EXPERT OPINION: SOLAR ACCESS

Walsh Analysis

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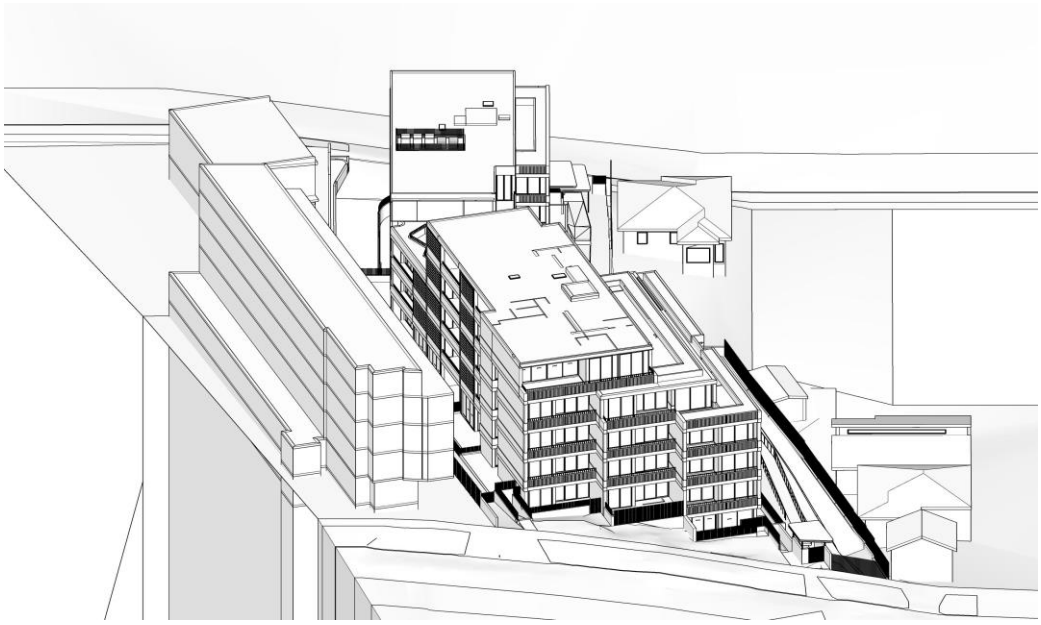

PROPOSED 43 APARTMENTS

1 Gatacre Avenue & 5 Allison Avenue, Lane Cove

1st August 2024

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1.0 PRELIMINARIES AND SUMMARY

1.1 PRELIMINARIES

1.1.1 This expert opinion report is an analysis and verification of projected **solar access and overshadowing** compliance for the DA proposal comprising of 43 apartments at 1 Gatacre Avenue & 5 Allison Avenue Lane Cove.

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*.

1.2 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 B), and a detailed compliance table of the amended DA scheme is prepared (Appendix C).

30/43 (70%) of living rooms and private open spaces are projected to achieve 2 hours or more sunlight between 9am - 3pm on June 21. **This represents full compliance with design criterion 1 of the ADG Objective 4A-1**

6/43 (14%) 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**

1.3 SUMMARY OF OVERSHADOWING IMPACTS

In our considered opinion, the projected overshadowing impact of the development proposal are considered reasonable in areas undergoing change such as this area. Refer to part 5.1 of the report for further analysis.

2.0 DOCUMENTS AND INFORMATION

2.1 DOCUMENTS

2.1.1 We base our analysis and opinion on drawings by PBD Architecture:

DRAWING NO.	DRAWING NAME	ISSUE
DA100	BASEMENT 2 FLOOR PLAN	P8
DA101	BASEMENT 1 FLOOR PLAN	P8
DA102	GROUND FLOOR PLAN	P8
DA103	UPPER GROUND FLOOR PLAN	P8
DA104	LEVEL 1 FLOOR PLAN	P8
DA105	LEVEL 2 FLOOR PLAN	P8
DA106	LEVEL 3 FLOOR PLAN	P8
DA107	LEVEL 4 FLOOR PLAN	P8
DA108	ROOF PLAN	P8

3D digital model supplied by the architects in DWG format:
- P7-Gatacre Avenue_LANE COVE 3D MODEL.dwg

Survey by Mitch Ayres Surveying Pty Ltd Issue 6.

Approved DA drawings of 45/2020 for 382 Pacific Hwy, Lane Cove

2.2 SITE

The site is located at 1 Gatacre Avenue and 5 Allison Avenue Lane Cove. The has a long frontage to the North East which is ideal to receive solar compliance; however, there is an approved DA to the North East on Lot 2 DP 1065751. This tall building means solar compliance is much harder. The site also has a large fall to the south of approximately 6.8m which further makes solar compliance harder. There are neighbouring sites which are zoned R2 which will also be discussed later in the report.

Figure 1: Aerial view of site from SIX Maps

3.0 SOLAR ACCESS

3.1 RELEVANT SOLAR ACCESS STANDARDS

3.1.1 SEPP HOUSING 2021 CHAPTER 4

SEPP65 was repealed and replaced with SEPP Housing 2021 Chapter 4. The following is an extract from this document.

> **147 Determination of development applications and modification applications for residential apartment development**
>
> (1) Development consent must not be granted to residential apartment development, and a development consent for residential apartment development must not be modified, unless the consent authority has considered the following—
>
> (a) the quality of the design of the development, evaluated in accordance with the design principles for residential apartment development set out in Schedule 9,
>
> (b) the Apartment Design Guide,

We will shortly discuss the items in the Apartment Design Guide (ADG), but it is important to note that 147 (3) states the following:

> (3) To avoid doubt, subsection (1)(b) does not require a consent authority to require compliance with design criteria specified in the Apartment Design Guide.

The above shows that the consent authority needs to consider the ADG; but, that they do not require compliance with the design criteria.

There are also items of Case Law that discuss the status of the Design Criteria that are within the ADG. In Huajun Investments Pty Ltd v City of Canada Bay Council (No 3) [2019] NSWLEC 42 at [289] His Honour writes "the Apartment Design Guide guidelines do not have the status of development standards and strict compliance is not, in any fashion, mandated." This also referenced in the more recent decision of Construction Development Management Services Pty Ltd v City of Sydney [2023] NSWLEC 1620. In this case, [38] shows page 11 of the ADG which states:

> "Achieving the objectives
> Parts 3 and 4 of the Apartment Design Guide provide objectives, design criteria and design guidance for the siting, design and amenity of apartment development. Each topic area is structured to provide the user with:
> 1. a **description** of the topic and an explanation of its role and importance
> 2. **objectives** that describe the desired design outcomes
> 3. **design criteria** that provide the measurable requirements for how an objective can be achieved.
> 4. **design guidance** that provides advice on how the objectives and design criteria can be achieved through appropriate design responses, or in cases where design criteria cannot be met."

Commissioner Horton then continues at [52(1)]

> While 70% of apartments do not receive the sunlight required by design criteria 1, the criteria is not, of itself, a development standard but one means of achieving the objective at 4A-1 of the ADG.

This decision will be further discussed later in his report; but, the above shows meeting design criteria is not the focus, and per the Housing SEPP Chapter 4, it is not required.

3.1.2 APARTMENT DESIGN GUIDE

The *Apartment Design Guide (ADG)* gives effect to SEPP Housing 2021 Chapter 4 for assessing solar access and other amenity provisions. As noted in 3.1.1, the focus is on the objective and it is not a requirement to achieve compliance with the design criteria.

Objective 4A-1	
To optimise the number of apartments receiving sunlight to habitable rooms, primary windows and private open space	
Design criteria	
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

3.1.3 LOCAL CONTROLS

We note that Clause 149 of SEPP Housing 2021 shows that ADG prevails over development control plans. This includes in 149 (1) (b) solar and daylight access.

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

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 that has been provided by PBD Architects. A 3D DWG file was sent over multiple iterations but the one presented in this report was sent to us on the 01/08/2024 named "240801-Gatacre Avenue_LANE COVE AMENDED DA.dwg".

3.2.2 MODEL LOCATION

We have independently geo-located the model 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. Included in the Views From the Sun are the approved massing of the boarding house on the North East side of the site. 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 SketchUp 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.

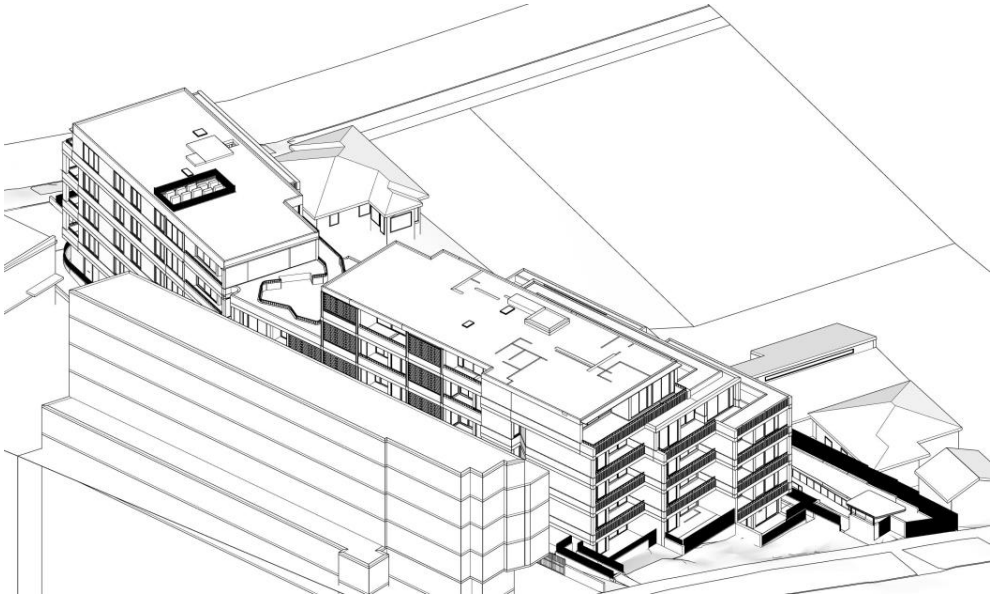

Figure 2: View from the sun, 12am June 21

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 $1m^2$.
- 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 $1m^2$ (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 conjuctive "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. We have for this site given figures for Private Open Space and Living Rooms, but there is nothing in the controls that state these need to occur in the same apartment; therefore, we have presented both figures independently.

3.3.4 STRICT COMPLIANCE VERSE MEETING OBJECTIVES

The objective of 4A-1 is "To optimise the number of apartments receiving sunlight to habitable rooms, primary windows and private open space" which is what is required to be demonstrated. As discussed previously, strict compliance with the Design Criteria is not required. This was also made clear in Construction Development Management Services Pty Ltd v City of Sydney [2023] NSWLEC 1620 where Commissioner Horton made it clear that the intent of the ADG was to demonstrate how the objectives have been met; therefore, we have looked at this when doing our analysis of each apartment. Discussing these will be important in the conclusions of this site.

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 amended Development Application. Appendix C records the detailed solar access for individual apartments.

Total number of Apartments	43	
Apartments which achieve 2 hours or more sunlight to living and POS 9am - 3pm June 21	30	**70%**
Units with no sun between 9am and 3pm June 21	6	**14%**

Table 1: Summary of solar access for amended 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 70% (30/43) total of such apartments. This represents full compliance with the design criteria 1 of Objective 4A-1. Even with overall compliance achieved, it should be important to note that SEPP Housing 2021 Chapter 4 does not require compliance, but the consent authority does need to consider it. If the consent authority was to have any issues with the opinion of Walsh Analysis, we would also like to point out that this site falls to the south, has views to the south and is dealing with existing overshadowing from the approval to the Northeast. Where there is available solar access, the Architect has tried to optimise solar access as per the Objective.

If there was any small shortfall from the ADG Design criterion recommendation, one has to be mindful of:

- The explicit design guidance in the ADG, which now explicitly acknowledges that on some sites full compliance with the Design criterion may not be possible.
- The interpretation by the Land and Environment Court where the controls are applied to a site with constraints on the achievable solar access.
- The reasonable expectation of compliance achieved after allowing for the overshadowing impact of existing surrounding developments – particularly in areas undergoing significant change (noting the approval on the North East cause overshadowing to East facing apartments that would otherwise comply).
- The aim of the Objective 4A-1 is "To optimise the number of apartments receiving sunlight to habitable rooms, primary windows and private open space". This development achieves the aim of the objective.

In our considered opinion, the development represents considerable design effort to meet the performance for solar access amenity under the ADG.

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 14% (6/43) 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 NEIGHBOURING PROPERTIES

We have looked at various neighbouring properties, but the focus of our attention was mainly on the R2 Low Density sites that are located to the west and south-west of the applicants site.

Firstly, it is important to note that council has the site zoned as R4 High Density Residential adjacent to an R2 zoning which is always going to cause a conflict based on the zone transition. There is also a significant height of buildings change between the application site and the neighbours to the west and south-west. That all said, we have looked at the architect's proposal and we can clearly see that PBD Architects have been very careful in breaking the building into two forms on the upper levels, which allows great light to get through to the site of Number 7 Allison Avenue Lane Cove. This is clearly visible at the 11:30am, 12pm and 12:30pm Views From the Sun (found in Appendix B). Whilst we do not have a GIPA for the internal floor plan of this dwelling, it can safely be assumed that there would be a living space opening to the backyard which would be facing North-west. This dwelling and its Private Open space receives more than 3 hours of solar access.

Neighbours on the west being 2 and 2a Gatacre Avenue already have solar limitations based on the steep step that occurs on their eastern boundary, effectively making a lot of the windows facing east feel sub-terranean. There is also the DA approved building plus the existing hotel to the east further limiting solar access. The proposed changes to this solar access are considered minor due to the above changes. These changes are only really noticeable between 10:30am-12pm which in our considered opinion is reasonable given the urban design requirements of building mass near the building setbacks for passive surveillance of the street.

What is important to note is that the solar access outcome of this DA is strongly improved when compared to the previous DA on the subject site which was refused. PBD Architects have carefully crafted the void in the upper levels building form to ensure the neighbouring buildings still receive good solar access to their property.

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.

30/43 (70%) 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 which demonstrates the overall objective is satisfied.**

6/43 (14%) 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 which demonstrates the overall objective is satisfied.**

6.2 OVERSHADOWING OF NEIGHBOURS

In our considered opinion, the projected overshadowing impact of the development proposal are considered reasonable in areas undergoing change such as this area. Refer to part 5.1 of the report for further analysis.

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. He has been providing Solar Analysis reports for over 5 years to various stakeholders including Department of Planning, Housing and Infrastructure, NSW Metro, Councils and private developers.

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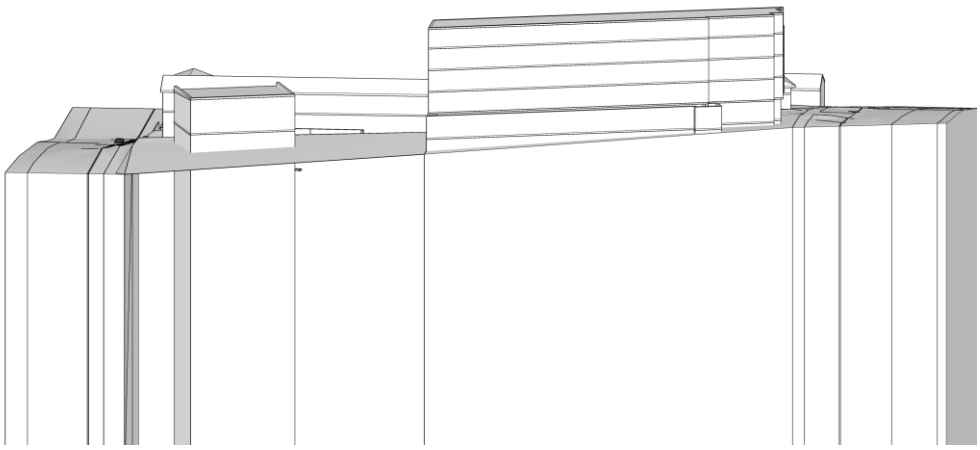
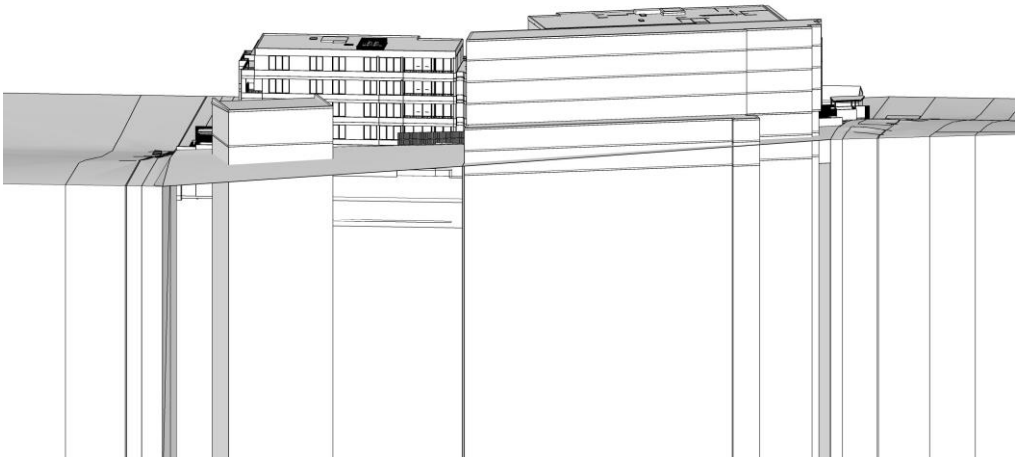
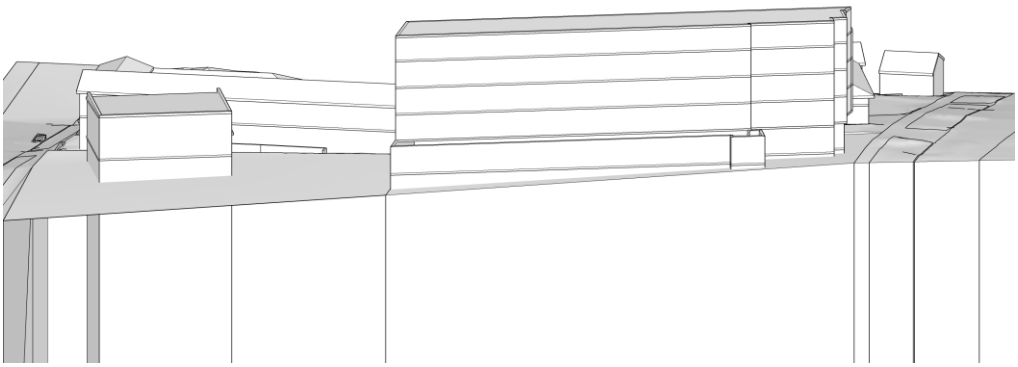
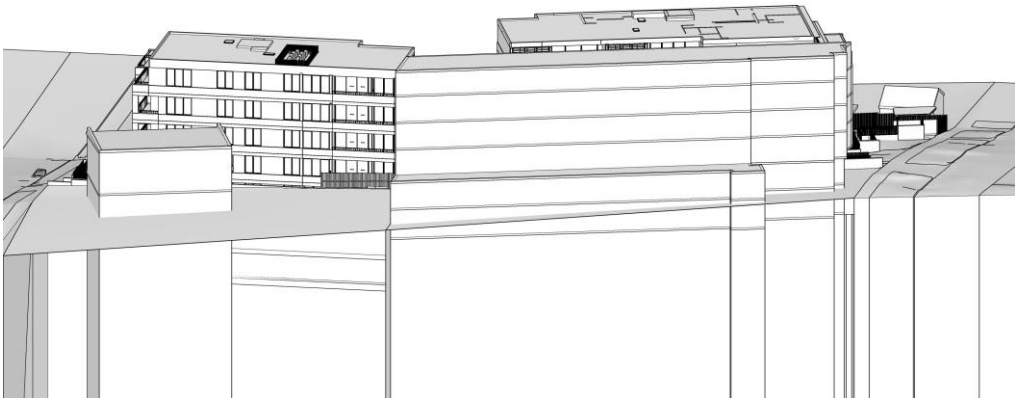
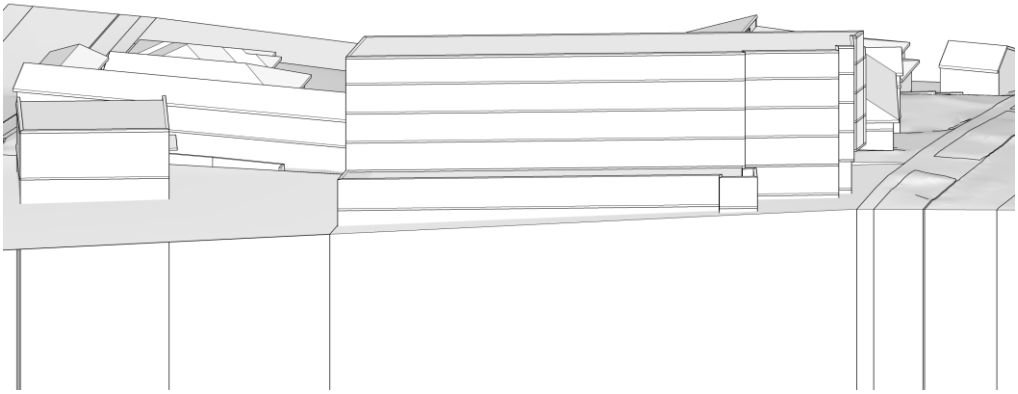
B.0 APPENDIX B: VIEWS FROM THE SUN

The table shows half-hourly views of solar access projections for June 21.

8.00 EXISTING	
8.00 PROPOSED	

8.30 EXISTING	
8.30 PROPOSED	

9.00 EXISTING	
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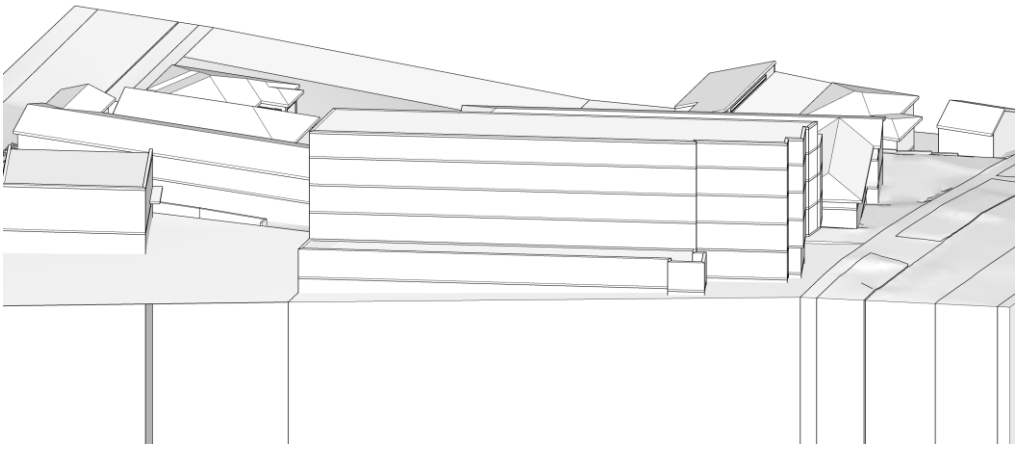
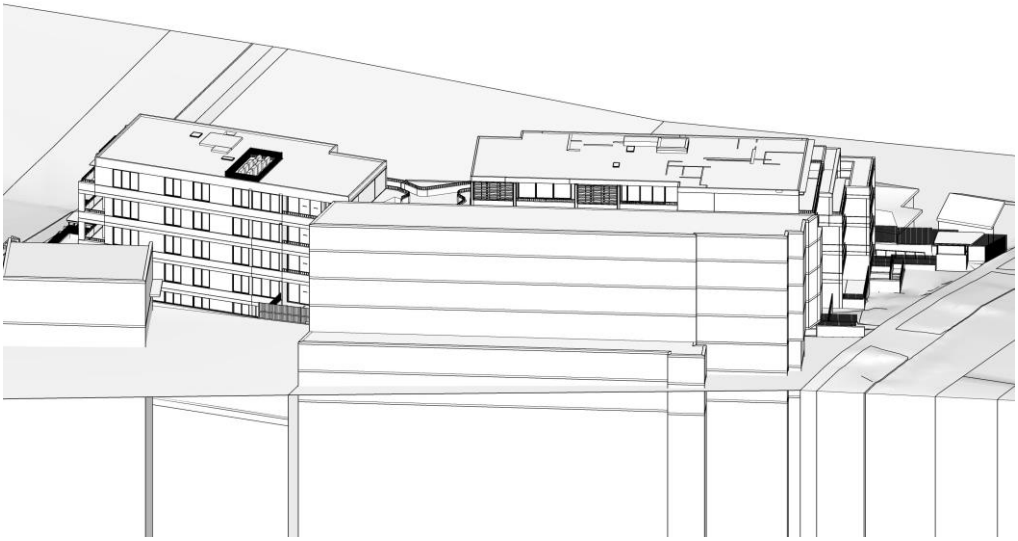
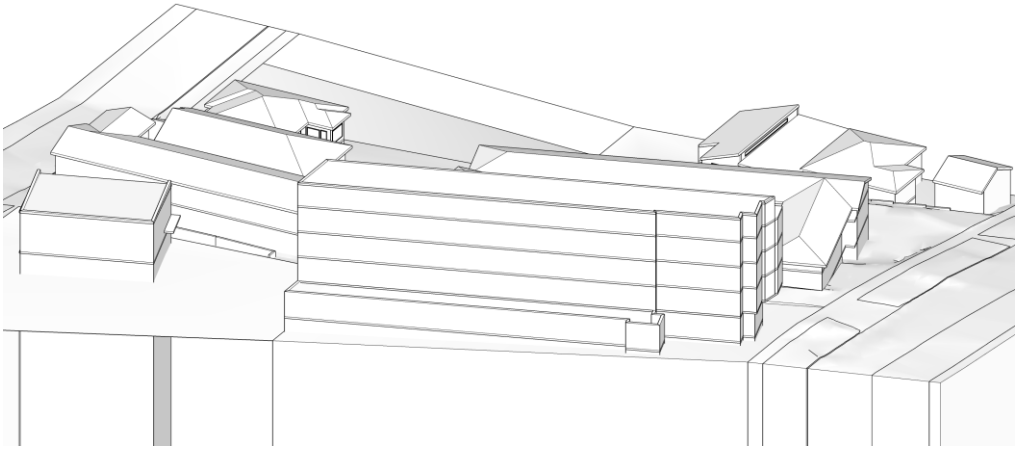
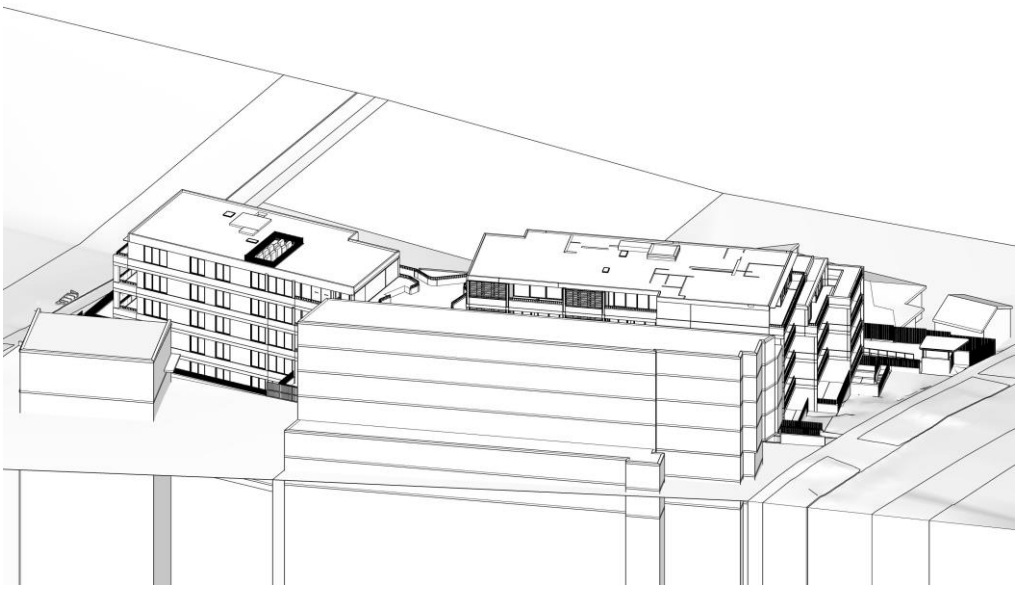
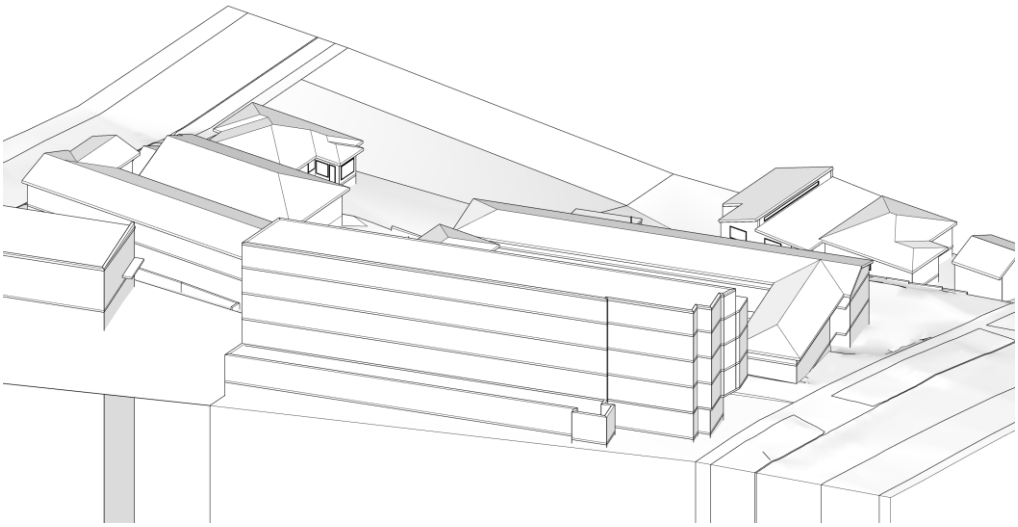
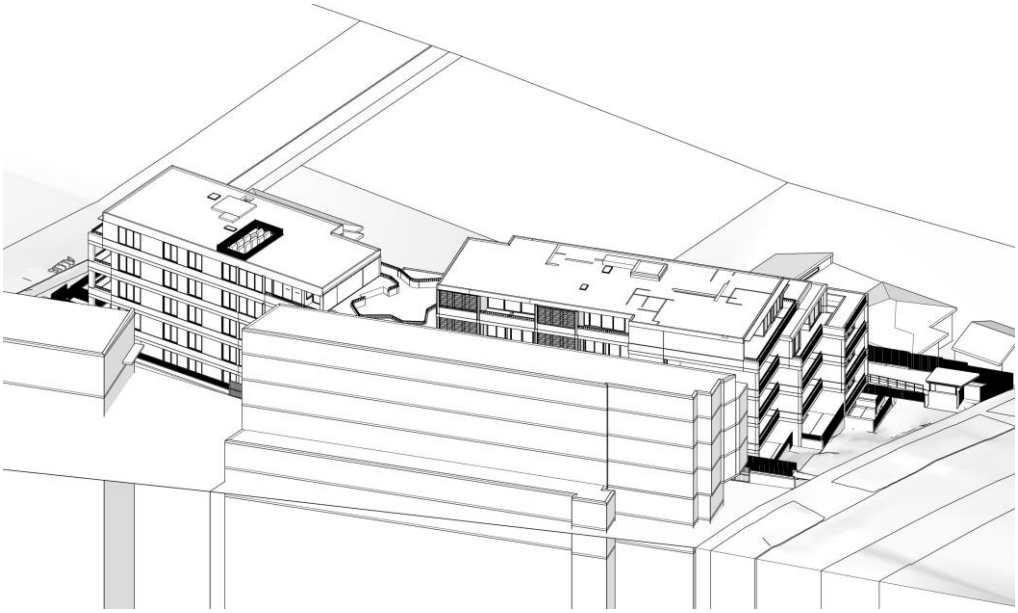
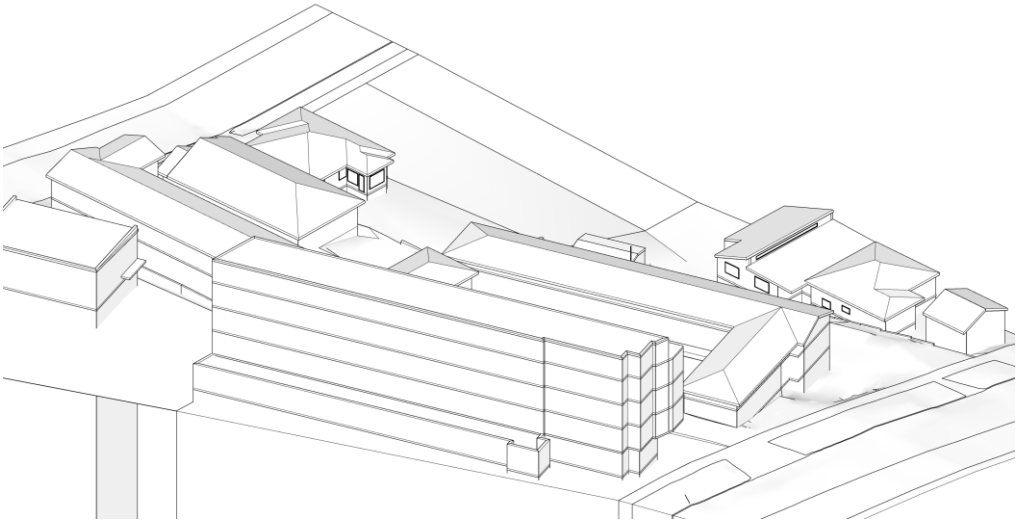
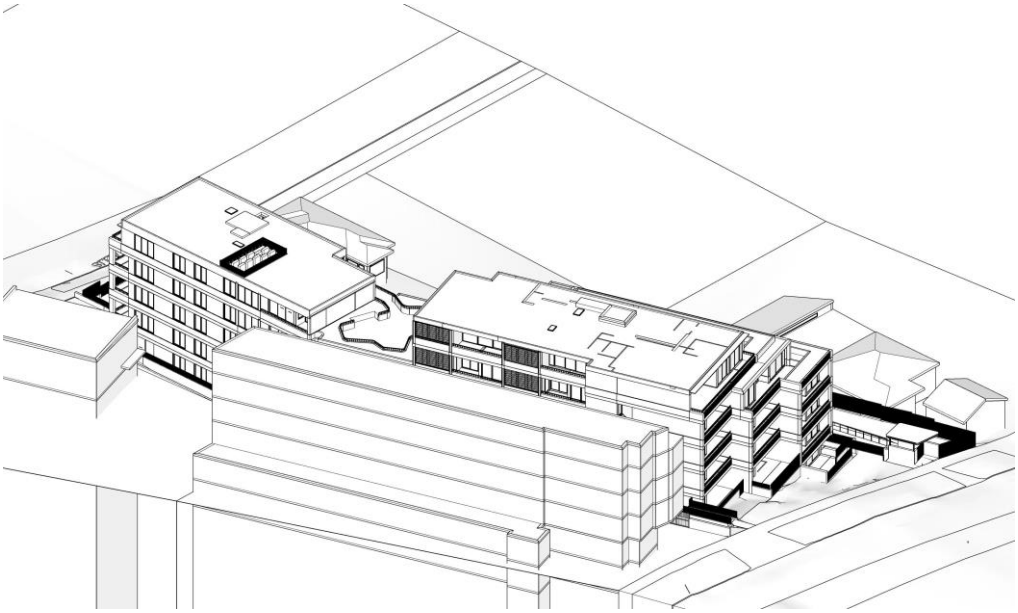
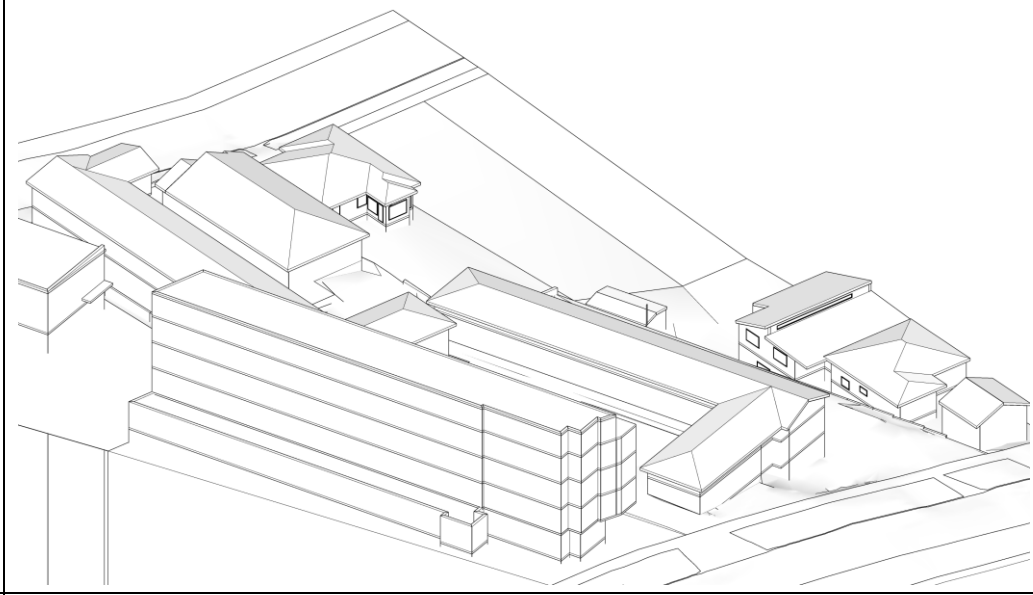
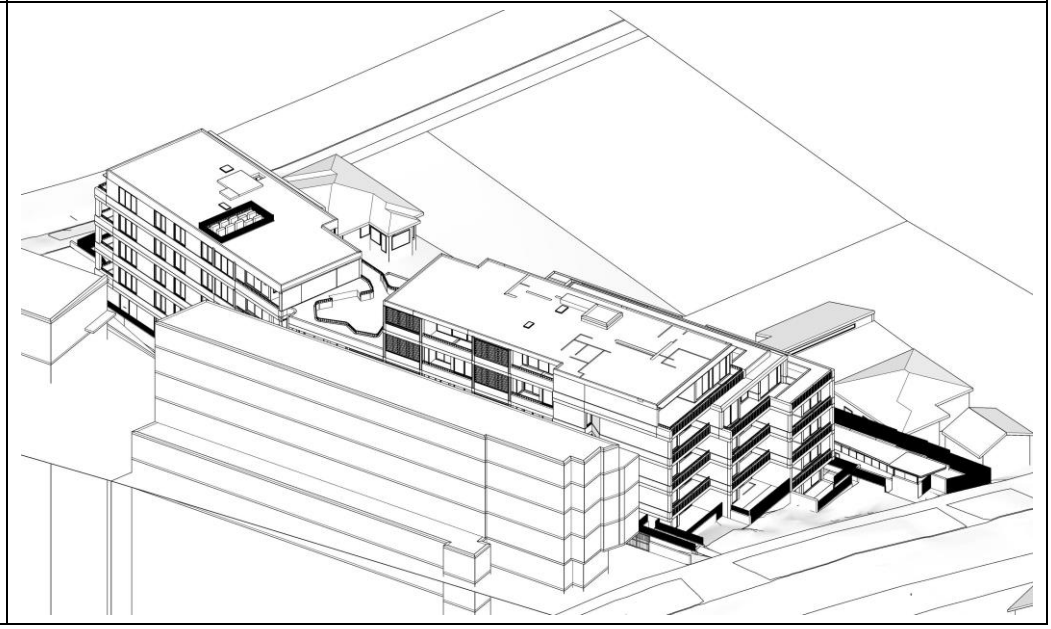
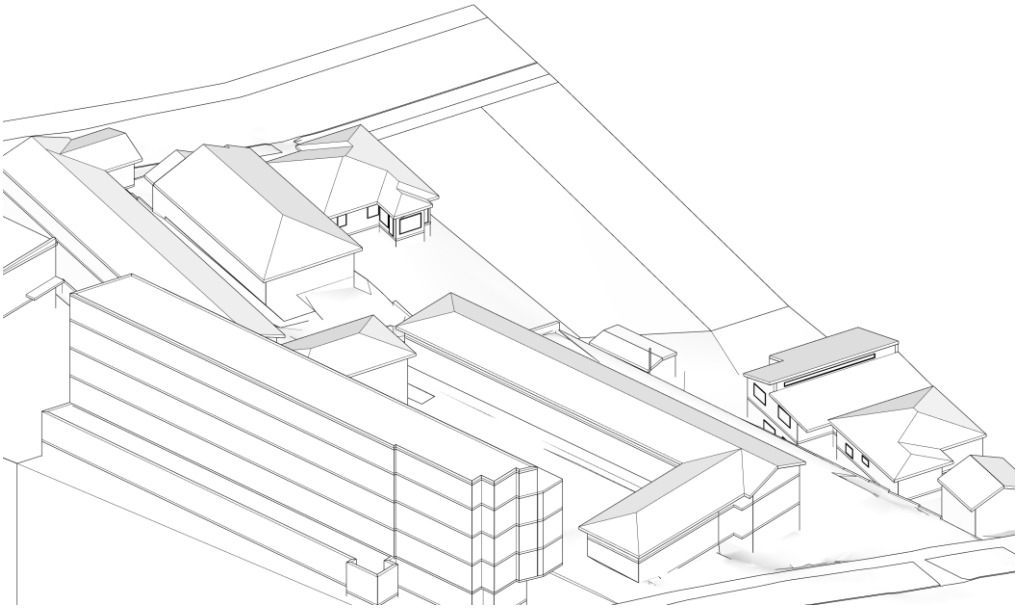
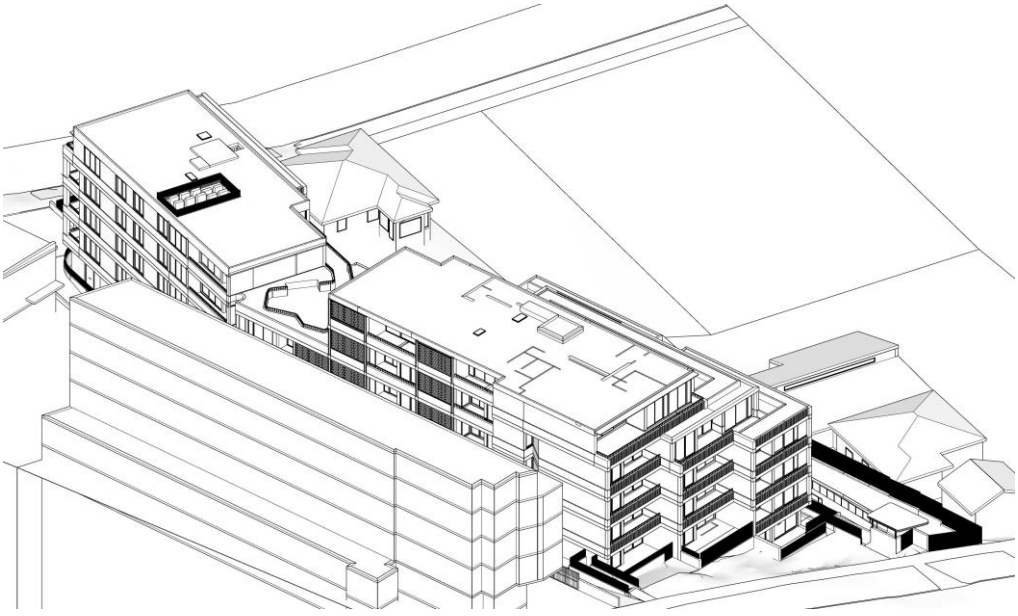
9.30 EXISTING	
9.30 PROPOSED	

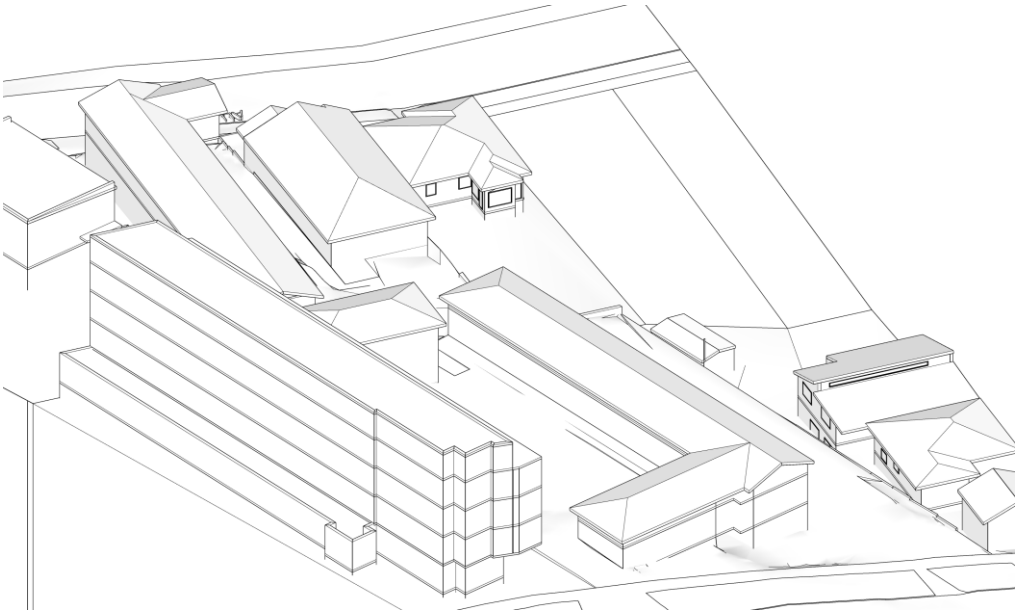
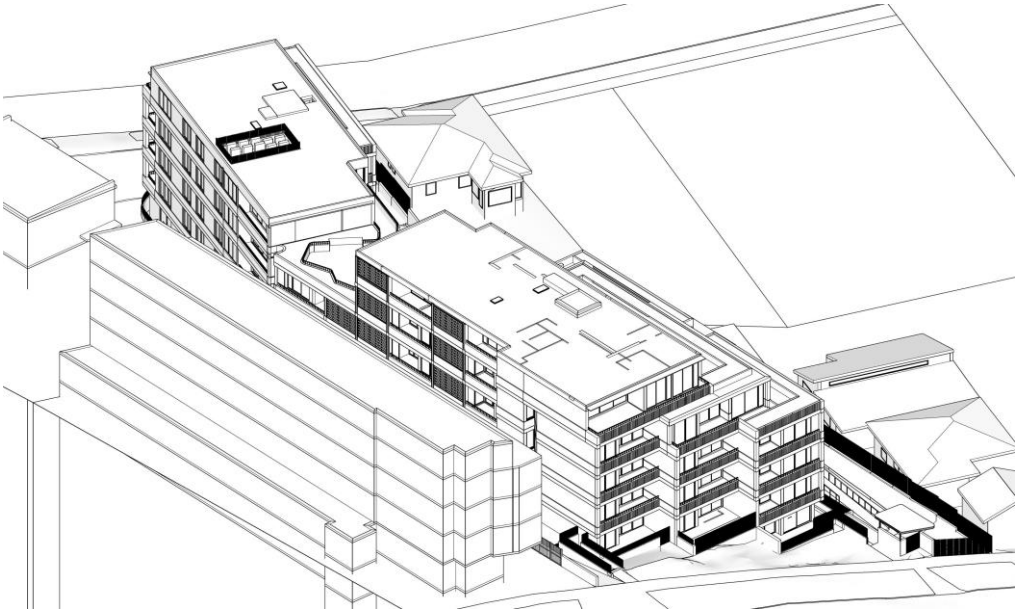
10.00 EXISTING	
10.00 PROPOSED	

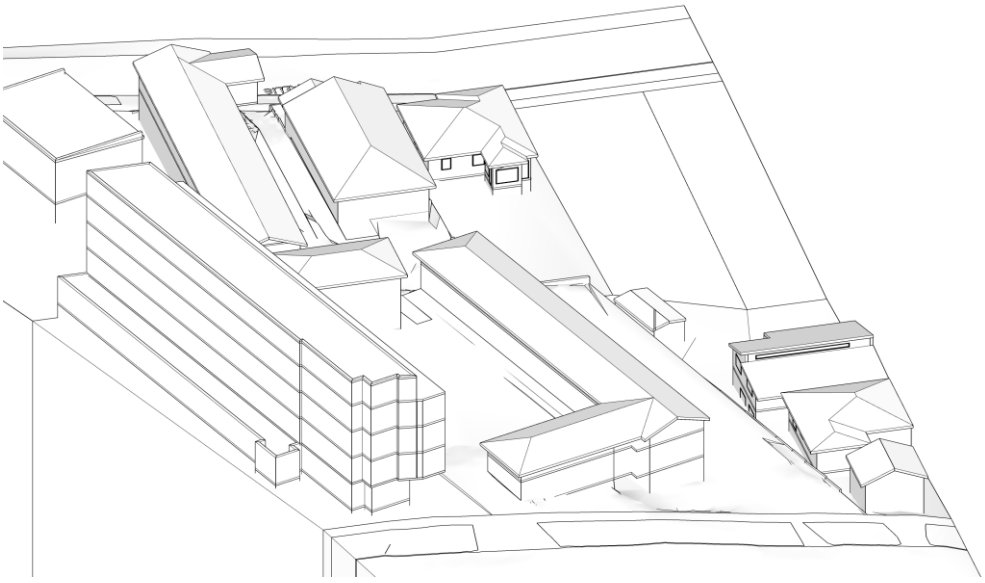
10.30 EXISTING	
10.30 PROPOSED	

11.00 EXISTING	
11.00 PROPOSED	

11.30 EXISTING	
11.30 PROPOSED	

12.00 EXISTING	
12.00 PROPOSED	

12.30 EXISTING	
12.30 PROPOSED	

13.00 EXISTING	
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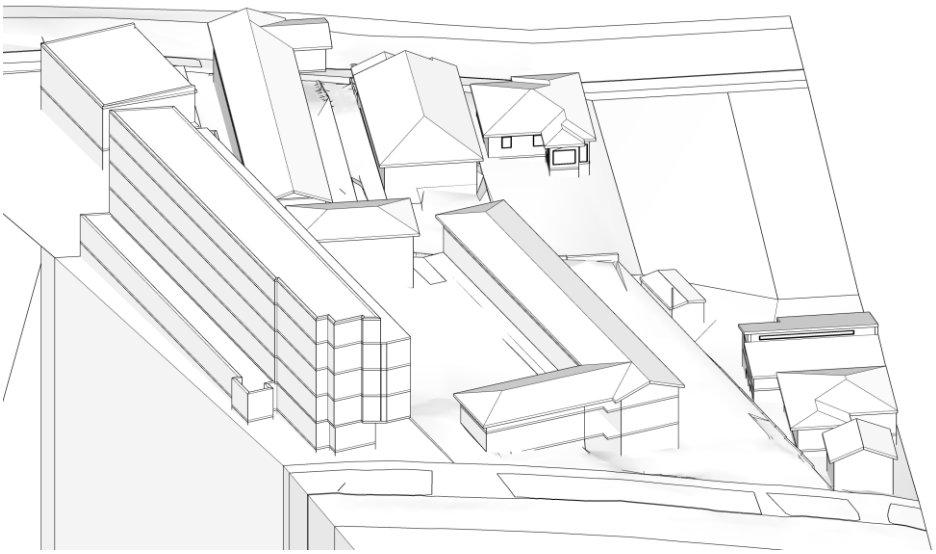
13.30 EXISTING	
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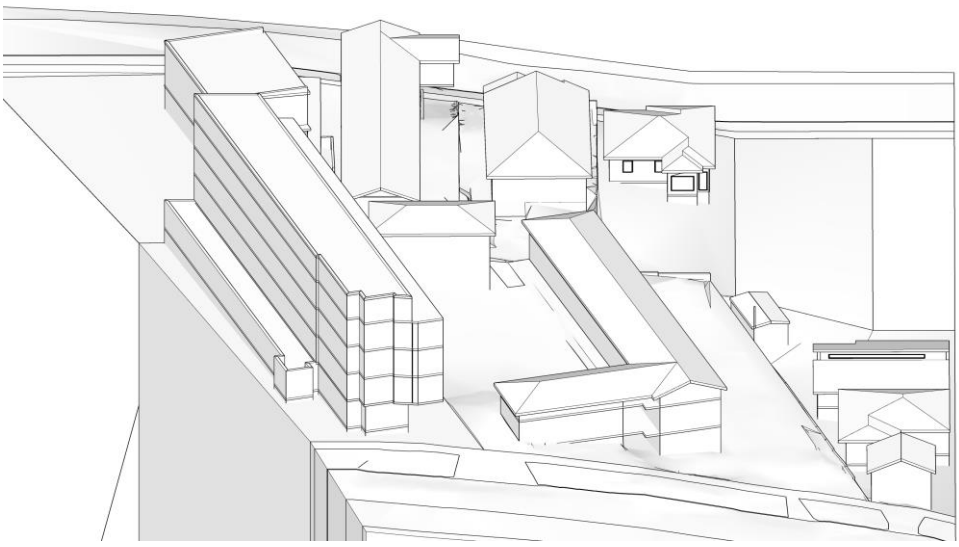
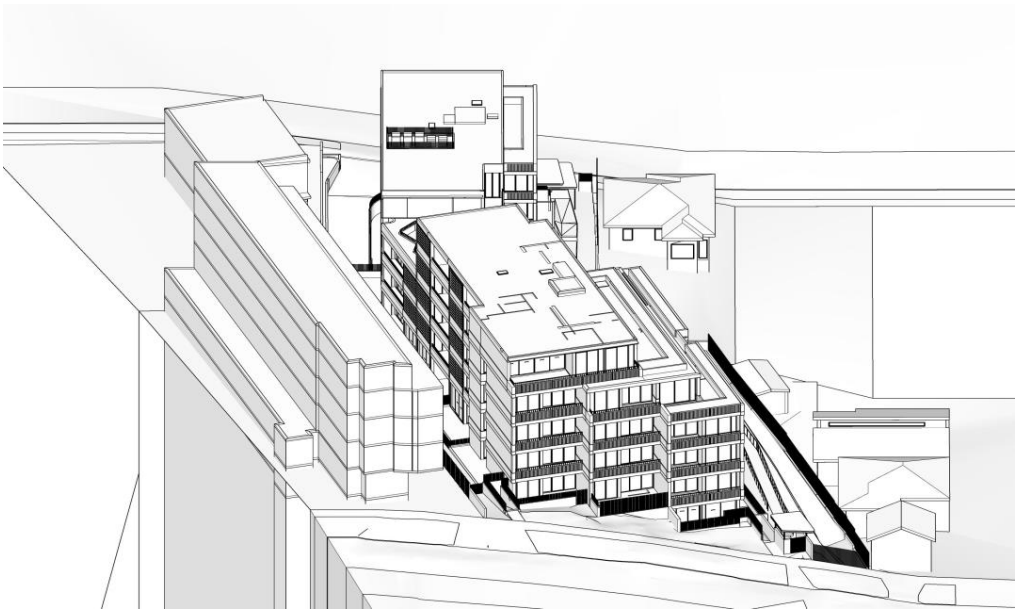
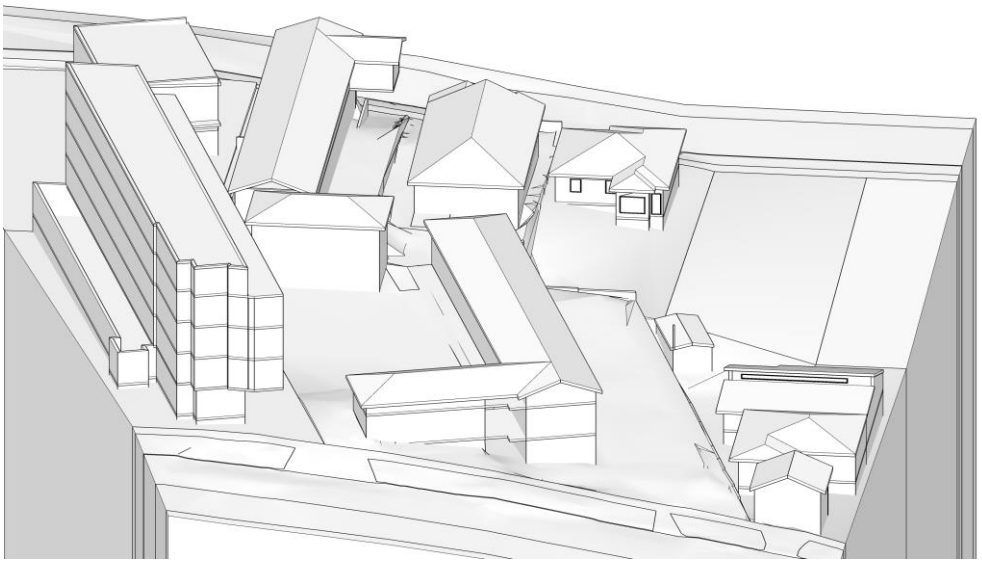
14.00 EXISTING	
14.00 PROPOSED	

14.30 EXISTING	
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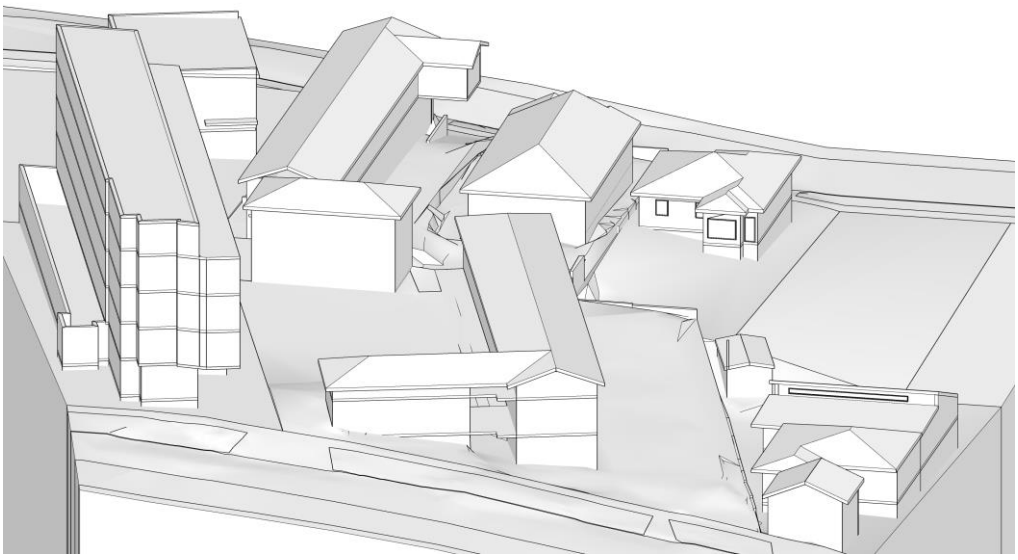
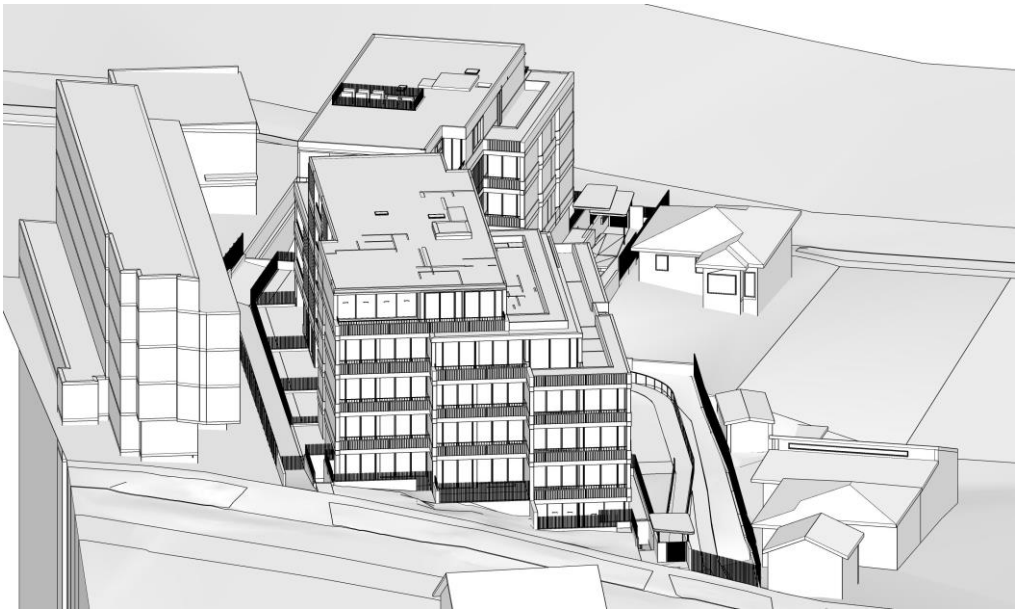
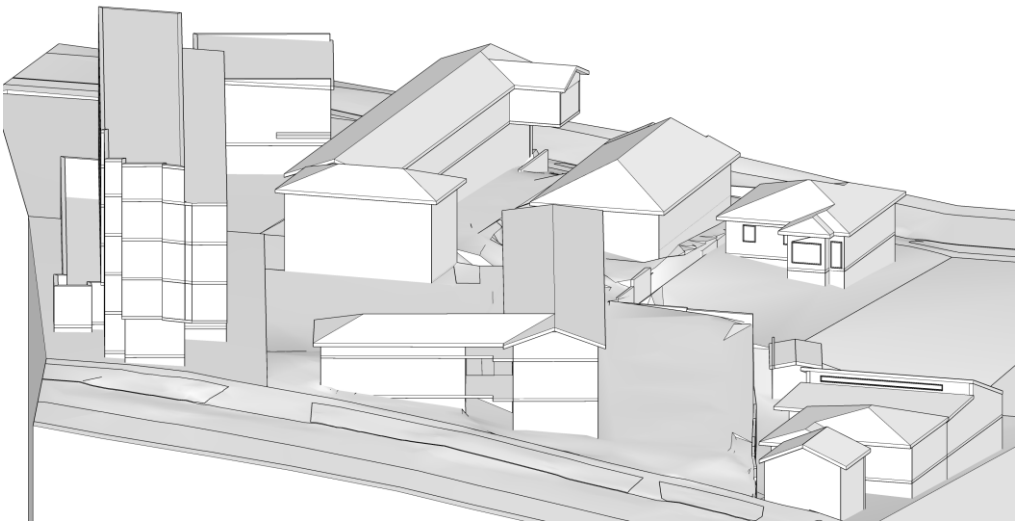
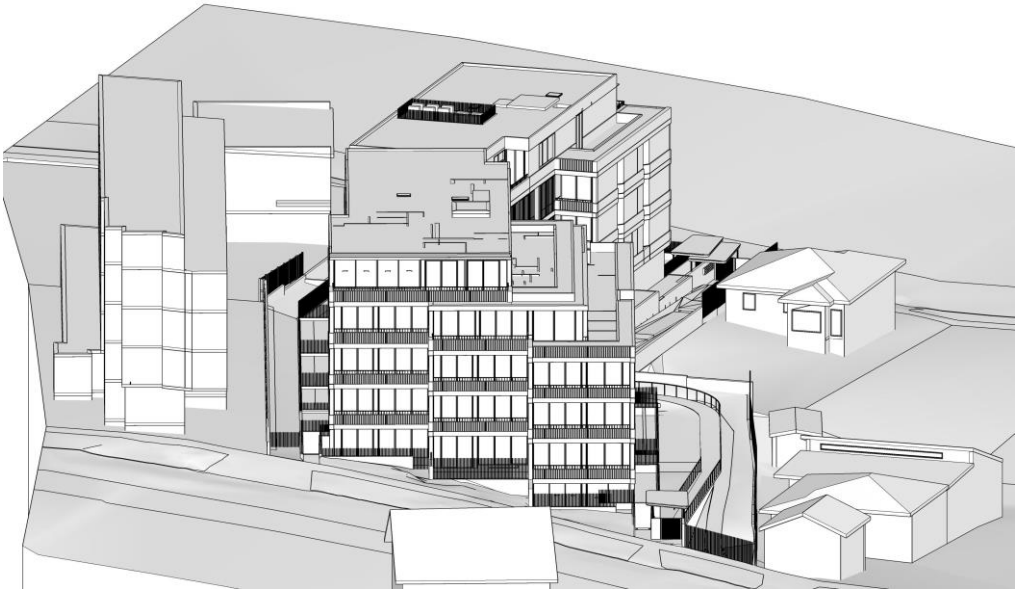
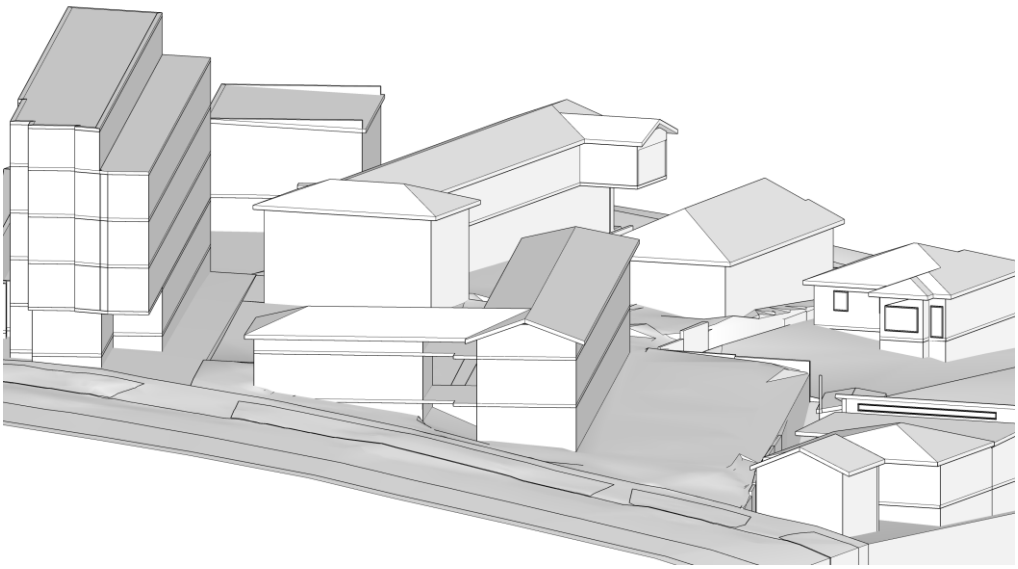
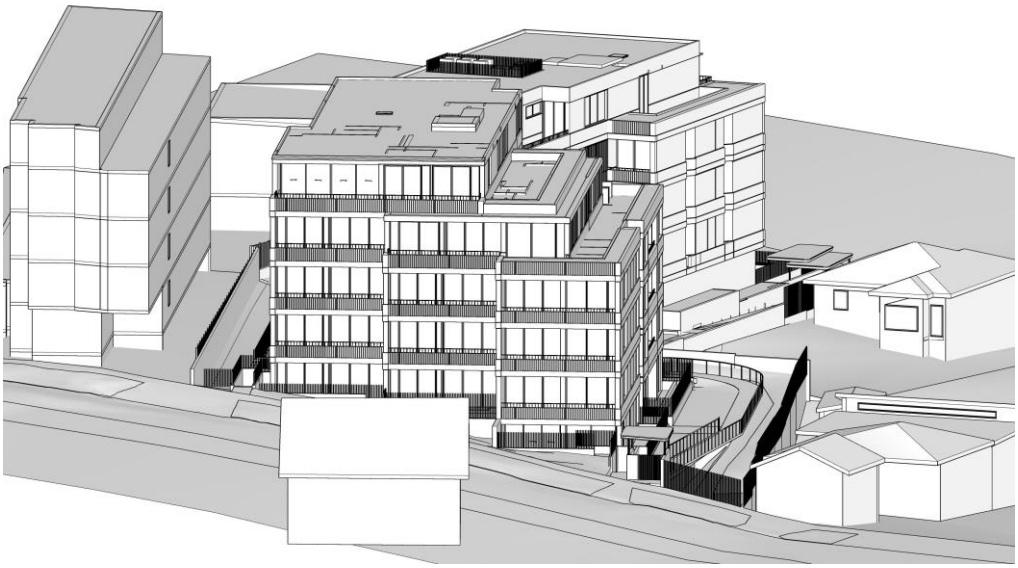
15.00 EXISTING	
15.00 PROPOSED	

15.30 EXISTING	
15.30 PROPOSED	

16.00 EXISTING	
16.00 PROPOSED	

C.0 APPENDIX C: DETAILED COMPLIANCE TABLE

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

LEGEND

Y	RECEIVES COMPLIANT SUN
H	HABITABLE SPACES RECEIVES COMPLIANT SUN
N	DOES NOT COMPLY

LEVEL	UNIT NUM.	ROOM	8	830	9	930	10	1030	11	1130	12	1230	13	1330	14	1430	15	1530	16	>2 hrs 9-3 LIVING	>2 hrs 9-3 POS	No sun	Comments
GROUND	G.01	Living	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	N/A		
		POS	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N/A	YES	N/A	
	G.02	Living	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		N/A	YES	
		POS	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N/A		N/A	
	G.03	Living	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		N/A	YES	
		POS	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N/A		N/A	
	G.04	Living	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		N/A	YES	
		POS	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N/A		N/A	
	G.05	Living	N	N	N	N	N	H	Y	Y	Y	Y	Y	N	N	N	N	N	N	YES	N/A		
		POS	N	N	N	N	N	Y	Y	Y	N	N	Y	Y	Y	N	N	N	N	N/A	YES	N/A	
	G.06	Living	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		N/A	YES	
		POS	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N/A		N/A	
UPPER GROUND	UG.01	Living	N	N	N	N	N	N	N	H	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	N/A		
		POS	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N/A	YES	N/A	
	UG.02	Living	N	N	N	N	N	N	N	H	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	N/A		
		POS	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N/A	YES	N/A	
	UG.03	Living	N	N	N	N	N	N	H	H	H	H	Y	Y	Y	Y	Y	Y	Y	YES	N/A		
		POS	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N/A	YES	N/A	
	UG.04	Living	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	N	N		N/A		
		POS	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	N	N/A		N/A	
	UG.05	Living	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		N/A	YES	
		POS	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N/A		N/A	
	UG.06	Living	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	N		N/A		
		POS	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	N	N/A		N/A	

LEVEL	UNIT NUM.	ROOM	8	830	9	930	10	1030	11	1130	12	1230	13	1330	14	1430	15	1530	16	>2 hrs 9-3 LIVING	>2 hrs 9-3 POS	No sun	Comments
	UG.07	Living	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	N		N/A		
		POS	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	N	N/A		N/A	
	UG.08	Living	Y	Y	Y	Y	H	N	N	N	N	N	H	H	N	N	N	N	N		N/A		
		POS	N	Y	Y	Y	Y	N	N	N	N	N	N	N	Y	Y	Y	N	N	N/A	YES	N/A	
	UG.09	Living	H	H	H	H	H	H	Y	Y	Y	Y	Y	N	N	N	N	N	N	YES	N/A		
		POS	N	N	N	N	N	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N/A	YES	N/A	
LEVEL 1	101	Living	N	N	N	N	N	N	N	H	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	N/A		
		POS	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N/A	YES	N/A	
	102	Living	N	N	N	N	N	N	N	H	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	N/A		
		POS	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N/A	YES	N/A	
	103	Living	N	N	N	N	N	N	H	H	H	H	Y	Y	Y	Y	Y	Y	Y	YES	N/A		
		POS	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N/A	YES	N/A	
	104	Living	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	N	N	N		N/A		
		POS	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	N	N	N	N/A		N/A	
	105	Living	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N		N/A	YES	
		POS	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N/A		N/A	
	106	Living	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	N	N	YES	N/A		
		POS	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	N	N	N	N/A		N/A	
	107	Living	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	N	N	YES	N/A		
		POS	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	N	N	N/A	YES	N/A	time adjusted
	108	Living	Y	Y	Y	Y	H	N	N	N	H	H	H	H	N	N	N	N	N		N/A		
		POS	Y	Y	Y	Y	Y	N	N	N	N	Y	Y	Y	N	N	N	N	N	N/A	YES	N/A	
	109	Living	H	H	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	YES	N/A		
		POS	N	N	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N/A	YES	N/A	
	110	Living	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	N	YES	N/A		
		POS	N	N	N	N	N	N	N	N	N	N	Y	Y	N	Y	Y	Y	N	N/A		N/A	
LEVEL 2	201	Living	N	N	N	N	N	N	N	H	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	N/A		
		POS	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N/A	YES	N/A	
	202	Living	N	N	N	N	N	N	N	H	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	N/A		
		POS	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N/A	YES	N/A	
	203	Living	N	N	N	N	N	N	H	H	H	H	Y	Y	Y	Y	Y	Y	Y	YES	N/A		
		POS	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N/A	YES	N/A	
	204	Living	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	N	N	N	YES	N/A		POS time adjusted. 1145-1345
		POS	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	N	N	N	N	N/A	YES	N/A	
	205	Living	N	N	N	N	N	N	N	N	N	N	N	H	H	H	H	H	H		N/A		

LEVEL	UNIT NUM.	ROOM	8	830	9	930	10	1030	11	1130	12	1230	13	1330	14	1430	15	1530	16	>2 hrs 9-3 LIVING	>2 hrs 9-3 POS	No sun	Comments
		POS	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N/A		N/A	
	206	Living	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	YES	N/A		
		POS	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	N	N	N	N/A	YES	N/A	
	207	Living	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	YES	N/A		
		POS	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	N/A	YES	N/A	
	208	Living	Y	Y	Y	Y	H	H	H	Y	Y	Y	H	H	N	N	N	N	N	YES	N/A		
		POS	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	N	N	N	N	N/A	YES	N/A	
	209	Living	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	YES	N/A		
		POS	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N/A	YES	N/A	
	210	Living	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	YES	N/A		
		POS	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	N/A	YES	N/A	
LEVEL 3	301	Living	N	N	N	N	N	N	N	H	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	N/A		
		POS	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N/A	YES	N/A	
	302	Living	N	N	N	N	H	H	H	H	Y	Y	Y	Y	Y	Y	Y	Y	Y	YES	N/A		
		POS	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N/A	YES	N/A	
	303	Living	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	YES	N/A		
		POS	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N/A	YES	N/A	
	304	Living	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	YES	N/A		
		POS	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N/A	YES	N/A	
	305	Living	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	H	H	N	N	N	N	N	YES	N/A		
		POS	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N/A	YES	N/A	
	306	Living	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	YES	N/A		
		POS	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N	N	N/A	YES	N/A	
LEVEL 4	401	Living	N	N	H	H	H	H	H	H	H	Y	Y	Y	Y	Y	Y	Y	Y	YES	N/A		
		POS	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N/A	YES	N/A	
	402	Living	N	Y	Y	Y	Y	Y	Y	Y	Y	H	H	H	H	H	N	N	Y	YES	N/A		
		POS	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N/A	YES	N/A	

43

30	30	6
70%	70%	14%
70%		14%