

VIEW IMPACT STUDY – KEY VANTAGE POINTS AND STREETSCAPE LOCATIONS

APPENDIX P



Sydney Metro City & Southwest: Crows Nest Over Station Development

View Impact Study - Key Vantage Points and Streetscape Locations

Applicable to:	Sydney Metro City & Southwest
Author:	Virtual Ideas
Owner	Sydney Metro Authority
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1.0 Introduction

1.1 Purpose of this report

This report supports the Response to Submissions Report (Submissions Report) for the concept State Significant Development application (concept SSD Application) submitted to the Department of Planning, Industry and Environment (DPIE) pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The concept SSD Application is made under Section 4.22 of the EP&A Act.

Sydney Metro is seeking to secure concept approval for a mixed use development comprising three buildings above the Crows Nest Station, otherwise known as the over station development (OSD). The concept SSD Application seeks consent for building envelopes and land uses, maximum building heights, maximum gross floor areas, pedestrian and vehicular access, circulation arrangements and associated car parking and the strategies and design parameters for the future detailed design of the development.

The station and public domain elements form part of a separate planning approval for Critical State Significant Infrastructure (CSSI) approved by DPIE on 9 January 2017.

As the development is within a rail corridor, is associated with railway infrastructure and is for commercial premises and residential accommodation with a Capital Investment Value of more than \$30 million, the project is identified as State Significant Development (SSD) pursuant to Schedule 1, 19(2)(a) of the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP). The development is, therefore, State significant development for the purposes of Section 4.36 of the EP&A Act.

A View Impact Study – Key Vantage Points and Streetscape Locations dated November 2018 was prepared as Appendix L of the Environmental Impact Statement for the concept SSD Application to specifically respond to the Secretary's Environmental Assessment Requirements (SEARs) issued on 26 September 2018. Following Exhibition of the Environmental Impact Statement, the design of the OSD has responded to issues raised in submissions. The purpose of this report is to identify those changes in the Amended OSD Scheme and to assess the impacts of changes with regards to View Impacts to Key Vantage Points and Streetscape Locations.

In response to the submissions made on the Exhibited Scheme, the following changes have been made to the concept SSD Application under what is termed the Amended Scheme:

- Changes to the building envelope
- Changes in proposed land use on each site
- Reduction in car parking numbers
- Inclusion of an articulation zone
- Clarification on the provision of social infrastructure
- Amendments to the Design Guidelines

These changes are described in further detail in Chapter 7 of the Submissions Report. The western elevation of the Amended Scheme is shown below, with a summary of the changes between the Exhibited Scheme and Amended Scheme provided in the table below.

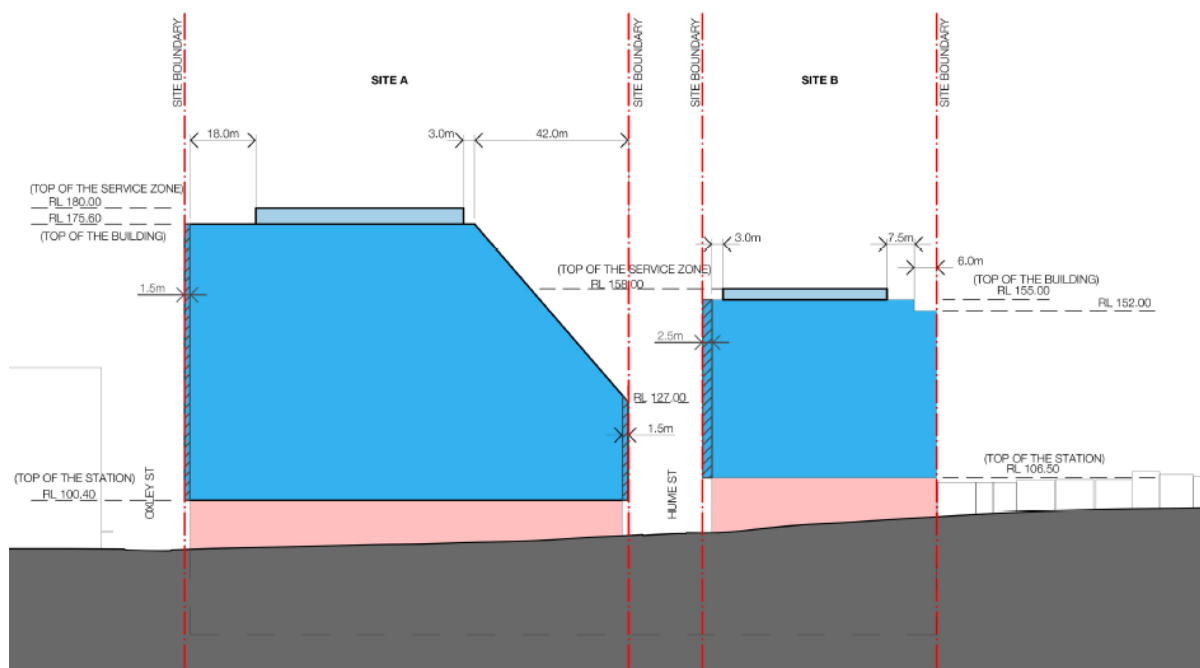


Figure 1 – West elevation of the building envelope under the Amended Scheme, showing CSSI Approval (pink) and OSD components (blue)

Table 2 – Changes to overall concept scheme per site under the Exhibited Scheme and Amended Scheme (excluding station GFA)

	Exhibited Scheme ¹	Amended Scheme ¹
Site A		
Land Use	Residential ²	Commercial
GFA	37,500m ²	40,207m ²
Max height – top of roof (RL)	183	175.6
Max height – top of services zone (RL)	188	180
FSR - OSD	9.67:1	10.4:1
Non-residential FSR - OSD	0.7:1	10.4:1
Car parking	125	46
Site B		
Land Use	Tourist / visitor accommodation	Residential
Max height – top of roof (RL)	155	155
Max height – top of services zone (RL)	158	158

¹ GFA figures exclude GFA attributable to the station and station retail space approved under the CSSI approval

² The Exhibited Scheme included a provisional option for social infrastructure GFA to be located on Site A or Site C inclusive of the GFA figures nominated above.

	Exhibited Scheme ¹	Amended Scheme ¹
GFA	15,200m ²	12,685m ²
FSR - OSD	8.12:1	6.8:1
Non-residential FSR - OSD	8.12:1	0.1:1
Car parking	25	55
Site C		
Land Use	Commercial ²	Commercial
Max height – top of roof (RL)	127	127
Max height – top of services zone (RL)	132	132
GFA	2,700m ²	3,031m ²
FSR – OSD	4.44:1	4.9:1
Non-residential FSR - OSD	4.44:1	4.9:1
Car parking	0	0

The revised concept SSD Application (SSD-9579) under the Amended Scheme seeks approval for the following:

- maximum building envelopes for Sites A, B and C, including street wall heights and setbacks as illustrated in the plans prepared by Crows Nest Design Consortium for Sydney Metro at Appendix A to the Submissions Report
- maximum building heights:
 - **Site A:** RL 175.60 metres or equivalent of 21 storeys (includes two station levels and conceptual OSD space in the podium approved under the CSSI Approval)
 - **Site B:** RL 155 metres or equivalent of 17 storeys (includes two station levels and conceptual OSD space approved under the CSSI Approval)
 - **Site C:** RL 127 metres or 9 storeys (includes two station levels and conceptual OSD space approved under the CSSI Approval)

Note 1: the maximum building heights defined above are measured to the top of the roof slab and exclude building parapets which will be resolved as part of future detailed SSD Application(s)

- maximum height for a building services zone on top of each building to accommodate lift overruns, rooftop plant and services:
 - **Site A:** RL 180 or 4.4 metres
 - **Site B:** RL 158 or 3 metres
 - **Site C:** RL 132 or 5 metres

Note 1: the use of the space within the building services zone is restricted to non-habitable floor space.

Note 2: for the purposes of the concept SSD Application, the maximum height of the building envelope does not make provision for the following items, which will be resolved as part of the future detailed SSD Application(s):

- *communication devices, antennae, satellite dishes, masts, flagpoles, chimneys, flues and the like, which are excluded from the calculation of building height pursuant to the standard definition in NSLEP 2013*
- *architectural roof features, which are subject to compliance with the provisions in Clause 5.6 of NSLEP 2013, and may exceed the maximum building height, subject to development consent.*
- maximum gross floor area (GFA) of 56,400 square metres for the OSD comprising the following based on the proposed land uses:
 - **Site A:** Commercial office premises - maximum 40,300 square metres
 - **Site B:** Residential accommodation - maximum of 13,000 square metres
 - **Site C:** Commercial office premises - maximum of 3,100 square metres

Note: *GFA figures exclude GFA attributed to the station and station retail space approved under the CSSI Approval*

- minimum non-residential floor space for the OSD across combined Sites A, B and C of 43,505 square metres
- the use of conceptual areas associated with the OSD which have been provisioned for in the Crows Nest station box (CSSI Approval) including areas above ground level (i.e. OSD lobbies and associated spaces)
- a maximum of 101 car parking spaces on Sites A and B associated with the proposed commercial and residential uses
- modulation and expression of built forms within an articulation zone extending to the property boundary
- loading, vehicular and pedestrian access arrangements
- strategies for utilities and services provision
- strategies for managing stormwater and drainage
- a strategy for the achievement of ecological sustainable development
- a public art strategy
- indicative signage zones
- a design excellence framework
- the future subdivision of parts of the OSD footprint, if required.

2.0 Scope of assessment

2.1 Background

This document was prepared by Virtual Ideas and includes a description of the processes used to create the visual impact photomontages and illustrate the accuracy of the results.

Virtual Ideas is an architectural visualisation company that is highly experienced at preparing visual impact assessment media to a level of expertise that is suitable for both council submission and use in court.

Virtual Ideas is familiar with the court requirements to provide 3D visualisation media that will accurately communicate a proposed developments' design and visual impact.

These methodologies and results have been inspected by various court appointed experts in a variety of cases and have always been found to be accurate and acceptable.

This report should be read in conjunction with the Visual Impact Assessment Report submitted with the RtS.

2.2 Overview

The process of creating accurate photomontage renderings involves the creation of an accurate, real-world scale digital 3D model.

Photographs are taken on location, with each camera positions subsequently surveyed to identify the Map Grid of Australia (MGA) coordinates at each position.

3D cameras are then set-up in the 3D model to match these same real-world camera positions.

By matching the real-world camera lens properties to the camera properties in our software and rotating the camera so that surveyed points in 3D space align with the corresponding points in the photograph, we can create a rendering that is correct in terms of position, scale, rotation, and perspective.

The rendering can then be superimposed into the real photo to generate an image that represents accurate form and visual impact.

2.3 Description of collected data

To create the 3D model and establish accurate reference points for alignment to the photography, a variety of information was collected.

This includes the following:

3D model of proposed Crows Nest OSD Concept SSDA Envelope

- Supplied by: Sydney Metro
- Format: DWG file

Surveyed data

- Supplied by: CMS Surveyors
- Format: DWG file

Site photography

- Created by: Virtual Ideas
- Format: JPEG file

Surveyed 3D city model

- Created by: AAM
- Format: 3DS Max

Approved DA building envelopes

- Supplied by: Group GSA
- Format: Sketchup model

Notes on images:

The photomontages showing the proposed building envelope also include the following approved DA envelopes for the purpose of visual assessment of the future surrounding city scape:

- 88 Christie Street
- 500-520 Pacific Highway
- 617 Pacific Highway
- 6-16 Atchinson Street
- 472-486 Pacific Highway
- 575 Pacific Highway
- 545-553 Pacific Highway

2.4 Methodology

Site Photography

Site photography was taken from predetermined positions as agreed with Sydney Metro and North Sydney Council.

These photos were taken on two separate cameras:

- Canon EOS 5DS R with a camera lens EF16-35mm f/4L IS USM
- NIKON D810 with a camera lens 14.0-24.0 mm f/2.8

3D Model

Using the imported surveyed data into our 3D software (3DS Max), we then imported the supplied 3D model of the proposed Crows Nest OSD Concept SSDA Envelope and relevant DA approved building massing.

Alignment

The positions of the real-world photography were located in the 3D scene. Cameras were then created in the 3D model to match the locations and height of the position from which the photographs were taken. These were then aligned in rotation so that the points of the 3D model aligned with the corresponding objects that are visible in the photograph.

Renderings of the building envelope massing were then created from the aligned 3D cameras and montaged into the existing photography at the same location. This produced an accurate representation of the scale and position of the proposed concept envelope with respect to the existing surroundings.

The new OSD building envelope is shown in 'blue' in the following photomontages, with the indicative OSD building form shown by a 'broken white line/outline' within the extent of the new building envelope. The extent of the CSSI Approval (station box) is shown in 'pink'. Other approved DA envelopes which are not within the site or the subject of this SSD Application are shown as 'ghosted yellow'.

Conclusion

In conclusion, it is my opinion as an experienced, professional 3D architectural and landscape renderer that the images provided accurately portray the level of visibility and impact of the built form.

Yours sincerely,

Grant Kolln



2.5 CV of Grant Kolln, Director of Virtual Ideas

Personal Details

Name: Grant Kolln
DOB: 07/09/1974
Company Address: Suite 71, 61 Marlborough St, Surry Hills, NSW, 2010
Phone Number: 02 8399 0222

Relevant Experience

2003 - Present Director of 3D visualisation studio Virtual Ideas. During this time, Grant has worked on many visual impact studies for planning submission across various different industries including architectural, industrial, mining, landscaping, and several large public works projects. Through this experience, Grant has developed a highly accurate methodology for the creation of visual impact media and report creation.

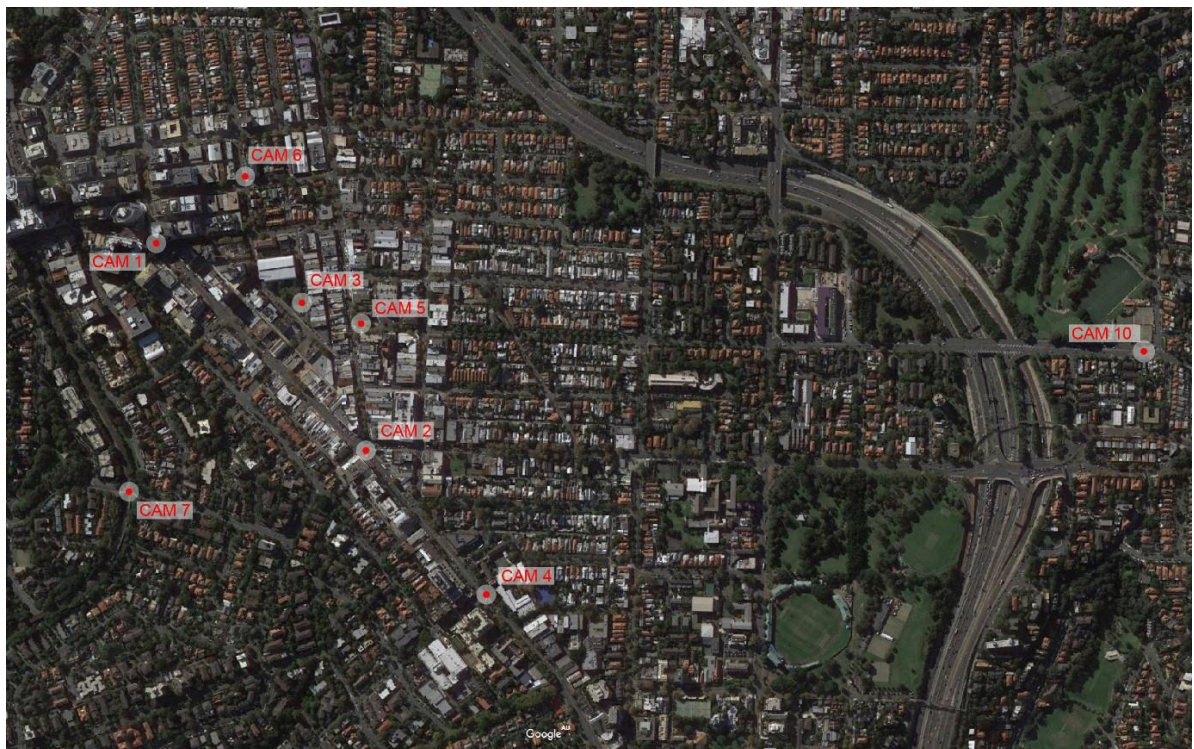
1999 – 2001 Project Manager for global SAP infrastructure implementation - Ericsson, Sweden 1999 - 1999 IT Consultant - Sci-Fi Channel, London

1994 – 1999 Architectural Technician, Thomson Adsett Architect, Brisbane QLD.

Relevant Education / Qualifications

1997 Advanced Diploma in Architectural Technology, Southbank TAFE, Brisbane, QLD

2.6 Key map indicating location of photography positions



3.0 Key vantage points and streetscape photomontages

3.1.1 Camera Position 1

Original photograph



Photo Date - 17th August 2017

Photo Lens - 16mm

Camera Position 1

Original photograph with surveyed alignment points




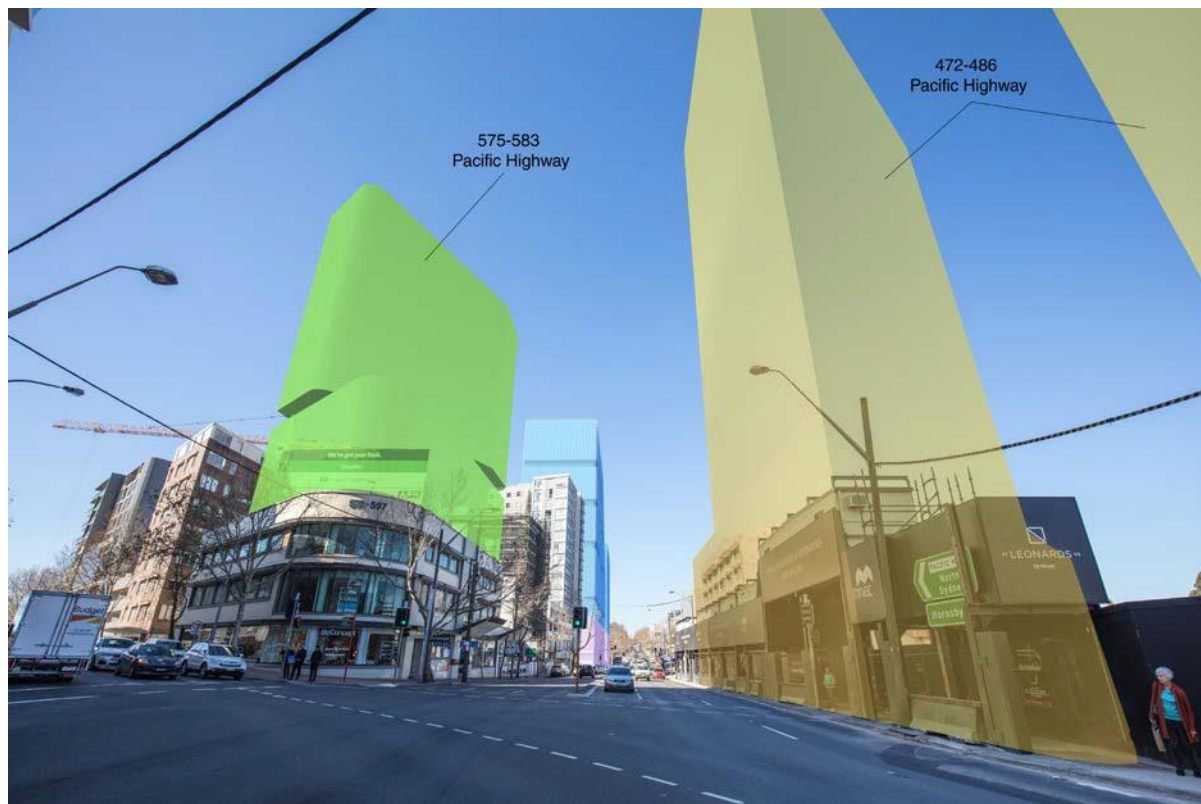
 Alignment points derived from CMS camera location survey

Photo Date - 17th August 2017

Photo Lens - 16mm

Camera Position 1

Photomontage of proposed envelope



- Crows Nest OSD building envelope
- Crows Nest Metro Station CCSI
- Crows Nest OSD Indicative building design
- Approved DA envelopes
- Active Planning Proposal envelopes

Photo Date - 17th August 2017

Photo Lens - 16mm

3.1.2 Camera Position 2

Original photograph

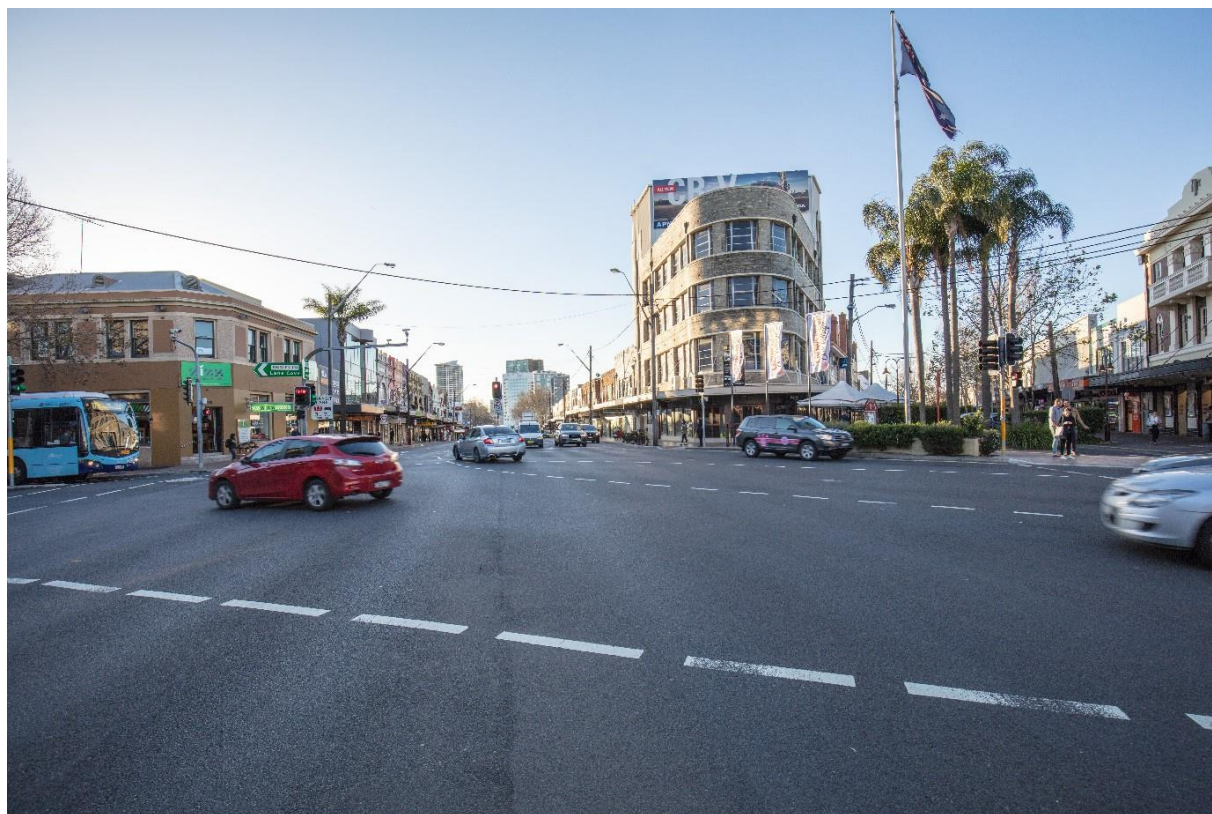
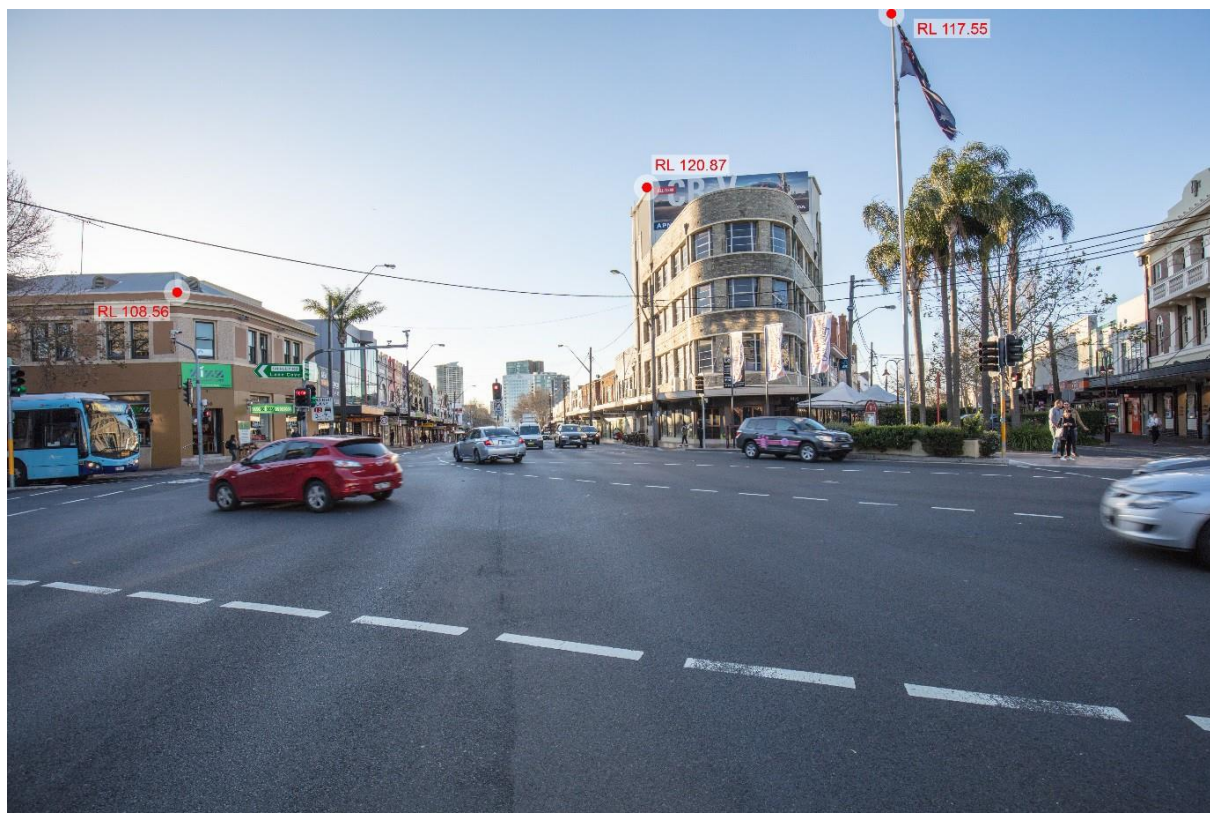


Photo Date - 17th August 2017

Photo Lens - 16mm

Camera Position 2

Original photograph with surveyed alignment points




 Alignment points derived from CMS camera location survey

Photo Date - 17th August 2017

Photo Lens - 16mm

Camera Position 2

Photomontage of proposed envelope



- Crows Nest OSD building envelope
- Crows Nest Metro Station CCSI
- Crows Nest OSD Indicative building design
- Approved DA envelopes
- Active Planning Proposal envelopes

Photo Date - 17th August 2017

Photo Lens - 16mm

3.1.3 Camera Position 3

Original photograph



Photo Date - 17th August 2017

Photo Lens - 14mm

Camera Position 3

Original photograph with surveyed alignment points



 Alignment points derived from CMS camera location survey

Photo Date - 17th August 2017

Photo Lens - 14mm

Camera Position 3

Photomontage of proposed envelope








-  Crows Nest OSD building envelope
-  Crows Nest Metro Station CCSI
-  Crows Nest OSD Indicative building design
-  Approved DA envelopes
-  Active Planning Proposal envelopes

Photo Date - 17th August 2017

Photo Lens - 14mm

3.1.4 Camera Position 4

Original photograph

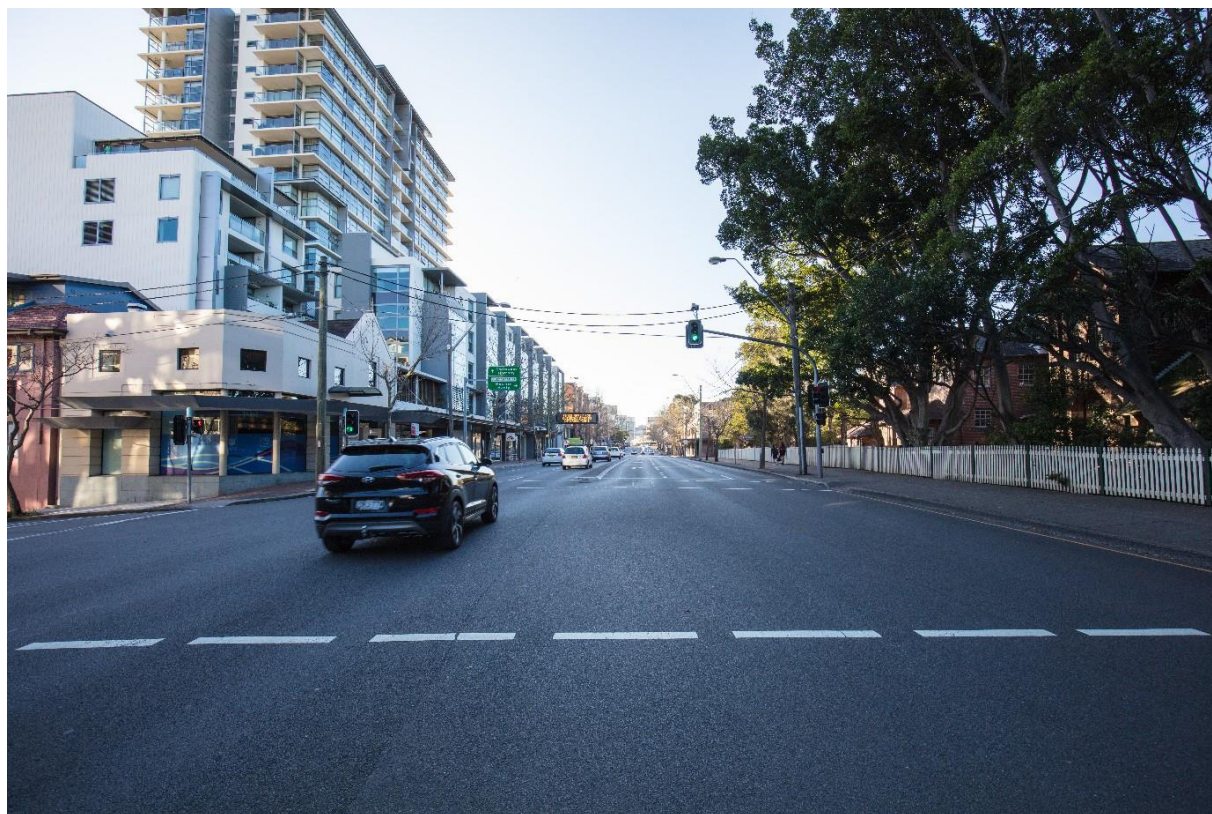


Photo Date - 17th August 2017

Photo Lens - 16mm

Camera Position 4

Original photograph with surveyed alignment points




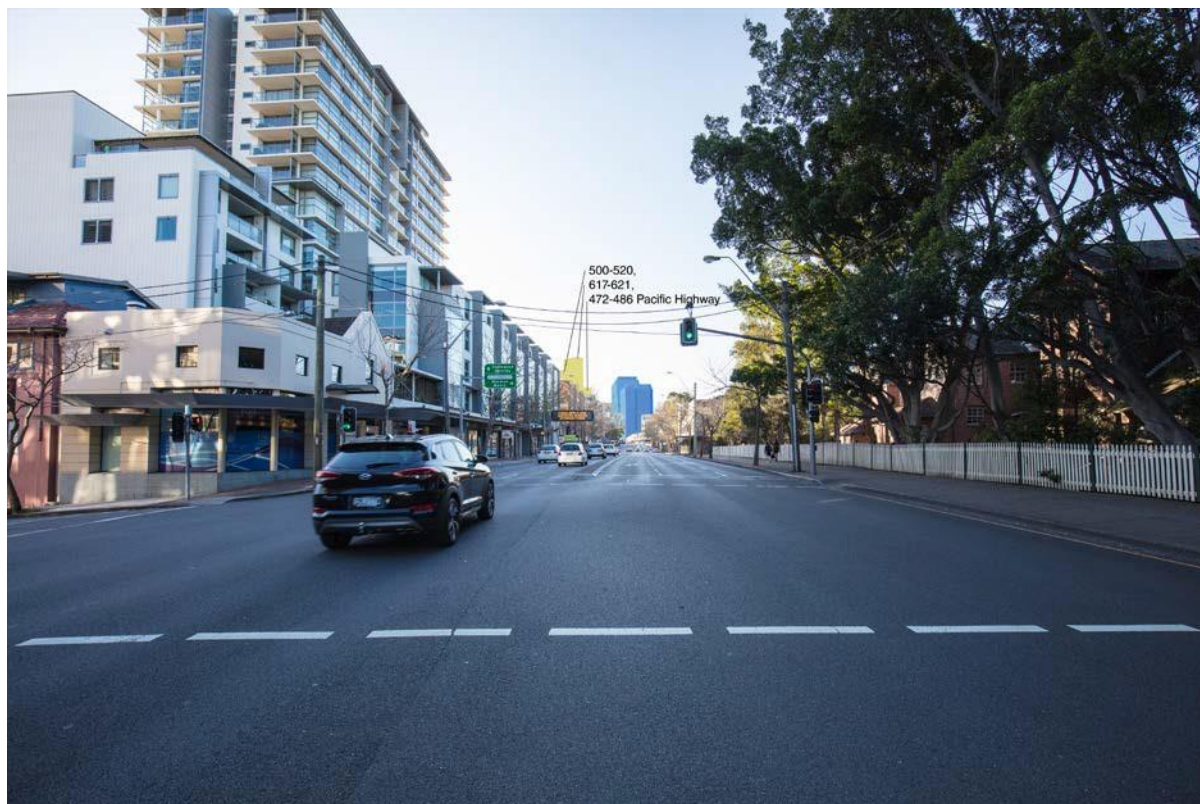
 Alignment points derived from CMS camera location survey

Photo Date - 17th August 2017

Photo Lens - 16mm

Camera Position 4

Photomontage of proposed envelope








-  Crows Nest OSD building envelope
-  Crows Nest Metro Station CCSI
-  Crows Nest OSD Indicative building design
-  Approved DA envelopes
-  Active Planning Proposal envelopes

Photo Date - 17th August 2017

Photo Lens - 16mm

3.1.5 Camera Position 5

Original photograph



Photo Date - 17th August 2017

Photo Lens - 18mm

Camera Position 5

Original photograph with surveyed alignment points




 Alignment points derived from CMS camera location survey

Photo Date - 17th August 2017

Photo Lens - 18mm

Camera Position 5

Photomontage of proposed envelope



- Crows Nest OSD building envelope
- Crows Nest Metro Station CCSI
- Crows Nest OSD Indicative building design
- Approved DA envelopes
- Active Planning Proposal envelopes

Photo Date - 17th August 2017

Photo Lens - 18mm

3.1.6 Camera Position 6

Original photograph



Photo Date - 17th August 2017

Photo Lens - 16mm

Camera Position 6

Original photograph with surveyed alignment points




 Alignment points derived from CMS camera location survey

Photo Date - 17th August 2017

Photo Lens - 16mm

Camera Position 6

Photomontage of proposed envelope



- Crows Nest OSD building envelope
- Crows Nest Metro Station CCSI
- Crows Nest OSD Indicative building design
- Approved DA envelopes
- Active Planning Proposal envelopes

Photo Date - 17th August 2017

Photo Lens - 16mm

3.1.7 Camera Position 7

Original photograph

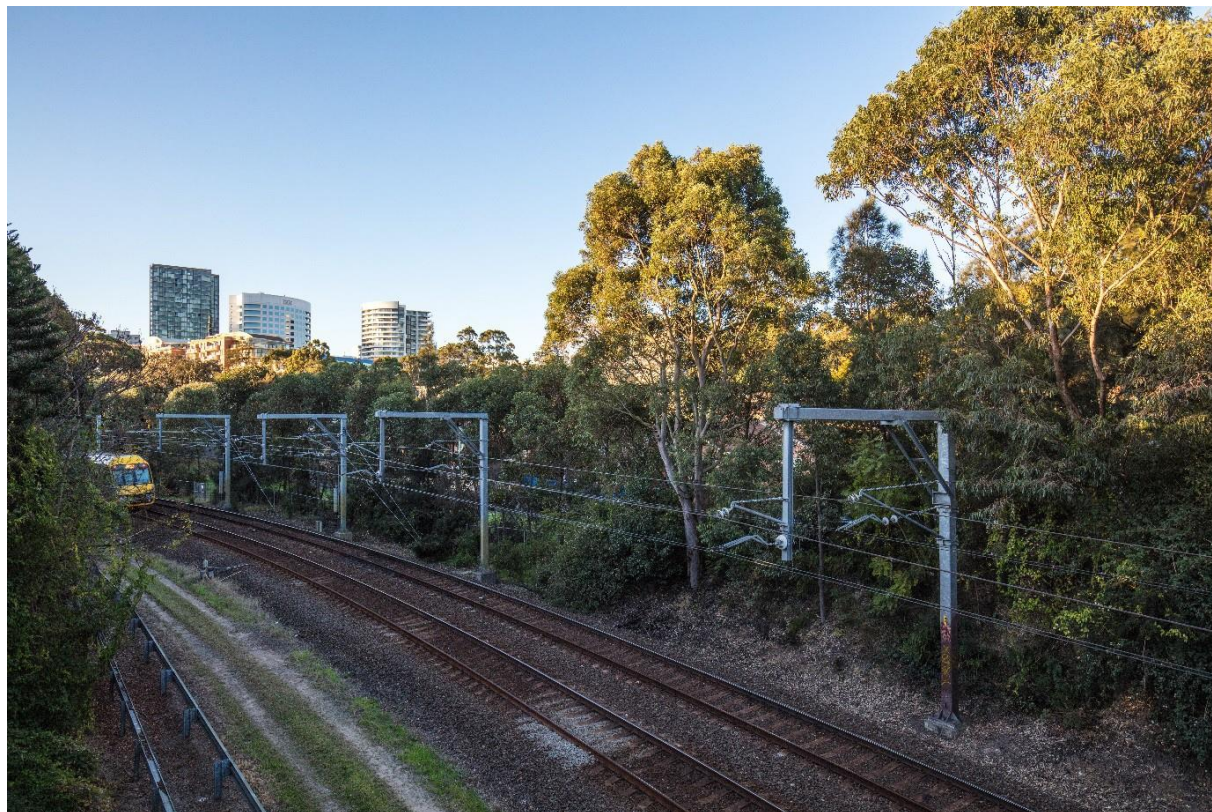


Photo Date - 17th August 2017

Photo Lens - 23mm

Camera Position 7

Original photograph with surveyed alignment points



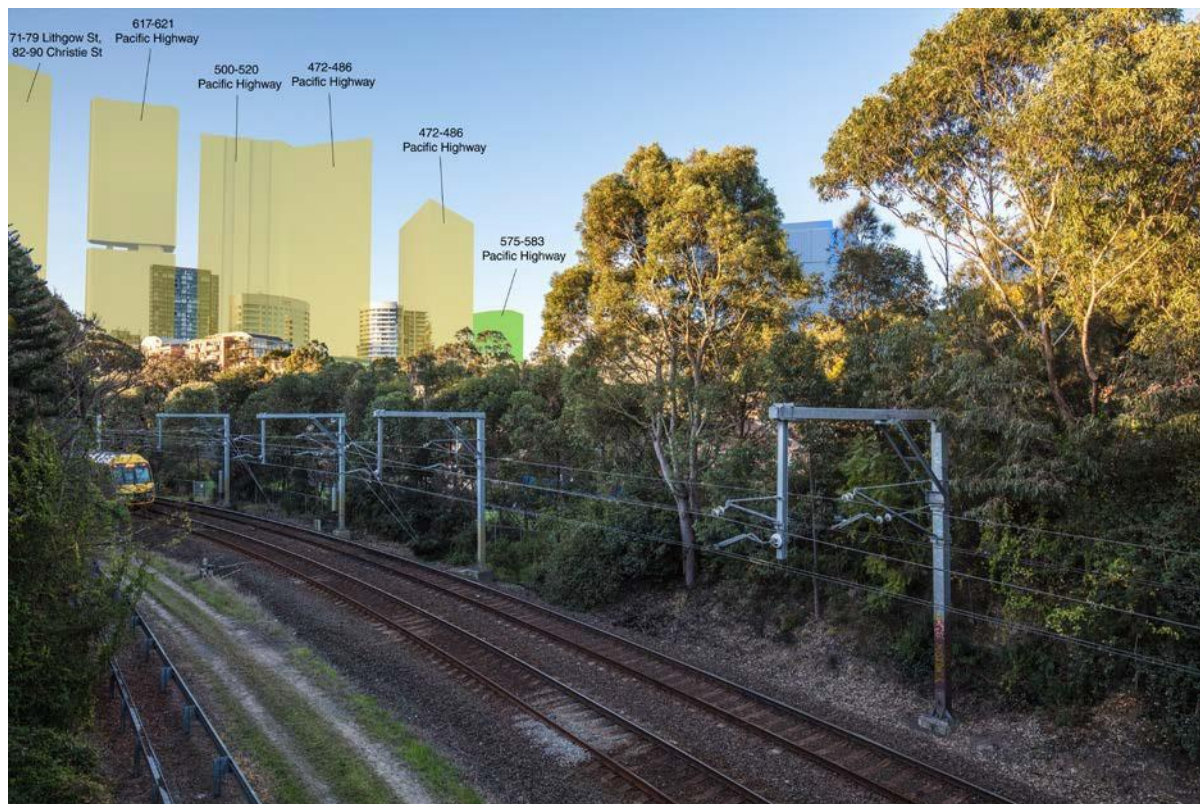
 Alignment points derived from CMS camera location survey

Photo Date - 17th August 2017

Photo Lens - 23mm

Camera Position 7

Photomontage of proposed envelope








-  Crows Nest OSD building envelope
-  Crows Nest Metro Station CCSI
-  Crows Nest OSD Indicative building design
-  Approved DA envelopes
-  Active Planning Proposal envelopes

Photo Date - 17th August 2017

Photo Lens - 23mm

3.1.8 Camera Position 8

Original photograph



Photo Date - 17th August 2017

Photo Lens - 27mm

Camera Position 8

Original photograph with surveyed alignment model



 Alignment points derived from CMS camera location survey

Photo Date - 17th August 2017

Photo Lens - 27mm

Camera Position 8

Photomontage of proposed envelope



- Crows Nest OSD building envelope
- Crows Nest Metro Station CCSI
- Crows Nest OSD Indicative building design
- Approved DA envelopes
- Active Planning Proposal envelopes

Photo Date - 17th August 2017

Photo Lens - 27mm

3.1.9 Camera Position 9

Original photograph



Photo Date - 17th August 2017

Photo Lens - 20mm

Camera Position 9

Original photograph with surveyed alignment model



 Alignment points derived from CMS camera location survey

Photo Date - 17th August 2017

Photo	Lens	-	20mm
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Camera Position 9

Photomontage of proposed envelope








-  Crows Nest OSD building envelope
-  Crows Nest Metro Station CCSI
-  Crows Nest OSD Indicative building design
-  Approved DA envelopes
-  Active Planning Proposal envelopes

Photo Date - 17th August 2017

Photo Lens - 20mm

3.1.10 Camera Position 10

Original photograph



Photo Date - 22nd September 2017

Photo Lens - 28mm

Camera Position 10

Original photograph with surveyed alignment points



 Alignment points derived from CMS camera location survey

Photo Date - 22nd September 2017

Photo Lens - 28mm

Camera Position 10

Photomontage of proposed envelope








-  Crows Nest OSD building envelope
-  Crows Nest Metro Station CCSI
-  Crows Nest OSD Indicative building design
-  Approved DA envelopes
-  Active Planning Proposal envelopes

Photo Date - 22nd September 2017

Photo Lens - 28mm

4.0 Conclusion

This report presents the results of a visual impact assessment of the OSD above Crows Nest Station.

This report has been prepared to outline the visual impacts of the OSD and to specifically respond to the SEARs issued for the concept SSD Application.

This report should be read in conjunction with the Visual Impact Assessment Report submitted with the RtS.

Appendix A - Camera Position Survey - 25/08/2017

CMS Surveyors Pty Limited

A.B.N. 79 096 240 201
LAND SURVEYING, PLANNING & DEVELOPMENT CONSULTANTS



Date: 23rd August 2018
Our Ref: 17210photo locations

Page 1 of 2

Studio 71/161 Marlborough Street
Surry Hills
NSW 2010

Dear Mr Rick Mansfield.

As requested we have attended site and measured the Co-ordinates and Elevation of the ground level at the below sites. Co-ordinate's are MGA 56 and elevation to Australian Height datum (AHD).
Measurements were taken by GNSS observations Smartnet.
DWG of locations has also been supplied.

RE: SYDNEY PHOTO LOCATIONS

Easting	Northing	Ground Elevation	Photo point
333152.691	6255925.541	89.8648	1A
333160.989	6255932.387	90.1341	1B
333491.7095	6255480.563	99.3354	2A
333488.2118	6255483.498	99.3554	2B
333504.421	6255481.469	99.536	2C
333409.0092	6255811.757	88.5578	3A
333403.2266	6255819.873	89.3049	3B
333416.4274	6255775.366	89.3987	3C
333696.7132	6255175.974	97.4035	4A
333683.5167	6255210.647	97.54	4B
333525.715	6255718.627	95.216	5A
333549.511	6255715.068	95.464	5B
333550.869	6255720.124	95.563	5C
333336.8641	6256026.251	83.1031	6A
333334.7356	6256032.298	83.4803	6B
333335.6988	6256007.381	82.9271	6C
333021.299	6255471.472	70.513	7A
333062.913	6255453.158	72.11	7B
333063.985	6255445.237	72.142	7C
333060.239	6255496.347	66.296	7D
328645.002	6253811.051	45.144	8
333535.2072	6252357.413	3.8274	9A
333533.865	6252346.776	3.7208	9B
333530.8715	6252364.786	3.3429	9C
335019.433	6255486.193	88.209	10A
335000.086	6255483.689	87.4	10B
335019.836	6255491.452	88.097	10C

Yours faithfully,
CMS Surveyors Pty Limited

Damon Roach



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