Visual Impact Photomontage Report

Moriah College

BACKGROUND

This document was prepared by Virtual Ideas to describe 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.

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.

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 design
   - Supplied by: FJMT
   - Format: 3D model

2) Surveyed data
   - Created by: Hill & Blume
   - Format: DWG and PDF file (see Appendix A)

3) Site photography
   - Created by: Virtual Ideas
   - Format: NEF

METHODOLOGY

Site Photography

Site photography was taken with a Nikon D850 digital camera. The lens size selected for each shot was 24mm and in addition crop marks have been added to the photographs to illustrate the extents of a longer 50mm lens.
In most cases, we consider that a 17-24mm lens is a fair representation of the focal length of the human eye. For a more detailed explanation please see Appendix B.

3D model

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

Alignment

The position of the real world photograph was located in the 3D scene. A camera was then created in the 3D model to match the location and height of where the photograph was taken from. Using the survey information, we created alignment lines from corresponding objects that are visible in the photograph. Using these lines, we aligned the photograph with the 3D model

Renderings of the proposed buildings were then created from the aligned 3D camera and montaged into the existing photography at the same location. This produces an accurate representation of the scale and position of the proposed forms 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

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
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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

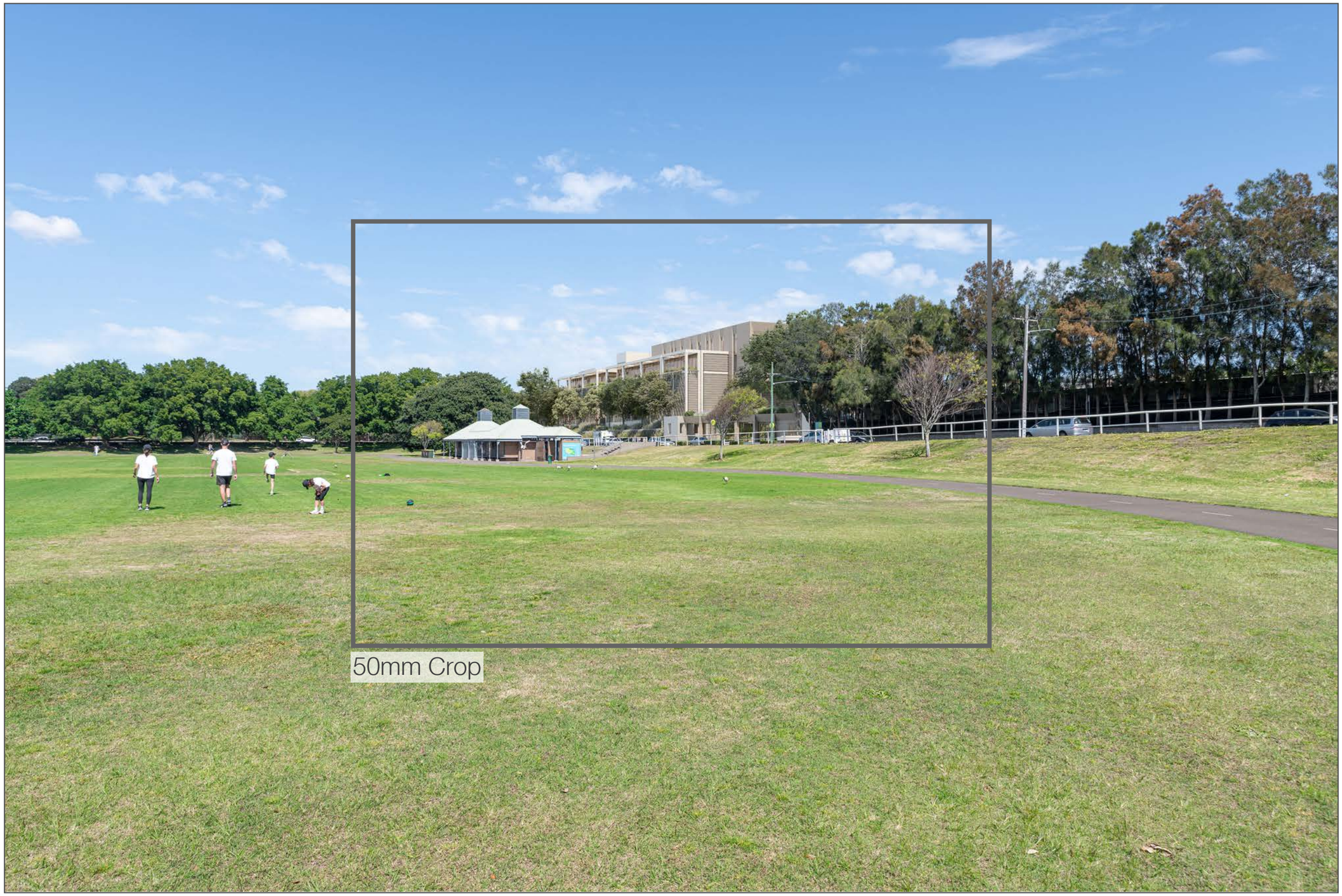

Cam 01
Cam 06
Cam 03
Cam 09
York Rd
Cam 05
Cam 04
Moriah War Memorial College
Public Toilet and Shower
Eastern Suburbs Banksia Scrub
Victoria Park
Queens Park
Queens Park Rd
Arnold St
Newland St
York Rd
Centennial Parkland
Musgrave Pond
Eastern Suburbs Dog Training
Musgrave Ave
Darley Rd
Darley Ln
Ayoca St
Queens Park Outdoor Gym
Queens Park Kitchen
Queens Park Pizza
Kake Kafe

Original photograph

Photomontage

Surveyed alignment lines


50mm Crop


50mm Crop

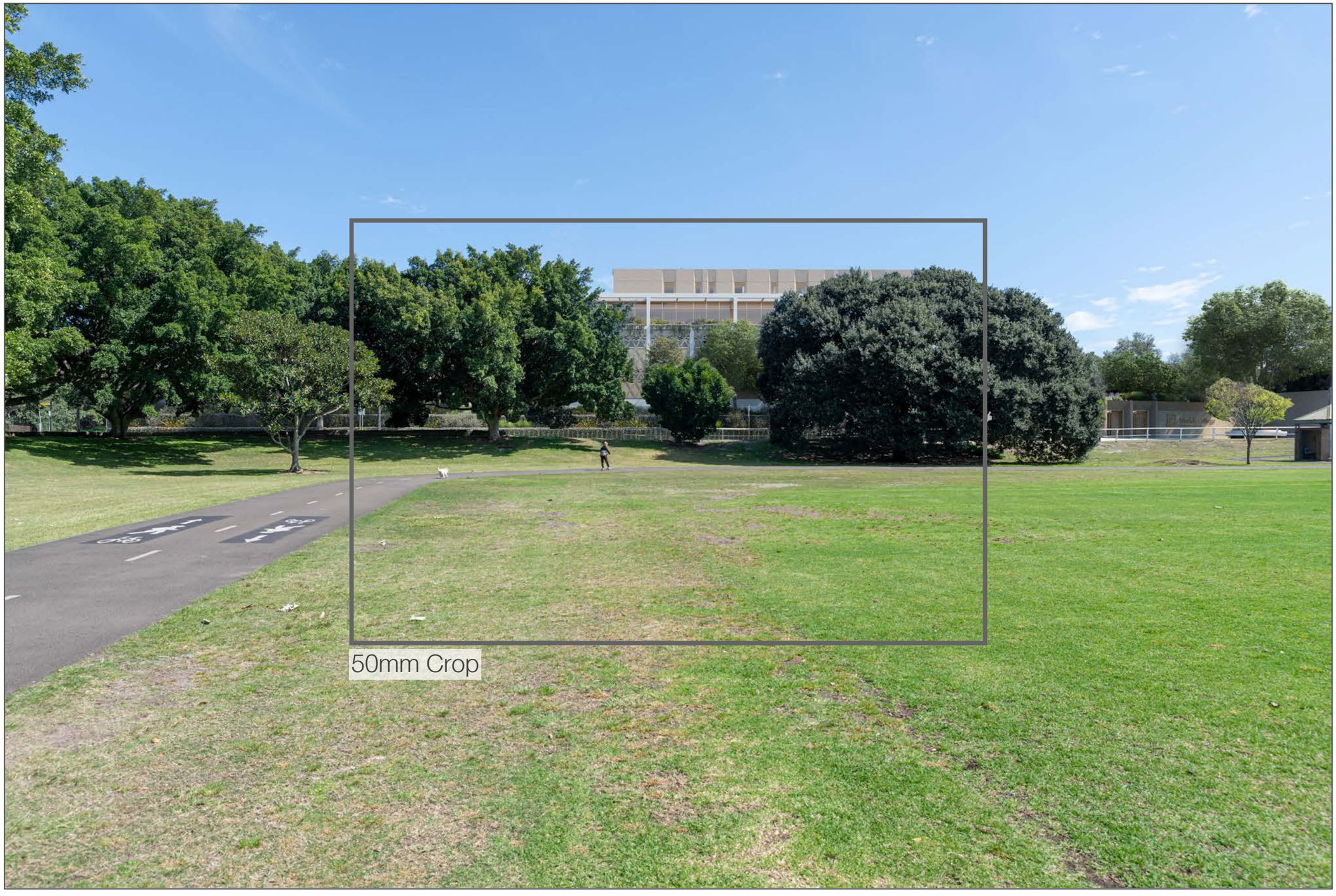

50mm Crop
Alignment lines generated from the survey model

Original photograph

Photomontage

Surveyed alignment lines


50mm Crop


50mm Crop


50mm Crop
Alignment lines generated from the survey model

Original photograph

Photomontage

Surveyed alignment lines


50mm Crop


50mm Crop


50mm Crop
Alignment lines generated from the survey model

Original photograph

Photomontage

Surveyed alignment lines


50mm Crop


50mm Crop


50mm Crop
Alignment lines generated from the survey model

Original photograph

Photomontage

Surveyed alignment lines


50mm Crop


50mm Crop


50mm Crop
Alignment lines generated from the survey model

Original photograph

Photomontage

Surveyed alignment lines

Photomontage (image with additional sky added to see full extent)


CAUTION
DO NOT
TAILGATE
GATE
4
50mm Crop


Moriah College
50mm Crop


Moriah College
50mm Crop


CAUTION
DO NOT TAILGATE!
GATE
4
50mm Crop
Alignment lines generated from the survey model

DIGITAL CAMERA LENSES FOR PHOTOMONTAGES AND VISUAL IMPACT ASSESSMENTS

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

This 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 sources of information on the web say that it is more like 22-24mm. Whichever the case it is clear that the human eye has quite a wide field of view and when we stand close to a subject (say a building) we have quite allot of vision towards the top, sides and bottom. In addition to this the human eye can change focus and target direction extremely quickly allowing us to view a large structure in a very short period of time, effectively making our 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. As the back of the human eye is curved and the sensors on cameras are flat the perspective of a photograph can look quite different to how we see things in the real world, especially with a larger field of view, or wider lens. In digital photography circles it is commonly stated that using a longer lens (approx 50mm) reduces the amount of perspective in an image and therefore looks more like the human eye would see reality, but this is talking about perspective only, and does not consider the field of view of the eye. If you take a photo using a 50mm lens, print the photo, and hold the print out against the actual view in the same location the photo was taken from, it becomes very clear that the human eye can see much more of the surrounding information than what is shown on the print out.

Changing the FOV 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 FOV 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 images.

What all of this means for visual assessment is that there is no one fits all solution for lens selection. If we follow the opinion that a longer lens produces images that are closer to the perspective of the human eye, we will inevitably be in the situation where we cannot show the entirety of our subject and enough of the surrounds that it resides in. Also if we strictly stick to a 17mm lens we will have situations where the subject is far away and looks very small in the image, again making it difficult to assess visual impact. For these reasons we have taken the view that we can never totally represent what the human eye will see on a piece of paper, and for visual impact photomontages we should select lenses that strike a balance between the two and can accurately display the built for in its surroundings.

The most effective way to accurately gauge visual impact and get a real world feeling for scale would be to take prints of the photomontages to the exact site photography locations and compare the prints with the scale of the existing built form.