXISTING WALL TO BE RETAINED.
- PROPOSED NEW WALLS
- ⊕ SECTION/ SHEET NUMBER

FB - FACE BRICK	BHP - BUILDING HEIGHT PLANE
CR - CEMENT RENDER	COS - CHECK ON SITE
MC - MASONRY CLADDING	C - CUPBOARD
CONC - CONCRETE	EX - EXISTING
FC - FIBRE CEMENT SHEET	FFL - FINISHED FLOOR LEVEL
LWC - LIGHTWEIGHT CLADDING	H - HEIGHT
TIM - TIMBER	NGL - NATURAL GROUND LINE
MSR - METAL SHEET ROOFING	OF - OVER FLOW
BAL - BALUSTRADE	RL - RELATIVE LEVEL SCREEN
C - CUPBOARD	SW - STORMWATER
	TYP - TYPICAL

0001365610 27 Jun 2023

Assessor Tracey Coops

Accreditation No. HERA10033

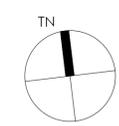
Address  
2-8 Rickard Road, Narrabeen,  
NSW, 2101

4.8 Average star rating

NATIONAL HOME INSPECTION SERVICE

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hstar.com.au



Client  
**ANTHONY GLEESON**

Project  
**2-8 RICKARD ROAD, NORTH NARRABEEN**

Title  
GROUND FLOOR

Drawn  
MB

Checked

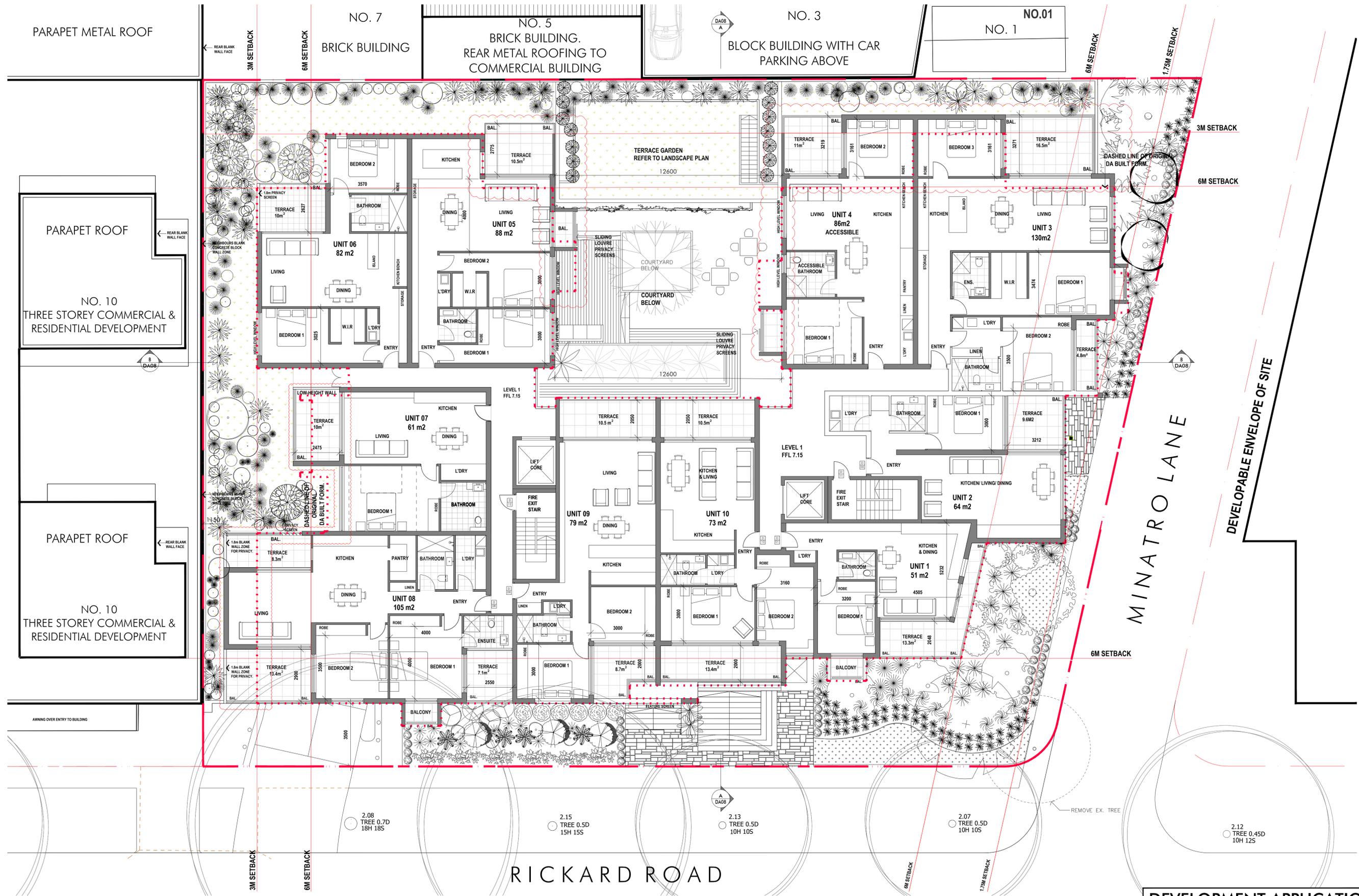
Scale

Number  
10090\_DA03

Sheet  
S1

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Issue	Description	Date
51	Issue for Section 4.55 Amendment	26.07.23

**SYMBOL LEGEND**

- BOUNDARY
- EXISTING WALL TO BE RETAINED.
- PROPOSED NEW WALLS
- ⊕ SECTION/ SHEET NUMBER

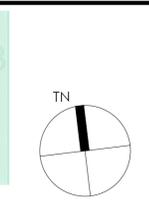
FB - FACE BRICK  
 CR - CEMENT RENDER  
 MC - MASONRY CLADDING  
 CONC - CONCRETE  
 FC - FIBRE CEMENT SHEET  
 LWC - LIGHTWEIGHT CLADDING  
 TIM - TIMBER  
 MSR - METAL SHEET ROOFING  
 BAL - BALUSTRADE  
 C - CUPBOARD

BHP - BUILDING HEIGHT PLANE  
 COS - CHECK ON SITE  
 C - CUPBOARD  
 EX - EXISTING  
 FFL - FINISHED FLOOR LEVEL  
 H - HEIGHT  
 NGL - NATURAL GROUND LINE  
 OF - OVER FLOW  
 RL - RELATIVE LEVEL SCREEN  
 SW - STORMWATER  
 TYP - TYPICAL

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 Assessor Tracey Coops  
 Accreditation No. HERA10033  
 Address  
 2-8 Rickard Road, Narrabeen,  
 NSW, 2101

4.8 Average star rating  
 NATIONWIDE HOUSE  
 www.nathans.gov.au

hstar.com.au



Client  
**ANTHONY GLEESON**

Project  
**2-8 RICKARD ROAD, NORTH NARRABEEN**

Title  
**FIRST FLOOR**

Drawn  
 MB

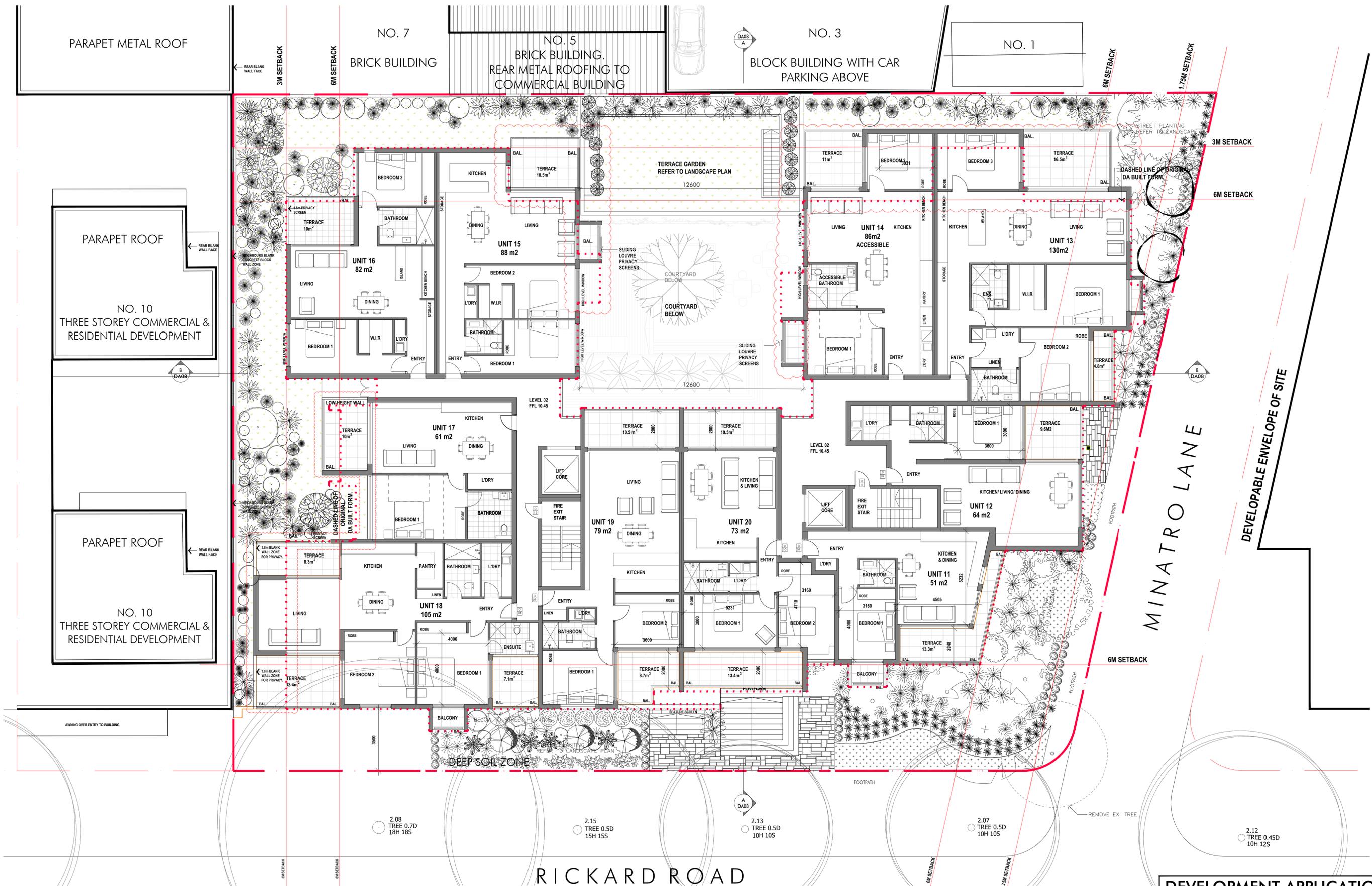
Checked

Number  
**10090\_DA04**

Sheet  
**S1**

**DEVELOPMENT APPLICATION**

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Issue	Description	Date
51	Issue for Section 4.55 Amendment	26.07.23

SYMBOL LEGEND	
	BOUNDARY
	EXISTING WALL TO BE RETAINED.
	PROPOSED NEW WALLS
	SECTION/ SHEET NUMBER
FB - FACE BRICK	BHP - BUILDING HEIGHT PLANE
CR - CEMENT RENDER	COS - CHECK ON SITE
MC - MASONRY CLADDING	C - CUPBOARD
CONC - CONCRETE	EX - EXISTING
FC - FIBRE CEMENT SHEET	FFL - FINISHED FLOOR LEVEL
LWC - LIGHTWEIGHT CLADDING	H - HEIGHT
TIM - TIMBER	NGL - NATURAL GROUND LINE
MSR - METAL SHEET ROOFING	OF - OVER FLOW
BAL - BALUSTRADE	RL - RELATIVE LEVEL SCREEN
C - CUPBOARD	SW - STORMWATER
	TYP - TYPICAL

**4.8**  
Average star rating

NATIONWIDE HOUSE

www.nathans.gov.au

**0001365610 27 Jun 2023**

Assessor Tracey Coats

Accreditation No. HERA10033

Address  
2-8 Rickard Road, Narrabeen, NSW, 2101

hstar.com.au

Client	<b>ANTHONY GLEESON</b>	
Project	<b>2-8 RICKARD ROAD, NORTH NARRABEEN</b>	
Drawn	Checked	Date
MB		
Number	10090_DA05	Sheet
		S1

**DEVELOPMENT APPLICATION**

**SECOND FLOOR**

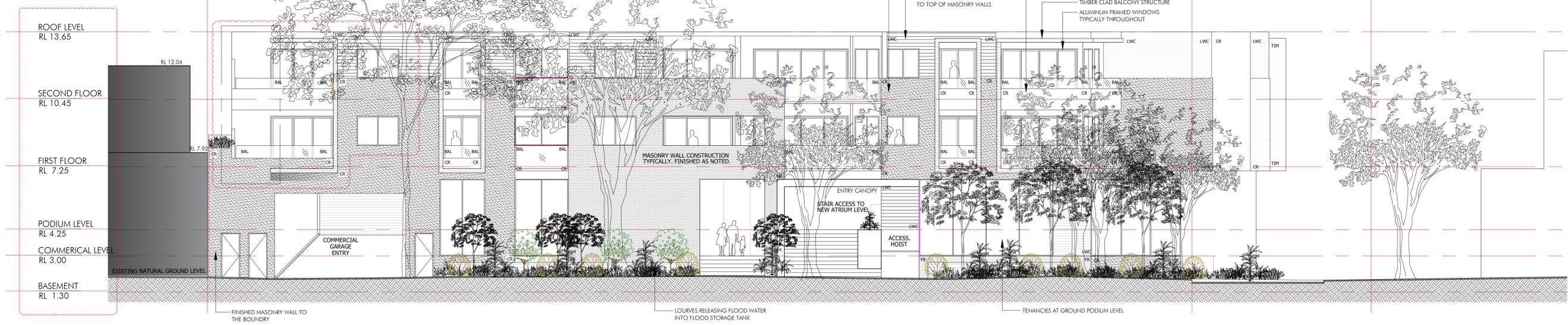
**DesignVines**

mitchbye@designvines.com  
www.designvines.com  
Mitchell Bye Nominated Architect No.9822

NO. 10  
THREE STOREY COMMERCIAL  
& RESIDENTIAL DEVELOPMENT

NO. 2 - 8

MINATRO  
LANE

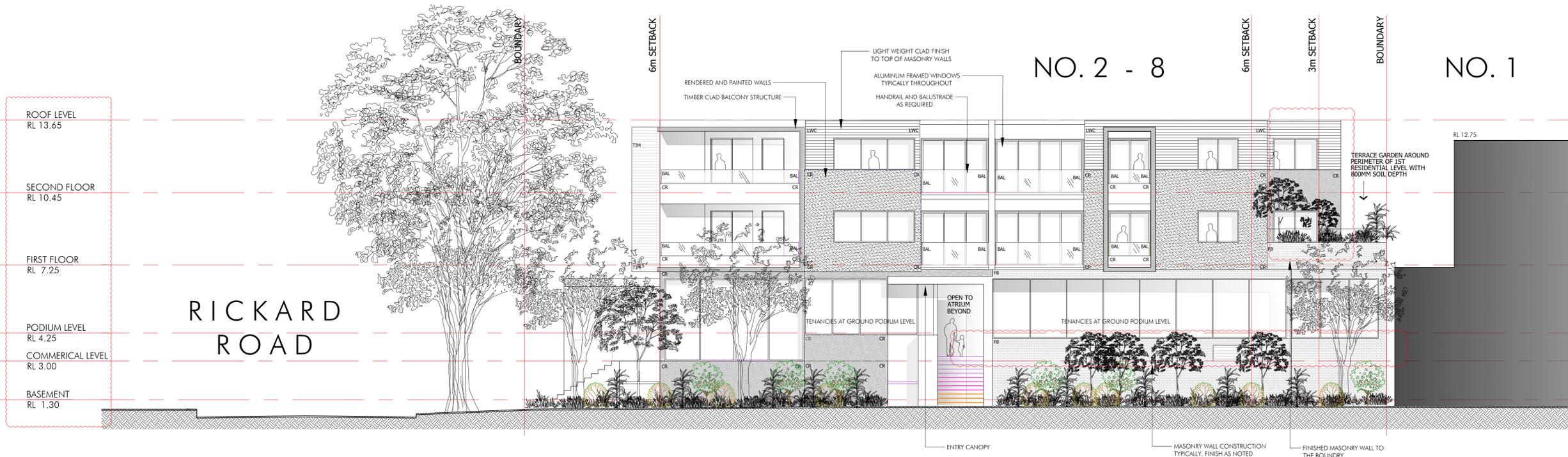


01 PROPOSED SOUTH ELEVATION  
SCALE 1:100 @ A1

RICKARD  
ROAD

NO. 2 - 8

NO. 1



02 PROPOSED EAST ELEVATION  
SCALE 1:100 @ A1

DEVELOPMENT APPLICATION

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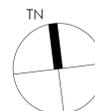
Issue	Description	Date
51	Issue for Section 4.55 Amendment	26.07.23

SYMBOL LEGEND

- BOUNDARY
- EXISTING WALL TO BE RETAINED.
- PROPOSED NEW WALLS
- SECTION/ SHEET NUMBER

- FB - FACE BRICK
- CR - CEMENT RENDER
- MC - MASONRY CLADDING
- CONC - CONCRETE
- FC - FIBRE CEMENT SHEET
- LWC - LIGHTWEIGHT CLADDING
- TIM - TIMBER
- MSR - METAL SHEET ROOFING
- BAL - BALUSTRADE
- C - CUPBOARD
- BHP - BUILDING HEIGHT PLANE
- COS - CHECK ON SITE
- C - CUPBOARD
- EX - EXISTING
- FFL - FINISHED FLOOR LEVEL
- H - HEIGHT
- NGL - NATURAL GROUND LINE
- OF - OVER FLOW
- RL - RELATIVE LEVEL SCREEN
- SW - STORMWATER
- TYP - TYPICAL

0001365610 27 Jun 2023  
 Assessor Tracey Cools  
 Accreditation No. HERA10033  
 Address  
 2-8 Rickard Road, Narrabeen, NSW, 2101  
 4.8 Average star rating  
 NATIONWIDE HOUSE  
 www.nathans.gov.au  
 hstar.com.au



Client  
**ANTHONY GLEESON**

Project  
**2-8 RICKARD ROAD, NORTH NARRABEEN**

Title  
**ELEVATIONS**

Drawn  
MB

Checked

Number  
**10090\_DA06**

Sheet  
**S1**

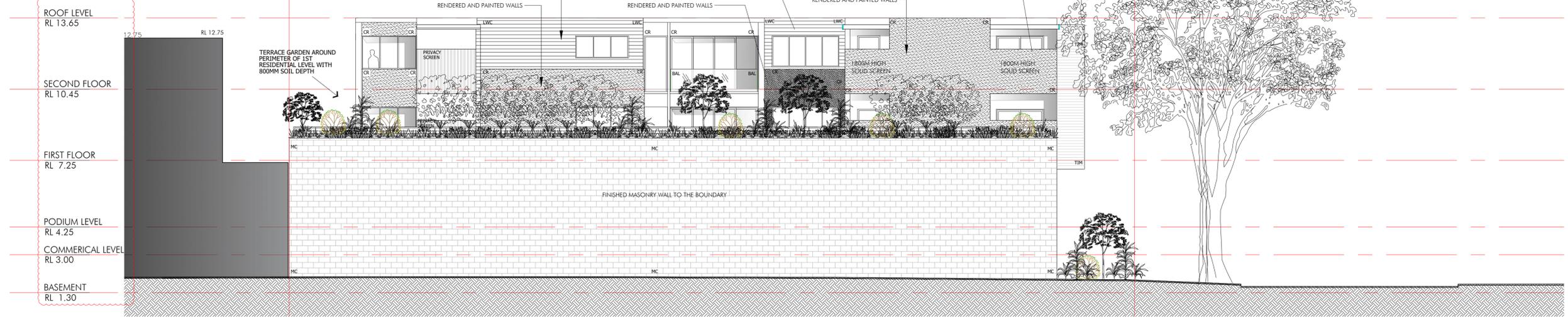
**DesignVines**

mitchbye@designvines.com  
 www.designvines.com  
 Mitchell Bye Nominated Architect No.9822

NO. 7

NO. 2 - 8

RICKARD ROAD



01 PROPOSED WESTERN ELEVATION  
SCALE 1:100 @ A1

MINATRO LANE

NO. 2 - 8

NO. 10



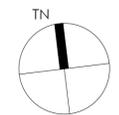
02 PROPOSED NORTH ELEVATION  
SCALE 1:100 @ A1

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Issue	Description	Date
51	Issue for Section 4.55 Amendment	26.07.23

SYMBOL LEGEND	
	BOUNDARY
	EXISTING WALL TO BE RETAINED.
	PROPOSED NEW WALLS
	SECTION/ SHEET NUMBER
FB	FACE BRICK
CR	CEMENT RENDER
MC	MASONRY CLADDING
CONC	CONCRETE
FC	FIBRE CEMENT SHEET
LWC	LIGHTWEIGHT CLADDING
TIM	TIMBER
MSR	METAL SHEET ROOFING
BAL	BALUSTRADE
C	CUPBOARD
BHP	BUILDING HEIGHT PLANE
COS	CHECK ON SITE
C	CUPBOARD
EX	EXISTING
FFL	FINISHED FLOOR LEVEL
H	HEIGHT
NGL	NATURAL GROUND LINE
OF	OVER FLOW
RL	RELATIVE LEVEL SCREEN
SW	STORMWATER
TYP	TYPICAL

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 Assessor Tracey Cools  
 Accreditation No. HERA10033  
 Address  
 2-8 Rickard Road | Narrabeen  
 NSW, 2101  
 4.8 Average star rating  
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Client  
**ANTHONY GLEESON**  
 Project  
**2-8 RICKARD ROAD, NORTH NARRABEEN**

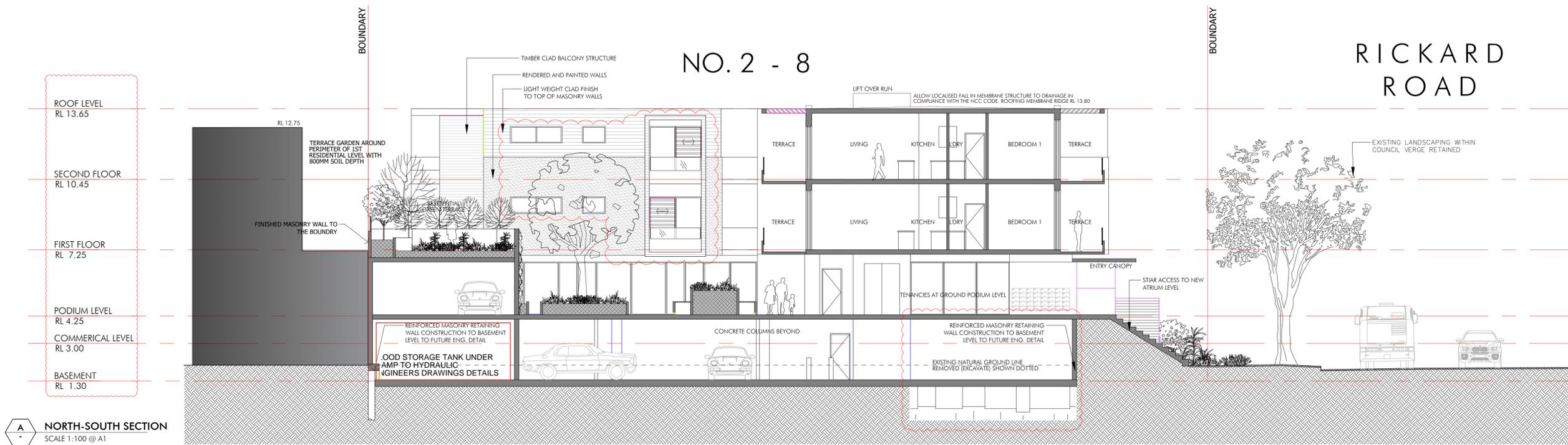
Title		ELEVATIONS	
Drawn	Checked	Date	Issue
MB			
Number	10090_DA07		Issue
			S1

DEVELOPMENT APPLICATION

**DesignVines**  
 mitchbye@designvines.com  
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 Mitchell Bye Nominated Architect No.9822

# NO. 2 - 8

# RICKARD ROAD

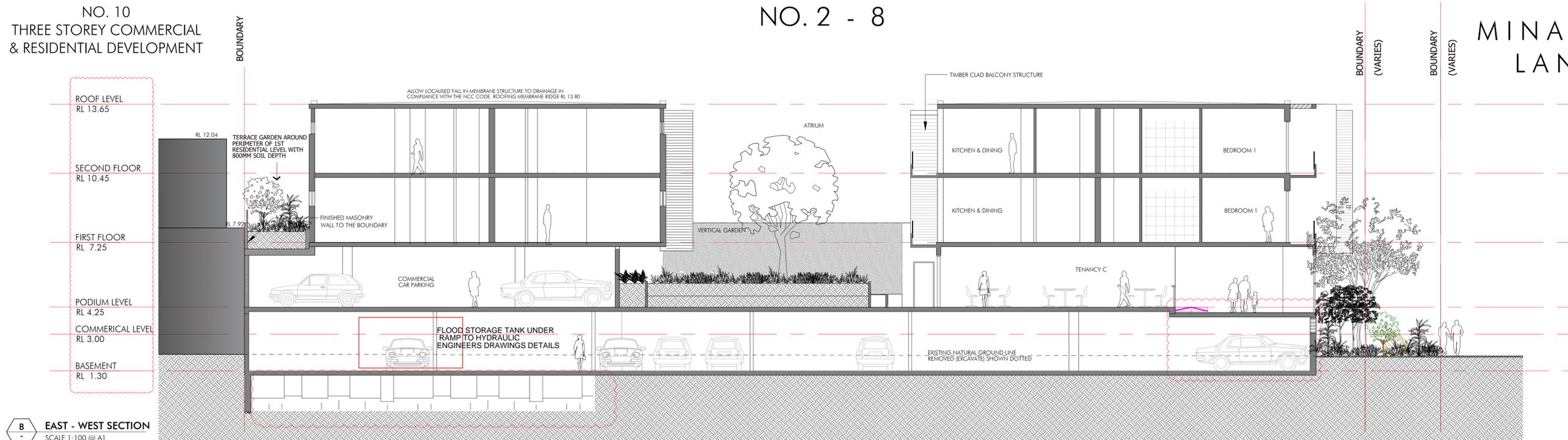


**A** NORTH-SOUTH SECTION  
SCALE 1:100 @ A1

# NO. 2 - 8

## NO. 10 THREE STOREY COMMERCIAL & RESIDENTIAL DEVELOPMENT

# MINATRO LANE



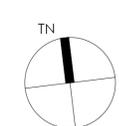
**B** EAST - WEST SECTION  
SCALE 1:100 @ A1

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Issue	Description	Date
51	Issue for Section 4.55 Amendment	26.07.23

SYMBOL LEGEND	
	BOUNDARY
	EXISTING WALL TO BE RETAINED.
	PROPOSED NEW WALLS
	SECTION/ SHEET NUMBER
FB - FACE BRICK	BHP - BUILDING HEIGHT PLANE
CR - CEMENT RENDER	COS - CHECK ON SITE
MC - MASONRY CLADDING	C - CUPBOARD
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FC - FIBRE CEMENT SHEET	FFL - FINISHED FLOOR LEVEL
LWC - LIGHTWEIGHT CLADDING	H - HEIGHT
TIM - TIMBER	NGL - NATURAL GROUND LINE
MSR - METAL SHEET ROOFING	OF - OVER FLOW
BAL - BALUSTRADE	RL - RELATIVE LEVEL SCREEN
C - CUPBOARD	SW - STORMWATER
	TYP - TYPICAL

0001365610 27 Jun 2023  
 Assessor Tracey Coops  
 Accreditation No. HERA10033  
 Address  
 2-8 Rickard Road | Narrabeen  
 NSW, 2101



Client  
**ANTHONY GLEESON**  
 Project  
**2-8 RICKARD ROAD, NORTH NARRABEEN**

SECTIONS	
Drawn	Checked
MB	
Number	Date
10090_DA08	S1

## DEVELOPMENT APPLICATION

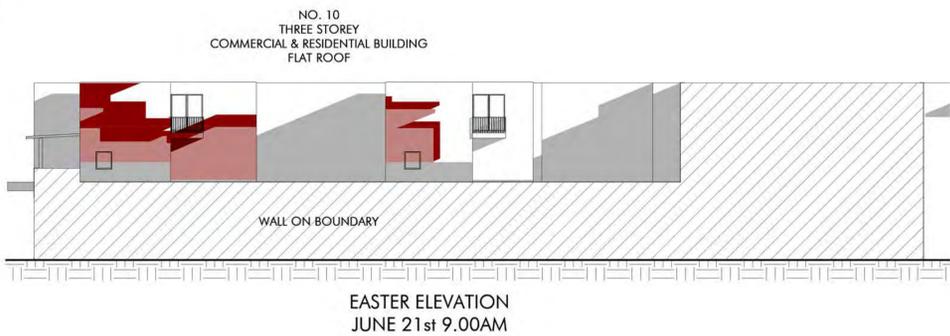
**DesignVines**  
 mitchbye@designvines.com  
 www.designvines.com  
 Mitchell Bye Nominated Architect No.9822



- LEGEND:**
- DENOTES AREA OF EXISTING & SURROUNDING BUILDING SHADOW
  - DENOTES AREA OF PROPOSED S.4.55 ALTERATIONS & ADDITIONS
  - DENOTES AREA OF PROPOSED COURT APPROVED BUILDING SHADOW
  - DENOTES AREA OF PROPOSED ADDITIONAL S.4.55 SHADOW
  - DENOTES S.4.55 SHADOW REDUCTION COMPARE TO COURT APPROVED DA

SHADOWS SHOWN HAVE BEEN COMPILED FROM INFORMATION FROM DETAIL AND LEVEL SURVEY BY G.K WILSON & ASSOC SURVEY, COURT APPROVED ARCHITECTURAL PLANS BY HAVILAND ARCHITECTS AND SECTION 4.55 DOCUMENTATION 2023

Shadowing June 21st 9.00am  
1 : 200



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Issue	Description	Date
51	Issue for Section 4.55 Amendment	16.06.23

**4.8**  
Average star rating

**NATIONWIDE HOUSE**  
Real Estate Group

0001365610 27 Jun 2023  
Assessor Tracey Coats  
Accreditation No. HERA10033  
Address  
2-8 Rickard Road, Narrabeen, NSW, 2101

hstar.com.au

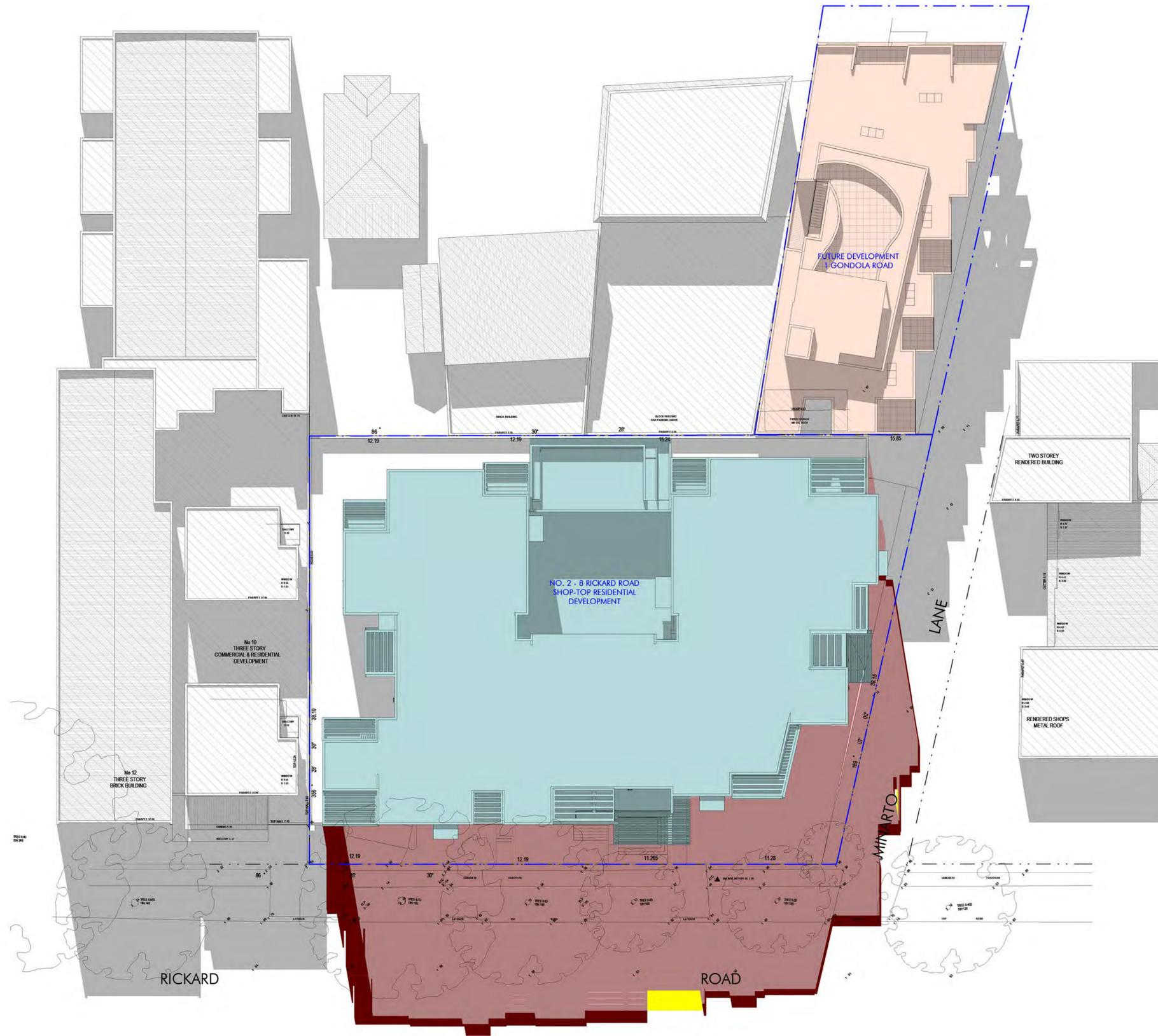


Client	ANTHONY GLEESON
Project	2 - 8 RICKARD ROAD NORTH NARRABEEN 2101

Title	SHADOW DIAGRAM ANALYSIS 9am
Drawn	AB
Checked	JD
Code	AS INDICATE
Number	10090_SD01
Issue	S1

**DesignVines**

mitchbye@designvines.com  
www.designvines.com  
Mitchell Bye Nominated Architect No.9822



- LEGEND:
- DENOTES AREA OF EXISTING & SURROUNDING BUILDING SHADOW
  - DENOTES AREA OF PROPOSED S.4.55 ALTERATIONS & ADDITIONS
  - DENOTES AREA OF PROPOSED COURT APPROVED BUILDING SHADOW
  - DENOTES AREA OF PROPOSED ADDITIONAL S.4.55 SHADOW
  - DENOTES S.4.55 SHADOW REDUCTION COMPARE TO COURT APPROVED DA

SHADOWS SHOWN HAVE BEEN COMPILED FROM INFORMATION FROM DETAIL AND & LEVEL SURVEY BY G.K WILSON & ASSOC SURVEY, COURT APPROVED ARCHITECTURAL PLANS BY HAVILAND ARCHITECTS AND SECTION 4.55 DOCUMENTATION 2023

Shadowing June 21st 12.00pm

1 : 200

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Issue	Description	Date
S1	Issue for Section 4.55 Amendment	16.06.23

0001365610 27 Jun 2023  
 Assessor Tracey Coole  
 Accreditation No. HERA10033  
 Address  
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Client  
**ANTHONY GLEESON**  
 Project  
**2 - 8 RICKARD ROAD  
 NORTH NARRABEEN 2101**

Title  
**SHADOW DIAGRAM  
 ANALYSIS 12pm**

Drawn	Checked	Scale
AB	JD	AS INDICATE
Number 10090_SD02	Issue S1	

**DesignVines**  
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 www.designvines.com  
 Mitchell Bye Nominated Architect No.9822



Shadowing June 21st 3.00pm  
1 : 200

- LEGEND:
- DENOTES AREA OF EXISTING & SURROUNDING BUILDING SHADOW
  - DENOTES AREA OF PROPOSED S.4.55 ALTERATIONS & ADDITIONS
  - DENOTES AREA OF PROPOSED COURT APPROVED BUILDING SHADOW
  - DENOTES AREA OF PROPOSED ADDITIONAL S.4.55 SHADOW
  - DENOTES S.4.55 SHADOW REDUCTION COMPARE TO COURT APPROVED DA

SHADOWS SHOWN HAVE BEEN COMPILED FROM INFORMATION FROM DETAIL AND LEVEL SURVEY BY G.K WILSON & ASSOC SURVEY, COURT APPROVED ARCHITECTURAL PLANS BY HAVILAND ARCHITECTS AND SECTION 4.55 DOCUMENTATION 2023



WESTERN ELEVATION  
MINARTO LANE  
JUNE 21st 3.00PM

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Issue	Description	Date
S1	Issue for Section 4.55 Amendment	16.06.23

0001365610 27 Jun 2023  
 Assessor Tracey Coats  
 Accreditation No. HERA10033  
 Address  
 2-8 Rickard Road, Narrabeen, NSW, 2101  
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Client  
**ANTHONY GLEESON**

Project  
**2 - 8 RICKARD ROAD  
NORTH NARRABEEN 2101**

Title  
**SHADOW DIAGRAM ANALYSIS 3pm**

Drawn	Checked	Scale
AB	JD	AS INDICATE
Number	Issue	
10090_SD03	S1	

**DesignVines**  
 mitchbye@designvines.com  
 www.designvines.com  
 Mitchell Bye Nominated Architect No.9822

**SHADOW ANALYSIS**

NO 2 - 8 RICKARD ROAD  
NARRABEEN NSW



VIEW NORTH EAST ACROSS RICKARD ROAD AND THE SITE

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Issue	Description	Date

0001365610 27 Jun 2023  
 Assessor Tracey Coombs  
 Accreditation No. HERA10033  
 Address  
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 NSW, 2101  
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Client	ANTHONY GLEESON	
Project	2 - 8 RICKARD ROAD NORTH NARRABEEN 2101	

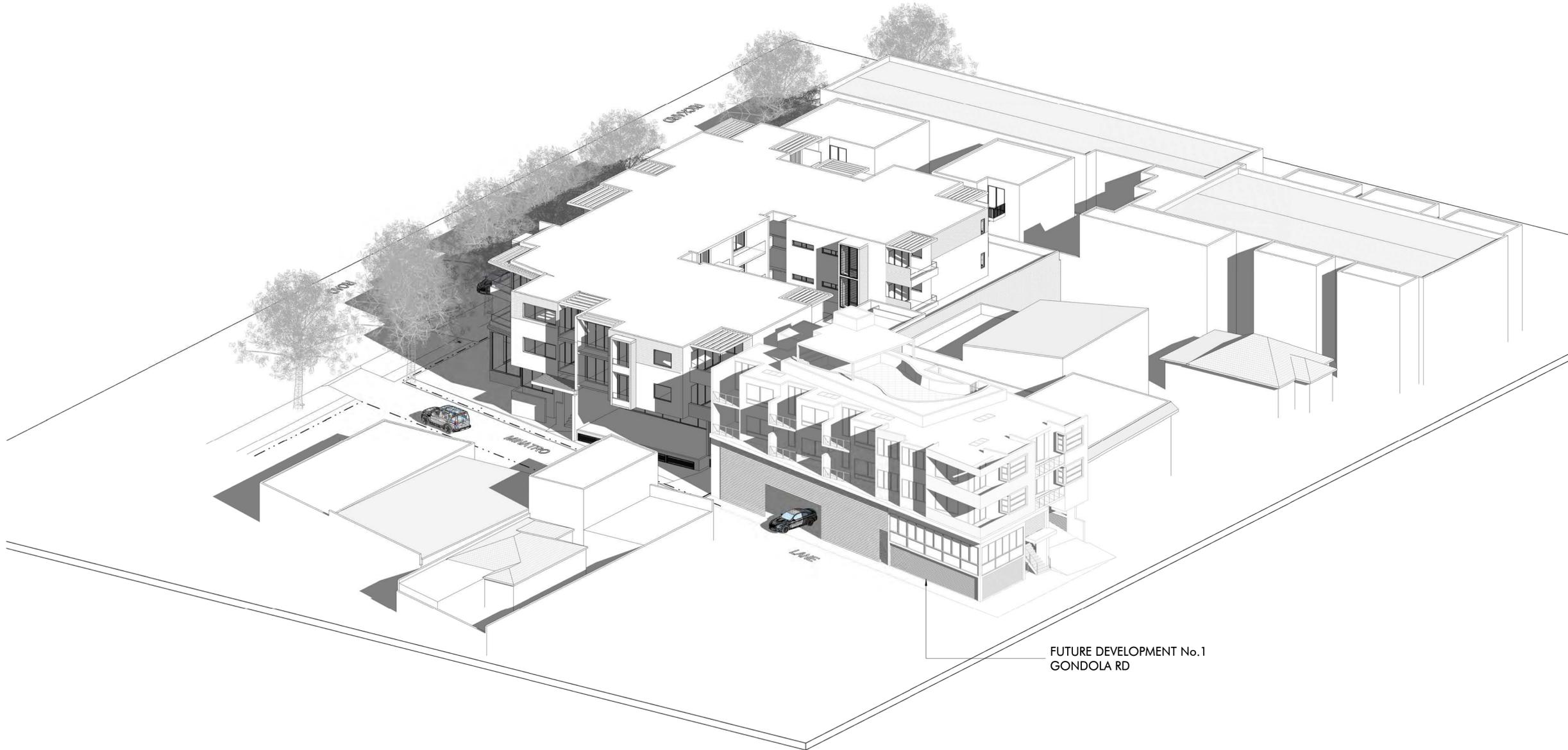
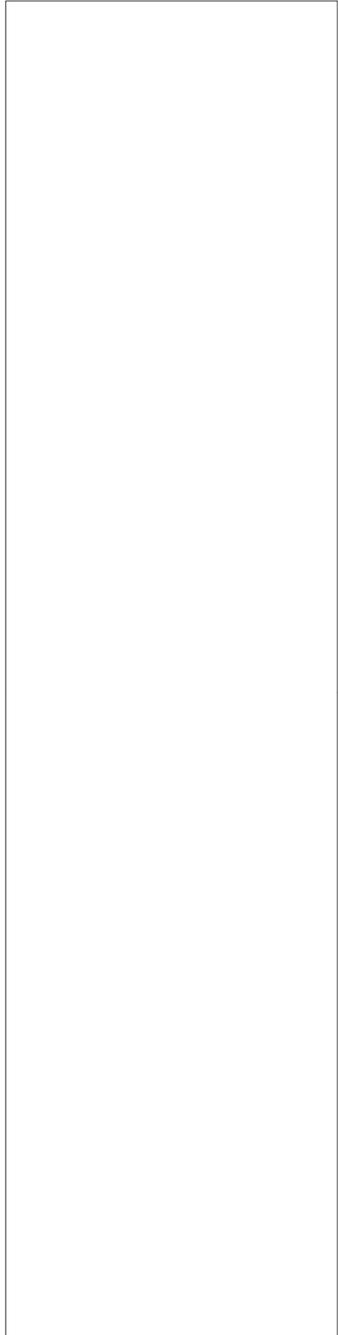
Title	VIEW NORTH EAST ACROSS RICKARD ROAD AND THE SITE	
Drawn	AB	Checked JD
Number	10090_SD26	
Scale	S1	

**DesignVines**  
 mitchbye@designvines.com  
 www.designvines.com  
 Mitchell Bye Nominated Architect No.9822



**SHADOW ANALYSIS**

NO 2 - 8 RICKARD ROAD  
NARRABEEN NSW



FUTURE DEVELOPMENT No.1  
GONDOLA RD

VIEW WEST ALONG MINATRO LANE AND THE SITE

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Issue	Description	Date

0001365610 27 Jun 2023  
 Assessor Tracey Cools  
 Accreditation No. HERA10033  
 Address  
 2-8 Rickard Road | Narrabeen |  
 NSW, 2101

4.8  
Average  
star rating

NATIONWIDE  
HOUSE  
www.nathens.gov.au

hstar.com.au

Client  
**ANTHONY GLEESON**

Project  
**2 - 8 RICKARD ROAD  
NORTH NARRABEEN 210**

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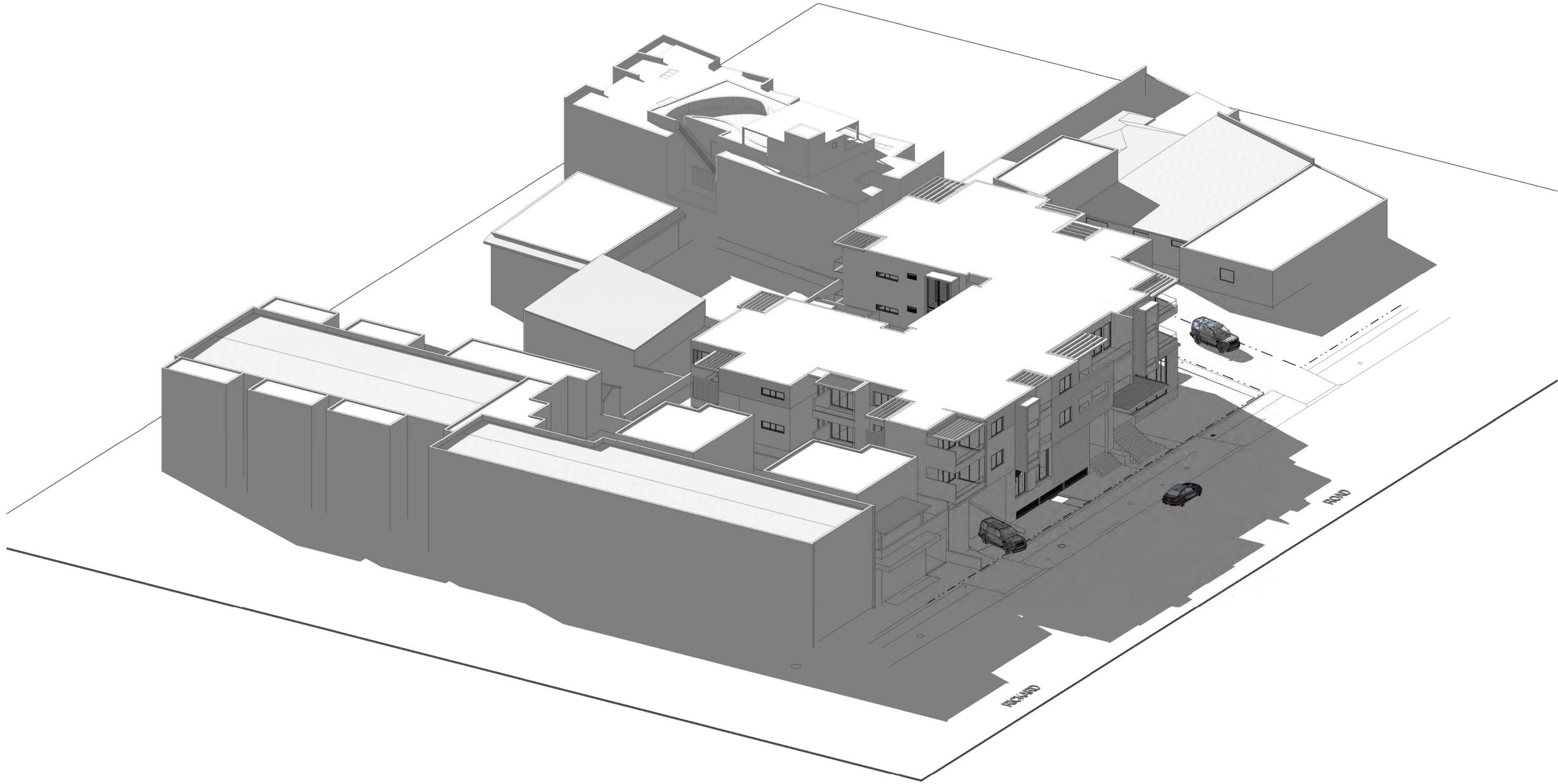
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**SHADOW ANALYSIS**

NO 2 - 8 RICKARD ROAD  
NARRABEEN NSW



VIEW EAST ACROSS RICKARD ROAD AND THE SITE

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Client  
**ANTHONY GLEESON**

Project  
**2 - 8 RICKARD ROAD  
 NORTH NARRABEEN 2101**

Title  
 VIEW EAST ACROSS RICKARD ROAD AND THE SITE

Drawn	Checked	Scale
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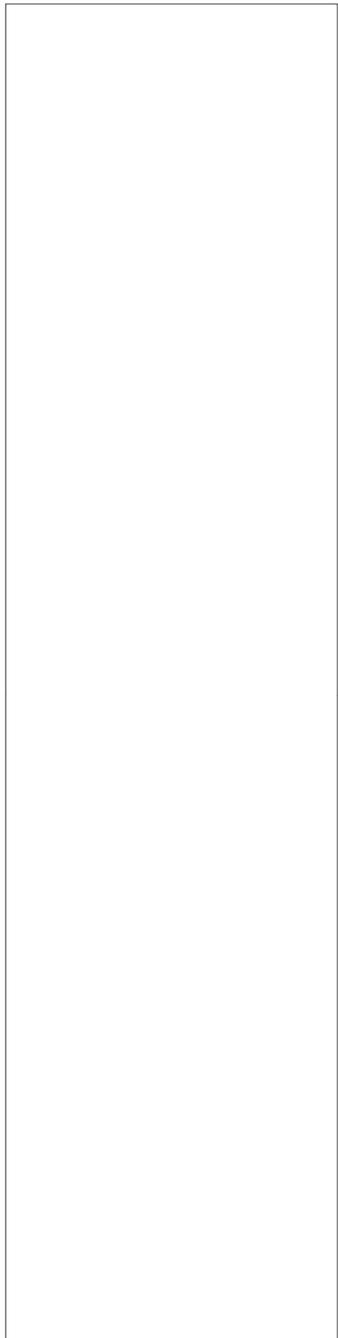
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**SHADOW ANALYSIS**

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VIEW NORTH UP MINATRO LANE

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Title	VIEW NORTH UP MINATRO LANE	
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**SHADOW ANALYSIS**

NO 2 - 8 RICKARD ROAD  
NARRABEEN NSW



VIEW WEST ALONG RICKARD ROAD AND THE SITE

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 Project  
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 NORTH NARRABEEN 2101

Title  
 VIEW WEST ALONG RICKARD ROAD AND THE SITE  
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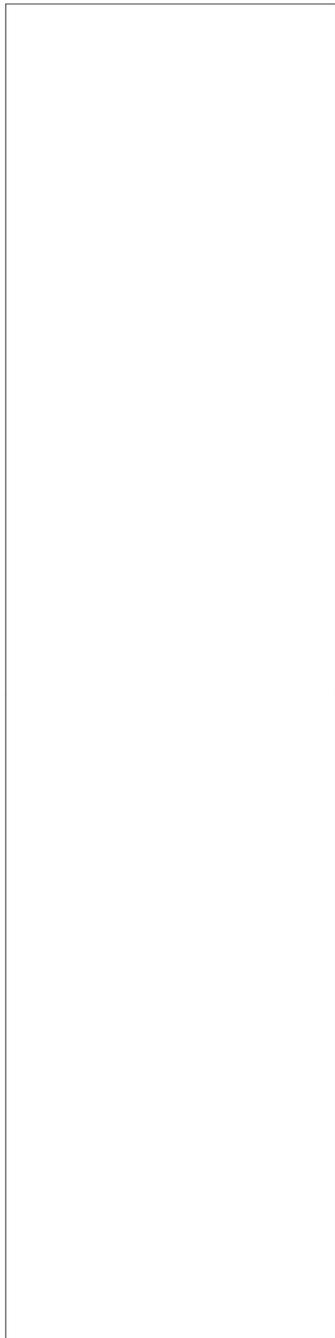
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VIEW EAST ALONG RICKARD ROAD AND THE SITE



**SHADOW ANALYSIS**  
NO 2 - 8 RICKARD ROAD  
NARRABEEN NSW



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 hstar.com.au

Client	ANTHONY GLEESON	
Project	2 - 8 RICKARD ROAD NORTH NARRABEEN 2101	

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# Appendix C

## Flood Report



Haviland Architects Pty Ltd

# Flood Risk Assessment & Flood Emergency Response Plan: 2-8 Rickard Road, North Narrabeen



ENVIRONMENTAL



WATER



WASTEWATER



GEOTECHNICAL



CIVIL



PROJECT  
MANAGEMENT



P1605216JR01V03  
March 2017

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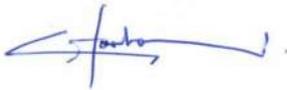
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**All enquiries regarding this project are to be directed to the Project Manager.**

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# 1 Introduction

## 1.1 Overview

Martens and Associates (MA) have been engaged to prepare a Flood Risk Assessment and a Flood Emergency Response Plan (FERP) to support the Development Application (DA) for a proposed shop-top housing development on 2-8 Rickard Road, North Narrabeen, NSW (the site).

This assessment has been prepared in response to Council comments and architectural plan changes as a result of the Section 34 conference, and supersedes the previous report *Flood Risk Emergency Assessment* (P1605216JR01V02, MA, 2016).

## 1.2 Objectives

Key objectives of this report include the following:

- Provide a Flood Emergency Response Plan (FERP) for the site.
- Provide a Flood Risk Assessment for the site.

## 1.3 Relevant Guidelines

This report has been prepared in accordance with the following standards/guidelines:

- Pittwater Council (May 2015), *Pittwater 21 Development Control Plan (DCP) Part B: B3.17 Flood Hazard – Flood Category 1 – Medium Density Residential*.
- Pittwater Council (May 2015), *Pittwater 21 Development Control Plan (DCP) Appendix 15*.
- NSW Government (April 2005), *Flood Risk Development Manual*.

## 2 Flood Behaviour

### 2.1 Overview

This section provides a summary of site characteristics relevant to the flood risk assessment and FERP.

### 2.2 Location and Site Description

Table 1 provides a summary of the site. Refer to the site survey prepared by G. K. Wilson & Associates for further information regarding the existing site.

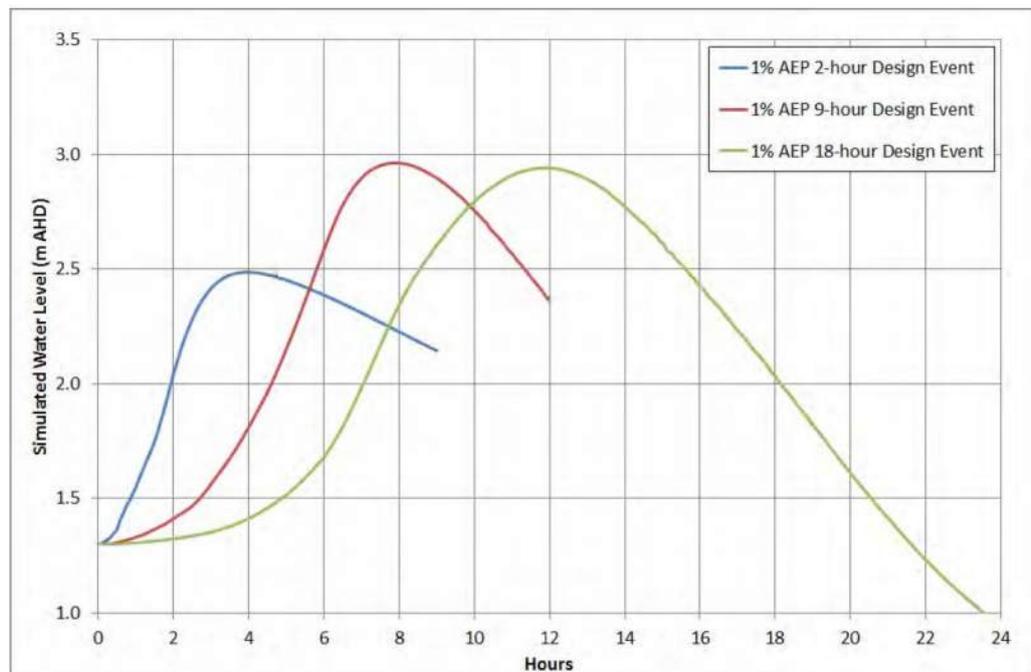
**Table 1:** Site description summary.

Element	Site Details
Site Area	1,952.5 m <sup>2</sup>
Address	2-8 Rickard Road, North Narrabeen, NSW
Lot/DP	Lot 171-174, DP16212
Existing Development	Residential dwelling houses
Proposed Development	Shop-top housing development, comprising two residential levels, one ground podium level and a basement level, with a total of 49 car parking spaces
Neighbouring Environment	Site is bounded by Rickard Road to the south, Minarto Lane to the east and existing residential developments to the west and north.
Site Elevation	Approximately 1.9-2.1 mAHD
Site Grading & Aspect	Generally flat
Local Government Area (LGA)	Pittwater Council
Site Zoning	B2 – Local Centre

### 2.3 Flooding Behaviour

#### 2.3.1 Review of Previous Local Flood Study

*Narrabeen Lagoon Flood Study Final Report* (BMT WBM, 2013) is the most recent study undertaken of the local catchment. The report suggests that the extent of flooding at the site is dominated by the adjacent Narrabeen Lagoon. Figure 1, which was extracted from Figure 7-7 of *Narrabeen Lagoon Flood Study Final Report*, shows simulated water level responses in Narrabeen Lagoon for the 1% AEP flood event for various durations. 1% AEP and PMF event peak flood levels and extents are provided in Attachment A.



**Figure 1:** Simulated water level response in Narrabeen Lagoon (BMT WBM, 2013).

The report also makes the following comments regarding flooding behaviour for the 1% AEP flood event:

1. The 9-hour event (longer duration flood event) causes critical peak flood level conditions (approximately 3.0 m AHD) and represents a rapid rise in flood water level in the lagoon. This rapid rise may limit the opportunity to coordinate a flood emergency response, as key access routes are likely to be cut by floodwaters prior to peak conditions being achieved.
2. The 2-hour event (shorter duration flood event) does not cause flood levels to rise to peak conditions, but is still capable of raising Narrabeen Lagoon flood levels high enough to inundate lower foreshore areas. Shorter duration events are more critical for the upper reaches of the catchments.
3. Extent of flooding in the lower catchment is dominated by the Narrabeen Lagoon peak flood level.

### 2.3.2 Pittwater Council Flood Information Summary

Table 2 summarises flood information derived from the *Pittwater Council Flood Information Request* (prepared 01.02.2017), provided in Attachment B, and the Statement of Facts and Contentions for Anthony and Ana Gleeson v Northern Beaches Council [2016], NSWLEC case number 302237 of 2016.

**Table 2:** Site flood information.

Element	Site Details
5% AEP	2.70 mAHD
1% AEP	3.00 mAHD
1% AEP (CC) <sup>1</sup>	3.75 mAHD
PMF	4.90 mAHD
Flood Planning Level (FPL) <sup>2</sup>	4.25 mAHD
Flood Life Hazard Category	H3-H4 & H5
1% AEP Flood Hazard	High hazard
PMF Flood Hazard	High hazard

**Notes**

1. CC = Climate Change, includes additional 30% rainfall intensity and 0.9 m sea level rise.
2. FPL = Flood Planning level, habitable levels to be 500 mm above the 1% AEP (CC) event water level.

### 2.3.3 Summary

Based on data from sections 2.3.1 and 2.3.2, and an average site level of 2.0 mAHD, we make the following comments for the 1% AEP event:

1. Site occupants will have between 4 and 7 hours from the start of a longer duration flood event to prepare for an emergency response, before the flood level rises to the site's external ground levels. The site will likely be inundated by >300 mm of flood waters for an extended period of time (>6 hours).
2. Site occupants will have approximately 2 hours from the start of a shorter duration flood event to prepare for an emergency response. The site will likely be inundated by >300 mm of flood waters for an extended period of time (>4 hours).
3. Flood waters surrounding the site in the 1% AEP and PMF event are classified high hazard.

The 1% AEP (with climate change) event will likely have similar flooding behaviour, but with a longer inundation time and higher flood depths.

The PMF event will likely cause flood levels to rise to peak conditions faster, and cause longer inundation times and significantly higher flood depths.

## 3 Flood Risk Assessment

### 3.1 Overview

This section provides a flood risk assessment for the proposed development by addressing the controls set out in Pittwater Council DCP Part B3.17, B3.18 and Appendix 8.

### 3.2 Flood Mitigation Works

The proposed development will employ several devices to protect the development from flooding up to the Flood Planning Level (FPL). A summary of relevant floor and flood levels is provided in Table 3, reproduced from Section 4.3.

**Table 3:** Shelter-in-place and flood levels (reproduced).

Level	Floor Level (mAHD)	Flood Level (mAHD)
Residential levels	>7.15	-
PMF	-	4.90
Ground podium level (FPL) <sup>1</sup>	4.25	-
1% AEP (CC)	-	3.75
1% AEP	-	3.00
5 % AEP	-	2.70
External ground level (approx.)	2.00	-
Basement level	1.30	-

#### Notes

1. Refer to architectural plans for areas of the site where ground podium level is at 3.0 mAHD.

#### 3.2.1 Basement Level

This level is located below the FPL as shown in Table 3. Therefore, several flood mitigation strategies are proposed to protect the basement level from flooding:

- The north-eastern ramp leading from the ground to basement level is designed to have a crest in the middle which 4.25 mAHD, which is the FPL of the proposed development. This ensures that the basement level is flood proof up to the 1% AEP (with climate change) event.
- The south-western ramp leading from the ground to basement level will employ a flood gate to physically prevent flood water entering the basement level up to 4.25 mAHD. This ensures that

the basement level is flood proof up to the 1% AEP (with climate change) event.

- There are 2 fire stairs, 1 entry to the residential bin store and 1 entry to the commercial bin store located on this level. All entries shall use a flood proof door to physically prevent flood water entering the basement level.

### 3.2.2 Podium (Ground) Level

This level is located at the FPL as shown in Table 3 and does not require flood mitigation works.

### 3.2.3 Residential Level 1 and 2

These levels are located above the FPL and PMF flood levels as shown in Table 3 and do not require flood mitigation works.

### 3.2.4 Flood Gate Details

The entry to the south-western ramp includes a flood protection 'gate' or barrier within the driveway. This together with basement driveway entry 'wing-walls' to a similar minimum level will preclude flood water from entering the basement car parking area for flood levels up to the 1% AEP (with climate change) event + 0.5 m freeboard. There is no impediment to this solution.

The use of flood gates has become increasingly common in NSW, particularly in Sydney, where space constraints do not permit the construction of basement entry ramps which provide protection against flood waters. Two appropriate flood gate types are described below, with relevant information provided in Attachment C:

1. Concealed Flood Barrier: These are flood barriers that are concealed below a driveway. When flood water flows into a 'trigger' pit, the barrier 'floats' in response to the rising flood waters between a set of guide rails. Barriers can be constructed to suit site specific demands, including variable heights and widths. The barrier would need to reach a height of 4.25 mAHD. An example of an concealed flood barrier servicing a basement car park for a residential flat building, installed during late 2015 at 1 Mactier Street Narrabeen (which rises to a height of around 1.0 m without the need for power), is provided in the figures below.



**Figure 2:** Flood barrier at 1 Mactier Street, Narrabeen, NSW in down position.



**Figure 3:** Flood barrier at 1 Mactier Street, Narrabeen, NSW in up position.

2. Tilting Flood Barrier: These are flood barriers that are embedded horizontally into the driveway surface. When flood water flows into a 'trigger' pit, the barrier 'rises' to a vertical position in response to the rising flood waters, ultimately resting against a set of water proof rails. Barriers can be constructed to suit site specific demands, including variable heights and widths.

We have been informed by Phil Amor, a sales engineer at AWMA Water Solutions, that concealed flood barriers and tilting flood barriers can be specified for the required heights. AWMA have also either installed or been awarded contracts to install, flood barriers / gates at numerous locations within Australia, including for example Pittwater Council, Clarence Council, Brisbane City Council and Campbelltown City Council.

We also note that flood gates have been approved in a number of recent NSW Land and Environment Court matters, including:

- Development at 2-4 Jaques Avenue, Bondi Beach - STM 123 No.7 Pty Ltd as a Trustee for the STP 123 No.7 Trust v Waverley Council [2016] NSWLEC matter number 2016/00158961.
- Development at 22-38 Yurong Street, Darlinghurst - Season Group Pty Ltd v Council of the City of Sydney [2016] NSWLEC 1354.

If a flood gate or barrier is to be used, a positive covenant may be adopted to ensure long-term maintenance and operation.

### **3.3 Flood Storage and Impact**

Pittwater Council DCP Part B3.17 and B3.18 require new developments to ensure the following criteria are satisfied for several controls including flood mitigation works and new development and additions of land:

- There is no additional adverse flood impact on surrounding properties for any flood event up to the PMF event.
- There is no net decrease in the floodplain volume for any flood event up to the 1% AEP flood event.

MA has prepared a *Flood Storage Assessment* (planset P160521PS01-R01-170313a) which provides details of flood storage calculations and the flood storage tank to ensure there is no net decrease in floodplain volume for any flood event up to the 1% AEP (with climate change) event, minimising any adverse flood impacts on surrounding properties. Refer to Attachment F for more details.

### **3.4 Flood Hazard Mitigation**

A summary of design elements which need to be implemented to ensure compliance with Council's DCP is provided below:

- All structural elements below the FPL are to be constructed from flood compatible materials.
- All structures are to be designed to ensure structural integrity from flood forces and buoyancy forces by a suitably qualified structural engineer.
- All electrical equipment, wiring, fuel lines or any other service pipes below the FPL are to be waterproofed.

- Two sets of fire stairs are located throughout the building to allow pedestrians and occupants to move from basement and ground levels to residential levels above the PMF flood level. These stairs are necessary to ensure that all occupants can access the shelter-in-place locations by foot.

## **4 Flood Emergency Response Plan (FERP)**

### **4.1 Overview**

This FERP has been prepared to comply with the requirements outlined in Pittwater Council DCP Appendix 15, Section 1.5 and 1.6. The FERP provides details in regards to planning and undertaking site evacuations in response to site flooding and an assessment of the site's evacuation capability.

The plan provides strategic level advice and assumes that detailed design of various controls will be undertaken prior to issue of construction certificate.

#### **4.1.1 Flood Emergency Response Planning Classification**

According to Pittwater Council DCP P21, Appendix 15, Attachment B, the site is classified as Area with Overland Escape Route, where evacuation can be undertaken via Rickard Road or Gondola Road through Verona Street to higher ground. In this case, escape from rising floodwater will be possible by walking overland to higher ground via the bushland to the south.

It is important to note that the directions of the SES are to be followed under all circumstances regardless of the evacuation response employed.

Refer to Section 2 for a description of site flood behaviour.

### **4.2 Flood Emergency Response Plan**

Due to the potentially short time to prepare for an emergency response, the recommended emergency response is to shelter-in-place, and only evacuate from the site if explicitly directed to by emergency authorities. Refer to Table 4 for the flood emergency response plan.

**Table 4:** Flood Emergency Response Plan.

Triggers	Consequence	Key Actions	
		Flood monitoring	Manage risk of entering floodwaters
<b>Prepare phase</b>			
All the time.	N/A	Daily check of weather forecast and warning systems. The Northern Beaches Flood Warning System webpage is available at <a href="http://new.mhl.nsw.gov.au/users/NBFloodWarning/">http://new.mhl.nsw.gov.au/users/NBFloodWarning/</a> .	<p>Management to ensure the following are undertaken:</p> <ul style="list-style-type: none"> <li>- Install permanent flood warning signage and flood evacuation markers (refer to Attachment D).</li> <li>- Ensure flood storage tank is pumped dry.</li> <li>- Clean flood storage tank entry points periodically to ensure no debris is blocking openings.</li> <li>- Perform periodic checks/maintenance on flood gate, flood storage tank, pumps and flood awareness signs to ensure all assets are functional.</li> <li>- Check that residents have and are maintaining a flood emergency kit.</li> </ul>
<b>Response phase</b>			
Flood watch or severe weather warning for torrential rain/flooding issued for the area, or local weather implies heightened flood threat.	Flooding possible	Monitor flood threat via radar ( <a href="http://www.bom.com.au">www.bom.com.au</a> ). During heavy rain, regularly check for signs of flooding near Narrabeen Lagoon and Nareen Creek.	Management to advise all occupants that flooding is possible.
Visible flooding in Narrabeen Lagoon or Nareen Creek	<p>If flooding is visible, flood levels may rise to peak conditions in a short time frame and inundate the site.</p> <p>High risk of flooding.</p>	Monitor flood levels on-site, Narrabeen Lagoon and Nareen Creek.	<p>Management to ensure all occupants are sheltering-in-place on the ground podium level:</p> <ul style="list-style-type: none"> <li>- Check that no occupants are left in the basement or in areas below the FPL.</li> <li>- Prevent occupants from leaving the site and moving into flood waters.</li> </ul>

Triggers	Consequence	Key Actions	
		Flood monitoring	Manage risk of entering floodwaters
Flood level on-site reaches 4.25 mAHD	Flooding levels may potentially reach the PMF levels.	Continue to monitor flood levels on-site.	Management to do the following: <ul style="list-style-type: none"> <li>- Move all occupants to common areas in residential levels to shelter-in-place.</li> <li>- Prevent occupants from moving down levels and moving into flood waters.</li> </ul>
<b>Recover Phase</b>			
Warnings cancelled and floodwater receded from area.	Flood threat over.	Liaise with SES and Police regarding safety of leaving shelter and accessing site through Rickard Road or Gondola Road.	All occupants to exercise care when leaving shelter. Management to carry out the following: <ul style="list-style-type: none"> <li>- Ensure flood storage tank is pumped dry.</li> <li>- Clean flood storage tank entry points to ensure no debris is blocking openings.</li> <li>- Clean up debris from site.</li> <li>- Test and repair flood gate, pumps and flood awareness signs as necessary to ensure all assets are functional.</li> </ul>

### 4.3 Shelter-In-Place

A shelter-in-place compliance assessment with Pittwater Council DCP Appendix 15, Section 1.6 is provided in Attachment E, Table 5. This assessment demonstrates the proposed development adequately addresses Council's shelter-in-place requirements and that this is an appropriate response.

Table 3 demonstrates that all occupants are able to safely shelter-in-place on the ground podium level, which is primarily at the FPL of 4.25 mAHD, for flood events up to and including the 1% AEP (with climate change) event + 0.5 m freeboard. In the case where flood level approaches 4.0 mAHD, occupants will be directed to move up to higher residential levels to shelter-in-place.

#### **4.4 Summary**

Based on the above, shelter-in-place is a suitable evacuation response and shall be followed by all occupants unless otherwise directed by the SES/emergency authorities. This is primarily due to the ground podium level being higher than the 1% AEP (with climate change) plus 0.5 m freeboard levels and the residential levels being higher than the PMF levels.

## 5 Conclusion

A review of relevant flood information indicates that flood levels rise rapidly at the site for the 1% AEP and PMF events, and the site is inundated for an extended period of time in both short duration and long duration flood events. However, the proposed development incorporates several flood mitigation measures which allow for shelter-in-place to be used as an appropriate emergency response.

A Flood Risk Assessment, along with the *Flood Storage Assessment* planset (P1605216PS01-R01-170313a) has also been provided which demonstrates that the proposed development satisfies flood hazard and flood storage controls set out in Council's DCP.

A Flood Emergency Response Plan (FERP), which provides strategic level advice as to planning and undertaking evacuation in response to flooding, has been prepared for the site. The flood emergency response shall be shelter-in-place, with site evacuation only undertaken if the SES explicitly issues an evacuation order for the site.

## 6 References

BMT WBM (2013) *Narrabeen Lagoon Flood Study Final Report*, Pittwater Council.

Northern Beaches Council (2017) *Flood Information Request – Multi Purpose: 2-8 Rickard Road, North Narrabeen*.

NSW Public Works (2015) *Flood Information*, last viewed 9 March 2016, <<http://new.mhl.nsw.gov.au/users/NBFloodWarning-FloodInformation>>.

NSW Department of Infrastructure, Planning and Natural Resources (NSW DIPNR) (2005) *Floodplain Development Manual: The Management of flood liable land*.

Pittwater Council (2015) *Pittwater 21 DCP Appendix 15 - Flood Emergency Response Planning for Development in Pittwater Policy*.

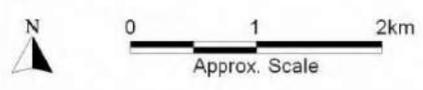
Pittwater Council (2014) *Pittwater Local Environment Plan 2014*.

**7 Attachment A – Narrabeen Lagoon Flood Report Figures  
(BMT WBM, 2013)**



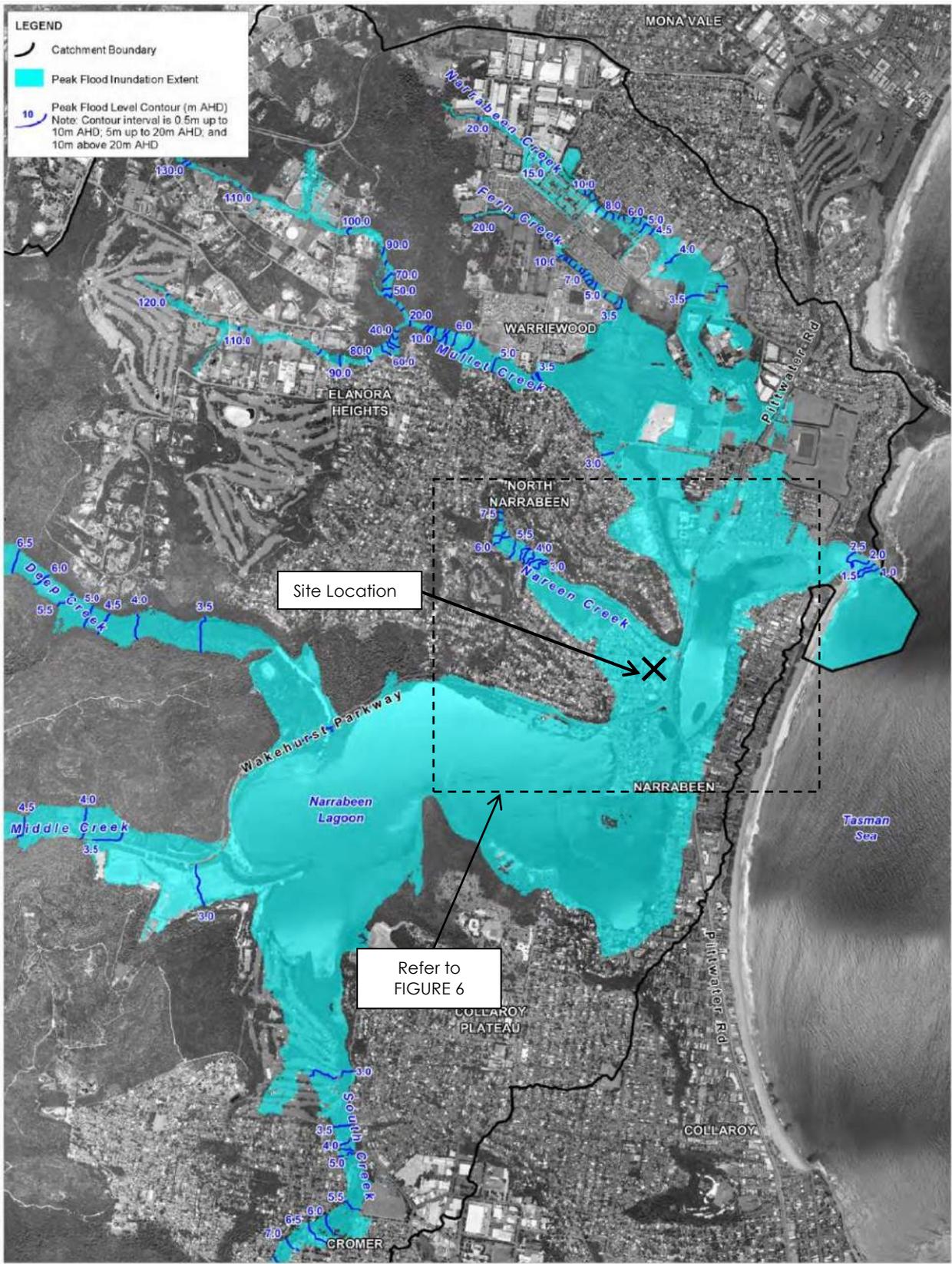
Title: <b>Study Locality</b>	Figure: <b>1-1</b>	Rev: <b>A</b>
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BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



Filepath : K:\N2070\_Narrabeen\_Lagoon\_Flood\_Study\GIS\Workspaces\DWG\_001\_StudyLocality.WOR

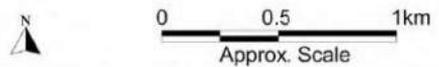
<b>Martens &amp; Associates Pty Ltd</b> ABN 85 070 240		<b>Environment   Water   Wastewater   Geotechnical   Civil   Management</b>	
Drawn:	MH	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;"> <b>Narrabeen Lagoon Catchments</b> </div> <div style="text-align: center;"> <b>FIGURE 4</b> </div> </div>	
Approved:	SL		
Date:	09.03.2016		
Scale:	Approx. 1:33,333 (A4)		
		Job No: P1605216	



Title: **Narrabeen Lagoon Flood Study - Peak Flood Extent and Peak Flood Levels: 1% AEP Catchment Derived Event**

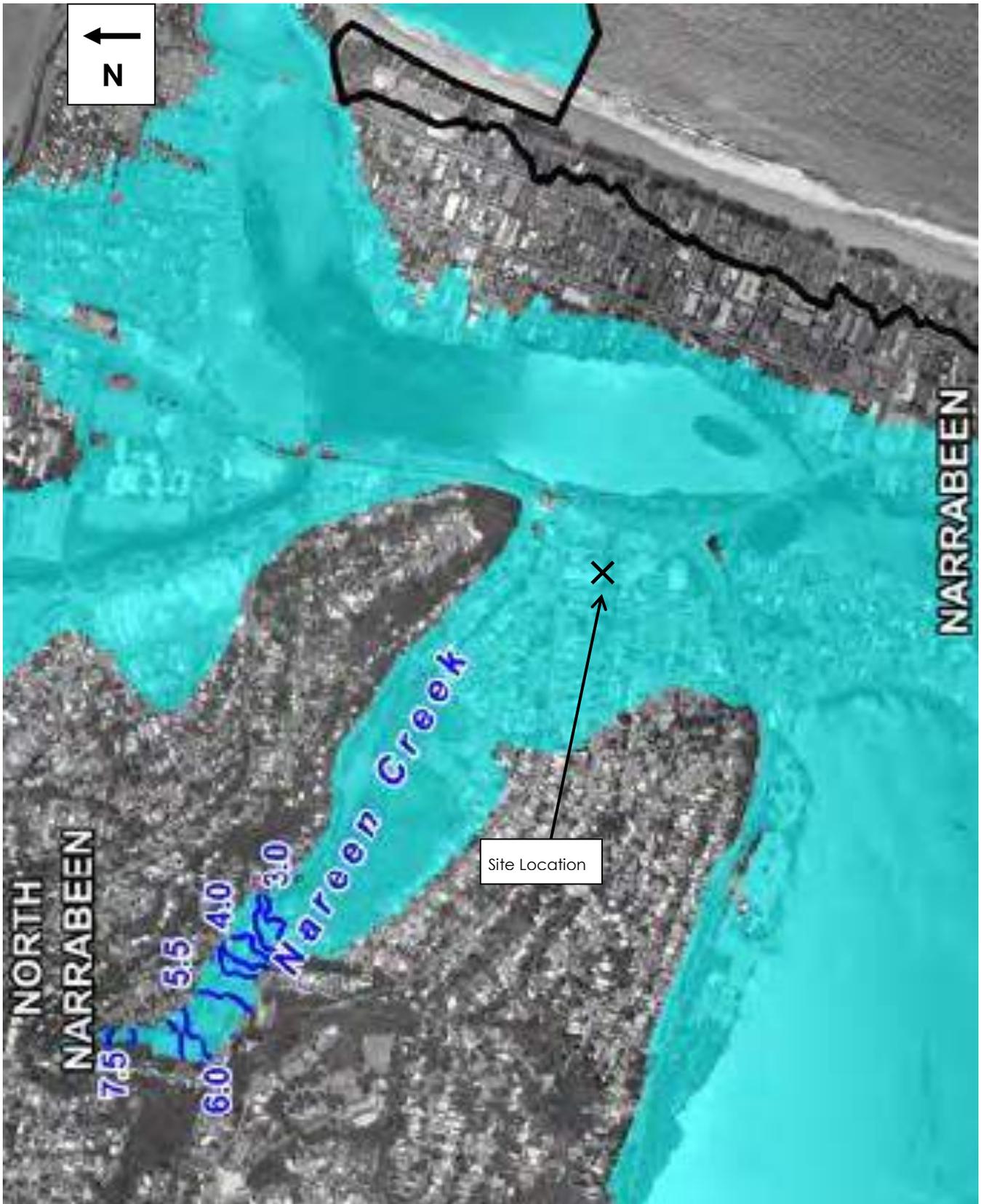
Figure: **A-6** Rev: **A**

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.

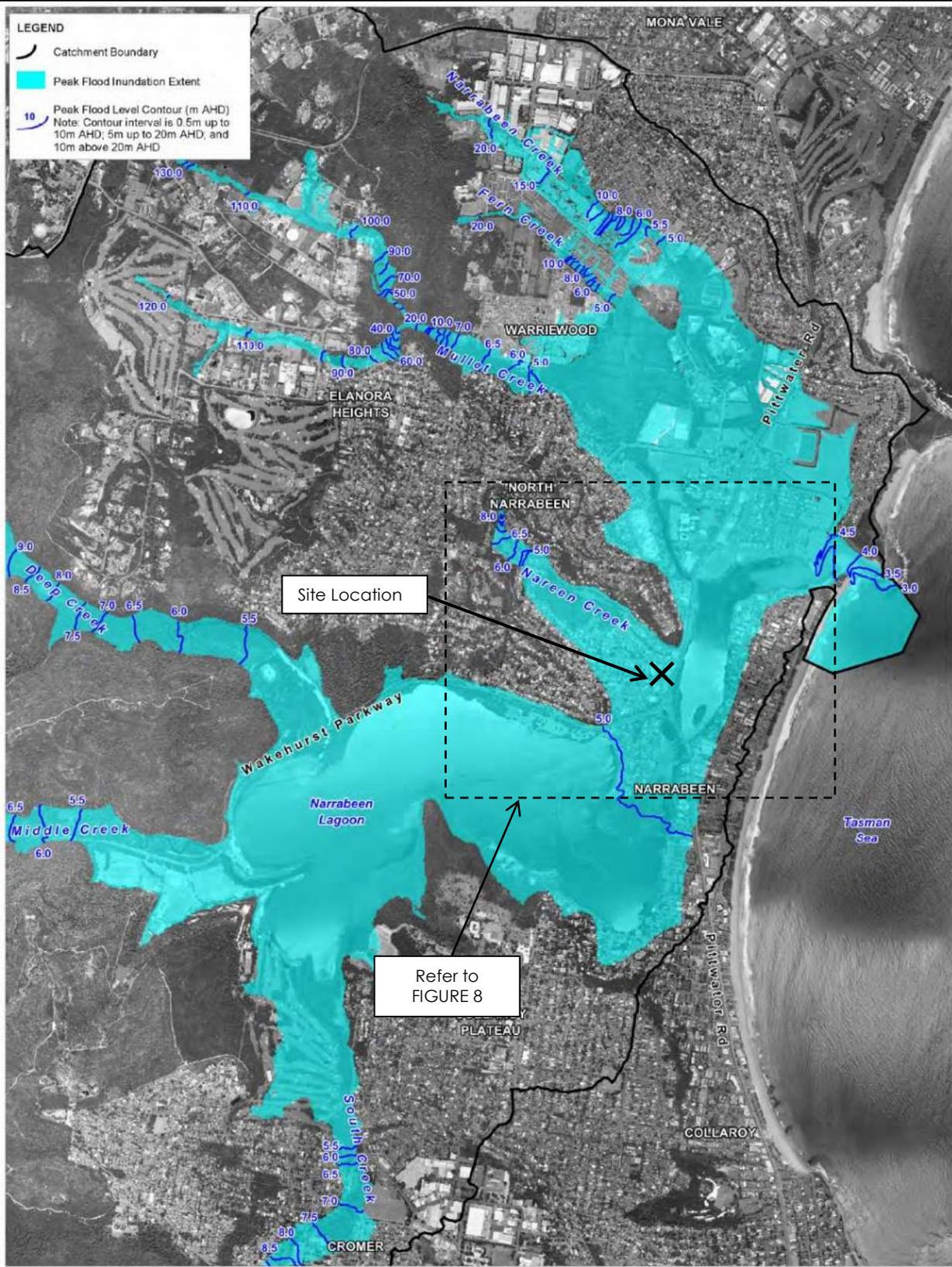


Filepath : K:\N2070 Narrabeen Lagoon Flood Study\MINWorkspaces\Design\_Mapping\_A3\Final\_Design\_Maps\Fig A 6 1% AEP WaterLevel.WOR

<b>Martens &amp; Associates Pty Ltd</b> ABN 85 070 240		<b>Environment   Water   Wastewater   Geotechnical   Civil   Management</b>	
Drawn:	MH	<b>Narrabeen Lagoon 1% AEP Peak Flood Extent and Levels - Floodplain (BMT WBM, 2013)</b>	<b>FIGURE 5</b>
Approved:	SL		
Date:	09.03.2016		
Scale:	Approx. 1:33,333 (A4)		
		Job No: P1605216	



Martens & Associates Pty Ltd ABN 85 070 240 890		Environment   Water   Wastewater   Geotechnical   Civil   Management	
Drawn:	MH	Narrabeen Lagoon 1% AEP Peak Flood Extent and Levels – Local Area (BMT WBM, 2013)	FIGURE 6
Approved:	SL		
Date:	09.03.2016		
Scale:	Approx. 1:100,000 (A4)		Job No: P1605216



**Title:**  
**Narrabeen Lagoon Flood Study - Peak Flood Extent and Peak Flood Levels: PMF Catchment Derived Event**

**Figure:** A-10      **Rev:** A

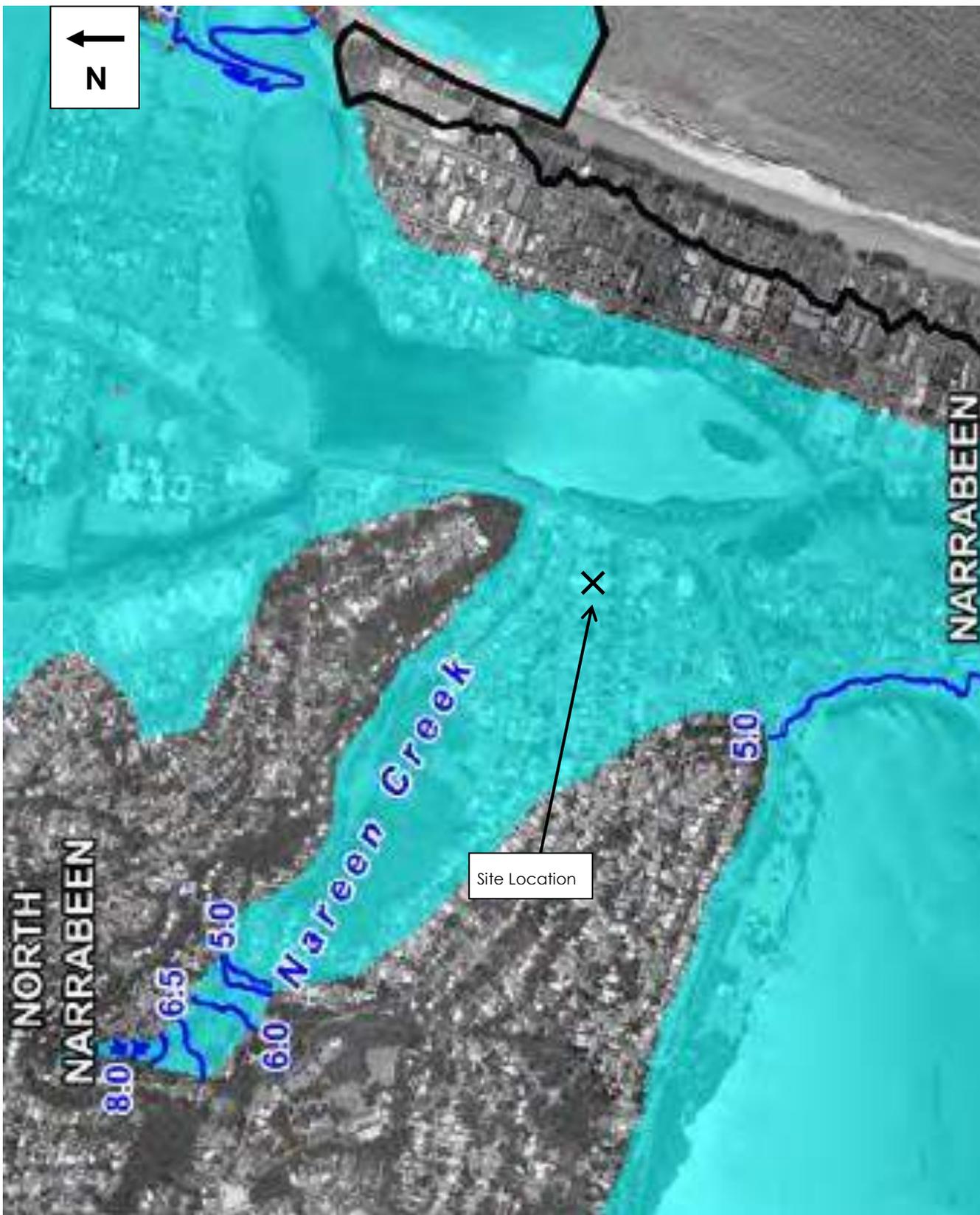
BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.

0      0.5      1km  
 Approx. Scale

**BMT WBM**  
 www.bmtwbm.com.au

Filepath : K:\N2070\_Narrabeen\_Lagoon\_Flood\_Study\MI\Workspaces\Design\_Mapping\_A3\Final\_Design\_Maps\Fig\_A\_10\_PMF\_WaterLevel.WOR

<b>Martens &amp; Associates Pty Ltd</b> ABN 85 070 240 890		<b>Environment   Water   Wastewater   Geotechnical   Civil   Management</b>	
Drawn:	MH	<b>Narrabeen Lagoon PMF Peak Flood Extent and Levels – Floodplain (BMT WBM, 2013)</b>	<b>FIGURE 7</b>
Approved:	SL		
Date:	09.03.2016		
Scale:	Approx. 1:33,333 (A4)		
		Job No: P1605216	



Martens & Associates Pty Ltd    ABN 85 070 240 890		Environment   Water   Wastewater   Geotechnical   Civil   Management	
Drawn:	MH	<b>Narrabeen Lagoon PMF Peak Flood Extent and Levels – Local Area (BMT WBM, 2013)</b>	<b>FIGURE 8</b>
Approved:	SL		
Date:	09.03.2016		
Scale:	Approx. 1:100,000 (A4)		Job No: P1605216

**8 Attachment B – Flood Level Information Request  
(provided by Northern Beaches Council)**

# NORTHERN BEACHES COUNCIL

## FLOOD INFORMATION REQUEST – MULTI-PURPOSE

**Property:** 2-8 Rickard Road, North Narrabeen

**Lot DPs:** 171//16212, 172//16212, 173//16212 & 174//16212

**Issue Date:** 1 February 2017

**Flood Study Reference:** 2013 Narrabeen Lagoon Flood Study (BMT WBM) and 2013 Pittwater Overland Flow Flood Study (Cardno)

---

A property can be impacted by more than one Category of flooding.

### **Flood Categories defined by the Pittwater 21 Development Control Plan include:**

- **Flood Category 1 Areas-** Properties identified on the Flood Hazard Maps and located within Primary Floodplain Areas where the lowest point of the property is affected by the Flood Planning Level (FPL) (1% AEP flood level plus 500mm Freeboard). Flood Category 1 areas are further defined under flood hazard subcategories of high hazard and low hazard.
  - **Flood Category 2 Areas-** Properties identified on the Flood Hazard Maps where the lowest point of the property lies above the Flood Planning Level but below the level of the Probable Maximum Flood.
  - **Flood Category 3 Areas-** Properties generally located outside or adjacent to the Primary Floodplain Areas that are affected by flooding hazards associated with major stormwater drainage systems, local overland flow paths or drainage easements. Flood Category 3 Areas are further defined under the subcategories of Overland Flow Path – Major and Overland Flow Path – Minor.
- 

### **Flood Information:**

#### **Flood Life Hazard Category – See Map A**

**Minimum life hazard category:** H3-H4

**Maximum life hazard category:** H5

**Flood Emergency Response Strategy:** Shelter-in-place Only

#### **Flood Category 1 (Mainstream) - See Flood Map C**

**1% Annual Exceedance Probability (1%AEP):** See Flood Map B

**1% AEP Maximum Water Level<sup>1</sup>:** 3.0m AHD

**1% AEP Maximum Depth:** 1.15m

**1% AEP Maximum Velocity:** 0.5-1.0m/s

**1% AEP Provisional Flood Hazard:** See Map F

**1% AEP Hydraulic Categorisation:** See Flood Map G

---

### **Flood Category 1 (Mainstream) – with Climate Change (See Flood Map H)**

The following is for the 30% Rainfall intensity increase and 0.9m Sea Level Rise Scenario:

**1% Annual Exceedance Probability (1%AEP) Maximum Water Level with Climate change<sup>1&3</sup>:**

3.75m AHD

**1% AEP Maximum Depth with sea level rise (SLR)<sup>3</sup>:** 1.9m See flood map G

**1% AEP Maximum Velocity with (SLR)<sup>3</sup>:** <0.5m/s

**Flood Planning Level when intensifying development<sup>2,3 &4</sup>:** 4.25m AHD<sup>3</sup>

---

### **Flood Category 2 (PMF) – See Flood Map D**

**Probable Maximum Flood (PMF) Level<sup>4</sup>:** 4.9m AHD

**PMF Maximum Depth from natural ground level:** 3.0m

**PMF Maximum Velocity:** 1-1.5m/s

**Probable Maximum Flood (PMF) Level with SLR<sup>3&4</sup>:** 5.30m AHD

**PMF Maximum Depth from natural ground level with SLR<sup>3</sup>:** 3.4m

**PMF Flood Hazard Extent Map:** See flood map H

**PMF Flood Hydraulic Categorisation:** See flood map I

---

### **Flood Category 3<sup>5</sup> (Overland Flow) – See Flood Map E**

<sup>1</sup>The flood information does not take into account any local overland flow issues with a depth below 0.15m nor private stormwater drainage systems.

<sup>2</sup>Overland flow/mainstream water levels may vary across a sloping site, resulting in variable minimum floor/ flood planning levels across the site.

<sup>3</sup>Intensification of development requires the consideration of climate change impacts which may result in higher minimum floor levels than those indicated on this flood advice.

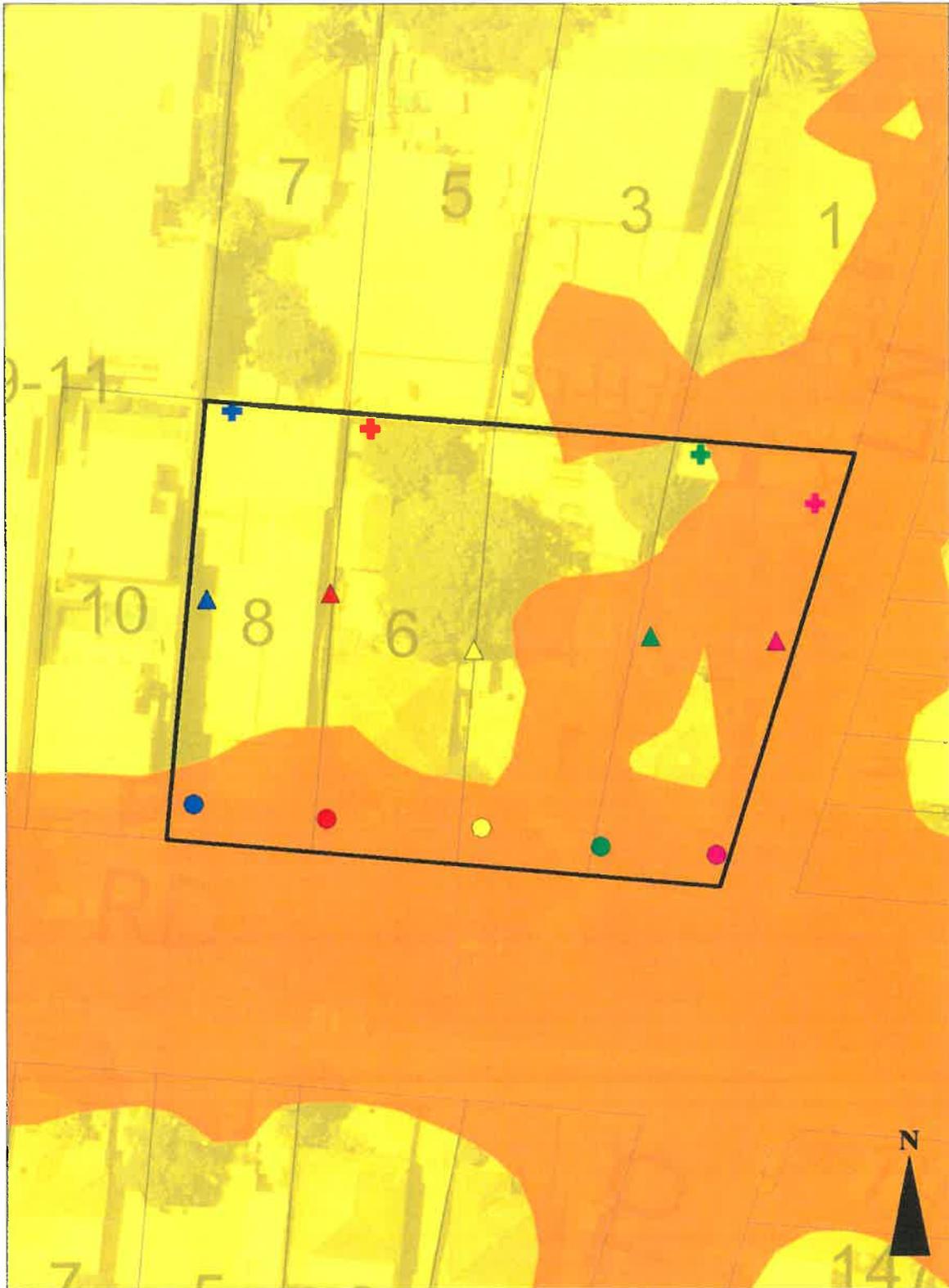
<sup>4</sup>Special Flood Protection developments require higher minimum floor levels using the higher of the PMF and the 1%AEP+0.5m.

<sup>5</sup>The applicable Flood Category 3 classification applied for the purpose of development assessment unless otherwise demonstrated in the Flood Risk Management Report that a different classification should apply (dependent on the location of the proposed development).

#### **General Notes:**

- All levels are based on Australian Height Datum (AHD) unless otherwise noted.
- The source information on this advice was obtained from numeric modelling prepared by consultants for Northern Beaches Council for existing site conditions at the time of the flood study. Separate review and flood model verification has not been undertaken by Council.
- The interpolated information is for the purpose of planning only. Detailed flood data for individual land areas were not determined from the exercise.
- Flood models only approximate flood behaviour. Site specific ground and building survey levels should be used to relate flood levels and to assess the impact of flooding. A site specific flood study/risk assessment may be required for any future development. Care and expertise is required in the interpretation of these flood levels. Engage a suitably qualified engineer to assist you in this matter.
- You need to refer to the Pittwater 21 DCP flood development controls, if you are planning to lodge a Development Application. The advice may be reviewed and amended by Northern Beaches Council in the course of assessment of a specific development application.
- While this advice is periodically updated, it is possible that the Council holds further information dealing with the flooding which has not been incorporated into the above advice.
- Estuarine/coastal inundation has not been taken into account in the flood information.

# FLOOD MAP A: FLOOD LIFE HAZARD CATEGORY



Flood Life Hazard Categories



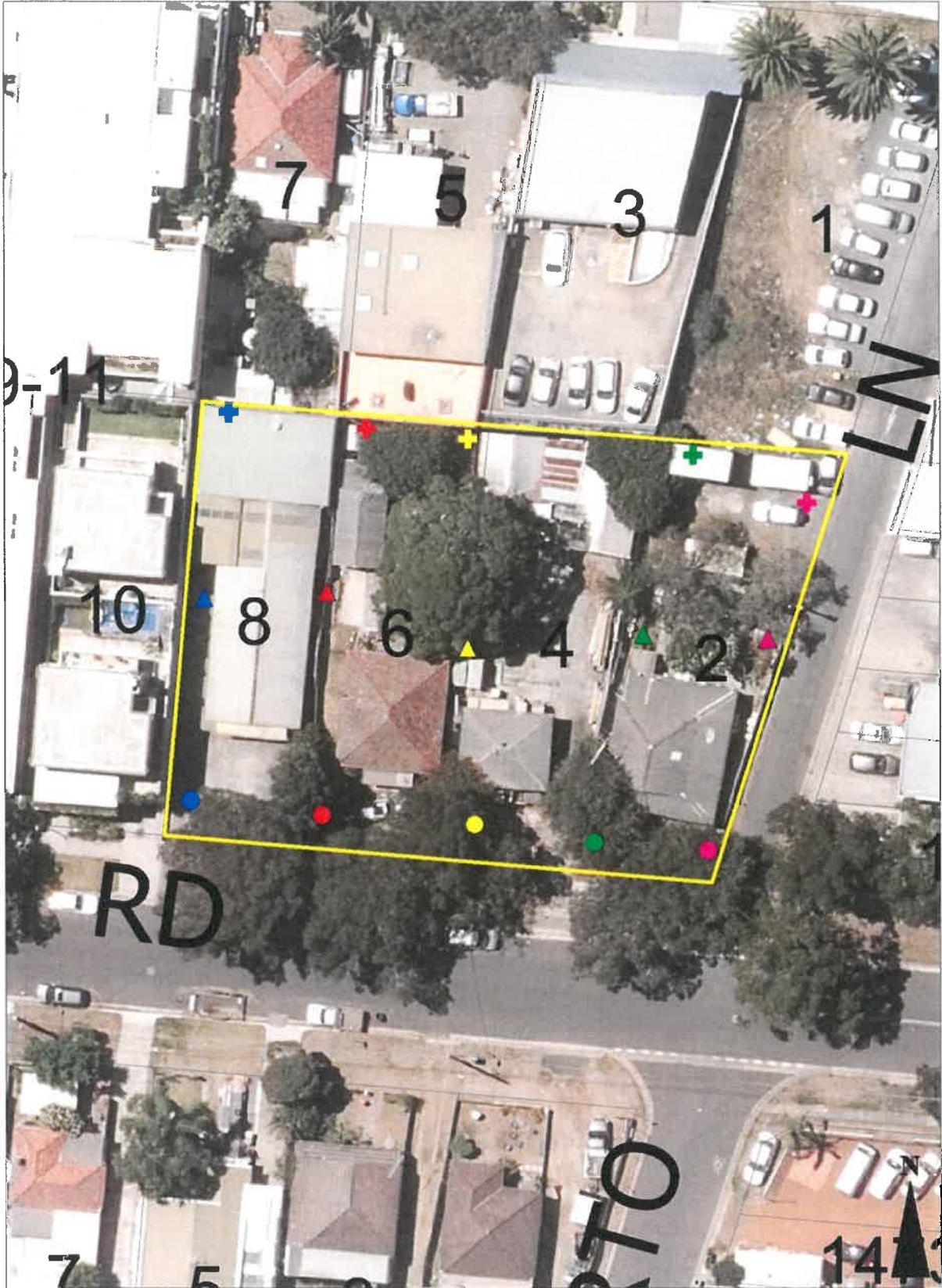
— Lot Boundary

Map not to Scale

## Notes:

- Refer to Pittwater 21DCP for 'Flood Emergency Response Planning for Development in Pittwater Policy (Appendix 15) for additional information on the Flood Life Hazard Categories and Pittwater 21 DCP Control B3.25.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Flood study reference) and aerial photography (Source Near Map 2014) are indicative only.

# FLOOD LEVEL POINTS



Lot Boundary

Map not to Scale

Note: Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Flood study reference) and aerial photography (Source: NearMap 2014) are indicative only.

## Flood Levels

	5% AEP Max WL (m AHD)	5% AEP Max Depth (m)	5% AEP Max Velocity (m/s)	1% AEP Max WL (m AHD)	1% AEP Max Depth (m)	1% AEP Max Velocity (m/s)	PMF Max WL (m AHD)	PMF Max Depth (m)	PMF Max Velocity (m/s)
●	2.7	0.7	0.2	3.0	1.1	0.2	4.9	3.0	0.5
●	2.7	0.7	0.2	3.0	1.1	0.3	4.9	2.9	0.8
●	2.7	0.7	0.1	3.0	1.1	0.2	4.9	2.9	0.6
●	2.7	0.7	0.1	3.0	1.1	0.2	4.9	2.9	0.7
●	2.7	0.7	0.1	3.0	1.0	0.2	4.9	2.9	0.8
▲	2.7	0.5	0.03	3.0	0.9	0.1	4.9	2.8	0.2
▲	2.7	0.7	0.1	3.0	1.0	0.1	4.9	2.9	0.3
▲	2.7	0.6	0.05	3.0	1.0	0.1	4.9	2.8	0.2
▲	2.7	0.6	0.1	3.0	1.0	0.2	4.9	2.8	0.8
▲	2.7	0.6	0.2	3.0	1.0	0.5	4.9	2.8	0.9
+	2.7	0.6	0.1	3.0	0.9	0.2	4.9	2.8	0.3
+	2.7	0.6	0.03	3.0	0.9	0.03	4.9	2.8	0.2
+	2.7	0.6	0.04	3.0	1.0	0.1	4.9	2.8	0.2
+	2.7	0.6	0.1	3.0	1.0	0.2	4.9	2.9	0.3
+	2.7	0.7	0.3	3.0	1.0	0.4	4.9	2.9	0.8

WL – Water Level

PMF – Probable Maximum Flood

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

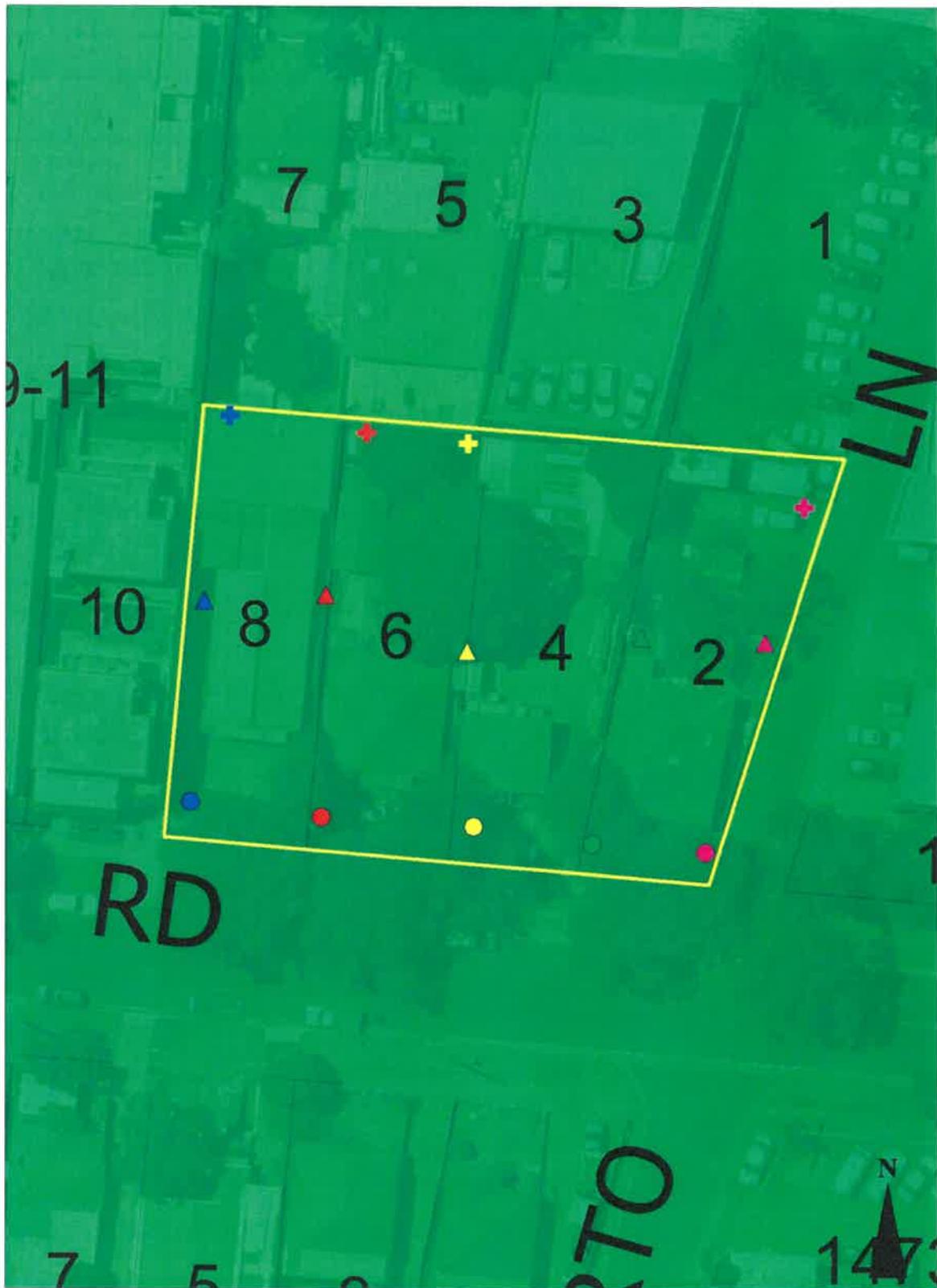
	<b>CC 1% AEP Max WL (m AHD)</b>	<b>CC1 % AEP Max Depth (m)</b>
●	3.8	1.8
●	3.8	1.8
●	3.8	1.8
●	3.8	1.8
●	3.8	1.8
▲	3.8	1.6
▲	3.8	1.8
▲	3.8	1.7
▲	3.8	1.7
▲	3.8	1.7
+	3.8	1.6
+	3.8	1.7
+	3.8	1.7
+	3.8	1.7
+	3.8	1.8

WL – Water Level

PMF – Probable Maximum Flood

The above levels have been rounded to the nearest 1 decimal place.

## FLOOD MAP B: FLOODING - 1% AEP EXTENT



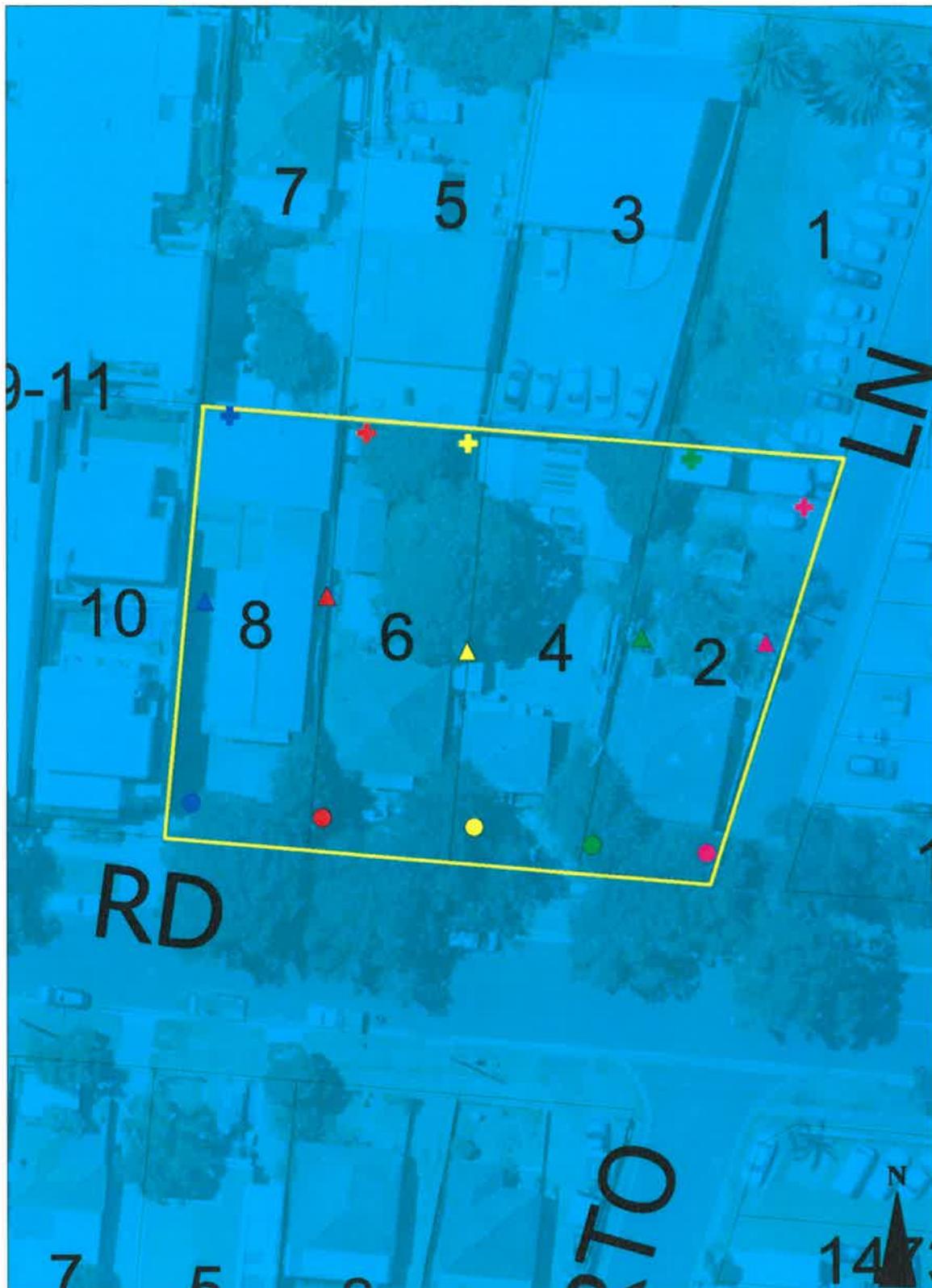
Lot Boundary line      1% AEP flood extent

Map not to scale

### 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: Flood study reference) and aerial photography (Source Near Map 2014) are indicative only.

# FLOOD MAP C: MAINSTREAM FLOODING EXTENT



 FPL extent

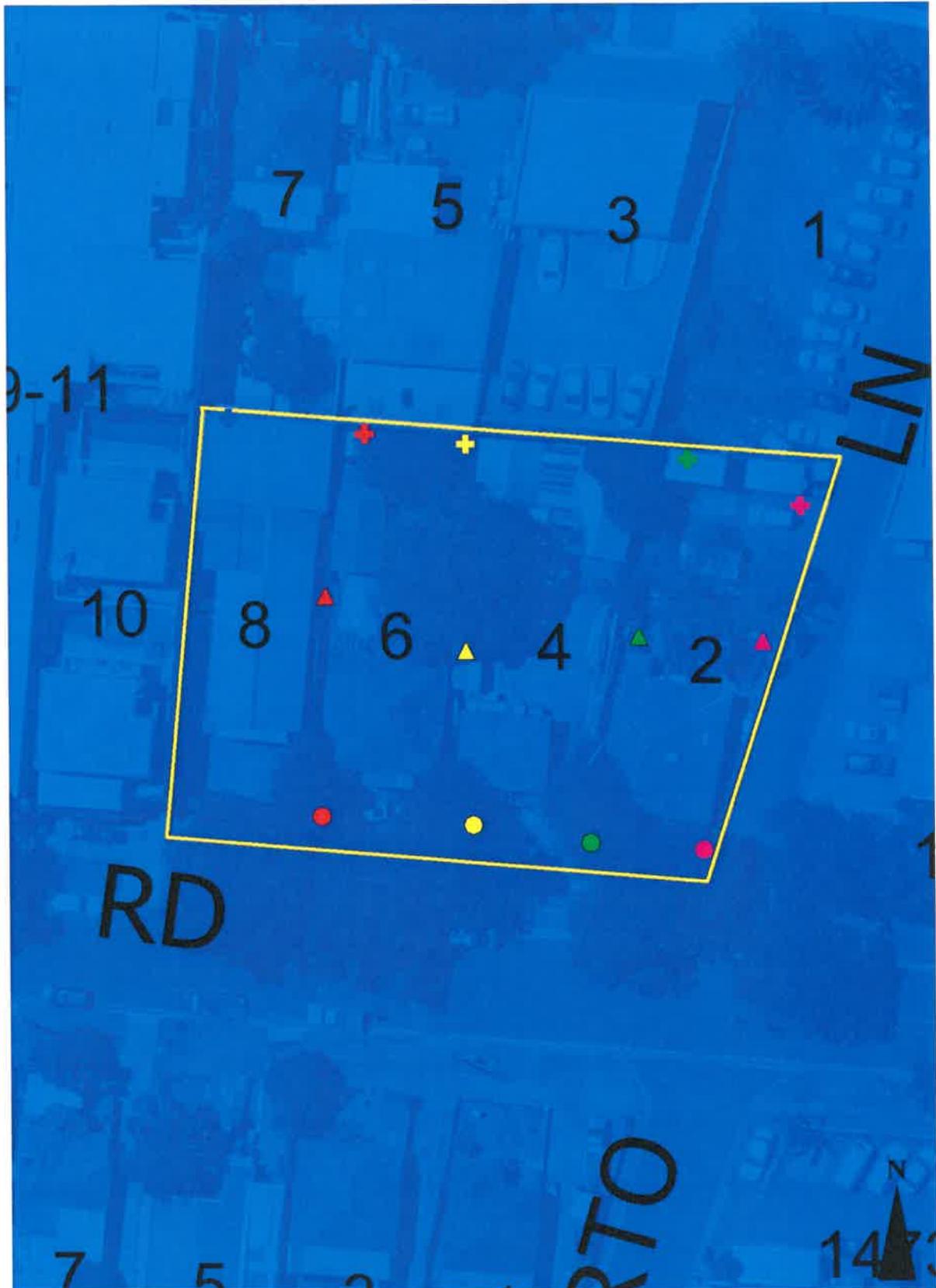
 Lot Boundary

Map not to Scale

## Notes:

- extent represents the 1% annual Exceedance Probability (AEP) flood event
- extent does not include climate change
- Mainstream FPL – Mainstream Flood Planning Level includes the 0.5m freeboard on the 1% AEP extent for planning purposes
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Flood study reference) and aerial photography (Source: NearMap 2014) are indicative only

# FLOOD MAP D - PMF EXTENT MAP



PMF extent

Lot Boundary

Map not to Scale

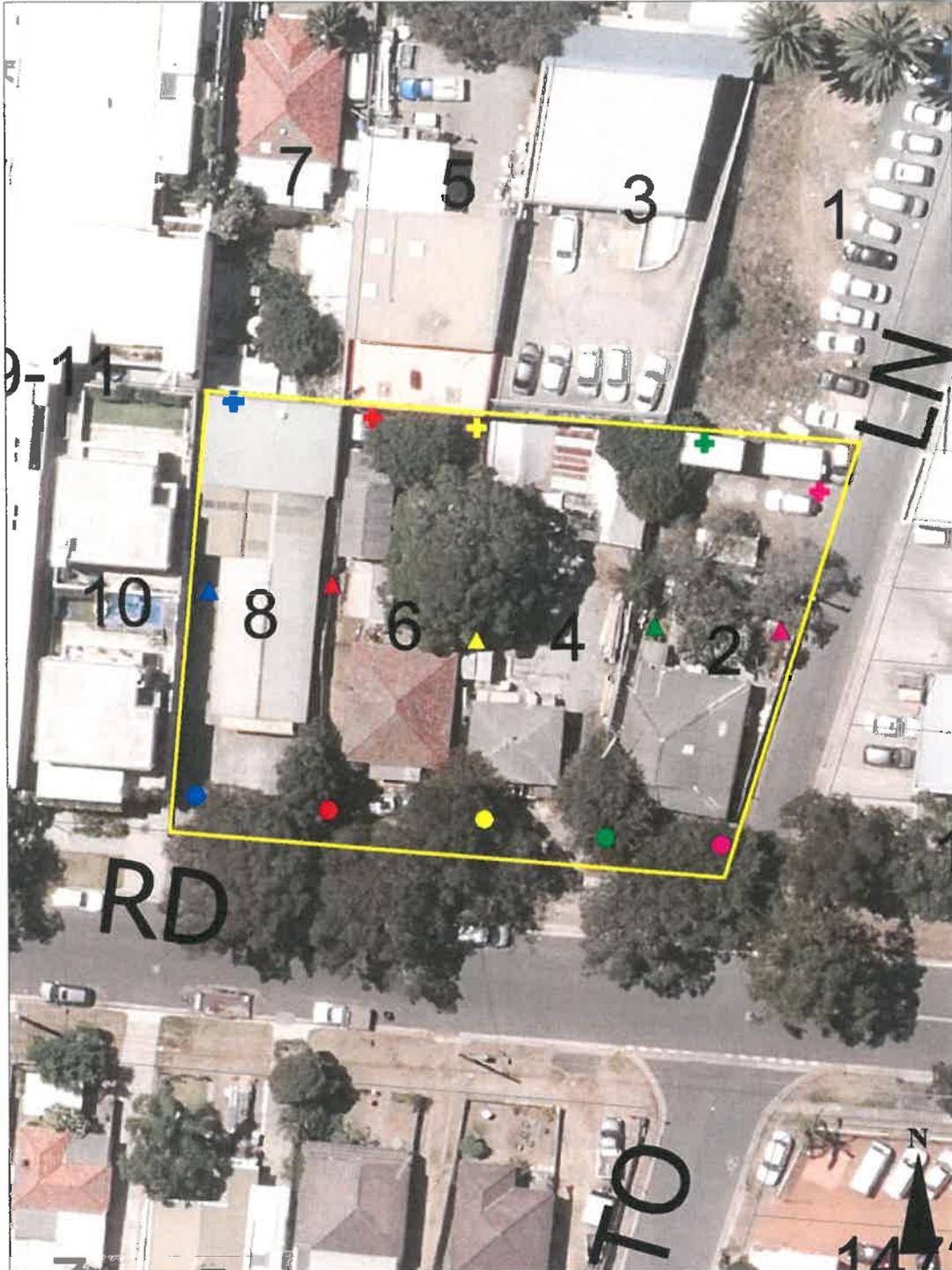
## Notes:

- 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: Flood study reference) and aerial photography (Source: NearMap 2014) are indicative only

Issue Date: 1 February 2017

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# FLOOD MAP E – OVERLAND FLOW EXTENT MAP



- Category 3 - Major extent with buffer
- Category 3 - Minor extent
- Lot Boundary

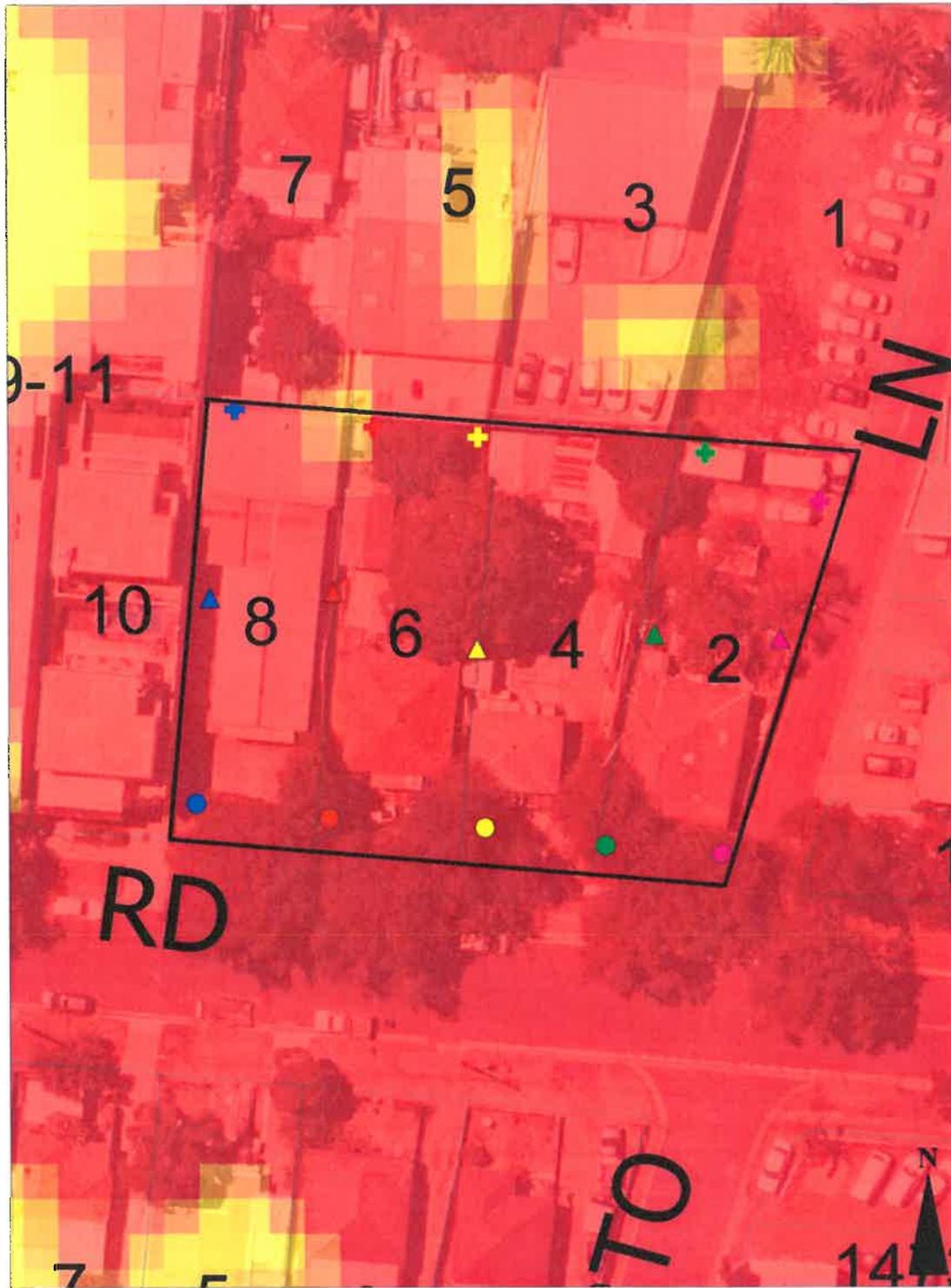
Map not to Scale

**This Property is currently not identified as being affected by Overland Flow flooding based off the 2013 Pittwater Overland Flow Flood Study. Council is however undertaking a review of this model/Flood Study, and as a result this property's flood classification may change because of the update to the flood model.**

**Notes:**

- extent represents the 1% annual Exceedance Probability (AEP) flood event
- extent does not include climate change
- Overland Flow Path Major includes a fixed 5m horizontal planning buffer on the 1% AEP extent for planning purposes
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Flood study reference) and aerial photography (Source: NearMap 2014) are indicative only

# FLOOD MAP F – 1% AEP FLOOD HAZARD EXTENT MAP

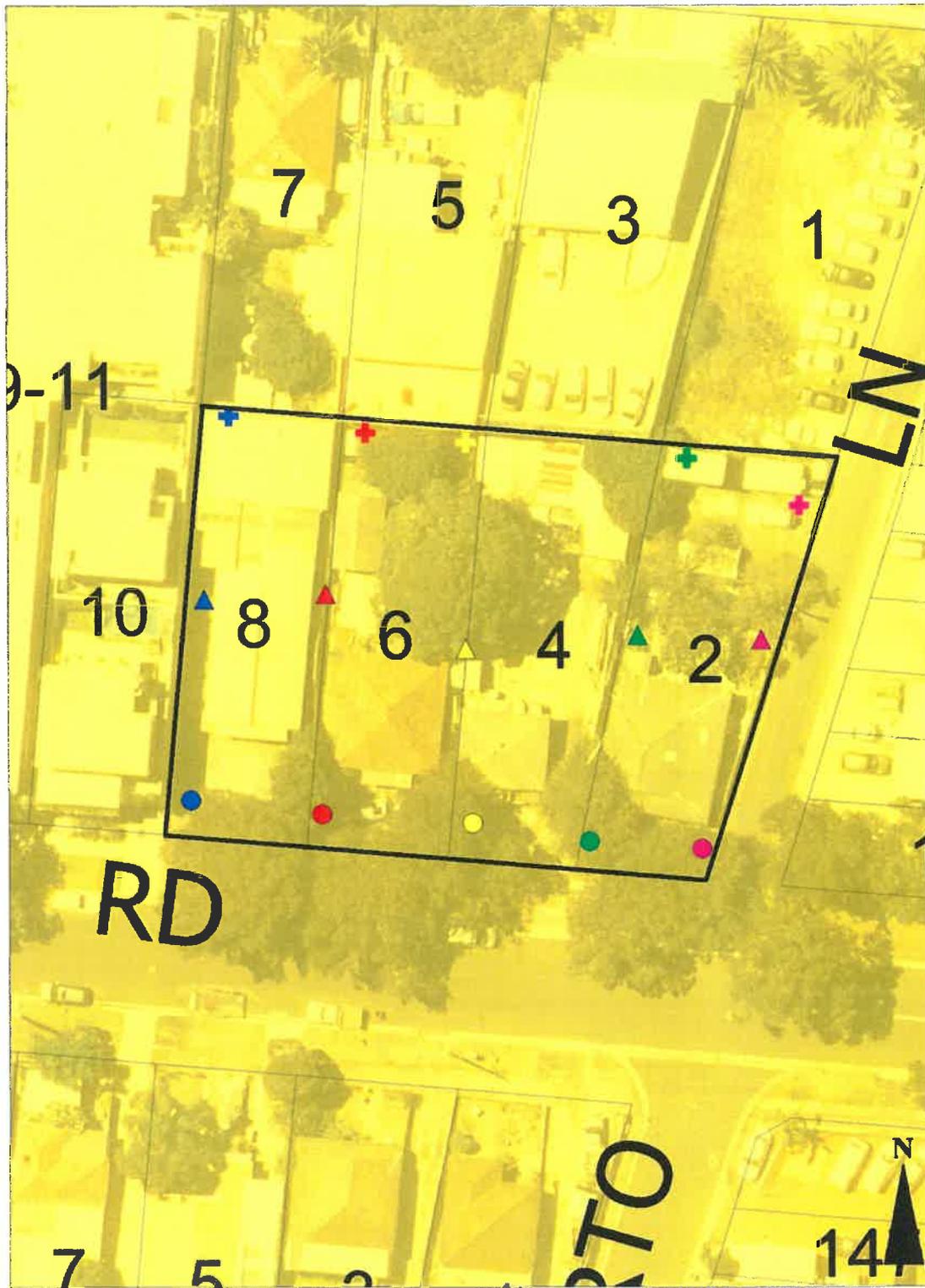


Map not to Scale

## 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: Flood study reference) and aerial photography (Source: NearMap 2014) are indicative only

# FLOOD MAP G – 1% AEP FLOOD HYDRAULIC CATEGORY EXTENT MAP



- Floodway
- Flood Storage

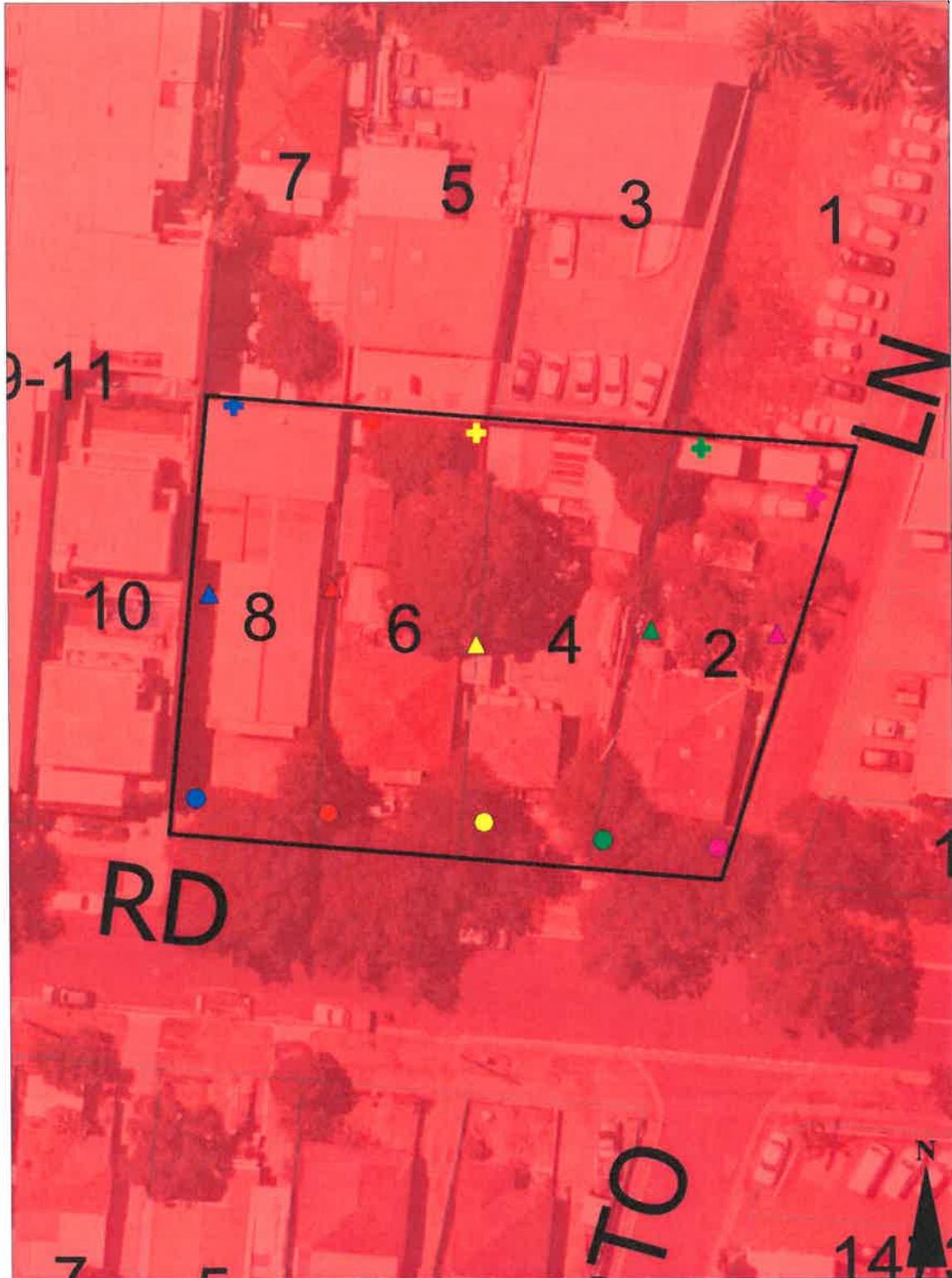
- Flood Fringe
- Lot Boundary

Map not to Scale

**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: Flood study reference) and aerial photography (Source: NearMap 2014) are indicative only

# FLOOD MAP H – PMF FLOOD HAZARD EXTENT MAP



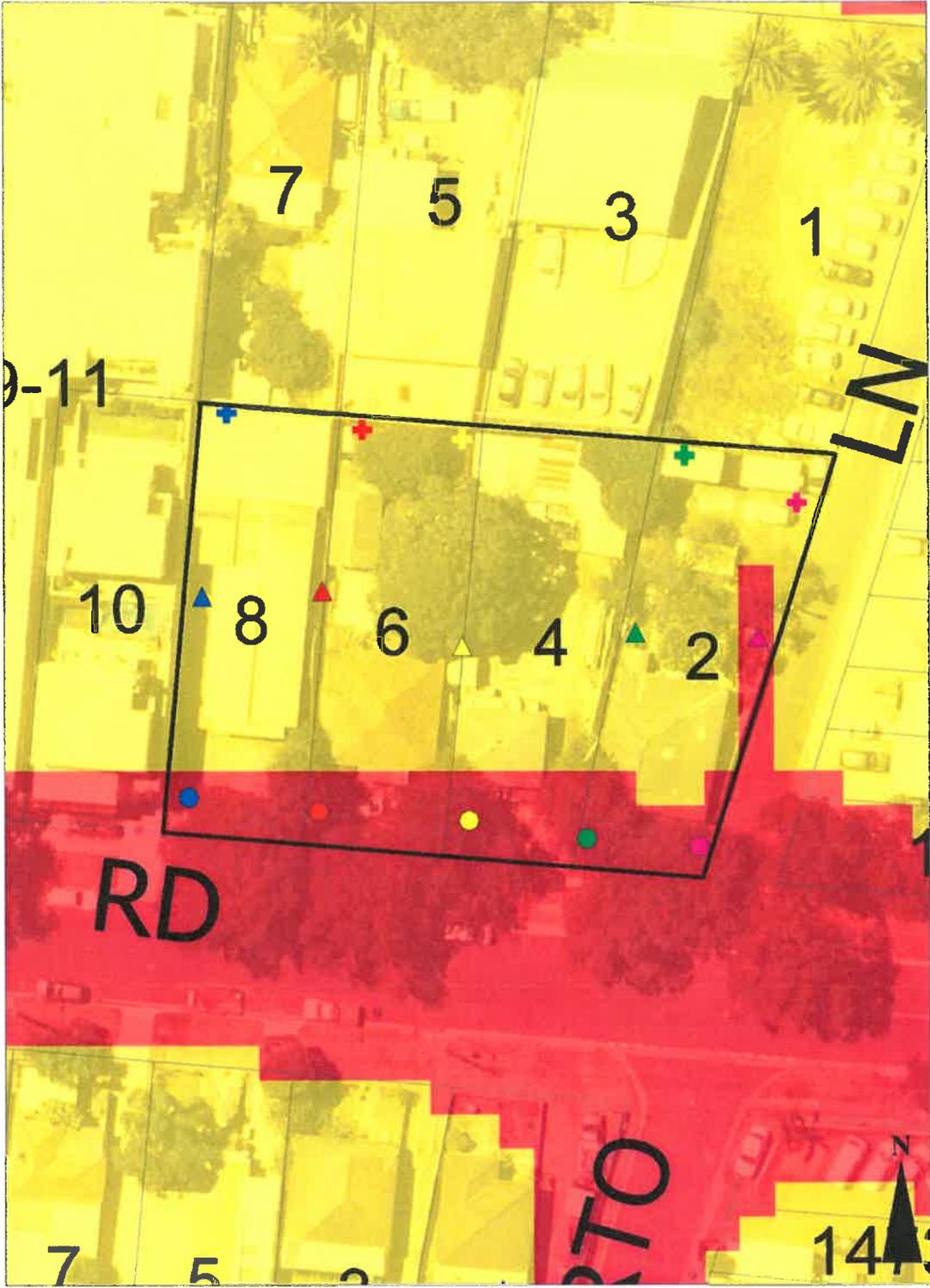
Map not to Scale

**Notes:**

- extent represents the 1% annual Exceedance Probability (AEP) flood event
- extent represents the Probable Maximum Flood (PMF) event
- extent does not include climate change
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Flood study reference) and aerial photography (Source: NearMap 2014) are indicative only

Issue Date: 1 February 2017

# FLOOD MAP I – PMF FLOOD HYDRAULIC CATEGORY EXTENT MAP

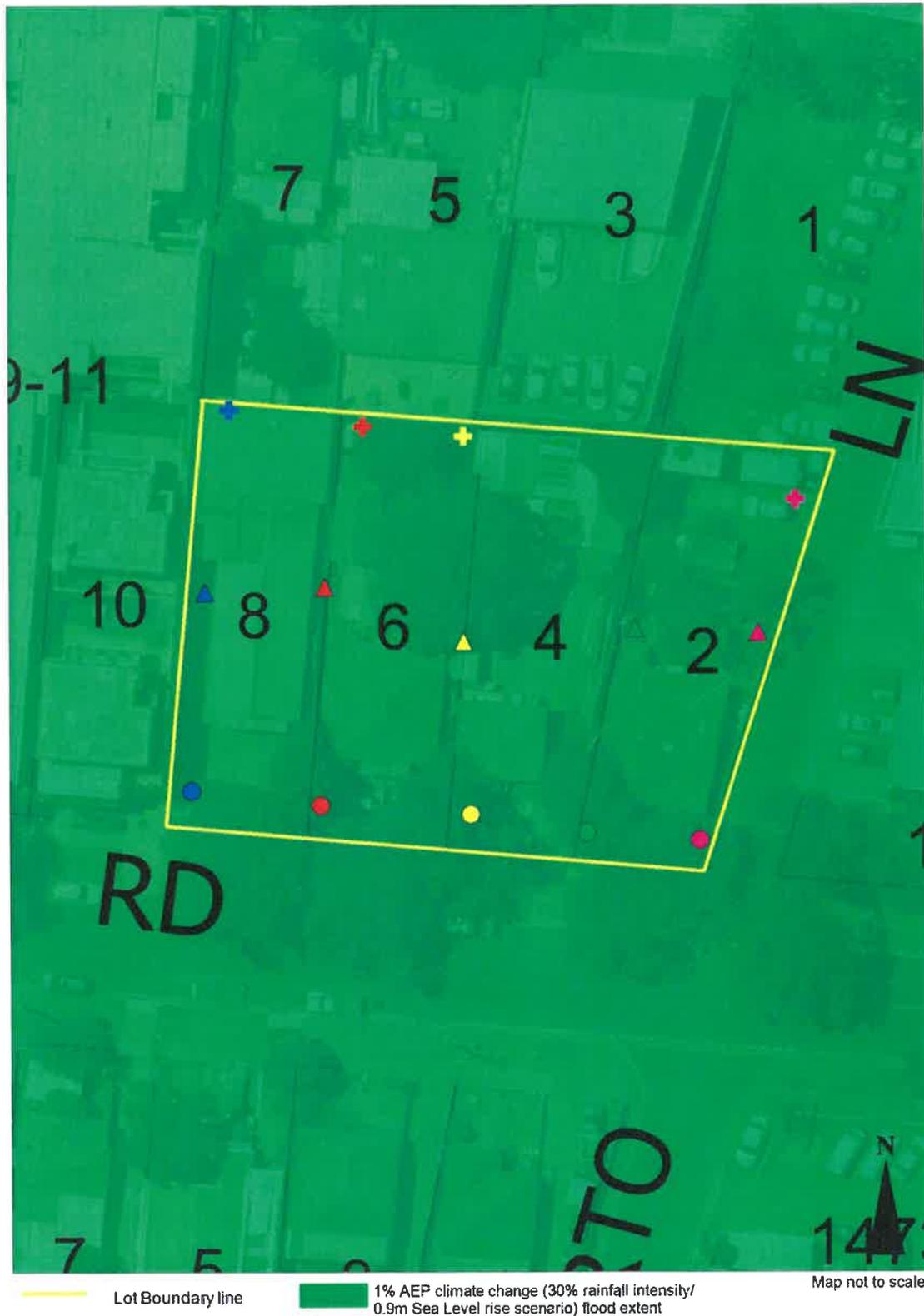


Map not to Scale

**Notes:**

- extent represents the Probable Maximum Flood (PMF) event
- extent does not include climate change
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Flood study reference) and aerial photography (Source: NearMap 2014) are indicative only

# FLOOD MAP J: FLOODING – 1% AEP EXTENT PLUS CLIMATE CHANGE



**Note Notes:**

- extent represents the 1% annual Exceedance Probability (AEP) flood event
- includes 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: Flood study reference) and aerial photography (Source: NearMap 2014) are indicative only

## 9 Attachment C – Flood Gate Information

# awma

FLOOD/FREE

## CONCEALED FLOOD BARRIER

AWMA's Concealed Flood Barrier is a self-actuating flood defence system that harnesses rising waters to automatically deploy a flood barrier via floatation.

### FEATURES

- The gate is permanently installed below ground level at the isolation point, ready for deployment when required.
- Rising water levels cause an automatic response, elevating the isolation barrier via floatation.
- Gate system retracts below pavement as water levels decrease.
- Suitable for large openings up to 30m wide and 1.6m high.
- Low maintenance design.
- Low aesthetic impact.

### APPLICATIONS

- Basement and carpark access points
- Pedestrian access and pathways
- Flood levees
- Residential and commercial property protection



# awma

FLOOD/FREE



## CONCEALED FLOOD BARRIER

### DESIGN

#### DESIGN SUPPORT

- AWMA's design team will provide full support to ensure the most appropriate solution is developed and specified during the preliminary design.

#### SIZES

- Customisable to suit specific site requirements up to 30m wide, 1.6m high.

#### MATERIALS

- AWMA select materials to meet a minimum design life of 25 years. Where required, AWMA can offer higher grade materials, coatings and protection systems to extend the design life to 100+ years.
- Marine grade aluminium, stainless steel, galvanised steel.
- Materials used in the construction of AWMA's Flood Free range have a high corrosion resistance and can be operated for many years with minimal maintenance.

#### SEALING

- The seal performance of AWMA Flood Gates exceeds that required by the 'Australian Technical Specification for Fabricated Water Control Infrastructure'.

#### MAINTENANCE

- The AWMA Flood Gate range has a minimum 25 year design life.
- Minimal maintenance is required ensuring low 'whole of life costs'.

### MANUFACTURE

#### QUALITY

- All fabrication is in accordance with the 'Australian Technical Specification for Fabricated Water Control Infrastructure'.
- All procedures are in accordance with AWMA's accredited ISO 9001 Quality Management System to ensure each gate is manufactured to a high standard, tested and ready for trouble free operation post approved installation.

### INSTALLATION

#### MOUNTING OPTIONS

- Barriers are designed to retrofit existing infrastructure or 'green field sites'.
- AWMA offer install supervision for all turn-key installations.

#### ACTUATION SYSTEMS

- AWMA offer numerous options for operation including manual, mechanical, automated, hydraulic, pneumatic, powered or electrically actuated systems.

#### OPERATION SYSTEMS

- The AWMA Concealed Flood Barrier is designed to automatically close ahead of rising flood waters.
- No operator intervention is required.
- Variety of audio and visual warning systems available.

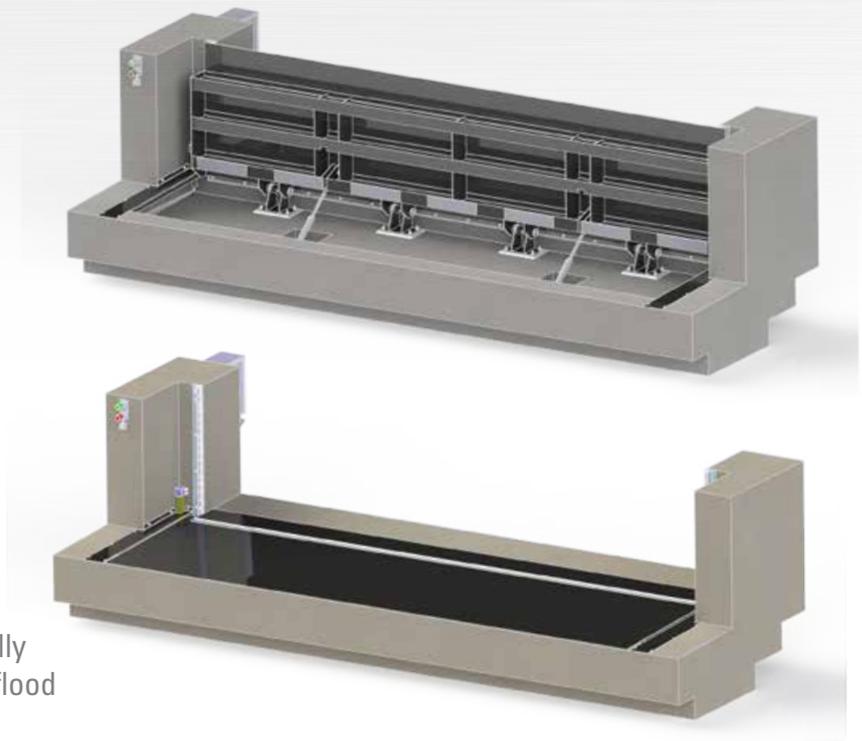
### COMMISSIONING

#### DOCUMENTATION AND TRAINING

- Detailed documentation on operation, testing procedures and maintenance will be provided with all AWMA flood defence systems.
- Comprehensive on and/or off site training available.

# TILTING FLOOD BARRIER

AWMA's Tilting Flood Barrier is a flood gate that can be manually or automatically tilted to provide flood water protection.



## FEATURES

- Typically used to prevent upstream saline intrusion in storm water retention basins.
- Self-regulating, according to a pre-determined head differential.
- A 25 year design life in demanding conditions.
- The gate is centrally hinged and operates via floatation for automatic positioning, enabling optimal stormwater retention or flow requirements.
- Instantaneous response time.
- Guaranteed failsafe opening.
- Functions autonomously without operator intervention.

## APPLICATIONS

- Residential, commercial, environmental protection barrier, eliminating salt water and flood water intrusion, as well as enhancing storm water harvesting opportunities:
  - Wetland entry/exit points
  - Storm Water Harvesting
  - Tidal Water Intrusion zones
  - Flood water diversions

# awma

FLOOD FREE



## TILTING FLOOD BARRIER

### DESIGN

#### DESIGN SUPPORT

- AWMA's design team will provide full support to ensure the most appropriate solution is developed and specified during the preliminary design.

#### SIZES

- Customisable to suit specific site requirements.

#### MATERIALS

- AWMA select materials to meet a minimum design life of 25 years. Where required, AWMA can offer higher grade materials, coatings and protection systems to extend the design life to 100+ years.
- Fabricated to suit project requirements including trafficable loads.
- Materials used in the construction of AWMA's Flood Free range have a high corrosion resistance and can be operated for many years with minimal maintenance.

#### SEALING

- Seals are UV stabilised and manufactured from plasticised PVC to provide optimal seal performance. Typically maintenance free.
- The seal performance of AWMA Flood Gates exceeds that required by the 'Australian Technical Specification for Fabricated Water Control Infrastructure'

#### MAINTENANCE

- The AWMA Flood Gate range has a minimum 25 year design life.
- Minimal maintenance is required ensuring low 'whole of life costs'.

### MANUFACTURE

#### QUALITY

- All fabrication is in accordance with the 'Australian Technical Specification for Fabricated Water Control Infrastructure'.
- All procedures are in accordance with AWMA's accredited ISO 9001 Quality Management System to ensure each gate is manufactured to a high standard, tested and ready for trouble free operation post approved installation.

### INSTALLATION

#### MOUNTING OPTIONS

- Barriers are designed to retrofit existing infrastructure or 'green field sites'.

- AWMA offer install supervision for all turn-key installations.

#### ACTUATION SYSTEMS

- The AWMA Tilting Flood Barrier is Hydraulically actuated to cater for long term immersion in floodwaters.

#### OPERATION SYSTEMS

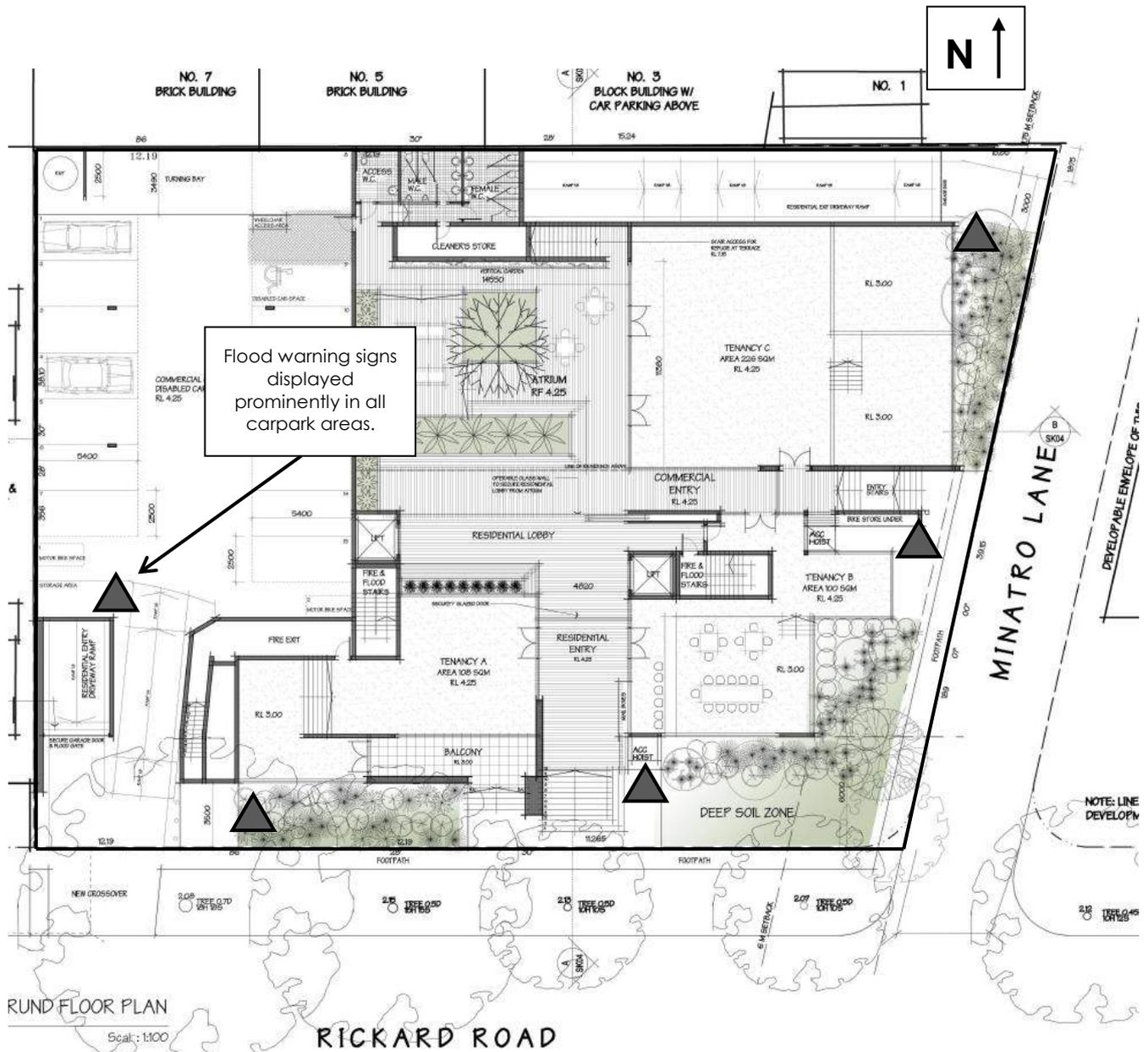
- A range of options are available for the control of the flood barrier including:
  - Manual operation via local control (base option)
  - Automated operation to be triggered via rising water level (recommended)
  - Built in UPS to ensure operation should there be a loss of mains power (recommended)
  - Provision for warning lights on the either side of the flood barrier to alert drivers/pedestrians that the barrier is about to, or has been activated (recommended)
  - Gate can only be opened post flooding via a manual reset from within the control cabinet (standard)
  - Light curtain interlock that prevents gate operation to eliminate risk of property or injury (standard)
  - SMS alarms (option) for key operational parameters including:
    - Flood barrier status (ready, activated, fault)
    - UPS status (ready, low battery, fault)
    - Water level status (Normal, High water level, Very high water level)

### COMMISSIONING

#### DOCUMENTATION AND TRAINING

- Detailed documentation on operation, testing procedures and maintenance will be provided with all AWMA flood defence systems.
- Comprehensive on and/or off site training available.

**10      Attachment D – Flood Awareness Plan**



**Legend:**

- Flood Warning Sign
- Site Boundary

<b>Martens &amp; Associates Pty Ltd</b> ABN 85 070 240 890		<b>Environment   Water   Wastewater   Geotechnical   Civil   Management</b>	
Drawn:	MH	<b>Flood Awareness System – Location of Warning Signs</b>	<b>FIGURE 9</b>
Approved:	GH		
Date:	10.03.2017		
Scale:	NTS		
		Job No: 1605216	

**Table 5:** P21 DCP Appendix 15 – Section 1.6 – Shelter-in-Place Requirements.

Design Element	Compliance Assessment
<p>1.6.1 <u>Flood Risk Emergency Assessment</u></p> <p>For shelter-in-place to be considered an acceptable emergency response, a development should demonstrate that the development controls summarised in the following section have been addressed through a Flood Risk Emergency Assessment report.</p>	<p>Refer to compliance assessment provided in this table.</p>
<p>1.6.2 <u>Minimum Floor Level for Shelter-in-Place</u></p> <p>The adopted requirements for shelter-in-place minimum flood levels are equal to the PMF flood event. These requirements apply to all life hazard categories, H3-H4 and H5.</p>	<p>Level 1 floor level is 7.15 mAHD, which is 2.25 m higher than the PMF flood level of 4.9 mAHD.</p>
<p>1.6.3 <u>Floor Space</u></p> <p>The adopted requirements for shelter-in-place minimum floor space are:</p> <ul style="list-style-type: none"> <li>• A floor space of the shelter-in-place area 2 m<sup>2</sup> per person is required for all long duration flooding unless it can be shown the development lies within this region but is only inundated for a "short duration" (less than 6 hours in the PMF); or</li> <li>• A floor space of the shelter-in-place area 1 m<sup>2</sup> per person is required for development located in short duration flooding (less than 6 hours in the PMF).</li> </ul>	<p>Inundation in the PMF is expected to be longer than 6 hours as the site is located in the low-lying region of the Narrabeen Lagoon catchment.</p> <p>It is assumed that residents and their visitors will take shelter in their own units. As each unit has a minimum floor area of 50 m<sup>2</sup>, there is sufficient floor space to shelter-in-place.</p> <p>The total area of the terrace garden on Level 1 and the walkways on Levels 1 and 2 is 203m<sup>2</sup> which is sufficient for around 100 people to shelter-in-place for long duration flooding.</p>
<p>1.6.4 <u>Accessibility</u></p> <p>The adopted requirements for shelter-in-place for all development are:</p> <ul style="list-style-type: none"> <li>• Shelter-in-place refuge must be intrinsically available to all people on the site, plainly evident, and self-directing, with sufficient capacity of access routes for all occupants.</li> <li>• There must be sufficient time for all occupants to access shelter-in-place refuges, with fail safe access provided with no reliance on elevators. Flood warning systems should be considered where the number of occupants is significant.</li> </ul>	<p>The building is accessible from the site grounds via stairs in the south and east.</p> <p>Occupants in the basement are able to move up to common areas on levels 1 and 2 via two fire stairs located throughout the building.</p> <p>Occupants on the ground podium level are also able to move up to common areas on levels 1 and 2 via two fire stairs and one internal stair located throughout the building.</p> <p>Residents on level 1 and 2 are able to stay in their own units if shelter-in-place is required.</p>

Design Element	Compliance Assessment
<p>1.6.5 <u>Building Stability</u></p> <p>For all shelter-in-place refuge buildings proposed within flood risk to life category H3-H4:</p> <ul style="list-style-type: none"> <li>Structural stability of the refuge building is to be verified by a suitably qualified structural engineer, considering lateral flood flow, buoyancy, suction effects, and debris load impact of the 1% AEP design flood depths and velocities.</li> <li>Refuge must comply with Building Code of Australia (BCA) requirements, with external components rated appropriately for storm, wind and moisture.</li> </ul> <p>For all shelter-in-place refuge buildings pro within flood risk to life category H5:</p> <ul style="list-style-type: none"> <li>Structural stability is to be verified by a suitably qualified structural engineer considering lateral flood flow, buoyancy, suction effects and debris load impact of PMF design flood depths and velocities.</li> </ul>	<p>The proposed structure will be designed and constructed to be resistant to both flood forces (water and debris) and any buoyancy forces by a suitably qualified structural engineer.</p> <p>The proposed structure will be designed and constructed to comply with BCA requirements.</p> <p>Structure is a multi-level shop-top housing development where structural damage due to flooding in the PMF is expected to be minimal.</p>
<p>1.6.6 <u>Serviceability</u></p> <p>The following serviceability requirements only apply to long duration flooding unless it can be shown the development lies within this region but is only inundated for a "short period" (less than 6 hours in the PMF). The serviceability requirements apply for all land-uses with the exception of subdivision:</p> <ul style="list-style-type: none"> <li>Sufficient clean water; and</li> <li>First Aid Kit; and</li> <li>Portable radio with spare batteries; and</li> <li>Torch with spare batteries.</li> </ul> <p>In addition, land-use groups listed under Critical and Vulnerable Uses must also provide:</p> <ul style="list-style-type: none"> <li>A practical means of medical evacuation; and</li> <li>Emergency power.</li> </ul>	<p>Allocated storage is to be provided above the Flood Planning Level for storing all the required items listed.</p> <p>The proposed development is not classified critical or vulnerable land-use.</p>

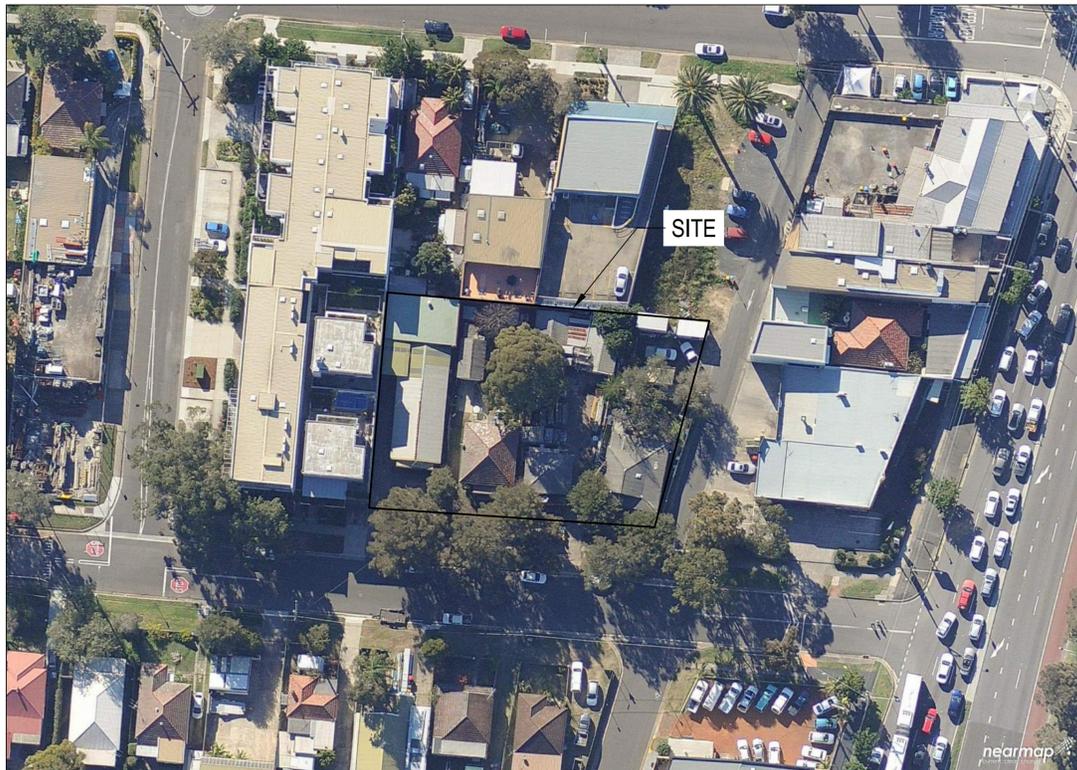
## 12 Attachment F – Flood Storage Assessment Planset

PROJECT: **ENGINEERING SERVICES**

PLANSET: **FLOOD STORAGE ASSESSMENT**

CLIENT: **ANT BUILDING P/L**

DRAWING LIST		
DWG No.	REV	DWG TITLE
GENERAL		
PS01-A000	A	COVER SHEET
FLOODING		
PS01-KZ00	A	FLOOD STORAGE VOLUME CALCULATIONS
PS01-KZ10	A	BASEMENT PLAN (FLOOD STORAGE DETAILS)
PS01-KZ20	A	FLOOD STORAGE TANK SECTION AND DETAILS



**SITE PLAN**  
N.T.S.

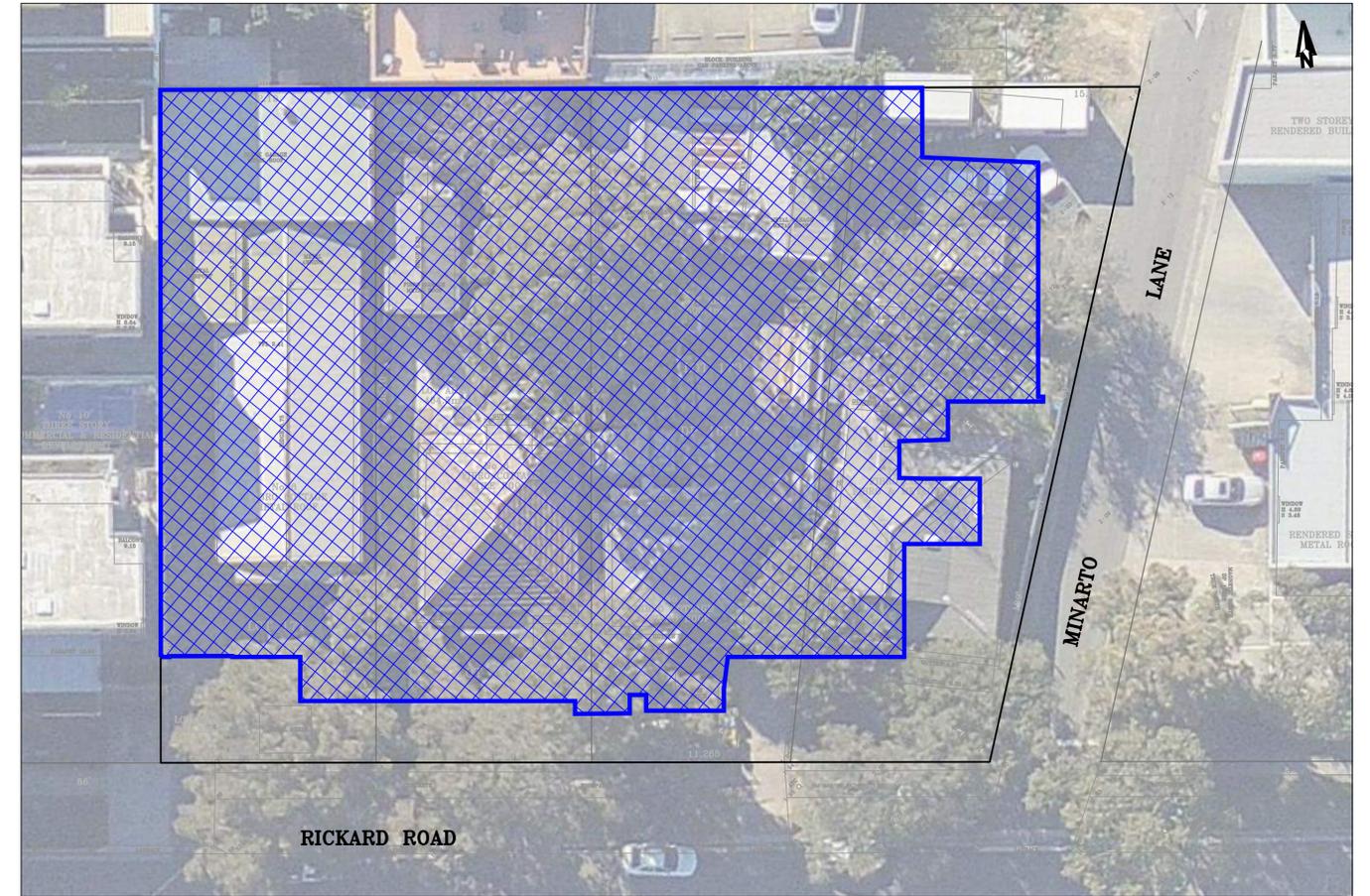
**NORTHERN BEACHES COUNCIL**  
2-8 RICKARD ROAD, NORTH NARRABEEN, NSW  
LOTS 171-174, DP 12612

**DEVELOPMENT APPLICATION**

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD	SCALE	GRID	DATUM	PROJECT MANAGER	CLIENT	DRAWING TITLE	
A	FLOOD STORAGE ASSESSMENT	13/03/2017	MH	MH/GH	GH					GH	ANT BUILDING P/L	COVER SHEET	
<p><b>DISCLAIMER &amp; COPYRIGHT</b> This plan must not be used for construction unless signed as approved by principal certifying authority. All measurements in millimetres unless otherwise specified. This drawing must not be reproduced in whole or part without prior written consent of Martens &amp; Associates Pty Ltd. (C) Copyright Martens &amp; Associates Pty Ltd</p>								<p>PROJECT NAME/PLANSET TITLE <b>ENGINEERING SERVICES FLOOD STORAGE ASSESSMENT</b> 2-8 RICKARD ROAD, NORTH NARRABEEN LOTS 171-174, DP 12612</p>		<p><b>martens</b> &amp; Associates Pty Ltd Consulting Engineers Environment Water Geotechnical Civil</p>		<p>DRAWING NO. REVISION PS01-A000 A</p>	
PROJECT NO.		PLANSET NO.		RELEASE NO.		DRAWING NO.		REVISION		DRAWING ID: P1605216-PS01-R01-A000			
P1605216		PS01		R01		PS01-A000		A		P1605216-PS01-R01-A000			



EXISTING BUILT FOOTPRINT AREAS (SEE NOTE 1)



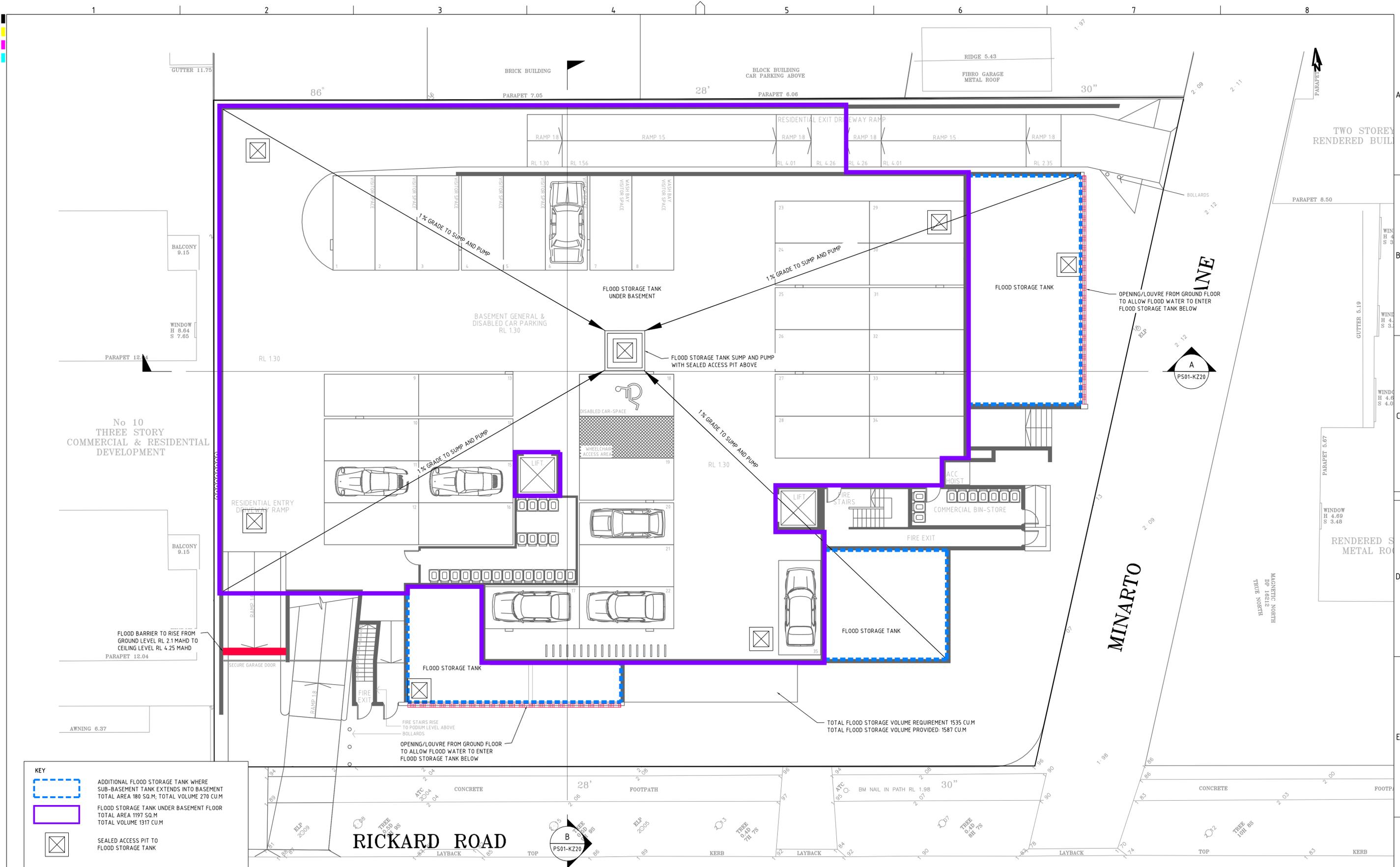
PROPOSED BUILT FOOTPRINT AREAS (SEE NOTE 2)

Areas		
Existing 'built' footprint	695	m2
Proposed 'built' footprint	1572	m2
<b>Flood Data</b>		
	Current 1% AEP	Current 1% AEP + Climate Change
Ground Level (mAHD)	2	2
Flood Level (mAHD)	3	3.75
Flood Depth (m)	1	1.75
<b>Flood storage occupied</b>		
	Current 1% AEP	Current 1% AEP + Climate Change
Existing (m3)	695	1216
Developed (m3)	1572	2751
Storage shortfall (m3)	877	1535
Proposed storage volume (m3)		<b>1587</b>

- NOTES:
1. IN ACCORDANCE WITH MARTENS/COLLIER S34 FLOOD DISCUSSIONS 17/02/2017
  2. BASED ON ARCHITECTURAL PLANS DATED 08/03/2017

## DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD	SCALE 0 2 4 6 8 10 12 14 16 18 20 A1 (A3) 1:200 (1:400) METRES	GRID	DATUM	PROJECT MANAGER	CLIENT	 Consulting Engineers Environment Water Geotechnical Civil Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767 Email: mail@martens.com.au Internet: www.martens.com.au	DRAWING TITLE FLOOD STORAGE VOLUME CALCULATIONS			
A	FLOOD STORAGE ASSESSMENT	13/03/2017	MH	MH/GH	GH			LOCAL	MAHD	GH	ANT BUILDING P/L		ENGINEERING SERVICES FLOOD STORAGE ASSESSMENT 2-8 RICKARD ROAD, NORTH NARRABEEN LOTS 171-174, DP 16212	PROJECT NO. P1605216	PLANSET NO. PS01	RELEASE NO. R01

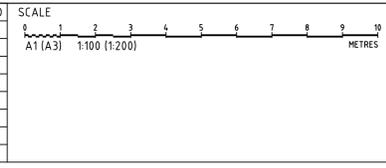


**KEY**

- ADDITIONAL FLOOD STORAGE TANK WHERE SUB-BASEMENT TANK EXTENDS INTO BASEMENT  
TOTAL AREA 180 SQ.M; TOTAL VOLUME 270 CU.M
- FLOOD STORAGE TANK UNDER BASEMENT FLOOR  
TOTAL AREA 1197 SQ.M  
TOTAL VOLUME 1317 CU.M
- X SEALED ACCESS PIT TO FLOOD STORAGE TANK
- FLOOD STORAGE TANK ENTRY POINT

TOTAL FLOOD STORAGE VOLUME REQUIREMENT 1535 CU.M  
TOTAL FLOOD STORAGE VOLUME PROVIDED: 1587 CU.M

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	FLOOD STORAGE ASSESSMENT	13/03/2017	MH	MH/GH	GH	

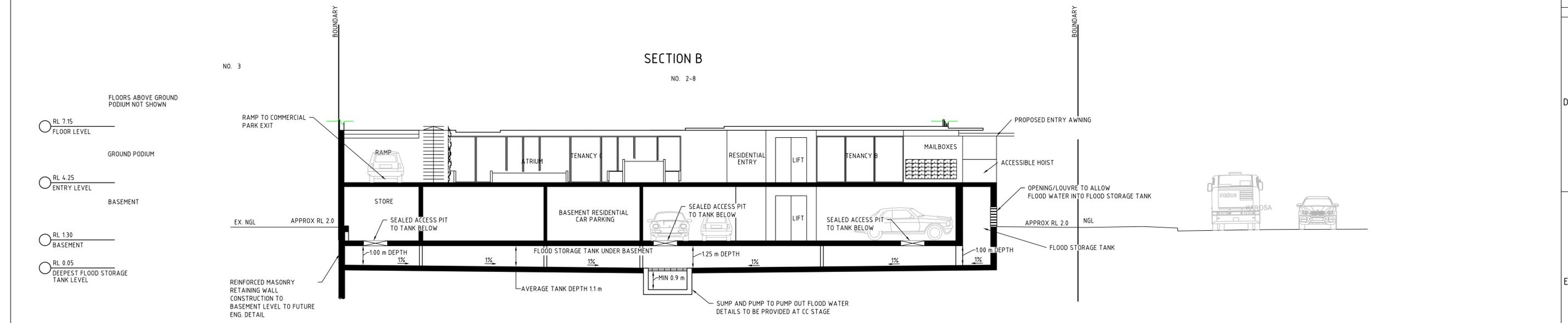
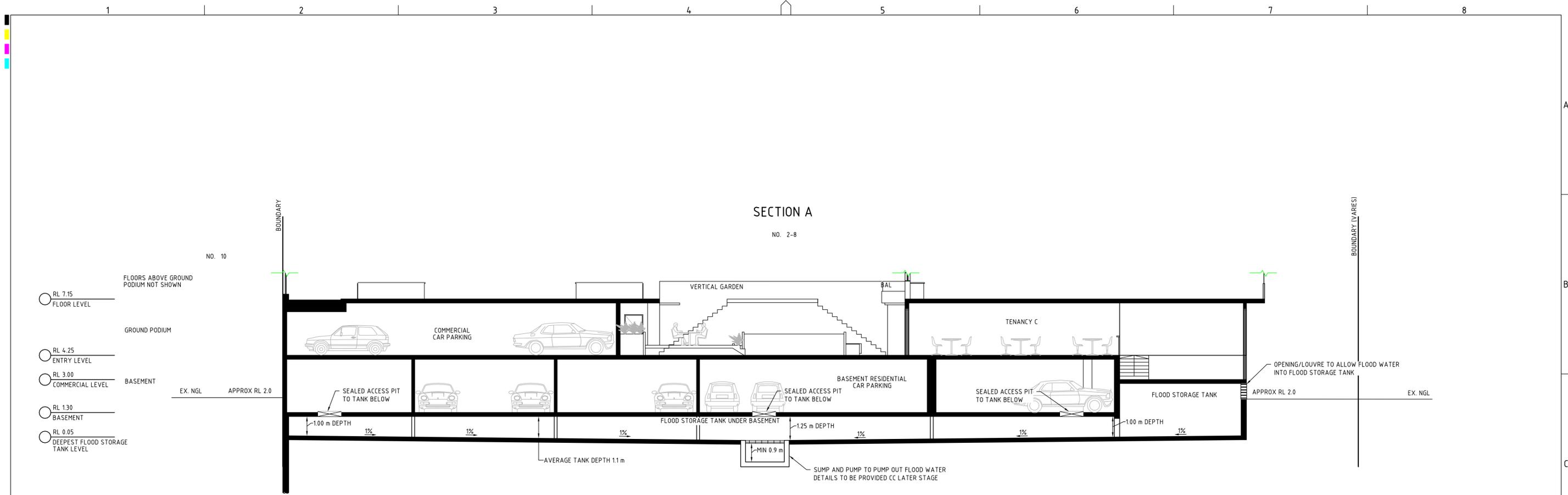


GRID LOCAL	DATUM MAHD	PROJECT MANAGER GH	CLIENT ANT BUILDING P/L
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PROJECT NAME/PLANSSET TITLE <b>ENGINEERING SERVICES FLOOD STORAGE ASSESSMENT</b> 2-8 RICKARD ROAD, NORTH NARRABEEN LOTS 111-174, DP 16212			

**martens** & Associates Pty Ltd  
Consulting Engineers  
Environment Water Geotechnical Civil  
Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767  
Email: mail@martens.com.au Internet: www.martens.com.au

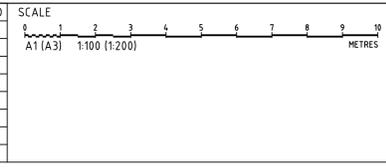
**DEVELOPMENT APPLICATION**

DRAWING TITLE BASEMENT PLAN (FLOOD STORAGE DETAILS)				
PROJECT NO. P1605216	PLANSSET NO. PS01	RELEASE NO. R01	DRAWING NO. PS01-KZ10	REVISION A



# DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	FLOOD STORAGE ASSESSMENT	13/03/2017	MH	MH/GH	GH	



GRID LOCAL MAHD PROJECT MANAGER GH CLIENT ANT BUILDING P/L

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PROJECT NAME/PLANSET TITLE  
**ENGINEERING SERVICES**  
**FLOOD STORAGE ASSESSMENT**  
 2-8 RICKARD ROAD, NORTH NARRABEEN  
 LOTS 171-174, DP 16212

**martens & Associates Pty Ltd**  
 Consulting Engineers  
 Environment Water Geotechnical Civil  
 Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767  
 Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE				
FLOOD STORAGE TANK SECTION AND DETAILS				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1605216	PS01	R01	PS01-KZ20	A

# Appendix D

## Court Judgement/Order





Issued: 2 May 2017 3:37 PM

## JUDGMENT/ORDER

### COURT DETAILS

Court	Land and Environment Court of NSW
Division	Class 1
Registry	Land and Environment Court Sydney
Case number	2016/00302237

### TITLE OF PROCEEDINGS

First Applicant	Anthony Gleeson
Second Applicant	Ana Gleeson
First Respondent	Northern Beaches Council ABN 57284295198

### DATE OF JUDGMENT/ORDER

Date made or given	28 April 2017
Date entered	1 May 2017

### TERMS OF JUDGMENT/ORDER

The final orders to give effect to the parties' agreement under s34(3) of the Land and Environment Court Act 1979 are:

(1) Leave is granted to the Applicant to rely on the following amended plans

Drawing Number, Revision , Title, Author, Date

DA00 \*, C, Site Analysis Plan , Haviland Architects, 3 April 2017

DA01, C, Roof Plan , , 3 April 2017

DA02 , C, Basement Floor Plan , , 3 April 2017

DA03, C, Roof plan, , 3 April 2017

DA04, C, First Floor Residential , , 3 April 2017

DA05, C, Second Floor Residential, , 3 April 2017

DA06, C, South & East Elevations , , 3 April 2017

DA07, C, North & West Elevations , , 3 April 2017

DA08, C, Sections AA & BB , , 3 April 2017

SD01, C, Winter Shadows 9am & 12pm, , 3 April 2017

SDO2, C, Winter Shadow 3pm, , 3 April 2017

L-01, B, Landscape Plan Podium Ground Floor , Space Landscape Designs , 30 March 2017

L-02, B, Landscape Plan First Floor Residential , ,

(2) The appeal is upheld.

(3) Development application No. N0267/16 for Demolition of all existing structures and the construction of a shoptop housing development, comprising 3 commercial units, 20 residential units and off-street parking at 2-8 Rickard Road, North Narrabeen, is approved in accordance with the conditions set out in Annexure A.

## SEAL AND SIGNATURE



Signature                    L Walton  
Capacity                    Registrar  
Date                         2 May 2017

If this document was issued by means of the Electronic Case Management System (ECM), pursuant to Part 3 of the Uniform Civil Procedure Rules (UCPR), this document is taken to have been signed if the person's name is printed where his or her signature would otherwise appear.

## FURTHER DETAILS ABOUT Applicant(s)

### First Applicant

Name                         Anthony Gleeson  
Address                      8 Rickard Road  
                                    NORTH NARRABEEN NSW 2101

Telephone  
Fax  
E-mail  
Client reference

### Second Applicant

Name                         Ana Gleeson  
Address                      8 Rickard Road  
                                    NORTH NARRABEEN NSW 2101

Telephone  
Fax  
E-mail  
Client reference

## Legal representative for plaintiffs

Name                         ANTHONY DOYLE SATTLER  
Practicing certificate number    32039  
Address                      Unit 1  
                                    56 THE Corso  
                                    MANLY NSW 2095

DX address  
Telephone                    66776219  
Fax                            02 9939 6257  
Email                         tony@sattler.net.au

## FURTHER DETAILS ABOUT Respondent(s)

### First Respondent

Name                         Northern Beaches Council  
                                    ABN 57284295198  
Address                      725 Pittwater Road  
                                    DEE WHY NSW 2099  
Frequent User Identifier        NBCC

## ATTACHMENTS TO ORDERS

(302237.16 Annexure A (C).pdf)

[attach.]

**Annexure 'A'**  
**Conditions of Consent**

**CONSENT NO: N0267/16**  
**ENVIRONMENTAL PLANNING & ASSESSMENT ACT, 1979 (AS AMENDED)**  
**NOTICE TO APPLICANT OF DETERMINATION OF A DEVELOPMENT APPLICATION**

---

Applicant's Name and Address:

**ANTHONY & ANA GLEESON**  
**C/- HAVILAND ARCHITECTS**  
**267 HIGH STREET**  
**NORTH WILLOUGHBY NSW 2068**

Being the applicant in respect of Development Application **N0267/16** for:

**Demolition of all existing structures and the construction of a shoptop housing development, comprising 3 commercial units, 20 residential units and off-street parking at 2-8 Rickard Road, North Narrabeen (Lots 171, 172, 173 and 174 DP 16212).**

**CONDITIONS OF APPROVAL**

---

This consent is not an approval to commence building work. The works associated with this consent can only commence following the issue of the Construction Certificate.

Note: Persons having the benefit of development consent may appoint either a council or an accredited certifier as the principal certifying authority for the development or for the purpose of issuing certificates under Part 4A of the Environmental Planning and Assessment Act. When considering engaging an accredited certifier a person should contact the relevant accreditation body to ensure that the person is appropriately certified and authorised to act in respect of the development.

**A. Prescribed Conditions:**

1. The development is to be undertaken in accordance with the following documents:
  - Architectural Drawings DA01, DA02, DA03, DA04, DA05, DA06, DA07 and DA08, revision C, all prepared by Haviland Architects, dated 3 April 2017;
  - Landscape Plans L01 and L02, revision B, prepared by Space Landscape Designs, dated 30 March 2017;
  - Arboricultural Impact Assessment Report, prepared for Mr A Gleeson by Jackson Nature Works, dated 17 March 2017;
  - BASIX Certificate 382273M\_03, dated 3 April 2017;
  - Flood Risk Assessment & Flood Emergency Response Plan: 2-8 Rickard Road, North Narrabeen, reference P160521JR01V04, prepared by Martens Consulting Engineers, dated April 2017;
  - Geotechnical Risk Management Report, reference MM 27505, prepared by Jack Hodgson Consultants Pty Limited, dated 28 March 2011;
  - Schedule of Finishes, prepared by Haviland Architects, dated 3 April 2017.
2. All works are to be carried out in accordance with the requirements of the Building Code of Australia and the National Construction Code.

3. In the case of residential building work for which the *Home Building Act 1989* requires there to be a contract of insurance in force in accordance with Part 6 of that Act, there is to be such a contract in force.
4. Critical stage inspections are to be carried out in accordance with clause 162A of the *Environmental Planning & Assessment Regulation 2000*. To allow a Principal Certifying Authority or another certifying authority time to carry out critical stage inspections required by the Principal Certifying Authority, the principal contractor for the building site or the owner-builder must notify the Principal Certifying Authority at least 48 hours before building work is commenced and prior to further work being undertaken.
5. A sign must be erected in a prominent position on any site on which building work, subdivision work or demolition work is being carried out:
  - a. showing the name, address and telephone number of the Principal Certifying Authority for the work, and
  - b. showing the name of the principal contractor (if any) for any building work and a telephone number on which that person may be contacted outside working hours, and
  - c. stating that unauthorised entry to the work site is prohibited.Any such sign is to be maintained while the building work, subdivision work or demolition work is being carried out, but must be removed when the work has been completed.
6. Residential building work within the meaning of the *Home Building Act 1989* must not be carried out unless the Principal Certifying Authority for the development to which the work relates (not being the Council) has given the Council written notice of the following information:
  - a. in the case of work for which a principal contractor is required to be appointed:
    - i. The name and licence number of the principal contractor, and
    - ii. The name of the insurer by which the work is insured under Part 6 of that Act.
  - b. in the case of work to be done by an owner-builder:
    - i. The name of the owner-builder, and
    - ii. If the owner-builder is required to hold an owner-builder permit under that Act, the number of the owner-builder permit.
7. If arrangements for doing the residential building work are changed while the work is in progress so that the information notified under subclause (2) becomes out of date, further work must not be carried out unless the Principal Certifying Authority for the development to which the work relates (not being the Council) has given the Council written notice of the updated information.
8. The hours of construction are restricted to between the hours of 7.00am and 5.00pm Monday - Friday and 7.00am to 1.00pm on Saturdays. No works are to be carried out on Sundays or Public Holidays. Internal building work may be carried out at any time outside these hours, subject to noise emissions from the building or works not being audible at any adjoining boundary.

**B. Matters to be incorporated into the development and maintained over the life of the development:**

1. This approval/consent relates only to the new work nominated on the approved consent plans and does not approve or regularise any existing buildings or structures within the property boundaries or within Council's road reserve.

2. If any Aboriginal Engravings or Relics are unearthed all work is to cease immediately and the Metropolitan Local Aboriginal Land Council (MLALC) and the Office of Environment and Heritage are to be notified.
3. In accordance with Council's Tree Preservation Order, all existing trees as indicated in the Survey Plan and/or approved Landscape Plan shall be retained. For all other tree issues not related to a development application, applications must be made to Council's Tree Management Officers.
4. No environmental weeds are to be planted on the site. Refer to Council's website for environmental weed lists.
5. Prior to the completion of works, all declared noxious weeds are to be removed/controlled in accordance with the *Noxious Weeds Act 1993*. Environmental weeds are to be removed and controlled. Refer to Council's website for noxious/environmental weed lists.
6. Any vegetation planted onsite outside the approved landscaping is to be consistent with:
  - a. Locally native species growing onsite and/or selected from the list pertaining to the vegetation community growing in the locality as per the vegetation mapping and Native Plants for Your Garden guide available on Council's website.
  - b. The *Warriewood Valley Release Area Landscape Masterplan and Design Guidelines (Public Domain)*.Other plant species can only be used with written approval of Council
7. Street address numbering can only be authorised by Council. Before proceeding to number each lot, approval of the numbers must be sought from Council's Planning and Assessment Business Unit.
8. The adjustment and construction of all utilities, services and drainage systems, and the creation of appropriate easements are to be at the full cost of the developer.
9. No water pollution shall result from the operation of any plant or equipment or activity carried out.
10. Noise from the operation of any plant or equipment at the premises shall comply with the noise provisions of the *Protection of the Environment Operations Act 1997*.
11. No odour nuisance to the public or adjoining properties shall be created by the operation of any plant or equipment or any procedure carried out at the premises.
12. No emissions causing air pollution shall be created by the operation of any plant equipment of any procedure carried out at the premises.
13. The layout and design of the basement carpark (including driveways, grades, turn paths, sight distance requirements, aisle widths, aisle lengths, and parking bay dimensions) shall be strictly in accordance with the relevant provisions of AS2890.1-2004. Disabled parking spaces and the internal access route dimensions/gradient shall be signposted and delineated clearly to comply with AS2890.6-2009.
14. Four (4) apartments are to be designed in accordance with the Silver Level of the *Liveable Housing Guideline*. The apartments are to be nominated on the architectural drawings and identified on any resultant Strata Plan issued for the site.
15. Fifty (50) parking spaces are to be maintained for the life of the development, and are to be maintained free of obstruction and used solely for the parking of vehicles. No enclosing of car parking spaces is permitted.

16. Each one bedroom unit must have one parking space, dedicated on title.
17. Each two bedroom and three bedroom unit must have two parking spaces, dedicated on title.
18. Fifteen (15) retail visitor parking spaces are to be provided and maintained for the life of the development as common property. Access to all retail visitor spaces must be readily available to the general public during business/trading hours of the 3 tenancies.
19. Six (6) residential visitor parking spaces are to be provided and maintained for the life of the development as common property.
20. Retail and Residential Visitor parking spaces are to be clearly identified.
21. Where two spaces are in a tandem arrangement, both spaces must be dedicated to the same unit.
22. A hydraulic engineer is to prepare a plan demonstrating the provision of drip irrigation to all garden areas (including planters).
23. A stormwater engineer is to prepare a plan demonstrating the provision of adequate drainage of rainfall entering the podium level via the Atrium. The drainage should be provided to cater for the capture and disposal of the 1%AEP rainfall event with climate change. The runoff should be directed to garden areas where possible.
24. Flooring in the podium area should be suitable as a wet area and be non-slip.
25. All sanitary drainage must be concealed in service ducts or otherwise hidden from external view to the satisfaction of the Certifying Authority.
26. The commitments identified in the Basix Certificate/s and on the plans or specifications are to be fulfilled and maintained for the life of the development.
27. All external glazing is to have a maximum reflectivity index of 25%.
28. Garbage enclosures/stores shall be provided and maintained in accordance with the following:
  - a. A separate room or an appropriately constructed area is to be provided for the storage of garbage and recyclables.
  - b. The walls of the enclosure shall be cement rendered and steel trowelled to a smooth, even surface.
  - c. The floor shall be of impervious material coved at the intersection with the walls, graded and drained to an approved floor waste within the room/enclosure.
  - d. Stormwater shall not enter the floor of the garbage enclosure such that the sewer system may be contaminated by rainwaters.
  - e. Garbage and recycling rooms shall be vented to the external air by natural or artificial means. The installation and operation of the mechanical ventilation system shall comply with AS 1668, Parts 1 & 2.
  - f. The room used for the storage and washing down of garbage and recycling receptacles shall be constructed of solid material (brick, concrete blocks, structural fibrous cement or similar homogeneous material) so as to prevent the formation of cavities which become possible harborages for insects and vermin. Framing in timber is not permitted.
  - g. The garbage and recycling room shall be made vermin proof.

- h. Hot and cold water hose cocks shall be located within a garbage enclosure or in close proximity to Council's satisfaction.
  - i. Residential and commercial garbage enclosures/stores are to remain separate for the life of the development.
  - j. The enclosure shall be of adequate size to accommodate the following bins numbers and capacity per dwelling:
    - i. 80 litres per household per week of garbage, and
    - ii. 70 litres per household per week of paper recyclables, and
    - iii. 70 litres per household per week of container recyclables.
29. Security lighting is to be provided in accordance with the relevant provisions of AS4282 - *The control of the obtrusive effects of outdoor lighting*.
30. The walls and/or ceilings of attached dwellings shall comply with the fire rating provisions of the Building Code of Australia.
31. The walls and/or ceilings of attached dwellings shall have a noise transmission rating in accordance with Part F(5) of the Building Code of Australia.
32. Any ramps and access ways to include stainless steel (Grade 312) hand railings to BCA and DDA specifications.
33. This consent does not authorise the subdivision of the resultant development.
34. The minimum ceiling height of all habitable rooms (as defined by the Apartment Design Guidelines), including living areas, dining rooms, bedrooms and kitchens, is to be 2.7m.
35. The "Vergola" roof systems are to be owned and maintained by the Owners' Corporation.
36. The two (2) car wash bays are to be graded and are to drain to the sewerage system. The perimeter of the wash bays are to be suitably bunded to prevent stormwater entering the sewer.
37. Air-conditioning units, hot water systems, and other mechanical equipment shall not be located in locations that are visible from a public place. No services are permitted on the roof.
38. External finishes of the development are to be in accordance with the Schedule of Finishes referenced in this consent, and as modified by conditions.
39. Landscaping, as proposed on the landscape plans referenced in this consent and as amended by conditions of consent, is to be maintained for the life of the development by the Owners Corporation in accordance with the Landscape Maintenance Plan. Any plants that die, are destroyed or removed shall be replaced by the Owners Corporation on a regular basis.
40. The development is to be undertaken in accordance with the recommendations of the Arboricultural Impact Assessment Report, as referenced in this consent.
41. All water management facilities proposed for the development, including rainwater tanks, stormwater quality improvement devices, on-site detention facilities, and private stormwater drainage are to remain in private ownership, be located within private property and maintained in accordance with the manufacturer's specifications. The maintenance is to be carried out by the owners of the development or the Owners Corporation over the life of the development.

42. All utility services including overhead power supply and communication cables located in the adjacent road verge & those to service the development are to be placed and/or relocated underground for the total frontage of the development site to any public road at the full cost to the developer.
43. The four (4) separate lots are to be consolidated into one (1) lot.
44. The Plan of Management, as required by this consent, is to be maintained for the life of the development and adopted in any Strata Plan and Strata By-laws. The Flood Emergency Response Plan as referenced in this consent and amended by the conditions of this consent must form part of this Plan of Management.
45. The flood planning level for this development is 4.25m AHD and the Probable Maximum Flood level is 4.9m AHD. With sea level rise the Probable Maximum Flood level will be 5.3m AHD.
46. The Flood Emergency Response Plan referenced in this consent is to be amplified to be in accordance AS3745-2010, as recommended by fire and flood assessment prepared by AE&D Fire Pty Ltd for the development. The Flood Emergency Response Plan is to be amended to refer to the 'Owners Corporation' instead of a generic reference to 'management'.
47. Dynamic emergency signage is to be provided in the development, programmed to warn occupants of either a fire or flood risk. This shall be programmed to warn of a fire and direct occupants through the fire stairs to the exit to the street, or warn occupants of a flood and direct them to the refuge on level 01.
48. Signage is to be provided on flood doors to indicate that they are not to be opened in the event of a flood (noting they will be outward opening and therefore unlikely to be able to be opened).
49. A Strata By-law is to be drafted and incorporated in the By-Laws to ensure that under rare and extreme flood conditions (when flood levels exceed the level of the podium at 4.25m AHD) that persons requiring refuge from the commercial portion of the building can access refuge space, water and amenities in the residential portion of the development if they are needed.
50. The Flood Emergency Response Plan as referenced in this consent and amended by the conditions of this consent is to be implemented as part of all residential and commercial tenancy agreements.
51. A plan is to be prepared by a suitably qualified engineer to demonstrate that there is a suitable inflow and outflow arrangement for floodwaters to and from the flood storage tank under the building designed in accordance with the requirements of Section C2.6 of the Australian Building Codes Board Construction of Buildings in Flood Hazard Areas Handbook (Version 2012.3).
52. A Section 88B instrument is to be placed on the title to refer to the following flood-related features of the development that are required for the life of the development:
  - a. flood storage tank and associated pump system,
  - b. flood warning system and
  - c. flood doors (on all external doors set below 4.25m AHD).
53. The terrace garden at Level 1 is to be common property.

54. The narrow windows on the northern façade associated with Bedroom 1 of Units 5, 6, 15, and 16 and Bedroom 2 in Units 3 and 13, are to be fixed and are to comprise translucent glazing.
55. No part of the building shall exceed RL 12.95.
56. This consent does not authorise the first use of any tenancies.

**C. Matters to be satisfied prior to the issue of the Construction Certificate:**

Note: All outstanding matters referred to in this section are to be submitted to the accredited certifier together. Incomplete Construction Certificate applications / details cannot be accepted.

1. Submission of construction plans and specifications and documentation which are consistent with the approved Development Consent plans, the requirements of Building Code of Australia and satisfy all conditions shown in Part B above, are to be submitted to the Principal Certifying Authority.
2. No works are to be carried out in Council's Road Reserve without the written approval of the Council.

Note: Separate approval is required for access driveways, paths, connections to underground services (stormwater, gas, sewer, electricity, etc:), and landscaping works within Council's Road Reserve.

4. Construction works approved by this consent must not commence until:
  - a. Construction Certificate has been issued by a Principal Certifying Authority;
  - b. A Principal Certifying Authority has been appointed and Council has been notified in writing of the appointment, and
  - c. At least 2 days' notice, in writing has been given to Council of the intention to commence work.
5. In accordance with section 34 of the Building and Construction Industry Long Service Payments Act 1986, the applicant must pay a long service levy at the prescribed rate of 0.0035 of the total cost of the work to either the Long Service Payment Corporation or Council for any work costing \$25,000 or more.
6. An Erosion and Sediment Management Plan is to be submitted prior to the issue of a Construction Certificate. Control over discharge of stormwater and containment of run-off and pollutants leaving the site/premises shall be undertaken through the installation of erosion control devices such as catch drains, diversion drains, energy dissipaters, level spreaders and sediment control devices such as hay bale barriers, filter fences, filter dams and sedimentation basins. Such plan is to be accompanied by a certification from an appropriately qualified person, that the plans/ details have been designed in accordance with the requirements of *Managing Urban Stormwater: Soils and Construction* (Landcom 2004). The plan is also to include specific details required to remove clay from vehicles leaving the site so as to maintain public roads in a clean condition. The plan is to identify the TPZ of trees to be retained, and no stockpiles are to be located within the TPZ of trees to be retained.
7. Engineering plans and specifications for the construction of all drainage and other civil engineering works required by this consent are to be certified by a suitably qualified and experienced Civil Engineer who is listed as a Chartered Professional Engineer on the National Engineers Register (NER) maintained by Engineers Australia prior to the issue of a Construction Certificate.

8. A satisfactory Construction Traffic Management Plan (CTMP) prepared by a suitably qualified traffic consultant is to be submitted prior to the issue of a Construction Certificate. The CTMP is to detail:
  - a. Quantity of material to be transported;
  - b. Proposed truck movements per day;
  - c. Proposed hours of operation; and
  - d. Proposed traffic routes, noting that 3 tonne load limits apply to some roads within the local government area.
  - e. Location of on/off site parking for workers associated with construction for the whole period of construction.
9. A monetary contribution of \$320,000 is payable to Northern Beaches Council for the provision of public infrastructure and services pursuant to the Pittwater Section 94 Contributions Plan for Residential Development. The contribution is to be paid prior to the issue of the first Construction Certificate or Subdivision Certificate (whichever occurs first) or prior to the issue of the Subdivision Certificate where no Construction Certificate is required.

The proponent may negotiate with Council for the direct provision of facilities and services specified in the Section 94 Plan, the dedication of land or another material public benefit in lieu of full or partial payment of the monetary contribution. Any agreement shall be in accordance with the Pittwater Section 94 Contributions Plan for Residential Development. The agreement must be finalised, formally signed and in place prior to payment being due.

The Pittwater Section 94 Contributions Plan for Residential Development may be inspected at Council's Mona Vale office, 1 Park Street Mona Vale or on Council's website.

Cashier Codes:  
SOPS – \$128,000  
SLEL – \$32,000  
SCSF – \$56,000  
SVSS – \$104,000

10. Plans and details demonstrating that the commitments identified in the BASIX Certificate that apply to the construction certificate or complying development plans and specifications are fulfilled.
11. The applicant is to consult with Sydney Water to establish whether there are any Section 73 Compliance Certificate requirements for this proposal, under the provisions of the Sydney Water Act, 1994. A copy of any Notice of Requirements letter which may be issued by Sydney Water, is to be provided to the Private Certifying Authority with the Construction Certificate application.

Application must be made through an authorised Water Servicing Coordinator. Please refer to the Building Developing and Plumbing section of the web site [www.sydneywater.com.au](http://www.sydneywater.com.au) then refer to "Water Servicing Coordinator" under "Developing Your Land" or telephone 13 20 92 for assistance.

Following application a "Notice of Requirements" will advise of water and sewer infrastructure to be built and charges to be paid. Please make early contact with the Coordinator, since building of water/sewer infrastructure can be time consuming and may impact on other services and building, driveway or landscape design.

12. Structural Engineering details relating to the approved development are to be submitted to the Accredited Certifier or Council prior to release of the Construction Certificate. Each plan/sheet is to be signed by a qualified practising Structural Engineer who is listed as a

Chartered Professional Engineer on the National Engineers Register (NER) maintained by Engineers Australia and has appropriate experience and competence in the related field.

13. Civil engineering details of the proposed excavation are to be submitted to the Accredited Certifier or Council with the Construction Certificate application. Each plan/sheet is to be signed by a qualified practising Civil Engineer who is listed as a Chartered Professional Engineer on the National Engineers Register (NER) maintained by Engineers Australia.
14. Prior to issue of the Construction Certificate, Form 2 of the *Geotechnical Risk Management Policy for Pittwater* (Appendix 5 of P21 DCP) is to be completed and submitted to the Principal Certifying Authority.
15. The Applicant is to provide written certification from all relevant service providers, to confirm that the residential flat building can be provided with all essential services, including water, sewer, and electricity.
16. A Landscape Maintenance Plan is to be prepared and submitted to Council that outlines the technique and frequency of maintenance tasks during the establishment of the landscaping on the subject site. The Landscape Maintenance Plan is to be implemented for a period 24 months immediately following the completion of landscape and hardscape works on site. The Landscape Maintenance Plan is to incorporate maintenance and care of hardscape elements (e.g. paving, retaining walls, secured pedestrian access paths), weeding, watering, mowing, consideration of other endemic species where plantings do not respond to the conditions as expected and a procedure for the replacement of failed plantings.
17. Prior to the issuance of any Construction Certificate, the architectural and landscape plans are to be amended, as follows:
  - a. The stairs between the terrace garden on the first floor and the ground floor courtyard are to be deleted.
  - b. The terrace garden along the northern and western boundaries at the first floor is to be non-trafficable (with the exception of access for maintenance) and is to be one continual area with no dividing walls or fences.
  - c. Lineal planting arrangements within the within the first floor terrace garden should be avoided and plants are to be arranged and spaced so that at completion of works, they present as a grown completed landscape. Plant material should be arranged through pre-order plant contracts to achieve required advanced sizes.
18. Prior to the issuance of any Construction Certificate, the architectural plans are to be amended, as follows:
  - a. The second laundry in the hallway of Units 8 and 18 is to be deleted and replaced with additional storage.
  - b. The protruding terrace 'pods' on the Rickard Road and Minarto Lane facades, associated with the Living Room of Units 3 and 13 and Bedroom 1 of Units 1, 8, 11, and 18, are not to protrude more than 500mm from the associated façade.
  - c. The cupboard/BIR in Bedroom 2 in Units 9 and 19 is to be relocated, so that the minimum dimensions of the rooms are 3m in both directions, excluding the depth of the cupboard/BIR.
19. The schedule of colours and finishes referenced in this consent is to be amended to provide more specific colour selections in accordance with following:
  - a. All concrete rendered external surfaces, indicated by 'CR' on the approved elevations, are to be finished in a dark tone, equivalent to or darker than Dulux/Colorbond "Windspray".
  - b. All cladding, indicated by 'LWC' on the approved elevations, is to be painted in a dark tone, equivalent to or darker than Dulux/Colorbond "Windspray".

- c. All timber cladding, indicated by 'TIM' on the approved elevations is to be natural timber, finished with any necessary stain.
- d. Any brickwork, indicated by 'FB' on the approved elevations, is to comprise dark brown or grey bricks.
- e. Any blockwork, indicated by 'MC' on the approved elevations is to comprise dark brown or grey bricks.
- f. The roof is to be finished with pebble ballast, and the pebbles must be a mid-dark grey.

The use of red, white or light tones on any external surface is not permitted. The concrete driveway to Rickard Road is to be coloured to achieve a dark grey finish.

20. A Plan of Management (POM) is to be prepared for the development as a whole, and is to address:
  - a. The management of the carpark areas, particularly the ground floor retail parking area with respect to access control, loitering and vandalism.
  - b. The maintenance of all areas of landscaping, specifically planter boxes,
  - c. Site cleanliness, including garbage enclosures and public/common bathrooms,
  - d. Garbage collection,
  - e. Rapid repair of vandalism and graffiti (including the northern side of the wall adjoining 1 Gondola Road, North Narrabeen), and
  - f. Access control and security of the central atrium and residential lobby outside business/trading hours of the tenancies.
21. Applicants will be required to obtain a Section 139 Consent for Works on a Public Road Reserve issued by Council under the provisions of Section 138 of the *Roads Act 1993* for the design and construction of any works located on the road reserve including Access Driveways, and new kerb and guttering which is required for the full frontage to Minarto Lane.

**D. Matters to be satisfied prior to the commencement of works and maintained during the works:**

Note: It is an offence to commence works prior to issue of a Construction Certificate.

1. All excavations and backfilling associated with the erection or demolition of a building must be executed safely and in accordance with appropriate professional standards.
2. Where site fill material is necessary, fill materials must:
  - a. be Virgin Excavated Natural Material (VENM) only, as approved under the Environment Protection Authority "General Resource Recovery Exemption;
  - b. be free of slag, hazardous, contaminated, putrescibles, toxic or radioactive excavated material and soil, rock or similar material. Putrescibles and non-putrescibles solid waste (including demolition material) is not permitted.
  - c. Be the subject of testing and monitoring throughout the course of the works, and is to consist of clean fill inert material only, that is, non-contaminated excavated material and soil, and suitable material. Putrescible and non-putrescible solid waste (including demolition material) is not permitted. All imported fill must be sourced locally where practicable to reduce traffic movements.
  - d. Be deposited and works carried out in strict compliance with *Managing Urban Stormwater: Soils and Construction* (Landcom 2004).
3. Prior to commencement of any works, temporary sedimentation and erosion controls in accordance with the approved Erosion and Sediment Management Plan are to be installed to eliminate the discharge of sediment from the site and shall not be removed until the site has been stabilised or landscaped to the Principal Certifying Authority's satisfaction including:

- a. A site fence and silt and sediment control fence is to be erected and maintained during the course of works along any street boundary and park/reserve boundary to the site.
  - b. Sediment is not to leave the site or enter areas of Bushland vegetation, and the appropriate sediment fencing is to be installed.
  - c. The capacity and effectiveness of runoff and erosion control measures shall be maintained at all times to conform to the specifications and standards quoted and to any conditions of approval of those measures.
  - d. Measures shall be applied, to the satisfaction of council, to prevent site vehicles tracking sediment and other pollutants onto any sealed roads serving the development.
  - e. Approved runoff and erosion controls shall be installed before site vegetation is cleared (other than that associated with the construction of the controls). These shall be as shown on an ESCP approved by council.
  - f. Topsoil shall be stripped only from approved areas and stockpiled for re-use during site rehabilitation and landscaping.
  - g. Stockpiles of topsoil, sand, aggregate, spoil or other material shall be stored clear of any drainage line or easement, waters, footpath, kerb or road surface and shall have measures in place to prevent the movement of such materials onto the areas mentioned. All stockpiled materials are to be retained within the property boundaries.
  - h. Uncontaminated runoff shall be intercepted up-site and diverted around all disturbed areas and other areas likely to be disturbed. Diversion works shall be adequately stabilised.
  - i. Runoff detention and sediment interception measures shall be applied to the land. These measures will reduce flow velocities and prevent topsoil, sand, aggregate, or other sediment escaping from the site or entering any downstream drainage easements or waters.
4. Personnel with appropriate training, or demonstrated knowledge and experience in erosion and sediment control shall be responsible for supervising the installation and maintenance of approved erosion and sediment control measures – during and after construction and until the site has been restored to the satisfaction of council.
  5. An all-weather accessway at the front of the property consisting of 50-75mm aggregate or similar material at a minimum thickness of 200mm and 15metres long laid over geotechnical fabric is to be constructed prior to commencement of works and maintenance over the works period.
  6. The site must be fenced throughout construction and must comply with WorkCover New South Wales' requirements and be a minimum of 1.8m in height.
  7. Waste materials generated through demolition, excavation and construction works are to be minimised by re-use on site, recycling or where re-use or recycling is not practical, disposal at an appropriate authorised waste facility.  
  
All waste dockets and receipts regarding demolition, excavation and construction waste are to be retained on site to confirm which facility received the material for recycling or disposal.  
  
The ongoing operation of Recycling and Waste Management Services is to be undertaken in accordance with the Waste Management Plan.
  8. No works are to be carried out in Council's Road Reserve without the written approval of the Council.

9. A Road Opening Permit, issued by Council, must be obtained for any road openings, or excavation within Council's Road Reserve associated with the development on the site, including stormwater drainage, water, sewer, electricity, gas and communication connections. During the course of the road opening works the Road Opening Permit must be visibly displayed at the site.
10. No skip bins or materials are to be stored on Council's Road Reserve.
11. No native canopy trees are to be removed from Council's Road Reserve without prior approval from Council.
12. Prior to commencement of works, at least three photographs of the road reserve and footpath area adjoining the site, one front-on and one from each side of the property, are to be submitted to Council with the notification of commencement of works, showing the condition of the street trees and road reserve. The photographs must be dated, and accompanied by a statement that they are a true and accurate representation of the scene depicted.
13. A clearly legible *Site Management Sign* is to be erected and maintained throughout the course of the works. The sign is to be centrally located on the main street frontage of the site and is to clearly state in legible lettering the following:
  - a. The builder's name, builder's telephone contact number both during work hours and after hours.
  - b. That no works are to be carried out in Council's Road Reserve without the written approval of the Council.
  - c. That a Road Opening Permit issued by Council must be obtained for any road openings or excavation within Council's Road Reserve associated with development of the site, including stormwater drainage, water, sewer, electricity, gas and communication connections. During the course of the road opening works the Road Opening Permit must be visibly displayed at the site.
  - d. That no skip bins or materials are to be stored on Council's Road Reserve.
  - e. That the contact number for Council for permits is 9970 1111.
14. All construction in the public road reserve must be undertaken by a Council authorised contractor. Alternatively, prior to the commencement of works, Council must be notified of each contractor undertaking works within the public road reserve. Each contractor must be able to provide/demonstrate each of the following;
  - Incorporated company/ business name and ABN;
  - Public Liability Insurance;
  - Professional Indemnity Insurance;
  - Workers Compensation Insurance;
  - Accident/ Injury Insurance Cover;
  - Other Insurances;
  - Company Licences, Registrations, Permits, Certificates etc.;
  - WorkCover Construction Industry General Induction Card;
  - WHS Documents;
  - Employee qualifications – Certificates, Licences etc.;
  - Contractor Services;
  - Client Services; and
  - WHSMS Self Evaluation.
15. A stamped copy of the approved plans is to be kept on the site at all times, during construction.

16. The Construction Traffic Management Plan (CTMP) is to be implemented, throughout the construction phase of the development on site, including site preparation or demolition.
17. Toilet facilities are to be provided in a location which will not detrimentally affect the amenity of any adjoining residents at or in the vicinity of the work site during the duration of the development.
18. The public footways and roadways adjacent to the site are to be maintained in a safe condition at all times during the construction phase. Pedestrian access is to be maintained at all times during the construction phase.
19. As there are existing trees to be retained within 5 metres of proposed development works, the following requirements must be complied with:
  - a. Works, erection/demolition of structures, excavation or changes to soil levels within 5 metres of existing trees are not permitted unless part of the development as approved, and the storage of spoil, building materials, soil or the driving and parking of any vehicle or machinery within 5 metres of the trunk of a tree to be retained is not permitted;
  - b. Tree guards are to be provided to all trees to be retained, and are to be installed prior to the commencement of any work on the site;
  - c. All works within 5 metres of existing trees including demolition, excavation, civil works, fencing and the like must be carried out by hand and under the supervision of an experienced and suitably qualified AQF Level 5 arborist. In the event that major structural or feeder roots are encountered, the arborist is to advise the builder to carry out appropriate action to ensure the retention of the tree.
  - d. Signage is to be erected advising all contractors and visitors to the site that no works or storage are to take place within the dripline of existing trees.

**E. Matters to be satisfied prior to the issue of Occupation Certificate:**

Note: It is an offence to occupy the building or part thereof to which this consent relates prior to the issue of an Occupation Certificate.

1. An Occupation Certificate application stating that the development complies with the Development Consent, the requirements of the Building Code of Australia and that a Construction Certificate has been issued must be obtained before the building is occupied or on completion of the construction work approved by this Development Consent.
2. A copy of the Section 73 Compliance Certificate issued under the provisions of the *Sydney Water Act, 1994*, is to be forwarded to Council or the Private Certifying Authority with the Occupation Certificate.
3. All dwellings are to have approved hard-wired smoke alarms installed and maintained over the life of the development. All hard-wired smoke alarms are to be Australian Standard compliant and must be installed and certified by any appropriately qualified electrician prior to the issue of any Occupation Certificate.
4. Prior to issue of the Occupation Certificate, Form 3 of the *Geotechnical Risk Management Policy* (Appendix 5 of P21 DCP) is to be completed and submitted to the Principal Certifying Authority.
5. Damage to Council's assets adjacent or near to the site that has occurred as a result of this development, including road, kerb and gutter and drainage facilities, are to be repaired to Council's written satisfaction prior to the issue of an Occupation Certificate. Restoration of all damaged public infrastructure caused as a result of the development to Council's

satisfaction is to occur at the full cost to the developer. Council's written approval that all restorations have been completed satisfactorily must be obtained and provided to the accredited certifier with the Occupation Certificate application.

6. All infrastructure works, including drainage, landscaping and civil engineering works, required under this Consent are to be completed prior to the issue of the Occupation Certificate.
7. Certification from a suitably qualified professional is required with regard to all waterproofing and drip irrigation systems associated with all planters.
8. A qualified landscape architect is to certify that all landscaping works have been undertaken prior to the issuing of any Occupation Certificate. The landscape architect is to confirm that all plants are arranged and spaced, so that they present as a grown completed landscape.
9. Certification is to be provided that the commitments identified in the BASIX Certificate have been fulfilled.
10. Certification is required from a suitably qualified traffic and access consultant that the layout and design of the as-built basement carpark (including driveways, grades, turn paths, sight distance requirements, aisle widths, aisle lengths, and parking bay dimensions) is strictly in accordance with the provisions of AS2890.1-2004 and that all disabled parking spaces and the internal access route dimensions/gradient comply with AS2890.6-2009.
11. Certification from a suitably qualified access consultant is to be provided to confirm that the four units have been constructed strictly in accordance with the Silver Level requirements of the *Liveable Housing Guideline*.
12. Documentation is to be submitted by a licensed plumber confirming that the floor of the car wash bays are graded and drain to the sewer. The documentation is also to confirm that the perimeters of the car wash bays are suitably bunded to prevent stormwaters entering the sewer.
13. Certification is to be provided by the project architect that the finishes of the as-built development are consistent with those shown in the approved plans, the approved schedule of finishes, as amended by any conditions of consent.
14. Certification is to be provided by a licenced surveyor that the flood storage offset tank has been constructed to provide the appropriate volume of flood storage (1550 m3).
15. Certification is to be provided by a suitably qualified person that all of the flood-related features of the development have been installed and are fully operable in accordance with the Flood Emergency Response Plan as referenced in this consent and amended by this consent.
16. A Section 88B instrument is to be placed on the title to refer to the following flood-related features of the development that are required for the life of the development:
  - a. flood storage tank and associated pump system,
  - b. flood warning system and
  - c. flood doors (on all external doors set below 4.25 mAHD).
17. A certificate submitted by a Chartered Professional Engineer confirming to the satisfaction of the Principal Certifying Authority that the works in the public road reserve comply with Council requirements is to be provided with the Occupation Certificate application.

**F. Advice:**

1. Failure to comply with the relevant provisions of the *Environmental Planning and Assessment Act, 1979* (as amended) and/or the conditions of this Development Consent may result in the serving of penalty notices (on-the-spot fines) under the summary offences provisions of the above legislation or legal action through the Land and Environment Court, again pursuant to the above legislation.
2. The applicant is also advised to contact the various supply and utility authorities, i.e. Sydney Water, Sydney Electricity, Telstra etc. to enquire whether there are any underground utility services within the proposed excavation area.
3. It is the Project Manager's responsibility to ensure that all of the Component Certificates/certification issued during the course of the project are lodged with the Principal Certifying Authority. Failure to comply with the conditions of approval or lodge the Component Certificates/certification will prevent the Principal Certifying Authority issuing an Occupation Certificate.
4. In accordance with Section 95(1) of the Act, this consent will lapse if the development, the subject of this consent, is not physically commenced within 5 years after the date from which this consent operates.
5. To ascertain the date upon which the determination becomes effective and operates, refer to Section 83 of the *Environmental Planning and Assessment Act, 1979* (as amended).
6. The approved plans must be submitted to a Sydney Water Quick Check agent or Customer Centre to determine whether the development will affect Sydney Water's sewer and water mains, stormwater drains and/or easements, and if further requirements need to be met. The approved plans will be appropriately stamped. For Quick Check agent details please refer to the web site at [www.sydneywater.com.au](http://www.sydneywater.com.au) then see Building Developing and Plumbing then Quick Check, or telephone 13 20 92.
7. You are reminded of your obligations under the objectives of the Disability Discrimination Act (DDA) 1992.

# Appendix E

## Council Letter



5 July 2024

Anthony J Gleeson  
C/- Vaughan Milligan Development Consulting Pty Ltd  
Po Box 49  
NEWPORT NSW 2106

Dear Sir/Madam,

**Development Application No: Mod2023/0473 for Modification of Development Consent Land and Environment Court for N0267/16 at 2, 4, 6 & 8 Rickard Road NORTH NARRABEEN**

Assessment of your application has revealed a matter that prevents Council from supporting the proposal.

**Floodplain Planning**

In accordance with Part A2 of Section B3.11 of the Pittwater 21 Development Control Plan, Council requires demonstration that there is no reduction in flood storage area below the 1% AEP (100 year not including freeboard or climate change) flood level of 3.03m AHD, as compared to the Court approved plans. This is also required to demonstrate compliance with Clause 5.21 Flood Planning of the Pittwater Local Environmental Plan 2014.

**Options Available to the Applicant**

Council is providing you with two (2) options to progress the handling of your application:

1. Prepare and submit further supporting information/amendments to address the above issues. Please read carefully the below advice if you choose this option.
2. Request that the current proposal proceed to determination in its current form, which may result in refusal of the application.

**Submitting Further Information/Amendments**

If you choose to amend your application, we strongly request that you contact the assessment officer directly for a 'without prejudice' discussion on your proposed resolution of the issues and the submission requirements before proceeding to lodge any documentation on the NSW Planning Portal.

Council will offer one opportunity to provide feedback on your proposed information/amendments before they are permitted to be uploaded on the Portal. Please ensure that the proposed information/amendments submitted on the Portal is a genuine attempt to resolve the issues as Council will not seek any further information/amendments and once received, Council will proceed to assess and determine the application on the information without further consultation.



Council reserves its rights under the *Environmental Planning and Assessment Regulations* clause 37 to not accept any information/amendment if it is not considered to be a genuine attempt to resolve the issues. In which case Council will inform you that the changes have not been accepted and the application will proceed to be determined.

This process has been established to ensure an efficient and responsible level of service which meets the requirements of the Department of Planning and Environment's *23A Guidelines on withdrawal of Development Applications 2023*, Ministerial Orders *Statement of Expectations 2021* and the *Development Assessment Best Practice Guide 2017*.

As per the requirements of section 36 of the *Environmental Planning and Assessment Regulation 2021* you are advised that this application was accepted on 11 September 2023 and 297 days in the assessment period has now elapsed.

Please advise of your selected option by responding to this letter within 7 days of the date of this letter by email sent to [council@northernbeaches.nsw.gov.au](mailto:council@northernbeaches.nsw.gov.au) that is marked to the attention of the assessment officer. Should Council not receive your response and selected option by this date, Council will assume that you are not proposing to make any changes to your application and it will be determined in its current form.

In the event that it is your intention to resolve the issues identified above and select Option 1, conceptual amendments are to be provided to Council for feedback **within 14 days of the date of this letter**. Upon receipt of conceptual amendments, Council will consider their adequacy and if deemed sufficient, will then provide you with a timeframe upon which an amended application is to be lodged on the NSW Planning Portal. Such a time frame will generally be 14 days.

Please note, where an application is amended by association, this may necessitate updating or amending supporting documentation, (e.g. BASIX certificate, Bushfire Report, Geotechnical Report, etc). Failure to do so may restrict Council's authority to support your application.

Should you wish to discuss any issues raised in this letter, please contact Claire Ryan on 1300 434 434 during business hours Monday to Friday.

Yours faithfully

A handwritten signature in black ink, appearing to read 'CER'.

Claire Ryan  
Principal Planner

# Appendix F

## LIMITATIONS

### Statement of limitations:

The following statements presented in this document are intended to advise you of what your expectation of this report should be. The following statements is not intended to reduce the level of responsibility accepted by Hyve Designs Pty Ltd, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes in so doing.

- This report is solely for the intended purpose outlined in the described proposal. The scope is subjected to restrictions and limitations;
- The scope and services are limited by factors such as time, budget, scope of works, site access or other site conditions. If the service has not indicated, do not assume it has been provided;
- No reliance should be placed on draft reports, draft conclusions or draft advice issued by us as they may be subjected to further work, revision and other factors which may mean that drafts are substantially different from any Final report advice issued.
- If a matter has not been addressed, do not assume that any determination has been made by Hyve Designs in regards to it;
- Conditions may exist which were undetectable given the limited nature of a visual inspection;
- Variations in conditions may occur, and there may be special conditions pertaining to the site which have not been revealed by the inspection and which have therefore, not been taken into account.
- This report is not a certification, a warranty or guarantee and has been scoped in accordance with the instruction given and the time allowed.
- It is recognised that the passage of time affects the information and assessment provided in this document.
- It is understood that the Services provided allowed Hyve Designs Pty Ltd to form no more than an opinion of the actual conditions of the site at the time the site was visited and cannot be used to assess the effect of any subsequent changes in the quality of the site, or its surroundings, or any laws or regulations.
- Where a variety of multiple units or tenanted areas are inspected, a random selection of each type of unit / area was inspected and used for the basis of this report.
- The findings of this report are valid for six calendar months from the date of issue of the Draft version of the document.
- Where data may be supplied by the client (existing structural drawings) or other external sources, it has been assumed that the information is correct unless otherwise stated. Note that assumptions have to be made of the drawings of age is not very legible. No responsibilities are accepted by Hyve Designs for incomplete or inaccurate data supplied by others.



# Appendix G

## Disclaimer

A person using Hyve Designs documents or data accepts the risk of:

- a) Using the documents or data in electronic form without requesting and checking them for accuracy against the original hard copy version.
- b) Using the documents or data for any purpose not agreed to in writing by Hyve Designs.

Disclaimer:

- a) This report is not a certificate of compliance for any law, warranty or insurance policy against future problems. You should speak to a lawyer about all law-related matters.
- b) We are not liable for any incorrect or unauthorised use of this report.
- c) Refer to Appendix A for the statement of limitation of this report



