

Pitt Street Developer South



NSW Independent
Planning Commission

Pitt Street South OSD

SOLAR ACCESS
SUBMISSION - 2

26 March 2021
Final



IPC Request - 11 March 2021 (for context)

The Commission requests the Applicant provide the following information:

1. *Solar Access: the investigations, analysis and quantification (including sensitivity analysis and assumptions) undertaken in consideration of additional building setbacks and any resulting benefit in solar access for the Princeton Apartment building and also for the apartments on the south side of the proposed over station development (OSD) tower.*

IPC Request - 22 March 2021

As discussed at the Public Meeting, the Commission requests the Applicant provide the following information:

1. *Graphic or visual modelling to support the analysis provided to the Commission by the Applicant on 18 March 2021 with respect to the following:
 - (b) *the scenarios tested for floor plate amendments and the potential solar access benefits and impacts to the Princeton Apartment building of the various options.**
2. *Clarification of the definitions used in relation to 'compliance' on page 6 of the Applicant's response to the question on notice, dated 18 March 2021, regarding solar access following the Applicant's meeting with the Commission.*



Pitt Street Developer South

Princeton Apartments

Princeton Living Rooms

Princeton Apartments was not designed to maximise solar access. This is evidenced by:

- living rooms being orientated east or west (all levels)
- bedrooms on the northern facade (for levels 9-25)
- 'self shading' within the building to 28% of the apartments

Living Rooms are located:

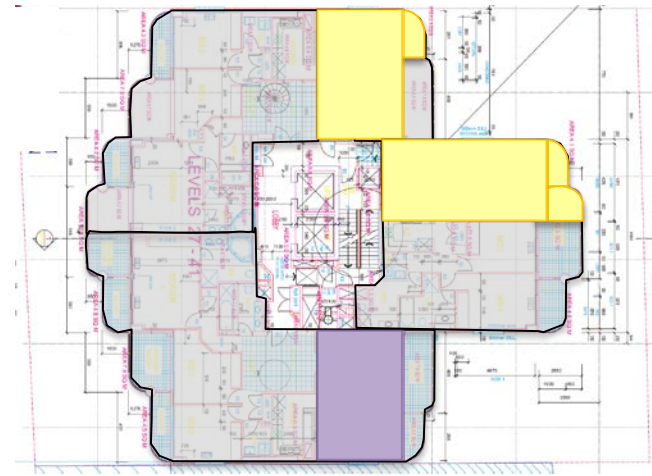
- 4 per floor (levels 9 to 25)
- 3 per floor (levels 26 to 41)

Impacted Living Rooms are located:

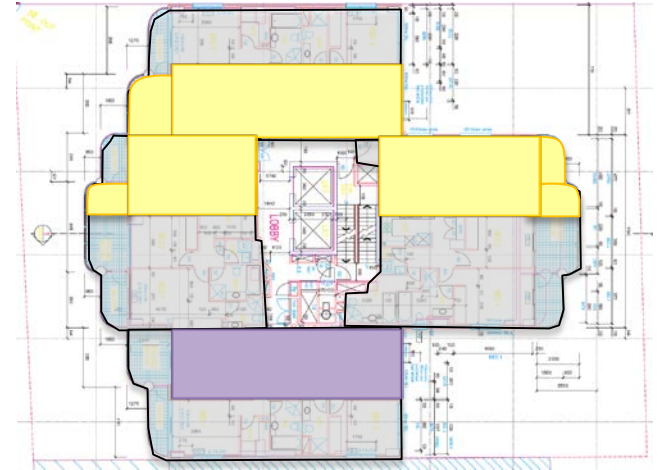
- 3 per floor (levels 9 to 25)
- 2 per floor (levels 26 to 41)

The location of impacted (by the proposed South OSD) Living Rooms is shown in yellow shading in the diagram (total number 83)

The location of non-impacted (by the proposed South OSD) Living Rooms is shown in purple shading in the diagram (total number 33)



Levels 26 - 41



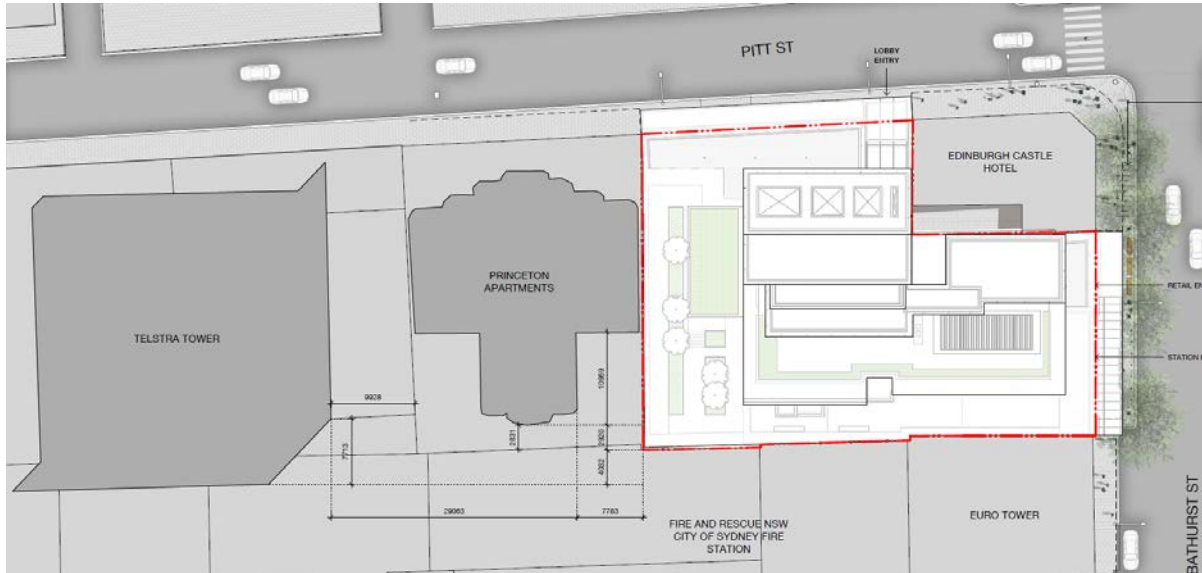
Levels 9 - 25

Princeton Setbacks

Princeton Apartments setbacks to the east or north were not designed to maximise solar access.

- The north east living room is setback ~13.9m from the eastern boundary.
- The north east living room is setback 0m from the northern boundary.
- The centre east living room is setback ~2.8m from the eastern boundary.

These setbacks are detrimental in maximising solar access to Princeton Apartments living rooms in the context of Sydney CBD planning controls.



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Definitions

Definitions

For the purpose of this submission the following terms are defined:

- **Compliance** – *1sqm of sun onto living room glazing for **2 hours** between 9am and 3pm on 21 June (the shortest day of the year, the hardest for solar access) PLEASE SEE FOLLOWING SLIDES FOR MORE INFORMATION.*
- **Minutes** – *1sqm of sun onto living room glazing **per minute** between 9am and 3pm on 21 June (the shortest day of the year, the hardest for solar access)*
- **Habitable Rooms** – *all rooms excluding bathrooms, laundries and storerooms*



Definitions – *Compliance*

ADG design criteria under **Objective 4A-1** is illustrated to the right.

There is no method of measurement embedded within this 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



Definitions – *Compliance (continued)*

Within the design guidance the ADG includes the described at right information.

This means that during the 2 hour time span highlighted in the Design Criteria, 105 minutes could be only 1mm square as long as you have 15 minutes of sun measured 1m above the floor (horizontal plane) for 1m square.

DPIE subsequently issued a Practice Note (solar access requirements in SEPP 65) which suggested that they are focused on one 15 minute period, and not about the amount of sun within the 2 hour period.

To maximise the benefit to residents of direct sunlight within living rooms and private open spaces, a minimum of 1m² of direct sunlight, measured at 1m above floor level, is achieved for at least 15 minutes



Definitions – *Compliance (continued)*

The above interpretation we do not support as it contravenes the Planning Principle which is outlined on the LEC Website. The Sunlight Planning Principle is *The Benevolent Society v Waverley Council* [2010] NSW LEC 1082 at 133 -144.

At line 144, “assessment of the adequacy of solar access should be undertaken with the following principles in mind, where relevant:” Within that statement alone, it is talking about the adequacy, and 1 square millimetre of sun hitting glass a time is not adequate for solar access and therefore the above is not the method of measurement that should be used.

A more rigorous test would be a minimum of 1 square meter instead of millimetre. A detailed explanation is contained in the Applicant’s Solar Access Report as to why 1m square is a reasonable amount of sun to be deemed adequate, and it relates not only to the ADG but also its predecessor the RFDC.

It is important to note that the City of Sydney DCP, Part 3.1.4.1 Provision (1) states the following:

Development sites and neighbouring dwellings are to achieve a minimum of 2 hours direct sunlight between 9am and 3pm on 21 June onto at least 1sqm of living room windows.

The above 1m square for 2 hours between 9am and 3pm is the same methodology that we are using.



Definitions – *Compliance (continued)*

With respect to the design guidance in the ADG relating to the height of the 1 square metre of sunlight i.e. 1 metre above floor level.

This aspect has not been used as it is considered detrimental in a 12-month context. Adhering to the 1 metre above floor level on the winter solstice results in an increased solar radiance in summer months necessitating additional shading in multi level residential buildings. This design guidance in the ADG does not discriminate between free standing houses (for which it is appropriate for) and multi level residential buildings (for which it is not).

To restate, we are using the evolved standard consistent with the City of Sydney DCP, Part 3.1.4.1 Provision (1) being, development sites and neighbouring dwellings are to achieve a minimum of 2 hours direct sunlight between 9am and 3pm on 21 June onto at least 1sqm of living room windows.

For the benefit of the Commissioners this is also the definition accepted by the NSW Land and Environment Court. (LEC)



Pitt Street Developer South

Stage 1 Concept Approval
Solar access results

Stage 1 Concept Approval

The following table shows the solar access to Princeton Apartments based on the Stage 1 Concept DA approval:

- The 'Steve King' report was included in the Stage 1 application
- The 'Walsh' report is an updated Stage 1 report that includes the impact of the Castle Residences development. This represents the Stage 1 baseline for the purpose of this submission
- Of the 116 apartments, 54 are solar Compliant if there was no OSD development

| | Complying number of apartments (total 116 apartments) | Complying percentage (total 116 apartments) |
|---|--|--|
| Princeton, no OSD - Steve King Report | 62 | 53.4% |
| Princeton, no OSD - Walsh Report | 54 | 46.6% |
| Princeton, Stage 1 DA Approval - Steve King Report | 5 | 4.3% |
| Princeton, Stage 1 DA Approval - Walsh Report | 6 | 5.2% |

Stage 1 DA Approval

It is useful to consider solar amenity to Princeton beyond the Compliant hours and Compliant spaces under the Stage 1 DA Approval. The table below sets this out as follows:

- The first row illustrates the change in the Compliant hours.
- The second row, using 8am to 4pm, illustrates far less impact of the Stage 1 DA Approval.
- When considering all Habitable Rooms, the third row further illustrates even less impact.

| | Princeton No OSD | Princeton Stage 1 DA Approval | Change |
|--|-----------------------------|--|---------------|
| >2 hrs 9-3 Living | 54 / 116 (46.6%) | 6 / 116 (5.2%) | 41.4% |
| >2 hrs 8-4 Living | 56 / 116 (48.3%) | 24 / 116 (20.7%) | 27.6% |
| >2 hrs 8-4 Habitable Rooms | 56 / 116 (48.3%) | 39 / 116 (33.6%) | 14.7% |

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Stage 2 Detailed
Application and
Amendments

Solar access improvements

Stage 2 Detailed Application

Whilst the overall Compliance between Stage 1 and Stage 2 does not change, there is an increase in the amount of sun Princeton Apartments receive.

An improvement of **156** Minutes against the Stage 1 baseline is achieved.

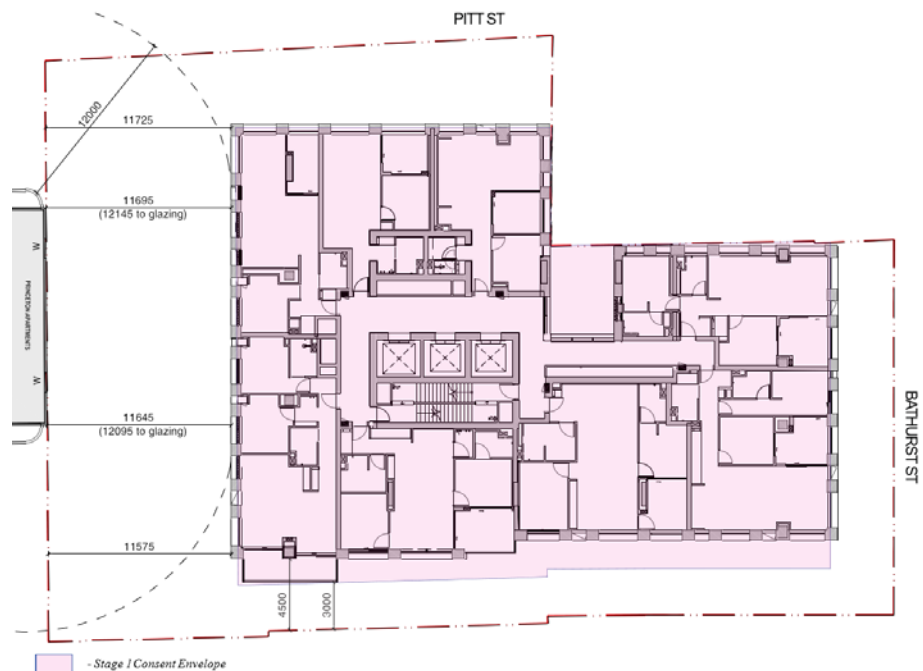
This was as a result of:

- the increased setback to the eastern boundary (from 3.0m to 4.5m) initiated by the Applicant
- the reduction and setback of the podium to the western boundary initiated by the Applicant

These 156 Minutes benefit a total of 19 apartments.

Stage 2 Detailed Application

- Showing the increased setback to the eastern boundary (from 3.0m to 4.5m) initiated by the Applicant
- Showing the reduction and setback of the podium to the western boundary initiated by the Applicant



Stage 2 Detailed Application – Revised

Subsequent to the Stage 2 Detailed Application, further changes were made.

This resulted in an improvement of **168** Minutes against the Stage 1 baseline.

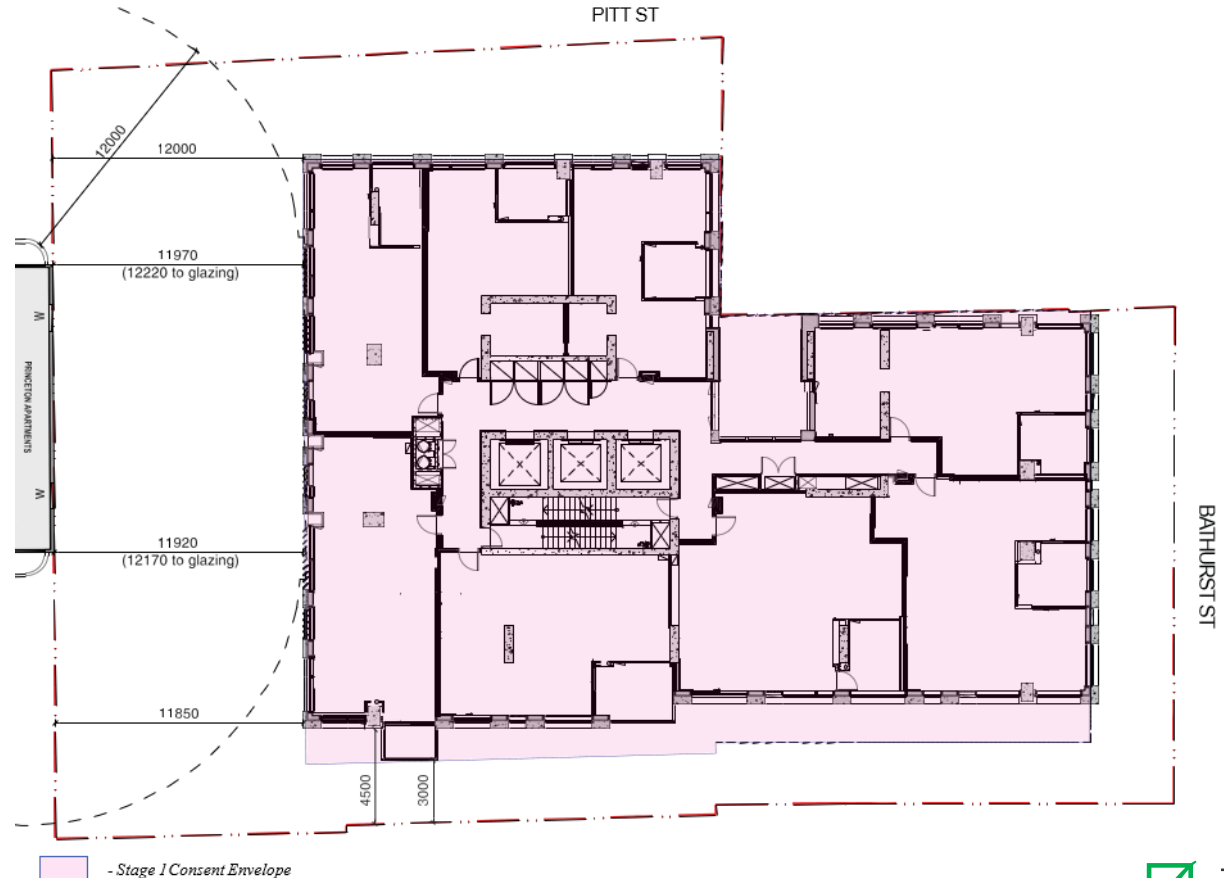
This was as a result of:

- the increased setback to the eastern boundary (from 3.0m to 4.5m) initiated by the Applicant
- the reduction and setback of the podium to the western boundary initiated by the Applicant
- structural redesign facilitating a floor plate width reduction which allowed for an increased setback to the east

These 168 Minutes benefit a total of 19 Apartments.

Stage 2 Detailed Application – Revised

- Showing the increased setback to the eastern boundary (from 3.0m to 4.5m) initiated by the Applicant
- Showing the reduction and setback of the podium to the western boundary initiated by the Applicant
- Structural redesign facilitating a floor plate width reduction which allowed for an increased setback to the east



Stage 2 Detailed Application – Revised

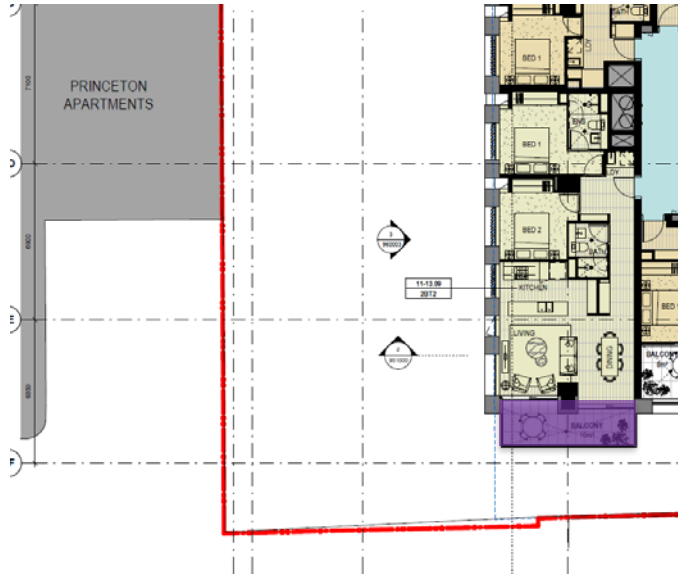
A further change that contributed to an overall amenity improvement of the overshadowing to Princeton Apartments was the relocation and reduction in the balcony width for the South Eastern Apartment on all levels of the proposed South OSD.

This change responded to a request from Princeton Apartments representatives in a community engagement session initiated by the Applicant on 15 June 2020.

South East Balcony - Revised

A further change that contributed to an overall amenity improvement of the overshadowing to Princeton Apartments was the relocation and reduction in the balcony width for the South Eastern Apartment on all levels of the proposed South OSD.

Stage 2 SSD Application



Stage 2 SSDA RTS



Pitt Street Developer South

Investigations, analysis and
quantification of studies
beyond the Stage 2 revised
application

Applicant Clarification

Investigations, analysis and studies beyond the Stage 2 revised application have been based on theoretical “moves” or “setbacks” as shown in the drawings following. Floor plate amendments have not been made.

Study 1 – Remove projection south west corner

Western Setback (Pitt Street) increase:

- Increase setback in the south west corner by 0.2m consistent with the Stage 1 envelope. ie no embellishments beyond the envelope



Study 1 – Remove projection south west corner

Western Setback (Pitt Street) increase:

- Increase setback in the south west corner by 0.2m consistent with the Stage 1 envelope

Improvement to Princeton Apartments:

- No improvement to Compliance
- Increase of 1 Minute to living areas of 9 apartments i.e. 9 Minutes in total

Solar impact on South OSD:

- No change

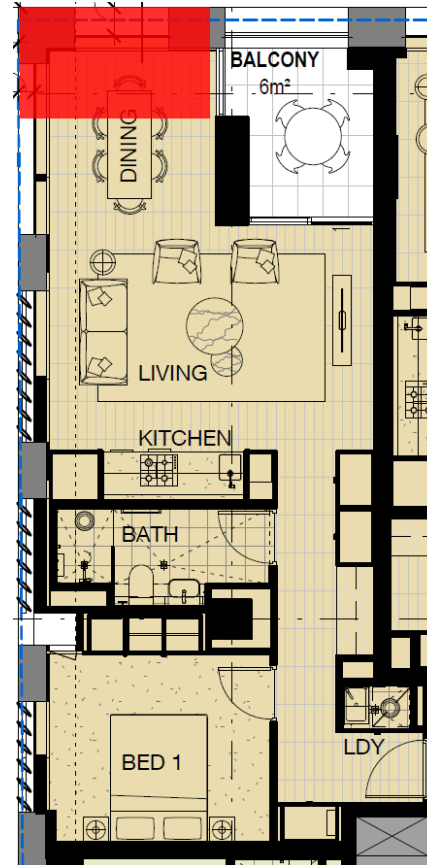
Applicant comment:

- This setback increase is consistent with the projection beyond the envelope
- The Applicant put this forward to the Design Review Panel (DRP) who rejected this design consideration due to the reduced facade articulation and hence was not pursued

Study 2 – Increase western setback at corner

Western Setback (Pitt Street) increase:

- Increase setback in the south western corner by 1.5m from 4.7m to 6.2m and a width of 2.84m



Study 2 – Increase western setback at corner

Western Setback (Pitt Street) increase:

- Increase setback in the south western corner by 1.5m from 4.7m to 6.2m and a width of 2.84m
- This setback increase is consistent with the depth of the setback to the east verses the Stage 1 approval

Improvement to Princeton Apartments:

- No improvement to Compliance
- Increase of 5 Minutes to living areas of 9 apartments i.e. 45 Minutes in total

Solar impact on South OSD:

- Loss of Compliance to 20 apartments, taking Compliance down to 41%

Applicant comment:

- The integrity of the architectural design of the building is compromised as the building does not hold the corner
- This setback increase is consistent with the depth of the setback to the east verses the Stage 1 approval
- This increases Princeton's solar access by 45 Minutes but pushes 20 OSD apartments into non Compliance.
- Any option to swap the balcony with the dining room also pushes 20 OSD apartments into non Compliance

Study 3 – Increase western setback in entirety

Western Setback (Pitt Street) increase:

- Increase setback to the western facade of the building in its full length by 1.5m from 4.7m to 6.2m



Study 3 – Increase western setback in entirety

Western Setback (Pitt Street) increase:

- Increase setback to the western facade of the building in its full length by 1.5m from 4.7m to 6.2m

Improvement to Princeton Apartments:

- No improvement to Compliance
- Increase of 10 to 17 Minutes to living areas of 19 apartments

Solar impact on South OSD:

- Not applicable due to extensive redesign required

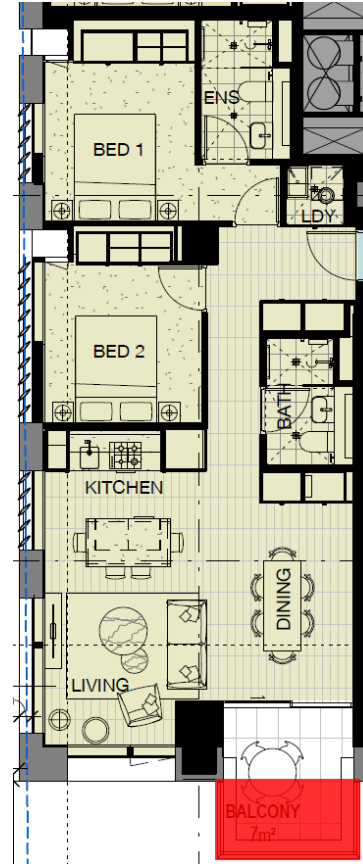
Applicant comment:

- During the Stage 2 RTS process this study was undertaken as a ‘extreme’ exercise to demonstrate only marginal improvements are achieved even with drastic moves. Accordingly, this was not progressed by the Applicant (Sydney Metro) or DPIE
- Such a drastic move makes the development unviable
- Such a move would result in non-compliance of Stage 1 Condition A24C regarding setback alignment with the Princeton Apartments

Study 4 – Remove balcony to south east corner

Eastern Setback (Pitt Street) increase:

- Remove balcony to south east corner apartment



Study 4 – Remove balcony to south east corner

Eastern Setback (Pitt Street) increase:

- Remove balcony to south east corner apartment

Improvement to Princeton Apartments:

- No improvement to Compliance
- No improvement in Minutes

Solar impact on South OSD:

- No change

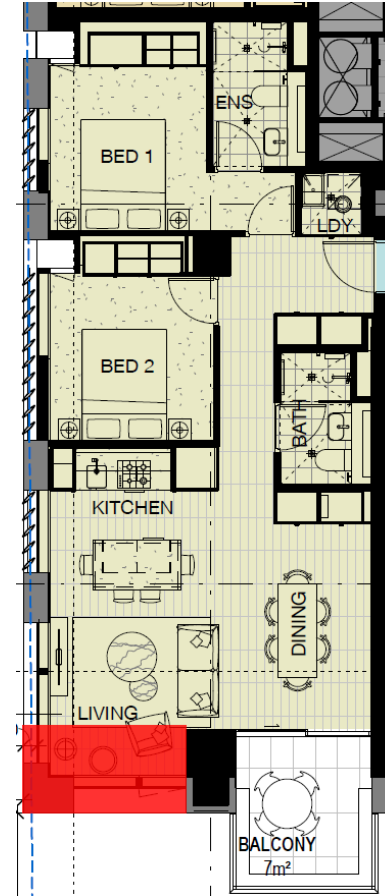
Applicant comment:

- Not viable as no benefit is provided to Princeton Apartments and results in an amenity reduction to the south east corner apartment

Study 5 – Increase eastern setback at corner

Eastern Setback increase:

- Increase setback in the south east corner by a further 1.5m from 4.5 to 6.0m and a width of 2.84m



Study 5 – Increase eastern setback at corner

Eastern Setback increase:

- Increase setback in the south east corner by a further 1.5m from 4.5 to 6.0m and a width of 2.84m

Improvement to Princeton Apartments:

- No improvement to Compliance
- Increase of 3 Minutes to living areas of 12 apartments i.e. 36 Minutes in total

Solar impact on South OSD:

- No change

Applicant comment:

- Apartment resizing would result in non compliance
- IPC has focussed on amenity of this apartment. Any change is very detrimental to amenity.
- Such a move makes the development unviable as this apartment is one of the highest revenue generating in the development which becomes completely compromised by such a setback.
- The Applicant has already set back this facade by 4.5m from the boundary and relocated the balcony



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