



CLOUSTON associates



Goodman
OAKDALE WEST INDUSTRIAL ESTATE
VISUAL IMPACT ASSESSMENT

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Cover Image:

On the ridge looking toward the Emmaus Catholic College • Oakdale West

OAKDALE WEST INDUSTRIAL ESTATE VISUAL IMPACT ASSESSMENT



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1.0 introduction



1.0 INTRODUCTION

1.1 INTRODUCTION

Oakdale West is part of an extensive industrial estate development by Goodman Pty Ltd. The site is located within the Penrith LGA, at the south western end of Old Wallgrove Road in Western Sydney. The 154 hectares of open land is located within the Western Sydney Employment Area. The land is formally identified as Lot 11, DP1178389.

1.2 PURPOSE OF REPORT

CLOUSTON Associates has been commissioned by Goodman to prepare the Visual Impact Assessment (VIA) for the proposed Oakdale West site (hereafter, referred to as 'the Project'), to accompany the Urban Design Report prepared by e8urban Pty Ltd.

This Visual Impact Assessment should be read in conjunction with that report and provides a third party impact assessment independent of the design process of the key views identified in the e8urban report.

1.3 REPORT CONTEXT

Visual Impact Assessment (VIA) ensures that all effects of change and development in the landscape, views and visual amenity are taken into account. It is concerned with how the surroundings of individuals or groups of people may be specifically affected by these changes both quantitatively and qualitatively.

The Landscape Institute and the Institute of Environmental Management and Assessment in the UK have prepared and republished a suite of guidelines for VIA preparation since 2002. They define landscape effects as follows:

"Landscape effects derive from changes to the physical landscape, which may give rise to changes in its character and how it is experienced. This may in turn affect the perceived value ascribed to the landscape."

"Visual effects relate to the changes that arise from the composition of available views as a result of changes to the landscape, to people's response to the changes, and to the overall effects with respect to visual amenity."

Judgement as to the significance of the effects is arrived at by a process of reasoning, based upon analysis of the baseline conditions, identification of receptors and assessment of their sensitivity, as well as the magnitude and nature of the changes that may result from any development.

This VIA is an independent report and is based on a professional analysis of the landscape and the Project at the time of writing. While the Goodman team has held discussions with adjoining landowners, the current and potential future viewers (visual receptors) have not been consulted about their perceptions by the authors.

The analysis and conclusions are therefore based solely on a professional assessment of the anticipated impacts, based on a best practice methodology.

1.0 INTRODUCTION

1.4 METHODOLOGY CONTEXT

VIA is by its nature an inexact science and consequently is subject to varied methodologies both in Australia and overseas. Potentially subjective assessment material and differences of opinion about how to best assess visual characteristics, qualities, degrees of alteration and viewer sensitivity often arise.

As a consequence, and as identified by the NSW Land and Environment Court, the key to a robust process is to explain clearly the criteria upon which an assessment is made. Whilst various state governments have generated specific methodologies, no Australian national framework exists for Visual Impact Assessment.

Within NSW, there are two recognised guidelines:

- Guidelines for Landscape Character and Visual Impact Assessment by Roads and Maritime Service (RMS)
- Appendix D of the Sydney Harbour Foreshores DCP as published by the NSW Department of Planning
- Guidelines for VIA preparation for wind farms by the NSW Department of Planning.

The RMS methodology has been considered the most relevant for this assessment.

1.5 THE PROJECT

The Project comprises 22 industrial buildings with varying floor areas and up to approximately 14 metres in height. It is a new employment area with associated service areas, public domain and landscape. Proposed North South Link Road forms a new connection between Lenore Road to the north and Bakers Lane to the south which provide access to the site.

e8urban summarises anticipated land uses, site layout and proposed landform changes as set out below.

1.5.1 Anticipated Land Uses

The master plan and indicative buildings would offer a range of large flexible building footprints. These buildings would offer flexibility for a number of employment uses consistent with the objectives for the Western Sydney Employment Lands and IN1 industrial zoning. The uses may include high quality industrial, commercial and distribution development.

1.5.2 Site Layout

The Master Plan drawing (Figure 1) shows the proposed site layout, and indicative building footprints. The site layout has been developed according to the existing structure plan and responds to site features such as Ropes Creek and existing and proposed infrastructure.

The development will provide a mix of 22 large and small footprint buildings consistent with the permitted land use.

1.0 INTRODUCTION

The site planning is arranged along the main estate road that runs around the edges of the site and provides access into individual building allotments.

There are three key constraints influencing the eastern side of the site, Ropes Creek, the Ausgrid power line easement and the future Southern Link Road corridor. Building lots on the eastern side of the site are arranged to suit these constraints.

Building sites on the western side of the SLR have been arranged to reflect site topography and provide setbacks to the adjacent development. The buildings along the southern site boundary are sited to closest to the site boundary, although pockets of open areas have been located in breaks between the buildings in the area adjacent to the existing residential property to Bakers Lane.

1.5.3 Proposed Landform Changes

The master plan will require significant change to the levels across the site. The major change to existing ground levels will be the cutting of the major ridge line and spurs that runs from the south to the north of the site.

The ground level at the existing high point in the site will be lowered by over ten metres - from an existing high point around RL. 92 being reduced to approximately RL. 80.

The level change along the eastern and western boundary will be limited due to the presence of mature vegetation that will be retained. Site grading and retaining walls will be utilised along the western and southern boundaries to manage level changes.



Figure 1 - Proposed Master Plan, Image Courtesy of SBA Architects

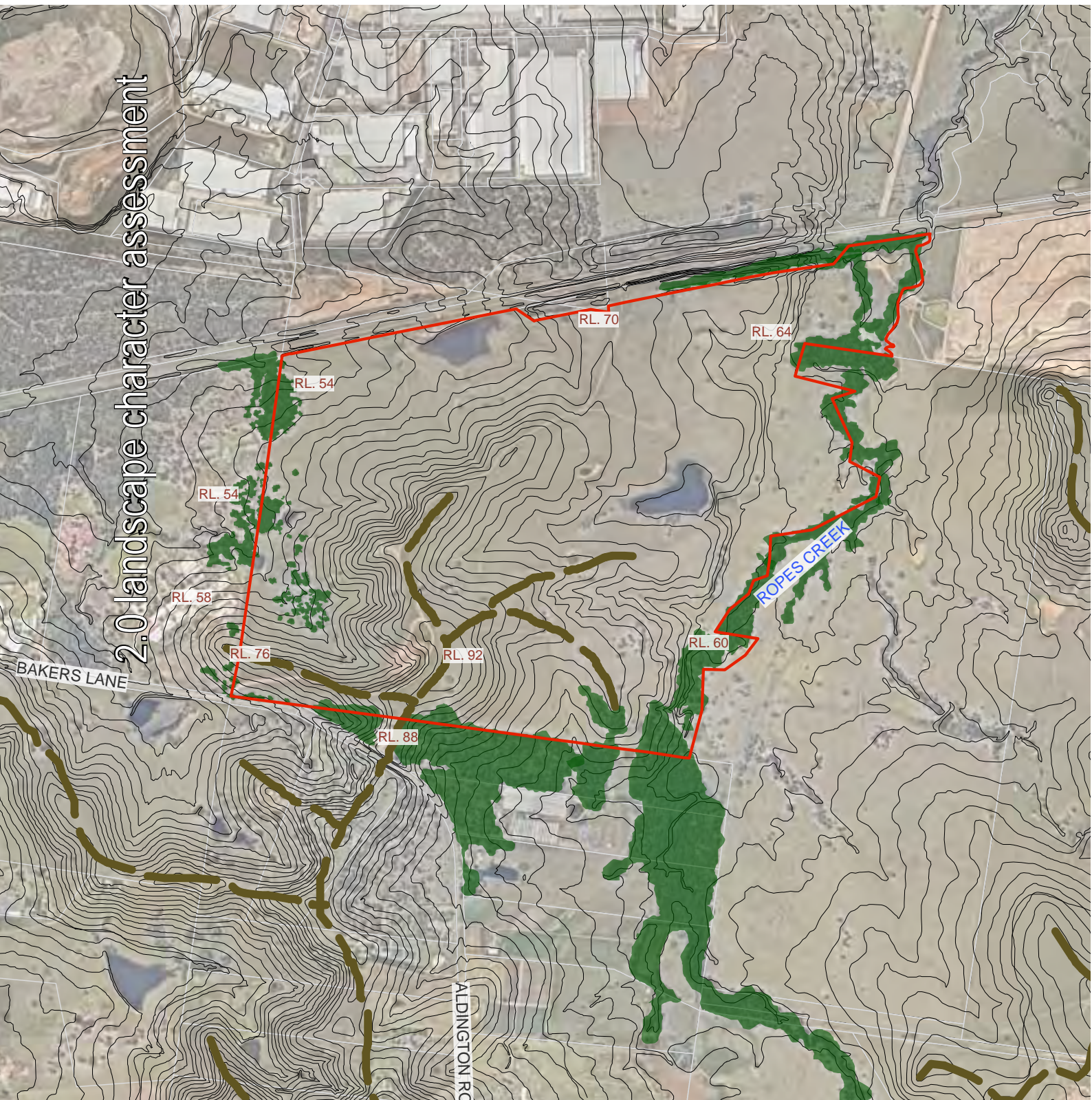


Figure 2 - Topography of Oakdale West Site

2.0 LANDSCAPE CHARACTER

2.1 CHAPTER OVERVIEW

This section of the VIA provides an overview of the existing landscape character of the study area including topography, land use, built form and vegetation.

The study area specific to the landscape character assessment comprises the land within and surrounding the Project site to a distance of approximately 2km, based largely on the site's relatively limited visual catchment.

2.2 PROJECT AREA

The site is bounded to the north by the Sydney Water pipeline and an existing industrial estate, with Emmaus Catholic College and aged care facility adjoining the western boundary.

An existing large lot residential property accessed from Bakers Lane is located to the south of the site. The approved Oakdale South Estate employment development and Ropes Creek is located to the east of the site with a shared boundary. (see Figure 3) A 30 metre wide transmission line easement runs along the western edge of the site.

2.2.1 Topography

The topography of the site is of a rolling ridge and valley nature. The site generally falls from south (RL. 88) to north (RL. 70) and east (RL. 64 and RL. 60) to west (RL. 57 and RL. 58). The high point of the ridge is at RL. 92 which is approximately in the middle portion of the site and close to the southern boundary.

The long main ridge runs through the middle portion of the site on a north south alignment, falling to east, west and north, with several spurs to the east and west. The fall along the eastern boundary is less pronounced descending from RL. 64 in the north to RL. 60 in the south. (see Figure 2)

2.2.2 Land Use

The existing land use of the proposed site is grazing farm land. An abandoned cottage sits on top of the ridge and it was the accommodation for the farm manager. The site is mainly open grassland with woody vegetation mostly confined to small groups of individual trees and larger areas on the eastern and western boundaries. There is existing vegetation along the Ropes Creek, the western boundary and the property adjacent to the southern side of the proposed development.

2.2.3 Flora

The eastern site boundary is heavily vegetated with mature trees along the Ropes Creek corridor which forms a natural buffer between the site and the Oakdale South Development. The southern site boundary is also heavily vegetated with mature trees; however, the trees are located on the adjacent land rather than the site itself. There is no vegetation between the dwelling on Bakers Lane and the Project site. The western boundary has pockets of mature vegetation on the site boundary with significant clusters around the buildings that comprise the Emmaus Seniors Living facility.

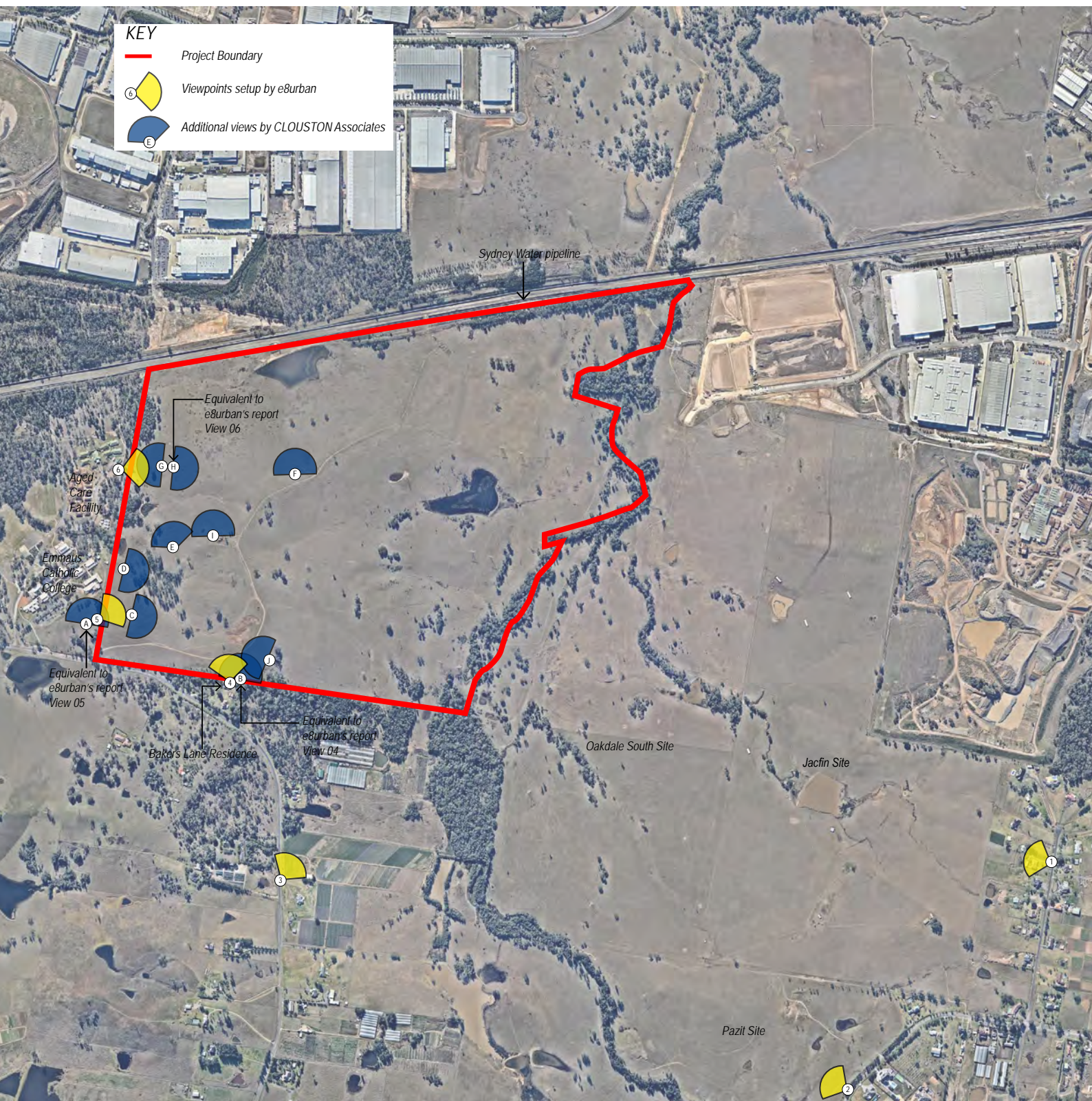


Figure 3 - Viewpoints' Location

2.0 LANDSCAPE CHARACTER

2.3 VIEWPOINTS SETUP BY e8urban

e8urban selected a series of specific viewpoints where it was considered the development would be most visible for adjoining land users (see Visual Impact Assessment). These are set out below.



Viewpoint 1 (refer to Figure 3)



Viewpoint 2 (refer to Figure 3)



Viewpoint 2 (refer to Figure 3)

2.0 LANDSCAPE CHARACTER



Viewpoint 4 (refer to Figure 3)



Viewpoint 5 (refer to Figure 3)



Viewpoint 6 (refer to Figure 3)

2.0 LANDSCAPE CHARACTER

2.4 ADDITIONAL VIEWS BY CLOUSTON Associates

The following views by CLOUSTON provide additional context on the character of the site and wider context of the views selected by e8urban.



Viewpoint A (refer to Figure 3)



Viewpoint B (refer to Figure 3)



Viewpoint C (refer to Figure 3)



Viewpoint D (refer to Figure 3)

2.0 LANDSCAPE CHARACTER



Viewpoint E (refer to Figure 3)



Viewpoint F (refer to Figure 3)



Viewpoint G (refer to Figure 3)

2.0 LANDSCAPE CHARACTER



Viewpoint H (refer to Figure 3)



Viewpoint I (refer to Figure 3)



Viewpoint J (refer to Figure 3)



3.0 VISUAL IMPACT ASSESSMENT

3.1 CHAPTER OVERVIEW

This section of the report provides an overview of the existing visual environment of the study area and the expected visual impacts of the Project.

Through a desktop analysis and site visit, a study area of approximately 2km offset from the Project site was identified, based on topography, vegetation, receptor location and viewing distance.

It is important to note that some elements of the Project may be visible from areas of the landscape beyond the nominated study area, such as elevated ground to the north and west. These areas are however at a distance where any views will be part of a much larger viewframe and visual impacts are expected to be negligible.

3.2 EXISTING VISUAL ENVIRONMENT AND KEY RECEPTORS

As outlined in the previous section, there are three principal receptors within the immediate visual catchment (Zone of Visual Influence) of the development. These receptors are Emmaus College, the aged care facility and the Bakers Lane residence. The three properties immediately adjoin the development site.

The master plan proposes major level changes to existing ground levels. The high point of the Ridge around RL.92 will be lowered over 10 metres to RL.80. This will reduce the visual impact to the southern resident on Bakers Lane. However, there will be limited level changes along the eastern and western boundary due to the significant amount of existing vegetation. Furthermore, a 40 metre wide landscape buffer is proposed for the eastern boundary.

3.0 VISUAL IMPACT ASSESSMENT

3.3 REPRESENTATIVE VIEWPOINTS

Based on the topographical and landscape desktop analysis of the proposed master plan, and an understanding of the predominant land uses around the site, a site visit was undertaken to finalise the Surveyed views. e8urban selected the following representative viewpoints for further analysis - refer to Figure 4.

Viewpoints

- Viewpoint 1 - Greenway place at RL 99 **
- Viewpoint 2 - Capitol Hill Drive at RL 74.5 **
- Viewpoint 3 - Adlington Road RL 81.1 **
- Viewpoint 4 - Private Residence on Bakers Lane at RL 89.5
- Viewpoint 5 - Emmaus Catholic College at RL 76.9
- Viewpoint 6 - Emmaus Residential Aged Care at RL 56.6.

**For the purpose of this report, Viewpoint 1, 2 and 3 have been excluded from assessment as they relate principally to the Oakdale South Site. The Oakdale West Site is not visible from these viewpoints.

3.4 METHODOLOGY

This report has adopted the RMS Guidelines for Visual Impact Assessment (refer Section 1.4 'Methodology Context' of this report for more information). The overall impact rating of the Project on any given receptor is reached by professional judgement based on factors of magnitude and sensitivity.

Sensitivity

Each visual receptor type has an inherent and varied sensitivity to change in the visual scene based on the personal context in which the view is being experienced. This would have a direct bearing on the perception of visual impact experienced by the receptor and qualifies the quantitative impacts. Table 3, Assessment Criteria, describes the levels of sensitivity for each receptor type.

Magnitude

This addresses the quantum of visual effects of the development within the landscape. A series of quantitative assessments are considered, including distance from development, quantum of view, duration of view and scale of change. Table 3, Assessment Criteria, describes the ratings assigned to these quantitative assessments.

Overall impact rating

The severity of these impacts is calculated using the modified RMS matrix table (Table 2) based on a combination of Magnitude and Sensitivity. This gives an overall impact rating based on a six point scale as indicated in Table 1.

3.0 VISUAL IMPACT ASSESSMENT

NONE	No part of the proposal, or work or activity associated with it is discernible.
NEGLIGIBLE	Only a very small part of the proposal is discernible and/or is at such a distance that it is scarcely appreciated. Consequently, it would have very little effect on the scene.
MINOR	The proposal constitutes only a minor component of the wider view, which might be missed by the casual observer or receptor. Awareness of the proposal would not have a marked effect on the overall quality of the scene.
MODERATE	The proposal may form a visible and recognisable new element within the overall scene that affects and changes its overall character.
SEVERE	The proposal forms a significant and immediately apparent part of the scene that affects and changes its overall character.
DEVASTATING	The proposal becomes the dominant feature of the scene to which other elements become subordinate, and significantly affects and changes the character.

Table 1 - Overall Visual Impact ratings

		MAGNITUDE					
		DEVASTATING	SEVERE	MODERATE	MINOR	NEGLIGIBLE	NONE
SENSITIVITY	HIGH	DEVASTATING	SEVERE/DEVASTATING	MODERATE/SEVERE	MODERATE	NEGLIGIBLE	NONE
	MODERATE	SEVERE	MODERATE/SEVERE	MODERATE	MODERATE/MINOR	NEGLIGIBLE	NONE
	LOW	MODERATE/SEVERE	MODERATE	MODERATE/MINOR	MINOR	NEGLIGIBLE	NONE
	NEGLIGIBLE	NEGLIGIBLE	NEGLIGIBLE	NEGLIGIBLE	NEGLIGIBLE	NEGLIGIBLE	NONE
	NONE	NONE	NONE	NONE	NONE	NONE	NONE

Table 2: Impact Rating as a combination of Sensitivity and Magnitude. Source: Modified from RMS Guidelines for Landscape Character and Visual Impact Assessment

3.0 VISUAL IMPACT ASSESSMENT

	FACTOR	DESCRIPTION
QUALITATIVE SENSITIVITY	Viewer Sensitivity	<p>Each visual receptor type has an inherent and varied sensitivity to change in the visual scene based on the personal context in which their view is being experienced. This sensitivity has a direct bearing on the perception of visual impact experienced by the receptor and qualifies the quantitative impacts.</p> <p>Number of viewers also has a bearing on sensitivity. Viewpoints have a varied number of potential receivers depending on whether the viewpoint is public or private, the popularity of the viewing location and its ease of accessibility. Views from public reserves and open space are often given the highest weighting due to the increased number of viewers affected.</p>
	Quantum of View	The quantum of view relates to the openness of the view and the receptor's angle of view to the scene. A development located in the direct line of sight has a higher impact than if it were located obliquely at the edge of the view. Whether the view of the Project is filtered by vegetation or built form also affects the impact, as does the nature of the view (panoramic, restricted etc.). A small element within a panoramic view has less impact than the same element within a restricted or narrow view.
QUANTITATIVE MAGNITUDE	Distance of View	The effect the Project has on the view relating to the distance between the Project and the visual receptor. The distances are from the site boundary.
	Period of View	The length of time the visual receptor is exposed to the view. The duration of view affects the impact of the Project on the viewer - the longer the exposure the more detailed the impression of the proposed change in terms of visual impact.
	Scale of Change	Scale of change is a quantitative assessment of the change in compositional elements of the view. If the proposed development is largely similar in nature and scale to that of existing elements in the vicinity, the scale of change is low. If the development radically changes the nature or composition of the elements in the view, the scale of change is high. Distance from the development would accentuate or moderate the scale and variety of visible elements in the overall view and hence influence this rating.

Table 3 - Assessment Criteria

3.0 VISUAL IMPACT ASSESSMENT

NEGLIGIBLE	MINOR	MODERATE	HIGH/SEVERE/DEVASTATING
Vacant lot, uninhabited building, car park.	Minor roads, service providers.	Residential properties with limited views, commercial properties, scenic public roads (eg official tourist routes).	Public open space, public reserves, living areas or gardens/balconies of residential properties with direct views of Project.
Only an insignificant part of the Project is discernible.	An oblique, highly filtered or largely obscured view of the Project or a view where the Project occupies a very small section of the view frame.	A direct view of the Project or its presence in a broader view where the Project occupies a moderate proportion of the view frame.	A direct view of the Project or its presence (sometimes in a very narrow or highly framed view), where the Project occupies the greater proportion of the view frame.
Over 2,000m	Viewing distance of between 1,000m and 2,000m.	Viewing distance between 100m and 1,000m.	Viewing distance between 0 and 100m.
Less than 1 second	1 to 10 seconds: often from a road or walking past.	1 to 5 minutes: usually from a road/driveway entrance, walking past.	Significant part of the day: usually residential property.
Project barely discernible	Elements and composition of the view would remain largely unaltered.	Elements within the view would be at odds with existing features in the landscape	Elements within the view would greatly dominate existing features in the landscape

Table 3 - Assessment Criteria (continue)

3.0 VISUAL IMPACT ASSESSMENT



Figure 4 - Visual Catchment and Viewpoint Locations - not to scale
** Visual catchment based on topography only, existing trees and buildings are excluded.

3.0 VISUAL IMPACT ASSESSMENT

3.5 VISUAL CATCHMENT

As can be seen from Figure 4, the visual catchment of the Project site (based solely on landform topography) extends east, west and north over the existing industrial development, college, aged care facility and Oakdale South Site. Views from the south are restricted by the elevated topography. The ridge and valley nature of the site and existing adjoining built form limit a wider visual catchment when overlaid on the existing topography.

3.5.1 Visual analysis

The following section assesses the visual impact of the Project on each of the selected viewpoints. This includes a description of the current view from each viewpoint followed by a discussion of the potential visual impacts of the Project on that view. Each viewpoint is accompanied by a location map and photograph of the current view.

For residential receptors, access was not always possible to the property itself by the authors so a photograph was taken at the closest publicly accessible point. (see Figure 3) However, the e8urban viewpoints have been taken from inside properties. The description of visual impact is estimated from the property's main dwelling area.

For a detailed description of the assessment factors and impact ratings used, see Table 3.

3.6 PHOTOMONTAGES

Photomontages have been developed to a best practice methodology by e8urban for key viewpoints to illustrate the Project within the landscape setting and to provide an accurate representation of the proposed development from those viewpoints.

The e8urban photos were taken with an EOS 7D MKii with a EF 24-105mm f/3.5-5.6 IS STM lens was used by e8urban to give a close equivalent to human field of view.

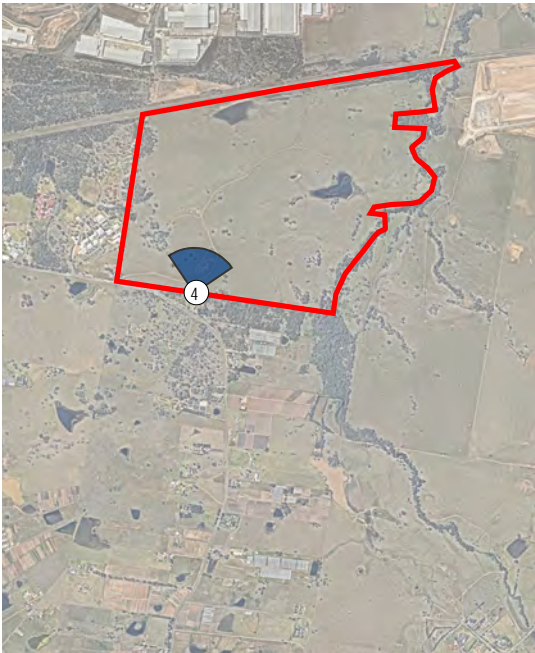
A detailed 3D map of the site contours and Project elements were then created and matched to the photo using specialist software. Sun position and shadows for each viewpoint were also calculated. Photoshop was then used to include vegetation.

3.6.1 Accuracy

Whilst a photomontage can provide an image that illustrates a broadly realistic representation of a development in relation to its proposed location and scale relative to the surrounding landscape, it is acknowledged that it does not and cannot accurately replicate the human eye with respect to peripheral vision and perceptions of depth or distance.

3.0 VISUAL IMPACT ASSESSMENT

3.7.3 Viewpoint 4 - Private Residence on Bakers Lane



Viewpoint location



LOCATION	Bakers Lane, looking north west
DISTANCE	20m
RECEPTORS	Residents of dwellings
EXISTING VIEW	<i>The view from the garden and associated granny flat is open and expansive due to the elevated position of the property. The Blue Mountains form a consistent band along the horizon. An elevated outlook across open farm land with small dams and clusters of trees. Clusters of mature vegetation that form an enclosure on the boundary of the property. (Viewpoint setup by e8urban)</i>

EXPECTED VISUAL IMPACT

The Project will be visible from this dwelling. With the elevated position of the dwelling, the roof lines of the proposed buildings will be visible. However, the panoramic western outlook of these dwellings will not be affected since the Project will sit below the elevated position of the dwellings and private open space.

Although panoramic western outlook will not be impacted, the visibility of the Project will increase closer to the shared boundary.

A moderate / high visual impact is expected with respect to mitigation options is considered likely that any vegetation used to screen such parts of the proposed building would also screen out the view of the Blue Mountain beyond. No mitigation is therefore proposed.

IMPACT ASSESSMENT BEFORE MITIGATION

RECEPTOR TYPE	RECEPTOR IDENTIFICATION	RECEPTOR SENSITIVITY	MAGNITUDE				
			DISTANCE	QUANTUM OF VIEW	PERIOD OF VIEW	SCALE OF CHANGE	SUMMARY OF RATINGS
Public	4	High	Sev	Min	Sev	Min	Mod
Visual Impact Rating		MODERATE/HIGH					

IMPACT ASSESSMENT AFTER MITIGATION

RECEPTOR TYPE	RECEPTOR IDENTIFICATION	RECEPTOR SENSITIVITY	MAGNITUDE				
			DISTANCE	QUANTUM OF VIEW	PERIOD OF VIEW	SCALE OF CHANGE	SUMMARY OF RATINGS
Public	4	High	Sev	Min	Sev	Min	Mod
Visual Impact Rating		MODERATE/HIGH					

3.0 VISUAL IMPACT ASSESSMENT



Panorama of Viewpoint 4 - Private Residence on Bakers Lane



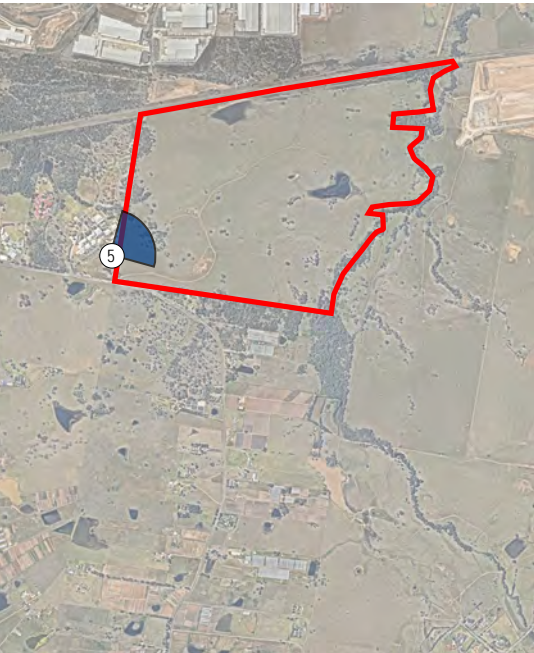
Proposed Development Envelopes



Photomontage of proposal into existing landscape

3.0 VISUAL IMPACT ASSESSMENT

3.7.3 Viewpoint 5 - Emmaus Catholic College



Viewpoint location



LOCATION	Emmaus Catholic College, looking north east
DISTANCE	20m
RECEPTORS	Users of Emmaus Catholic College
EXISTING VIEW	<i>The view from the open space area extends to the middle distance, with the natural topography, landscape features and existing buildings forming visual enclosures. A varied and rolling topography, Clusters of mature vegetation, Existing buildings and structures. (Viewpoint setup by e8urban)</i>

EXPECTED VISUAL IMPACT
<p>The Project, particularly proposed buildings 2E, 2F and 2G will be highly visible from the Emmaus Catholic College and adjacent open space. Although the proposed buildings will be located 40 metres set back from the shared boundary, the scale of the buildings are significant in this view.</p> <p>A high visual impact would be expected with a significant change in the visual scene if no mitigation was undertaken. Significant planting along this boundary would substantially reduce the visual impacts (see photomontages).</p>

IMPACT ASSESSMENT BEFORE MITIGATION

RECEPTOR TYPE	RECEPTOR IDENTIFICATION	RECEPTOR SENSITIVITY	MAGNITUDE				
			DISTANCE	QUANTUM OF VIEW	PERIOD OF VIEW	SCALE OF CHANGE	SUMMARY OF RATINGS
Public	5	High	Sev	Sev	Mod	Sev	Sev
Visual Impact Rating		HIGH					

IMPACT ASSESSMENT AFTER MITIGATION

RECEPTOR TYPE	RECEPTOR IDENTIFICATION	RECEPTOR SENSITIVITY	MAGNITUDE				
			DISTANCE	QUANTUM OF VIEW	PERIOD OF VIEW	SCALE OF CHANGE	SUMMARY OF RATINGS
Public	5	High	Sev	Min	Mod	Min	Mod
Visual Impact Rating		MODERATE					

3.0 VISUAL IMPACT ASSESSMENT



Panorama of Viewpoint 5 - Emmaus Catholic College



Proposed Development Envelopes



Photomontage of proposal into existing landscape

3.0 VISUAL IMPACT ASSESSMENT



Photomontage of proposal into existing landscape with proposed planting in 1 year



Photomontage of proposal into existing landscape with proposed planting in 5 year

3.0 VISUAL IMPACT ASSESSMENT



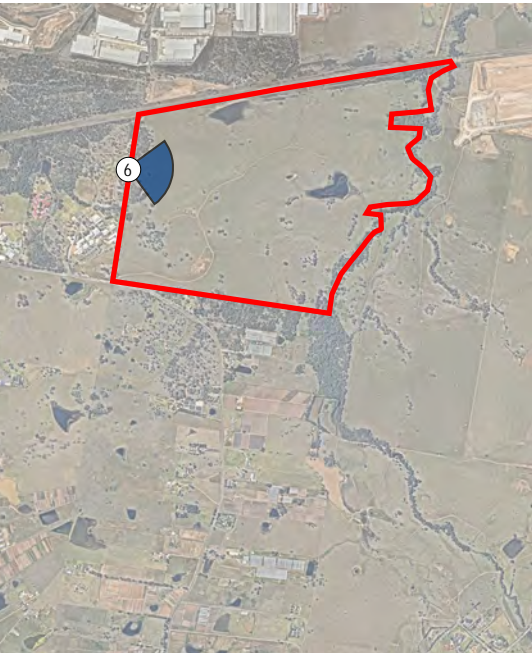
Photomontage of proposal into existing landscape with proposed planting in 10 year



Photomontage of proposal into existing landscape with proposed planting in 15 year

3.0 VISUAL IMPACT ASSESSMENT

3.7.4 Viewpoint 6 - Emmaus Residential Aged Care



Viewpoint location



LOCATION	Emmaus residential aged care, looking east
DISTANCE	20m
RECEPTORS	Users of Emmaus Catholic College
EXISTING VIEW	<i>The view from the open space area around the reception extends to the middle distance, with the existing mature vegetation creating a visual enclosure. The landscape is generally flat in this location. Clusters of mature vegetation. (Viewpoint setup by e8urban)</i>

EXPECTED VISUAL IMPACT
<p>The Project, particularly proposed buildings 2C and 2D, will be visible from the Emmaus Age Care and adjacent open space. The proposed buildings will be located 60 meters set back from the shared boundary. The large amount of existing trees filter the proposed buildings.</p> <p>A moderate / high visual impact is expected with a noticeable change in the visual scene if no mitigation is undertaken. Similar to viewpoint 5, the landscape strategy of the master plan would assist in reducing this impact. This includes the establishment of the landscape buffer and mounding. On this basis, the impacts would reduce to Moderate/Low (see photomontages).</p>

IMPACT ASSESSMENT BEFORE MITIGATION

RECEPTOR TYPE	RECEPTOR IDENTIFICATION	RECEPTOR SENSITIVITY	MAGNITUDE				
			DISTANCE	QUANTUM OF VIEW	PERIOD OF VIEW	SCALE OF CHANGE	SUMMARY OF RATINGS
Public	6	High	Sev	Min	Mod	Min	Mod
Visual Impact Rating		MODERATE					

IMPACT ASSESSMENT AFTER MITIGATION

RECEPTOR TYPE	RECEPTOR IDENTIFICATION	RECEPTOR SENSITIVITY	MAGNITUDE				
			DISTANCE	QUANTUM OF VIEW	PERIOD OF VIEW	SCALE OF CHANGE	SUMMARY OF RATINGS
Public	6	High	Sev	Min	Mod	Min	Mod
Visual Impact Rating		MODERATE/LOW					

3.0 VISUAL IMPACT ASSESSMENT



Panorama of Viewpoint 6 - Emmaus Residential Aged Care



Proposed Development Envelopes



Photomontage of proposal into existing landscape

3.0 VISUAL IMPACT ASSESSMENT



Photomontage of proposal into existing landscape with proposed planting in 1 year



Photomontage of proposal into existing landscape with proposed planting in 5 years

3.0 VISUAL IMPACT ASSESSMENT



Photomontage of proposal into existing landscape with proposed planting in 10 year



Photomontage of proposal into existing landscape with proposed planting in 15 year

3.0 VISUAL IMPACT ASSESSMENT

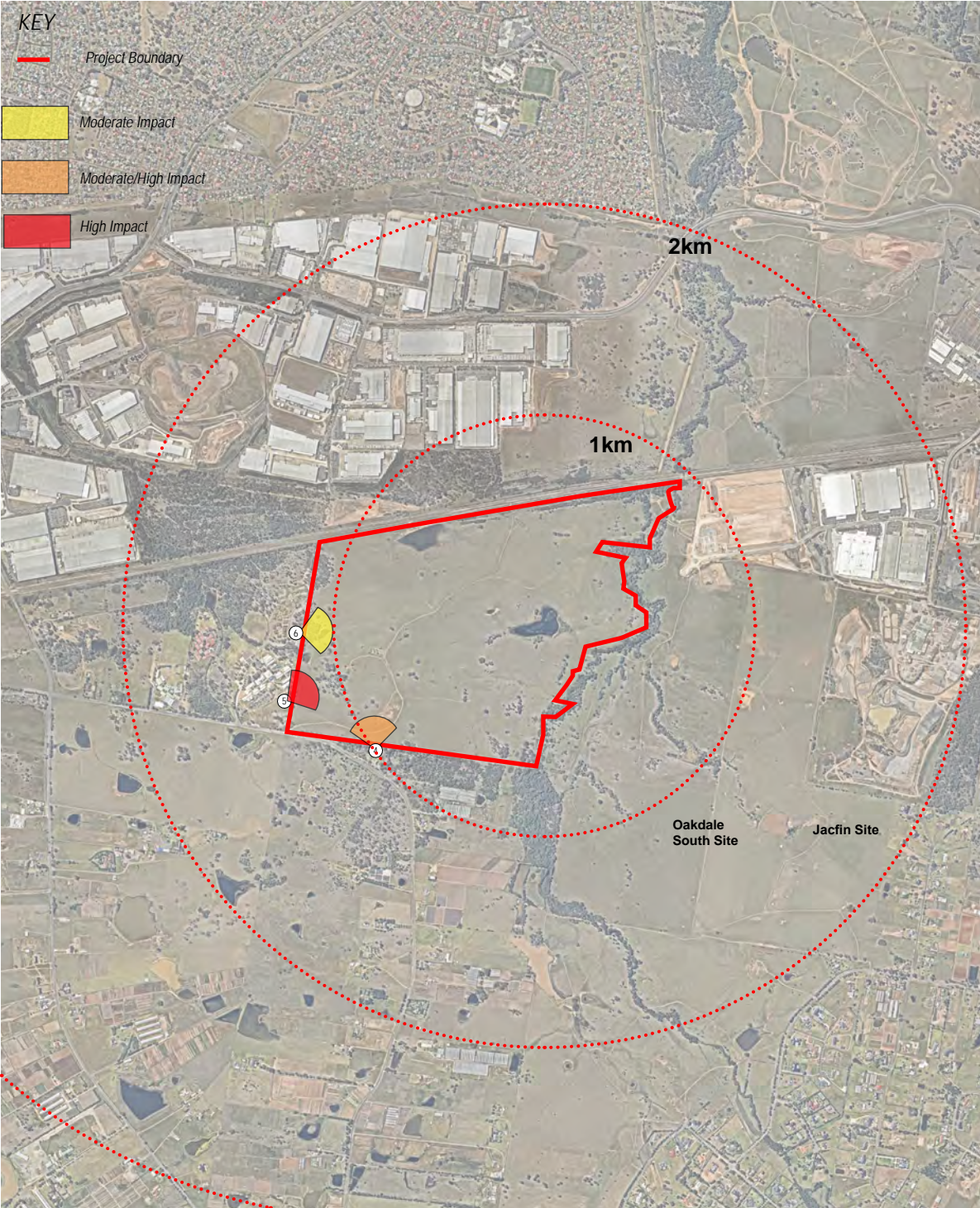


Figure 5 - Visual Impact Summary Map - not to scale

3.0 VISUAL IMPACT ASSESSMENT

3.8 VISUAL IMPACT SUMMARY

The visual impacts of the Project on the three studied viewpoints range from Moderate to High, prior to mitigation measures (refer Table 4 and Figure 5).

- 1 viewpoint received an impact rating of Moderate (Viewpoint 6)
- 1 viewpoint received an impact rating of Moderate/High (Viewpoint 4)
- 1 viewpoint received an impact rating of High (Viewpoint 5).

When mitigation in the form of the boundary planting is applied, these ratings reduced to a range of Moderate/Low to Moderate/High.

3.8.1 Viewpoints

Viewpoint 4: Despite the limited visibility from viewpoint 4, the proximity of the Project and period of view is critical with the main living room facing the view, therefore the visual impact is moderate/high. Mitigation by way of planting would likely reduce the wider background of the Blue Mountain.

Viewpoint 5: This view has the highest visual impact due to the proximity of the Project, scale of change, quantum of view etc. The proposed buildings have significant impact on this viewpoint; however, the proposed landscape buffer zone with trees and understory planting will filter the building mass and greatly reduce the visual impact.

Viewpoint 6: Despite the proximity of the Project, the existing trees significantly filter a large portion of the proposed buildings, therefore the visual impact is Moderate. In addition, similar to Viewpoint 5, the proposed landscape buffer zone with trees and understory planting will reduce the impact.

RECEPTOR TYPE	Receptor Identification	Receptor Sensitivity	MAGNITUDE					BEFORE MITIGATION	AFTER MITIGATION
			Distance	Quantum of View	Period of View	Scale of change	Summary of Ratings	Impact Rating	Impact Rating
Viewpoint 4 - Private Residence on Bakers Lane	4	High	Sev	Min	Sev	Min	Mod	MODERATE/HIGH	MODERATE/HIGH
Viewpoint 5 - Emmaus Catholic College	5	High	Sev	Sev	Mod	Sev	Sev	HIGH	MODERATE
Viewpoint 6 - Emmaus Residential Aged Care	6	High	Sev	Min	Mod	Min	Mod	MODERATE	MODERATE/LOW

Table 4 - Summary of visual impacts of the Project across the study area



4.0 MITIGATION

4.1 TYPE OF MITIGATION

There are typically three types of mitigation measures that can be employed when seeking to reduce visual impacts, these are Avoidance, Reduction and Alleviation.

4.1.1 Avoidance

The proposed location for the development is key to the functioning of the proposed land for industrial development (e.g. proximity to major transport intersections) and the land is specifically zoned for this use; consequently avoidance measures have not been considered applicable in this report.

4.1.2 Reduction

The principal forms of reduction are associated with refinements and modifications that address the siting and scale of built form. Measures typically considered include forms of the buildings, building footprint, orientation of the buildings and site layout and building relationships.

Throughout the development of the design layout of the site, various measures of reduction have been undertaken including re-orientation of buildings and their spatial relationships to reduce visual impacts. Further reduction measures (e.g. Building heights and massing) are not likely to be viable from an operational perspective.

4.1.3 Alleviation

Options to alleviate impacts are typically associated with detailed design features such as materials, finishes, reflectivity, new planting and the like. The concept design of the Project has to date sought to reduce visual impacts through the:

- Retention of vegetation where possible
- Plant selection to match existing landscape character
- 40m setback of the Project from the shared boundary to compromise and environmental corridor
- Mature tree (up to 25m high) planting with dense ground cover and low level planting in landscape zone
- Creation of mounded slopes in the landscape zone to maintain appropriate soil / drainage and reduce visibility.

It is evident from the photomontages that the principal alleviation methods of mitigation with the most significant effect on visual impact have been the creation of boundary buffer zone and the proposed tree and understory planting.

Based on the analysis of the boundary buffer treatments proposed, this report suggests that the density of trees proposed and the geometric nature of the mounds documented suggest the creation of screening rather than a contextual landscape response that reflects the existing rolling land forms and typical Cumberland plain vegetation patterns of broadly open forest with understory.

4.0 MITIGATION

Precinct / Building	Start	Finish	Duration
Western N/S Link	01-Jan-18	31-Jul-19	18
Precinct 1	30-Jun-18	31-Dec-19	18
Building 1A	30-Jun-19	30-Jun-20	12
Building 1B	30-Apr-20	30-Apr-21	12
Building 1C	28-Feb-21	28-Feb-22	12
Precinct 2	31-Jan-21	31-Jul-22	18
Building 2A	28-Feb-22	28-Feb-23	12
Building 2B	30-Jun-22	30-Jun-23	12
Building 2C	31-Oct-22	31-Oct-23	12
Building 2D	28-Feb-23	29-Feb-24	12
Building 2E	30-Jun-23	30-Jun-24	12
Building 2F	31-Oct-23	31-Oct-24	12
Building 2G	29-Feb-24	28-Feb-25	12
Precinct 3	30-Jun-23	31-Dec-24	18
Building 3A	31-Jul-24	31-Jul-25	12
Building 3B	28-Feb-25	28-Feb-26	12
Building 3C	30-Sep-25	30-Sep-26	12
Building 3D	30-Apr-26	30-Apr-27	12
Precinct 4	31-Oct-25	30-Apr-27	18
Building 4A	30-Nov-26	30-Nov-27	12
Building 4B	31-Mar-27	31-Mar-28	12
Building 4C	31-Jul-27	31-Jul-28	12
Building 4D	30-Nov-27	30-Nov-28	12
Building 4E	31-Mar-28	31-Mar-29	12
Building 4F	31-Jul-28	31-Jul-29	12
Building 4G	30-Nov-28	30-Nov-29	12
Precinct 5	31-Mar-28	30-Sep-29	18
Building 5A	30-Apr-29	30-Apr-30	12

Table 5 - Development Program with Key Dates

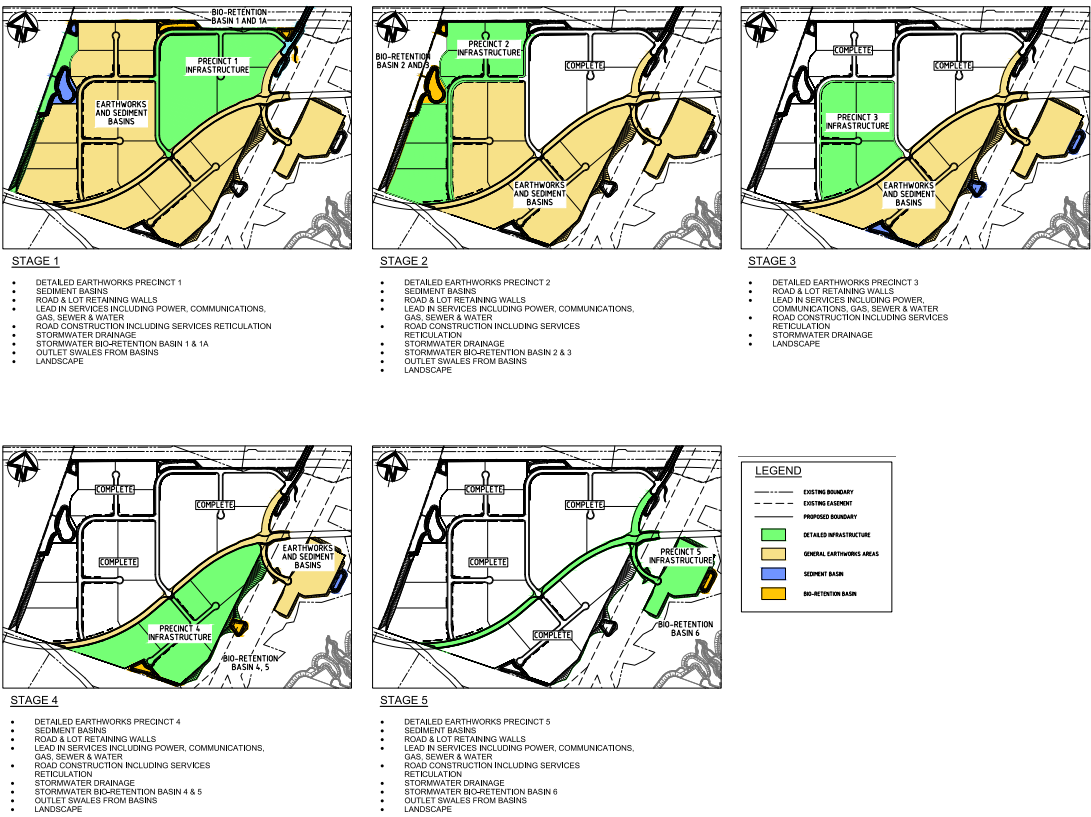


Figure 6 - Staging Plans

4.0 MITIGATION

The colour and reflectivity of the building materials should be considered. In order to minimise the visual impacts of the buildings, neutral colours will be recommended.

While ecological connectivity is a core goal for the boundary planting, a more open structure of tree canopy and understorey planting would still achieve this goal and also adequately minimise the visual impacts of the buildings, without implying that this development which accords with the permitted land uses is inherently a negative outcome.

A somewhat more open tree canopy structure also permit more morning light to reach the sites on the western boundary.

While advance tree planting is proposed, there may be value in being selective about locations for such stock as semi-advanced trees and smaller stock will frequently grow faster and achieve a more significant overall visual impact reduction within 5-10 years.

4.1.4 Building and Operational

The VIA also considers visual impacts during constructions and while the development is operational. Typically, these impacts include:

- Earthworks
- Site compounds
- Construction parking
- Night lighting
- Temporary maintenance plant.

Although night lighting might operate 24 / 7, it will be limited to security purpose only. This arrangement will minimise the night lighting spills out of the site.

4.1.5 Proposed Construction Staging

Table 5 illustrates the indicative development program. It is set out below which generally comprises of a 12 year program with the precinct 2 buildings not being constructed until 4 – 7 years after commencement of works.

The western boundary landscaping will be installed as part of the first stage of works, this arrangement will allow the landscape buffer zone to be established early in the development. (See Table 5 and Figure 6)

5.0 conclusion



5.0 CONCLUSION

5.1 KEY FINDINGS

A comprehensive Visual Impact Assessment of the Project and the surrounding area has been conducted. The assessment has described the landscape character, identified and evaluated key viewpoints, distance zones and viewer sensitivity.

5.1.1 Visual Impact Summary

The visual impact of the Project has been based on the viewpoints established in the e8urban Urban Design Study (which this refers and endorses as the principal receptor impacts) and the following key findings drawn:

- Viewpoint 4 has Moderate / High visual impact
- Viewpoint 5 has High visual impact
- Viewpoint 6 has Moderate visual impact.

5.1.2 Mitigation Summary

The following mitigation measures are in place or recommended:

- The existing vegetation on the eastern, southern and western boundary assists filtering views to the proposed buildings
- Due to the proposed reduced ground level of much of the ridge topography of the development and the elevated position of the dwelling near the southern boundary, the visual impact of the development will inherently be reduced.
- The proposed building heights and the orientation has been taken into account
- Buildings have been oriented to minimise visual impacts
- A 40 metre planted buffer zone permits mitigation through extensive tree planting.

5.2 CONCLUSION

Given the proximity of the three views selected and the scale of the proposed buildings, the visual impacts will inevitably range on the moderate to higher ratings.

However, the mitigation measures proposed will reduce these impacts to a moderate to lower range which would imply that approval of the development on visual impact should not be hindered. When mitigation measures are implemented, the resulting ratings are as follows:

- Viewpoint 4 has moderate / high visual impact
- Viewpoint 5 has moderate visual impact
- Viewpoint 6 has moderate / low visual impact.

Before mitigation measures are implemented, it is recommended that the proposals be discussed with respective adjoining landowners to seek their preferences on the extent of vegetation required.

