CITY OF PARRAMATTA

Epping Commercial Floor Space Urban Design Report

August 2021

Contents

Part 1 Introduction

The loss of commercial floor space within the Epping Town Centre was a key planning issue examined by Council as part of Phase 1 of the Epping Planning Review (Review) undertaken in 2017 and 2018. The review identified that since the 2014 Epping Urban Activation Precinct rezoning, new development within the B2 Local Centre zoning has increased the residential offering however the amount of commercial floor space (and therefore jobs) within the Epping Town Centre has reduced. Recent developments are typically replacing large and small-scale offices with 'shop top' housing. These developments provide ground floor retail or business premises with residential towers above. There is little or no floor space that is suitable for commercial / business activities.

A Commercial Floorspace Study was undertaken for Council by SGS Planning and Economics in 2017 and it concluded that between 40,000-45,000 square metres of commercial floor space and 13,000 of retail floorpsace was required for Epping to meet its Strategic Centre status. The Planning Proposal for Epping Town Centre seeks to mandate a minimum provision of non-residential floor space, at a maximum floor space of 1:1 in Epping Town Centre. This floor space is in addition to the current permitted maximum Floor Space Ratio (FSR) under the Parramatta Local Environmental Plan 2011 and Hornsby Local Environmental Plan 2013. The additional floor space, most often located in the podium, will increase the height of the buildings above the existing permissible height.

The purpose of this Urban Design report is to outline the testing that has been undertaken to ascertain the impacts of the two additional commercial floors on the height and overshadowing in Epping Town Centre. The current planning controls allow shop top housing, therefore the ground floor must be non-residential. The testing showed that on some sites the existing floor space in the LEP cannot be accommodated within the permitted height, and on other sites the height has excess capacity for the permitted floor space. The shortfall in height is generally where there is a combination of FSR of 4.5:1 and a 48 metre permitted height. The subdivision pattern, setbacks and topography all impact the size of the floor plate and therefore the capacity that is achievable in a particular height.

Urban Design has undertaken testing of the proposed change to ascertain the required heights to accommodate two additional commercial floors above the ground level retail. The results of this study are outlined in the following report and compromise the following:

- The potential floor space yield from mandating two additional floors of commercial floor space (including the ground floor level) up to a FSR of 1:1. (Refer Part 2)
- Individual site testing to determine the height required to accommodate the two additional floors of commercial with a maximum of floor space of 1:1. (Refer Part 2 & Appendix A)
- Testing of the potential overshadowing impacts as a result of any additional height increases within the Epping Town Centre. (Refer Part 3)

Part 2 Built Form Testing

In order to estimate the total potential non-residential floor space yield if the ground floor is retail and the two floors above are commercial, Council Officers have tested sites which have redevelopment potential and are zoned B2 Local Centre within the Epping Town Centre as shown in Figure 1. Sites that have already been developed are excluded. The results of this testing is shown in Table 1.

Sites Tested:

- The eighteen sites tested are shown in Context Plan Fig 1. The results of the testing are shown in the Spread Sheet Table 1 and the examples tests are shown in Appendix A
- The majority of sites are only large enough to accommodate one tower on a podium
- Three sites can accommodate two towers, one site can accommodate three towers and one can accommodate four towers. On these sites where more than one tower can be accommodated only one option was tested

METHODOLOGY

The methodology for the testing the increased floor space and height was to draw up each site with a three level podium with full site coverage and with one or more residential towers. The residential towers have the required setbacks and floor plates that meet depth of building criteria (ADG) . The Gross Building Area (GBA) and the Gross Floor Area (GFA) was then calculated and the heights were adjusted to accommodate the permitted floor space . The Spread Sheet at Table 1 outlines the calculations related to the testing of all the sites.

GFA Assumptions:

- The GFA for residential was calculated at 75% of GBA
- The GFA for commercial was calculated at 85% of GBA
- The GFA Retail at ground was calculated at 33 % of GBA (Allowances for driveway access, loading, services etc)

Height Assumptions:

- residential floor to floor height 3.1m
- commercial floor to floor height 3.8m
- retail floor to floor height 4.5m
- 3 storey podium height 12.1m
  - retail height 4.5m
  - 2 floors commercial allowance 7.6m

The Actual Height is the summation of all the floor to floor heights (See Spread Sheet Table 1). It makes no allowance for the topography or the impact of the definition of height in the Standard Instrument (SI). The height plane in the SI definition follows the shape of the land and does not relate to the characteristics of buildings which have horizontal floors. Hilly topography is adversely impacted.

CONCLUSION

The Spread Sheet Table 1 within this report shows the results of the testing.
The testing illustrates that the majority of sites (1-5, 9-11, 14-17) cannot accommodate the current floor space within the permitted height. This occurs mostly on sites where there is a FSR of 4.5:1 and a height of 48 metres . The additional height required to accommodate the floor space varies from 1 metre to 19 metres. This needs to be addressed by increasing those heights to avoid problems at DA stage because the additional height required is greater than can be dealt with in a Clause 4.6. It is noted that on some sites some additional residential floor space may be able to be accommodate in a larger podium.

When the two floors of commercial is included the testing illustrates that sites 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 cannot accommodate the additional floor space within the permitted height. The additional height required to accommodate the additional floor space varies from 1 metre to 27 metres.

The testing illustrates that there is a mismatch between height and floor space even with the current

controls in the LEP and that the differences are in many cases are substantial.

The Spread Sheet also shows that on all sites other than sites 11 and 16 a greater amount of floor space than 1:1 FSR can be accommodated in two levels of podium. If additional floor space is accommodated in the podium the total residential floor space would need to be reduced as the overall floor space is not to increase. On sites 11 and 16 where a FSR of 1:1 cannot be accommodated in two levels of podium the sites may not be able to meet the full 1:1 FSR of Commercial. This should be assessed at Development Application stage.

POTENTIAL FLOOR SPACE YIELD

The testing found that there is potential for the sites tested to yield approximately 57,000sqm of non-residential floor space comprising:

- Approximately 14,668sqm of retail floor space on the ground floor; and
- Approximately 52,85sqm of commercial or non-residential floor space on the first and second storeys.

Some of the larger sites in Epping (over 6,500sqm in site area) that were included in the projections above, could accommodate significantly more non-residential floor space through their redevelopment within the Epping Town Centre and therefore the projected non-residential floor space may further increase.

RECOMMENDED HEIGHTS

Council has recommended heights that will accommodate the proposed floor space. The recommendations incorporate the actual height and additional height to allow for context. This additional height is to make an allowance for the topography and in the case of lots with more than one tower to make allowance for towers of different heights if that results in a better outcome. Epping is very hilly and in some cases sites have cross falls up to 6 metres . The height allowance provides the opportunity to resolve the architecture so that at the ground floor where there are substantial differences in topography levels development is not below footpath level. Any excess height is not to enable any increase in floor space.

The additional height allowances are set out below:

- Assume approximately 8m difference from actual height required to allow for topography on all sites with 1 tower.
- Assume approximately 10m difference from actual height required to allow for topography on all sites with 2 towers.
- Assume approximately 12m difference from actual height required to allow for topography on all sites with 3 or 4 towers.

Table 2 compares the FSR + Heights of the Current LEP and the FSR + Heights that are recommended in the Planning Proposal.

CURRENT LEP		PLANNING PROPOSAL	
FSR	**Permitted Height Metres**	**FSR**	**Permitted Height Metres**
4.5:1	48	5.5:1	80
4.5:1	72	5.5:1	80
6.0:1	72	6.0:1	90

Table 2 Current and Proposed LEP - FSR and height of buildings

Figure 1 - Epping context plan

		Existing LEP Controls												Additional Storeys / Height Required to Achieve an Additional FSR 1:1											
Site	Address	FSR	Allowable Height metres	Site Area	Podium Floorplate	Retail GFA (33%)	Tower Floorplate	Res GFA (Per Floor 75%)	Res Storeys	Res GFA (75%)	Units (85sqm)	Total GFA	Actual Height Retail + (Res x storeys) metres	Difference in Height from Allowable HOB in storeys	FSR Up to Maximum	Res Storeys	GFA Res (75%)	GFA Retail	Comm FSR (1:1)	Max Comm GFA possible (within podium)	FSR (2 Levels of Comm)	GFA Retail + Res +Comm @ 1:1 (not the full 2 levels)	Units (85 sqm)	Additional Comm Storeys	Actual Height Retail + Comm + (Res x storeys) metres	Height Difference from LEP metres	Recommended LEP Height metres	No. of Towers
1	246 - 250 Carlingford Road	4.5	48	3010	2596	857	945	709	18	12688	149	13545	60.3	+12	5.5	18	12688	857	3010	4413	1.47	16555	149	2	67.9	+19.9	76	1
2	53 - 61 Rawson Street	4.5	48	9012	7459	2461	2962	2222	17	38093	448	40554	57.2	+9	5.5	17	38093	2461	9012	12680	1.41	49566	448	2	64.8	+16.8	73	4
3	51 Rawson Street	4.5	48	2062	1617	534	697	523	17	8745	103	9279	57.2	+9	5.5	17	8745	534	2062	2749	1.33	11341	103	2	64.8	+16.8	73	1
4	41 - 47 Rawson Street	4.5	48	3774	3252	1073	1131	848	19	15910	187	16983	63.4	+15	5.5	19	15910	1073	3774	5528	1.46	20757	187	2	71.0	+23.0	81	2
5	40 - 48 Langston Place & 2 Pembroke Street	6	72	2894	2432	803	911	683	24	16561	195	17364	78.9	+7	7	24	16561	803	2894	4134	1.43	20258	195	2	86.5	+14.5	95	1
6	41 - 47 Beecorft Road	6	72	1475	1407	464	572	429	20	8386	99	8850	66.5	-6	7	20	8386	464	1475	2392	1.62	10325	99	2	74.1	+2.1	83	1
7	33 - 40 Beecroft Road	6	72	1845	1720	568	740	555	19	10502	124	11070	63.4	-9	7	19	10502	568	1845	2924	1.58	12915	124	2	71.0	-1.0	79	1
8	5 - 7 Oxford Street	4.5	48	951	951	314	405	304	13	3966	47	4280	44.8	-3	5.5	13	3966	314	951	1617	1.70	5231	47	2	52.4	+4.4	61	1
9	2 - 16 Oxford Street	4.5	48	2018	1915	632	780	585	14	8449	99	9081	47.9	0	5.5	14	8449	632	2018	3256	1.61	11099	99	2	55.9	+7.9	64	1
10	18 - 28 Oxfrod Street	4.5	48	2047	1786	589	622	467	19	8622	101	9212	63.4	+15	5.5	19	8622	589	2047	3036	1.48	11259	101	2	71.0	+23.0	79	1
11	48A Oxford Street	4.5	48	1596	659	217	500	375	19	6965	82	7182	63.4	+15	5.5	19	6965	217	1596	1120	0.70	8778	82	2	71.4	+23.4	82	2
12	9 Bridge Street	6	72	1270	1146	378	467	350	21	7242	85	7620	69.6	-2	7	21	7242	378	1270	1948	1.53	8890	85	2	77.2	+5.2	86	1
13	50 - 50E Rawson Street & Part 9 Bridge Street	6	72	1362	1268	418	533	400	19	7754	91	8172	63.4	-9	7	19	7754	418	1362	2156	1.58	9534	91	2	71.0	-1.0	79	1
14	Lyon Site	6	72	6147	6123	2021	1800	1350	26	34861	410	36882	85.1	+13	7	26	34861	2021	6147	10409	1.69	43029	410	2	92.7	+20.7	103	2
15	11 - 15 Bridge Road	4.5	48	1000	872	288	277	208	20	4212	50	4500	66.5	+19	5.5	20	4212	288	1000	1482	1.48	5500	50	2	74.1	+26.1	83	1
16	10 Pembroke Road	4.5	48	2550	1346	444	980	735	15	11031	130	11475	51.0	+3	5.5	15	11031	444	2550	2288	0.90	14025	130	2	58.6	+10.6	67	1
17	51A Rawson Street	4.5	48	7440	6075	2005	2418	1814	17	31475	370	33480	57.2	+9	5.5	17	31475	2005	7440	10328	1.39	40920	370	2	64.8	+16.8	77	3
22	16-18 Cambridge Street	4.5	72	1832	1828	603	558	419	18	7641	90	8244	60.3	-12	5.5	18	7641	603	1832	3108	1.70	10076	90	2	67.9	-4.1	76	1
	Totals					**14669**				**243103**	**2860**	**257772**					**243103**	**14668**	**52285**	**75568**		**310057**	**2860**					

Assumptions	
Res	3.1m
Retail	4.5m
Commercial / Retail Podium	12.1m
Commercial	3.8m

Additional commercial @ 1:1 cannot be achieved in a two storey podium for the following sites
11. 48A Oxford Street
16. 10 Pembroke Road

Table 1 Yields - Existing LEP Controls & Additional height/storeys to achieve an additional FSR of 1:1

Part 3 Overshadowing & Solar Access

In Epping the issues that impact on overshadowing and solar access compliance are:

- The orientation of the sites. Because of the north / south orientation of Epping Town Centre many of the lots are directly south of other lots / buildings.
- The high Floor Space Ratios at 4.5:1 and 6:0:1 (and greater with the additional commercial floors).
- The sloping terrain particularly sites that slope to the south.
- The existing subdivision pattern. The street layout of Epping Town Centre relates to the topographical ridge and the rail line. This has resulted in many of the lots that are not orthogonal, irregular in shape and with different dimensions. These existing conditions limit where buildings can be sited on many lots so that unlike the opportunities in new development precincts where there is some flexibility as to the siting of towers in Epping Town Centre there is limited flexibility.
- The separation distances. Not all lots can accommodate 12m set back from side/rear boundaries. Some sites are adjacent to existing buildings that have reduced side setbacks.
- The taller the buildings the longer the shadows.
- The larger the floorplate of the buildings the larger the shadow.

It is not possible to quantify exactly the amount of overshadowing on each lot with or without the increased height. The amount of overshadowing and the times when the overshadowing occurs will be dependent on the specific conditions of each lot and will have to be assessed based on the particular proposal and the site conditions as outlined above. The additional height may affect the duration of the overshadowing and the amount of overshadowing.

OVERSHADOWING TESTING

In order to compare the extent of overshadowing between the current LEP planning controls and the proposed Planning Proposal, a 3D model for all B2 Local Centre zoned sites in Epping Town Centre was created and the following data was inputted:

- Development that is constructed or under construction, as it is assumed these developments are finalised;
- Development applications that have been approved or currently under assessment (however construction not commenced) and applying both current planning controls and planning controls under the proposed Planning Proposal; and
- Sites which have not lodged development applications and not realised the full potential of the planning controls and applying both current planning controls and planning controls under the proposed Planning Proposal.

T
he 3D model then calculated the difference in overshadowing impact for the sites modeled between the current and proposed planning controls. The shadows cast were analyzed on an hourly basis between 10am and 2pm on 21 June (winter solstice).The hourly shadow analysis between 10am and 2pm at 21 June is provided in Figure 2.

On some sites where the additional two floors of commercial increases the height by 7.8 metres there will be an increase in overshadowing.

Figure 3 indicates the potential net increase in overshadowing (shown in pink) caused by increasing the height to accommodate an increase in commercial floor space. It is noted that shaded areas in Figure 20 include both the shadow under the existing planning controls and shadow from proposed (therefore no resultant net increase of shadow).

SOLAR ACCESS

ADG Solar Access Compliance

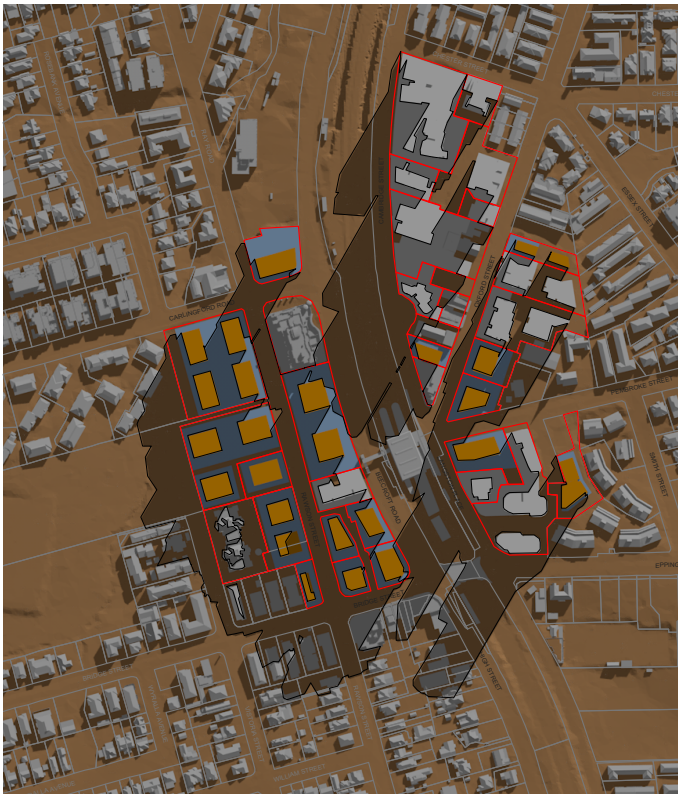
The testing has not investigated solar access compliance as per the ADG on any sites. Solar access compliance is dependent on the final organization of buildings and the detailed architectural plans.

Generally in an urban context with densities where the FSR is 4.0:1 or greater it is difficult to meet ADG solar access requirements.

CONCLUSION

The overshadowing analysis shows that any additional overshadowing falling on the edge of Boronia Park, the residential areas to the south west of the Epping Town Centre and over the railway line between 10am and 11am, is marginal and has progressed further eastward by 12 midday. Therefore the overall net additional overshadowing caused by the proposed Planning Proposal for the majority of B2 sites is considered acceptable.

Council resolved not to include 6-18A Bridge St and 24-30 High St in the Planning Proposal as it was considered that the additional net shadow caused by additional height and density largely impacts those sites to its immediate south for the majority of time between 10am and 2pm. The sites impacted are located along Rawson and High Streets, are low density residential areas and sit within the Epping Eastwood Heritage Conservation Area under the Parramatta LEP 2011. The exclusion of these sites would not impact substantially on the delivery of commercial floor space in the future, as the sites have a current maximum FSR of 3:1 and height of buildings of 21 metres, the lowest density and height controls in the Epping Town Centre.



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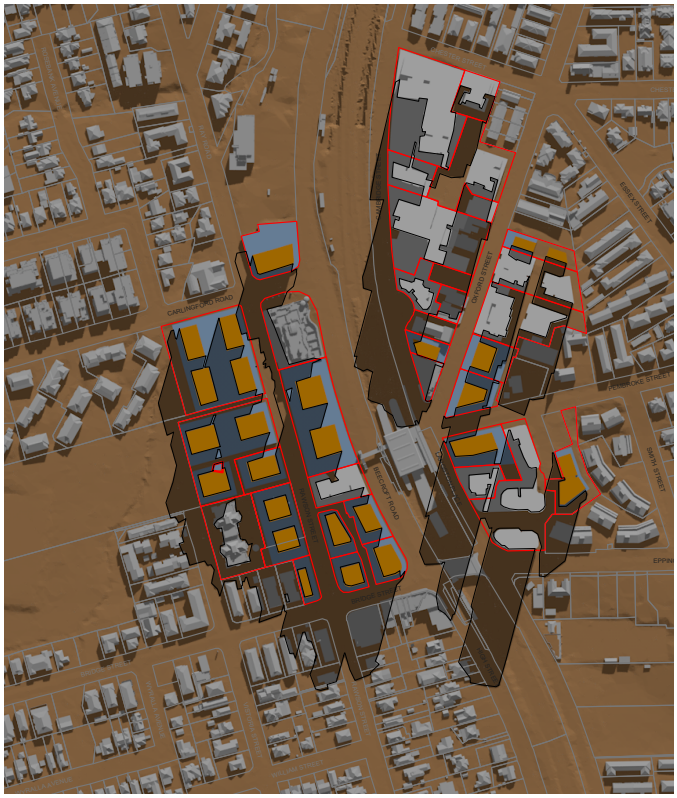

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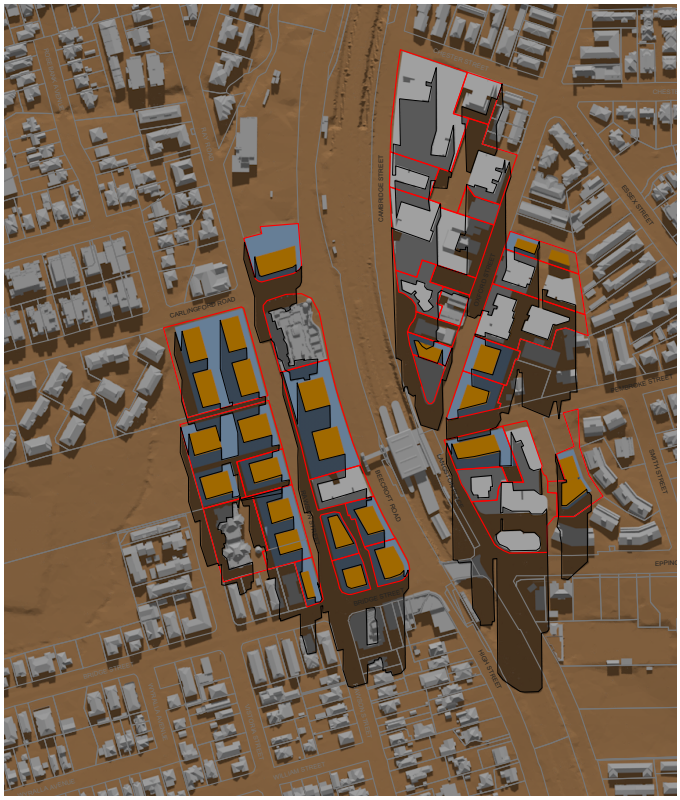

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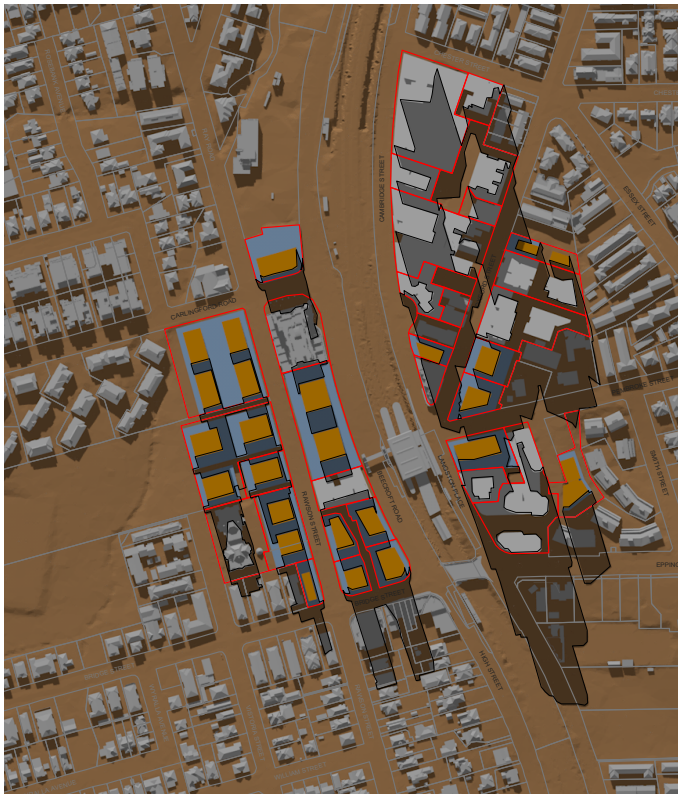

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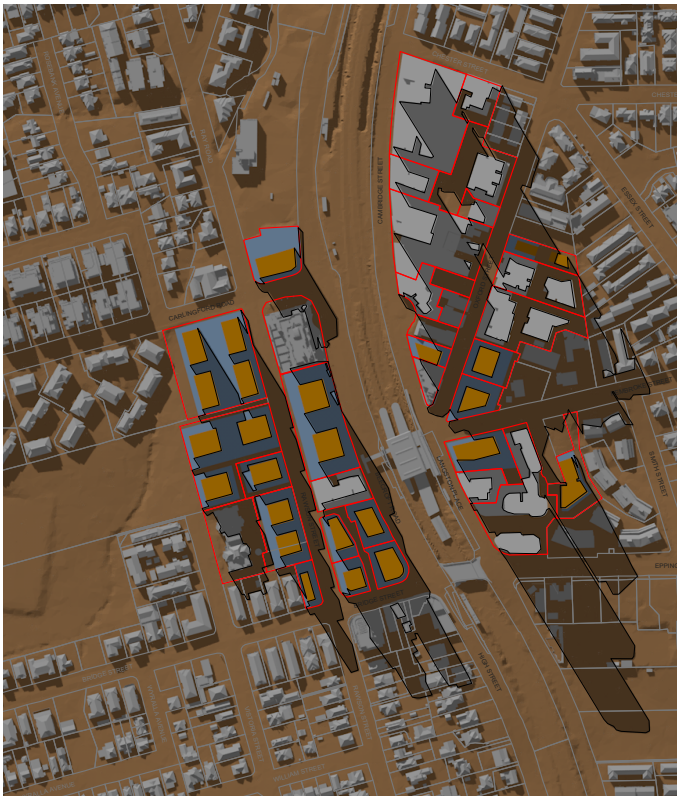


2:00pm

Figure 2
- 21 June
- Culmination of overshadowing - existing and proposed development

culmination of overshadowing (existing and proposed development)

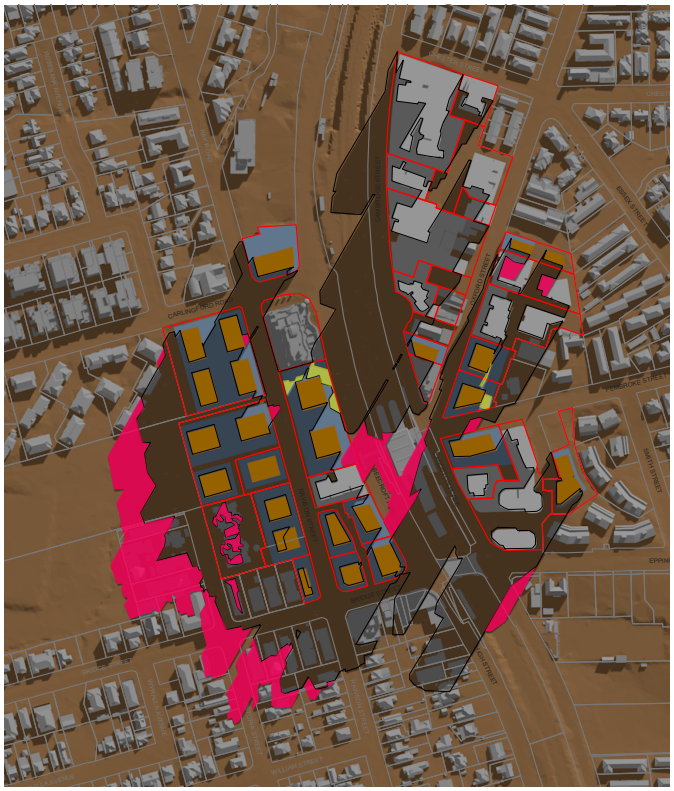
additional FSR (1:1) overshadowing

reduction in overshadowing due to the increase in height of podium

Existing & DA approved buildings

Proposed retail/commercial podium

Proposed residential tower



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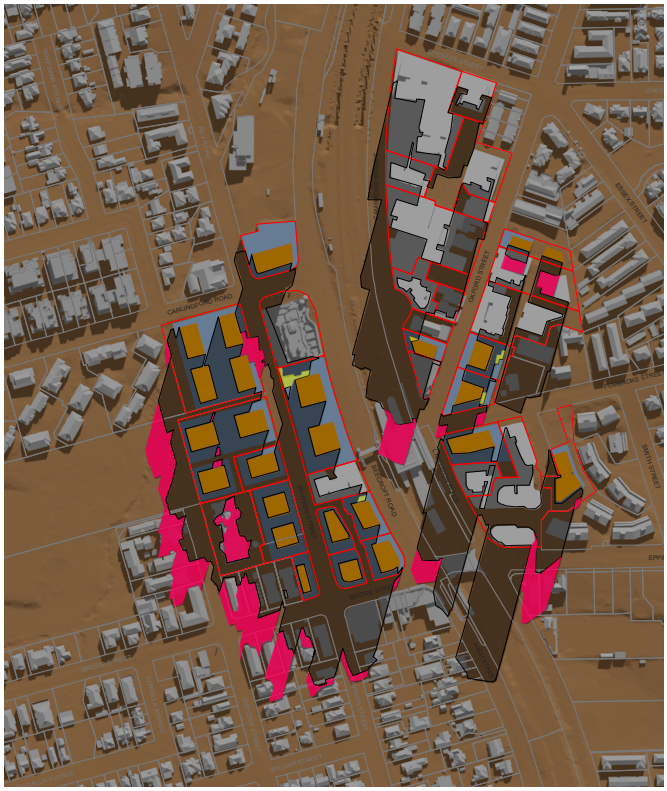
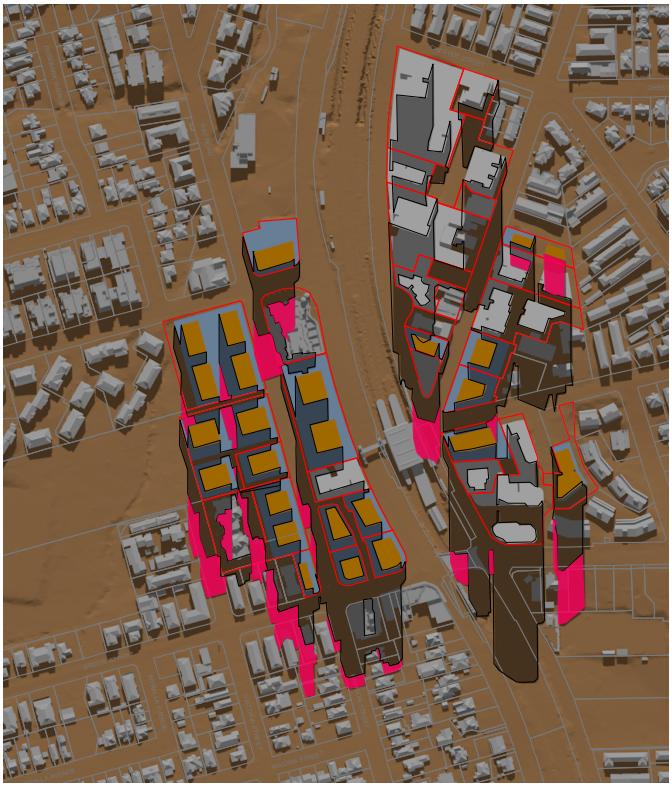


11:00am



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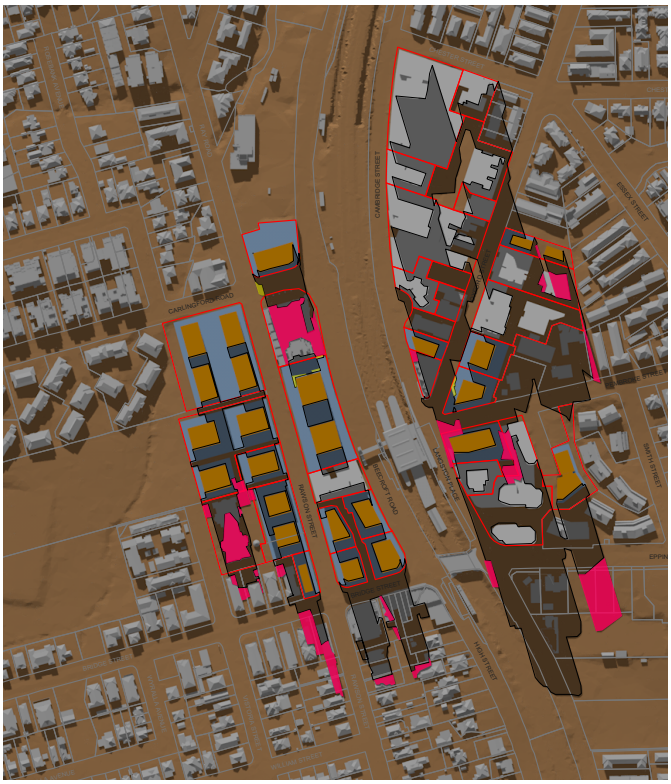

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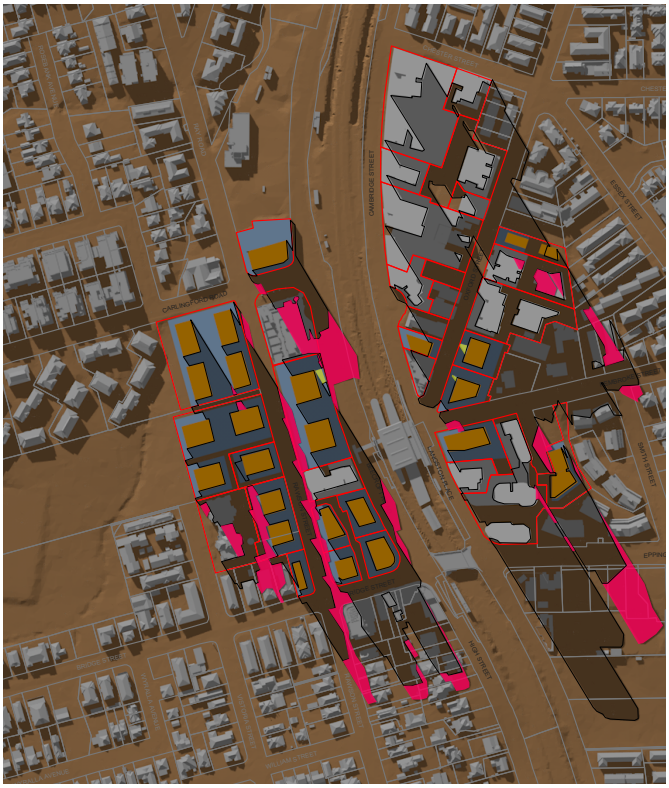


2:00pm

Figure 3

- 21 June
- Culmination of overshadowing - existing and proposed development with additional FSR 1:1 (commercial)

culmination of overshadowing (existing and proposed development)

additional FSR (1:1) overshadowing

reduction in overshadowing due to the increase in height of podium

Existing & DA approved buildings

Proposed retail/commercial podium

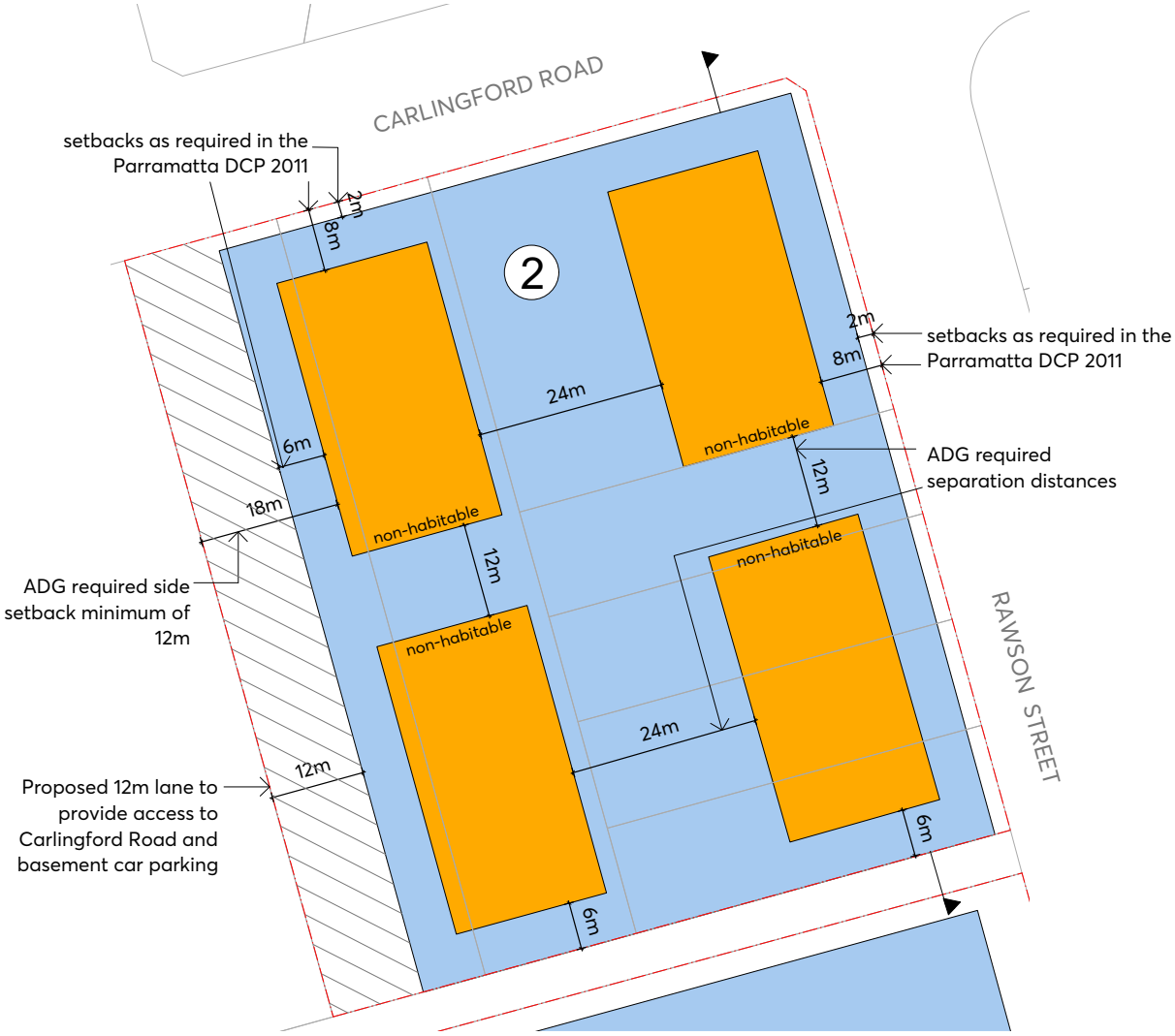
Proposed residential tower

Appendix A

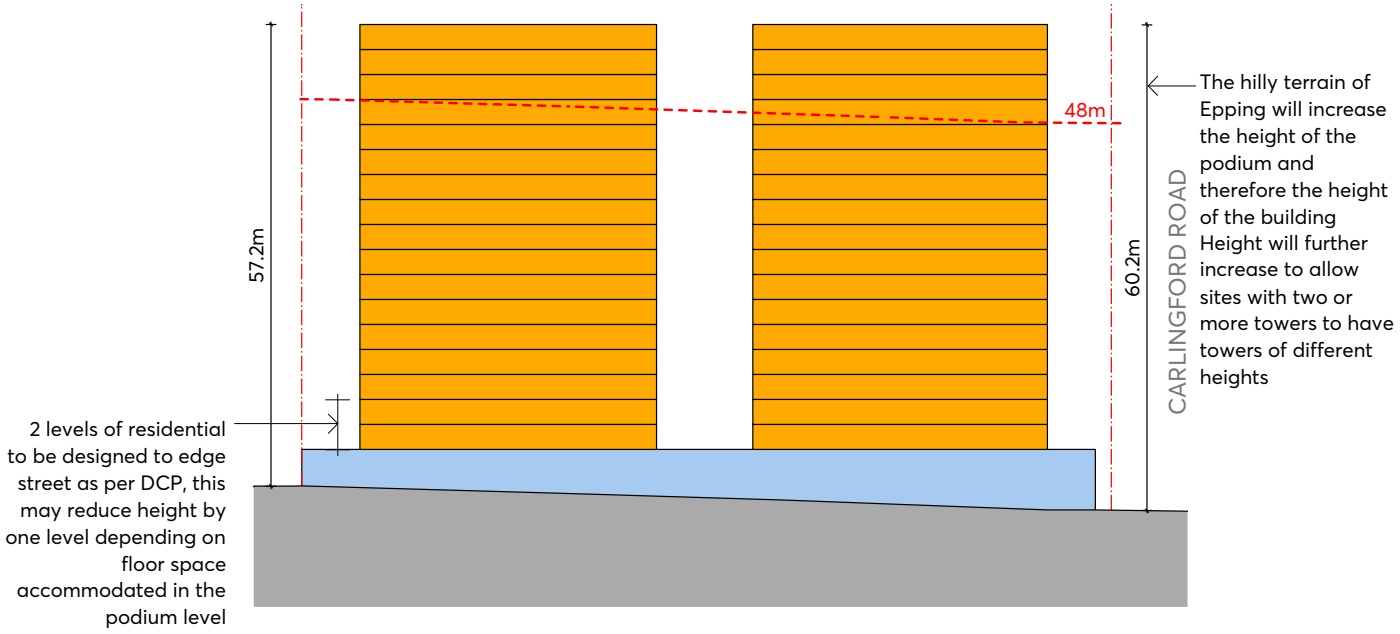
Site 2: 53 - 61 Rawson Street - Option 1

Parramatta LEP 2011

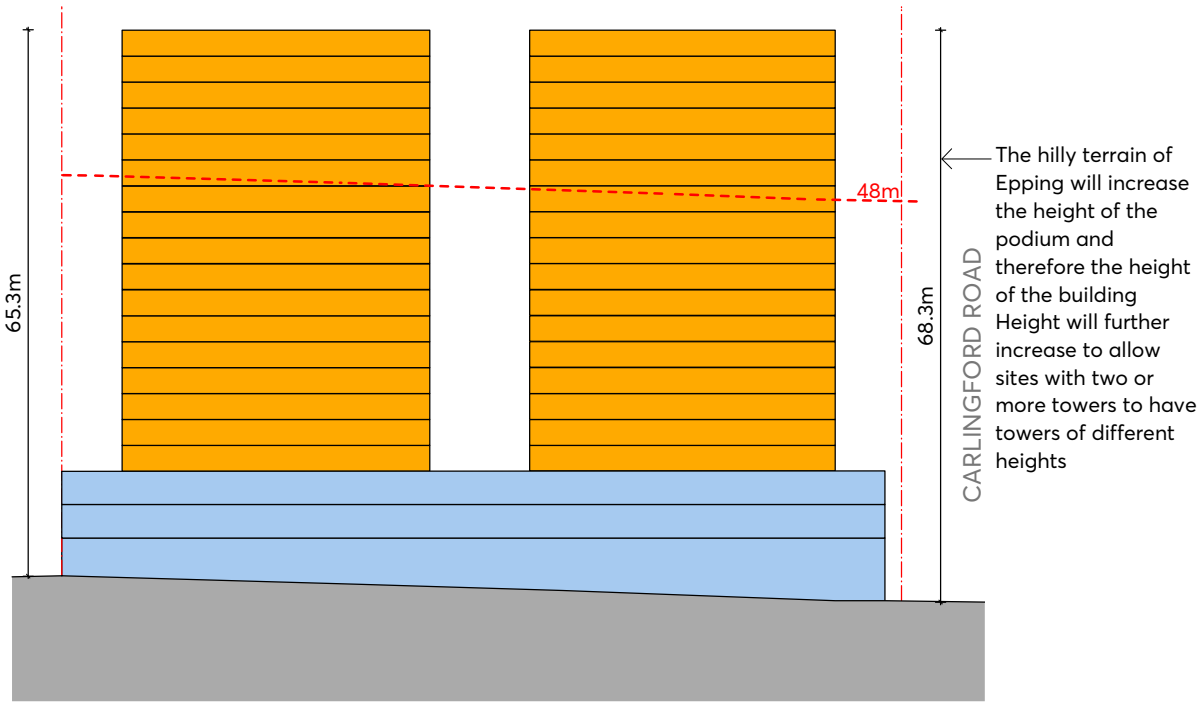
- FSR 4.5:1
- HOB 48m



Plan



Section
- Ground floor retail
- 17 storey residential tower (2 levels of residential to edge the street as per DCP this may reduce the height by one storey)

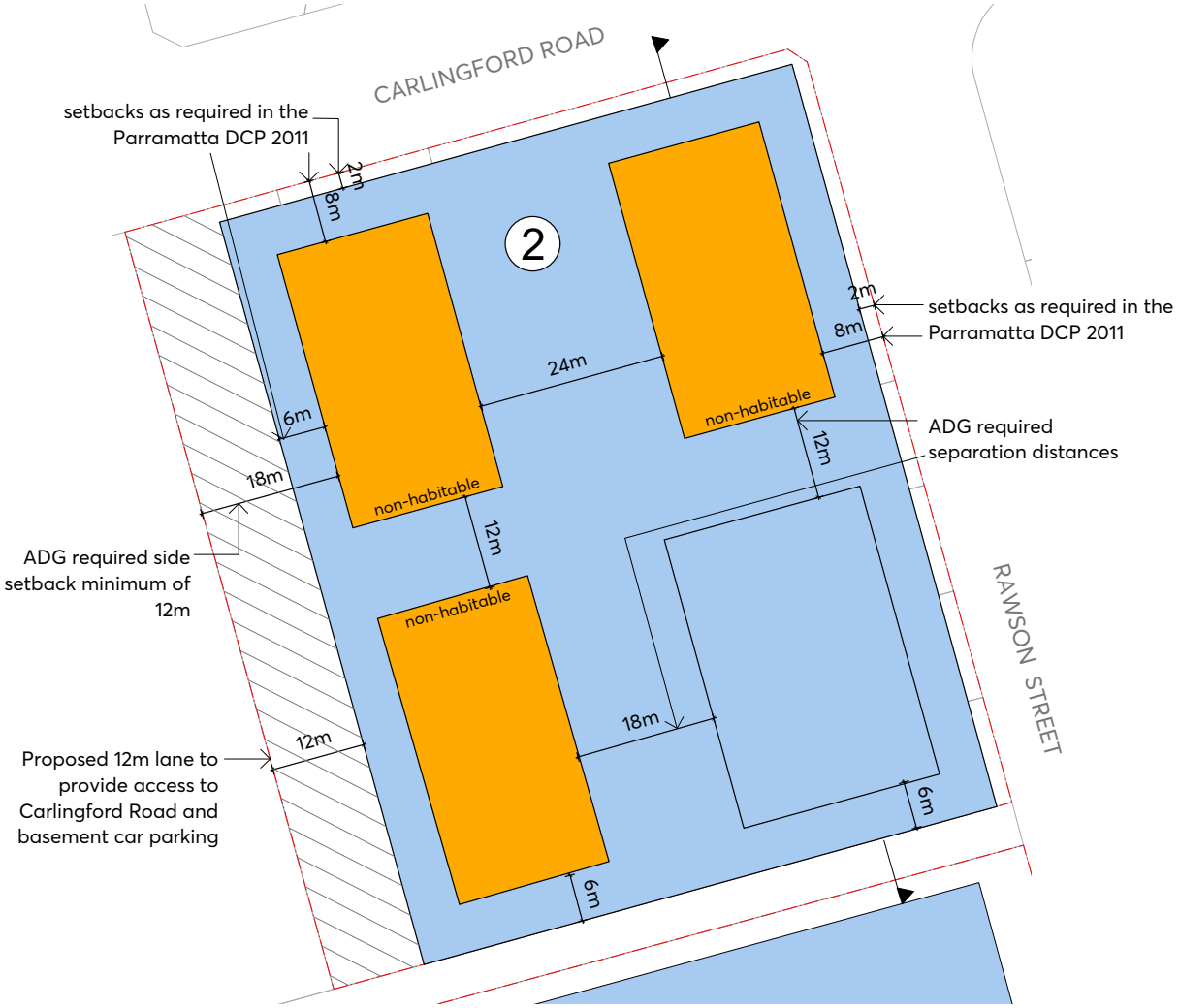


Section with additional 2 storeys of commercial in podium
- Ground floor retail
- 2 storeys of commercial within podium
- 17 storey residential tower

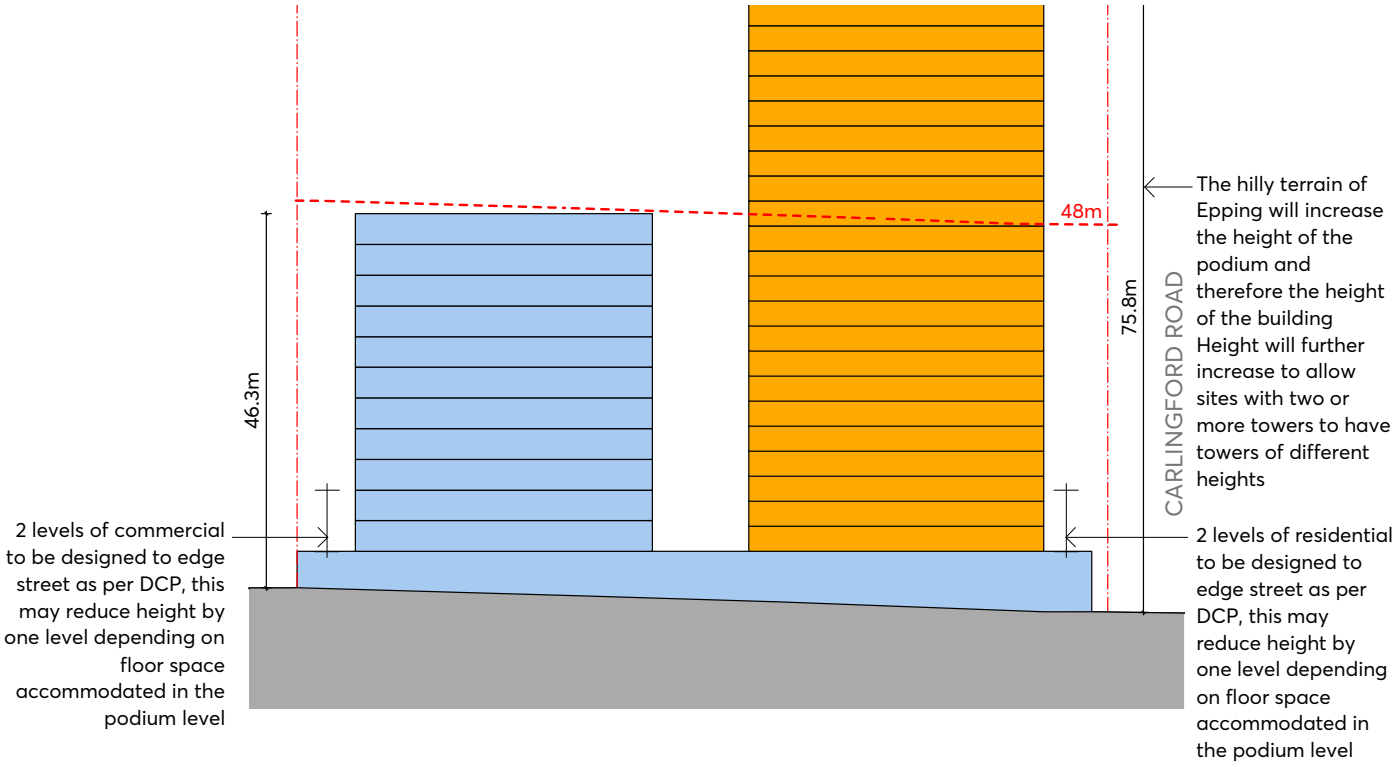
Site 2: 53 - 61 Rawson Street - Option 2

Parramatta LEP 2011

- FSR 4.5:1
- HOB 48m



Alternative plan



Section of alternative configuration

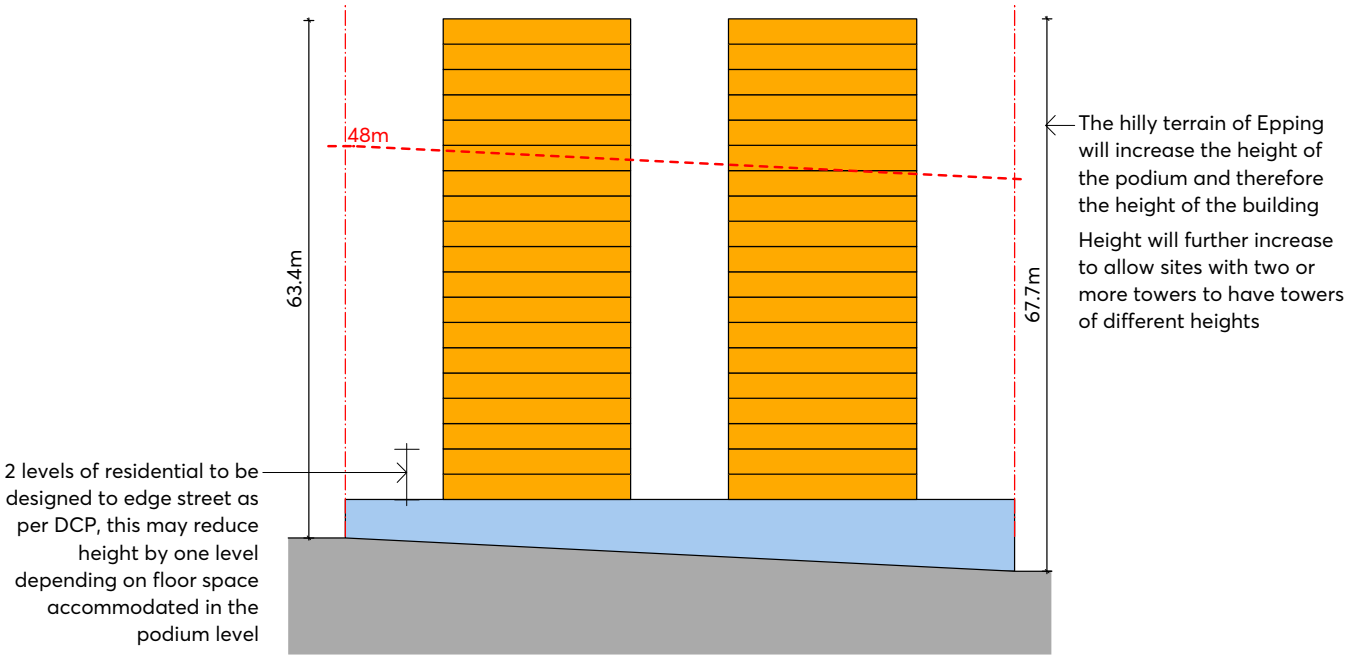
- Ground floor retail
- 3 x 23 storey residential towers (2 storeys of residential to edge the street as per DCP this may reduce the height by one storey)
- One 11 storey tower of commercial - FSR 1:1 (2 storeys of commercial to edge the street as per DCP this may reduce the height by one storey)

Site 4: 41 - 47 Rawson Street

Parramatta LEP 2011

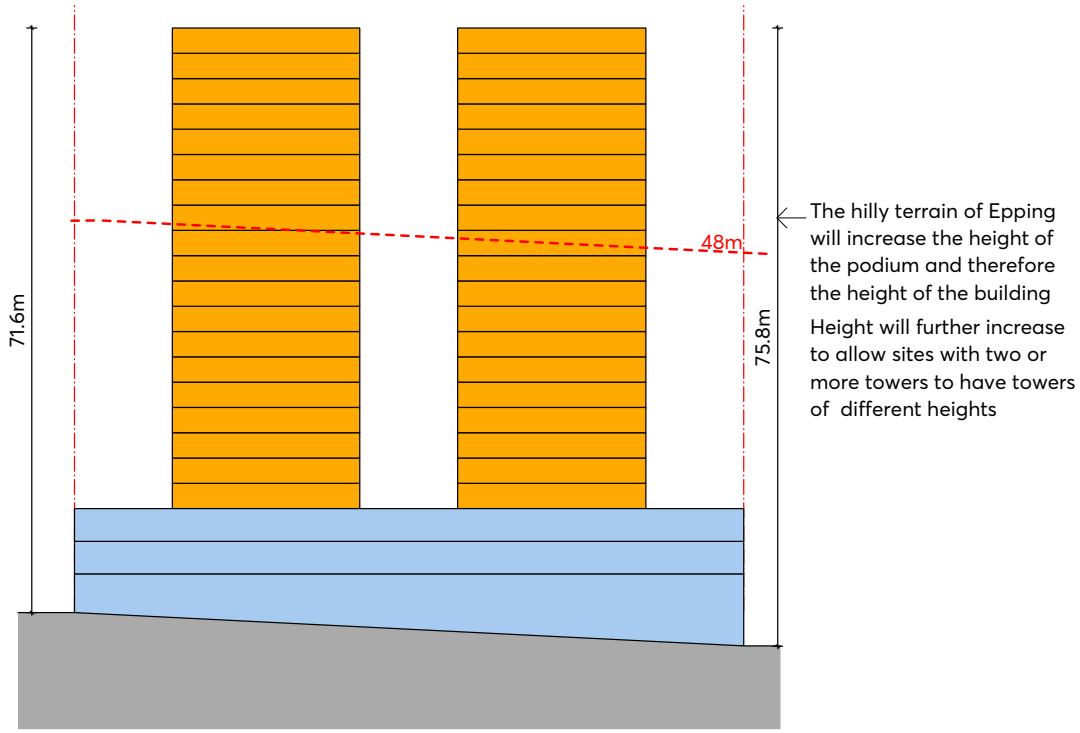
- FSR 4.5:1
- HOB 48m

Plan



Section

- Ground floor retail
- 19 storey residential tower (2 storeys of residential to edge the street as per DCP this may reduce the height by one storey)



Section with additional 2 storeys of commercial in podium

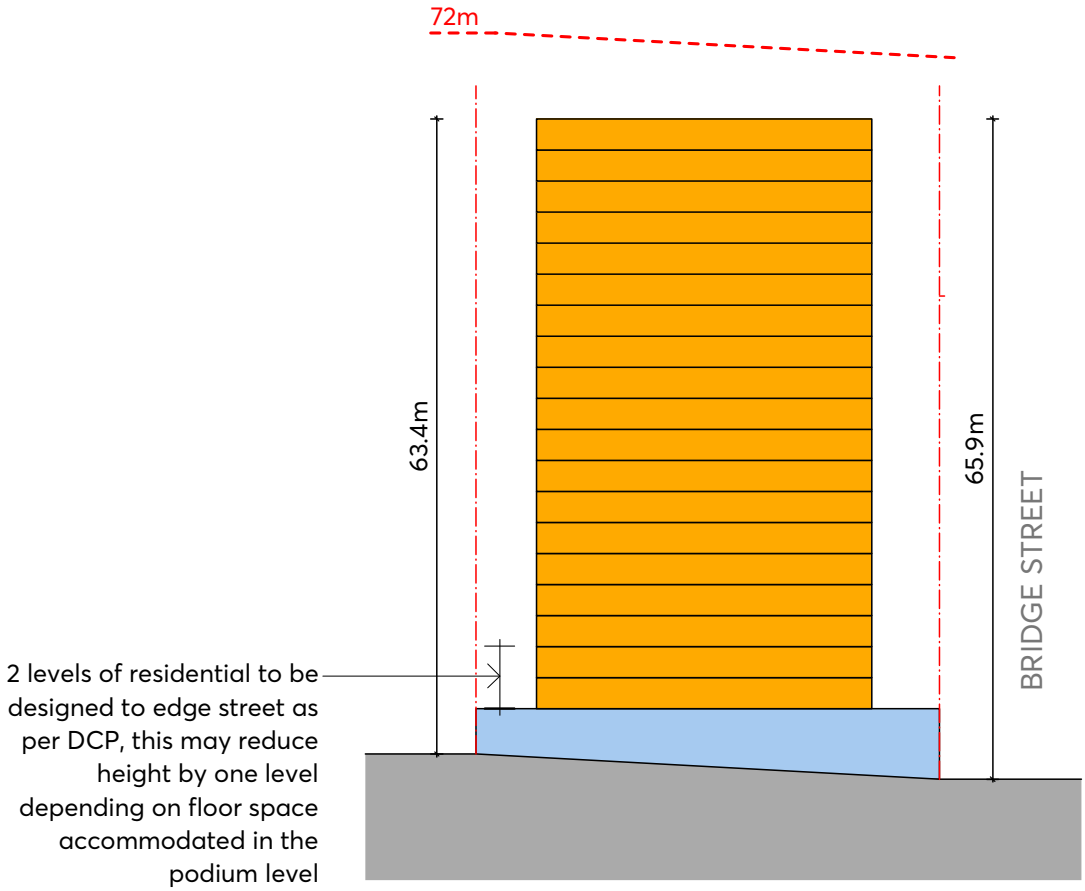
- Ground floor retail
- 2 storeys of commercial within podium
- 19 storey residential tower

Site 7: 33 - 40 Beecroft Road

Parramatta LEP 2011

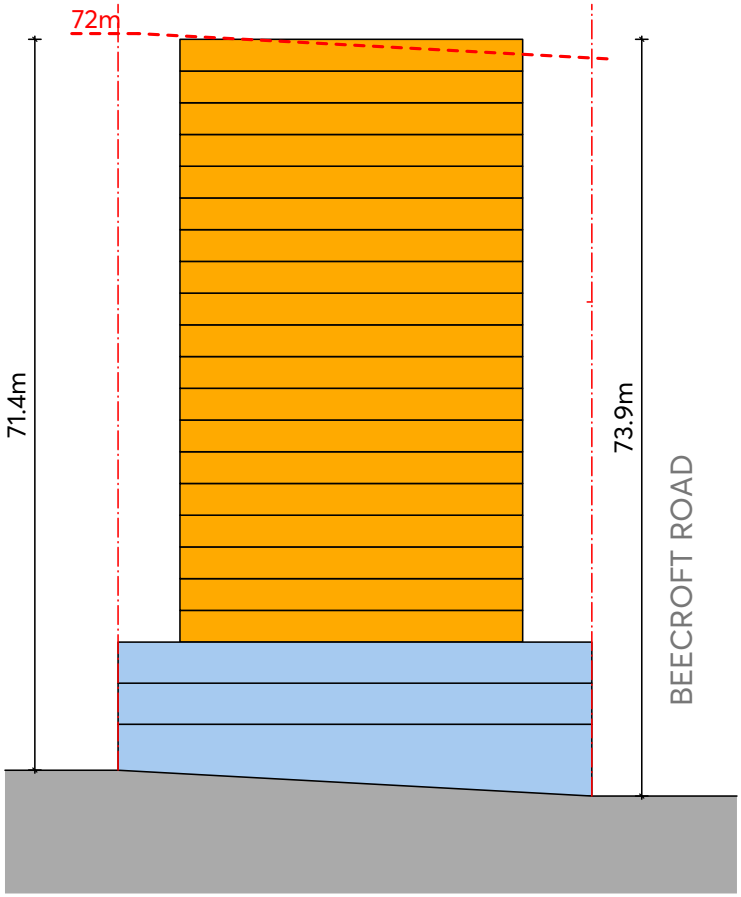
- FSR 6:1
- HOB 72m

Plan



Section

- Ground floor retail
- 19 storey residential tower (2 storeys of residential to edge the street as per DCP this may reduce the height by one storey)



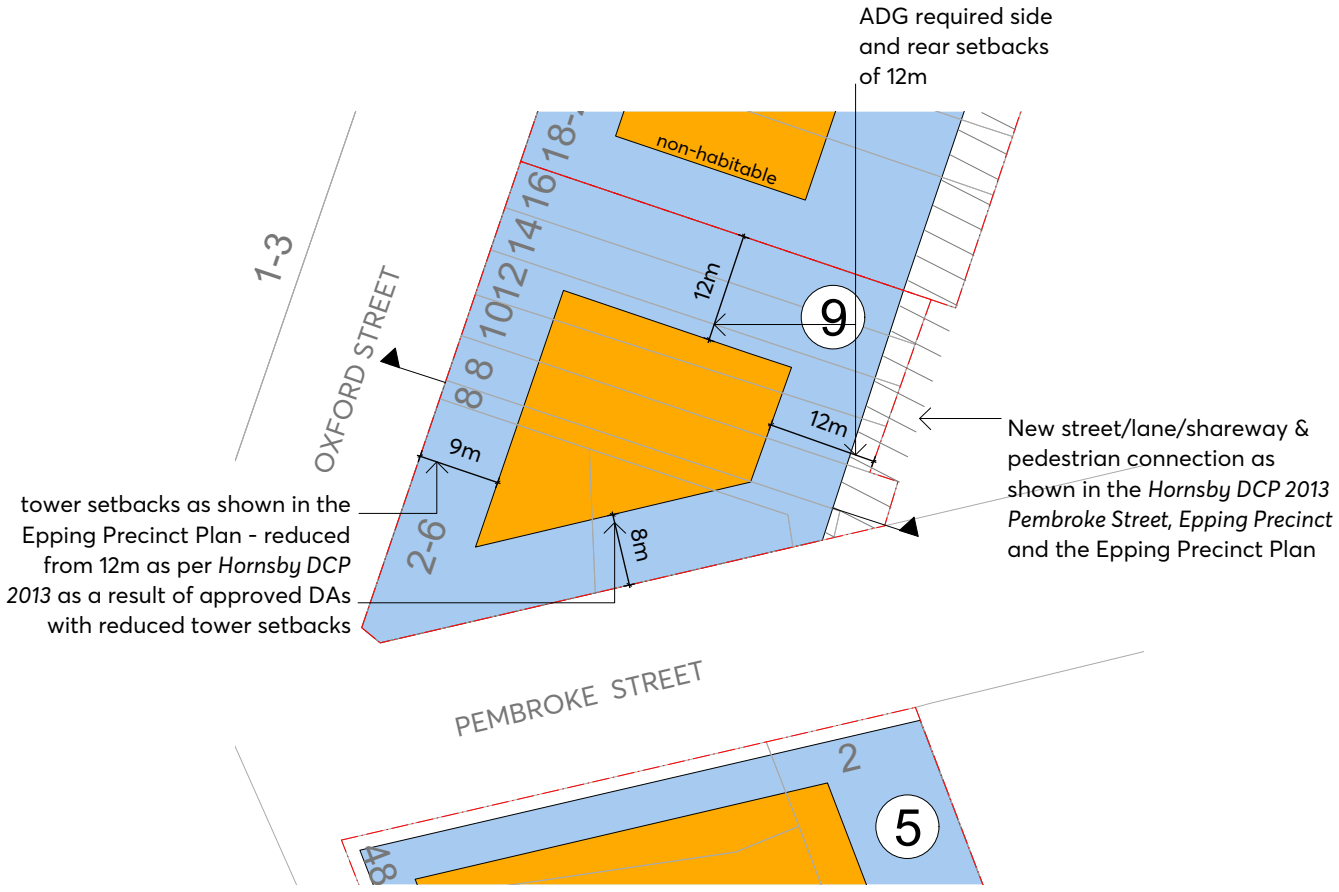
Section with additional 2 storeys of commercial in podium

- Ground floor retail
- 2 storeys of commercial within podium
- 19 storey residential tower

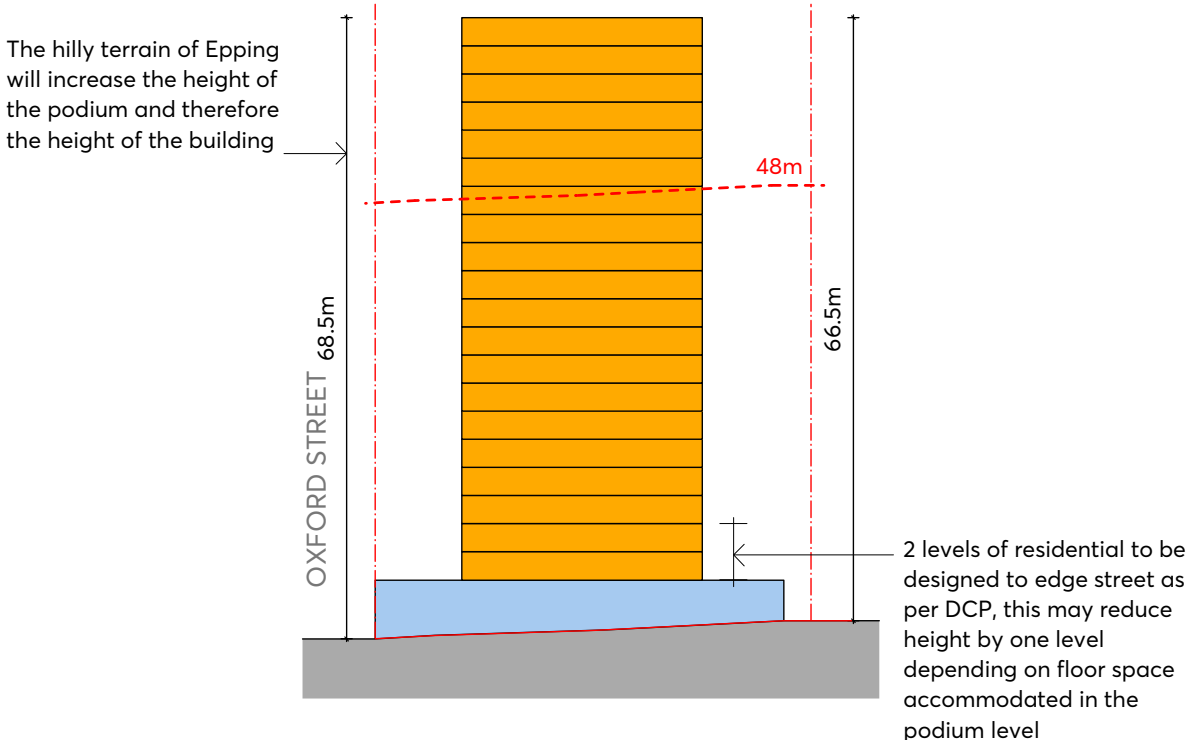
Site 9: 2 - 16 Oxford Street

Hornsby LEP 2013

- FSR 4.5:1
- HOB 48m

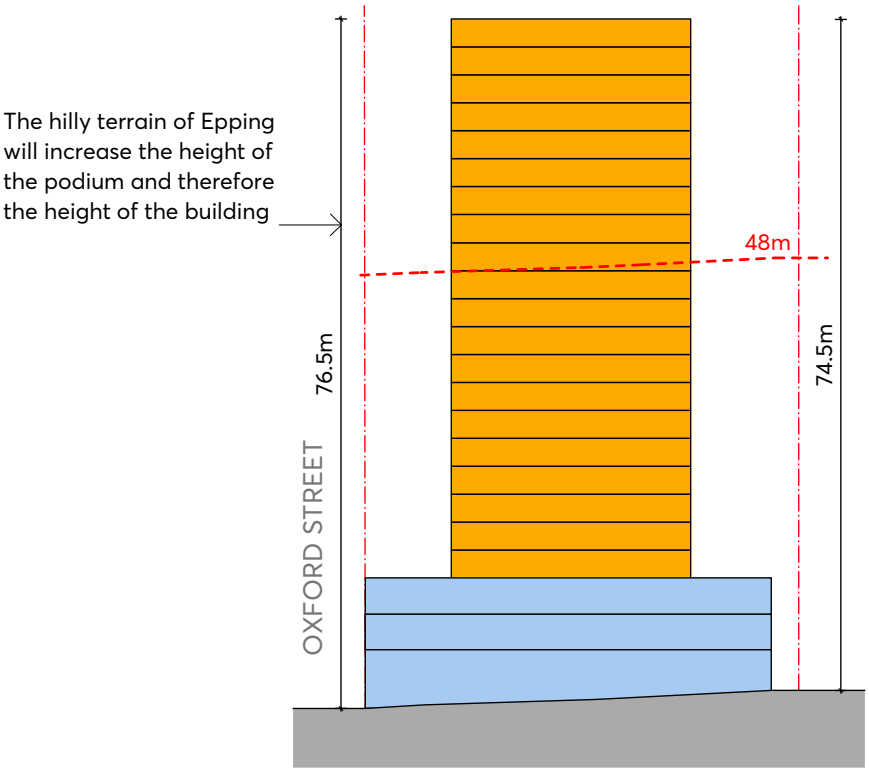


Plan



Section

- Ground floor retail
- 20 storey residential tower (2 levels of residential to edge the street as per DCP this may reduce the height by one storey)



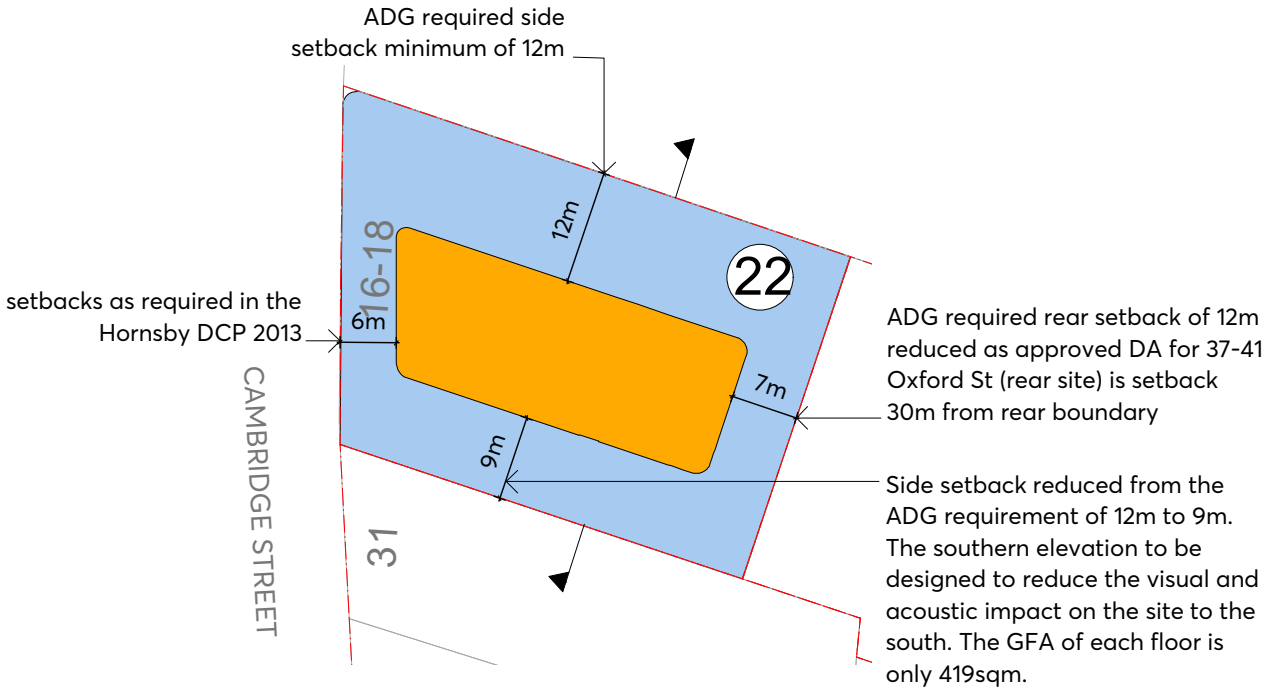
Section with additional 2 storeys of commercial in podium

- Ground floor retail
- 2 storeys of commercial within podium
- 20 storey residential tower

Site 22: 16 -18 Cambridge Street

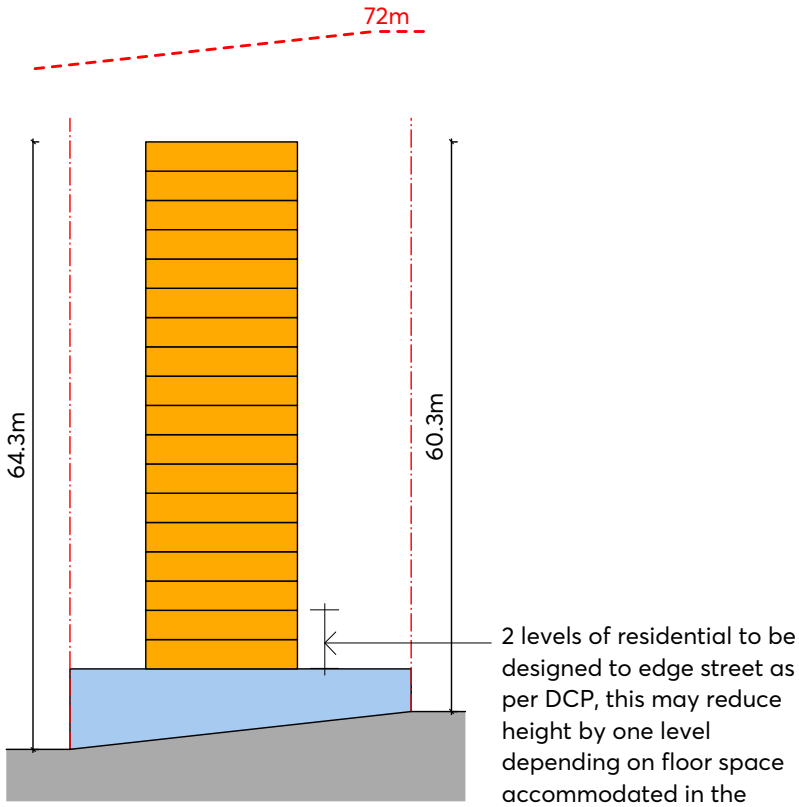
Hornsby LEP 2013

- FSR 4.5:1
- HOB 72m



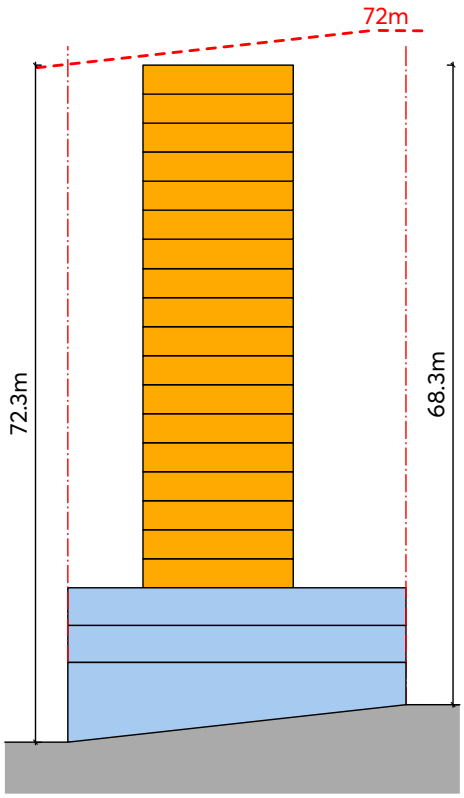
Plan

This site has an approved DA and has been included to demonstrate the mismatch between FSR and HOB of lots with a FSR of 4.5:1 and HOB of 48m.



Section

- Ground floor retail
- 18 storey residential tower (2 storeys of residential to edge the street as per DCP this may reduce the height by one storey)



Section with additional 2 storeys of commercial in podium

- Ground floor retail
- 2 storeys of commercial within podium
- 18 storey residential tower