

Additional Information on Solar Analysis – Pitt Street South

The following table provides a summary of the impact of the setbacks proposed by Department of Planning & Environment (DPE) against the requirements of the Apartment Design Guide (ADG). In addition, Sydney Metro has also provided a comparison of the impact of an extended time frame of 8am to 4pm in terms of units achieving 2 hours solar access. It is noted that Sydney Metro's Solar Access Consultant Walsh² Analysis has advised that the use of the extended window of analysis (from 8am - 4pm rather than 9am - 3pm) is widely accepted in high rise urban environments and has been supported in the Land and Environment Court.

Table 1: Summary of Existing and Proposed Solar Access

	Existing	Proposed	Impact of Proposed Western Setback	Impact of Proposed Eastern Setback
Total Units	116	116	116	116
Complying 2hrs 9am – 3pm	62	3	3	6
%	53.4%	2.6%	2.6%	5.2%
2hrs 8am – 4pm	63	22	22	26
'No sun' 9am – 3pm	17	17	17	17
%	14.7%	14.7%	14.7%	14.7%
Additional gain in minutes	N/A	N/A	12 minutes	28 minutes

In relation to the proposed western setback, Consultants Walsh² Analysis concluded:

- 1) the increased setback to the western facade to approximately 8 metres provides a benefit of only 12 minutes to those units.
- 2) the increased setback of 3 metres to the eastern facade provides 28 minutes of additional sun, however of the 26 units benefitted – 21 already have been provided with at least 2 hours of sun (between 8am – 4pm).

In addition to the information previously submitted to DPE, Sydney Metro has undertaken further work in respect of the proposed 3 metre setback to the eastern façade of the Pitt Street South OSD. The table below shows the specific units which would gain enough sunlight due to the proposed 3 metre setback to the eastern façade of the Pitt Street South OSD.

The minute by minute analysis provided below does identify some discrepancies from the previous analysis. This is due to the previous analysis following approved methodology of measuring at 30 minute intervals and therefore the analysis is subject to some variation when compared to a more detailed analysis.

Therefore while previously it was understood that there would be 5 compliant units (9am - 3pm), being units 104, 107, 110, 113 and 116, following our development envelope there are in fact only 3 units, being units 110, 113, and 116 (2 units, being units 104 and 107 fall 13 and 3 minutes respectively below the 2 hours). Furthermore, the benefit of introducing the 3 metre setback results in a further 3 units complying (9am - 3pm) not 6 as originally thought. The originally reported 6 additional units that would cross over into the 2 hour compliance range as a result of the proposed 3 metre setback were units 86, 89, 92, 95, 98 and 101. The subsequent minute by minute analysis

shows that in fact only an additional 3 units will meet the 2 hour criteria, being units 101, 104 and 107.

Based on this information, a total of 6 units comply between 9am - 3pm if a 3 metre setback is applied.

Table 2: Additional Analysis of Solar Access – Eastern Setback

LEVEL	UNIT NO.	START GAIN	STOP	START GAIN	STOP	CURRENT SOLAR 8-4	CURRENT SOLAR 9-3	SETBACK SOLAR 8-4	SETBACK SOLAR 9-3
LEVEL 31	Unit 86	8:00:00	9:12:00	10:05:00	11:05:00	2:12:00	1:12:00	2:40:00	1:40:00
LEVEL 32	Unit 89	8:00:00	9:12:00	10:00:00	11:05:00	2:17:00	1:17:00	2:45:00	1:45:00
LEVEL 33	Unit 92	8:00:00	9:12:00	10:00:00	11:05:00	2:17:00	1:17:00	2:45:00	1:45:00
LEVEL 34	Unit 95	8:00:00	9:12:00	9:55:00	11:05:00	2:22:00	1:22:00	2:50:00	1:50:00
LEVEL 35	Unit 98	8:00:00	9:12:00	9:50:00	11:05:00	2:27:00	1:27:00	2:55:00	1:55:00
LEVEL 36	Unit 101	8:00:00	9:12:00	9:40:00	11:05:00	2:37:00	1:37:00	3:05:00	2:05:00
LEVEL 37	Unit 104	8:00:00	9:12:00	9:30:00	11:05:00	2:47:00	1:47:00	3:15:00	2:15:00
LEVEL 38	Unit 107	8:00:00	9:12:00	9:20:00	11:05:00	2:57:00	1:57:00	3:25:00	2:25:00
LEVEL 39	Unit 110	Comply							
LEVEL 40	Unit 113	Comply							
LEVEL 41	Unit 116	Comply							

Sydney Metro is of the view that consideration of the 8am - 4pm window of sun access is more appropriate for this site. On that basis, there are 22 units receiving 2 hours of sun (reduced from 63 units) and the proposed setback would only contribute an additional 4 units into this category. The analysis confirms there is no increase to the units receiving 'no sun' (refer Table 1 above).

Based on the additional work undertaken in response to DPE's concerns, Sydney Metro submits the following:

- 1) An 8 metre western setback (to Pitt Street) and a 3 metre eastern setback (to the Fire Station) reflect *City of Sydney Development Control Plan* (DCP) requirements, and these setback controls do not provide for a development that would achieve ADG compliance. In accordance with *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP), DCP controls do not apply to State Significant Development (SSD).
- 2) The benefit of a proposed 8 metre western setback is minimal.
- 3) The benefit of a proposed 3 metre eastern setback is greater, with an additional 3 units complying with the ADG requirements between 9am – 3pm (based on the finer grain assessment provided above). It is noted however, that the work previously submitted had identified 5 complying units (based on the standard assessment methodology of 30 minute intervals), and this has now increased to 6 units complying between 9am – 3pm with the introduction of a proposed 3 metre setback. Again, imposition of the proposed 3 metre setback has minimal benefit in terms of ADG compliance.
- 4) The benefit of the proposed 3 metre eastern setback (21/26 units, or 80%) is predominantly to units who already receive 2 hours of sunlight (8am-4pm).
- 5) The envelope has been set back on the southern façade by 12 metres, a material increase to the previously approved Development Application (2.5 metres) in order to provide the benefit of light and air.
- 6) The impact of the proposed western and eastern setbacks in terms of design and revenue are material and would require a redesign of both the units themselves and the mix of units

required in order to meet ADG requirements for minimum unit sizes, unit mix and marketability. It is also likely that the design solutions would negatively impact design excellence in areas such as façade grid layout and treatments. It is not feasible to simply trim the building to match the proposed setbacks which are not parallel to the building itself. This would result in a building lacking a regular external column grid, which the Design Excellence Evaluation Panel (DEEP) has determined is a key requirement to achieving design excellence at this site. Therefore the building would need to be cut back by one or more whole structural / façade bays rather than just to the new setback lines. These factors are likely to result in a disproportionate impact on return, beyond the actual loss of saleable area. Each additional setback individually would result in a loss of floor area of up to 60m². In aggregate this could translate to two units per floor over 28 floors (approximately 56 units or 20% of total units).

- 7) Initial assessment shows that only a significant reduction in building height or dramatic narrowing of the building form would be able to deliver further material reductions in solar impact (and thereby have a meaningful gain in terms of ADG compliance). This arises from the following factors:
 - Eastern facing units only benefit from sun up until approximately 11:30am, after this the eastern side of the building is in shade. Morning sun is already materially affected by 201 Elizabeth Street. On 21 June, between the hours of 9am and 3pm, only 12 minutes of sun is available in the morning before the sun disappears behind 201 Elizabeth St at 09:12. At Level 32, the sun appears again at 10am but disappears behind Pitt Street South at 11:05. With an eastern setback this sun lasts until about 11:30 instead of 11:05. No further sun is available for the rest of the day as the eastern units face east only.
 - Western facing units only benefit from sun after approximately 11:30am, before this the western side of the building is in shade. Afternoon sun is materially affected by the Greenland building.
 - Just over half the units in the building benefit from both eastern and western sun due to having windows / balconies on both sides of the building.
 - This means the amount of sun arriving at the Princeton building is very sensitive to the remaining undeveloped 'slot' between 201 Elizabeth Street and the Greenland building. Substantial setbacks would be needed in order to eliminate impacts altogether. Alternatively a significant reduction in building height or dramatic narrowing of the building would further materially reduce impacts, but eliminate most of the developable area of the site.
- 8) The redesign and resulting need to update tender submissions and extension to the evaluation process, would defer contract execution by 2-3 months. This would also trigger a need to reconvene the DEEP with associated presentations by tenderers and subsequent panel deliberations / reporting.