PRIVATE VIEW ANALYSIS

APPENDIX U

Sydney Metro City & Southwest

Pitt Street South Over Station Development:

Private View Analysis from Century, Princeton and Greenland Towers

Applicable to:	Sydney Metro City & Southwest
Author:	Virtual Ideas
Owner	Sydney Metro
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1. View Impact Study

Private view analysis of proposed envelope for the Pitt Street South OSD

1.1 Background

This document was prepared by Virtual Ideas for visual impact assessment analysis and includes a description of the processes used to create the enclosed images and illustrate the accuracy of the results.

Virtual Ideas is a highly experienced architectural visualisation company that regularly prepares 3D visualisation media for use in visual impact assessments for planning and development applications.

Our approach to creating view and visual impact media follows the prescribed methodology as established by relevant government planning authorities and is focused on most accurately communicating the proposed design and visual impact of a development.

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 of creating accurate photomontage and 3D renderings begins with the creation of an accurate, real-world scale digital 3D model.

Our 3D model was constructed incorporating the Pitt Street South envelope massing 3D model and supporting documentation (refer Appendix A - Envelope Diagrams) supplied by GHD Woodhead.

A surveyed 3D model of the surrounding Sydney CBD context was referenced to position the cameras in our virtual 3D model.
By using the surveyed Sydney CBD model, we were able to achieve a level of accuracy to within 0.1m of the equivalent real-world position.
Subsequent renderings from the model can then be used to represent accurate form and visual impact.
The following images have been prepared in respect of Land and Environment Court proceeding no. 10884/14 in accordance with the Land and Environment Court's practice directions.

1.3 Methodology

Selection of Camera Lens

For visual analysis purposes, the view images have been presented at 24mm camera lens lengths.

The 24mm camera lens view provides a moderately wide field of view, which can allow for the inclusion of surrounding context in which to assess the visual impact of a structure.

Please refer to “Appendix B - Camera Lenses for Photomontages” for a more extensive discussion of the camera lens selection.

3D Model

Using the imported surveyed data into our 3D software (3DS Max), we then imported the supplied 3D model of the proposed Pitt Street South building envelope.

Alignment

The camera positions were selected to offer a variation of viewing heights from each residential tower.

Architectural floorplans of each residential tower were referenced to place the cameras in a position approximately representing a viewpoint from a balcony on the eastern side of the building.

1.4 Description of collected data

To create the 3D model and private view analysis, a variety of information was collected. This includes the following:

Pitt Street OSD Envelope model
- Created by: GHD Woodhead
- Format: FBX file

Surveyed 3D context model
- Created by: AAM Group
- Format: 3DS MAX file

Architectural drawings of typical floorplan for each residential tower building (refer to Appendices C, D and E)
- Supplied by: GHD Woodhead
- Format: PDF file

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 proposed building envelope.

Opinions expressed in this verification report are made with regard to Division 2 of Part 31 of the Uniform Civil Procedure Rules and the Expert Witness Codes of Conduct in Schedule 7 of the Uniform Civil Procedure Rules, which I have read and agree to be bound by.

Yours sincerely,
Grant Kolln

1.5 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

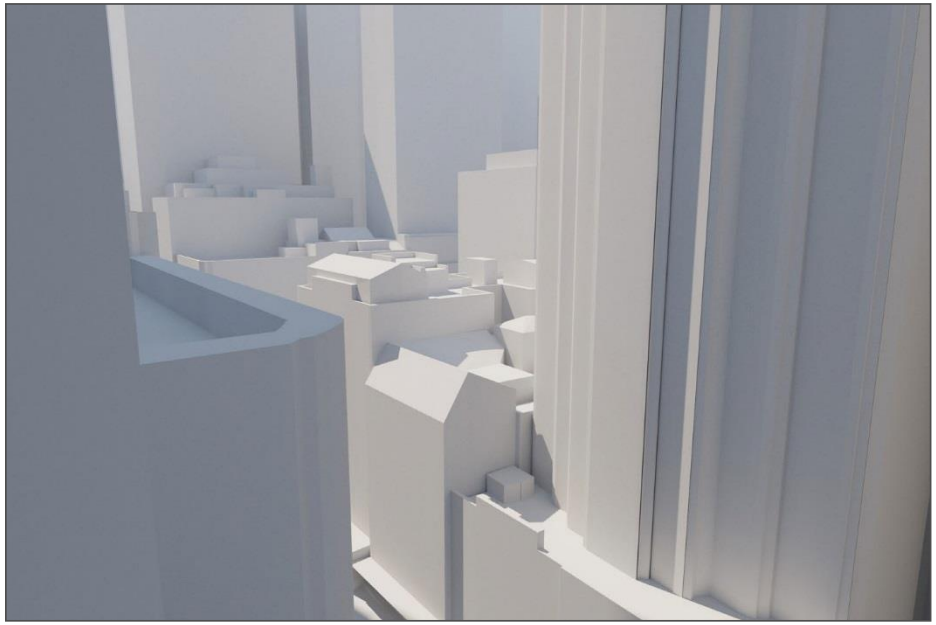
2003 - Present	Director of 3D visualisation studio Virtual Ideas. During this time I have worked on many visual impact studies for legal proceedings in various different types of industries including architectural, industrial, mining, landscaping, and several large public works projects. This experience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

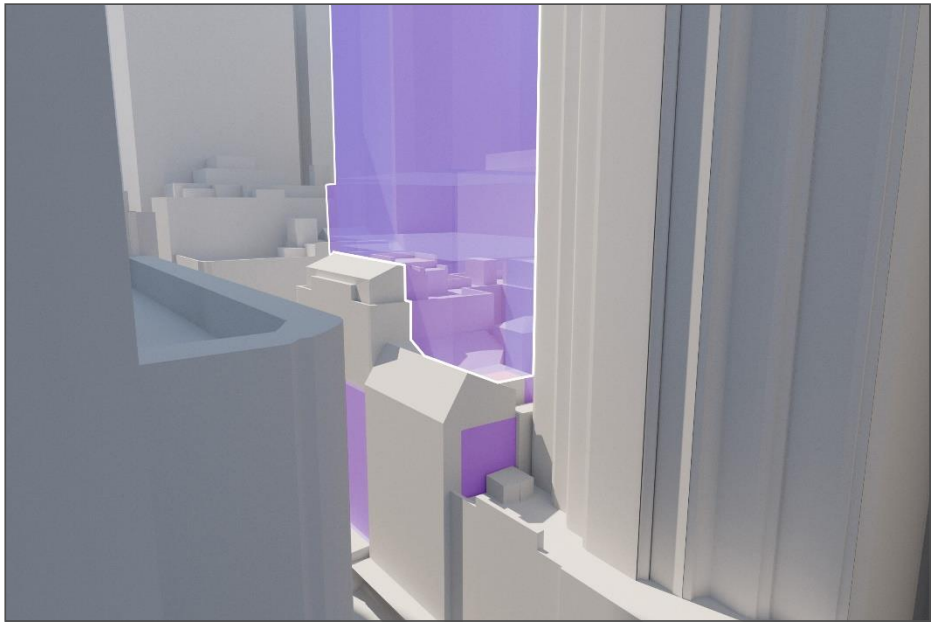
1997	Advanced Diploma in Architectural Technology, Southbank TAFE, Brisbane, QLD

1.6 Century Tower - Low Rise - Northeast

Existing - 24mm



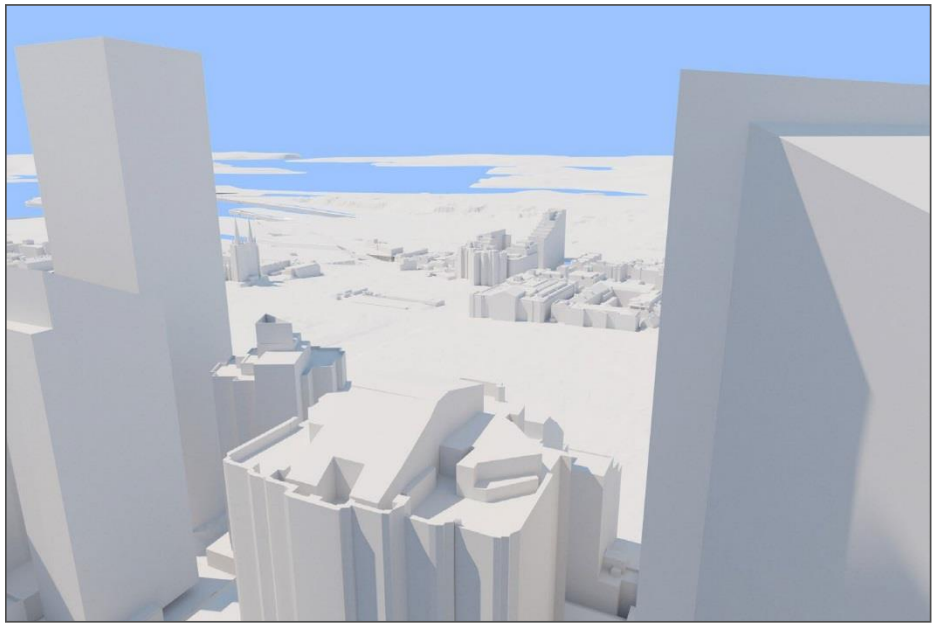
With proposed Pitt Street OSD envelope -24mm



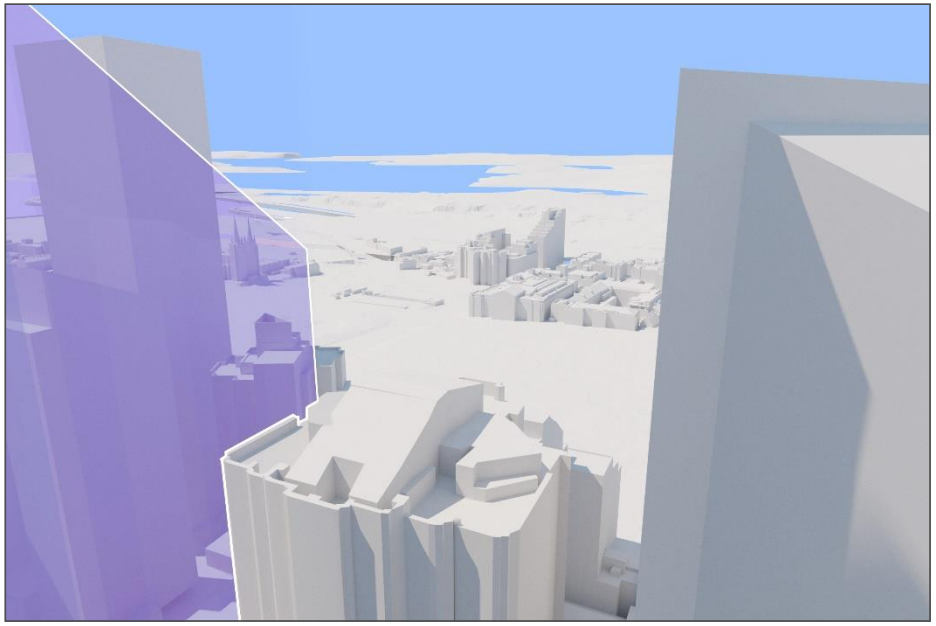
Camera Height RL 63.7m

1.7 Century Tower - High Rise - Northeast

Existing - 24mm



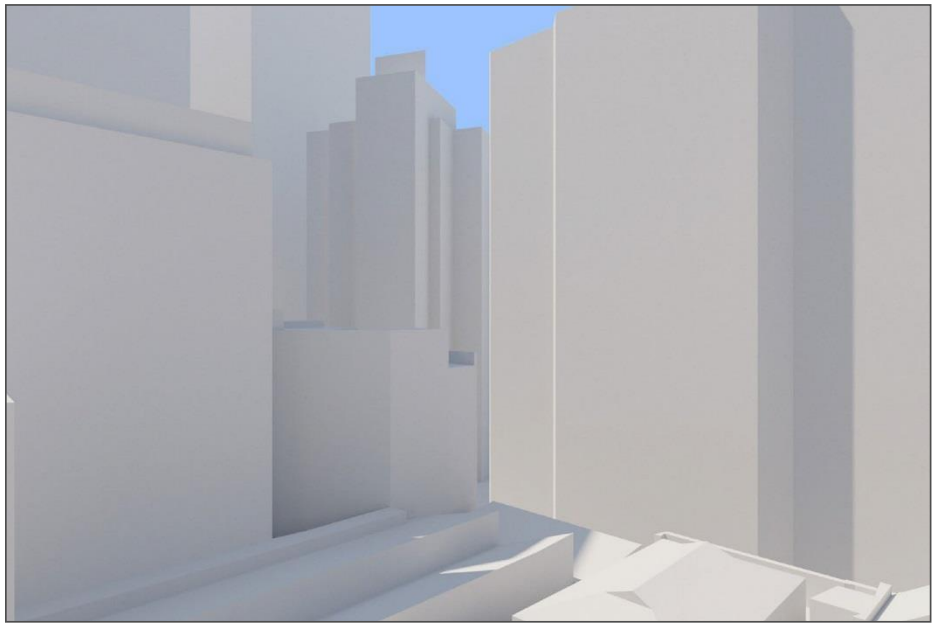
With proposed Pitt Street OSD envelope -24mm



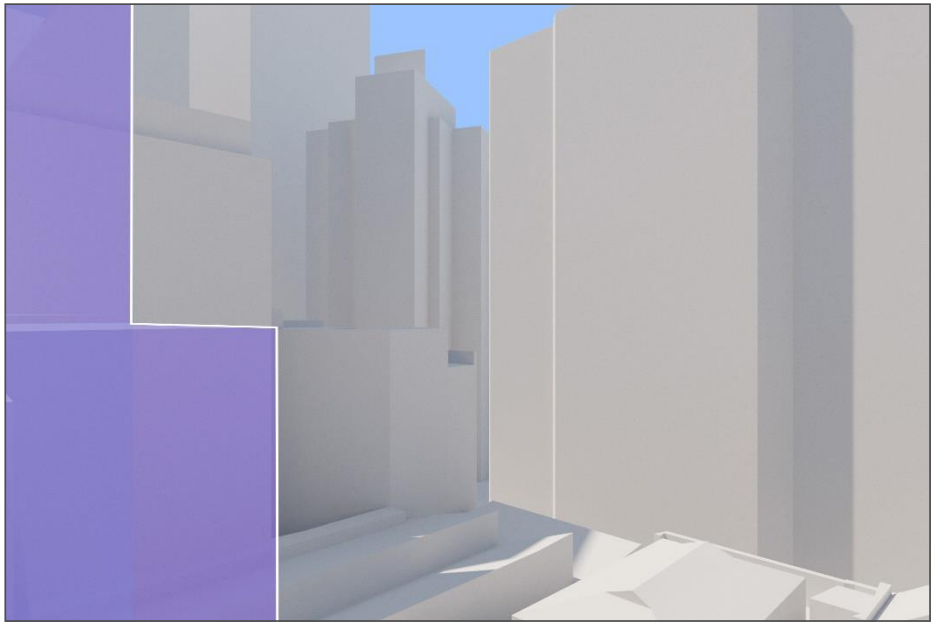
Camera Height RL 158.5m

1.8 Princeton Tower - Low Rise - Northeast

Existing - 24mm



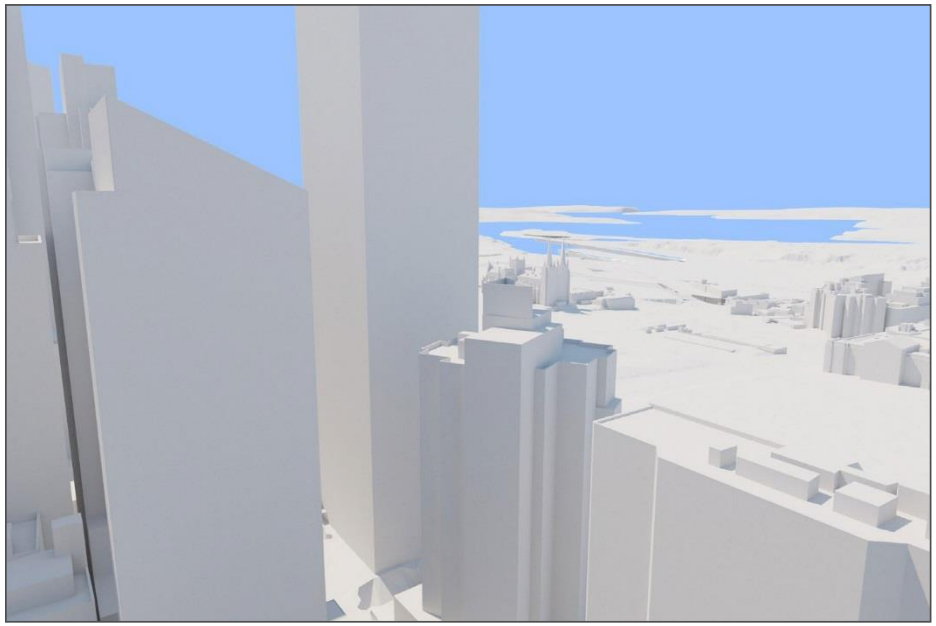
With proposed Pitt Street OSD envelope -24mm



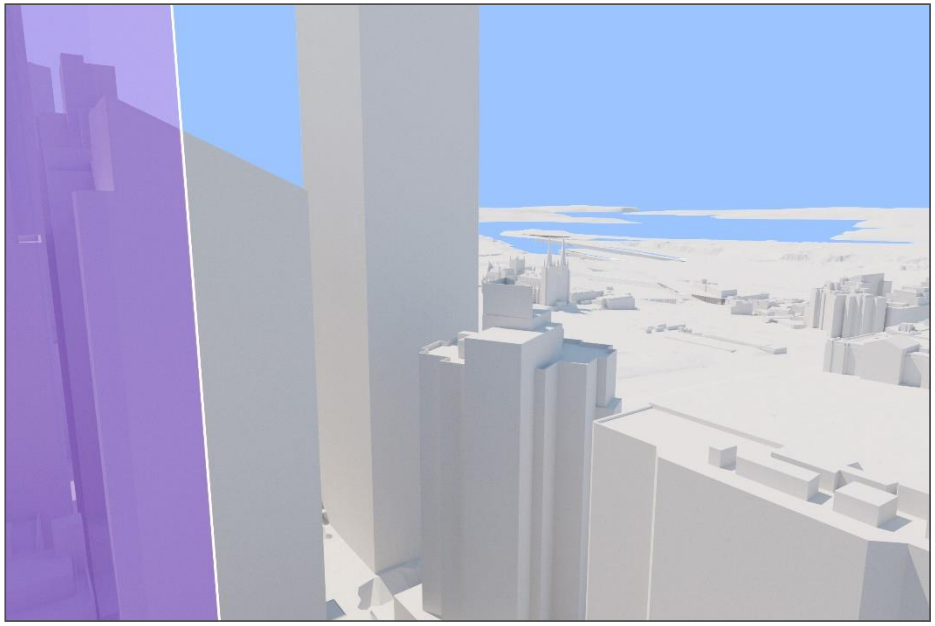
Camera Height RL 58.7m

1.9 Princeton Tower - High Rise - Northeast

Existing - 24mm



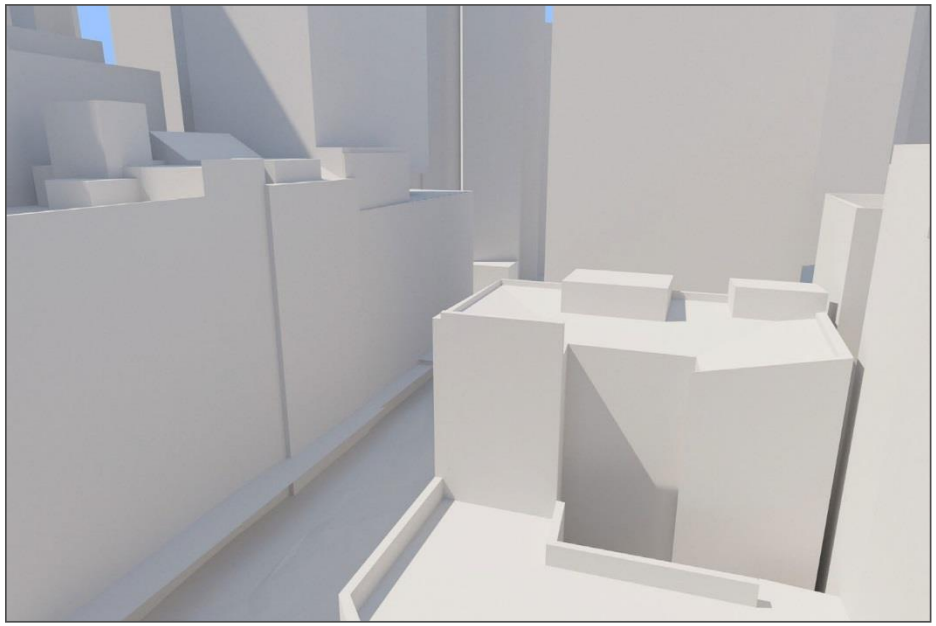
With proposed Pitt Street OSD envelope - 24mm



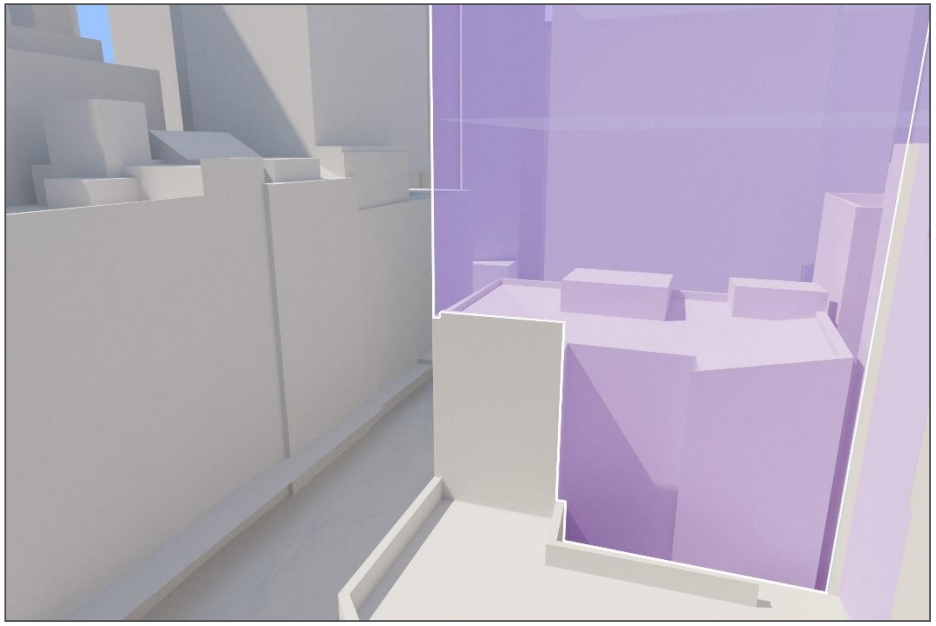
Camera Height RL 124.3m

1.10 Greenland Tower - Low Rise - Northeast

Existing - 24mm



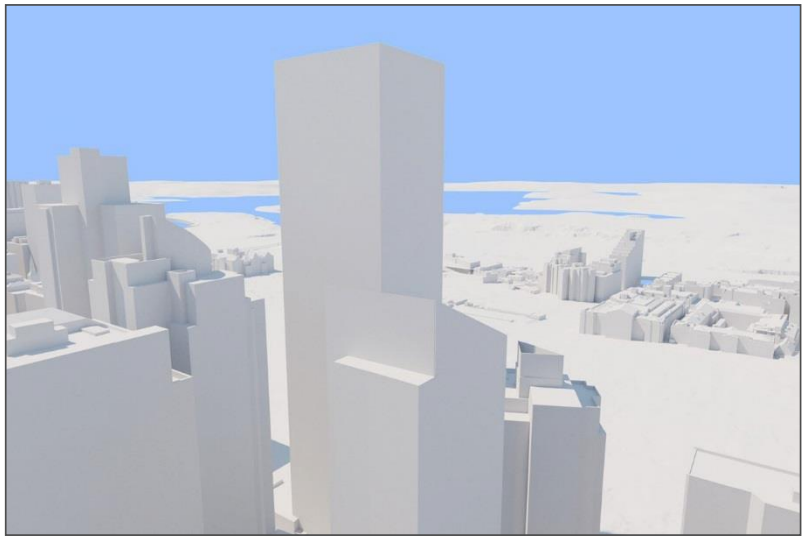
With proposed Pitt Street OSD envelope -24mm



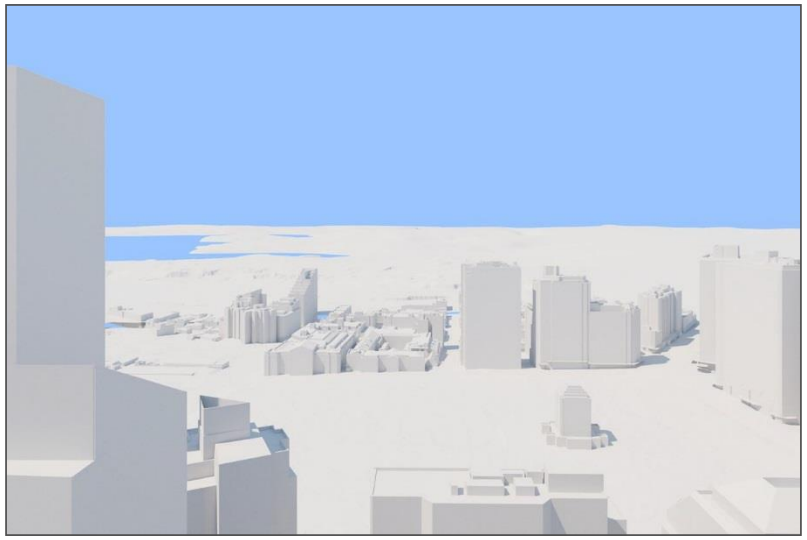
Camera Height RL 57.2m

1.11 Greenland Tower - Mid Rise - Northeast and East

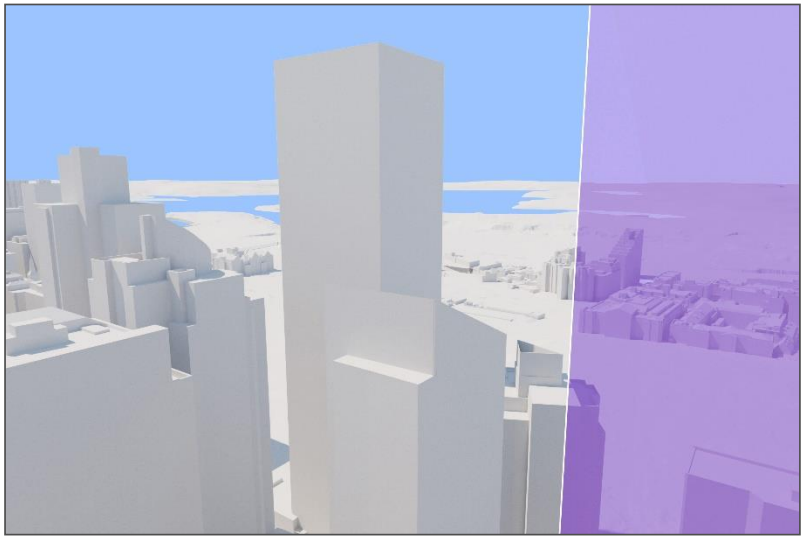
Existing - 24mm



Existing - 24mm



NE view with proposed Pitt Street OSD envelope - 24mm

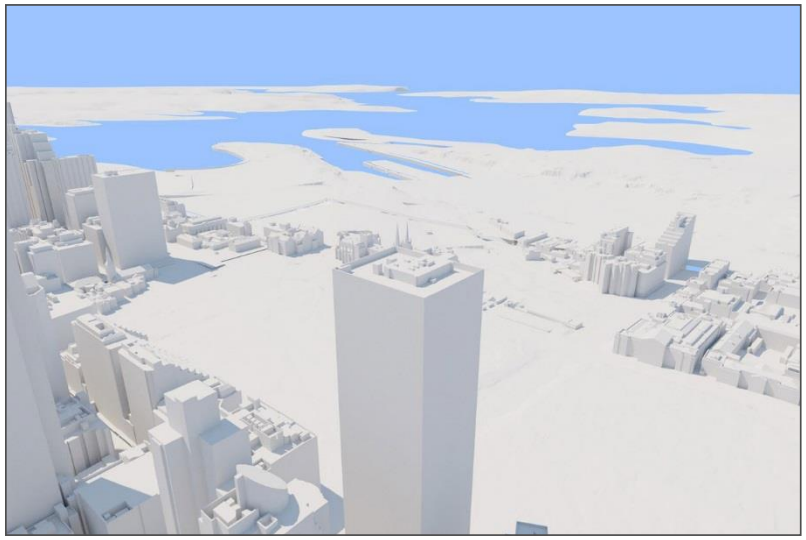


East view with proposed Pitt Street OSD envelope - 24mm

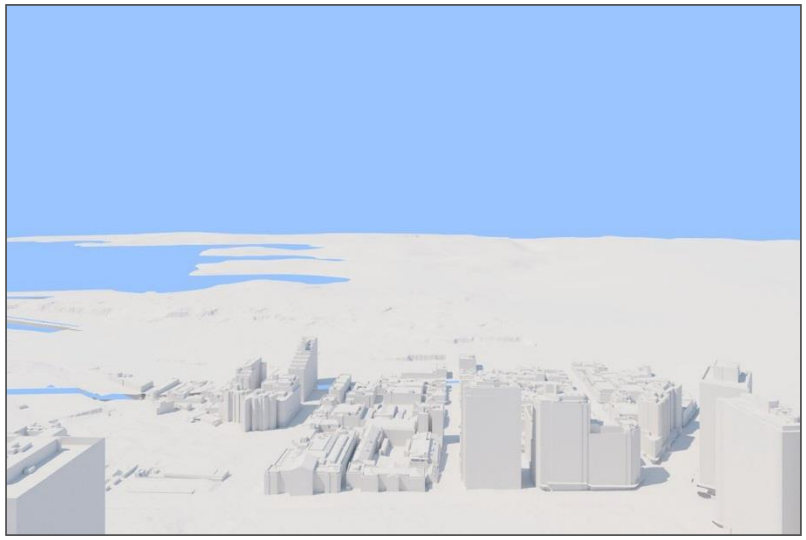
Camera Height RL 153.5m

1.12 Greenland Tower - High Rise - Northeast and East

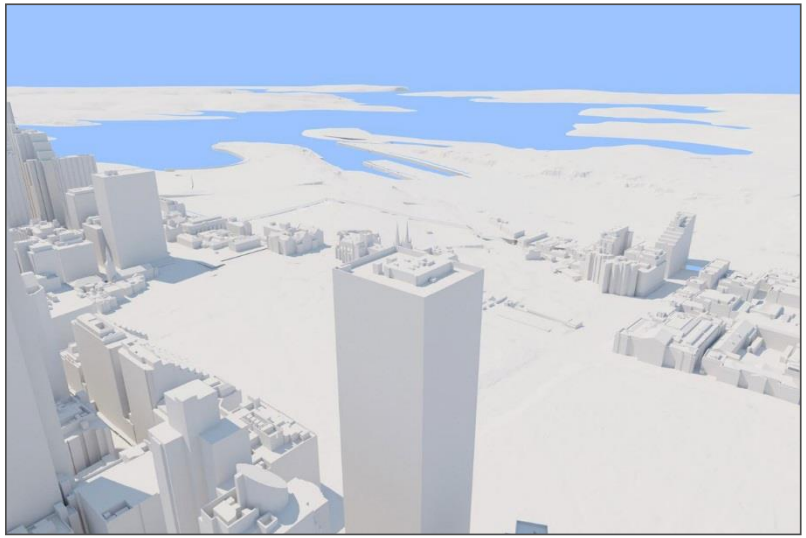
Existing - 24mm



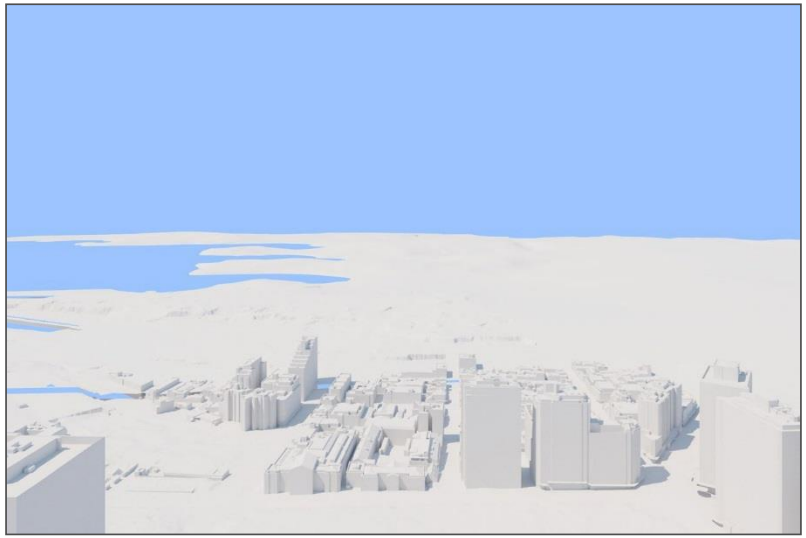
Existing - 24mm



NE view with proposed Pitt Street OSD envelope - 24mm

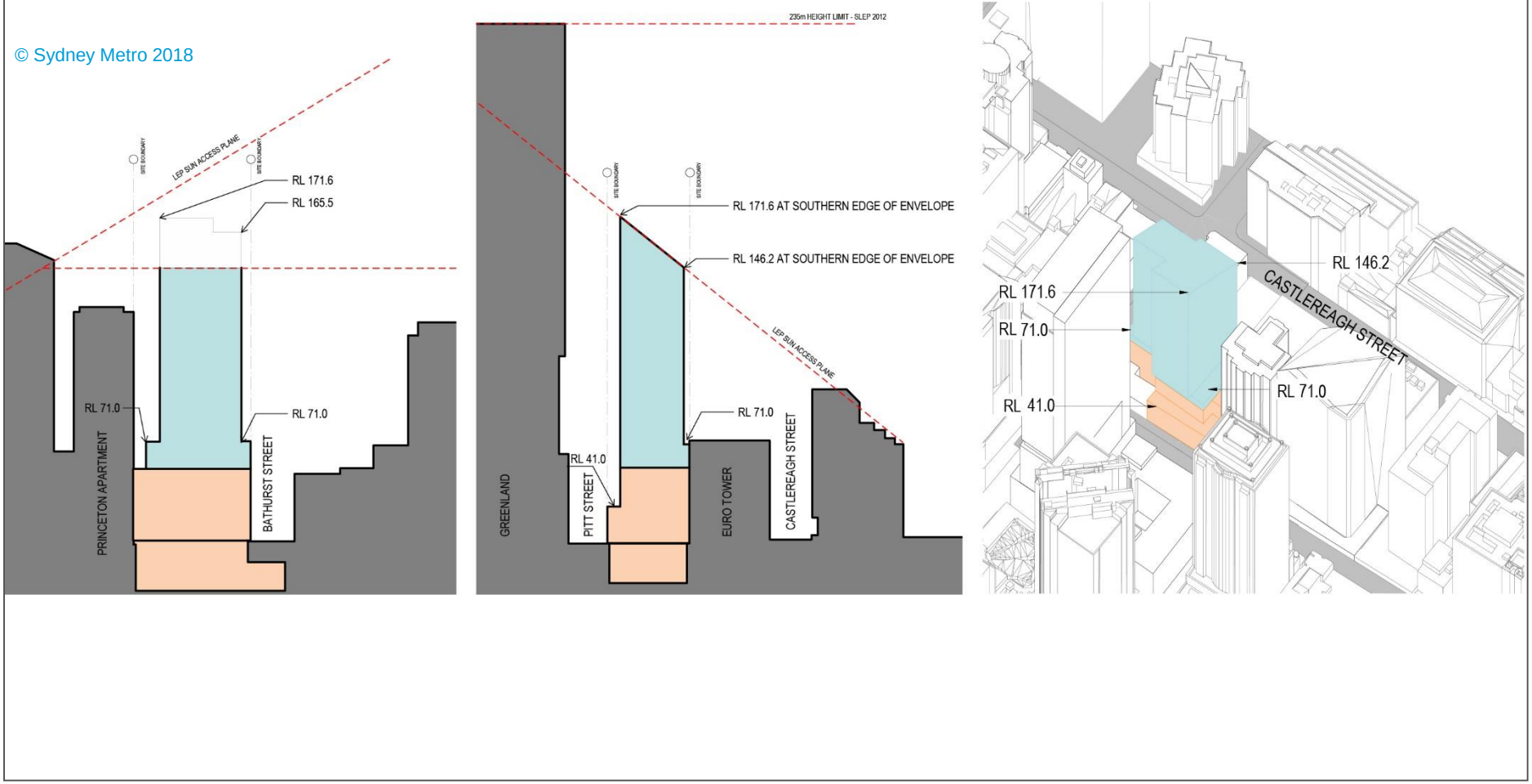


East view with proposed Pitt Street OSD envelope - 24mm



Camera Height RL 153.5m

2. Appendix A - Envelope Diagrams



3. Appendix B - Camera Lenses for Photomontages

The intention of a photomontage rendering is to visually communicate how proposed built form sits in respect to its surroundings. To achieve this, a digitally rendered image from a digital 3D model is accurately superimposed into a digital photograph to provide an accurate representation in terms of light, material, scale, and form.

Camera lens selection also plays an important part in creating a photomontage that communicates visual impact. There are several things to consider with respect to lens selection.

Field of View of the Human Eye

The field of view of the human eye is a topic that varies depending on the source of information. In many cases, the field of view of the eye is stated to be 17mm. Other opinions claim a smaller field of view of around 22-24mm.

Whichever the case, it is accepted that the human eye has a wide field of view. When a person stands close to a subject - for instance a building - their field of vision can potentially read all of the top, sides and bottom of the building simultaneously in a single glance.

In addition to this, the human eye can change focus and target direction extremely rapidly, allowing a person to view a large structure in a very short period of time, effectively making the perceived field of view even larger.

The Perspective of the human eye

It is difficult to accurately reproduce what the human eye sees by the means of a printed image. The eye's image sensor - the retina - is curved along the back surface of the eyeball, whereas the sensor on a camera is flat. Consequently, the perspective of a photograph can look quite different to how a person views a scene in the real world, especially when comparing to a photo captured with a wide camera lens.

In digital photography circles, it is widely accepted that using a longer lens (approximately 50mm) reduces the amount of perspective in an image and therefore more closely replicates what the human eye would see in reality. This, however, only addresses how the eye perceives perspective and does not consider the field of view of the eye.

If a photo is taken of a scene using a 50mm camera lens, printed out and then held up in front of the viewer against the actual view at the same location as the photo was taken, it is unmistakable that the human eye can see much more of the surrounding context than is captured within the photo.

Changing the field of view on a digital camera

The main difference in using a longer lens vs a wider lens is the amount of information that is displayed at the edges of the subject. Changing the lens to a smaller FOV produces the same result as cropping in on the wide angle image, providing that the position and the angle of the camera remains constant while taking the photographs.

In short, a lens with a wider field of view does not create an image that has incorrect perspective, it simply means that the perspective is extended at the edges of the image showing more of the surrounds in the image.

Summary

With regards to visual assessment, there is no definitive solution for camera lens selection.

Longer lenses produce images that are more faithful to the perspective of the human eye, though the field of view is more limited, making it difficult to capture the entirety of a subject or enough of the surrounding context in which the subject resides.

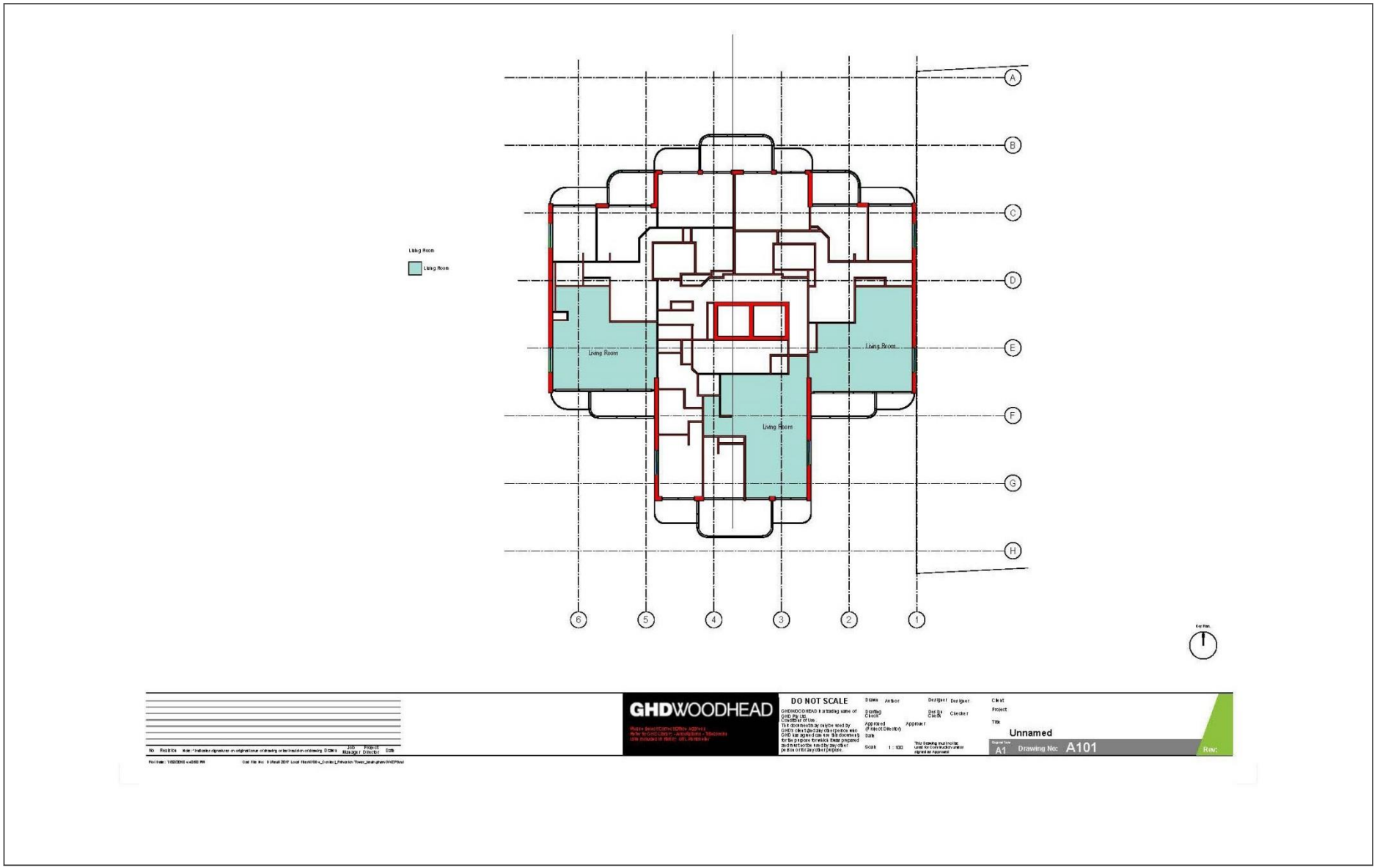
Conversely, the perspective of wider camera lenses can make subjects appear further away than they would appear through the perspective of the human eye. This also limits a persons ability to accurately assess visual impact.

For these reasons, Virtual Ideas has taken the view that it is not possible to exactly replicate the real world view of the human eye in an image created with a camera and for visual impact photomontages, camera lenses are selected that strike a balance between these two considerations and can accurately display the built form in its surroundings.

The most effective way to accurately gauge visual impact and achieve a real world understanding of scale, is to take prints of the photomontages to the exact site photography locations and compare the prints with the scale of the existing built form.

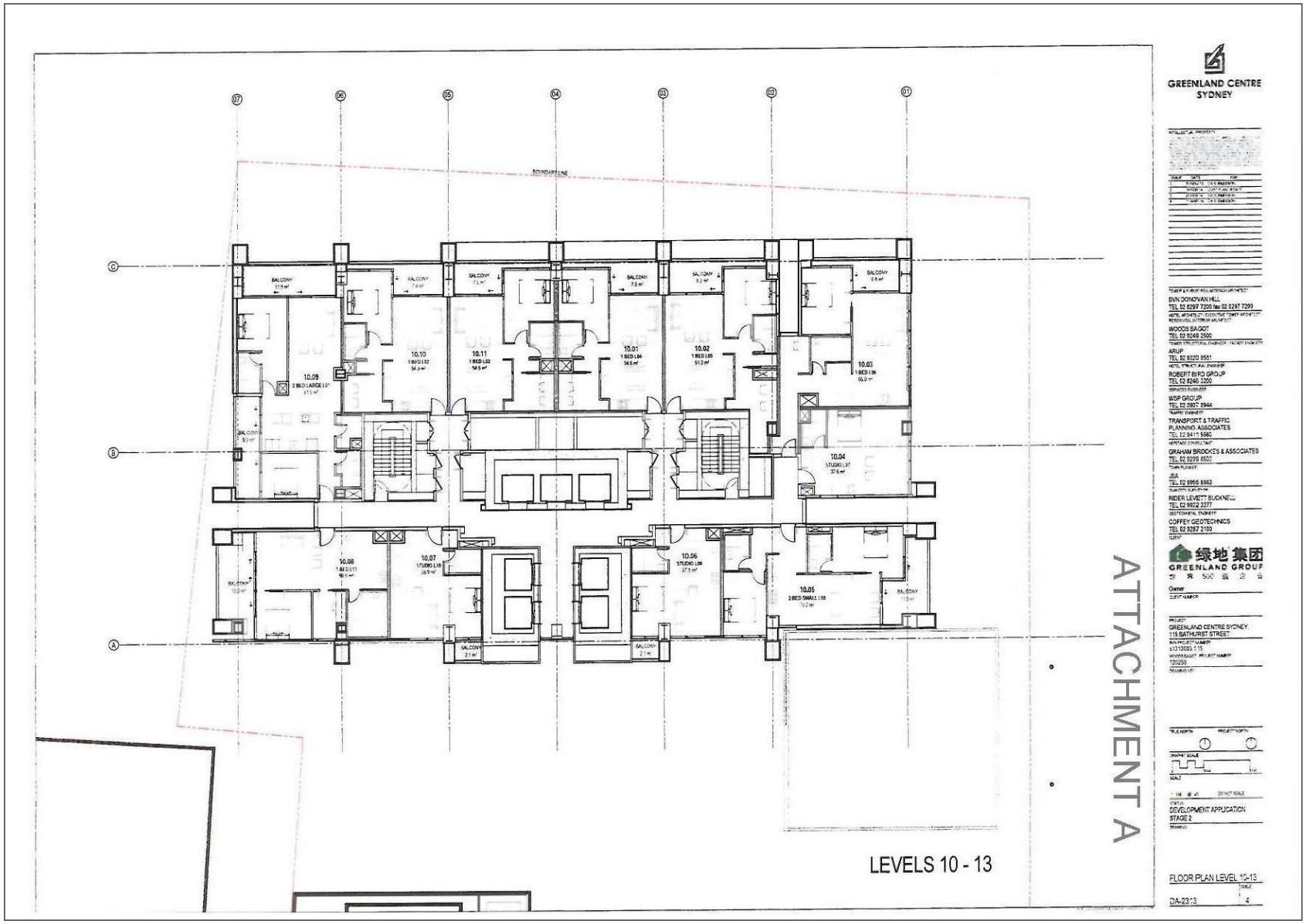
4. Appendix C - Century Tower - Typical Plan

5. Appendix D - Princeton Tower - Typical Plan

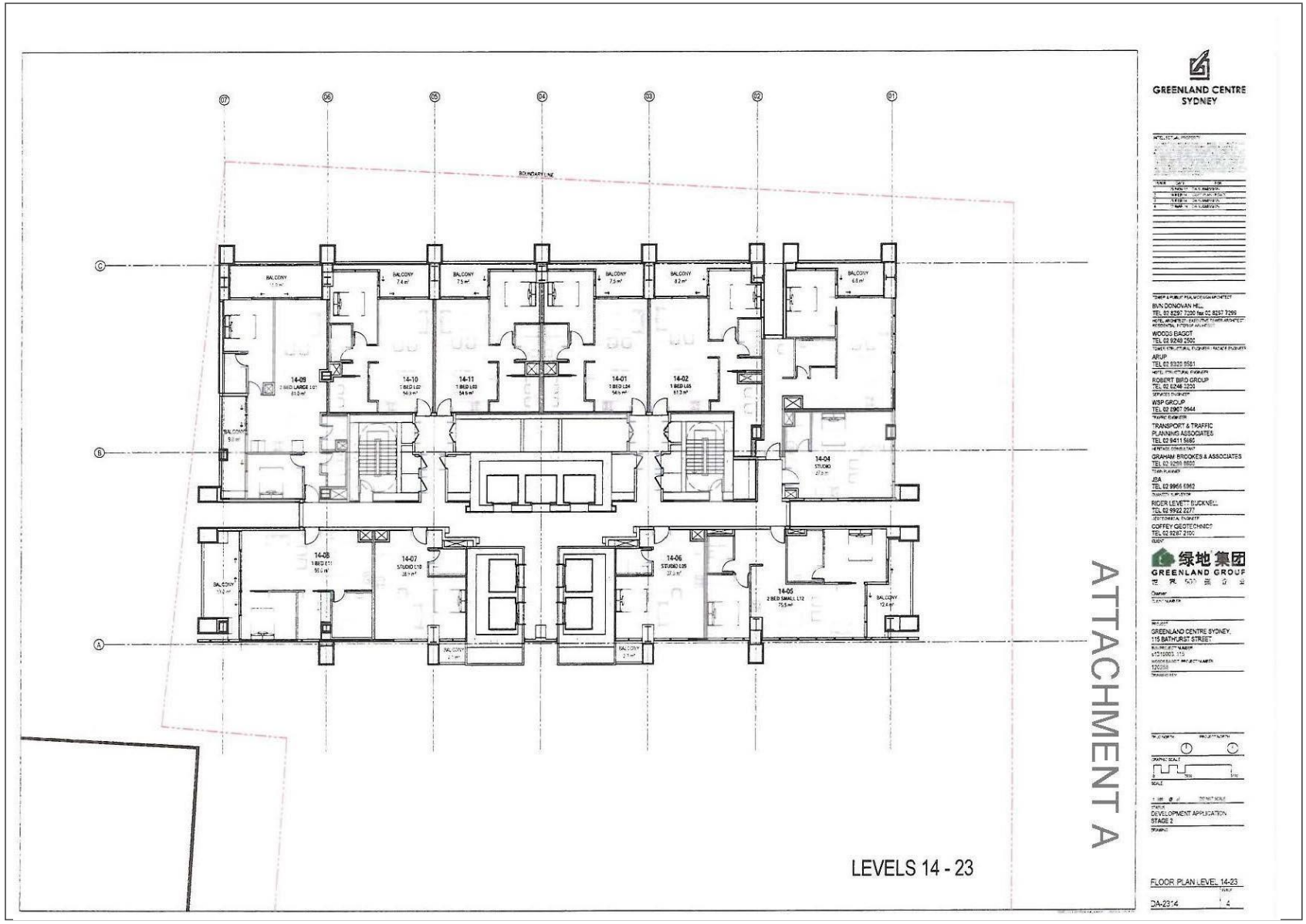


6. Appendix E - Greenland Tower

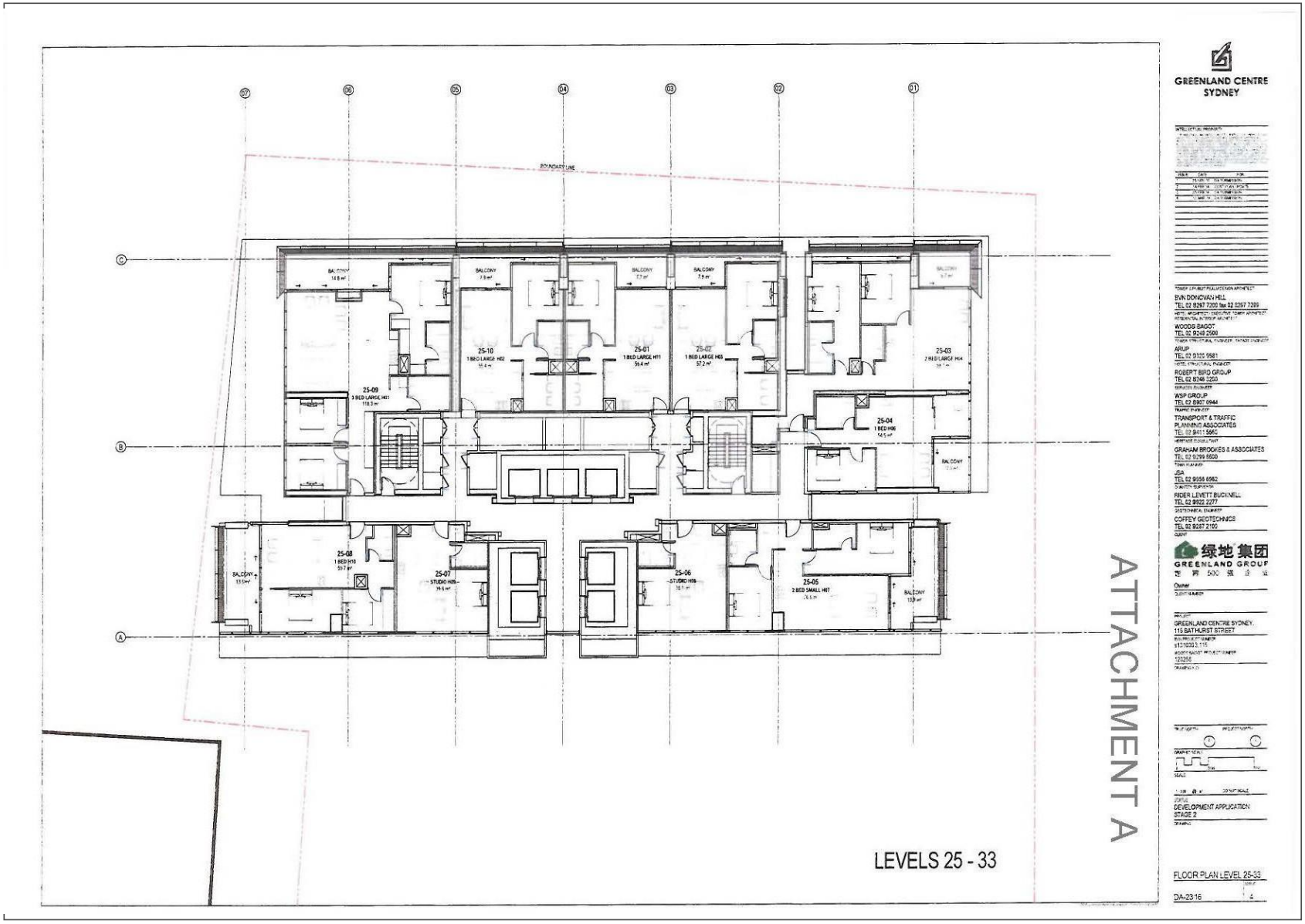
Levels 10-13



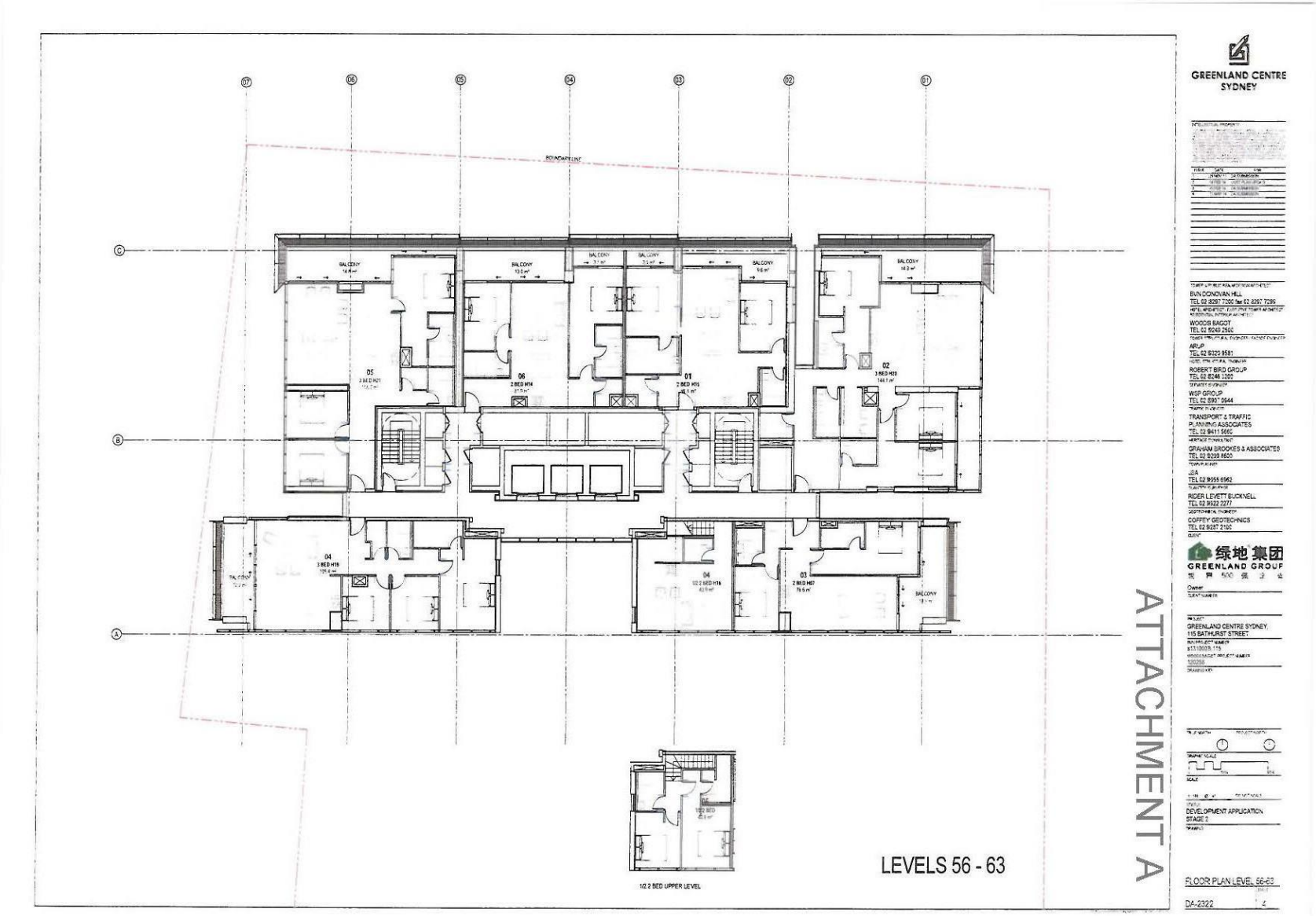
Levels 14-23



Levels 40-43



Levels 56-63


GREENLAND CENTRE SYDNEY
LEVELS 56 - 63
ATTACHMENT A
FLOOR PLAN LEVEL 56-63
DA-2322