

Project No 5578

**APPENDIX A
SOLAR ACCESS ASSESSMENT
UNITS AT 157 REDFERN STREET ('DEICOTA')**

**RESPONSE TO A CLARIFICATION REQUEST MADE BY NATASHA
HARRAS FROM THE DEPARTMENT OF PLANNING AND ENVIRONMENT
ON THE 24th of July, 2014 and 1st SEPTEMBER, 2014.**

**THIS REPORT SHOULD BE READ IN CONJUNCTION WITH
DEVELOPMENT ISSUE C DATED 14 APRIL 2014.**

Project address

1 LAWSON SQUARE, REDFERN

Prepared on behalf of

LAWSON SQUARE PTY LTD

Prepared by

**CANDALEPAS
ASSOCIATES**

LEVEL 9
219 CASTLEREAGH ST
SYDNEY NSW 2000

www.candalepas.com.au
info@candalepas.com.au

+61 2 9283 7755

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SECTION 1.0 INTRODUCTION

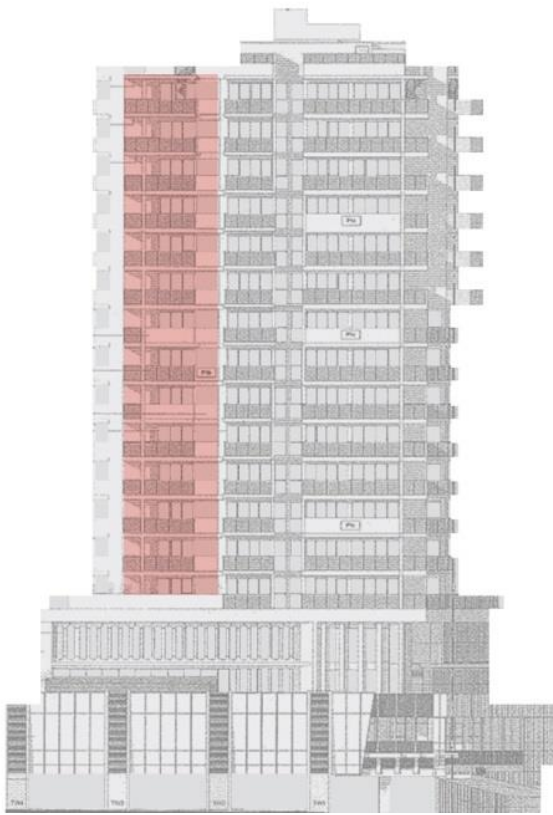
This report has been prepared on behalf of Lawson Square Proprietary Limited in support of an application seeking development consent for significant alterations and additions to the existing building at 1 Lawson Square, Redfern.

This report forms an addendum to the set of drawings and reports that accompanied the initial Development Application, and has been prepared to address items raised by the Department of Planning and Environment in response to that application.

In particular, this report is assesses the impact of the shadows cast by the proposed development on the building at No. 157 Redfern Street ('Deicota' building). For the purpose of comparison, three scenarios have been considered:

- 1. Shadows cast by the existing 1 Lawson Square Towers
- 2. Shadows cast by the result if SEPP (Major Development) 2005 – Building Envelope was to be adhered
- 3. Shadows cast by the Proposed DA Issue C Scheme

The data noted in this report has been produced using detailed 3D modelling with the intention of accurately representing the proposed development and the adjacent development at 157 Redfern Street. We note that the 3D model has been based on the approved DA drawings for the building at 157 Redfern Street, and therefore should be treated as unverified and approximate guide only.



157 Redfern Street, 'Deicota' building – North Elevation
In red: North – focus-area units



157 Redfern Street. 'Deicota' building – Level 13 Plan

SECTION 1.1 ASSESSMENT PRINCIPLES FOR SOLAR ACCESS

This report is intended to be read in conjunction with the architectural plans prepared by Angelo Candalepas & Associates Pty Limited (the Architect), and more specifically with the 'Solar and Shadow Analysis' (DA-1502) and 'Overshadowing Analysis' (DA-1503/1504) included in the 'Development Application Issue C' dated 14th of April of 2014.

This report has been prepared in accordance with the principles for Solar Access expressed on the 'City of Sydney Development Control Plan 2012' (DCP), the 'Residential Flat Design Code' (RFDC) and answers the clarification request made by Natasha Harras (Town Planner from NSW Department of Planning & Environment) on correspondence dated 24th of July, 2014 and 1st of September, 2014.

The aforementioned principles for assessment are summarised as follows:

Principle 1

4.1.3.1 Solar access

Objectives

- (a) Buildings are to be designed and sited to provide solar access to:
- (i) private open space within the site and of adjoining dwellings;
 - (ii) habitable rooms within the development and in adjoining developments;
 - (iii) public open space including bushland reserves; and
 - (iv) solar collectors of adjoining development.

Provisions

- (1) 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 and at least 50% of the minimum amount of private open space.
 - (2) New development must not create any additional overshadowing where solar access is less than two hours between 9am and 3pm on 21 June.
- This control does not apply to windows on a side boundary or windows only separated from a side boundary or passageway.

City of Sydney DCP 2012

Principle 2*Rules of Thumb*

Living rooms and private open spaces for at least 70 percent of apartments in a development should receive a minimum of three hours direct sunlight between 9 am and 3 pm in mid winter.

In dense urban areas a minimum of two hours may be acceptable.

Limit the number of single-aspect apartments with a southerly aspect (SW-SE) to a maximum of 10 percent of the total units proposed. Developments which seek to vary from the minimum standards must demonstrate how site constraints and orientation prohibit the achievement of these standards and how energy efficiency is addressed (see Orientation and Energy Efficiency). See Apartment Layout for additional rules of thumb.

Residential Flat Code. Part 3. Residential Design. Rules of Thumb

SECTION 1.2 METHODOLOGY

The Solar Access assessment in this report was undertaken as an additional exercise further to those described in the 'Development Application Issue C' dated 14th of April of 2014, on sheets DA-1502, DA-1503 and DA-1504.

The 'Solar and Shadow Analysis' and the 'Overshadowing Analysis' assessed the impact of the proposed development on the North and East elevations of 157 Redfern Street ('Deicota' building'), by differentiating and comparing the shadows cast by the existing 1 Lawson Square Towers, the Proposed Scheme and the shadows cast by the 'Deicota' building on itself.

In this addendum, Solar Access to all the units of the 'Deicota' building, was assessed. This was completed to respond to the following clarification request made by Natasha Harras at the NSW Department of Planning & Environment on correspondence dated 24th of July, 2014 and 1st of September, 2014.

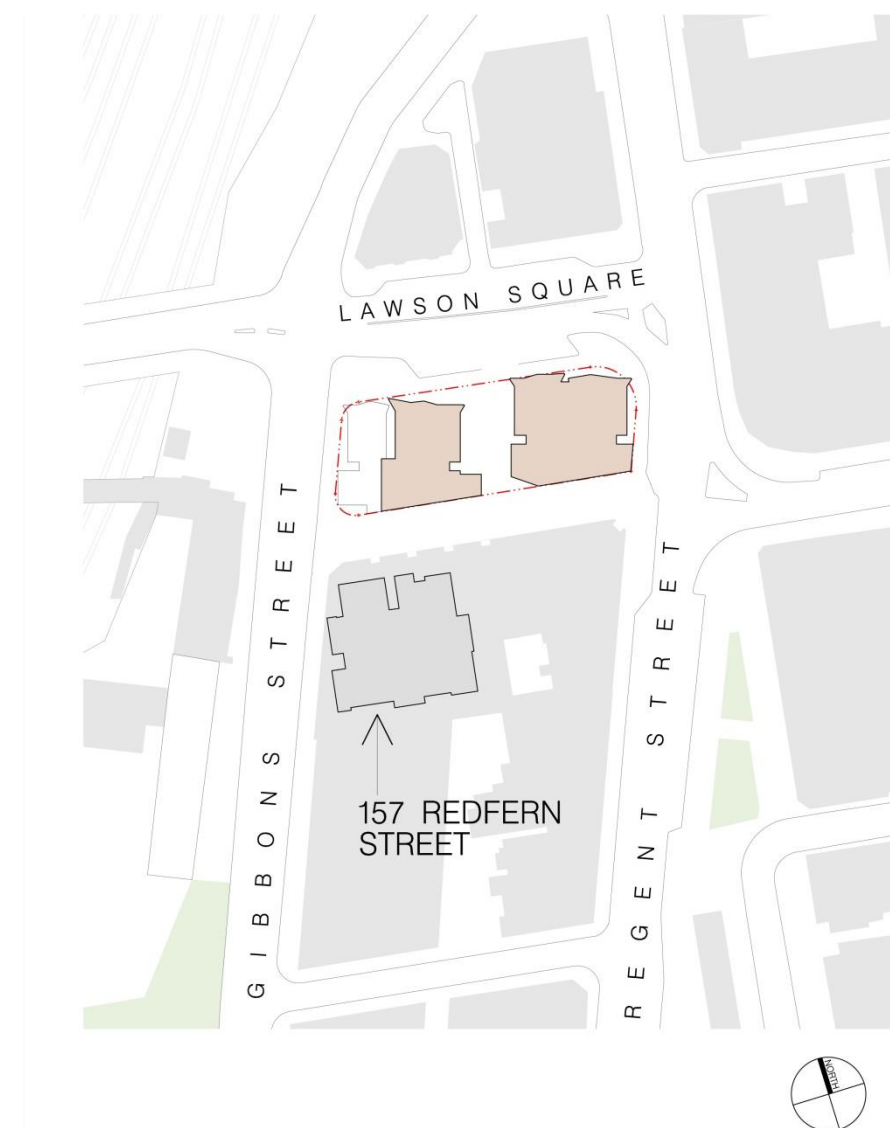
The analysis gives rise to a concern that there will be a loss of solar access for some dwellings in the adjoining building. However to better understand this impact, we would like to have this issue quantified and compared to the context of the current planning controls.

As Ben discussed with Scott today, we therefore need some additional analysis done. In particular, could the report be updated to provide additional shadows and an additional table to pages 8, 9 and 10 of the report to demonstrate the impacts of a part 2 / 5 / 18 storey building that fully complies with the building height controls under the SEPP.

Should the additional analysis reveal an additional comparable impact between the proposed building and the envelope set by the controls, the non-compliances with the FSR and some of the height controls may not be justified and we may be seeking that the building form be appropriately rationalised to improve solar access to the affected dwellings in the adjoining building.

Solar Access was assessed on the living room windows and balconies to all units as per CSDCP 2012, 4.1.3.1 Solar Access and can be described as follows:

1. Living Room windows: All living room windows achieving a minimum of 2 hours of direct sunlight onto at least 1sqm was logged.
2. Balconies: All Private open space achieving 2 hours of direct sunlight to a minimum of 50% of their area was logged.



Solar Access Simulation

1. A digital 3D model of the existing 1 Lawson Square towers and the building at 157 Redfern Street were created using CAD software (Microstation V8i). The applicable City of Sydney IDE file, including the existing towers at 1 Lawson Square and 157 Redfern Street building (the 'Deicota building'), were imported into the model to provide the context surrounding the building. This IDE file incorporated the boundary locations and building envelopes of the neighbouring buildings originally located on the Survey drawing prepared by Thorpe & Co. Pty Ltd dated 12th September 2011.
2. The proposed scheme (DA Issue C) shown on this assessment were modelled separately in Sketchup 8, according to CAD drawings prepared by Candalepas Associates PTY Limited, and collated in one 'Base Model' with the context, the existing 1 Lawson Square Towers, the result if SEPP (Major Development) 2005 – Building Envelope was adhered to and the 'Deicota building'.
3. The approved DA drawings for 157 Redfern development (Approved Application number MP09_0039 MODI, granted 25/02/2011) were used to locate the height and position of the building.
4. The 'Base Model' prepared for this assessment has been orientated accordingly to True North point and Boundaries shown on the Survey prepared by Thorpe & CO. Pty Ltd dated 12th September 2011.
5. The areas in sunlight on the living room windows were quantified on Sketchup 8.
6. This assessment was completed by considering the shadows cast by the 'Deicota' building on itself.

SECTION 2.0 SOLAR ACCESS ASSESMENT

2.2 SOLAR ACCESS ASSESSMENT FOR LIVING ROOM WINDOWS AT DEICOTA BUILDING (157 REDFERN STREET)

1 Lawson Square Towers (Existing Towers)							
Level	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F	Unit G
18	✓	✓	✗	✓	✓	✓	-
17	✗	✗	✓	✓	✓	✓	✗
16	✗	✗	✓	✓	✓	✓	✗
15	✗	✗	✓	✓	✓	✓	✗
14	✗	✗	✓	✓	✓	✓	✗
13	✗	✗	✓	✓	✓	✓	-
12	✗	✗	✓	✓	✓	✓	-
11	✗	✗	✓	✓	✓	✓	-
10	✗	✗	✓	✓	✓	✓	-
9	✗	✗	✗	✓	✓	✓	-
8	✗	✗	✗	✓	✓	✓	-
7	✗	✗	✗	✓	✓	✓	-
6	✗	✗	✗	✓	✓	✓	-
5	✗	✗	✗	✓	✓	✓	-

52/88 UNITS (59%) ACHIEVE 2HRS OF DIRECT SUNLIGHT AT MID-WINTER

8/14 FOCUS AREA UNITS (57%) ACHIEVE 2HRS OF DIRECT SUNLIGHT AT MID-WINTER

In red focus-area units

Result if SEPP (Major Development) 2005 - Building Envelope was adhered to							
Level	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F	Unit G
18	✓	✓	✗	✓	✓	✓	-
17	✗	✗	✓	✓	✓	✓	✗
16	✗	✗	✓	✓	✓	✓	✗
15	✗	✗	✗	✓	✓	✓	✗
14	✗	✗	✗	✓	✓	✓	✗
13	✗	✗	✗	✓	✓	✓	-
12	✗	✗	✗	✓	✓	✓	-
11	✗	✗	✗	✓	✓	✓	-
10	✗	✗	✗	✓	✓	✓	-
9	✗	✗	✗	✓	✓	✓	-
8	✗	✗	✗	✓	✓	✓	-
7	✗	✗	✗	✓	✓	✓	-
6	✗	✗	✗	✓	✓	✓	-
5	✗	✗	✗	✓	✓	✓	-

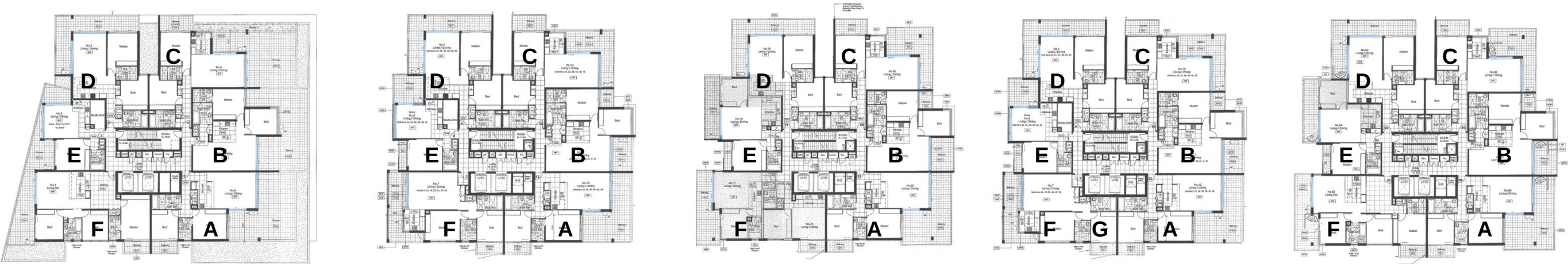
46/88 UNITS (52%) ACHIEVE 2HRS OF DIRECT SUNLIGHT AT MID-WINTER

2/14 FOCUS AREA UNITS (14%) ACHIEVE 2HRS OF DIRECT SUNLIGHT AT MID-WINTER

DA Issue C Scheme							
Level	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F	Unit G
18	✓	✓	✗	✓	✓	✓	-
17	✗	✗	✓	✓	✓	✓	✗
16	✗	✗	✓	✓	✓	✓	✗
15	✗	✗	✗	✓	✓	✓	✗
14	✗	✗	✗	✓	✓	✓	✗
13	✗	✗	✗	✓	✓	✓	-
12	✗	✗	✗	✓	✓	✓	-
11	✗	✗	✗	✓	✓	✓	-
10	✗	✗	✗	✓	✓	✓	-
9	✗	✗	✗	✓	✓	✓	-
8	✗	✗	✗	✓	✓	✓	-
7	✗	✗	✗	✓	✓	✓	-
6	✗	✗	✗	✓	✓	✓	-
5	✗	✗	✗	✓	✓	✓	-

46/88 UNITS (52%) ACHIEVE 2HRS OF DIRECT SUNLIGHT AT MID-WINTER

2/14 FOCUS AREA UNITS (14%) ACHIEVE 2HRS OF DIRECT SUNLIGHT AT MID-WINTER



157 Redfern Street. 'Deicota' building – Level 5 / 6-12 / 13 / 14-17 / 18 Plans

In blue: windows assessed

SECTION 2.0 SOLAR ACCESS ASSESMENT

2.2 SOLAR ACCESS ASSESSMENT FOR PRIVATE OPEN SPACES AT DEICOTA BUILDING (157 REDFERN STREET)

1 Lawson Square Towers (Existing Towers)							
Level	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F	Unit G
18	X	X	✓	✓	✓	✓	-
17	X	X	✓	✓	✓	✓	X
16	X	X	✓	✓	✓	X	X
15	X	X	✓	✓	✓	X	X
14	X	X	✓	✓	✓	X	X
13	X	X	✓	✓	✓	X	-
12	X	X	X	✓	✓	✓	-
11	X	X	X	✓	✓	✓	-
10	X	X	X	✓	✓	✓	-
9	X	X	X	✓	✓	✓	-
8	X	X	X	✓	✓	✓	-
7	X	X	X	✓	✓	✓	-
6	X	X	X	✓	✓	✓	-
5	X	X	X	✓	X	✓	-

43/88 UNITS (49%) ACHIEVE 2HRS OF DIRECT SUNLIGHT AT MID-WINTER

6/14 FOCUS AREA UNITS (43%) ACHIEVE 2HRS OF DIRECT SUNLIGHT AT MID-WINTER

In red focus-area units

Result if SEPP (Major Development) 2005 - Building Envelope was adhered to							
Level	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F	Unit G
18	X	X	✓	✓	✓	✓	-
17	X	X	✓	✓	✓	✓	X
16	X	X	✓	✓	✓	X	X
15	X	X	X	✓	✓	X	X
14	X	X	X	✓	✓	X	X
13	X	X	X	✓	✓	X	-
12	X	X	X	✓	✓	✓	-
11	X	X	X	✓	✓	✓	-
10	X	X	X	✓	✓	✓	-
9	X	X	X	✓	✓	✓	-
8	X	X	X	✓	✓	✓	-
7	X	X	X	✓	✓	✓	-
6	X	X	X	✓	✓	✓	-
5	X	X	X	✓	X	✓	-

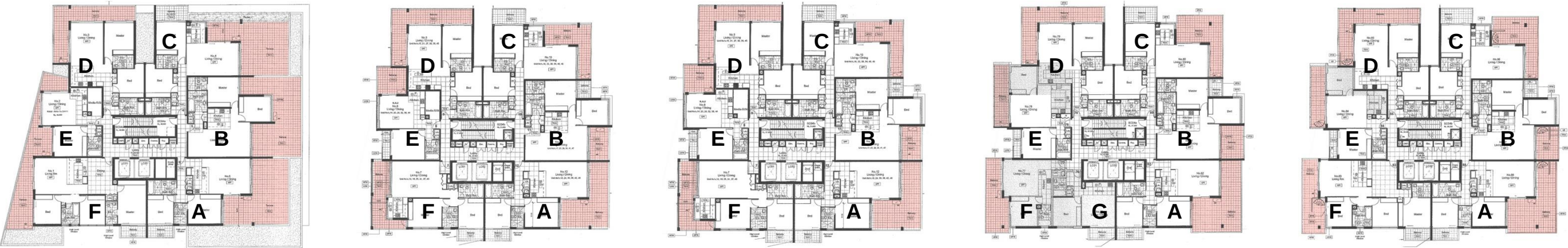
40/88 UNITS (45%) ACHIEVE 2HRS OF DIRECT SUNLIGHT AT MID-WINTER

3/14 FOCUS AREA UNITS (21%) ACHIEVE 2HRS OF DIRECT SUNLIGHT AT MID-WINTER

DA Issue C Scheme							
Level	Unit A	Unit B	Unit C	Unit D	Unit E	Unit F	Unit G
18	X	X	✓	✓	✓	✓	-
17	X	X	✓	✓	✓	✓	X
16	X	X	X	✓	✓	X	X
15	X	X	X	✓	✓	X	X
14	X	X	X	✓	✓	X	X
13	X	X	X	✓	✓	X	-
12	X	X	X	✓	✓	✓	-
11	X	X	X	✓	✓	✓	-
10	X	X	X	✓	✓	✓	-
9	X	X	X	✓	✓	✓	-
8	X	X	X	✓	✓	✓	-
7	X	X	X	✓	✓	✓	-
6	X	X	X	✓	✓	✓	-
5	X	X	X	✓	X	✓	-

39/88 UNITS (44%) ACHIEVE 2HRS OF DIRECT SUNLIGHT AT MID-WINTER

2/14 FOCUS AREA UNITS (14%) ACHIEVE 2HRS OF DIRECT SUNLIGHT AT MID-WINTER



157 Redfern Street. 'Deicota' building – Level 5 / 6-12 / 13 / 14-17 & 18 Plans

In red: open private spaces assessed

SECTION 2.0 SUN ACCESS ASSESMENT

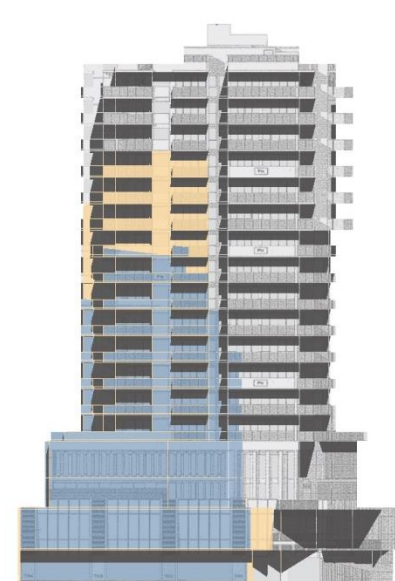
2.1 OVERSHADOWING ANALYSIS



North Elevation – June 21st, 9:00 AM
SEPP Envelope



North Elevation – June 21st, 10:30 AM
SEPP Envelope



North Elevation – June 21st, 12:00 PM
SEPP Envelope



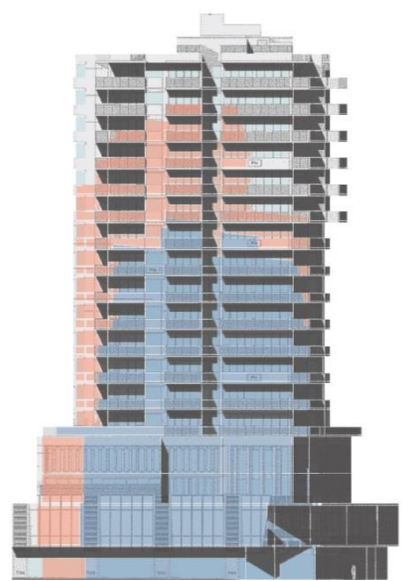
North Elevation – June 21st, 1:30 PM
SEPP Envelope



North Elevation – June 21st, 3:00 PM
SEPP Envelope



North Elevation – June 21st, 9:00 AM
Issue C Scheme



North Elevation – June 21st, 10:30 AM
Issue C Scheme



North Elevation – June 21st, 12:00 PM
Issue C Scheme



North Elevation – June 21st, 1:30 PM
Issue C Scheme



North Elevation – June 21st, 3:00 PM
Issue C Scheme

Legend

- Shadows cast by existing towers
- Additional shadow cast by SEPP envelope
- Additional shadow cast by Issue C
- Shadows cast by building on itself

Note 1: 'Issue C diagrams' taken from Development Application Issue C dated 14 April 2014, DA-1503 Overshadowing Analysis – Sheet 1

Note 2: All elevations and plans from 157 Redfern Street ('Deicota' building), were taken from approved Application number MP09_0039 MODI, granted 25/02/2011

SECTION 3.0 SUMMARY AND CONCLUSIONS

The proposed development at 1 Lawson Square is considered to have acceptable impact upon the units at ‘Deicota’ building in terms of the shadows cast by the proposed development for the DA Issue C Scheme simulated in this assessment.

The information embodied in this document assesses the impact to all units in the ‘Deicota’ Development at 157 Redfern Street. (Approved Application number MP09_0039 MODI, granted 25/02/2011)

Living room windows

The results demonstrate that the same number of units in the ‘Deicota’ Development would be affected in both circumstances for living room windows; the proposed scheme (DA Issue C) and the result if SEPP (Major Development) 2005 – Building Envelope was to be adhered at 1 Lawson Square.

Private Open Space

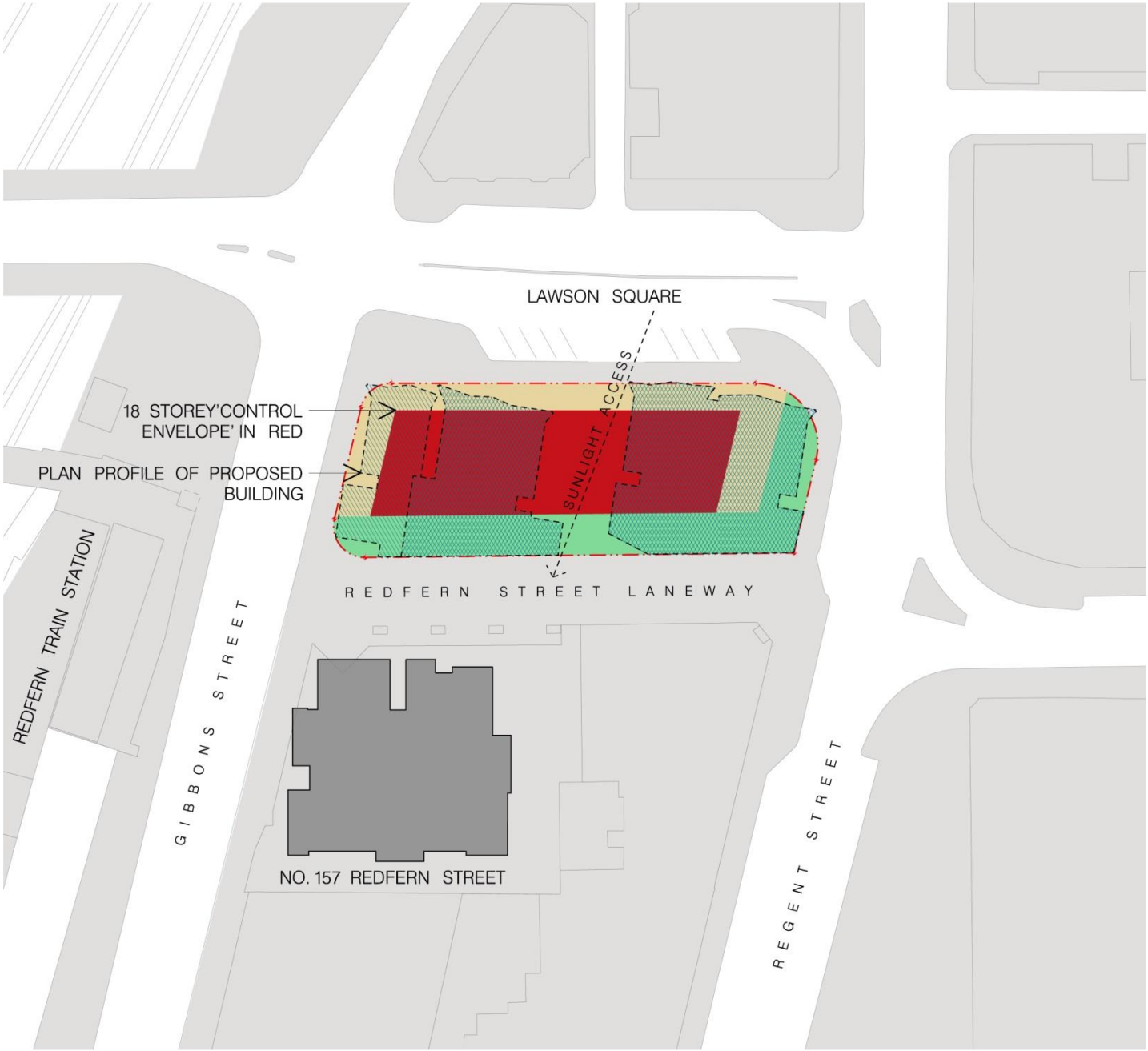
The results demonstrate 1 additional unit is affected in the ‘Deicota’ Development between the proposed scheme (DA Issue C) and the result if SEPP (Major Development) 2005 – Building Envelope was to be adhered at 1 Lawson Square.

It should be noted that this particular unit (Unit C Level 16) achieves 82 minutes of sunlight to 50% of the private open space under the proposed scheme (DA Issue C).

The expectation of retaining existing solar access to the ‘Deicota’ building should be considered in the context of the planning controls applicable to the development site. The *SEPP (Major Projects) 2005 Height of Buildings Map* indicates that the 1 Lawson Square site is subject to a maximum core height of eighteen storeys, with border heights of five and two storeys. The overall height of 18 storeys proposed for 1 Lawson Square is in accordance with the maximum height control, and the non-compliance with regard to podium heights is largely unavoidable due to the retention of the existing building structure. **It is worth noting that the SEPP (Major projects) planning controls describe a building volume that would potentially block solar access between the towers, and the retention of the open corridor between the towers is considered a positive aspect of the proposed development.**

The retention of the existing building structure is considered to embody significant benefits for solar access, whilst avoiding demolition. These benefits are considered relevant in the assessment of the proposed building envelope.

The proposal as put is therefore commended to the New South Wales Department of Planning and Environment for its positive contribution.



ENVELOPE ANALYSIS – NOTE 1
THE MAXIMUM BUILDING HEIGHTS SHOWN ARE
TAKEN FROM "STATE ENVIROMENTAL PLANNING
POLICY (MAJOR DEVELOPMENT) 2005 – REDFERN /
WATERLOO AUTHORITY SITES – HEIGHT OF
BUILDINGS MAP"

SEPP (Major Projects) 2005 –
ENVELOPE

18 STOREYS
5 STOREYS
2 STOREYS

