WAVERLEY PARK MULGRAVE

Visualisation Expert Witness Statement
VCAT Reference No. P768/2014

August 2014

urbis

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

Director	Peter Haack
Lead Consultant	Ashley Poon
Job Code	MD3314
Report Number	Waverley Park Powerline Photo Sim Report

Approved by	Peter Haack
Position	Director
Date	8th August 2014

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1 INTRODUCTION

My name is Peter Graham Haack and I am the lead Director of the Landscape Architecture and Urban Design Studio of Urbis Pty Ltd (**Urbis**), Level 12, 120 Collins Street, Melbourne. My qualifications and experience are set out in **Appendix A** of this report and summarised below.

I have over 29 years' experience on a diverse range of projects, locally, nationally and overseas. My work has encompassed most aspects of landscape architecture and I have particular expertise in the preparation of landscape and visual impact assessments, having directed and managed many visual assessments including a number of high profile projects which have required complex 3D modelling and visual simulation preparation. Notable project types include:

- Wind farms;
- Powerlines, generation and infrastructure;
- Telecommunications;
- Industrial and port and logistics infrastructure;
- Mining projects;
- Transport infrastructure; and
- General advice on landscape amelioration.

Mirvac Victoria Pty Ltd (Mirvac) purchased the Waverley Park site in December 2001 following its closure as an AFL football stadium with a surrounding carpark.

A master plan and planning controls to guide the residential development were introduced in August 2002 and a planning permit for the development of the site was also issued that allowed for the creation of up to 1500 lots and the construction of up to1300 dwellings.

Condition 50 of the permit requires:

> *The existing powerline easement through the land must be removed and the high voltage electricity transmission lines must be placed underground in a location and via a route which is to the satisfaction of S.P.I. PowerNet Pty Ltd or the relevant electricity authority.*

I understand that during the progressive development of the site and following extensive discussions, Mirvac concluded that there were numerous barriers to the development of an underground transmission line through the estate.

Applications to amend condition 50 to enable the retention of the above ground transmission lines were refused by the Minister for Planning on 28th April 2014 on the following grounds:

a. *There was an implicit obligation by way of Condition 50 of Planning Permit STA2001/000714 to underground the powerlines.*
b. *The proposal is contrary to the expectations of the Waverley Park community regarding visual amenity.*
c. *The proposal does not provide sufficient community facilities or improvements to Lake Park in accordance with the recommendations of the Panel Report (Monash Planning Scheme Amendment C20), dated August 2002.*
d. *The cost increase of undergrounding the powerline is not an overriding planning consideration.*

I was initially verbally engaged on this matter on the 16th October 2013 by Norton Rose Fulbright Australia acting on behalf of Mirvac, to provide support to the Planning Expert Witness Report process by commencing the preparation of an accurate three dimensional model (3D) of the entire Waverley Park estate to be used for a number of geographic information system (GIS) analysis and 3D visualisation purposes.

I was engaged formally in this matter by letter, dated 16th May, 2014, from Norton Rose Fulbright Australia acting on behalf of Mirvac. My instructions were to:

1. *Prepare a number of photomontages (and an associated report outlining how the photomontages have been prepared) from relevant locations which illustrate the difference between the alternative comparators, being:*

   (a) the undergrounding of the Powerlines with the required transition enclosures; and

   (b) retaining the Powerlines aboveground, with the slight realignment of the easement and the movement of the towers.

   These images are likely to be relied on by the other witnesses in forming their own views about the impacts of the alternative comparators.

2. *Ensure that your expert report complies with the requirements of the Tribunal's Practice Note PNVCAT2 regarding the preparation of expert evidence; and*

3. *Appear at the final hearing of the Application for Review to present your expert opinion on a date to be confirmed.*

I note that on 14th July 2014, Mirvac applied to the Tribunal to substitute amended plans for the above ground option to replace the lattice transmission towers with poles as follows:

- The central lattice tower will be replaced by a tapered pole rising to 45 m in height. This pole will have three main cross arms and a smaller cross arm at the top of the pole.
- The western lattice tower will be replaced by a pair of slimline tapered poles rising to 48 m in height, with three 'triangular' arms on one side of the pole only aligned towards the south.
- The eastern lattice tower will be replaced and relocated approximately 15 metres to the east (subject to a separate permit).

I confirm that I have had no prior involvement with any aspect of this project until being verbally requested by Norton Rose Fulbright Australia to provide initial support to the Planning Expert Report in October 2013.

In undertaking the preparation of the 3D model and visualisations I have inspected the site of the transmission line easement, the surrounding Waverley Park estate and neighbouring areas and have considered the following documents:

- The Waverley Park Concept Plan and the Planning Permit STA/2001/000714.
- The Landscape and Recreation Master Plan Report prepared by MDG Landscape Architects dated 3 June 2011.
- The Revised Town Planning Report accompanying the Application to Amend Planning Permit STA/2001/000714 prepared by Collie Pty Ltd, dated 12 August 2013.
- The officer report to the Council of the City of Monash considering the amendment request dated 27 August 2013.
- The grounds of the Refusal to Grant and Amendment to a Permit issued on 28th April 2014.

- Amended plans filed on 14th July 2014.
- The Statements of Grounds by other parties in response to the appeal by Mirvac.
- The project base data as described in **Section 4.2.4**.

1.1 SUMMARY OF OPINION

In my opinion the visualisations of the proposed powerline options, including the proposed landscape treatments, provide an accurate representation of what the views from viewpoints will look like 10 years following completion of powerline construction and estate development landscaping, assuming typical expected growth rates for the existing and proposed plant species.

2 SCOPE OF EVIDENCE

Urbis Pty Ltd (Urbis) has been commissioned by Norton Rose Fulbright Australia on behalf Mirvac Victoria Pty Ltd (Mirvac) to prepare photosimulations and 3D massing model visualisations of a modified existing overhead high voltage (HV) transmission powerline option and a proposed underground transmission option within an easement that traverses their Waverley Park Estate (Waverley Park) at Mulgrave, 25 kilometres (km) to the south east of Melbourne.

The photo simulations have been prepared to inform the Planning Expert Witness Statement prepared by Michael Barlow.

3 DESCRIPTION OF THE PROJECT

3.1 THE SUBJECT SITE

The Waverley Park site occupies approximately 80 hectares of land and is located on the west side of Jacksons Road between the Monash Freeway to the south and Wellington Road to the north. The site, formerly a major AFL football stadium, has been progressively developed for residential housing and associated facilities since early 2003. When completed it is anticipated the estate will accommodate approximately 1300 dwellings.

3.2 SUMMARY DESCRIPTION OF THE PROJECT

In both options, the locations of the existing eastern (external to Waverley Park) and western lattice towers will be altered as part of a power line upgrade program, with all proposed towers or poles in both the above and underground options increasing slightly in height. A brief summary is included below.

3.2.1 MODIFIED EXISTING ALIGNMENT (ABOVE GROUND)

This alignment is very similar to the existing condition and involves retention of the overhead powerlines and two towers within Waverley Park, the western and central towers, as well as the tower east of Jacksons Road (eastern tower). However, all will be relocated slightly and the existing lattice towers within Waverley Park replaced with pole structures. A single pole with double-sided arms will be located in the central location and a pair of single-sided arm poles located in the western location. The eastern lattice pylon may be replaced with a pair of single-sided arm poles (subject to a separate permit).

3.2.2 UNDERGROUND OPTION (UNDERGROUND)

In this option the western lattice tower will increase in height and is relocated slightly to the west and the central tower is removed. The eastern tower is relocated slightly and replaced with a taller strain tower. Transitioning enclosures with six poles each that connect to the overhead HV powerlines are located near the bases of both the towers. The transitioning enclosure associated with the eastern tower will be located within Waverley Park near Jacksons Road.

The HV line is located underground and runs between the transitioning enclosures.

In the underground option, the lattice towers will be retained and not replaced with poles as in the modified existing alignment.

4 STUDY METHOD

4.1 STATEMENT OF COMPLIANCE

These visualisations have been prepared to comply with the requirements established by the Tribunal in the decision of Austcorp Group Limited v Monash City Council [2006] VCAT 692, which identified a list of items required to accompany photomontages or other computer generated images that are sought to be relied upon by parties before the Tribunal (Appendix B).

I have made all enquires that I believe are desirable and appropriate in order to provide accurate visualisations of the proposed development options and the proposed landscaping. No matters of significance that I regard to be significant have been withheld from the Tribunal.

4.2 VISUAL / PHOTOSIMULATION PREPARATION

Photosimulations and 3D massing model visualisations (based on a computer generated three dimensional [3D] model) have been created for the selected locations shown in Appendix C.

The visualisations have been prepared for a range of indicative sensitive viewpoints that represent a variety of distances from the transmission alignment as well as locations with differing viewing aspects as determined by Michael Barlow.

The visualisations representing views from typical sensitive viewpoints are included within Appendix D.

4.2.1 CAMERA AND POSITION RECORDING

The images that the photosimulations have been based on have been captured with a Canon 6D single lens reflex (SLR), 22MP, full format digital camera with a Canon EF 24-105mm f/4L IS USM lens fitted with a Canon GP-E2 GPS unit. Image details are shown in Table 1.

The focal length used for all images was 24 millimetres (mm). Although generating a wider field of view than a standard 50mm focal length lens, it allowed for the context of the setting to be more fully captured. As all photo simulations for the overhead and underground options were generated on images captured with the 24 mm lens, the images portrayed are directly comparable.

To confirm the accuracy of the photo locations as recorded by the GPS unit, the location for each photo was verified through cross checking of high resolution aerial photography.

Shadows generated by the 3D model have been matched with the time and date of the photography. All 3D massing model views have been generated based on the sun angle for the Spring solstice (23rd September at 12.00 pm).

4.2.2 PHOTOGRAPHERS

Site photography has been undertaken by Ashley Poon and Sarah Lerm of Urbis.

4.2.3 SOFTWARE UTILISED

The following software packages were utilised in the preparation of the photo simulations:

- 3DStudio Max Design 2013 with V-Ray Advanced 1.50 SP6 (3D Modelling and Render Engine).
- AutoCAD 2013 (2D CAD Editing).
- Globalmapper 13 (GIS Data Mapping / Processing).
- Photoshop CC (Photo Editing).

TABLE 1 – VIEWPOINT BEARING AND CAMERA/IMAGE DETAILS

View Number	Above Ground AG / Below Ground BG	Location MGA Easting	Location MGA Northing	Elevation AHD	Bearing degrees from north	Tilt Degrees above horizon	View Type	Time and Date for Shadow Calculation	Aperture	Shutter	ISO
VP01	AG/BG	340,538	5,800,854	93	172	-4	Photo	2014-04-16 122431	11	160	100
VP02	AG/BG	340,798	5,800,927	89	203	5	Photo	2014-07-14 133428	8	320	100
VP03	AG/BG	340,645	5,800,688	88	194	-4	Photo	2014-04-16 124925	13	160	100
VP04	AG/BG	340,526	5,800,551	86	148	-4	Photo	2014-07-14 131411	8	250	100
VP05	AG/BG	340,857	5,800,615	88	231	2	Photo	2014-07-14 143711	8	200	100
VP06	AG	340,989	5,800,530	87	199	3	Photo	2014-07-14 144412	8	250	100
VP07	AG/BG	341,107	5,800,537	89	136	2	Photo	2014-04-16 131427	13	160	100
VP08	AG/BG	341,309	5,800,466	90	226	3	Photo	2014-07-14 145938	7.1	320	100
VP09	AG/BG	341,297	5,800,302	89	314	7	Photo	2014-07-14 150251	7.1	200	100
VP10	AG/BG	341,252	5,800,245	90	10	4	Photo	2014-07-14 130346	8	250	100
VP11	AG/BG	341,104	5,800,059	92	27	0	Photo	2014-07-14 130002	8	200	100
VP12	AG	340,893	5,800,232	89	24	-2	Photo	2014-07-14 125501	8	200	100
VP13	AG/BG	340,719	5,800,304	88	332	1	Photo	2014-07-30 121933	8	200	100
VP14	AG/BG	340,374	5,800,390	76	82	2	Photo	2014-07-14 151523	7.1	125	100
VP15	AG/BG	340,675	5,800,566	87	211	-0	3D Model	2014-09-23 120000	-	-	-
VP16A	AG	340,746	5,800,506	85	257	0	3D Model	2014-09-23 120000	-	-	-
VP16B	BG	340,746	5,800,547	85	236	0	3D Model	2014-09-23 120000	-	-	-
VP17	AG	340,746	5,800,506	85	115	0	3D Model	2014-09-23 120000	-	-	-
VP18	AG/BG	340,938	5,800,396	87	284	-0	3D Model	2014-09-23 120000	-	-	-
VP19	AG	341,090	5,800,392	88	275	0	3D Model	2014-09-23 120000	-	-	-
VP20	AG/BG	340,764	5,800,726	89	198	3	Photo	2014-07-30 133301	8	100	100
VP21	AG/BG	341,092	5,800,394	89	94	0	3D Model	2014-09-23 120000	-	-	-

4.2.4 PROJECT BASE DATA

A 3D model was prepared for the entire site and powerline options. The model was used as the basis for visualisation preparation as well viewshed analysis within GIS. The viewshed analysis GIS outputs are included within the Planning Evidence Report. A description of the viewshed analysis methodology is included within Section 4.3.

The data to allow for the preparation of the base Waverley Park and powerline options 3D models was sourced as follows: a

- Site as built 3D survey data – site civil works – Mirvac.
- Monash Freeway Noise Wall CAD plans – Mirvac.
- Housing product CAD plans for completed and proposed houses – Mirvac.
- Powerline infrastructure CAD plans – Mirvac and Aecom.
- Streetscape Planting Plans – MDG Landscape Architects.
- Open Space / Parkland 3D model - MDG Landscape Architects.
- Aerial photography - Nearmap
- Additional supporting digital GIS data (terrain contours and cadastre) from data obtained from PSMA Australia Ltd, Navigate Pty Ltd and Australian Bureau of Statistics.

4.2.5 VISUALISATION PREPARATION APPROACH

Visualisations have been prepared for both the underground and above ground options. Two different approaches have been undertaken depending on the level of completion of development of the setting. These are:

- Photo simulation – used where the buildings of the existing setting have been completed and a photo has been used as the basis of the simulation image.
- 3D massing model simulation – where buildings have not been developed in the vicinity of the transmission easement / corridor and the view has been created entirely within a 3D model.

A 3D model was prepared for the entire site which included:

- Roadways and overall site grading.
- Adjacent landform / topography.
- Open space areas and water bodies along the transmission easement (based on a model prepared by MDG Landscape Architects).
- Housing – both constructed and not constructed.
- Monash freeway noise wall – both constructed and not constructed.
- Waverley Park grandstand and associated buildings.
- The components of the underground and below ground powerline options including overhead lines.

Fully rendered computer views were set up in 3D Studio Max to match the location and framing of the photos.

The rendered images were then imported into Photoshop (Adobe CC) where the 3D model was digitally integrated with the photo.

Existing buildings as well as the existing pylons were able to be used as registration elements to ensure that the 3D rendered images aligned with the site photos they were to be integrated with.

Additional photosimulations and 3D massing model visualisations were created which incorporated new or proposed vegetation within open space areas or streetscapes. These, indicate growth rates typical for the species for both existing and proposed trees at 10 years post powerline project and estate landscape works completion.

Information regarding proposed vegetation species was provided by MDG Landscape Architects. The assumptions for plant sizes / growth rates for existing and proposed trees are outlined in Table 2.

The resolution of the overhead lines in the photographic images for existing conditions have resulted in some break-up of the line width due to pixilation caused by print resolution and the scale that they have been produced. The overhead lines in the photosimulations and 3D massing model images have been produced so that they display without the break-up occurring.

No change to existing conditions

New Number system	Botanical Name	Common Name	Mature height x width	Existing size (hxw)	Estimate size +10 Years
VP01	Corymbia citriodora	Lemon-scented Gum	25-35m x 11-13m	10m x 4m	15m x 8m(0.5m per year)
	Eucalyptus sideroxylon 'Rosea'	Red Ironbark	10-18m x 8-15m	7m x 5m	10-11m x 7m (0.5m per year)
	Ficus Hillii	Hill's Weeping Fig	15m x 12m	2.5m-3m	7m (0.5 per year)
	Lophostemon confertus	Brush Box	15-20m x 8-10m	7m x 3m	11m x 5-6m (0.5m per year)
	Pyrus calleryana 'Bradford'	Bradford Pear	12m x 9m	6m x 3.5-4m	8m x 5.5-6m
	Syzygium smithii	Lilly-pilly	8-18m x 5-6m	Hidden	Hidden
VP02	Gleditsia triacanthos var. inermis 'Shapemaster'	Honey-locust	11m x 8m	2.5-3m x 2m	5-6m
	Cupaniopsis anacardioides	Green-leaved Tamarind/ Tuckaroo	8m x 5-8m	2.5-3m	5m x 4m (0.5m per year)
	Lagerstroemia indica x L. fauriei 'Natchez'	Crepe Myrtle	8m x 6m	Hidden	Hidden
	Lagerstroemia indica x L. fauriei 'Tuscarora'	Crepe Myrtle	5-6m x 4	Hidden	Hidden
	Magnolia grandiflora 'Little Gem'	Dwarf magnolia	4-8m x 2.5-5m	3-4m x 2m	4-5m x 3-4m
	Pyrus calleryana 'Capital'	Capital Pear	8-10m x 3m	Hidden	Hidden
	Tristaniopsis laurina	Kanooka/ Water Gum	5-20m x 4-8m	Hidden	Hidden
	Ulmus parvifolia	Chinese Elm	10m x 11m (in 20 years)	6m x 5-6m	8m x 7m

New Number system	Botanical Name	Common Name	Mature height x width	Existing size (hxw)	Estimate size +10 Years
VP03	Acer 'October Glory'	October Glory	12m x 9m	5-6m	9-10m (0.5m per year)
	Ficus hillii	Hill's Weeping Fig	15m x 12m	2.5-3m	7m (0.5 per year)
	Liriodendron tulipifera 'fastigiata'	Tulip magnolia	13m x 5m	5-6m	10-11m (0.5m per year)
	Lophostemon confertus	Brush Box	15-20m x 8-10m	Hidden	Hidden
	Zelkova serrata 'Green Vase'	Japanese Elm	14m x 10m	5-6m	10-11m (0.5m per year)
VP04	Ficus hillii	Hill's Weeping Fig	15m x 12m	2.5-3m	7m (0.5 per year)
VP05	Ficus hillii	Hill's Weeping Fig	15m x 12m	2.5m	7m (0.5 per year)
	Existing Eucalytpus sp.	-	-	14m x 10m*	15m x 11m*
VP06	Ficus hillii	Hill's Weeping Fig	15m x 12m	2m	7m (0.5 per year)
	Lagerstroemia indica x L. fauriei 'Natchez'	Crepe Myrtle	8m x 6m	2.5m	5m (0.5 per year)
VP07	Corymbia citriodora	Lemon-scented Gum	25-35m x 11-13m	8m x 3m	13m (0.5 per year)
	Ficus hillii	Hill's Weeping Fig	15m x 12m	2m x 1.5m	7m (0.5 per year)
	Plantanus orientalis	Oriental Plane	15m x 10m	Hidden	Hidden
	Pyrus calleryana 'Redspire'	Redspire Pear	8-10m x 7m	Hidden	Hidden
	Ulmus parvifolia	Chinese Elm	10m x 11m (in 20 years)	2m x 2.5m	7m x 4m (0.5m per year)
VP08	Corymbia citriodora	Lemon-scented Gum	25-35m x 11-13m	5m x 3m	10m x 5m (0.5m per year)
	Pyrus calleryana 'Redspire'	Redspire Pear	8-10m x 7m	Hidden	8m
VP09	Corymbia citriodora	Lemon-scented Gum	25-35m x 11-13m	5m x 3m	10m x 5m (0.5m per year)
	Existing Eucalyptus Street Tree	-	-	Varies	As shown (trees pruned due
VP10	Corymbia citriodora	Lemon-scented Gum	25-35m x 11-13m	5m x 3m	10m x 5m (0.5m per year)
	Existing Eucalyptus Street Tree	-	-	Varies	As shown (trees pruned due
VP11	Ficus hillii	Hill's Weeping Fig	15m x 12m	2.5m - 3m	7.5m (0.5 per year)
VP12	Angophora costata	Smooth-barked Apple	10-18m x 8-10m	3m	8m (0.5m per year)
	Eucalyptus pauciflora 'Little Snowman'	Snow Gum	7-15m x 4-7m	2.5m x 1m	7m (0.5m per year)
	Eucalyptus sideroxylon 'Rosea'	Red Ironbark	10-18m x 8-15m	3m	7-8m (0.5m per year)
	Lagerstroemia indica x L. fauriei 'Natchez'	Crepe Myrtle	8m x 6m	2m	5m (0.5 per year)
	Pyrus calleryana 'Chanticleer'	Chanticleer Pear	10m x 7m	3m	8m (0.5m per year)

New Number system	Botanical Name	Common Name	Mature height x width	Existing size (hxw)	Estimate size +10 Years
VP13	Allocasuarina littorallis	Black She-oak	5-12m x 4-5m	Hidden	Hidden
	Angophora costata	Smooth-barked Apple	10-18m x 8-10m	2.5m	9-10m (0.5m per year)
	Eucalytpus melliodora	Yellow Box	15-28m x 8-10m	2m	5-6m (0.5m per year)
VP14	Existing Street Trees	-	-	Varies	As Shown*
VP20	Franxinus angustifolia 'Raywood'	Claret Ash	12m x 9m (in 20 years)	Hidden	Hidden
	Lophostemon confertus	Brush Box	15-20m x 8-10m	Hidden	Hidden
	Ulmus parvifolia	Chinese Elm	10m x 11m (in 20 years)	6m x 5-6m	8m x 7m
	Unknown Eucalyptus	-	-	8.5-9m x 2.5m *	15m x 4-5m *

* Growth rate estimated as per standard tree growth rates (accounting for slowing of growth rate as specimen reaches maturity).

4.3 GIS – VIEWSHED ANALYSIS APPROACH

Two land surfaces were generated (one for above ground and another for underground) which had a grid of X,Y & Z values across the site. Firstly the points were imported and converted to a raster surface at a 1m by 1m grid resolution, generating a continuous raster surface from the gridded point data using an interpolation technique within ESRI Arcmap.

The two sets of built form 3D model for the two options imported as a multipatch feature were imported into ESRI's Arcmap GIS software and converted into a raster surface. This was then moved to its real world location and a data layer was built using the 3D building models to represent the individual buildings as polygons.

Once the two land surfaces and the two built environment surfaces (both reflecting an absolute height expressed in Australian Height Datum [AHD]) were created they were combined into one surface suitable for modelling line of sight or viewshed.

Each piece of physical infrastructure for both options was then created as a point from known latitude and longitude data and assigned an appropriate Z value or feature height within Arcmap. Finally, for various heights up each piece of infrastructure the appropriate viewsheds were run using the "viewshed" command in the 3D extension of Arcmap.

Note that each viewshed was undertaken with a set observer height of 1.5m. All viewshed output was clipped to the extent of the Waverley Park estate to prevent the output bleeding beyond the area where no built form model existed.

5 CONCLUSION

In my opinion the photosimulations and 3D massing visualisations prepared by Urbis under my direction provide a realistic representation of how the project will appear, both without landscape and with existing and proposed landscape, 10 years following completion of powerline construction and estate development, assuming typical expected growth rates for the plant species.

The visualisations were developed from client supplied CAD drawings, an overall 3D site model developed by Urbis based on client supplied data, and models of open space areas provided by landscape architects, and accurately reflect the information provided in those drawings.

APPENDICES

APPENDIX A

VCAT PRACTICE NOTE 2

A.1 VCAT PRACTICE NOTE 2: EXPERIENCE & PROFESSIONAL EXPERTISE

1. Name and Professional Address of Expert

Peter Haack.
Studio Director, Landscape Architecture and Urban Design.
Urbis.
Level 12, 120 Collins Street, Melbourne.
Telephone No: 8663 4888, Facsimile No: 8663 4999.

2. Qualifications and experience

Bachelor of Landscape Architecture, RMIT 1990.

Diploma of Applied Science (Amenity Horticulture), Burnley VCAH, 1981.

Registered Landscape Architect – # 000619 – Current.

Fellow of the Australian Institute of Landscape Architects (AILA).

Member AILA National Course Accreditation Panel, 2007 – Current.

Member Parks and Leisure Australia- Current.

Experience

Loder and Bayly Consulting Group - Associate, 1985 – 1995.

EDAW / AECOM - Senior Associate and Principal, 1995 – 2008.

Urbis - Lead Director, Design Studio, July 2008 onwards.

I have over 29 years' experience on a diverse range of projects, locally, nationally and overseas. Typical landscape architectural experience includes landscape and visual impact assessment, open space planning and design, master planning and concept design of public urban and open space areas and the preparation of management plans for natural and recreational areas.

3. Area of expertise

My work has encompassed most aspects of landscape architecture and I have particular expertise in the preparation of landscape and visual impact assessments, having directed and managed many visual assessments including a number of high profile projects. A key component of our visual assessment expertise is the preparation of 3D models and visual simulations to support planning approvals and Environmental Effects Statements. Notable project types include:

- Wind farms;
- Powerlines, generation and infrastructure;
- Telecommunications;
- Industrial and port and logistics infrastructure;
- Mining projects;

- Transport infrastructure; and
- General advice on landscape amelioration.

4. Expertise to prepare this Report

I have worked as a Landscape Architect for over 29 years as a consultant and have extensive experience in providing evidence to planning panels for major EES studies as well as the Tribunal. My horticultural expertise also equips me with the ability to resolve and manage complex issues relating to the establishment and management of visually ameliorative landscapes.

I have undertaken visual impact assessments for both private sector and Government clients.

5. Instructions received in relation to this matter

This report has been prepared following written and verbal instructions from Norton Rose Fulbright Lawyers on behalf of Mirvac Victoria Pty Ltd. There have been no other supplementary instructions.

6. Facts, matters and assumptions upon which the report proceeds

The report assumes that the briefing material provided by Norton Rose Fulbright Lawyers is correct as it has been used as the basis for the preparation of photo simulations.

7. Reference documents used to prepare the photo simulations

As specified in the evidence.

8. Identity of the person and Supporting Professionals

I have reviewed the briefing material provided by Norton Rose Fulbright Lawyers.

Other persons relied upon in the preparation of this report:

- Mr Ashley Poon - Urbis, Bachelor of Planning and Design (Architecture) with over 10 years' experience in architectural visualisation. Modelling and CAD Expert, who prepared the model of the transmission line options and the various photomontages of the two options.
- Mr Michael Barlow – Urbis, Town Planning expert, with whom I collaborated regarding the identification of sensitive viewpoints from which to prepare photo simulations
- Mr Barry Murphy, Landscape Architect for the Waverley Park project.

APPENDIX B

VCAT VISUALISATION REQUIREMENTS

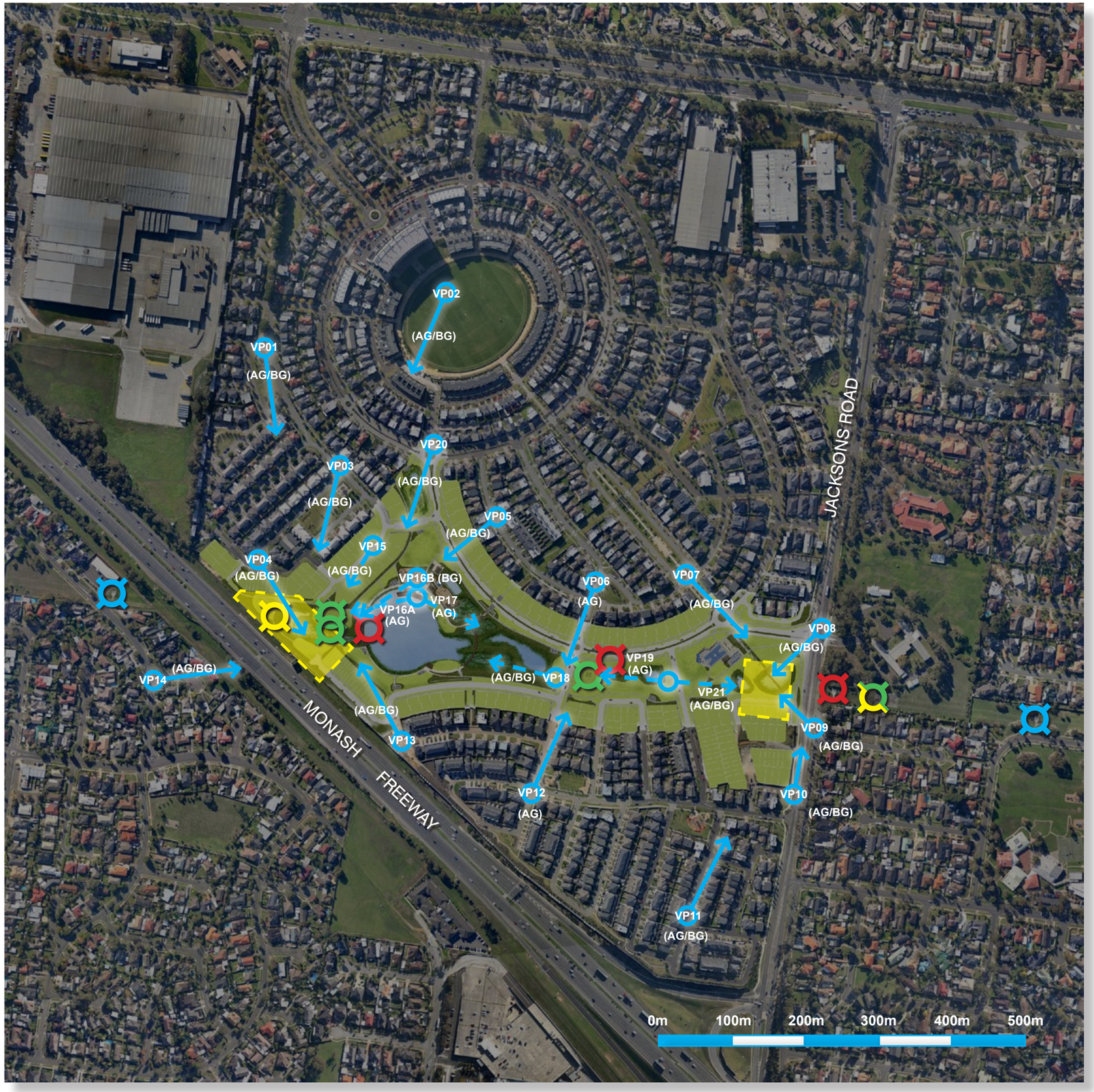
B.1 VCAT REQUIREMENTS FOR PHOTO MONTAGES AND COMPUTER GENERATED IMAGES

As determined by the Tribunal in the decision of Austcorp Group Limited v Monash City Council [2006] VCAT 692, the following information is to accompany photo montages or other computer generated images:

- A written statement explaining the methodology used for the preparation of images, including:
  - The identity and qualifications of persons involved in the preparation of the images including data collection;
  - The name and version of the software programme(s) used to prepare the images;
  - The methodology used to collect relevant data (for example whether survey data has been obtained from topographical maps or field work);
  - The camera brand and model including whether digital or SLR;
  - Camera lens size and type and whether the camera was horizontal or tilted. If tilted the angle should be stated;
  - Time of day and ate of all relevant data (including when photographs were taken, survey information obtained and the like);
  - The height above ground level from which all images have been taken / would be viewed;
  - Details of any existing elements that have been reconstructed or modified (other than the proposal itself) such as modifications to existing vegetation, re-instatement of cross-over's and the like;
  - Any assumptions relied upon;
  - A plan showing the location from which all images have been prepared / would be viewed and the angle of view;
  - A photograph of the existing conditions;
  - A photomontage of the proposal based on the same lens type/size and location as the existing conditions photograph (to enable direct comparisons) without the inclusion of any proposed landscaping;
  - A second photomontage image showing the proposal with any proposed landscaping, including delineation of the proposed building outline in the background.

APPENDIX C

VISUALISATION LOCATIONS



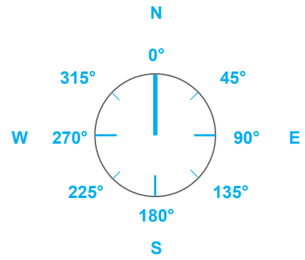
Existing Transmission Towers
- To be removed with Above and Below Ground Options

Existing Transmission Towers
- To be retained

Transitioning Enclosures Boundary
- Below Ground Option Only

Proposed Strain Towers
- Below Ground Option Only

Proposed Transmission Towers
- Above Ground Option Only



Photosimulation views
- Existing Public Roads
(15 views locations)

3D model only views
- From Proposed Park / Proposed Public Roads
(no photo available)
(6 view locations)

TOTAL : 21 view locations

urbis
Melbourne
Level 12, 120 Collins Street
Melbourne VIC 3000
t 03 8663 4888
Urbis Pty Ltd ABN 50 105 256 228

Waverley Park, Mulgrave | VCAT Ref No. P768/2014

Photosimulation & 3D Model Views towards Proposed Infrastructure - Above & Below Ground Options

SCALE: NOT TO SCALE

PROJECT NO: MD3314
DATE: 08-08-2014
ISSUE: VCAT P768/2014
DRAWING NO: VIEWS
REV: VCAT

APPENDIX D

VISUALISATIONS

D.1 INDEX OF PHOTOSIMULATION IMAGES

Viewpoint No.	Image Title	Drawing No.
VP01	Existing Conditions 2014-04-16	VP01_EC
VP01	Proposed Conditions with massing 3D model - Above Ground Option with existing trees	VP01_AG1
VP01	Proposed Conditions with massing 3D model - Above Ground Option with existing & proposed trees in ten years, typical of species	VP01_AG2
VP01	Proposed Conditions with massing 3D model - Below Ground Option with existing trees	VP01_BG1
VP01	Proposed Conditions with massing 3D model - Below Ground Option with existing & proposed trees in ten years, typical of species	VP01_BG2
VP02	Existing Conditions 2014-07-14	VP02_EC
VP02	Proposed Conditions with massing 3D model - Above Ground Option with existing trees	VP02_AG1
VP02	Proposed Conditions with massing 3D model - Above Ground Option with existing & proposed trees in ten years, typical of species	VP02_AG2
VP02	Proposed Conditions with massing 3D model - Below Ground Option with existing trees	VP02_BG1
VP02	Proposed Conditions with massing 3D model - Below Ground Option with existing & proposed trees in ten years, typical of species	VP02_BG2
VP03	Existing Conditions 2014-04-16	VP03_EC
VP03	Proposed Conditions with massing 3D model - Above Ground Option with existing trees	VP03_AG1
VP03	Proposed Conditions with massing 3D model - Above Ground Option with existing & proposed trees in ten years, typical of species	VP03_AG2
VP03	Proposed Conditions with massing 3D model - Below Ground Option with existing trees	VP03_BG1
VP03	Proposed Conditions with massing 3D model - Below Ground Option with existing & proposed trees in ten years, typical of species	VP03_BG2
VP04	Existing Conditions 2014-07-15	VP04_EC
VP04	Proposed Conditions with massing 3D model - Above Ground Option with existing trees	VP04_AG1
VP04	Proposed Conditions with massing 3D model - Above Ground Option with existing & proposed trees in ten years, typical of species	VP04_AG2
VP04	Proposed Conditions with massing 3D model - Below Ground Option with existing trees	VP04_BG1
VP04	Proposed Conditions with massing 3D model - Below Ground Option with existing & proposed trees in ten years, typical of species	VP04_BG2
VP05	Existing Conditions 2014-07-14	VP05_EC

Viewpoint No.	Image Title	Drawing No.
VP05	Proposed Conditions with massing 3D model - Above Ground Option with existing trees	VP05_AG1
VP05	Proposed Conditions with massing 3D model - Above Ground Option with existing & proposed trees in ten years, typical of species	VP05_AG2
VP05	Proposed Conditions with massing 3D model - Below Ground Option with existing trees	VP05_BG1
VP05	Proposed Conditions with massing 3D model - Below Ground Option with existing & proposed trees in ten years, typical of species	VP05_BG2
VP06	Existing Conditions 2014-07-15	VP06_EC
VP06	Proposed Conditions with massing 3D model - Above Ground Option with existing trees	VP06_AG1
VP06	Proposed Conditions with massing 3D model - Above Ground Option with existing & proposed trees in ten years, typical of species	VP06_AG2
VP07	Existing Conditions 2014-04-16	VP07_EC
VP07	Proposed Conditions with massing 3D model - Above Ground Option with existing trees	VP07_AG1
VP07	Proposed Conditions with massing 3D model - Above Ground Option with existing & proposed trees in ten years, typical of species	VP07_AG2
VP07	Proposed Conditions with massing 3D model - Below Ground Option with existing trees	VP07_BG1
VP07	Proposed Conditions with massing 3D model - Below Ground Option with existing & proposed trees in ten years, typical of species	VP07_BG2
VP08	Existing Conditions 2014-07-15	VP08_EC
VP08	Proposed Conditions with massing 3D model - Above Ground Option with existing trees	VP08_AG1
VP08	Proposed Conditions with massing 3D model - Above Ground Option with existing & proposed trees in ten years, typical of species	VP08_AG2
VP08	Proposed Conditions with massing 3D model - Below Ground Option with existing trees	VP08_BG1
VP08	Proposed Conditions with massing 3D model - Below Ground Option with existing & proposed trees in ten years, typical of species	VP08_BG2
VP09	Existing Conditions 2014-07-15	VP09_EC
VP09	Proposed Conditions with massing 3D model - Above Ground Option with existing trees	VP09_AG1
VP09	Proposed Conditions with massing 3D model - Above Ground Option with existing & proposed trees in ten years, typical of species	VP09_AG2
VP09	Proposed Conditions with massing 3D model - Below Ground Option with existing trees	VP09_BG1

Viewpoint No.	Image Title	Drawing No.
VP09	Proposed Conditions with massing 3D model - Below Ground Option with existing & proposed trees in ten years, typical of species	VP09_BG2
VP10	Existing Conditions 2014-07-14	VP10_EC
VP10	Proposed Conditions with massing 3D model - Above Ground Option with existing trees	VP10_AG1
VP10	Proposed Conditions with massing 3D model - Above Ground Option with existing & proposed trees in ten years, typical of species	VP10_AG2
VP10	Proposed Conditions with massing 3D model - Below Ground Option with existing trees	VP10_BG1
VP10	Proposed Conditions with massing 3D model - Below Ground Option with existing & proposed trees in ten years, typical of species	VP10_BG2
VP11	Existing Conditions 2014-07-14	VP11_EC
VP11	Proposed Conditions with massing 3D model - Above Ground Option with existing trees	VP11_AG1
VP11	Proposed Conditions with massing 3D model - Above Ground Option with existing & proposed trees in ten years, typical of species	VP11_AG2
VP11	Proposed Conditions with massing 3D model - Below Ground Option with existing trees	VP11_BG1
VP11	Proposed Conditions with massing 3D model - Below Ground Option with existing & proposed trees in ten years, typical of species	VP11_BG2
VP12	Existing Conditions 2014-07-15	VP12_EC
VP12	Proposed Conditions with massing 3D model - Above Ground Option with existing trees	VP12_AG1
VP12	Proposed Conditions with massing 3D model - Above Ground Option with existing & proposed trees in ten years, typical of species	VP12_AG2
VP13	Existing Conditions 2014-07-30	VP13_EC
VP13	Proposed Conditions with massing 3D model - Above Ground Option with existing trees	VP13_AG1
VP13	Proposed Conditions with massing 3D model - Above Ground Option with existing & proposed trees in ten years, typical of species	VP13_AG2
VP13	Proposed Conditions with massing 3D model - Below Ground Option with existing trees	VP13_BG1
VP13	Proposed Conditions with massing 3D model - Below Ground Option with existing & proposed trees in ten years, typical of species	VP13_BG2
VP14	Existing Conditions 2014-07-15	VP14_EC
VP14	Proposed Conditions with massing 3D model - Above Ground Option with existing trees	VP14_AG1

Viewpoint No.	Image Title	Drawing No.
VP14	Proposed Conditions with massing 3D model - Above Ground Option with existing & proposed trees in ten years, typical of species	VP14_AG2
VP14	Proposed Conditions with massing 3D model - Below Ground Option with existing trees	VP14_BG1
VP14	Proposed Conditions with massing 3D model - Below Ground Option with existing & proposed trees in ten years, typical of species	VP14_BG2
VP15	Proposed Conditions with massing 3D model - Above Ground Option without proposed trees	VP15_AG1
VP15	Proposed Conditions with massing 3D model - Above Ground Option with proposed trees in ten years, typical of species	VP15_AG2
VP15	View Location VP15|Proposed Conditions with massing 3D model - Below Ground Option without proposed trees	VP15_BG1
VP15	Proposed Conditions with massing 3D model - Below Ground Option with proposed trees in ten years, typical of species	VP15_BG2
VP16A	Proposed Conditions with massing 3D model - Above Ground Option without proposed trees	VP16A_AG1
VP16A	Proposed Conditions with massing 3D model - Above Ground Option with proposed trees in ten years, typical of species	VP16A_AG2
VP16B	Proposed Conditions with massing 3D model - Below Ground Option without proposed trees	VP16B_BG1
VP16B	Proposed Conditions with massing 3D model - Below Ground Option with proposed trees in ten years, typical of species	VP16B_BG2
VP17	Proposed Conditions with massing 3D model - Above Ground Option without proposed trees	VP17_AG1
VP17	Proposed Conditions with massing 3D model - Above Ground Option with proposed trees in ten years, typical of species	VP17_AG2
VP18	Proposed Conditions with massing 3D model - Above Ground Option without proposed trees	VP18_AG1
VP18	Proposed Conditions with massing 3D model - Above Ground Option with proposed trees in ten years, typical of species	VP18_AG2
VP18	Proposed Conditions with massing 3D model - Below Ground Option without proposed trees	VP18_BG1
VP18	Proposed Conditions with massing 3D model - Below Ground Option with proposed trees in ten years, typical of species	VP18_BG2
VP19	Proposed Conditions with massing 3D model - Above Ground Option without proposed trees	VP19_AG1
VP19	Proposed Conditions with massing 3D model - Above Ground Option with proposed trees in ten years, typical of species	VP19_AG2
VP20	Existing Conditions 2014-07-30	VP20_EC

Viewpoint No.	Image Title	Drawing No.
VP20	Proposed Conditions with massing 3D model - Above Ground Option with existing trees	VP20_AG1
VP20	Proposed Conditions with massing 3D model - Above Ground Option with existing & proposed trees in ten years, typical of species	VP20_AG2
VP20	Proposed Conditions with massing 3D model - Below Ground Option with existing trees	VP20_BG1
VP20	Proposed Conditions with massing 3D model - Below Ground Option with existing & proposed trees in ten years, typical of species	VP20_BG2
VP21	Proposed Conditions with massing 3D model - Above Ground Option without proposed trees	VP21_AG1
VP21	Proposed Conditions with massing 3D model - Above Ground Option with proposed trees in ten years, typical of species	VP21_AG2
VP21	Proposed Conditions with massing 3D model - Below Ground Option without proposed trees	VP21_BG1
VP21	Proposed Conditions with massing 3D model - Below Ground Option with proposed trees in ten years, typical of species	VP21_BG2

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