

01 SOLAR

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SHADOW DIAGRAMS

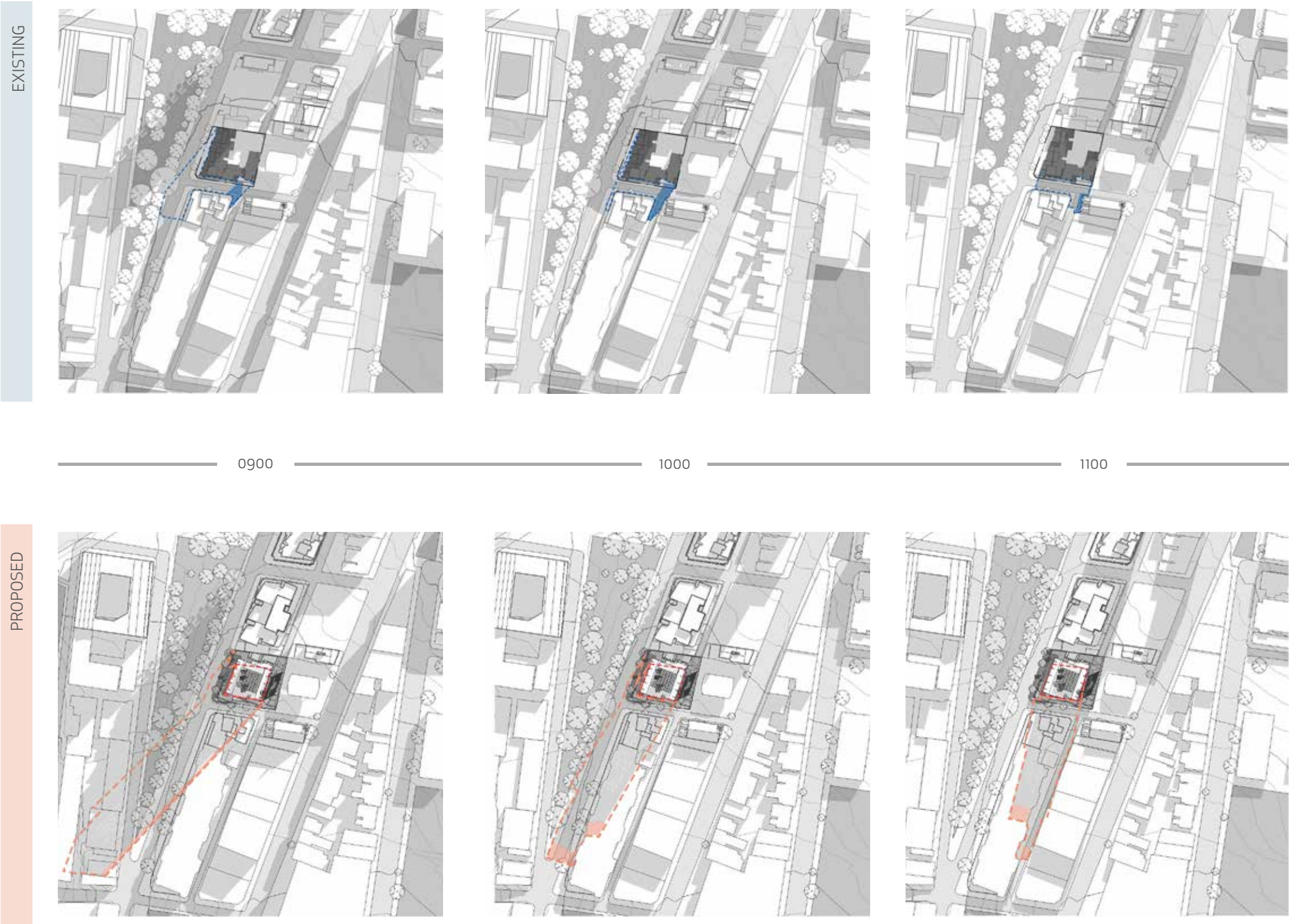
As shown in the shadow diagrams below and on the following pages, the shadow cast by the proposed building form is similar to that which would be cast by a building envelope that is compliant with the applicable planning controls.

The proposed envelope has an improved outcome for solar access to the adjacent apartments at #1 Margaret Street and the nearby National Centre of Indigenous Excellence (NCIE) sports field compared to the compliant envelope and, in some cases, also compared to the existing condition.

MID-WINTER SHADOW DIAGRAM - HOURLY

The proposed building has an envelope that is very similar to the compliant model. The northern corner of the building that extends past the complying setback shows no additional overshadowing to the vicinity. The shadow diagram analysis demonstrates that the proposed design achieves a reduction in shadow cast on adjacent building and sports field with a lower building height compared to the complying envelope.

- Extent of shadow cast by existing building
- Shadow reduced from existing condition by proposed massing
- Extent of shadow cast by compliant massing
- Shadow reduced from compliant massing by proposed massing
- Compliant footprint



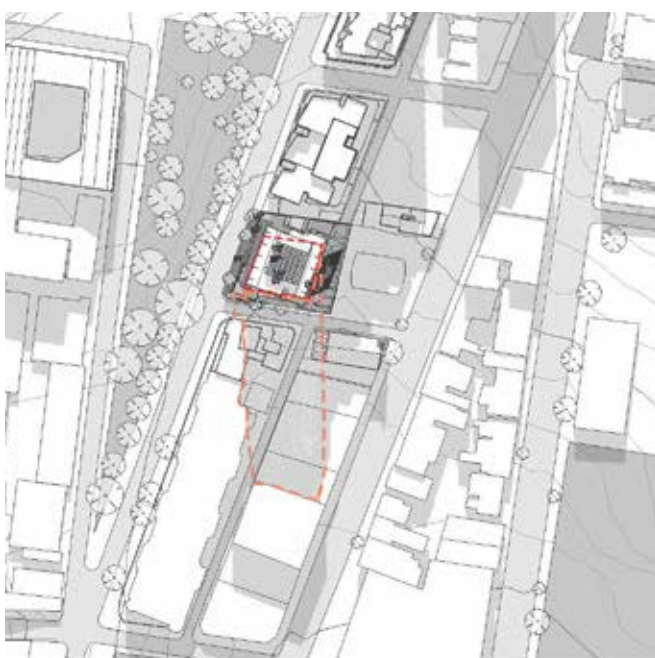


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01 SOLAR

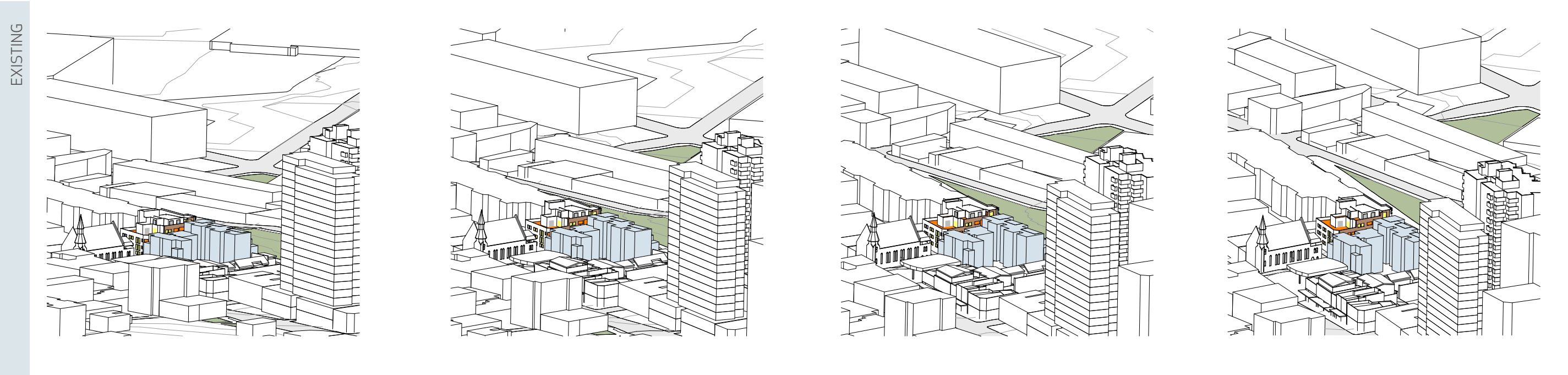
SUN-EYE DIAGRAMS

MID-WINTER STUDY - EVERY 15 MINUTES

The sun eye studies below and on the following pages show the cumulative effect of the proposed building, envelopes for DA approved development at #11 Gibbons Street and 80-88 Regent Street and at #90-102 Regent Street, for which SEARs were issued on 30 July 2018.

The proposed building creates less overshadowing to #1 Margaret Street and the NCIE sports field by having a lower end more slender form compared to a compliant building envelope. Also by having a greater setback at the western corner of the tower, more direct sunlight can access 1 Margaret Street in the afternoon.

- Extent of shadow cast by compliant massing
- Opening to private open space in no. 1 Margaret Street
- Opening to living room in no. 1 Margaret Street

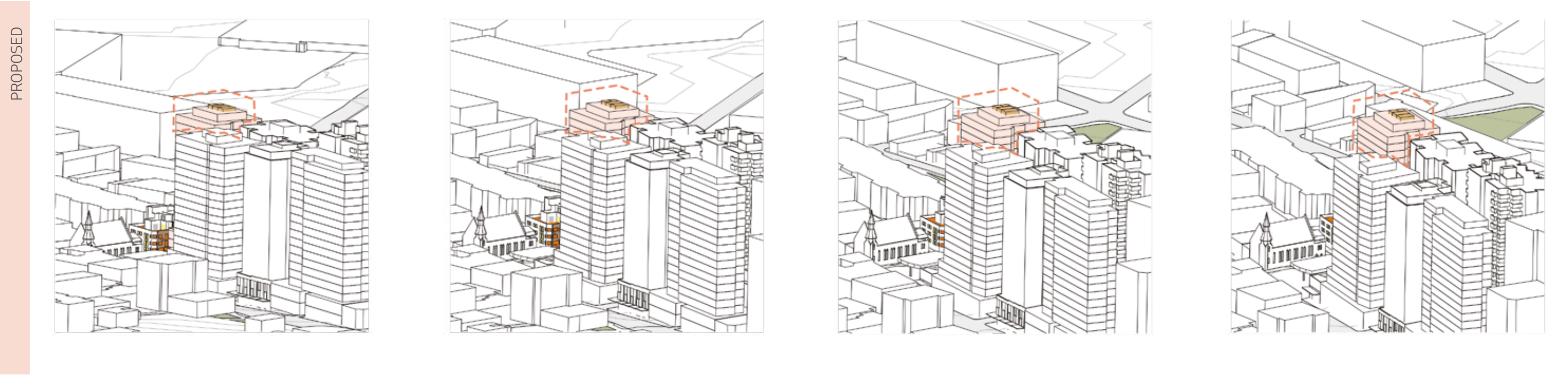


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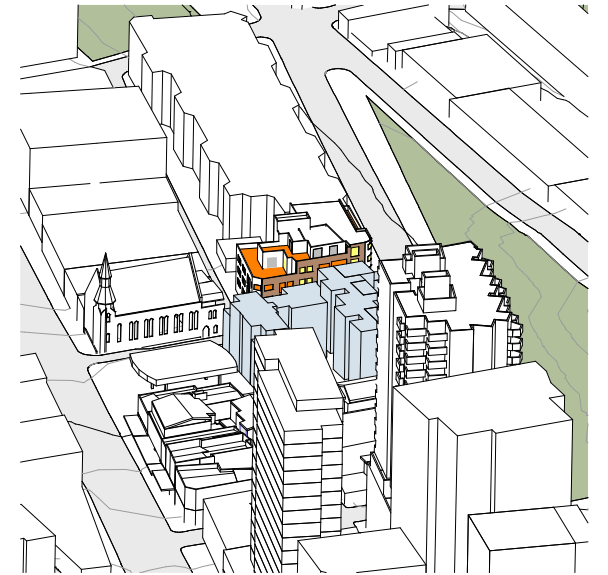
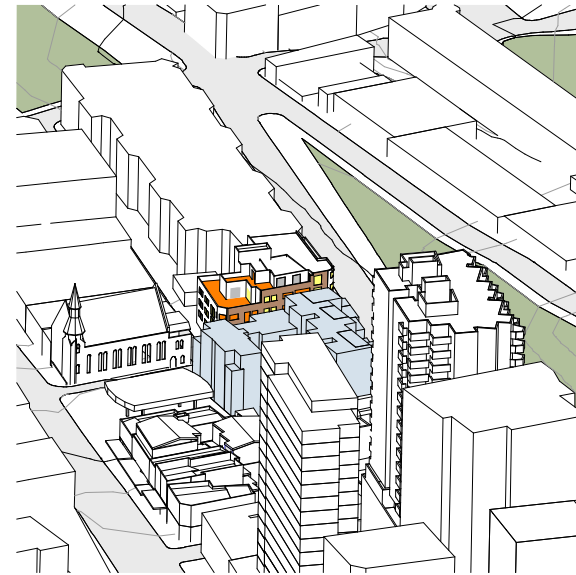
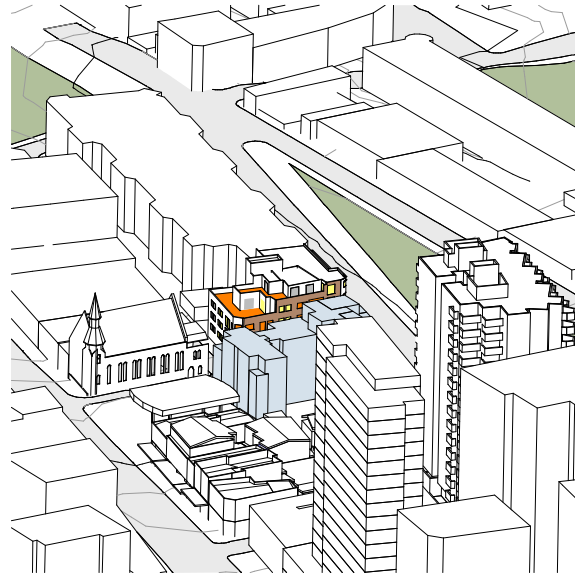
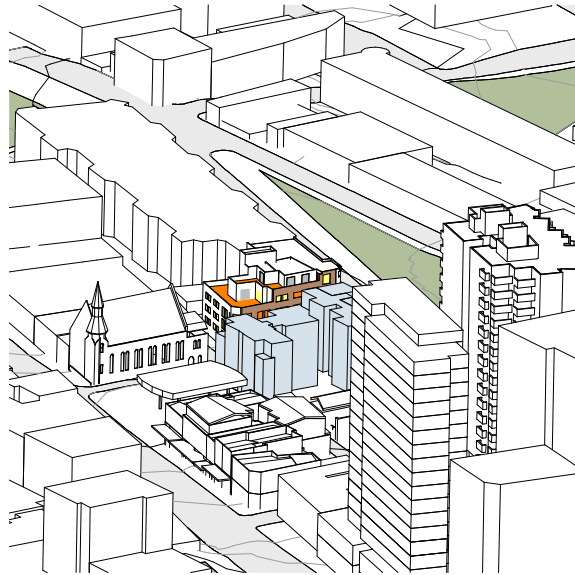
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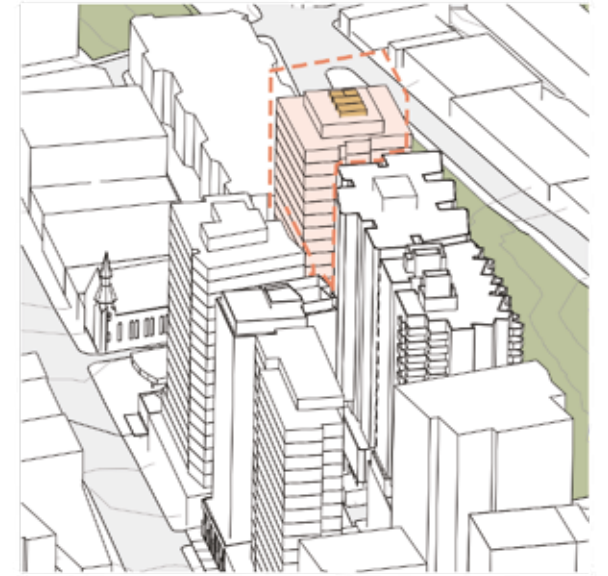
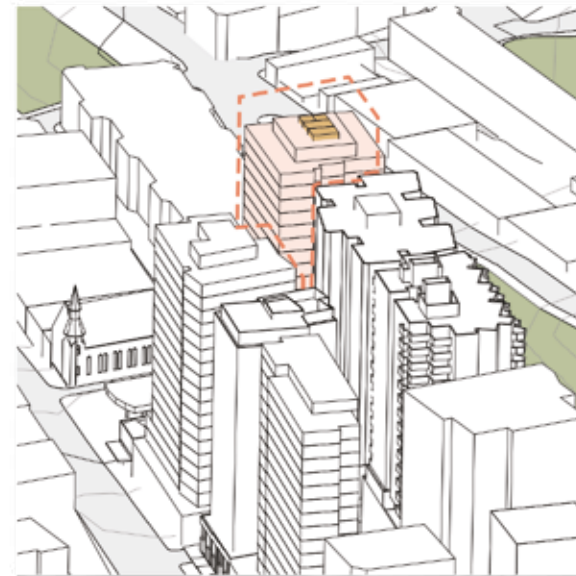
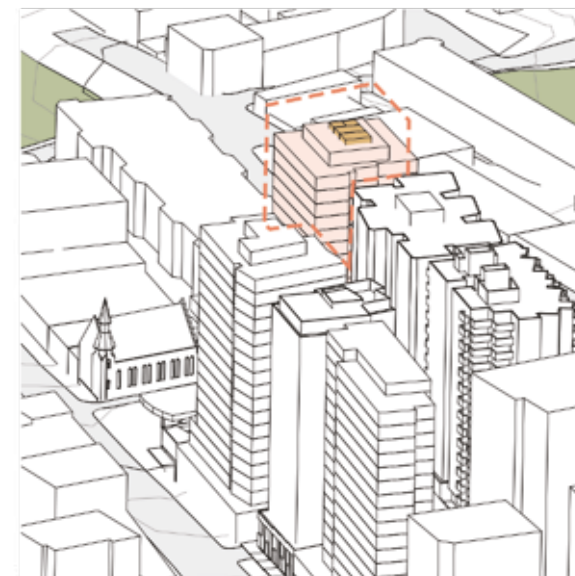
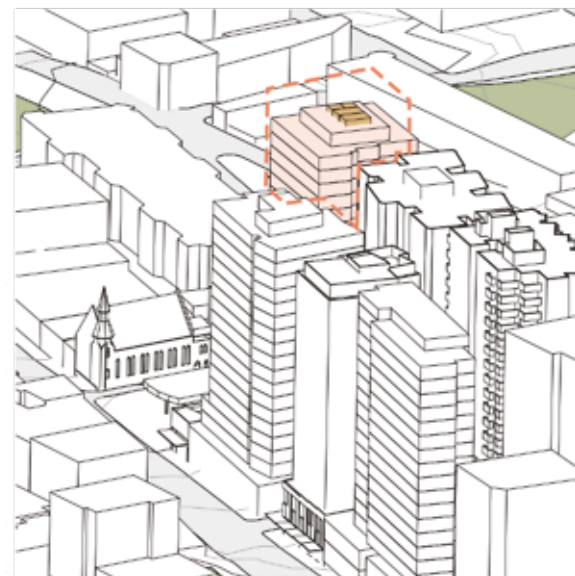
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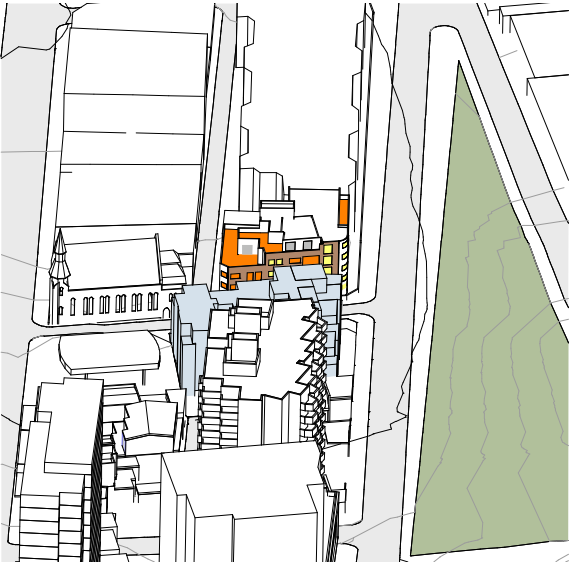
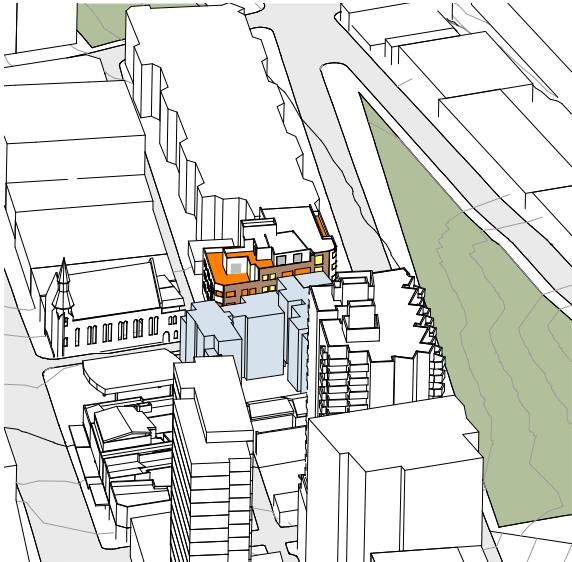
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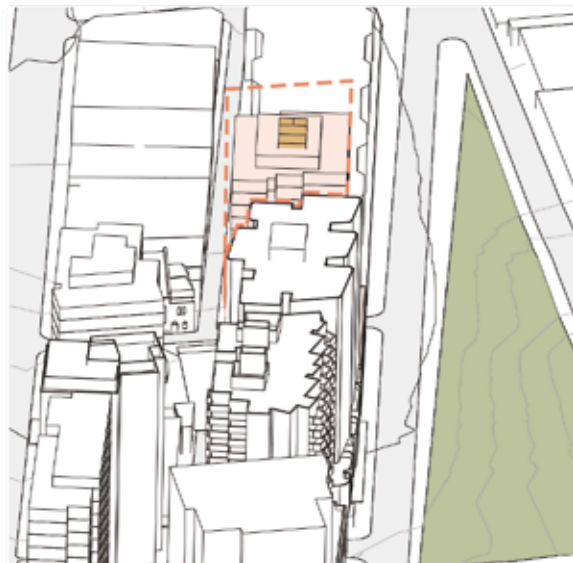
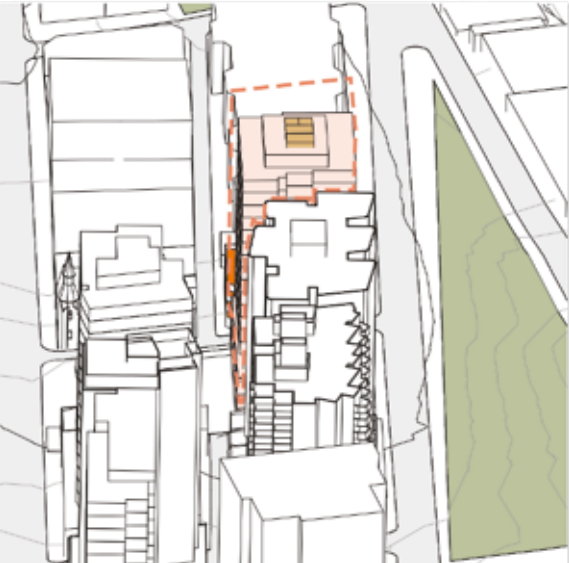
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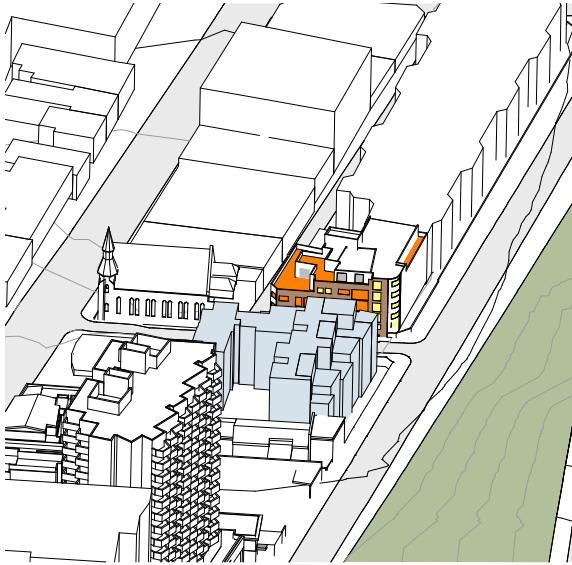
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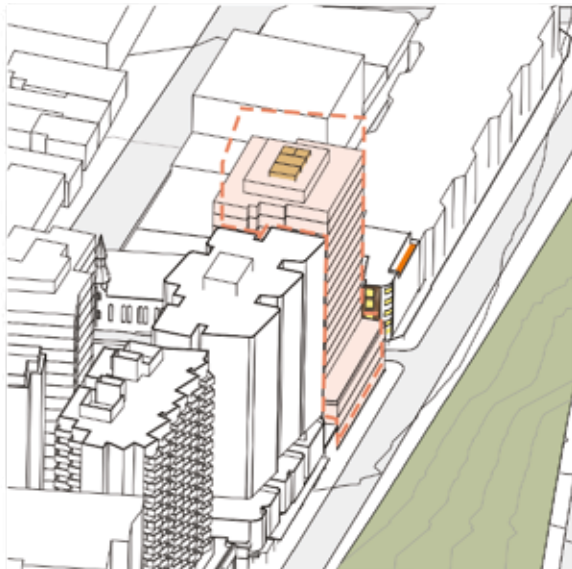
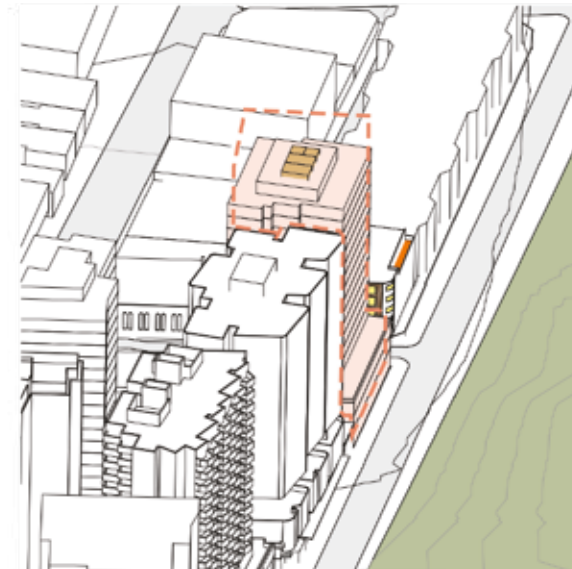
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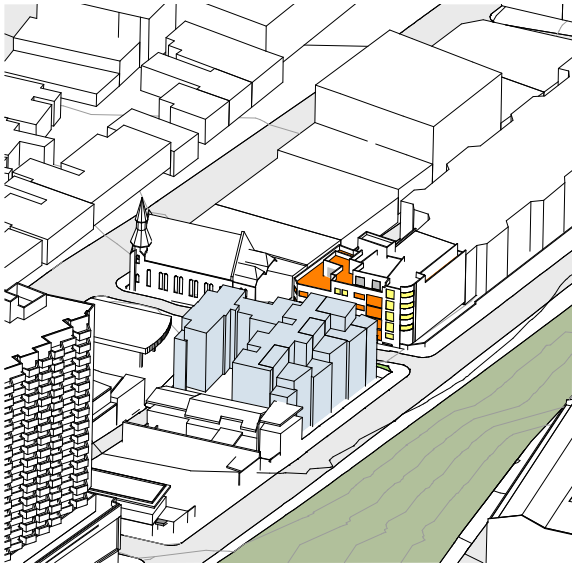
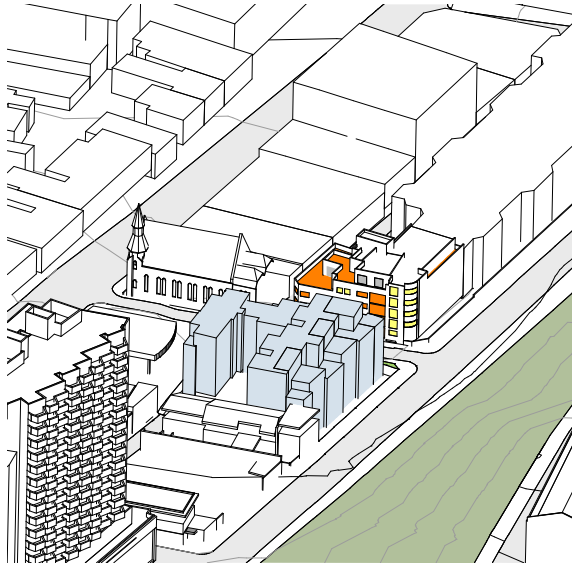
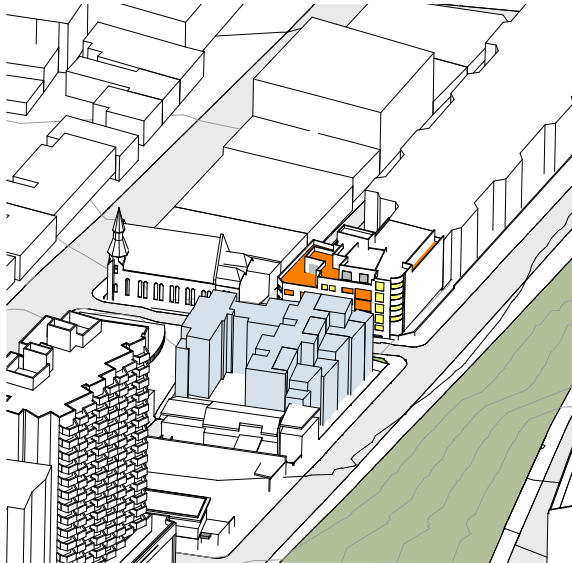
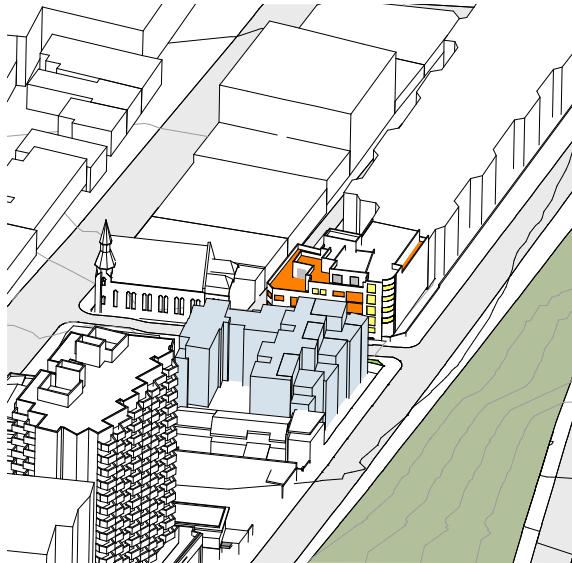
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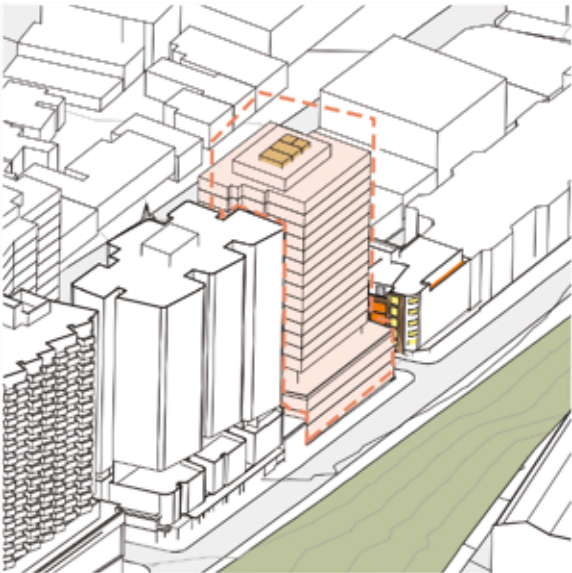
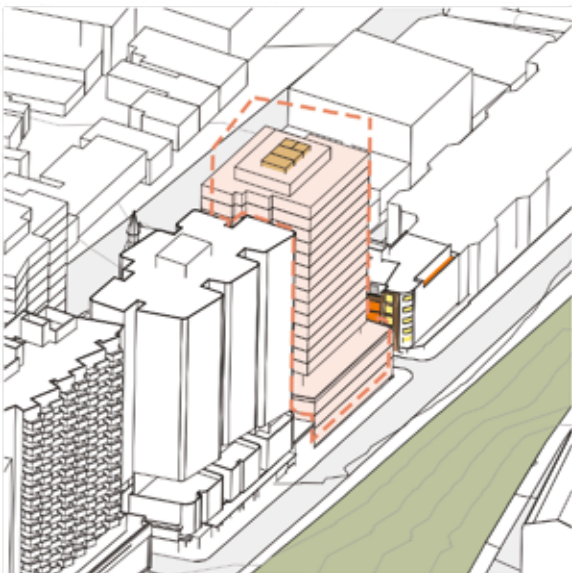
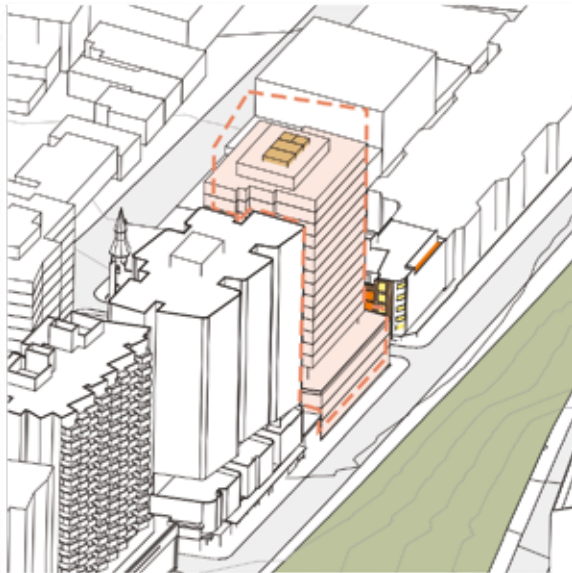
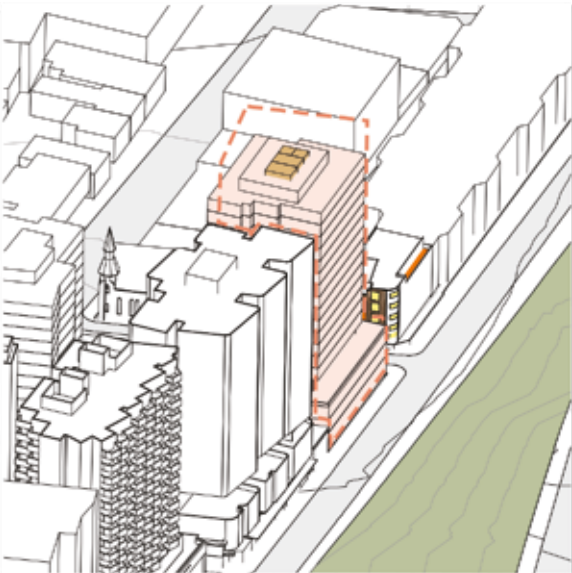
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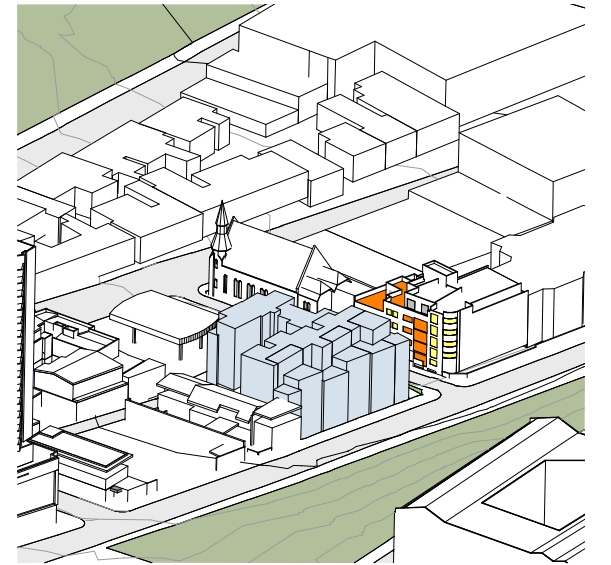
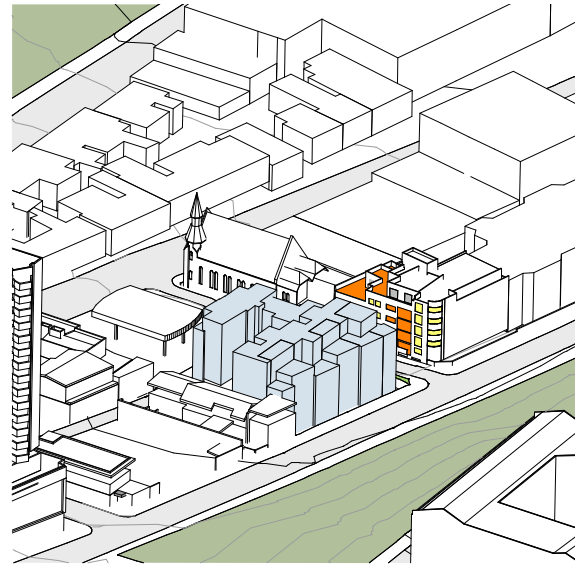
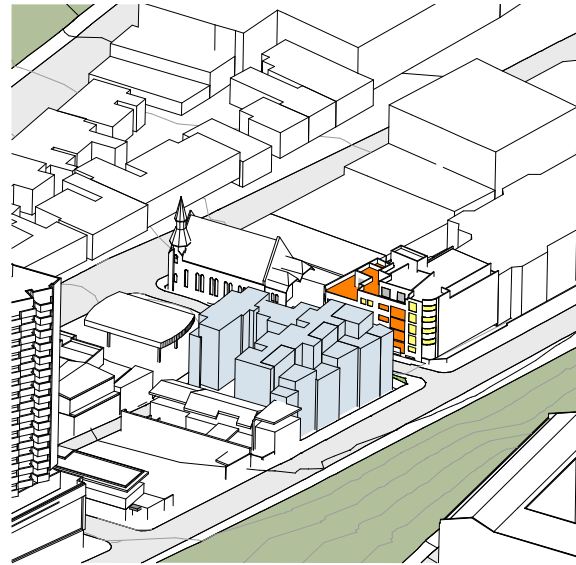
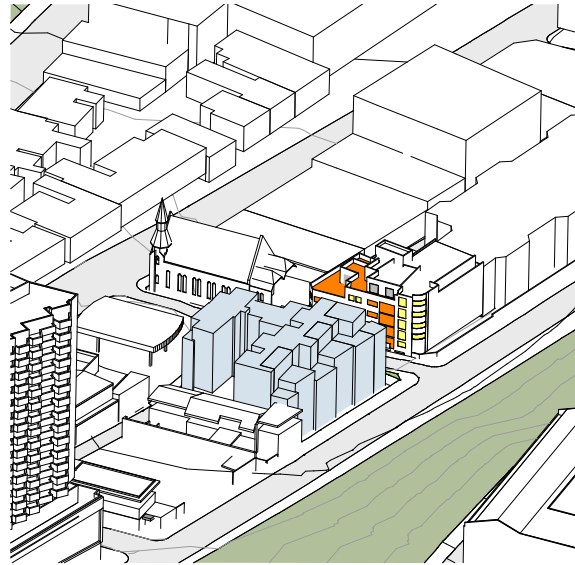
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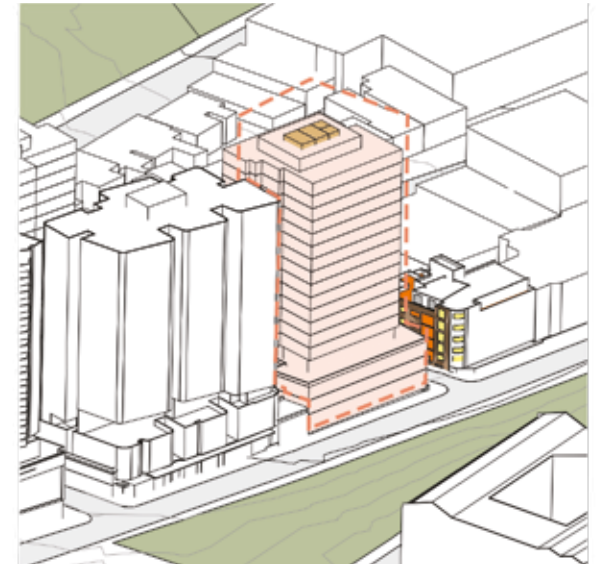
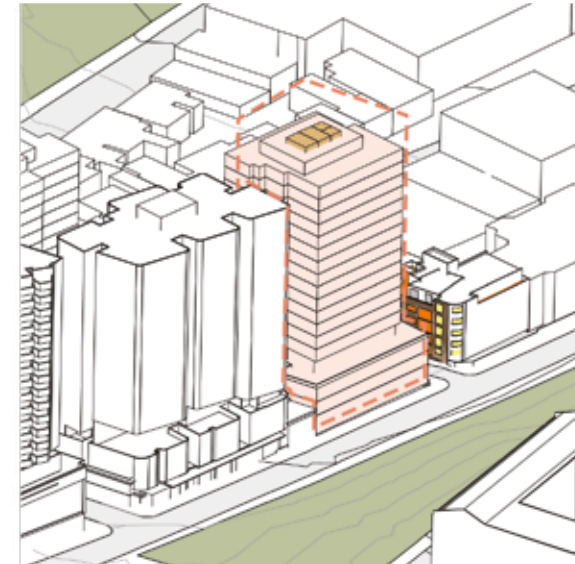
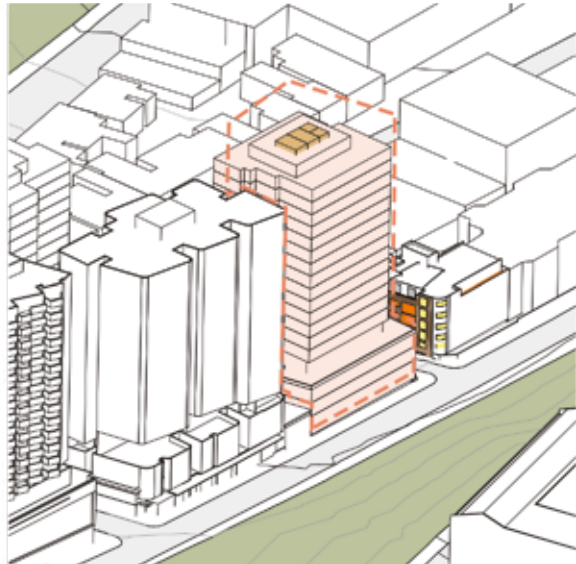
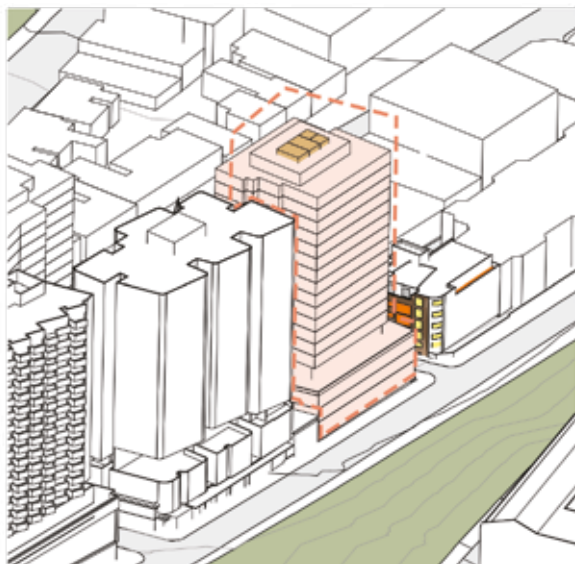
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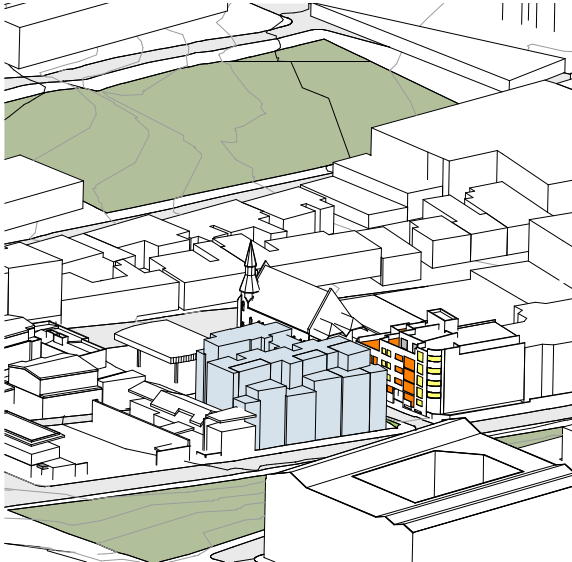
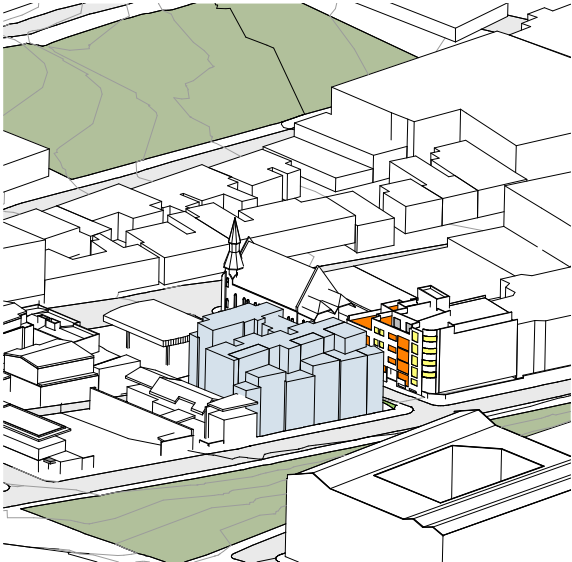
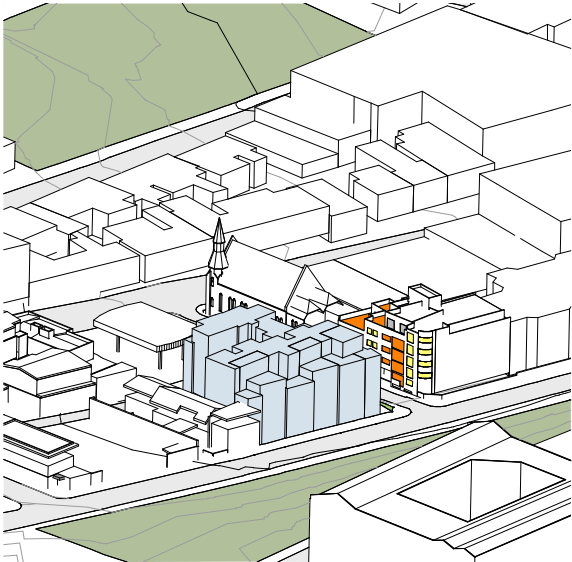
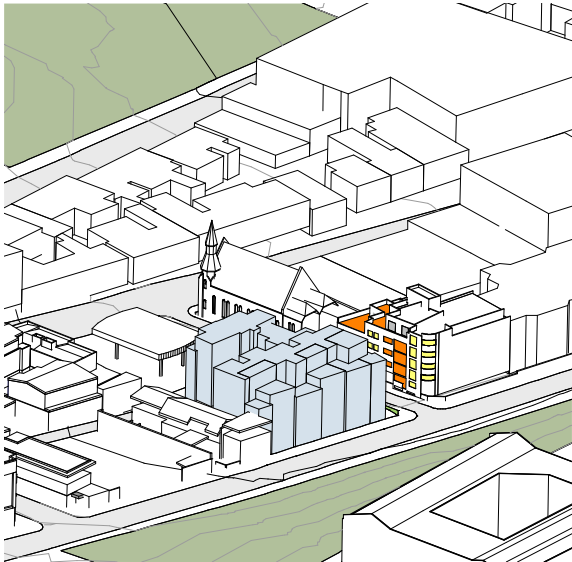
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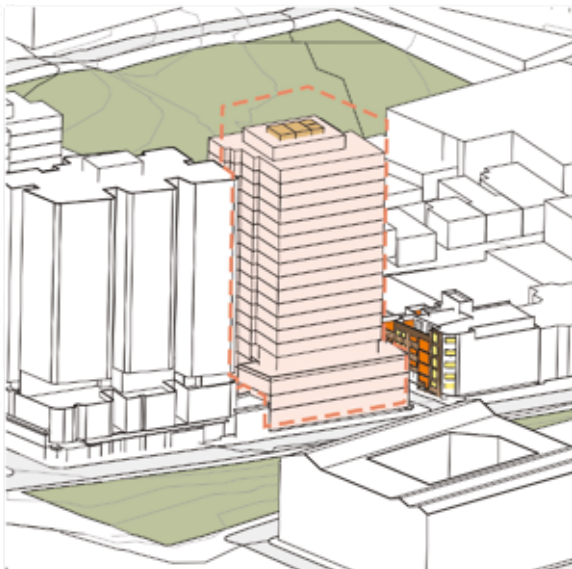
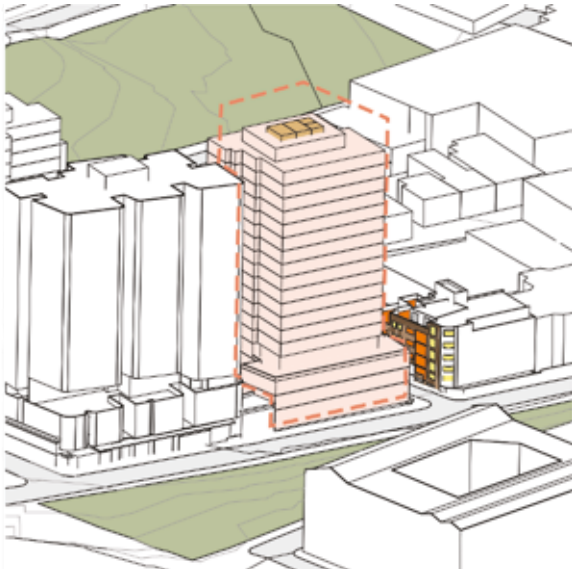
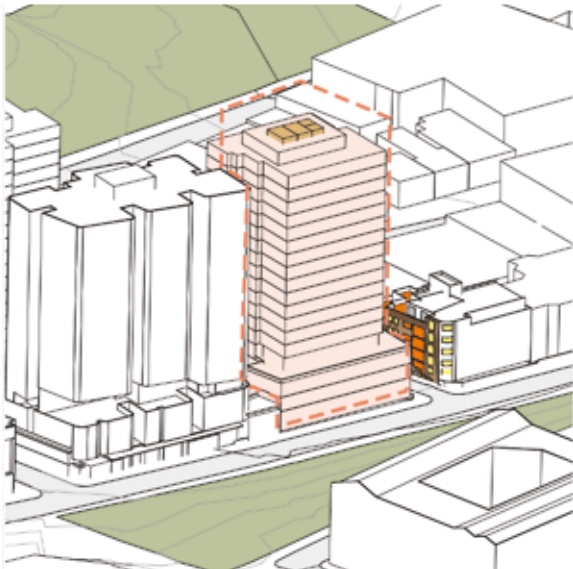
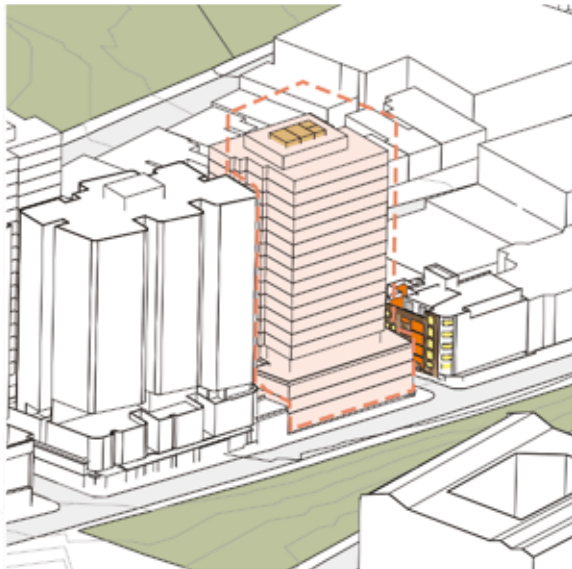
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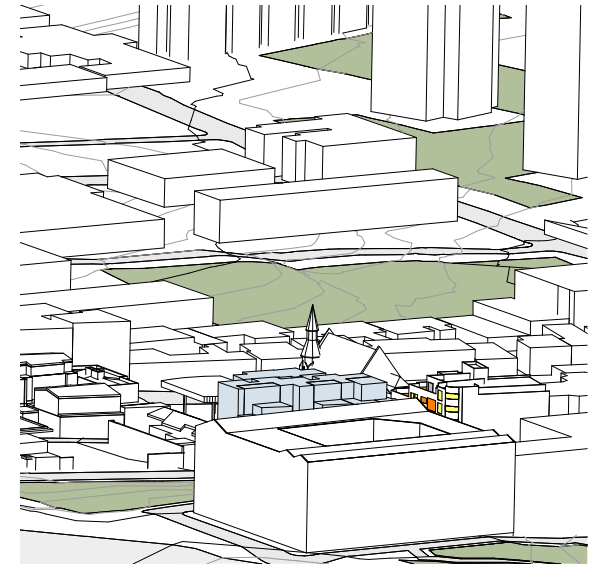
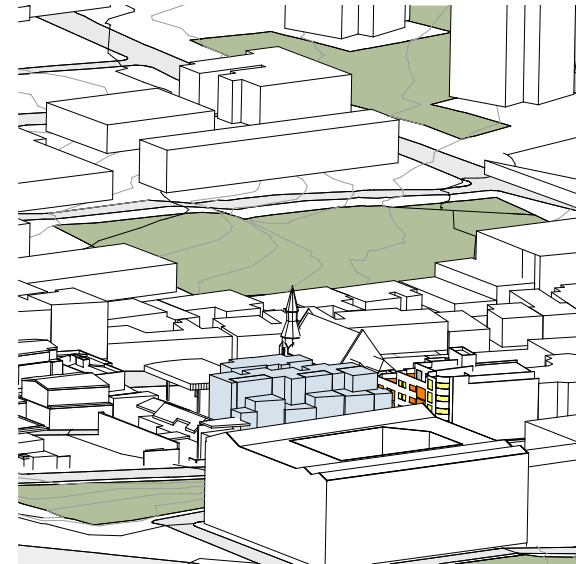
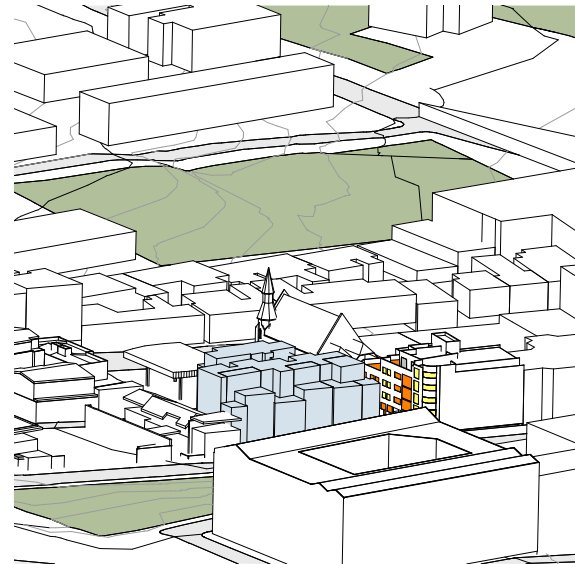
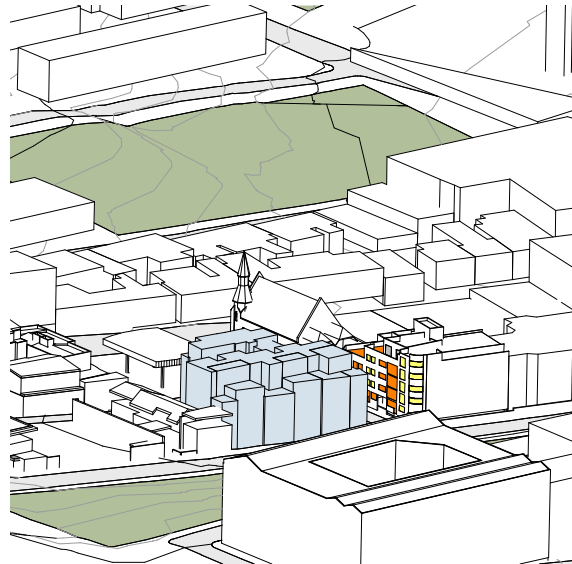
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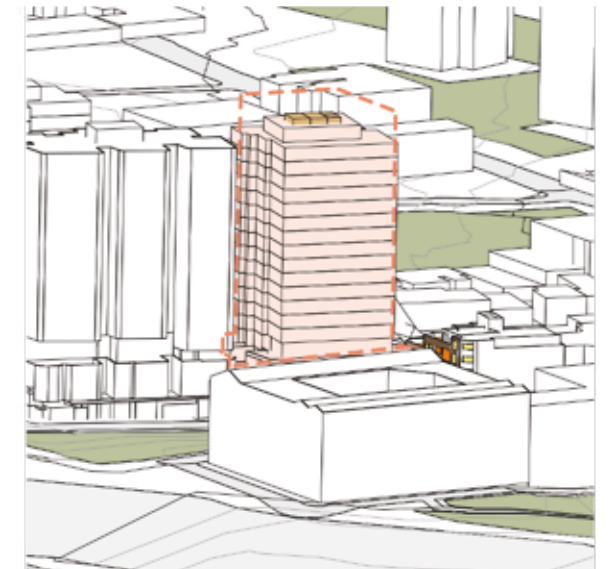
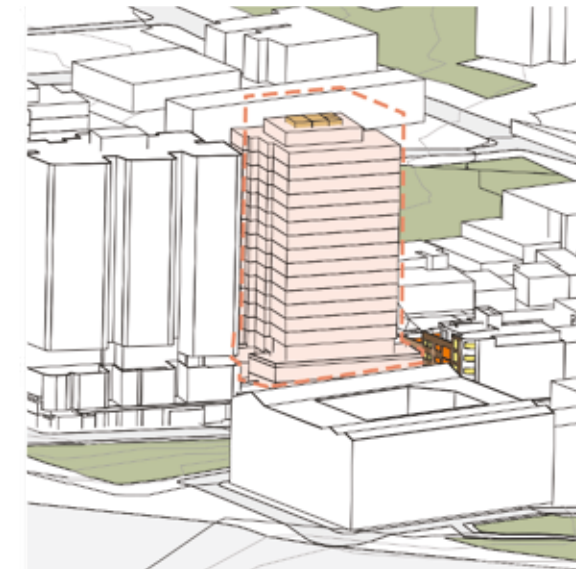
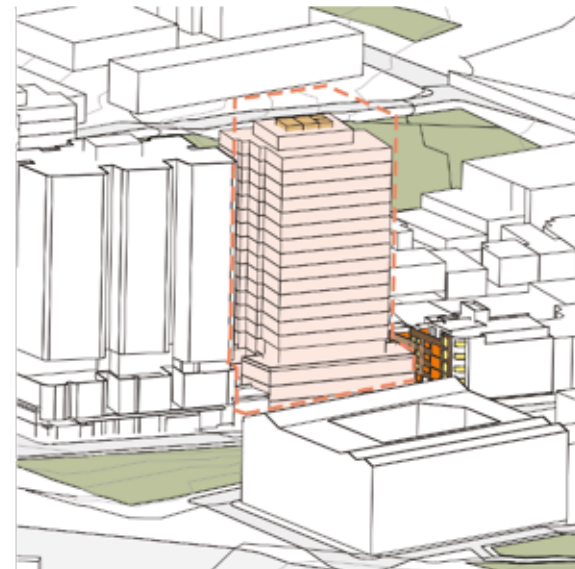
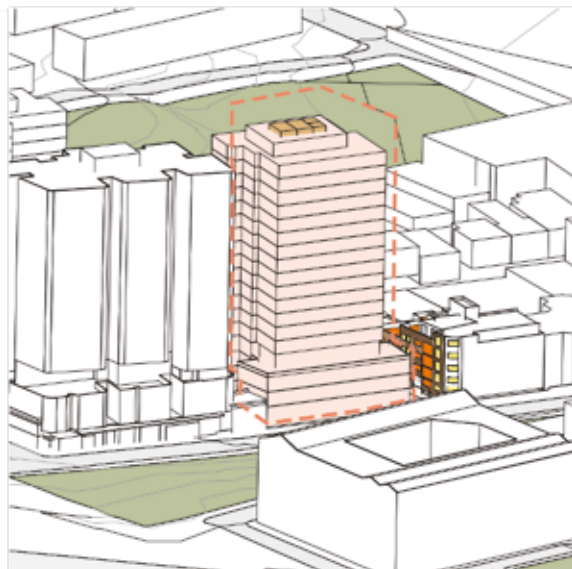
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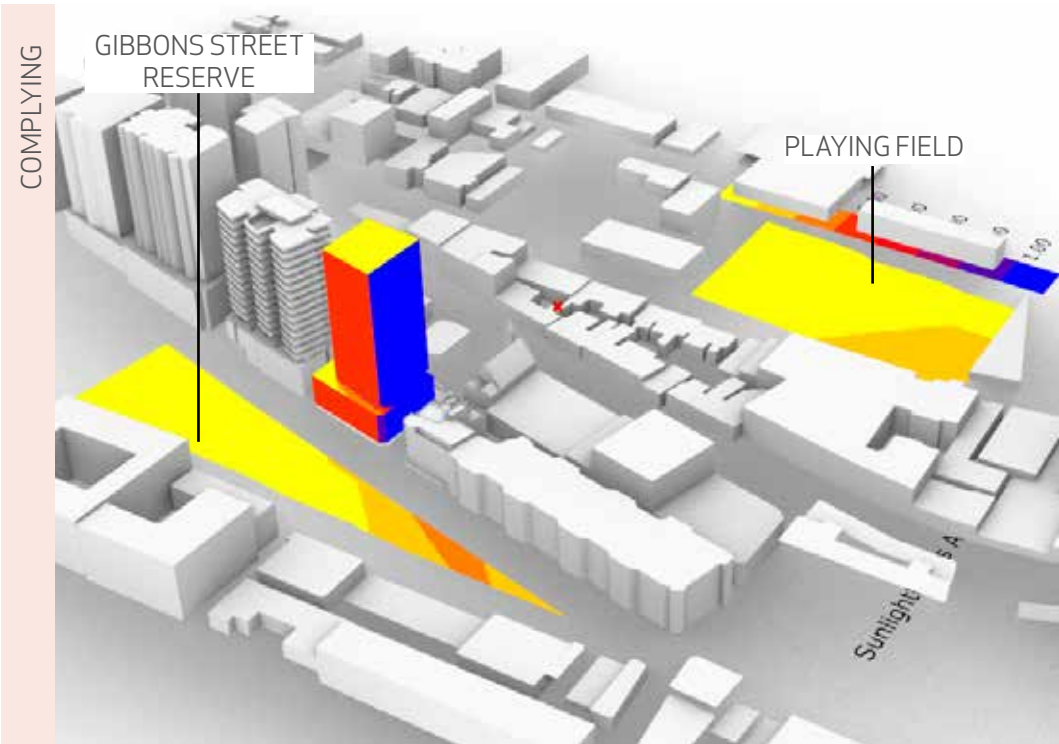
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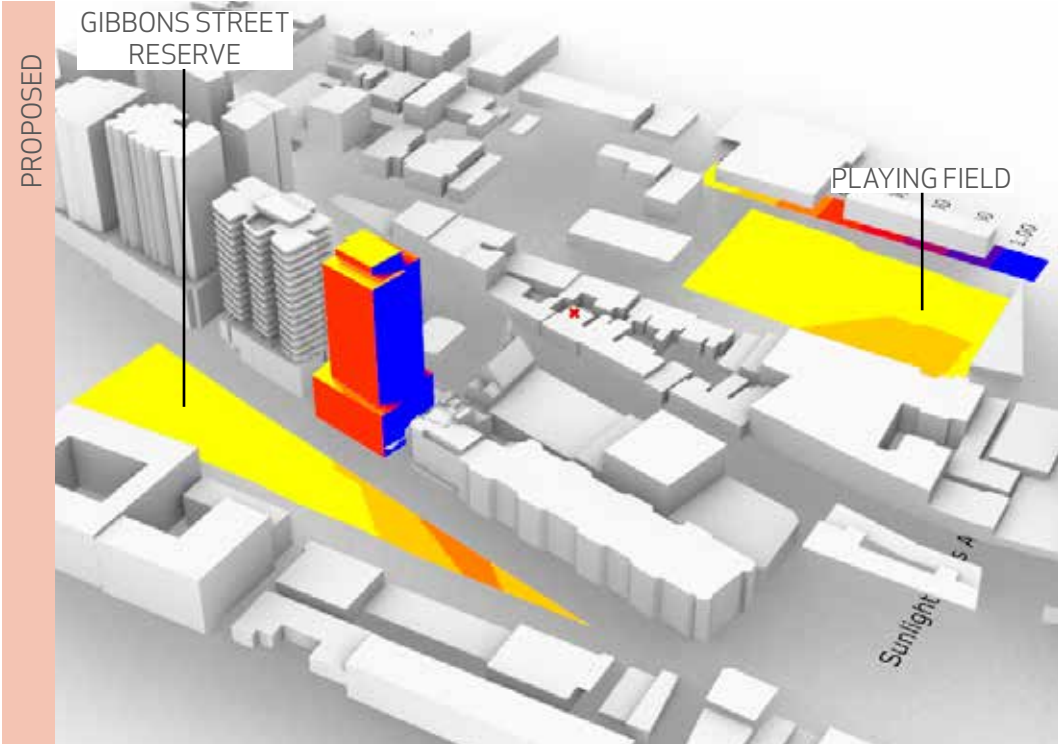
MID-WINTER SOLAR ACCESS - GREEN SPACES

The results shows that there is no significant variation to the amount of shadow cast on Gibbons Street Reserve by the proposed envelope in comparison to a complaint envelope. For the National Centre of Indigenous Excellence playing field, the proposed building achieves a reduced shadow footprint compared to a compliant envelope due to the slimmer tower form proposed. It increases the area receiving 7+ Hours of solar in mid winter by 37m² which equates to 5.5% of the total area.



Gibbons Street Reserve	
Total area	500 m²
Area receiving 5 Hrs of solar	27 m² (5.4%)
Area receiving 6 Hrs of solar	65 m² (13%)
Area receiving 7+ Hrs of solar	408.4 m² (81.6%)

National Centre of Indigenous Excellence playing field	
Total area	672 m²
Area receiving 6 Hrs of solar	151 m² (22.5%)
Area receiving 7+ Hrs of solar	521 m² (77.5%)



Gibbons Street Reserve	
Total area	500 m²
Area receiving 5 Hrs of solar	24.5 m² (5%)
Area receiving 6 Hrs of solar	73 m² (14.6%)
Area receiving 7+ Hrs of solar	402.5 m² (80%)

National Centre of Indigenous Excellence playing field	
Total area	672 m²
Area receiving 6 Hrs of solar	114 m² (17%)
Area receiving 7+ Hrs of solar	558 m² (83%)

SOLAR ACCESS COMPARISON

This analysis calculates hours of sunlight received between 9am - 3pm.
NOTE: At least 1sqm of an opening must receive sunlight to be counted

Apt	Window	Room Type	Existing	Complying	Proposed	Future Without our Development	Future With our Development	Proposed Against Existing	Proposed Complying	Future with against without our Development	Existing >2 Hrs Sunlight to Living Room	Proposed >2 Hrs Sunlight to Living Room
1	1.1	LIVING	0.75	0.75	0.75	0	0	0	0	0	No	No
	1.2	P.O.S.	0	0.5	1	0	0.5	1	0.5	0.5	No	No
2	2.1	P.O.S.	0.25	0	0	0.25	0	-0.25	0	-0.25	No	No
	3.1	P.O.S.	2	1.25	1.25	2	1	-0.75	0	-1	No	No
3	3.2	LIVING	4	3.25	3.25	4	3.25	-0.75	0	-0.75	Yes	Yes
	5.1	LIVING	0.75	0.75	1	0	0	0.25	0.25	0	No	No
5	5.2	P.O.S.	0.5	0.75	1.25	0.5	0.5	0.75	0.5	0	No	No
	6.1	P.O.S.	1	0.25	0.5	1	0.5	-0.5	0.25	-0.5	No	No
6	6.2	LIVING	0.25	0	0	0.25	0	-0.25	0	-0.25	No	No
	7.1	P.O.S.	2.25	1.25	1.25	2	1	-1	0	-1	Yes	No
7	7.2	LIVING	4	3.25	3.25	4	3.25	-0.75	0	-0.75	Yes	Yes
	9.1	LIVING	1	0.75	1	0	0	0	0.25	0	No	No
9	9.2	P.O.S.	2	1	1.5	1.5	0.5	-0.5	0.5	-1	No	No
	10.1	P.O.S.	3.25	1.5	0.5	3	0.5	-2.75	-1	-2.5	Yes	No
10	10.2	LIVING	1.75	0.75	0	1.5	0	-1.75	-0.75	-1.5	No	No
	11.1	P.O.S.	3.5	2.75	2	3.5	2.25	-1.5	-0.75	-1.25	Yes	No
11	11.2	LIVING	4	4	4	4	4	0	0	0	Yes	Yes
	13.1	P.O.S.	5	3	3.75	4	2.5	-1.25	0.75	-1.5	Yes	Yes
13	13.2	LIVING	4	0.75	1.5	3.5	1.25	-2.5	0.75	-2.25	Yes	No
	14.1	P.O.S.	3.5	2.75	3	3.5	3	-0.5	0.25	-0.5	Yes	Yes
14	14.2	LIVING	4	4	4	4	4	0	0	0	Yes	Yes
	16.1	P.O.S.	4.75	2	2.75	4	1.5	-2	0.75	-2.5	Yes	Yes
16	16.2	LIVING	4	4	4	4	4	0	0	0	Yes	Yes

- No change
- Improvement
- Negative impact

MID-WINTER SOLAR ACCESS-1 MARGARET STREET

Solar access analysis has been carried out on openings to living rooms and private open spaces in 1 Margaret Street. The results show that the greater eastern setback in the proposed envelope allows more direct solar access to units in 1 Margaret Street ranging from an addition of 15 minutes (0.25 hours) to 1 hour of sun in mid-winter.

