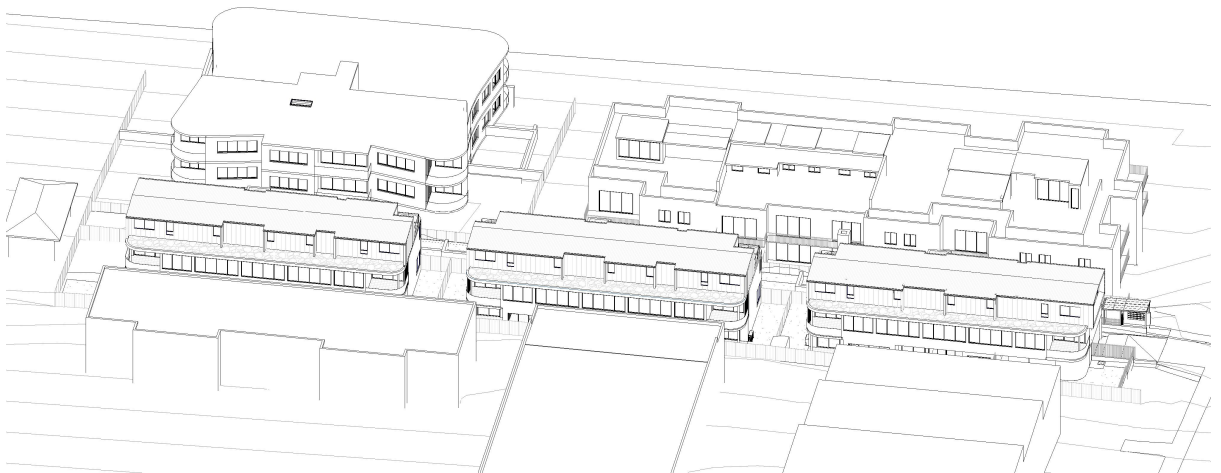


EXPERT OPINION: SOLAR ACCESS

Walsh Analysis

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PROPOSED 23 APARTMENTS

27a-29 Pine Avenue Brookvale

29th March 2022

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1.0 PRELIMINARIES AND SUMMARY

1.1 PRELIMINARIES

- 1.1.1 This expert opinion report is an analysis of projected **solar access** compliance for the DA proposal comprising of 23 apartments at 27a-29 Pine Avenue Brookvale.
- 1.1.2 Our qualifications and experience are summarized in *A.0 APPENDIX A: CREDENTIALS*.
- 1.1.3 The documents referred to in this report are detailed in *2.1 DOCUMENTS*.
- 1.1.4 These reports are usually a peer review; however, we declare that Walsh Analysis is a registered business name associated with Walsh Architects. We are also responsible for the design of the DA fee proposal.

1.2 SUMMARY OF DA SCHEME

1.2.1 SOLAR ACCESS FOR APARTMENTS

To undertake the analysis we received a 3D model of the proposal located in the surrounding context. We then take half hourly views from the sun (Appendix D), and a detailed compliance table of the DA scheme is prepared (Appendix B).

18/23 (78.3%) of the dwellings achieve 2 hours or more sunlight to the living area glazing and Private Open Space (POS) between 9am-3pm on June 21st. **This represents full compliance with design criterion 1 of the ADG Objective 4A-1.**

1/23 (4.3%) of the dwellings are projected to achieve no sun 9am – 3pm June 21. **This represents full compliance with design criterion 3 of the ADG Objective 4A-1**

1.3 SUMMARY OF OVERSHADOWING IMPACTS

1.3.1 OVERSHADOWING OF 23B-27 PINE AVENUE BROOKVALE

23B-27 Pine Avenue currently has 5 out of 18 (27.8%) of units receiving 2 hours of solar access to their living room between 9am-3pm. With the new development application proposal, there is a 0% compliance reduction which is **compliant with Objective 3B-2 of the ADG**.

There are also some apartments that have an increased amount of sun and even apartments that did not receiving a complying amount of solar access previously but now comply. This is due to increased setbacks and lower building heights near the boundary than the existing buildings on the site.

1.4 SUMMARY OF OVERSHADOWING IMPACTS

1.4.1 SOLAR ACCESS OF A FUTURE BUILDING AT 23 & 23A PINE AVENUE

There are currently two houses on this site which have minimal overshadowing of their sites. The sites are zoned R3 and thus it would be expected these will be developed in the future. Walsh Architects have done a preliminary scheme on this site. This scheme would achieve 12/14 (85.7%) apartments receiving at least two hours of sun to living rooms and POS. This is **compliant with Objective 4A-1 of the ADG**.

2.0 DOCUMENTS AND INFORMATION

2.1 DOCUMENTS

2.1.1 We base our analysis and opinion on drawings by Walsh Architects:

DRAWING NO.	DRAWING NAME	ISSUE
DA040	PROPOSED SITE PLAN	B
DA100	BASEMENT PLAN	B
DA101	GROUND FLOOR PLAN	B
DA102	LEVEL 1 PLAN	B
DA103	LEVEL 2 PLAN	B
DA104	ROOF PLAN	B
DA200	SECTIONS - SHEET 1	B
DA201	SECTIONS - SHEET 2	B
DA301	ELEVATIONS	B

3D digital model in Autodesk Revit 2021:

- o 19.55 - 27A & 29 Pine Ave Brookvale.rvt

2.2 SITE

The site is rectangular running in an east-west direction. That allows a large northern frontage to the site which is ideal orientation for solar access. The site has one street frontage to the west being Pine Avenue. There are distant views to the south across Brookvale. The neighbouring buildings are mainly multi-residential buildings apart from some at the north west corner of the site which are still residential houses. The solar analysis has been undertaken assuming there is a multi-residential building on that site.

The site has a cross fall to it of approximately 3m. The buildings to the North are also higher due to the slope of the land, as well as having taller parapets. This makes solar compliance difficult as the land is sloping away from the sun.



Figure 1: Aerial view of site

3.0 SOLAR ACCESS

3.1 RELEVANT SOLAR ACCESS STANDARDS

3.1.1 APARTMENT DESIGN GUIDE

The *Apartment Design Guide (ADG)* gives effect to SEPP65 for assessing solar access and other amenity provisions and gives the following quantified recommendations:

<i>Objective 4A-1</i>	
To optimise the number of apartments receiving sunlight to habitable rooms, primary windows and private open space	
<i>Design criteria</i>	
1.	Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter in the Sydney Metropolitan Area and in the Newcastle and Wollongong local government areas
2.	In all other areas, living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 3 hours direct sunlight between 9 am and 3 pm at mid winter
3.	A maximum of 15% of apartments in a building receive no direct sunlight between 9 am and 3 pm at mid winter

3.1.2 LOCAL CONTROLS

We note that **Solar access (6.1) Design criteria** in the ADG are *discretionary controls* which, by virtue of Cl. 6A of SEPP65, take precedence over controls contained in Councils' DCPs.

In quantifying the compliance for solar access for this application, we rely on satisfying the ADG as also satisfying the DCP requirements.

3.2 PREDICTED SOLAR ACCESS: METHODOLOGY

We employ the following analysis methodology.

3.2.1 3D DIGITAL MODEL

For a detailed analysis of overshadowing and solar access, we refer to a 3D model withing Autodesk Revit 2021. We have again verified its north point with reference to both the Survey and SIXMaps.

3.2.2 MODEL LOCATION

We have verified it is geo-located correctly and verified the direction of North.

3.2.3 ACCURACY OF THE MODEL

From the model, we have summarily checked topographical and building dimensions that might otherwise give rise to any errors, by reference to figured RL dimensions. We have established that as the area is undergoing change, the impact on what is likely to be built on adjoining sites has been shown to north west at 33 Pine Avenue. Having established the accuracy of the key points, we feel confident to rely on the general accuracy of the modelling.

3.2.4 VIEWS FROM THE SUN

The Autodesk Revit software prepares the shadow projections by reference to accurate solar geometry. Because of the complexity of demonstrating the quantification of solar access to glazing and private open space of various orientations, our detailed analysis was performed primarily by using projections known as '**View from the Sun**' taken at half hourly intervals.

A view from the sun shows all sunlit surfaces at a given time and date. It therefore allows a very precise count of sunlight hours on any glazing or horizontal surface, with little or no requirement for secondary calculations or interpolation. The technique is illustrated in Figure 1.

Note that a 'view from the sun' by definition does not show any shadows.

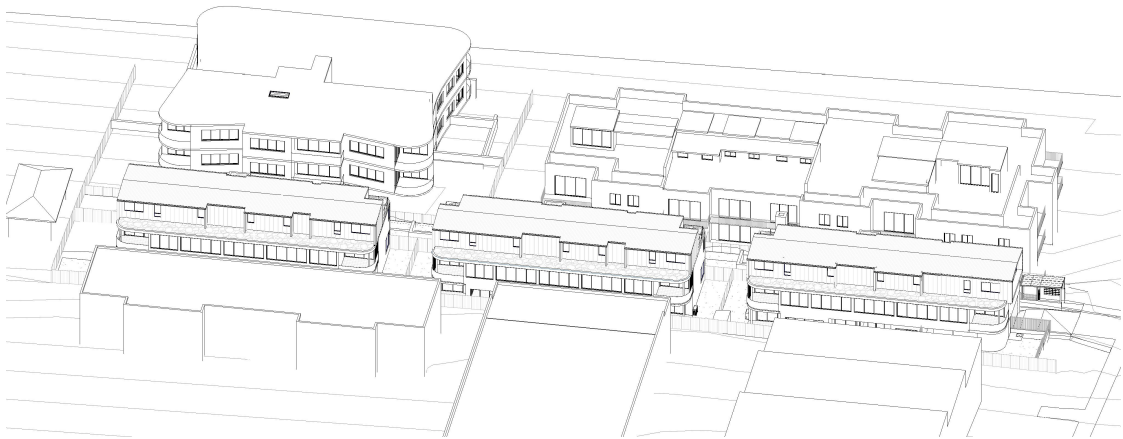


Figure 2: View from the sun, 12pm June 21

3.3 CHARACTERISATION OF SOLAR ACCESS COMPLIANCE

3.3.1 SUN PATCHES ON GLAZING

For the purpose of calculating the compliance with the control, we examine sun patches on the relevant glazing line of each apartment. Because of its key importance in the determination of what is 'effective sunlight' for characterisation of compliance, for both glazing and private open space, we refer specifically to the relevant *L+EC Planning Principle (The Benevolent Society v Waverley Council [2010] NSWLEC 1082)* in that:

- We quantify as complying all sun patches of 'reasonable size', which we generally take to be a minimum of approximately 1m².
- We ignore very large angles of incidence to the glazing surface, and unusably small areas of sunlit glazing.

There is no accepted standard for the absolute limit of acceptable area of the sun patch on partly shaded glazing. In accordance with the Court's Planning Principle, we consider this to be approximately 1m² (on the basis that it exceeds 50% of the area of a standard window 1500 x 1200 high which would normally be accepted as complying).

3.3.2 SUN TO BEDROOMS

Periods of sun available to bedrooms contribute significantly to the amenity of any apartment that may have an otherwise unfavourably oriented or overshadowed living area. This characterisation is consistent with the interpretation of *the BenSoc Principle* (and its predecessor *Parsonage Principle*) as previously accepted by the Land and Environment Court, and by various Councils.

*That said, in evaluating this development, we **do not** rely on periods of sun to bedrooms in lieu of living areas to characterise apartments as complying with the ADG Design criterion.*

3.3.3 SUN TO BOTH POS AND LIVING

Objective 4A-1 of the ADG states "Living rooms **and** private open spaces". The use of the conjunctive "and" has been tested in the Land and Environment Court in the case *Landmark Group Australia Pty Ltd v Council of the City of Sydney [2019] NSWLEC 1338* where in 227, Commissioner Smithson did not agree that a development could count living rooms **or** private open space. In line with the ADG wording and the LEC case noted above, we only count units that receive complying sun to both living rooms and private open space.

4.0 SOLAR ACCESS

4.1 PREDICTED SOLAR ACCESS OF APARTMENTS

Table 1 below summarises the projected solar access for the living area glazing and private open space of the Development Application. Appendix B records the detailed solar access for individual apartments.

Total number of Apartments	23	
Apartments which achieve 2 hours or more sunlight to living and POS 9am - 3pm June 21	18	78.3%
Units with no sun between 9am and 3pm June 21	1	4.3%

Table 1: Summary of solar access for DA scheme

The ADG Design criteria recommends a minimum of 70% of apartments should have the amenity of two hours winter sun between 9 AM and 3 PM. This Development Application has 78.3% (18/23) total of such apartments **Overall compliance for solar access is therefore fully satisfied.**

The ADG design criteria recommends that a maximum of 15% of apartments in a building receive no direct sunlight between 9 am and 3 pm at mid-winter. This Development Application has 4.3% (1/23) total of such apartments **Overall compliance for solar access is therefore fully satisfied.**

5.0 OVERSHADOWING IMPACT ON NEIGHBOURING PROPERTIES

The same views from the sun employed for the solar access analysis for the subject site are also the most effective technique for identifying potential overshadowing impacts for neighbouring properties.

5.1 POTENTIALLY AFFECTED PROPERTIES

There are two apartment buildings that will be affected by the new development application.

1. 23B-27 Pine Avenue Brookvale
2. Future development on 23 Pine Avenue Brookvale

To find the information needed to undertake an overshadowing study, we were sent the below Strata Plans showing the overall unit numbering and locations. For further clarification of living areas verse bedrooms, we have pieced together the below diagrams as our best attempt in understanding the development layouts. It should be noted for compliance of Private Open Space (POS), we have used the principle POS which is located off the living areas. If the rooftop balconies got used, there would be no change to their solar compliance, so we used the toughest mechanism possible.

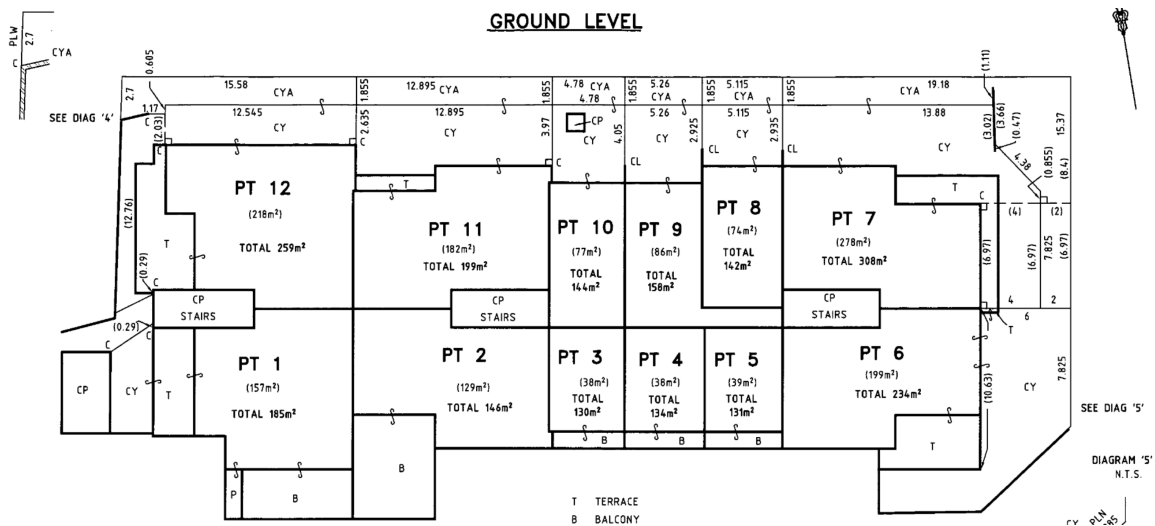


Figure 3: Strata Ground Plan of 23B-27 Pine Avenue

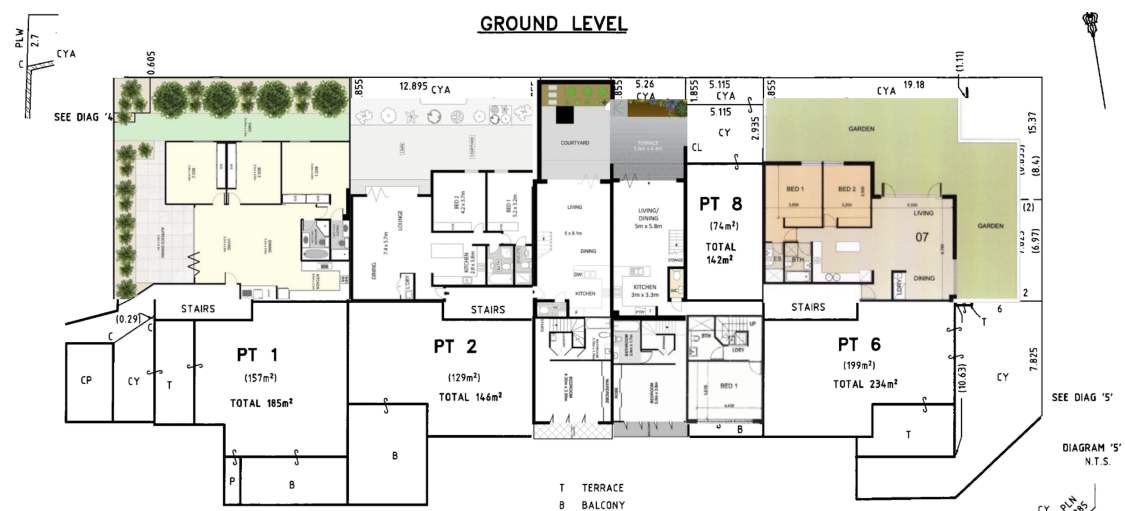


Figure 4: Overlaid Ground Plan of 23B-27 Pine Avenue

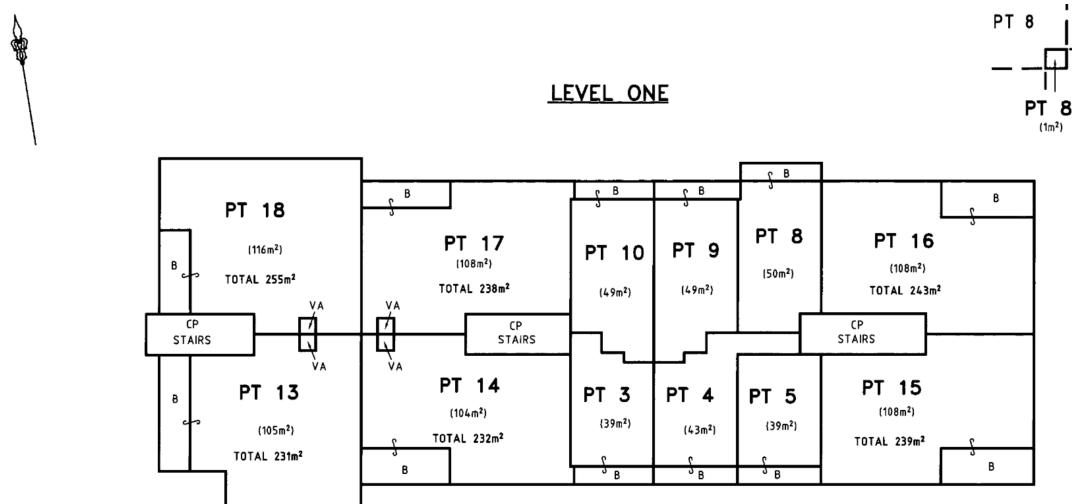


Figure 5: Strata Level 1 Plan of 23B-27 Pine Avenue



Figure 6: Overlaid Level 1 Plan of 23B-27 Pine Avenue

5.2 APPLICABLE CONTROL

5.2.1 The ADG provides a test for acceptable additional overshadowing impact on adjacent multi-residential properties:

Objective 3B-2
Overshadowing of neighbouring properties is minimised during mid winter
Design guidance
Living areas, private open space and communal open space should receive solar access in accordance with sections 3D Communal and public open space and 4A Solar and daylight access
Solar access to living rooms, balconies and private open spaces of neighbours should be considered
Where an adjoining property does not currently receive the required hours of solar access, the proposed building ensures solar access to neighbouring properties is not reduced by more than 20%

5.3 OVERSHADOWING OF 23B-27 PINE AVENUE BROOKVALE

23B-27 Pine Avenue Brookvale is located directly to the south of the proposed development. The development is also further downhill making solar access harder. We undertook the detailed quantification of the present and projected solar access status of individual apartments.

Appendix C reports the full table of direct sun access for all individual apartments in 23B-27 Pine Avenue Brookvale, and highlights the periods of loss or gain of sun exposure for individual apartments due to the overshadowing.

Out of the 18 apartment, there are only 6 that are somewhat negatively affected by the development, and there are 6 units that gain some solar access due to the new development. Part of the lack of compliance is due to the living areas being 'subterranean' as shown in the photos below. If units 8, 9 and 10 were built with the living and bedroom levels swapped, these apartments would have maximised solar access. It also should be noted that at the time of approval, future development massing should have been shown on the subject development site as the area is undergoing change (in line with the planning principle).



Figure 7: Photo of living area in Unit 9/23B-27 Pine Avenue showing its subterranean

Table 2 below summarises the existing and projected solar access status for 23B-27 Pine Avenue Brookvale.

	EXISTING	PROJECTED	CHANGE
>2 hrs 9-3 Living	5 / 18 = 27.8%	5 / 18 = 27.8%	0%
No sun	5 / 18 = 27.8%	5 / 18 = 27.8%	0%

Table 2: Summary of Overshadowing to 23B-27 Pine Avenue Brookvale

There is a 0% reduction in compliance across the whole development which is **compliant with Objective 3B-2 of the ADG.**

5.3 FUTURE DEVELOPMENT AT 23 PINE AVENUE

We have also looked at the site of 23 Pine Avenue. Whilst the site is not an apartment building currently, we looked at the site and its solar potential. We applied the minimum building setbacks under the Apartment Design Guide, with the maximum building height out of the Warringah Local Environmental Plan. Once these restrictions are applied to the site, the massing would have great solar access potential from 9am to 3pm. The proposed building would not limit the neighbouring site from achieving 70% of apartments receiving 2 hours of complying solar compliance satisfy Objective 4A-1 of the Apartment Design Guide.

Walsh Architects have also included a feasibility study for this site on drawings A950 & A951. This proposed building has also been shown on the Views From the Sun.

It is our considered opinion that a future development on 23 Pine Avenue Brookvale could achieve full compliance with Objective 4A-1 of the Apartment Design Guide. The example massing that was shown in the Views from the Sun achieves 12/14 (85.7%) apartments receiving at least two hours of sun to living rooms and POS. This is **compliant with Objective 4A-1 of the ADG.**

6.0 CONCLUSIONS

6.1 SOLAR ACCESS FOR APARTMENTS

6.1.1 ADG COMPLIANCE

The ADG *Design criteria* recommend a minimum of 70% of apartments should have the amenity of two hours winter sun between 9 AM and 3 PM.

18/23 (78.3%) of the apartments are projected to achieve 2 hours or more sunlight to glazing and POS 9am – 3pm June 21. **This represents full compliance with design criterion 1 of the ADG Objective 4A-1.**

1/23 (4.3%) of the apartments are projected to achieve no sun 9am – 3pm June 21. **This represents full compliance with design criterion 3 of the ADG Objective 4A-1.**

6.2 OVERSHADOWING OF 23B-27 PINE AVENUE BROOKVALE

23B-27 Pine Avenue currently has 5 out of 18 (27.8%) of units receiving 2 hours of solar access to their living room between 9am-3pm. With the new development application proposal, there is a 0% compliance reduction which is **compliant with Objective 3B-2 of the ADG.**

6.3 FUTURE DEVELOPMENT AT 23 PINE AVENUE

Once setback and height restrictions are applied to the site, the massing would have great solar access potential from 9am to 3pm. The proposed building would not limit the neighbouring site from achieving 70% of apartments receiving 2 hours of complying solar compliance satisfy Objective 4A-1 of the Apartment Design Guide. It is our considered opinion that a future development on 23 Pine Avenue Brookvale could achieve full compliance with Objective 4A-1 of the Apartment Design Guide.

The applicant has also demonstrated a future building on drawings A950-A951 and included this massing on the Views from the Sun. This scheme would achieve 12/14 (85.7%) apartments receiving atleast two hours of sun to living rooms and POS. This is **compliant with Objective 4A-1 of the ADG**, which supports the statements above.

A.0 APPENDIX A: CREDENTIALS

Walsh Analysis provides opinion based services primarily in relation to analysis and reporting of solar access and overshadowing compliance of multi residential projects.

Scott Walsh is a Director of Walsh Analysis. He developed his specialised expertise under Steve King, a well-known expert in the field.

Scott started working for Steve King in 2011 as a tutor of Environmental Design at the University of New South Wales. From 2013 Scott has contracted to Steve King to undertake modelling and numerical analysis of solar access to large apartment projects. Over a number of years Scott contributed significantly to fine-tune the way the analysis was undertaken, and assisted in providing to the architects feedback in regards to areas that could be adjusted to improve solar access.

Scott holds a Masters of Architecture from the University of New South Wales as well as a Bachelor of Architecture. He is a registered architect in New South Wales (10366) and the Australian Capital Territory (2624) and a director of Walsh Architects.

Steve King:

I am pleased to provide my commendation and support for Walsh Analysis. Scott has undertaken solar access and overshadowing analysis of over 150 apartment buildings from as small as 10 units up to over 1000 units. I have relied on his technical expertise and accuracy to provide advice to architects, planners and to the Land and Environment Court, including independent third-party peer review of others' characterisation and reporting of compliance.

B.0 APPENDIX B: DETAILED COMPLIANCE TABLE

The following table sets out in detail the solar access status of each Apartment in the current DA Scheme.

LEVEL	UNIT NUM.	ROOM	9	930	10	1030	11	1130	12	1230	13	1330	14	1430	15	> 2 hrs 9-3	Comply for Living + POS > 2 hrs	No sun	Comments
GROUND FLOOR	1	Living	Y	Y	N	N	N	Y	Y	Y	Y	Y	H	Y	Y	YES	YES		Receives 15 minutes of sun to habitable rooms Living receives sun from 10:15am until 12:25pm
		POS	N	N	N	N	N	N	N	Y	Y	Y	N	Y	Y	YES		N/A	
	2	Living	N	H	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	YES	YES		
		POS	N	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	YES		N/A	
	8	Living	N	N	N	N	N	N	H	Y	Y	Y	Y	H	N				
		POS	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	YES		N/A	
	9	Living	N	N	N	H	N	N	N	N	N	N	N	H	N				
		POS	N	N	N	N	N	N	N	N	N	N	N	N	N			N/A	
	10	Living	N	H	H	Y	Y	Y	Y	H	H	N	N	N	N	YES	YES		
		POS	N	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	YES		N/A	
	16	Living	N	N	N	N	N	N	H	H	H	H	H	Y	N				
		POS	N	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	YES		N/A	
	17	Living	N	N	N	N	N	N	N	N	N	N	N	N	N			YES	
		POS	N	N	N	N	N	N	N	N	N	N	N	N	N			N/A	
	18	Living	Y	Y	H	H	N	N	N	N	N	N	N	N	N				
		POS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	YES		N/A	
LEVEL 1	3	Living	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	YES		
		POS	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES		N/A	
	4	Living	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	YES		
		POS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES		N/A	
	5	Living	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	YES		
		POS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES		N/A	
	6	Living	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	YES		
		POS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES		N/A	
	7	Living	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	YES		
		POS	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES		N/A	
	11	Living	H	H	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	YES		
		POS	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES		N/A	
	12	Living	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	YES		
		POS	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES		N/A	
	13	Living	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	YES		
		POS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES		N/A	
	14	Living	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	YES		

LEVEL	UNIT NUM.	ROOM	9	930	10	1030	11	1130	12	1230	13	1330	14	1430	15	>2 hrs 9-3	Comply for Living + POS >2 hrs	No sun	Comments
		POS	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES		N/A	
	15	Living	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	YES		
		POS	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES		N/A	
	19	Living	H	H	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	YES		
		POS	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES		N/A	
	20	Living	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	YES		
		POS	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES		N/A	
	21	Living	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	YES		
		POS	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES		N/A	
	22	Living	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	YES		
		POS	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES		N/A	
	23	Living	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	YES		
		POS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES		N/A	

23

18	18	1
78.3%	78.3%	4.3%
	78.3%	4.3%

C.0 APPENDIX C: COMPLIANCE TABLE – 23B-27 PINE AVE BROOKVALE

The following table sets out in detail the solar access status of each neighbouring apartments

UNIT NUM.	ROOM	9	930	10	1030	11	1130	12	1230	13	1330	14	1430	15	>2 hrs 9-3	Comply for Living + POS >2 hrs	No sun	Comments
UNIT 1	Living	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y				
	PPOS	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	YES.		N/A	
UNIT 2	Living	N	N	N	N	N	N	N	N	N	N	N	N	N				YES
	PPOS	N	N	N	N	N	N	N	N	N	N	N	N	N				N/A
UNIT 3	Living	N	N	N	N	N	N	N	N	N	N	N	N	N				YES
	PPOS	N	N	N	N	N	N	N	N	N	N	N	N	N				N/A
UNIT 4	Living	N	N	N	N	N	N	N	N	N	N	N	N	N				YES
	PPOS	N	N	N	N	N	N	N	N	N	N	N	N	N				N/A
UNIT 5	Living	N	N	N	N	N	N	N	N	N	N	N	N	N				YES
	PPOS	N	N	N	N	N	N	N	N	N	N	N	N	N				N/A
UNIT 6	Living	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N				
	PPOS	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	YES.			N/A
UNIT 7	Living	Y	Y	Y	Y	N	N	N	N	N	H	H	Y	Y	YES	YES		
	PPOS	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	Y	Y	YES.			N/A
UNIT 8	Living	H	H	H	H	H	H	H	H	H	H	H	H	H				
	PPOS	N	N	N	N	N	N	N	N	N	N	N	N	N				N/A
UNIT 9	Living	H	H	H	H	H	H	Y	Y	Y	Y	Y	Y	H	YES			
	PPOS	N	N	N	N	N	N	N	N	N	N	N	N	N				N/A
UNIT 10	Living	H	H	H	H	H	Y	Y	Y	Y	Y	Y	Y	H	YES			
	PPOS	N	N	N	N	N	N	N	N	N	N	N	N	N				N/A
UNIT 11	Living	N	N	Y	Y	Y	Y	Y	Y	H	H	H	N	N	YES			
	PPOS	N	N	N	N	N	Y	Y	Y	N	N	N	N	N				N/A
UNIT 12	Living	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y				
	PPOS	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	YES.			N/A
UNIT 13	Living	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	YES	YES		
	PPOS	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES.			N/A
UNIT 14	Living	N	N	N	N	N	N	N	N	N	N	N	N	N				YES
	PPOS	N	N	N	N	N	N	N	N	N	N	N	N	N				N/A
UNIT 15	Living	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N				
	PPOS	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N				N/A
UNIT 16	Living	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	YES		
	PPOS	Y	Y	Y	N	N	N	N	N	N	N	N	Y	Y	YES.			N/A
UNIT	Living	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H	N	YES	YES		

Assumed layout is mirror of Unit 5

Assumed layout is similar to Unit 9 based on photos

UNIT NUM.	ROOM	9	930	10	1030	11	1130	12	1230	13	1330	14	1430	15	>2 hrs 9-3	Comply for Living + POS >2 hrs	No sun	Comments
17	PPOS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	YES.		N/A	
UNIT 18	Living	H	H	H	N	N	N	N	Y	Y	Y	Y	Y	Y	YES	YES		
	PPOS	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	YES.		N/A	
18															8	5	5	
															44.4%	27.8%	27.8%	
																27.8%	27.8%	

UNIT 1	Living	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y			
	POS	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	YES.		N/A
UNIT 2	Living	N	N	N	N	N	N	N	N	N	N	N	N	N			YES
	POS	N	N	N	N	N	N	N	N	N	N	N	N	N			N/A
UNIT 3	Living	N	N	N	N	N	N	N	N	N	N	N	N	N			YES
	POS	N	N	N	N	N	N	N	N	N	N	N	N	N			N/A
UNIT 4	Living	N	N	N	N	N	N	N	N	N	N	N	N	N			YES
	POS	N	N	N	N	N	N	N	N	N	N	N	N	N			N/A
UNIT 5	Living	N	N	N	N	N	N	N	N	N	N	N	N	N			YES
	POS	N	N	N	N	N	N	N	N	N	N	N	N	N			N/A
UNIT 6	Living	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N			
	POS	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	YES.		N/A
UNIT 7	Living	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N			
	POS	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	YES.		N/A
UNIT 8	Living	H	H	H	H	H	H	H	Y	Y	Y	H	H	H			
	POS	N	N	N	N	N	N	N	Y	Y	Y	N	N	N			N/A
UNIT 9	Living	H	H	H	H	Y	Y	Y	Y	Y	H	H	H	H	YES	YES	
	POS	N	N	N	N	Y	Y	Y	Y	N	N	N	N	N	YES.		N/A
UNIT 10	Living	H	H	H	Y	Y	Y	H	H	H	H	H	H	H			
	POS	N	N	N	Y	Y	Y	N	N	N	N	N	N	N			N/A
UNIT 11	Living	N	H	N	N	N	N	N	N	N	N	N	N	N			
	POS	N	N	N	N	N	N	N	N	N	N	N	N	N			N/A
UNIT 12	Living	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y			
	POS	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	YES.		N/A
UNIT	Living	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	YES	YES	

UNIT NUM.	ROOM	9	930	10	1030	11	1130	12	1230	13	1330	14	1430	15	>2 hrs 9-3	Comply for Living + POS >2 hrs	No sun	Comments
13	POS	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES.		N/A	NO CHANGE
UNIT 14	Living	N	N	N	N	N	N	N	N	N	N	N	N	N			YES	
	POS	N	N	N	N	N	N	N	N	N	N	N	N	N			N/A	NO CHANGE
UNIT 15	Living	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N				
	POS	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N			N/A	
UNIT 16	Living	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	YES		POS INCREASED FROM 2 HOURS TO 6 FULL HOURS
	POS	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES.		N/A	
UNIT 17	Living	H	H	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	YES	YES		SMALL DECREASES AND INCREASES AT DIFFERENT TIMES
	POS	N	N	N	N	Y	Y	Y	Y	Y	Y	N	N	Y	YES.		N/A	
UNIT 18	Living	N	N	N	H	H	H	H	Y	Y	Y	Y	Y	Y	YES	YES		INCREASE IN SUN TO HABITABLE ROOMS BY 30 MINUTES
	POS	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	YES.		N/A	

18

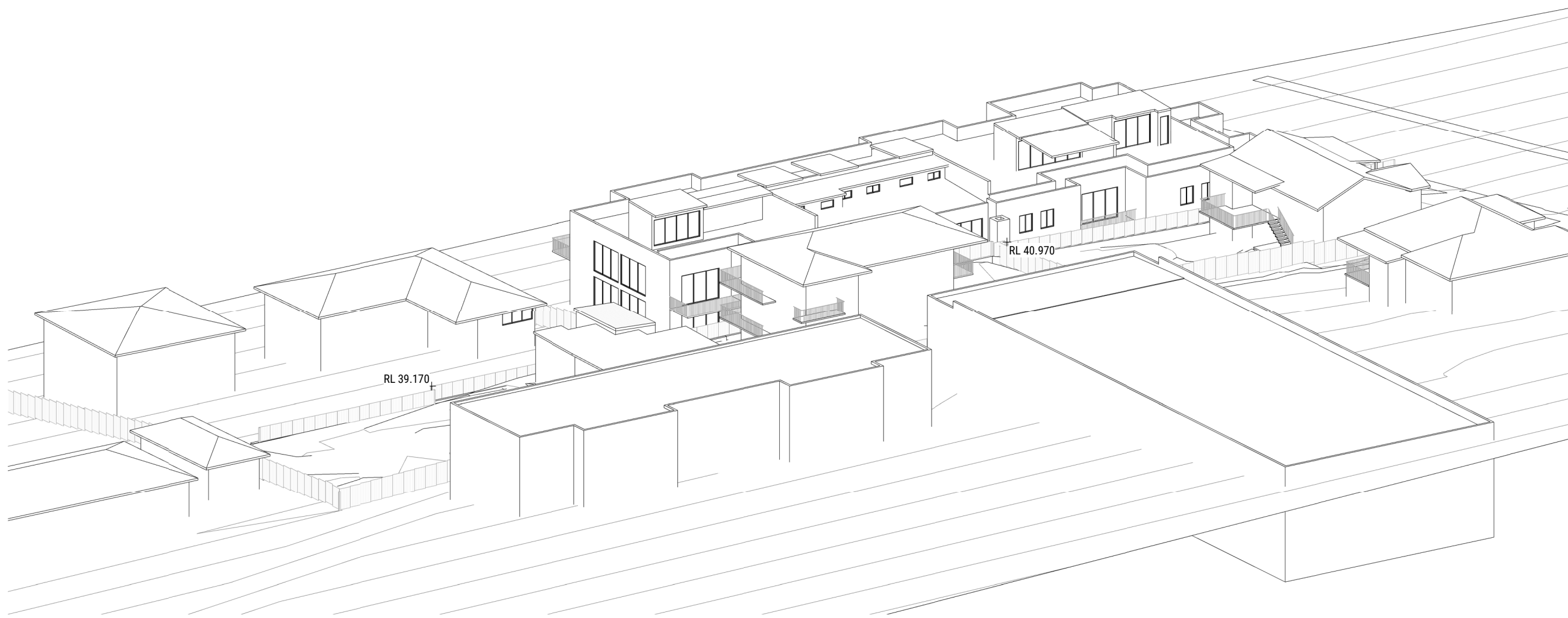
5	5	5
27.8%	27.8%	27.8%
	27.8%	27.8%

LEGEND

Y	RECEIVES COMPLIANT SUN
H	HABITABLE SPACES RECEIVES COMPLIANT SUN
N	DOES NOT COMPLY
Y	PREVIOUSLY OVERSHADOWED NOW COMPLIES
N	LIVING NOW OVERSHADOWED
N	HABITABLE SPACES NOW OVERSHADOWED
H	LIVING OVERSHADOWED BUT HABITABLE ROOM GETS SUN
H	PREVIOUSLY OVERSHADOWED BUT HABITABLE ROOM GETS SUN

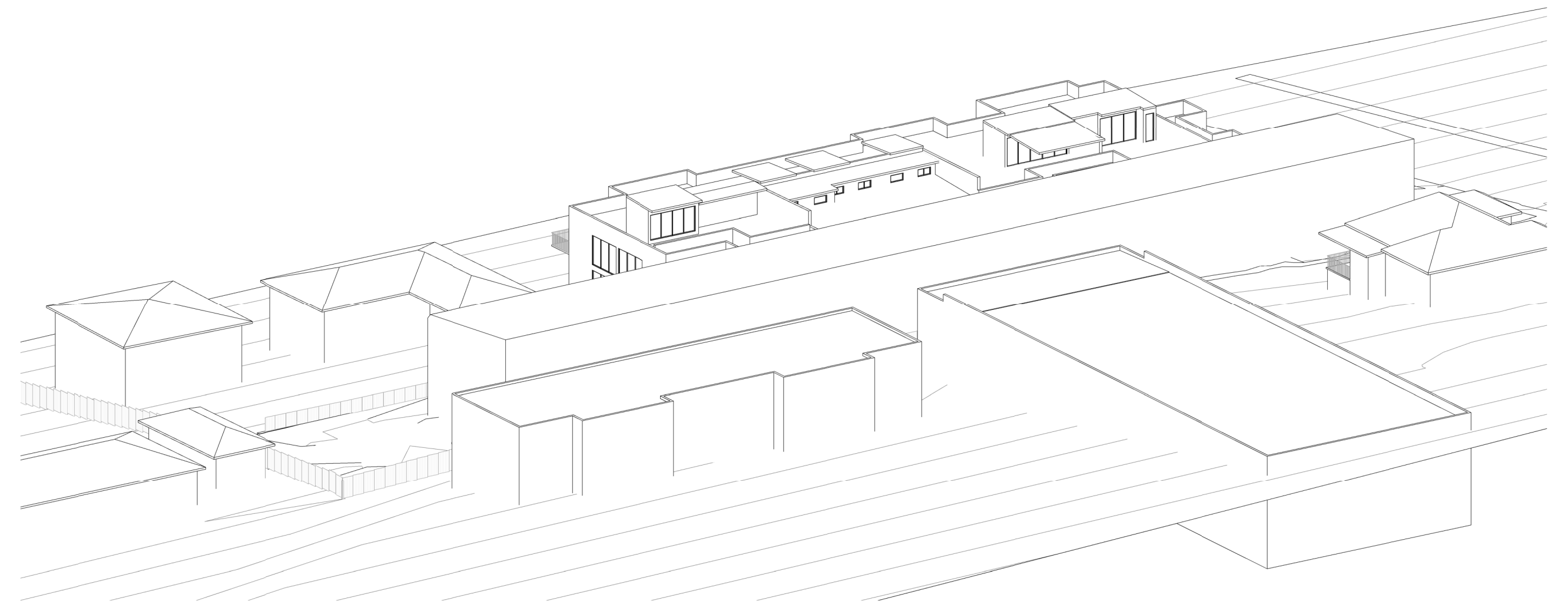
D.0 APPENDIX D: VIEWS FROM THE SUN

The following sheets show hourly views of solar access projections for June 21.



1 VIEW FROM SUN - JUNE 21 - 9AM EXISTING
DA600

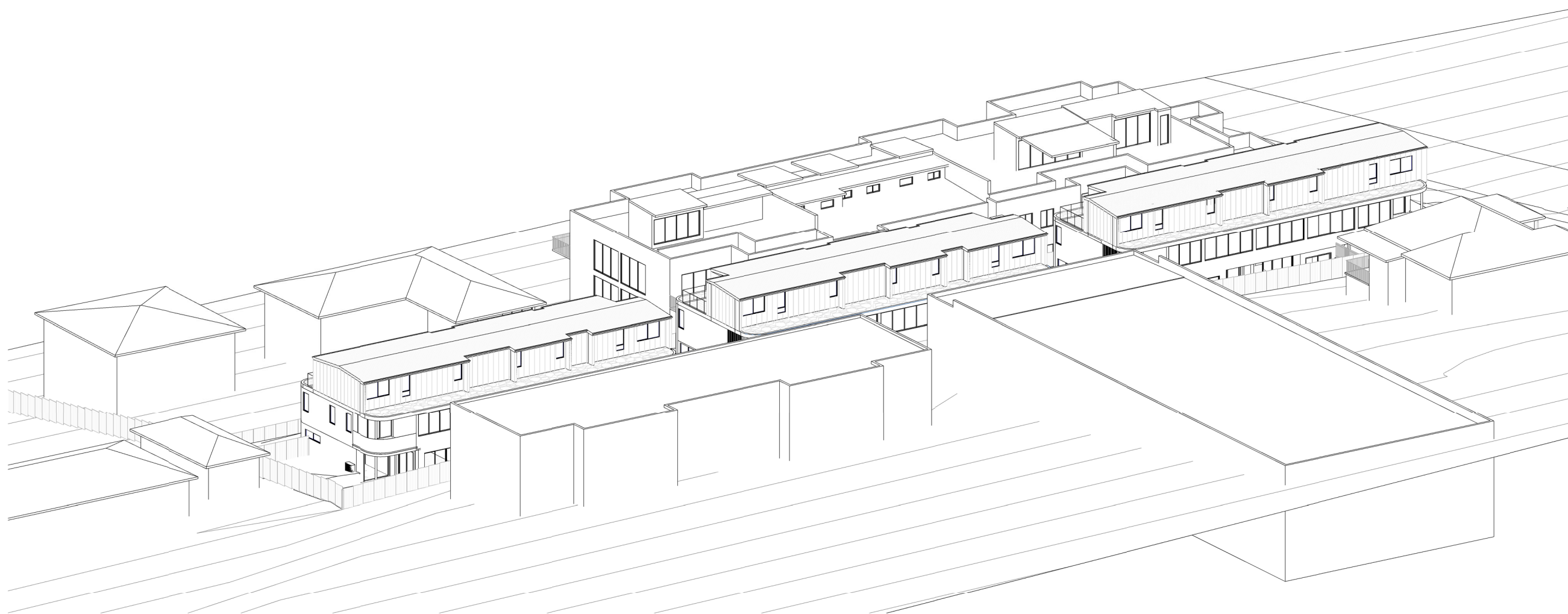
RELATIVE LEVELS SHOWN ON FENCES AS PER UPDATED SURVEY



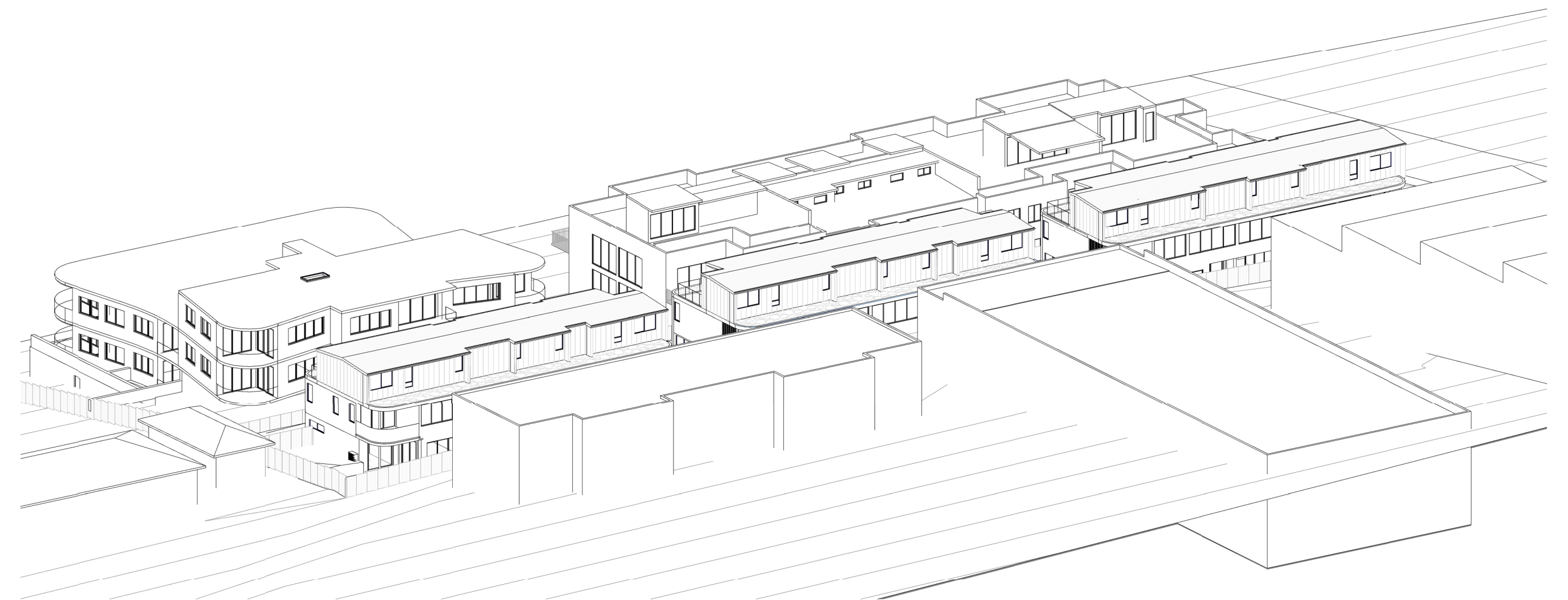
2 VIEW FROM SUN - JUNE 21 - 9AM DCP ENVELOPE
DA600 @ A1

NOTE: DCP ENVELOPE CONTAINS THE FOLLOWING COMPLIANCE:

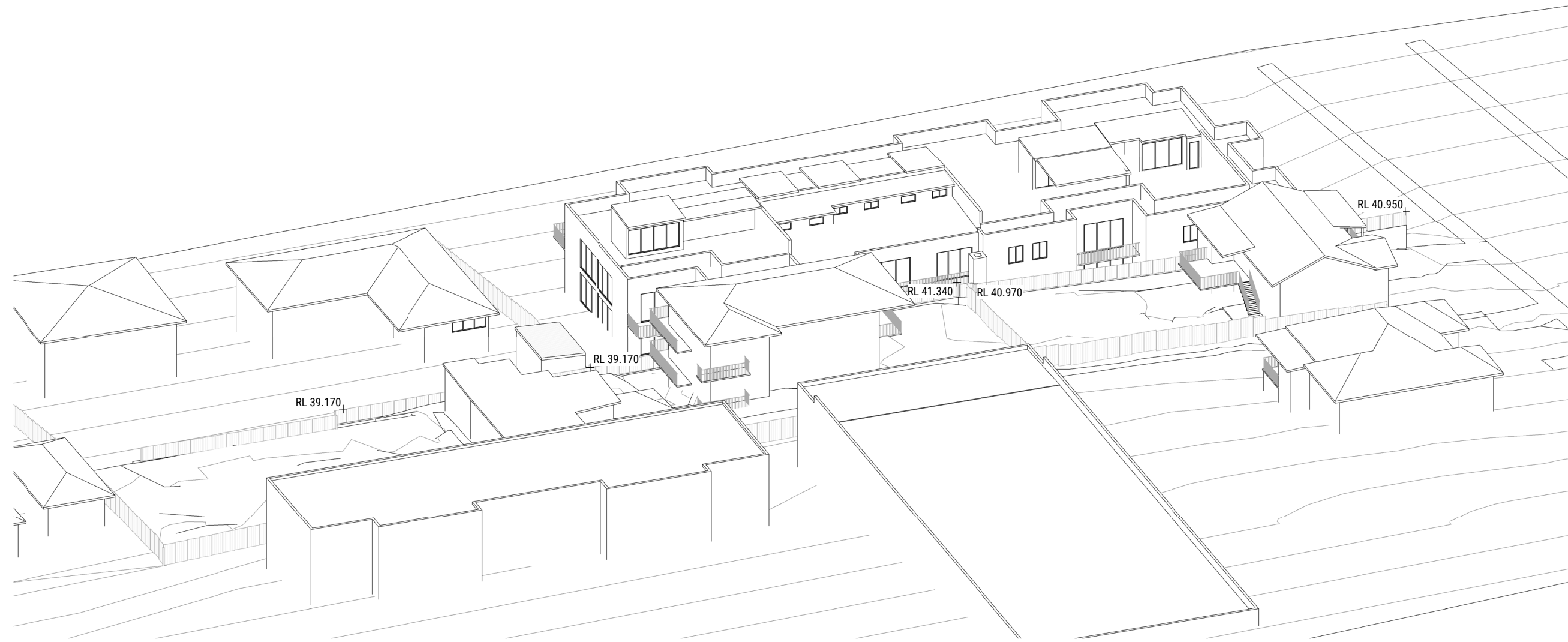
1. FRONT SETBACK	- COMPLAINT AT 6.5M
2. SIDE SETBACK NORTH	- COMPLAINT AT 4.5M
3. SIDE SETBACK SOUTH	- COMPLAINT AT 4.5M
4. SIDE BOUNDARY ENVELOPE NORTH	- COMPLAINT
5. SIDE BOUNDARY ENVELOPE SOUTH	- COMPLAINT
6. REAR SETBACK	- IN EXCESS OF COMPLIANCE AT 18M TO COMPLY WITH LANDSCAPING
7. LANDSCAPED OPEN SPACE	- COMPLAINT AT 50%
8. LEP HEIGHT CONTROL	- COMPLAINT AT MAXIMUM 8.5M



3 VIEW FROM SUN - JUNE 21 - 9AM PROPOSED
DA600

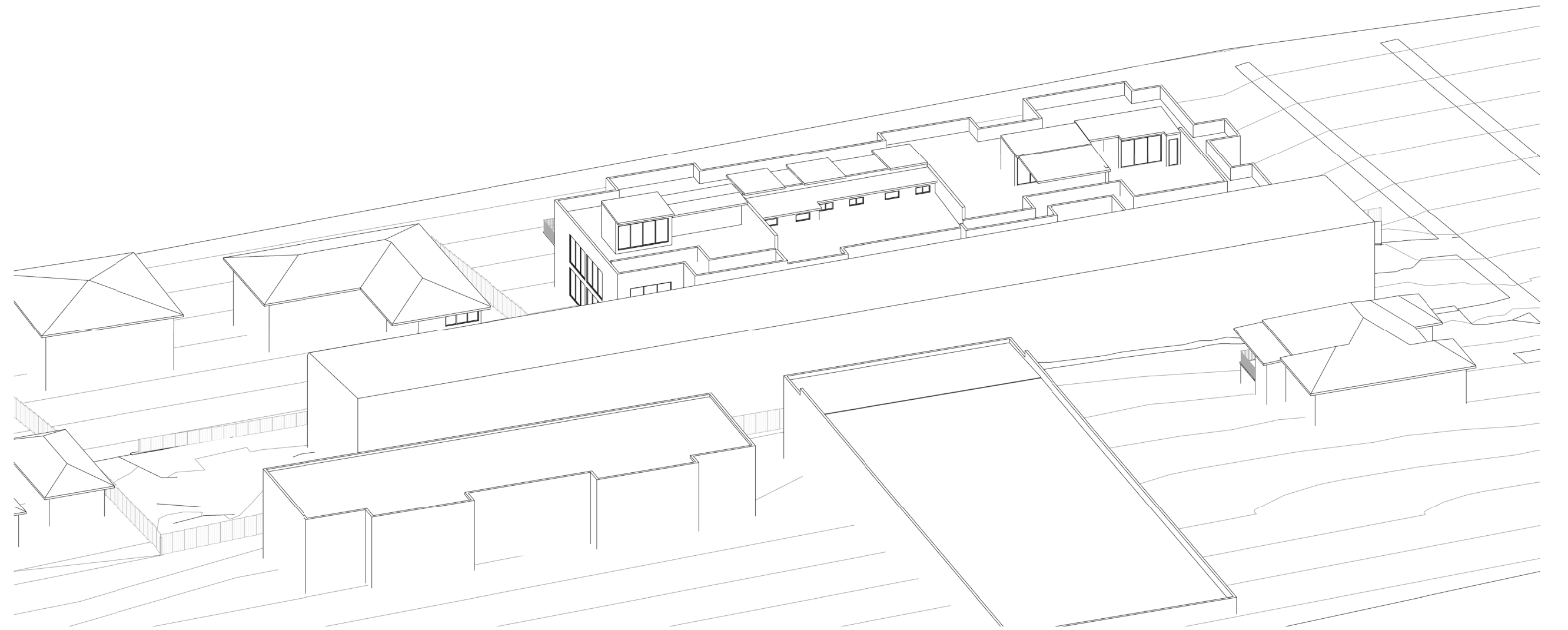


4 VIEW FROM SUN - JUNE 21 - 9AM PROPOSED WITH NEIGHBOURING MASSING AT 33 PINE AVE
DA600



1 VIEW FROM SUN - JUNE 21 - 10AM EXISTING
DA601 @ A1

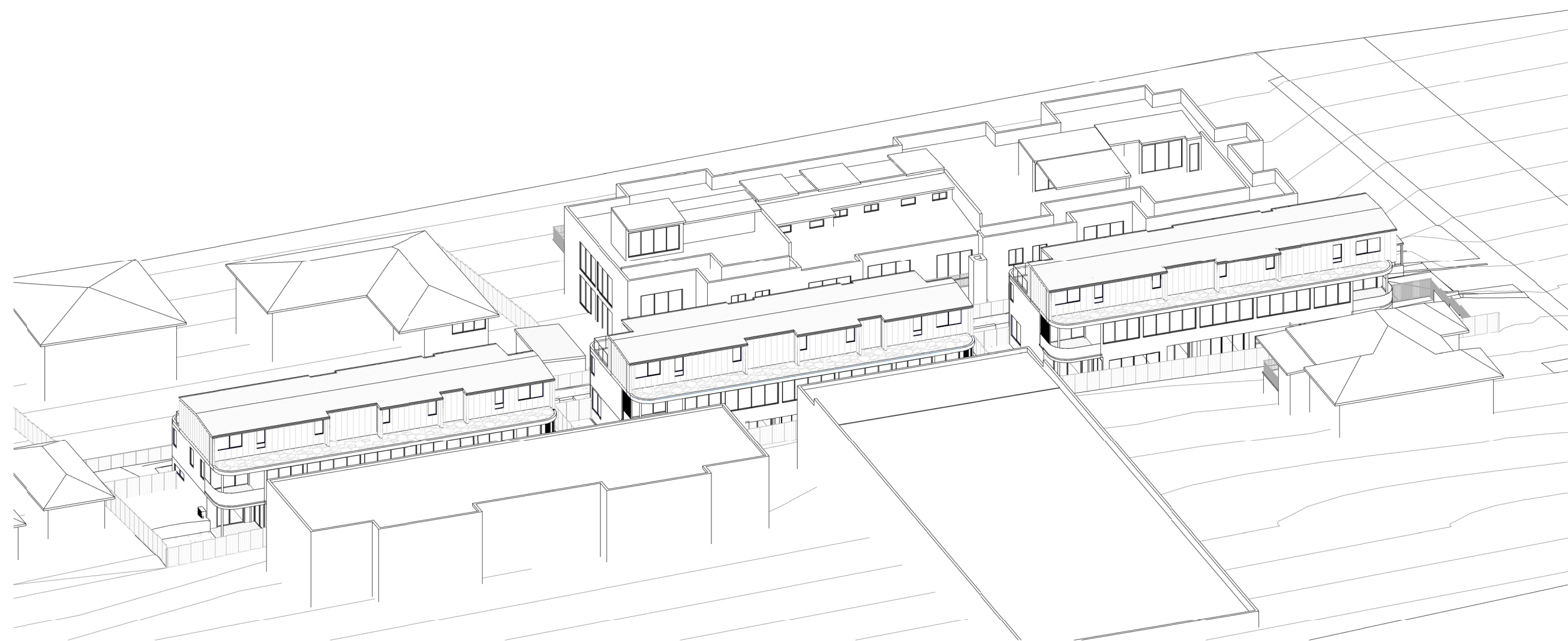
RELATIVE LEVELS SHOWN ON FENCES AS PER UPDATED SURVEY



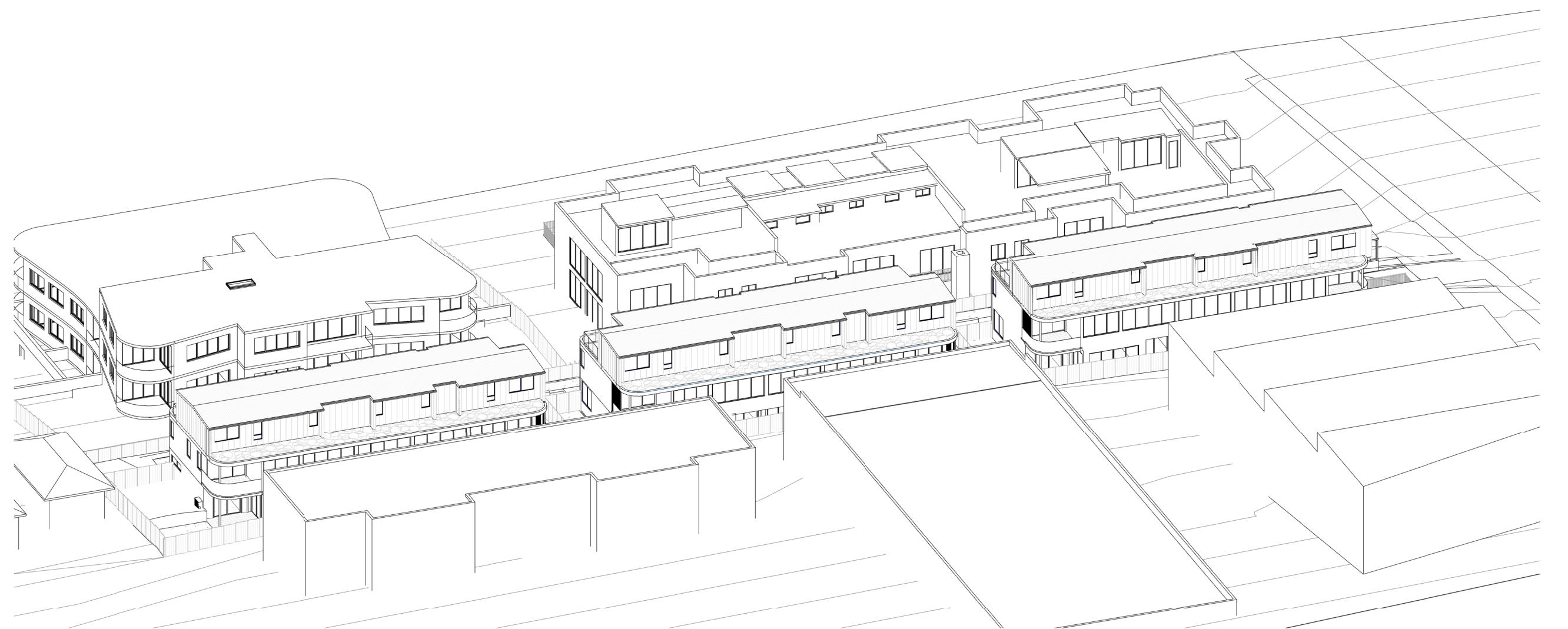
2 VIEW FROM SUN - JUNE 21 - 10AM DCP ENVELOPE
DA601 @ A1

NOTE: DCP ENVELOPE CONTAINS THE FOLLOWING COMPLIANCE:

1. FRONT SETBACK	- COMPLAINT AT 6.5M
2. SIDE SETBACK NORTH	- COMPLAINT AT 4.5M
3. SIDE SETBACK SOUTH	- COMPLAINT AT 4.5M
4. SIDE BOUNDARY ENVELOPE NORTH	- COMPLAINT
5. SIDE BOUNDARY ENVELOPE SOUTH	- COMPLAINT
6. REAR SETBACK	- IN EXCESS OF COMPLIANCE AT 18M TO COMPLY WITH LANDSCAPING
7. LANDSCAPED OPEN SPACE	- COMPLAINT AT 50%
8. LEP HEIGHT CONTROL	- COMPLAINT AT MAXIMUM 8.5M



3 VIEW FROM SUN - JUNE 21 - 10AM PROPOSED
DA601 @ A1

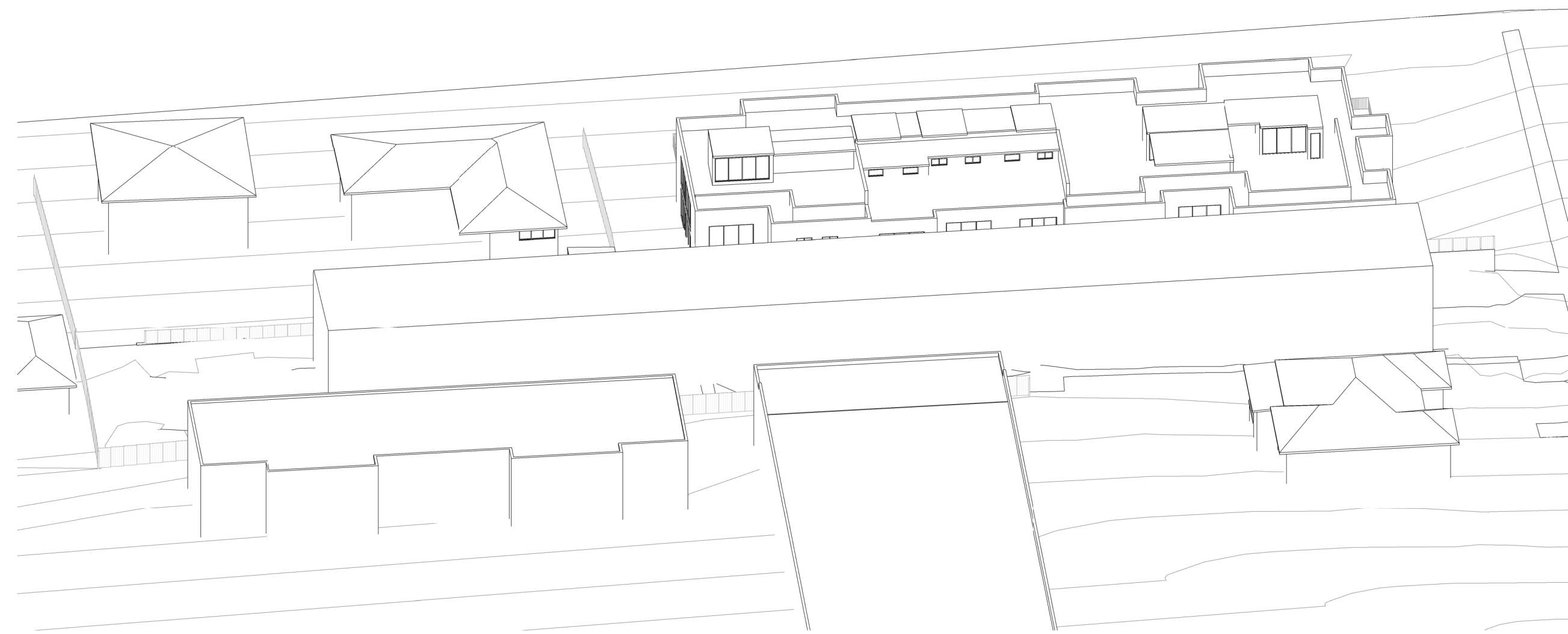


4 VIEW FROM SUN - JUNE 21 - 10AM PROPOSED WITH NEIGHBOURING MASSING AT 33 PINE AVE
DA601 @ A1



RELATIVE LEVELS SHOWN ON FENCES AS PER UPDATED SURVEY

1 VIEW FROM SUN - JUNE 21 - 11AM EXISTING
DA602/ @ A1



2 VIEW FROM SUN - JUNE 21 - 11AM DCP ENVELOPE
DA602/ @ A1

- NOTE: DCP ENVELOPE CONTAINS THE FOLLOWING COMPLIANCE:
- | | |
|---------------------------------|---|
| 1. FRONT SETBACK | - COMPLAINT AT 6.5M |
| 2. SIDE SETBACK NORTH | - COMPLAINT AT 4.5M |
| 3. SIDE SETBACK SOUTH | - COMPLAINT AT 4.3M |
| 4. SIDE BOUNDARY ENVELOPE NORTH | - COMPLAINT |
| 5. SIDE BOUNDARY ENVELOPE SOUTH | - COMPLAINT |
| 6. REAR SETBACK | - IN EXCESS OF COMPLIANCE AT 18M TO COMPLY WITH LANDSCAPING |
| 7. LANDSCAPED OPEN SPACE | - COMPLAINT AT 50% |
| 8. LEP HEIGHT CONTROL | - COMPLAINT AT MAXIMUM 8.5M |



3 VIEW FROM SUN - JUNE 21 - 11AM PROPOSED
DA602/ @ A1

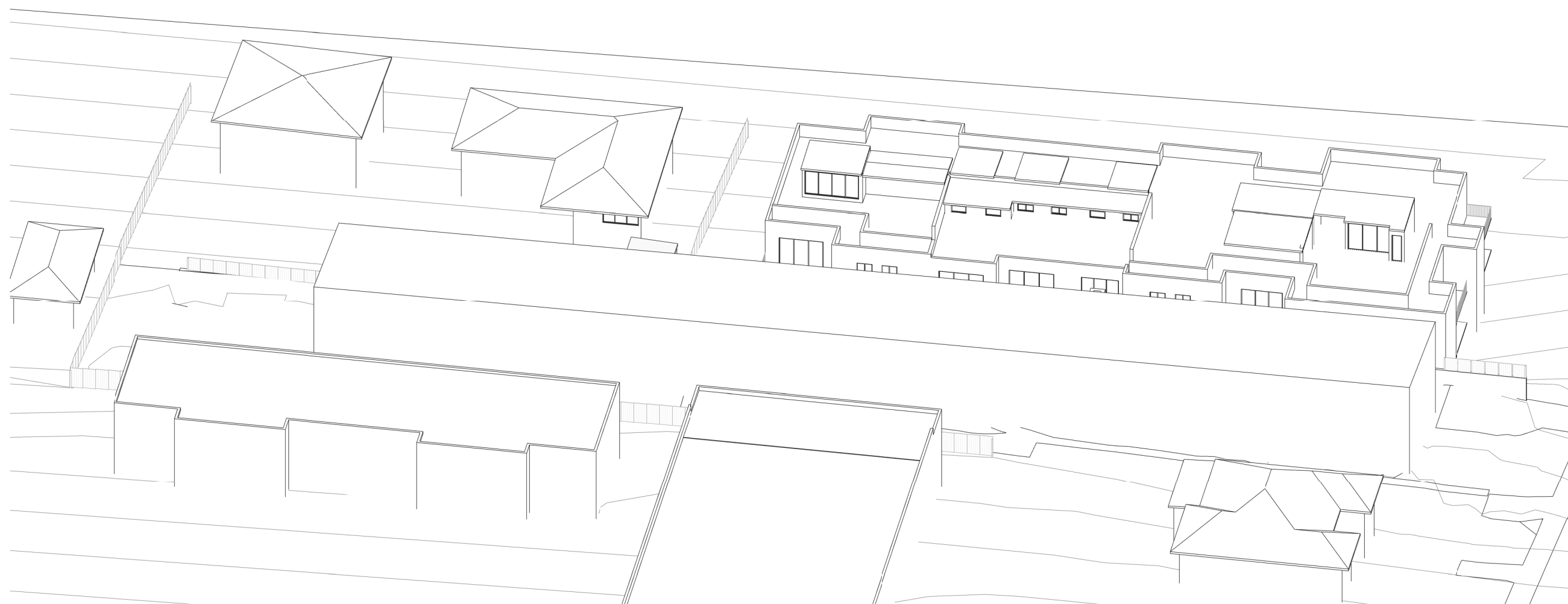


4 VIEW FROM SUN - JUNE 21 - 11AM PROPOSED WITH NEIGHBOURING MASSING AT 33 PINE AVE
DA602/ @ A1



1 VIEW FROM SUN - JUNE 21 - 12PM EXISTING
DA603 @ A1

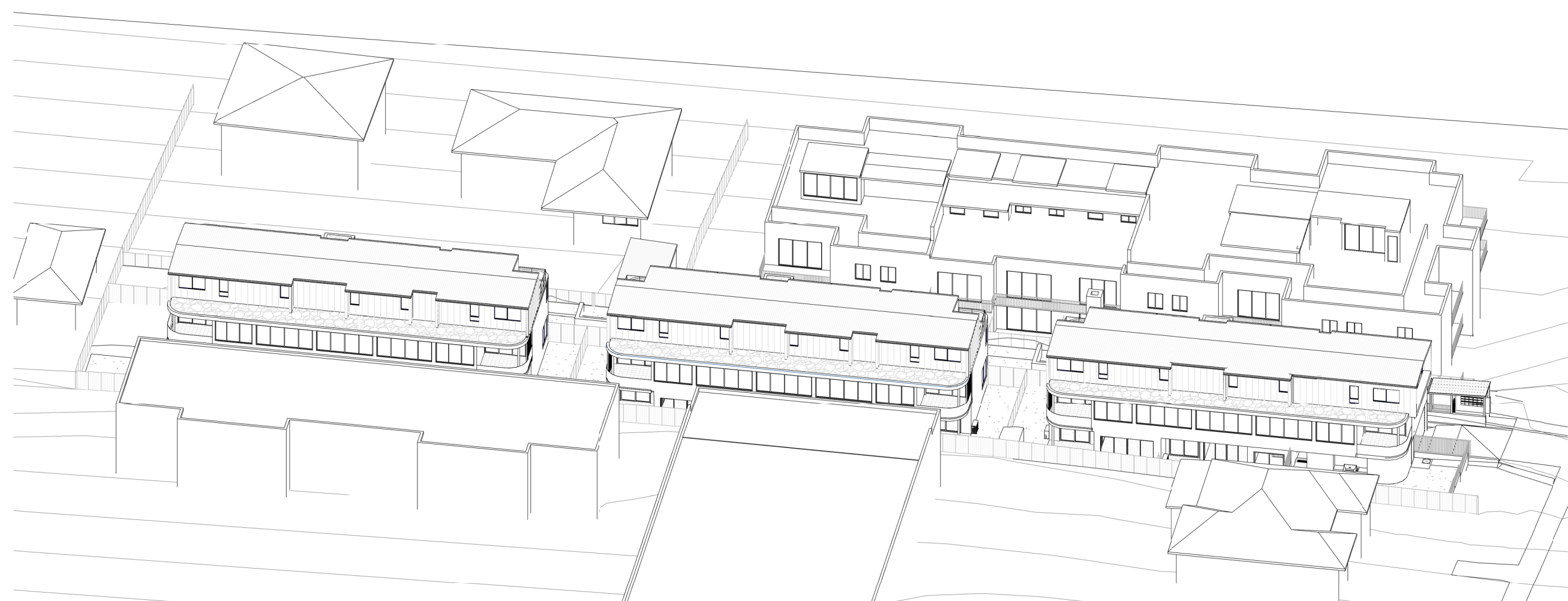
RELATIVE LEVELS SHOWN ON FENCES AS PER UPDATED SURVEY



2 VIEW FROM SUN - JUNE 21 - 12PM DCP ENVELOPE
DA603 @ A1

NOTE: DCP ENVELOPE CONTAINS THE FOLLOWING COMPLIANCE:

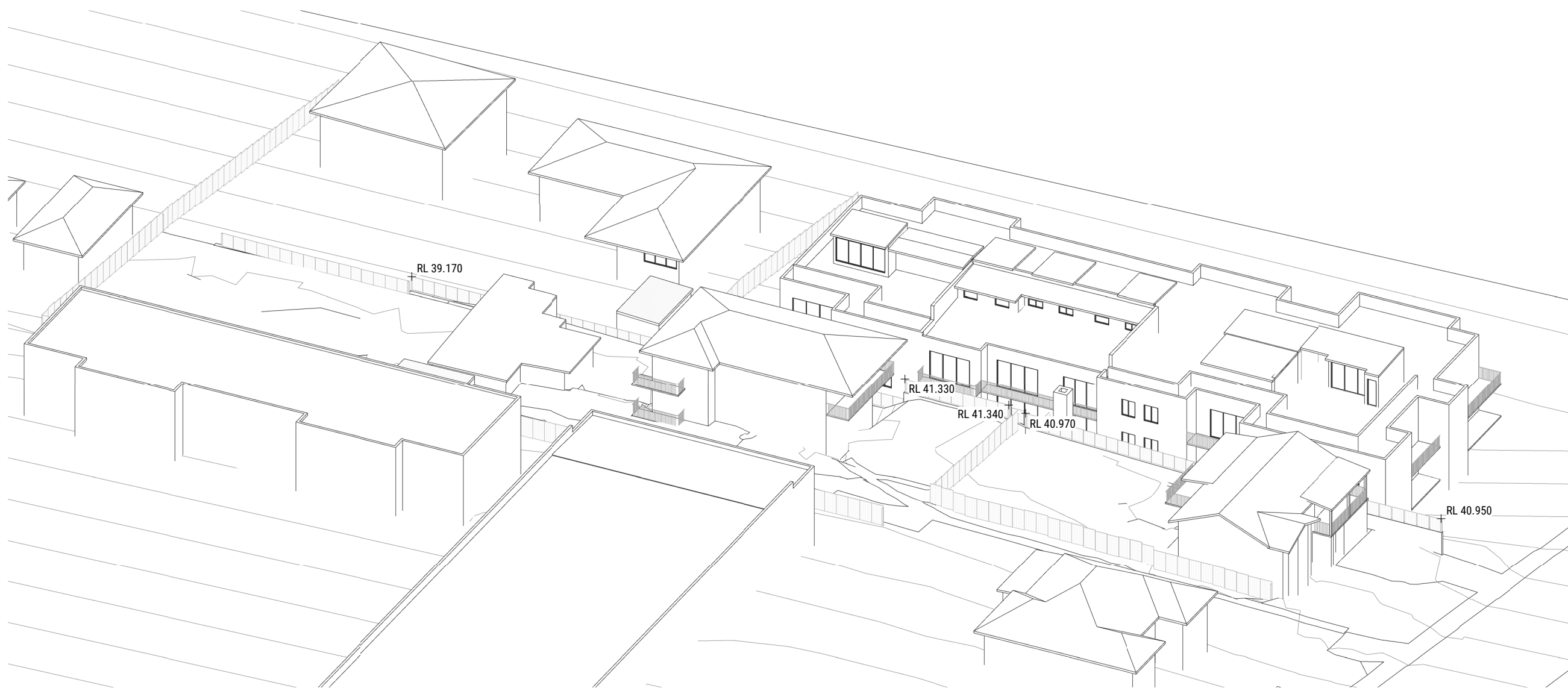
1. FRONT SETBACK	- COMPLIANT AT 6.5M
2. SIDE SETBACK NORTH	- COMPLIANT AT 4.5M
3. SIDE SETBACK SOUTH	- COMPLIANT AT 4.5M
4. SIDE BOUNDARY ENVELOPE NORTH	- COMPLIANT
5. SIDE BOUNDARY ENVELOPE SOUTH	- COMPLIANT
6. REAR SETBACK	- IN EXCESS OF COMPLIANCE AT 18M TO COMPLY WITH LANDSCAPING
7. LANDSCAPED OPEN SPACE	- COMPLIANT AT 50%
8. LEP HEIGHT CONTROL	- COMPLIANT AT MAXIMUM 8.5M



3 VIEW FROM SUN - JUNE 21 - 12PM PROPOSED
DA603 @ A1

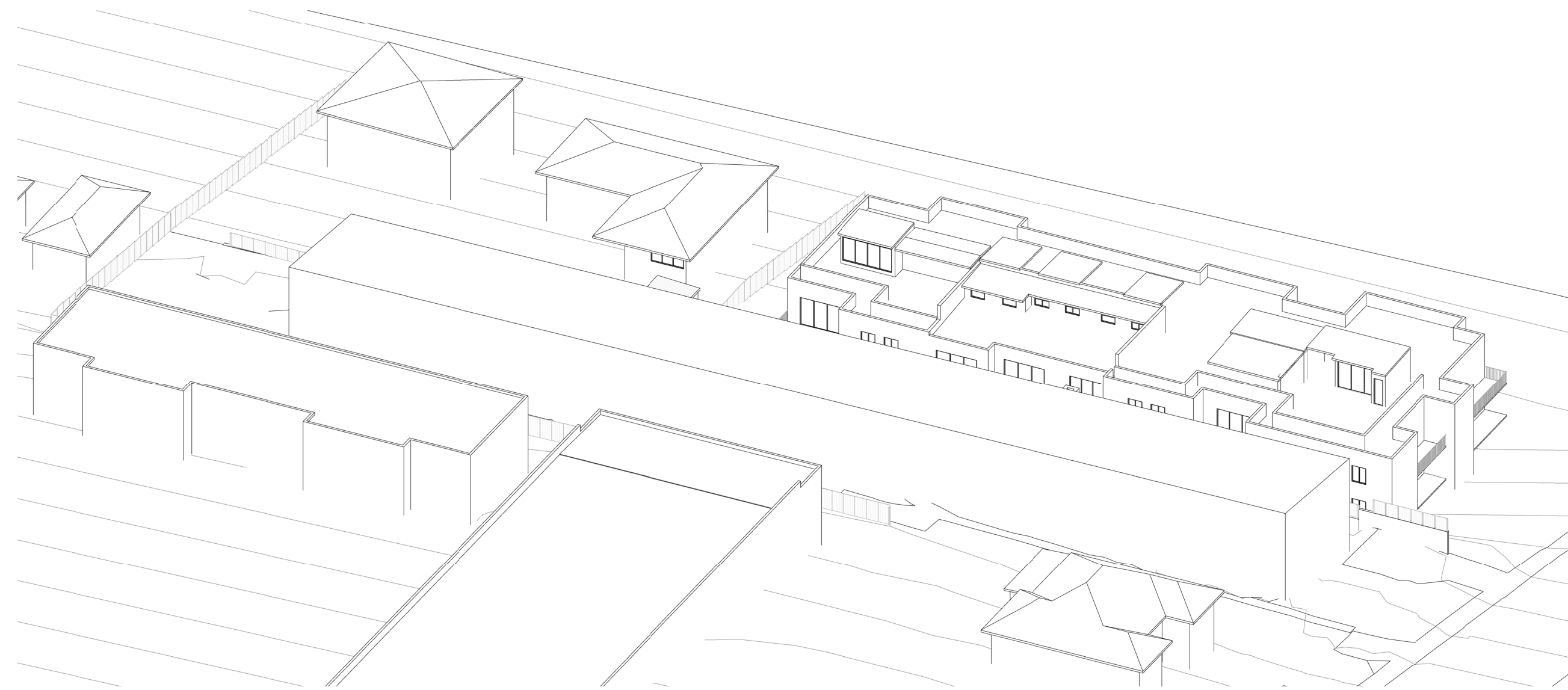


4 VIEW FROM SUN - JUNE 21 - 12PM PROPOSED WITH NEIGHBOURING MASSING AT 33 PINE AVE
DA603 @ A1



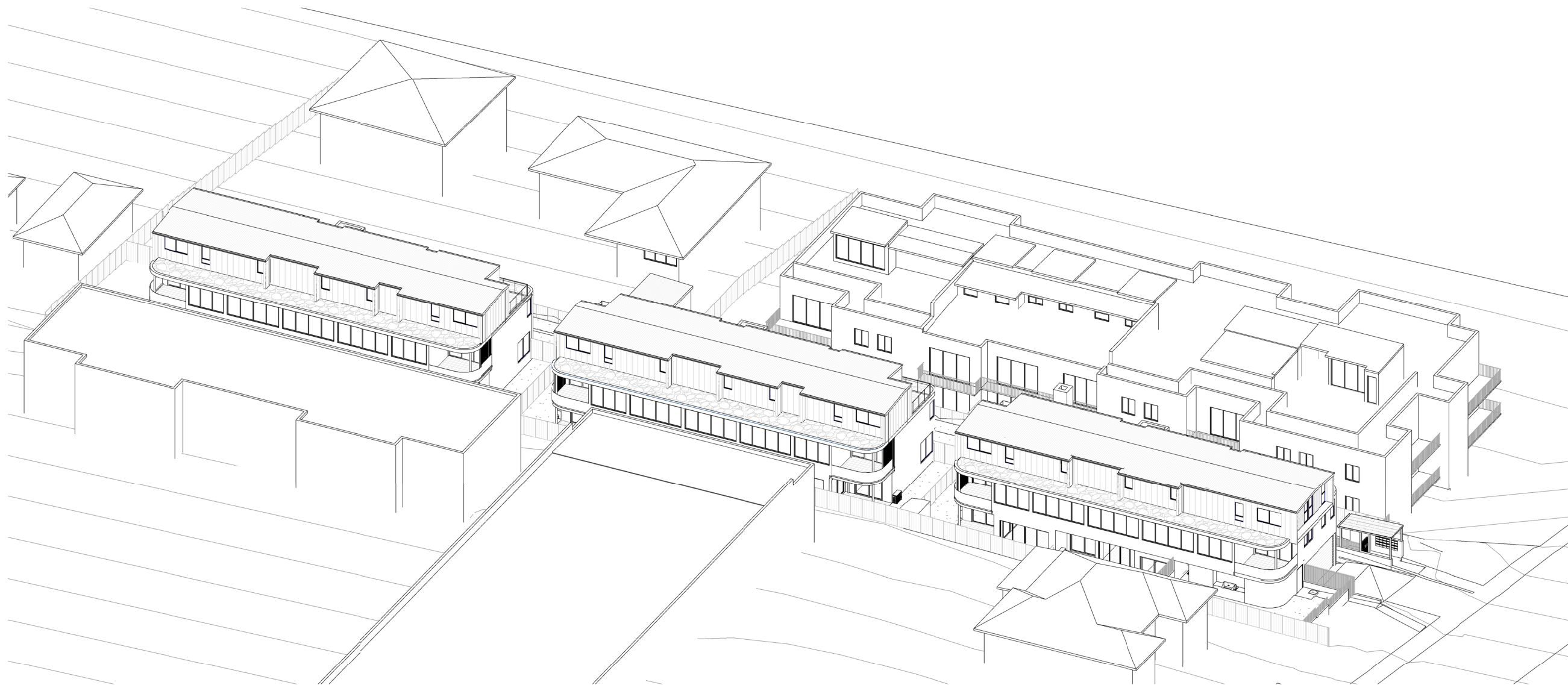
RELATIVE LEVELS SHOWN ON FENCES AS PER UPDATED SURVEY

1 VIEW FROM SUN - JUNE 21 - 1PM EXISTING
DA604 @ A1

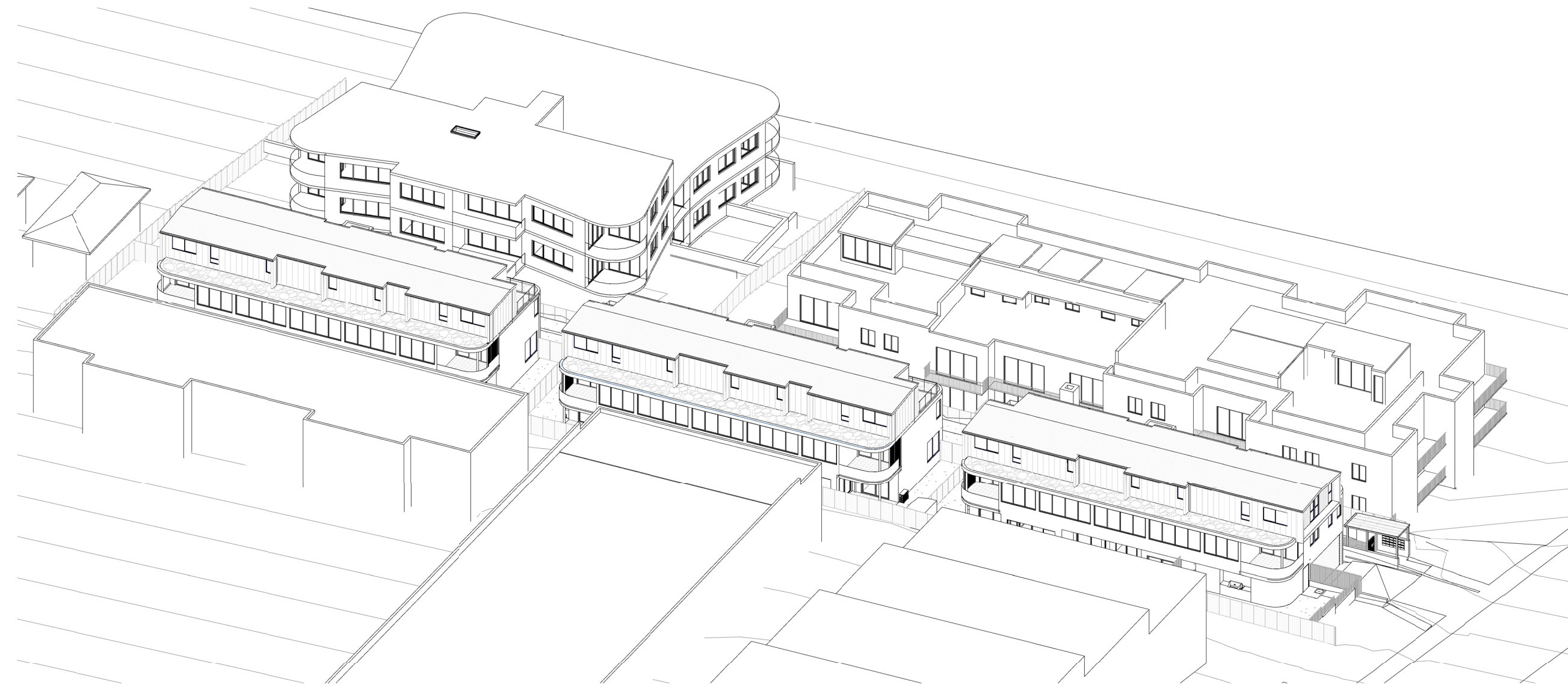


2 VIEW FROM SUN - JUNE 21 - 1PM DCP ENVELOPE
DA604 @ A1

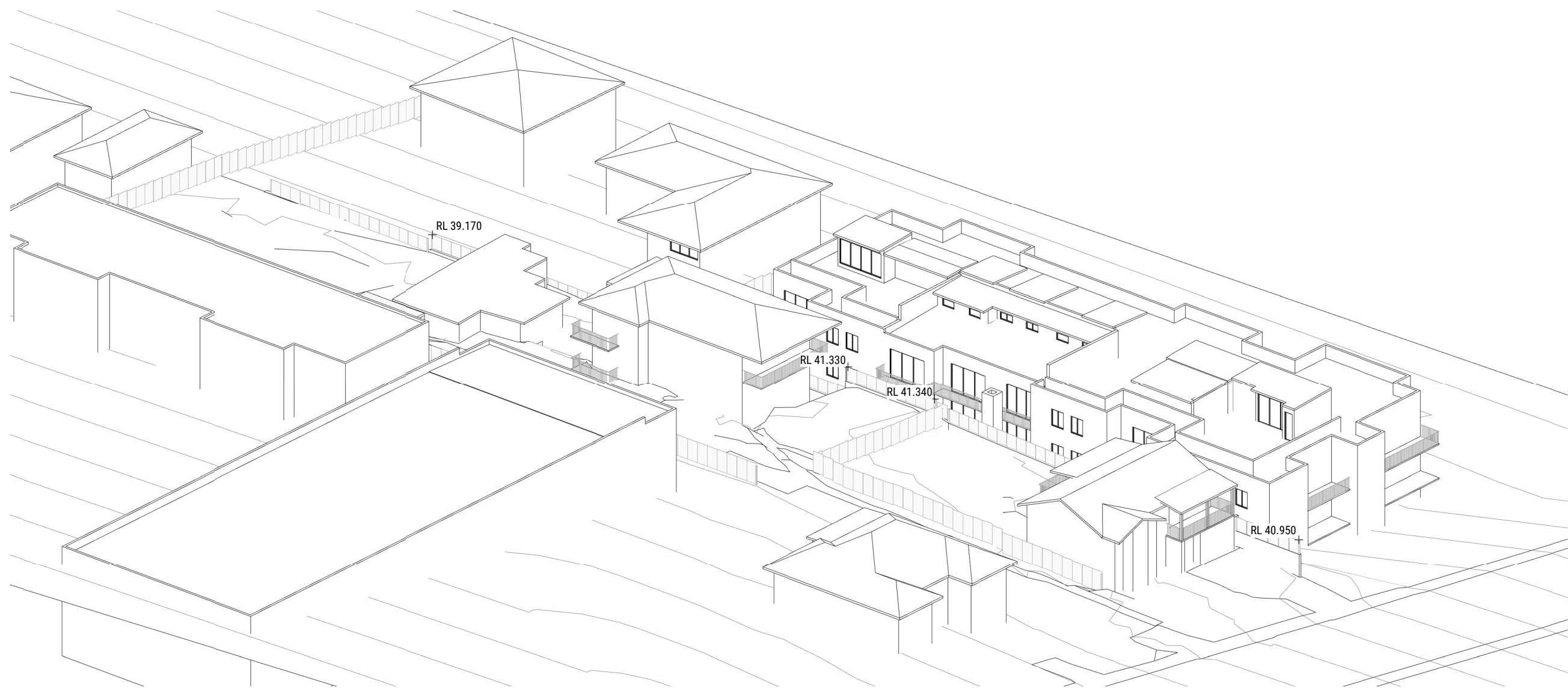
- NOTE: DCP ENVELOPE CONTAINS THE FOLLOWING COMPLIANCE:
- | | |
|---------------------------------|---|
| 1. FRONT SETBACK | - COMPLAINT AT 6.5M |
| 2. SIDE SETBACK NORTH | - COMPLAINT AT 4.5M |
| 3. SIDE SETBACK SOUTH | - COMPLAINT AT 4.3M |
| 4. SIDE BOUNDARY ENVELOPE NORTH | - COMPLAINT |
| 5. SIDE BOUNDARY ENVELOPE SOUTH | - COMPLAINT |
| 6. REAR SETBACK | - IN EXCESS OF COMPLIANCE AT 18M TO COMPLY WITH LANDSCAPING |
| 7. LANDSCAPED OPEN SPACE | - COMPLAINT AT 50% |
| 8. LEP HEIGHT CONTROL | - COMPLAINT AT MAXIMUM 8.5M |



3 VIEW FROM SUN - JUNE 21 - 1PM PROPOSED
DA604 @ A1

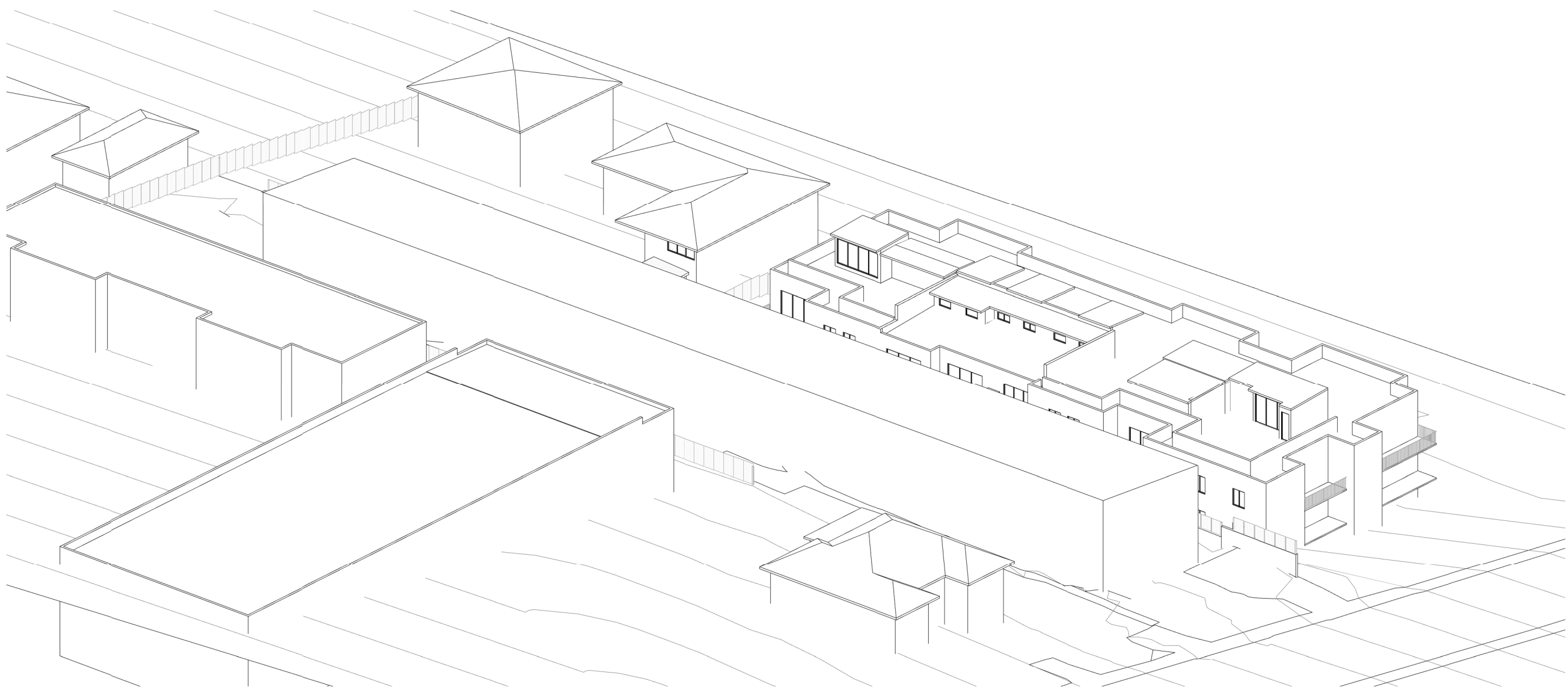


4 VIEW FROM SUN - JUNE 21 - 1PM PROPOSED WITH NEIGHBOURING MASSING AT 33 PINE AVE
DA604 @ A1



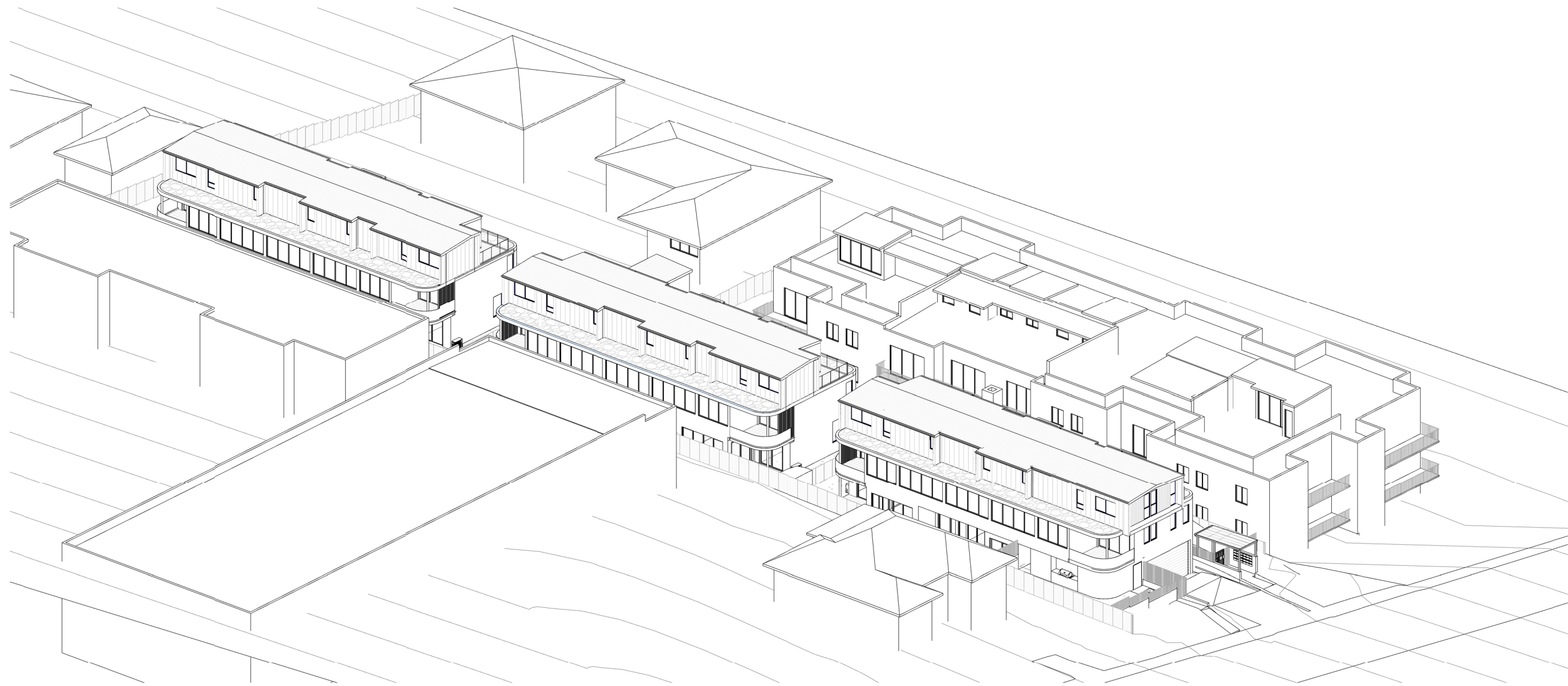
RELATIVE LEVELS SHOWN ON FENCES AS PER UPDATED SURVEY

1 VIEW FROM SUN - JUNE 21 - 2PM EXISTING
DA605 @ A1

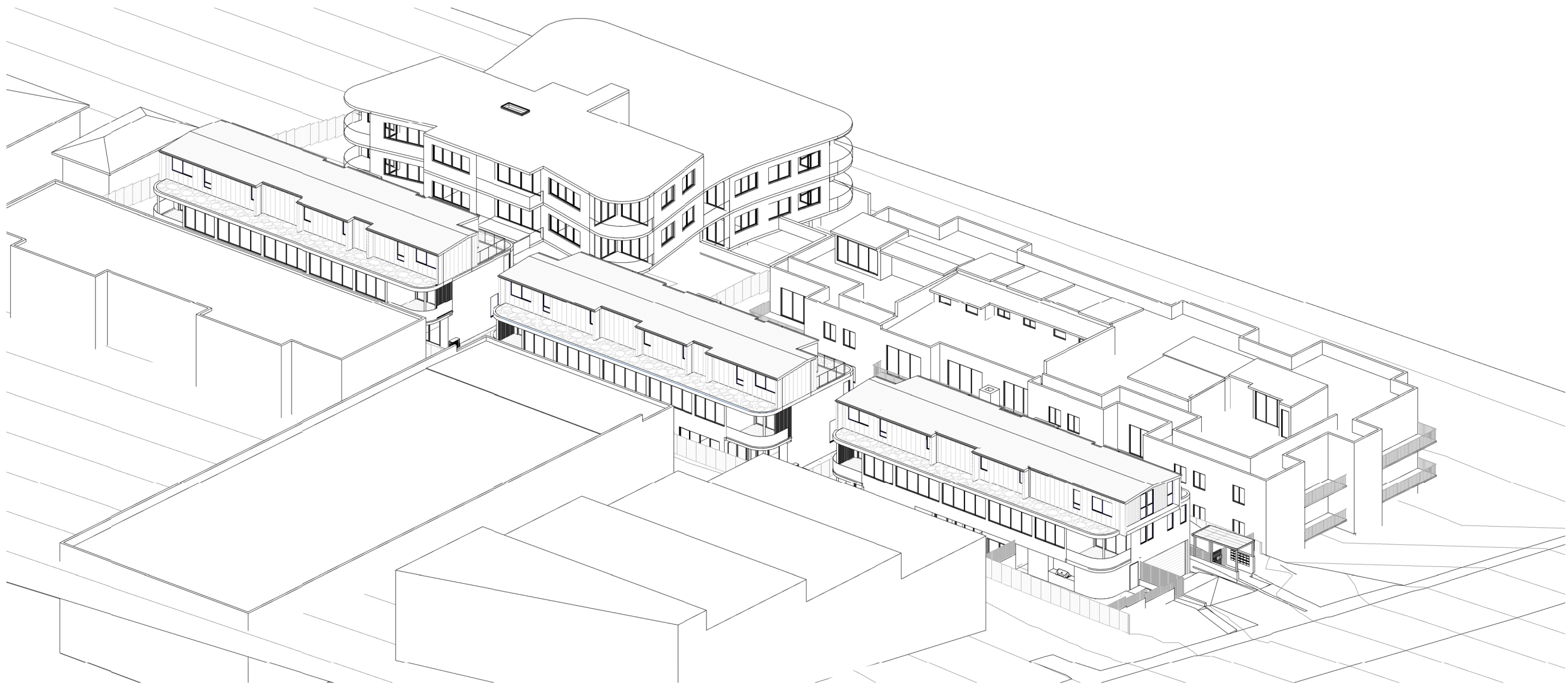


2 VIEW FROM SUN - JUNE 21 - 2PM DCP ENVELOPE
DA605 @ A1

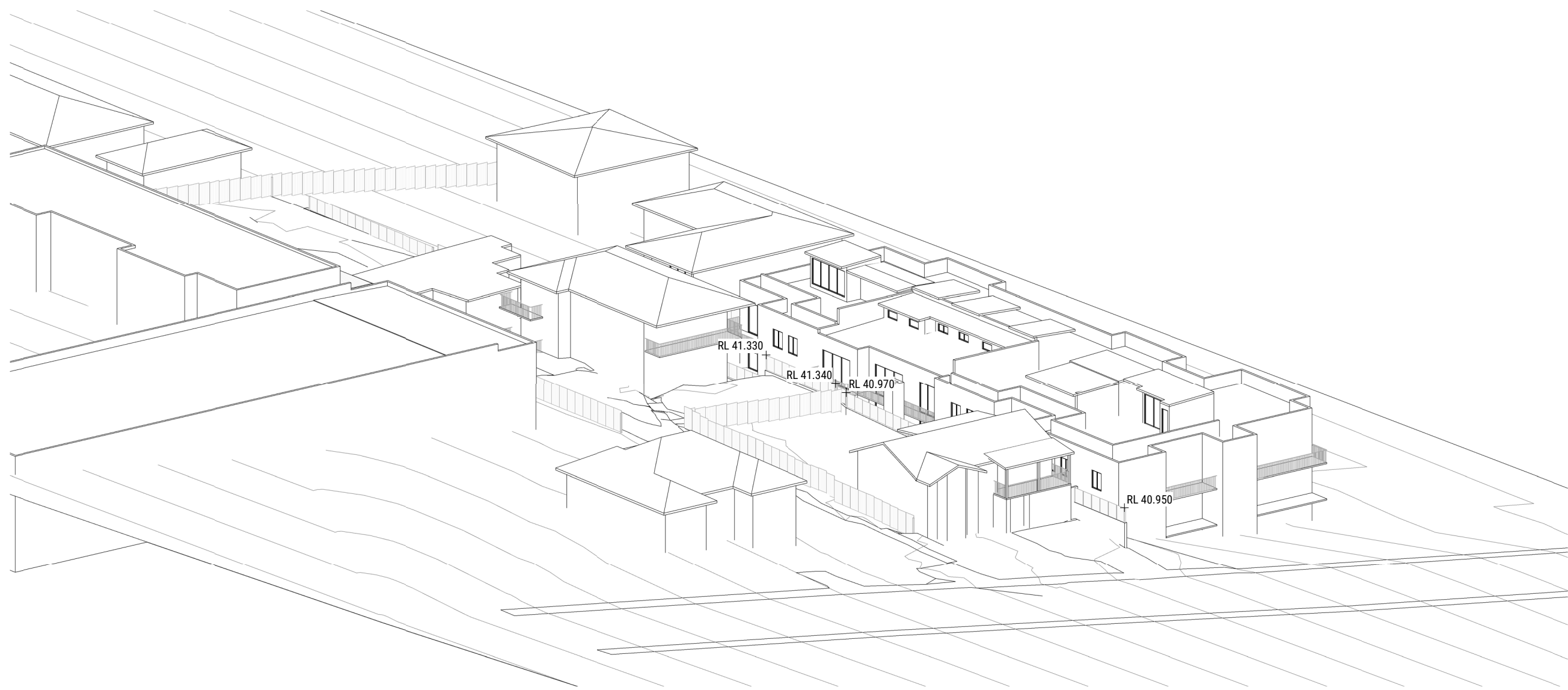
- NOTE: DCP ENVELOPE CONTAINS THE FOLLOWING COMPLIANCE:
- | | |
|---------------------------------|---|
| 1. FRONT SETBACK | - COMPLIANT AT 6.5M |
| 2. SIDE SETBACK NORTH | - COMPLIANT AT 4.5M |
| 3. SIDE SETBACK SOUTH | - COMPLIANT AT 4.5M |
| 4. SIDE BOUNDARY ENVELOPE NORTH | - COMPLIANT |
| 5. SIDE BOUNDARY ENVELOPE SOUTH | - COMPLIANT |
| 6. REAR SETBACK | - IN EXCESS OF COMPLIANCE AT 18M TO COMPLY WITH LANDSCAPING |
| 7. LANDSCAPED OPEN SPACE | - COMPLIANT AT 50% |
| 8. LEP HEIGHT CONTROL | - COMPLIANT AT MAXIMUM 8.5M |



3 VIEW FROM SUN - JUNE 21 - 2PM PROPOSED
DA605 @ A1

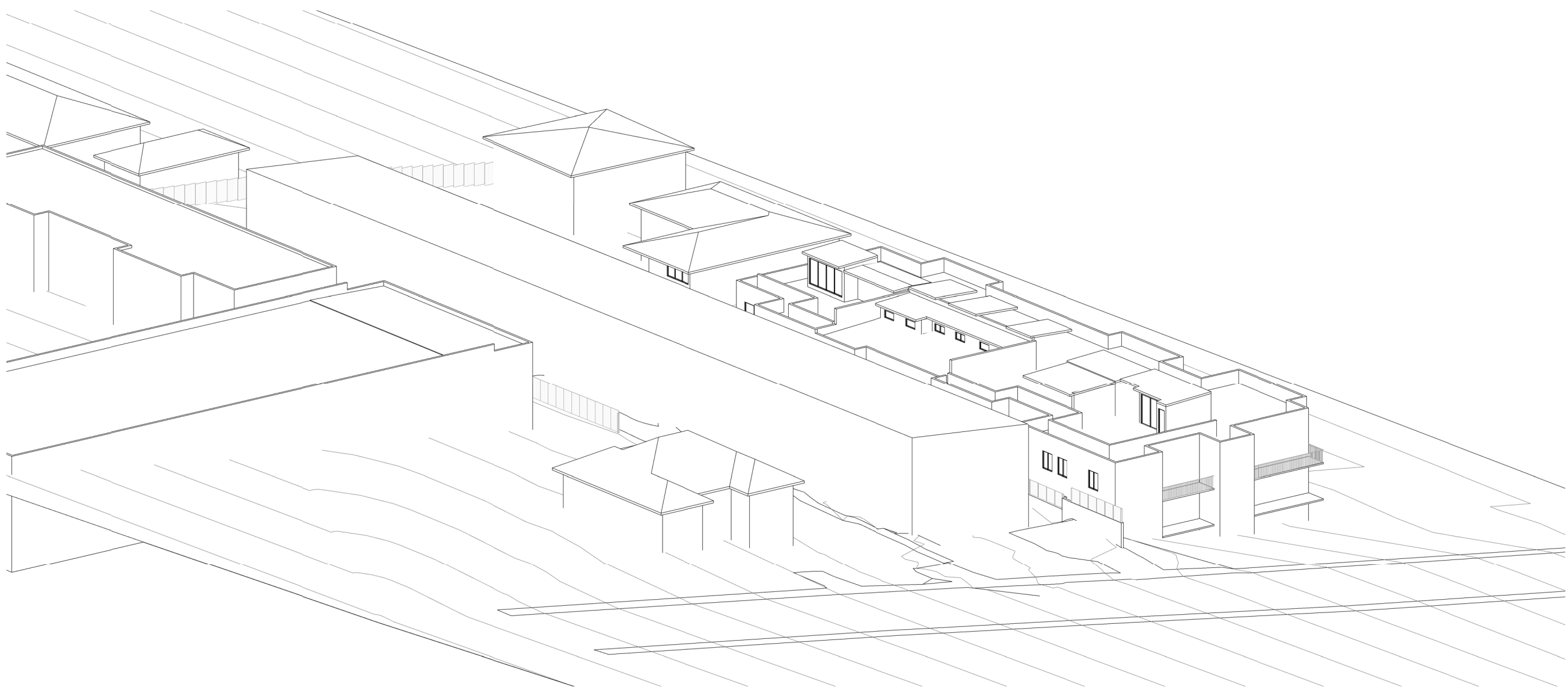


4 VIEW FROM SUN - JUNE 21 - 2PM PROPOSED WITH NEIGHBOURING MASSING AT 33 PINE AVE.
DA605 @ A1



RELATIVE LEVELS SHOWN ON FENCES AS PER UPDATED SURVEY

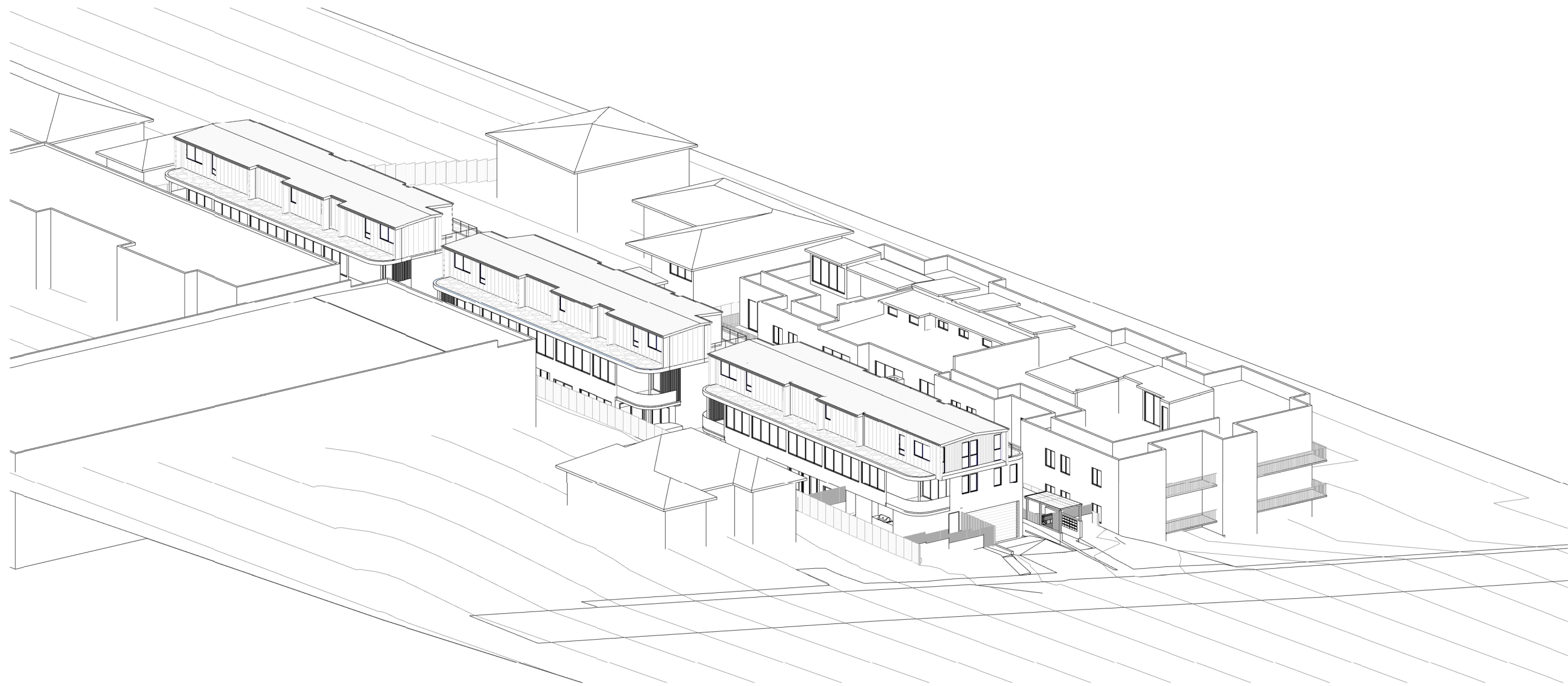
1 VIEW FROM SUN - JUNE 21 - 3PM EXISTING
DA606/ @ A1



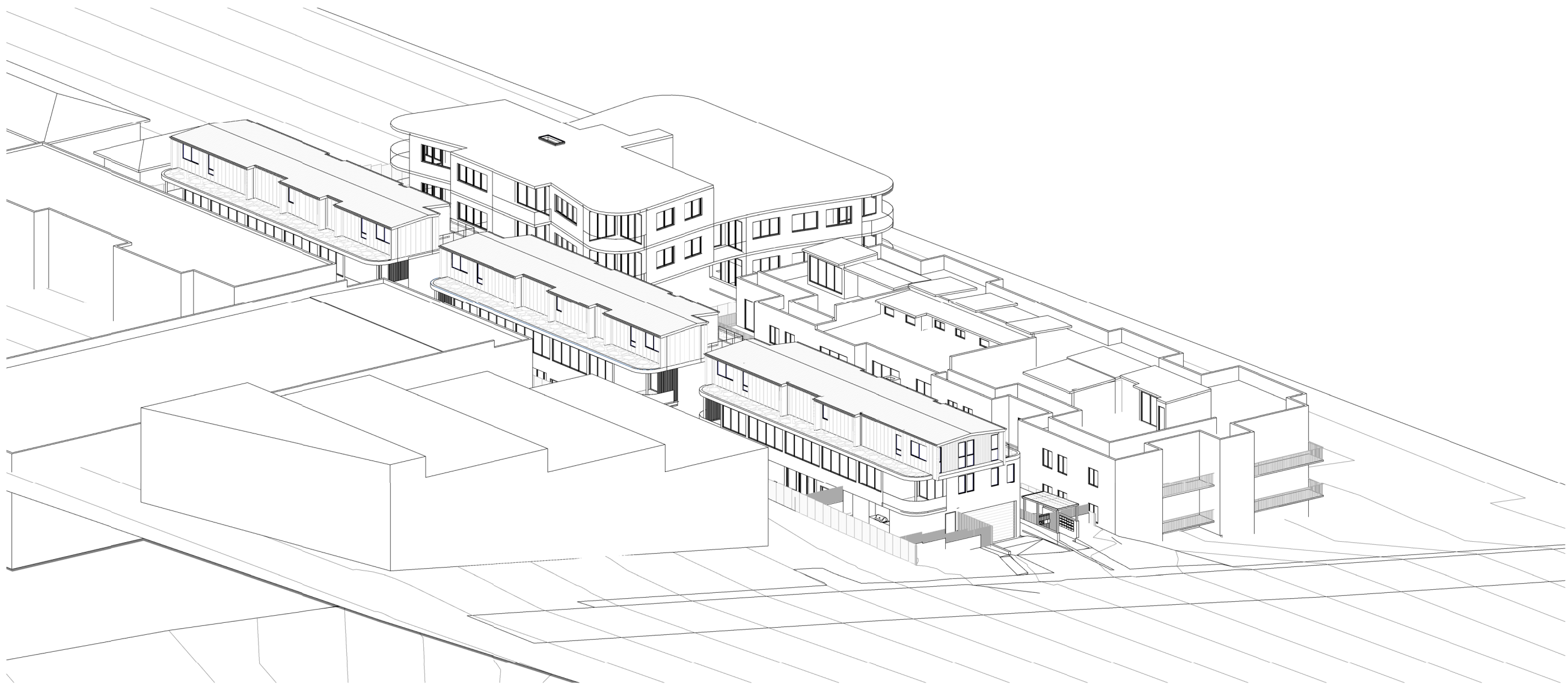
2 VIEW FROM SUN - JUNE 21 - 3PM DCP ENVELOPE
DA606/ @ A1

NOTE: DCP ENVELOPE CONTAINS THE FOLLOWING COMPLIANCE:

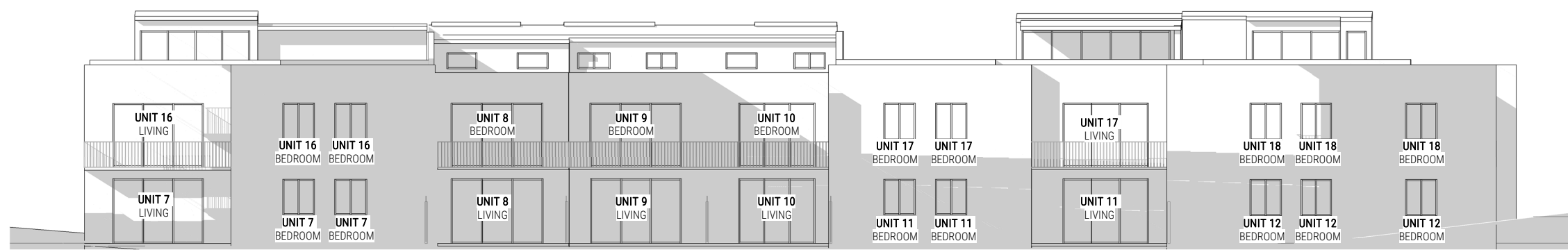
1. FRONT SETBACK	- COMPLAINT AT 6.5M
2. SIDE SETBACK NORTH	- COMPLAINT AT 4.5M
3. SIDE SETBACK SOUTH	- COMPLAINT AT 4.5M
4. SIDE BOUNDARY ENVELOPE NORTH	- COMPLAINT
5. SIDE BOUNDARY ENVELOPE SOUTH	- COMPLAINT
6. REAR SETBACK	- IN EXCESS OF COMPLIANCE AT 18M TO COMPLY WITH LANDSCAPING
7. LANDSCAPED OPEN SPACE	- COMPLAINT AT 50%
8. LEP HEIGHT CONTROL	- COMPLAINT AT MAXIMUM 8.5M



3 VIEW FROM SUN - JUNE 21 - 3PM PROPOSED
DA606/ @ A1



4 VIEW FROM SUN - JUNE 21 - 3PM PROPOSED WITH NEIGHBOURING MASSING AT 33 PINE AVE
DA606/ @ A1



1 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 9AM JUNE 21ST - EXISTING
DA700 @ A1



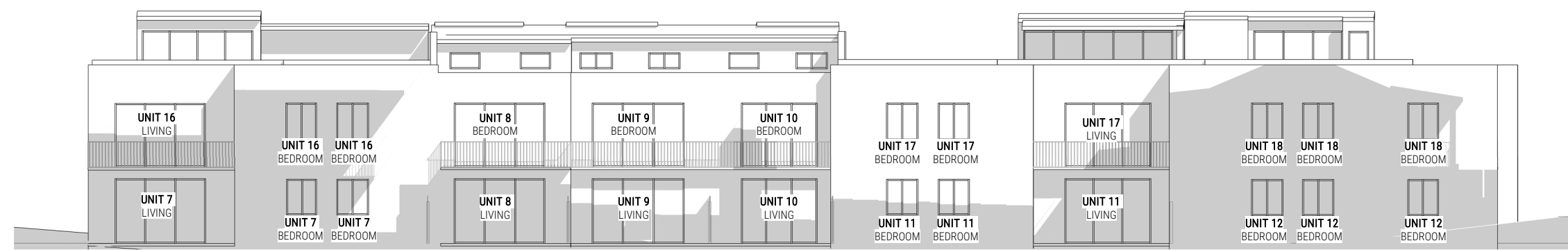
2 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 10AM JUNE 21ST - EXISTING
DA700 @ A1



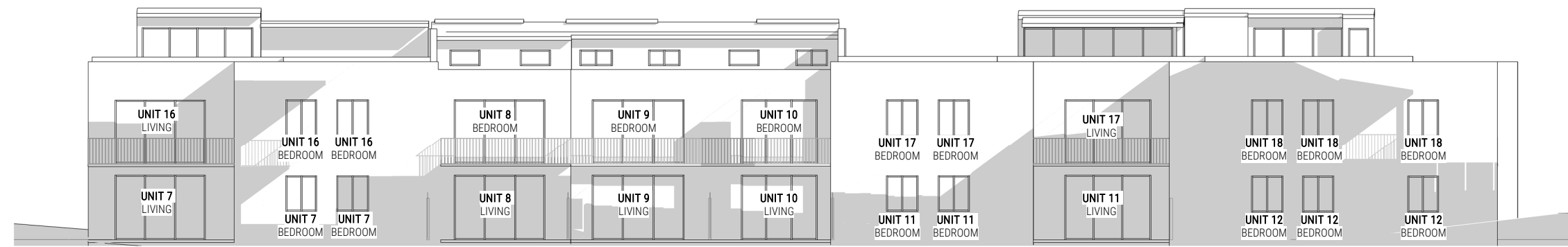
3 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 11AM JUNE 21ST - EXISTING
DA700 @ A1



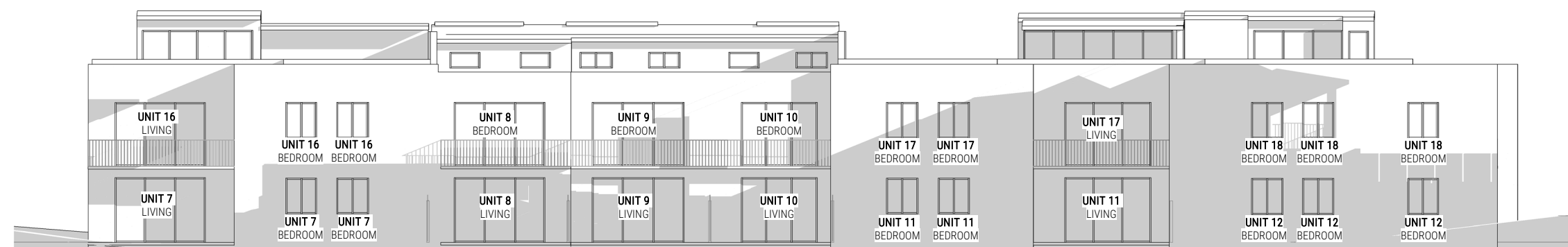
4 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 12PM JUNE 21ST - EXISTING
DA700 @ A1



5 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 1PM JUNE 21ST - EXISTING
DA700 @ A1



6 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 2PM JUNE 21ST - EXISTING
DA700 @ A1



7 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 3PM JUNE 21ST - EXISTING
DA700 @ A1



1 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 9AM JUNE 21ST - DCP
DA701 @ A1



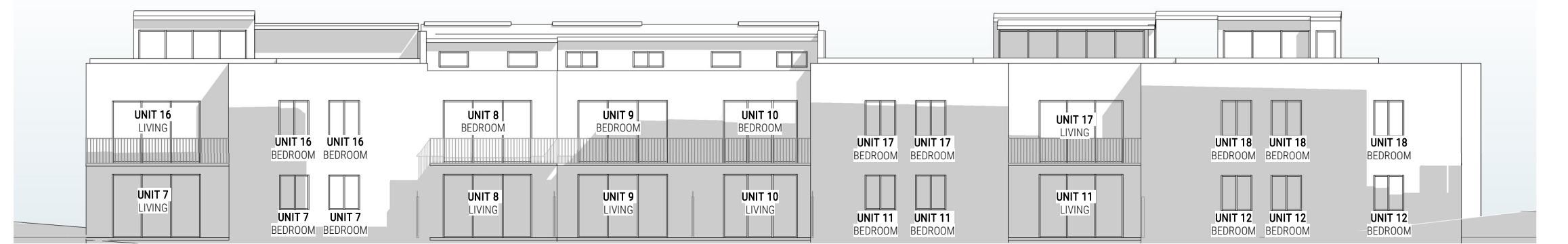
2 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 10AM JUNE 21ST - DCP
DA701 @ A1



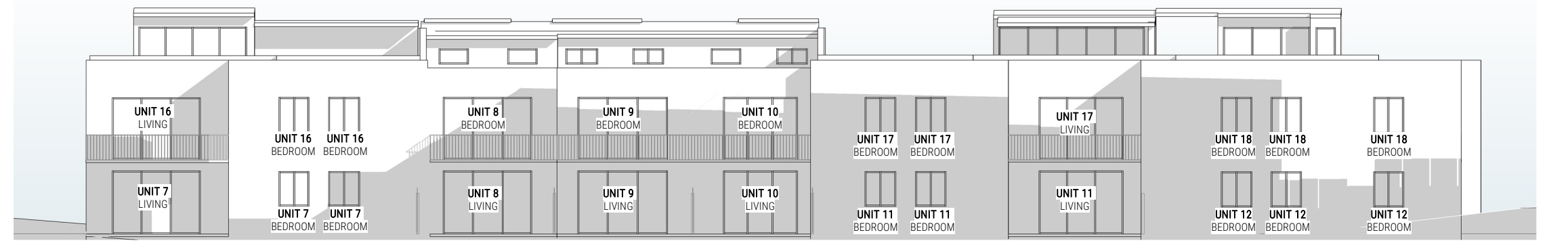
3 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 11AM JUNE 21ST - DCP
DA701 @ A1



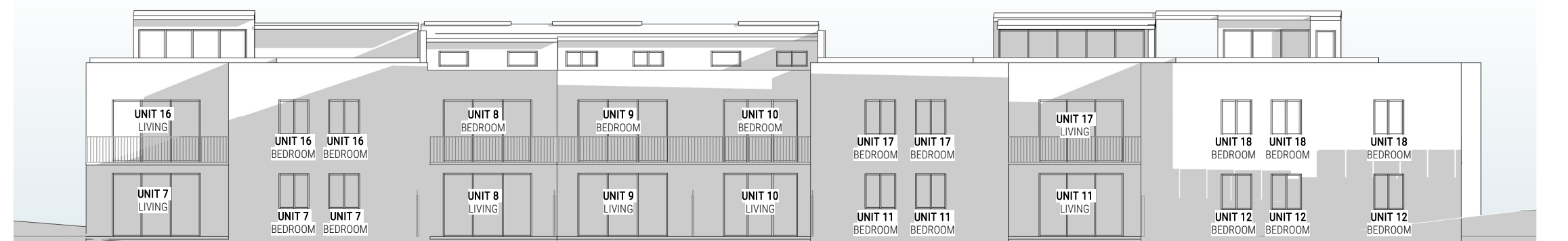
4 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 12PM JUNE 21ST - DCP
DA701 @ A1



5 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 1PM JUNE 21ST - DCP
DA701 @ A1



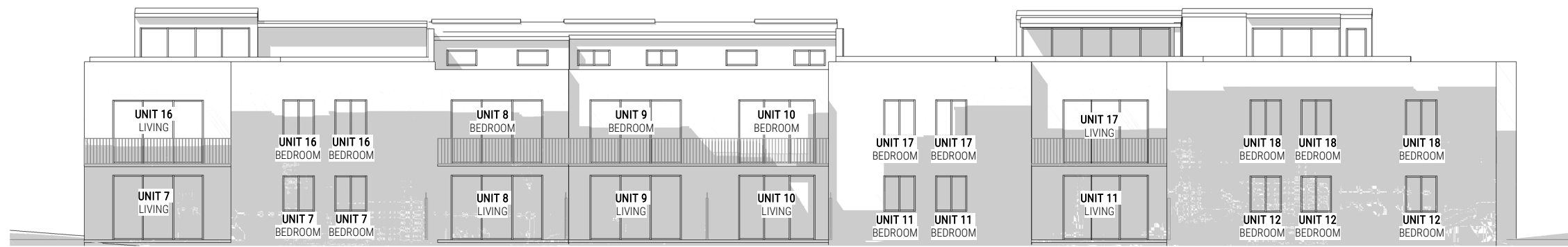
6 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 2PM JUNE 21ST - DCP
DA701 @ A1



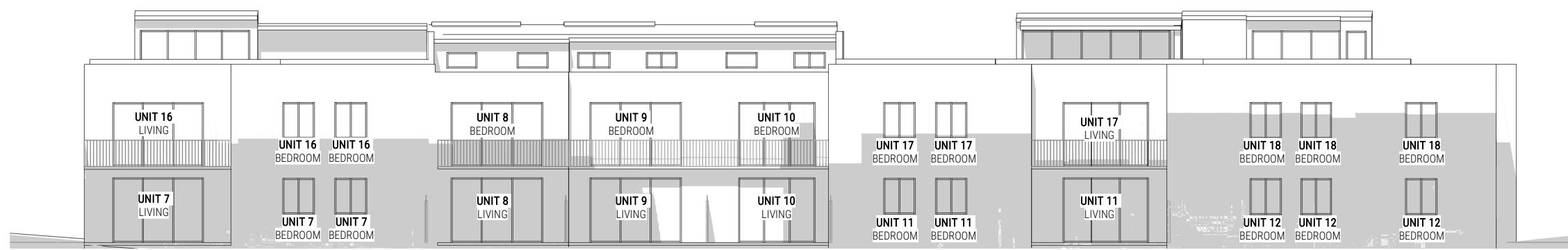
7 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 3PM JUNE 21ST - DCP
DA701 @ A1



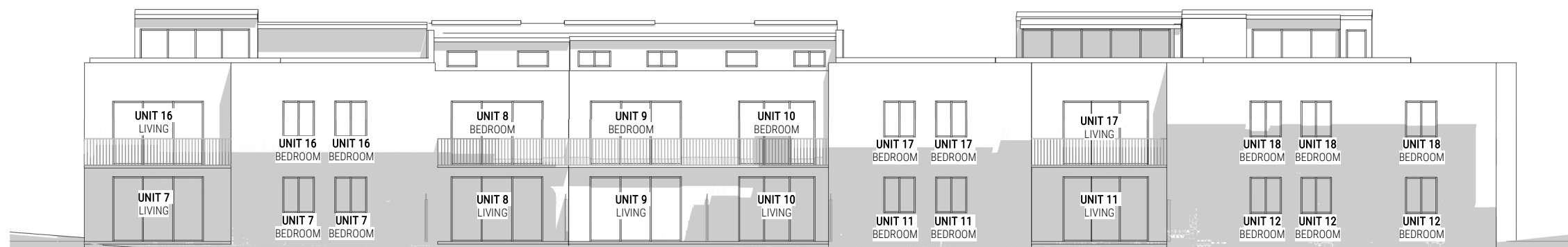
1 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 9AM JUNE 21ST - PROPOSED
DA702 @ A1



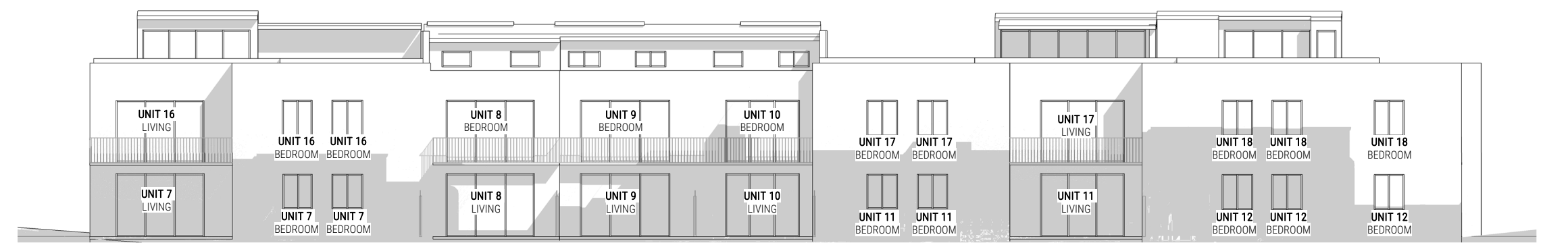
2 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 10AM JUNE 21ST - PROPOSED
DA702 @ A1



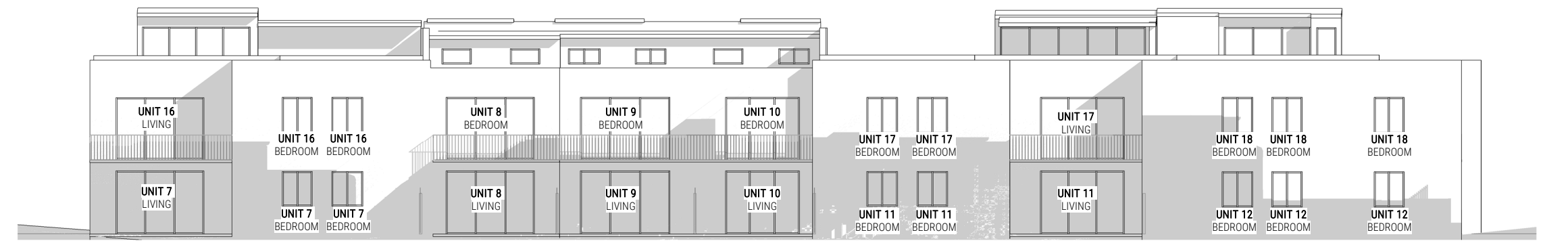
3 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 11AM JUNE 21ST - PROPOSED
DA702 @ A1



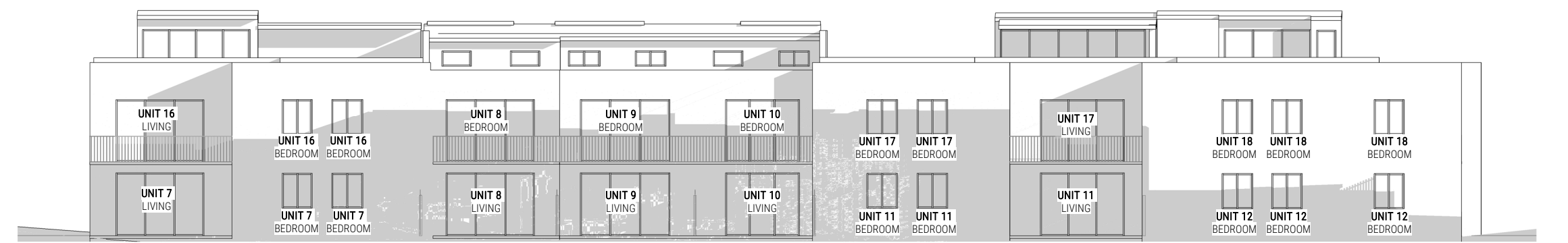
4 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 12PM JUNE 21ST - PROPOSED
DA702 @ A1



5 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 1PM JUNE 21ST - PROPOSED
DA702 @ A1



6 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 2PM JUNE 21ST - PROPOSED
DA702 @ A1



7 ELEVATIONAL SHADOW OF No.23B-27 PINE AVE - 3PM JUNE 21ST - PROPOSED
DA702 @ A1