VISUAL IMPACT ANALYSIS

APPENDIX V

Sydney Metro City & Southwest

Pitt Street North Over Station Development

Visual Impact Analysis	
Applicable to:	Sydney Metro City & Southwest
	Grant Kolln
	Sydney Metro
	Draft
	1
	August 2018

Table of Contents

1. Visual Impact Analysis

1.1. 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 a highly experienced 3D visualisation company which commonly prepares material for court use, and is familiar with the court requirements to provide 3D visualisation media that will communicate the design and visual impact. Our 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.

1.2. Overview

The general process in creating accurate photomontage renderings involves the creation of an accurate, real world scale digital 3D model. We then take site photographs and place cameras in the 3D model that match the real world position that the photographs were taken on site.

The camera positions are then surveyed to identify the MGA coordinates at each position.

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 on 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. 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:

1) Architectural design of proposed building envelope
   - Created by: Architectus
   - Format: Revit model

2) Surveyed data
   - Created by: CMS Surveyors
   - Format: DWG file

3) Site photography
   - Created by: Virtual Ideas (VI Photos)
   - Format: JPEG file

4) Surveyed 3D city model
   - Created by: AAM
   - Format: 3DS Studio Max file

5) Approved DA building envelopes
   - Supplied by: Architectus
   - Format: Revit model

Notes on images

The photomontages are also showing the indicative building massing at the following addresses for the purpose of visual assessment of the future surrounding city scape:

- Greenland Centre, 115 Bathurst Street
- 116 Bathurst Street

1.3. Methodology

Site Photography

Site photography was taken from predetermined positions as instructed by Sydney Metro and GHD Woodhead.
Photographs were taken using a Canon EOS 5DS R digital camera, using a Canon EF16-35mm f/4L IS USM and Canon EF 24-105 f/4L USM lenses. The positions of the photographs were surveyed and then plotted onto survey drawing in DWG format.

3D Model

Using the imported surveyed data into our 3D software (3DS Max), we then imported the supplied 3D model of the proposed building envelope and relevant DA approved building massings.

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 from. They were then aligned in rotation so that the points of the 3D model aligned with their corresponding objects that are visible in the photograph.

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

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

1.4. 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

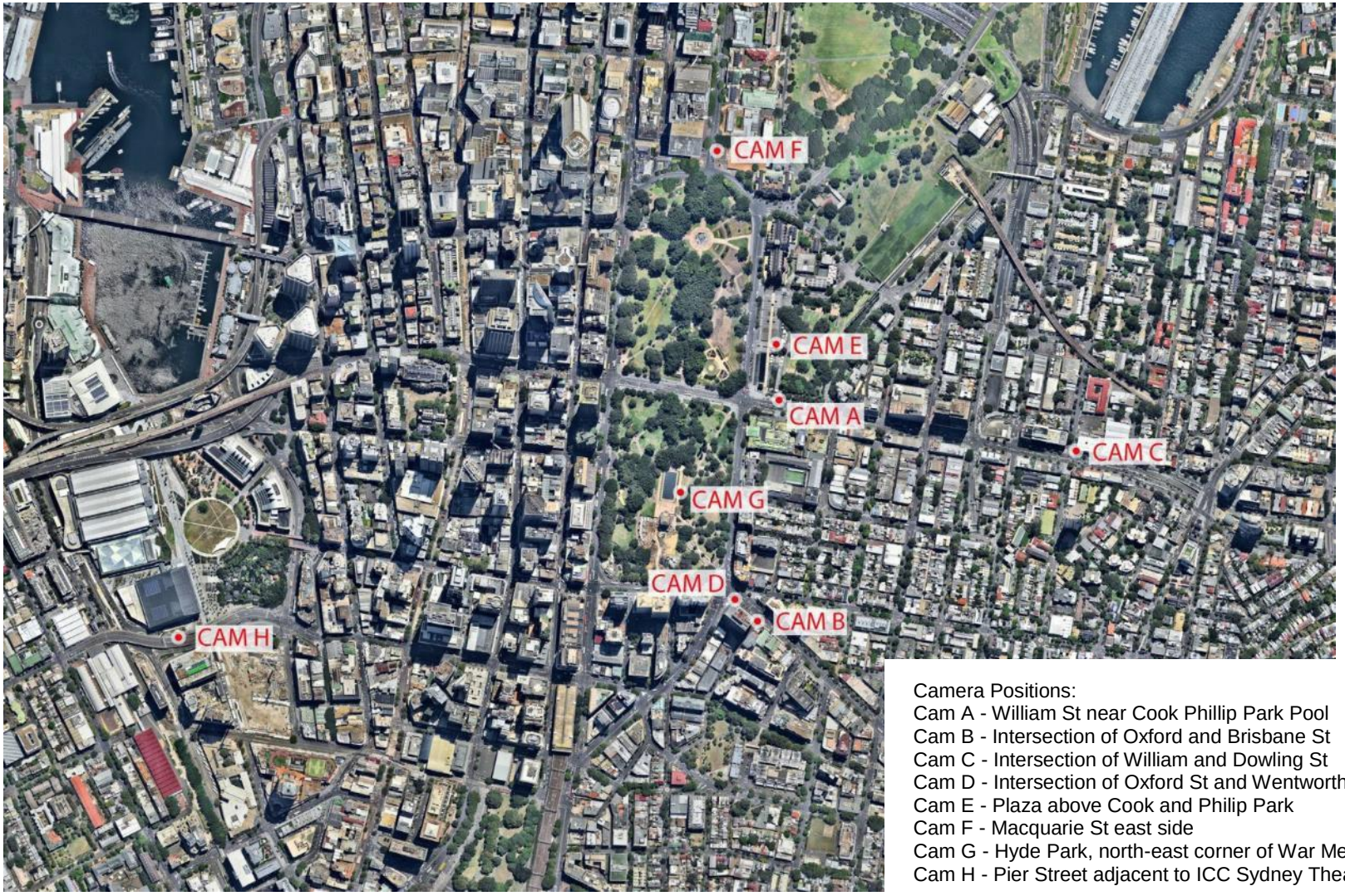
Relevant Experience

2003 - Present	Director of 3D visualisation studio Virtual Ideas. During this time I have worked on many visual impact studies for legal proceedings in various different types of industries including architectural, industrial, mining, landscaping, and several large public works projects. This experience has enables us to create highly accurate methodologies for the creation of our 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

1.5. Key map indicating location of photography positions



Camera Positions:
Cam A - William St near Cook Phillip Park Pool
Cam B - Intersection of Oxford and Brisbane St
Cam C - Intersection of William and Dowling St
Cam D - Intersection of Oxford St and Wentworth Ave
Cam E - Plaza above Cook and Philip Park
Cam F - Macquarie St east side
Cam G - Hyde Park, north-east corner of War Memorial pool
Cam H - Pier Street adjacent to ICC Sydney Theatre

1.6. Camera Position A - Overview

Original photograph

Original photograph with surveyed alignment points

Photo Date - 30th June 2016
Photo Lens - 20mm

Photomontage of proposed envelope

Camera Position A - Original photograph

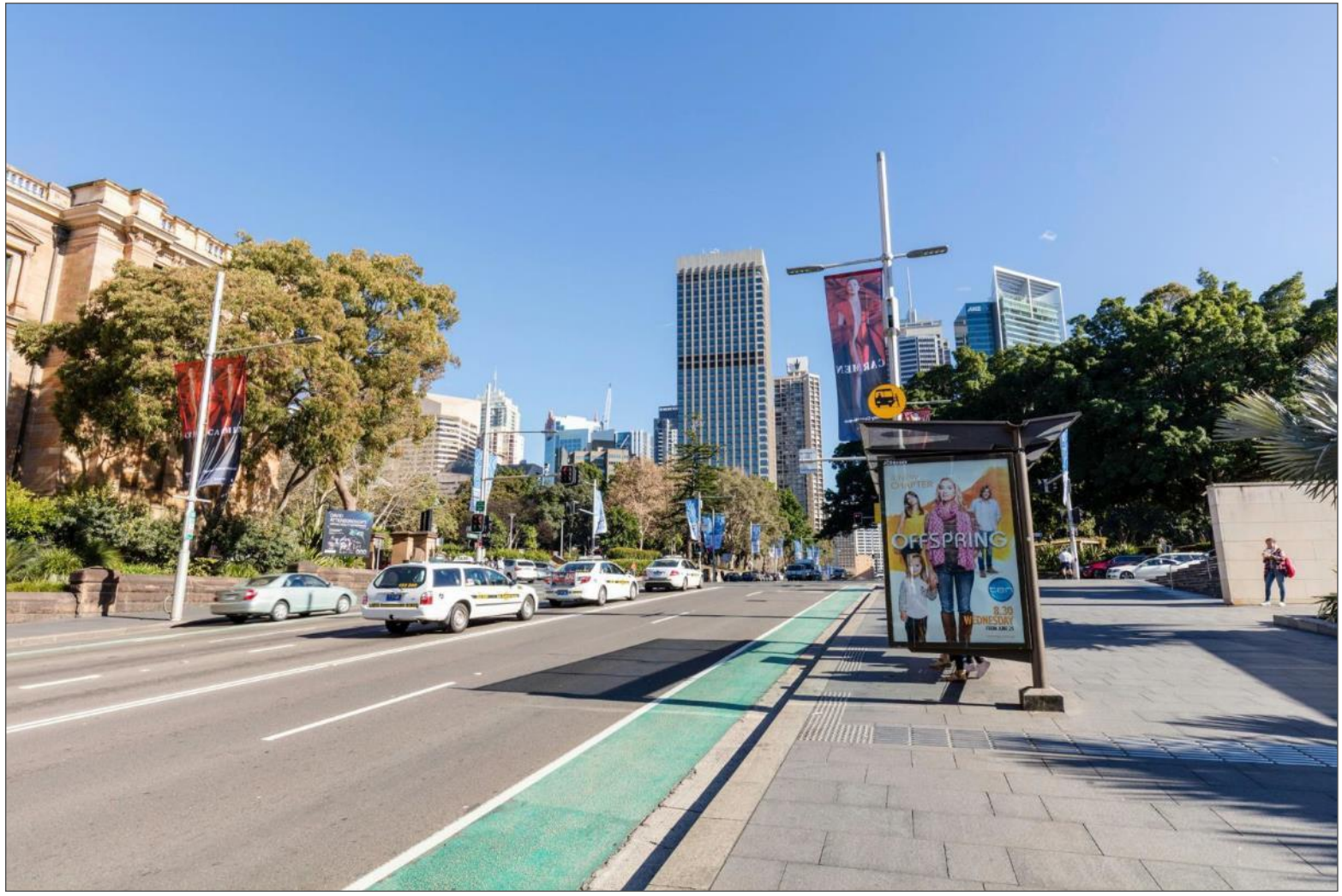


Photo Date - 30th June 2016
Photo Lens - 20mm

Camera Position A - Photomontage of proposed envelope

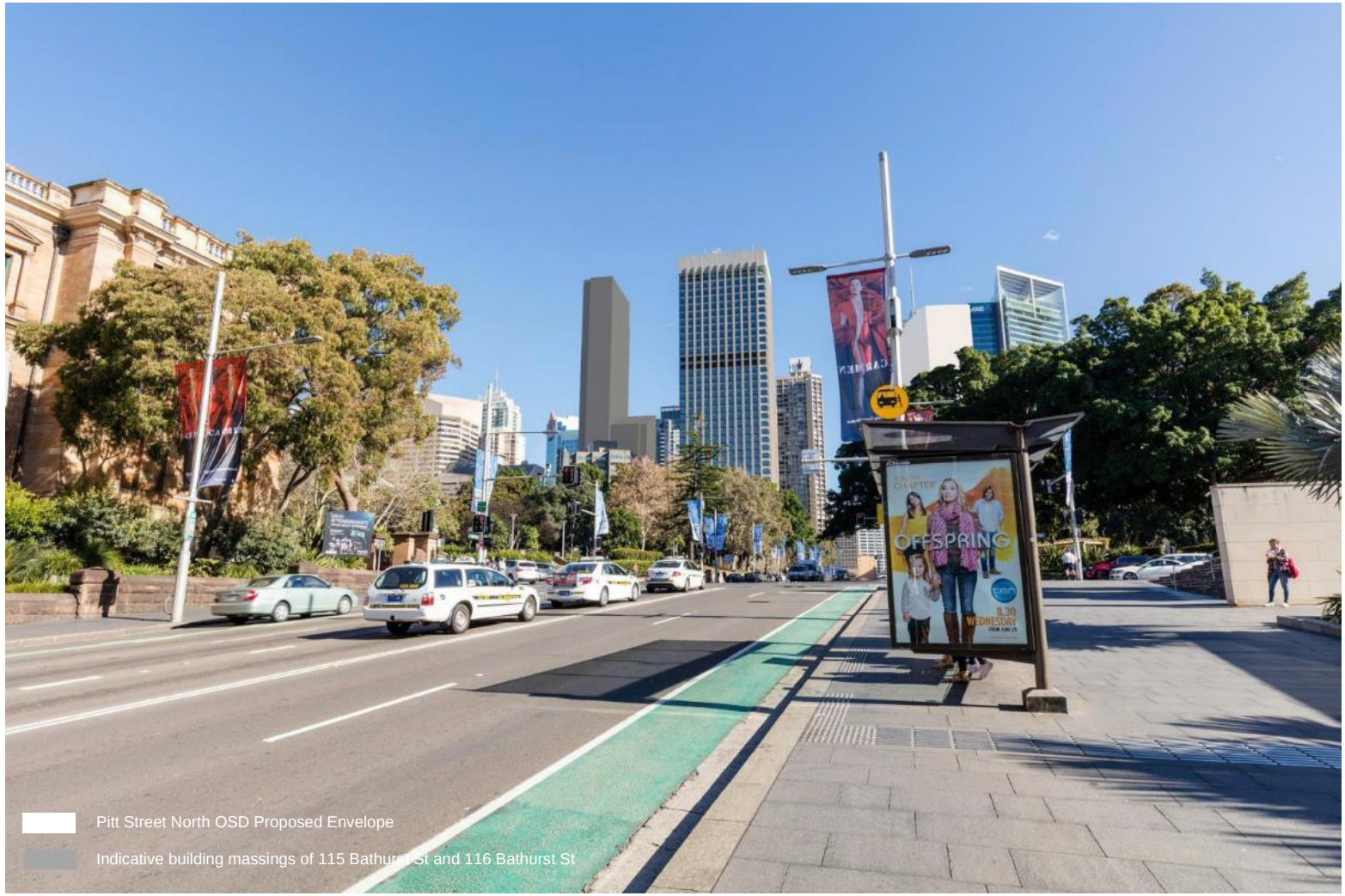


Photo Date - 30th June 2016
Photo Lens - 20mm

Camera Position A - Original photograph with surveyed alignment points

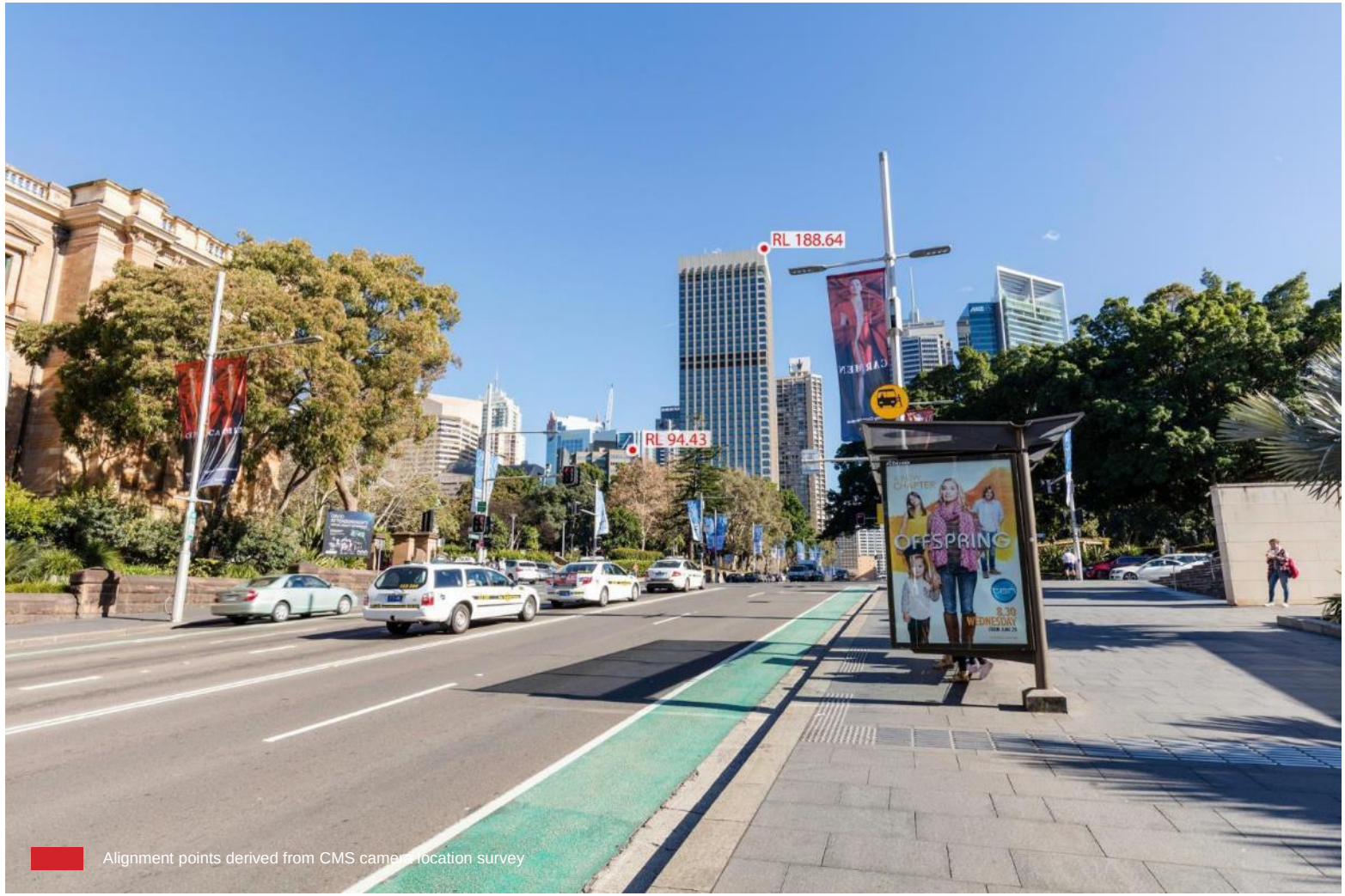


Photo Date - 30th June 2016
Photo Lens - 20mm

1.7. Camera Position B - Overview

Original photograph

Original photograph with surveyed alignment points

Photomontage of proposed envelope

Photo Date - 30th June 2017
Photo Lens - 36mm

Camera Position B - Original photograph

Photo Date - 30th June 2017
Photo Lens - 36mm

Camera Position B - Photomontage of proposed envelope

Photo Date - 30th June 2017
Photo Lens - 36mm

Camera Position B - Original photograph with surveyed alignment points

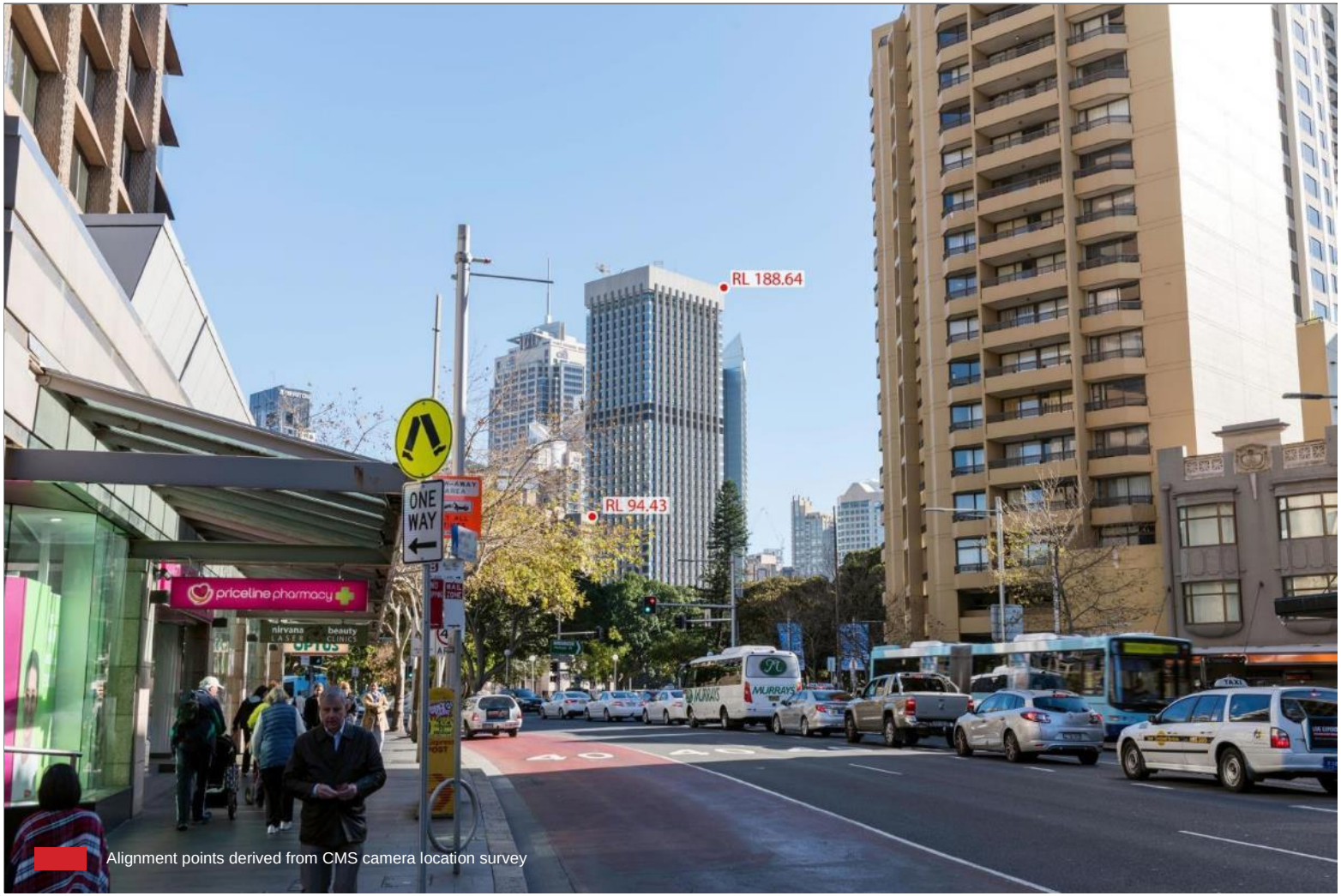


Photo Date - 30th June 2017
Photo Lens - 36mm

1.8. Camera Position C - Overview

Original photograph

Original photograph with surveyed alignment points

Photomontage of proposed envelope

Photo Date - 10th February 2017
Photo Lens - 31mm

Camera Position C - Original photograph

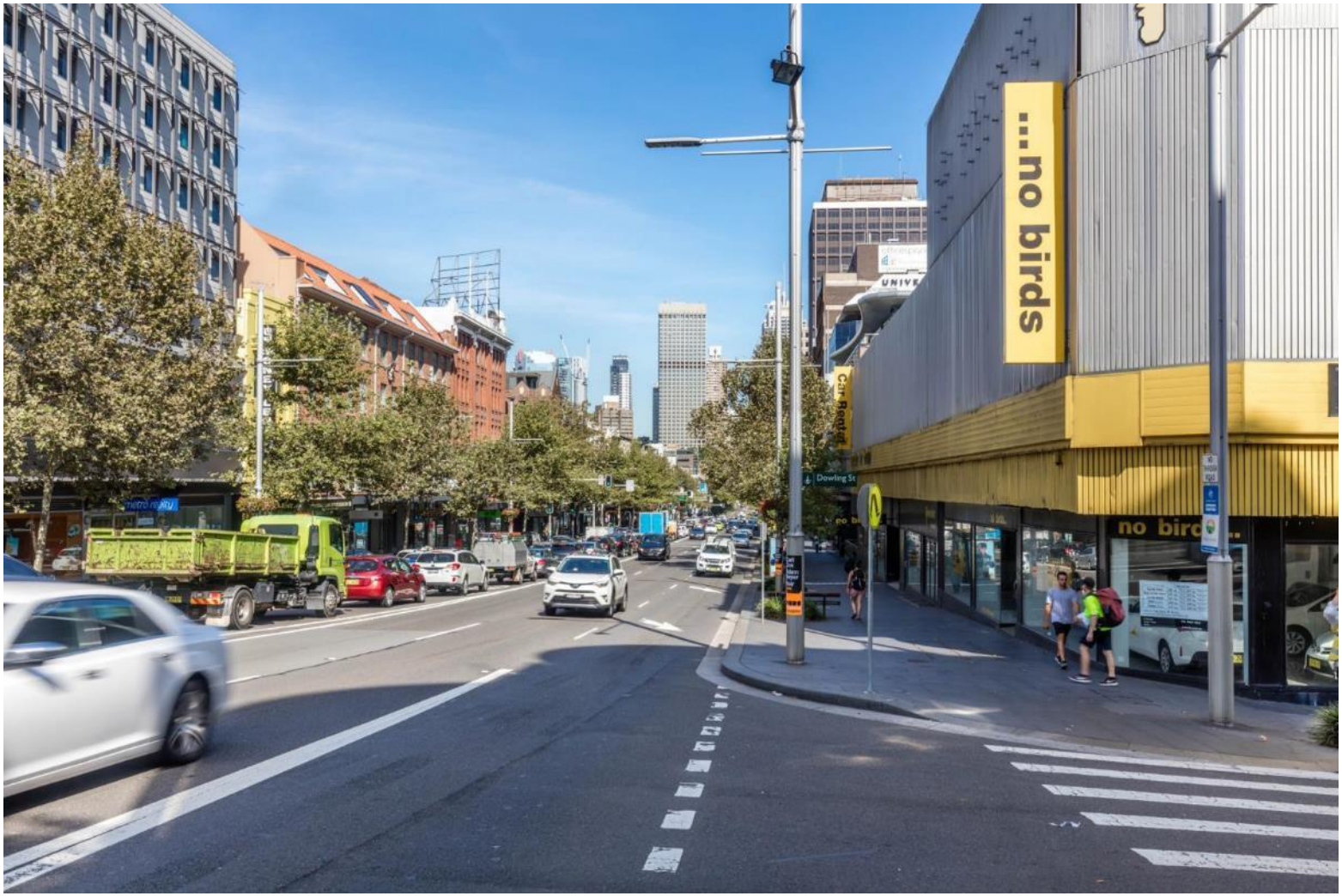


Photo Date - 10th February 2017
Photo Lens - 31mm

Camera Position C - Photomontage of proposed envelope

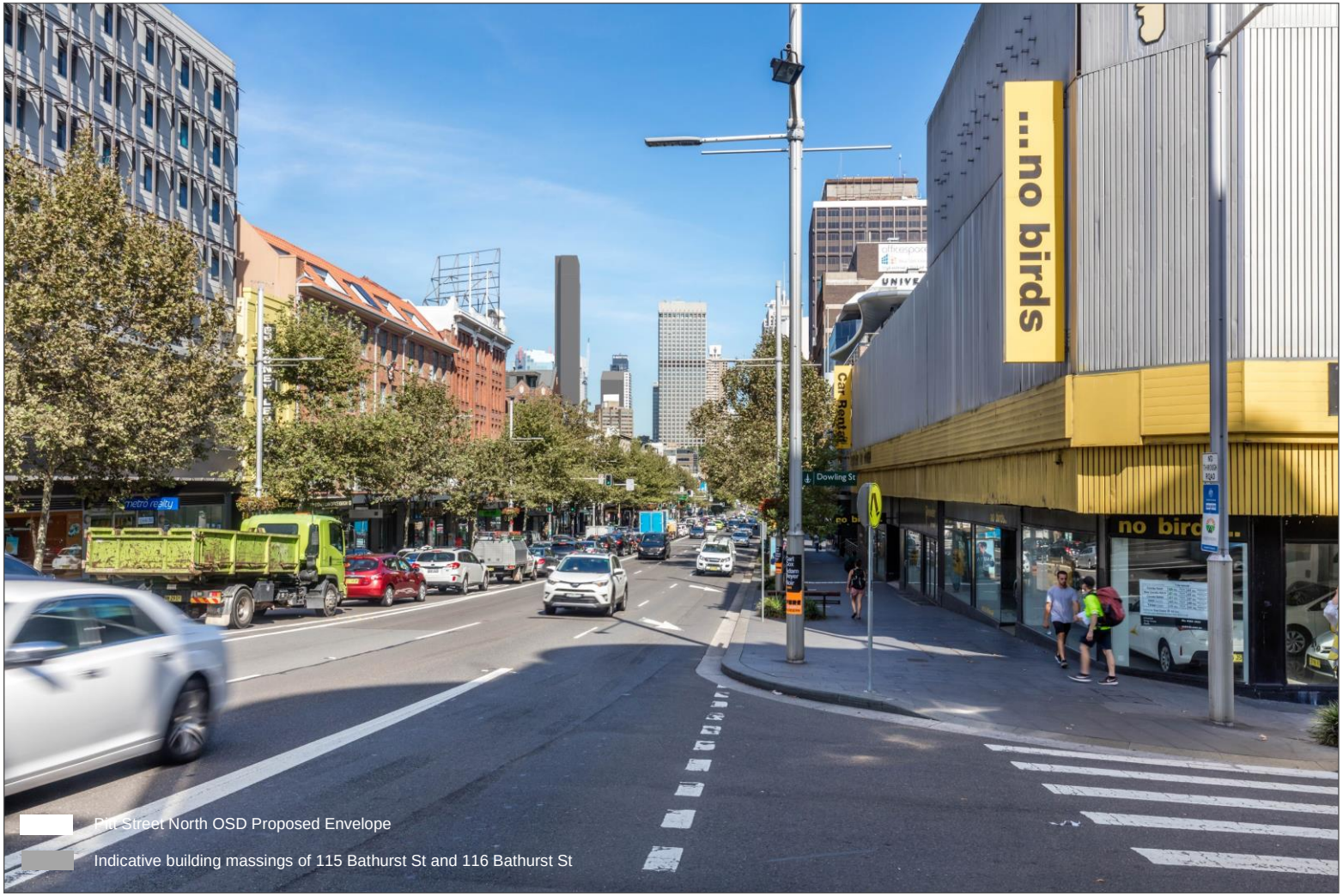


Photo Date - 10th February 2017
Photo Lens - 31mm

Camera Position C - Original photograph with surveyed alignment points

Photo Date - 10th February 2017
Photo Lens - 31mm

1.9. Camera Position D - Overview

Original photograph

Original photograph with surveyed city model & alignment point

Photomontage of proposed envelope

Photo Date - 26th September 2017
Photo Lens - 16mm

Camera Position D - Original photograph

Photo Date - 26th September 2017
Photo Lens - 16mm

Camera Position D - Photomontage of proposed envelope

Photo Date - 26th September 2017
Photo Lens - 16mm

Camera Position D - Original photograph with surveyed alignment points

Photo Date - 26th September 2017
Photo Lens - 16mm

1.10. Camera Position E - Overview

Original photograph

Original photograph with surveyed alignment points

Photomontage of proposed envelope

Photo Date - 26th September 2017
Photo Lens - 16mm

Camera Position E - Original photograph

Photo Date - 26th September 2017
Photo Lens - 16mm

Camera Position E - Photomontage of proposed envelope

Photo Date - 26th September 2017
Photo Lens - 16mm

Camera Position E - Original photograph with surveyed alignment points

Photo Date - 26th September 2017
Photo Lens - 16mm

1.11. Camera Position F - Overview

Original photograph

Original photograph with surveyed alignment points

Photomontage of proposed envelope

Photo Date - 29th September 2017
Photo Lens - 20mm

Camera Position F - Original photograph

Photo Date - 29th September 2017
Photo Lens - 20mm

Camera Position F - Photomontage of proposed envelope

Photo Date - 29th September 2017
Photo Lens - 20mm

Camera Position F - Original photograph with surveyed alignment points

Photo Date - 29th September 2017
Photo Lens - 20mm

1.12. Camera Position G - Overview

Original photograph

Original photograph with surveyed alignment points

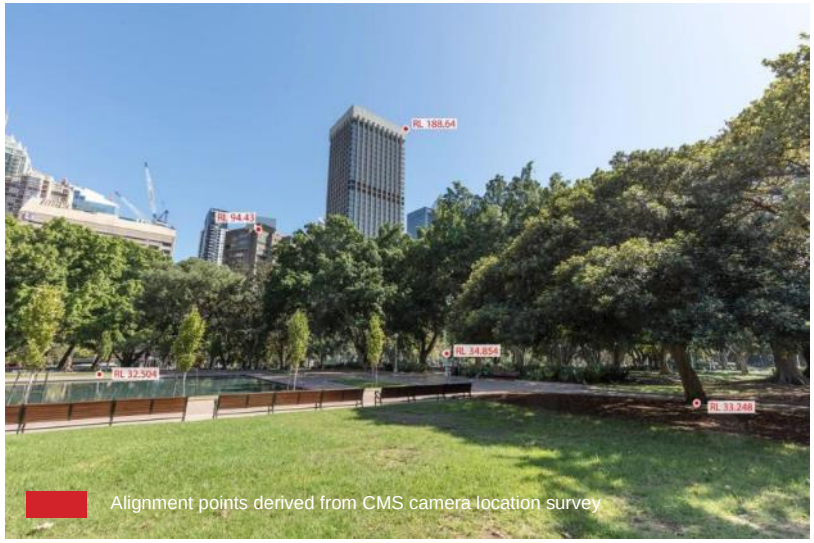


Photo Date - 11th April 2018
Photo Lens - 16mm

Photomontage of proposed envelope

Camera Position G - Original photograph

Photo Date - 11th April 2018
Photo Lens - 16mm

Camera Position G - Photomontage of proposed envelope

Photo Date - 11th April 2018
Photo Lens - 16mm

Camera Position G - Original photograph with surveyed alignment points

Photo Date - 11th April 2018
Photo Lens - 16mm

1.13. Camera Position H - Overview

Original photograph

Original photograph with surveyed alignment points

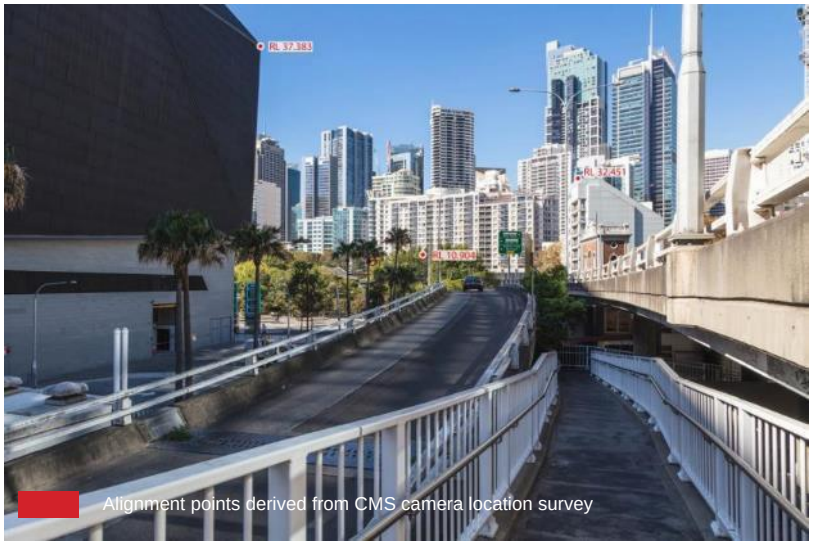
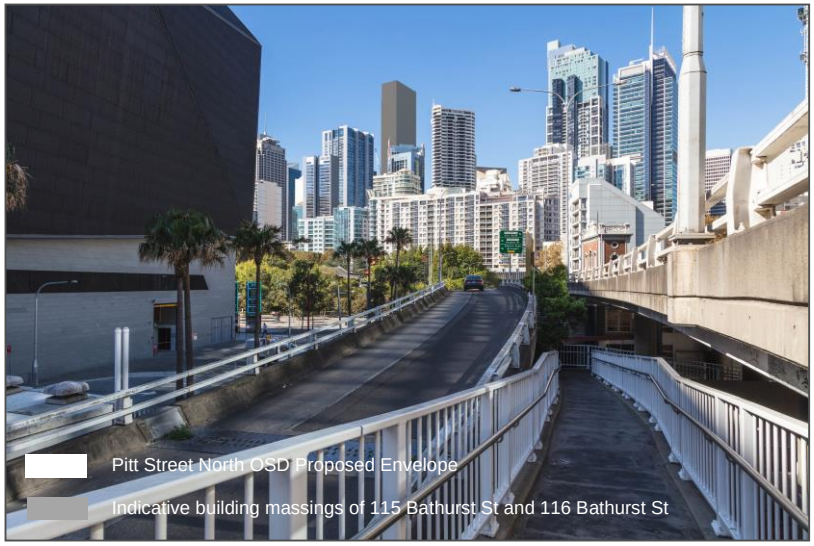


Photo Date - 12th April 2018
Photo Lens - 24mm

Photomontage of proposed envelope



Camera Position H - Original photograph

Photo Date - 12th April 2018
Photo Lens - 24mm

Camera Position H - Photomontage of proposed envelope

Photo Date - 12th April 2018
Photo Lens - 24mm

Camera Position H - Original photograph with surveyed alignment points

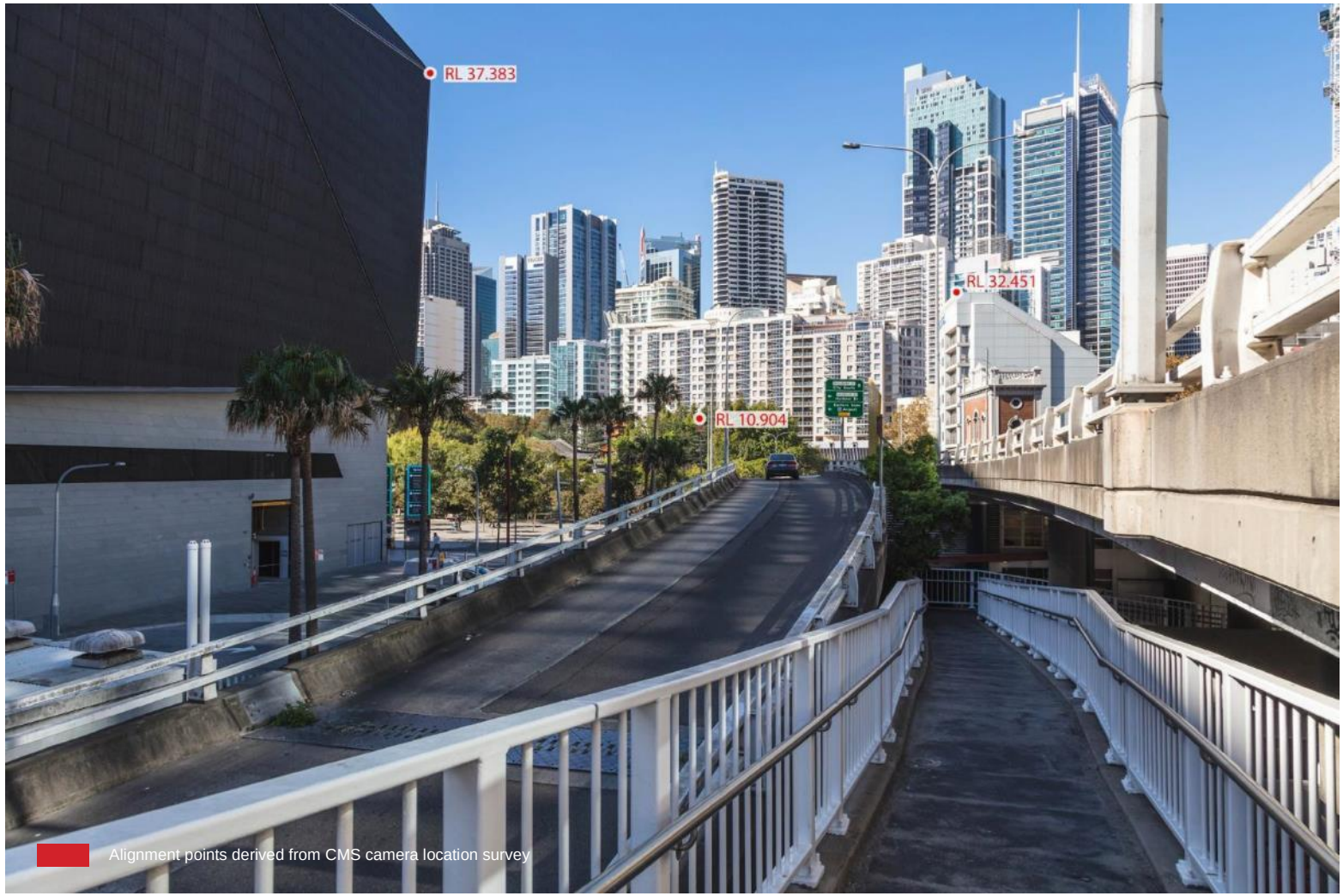
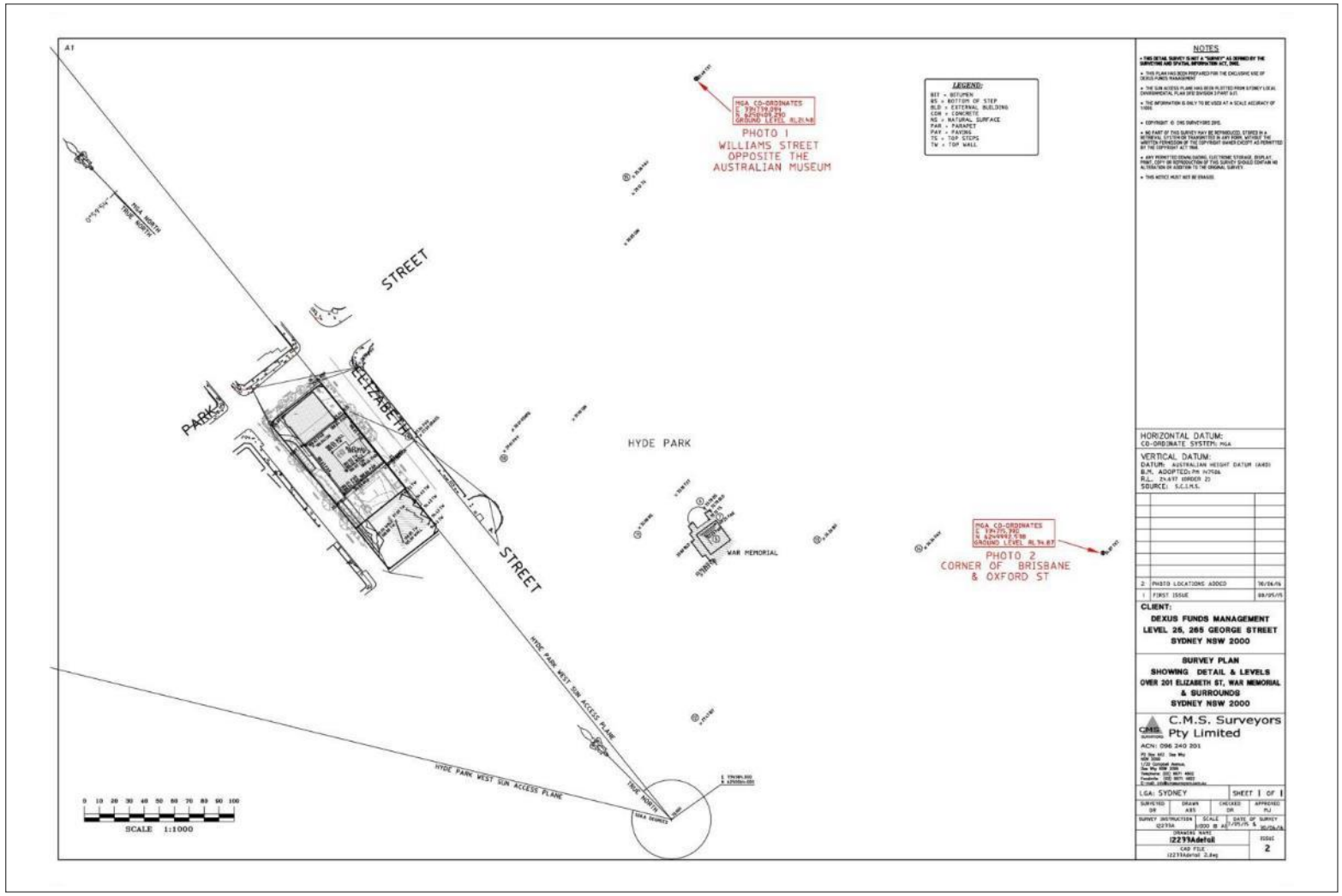


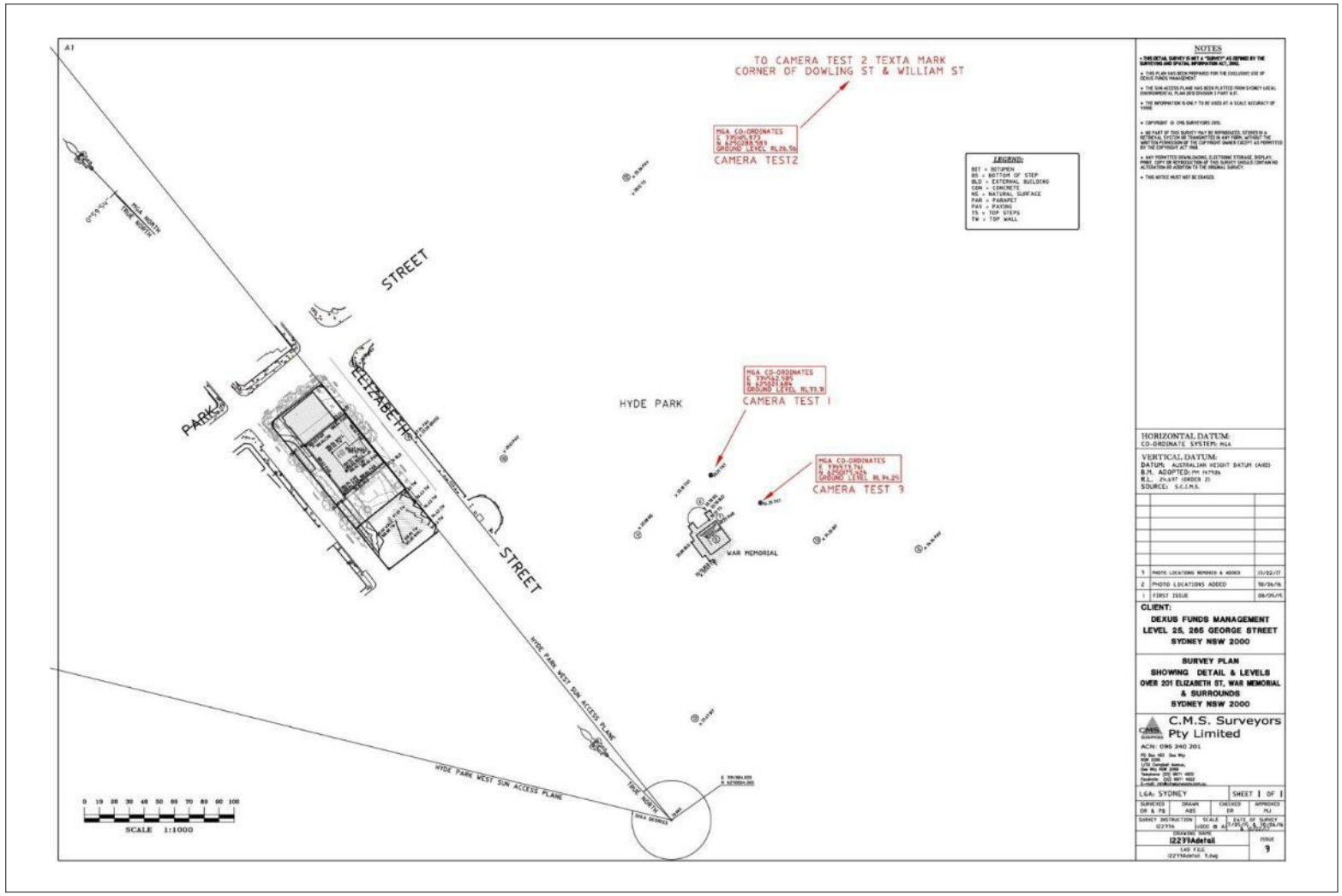
Photo Date - 12th April 2018
Photo Lens - 24mm

2. Appendix A - Camera Position Survey

2.1. Survey for camera positions A & B



2.2. Survey for camera position C



2.3. Survey for camera positions D, E, F

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

CMS SURVEYORS

Date: 4th October 2017
Our Ref: 17210Bphoto 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 ground level at the below sites. Co-ordinate's are MGA 56 and elevation to Australian Height datum (AHD).
Measurements were taken by GNSS Smartnet observations.
DWG of locations has also been supplied.

RE: SYDNEY PHOTO LOCATIONS

Point No.	Easting	Northing	Ground Elevation	Photo Point
18	334273.122	6250742.419	18.266	D
19	334283.312	6250720.668	44.554	CORNER BUILDING
20	334263.632	6250722.459	24.713	CORNER AWNING
21	334260.929	6250732.647	28.035	TOP POLE
100	334037.049	6250518.112	17.348	E2
102	334035.367	6250512.921	17.052	E1
103	334050.343	6250513.438	21.957	TOP AWNING
104	334050.913	6250495.779	26.620	TOP BUILDING
105	334038.925	6250493.585	26.627	TOP BUILDING
201	333698.472	6250461.941	14.037	F
203	333757.189	6250482.165	26.890	TOP BUILDING
204	333748.291	6250448.139	20.049	TOP BUILDING
205	333709.770	6250456.664	24.646	TOP LIGHT POLE
303	334173.958	6249764.692	7.049	G
304	334172.952	6249780.112	12.738	TOP AWNING
305	334200.940	6249814.009	31.299	TOP BUILDING
306	334200.999	6249777.057	28.150	TOP BUILDING ARCH
307	334201.016	6249777.057	27.562	BOTTOM BUILDING ARCH
400	334629.402	6250873.690	31.709	C
402	334633.217	6250844.596	41.075	TOP POLE
403	334628.442	6250853.244	41.160	TOP POLE
404	334610.600	6250854.482	40.862	TOP POLE
500	334723.308	6250503.073	25.049	B2
501	334716.171	6250507.279	24.986	B1
502	334700.215	6250468.993	33.508	TOP LIGHT POLE
503	334715.502	6250498.314	25.064	BOTTOM OF WALL
504	334700.495	6250502.642	34.276	TOP LIGHT POLE
505	334700.955	6250505.339	24.721	BOTTOM PARKING METER
601	334579.772	6250258.549	33.284	H2
603	334543.788	6250187.353	53.701	TOP BUILDING
604	334567.685	6250257.517	33.192	END BENCH
605	334569.180	6250269.100	33.074	END BENCH
606	334583.412	6250264.459	33.244	H1
607	334567.824	6250257.499	33.632	END BENCH
700	334653.667	6250038.451	34.297	A1
702	334655.991	6250033.040	34.291	A2
703	334624.423	6250037.176	42.786	TOP TRAFFIC LIGHT
704	334629.950	6250068.003	43.576	TOP TRAFFIC LIGHT
705	334655.805	6250069.836	41.468	TOP TRAFFIC LIGHT
802	335511.212	6250251.061	45.432	TOP LIGHT POLE
803	335509.541	6250268.078	34.705	BOTTOM LIGHT POLE
804	335514.471	6250273.570	38.542	TOP AWNING
805	335528.376	6250261.724	36.609	I

HEAD OFFICE
1/32 Campbell Avenue, 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

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(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

D. Roach

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1/32 Campbell Avenue, DEE WHY NSW 2099
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Email: coota@cmssurveyors.com.au

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2.4. Survey for camera positions G & H

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

CMS SURVEYORS

Date: 13th April 2018
Our Ref: 17699photo locations

Studio 71/161 Marlborough Street
Surry Hills
NSW 2010

Dear Ms Laura Ellis.

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

Point No.	Easting	Northing	Ground Elevation	Photo Point
100	333616.297	6249963.757	7.63	Camera location
102	333664.7821	6250008.647	37.383	Top of building
103	333644.8761	6249977.465	10.904	Top of sign
104	333737.9104	6249984.597	32.451	Top of building
203	334581.1111	6250259.651	33.287	Camera location
204	334578.0886	6250276.658	33.248	Bottom centre tree
205	334554.3744	6250290.202	34.854	Top of sign
206	334530.434	6250262.847	32.504	Bottom centre tree

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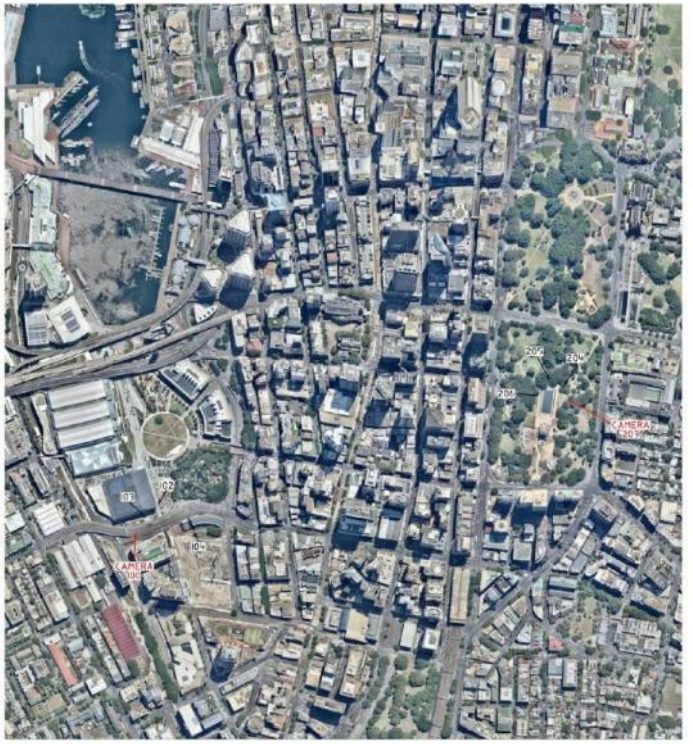

Yours faithfully,
CMS Surveyors Pty Limited

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