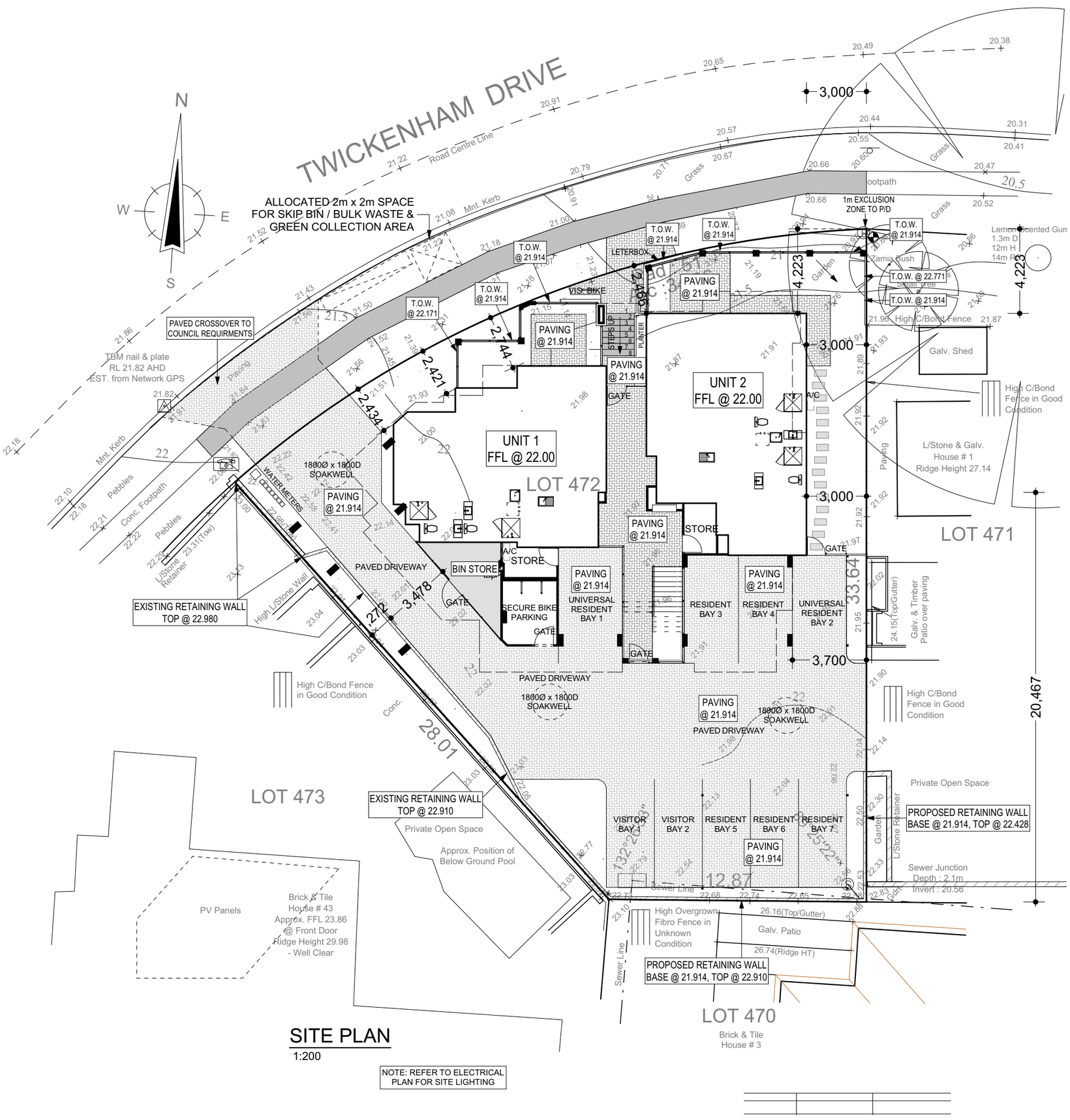
LOCATION PLAN

APPENDIX 3
ATTACHMENT 1

City of Joondalup

20 0 20 40 Meters

lot472_41-twickenham-01072019



SITE PLAN

1:200

NOTE: REFER TO ELECTRICAL PLAN FOR SITE LIGHTING

FEATURE SURVEY

STREET NAME :	LOT # :	HOUSE # :	SUBURB :	LOCAL AUTHORITY :	LOT AREA :	R CODE :	SURVEY DATE :	SCALE AT A3 SIZE:
Twickenham Drive	472	41	Kingsley	City of Joondalup	730m²	R20/60	05/03/2019	1:200

CLIENTS DETAILS : Danmar Developments

LEVEL DATUM: AHD (Approx.)

DWG REF: Twickenham 41 F - v1.0

LEGEND

WATER METER | SEWER AC | TELSTRA PIT | POWER DOME | TREE (TO SCALE) | TEMP. BENCHMARK | AC AIRCON UNIT | GD GARAGE DOOR | SEWER CONN. | SIGN POLE | HW HOT WATER UNIT | GM GAS METERBOX

Vision surveys CONSULTING

T: (08) 6144 0000 F: (08) 6144 0099
59 SCARBOROUGH BEACH RD, SCARBOROUGH WA 6019
Email: info@visionsc.com.au
www.visionsurveys.com.au

SCALE 1:200 @ A3

0 5 10

PLAN / DIAG /SP	P 12553	TELSTRA	YES
ELECTRICITY	UNDERGROUND	SEWERAGE	YES
WATER	CONNECTION	DRAINAGE	GOOD
GAS	YES	VEG. / SOIL	AS DESCRIBED

IMPORTANT NOTES:

THE BOUNDARY CANNOT BE VERIFIED DUE TO LACK OF SURVEY MARKS/ PEGS, ALL BUILDING DIMENSIONS & FEATURES ARE APPROXIMATE ONLY. BOUNDARY POSITIONS HAVE BEEN TAKEN FROM BUILDINGS, FENCING, RETAINING WALLS AND OTHER TYPICAL FEATURES LOCATED ON THE BOUNDARY WHICH MAY OR MAY NOT BE ON THE CORRECT ALIGNMENT AND ARE TO BE VERIFIED WHEN REPEGGED.

BEFORE ANY WORK IS STARTED ON SITE OR PLANS ARE PRODUCED BY DESIGNERS/ ARCHITECTS, THE BOUNDARIES MUST BE REPEGGED AND EXACT OFFSETS MEASURED TO EXISTING STRUCTURES AND FENCING. VISION SURVEYS ACCEPTS NO RESPONSIBILITY FOR ANY CHANGES TO THE PARCEL OR PORTION OF THE PARCEL OF LAND SHOWN ON THIS SURVEY INCLUDING BUT NOT LIMITED TO ANY ADJOINING NEIGHBOURS LEVELS AND FEATURES THAT HAVE OCCURRED AFTER THE DATE ON THIS SURVEY.

THIS PLAN IS INTENDED FOR THE DEPT OF PLANNING & INFRASTRUCTURE ONLY.

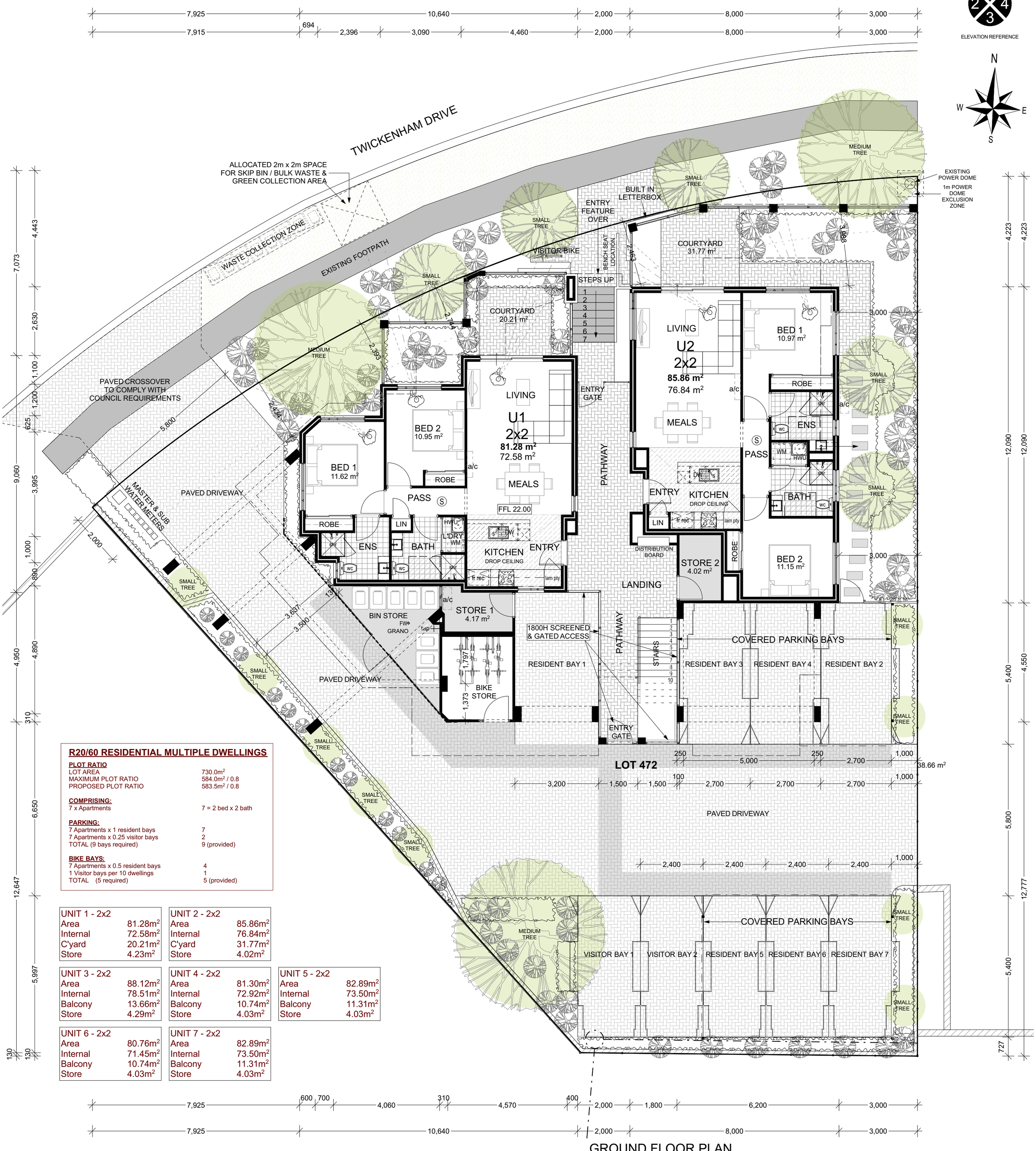
SEWER / DRAINAGE MAY VARY FROM SCHEMATIC PRESENTATION / CHECK WITH APPROPRIATE AUTHORITY BEFORE ADOPTION OF POSITION.

CHECK TITLE FOR EASEMENTS / COVENANTS ETC.

DANMAR DEVELOPMENTS
Level 1/475 Scarborough Beach Rd, Osborne Park WA 6017
P: (08) 9445 7522 F: (08) 9445 8211
WEB: www.danmardevelopments.com

CLIENT	HA Paterson
CONSULTANT	Troy Felt
REV. NO.	7
DATE	13-Feb-20
DRAWN BY	JR

GROUND FLOOR PLAN



R20/60 RESIDENTIAL MULTIPLE DWELLINGS

PLOT RATIO	
LOT AREA	730.0m²
MAXIMUM PLOT RATIO	584.0m² / 0.8
PROPOSED PLOT RATIO	583.5m² / 0.8
COMPRISING:	
7 x Apartments	7 = 2 bed x 2 bath
PARKING:	
7 Apartments x 1 resident bays	7
7 Apartments x 0.25 visitor bays	2
TOTAL (9 bays required)	9 (provided)
BIKE BAYS:	
7 Apartments x 0.5 resident bays	4
1 Visitor bays per 10 dwellings	1
TOTAL (5 required)	5 (provided)

UNIT 1 - 2x2	
Area	81.28m²
Internal	72.58m²
C'yard	20.21m²
Store	4.23m²

UNIT 2 - 2x2	
Area	85.86m²
Internal	76.84m²
C'yard	31.77m²
Store	4.02m²

UNIT 3 - 2x2	
Area	88.12m²
Internal	78.51m²
Balcony	13.66m²
Store	4.29m²

UNIT 4 - 2x2	
Area	81.30m²
Internal	72.92m²
Balcony	10.74m²
Store	4.03m²

UNIT 5 - 2x2	
Area	82.89m²
Internal	73.50m²
Balcony	11.31m²
Store	4.03m²

UNIT 6 - 2x2	
Area	80.76m²
Internal	71.45m²
Balcony	10.74m²
Store	4.03m²

UNIT 7 - 2x2	
Area	82.89m²
Internal	73.50m²
Balcony	11.31m²
Store	4.03m²

LIVABLE HOUSING DESIGN:

SILVER LEVEL DESIGN ELEMENTS INLUDED TO GROUND FLOOR UNITS:

- SAFE & CONTINUOUS STEP FREE PATH OF TRAVEL FROM THE STREET TO THE DWELLING ENTRANCE VIA DRIVEWAY.
- LEVEL ENTRANCES TO THE UNITS, WITH 820mm CLEAR ENTRANCE OPENINGS.
- 1000mm WIDE PASSAGEWAYS WITH 820mm CLEAR INTERNAL DOOR OPENINGS.
- 900mm TOILET SPACE WIDTH (BATHROOM).
- 1200mm CLEARANCE IN FRONT OF TOILET (BATHROOM).
- 1x HOBLESS SHOWER IN ROOM CORNER (BATHROOM).
- 2x 5400mm LONG x 3200mm WIDE PARKING BAYS.

WASTE STORAGE REQUIREMENT*:

BEDROOMS = 14

GENERAL WASTE: 14x80L = 1120L = 4x360L BINS
RECYCLE WASTE: 14x40L = 560L = 2x360L BINS
GREEN WASTE: 14x40L = 560L = 2x360L BINS
TOTAL = 8x 360L BINS

REFER TO 'LEVEL 1 WASTE MANAGEMENT PLAN - DESIGN PHASE' ATTACHED

*WALGA MULTIPLE DWELLING WASTE MANAGEMENT PLAN GUIDELINES - APPENDIX 1

ACOUSTIC REQUIRMENTS:

ACOUSTIC REPORT TO BE SUBMITTED PRIOR TO DESIGN REVIEW PANEL

GROUND FLOOR PLAN
1:100

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41 Twickenham Drive, Kingsley

FIRST FLOOR PLAN

SETBACK AVERAGING:
PORTION BUILDING FORWARD SETBACK: 0.07m²
PORTION BUILDING BEHIND SETBACK: 33.81+9.07= 42.88m²
0.16% ENCROACHMENT INTO THE 3m AVERAGE SETBACK AREA

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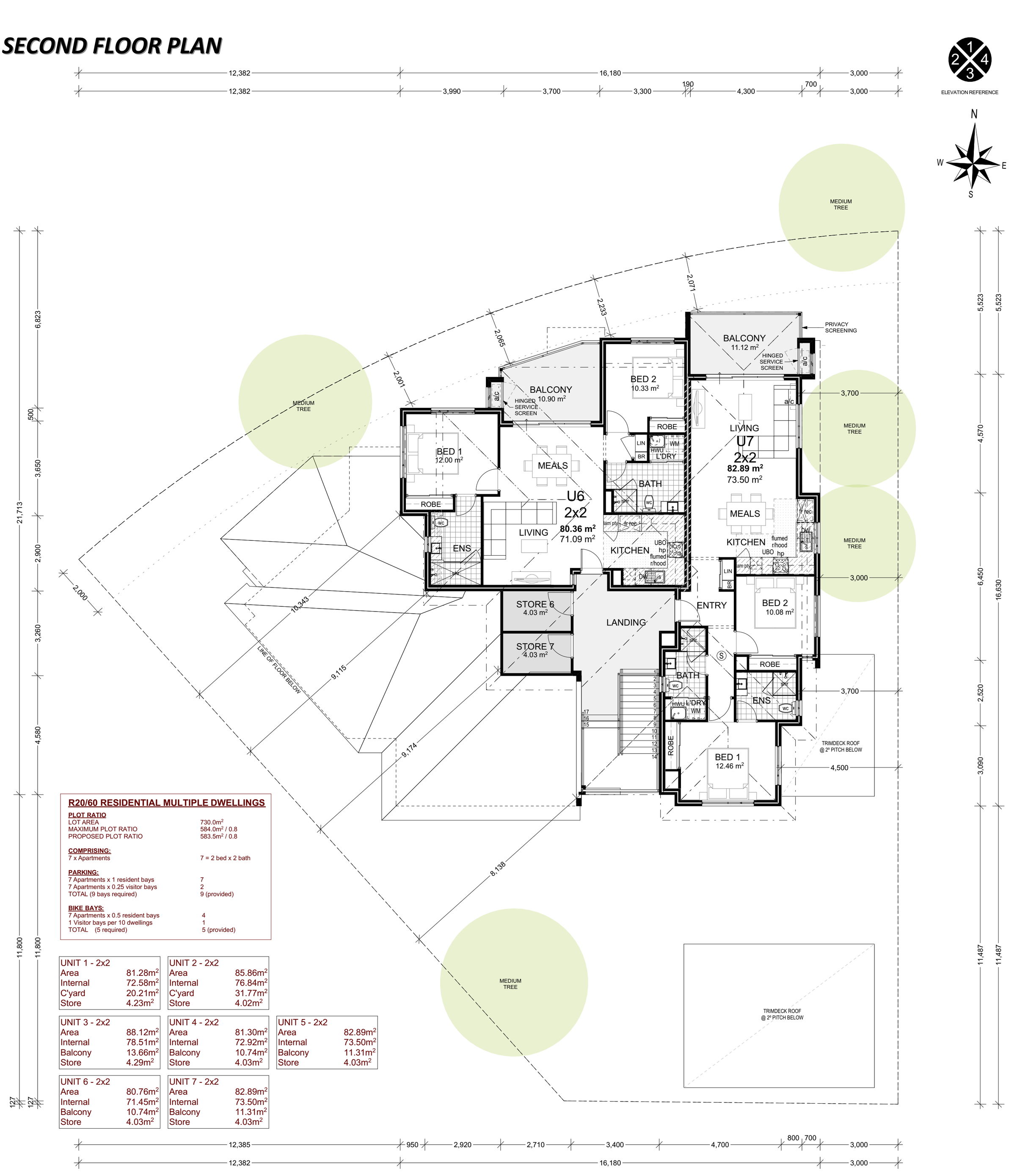
SECOND FLOOR PLAN



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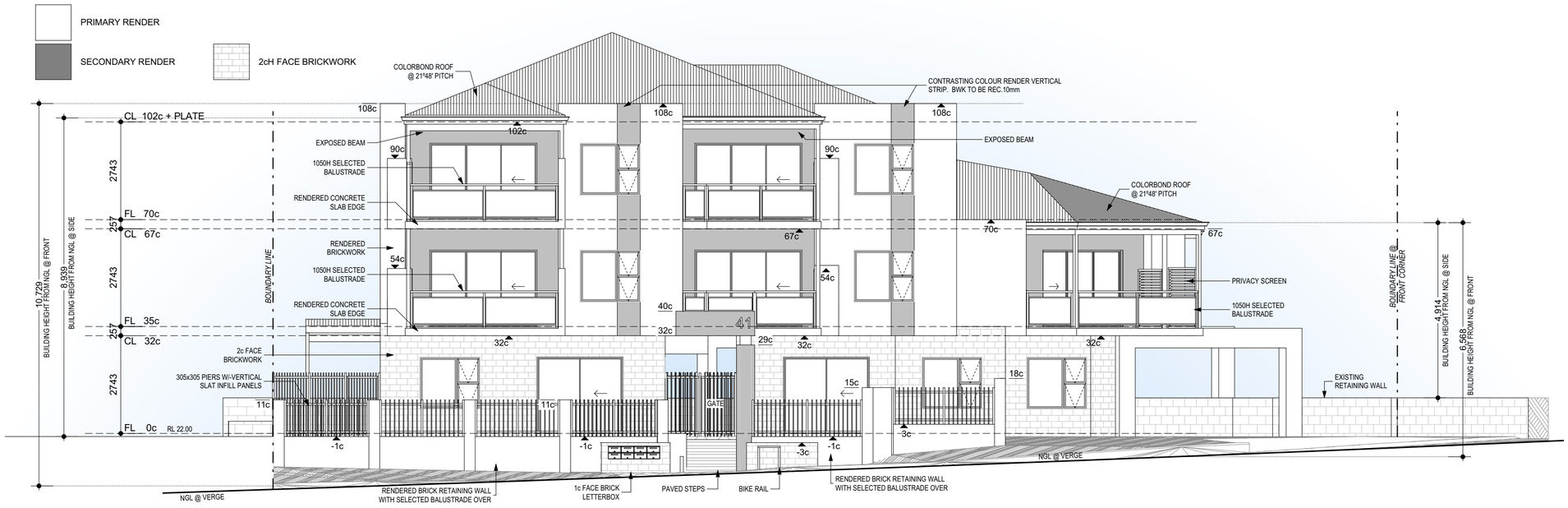
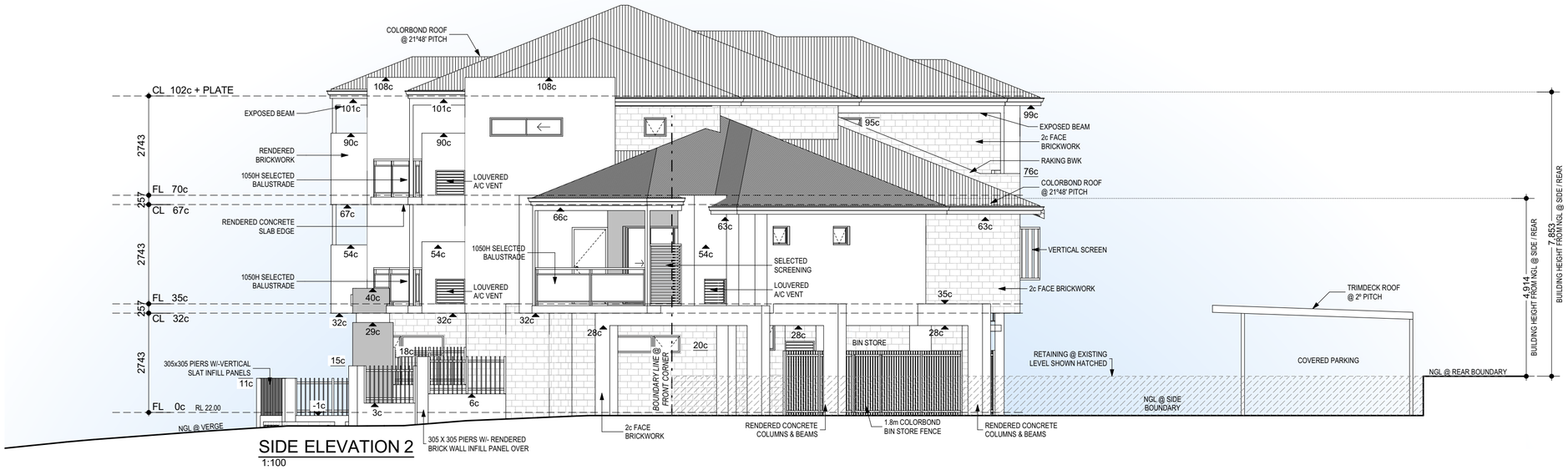
ELEVATIONS 1 & 2



FRONT ELEVATION 1
1:100



SIDE ELEVATION 2
1:100

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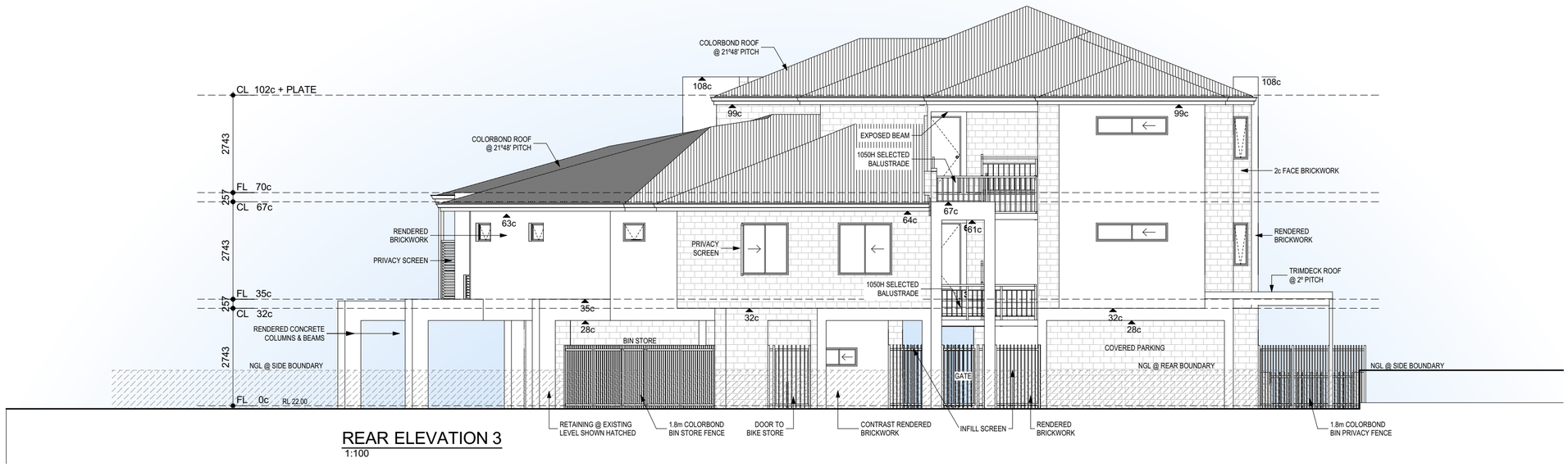
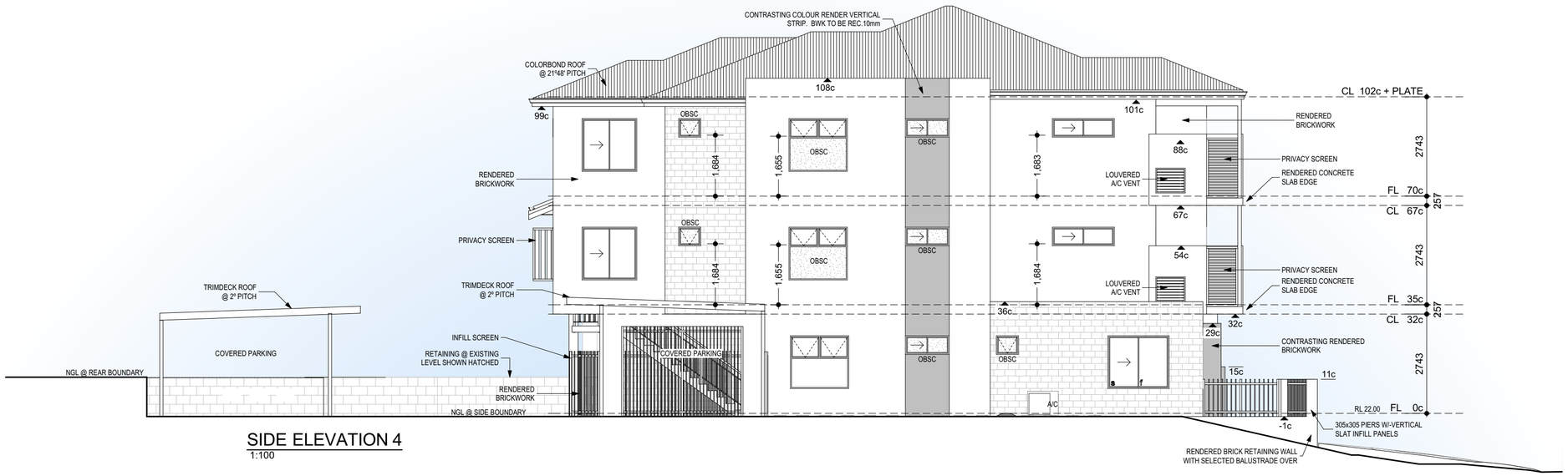
41 Twickenham Drive, Kingsley

ELEVATIONS 3 & 4



REAR ELEVATION 3
1:100



SIDE ELEVATION 4
1:100

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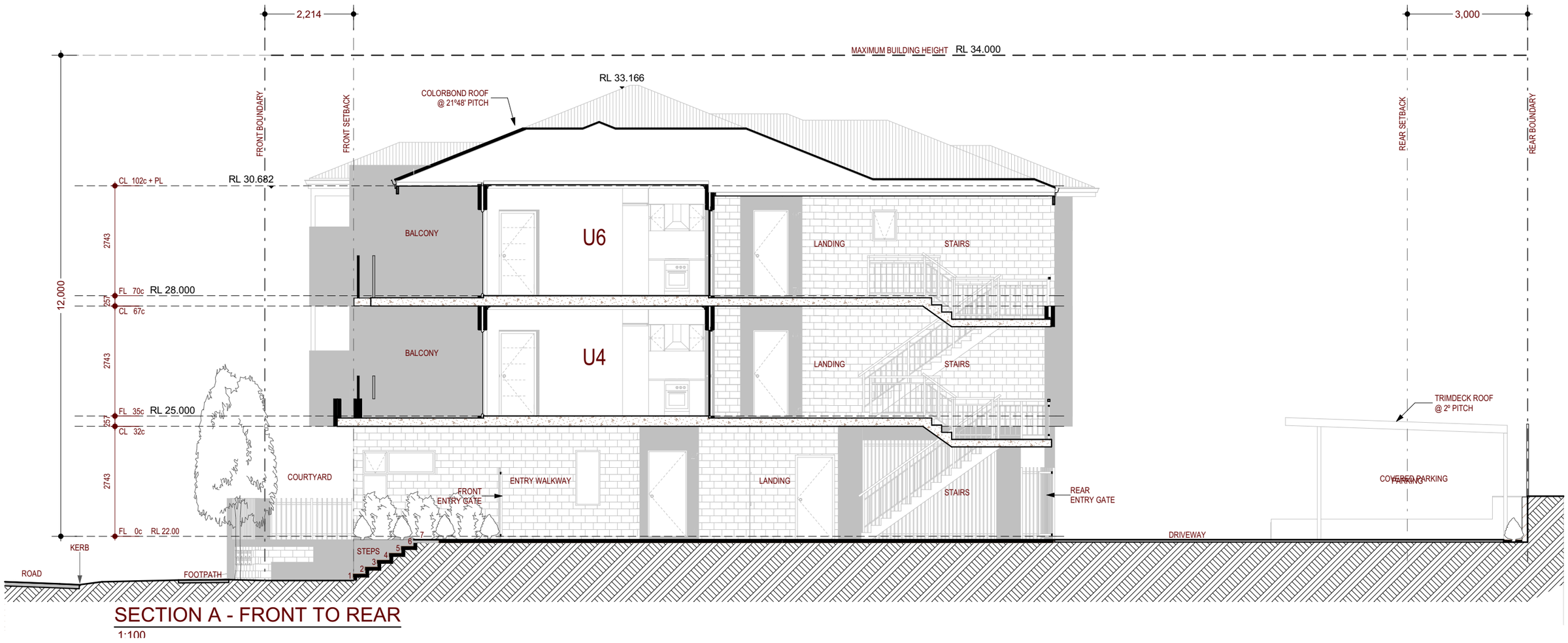
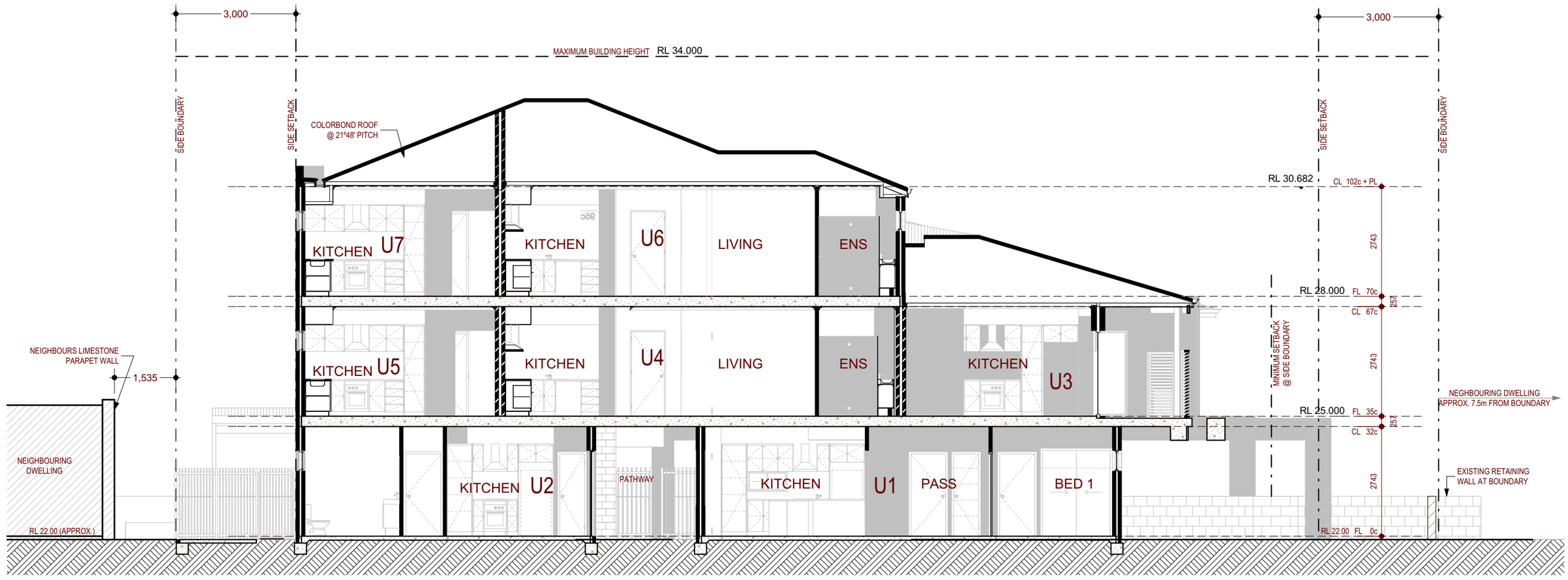
41 Twickenham Drive, Kingsley

SECTIONS



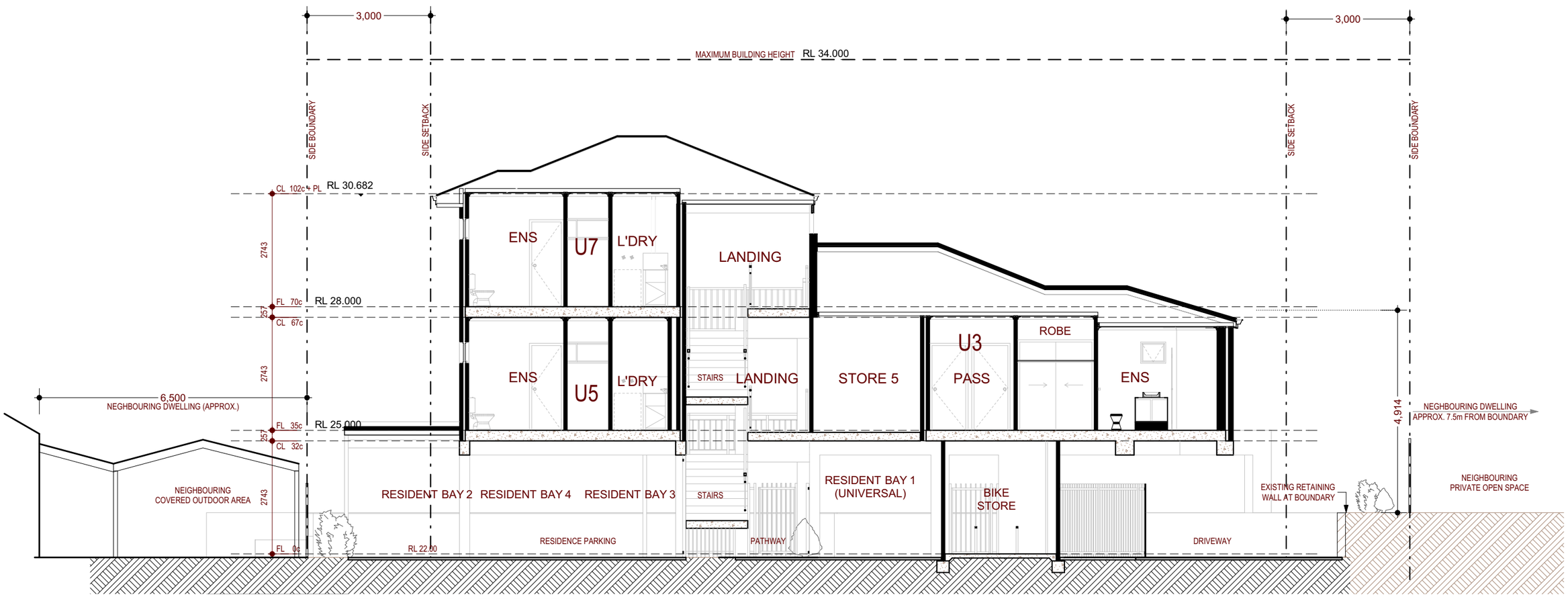
SECTION A - FRONT TO REAR

1:100



SECTION B - SIDE TO SIDE

1:100



SECTION C - SIDE TO SIDE

1:100

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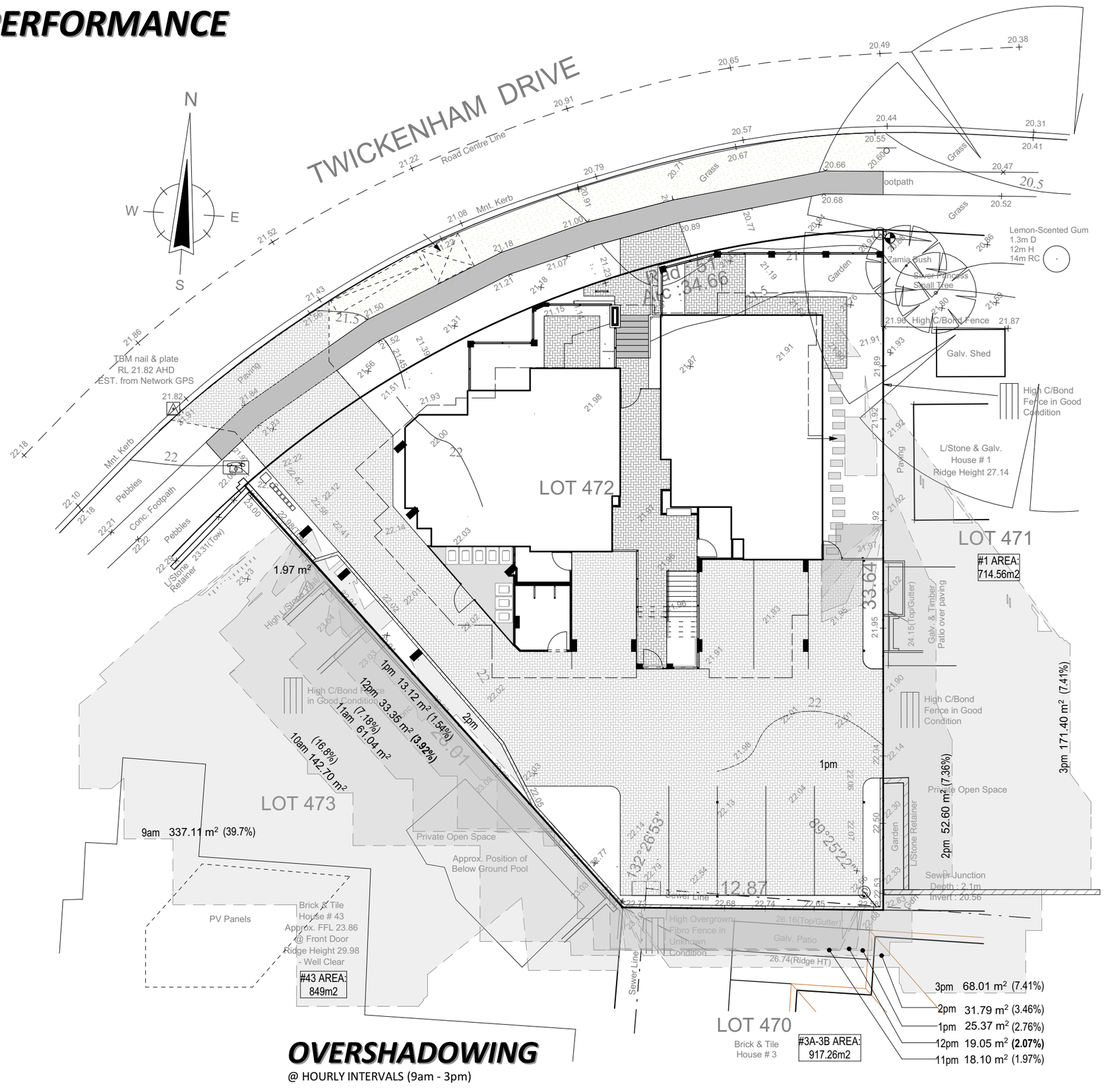
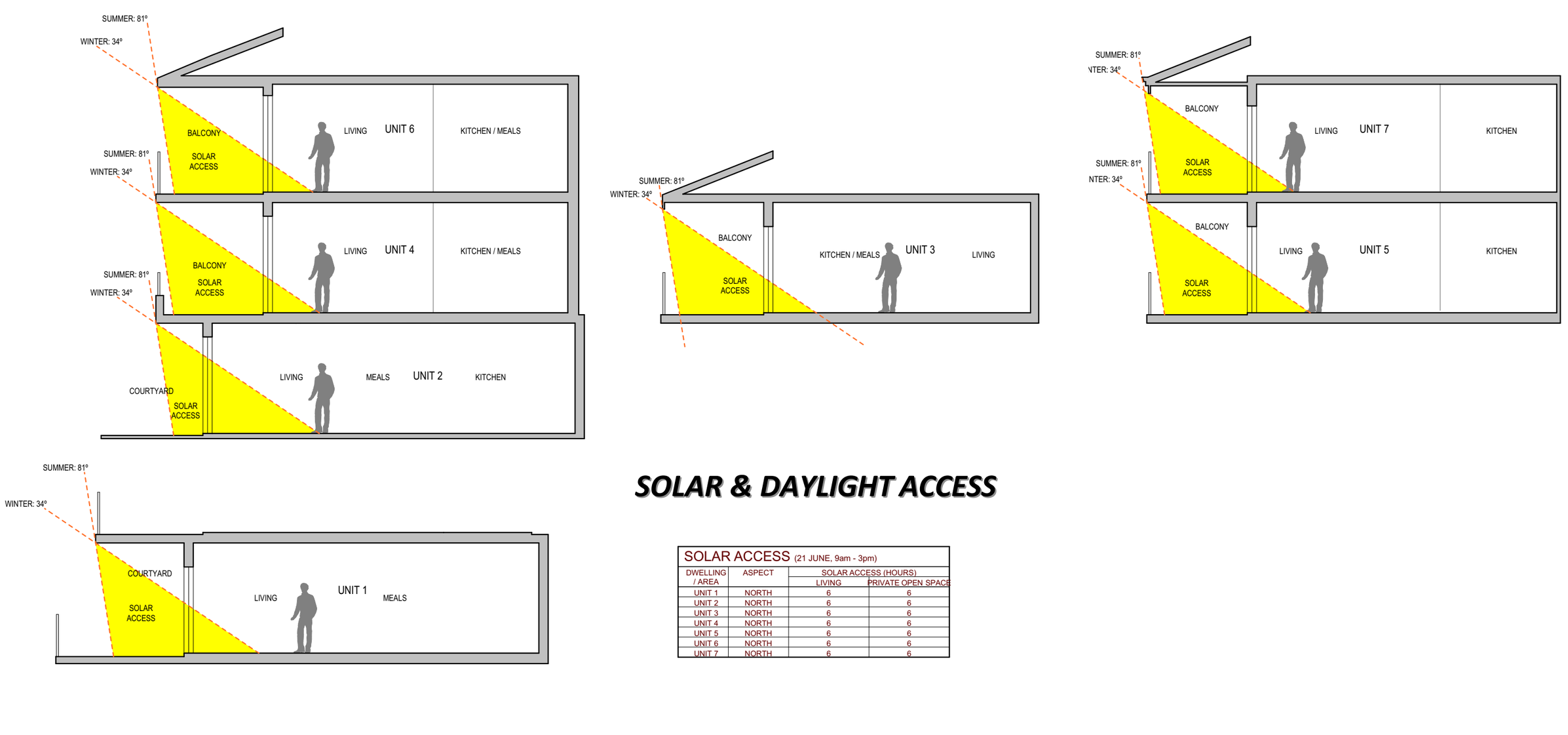
41 Twickenham Drive, Kingsley

BUILDING PERFORMANCE



OVERSHADOWING

@ HOURLY INTERVALS (9am - 3pm)



SOLAR & DAYLIGHT ACCESS

SOLAR ACCESS (21 JUNE, 9am - 3pm)

DWELLING / AREA	ASPECT	SOLAR ACCESS (HOURS)	
		LIVING	PRIVATE OPEN SPACE
UNIT 1	NORTH	6	6
UNIT 2	NORTH	6	6
UNIT 3	NORTH	6	6
UNIT 4	NORTH	6	6
UNIT 5	NORTH	6	6
UNIT 6	NORTH	6	6
UNIT 7	NORTH	6	6

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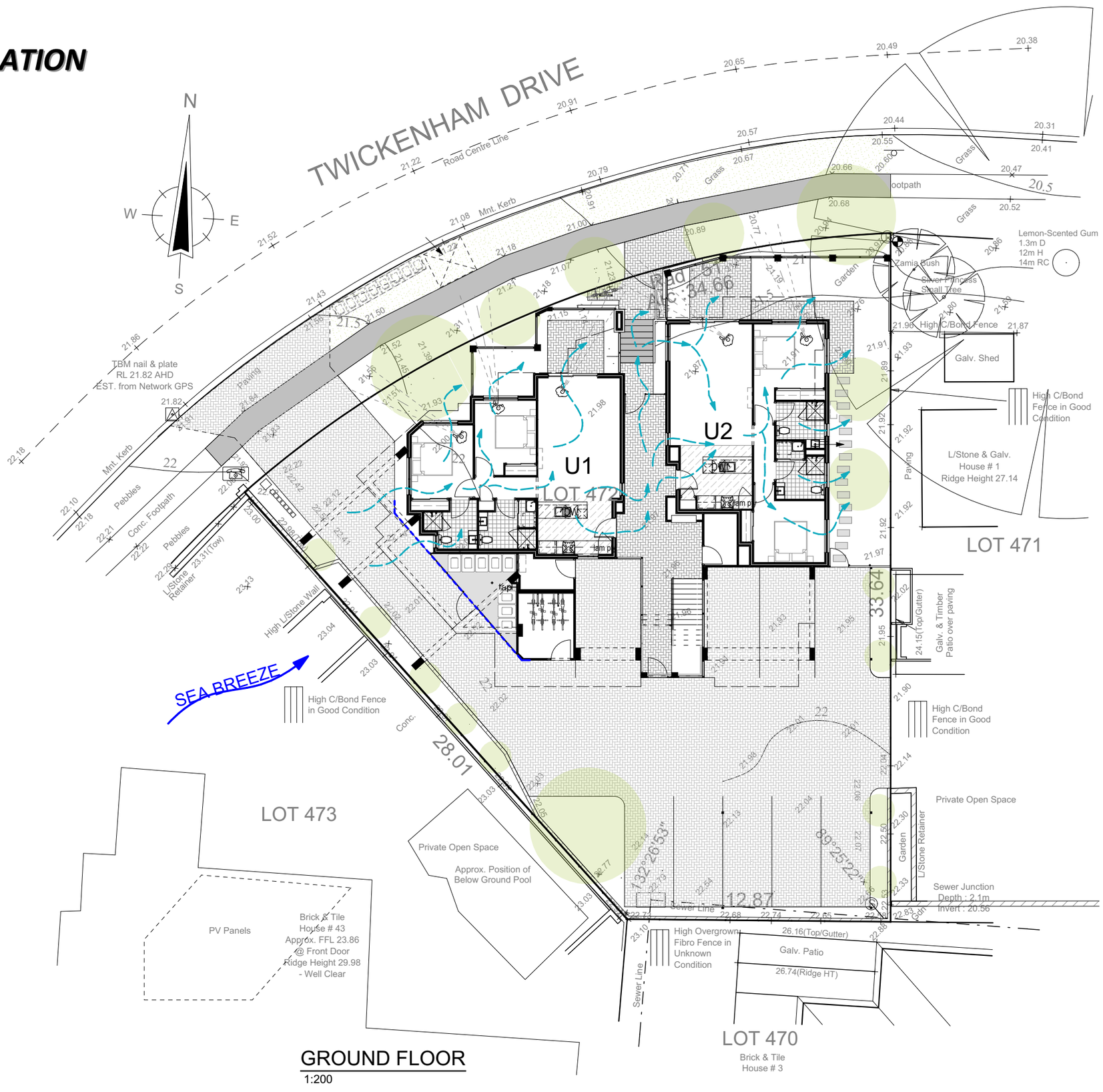
BUILDING PERFORMANCE

- NATURAL VENTILATION



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41 Twickenham Drive Kingsley

DRAWING No.	DRAWING TYPE	DRAWING NAME
1	COVER PAGE	COVER PAGE & CONTENTS
2	SITE ANALYSIS	SITE PLAN
3	DESIGN	GROUND FLOOR PLAN
4	DESIGN	1st FLOOR PLAN
5	DESIGN	2ND FLOOR PLAN
6	DESIGN	ELEVATIONS 1 & 2
7	DESIGN	ELEVATIONS 3 & 4
8	DESIGN	SECTIONS
9	DESIGN	BUILDING PERFORMANCE - SHADOW & SOLAR ACCESS
10	DESIGN	BUILDING PERFORMANCE - NATURAL VENTILATION
11	DESIGN	ILLUSTRATIVE VIEWS & MODELS
12	DESIGN	ELECTRICAL
13	DESIGN	LANDSCAPING PLAN

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ILLUSTRATIVE VIEWS & MODELS

ILLUSTRATION - STREET VIEW FROM NORTH-EAST

ILLUSTRATION - STREET VIEW FROM WEST NORTH-WEST

ILLUSTRATION - STREET VIEW FROM NORTH-WEST

ILLUSTRATION - OVERVIEW FROM WEST NORTH-WEST

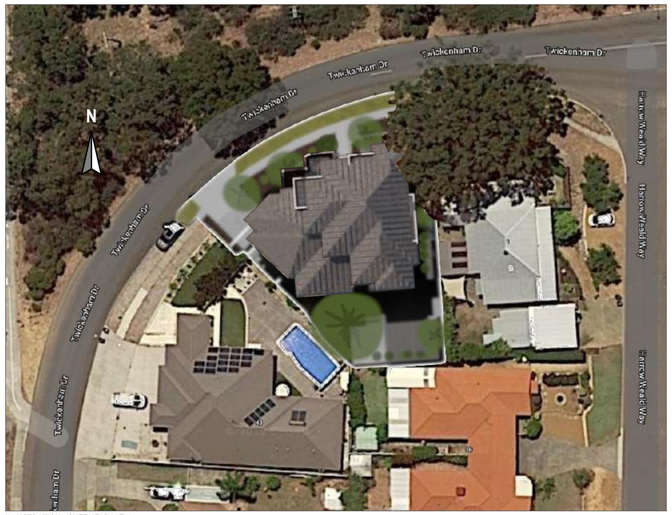

ILLUSTRATION - OVERHEAD VIEW

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REV. NO. DATE	7 13-Feb-20
DRAWN BY	JR

LANDSCAPE PLAN

:PLANTING SCHEDULE:

SPECIES IMAGE	SYMBOL	TYPE	MAX SIZE (HT x SPREAD)	POT SIZE	QUANTITY
		GROUND COVER 1. HIBBERTIA SCANDENS, 2. EREMOPHILA GLABRA, 3. WESTRINGA LOW HORIZON, 4. SCAEVOLA PURPLE FUSION 5. DICHONDRA REPENS TRAY.	0.5m - 0.5m 0.1m - cover	14cm 5cm	1 - 55 2 - 43 3 - 38 4 - 32 5 - 0
		LIRIOPE	0.4m x 0.4m	14cm	73
		NATIVE IRIS	0.5m x 0.5m	14cm	48
		KANGAROO PAW (BIG RED/GOLD)	0.6m x 0.5m	25cm	12
		RHAPHIOLEP (SNOW MAIDEN)	1.5m x 0.5m	25cm	0
		LILLY PILLY (RED HEAD)	5m x 2m	5L	14
		MAGNOLIA (KAY PARRIS)	5m x 2m	100L	3
		MAGNOLIA (TEDDY BEAR)	4m x 3m	100L	2
		CRIMSON SPIRE	6m x 2m	100L	9
		CHINESE TALLOW	7.0m - 5.0m	150L	2
		ORNAMENTAL MANCHURIAN PEAR	10.0m - 6.0m	200L	1
		JACARANDA MIMOSIFOLIA	10.0m - 8.0m	200L	0

NOTES:

- Species in undercover/low-light locations to be selected to suit conditions.
- Species availability to be confirmed, substitute species of similar size & type if required.
- All planting areas to have a minimum 75mm organic mulch, top level with adjoining.
- All planting areas to have automatic trickle irrigation/sprayers to suit surface & location type.

:GROUND COVER:

HATCH	TYPE
	Brick Paving
	Contrasting Brick Paving
	Irrigated lawn
	Mulched garden beds

LANDSCAPING PLAN
1:100

SITE LANDSCAPE PLAN

LOT 1 (#10) Twickenham Drive, KINGSLEY

CLIENT: DANMAR DEVELOPMENTS

CONSULTANT	REV. NO.	DATE
SIMON	7	13-Feb-20
DESIGNED BY	SCALE	FORMAT
SIMON	1:100	A2 PAGE
DRAWN BY	SHEET	
JR	Page 13	

CONTENT: **GROUND FLOOR PLAN**

SimonsLANDSCAPES
COMPLETE OUTDOOR DEVELOPMENT

ADDRESS: 6 Rebecca Court Beldon, 6027
EMAIL: simon@simonslandscapes.com
WEB SITE: www.simonslandscapes.com
MOBILE: 0411205563
SIGNED:

GREEN SPACE REQUIRMENTS TABLE

SITE AREA	MIN. DEEP SOIL AREA	MIN. REQ. FOR TREES
700 - 1,000m²	10% ALLOWANCE (NO EXISTING TREES)	2 MEDIUM TREES **OR** 1 LARGE TREE & SMALL TREES TO SUIT AREA.
730.00m²	10% of 730.00m² = 73m²	2 MEDIUM REQUIRED.

TOTAL LANDSCAPING
LOT AREA 730.00m²
ON SITE LANDSCAPING AREA PROPOSED 147.00m² (20%) (NOT INCL. VERGE LANDSCAPING)
TOTAL DSA AREA 146.32m² (INCL. PORTIONS OF VERGE AREA)

Hi, my name is Simon from Simon's Landscapes.

With over 15 years experience Simons Landscapes pride ourselve on quality of the highest standard. We have Designed & installed for all Danmar Development Projects since operations began.
Implementing & Designing landscape plans is something we do on a daily basis. Our Scope of works extends into constant maintainance on residential and commercial project sites for the years following installation. This ensures the greenscape matures and florishes to its full potential.
Simons Landscapes has an excellent understanding of all native and waterwise plants and trees which are individually chosen & designed for each individual project site & to suit the surrounding native flora.
The plants and trees are sourced from local nurseries and hand picked to ensure quality control. All quality soils, fertilisers and mulch are used to give every plant and tree the best possible growing conditions.
Simon Landscapes prodominantley selects plants illustrated in the Water Corporations plant list for water wise solutions.
The grass selected & installed on any Simons Landscape project is sourced from Greenfields Turf Farm. It is a localy run business, producing high quality ground cover grown & adapted to the Western Australian climate. All grass is installed with lawn starter and soil wetter agent.
Total Eden supply Simons Landscapes with all reticulation hardware. Trickle irrigation systems prodominately installed on most development sites to ensure no water is wasted and the plants are watered at the root level.
Water Corporation guidelines for planting, irrigation and mulching are followed closely, with the correct installation techniques our team at Simons Landscapes ensure present and future water wise outcomes for every development site.
Simons Landscapes have a long running and growing relationship with all supliers which continually keep us updated in new trends, materials and inovative waterwise landscape design solutions.
We frequently attend Landscape design & reticulation workshops along with seminars to stay ahead of the market with current products and design trends.
Here at Simons Landscapes, the team and I pride ourselves on the workmanship and communication with buliders and clients. Evey project we undertake is treated with diligence to achieve the best outcome possible for the future of our environment and fast growing community.

Kind Regards,
Simon Coxhead
Director

Proposed Development - Multiple Dwelling - REVISED 27/11/19

41 Twickenham Dr, Kingsley

APPENDIX 4A

LEVEL 1 WASTE MANAGEMENT PLAN — DESIGN PHASE

The following simple Waste Management Plan has been developed to confirm that the main issues essential for waste management implementation have been considered and provide a brief outline as to how they have been incorporated into the design of the development.

Key Issues	Completed	N/A	Outline of consideration in relation to the development
Initial planning			
Have you consulted with Local Government to find out what waste management services are offered, or if there are any specific requirements, policies etc. that the development will need to incorporate?	✓		As per WALGA Multiple Dwellings Waste Management Plan Guidelines
For mixed-use developments, will residential and commercial waste streams be managed separately?		✓	
Waste Generation			
Have you identified the volume of waste that is likely to be generated in the operations of the development?	✓		TABLED ON GROUND FLOOR PLAN
Design considerations			
Noise – does the development design include better practice measures to minimise noise associated with use of the waste management system?		✓	VERGE PICK UP FOR BINS.
Odour – does the development design include better practice measures to minimise odour associated with the use of waste management system?	✓		OPEN AIR BIN STORAGE AREA SECURED & NOT VISIBLE
Vermin – has the development been designed to minimise the entry of vermin to the waste storage areas?	✓		Colorbond fencing SURROUND WITH CONCRETE SEALED FLOOR.
Hygiene – has the development been designed to allow the waste storage areas to be kept in a good condition?	✓		CONCRETE FLOOR FLOOR WASTE & TAP.
Health, Safety and the Environment – does the development design include better practice measure to minimise the risk to Health, Safety and the Environment?	✓		Level bin storage area, clear bin presentation point.
Safety – does the development design include better practice measures to minimise the chance of illegal activities?	✓		SETBACK FROM FRONT FACADE & ON LEVEL SURFACE.

Continued over

Continued

Waste Storage			
Is there sufficient space within the property boundary to store the volume of waste and recycling (and organics) likely to be generated at the development during the period between collections?	✓		As per Appendix 1.
Is future service flexibility incorporated in the design?	✓		CURRENT BIN VOLUMES ACCOUNT FOR AN ADDITIONAL UNIT.
Have storage areas been designed to accommodate easy access, internal manoeuvring of bins and cleaning?	✓		1M wide aisle
Are storage areas conveniently located for residents and caretakers?	✓		
Are storage areas out of sight or well screened from public areas?	✓		
Are storage areas located an appropriate distance from waste sources to reduce potential amenity and OH&S impacts?	✓		
Are storage areas designed to fit into the overall look of the development?	✓		
Waste collection			
Does the development design include better practice measures to ensure waste presentation points are easy to access by waste contractors?	✓		VERGE COLLECTION PRESENTATION AREA NEAR DRIVEWAY.
Has the route from the bin storage area to the presentation point been designed to minimise occupational health and safety risks to those transferring the bins?	✓		Relatively flat surface from storage to presentation point.
Education			
Has clear signage been included to provide instructions on how to use the waste management system?	✓		Provide recycling education signage on bins or storage area.
Ongoing management			
Have hand over notes been completed so that a building manager is aware of what waste management systems have been planned in the development?		✓	Building manager not applicable to this development. Standard council waste service.

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Transportation Noise Assessment

41 Twickenham Drive, Kingsley

Reference: 19055028-01a.docx

Prepared for:
Danmar Developments

Report: 19055028-01a.docx

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Date:	Rev	Description	Prepared By	Verified
17-Jun-19	0	Issued to Client	Terry George	Olivier Mallié
18-Jun-19	A	Client Comments	Terry George	-

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Appendices

1 INTRODUCTION

Danmar Developments are constructing seven (7) residential units at 41 Twickenham Drive in Kingsley – refer *Figure 1-1*. The development is in reasonable close proximity to Whitfords Avenue and Mitchell Freeway and as such, the City of Joondalup has requested a road traffic noise assessment to be undertaken, being the subject of this report.

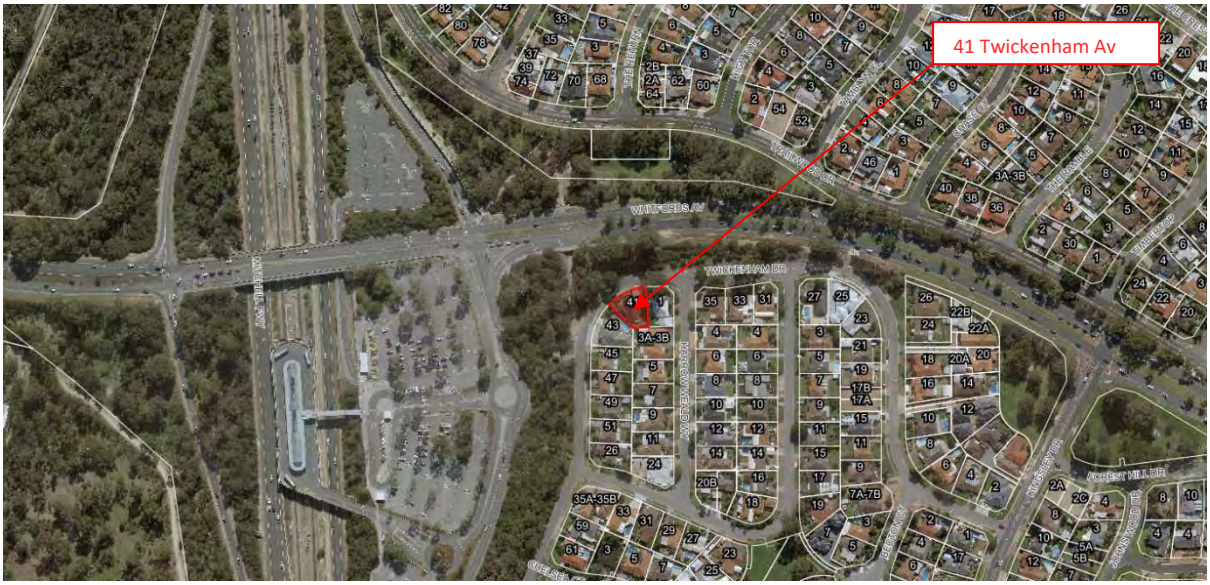

Figure 1-1 Site Locality

Appendix A provides the proposed plans for the 3 storey development.

Appendix B contains a description of some of the terminology used throughout this report.

2 CRITERIA

The criteria relevant to this assessment is the *State Planning Policy 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning* (hereafter referred to as the Policy) produced by the Western Australian Planning Commission (WAPC). The objectives in the Policy are to:

- Protect people from unreasonable levels of transport noise by establishing a standardised set of criteria to be used in the assessment of proposals;
- Protect major transport corridors and freight operations from incompatible urban encroachment;
- Encourage best practice design and construction standards for new development proposals and new or redevelopment transport infrastructure proposals;
- Facilitate the development and operation of an efficient freight network; and
- Facilitate the strategic co-location of freight handling facilities.

The Policy's outdoor noise criteria are shown in *Table 2-1*. These criteria apply at any point 1-metre from a habitable façade of a noise sensitive premises and in one outdoor living area.

Table 2-1 Outdoor Noise Criteria

Period	Target	Limit
Day (6am to 10pm)	55 dB $L_{Aeq(Day)}$	60 dB $L_{Aeq(Day)}$
Night (10pm to 6am)	50 dB $L_{Aeq(Night)}$	55 dB $L_{Aeq(Night)}$

Note: The 5 dB difference between the target and limit is referred to as the margin.

In the application of these outdoor noise criteria to new noise sensitive developments, the objectives of this Policy is to achieve -

- acceptable indoor noise levels in noise-sensitive areas (e.g. bedrooms and living rooms of houses); and
- a 'reasonable' degree of acoustic amenity in at least one outdoor living area on each residential lot.

If a noise sensitive development takes place in an area where outdoor noise levels will meet the *target*, no further measures are required under this Policy.

In areas where the *target* is exceeded, customised noise mitigation measures should be implemented with a view to achieving the *target* in at least one outdoor living area on each residential lot, or if this is not practicable, within the *margin*. Where indoor spaces are planned to be facing outdoor areas that are above the *target*, mitigation measures should be implemented to achieve acceptable indoor noise levels in those spaces.

For residential buildings, "acceptable indoor noise levels" are taken to be 40 dB $L_{Aeq(Day)}$ in living areas and 35 dB $L_{Aeq(Night)}$ in bedrooms.

3 METHODOLOGY

Noise measurements and modelling have been undertaken generally in accordance with the requirements of the Policy as described in *Section 3.1* and *Section 3.2*.

3.1 Site Measurements

Noise monitoring was undertaken on site using an ARL Ngara Noise Data Logger (S/N: 87803e) located on a pier at the front of the property (refer *Figure 3-1*). This logger complies with the instrumentation requirements of *Australian Standard 2702-1984 Acoustics – Methods for the Measurement of Road Traffic Noise*. The logger was field calibrated before and after the measurement session and found to be accurate to within +/- 1 dB. Lloyd George Acoustics also holds current laboratory calibration certificate for the loggers. The microphone was approximately 2.0 metres above existing lot level, approximately 50 metres from the southbound turning lanes of Whitfords Avenue, 90 metres to the Mitchell Freeway southbound on ramp and 230 metres to the southbound carriageway of Mitchell Freeway. The measurements were recorded on 12 June 2019, between 3.00pm and 5.00pm, coinciding with the peak traffic volume of Whitfords Avenue.

Figure 3-1 Noise Logger on Pier

A relationship between hourly traffic volumes and noise levels can then be derived to determine the existing $L_{Aeq(Day)}$ and $L_{Aeq(Night)}$ noise levels at the subject site.

3.2 Noise Modelling

The computer programme *SoundPLAN 8.1* was utilised incorporating the *Calculation of Road Traffic Noise* (CoRTN) algorithms, modified to reflect Australian conditions. The modifications included the following:

- Vehicles were separated into heavy (Austroads Class 3 upwards) and non-heavy (Austroads Classes 1 & 2) with non-heavy vehicles having a source height of 0.5 metres above road level and heavy vehicles having two sources, at heights of 1.5 metres and 3.6 metres above road level, to represent the engine and exhaust respectively. By splitting the noise source into three, allows for less barrier attenuation for high level sources where barriers are to be considered.
- Note that a -8.0 dB correction is applied to the exhaust and -0.8 dB to the engine (based on Transportation Noise Reference Book, Paul Nelson, 1987), so as to provide consistent results with the CoRTN algorithms for the no barrier scenario;
- Adjustments of -0.8 dB and -1.7 dB have been applied to the predicted $L_{A10,18hour}$ levels for the 'free-field' and 'at facade' cases respectively, based on the findings of *An Evaluation of the U.K. DoE Traffic Noise Prediction*; Australian Road Research Board, Report 122 ARRB – NAASRA Planning Group (March 1983).

Predictions are made at heights of 1.4 metres above floor level and at 1-metre from the window of each habitable room, resulting in a + 2.5 dB correction due to reflected noise.

Various input data are included in the modelling such as ground topography, road design, traffic volumes etc. These model inputs are discussed in the following sections.

3.2.1 Ground Topography

Topographical data was partly on file, in the form of Landgate data. This was combined with publicly available data (*Google Earth* spot heights) and the proposed site plan to create a 3D noise model as shown in *Figure 3-2*.

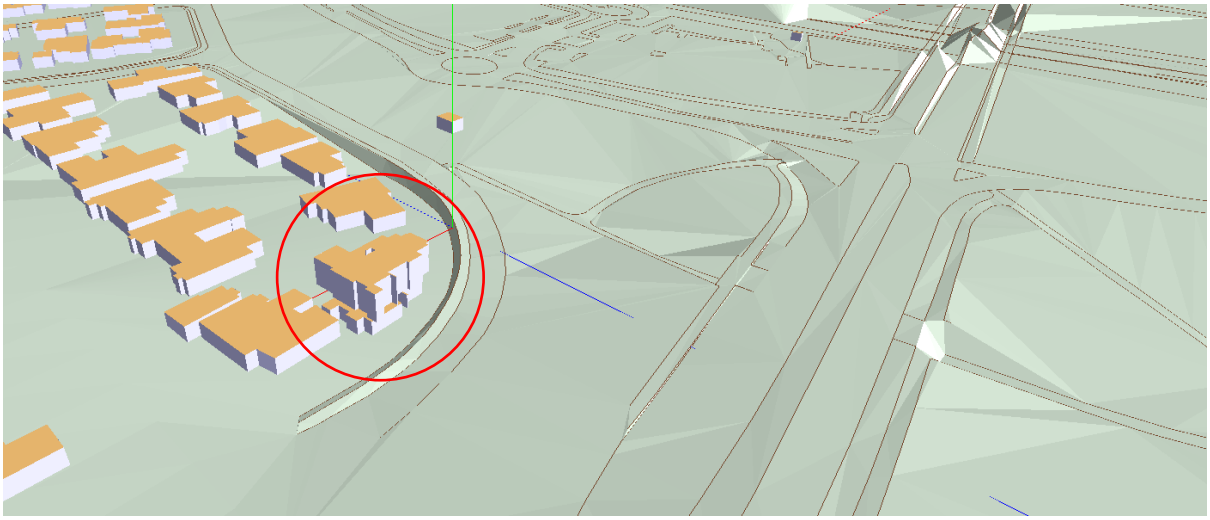

Figure 3-2 Image of 3D Noise Model (North East Elevation)

3.2.2 Traffic Data

Traffic data includes:

- Road Surface – The noise relationship between different road surface types is shown in *Table 3-1*.

Table 3-1 Noise Relationship Between Different Road Surfaces

Road Surfaces						
Chip Seal			Asphalt			
14mm	10mm	5mm	Dense Graded	Novachip	Stone Mastic	Open Graded
+3.5 dB	+2.5 dB	+1.5 dB	0.0 dB	-0.2 dB	-1.5 dB	-2.5 dB

Mitchell Freeway is assumed to be Open Graded Asphalt (OGA). Whitfords Avenue and on/off ramps are Dense Graded Asphalt (DGA). These are considered to remain the same in the future.

- Vehicle Speed – Mitchell Freeway has a posted speed of 100km/hr, with Whitfords Avenue at 70km/hr. These are considered to remain the same in the future.
- Traffic Volumes – Existing (2016) and forecast (2041) traffic volumes were provided by Main Roads WA (Clare Yu, Traffic Modelling Analyst, Reference: #41216, dated 7 June 2019). A validation plot was also provided allowing the Main Roads WA traffic volume model to be calibrated against actual counts, although this was only available for Whitfords Avenue. The validation plot shows that the Main Roads WA model is under-predicting eastbound traffic by 1,400 vehicles per day (vpd) and westbound traffic by 3,500 vpd. As such, the modelled 2041 volumes have been increased by these amounts. *Table 3-2* provides the traffic volume input data in the model.

Table 3-2 Traffic Information Used in the Modelling

Road	Section	Year	Direction			
			1		2	
			Traffic	% Heavy	Traffic	% Heavy
Whitfords Avenue	Bridge	2016	20,900	8	13,900	8
		2041	27,100	9	19,500	7
	East of Freeway	2016	17,300	7	17,100	7
		2041	21,400	9	22,000	9
Mitchell Freeway	Intersection	2016	41,500	9	46,700	8
		2041	96,700	6	92,800	6
	On Ramp	2016	7,700	7	-	-
		2041	13,000	8	-	-

Direction 1 is eastbound for Whitfords Avenue and southbound for Mitchell Freeway with Direction 2 being westbound for Whitfords Avenue and northbound for Mitchell freeway.

3.2.3 Ground Attenuation

The ground attenuation has been assumed to be 0.0 (0%) for the roads and 0.5 (50%) elsewhere. Note 0.0 represents hard reflective surfaces such as water and 1.00 represents absorptive surfaces such as grass.

4 RESULTS

4.1 Noise Monitoring

The results of the hourly noise level measurements, in free-field conditions, were:

- 12 June 2019: 3.00pm to 4.00pm – 61.0 dB $L_{Aeq,1hour}$;
- 12 June 2019: 4.00pm to 5.00pm – 60.8 dB $L_{Aeq,1hour}$.

Combining the measured noise levels with the hourly traffic volumes as shown in *Figure 4-1*, the $L_{Aeq(Day)}$ and $L_{Aeq(Night)}$ have been determined to be 60.1 dB $L_{Aeq(Day)}$ and 52.6 dB $L_{Aeq(Night)}$. Based on these results, the $L_{Aeq(Day)}$ is more critical than the $L_{Aeq(Night)}$ since their difference is greater than 5 dB (refer *Section 2* criteria).

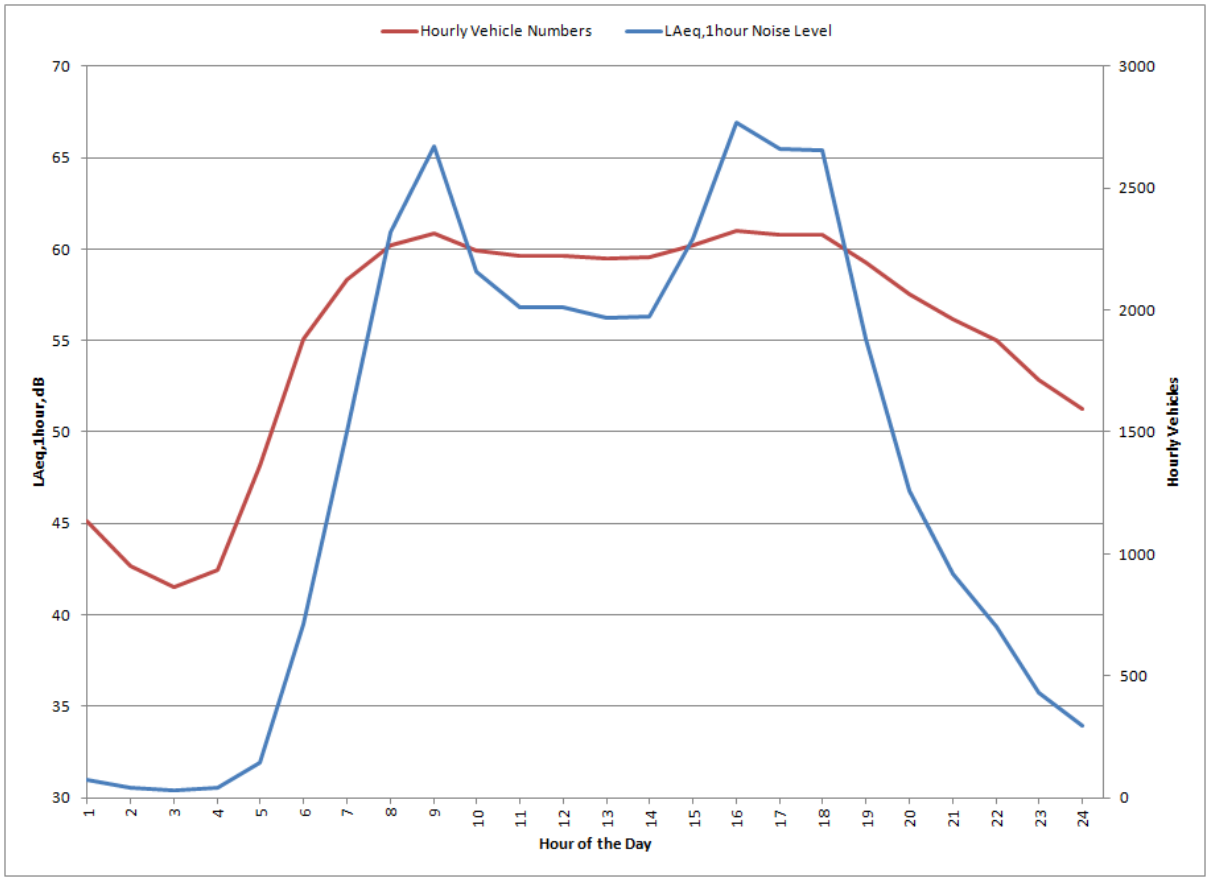

Figure 4-1 Noise Level Relationship to Hourly Traffic Volumes

4.2 Noise Modelling

The noise model was initially set-up for existing conditions and calibrated to the noise measurement location. The model is then updated to include the proposed building plans and future traffic volumes, maintaining the same model calibration. *Table 4-1* provides the predicted $L_{Aeq(Day)}$ noise levels to the glazed facade of each habitable room.

Table 4-1 Predicted Future (2041) $L_{Aeq(Day)}$ Noise Levels

Unit	Room	$L_{Aeq(Day)}$, dB	Unit	Room	$L_{Aeq(Day)}$, dB
1	Bed 1	63	4	Bed 1	65
	Bed 2	56		Bed 2	66
	Entry	57		Entry	46
	Kitchen	63		Living	65
	Living	65	5	Bed 1	55
2	Bed 1	59		Bed 2	61
	Bed 2	52		Entry	49
	Entry	59		Living	65
	Living	65	6	Bed 1	66
	Meals	65		Bed 2	66
3	Bed 1	56		Entry	53
	Bed 2	57		Living	66
	Entry	44	7	Bed 1	60
	Living	64		Bed 2	62
	Meals	64		Entry	55
				Living	65

5 ASSESSMENT

The objectives of the criteria are for noise at all houses to be no more than the *limit* and preferably no more than the *target*. Where the *target* is achieved, no further controls are required. Where the *target* is exceeded, further controls are necessary.

Table 5-1 provides the minimum recommended construction for each unit, based on the future predicted noise levels and required internal noise levels from *Section 2*. *Figure 5-1* to *Figure 5-3* provides the $R_w + C_{tr}$ performance requirements for glazing. Note that the $R_w + C_{tr}$ value is what must be achieved and applies to the entire system (glass, frame and seals). The glass thicknesses/types listed are based on previous experience but must be confirmed by the glazier as being able to achieve the nominated performance.

Table 5-1 Recommended Construction Requirements

Unit - Room	Element	Recommendation
All	Notification	*Notice: This lot is situated in the vicinity of a transport corridor and is currently affected, or may in the future be affected, by transport noise.*
All	Walls	To be double leaf brickwork.
All Habitable	Roof/Ceiling	Roof to be *Colorbond* with *Anticon* insulation below roof sheeting and above roof purlins. Ceilings to be 13mm thick plasterboard with minimum R2.5 fibrous insulation where roof is above (i.e. does not apply to rooms where concrete slab is above).
All Habitable	Ventilation	To be considered in accordance with SPP 5.4 to all affected habitable rooms (noise levels above 55 dB $L_{Aeq(Day)}$).
1 & 2 Entry	Door	To be solid timber core with full perimeter acoustic seals (perimeter and bottom). Any glass inserts to be minimum 6mm thick. Other entry doors are recommended to achieve R_w 30 as part of good practice to align with NCC requirements.
1 – Bed 2 3 – Bed 1 3 – Bed 2	Window	To be 6mm thick glass in sliding window frame with acoustic seals or 4mm thick glass in awning style frame closing onto compressible foam/rubber seals to achieve minimum $R_w + C_{tr} \geq 20$. For those windows not listed where traffic noise is no more than 55 dB $L_{Aeq(Day)}$, adopt this performance as an absolute minimum.
1 – Bed 1 1 – Kitchen 2 – Bed 1 5 – Bed 2 7 – Bed 1 7 – Bed 2	Window	To be minimum 6mm thick glass in awning style frame closing onto compressible foam/rubber seals to achieve $R_w + C_{tr} \geq 25$.
2 – Meals 3 – Meals 5 - Living 7 - Living	Window	To be minimum 6.38mm thick laminated glass in awning style frame closing onto compressible foam/rubber seals to achieve $R_w + C_{tr} \geq 28$.
2 – Living 4 – Bed 1 4 – Bed 2 6 – Bed 1 6 – Bed 2	Window	To be minimum 6.5mm thick VLam Hush or 10mm thick glass in awning style frame closing onto compressible foam/rubber seals to achieve $R_w + C_{tr} \geq 31$.
All	Sliding Door	To be minimum 6.5mm thick VLam Hush or 10mm thick glass in high quality sliding door frame fitted with acoustic seals to achieve $R_w + C_{tr} \geq 31$.

Figure 5-1 Glazing $R_w + C_{tr}$ Glazing Performance Requirements: Ground Floor

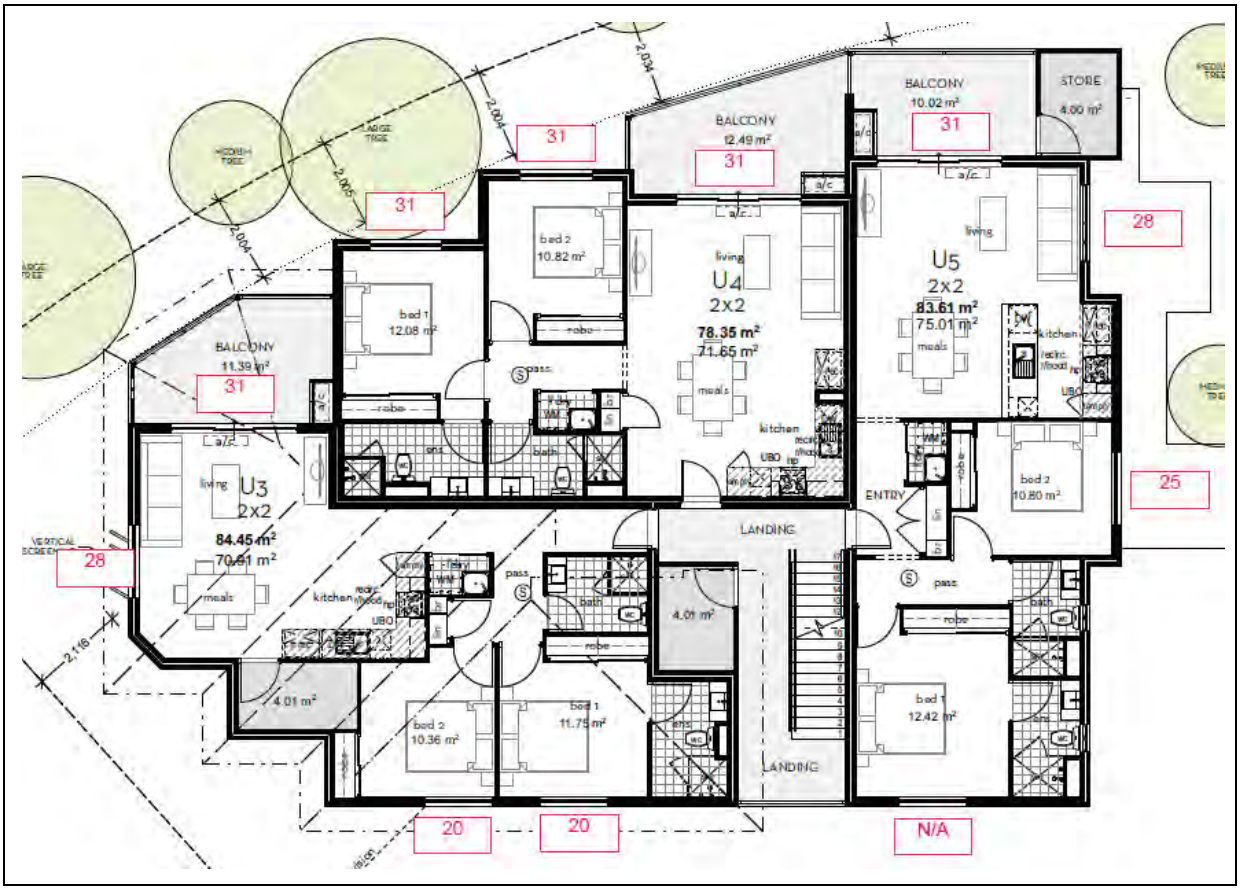

Figure 5-2 Glazing $R_w + C_{tr}$ Glazing Performance Requirements: First Floor

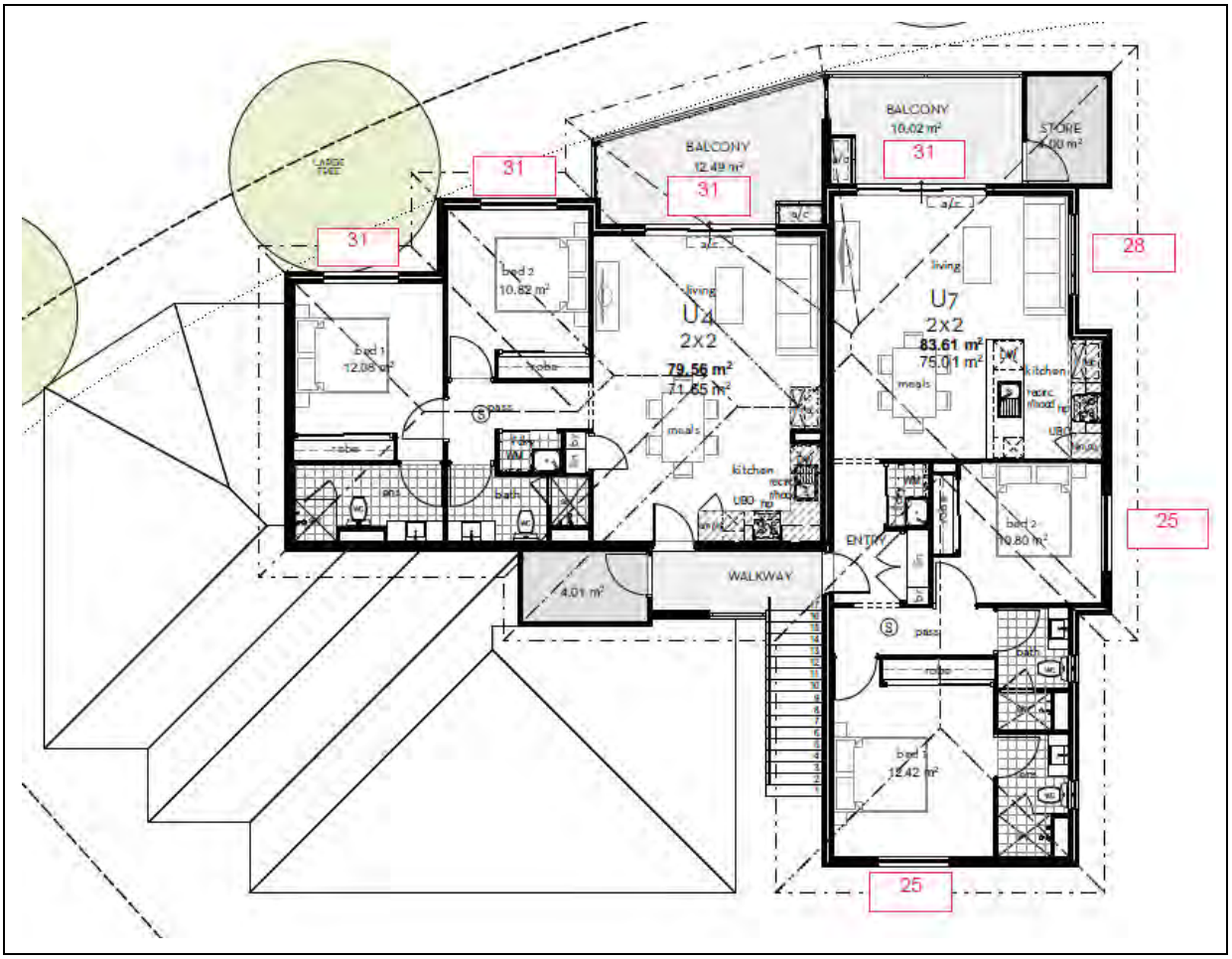

Figure 5-3 Glazing $R_w + C_{tr}$ Glazing Performance Requirements: Second Floor

As is common with such multi-storey development, the balcony areas face the major road and as such, noise levels will be above the *limit* at the balcony. An additional shared open space area is provided at the rear of the development where noise levels are predicted to be within the margin (57 dB $L_{Aeq(Day)}$) and therefore considered to be a reasonable amenity.

Appendix A

PROPOSED DEVELOPMENT PLANS

GROUND FLOOR PLAN

LIVABLE HOUSING DESIGN:

SILVER LEVEL DESIGN ELEMENTS INLUDED TO GROUND FLOOR UNITS:

- SAFE & CONTINUOUS STEP FREE PATH OF TRAVEL FROM THE STREET TO THE DWELLING ENTRANCE VIA DRIVEWAY.
- LEVEL ENTRANCES TO THE UNITS, WITH 820mm CLEAR ENTRANCE OPENINGS.
- 1000mm WIDE PASSAGEWAYS WITH 820mm CLEAR INTERNAL DOOR OPENINGS.
- 1x 900mm MIN. TOILET SPACE WIDTH (ENSUITE).
- 1x HOBLESS SHOWER IN ROOM CORNER (ENSUITE).

WASTE STORAGE REQUIREMENT*:

BEDROOMS = 14

GENERAL WASTE: 14x80L = 1120L = 5x240L BINS
RECYCLE WASTE: 14x40L = 560L = 3x240L BINS
GREEN WASTE: 14x40L = 560L = 3x240L BINS
TOTAL = 11x 240L BINS

REFER TO 'LEVEL 1 WASTE MANAGEMENT PLAN - DESIGN PHASE' ATTACHED

*WALGA MULTIPLE DWELLING WASTE MANAGEMENT PLAN GUIDELINES - APPENDIX 1

ACOUSTIC REQUIRMENTS:

ACOUSTIC REPORT TO BE SUBMITTED PRIOR TO DESIGN REVIEW PANEL

R20/60 RESIDENTIAL MULTIPLE DWELLINGS

PLOT RATIO	
LOT AREA	730.0m·
MAXIMUM PLOT RATIO	584.0m· / 0.8
PROPOSED PLOT RATIO	570.3m· / 0.781
COMPRISING:	
7 x Apartments	7 = 2 bed x 2 bath
PARKING:	
7 Apartments x 1 resident bays	7
7 Apartments x 0.25 visitor bays	2
TOTAL (9 bays required)	9 (provided)
BIKE BAYS:	
7 Apartments x 0.5 resident bays	4
1 Visitor bays per 10 dwellings	1
TOTAL (5 required)	6 (provided)

UNIT 1 - 2x2	
Area	81.44m²
Internal	72.08m²
C'yard	15.02m²
Store	4.05m²

UNIT 2 - 2x2	
Area	79.28m²
Internal	71.08m²
C'yard	15.00m²
Store	4.09m²

UNIT 3 - 2x2	
Area	84.45m²
Internal	70.91m²
Balcony	11.39m²
Store	4.01m²

UNIT 4 - 2x2	
Area	78.35m²
Internal	71.65m²
Balcony	12.49m²
Store	4.01m²

UNIT 5 - 2x2	
Area	83.61m²
Internal	75.01m²
Balcony	10.01m²
Store	4.00m²

UNIT 6 - 2x2	
Area	79.56m²
Internal	71.65m²
Balcony	12.49m²
Store	4.01m²

UNIT 7 - 2x2	
Area	83.61m²
Internal	75.01m²
Balcony	10.01m²
Store	4.00m²

DANMAR DEVELOPMENTS
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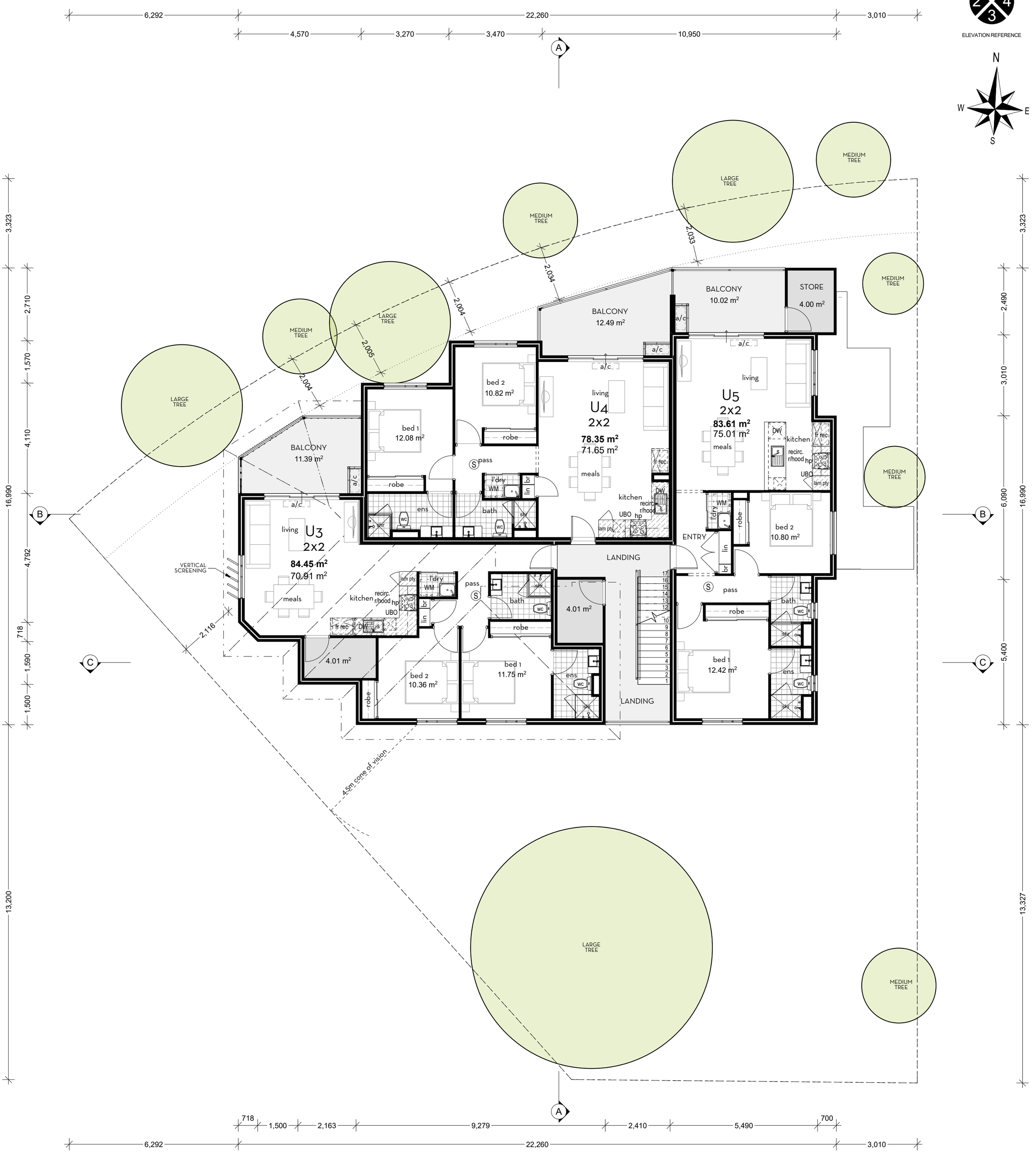
CLIENT	Damien & Kristin Paterson
CONSULTANT	Troy Felt
REV. NO.	2
DATE	20/05/19
DRAWN BY	JR, TW

FIRST FLOOR PLAN



R20/60 RESIDENTIAL MULTIPLE DWELLINGS

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C'yard	15.00m²
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UNIT 3 - 2x2	
Area	84.45m²
Internal	70.91m²
Balcony	11.39m²
Store	4.01m²

UNIT 4 - 2x2	
Area	78.35m²
Internal	71.65m²
Balcony	12.49m²
Store	4.01m²

UNIT 5 - 2x2	
Area	83.61m²
Internal	75.01m²
Balcony	10.01m²
Store	4.00m²

UNIT 6 - 2x2	
Area	79.56m²
Internal	71.65m²
Balcony	12.49m²
Store	4.01m²

UNIT 7 - 2x2	
Area	83.61m²
Internal	75.01m²
Balcony	10.01m²
Store	4.00m²

DANMAR DEVELOPMENTS
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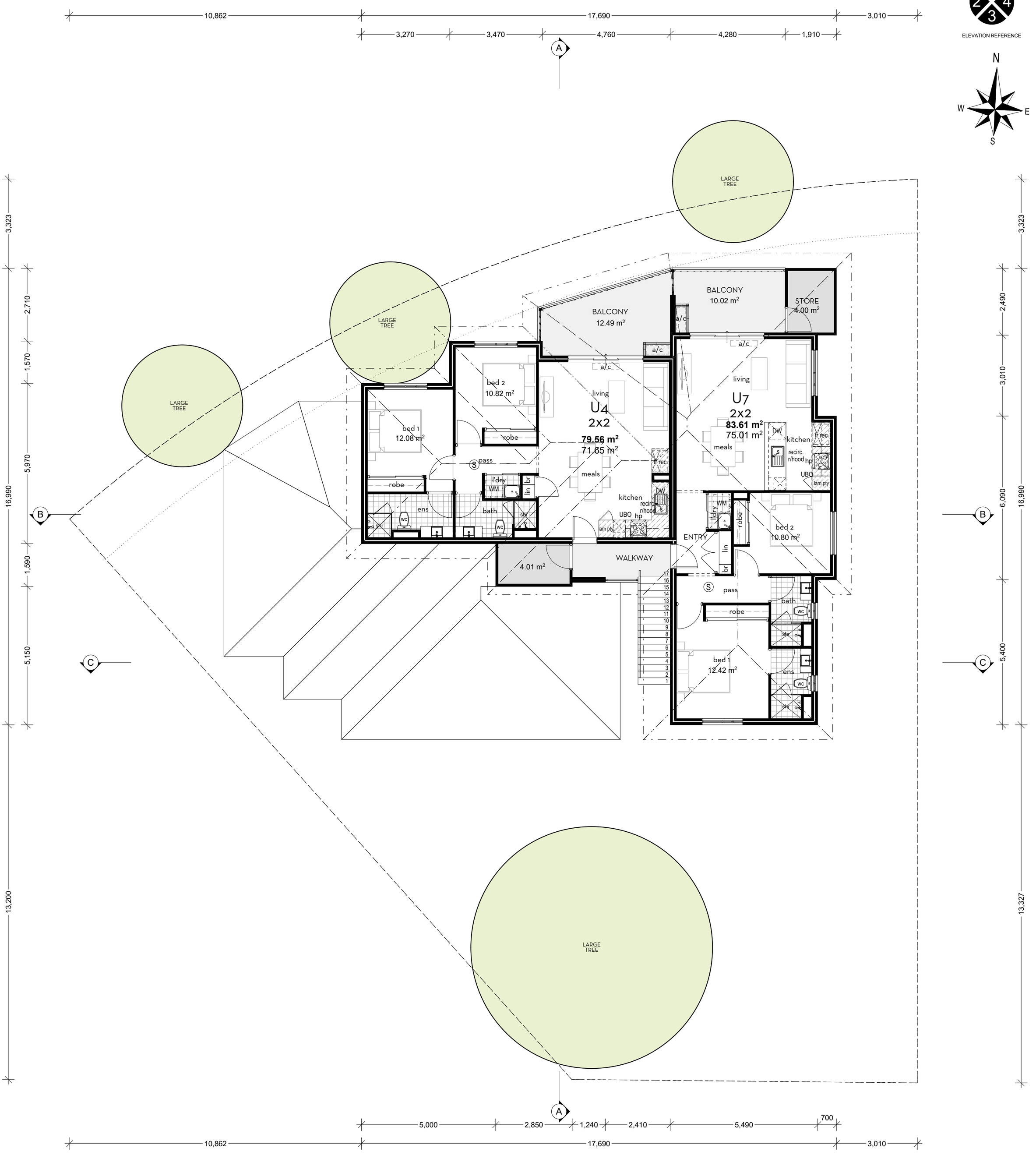
CLIENT	Damien & Kristin Paterson
CONSULTANT	Troy Felt
REV. NO.	2
DATE	20/05/19
DRAWN BY	JR, TW

41 Twickenham Drive, Kingsley

SECOND FLOOR PLAN



R20/60 RESIDENTIAL MULTIPLE DWELLINGS

PLOT RATIO	
LOT AREA	730.0m·
MAXIMUM PLOT RATIO	584.0m· / 0.8
PROPOSED PLOT RATIO	570.3m· / 0.781
COMPRISING:	
7 x Apartments	7 = 2 bed x 2 bath
PARKING:	
7 Apartments x 1 resident bays	7
7 Apartments x 0.25 visitor bays	2
TOTAL (9 bays required)	9 (provided)
BIKE BAYS:	
7 Apartments x 0.5 resident bays	4
1 Visitor bays per 10 dwellings	1
TOTAL (5 required)	6 (provided)

UNIT 1 - 2x2	
Area	81.44m²
Internal	72.08m²
C'yard	15.02m²
Store	4.05m²

UNIT 2 - 2x2	
Area	79.28m²
Internal	71.08m²
C'yard	15.00m²
Store	4.09m²

UNIT 3 - 2x2	
Area	84.45m²
Internal	70.91m²
Balcony	11.39m²
Store	4.01m²

UNIT 4 - 2x2	
Area	78.35m²
Internal	71.65m²
Balcony	12.49m²
Store	4.01m²

UNIT 5 - 2x2	
Area	83.61m²
Internal	75.01m²
Balcony	10.01m²
Store	4.00m²

UNIT 6 - 2x2	
Area	79.56m²
Internal	71.65m²
Balcony	12.49m²
Store	4.01m²

UNIT 7 - 2x2	
Area	83.61m²
Internal	75.01m²
Balcony	10.01m²
Store	4.00m²

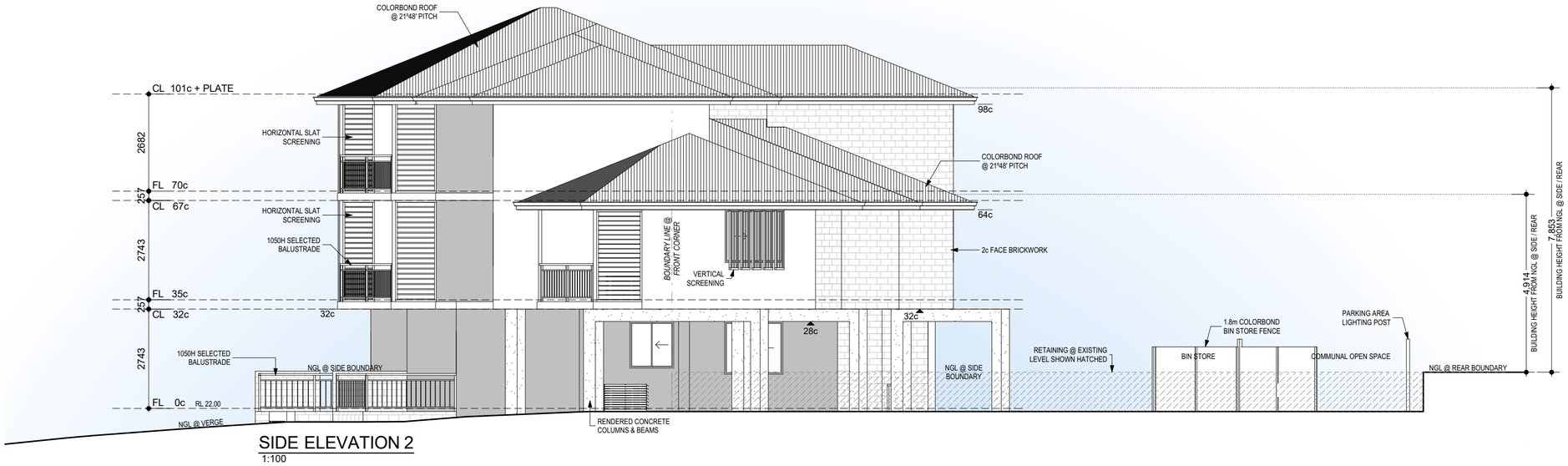
DANMAR DEVELOPMENTS
Level 1/475 Scarborough Beach Rd, Osborne Park WA 6017
P: (08) 9445 7522 F: (08) 9445 8211
WEB: www.danmardevelopments.com

CLIENT	Damien & Kristin Paterson
CONSULTANT	Troy Felt
REV. NO.	2
DATE	20/05/19
DRAWN BY	JR, TW

41 Twickenham Drive, Kingsley

ELEVATIONS 1 & 2

FRONT ELEVATION 1
1:100



SIDE ELEVATION 2
1:100

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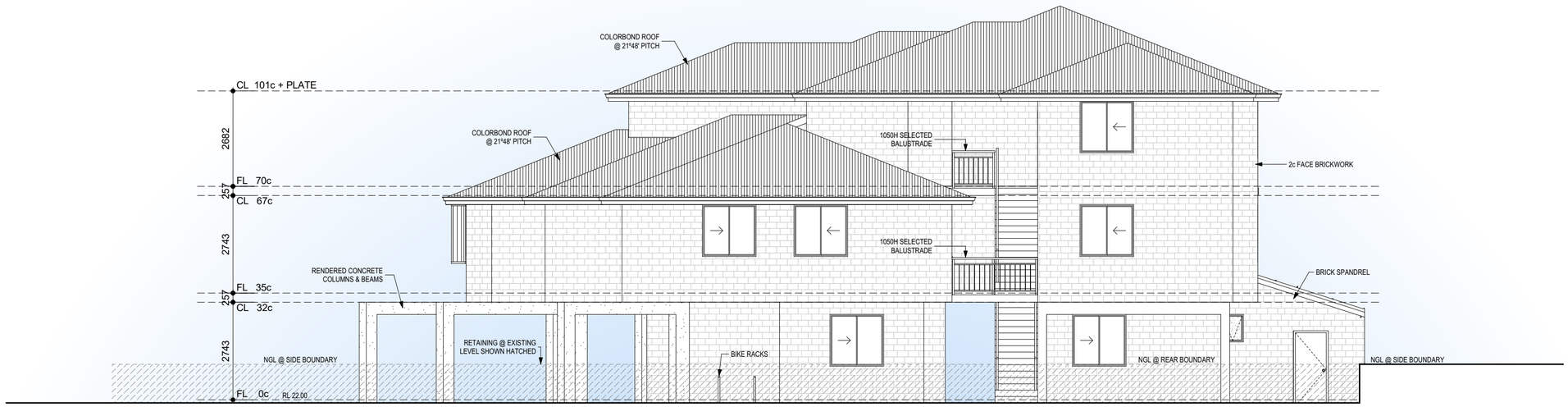
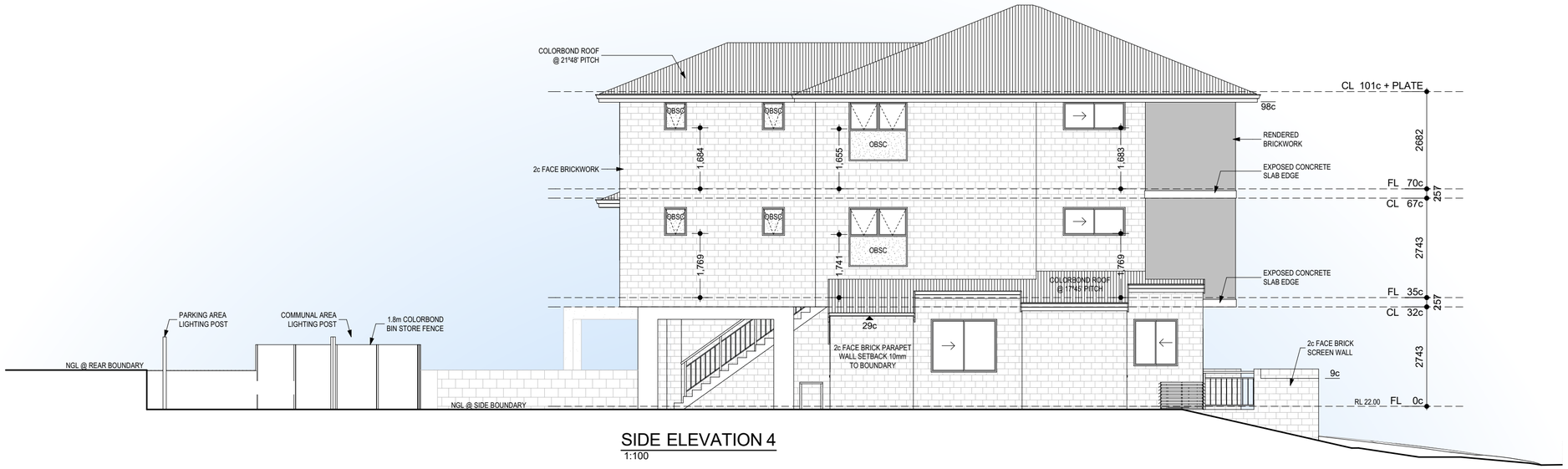
41 Twickenham Drive, Kingsley

ELEVATIONS 3 & 4



REAR ELEVATION 3
1:100



SIDE ELEVATION 4
1:100

DANMAR DEVELOPMENTS
Level 1/475 Scarborough Beach Rd, Osborne Park WA 6017
P: (08) 9445 7522 F: (08) 9445 8211
WEB: www.danmardevelopments.com

CLIENT	Damien & Kristin Paterson
CONSULTANT	Troy Felt
REV. NO.	2
DATE	20/05/19
DRAWN BY	JR, TW

41 Twickenham Drive, Kingsley

Appendix B

TERMINOLOGY

The following is an explanation of the terminology used throughout this report.

Decibel (dB)

The decibel is the unit that describes the sound pressure and sound power levels of a noise source. It is a logarithmic scale referenced to the threshold of hearing.

A-Weighting

An A-weighted noise level has been filtered in such a way as to represent the way in which the human ear perceives sound. This weighting reflects the fact that the human ear is not as sensitive to lower frequencies as it is to higher frequencies. An A-weighted sound level is described as L_A dB.

L_1

An L_1 level is the noise level which is exceeded for 1 per cent of the measurement period and is considered to represent the average of the maximum noise levels measured.

L_{10}

An L_{10} level is the noise level which is exceeded for 10 per cent of the measurement period and is considered to represent the "*intrusive*" noise level.

L_{90}

An L_{90} level is the noise level which is exceeded for 90 per cent of the measurement period and is considered to represent the "*background*" noise level.

L_{eq}

The L_{eq} level represents the average noise energy during a measurement period.

$L_{A10,18hour}$

The $L_{A10,18\ hour}$ level is the arithmetic average of the hourly L_{A10} levels between 6.00 am and midnight. The *CoRTN* algorithms were developed to calculate this parameter.

$L_{Aeq,24hour}$

The $L_{Aeq,24\ hour}$ level is the logarithmic average of the hourly L_{Aeq} levels for a full day (from midnight to midnight).

$L_{Aeq,8hour}$ / $L_{Aeq\ (Night)}$

The $L_{Aeq\ (Night)}$ level is the logarithmic average of the hourly L_{Aeq} levels from 10.00 pm to 6.00 am on the same day.

$L_{Aeq,16hour}$ / $L_{Aeq\ (Day)}$

The $L_{Aeq\ (Day)}$ level is the logarithmic average of the hourly L_{Aeq} levels from 6.00 am to 10.00 pm on the same day. This value is typically 1-3 dB less than the $L_{A10,18hour}$.

R_w

This is the weighted sound reduction index and is similar to the previously used STC (Sound Transmission Class) value. It is a single number rating determined by moving a grading curve in integral steps against the laboratory measured transmission loss until the sum of the deficiencies at each one-third-octave band, between 100 Hz and 3.15 kHz, does not exceed 32 dB. The higher the R_w value, the better the acoustic performance.

C_{tr}

This is a spectrum adaptation term for airborne noise and provides a correction to the R_w value to suit source sounds with significant low frequency content such as road traffic or home theatre systems. A wall that provides a relatively high level of low frequency attenuation (i.e. masonry) may have a value in the order of –4 dB, whilst a wall with relatively poor attenuation at low frequencies (i.e. stud wall) may have a value in the order of -14 dB.

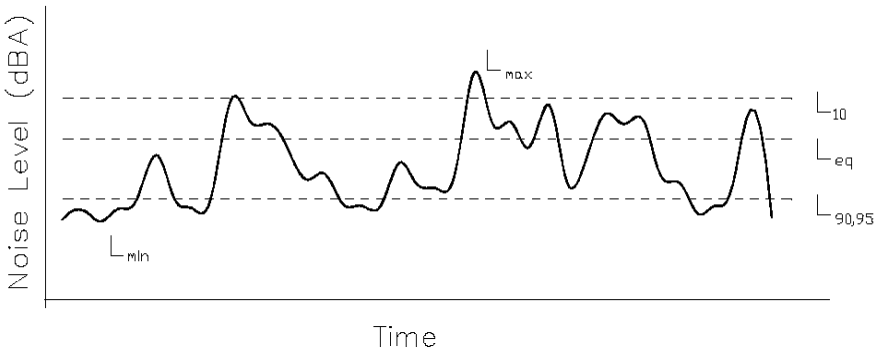
Satisfactory Design Sound Level

The level of noise that has been found to be acceptable by most people for the environment in question and also to be not intrusive.

Maximum Design Sound Level

The level of noise above which most people occupying the space start to become dissatisfied with the level of noise.

Chart of Noise Level Descriptors



Austroads Vehicle Class

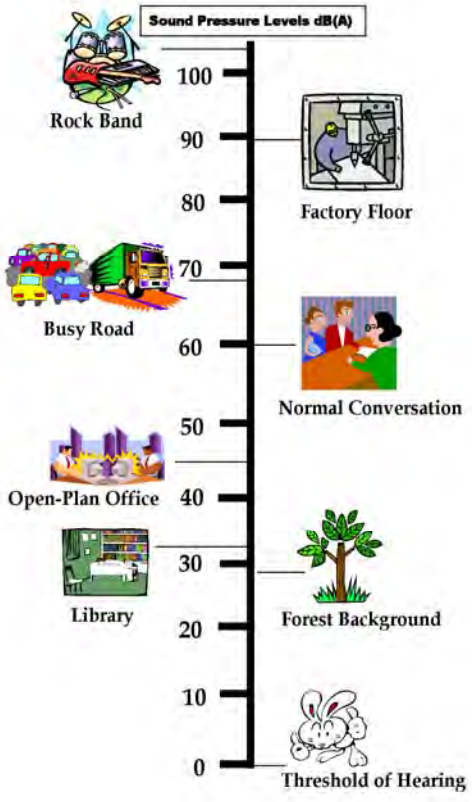
AUSTROADS Vehicle Classification System

Level 1 Length (indicative)	Level 2 Axles and Axle Groups		Level 3 Vehicle Type	AUSTROADS Classification		
Type	Axles	Groups	Typical Description	Class	Parameters	Typical Configuration
			LIGHT VEHICLES			
Short up to 5.5m		1 or 2	**Short** Sedan, Wagon, 4WD, Utility, Light Van, Bicycle, Motorcycle, etc	1	d(1) ≤ 3.2m and axles = 2	
	3, 4 or 5	3	**Short - Towing** Trailer, Caravan, Boat, etc	2	groups = 3 d(1) > 2.1m, d(1) ≤ 3.2m, d(2) ≥ 2.1m and axles = 3, 4 or 5	
			HEAVY VEHICLES			
Medium 5.5m to 14.5m	2	2	**Two Axle Truck or Bus**	3	d(1) > 3.2m and axles = 2	
	3	2	**Three Axle Truck or Bus**	4	axles = 3 and groups = 2	
	> 3	2	**Four Axle Truck**	5	axles > 3 and groups = 2	
Long 11.5m to 19.0m	3	3	**Three Axle Articulated** Three axle articulated vehicle, or Rigid vehicle and trailer	6	d(1) > 3.2m, axles = 3 and groups = 3	
	4	> 2	**Four Axle Articulated** Four axle articulated vehicle, or Rigid vehicle and trailer	7	d(2) < 2.1m or d(1) < 2.1m or d(1) > 3.2m axles = 4 and groups > 2	
	5	> 2	**Five Axle Articulated** Five axle articulated vehicle, or Rigid vehicle and trailer	8	d(2) < 2.1m or d(1) < 2.1m or d(1) > 3.2m axles = 5 and groups > 2	
	≥ 6	> 2	**Six Axle Articulated** Six axle articulated vehicle, or Rigid vehicle and trailer	9	axles = 6 and groups > 2 or axles > 6 and groups = 3	
Medium Combination 17.5m to 36.5m	> 6	4	**B Double** B Double, or Heavy truck and trailer	10	groups = 4 and axles > 6	
	> 6	5 or 6	**Double Road Train** Double road train, or Medium articulated vehicle and one dog trailer (M.A.D.)	11	groups = 5 or 6 and axles > 6	
Large Combination Over 33.0m	> 6	> 6	**Triple Road Train** Triple road train, or Heavy truck and three trailers	12	groups > 6 and axles > 6	

Definitions: Group: Axle group, where adjacent axles are less than 2.1m apart; Groups: Number of axle groups; Axles: Number of axles (maximum axle spacing of 10.0m)

d(1): Distance between first and second axle
d(2): Distance between second and third axle

Typical Noise Levels



Bushfire Attack Level Assessment Report

Prepared by a BPAD Accredited Practitioner

Fire Protection Association Australia Life Property Environment

AS 3959 BAL Assessment Report

This report has been prepared by an Accredited BPAD Practitioner using the Simplified Procedure (Method 1) as detailed in Section 2 of AS 3959 – 2009 (Incorporating Amendment Nos 1, 2 and 3). FPA Australia makes no warranties as to the accuracy of the information provided in the report. All enquiries related to the information and conclusions presented in this report must be made to the BPAD Accredited Practitioner.

Property Details and Description of Works

Address Details	**Unit no**	**Street no**	**Lot no**	**Street name / Plan Reference**		
		41	472	Twickenham Drive		
	Suburb				**State**	**Postcode**
	Kingsley				WA	6026
Local government area	City of Joondalup					
Main BCA class of the building	Class 2		**Use(s) of the building**	Multiple Residential Unit Development (7)		
Description of the building or works	Multiple Residential Unit Development (7)					

Report Details

Report / Job Number	Report Version	Assessment Date	Report Date
CF74	01	2 May 2019	2 May 2019

BPAD Accredited Practitioner Details

Name:
Rebecca Creighan

Company Details:

C & F Building Approvals

BPAD Bushfire Planning & Design Accredited Practitioner Level 1

Reliance on the assessment and determination of the Bushfire Attack Level contained in this report should not extend beyond a period of 12 months from the date of issue of the report. If this report was issued more than 12 months ago, it is recommended that the validity of the determination be confirmed with the Accredited Practitioner and where required an updated report issued.

Site Assessment & Site Plans

The assessment of this site / development was undertaken on 2 May 2019 by a BPAD Accredited Practitioner for the purpose of determining the Bushfire Attack Level in accordance with AS 3959 - 2009 Simplified Procedure (Method 1).

As per advice from the owner, the exact location of the proposed dwelling therefore the BAL Assessment and subsequent rating was determined based on the building envelope and can be revised at a later date to reflect the exactly proposed dwelling location.

Location Map

Vegetation Classification

All vegetation within 100m of the site / proposed development was classified in accordance with Clause 2.2.3 of AS 3959-2009. Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified below.

Photo ID:	1	Plot:	1
Vegetation Classification or Exclusion Clause			
Class B Woodland - Low open woodland B-08			
Description / Justification for Classification			
Low trees and shrubs 2 – 10m high; foliage cover less than 10% with a grassy understorey and low shrubs.			

Photo ID:	2	Plot:	1
Vegetation Classification or Exclusion Clause			
Class B Woodland - Low open woodland B-08			
Description / Justification for Classification			
Low trees and shrubs 2 – 10m high; foliage cover less than 10% with a grassy understorey and low shrubs.			

Photo ID:	3	Plot:	1

Vegetation Classification or Exclusion Clause

Class B Woodland - Low open woodland B-08

Description / Justification for Classification

Low trees and shrubs 2 – 10m high; foliage cover less than 10% with a grassy understorey and low shrubs.

Photo ID:	4	Plot:	1

Vegetation Classification or Exclusion Clause

Class B Woodland - Low open woodland B-08

Description / Justification for Classification

Low trees and shrubs 2 – 10m high; foliage cover less than 10% with a grassy understorey and low shrubs.

Relevant Fire Danger Index

The fire danger index for this site has been determined in accordance with Table 2.1 or otherwise determined in accordance with a jurisdictional variation applicable to the site.

Fire Danger Index			
FDI 40 ☐	FDI 50 ☐	FDI 80 ☒	FDI 100 ☐
Table 2.4.5	*Table 2.4.4*	*Table 2.4.3*	*Table 2.4.2*

Potential Bushfire Impacts

The potential bushfire impact to the site / proposed development from each of the identified vegetation plots are identified below.

Plot	Vegetation Classification	Effective Slope	Separation (m)	BAL
1	Class B Woodland	Flat	20m	BAL – 19

Table 1: BAL Analysis

Determined Bushfire Attack Level (BAL)

The Determined Bushfire Attack Level (highest BAL) for the site / proposed development has been determined in accordance with clause 2.2.6 of AS 3959-2009 using the above analysis.

Determined Bushfire Attack Level	**BAL – 19**

Appendix 1: Plans and Drawings

Plans and drawings relied on to determine the bushfire attack level

Job Number CF74	**Revision** 01	**Date of Revision** 2 May 2019

Appendix 2: Construction Requirements

A bushfire attack level (BAL) Assessment is a means of measuring the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact in a bushfire event and thereby determining the construction measures required for the dwelling.

The methodology used for the determination of the BAL rating and the subsequent building construction standards are directly referenced from the Australian Standard AS3959 – 2009 construction of buildings in bushfire prone areas. AS3959 – 2009 has six levels of bushfire attack level (BAL) ratings as outlined in the table below.

Bushfire Attack Level (BAL)	Description of Predicted Bushfire Attack and Levels of Exposure	Relevant Construction Requirements of AS3959 - 2009
BAL LOW	Insufficient risk to warrant specific construction requirements.	4
BAL 12.5	Ember attack	3 & 5
BAL 19	Increasing levels of ember attack and burning debris ignited with windborne embers together with increasing heat flux.	3 & 6
BAL 29	Increasing levels of ember attack and burning debris ignited with windborne embers together with increasing heat flux.	3 & 7
BAL 40	Increasing levels of ember attack and burning debris ignited with windborne embers together with increasing heat flux with the increased likelihood of exposure to flames.	3 & 8
BAL FZ	Direct exposure to flames from fire front in addition to heat flux and ember attack.	3 & 9

Practitioner Details

I hereby certify that I have undertaken the assessment of the above site and determined the Bushfire Attack Level stated above in accordance with the requirements of AS 3959-2009 and am qualified to do so.

This Report and Certificate are valid for a period of 12 months and it is expressly stated that C & F Building Approvals and the writer of this report do not guarantee that if such standards are complied with or if a property owner exercises prudence, that a building or property will not be damaged or that lives will not be lost in a bush fire.

Name:	Rebecca Creighan	**Date:**	2 May 2019
Signature:			

CR

COHEN RADOSEVICH
TOWN PLANNING

DEVELOPMENT APPLICATION

PROPOSED THREE STOREY MULTIPLE DWELLING DEVELOPMENT COMPRISING SEVEN (7) TWO BEDROOM DWELLINGS

LOT 472 (No. 41) TWICKENHAM DRIVE, KINGSLEY

MAY 2019

190501 Proposed Seven Multiple Dwellings

TABLE OF CONTENTS

FIGURES

APPENDICIES

1.0 EXECUTIVE SUMMARY

Cohen Radosevich Town Planning acts on behalf of Danmar Developments, in relation to the proposed development at Lot 472 (No. 41) Twickenham Drive, Kingsley (herein referred to as the 'subject site'). Planning approval is sought in relation to a proposed three storey multiple dwelling development comprising seven (7) two-bedroom dwellings (herein referred to as 'the proposal' or 'the proposed development'). The proposal represents a form and scale consistent with other forms of development recently supported by the City of Joondalup (herein referred to as the 'City' or 'Council').

The subject site is situated within the locality of Kingsley which is located approximately 22km north-west of the Perth Central Business District (CBD) (refer **Figure 1** containing a Location Plan and **Figure 2** showing an aerial photograph of the subject site).

This application seeks approval to:

- Create a three-storey multiple dwelling development;
- Establish seven (7) two-bedroom dwellings;
- Develop car parking to the rear of the development, providing for seven (7) residential parking spaces for the exclusive use of the multiple dwellings; and two (2) visitors parking spaces.

The development plans associated with the proposed multiple dwelling development, as described within this development application report, are provided at **Appendix 1**.

2.0 INTRODUCTION

Planning consent is sought for the proposed three-storey multiple dwelling development at No. 41 (Lot 472) Twickenham Drive, Kingsley. This report provides the supporting documentation for the proposal.

The proposed development has been prepared in response to the City's current planning framework and addresses the objectives of the Residential Design Codes of WA and the City of Joondalup's Local Planning Scheme No. 3. It is considered that there is a clear market demand which will support a development of the scale and intensity as proposed in this planning application.

In addition to this, an assessment has been undertaken in relation to the Design WA planning framework which is to be implemented on 24 May, which demonstrates that the development is consistent with the intended future planning of the locality.

2.1 Location

The subject site is situated within the locality of Kingsley which is located approximately 22km north-west of the Perth CBD. The subject site is situated on the southern side of Twickenham Drive and surrounded by residential properties on all sides. The subject site is serviced by Twickenham Drive to the north. Refer to the Location Plan and Aerial Photograph included in **Figure 1** and **Figure 2** respectively.

The site is within proximity to the Woodvale Boulevard Shopping Centre, Craigie Open Space, Kingsley Park and Kingsley Shopping Centre.

Figure 1 – Location Plan

Figure 2 – Aerial Photo

2.2 Description of Land

The subject site comprises one lot which is legally described as "Lot 472 on Plan 12553" and is wholly contained on Volume 1511, Folio 324.

Lot 472 has an area of 730m². A Site Plan is included in **Figure 3**.

Generally, the subject site slopes down approximately 1.65m from the rear southern boundary to the front northern boundary.

Figure 3 – Site Plan

2.3 Servicing

The subject site is fully serviced with water, power, sewerage/drainage, and telecommunications infrastructure. Relevant services will be extended and upgraded to the site to accommodate the proposed development.

3.0 ASSESSMENT UNDER PLANNING FRAMEWORK

The planning framework relevant to this proposal supports the proposal in line with the Government's statutory and strategic documents. These documents recognise the importance of appropriately planned and situated high density residential development as a sustainable measure to accommodate the planned growth projected for Perth to 2050. The rate and scale of development in the Perth Metropolitan Region has grown significantly, and this is expected to continue in accordance with the projections set out in State Government policy which is planning for population growth of the Perth and Peel regions to 3.5 million in 2050.

The precursor to the State Government's *Perth and Peel @3.5Million* strategic suite of documents, *Directions 2031*, sought to provide a strategic overview for the growth of Perth into the foreseeable future. When it was developed in August 2010 it relied on population projections that were provided through the Australian Bureau of Statistics (ABS) in 2006. The foundation of that population growth was then utilised as a basis to identify prospective future urban areas to meet those population targets. However, in October 2012 during his address to the Economic Development of Australia Today forum, the Hon. Minister for Planning released population projections for Western Australia which reinforced the State Government's strategy to meet the planning infrastructure requirements of that growth. Mr Day noted that by 2026 the State's population is projected to grow to 3,610,000, with the Perth and Peel region projected to be between 2,275,000 and 2,356,000. As noted by Mr Day:

> *"This is about 400,000 higher statewide than a previous projection made in 2006 and is based on a new approach that identifies a most likely projection, supported by two alternative scenarios either side of that trend. .... The inclusion of the additional scenarios means that these projections can be more accurately applied to strategic planning and the provision of infrastructure across WA."*

With these additional challenges, it is appropriate for Government to review its planning framework in order to respond to Western Australia's:

- Growing population which has exceeded the original targets provided for in Directions 2031;
- Provide an increased demand for housing and infrastructure to accommodate Perth's population; and
- Elevate the importance of providing sustainable residential development in proximity to public transport and essential services to support existing activity centres.

The *Perth and Peel@3.5Million* strategic suite of documents outline future land uses through urban consolidation, integrated infrastructure and development, co-location of services and the strategic location of employment opportunities. In particular, the documents seek to provide opportunities for higher-density residential development, particularly around activity centres, station precincts and along high-frequency public transport routes.

The role of the subject site in providing a new supply of residential dwellings has therefore become significantly more important as is reaffirmed in the Regional and Local Planning Framework.

3.1 Regional Planning Framework

3.1.1 Metropolitan Region Scheme

The subject site is zoned 'Urban' under the Metropolitan Region Scheme (MRS). Refer to the MRS Plan at **Figure 4**.

Figure 4 – MRS Plan

3.1.2 Perth and Peel@3.5Million

The draft *Perth and Peel @3.5Million* strategic suite of documents has been developed to realise the visions encapsulated in *Directions 2031 and Beyond* and the *State Planning Strategy 2050*. The draft *Perth and Peel @3.5Million* suite of documents respond to the challenges outlined within *Directions 2031* and the *State Planning Strategy 2050*, such as how local and state government can achieve infill development to deliver a more compact and connected city. It also seeks to promote the connectivity and development of activity centres.

In increasing residential densities in and around activity centres and public transport corridors, the draft Central Sub-regional planning framework aims to minimise the impact on existing suburbs and retain the existing built-up residential character and amenity by:

> *"identifying where urban consolidation needs to occur in activity centres, public transport corridors and station precincts, and where targeted increases in the density and diversity of mixed-use development, housing and employment have the most potential to occur;"*

With particular regard to the existing public transport corridor, the proposal will directly assist in achieving the additional infill target for Joondalup. It will also align with the infill growth targets set out in *Perth and Peel @3.5Million* for development within the North-west sub-regional planning framework.

3.1.3 Directions 2031

Directions 2031 is a high level spatial framework and strategic plan that establishes a vision for future growth of the metropolitan Perth and Peel region. It provides a framework to guide the detailed planning and delivery of housing, infrastructure and services necessary to accommodate a range of

growth scenarios. Its role however will soon be replaced by the State Government's *Perth and Peel @3.5Million* strategic suite of documents. However, it remains a relevant planning instrument in the consideration of this application. Its key objectives for ensuring the sustainable urban development throughout metropolitan Perth are:

- Living in, or visiting our city should be a safe, comfortable and enjoyable experience.
- Our success as a global city will depend on building on our current prosperity.
- All people should be able to easily meet their education, employment, recreation, service and consumer needs within a reasonable distance of their home.
- We should grow within the constraints placed on us by the environment we live in.
- We have a responsibility to manage urban growth and make the most efficient use of available land and infrastructure.

The document recognises the importance of higher density housing in activity centres and supports the planning for higher density residential developments around transit facilities.

In particular, the document states as follows:

> *"Activity centres attract large volumes of people and it is important that they be integrated with the public transport system, particularly the larger centres. Planning for existing and potential activity centres into the future will have an increased focus on transport integration and transit oriented development, agglomeration of economic activities and mixed use development including higher density housing."*

The subject site is well placed to establish a walkable and connected residential development which will meet the intentions of Directions 2031 by:

- Being strategically located within a close proximity to the Whitfords train station;
- Its location in proximity to the regional road network (Mitchell Freeway) and public transport opportunities (Whitfords Train Station and bus routes along Whitfords Avenue) ensures accessible and sustainable transport options are available; and
- The establishment of a higher density residential development at the interface with a number of areas of public open space.

The above attributes assist in achieving the stated sustainable urban development objectives of *Directions 2031*.

3.1.4 Central Metropolitan and Outer Metropolitan Sub Regional Strategies

In August 2010, the WAPC released the draft documents which formed an integral part of *Directions 2031*. The documents provide information with respect to projected population and urban growth. The subject site is located within the 'Central Sub-region' is identified as a "major growth area" which is expected to yield 1000 dwellings or more by 2031.

The Strategy states as follows in relation to growth areas:

> *"The most suitable sites are likely to be those located in places with existing high levels of amenity, suitable zonings and densities, receptive communities and those areas which have the potential for financial return to attract private developers. Ideal sites will also have*

adequate levels of infrastructure service provision to support growth or have been identified by the relevant agencies and utilities as future growth areas for upgrades or new infrastructure projects."

The subject site, being at the interface with an existing shopping centre and in proximity to the public transport network provides an opportunity for high density residential development towards meeting the potential dwelling yields as noted above.

3.1.5 State Planning Policy No. 3: Urban Growth & Settlement

The policy sets out the principles and considerations which apply to planning for urban growth and settlement in Western Australia. A key objective of the policy is to:

"... promote the development of sustainable and liveable neighbourhood form which reduces energy, water and travel demand whilst ensuring safe and convenient access to employment services by all modes, provides choice and affordable housing and creates an identifiable sense of place for each community".

In creating sustainable communities, clause 5.1 of the policy further recommends:

- supporting higher residential densities in the most accessible locations, such as, in and around town and neighbourhood centres, high frequency public transport nodes and interchanges, major tertiary institutions and hospitals, and adjacent to high amenity areas such as foreshores and parks;
- clustering retail, employment, recreational and other activities which attract large numbers of people in existing and proposed activity centres at major public transport nodes to reduce the need to travel, encourage non-car modes and create attractive, high amenity mixed use urban centres.

The proposed development is generally consistent with the objectives and intent of the policy.

3.2 Planning and Development (Local Planning Schemes) Regulations 2015

The *Planning and Development (Local Planning Schemes) Regulations 2015* (herein referred to as the 'Planning and Development Regulations') were gazetted on 25 August 2015, and came into effect on 19 October 2015. The *Planning and Development Regulations* 2018 have introduced a set of deemed provisions that now form part of the City of Joondalup Local Planning Scheme No. 3 (LPS3). In particular, Clause 67 deals with matters to be considered by local government and include the following key provisions relevant to this application:

"(a) the aims and provisions of this Scheme and any other local planning scheme operating within the Scheme area;

(b) the requirements of orderly and proper planning including any proposed local planning scheme or amendment to this Scheme that has been advertised under the Planning and Development (Local Planning Schemes) Regulations 2015 or any other proposed planning instrument that the local government is seriously considering adopting or approving;

(c) any approved State planning policy;

(g) any local planning policy for the Scheme area;

(m) the compatibility of the development with its setting including the relationship of the development to development on adjoining land or on other land in the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation and appearance of the development;

(n) the amenity of the locality including the following —

(i) environmental impacts of the development;

(ii) the character of the locality;

(iii) social impacts of the development;

(p) whether adequate provision has been made for the landscaping of the land to which the application relates and whether any trees or other vegetation on the land should be preserved;

(s) the adequacy of —

(i) the proposed means of access to and egress from the site; and

(ii) arrangements for the loading, unloading, manoeuvring and parking of vehicles;

(t) the amount of traffic likely to be generated by the development, particularly in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety;

(u) the availability and adequacy for the development of the following —

(i) public transport services;

(ii) public utility services;

(iii) storage, management and collection of waste;

(iv) access for pedestrians and cyclists (including end of trip storage, toilet and shower facilities);

(v) access by older people and people with disability;

(w) the history of the site where the development is to be located;

(x) the impact of the development on the community as a whole notwithstanding the impact of the development on particular individuals;

(y) any submissions received on the application;

(za) the comments or submissions received from any authority consulted under clause 66;

(zb) any other planning consideration the local government considers appropriate."

As demonstrated in the planning assessment, the proposal accords with the Government initiatives to increase residential densities in areas which are well serviced by public transport and services. The proposal will be well suited to its location in terms of height, bulk, scale, orientation and appearance.

Traffic generation and access have been taken into consideration as part of this application whereby it is considered that the proposed development will be capable of operating within the existing road network which runs to the north the subject site.

Having regard to the availability and adequacy of development, the site is well serviced by public transport with the Whitfords Train Station located in close proximity. The site has ready access to all utilities necessary for residential living. Storage, management and collection of waste have been developed with consideration to the City's waste management. The site will also cater for cyclists with a number of bicycle racks being provided.

The proposed development at the subject site for a three storey multiple dwelling development is considered to be of great community benefit as it will increase the resident population within the locality, thereby assisting with the viability of commercial land uses in the vicinity.

3.3 Local Planning Framework

3.3.1 City of Joondalup Local Planning Scheme No. 3

The subject site is zoned 'Residential' under the City's Local Planning Scheme No. 3 (LPS3). A Zoning Plan is included as **Figure 5**.

Figure 5 – LPS3 Plan

LPS3 outlines the objectives for the 'Residential' zone are as follows:

- *To provide for a range of housing and a choice of residential densities to meet the needs of the community.*
- *To facilitate and encourage high quality design, built form and streetscapes throughout residential areas.*
- *To provide for a range of non-residential uses, which are compatible with and complementary to residential development.*

It is contended the proposed two storey multiple dwelling development is consistent with the objectives of the 'Residential' zone under LPS3 for the following reasons:

- It will maintain the existing residential character of the locality, as the built form is in keeping with the provisions of the R-Codes;

- It will provide for a variety of housing types and sizes, to meet the current and future needs of the community; and
- It is complimentary to the existing residential development on the surrounding properties.

3.3.2 Dual Density Coding

The subject site is zoned 'Residential' under LPS3, with a dual density coding of 'R20/R60'.

Clause 26 'Modification of R-Codes' of LPS3 is applicable to the development, whereby Clause 26(5) states:

> *(5) Clause 5.1.1 of the R-Codes is modified by inserting the additional 'deemed-to-comply' criteria:*
>
> *C1.5 In areas where dual coding applies, site areas under the higher coding may be applied subject to the following:*
>
> *(i) Development which complies with a minimum site width of 10 metres at the setback line, with the exception of multiple dwelling sites; or*
>
> *(ii) Development of multiple dwelling sites which complies with a minimum site width of 20 metres at the street boundary.*

As the subject site is proposed to be developed with multiple dwellings, the parent lot is to have a minimum frontage of 20m in order to be assessed at the higher R60 density code. As the parent lot has a frontage of approximately 35m, the proposed development is able to be assessed in accordance with the provisions of the R60 density code.

4.0 CONTEXT & RATIONALE

In light of the above planning framework the following section addresses the planning context of the subject site and the proposal, including a rationale for this application.

4.1 Significance of the Proposal

The proposal will provide an important supply of residential apartments within a close proximity to the Whitford Train Station in line with the anticipated growth targets under Perth and Peel@3.5Million. The subject site is unique in that it is a large parcel of land, resulting in an opportunity for the development of a multi-storey residential development in this strategic location.

The proposal will provide flow on economic benefits for the wider community and lead future development within the locality. The proposed design has been developed in line with the City's intended built form outcomes for the residential zone and therefore represents a positive catalyst for future development.

4.2 Existing Land Use

An Aerial Photograph of the area is included at **Figure 6**. This is summarised as follows:

- Land uses along Twickenham Drive consists of single residential dwellings.
- Land uses along Whitfords Avenue consists of residential, public open space and retail land uses with exposure to high traffic volumes. Buildings are mostly set back from the street and are surrounded by car parking areas.
- In the outer areas of the locality, land use comprises health services, residential, commercial and recreational purposes. Development is generally established in isolated locations and at a low building scale and land use intensity.
- Most dwellings within the locality are detached single storey houses mainly under at the R20 density code.
- Recreational and cultural uses exist in the locality, including Kingsley Park and Craigie Open Space

The proposed development is appropriately located to benefit from the City's vision for infill development within the area. The development will contribute to improving the City's unit per hectare targets through the incorporation of seven (7) multiple dwellings.

Figure 6 – Aerial Photo of Locality

4.3 Surrounding Land Uses

The mixture of land uses surrounding the subject site demonstrates the transitional nature of the locality. The existing built form is currently low scale existing dwellings. It is intended that this proposal will generate further development in the locality in accordance with the R60 density code provided for under LPS3.

The subject site has a direct frontage to Twickenham Drive to the north which connects via Kingsley Drive with Whitfords Avenue to the north.

The subject site abuts the boundaries of a group of single storey single houses fronting Conidae Drive to the north and south, and single storey single houses fronting Blythewood Way to the west.

5.0 PROPOSAL

The key elements of the proposed development are detailed below.

5.1 Assessment

The proposed development has been assessed against the relevant development requirements applicable under the provisions of the R-Codes and LPS3.

5.2 Building Size

In accordance with Clause 6.1.1 'Building Size' C1 of the R-Codes, development at the R60 density code provides for a plot ratio of 0.7 (as per Table 4 of the R Codes). As the proposal comprises a plot ratio of 0.78, an assessment is requested under the Design Principles of Clause 6.1.1 'Building Size'.

The Design Principles of Clause 6.1.1 'Building Size' P1 states:

> *Development of the building is at a bulk and scale indicated in the local planning framework and is consistent with the existing or future desired built form of the locality.*

The design of the proposed building is consistent with the anticipated built form expect within the locality, as the development comprises a three storey development. In light of the above, the proposed development is considered to be in keeping with the existing and desired built form of the locality.

In accordance with Planning Bulletin 113/2015 'Multiple dwellings in R40 coded areas and variation to R-Codes multiple dwelling development standards' the WAPC supports a maximum plot ratio bonus (above the deemed-to-comply plot ratio in R-Codes Table 4) of 25 per cent for development with a density coding of R30 to R80.

The development proposes a plot ratio which is within the 25% bonus allowance. This proposal has been designed with its main objective being to set an attractive residential character for the locality. The incorporation of balconies to the majority of visible facades, and variety of materials and colours, combine to have a positive impact on the amenity of the immediate street scape.

In accordance with Planning Bulletin 113/2015, the criteria for the 25% plot ratio variation is to have consideration to *the building design and quality, dwelling size and type (particularly provision of adaptable and/or universally accessible aged or dependent persons' and single bedroom dwellings), sustainability and energy efficiency, housing affordability, heritage and vegetation retention, removing vehicle access fronting a major road, removing a non-conforming use, communal facilities, public open space and public art.*

With respect to Planning Bulletin 113/2015, the proposed development address the criteria for the plot ratio bonus for the following reasons:

- The design has introduced articulation to the development, through varying setbacks, to lessen the extent of the three storey vertical walls;

- The design comprises the inclusion of a number of windows to provide for a greater amenity for the future residents;
- The design comprises a range of building materials including different types of render brick work and glass; and
- The inclusion of areas of landscaping to accommodate for soft landscaping.

In light of the above, the proposed development is considered to be in keeping with the criteria for the 25% plot ratio bonus outlined under Planning Bulletin 113/2015.

5.3 Building Height

In accordance with Clause 6.1.2 'Building Height' C2 of the R-Codes, the proposal is permitted with a maximum building height of three storeys, with the top of wall permitted to be 9m above the natural ground level. As the proposal comprises a building height of three storeys, with the top of wall being 9.2m above the natural ground level; an assessment is requested under the Design Principles of Clause 6.1.2 'Building Height'.

The Design Principles of Clause 6.1.2 'Building Height' P2 states:

> *Building height that creates no adverse impact on the amenity of adjoining properties or the streetscape, including the road reserve and public open space reserves; and where appropriate maintains:*
>
> - *Adequate access to direct sun into buildings and appurtenant open spaces;*
> - *Adequate daylight to major openings into habitable rooms;*
> - *Access to views of significance;*
> - *Buildings present a human scale for pedestrians;*
> - *Building facades designed to reduce the perception of height through design measures; and*
> - *Podium style development is provided where appropriate.*

The proposed orientation of the development ensures that there is adequate direct sun into the building on the subject site and the adjoining southern property. In addition to this, the proposal has been designed to ensure that there is adequate daylight into the habitable rooms of the development. As the proposed multiple dwellings are located to the northern side of the lot, it results in a greater setback to the southern lot boundary, which allows for daylight into the major openings on the adjoining southern property.

The proposed building height represents an appropriate scale consistent with the intended character for the locality. At the pedestrian scale the sense of height and proportion will be tempered by the provision of articulations at pedestrian level to break the appearance of bulk scale of the development and to provide visual separation between the ground floor and upper floors.

The strategic positioning of the site to the Mitchell Freeway and Whitfords Avenue supports the provision of a significant scale building whilst ensuring that the sense of scale of the building does not diminish the pedestrian experience.

The proposed height does not give rise to any undue or adverse amenity outcomes but provides a catalyst development of a high quality that responds to the large size of the site, compared with other sites along Conidae Drive, in a location where such a scale is appropriate.

5.4 Street Walls and Fences

In accordance with Clause 6.2.2 'Street Walls and Fences' C2 of the R-Codes, front fencing is permitted with a maximum solid portion of 1.2m above the natural ground level and the fence being visually permeable above up to 1.8m. As the proposal comprises a front fence with a maximum solid component of 1m above the natural ground level and the fence being visually permeable above up to 2m, an assessment is requested under the Design Principles of Clause 6.2.2 'Street Walls and Fences'.

The Design Principles of Clause 6.2.2 'Street Walls and Fences' P2 states:

> *Front fences to enable surveillance and enhance streetscape.*

As indicated on the plans, the proposed front fence is solid up to 1m above the natural ground level, with the fence being visually permeable above up to 2m above the natural ground level.

Due to the slope of the site within the street setback area, this results in a front fence with an overall height greater than 1.8m above the natural ground level. There is adequate surveillance of the street from within the property, as proposed finished ground level is a maximum of 0.5m above the natural ground level, the proposed front fence presents as a 0.5m high fence within the courtyard. With respect to the impact on the Twickenham Drive, the front fence is located along the front lot boundary however there are no residential dwellings located opposite the subject site. Mitchell Freeway is located to the northern side of Twickenham Drive which fronts onto Whitfords Avenue; therefore the fence does not result in any amenity impacts from a residential property opposite the subject site.

The proposed height of the front fence will assist in minimising the impacts of Whitfords Avenue on the dwellings, which is located approximately 42m from the front lot boundary of the subject site.

In light of the above, the proposed front fence is considered to comply with the Design Principles of Clause 6.2.2 'Street Walls and Fences' P2 of the R-Codes.

5.5 Landscaping

In accordance with Clause 6.3.2 'Landscaping' C2 of the R-Codes, a minimum of 50% of the street setback area is to be soft landscaping. As the proposal comprises a total of 41% of the street setback area as soft landscaping, an assessment is requested under the Design Principles of Clause 6.3.2 'Landscaping'.

The Design Principles of Clause 6.3.2 'Landscaping' P2 states:

> *The space around the building is designed to allow for planting. Landscaping of the site is to be undertaken with appropriate planting, paving and other landscaping that:*
>
> - *meets the projected needs of the residents;*
> - *enhances security and safety for residents; and*

- *contributes to the streetscape*

The proposed extent of soft landscaping provided on-site is considered to be adequate for the need of the future residents. The variation results from the area required for vehicle access to the site, the provision of visitor car bays and the provision of usable and functional outdoor living areas for the development.

The proposed variation the extent of soft landscaping is considered to enhance security and safety for the residents, as it ensures that there are adequate sightlines between the development and the street. The outcome of the reduced landscaping provides for passive surveillance of the street setback area and Twickenham Drive. The increased passive surveillance aids in reducing any perceived safety concerns and prevent areas of entrapment occurring.

In addition to the above, there is a greater amount of landscaping provided over the total site area than required under the R-Codes. This is considered to be of benefit as it provides for vegetation which is visible from the adjoining properties, ensuring the residential amenity is maintained. Due to the open nature of the site, the vegetation located behind the street setback area will be visible from Twickenham Drive, therefore ensuring that the development contributes to the streetscape.

In light of the above, the proposed soft landscaping within the street setback area is considered to comply with the Design Principles of Clause 6.3.2 'Landscaping' P2 of the R-Codes.

6.0 DESIGN WA ASSESSMENT

The key elements of the proposed development are detailed below.

6.1 Assessment

The proposed development has been assessed against the relevant development requirements applicable under the provisions of the draft Design WA provisions.

6.2 Primary Controls

In accordance with Table 2.1 'Primary Controls Table' of DesignWA, the proposed development comprises a three-storey development, with a compliant primary street and secondary street setbacks and plot ratio proposed.

Considering this, the proposed development is in keeping with the objectives of Clauses 2.2 'Building Height', Clause 2.3 'Street Setbacks', Clause 2.5 'Plot Ratio', Clause 2.6 'Building Depth' and Clause 2.7 'Building Seperation'.

6.3 Side and Rear Setbacks

In accordance with Clause 2.4 'Side and Rear Setbacks' of DesignWA, the proposal comprises side and rear setbacks which are less than 3m for the ground floor. As the proposal does not comprise boundary walls for the length permitted, it is considered that the development provides for adequate separation between the subject site and adjoining properties. The setback of the development is in keeping existing streetscape pattern which comprises the single-storey component being setback between 1m and 1.5m from the side and/or rear boundary which is in keeping with the desired streetscape character. The proposed setback of development from side and rear boundaries provides a transition between sites with different land uses or intensity of development.

In light of the above, the proposed development complies with the Objectives of Clause 2.4 'Side and Rear Setbacks' of DesignWA.

6.4 Siting the Development

The proposed development has been designed with consideration being given to the surrounding development within the locality. Consideration has been given to the street setbacks which the adjoining properties have, whereby the proposed development is setback greater than could be considered under Table 2.1 'Primary Controls Table' of DesignWA.

The orientation of the development has taken into consideration the streetscape and topography of the surrounding developments. It is also noted that the living areas of each dwelling is oriented north with the bedrooms being located to the south, which is in keeping with solar passive design principles.

Substantial tree canopy has been designed into the development to ensure that the maximum coverage provide. The location and size of the vegetation and their associated deep soil zones is

adequate to provide for long-term health plant growth. Additionally, a variety of vegetation types have been proposed to ensure diversity in the canopy cover provided.

The proposed development is fully compliant with the visual privacy requirements outlined within DesignWA. The proposal provides adequate frontage to both streets, with pedestrian access being safe in use and dedicated to ensuring pedestrian safety is maintained. Vehicle access is provided via a comment accessway to ensure that residents and visitors are utilising the one crossover to maintain pedestrian safety and allow for an increased area of vegetation around the development.

6.5 Solar and Daylight Access

In accordance with Clause 4.1 'Solar and Daylight Access' of the draft Design WA guidelines, getting the right levels of solar and daylight access in apartments contributes to better living conditions, in terms of health and well-being, as well as the performance of the building. Increasing density and building scale requires corresponding design attention to optimise solar factors for the development and the surroundings.

In terms of residential development, the three main aims of climate-sensitive design are to reduce energy consumption, optimise on-site solar access, and protect solar access for neighbouring properties. Solar and daylight access are important for apartment buildings, reducing the reliance on artificial lighting and heating, improving energy efficiency and residential amenity through pleasant conditions to live and work.

Due to the development being located to the northern aspect of the site, the proposal is in keeping with the intent of Design WA with respect to access to solar and daylight.

6.6 Natural Ventilation

In accordance with Clause 4.2 'Natural Ventilation' of the draft Design WA guidelines, good indoor air-quality is essential for healthy and comfortable living environments. Achieving the best possible natural ventilation standards is a more robust and sustainable approach than over-reliance on mechanical ventilation and air-conditioning. Natural cross ventilation is achieved by apartments having more than one aspect with direct exposure to the prevailing winds, or windows located in significantly different pressure regions, rather than relying on purely wind driven air. Apartment layout and building depth have a close relationship with the ability of an apartment to be naturally ventilated.

The proposal has been designed to ensure that there is adequate cross ventilation throughout each apartment, therefore the proposal is in keeping with the intent of Design WA with respect to access natural ventilation.

6.7 Designing the Building

The proposed layout and design of the dwellings provides for functional areas in accordance with Clause 4.3 'Size and Layout of Dwellings' of DesignWA. The functionality of the dwellings combined with their north-south orientation provides for good building design. Additionally, the proposed balconies for each dwelling are fully compliant with the size and dimensions recommended under DesignWA, providing for a functional outdoor living area.

The proposed development comprises storage areas for each dwelling which is fully compliant with the Objectives of Clause 4.6 'Storage' outlined under DesignWA.

The location of the development is considered to minimise the impact of external noise, whilst ensuring that there is minimal noise transferred between dwelling or to the adjoining properties. The proposed dwelling mix provides for a range of user types and a diversity in households.

6.8 Apartment Size and Layout

In accordance with Clause 4.4 'Apartment Size and Layout' of the draft Design WA guidelines, the proposed apartment design ensures usable and functional space. The proposed floor plans demonstrate that the bedrooms are of a sufficient size to be a usable space.

The proposed apartment layouts provide for flexibility of use as the living areas are open plan which may be used for a range of activities. The living areas are generally rectangular in shape, which provides a space which is more easily furnished.

With respect to the above, the proposed apartments provide spaces that support varying lifestyles, with rooms to spend time with family and friends, rooms to seek time alone, and a range of functional spaces for cooking, cleaning, washing and storage. The proposed range in dwelling types contributes towards the provision of dwelling diversity and affordability within the locality.

7.0 CONCLUSION

On behalf of Danmar Developments, we seek Council's support for the proposed three storey multiple dwelling development at Lot 472 (Nos. 41) Twickenham Drive, Kingsley.

It can be seen that:

- The proposal is in compliance with the State and local planning framework;
- The form of the development will be consistent with achieving the objectives for the locality under the City of Joondalup Local Planning Scheme No. 3;
- The proposal is consistent with the R-Codes;
- The proposal is consistent with the Draft Design WA planning framework;
- The proposal assists the City in meeting its dwelling targets to activate and promote the locality comprising an appropriate mix of commercial and residential development;
- The proposal facilitates an arrangement of car parking and access that is appropriate to the form of development; and
- The proposal will provide an early form of development along Twickenham Drive that will represent a positive design outcome to act as a catalyst for further developments to occur in line with meeting the overall objectives of the City's Local Planning Scheme No. 3.

We therefore seek Council's favourable consideration and support of this proposal to enable approval for the establishment of this landmark development.

SUBMISSIONS AGAINST THE PROPOSAL			
Design element	**Issue raised**	**Applicant response**	**City comment**
2.2 **Building height**	• Height of development not in keeping with character of area. • Three storey development is excessive and should be a maximum two storeys. • Two storey maximum should be permitted in existing residential areas. • 9.2m is higher than the 9m permitted. • Increased height will block view of nearby trees.	Development height dictated by *State Planning Policy 7.3 Residential Design Codes Volume 2 – Apartments* (SPP7.3) which shows we can build up to three storeys. This is in keeping with all future development allowed in this area. All lots with an R60 zoning have the potential for three storey multiple dwelling structures to be erected as per SPP7.3. As per SPP7.3 you are permitted to go to 12m building height. As it stands our maximum height is 10.729 from the front boundary natural ground level keeping within the 12m maximum allowable height. The development responds to the future scale and character of the street and permitted R60 zoning. Significant trees are located across the road in bushland and on the left side of the development. The building height will not affect any views of the surrounding landscape. The proposed development encompasses the tree canopy from balconies, courtyards and habitable rooms giving future residents a happy and healthy living space outlook.	The building height and massing does not appropriately acknowledge the transition in character associated with the predominantly R20 density codes within the street. Refer to planning assessment in report.
2.4 **Side and rear setbacks**	• The proposal is not set back sufficiently from surrounding properties. • The façade to the east has limited changes, creating a vertical wall and creating	The development articulates very well giving interest to all facades. Setbacks to meet SPP7.3 are exercised and have been allowed for to all boundaries.	The proposal does not provide adequate building separation and transitioning to the adjoining property to the east.

	a loss of amenity to the adjacent property.	The vertical wall breaks the façade creating the interest and articulation. Not only does it allow feature, but it also separates the long roof lines which would dominate and reduce the façade aesthetics.	The development offers little articulation to the eastern boundary resulting in additional building mass. Refer to planning assessment in report.
2.5 **Plot ratio**	• The proposed development size is excessive for the lot area. • The bulk and scale of the development is inconsistent with the existing and planned character of the area.	The plot ratio allowed for R60 blocks is 0.8 as per SPP7.3, which represents 584m^2 on this particular block (Total block area: 730m^2) The proposed plot ratio is 583.5m^2 which is slightly under the plot ratio allowed, therefore it's according to the current regulations and respond to the future bulk scale of the area.	It is noted that the plot ratio is less than that suggested by the acceptable outcomes, however the building design (and third storey element) does not relate to the lot size and established streetscape. Refer to planning assessment in report.
3.2 **Orientation**	• Overshadow to neighbouring properties' solar panels. • No consideration is given to the shadow cause to the east.	According to SPP7.3 the overshadowing is calculated in winter solstice (21st June) which is the day when the angle of the sun is at its lowest, casting longer shadows, and to comply with this clause the shadows casted at 12noon cannot exceed the 25% of the area of the neighbour block. This has been studied in detail on the proposed development in order to avoid a negative impact on the neighbouring buildings: • Shadows casted on block #43: the shadows casted at 21st June at noon is only 3.92% of the area of the block and therefore compliant. Even when the overshadowing diagram shows a small shadow portion over the solar panels of the house at 9am, reality is that due to the sun angle and considering that the solar panels are located at about 4m off the ground, this shadows	The shadow cast from the subject site falls predominantly on the lot. While the adjoining property to the west has solar panels, the development is designed in such a way to reduce the impact on solar access to the west.

		will slightly cast only on the side elevation of the house and not on its roof; causing no impact whatsoever on the PV solar system performance. • Shadows casted on block #3A-3B: the shadows casted at 21st June at noon is only 2.07% of the area of the block and therefore compliant. The biggest overshadowing incidence over this block is at 3pm and it's only 7.41%. • Shadows casted on block #1: there's no shadows casted on this block at 21st June between 9am to 1pm, and therefore compliant. The biggest shadow incidence is at 3pm and it's under 24%.	
3.3 **Tree canopy and deep soil areas**	• Insufficient landscaping on site (41% in lieu of 50%). • Not enough trees are proposed. • Landscaped plan is not suitable and tree species are unacceptable. • Trees planted in verge die and are not being replaced.	The deep soil area (DSA) requirements as per SPP7.3 are 10% of the area of the block considering there are no existing trees to be retained in the proposed development. This minimum requirement represents 73m^2 (730m^2 block). The proposed development counts with 146.32m^2 DSA which will benefit the amenities and create a better design outcome. It's also a requirement to propose at least two medium trees or 1 large tree and small trees on this development; as a response the proposal counts with 3 medium trees +5 small trees on the verge and throughout the development. We want to highlight that the current verge is totally paved, and this development proposes to remove all the paving and create a harmonious landscaped verge which will contribute with the streetscape of the area. Additionally, there's more than 190m^2 of landscaping area in the proposal, all this plan has been carried out by a professional landscaping company, specifying the use of native plants and trees to be	The percentage requirement is not relevant to assessment under SPP7.3. The landscape plan has been provided by a qualified landscape architect and assessed by the City. Two medium trees and a number of small tress are proposed in addition to those required within the verge. These trees are as per the City's recommended species list and the responsibility of the owners to maintain. Refer to planning assessment in report.

		consonant with the surrounding context and also species that can be easy to maintain, enhance the beauty of the development throughout the different seasons of the year and contribute to the improvement of the immediate context. The proposal includes an automated reticulation system to maintain all the landscaping areas of this development and the general maintenance of all common areas are intended to be maintained through the strata management.	
3.5 **Visual privacy**	• Development will adversely impact visual privacy of neighbouring properties. • The proposal will overlook our swimming pool area. • The proposal will overlook our outdoor living area.	The building has been designed to fully comply with the privacy regulations stated of SPP7.3, therefore the setbacks, location of habitable areas, façade design/size and location of windows, materials and other parameters has been put in place to avoid any negative impact on neighbouring properties. Additional elements such as window screening, obscure glazing and other design features will also contribute to create a respectful and harmonious place for residents and neighbours. No regulatory overlooking issues are present in the proposal.	The development is considered to meet the element objectives of SPP7.3. Refer to planning assessment in report.
3.6 **Public domain interface**	• The front fencing is greater than 1.2m high.	The fence has been designed according to City of Joondalup's Fence Guidelines and SPP7.3, which states that a front fence can be solid up to 1.2m from the ground level and be permeable above this level. On Elevation 1 is clearly indicated that the highest solid portion of the front fence is only 1m high and it counts with permeable infill over to comply with these regulations.	The proposed fencing is considered an adequate separation between the public and private realm without imposing bulk on the street.
3.7	• The pedestrian access point is not well defined. Most visitors would	The front pedestrian access has been indicated with different design elements to create a clear statement from the street, it counts with a portico with	The pedestrian access has incorporated changes in colours and a feature element including the

Pedestrian access and entries	access through the driveway, increasing the likelihood of conflict between pedestrians and cars. • The pedestrian access to the rear does not have any surveillance.	contrasting colour with the street number on it, it's elevated from the verge level creating steps to accentuate the entry; also the presence of the letterboxes in a feature brick wall on both sides and the landscaping design, it all integrates into a positive response to clearly identify the front pedestrian entry. The rear pedestrian access has surveillance from U1 kitchen; and it has been designed to have intercom system to the front and rear entry, so residents will need to grant access to visitors through this system for security reasons.	street number along with the staircase and landscaping. Surveillance is provided over the vehicle access and from upper levels.
3.8 **Vehicle access**	• Increase in traffic to surrounding area. • Road network does not have capacity to support/cater for the increased traffic and will result in an increase in vehicle/pedestrian conflict. • Location and 'bends' in road not suitable or able to cater for increased traffic movement. • Insufficient manoeuvring will mean vehicles will have to reverse out onto Twickenham which is unsafe.	Twickenham Drive is a two way road located in a low density suburban area. As the subject site is on a corner, opposite bush the current traffic is very low compared to the road capacity; also most of the residents access to this area through Kingsley Drive and not from in suburb, and according to Main roads statistics almost 100% of the traffic is cars (no trucks or heavy traffic on this area). The carparking has been designed to enter and exit in forward gear to reduce the risk when entering and existing the development.	There is adequate capacity within the surrounding road networks to support the development without compromising the safety of those within the immediate streets and surrounding areas. The location of the access has been assessed by the City and considered to be acceptable. Vehicles visiting the development are capable of entering and existing in forward gear.
3.9 **Car and bicycle parking**	• One bay per unit is not adequate for the proposal	As per SPP7.3 the parking requirement for residents is 1 bay per unit (2 beds) in location A (within 800m of train line); and 1 per every 4 units for visitors which	The number of bays provided is considered appropriate given the

	and will result in residents parking on the street. • Insufficient visitor parking. • No additional verge parking will result in vehicles parked on the street and will result in safety issues for residents. • Parking on the verge on the bend will be very unsafe.	in this case is 2 bays required. This results in a total requirement of nine bays, with nine bays being provided. So, the parking requirements are in accordance with the current regulations. The proposed development includes the visitor's parking to the rear carpark for easy access, avoid conflict with pedestrians walking on the foot path and to reduce the visual impact on the front elevation.	proximity of the development site to public transport routes. No verge parking is proposed or considered necessary as the proposal meets the suggested number of visitor parking within the site. Refer to planning assessment in report.
4.3 **Size and layout of dwellings**	• Apartment design offers poor liveability.	Since the implementation of the current SPP7.3 and the new adjustments in the Liveable housing regulations and Department of communities regulations/guidelines for apartments the design outcome has significantly improved for new apartment developments as it cater for bigger apartments with better access, amenities and improved level of comfort. The proposed development has taken all these new regulations on board as well as comments and feedback from Design Review Panel from City of Joondalup to offer a high standard of product. The proposal also includes the 10 design principles for good design outcome.	The development provides adequate internal living areas for each dwelling and achieves the relevant element objectives.
4.4 **Private open space and balconies**	• There is insufficient landscaped area for the use of residents.	See comments on point 3.3. Additionally, the units on ground level have been designed to a high level, visually appealing and comfort by incorporating a professionally designed landscaping integrated with the front verge landscape design and in consonance with the rear	The outdoor living areas meet the relevant element objectives with each unit providing a functional and useable space.

		landscaping of the development as well. As for the upper units, those will be able to visually enjoy a harmonious landscaping without compromising the visual privacy with other residents of the building nor neighbours.	
4.7 **Managing the impact of noise**	• Development will result in an increase in noise (from people and construction) within peaceful and family friendly street.	The construction will be managed with current standards to avoid any disruptions and facilitate the normal functionality of the residents of the street, including normal trading hours and noise and traffic management. Due to the proximity of the building to main roads and Whitfords train station, the design is allowing for noise mitigation from those external sources to make the habitable spaces comfortable and with low level of noise; to achieve this some upgrades will be made to the building to achieve the required decibel levels (i.e. glazing upgrades, type of windows, cavity insulation, etc). This will be professionally designed with an acoustic consultant.	On site noise is managed in accordance with the *Environmental Protection (Noise) Regulations 1997.*
4.9 **Universal design**	• The building is not universally accessible, including the ground floor units with the primary access via stairs of Twickenham Drive.	The building has been designed under the current Liveable Housing Design Guidelines that establishes that 20% of the units have to be accessible designed; on this particular case this represents 1.4 units = 2 units. The proposal has incorporated the required Silver Level of design to the 2 ground floor units to comply with this requirement; and for upper units even when it's not required, most of silver level principles have been incorporated to those units as well to increase the level of comfort. The accessible path from the street is intended to be from the rear entry through the driveway; hence the	The acceptable outcomes suggest 20% of dwellings achieve Silver Level requirements of the *Liveable Housing Design Guidelines*. The ground floor units are able to achieve the requirements for universal access in accordance with the *Liveable Housing Design Guidelines.* The ground floor units equate to 29% of dwellings within the development.

		topography has been designed to accommodate a flat and wider driveway with no gate for this purpose.	
4.12 **Landscape design**	• Landscape plan is not suitable and tree species are unacceptable. • The species do not integrate with the local ecological context.	See comments on point 3.3. The landscape design has been professionally carried out for a local landscaping company and the main items considered on the design are: • Good aesthetics and balanced design according to the site, topography and building. • Low maintenance design • Use of native species, with no aggressive roots, and low water consumption • Seasonal trees to help with the solar passive design of the building • Density of the landscaping to soften/hide the visual to boundary fences, retaining walls, and to create barriers for security.	The landscape plan has been provided by a qualified landscape architect and assessed by the City. Two medium trees and a number of small trees are proposed in addition to those required within the verge. These trees are as per the City's recommended species list and the responsibility of the owners to maintain.
4.15 **Energy efficiency**	• No provision of solar power or other sustainable measures are proposed.	Even when PV solar system has not been incorporated in the design due to costs associated and not been required by the client, the roof design cater for a space to allocate these types of systems for future with no impact on the front elevation. The building will incorporate low consumption LED lights throughout.	Environmental initiatives have been provided as per the Environmentally Sustainable Design checklist including low energy technologies, water efficient technologies and use of fan forced ventilation.
4.16 **Water management and conservation**	• No water saving devices (eg. water tanks or grey water systems). • Having a reticulated landscape design doesn't demonstrate a water sensitive urban design.	The use of an automated reticulation system will optimize the use of water. All units have space provision for dishwashers which reduce the water consumption compare to manual dishwashing.	Environmental initiatives have been provided as per the Environmentally Sustainable Design checklist including water efficient technologies.

		The building will count with high rated w/cs, sinks, throughs and tapware.	
4.17 **Waste management**	• There is not enough waste storage for 7 apartments. This is going to impact the street on bin day. • Unsightly skip bins will also be on the verge.	The waste management has been studied and calculated based with be current waste management guidelines of City of Joondalup; and it has been also discussed with the City to achieve the best design outcome for current and future.	The bin store area proposed is sufficient for the development. The pick-up location, being on the verge, is not considered to meet the element objectives. Refer to planning assessment in report.
4.18 **Utilities**	• Development relies on dryers with no clothes lines which is not energy efficient • Dryers will result in clothes being hung on the balconies.	Under the current regulations is normal practice to allow for one of the drying methods and considering the modern type of living it's noted that the tendency is the use of dryers. It will be part of the strata management to control the correct use of balconies.	SPP7.3 include mechanical clothes drying facilities as one option which will limit requirement to use balconies to dry clothes.
Other	**Issue raised**		**Officer comment**
State Planning Policy 7.0	• Achievement of planning objectives not met, including context, character, landscaping, sustainability, amenity and setback. • Landscaped quality is poor and does not provide optimal levels of amenity or functionality.	• The design has been adjusted and has taken into consideration all the comments from the City and the DRP, in order to fully comply with all the current requirements. The architectural object is in correct scale with the zoning, the block and surrounding context (current and future) incorporating design elements to relate to current buildings in the vicinity, including materials, colours, window types, roof type etc; incorporating a full landscaping strategy to enhance the aesthetics, and amenities; as well as to increase the energy efficiency by achieving good design orientation, window and façade	The development does not achieve the objectives of SPP7.0, specifically context and character, as the proposal is not considerate to the existing streetscape character. Landscaping elements including deep soil zones and trees are considered to meet the objectives of SPP 7.3 as outlines in the planning assessment.

		design, as well as building upgrades such as insulation, glazing upgrades, etc, for both energy efficiency and noise mitigation purposes.	
	• Three storey aspect is not considered good design and will negatively impact the existing built form. Consideration to the current and intended future character of the area has not been addressed.	• Three storeys are encouraged under the new zoning of the area (R20/R60), which was approved by the City with previous consent of the community. We understand that being this the first 3 storey development proposal in the area since the change of use might result a little unfamiliar to the residents in the area, however it's expected to fully embrace this change in order to reshape this area in the near future to cater for the imminent growing community within City of Joondalup and to allow for new housing opportunities for people with diverse needs.	
	• Poor functionality and building quality proposed.	• Functionality of the building has been designed to be optimum by minimizing circulation space, maximizing internal habitable areas; creating well-articulated connection between areas, and allowing for a good transition between the public realm and the private spaces. The building quality has been designed with durable, locally sourced and good quality materials, the type of construction is traditional cavity brick walls and hip and valley timber roof structure, to embrace local labour and to relate to surrounding buildings. The building quality also consider a building that can be easy to maintain in order to preserve its good look though time.	
	• Amenity of surrounding landowners/residents has not been considered. • The design does not provide for external	• The design allows for good setback to neighbour properties and landscape to the boundaries to create a buffer to make it aesthetically appealing but also mitigate noise coming from both: the building or from neighbour properties, as well to provide shade, make a fresh area; also the	

	amenity of occupants, visitors and neighbours. • Development does not consider the heritage of the area with the adjoining property (1 Harold Weald Way) the first residential home in Kingsley. • Development does not encourage community living with single resident or downsizers likely to reside in the dwellings and be short term residents. • Poor integration of development into existing surroundings.	building has been designed to not to interfere with neighbour's privacy. • Even when 1 Harold Weald Way is not a heritage listed building, we acknowledge its relevance for the community and the sense of belonging; therefore the proposed development has increased the landscape area to this side boundary to create a natural barrier to minimize the impact of the bulk building with this property, and also the building has adopted most the materials and colour schemes from this house incorporating the face brick, limestone colour, metal roof cover, etc as main features in the design in a more contemporary way in order to cater for the future development of the area. • The size of the dwellings respond to the demand of the area, specifically for new families with 1 or 2 children, professionals working in the City of Joondalup area which can use the secondary bedroom as study, University students, or older families downsizing from houses to apartments.	
Character of streetscape and surrounding area	• Development not compatible with Kingsley area due to bulk and scale. • The planned development does not relate well to the surrounding streetscape and neighbourhood character, being	The character of the streetscape responds to both current context and future context. The current context by incorporating design elements, materials and colour palettes from building around to reinforce the character of the area and sense of belonging; and the future context by reinterpreting this into a more contemporary design approach, being a bit conservative for the transition between both	The development does not achieve the objectives of SPP7.0 as the proposal is not considerate of the existing streetscape character. The building height and setbacks from adjoining properties of the development do not provide an appropriate transition between

	significantly higher than all other dwellings. • Apartments do not fit in existing character of the area. • Proposal inappropriate to the current setting and will have a negative impact on the surrounding residents and their enjoyment of their property.	scenarios, building scale and articulation to respond to future developments and build forms.	development at the higher density code and existing built form.
Social impacts	• Disturbances to neighbouring properties during construction, including noise, sand movements and rubbish. • Potential to increase social issues within neighbourhood.	The builder will do the construction based on current regulations and will be responsible for noise, traffic and waste managements, any activities during this period that might affect the residents of the area will be notified to them in advance in order to agree in plan that might cause the minimum impact for everyone's benefit.	Construction would be managed through a construction management plan and other relevant legislation. The perceived community values of future occupants are not a valid planning consideration.
General	• The planning report references streets that are nowhere near the proposed development. It shows this is just a copy and paste job with no care given to residents. The report addresses old requirements not applicable to the development. • Council is not considering the opinion of residents. If	The building has been designed from scratch for this particular block only; there are too many unique characteristics on this block that will make it impossible to use a standard model to fit in, such as shape, size, orientation, topography etc. The design addresses all 10 design principles of SPP7.3being the orientation, views, ventilation, functionality, buildability and aesthetics the major items that defined the proposal. Considering the zoning of the area, both group dwellings and multiple dwellings are appropriate for this block.	Whilst noting a number of inaccuracies within the applicant's planning report, sufficient information is provided specific to the subject site for an independent assessment to be undertaken by the City. Increased density is considered appropriate in locations close to activity centres and transport nodes; however, applicants still need to take into consideration the impact of

	they did more letters would have been sent out. • Unit (grouped dwelling) development would be more appropriate for the site. • There is no amenity's in the area other than the train station. Local parks (Chelsea Park) do not have a basketball ring or similar. • Impact the amenity of the locality with changes in access to sunlight and wind changes. • A solid brick fence (not colourbond) should be constructed to all surrounding houses at the developers cost. • Multiple dwellings are not in demand at present, with numerous other developments not being	The block is located near the train station and bus lines, as well as public parks like Chelsea Park and Forest Hill Park, also the proximity to Woodvale Boulevard Shopping Centre as main commercial facilities, and Woodvale Primary School as closest education facility at only 800m distance. All these characteristics makes this area a good one to develop in the near future as all the main infrastructure is already in place and have enough capacity to cater for this type of projects. Being the predominant wind direction south-west, it won't affect any neighbouring properties as north east side (across the road) is only bushland. The bulk building will benefit residents of Harrow Weald Way to act as a noise barrier which will minimise the train and freeway noise. It's noted that majority of the properties around the area have colorbond, fibro fence or timber fencing on the side and rear boundaries. For the proposed building, colorbond fencing have being selected due to the following reasons: it's consonant with the current context, it's durable, easy to maintain, provides a more contemporary look, and it's cost effective. Even when the real estate market in WA in the last years has not being the best, it's noted by numerous real estate agencies, and authorities the increase of demand and a growing curve in the market is expected in the near future, being this type of development a high demand product which will cater	a proposal on the existing and surrounding land uses. The land use is considered appropriate for the subject site, but appropriate design integration has not been provided. Rate increases, sale of properties and individual gain are not planning considerations. Fencing between properties is subject to the *Dividing Fences Act 1961* and is not a relevant planning consideration.

	sold. All are currently renters. • Developer gain over the livelihood of residents. • No mention is made of recycling construction materials. • Development will negatively impact on the local housing market and therefore decrease values of surrounding homes. • Deliveries to the development will be limited by beams supporting Unit 3. Delivers would be required from the street which would impact safety. • The proposal is seeking too many variations to the requirements.	for a large group of demographics that have been unattended in the last decade. The builder will construct under current regulations and will put in place a waste management strategy in order to reduce the impact of the construction waste by classifying and adequately dispose the waste to ensure majority of it can be recycled or reused. It's expected that this project won't cause any negative impact in the property value of the area, on the opposite will open opportunities for diverse families to enrich the values of the community and increase benefits for local businesses. The clearance under Unit 3 is 2.48m which will be enough to cater for residents' cars, vans and small courier vehicles. The design has been adjusted on its latest version to minimize the variations to the codes.	

SUBMISSIONS RECEIVED IN SUPPORT OF PROPOSAL		
Comment received	**Applicant Response**	**Officer comment**
• No objection to the proposal.	Noted.	Noted.

City of Joondalup

SPP 7.3 assessment summary

The detail highlighted in red has been identified as not achieving the suggested requirements under the acceptable outcome.

Element	Objectives	Acceptable Outcome	Proposed	Design guidance provided by SPP7.3
2.2 Building height	Not Achieved.	3 storeys (12m)	3 storeys (11.21m)	No design guidance provided
2.3 Street setbacks	Achieved.	Replaced by RDLPP: 2m minimum (min) 4m average (avg)	<u>Minimum</u> Ground: 2.39m First: 2.001m to building 1.251m to entry feature panel Second: 2.001m <u>Average</u> Ground: 3.7m First: 3.5m Second: 4.5m	No design guidance provided
		1.5m to secondary street	N/A	
		1.5m to corner truncation	N/A	
2.4 Side and rear setbacks	Not Achieved.	Side: 3m min 3.5m avg	<u>Eastern boundary</u> Ground: Min 1m, avg 2.38m 1st Floor: min 3m, avg 3.54m 2nd Floor: Min 3.0m, avg 3.54m <u>Western boundary</u> Ground (arbour): min 0.45m, avg >3.5m Ground (building): min 4.6m, avg >3.5m 1st Floor: min 2.76m, avg >3.5m 2nd Floor: min 8.138m, avg >3.5m	No design guidance provided
		Rear: 3m min	Southern boundary 11.5m to building	

Element	Objectives	Acceptable Outcome	Proposed	Design guidance provided by SPP7.3
			0.73m to covered parking bays	
2.5 Plot ratio	Not Achieved.	0.8 (584m^2) (A2.5.1)	0.8 (583.5m^2)	No design guidance provided
2.6 Building depth	Achieved	20m for single aspect apartments (A2.6.1)	Only one unit (U4) is considered single aspect. Maximum depth from the street 13m	No design guidance provided
2.7 Building separation	Achieved	Meets side and rear setbacks and visual privacy	Does not meet side and rear setbacks as above	No design guidance provided
3.2 Orientation	Achieved	Buildings on street orientated to face public realm and incorporate direct access from the street	Building is orientated to the public realm and incorporates direct street access	Satisfied
		Shadow cast at midday on 21st June onto any adjoining property does not exceed 25% (A3.2.3)	3.7% shadow to Harrow Weald Way. 2.1% to 43 Twickenham Drive.	
		Buildings orientated to maintain 4 hours per day for existing solar collectors on neighbouring site.	Sufficient access to adjoining solar access	
3.3 Tree canopy and deep soil areas	Achieved	Retention of trees	N/A- Trees on site not within criteria	Satisfied
		No detrimental impacts on canopy of adjoining trees	The proposal includes canopy of a lemon scented gum in the adjoining property (1 Harrow Weald Way). This is mostly over deep soil areas or the side setback with little of the canopy affected by the proposed building.	
		Deep soil area of 10% and provided conductive to tree growth and suitable for communal open space	Deep soil area 11.1% and provided conductive to tree growth and portion suitable for communal open space (noting that no formal communal open space is required	

Element	Objectives	Acceptable Outcome	Proposed	Design guidance provided by SPP7.3
			based on the number of dwellings)	
		Two medium trees or one large tree and small trees to suit area	Two medium trees and a number of small trees and shrubs	
		Medium trees require 36sqm deep soil area (A3.3.5)	Irregular shaped deep soil areas. Rootable areas are included underneath driveway and require additional engineering.	
		Permeable paving or decking within deep soil not exceed 20% of its area and not inhibit trees	<20% in each area	
3.4 Communal open space	Achieved	Informal seating associated with deep soil or landscaped areas	A small, informal bench seating area incorporated within the pedestrian access way has been provided at the entrance	Satisfied.
		Located on ground floor	Located on ground floor	
		50% direct sun	>50% direct sun	
		Co-located with deep soil areas	Co-located with deep soil areas	
		Separated or screened from adverse amenity impacts (A3.4.5)	No adjoining adverse amenity impacts	
		Well lit, minimises concealment and open passive surveillance	Lighting of entry will cover informal seating area	
3.5 Visual privacy	Achieved	Visual privacy setbacks (A3.5.1)	Setbacks in accordance with Table 3.5 are provided	Satisfied
		Balconies unscreened at least 25%	All balconies have minimum of 4m unscreened which is greater than 25% balcony	
		Living rooms have external outlook	All living rooms have major opening with external outlook	
		Windows and balconies restrict direct overlooking,	The development does not rely on high sill windows or permanent	

Element	Objectives	Acceptable Outcome	Proposed	Design guidance provided by SPP7.3
		without reliance on high sill windows or permanent screening. (A3.5.4)	screening to windows and balconies.	
3.6 Public domain interface	Achieved	Ground floor dwellings direct access from street	Direct access from street provided to ground floor units	Satisfied
		Car-parking not located within primary street setback area (A3.6.2)	Car parking located to rear	
		Balconies and/or windows overlook public domain	Balconies and/or windows overlook public domain	
		Balustrading provides privacy for residents and surveillance of adjoining public domain	Balustrading achieves privacy for residents and surveillance of public domain	
		Level changes to the street: 1m avg 1.2m max	Average less than 1m (1m max) 21.94 courtyard, 20.94 – NGL	
		Front fencing visually permeable above 1.2m	All fencing visually permeable above 1.2m	
		Elements on frontage eliminate opportunities for concealment	Elements on frontage eliminate opportunities for concealment	
		Bins not located within primary street setback area	Bins located outside primary street setback area	
		Services and utilities located within primary street setback area integrated into the development	Power dome screened by landscaping. Air conditioner units within screened areas. Master and sub water meter located between drive and side fence and included around landscaping.	
3.7 Pedestrian access and entries	Achieved	Pedestrian entries connected	Pedestrian entry (lobby) is visible and accessed via stairs. Increased features (including address signage) make entry prominent	Satisfied

Element	Objectives	Acceptable Outcome	Proposed	Design guidance provided by SPP7.3
		Pedestrian entries protected from weather	Upper floors protect stairs/entry	
		Pedestrian entries well-lit, visible from public domain and enable casual surveillance	Pedestrian entry is visible from public domain and enables casual surveillance. Lighting provided	
		Pedestrian access via shared zone, path is clearly delineated and/or incorporated to prioritise pedestrian and constrain vehicle speed	Path provided in carpark that is clearly delineated	
		Services and utilities located at pedestrian entry are screened from view	No services and utilities located at pedestrian entry	
		Bins not located at primary pedestrian entry	Bins located to side of development and concealed from primary entry	
3.8 Vehicle access	Achieved	Vehicle access - one opening per 20m	One vehicle access point	Satisfied
		Vehicle entries identifiable from the street, integrated with façade and/or located behind primary building line	Vehicle entry is identifiable and suitably integrated with the overall façade.	
		Vehicle entries have adequate separation from street intersection	Adequate separation provided	
		Vehicle circulation areas avoid headlights shining into habitable rooms within the development and adjoining properties	Vehicle circulation areas appropriate	
		Driveway width minimum for functionality	Driveway is functional with 3.6 metre width provided	
		Driveway designed for two-way access	Driveway has two-way access at entrance (layover bay area) to permit overtaking and reduce conflict	

Element	Objectives	Acceptable Outcome	Proposed	Design guidance provided by SPP7.3
		Replaced by City's RDLPP clause 6.2.3. Pillars/structures in truncation area to be no greater than 350mm in dimension and solid walls no greater than 750mm in truncation area	No development abutting vehicle accessway to prevent sightlines	
3.9 Car and bicycle parking	Achieved	Five secure, undercover bicycle parking spaces and accessed via a continuous path of travel from the entry	Five spaces available on ground floor. Four within bike store, one adjacent to resident pedestrian entry	Satisfied
		Seven resident car parking bays; and two visitor car-parking bays (A3.9.2)	Seven resident bays; and two visitor parking bays	
		Maximum parking provision does not exceed double the minimum (18)	Less than double the minimum	
		Car parking areas and vehicle circulation areas designed in accordance with AS2890.1	Car parking and circulation as per AS2890.1	
		Carparking areas not located within street setback and not visually prominent from the street (A3.9.5)	No parking within street setback area	
		Car parking designed, landscaped or screened to mitigate visual impacts when viewed from the dwellings and private outdoor spaces (A3.9.6)	Limited direct outlook from development to parking area	
		Visitor parking clearly visible from driveway, signed and accessible	Visitor parking to rear. Recommend condition to provide signage	
		Parking shade structures, where used, integrate with and complement the	Trimdek roofing at two degrees. Not integrated with overall building design but to rear of	

Element	Objectives	Acceptable Outcome	Proposed	Design guidance provided by SPP7.3
		overall building design and site aesthetics and have a low reflectance to avoid glare into apartments.	property and not glare into site	
4.1 Solar and daylight access	Achieved	Minimum 70% dwellings having living rooms and private open space obtaining at least 2 hours direct sunlight; and maximum 15% receiving no direct sunlight (A4.1.1)	All units (100%) have a northern aspect that has a minimum of 2 hours for private open space	Satisfied
		Habitable rooms - one window in external wall, visible from all parts of room, glazed area not less than 10% of floor area and minimum 50% clear glazing	Windows provided >10% of floor area with minimum 50% clear glazing	
		Light wells and/or skylights not primary source of daylight to any habitable room	No light wells provided	
		Building orientated and incorporates external shading devices	No shading devices provided	
4.2 Natural ventilation	Achieved	Habitable rooms have openings on at least two walls with straight line distance 2.1m	Each dwelling provides a minimum distance of 2.1m between two openings	Satisfied
		Minimum 60% of dwellings are naturally cross ventilated; and single aspect apartments included must have ventilation openings oriented to prevailing cooling winds; and room depth no greater than 3*ceiling height.	Units 1, 2, 3, 4 and 7 (71%) are capable of being naturally cross ventilated. Units 4 and 6 (29%) are not capable of being cross ventilated.	
		Depth of cross-over and cross-through apartments with	<20m	

Element	Objectives	Acceptable Outcome	Proposed	Design guidance provided by SPP7.3
		openings either side not exceed 20m		
		No habitable room relies on light wells	No reliance solely on light wells	
4.3 Size and layout of dwellings	Achieved	Dwellings internal floor areas as per Table 4.3a.	Adequate internal floor spaces provided	Satisfied
		Habitable room floor areas as per Table 4.3b	Minimum room floor areas provided	
		Floor to ceiling height 2.7m for habitable rooms, 2.4m for non-habitable rooms, and other as per National Construction Code	All floors - Ceiling height 2.7minimum	
		Maximum length of single aspect open plan living area 9m (A4.3.4)	Unit 4 is the only single aspect. Length of 6.4m	
4.4 Private open space and balconies	Achieved	Private open space to each dwelling as per Table 4.4	Each unit exceeds requirement of Table 4.4	Satisfied
		Entire open space not screened, and screening does not obscure outlook	Only limited screening required to east. This does not obscure the outlook from living areas	
		Design detailing, materiality and landscaping of the private open space integrate with/compliments building. Services and fixtures located within private open space not visible from street/integrated into building design	Landscape design compliments building A/C units within screened areas to reduce bulk on street and won't detract from use of the development	
4.5 Circulation and common spaces	Achieved	Circulation corridor 1.5m minimum	1.5m provided	Satisfied.
		Circulation and common space capable of passive surveillance	Passive surveillance of circulation space achieved from entry doors to units and of the street.	

Element	Objectives	Acceptable Outcome	Proposed	Design guidance provided by SPP7.3
		Circulation and common spaces lit without light spill to habitable rooms.	No major openings to habitable areas face circulation and common spaces	
		Major openings to living rooms do not open directly onto circulation or common spaces and are designed to ensure visual privacy and manage noise intrusion	Openings provided facing lobby. Less than $1m^2$ therefore not deemed major openings.	
4.6 Storage	Achieved	Store sizes as per Table 4.6. Minimum dimension 1.5m and $4m^2$.	All units have storeroom with minimum $4m^2$ area and 1.5m dimensions	Satisfied
		Stores conveniently located, safe, well-lit, secure and subject to passive surveillance	Stores acceptable	
		Stores provided separately from dwellings or within or adjacent to private open spaces (A4.6.3)	Unit 3 stores accessible from within the adjacent private open space but considered separate from dwelling	
4.7 Managing the impact of noise	Achieved	Exceed National Construction Code requirements	Acoustic report provided and considered acceptable	Satisfied
		Potential noise sources not adjacent external wall habitable room or within 3m of bedroom (A4.7.2)	Noise sources setback from external wall to habitable room and >3m from bedrooms	
		Major openings oriented away/shielded from external noise sources	Major openings located away from AC units, bin stores and parking area	
4.8 Dwelling mix	Achieved	Acceptable Outcome is not applicable as less than 10 dwellings are proposed	Seven dwellings only	Satisfied
4.9 Universal design	Achieved.	20% of dwellings achieve Silver Level requirements as defined in the *Liveable Housing*	Units 1 & 2 (29%) are design to meet the silver level requirements defined in	Satisfied

Element	Objectives	Acceptable Outcome	Proposed	Design guidance provided by SPP7.3
		Design Guidelines, or 5% achieve Gold Level requirements	the Liveable Housing Australia Guidelines	
4.10 Façade design	Achieved	Façade design includes scaling, articulation, materiality and detailing at lower levels that reflect the scale, character and function of the public realm. The façade design provides rhythm and interest achieved by a combination of building articulation, the composition of different elements and changes in texture, material and colour.	Building design and finishes include render, contrast render, with face brickwork	Satisfied
		Façade includes elements that relate to key datum lines of adjacent buildings.	The western neighbour is elevated significantly due to the natural land contours and has a similar datum line relationship with the first-floor level on the proposed project	
		Building services fixtures integrated in design and not visually intrusive from public realm.	The building services are integrated into the development and are not intrusive to the public realm	
4.11 Roof design	Achieved	Roof form or top of building complements façade design and desired streetscape character	Roof form acceptable	Satisfied
		Building services located on roof not visually obtrusive from street	No services provided on the roof	
4.12 Landscape design	Achieved	Landscaping plan required to be prepared by competent landscape designer demonstrating plant species and irrigation plan demonstrating	Landscaping information provided by Simons Landscapes and prepared by landscape designer Notes include all irrigation having	Satisfied

Element	Objectives	Acceptable Outcome	Proposed	Design guidance provided by SPP7.3
		achievement of Waterwise design principles	automatic trickle irrigation	
		Landscaping areas located and designed to support trees and improve outlook and amenity	Location of landscape area will provide positive outlook towards street from units	
		Building services integrated with landscaping and not visually obtrusive	Building services not visually obtrusive, with the master and sub water meters integrated with the landscaping and the power dome integrated with the fencing on the northern boundary	
4.13 Adaptive reuse	N/A	Not applicable as development not heritage	N/A	N/A
4.14 Mixed use	N/A	Not applicable as development not mixed use	N/A	N/A
4.15 Energy efficiency	Achieved	Incorporate at least one significant energy efficiency initiative; or all dwellings exceed minimum NATHERS requirements for apartments by 0.5 stars.	Environmental initiatives as per the Environmentally Sustainable Design checklist	Satisfied
4.16 Water management and conservation	Achieved	Dwellings are individually metered for water usage	Applicant advised that dwellings will be individually metered	Satisfied
		Storm water runoff is managed on-site	All stormwater will be contained on-site	
4.17 Waste management	Not achieved	Waste storage facilities provided in accordance with WALGA waste management guidelines.	Waste Management Plan provided demonstrating compliance with WALGA waste guidelines	Satisfied
		Sufficient area for storage of green waste, recycling and general waste (separate)	Sufficient area provided for bin storage that is screened from street, dwellings and open space areas	
		Communal waste storage sited and designed to be screened form view	Waste storage provided within a communal bin store integrated with the building design and	

Element	Objectives	Acceptable Outcome	Proposed	Design guidance provided by SPP7.3
		from the street, open space and private dwellings.	screened from view, however collection from the verge has potential negative streetscape impacts.	
4.18 Utilities	Achieved	Utilities located within front setback or on visible parts of rooms are integrated into design.	Utilities appropriately located and screened	Satisfied
		Hot water units, AC condenser units and clotheslines not visually obtrusive	Hot water units are located within laundry Airconditioning units located screened from view by the roof design	
		Laundries are designed and located to be convenient, weather protected and well ventilated and size appropriate.	Laundries provided within each dwelling. No clothes lines proposed, with condenser dryers provided within the dwellings	

Please note that the acceptable outcomes stated above is a summary only and when considering compliance with these requirements, please refer to the full requirement as detailed in *State Planning Policy 7.3 Residential Design Codes Volume 2 – Apartments.*