Hexham
Wind Farm

Chapter 14

Landscape and visual

WIND PROSPECT

14.1 Overview

This chapter characterises the existing landscape and visual setting of the project investigation area and considers the landscape sensitivity and potential visual impact of the project on key viewpoints, including from publicly accessible locations and residential dwellings. The chapter is based on the findings of the landscape and visual impact assessment prepared by Moir Landscape Architecture (provided in Appendix F1 – ***Landscape and Visual Impact Assessment***).

Photomontages illustrating the likely 'as-built' view of the project were developed to assist the assessment of landscape and visual impacts. Potential cumulative effects were also considered with respect to existing operating or approved wind farms in the area.

Based on the existing topographical conditions, surrounding context and visual prominence thresholds (Environment Protection and Heritage Council, 2010), and a proposed blade tip height of 260 metres, project wind turbines would be discernible but not likely to dominate the existing visual setting when they are at distance between six kilometres and 29.8 kilometres (i.e., visible in less than 5% (0.5 degrees) to 50% (2.5 degrees) of the field of view). As such, as a worst-case scenario, the assessment considered the investigation area to be up to six kilometres from the nearest wind turbine.

The regional landscape character of the investigation area is typical of the Western Volcanic Plain, characterised by agricultural land predominately used for grazing with some areas of remnant vegetation. Six Landscape Character Units were identified within the investigation area, classified by slight variations in the geology, topography, land use and vegetation of the landscape. Within the different landscape character units, 25 public viewpoint locations including local roads were selected to assess the potential visual impacts from varying distances and viewing directions. Potential visual impacts were also considered from neighbouring dwellings not participating in the project (i.e., non-involved dwellings) within three kilometres of a project wind turbine.

The project has sought to minimise the magnitude of the visual impacts of the wind turbines on the community by establishing a 1.5-kilometre buffer of non-involved dwellings, and a minimum three-kilometre buffer of surrounding townships.

While the landscape is predominantly flat and cleared, features that form a part of the existing landscape character (such as roadside vegetation, windbreak planting and vegetation along creeklines) would assist in reducing the potential for views towards the project. Public viewpoints from locations on Hamilton Highway and Woolsthorpe-Hexham Road, and from Ellerslie Cemetery and Ellerslie Memorial Park were assessed as having a moderate or moderate-low visual impact rating due to their visual magnitude (i.e., extent of change that would be experienced by receptors) or sensitivity (i.e., how a change to the existing landscape is perceived). Six non-involved dwellings within three kilometres of a proposed project wind turbine would have moderate visual impact prior to the implementation management measures, and two would have a high level of visual impact.

To mitigate the potential visual impacts on residents, landscape screening would be offered for residential dwellings within six kilometres where there are views of a wind turbine. Measures incorporated into the design process, in conjunction with landscape and visual screening, are anticipated to have a positive effect on reducing visual impacts of the project from the non-involved dwellings (identified as having a moderate or high visual impact) to an acceptable level.

Due to the relatively flat topography, there are few locations along local roads where simultaneous views of the project and the proposed Mt Fyans Wind Farm may be possible. However, considering the direction and speed of travel along these roads and patches of dense roadside vegetation, view of multiple wind farm projects would be limited. There would also be opportunities to view the operating Mortons Lane Wind Farm and the project simultaneously when travelling along Hamilton Highway to the northwest of the project site, and the operating Salt Creek Wind Farm and the project when travelling along Hamilton Highway to the northeast of the project site. However, the wind turbines are located at a distance where they would not be a dominant element in the landscape, and vegetation along the roadsides would also assist to screen views.

14.2 EES objectives and key issues

The project EES scoping requirements specify the evaluation objective and key issues, outlined in Table 14.1, relevant to landscape and visual values that have guided this assessment.

Table 14.1 EES evaluation objective and key issues

Evaluation objective **Landscape and visual:** *Avoid and, where avoidance is not possible, minimise and manage potential adverse effects on landscape and visual amenity.*	
Key issues	• Potential for nearby residents/communities to be exposed to significant effects to the visual amenity, including blade glint and shadow flicker, from project infrastructure. • Potential effects on landscape, including significant volcanic and other landforms, through removal or covering of features or reshaping of surfaces. • Potential cumulative impacts of other operating and approved wind farms on landscape values of the region.

14.3 Legislation, policy and guidelines

Key legislation, policies and guidelines relevant to the ***Landscape and Visual Impact Assessment*** (Appendix F1) are summarised in Table 14.2 below.

Table 14.2 Relevant legislation, policies and guidelines

Legislation/policy/ guideline	Description	Relevance to project
State		
Planning and Environment Act 1987	The purpose of the *Planning and Environment Act 1987* is to establish a framework for planning the use, development and protection of land in Victoria. This Act sets out the process for obtaining permits under planning schemes, settling disputes, enforcing compliance with planning schemes and permits, and other administrative procedures.	The land within the project site is subject to the requirements of the Moyne Planning Scheme.

Legislation/policy/ guideline	Description	Relevance to project
	Planning Policy Framework and Particular Provisions	The following Clauses of the Planning Policy Framework and Particular Provisions are relevant to the project: • Clause 12.05-2S Landscapes: objective is *"to protect and enhance significant landscapes and open spaces that contribute to the character, identity, and sustainable environments"* • Clause 19.01-2S Renewable energy: objective is *"to support the provision and use of renewable energy in a manner that ensures appropriate siting and design considerations are met"* • Clause 52.32 Wind Energy Facility: objective is *"to facilitate the establishment and expansion of wind energy facilities, in appropriate locations, with minimal impact on the amenity of the area."*. The Decision Guidelines (52.32-5) of this Clause state that *"Before deciding on an application, in addition to the decision guidelines of Clause 65, the responsible authority must consider, as appropriate:* - *the impact of the development on significant views, including visual corridors and sightlines".*
	Municipal Planning Strategy	Relevant Clauses of the Moyne Planning Scheme applicable to the project include: • Clause 02.03-2 Environmental and landscape values.

Legislation/policy/ guideline	Description	Relevance to project
	Zones and overlays	Most of the project site and investigation area is within land designated Farming Zone. An objective of the Farming Zone relevant to landscape and visual impact is *"To ensure that non-agricultural uses, including dwellings, do not adversely affect the use of land for agriculture."* Other land zonings within the investigation area are: • Rural Living Zone: applies to land to the north of the township of Caramut • Township Zone: applies to land within and around Caramut, Hexham and Ellerslie • Special Use Zone Schedule 1: applies to Mortlake Power Station. Planning overlays recognise landscape features that are special or unique, that are distinct to the areas that surround them. Landscape, environmental and building overlays within the investigation area are: • Environmental Significance Overlay Schedule 3 applies to Mortlake Power Station Environs • Heritage Overlays, Bridge over Burchett Creek (HO35), located in the north-eastern corner of the project site and Stone Mileposts (HO37) located on Warrnambool-Caramut Road. Located outside of the project site but within the investigation area are Merrang Homestead (HO4) and Woolongoon Homestead Complex (HO91) • Bushfire Management Overlay applies to the areas east and west of the project site.
Guidelines/policies		
Planning Guidelines for Development of Wind Energy Facilities (DTP, 2023a)	The Planning Guidelines for Development of Wind Energy Facilities (Planning Guidelines) provide a set of consistent operational performance standards to inform the assessment and operation of a wind energy facility project, as well as guidance as to how planning permit application requirements might be met.	Section 2.1.2 Significant landscape values of the Planning Guidelines recognises community values for landscapes with significant visual amenity, environmental, social values and the role that strategic planning plays in identifying and managing these landscapes.
Best Practice Guidelines for Implementation of Wind Energy Projects in Australia (Clean Energy Council, 2018b)	The Best Practice Guidelines for wind farms in Australia outline best practice measures for wind farm proponents, owners and operators for the approvals pathway and stakeholder identification, site planning and site operations phases of a project. This includes detailed assessment approach for site-specific investigations to enable assessment of the impacts of the project.	These guidelines were considered in the development of the landscape and visual impact assessment methodology.

Legislation/policy/ guideline	Description	Relevance to project
National wind farm development guidelines – draft (Environment Protection and Heritage Council, 2010)	The National wind farm development guidelines – draft outline the best-practice methods for assessing the impacts associated with the development and operation of wind farms. This includes methodologies for the assessment of landscape and visual impacts.	The National wind farm development guidelines – draft informed the methodology adopted for the landscape character assessment.

14.4 Investigation area

Considering the existing topographical conditions, the surrounding context and the visual prominence thresholds identified in the National wind farm development guidelines – draft (Environment Protection and Heritage Council, 2010), the ***Landscape and Visual Impact Assessment*** (Appendix F1) identified the investigation area to extend up to six kilometres from the nearest wind turbine as a worst-case scenario. Refer to Section 14.5.1 for a further discussion on the determination of the investigation area (i.e., 'Zone of Visual Influence').

14.5 Method

This section outlines the method undertaken to characterise the existing landscape character and assess the potential landscape and visual impacts from the project. This method aligns with the requirements for landscape and visual impact assessments set out in the Planning Guidelines for Development of Wind Energy Facilities in Victoria (DTP, 2023a).

14.5.1 Existing conditions assessment

Visual catchment

The 'visual catchment' (or viewshed) of the project has been defined based on the parameters of human vision and the typical line of sight for a person standing at ground level. Referred to as the vertical field of view, this area is generally between 10 degrees and 15 degrees. The theoretical extent of the viewshed is considered to be a distance at which the tallest component of the project would take up less than 5% (or 0.5 degrees) of the general 10 degrees field of view.

An assessment of the visual scale and prominence of wind turbines over a range of distances was used to determine whether they are likely to be dominant, noticeable, discernible or insignificant in the viewshed. Figure 14.1 demonstrates how increasing distance from the project would reduce the potential visual prominence and visibility of turbines based on the vertical field of view.

A combination of the vertical field of view and visual prominence was used to identify the 'zones of visibility' for the project. For example, at distances where the project comprises greater than 50% of the field of the vertical field of view, the project would always be visually dominant. This is considered to be at distances less than three kilometres from the project. With a proposed blade tip height of 260 metres, turbines are discernible but are not likely to dominate the existing visual setting when they are at a distance of between six kilometres and 29.8 kilometres (i.e., visible in less than 5% (0.5 degrees) to 50% (2.5 degrees) of the field of view). As a worst-case scenario, the ***Landscape and Visual Impact Assessment*** (Appendix F1) considered the 'Zone of Visual Influence' (and therefore the investigation area) to be up to six kilometres from the nearest wind turbine.

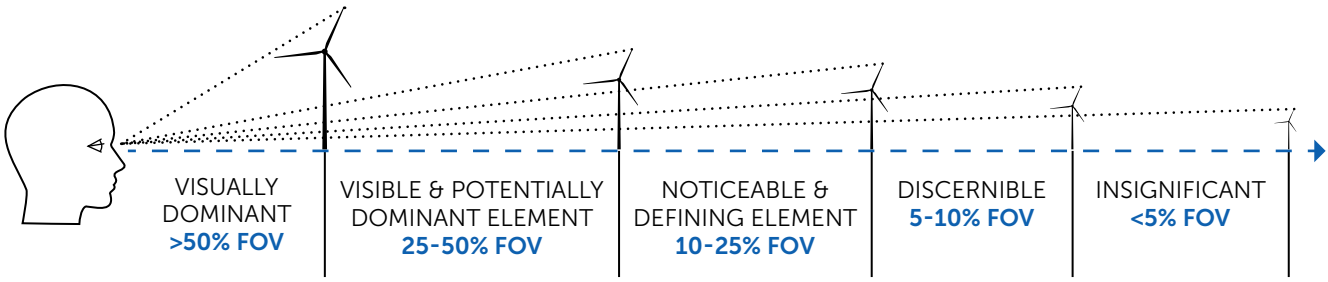


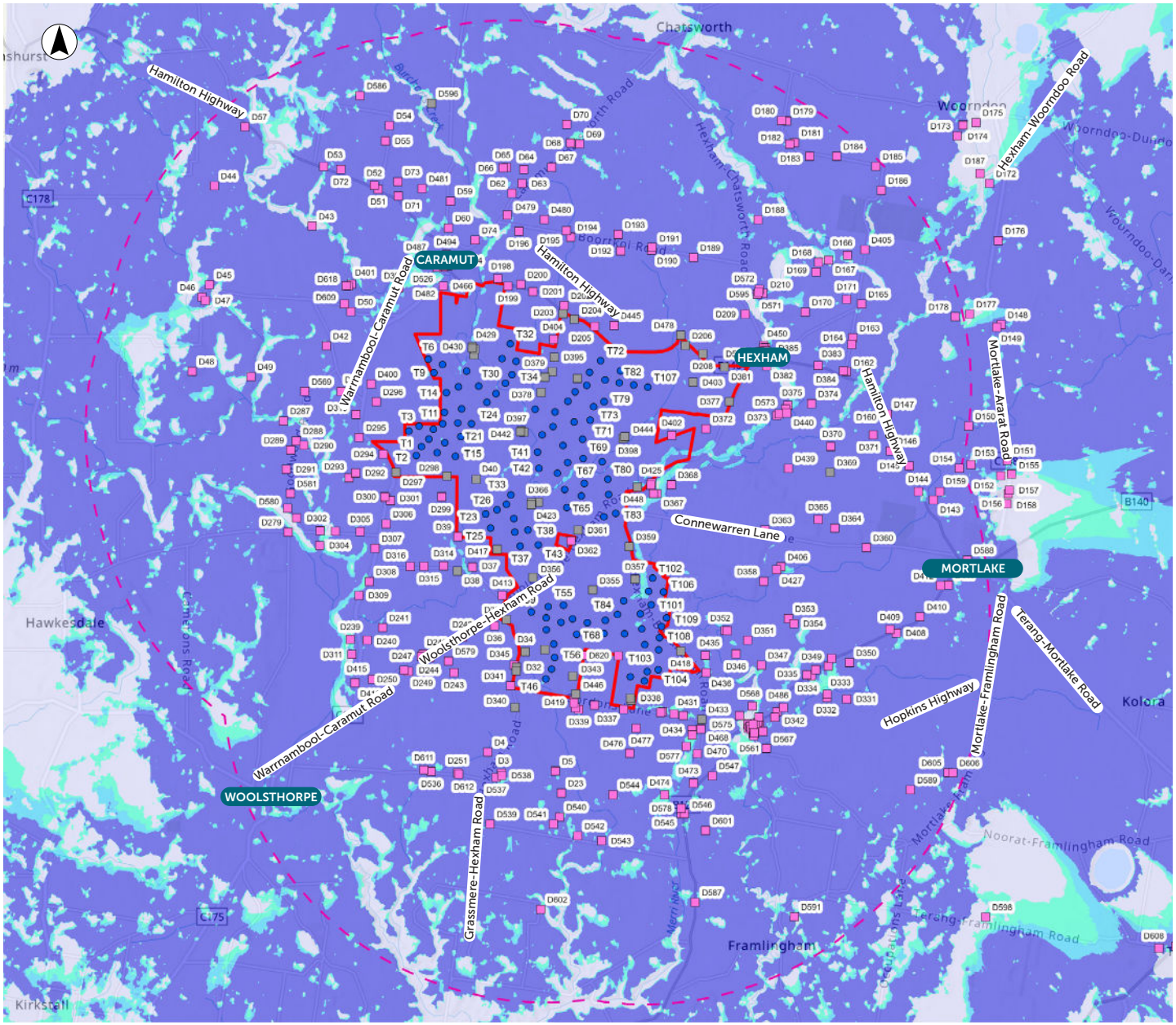
Figure 14.1 **Vertical field of view (FOV) and potential visual dominance**

The project theoretical Zone of Visual Influence and extent of the investigation area are shown in Figure 14.2 below. This figure shows the areas where the project may be visible based on topography from a Digital Terrain Model and assumes a landscape without screening, structures or vegetation (i.e., worst case scenario). Due to the relatively flat topography of the investigation area, the Zone of Visual Influence assessment shows that the project is theoretically visible from most locations near the project site.

Zone of Visibility

The zone distances applied for the assessment of the visual impact of the project are:

- Greater than 29.8 kilometres – Visually insignificant, the extent of the investigation area (< 5% of vertical field of view)
- 14.9 to 29.8 kilometres – Potentially noticeable or discernible (5–10% of vertical field of view)
- 6.0 to 14.9 kilometres – Noticeable and potentially a visible element in the landscape (10–25% of vertical field of view)
- 3.0 to 6.0 kilometres – Visible and potentially dominant (25–50% of vertical field of view)
- Less than 3.0 kilometres – Will always be visually dominant (> 50% of vertical field of view).



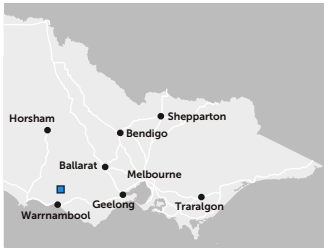
Legend

- Project Boundary
- Proposed 260 m Turbine Location
- Involved Dwelling
- Non-involved Dwelling
- 15,000 m from nearest turbine
- Main Road

ZVI Number of Visible Turbines (at blade tip):

- 0
- 1 - 26
- 27 - 53
- 54 - 79
- 80 - 106

0 3 6 11 km



Data: State of Victoria (DECCA/Land Use Victoria), Commonwealth of Australia, Wind Prospect, and specialist studies/reports. Data is indicative only; accuracy and completeness are not guaranteed.

Figure 14.2 Landscape and visual investigation area and Zone of Visual Influence (with a blade tip height of 260 metres)

Characterisation of the visual landscape

The existing landscape was characterised through a review of:

- relevant legislation and policies, and the Planning Policy Framework and Municipal Planning Strategy contained within the Moyne Planning Scheme
- planning zones and overlays within the project site and wider investigation area relevant to landscape and visual values
- previous landscape studies undertaken within the investigation area:
  - South West Victoria Landscape Assessment Study: Regional Overview Report (DPCD, 2013)
  - Significant Landscapes of South West Victoria (Planisphere, 2013)
- relevant maps and databases to identify areas of heritage significance and key landscape features, including nearby towns, landform, geology and soils, vegetation, waterways and wetlands
- the topography of the land.

Landscape Character Units and scenic quality

Landscape Character Units are classified by slight variations in the landscapes geology, topography, land use and vegetation which create distinct character areas and are used to characterise the existing conditions of the project visual investigation area.

Landscape Character Units were informed by land use patterns (e.g., townships and farming areas), vegetation coverage and topographical maps, as well as findings from the site inspection.

For each Landscape Character Unit, an assessment of scenic quality (as low, moderate or high) was undertaken based on consideration of the 'frame of reference' for each category outlined in Table 14.3.

Table 14.3 Scenic quality rating frame of reference

Category	Scenic quality	
	Lower	Higher
Land form	• Flat topography • Absence of landscape features	• Diverse topography • Unique landscape features
Water forms	• Absence of water	• Presence of water • Visually prominent lakes, reservoirs, rivers streams and swamps.
Vegetation	• Absence of vegetation • Lack of diversity • Cleared land • Low level of connection between vegetation and landscape	• Abundant vegetation • High diversity • Retention of endemic vegetation • High level of connection between vegetation and landscape
Human presence	• High population • High density in settlement • Presence of infrastructure • High level of landscape modification	• Low / dispersed population • No settlement • Absence of infrastructure • Landscape in natural state
Social and cultural	• Places of worship, cemeteries, memorial parks, private open spaces	• Culturally important sites, wilderness, world heritage areas, protected areas

Viewpoints

An assessment of the project view from identified representative and key publicly accessible viewpoints was undertaken to consider the range of views and likely visual impacts of the project within the investigation area. Twenty-five representative viewpoints were selected based on considerations such as topography, site visit observations and existing landscape character, and were predominantly from accessible public land (typically roads) where the potential for the project to be visible was identified as high or moderate.

14.5.2 Impact assessment

Viewpoints

The visual impact assessment for each public viewpoint location was assessed through both a desktop assessment (using topographic and aerial information) and on-site observations, and was based on the relationship between the visual sensitivity and visual magnitude.

Visual sensitivity is a measure of how a change to the existing landscape is viewed by people from different areas. The assessment is based on the number of people affected, land use and the distance of the viewer from the proposal. For example, a significant change that is not frequently seen may result in a low visual sensitivity, although its impact on a landscape may be high.

Visual magnitude refers to the extent of change that would be experienced. Factors that influence visual magnitude of change include:

- the proportion of the view affected
- extent of area over which the change occurs
- the size and scale of the change
- the rate and duration of the change
- the level of contrast and compatibility.

Based on the combined effect of visual sensitivity and magnitude, the overall visual impact of a development can be assessed. The scale of visual effect used in the assessment of visual impacts ranges from negligible to high, as shown in Table 14.4 below.

Table 14.4 **Visual impact rating** *(Source: Adapted from TfNSW, 2023)*

		Visual magnitude			
		High	**Moderate**	**Low**	**Negligible**
Visual sensitivity	**High**	High	High-moderate	Moderate	Negligible
	Moderate	High-moderate	Moderate	Moderate-low	Negligible
	Low	Moderate	Moderate-low	Low	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

Photomontages were prepared for six public viewpoint locations, based on feedback received from the community, to illustrate the potential appearance of the project from varying distances and locations. Exact photomontage locations were selected to represent a worst-case scenario for the viewpoint location. For example, localised screening factors such as vegetation were avoided, where possible, to represent the maximum visual exposure to the project.

Photomontages combine a photograph of an existing view with a computer-rendered image of a proposed development and can be used to provide information on the scale and potential appearance of the development. Photomontages are used to illustrate the likely view as it would be seen in a photograph (not as it would appear to the human eye in the field).

Dwellings

The extent of visibility of project wind turbines from dwellings based on the topography and screening elements (e.g., structures, vegetation) was determined using 3D modelling overlaid on aerial imagery.

On-site dwelling assessments were offered for all neighbouring dwellings not participating in the project (i.e., non-involved dwellings) within three kilometres of a project wind turbine. Where access was granted, Moir Landscape Architecture sought to ground truth the screening elements identified in the aerial imagery. Where potential impacts were identified, photomontages or wireframe diagrams were prepared to provide a representation of how the view would change with the project.

Wireframe diagrams are a computer-generated image based on a digital terrain model that indicates the 3D shape of the landscape and can be used to compare the position and scale of a proposed development to the existing landscape view. Wireframe images represent the worst case scenario as they do not take into account factors such as vegetation and building structures.

A visual impact rating was applied to each dwelling based on guidance provided in the Landscape Institute's Guidelines for Landscape and Visual Impact Assessment (2013) and Residential Visual Amenity Assessment Technical Guidance Note (2019), as well as Moir Landscape Architecture's professional experience in undertaking similar assessments for other wind energy projects. The adopted impact rating framework is presented in Table 14.5.

Table 14.5 Dwelling visual impact rating methodology

Factor	Negligible	Low	Moderate	High
Distance	The project may be partially visible but very difficult to discern due to distance and / or intervening elements	Turbines may be visible in distance or very partially visible in the foreground.	Turbines maybe visible in the middle ground or a small number may be visible in the near ground.	Turbines are highly visible in the foreground.
Type of view		Views from the dwelling are not focused on the project.	Views from the dwelling are not focused entirely on the project.	Views are focused directly towards the project.
Direction of view		The project may be visible in peripheral views or form a very minor element in primary views.	The project may be visible from the dwelling, yet will not dominate primary views.	The project will be highly visible and has the potential to be a dominant element in primary views from the property.
Extent of visibility		The project may be partially visible or fragmented.	The project may be visible from the dwelling yet will not significantly alter the existing visual character.	The project has the potential to significantly alter the existing visual character when viewed from the dwelling.
Scale of change		The project may be visible yet will not change to the existing visual character.	The project has the potential to become a noticeable element in the view, yet will not overly diminish the existing visual character.	The project has the potential to alter the existing visual character.
Degree of contrast		The project will have a low level of contrast with the existing landscape.	The project will result in a moderate level of contrast with the existing landscape.	The scale of the project will result in a high level of contrast with the existing landscape.
Duration of change		Changes are temporary.	Changes to the landscape have the potential to be reduced over time (with the employment of mitigation methods).	Changes to the landscape are continuous and / or irreversible.
Mitigation options		Existing screening factors contribute to reducing the potential visibility.	Some existing screening factors may contribute to fragmenting the project or there is opportunity to screen the project.	Limited opportunities to screen the project.

Lighting

The visual impacts of night lighting associated with potential aviation hazard lighting (on the nacelle of wind turbines) and lighting on ancillary structures were considered in the landscape and visual impact assessment.

14.5.3 Cumulative visual impacts

An assessment of potential cumulative visual impacts of the project was undertaken by considering:

- the impact of the project, when added to the combined impacts of all other existing developments and environmental characteristics of the area.
- the impact of the project in the context of potential wind energy developments in the local, regional and national context.
- the impact of developments which are ancillary to or otherwise associated with the project (e.g., development of transmission lines)
- the potential for future development of wind farms in the region.

A 'cumulative visual impact' is the combined effect of changes brought about by a proposed development as well as other similar developments (proposed or existing) in an area. The National wind farm development guidelines – draft (Environment Protection and Heritage Council, 2010) defines potential cumulative visual impacts within three kilometres as 'high' and greater than 12 kilometres as 'low'.

Cumulative visual impact can occur either by:

- sequential views to multiple wind farms (e.g., views driving along roads may include in a number of wind farms, seen one after another)
- simultaneous views to wind turbines from publicly accessible viewpoints or private viewing locations (i.e., where two or more wind farms may be visible at the same time, from one location).

14.5.4 Mitigation

All approved wind farm projects within Victoria are required to provide landscape mitigation for residential dwellings where a high level of visual impacts is predicted. The project wind turbines have the potential to be highly visible and potentially dominant features in views from distances within six kilometres. As such, mitigation measures would be required for dwellings up to six kilometres from the base of a project wind turbine. These measures are discussed in Section 14.7.3. Landscape mitigation measures would be determined on a case-by-case basis and in consultation with landowners to minimise adverse impacts.

14.6 Existing conditions

14.6.1 Key landscape features

The following key landscape features provide within the project site and investigation area contribute to the overall visual character of the landscape and are mapped in Figure 14.5.

Landform, geology and soils

The investigation area is located within the Western Volcanic Plain. This region is characterised by large, windswept flat plains with gentle undulations. The area is dominated by Cainozoic volcanic deposits which form a flat to undulating basaltic plain with stony rises. Extinct volcanoes create key landscape features within an otherwise flat, farming landscape. Quarries have been established on these high points to mine volcanic scoria gravel, including Mount Shadwell which is located approximately 15 kilometres east of the project site and is a prominent peak within the local area at an elevation of 292 metres (Figure 14.3).

The landscape character of the Western Plains is highly modified due to the agricultural activity.

The geological context of the project site is further discussed in the ***Soil and Landform Assessment*** (Appendix A) and Chapter 13 – ***Landform and soils***.

Figure 14.3 Distant view of Mount Shadwell from Mortlake-Ararat Road

Significant landscapes

The Significant Landscapes of South West Victoria (Planisphere, 2013) provides an assessment of landscape character in south west Victoria, and identifies 'regionally significant' and 'state significant' landscapes. There are no regional or state significant viewing locations within the project investigation area. The nearest state significant viewing locations are more than 12 kilometres east, south-east and north-west of the project site, and there are no regionally significant viewing locations in proximity to the investigation area.

Vegetation and reserves

The investigation area is located within the Victorian Volcanic Plains Bioregion, which has a distinct lack of vegetation and is dominated by grasses or herbs. Land has been cleared for agricultural activity and native grasslands replaced with exotic pasture species and monocultural crops. Dense plantation areas are scattered across the region.

Canopy cover of exotic and native species is restricted to windbreak vegetation along rural residential lot boundaries and sparse corridor vegetation along main roads and highways. Lakes and wetlands in the area support diverse riparian species.

There are a number of nature reserves, recreation reserves and local parks within the investigation area. These areas are largely associated with local towns and include Cobra Killuc Wildlife Reserve to the north-east, Caramut Recreation Reserve and Jucaramut Conservation Reserve to the north-west, Hawkesdale Recreation Reserve to the west, Woolsthorpe Nature Conservation Reserve to the south-west, The Sisters Recreation Reserve to the south-east, and Mortlake Common and Recreation Reserve to the east. Recreation reserves are typically characterised by open grassland with scattered vegetation and sporting facilities.

Waterways and wetlands

The investigation area is traversed by a network of rivers, creeks, lakes and wetlands that drain the volcanic plain. Some of these waterbodies are formed by low-lying depressions or as a result of ancient volcanic flows blocking creeks and river valleys.

The Hopkins River is located east of the project site and generally flows south to the Hopkins River Estuary and out into Bass Strait at Warrnambool. Lake Connewarren is a small lake located approximately five kilometres east of the project site, near the Mortlake Power Station. A number of dams provide water supply for agricultural activities within and surrounding the project site.

Further detail on the waterways and wetlands within the project site is described within the ***Surface Water and Groundwater Impact Assessment*** (Appendix B), and Chapter 11 – ***Groundwater*** and Chapter 12 – ***Surface water***.

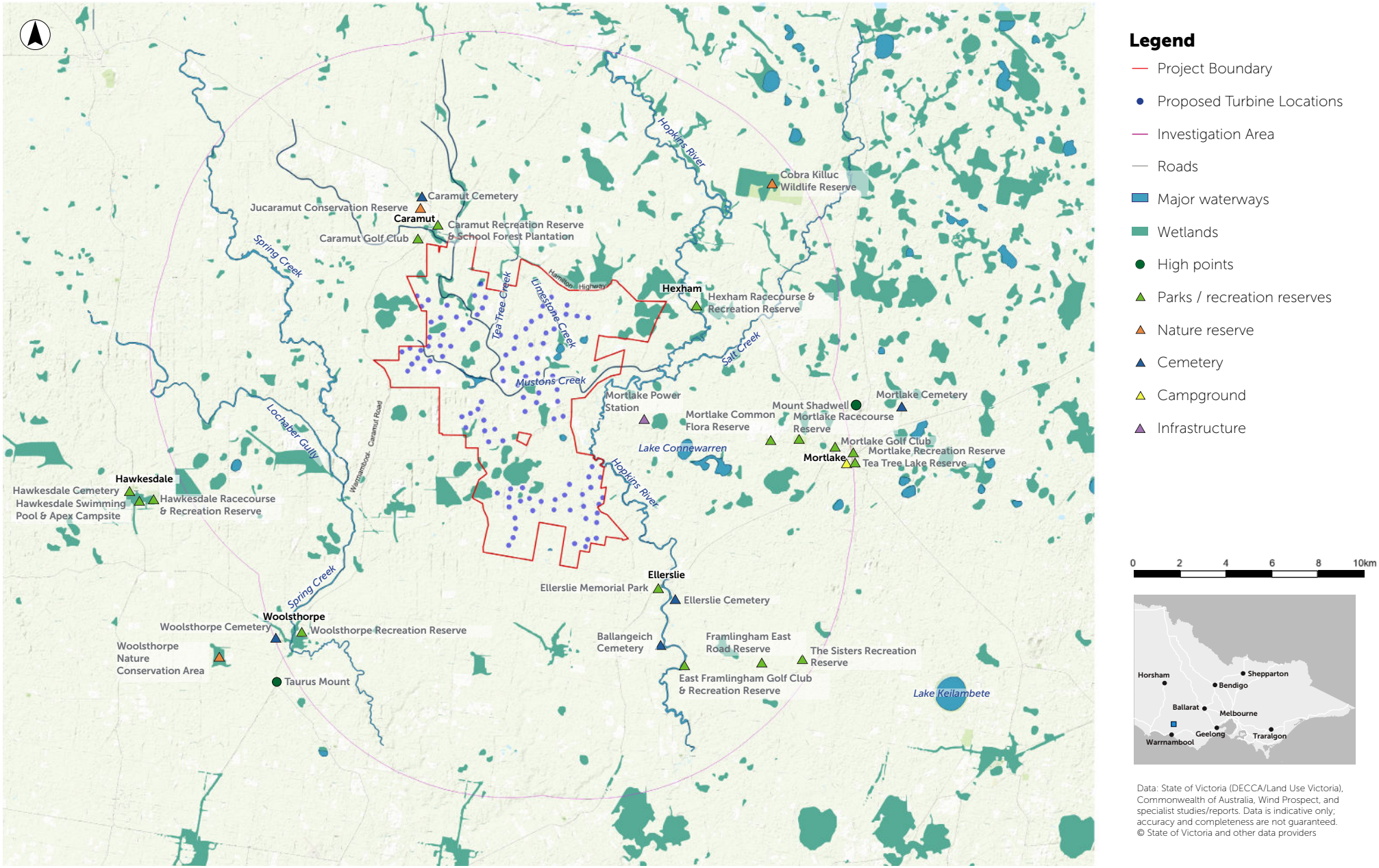
Land use

The fertile volcanic soils across the Western Plains have led to the development of extensive agricultural activity across the region. These agricultural lands are used primarily for livestock grazing and cropping.

Towns and settlements near the project site include Hexham, Caramut and Ellerslie. Mortlake (Figure 14.4), located around 10 kilometres east of the project site, is the largest town to the project site.

Further detail on the existing land uses relevant to the project site and surrounds is described within Chapter 20 – ***Land use and planning*** and Appendix H – ***Land Use and Planning Report***.

Figure 14.4 Mortlake township



Data: State of Victoria (DECCA/Land Use Victoria), Commonwealth of Australia, Wind Prospect, and specialist studies/reports. Data is indicative only; accuracy and completeness are not guaranteed.

Figure 14.5 Landscape features within the project investigation area

14.6.2 Landscape character and scenic quality

The Landscape Character Units identified within the investigation area are summarised in Table 14.6. The location of these units in relation to the investigation area are shown in Figure 14.6.

Table 14.6 Landscape Character Units within the investigation area

Landscape Character Unit	Description	Scenic quality rating (see Table 14.3)
Landscape Character Unit 1 **Volcanic Plains**	• Characterised by flat to gently undulating windswept plains. • Predominantly used for agricultural purposes such as livestock grazing and cropping. Due to this agricultural activity, the landscape character of these areas is highly modified. • Minimal vegetation, however rows of exotic or native planting planted as windbreaks are visible along property boundaries and fence lines. Native grassland species are generally replaced with exotic pasture species and monocultural crops. Remnant, low lying rock and boulders clusters feature within paddocks  *Example of Landscape Character Unit 1 – agricultural land with planted windbreaks*	Low
Landscape Character Unit 2 **Stony Rises**	• Defined by clusters of exposed basalt rock scattered across farmland from past volcanic activity. • Bracken and other low-lying grass species feature within the rocky outcrops of the stony rises where agricultural development is unsuitable. • Topography generally flat to gently undulating.  *Example of Landscape Character Unit 2 – view of stony rises*	Moderate

Landscape Character Unit	Description	Scenic quality rating (see Table 14.3)
Landscape Character Unit 3 **Volcanic lakes and swamps**	• Characterised by a concentration of volcanic lakes and swamps. • Landform is flat to gently undulating, with marshy areas located at low points, forming more defined bodies of water. • Landscape character is highly modified due to agricultural activity.  *Example of Landscape Character Unit 3 – agricultural land within volcanic lakes and swamps area*	Low
Landscape Character Unit 4 **Waterways and wetlands**	• Contains landscape corridors defined by rivers, creeks, lakes and wetlands • Hopkins River is located to the east of the project site. Other smaller creeks and gullies that pass through the project site include Mustons Creek, Limestone Creek and Tea Tree Creek. • Adjacent land is generally cleared, flat and used for agricultural purposes with the exception of riparian vegetation. • Lakes nearby include Lake Connewarren, located within 5 kilometres of the project site, and Lake Keilambete, located within a volcanic crater approximately 20 kilometres south-east of the project site.  *Example of Landscape Character Unit 4 – Hopkins River at Ellerslie Bridge (left) and Lake Connewarren (right)*	Moderate

Landscape Character Unit	Description	Scenic quality rating (see Table 14.3)
Landscape Character Unit 5 **Plantations**	• Characterised by areas of dense vegetation within tree plantations. Typically, the plantations have a formal arrangement, where rows of trees are evenly spaced and are generally uniform in size and shape. Each area contains a single tree species, such as pine or blue gum, with minimal undergrowth. • The character of these areas may vary at different stages of the plantation process, which involves a rotation cycle of planting, gradual thinning and clear felling over a period ranging from 10-50 years.  *Example of Landscape Character Unit 5 – pine tree plantation*	Low
Landscape Character Unit 6 **Townships**	• Comprises towns including Mortlake, Woolsthorpe, Caramut, Hawkesdale and smaller villages such as Ellerslie and Hexham. • Generally surrounded by scattered vegetation which provides a visual screen • Landscape character is highly modified in these small scale rural settlements.  *Example of Landscape Character Unit 6 – screening vegetation at Ellerslie (left) and planted verges in Mortlake (right)*	Low