

**LANDSCAPE AND VISUAL IMPACT ASSESSMENT REPORT**

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# 1.0 INTRODUCTION

## 1.1 Project Background

This Landscape and Visual Impact Assessment (LVIA) relates to the proposed development of Horsely Logistics Park located at 327-335 Burley Road, Horsley Park. This comprises of six individual warehouses within four separate lots. Each contains loading docks, ancillary buildings, parking areas, entry roads and associated earthworks and landscaping.

A request for a Secretary's Environmental Assessment Requirements (SEARs) was submitted to the NSW Department of Planning, Industry and Environment (DIPE) in March 2020. This report aims to satisfy the following relevant requirements of the SEARs:

### Urban Design and Visual Impact:

- a detailed design analysis of the development with reference to the built form, height, setbacks, bulk and scale in the context of the immediate locality, the wider area and the desired future character of the area, including views, vistas, open space and the public domain;
- a detailed visual impact assessment (including photomontages and perspectives) of the development including height, bulk and scale, materials and finishes, colours, signage and lighting, particularly from existing and future residences to the south and significant or important vantage points of the broader public domain;
- the visual impact assessment must include detailed mitigation measures including those approved under development consent DA 893.1/2013 and subsequent modifications; and
- detailed landscaping design and plans for minimising the overall visual impacts of the development.

## 1.2 This Report and Author

Geoscapes Pty Ltd, has been commissioned by ESR, to produce a Landscape and Visual Impact Assessment (LVIA) for the above mentioned development. This LVIA has been written by Ben Gluszkowski (Director and Registered Landscape Architect) who has over 15 years' experience in the field of Landscape Architecture. He has previously been involved in high profile LVIA's on developments within the UK, including the M1 & M62 motorway road widening, several wind farms and energy from waste facilities (EFW).

Within Australia, Ben has completed several LVIA's and VIA's for some of the largest industrial developments in Sydney. These were either submitted as part of an Environmental Impact Statement (EIS) for State Significant Development (SSD) to the Department of Planning and Industries (DIPE), or to local council. Clients have included Snackbrands Australia, Jaycar, Frasers, Altis, DCI and Airtrunk.

Geoscapes have also prepared estate wide landscape design drawings. These documents detail landscape treatments to the site exterior, and should be read in conjunction with this report.

# 2.0 METHODOLOGY OF ASSESSMENT

## 2.1 Guidelines

LVIA does not follow prescribed methods or criteria. This assessment is based on the principles established and broad approaches recommended in the following documents:

- Guidelines for Landscape and Visual Impact Assessment (GLVIA) – Third Edition (LI/IEMA 2013)

- The Landscape Institute Advice Note 01 (2011) Photography and Photomontage in Landscape and Visual assessment.

In accordance with GLVIA3 the assessment methodology is tailored to the specific requirements of the Proposed Development, its specific landscape context and its likely significant effects. The methodology used for this assessment reflects the principal ways in which the Proposed Development is considered likely to interact with existing landscape and visual conditions as a result of:

- The permanent introduction of an industrial logistics park into the existing landscape/townscape and visual context.

Landscape assessment is concerned with changes to the physical landscape in terms of features/elements that may give rise to changes in character. Visual appraisal is concerned with the changes that arise in the composition of available views as a result of changes to the landscape, people's responses to the changes and to the overall effects on visual amenity. Changes may result in adverse (negative) or beneficial (positive) effects.

The nature of landscape and visual assessment requires both objective analysis and subjective professional judgement. Accordingly, the following assessment is based on the best practice guidance listed above, information and data analysis techniques, uses subjective professional judgement and quantifiable factors wherever possible, and is based on clearly defined terms (refer to glossary).

As stated in paragraph 1.20 of the GLVIA:

"The guidance concentrates on principles while also seeking to steer specific approaches where there is a general consensus on methods and techniques. It is not intended to be prescriptive, in that it does not follow a detailed 'recipe' that can be followed in every situation. It is always the primary responsibility of any landscape professional carrying out an assessment to ensure that the approach and methodology adopted are appropriate to the particular circumstances."

This LVIA written by Geoscapes is considered to use a methodology and approach that is appropriate to this type of development.

## 2.2 Computer Generated Visualisations - Photomontages

It is possible that any receptor with a view towards the development, could potentially receive visual impacts with a resulting high, moderate or low impact. However, it is not feasible or practical to prepare a photomontage for each and every residential dwelling within the project view-shed.

Viewpoint photography for the photomontages was undertaken by Geoscapes using a Canon 60D (DSLR) camera. A 50 mm focal length prime lens was attached to the Canon. Viewpoints 10 and 11 were taken using a drone to due access, images represent a 50mm lens.

Photomontages have been prepared to create "simulated" views of the proposed development. Although these do not claim to exactly replicate what would be seen by the human eye, they provide a useful "tool" in analysing potential visual impacts from receptor locations.

Those viewpoints selected for photomontages, have been presented in this report as before and after images on the same sheet for ease of comparison. The computer-generated images include a representation of landscape mitigation both immediately following installation (which have been described as year 0) and at a mature age of 15 years. It is important to note that the year 15 images are simulations of how proposed landscaping may appear at a selected viewpoint. The final appearance of landscape mitigation will be based on many factors, including growth rates, maintenance and environmental conditions.

The assessment undertaken at year 15 assumes that such mitigation has had the opportunity to establish, mature and become effective. For the purposes of most LVIA or VIA, year 15 effects are also taken to be the 'residual effects' of the development. Residual effects are those which are likely to remain on completion of the development and are to be given the greatest weight in planning terms. Any visual impacts determined from viewpoint locations (which have been assessed in section 8.0 of this report), are based on the year 15 residual effects. In certain photomontages there may be little or no difference between Year 0 or Year 15 images, this may be due to the development being partially obscured, that there is no proposed landscaping on a particular side of a development or that landscaping would be behind existing landscaping in the foreground.

The horizontal field of view within the photomontages exceeds the parameters of normal human vision. However, in reality the eyes, head and body can all move and, under normal conditions, the human brain would 'see' a broad area of landscape within a panoramic view. Each of the photomontage panoramas within this report has a horizontal viewing angle of 67°, a single photographic image from a 50mm lens has a horizontal viewing angle of 39.6°. Whilst a photomontage can provide an image that illustrates a photo-realistic representation of a development, in relation to its proposed location and scale relative to the surrounding landscape, it must be acknowledged that large scale objects in the landscape can appear smaller in photomontage than in real life. This is partly due to the fact that a flat image does not allow the viewer to perceive any information relating to depth or distance.

An extract taken from the Photography and Photomontage in Landscape and Visual Impact Assessment, Landscape Institute Advice Note 01/11 states that:

'it is also important to recognise that two-dimensional photographic images and photomontages alone cannot capture or reflect the complexity underlying the visual experience and should therefore be considered an approximate of the three-dimensional visual experiences that an observer would receive in the field'.

### 2.3 Sensitivity of the Landscape Resource

A number of factors influence professional judgement when assessing the degree to which a particular landscape receptor can accommodate change arising from a particular development. Sensitivity is made up of judgements about the value attached to the receptor determined at baseline stage and the susceptibility of the receptor to the type of change arising from the development proposal.

The table below provides an indication of the criteria by which the sensitivity of any landscape receptor is determined by combining judgements of the value of the receptor and its susceptibility to the type of change or development proposed. A degree of professional judgement applies in arriving at the sensitivity for receptors. Wherever sensitivity is judged, the specific combinations of factors that have influenced that judgement are described. The table has been adapted from the GVLIA with terms used as more appropriate for assessment of Australian landscape.

Table: Landscape Receptor Sensitivity Criteria

Category	Landscape Receptor Criteria
Very High	Nationally designated/valued landscape and landscape features; strong/distinctive landscape characteristics: absence of landscape detractors. Rare receptor in excellent condition. A landscape receptor extremely sensitive to disturbance or change in character due to the development proposals. No potential or very limited potential for substitution or replacement.
High	Locally designated valued landscape and features: many distinctive landscape characteristics: very few landscape detractors. Uncommon receptor in good condition. A landscape receptor sensitive to disturbance or change in character due to the development proposals. Limited potential for substitution or replacement.
Medium	Undesignated landscape and features: some distinctive landscape characteristics: few landscape detractors. A relatively common receptor in fair condition. A landscape receptor with a moderate level of sensitivity to disturbance or change in character due to the development proposals. Some potential for substitution or replacement.
Low	Undesignated landscape and features: few distinctive landscape characteristics: presence of landscape detractors. A common receptor in poor condition. A landscape receptor with limited sensitivity to disturbance or change in character due to the development proposals. Clear potential for substitution or replacement.

Very Low	Undesignated landscape and features: absence of distinctive landscape characteristics: presence of many landscape detractors. A common receptor in very poor condition. A landscape receptor with very limited sensitivity to disturbance or change in character due to the development proposals. Good potential for substitution or replacement.
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The magnitude of change is determined through a range of considerations particular to each receptor and effect. In line with the GLVIA, the three main attributes considered are:

1. Scale of Change
2. Geographical Extent
3. Duration and reversibility

The table on the right provides an indication of the criteria by which the magnitude of change as a result of the development proposed upon a landscape receptor is judged within this assessment. These criteria provide a framework for assessment, and final conclusions are reached through clear and transparent use of reasoned professional judgement, taking into account a range of factors as described above.

Table: Landscape Receptor of Change Criteria

Category	Definition
Very High	Total loss of or major alteration to key elements/features/characteristics of the baseline condition. Addition of elements which strongly conflict with the key characteristics of the existing landscape. Large scale effects influencing several landscape types or character areas.
High	Notable loss or alteration to one or more key elements/features/characteristics of the baseline condition. Addition of elements that are prominent and may conflict with the key characteristics of the of the existing landscape. Effects at the scale of the landscape type or character areas within which the proposal lies.
Medium	Partial loss or alteration to one or more key elements/features/characteristics of the baseline condition. Addition of elements that may be evident but do not necessarily conflict with the key characteristics of the of the existing landscape. Effects within the immediate landscape setting of the site.
Low	Minor loss or alteration to one or more key elements/features/characteristics of the baseline condition. Addition of elements that may not be uncharacteristic within the existing landscape. Effects at the site level (within the development itself)
Very Low	Very Low Barely discernible loss or alteration to one or more key elements/features/characteristics of the baseline condition. Addition of elements not uncharacteristic within the existing landscape. Effects only experienced on parts of the site at a very localised level.

### 2.4 Visual Receptor Sensitivity

People's (visual receptors) overall visual sensitivity has been assessed by combining consideration of their visual susceptibility with the value or importance that they are likely to attribute (or not) to their available views.

Factors which influence professional judgement when assessing the degree to which a particular view can accommodate change arising from a particular development, without detrimental effects would typically include:

- Judgements of value attached to views take into account recognition of the value attached to particular views e.g. heritage assets or through planning designations; and
- Judgements of susceptibility of visual receptors to change is mainly a function of the occupation or activity of people experiencing the

view at particular locations; and the extent to which their attention or interest may therefore be focused on the views and the visual amenity they experience at particular locations.

Assessment of the sensitivity of visual receptors may be modified (either up or down) by consideration of whether any particular value or importance is likely to be attributed by people to their available views. For example, travelers on a highway may be considered likely to be more sensitive due to its scenic context or residents of a particular property may be considered likely to be less sensitive due to its degraded visual setting.

Typically, sensitivity of visual receptors may be judged to be very high, high, medium, low or very low. Definitions of these indicative categories as appropriate to this assessment are set out in the table opposite.

Table: Visual Receptor Sensitivity

Category	Definition
Very High	Designed view to or from a heritage / protected asset. Key protected viewpoint e.g. interpretive signs. References in literature and art/or guidebooks and tourist maps. Protected view recognised in planning policy designation [LEP, DCP, DoPE]. Views from the main living space of residential properties, state public rights of way e.g. bush trails and state designated landscape feature with public access. Visitors to heritage assets of state importance.
High	View of clear value but may not be formally recognised e.g. framed view of high scenic value from an individual private dwelling or garden. It may also be inferred that the view is likely to have value e.g. to local residents. Views from the secondary living space of residential properties and recreational receptors where there is some appreciation of the landscape e.g. golf and fishing. Local public rights of way and access land. Road and rail routes promoted in tourist guides for their scenic value.
Medium	View is not promoted or recorded in any published sources and may be typical of the views experienced from a given receptor. People engaged in outdoor sport where an appreciation of the landscape has little or no importance e.g. football and soccer. Road users on main routes (Motorway/Freeway/Highway) and passengers on trains.
Low	View of clearly lesser value than similar views experienced from nearby visual receptors that may be more accessible. Road users on minor roads. People at their place of work or views from commercial buildings where views of the surrounding landscape may have some importance.
Very Low	View affected by many landscape detractors and unlikely to be valued. People at their place of work or other locations where the views of the wider landscape have little or no importance.

For the visual receptors identified, the factors above are examined and the findings judged in accordance with the indicative categories below in the table to determine the magnitude of change.

Table: Visual Receptor Magnitude of Change Criteria

Category	Definition
Very High	There would be a substantial change to the baseline, with the proposed development creating a new focus and having a defining influence on the view. Direct views at close range with changes over a wide horizontal and vertical extent.
High	The proposed development will be clearly noticeable and the view would be fundamentally altered by its presence. Direct or oblique views at close range with changes over a noticeable horizontal and or/vertical extent.

Medium	The proposed development will form a new and recognisable element within the view which is likely to be recognised by the receptor. Direct or oblique views at medium range with a moderate horizontal and/or vertical extent of the view affected.
Low	The proposed development will form a minor constituent of the view being partially visible or at sufficient distance to be a small component. Oblique views at medium or long range with a small horizontal/vertical extent of the view affected.
Very Low	The proposed development will form a barely noticeable component of the view, and the view whilst slightly altered would be similar to the baseline situation. Long range views with a negligible part of the view affected.

In some cases, there may be no magnitude of change and the baseline view will be unaffected by the development (e.g. development would be fully screened existing woodland). In this case a category of 'no change' will be used.

## 2.5 Significance of the Impact

For each receptor type, the sensitivity of the location is combined with the predicted magnitude of change to determine the level of effect on any particular receptor. Having taken such a wide range of factors into account when assessing sensitivity and magnitude at each receptor, the level of effect can be derived by combining the sensitivity and magnitude in accordance with the matrix in the table below:

Receptor for Sensitivity	Magnitude of Change				
	Very High	High	Medium	Low	Very Low
Very High	Substantial	Major	Major/Moderate	Moderate	Moderate/Minor
High	Major	Major/Moderate	Moderate	Moderate/Minor	Minor
Medium	Major/Moderate	Moderate	Moderate/Minor	Minor	Minor Negligible
Low	Moderate	Moderate/Minor	Minor	Minor Negligible	Negligible
Very Low	Moderate/Minor	Minor	Minor Negligible	Negligible	Negligible/None

In all cases, where overall effects are predicted to be moderate or higher (shaded grey), this will result in a prediction of a significant effect in impact terms. All other effects will be not significant. If a view from a receptor is judged to be 'no change' in the category of Magnitude of Change, then the significance of impact will automatically be none.

In certain cases, where additional factors may arise, a further degree of professional judgement may be applied when determining whether the overall change in the view or effect upon landscape receptor will be significant or not and, where this occurs, it is explained in the assessment.

Visual effects are more subjective as people's perception of development varies through the spectrum of negative, neutral and positive attitudes. In the assessment of visual effects, Geoscapes will exercise objective professional judgement in assessing the significance of effects and will assume, unless otherwise stated, that all effects are adverse, thus representing the worst-case scenario. The significance of visual impacts are assessed against the proposed development in isolation only.

## 2.6 Site Visit and Analysis of Zone of Visibility

Site visits were conducted on the 10th and 16th March 2020 by Geoscapes. The consultant team carried out a site inspection to verify the results of desktop study and to evaluate the existing visual character of the area. Analysis from inside the site boundary and at vantage points from the surrounding landscape, was undertaken to approximate the Zone of Visibility. Any photographs taken at eye-level within the site, would only allow a

partial judgement on which residential properties, commercial properties, public open spaces and public rights of way (classed as visual receptors) in the immediate vicinity, would see the development from ground level to the top of warehouse buildings. This is also limiting due to the presence of existing development and surrounding vegetation therefore, it is not possible to gain a complete understanding of the visual envelope.

As a result of the above, drone photography has been used to test the visibility of the built forms by flying at the proposed ridge heights of each warehouse and photographing the wider landscape. This effectively represents a 'worst case scenario'. It is important to note that it is simply unfeasible to use drone photography to record every single possible view corridor to and from the site.

A drone was used to take panoramic photographs looking north, south, east and west at five separate locations within the proposed estate. Four locations were flown directly over the proposed positions of the ridgelines to each warehouse building. The height flown by the drone was intended to generally represent the approximate maximum elevation of the ridge line. In this case 15m above the proposed pad levels and thus representing a worst case scenario and the maximum Zone of Visual Influence (refer to figures 3 to 18). The flight was performed on the 6th March 2020 by Pixel Media Productions. Weather conditions at the time were clear with good visibility. These photographs allowed a judgement to be made on which receptors in the wider context, will be able to see the upper parts of the development if not the all of the development. Not all residential/commercial properties or public open spaces that potentially have a view of the development are highlighted on figures 3 to 18. However, the locations that have been shown will provide an indication of receptors within the surrounding context, that the development will be most visible to. In some cases it is reasonable to assume for example, that a number of properties close to a selected receptor would experience a very similar type of view. I.e. adjacent properties with similar aspect or those one or two streets away.

In some cases, it was not possible to visit an identified receptor to take photographs looking back at the site (e.g. within private property from gardens or windows when the owner was not home or where access was denied). In these cases, views have been taken from other properties where access was granted, or from publicly accessible areas that are judged to be similarly representative. A judgement has then been made on the likely visual impacts from a selection of the receptors identified in figures 3 to 18 (refer to section 8.0).

As with any VIA, due to the number of receptors that may have views of the development, it is not possible to provide viewpoints for every single possible visual receiver (refer to section 2.7 and 2.8 for details on viewpoint selection).

## 2.7 Selected Viewpoints – Receptor Locations

The symbols and numbering in Figure 2 (page 9), indicate the viewpoints that have been selected for a Visual Impact Assessment (VIA). Viewpoints have been taken from publicly accessible areas and also from private individual properties.

A sample of receptors which are closest in proximity to the proposed development, those with vantage points at higher elevations and those with views at further distances have been selected. It would be impractical to provide a VIA for every single possible visual receiver of the development, therefore a sample has been selected. For visual receptors not selected for an individual viewpoint assessment (i.e. from inside a private dwelling), a representative view for that location has been assessed in terms of a likely significance of visual impact. Refer to Section 8.0.

From viewpoint locations, photomontages have been generated to represent as closely as possible views of the proposed development following construction at year 0 and at year 15. Year 15 photomontages are used to simulate proposed landscape mitigation at maturity. Refer to the visual impact assessment at Section 8.0 of this report and the corresponding viewpoints 1 to 11.

## 2.8 Photographic Recording

From desktop study, site visits and photography, several locations were identified that would potentially be subject to visual impacts from the proposal. These viewpoints were selected in consultation with the project team. Some viewpoints have been intentionally chosen to test and provide evidence that from those receptors there are no or negligible visual impacts.

Photographs were taken by Geoscapes Landscape Architects from the selected viewpoints looking towards the development site using a Canon 60D DSLR Camera and a 50mm prime lens (VP 10 & VP11 were taken using a drone due to access to these location). These are intended to represent

what a person of average height (1.75m) would see standing at the same location. Photographs were stitched and blended together using an automated software process, however, no perspective correction was used. GPS recordings were taken and locations marked using digital mapping data. This information was later used to create the photomontages.

Drone photography has been stitched together to increase the field of view (see figures 3 to 22). As the drone uses a wide-angle lens, in some cases there may be some distortion present where two images join, particularly in the foreground. However, as these images are used only for analysis and identifying potential visual receptors, this does not affect the validity of their use within this report.

## 2.9 Visualisation of the Development

Morphmedia were engaged to place a digital three-dimensional model using Autodesk 3Ds Max. The model was provided by HLA Architects and included all aspects of the proposed built form of the development. Morphmedia integrated into the model the landscape design mitigation proposed by Geoscapes.

Views were generated from the model that matched the camera positions of photographs taken from selected viewpoints. These were then combined with the photographs to create simulated views of the proposal.

Photomontage figures are intended to be printed at A3 and to be held at a comfortable distance by the viewer, this is generally accepted by current guidelines to be anywhere from 300mm to 500mm away from the eyes and held in a flat projection.

## 2.10 Assessment of Visual Impact

The visual impact from receptors has been assessed based on the criteria described in Section 2.4. The following list of visual receptors are judged to potentially have the highest sensitivity to the development:

- Opposite 396-398 Horsley Road, Horsley Park (VP1)
- Driveway of 49-53 Greenway Place, Horsley Park (VP2)
- Adjacent to 178-182 Delaware Road, Horsley Park (VP4)
- 33 Greenway Place, Horsley Park (VP7)
- Bowood Park, Bowood Road, Mount Vernon (VP9)
- Jacfin Lands, Aldington Road, Kemps Creek (VP10 & VP11)

Receptors which are regarded to have less sensitivity but have also been assessed are:

- Ottelia Road, Kemps Creek (VP3)
- Lenore Drive before Old Wallgrove Road, Eastern Creek (VP5)
- Old Wallgrove Road, Horsley Park (VP6)
- 32 Aldington Road, Kemps Creek (VP8)

In total 11 viewpoint locations have been selected for photomontage.

It is noted that to the north of the proposed development a significant amount of industrial development exists. Immediately adjacent is the PGH Bricks & Pavers site, Oakdale Industrial Estate and the Austral Brick Plant. Further north over a distance of approximately 4.5km between the WaterNSW trunk pipeline and the M4 motorway, is the industrial area of Eastern Creek. This has a high density of industrial and commercial type buildings and therefore, is judged to not be particularly sensitive to the proposed development.

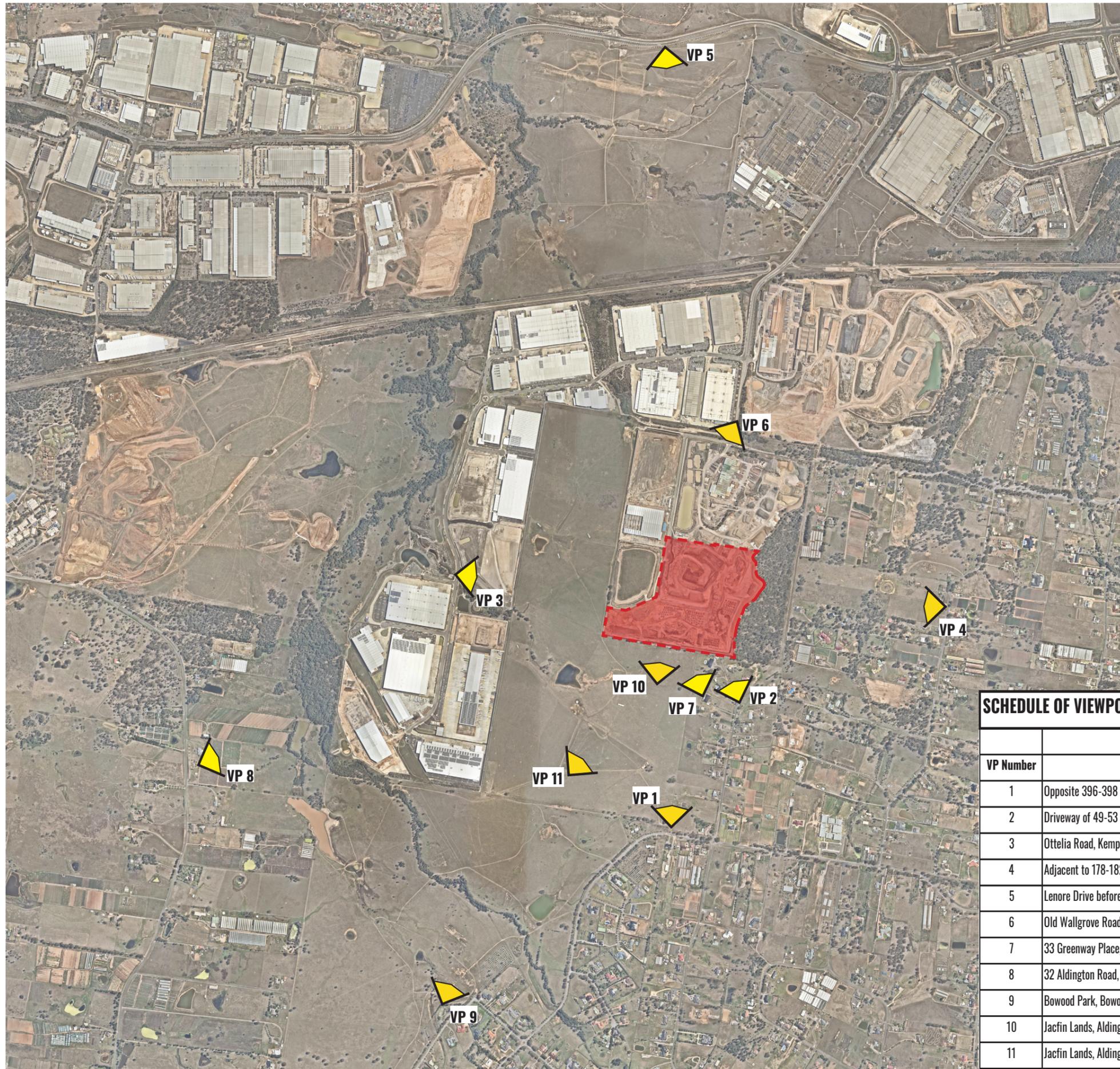
To the northwest is the residential suburb of Erskine Park. This is the closest densely populated residential suburb to the development site. The nearest residential properties are located 2.5km away and there is significant vegetation seen in the drone photography between Erskine Park and the development. It is possible that a few properties maybe able to see the development, however these visual impacts are likely to be negligible.



### Legend

- — Site Boundary
  
- ① Drone Position 1 (98.6m RL)  
GPS -  
33°49'57.9"S  
150°49'22.2"E
  
- ② Drone Position 2 (104.5m RL)  
GPS -  
33°49'58.3"S  
150°49'30.2"E
  
- ③ Drone Position 3 (101.5m RL)  
GPS -  
33°50'04.8"S  
150°49'17.5"E
  
- ④ Drone Position 4 (104.1m RL)  
GPS -  
33°50'05.4"S  
150°49'28.1"E
  
- ⑤ Drone Position 1 (120m AGL)  
GPS -  
33°50'01.0"S  
150°49'25.5"E

Figure 1: Drone Panoramic Photograph Positions



**LEGEND**

--- PROPOSED SITE LOCATION

VP VIEWPOINT LOCATION WITH VIEWPOINT NO.

**SCHEDULE OF VIEWPOINTS**

VP Number	Address	Southings	Eastings	Elevation AHD
1	Opposite 396-398 Horsley Road, Horsley Park	33°50'34"S	150°49'20"E	90.7m
2	Driveway of 49-53 Greenway Place, Horsley Park	33°50'16"S	150°49'32"E	89.7m
3	Ottelia Road, Kemps Creek	33°49'51"S	150°48'41"E	61.7m
4	Adjacent to 178-182 Delaware Road, Horsley Park	33°50'3"S	150°50'8"E	79.7m
5	Lenore Drive before Old Wallgrove Road, Eastern Creek	33°48'43"S	150°49'19"E	76.7m
6	Old Wallgrove Road, Horsley Park	33°49'36"S	150°49'32"E	77m
7	33 Greenway Place, Horsley Park	33°50'16"S	150°49'26"E	96.2m
8	32 Aldington Road, Kemps Creek	33°50'25"S	150°47'59"E	87.1m
9	Bowood Park, Bowood Road, Mount Vernon	33°50'59"S	150°48'41"E	70.45m
10	Jacfin Lands, Aldington Road, Kemps Creek - Position 1	33°50'13.6"S	150°49'18.8"E	81.1m
11	Jacfin Lands, Aldington Road, Kemps Creek - Position 2	33°50'27.6"S	150°49'04.1"E	91.85m

Figure 2: Viewpoint Locations



Figure 3: Drone at 98.6m RL Position 1 - Looking North



Figure 4: Drone at 98.6m RL Position 1 - Looking East



Figure 5: Drone at 98.6m RL Position 1 - Looking South



Figure 6: Drone at 98.6m RL Position 1 - Looking West



Figure 7: Drone at 104.5m RL Position 2 - Looking North



Figure 8: Drone at 104.5m RL Position 2 - Looking East