

VIEW IMPACT STUDY - SURROUNDING RESIDENTIAL BUILDINGS

APPENDIX Q



Sydney Metro City & Southwest: Crows Nest Over Station Development

View Impact Study – Surrounding Residential Buildings

Applicable to:	Sydney Metro City & Southwest
Author:	Virtual Ideas
Owner	Sydney Metro Authority
Status:	Final
Version:	1
Date of issue:	August 2020
© Sydney Metro 2019	

Table of Contents

1.0	Introduction	3
1.1	Purpose of this report.....	3
1.2	Changes between the Exhibited Scheme and Amended Scheme.....	3
2.0	Scope of assessment	7
2.1	Background	7
2.2	Overview	7
2.3	Description of collected data	7
2.4	Methodology.....	9
2.5	CV of Grant Kolln, Director of Virtual Ideas.....	10
2.6	Key map indicating location of photography positions	11
3.0	Photomontages from surrounding residential buildings.....	12
3.1.1	Photo 01 – 420 Pacific Highway	12
3.1.2	Photo 03 – 420 Pacific Highway	15
3.1.3	Photo 05 – 420 Pacific Highway	18
3.1.4	Photo 06 – 400 Pacific Highway	21
3.1.5	Photo 07 – 400 Pacific Highway	24
3.1.6	Photo 08 – 545 Pacific Highway	27
3.1.7	Photo 09A – 26 Clarke Street	30
3.1.8	Photo 09B – 26 Clarke Street	33
3.1.9	Photo 10A – 545 Pacific Highway	36
3.1.10	Photo 10B – 545 Pacific Highway	39
4.0	Conclusion.....	42
	Appendix A - Camera Position Survey – 04-10-2018	43

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 – Surrounding Residential Buildings Report (2018) was prepared as Appendix Q 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 Surrounding Residential Buildings.

1.2 Changes between the Exhibited Scheme and Amended Scheme

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.

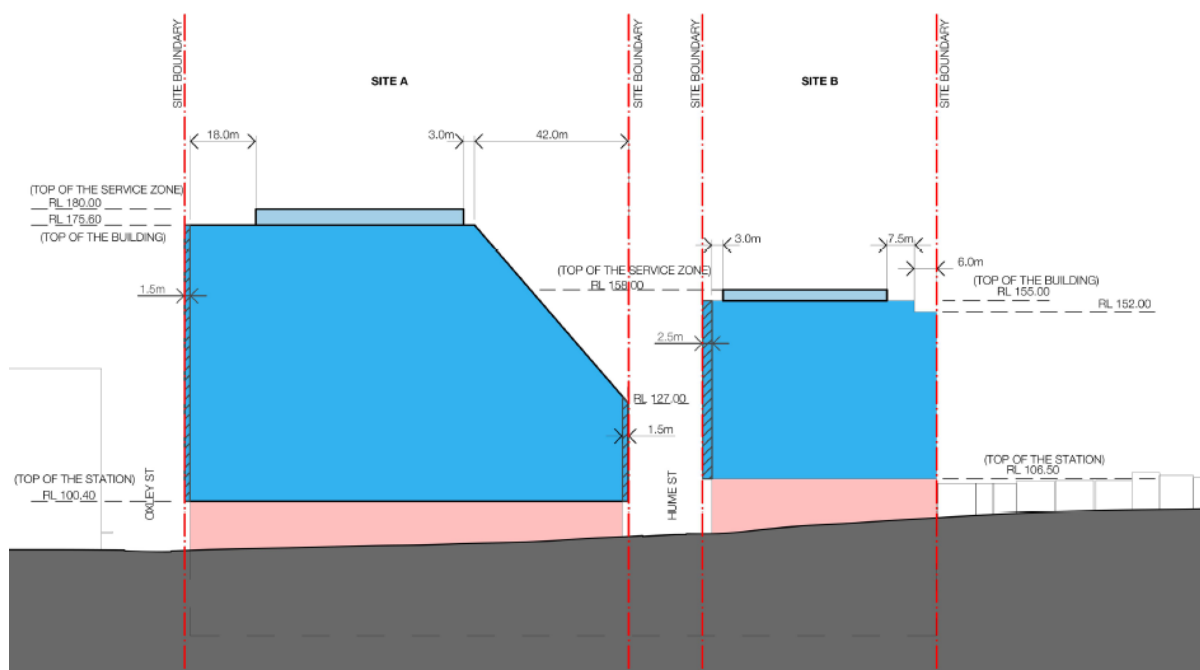


Figure 1 – West elevation of the building envelope under the Amended Scheme, showing CSSI Approval (pink) and OSD components (blue)

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

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
Max height – top of services zone (RL)	158	158
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 were taken from the following surrounding residential buildings:

- 400 Pacific Highway
- 420 Pacific Highway
- 545 Pacific Highway
- 26 Clarke Street

2.4 Methodology

Site Photography

Site photography was taken from positions within surrounding residential buildings from which Sydney Metro was given access for the purposes of conducting the view impact study.

These photos were taken on two separate cameras:

- Canon EOS 5DS R with a camera lens EF16-35mm f/4L IS USM
- NIKON D800 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.

A surveyed context 3d model was also licensed for use in this project and referenced with regards to aligning each camera position.

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 Photomontages from surrounding residential buildings

3.1.1 Photo 01 – 420 Pacific Highway

Original photograph



Photo Date - 31st August 2018

Photo Lens - 14mm

Photo 01 – 420 Pacific Highway

Original photograph with surveyed alignment points



 Alignment points derived from CMS camera location survey

Photo Date - 31st August 2018

Photo Lens - 14mm

Photo 01 – 420 Pacific Highway

Photomontage of proposed envelope






-  Crows Nest OSD building envelope
-  Crows Nest Metro Station CCSI
-  Crows Nest OSD Indicative building design

Photo Date - 31st August 2018

Photo Lens - 14mm

3.1.2 Photo 03 – 420 Pacific Highway

Original photograph



Photo Date - 31st August 2018

Photo Lens - 14mm

Photo 03 – 420 Pacific Highway

Original photograph with surveyed alignment points



 Alignment points derived from CMS camera location survey

Photo Date - 31st August 2018

Photo Lens - 14mm

Photo 03 – 420 Pacific Highway

Photomontage of proposed envelope






-  Crows Nest OSD building envelope
-  Crows Nest Metro Station CCSI
-  Crows Nest OSD Indicative building design

Photo Date - 31st August 2018

Photo Lens - 14mm

3.1.3 Photo 05 – 420 Pacific Highway

Original photograph



Photo Date - 31st August 2018

Photo Lens - 24mm

Photo 05 – 420 Pacific Highway

Original photograph with surveyed alignment points



 Alignment points derived from CMS camera location survey

Photo Date - 31st August 2018

Photo Lens - 24mm

Photo 05 – 420 Pacific Highway

Photomontage of proposed envelope






-  Crows Nest OSD building envelope
-  Crows Nest Metro Station CCSI
-  Crows Nest OSD Indicative building design

Photo Date - 31st August 2018

Photo Lens - 24mm

3.1.4 Photo 06 – 400 Pacific Highway

Original photograph



Photo Date - 31st August 2018

Photo Lens - 14mm

Photo 06 – 400 Pacific Highway

Original photograph with surveyed alignment points



 Alignment points derived from CMS camera location survey

Photo Date - 31st August 2018

Photo Lens - 14mm

Photo 06 – 400 Pacific Highway

Photomontage of proposed envelope






-  Crows Nest OSD building envelope
-  Crows Nest Metro Station CCSI
-  Crows Nest OSD Indicative building design

Photo Date - 31st August 2018

Photo Lens - 14mm

3.1.5 Photo 07 – 400 Pacific Highway

Original photograph



Photo Date - 31st August 2018

Photo Lens - 14mm

Photo 07 – 400 Pacific Highway

Original photograph with surveyed alignment points




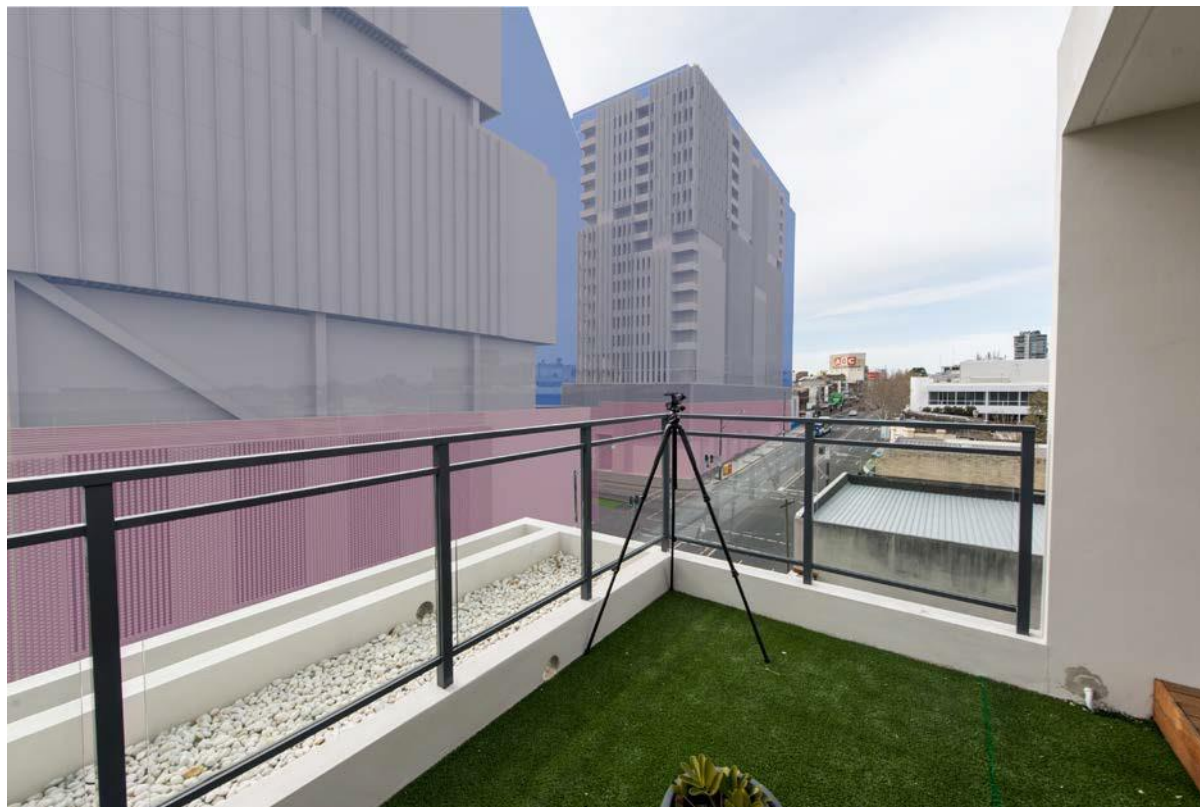
 Alignment points derived from CMS camera location survey

Photo Date - 31st August 2018

Photo Lens - 14mm

Photo 07 – 400 Pacific Highway

Photomontage of proposed envelope






-  Crows Nest OSD building envelope
-  Crows Nest Metro Station CCSI
-  Crows Nest OSD Indicative building design

Photo Date - 31st August 2018

Photo Lens - 14mm

3.1.6 Photo 08 – 545 Pacific Highway

Original photograph



Photo Date - 31st August 2018

Photo Lens - 24mm

Photo 08 – 545 Pacific Highway

Original photograph with surveyed alignment points



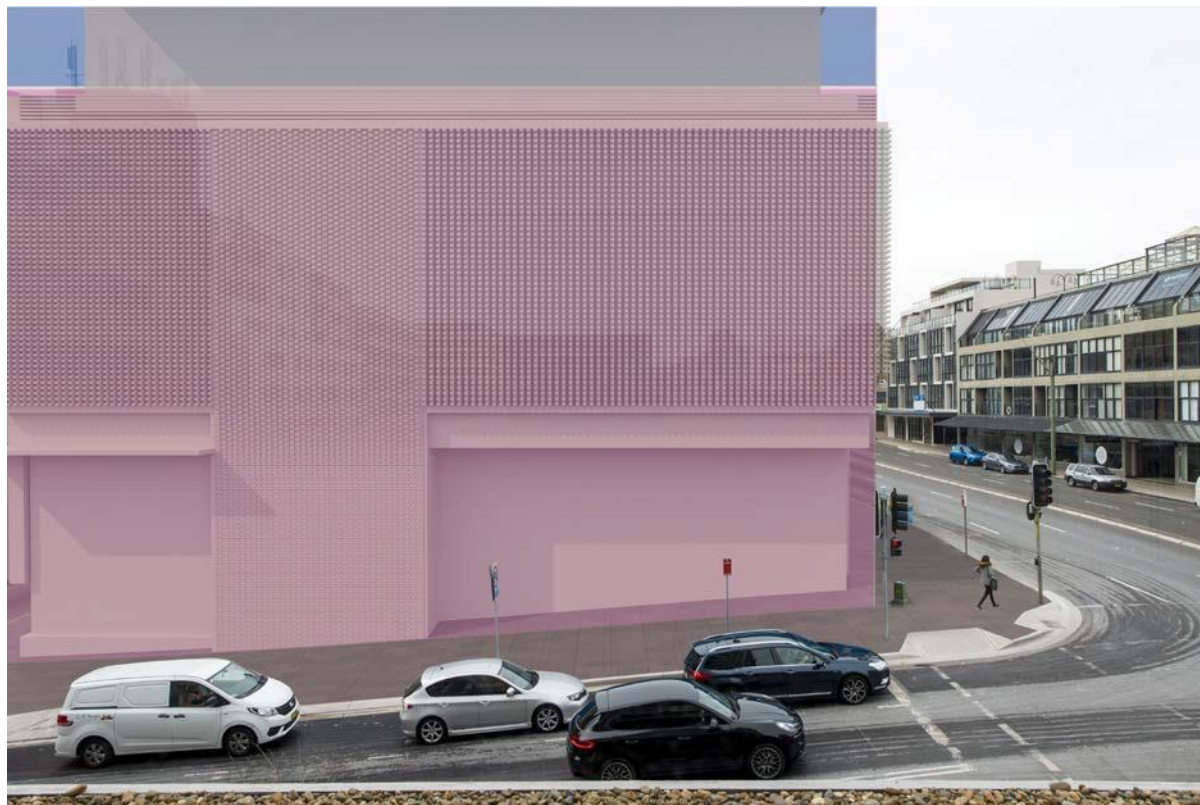
■ Alignment points derived from CMS camera location survey

Photo Date - 31st August 2018

Photo Lens - 24mm

Photo 08 – 545 Pacific Highway

Photomontage of proposed envelope






-  Crows Nest OSD building envelope
-  Crows Nest Metro Station CCSI
-  Crows Nest OSD Indicative building design

Photo Date - 31st August 2018

Photo Lens - 24mm

3.1.7 Photo 09A – 26 Clarke Street

Original photograph



Photo Date - 31st August 2018

Photo Lens - 24mm

Photo 09A – 26 Clarke Street

Original photograph with surveyed alignment points



 Alignment points derived from CMS camera location survey

Photo Date - 31st August 2018

Photo Lens - 24mm

Photo 09A – 26 Clarke Street

Photomontage of proposed envelope






-  Crows Nest OSD building envelope
-  Crows Nest Metro Station CCSI
-  Crows Nest OSD Indicative building design

Photo Date - 31st August 2018

Photo Lens - 24mm

3.1.8 Photo 09B – 26 Clarke Street

Original photograph



Photo Date - 31st August 2018

Photo Lens - 14mm

Photo 09B – 26 Clarke Street

Original photograph with surveyed alignment points



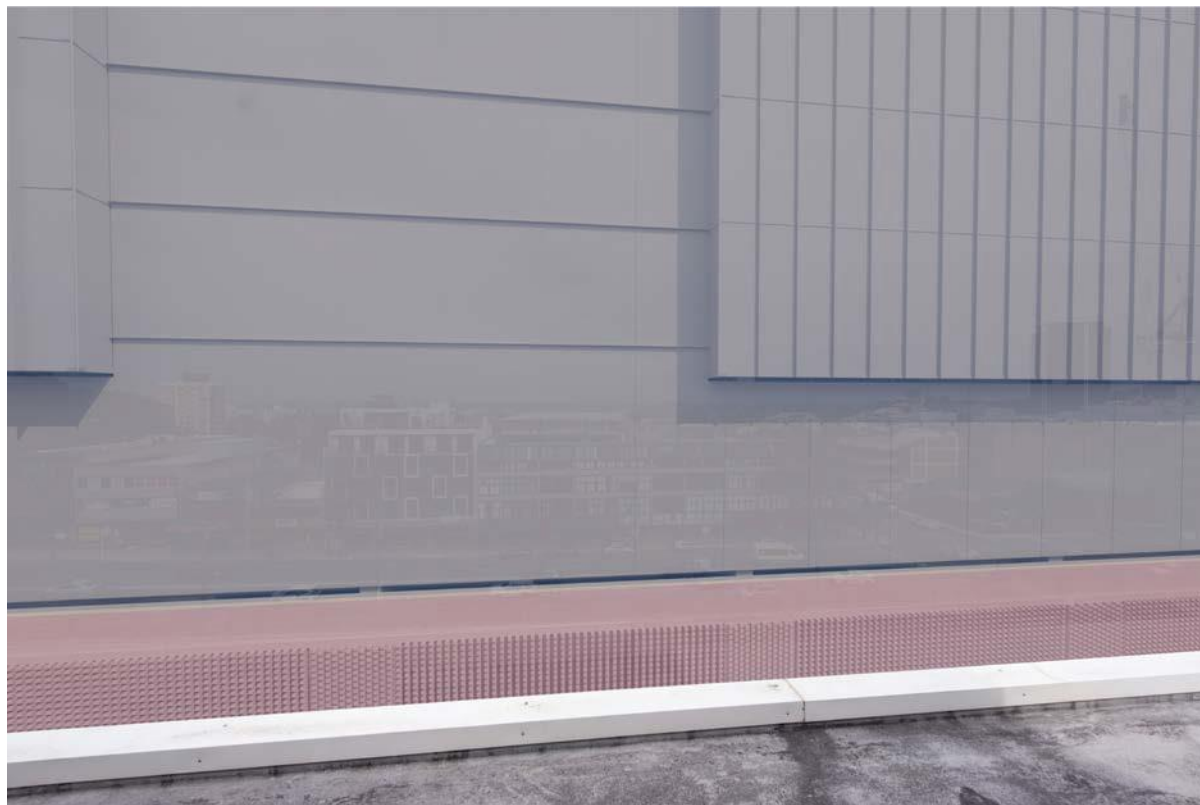
 Alignment points derived from CMS camera location survey

Photo Date - 31st August 2018

Photo Lens - 14mm

Photo 09B – 26 Clarke Street

Photomontage of proposed envelope






-  Crows Nest OSD building envelope
-  Crows Nest Metro Station CCSI
-  Crows Nest OSD Indicative building design

Photo Date - 31st August 2018

Photo Lens - 14mm

3.1.9 Photo 10A – 545 Pacific Highway

Original photograph



Photo Date - 3rd October 2018

Photo Lens - 16mm

Photo 10A – 545 Pacific Highway

Original photograph with surveyed alignment points



 Alignment points derived from CMS camera location survey

Photo Date - 3rd October 2018

Photo Lens - 16mm

Photo 10A – 545 Pacific Highway

Photomontage of proposed envelope






-  Crows Nest OSD building envelope
-  Crows Nest Metro Station CCSI
-  Crows Nest OSD Indicative building design

Photo Date - 3rd October 2018

Photo Lens - 16mm

3.1.10 Photo 10B – 545 Pacific Highway

Original photograph



Photo Date - 3rd October 2018

Photo Lens - 16mm

Photo 10B – 545 Pacific Highway

Original photograph with surveyed alignment points



 Alignment points derived from CMS camera location survey

Photo Date - 3rd October 2018

Photo Lens - 16mm

Photo 10B – 545 Pacific Highway

Photomontage of proposed envelope



- Crows Nest OSD building envelope
- Crows Nest Metro Station CCSI
- Crows Nest OSD Indicative building design

Photo Date - 3rd October 2018

Photo Lens - 16mm

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 – 04-10-2018

CMS Surveyors Pty Limited
A.B.N. 79 096 240 201
LAND SURVEYING, PLANNING & DEVELOPMENT CONSULTANTS



Date: 04-10- 2018
Our Ref: 18028 Photo Locations

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 photo locations for 420, 400 & 545 Pacific Highway and 22-26 Clarke Street, Crows Nest.

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.

Point Number	Easting	Northing	Reduced Level (RL)	Photo Point
110	333291.778	6255716.265	102.067	PHOTO 1
111	333279.388	6255731.388	101.980	PHOTO 2
112	333263.699	6255750.455	102.014	PHOTO 3
113	333279.095	6255723.693	103.835	PHOTO 4
114	333293.733	6255712.752	104.830	PHOTO 5
115	333299.952	6255705.194	104.840	PHOTO 6
116	333305.938	6255697.633	104.836	PHOTO 7
117	333272.901	6255803.366	92.307	PHOTO 8
118	333344.347	6255767.245	107.672	PHOTO 9
100	333288.046	6255813.513	115.571	PHOTO 10
200	333304.896	6255696.098	108.074	TOP BUILDING
201	333299.109	6255703.452	108.046	TOP BUILDING
202	333304.758	6255704.842	103.901	TOP OF WALL
203	333294.999	6255714.316	105.092	TOP BUILDING
204	333307.876	6255698.522	105.089	TOP BUILDING
205	333294.236	6255714.024	102.830	TOP BUILDING
206	333263.649	6255751.581	102.818	TOP BUILDING
207	333279.526	6255723.740	106.025	TOP OF GUTTER
208	333276.032	6255728.054	106.042	TOP OF GUTTER
209	333296.127	6255715.643	99.056	BALCONY
210	333269.228	6255748.665	99.051	BALCONY
211	333268.709	6255798.998	136.336	TOP BUILDING



HEAD OFFICE
2/99A South Creek Rd, DEE WHY NSW 2099
PO Box 463, DEE WHY NSW 2099
Ph: 02 9971 4802 Fax: 02 9971 4822
Email: info@cmsurveyors.com.au
Web: www.cmsurveyors.com.au

INCORPORATING
A.C. GILBERT & Co.
(Roseville)
MBS GREEN & ASSOCIATES
(Mona Vale)

COOTAMUNDRA
Incorporating PENGELLY & GRAY
90 Wallendoon St, COOTAMUNDRA NSW 2590
Ph: 02 6942 3395 Fax: 02 6942 4046
Email: coota@cmsurveyors.com.au



212	333288.868	6255814.626	134.016	TOP BUILDING
213	333312.378	6255801.761	106.795	TOP BUILDING
214	333324.137	6255786.760	106.796	TOP BUILDING
215	333337.506	6255778.167	112.373	TOP BUILDING
216	333338.084	6255770.040	107.688	TOP BUILDING
217	333355.893	6255748.430	107.891	TOP BUILDING
219	333355.677	6255748.172	105.886	TOP BUILDING
220	333354.501	6255747.249	104.883	TOP BUILDING
222	333372.468	6255724.225	104.887	TOP BUILDING
223	333353.788	6255689.958	105.575	TOP BUILDING
224	333374.562	6255706.440	105.499	TOP BUILDING

The height of camera is 1.6m.

Note: This should be added to the supplied RL of each corresponding location.

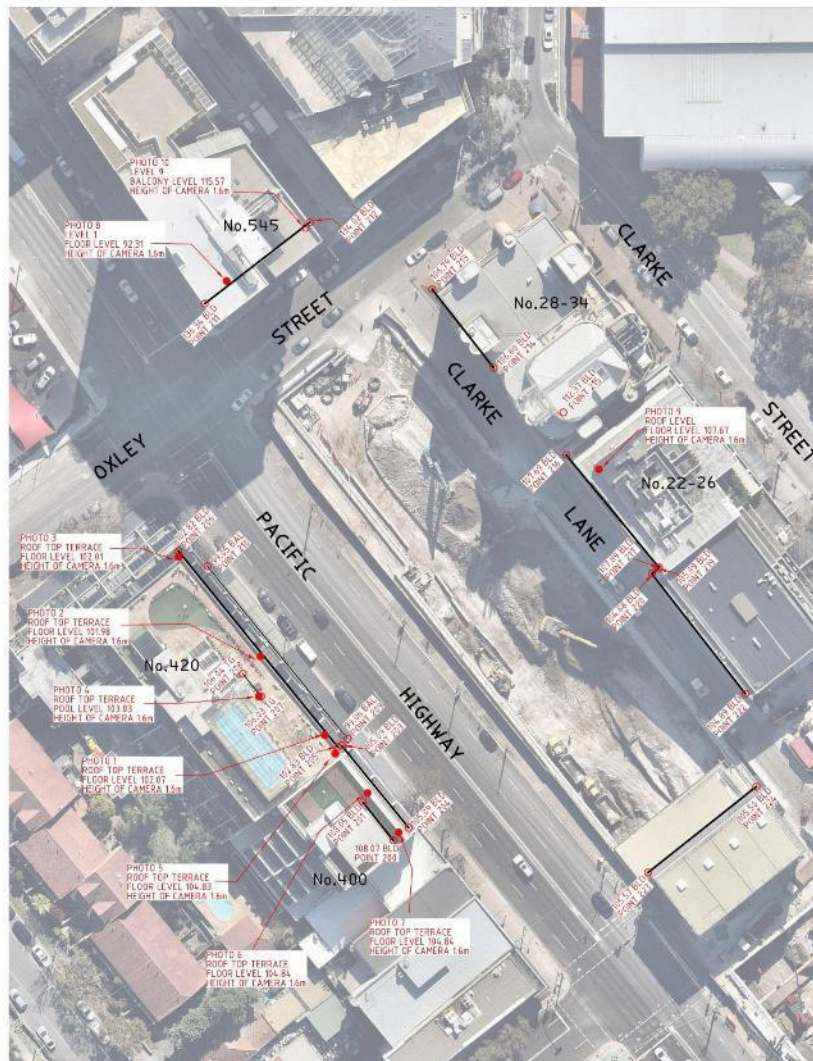


HEAD OFFICE
2/99A South Creek Rd, DEE WHY NSW 2099
PO Box 463, DEE WHY NSW 2099
Ph: 02 9971 4802 Fax: 02 9971 4822
Email: info@cmssurveyors.com.au
Web: www.cmssurveyors.com.au

INCORPORATING
A.C. GILBERT & Co.
(Roseville)
MBS GREEN & ASSOCIATES
(Mona Vale)

COOTAMUNDRA
Incorporating PENGELLY & GRAY
90 Wallendoon St, COOTAMUNDRA NSW 2590
Ph: 02 6942 3395 Fax: 02 6942 4046
Email: coota@cmssurveyors.com.au





Yours faithfully,
CMS Surveyors Pty Limited

Damon Roach



HEAD OFFICE
2/99A South Creek Rd, DEE WHY NSW 2099
PO Box 463, DEE WHY NSW 2099
Ph: 02 9971 4802 Fax: 02 9971 4822
Email: info@cmsurveyors.com.au
Web: www.cmsurveyors.com.au

INCORPORATING
A.C. GILBERT & Co.
(Roseville)
MBS GREEN & ASSOCIATES
(Mona Vale)

COOTAMUNDRA
Incorporating PENGELLY & GRAY
90 Wallendoon St, COOTAMUNDRA NSW 2590
Ph: 02 6942 3395 Fax: 02 6942 4046
Email: coota@cmsurveyors.com.au

