Collector Wind Farm LVIA Addendum A

Response to Clouston Associates Peer Review S13-0011
(Dated 10 May 2013)

19 June 2013

GREEN BEAN DESIGN
landscape architects

GREEN BEAN DESIGN *landscape architects* PO Box 3178 Austral NSW 2179 - Mobile 0430 599 995

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Author:	Andrew Homewood, Registered Landscape Architect, AILA, MEIANZ Grad. Dip. Landscape Management, BSc.Dual Hons (Landscape Architecture & Archaeology), Nat. Dip. Horticulture
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Green Bean Design – Capability Statement

Green Bean Design (GBD) is an experienced landscape architectural consultancy specialising in landscape and visual impact assessment. As an independent consultancy GBD provide professional advice to a range of commercial and government clients involved in large infrastructure project development.

GBD owner, and Principal Landscape Architect Andrew Homewood, is a Registered Landscape Architect and member of the Australian Institute of Landscape Architects and the Environmental Institute of Australia and New Zealand. Andrew has over 20 years continuous employment in landscape consultancy and has completed numerous landscape and visual impact assessments for a range of large scale and State significant infrastructure and renewable energy projects, including wind energy and solar power developments. GBD has been commissioned for over 20 wind energy projects across New South Wales, Victoria, South Australia and Queensland, including assessments for:

• Silverton WF	• Boco Rock WF	• Collector WF
• Crookwell 3 WF	• Sapphire WF	• Willatook WF
• Eden Wind Farm	• Birrema Wind Farm	• Rye Park WF
• Paling Yards WF	• Port Kembla WF	• Bango WF
• Deepwater WF	• White Rock WF	• Liverpool Range WF
• Conroy's Gap (Mod 4)	• Mt Emerald WF	

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Introduction

The Collector Wind Farm Addendum A has been prepared by Green Bean Design (GBD) in response to a Peer Review commissioned by the New South Wales Department of Planning and Infrastructure (DoP&I). The Peer Review was prepared by Clouston Associates (May 2013).

Specifically Addendum A has reviewed and responded to the Peer Review Part C: Conclusions and Recommendations.

Part C of the Peer Review raised comments and recommendations following the public exhibition of the Collector Wind Farm Landscape and Visual Impact Assessment report (LVIA). The Peer Review comments and recommendations involved aspects of the LVIA relating to:

- Landscape Character and Sensitivity;
- Visual Impact;
- Consultation;
- Mitigation Measures;
- Photomontages; and
- Significance of Impacts.

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Peer Review: Conclusions, Recommendations and Responses

The comments and recommendations set out in Part C of the Peer Review are included and responded to in **Table A1**. Additional detailed responses to the Peer Review comments and recommendations are also provided in the following sections of this Addendum.

Table A1 – Peer Review Comments/Recommendations and Responses

Aspects and issues identified within the Clouston Associates Peer Review	GBD Response	Addendum A reference
Landscape Character and Sensitivity		
• Shortcomings in the Landscape Character and Sensitivity evaluation, particularly in the basis of the LCA's, absence of mapping and lack of integration of community survey outcomes in establishing values and sensitivity	An additional figure that maps and illustrates the location and extent of the five LCAs identified in the exhibited LVIA has been included in Addendum A. Community survey outcomes have also been incorporated into a section describing existing landscape values within Addendum A.	Refer Figure 2 and Section 6 of Addendum A
• The need for a more substantive overview of the landuse controls to assist in establishing a baseline for the assessment	Landuse controls and the permissibility of the proposed development are considered in detail within Section 3 of the EA; however, additional information relating landuse controls is provided within Addendum A. An additional consideration of the Draft NSW Planning Guidelines for Wind Farms has also been included within Addendum A.	Refer Section 1 of Addendum A
• Insufficient assessment of the visual impacts on cultural heritage features in the landscape.	An assessment of cultural heritage features has been undertaken and presented in Addendum A.	Refer Figure 5 and Section 8 of Addendum A
Visual Impact		
• Inadequate assessment of the public domain visual impacts	An additional assessment of public domain visual impacts has been undertaken and presented in Addendum A.	Refer Figure 5 and Section 8 of Addendum A

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Table A1 – Peer Review Comments/Recommendations and Responses

Aspects and issues identified within the Clouston Associates Peer Review	GBD Response	Addendum A reference
• Inherent shortcomings in treating the whole of Collector Village as one viewer	An additional assessment of residential and public view locations within Collector Village has been undertaken and is presented in Addendum A.	Refer Figure 5 and Section 8 of Addendum A
• Apparent understatement of the inherent visibility at distance of the ridgeline location of the turbines and overstatement of reduced ZVI implication of viewing lesser parts of any given turbine.	It is not apparent that there is an understatement of visibility at distance or overstatement of reduced ZVI implication of viewing lesser parts of any given turbine. Issues relating to visibility and the significance that distance can have on the overall magnitude of impacts are outlined in the original LVIA and included in Addendum A. An additional figure has been included to illustrate the potential for distance effect upon potential visual magnitude.	Refer Figure 1 and Section 7 of Addendum A
• Insufficient explanation, detail or contextual adaption of the view category and sensitivity in Table 14.	Table 14 has been updated and amended.	Refer Section 8 of Addendum A
• Absence of adequate consistency or explanation of the scoring system in the matrices (particularly in Tables 14-16) and thus lack of robustness, comparability and consistency in resultant ratings.	LVIA Sections addressing Viewshed, zone visual influence and visibility, and Assessment of Visual effects have been updated. Table 17 has been added to illustrate the relationship between magnitude and sensitivity of effects and demonstrate comparability between assessment criteria.	Refer Section 8 of Addendum A
Consultation		
• The lack of integration of community surveys and resulting perspectives into the structure of the methodology, criteria and	The community survey did not canvass each and every residential property owner within the LVIA 10 km viewshed and therefore it is	Refer Section 6 of

Table A1 – Peer Review Comments/Recommendations and Responses

Aspects and issues identified within the Clouston Associates Peer Review	GBD Response	Addendum A reference
resulting rating of impacts.	not possible for these results to be applied directly to the individual rating of impacts. Addendum A has incorporated and considers the results of the community survey undertaken by the Proponent and further notes the overall majority of support for the Collector Wind Farm development identified in the original LVIA report.	Addendum A
Mitigation measures		
• Proposals for potential screening measures within the public domain that are not adequately supported through the public domain visual impact assessment.	It is not clear which proposals for potential screening measures within the public domain are being referred to? The LVIA notes that: *The potential visual impact of the Project from specific view locations could be mitigated by planting vegetation close to the view locations. For instance, tree or large shrub planting close to a residence can screen potential views to individual or groups of turbines. Similarly roadside tree planting can screen potential views of turbines from particular sections of road provided the turbine is not located some distance from the road.* *The location and design of screen planting used as a mitigation measure is very site specific and requires detailed analysis of potential views and consultation with surrounding landowners. Planting vegetation would not provide effective mitigation in all circumstances and can reduce the extent of existing views*	N/A

Table A1 – Peer Review Comments/Recommendations and Responses

Aspects and issues identified within the Clouston Associates Peer Review	GBD Response	Addendum A reference
	available from residences or other view locations.	
Photomontages		
• The potential need for more than one photomontage within the Collector Village.	An additional 2 photomontages from Bourke Street in Collector Village have been selected and prepared by Truescape (Consulting and Visual Facilitation).	Refer Addendum A, **Appendix B**.
Significance of Impacts		
The potential that the overall impact rating of 'low' may be understated in light of the above considerations.	The overall impact rating has been reviewed against a consideration of aspects and issues raised in the Peer Review and included in Addendum A.	Refer Section 16 of Addendum A

Exhibited LVIA Amendments

The following Sections of the exhibited Collector Wind Farm LVIA (Version V5 – Final Issue, dated January 2012) have been updated and/or amended to address various aspects or comments/recommendations identified in the Peer Review. To avoid confusion, the original section numbers from the exhibited LVIA have been retained.

- Section 1 – Introduction
- Section 4 – Viewshed, Zone of Visual Influence and Visibility
- Section 7 – Landscape Character Areas and Sensitivity Assessment
- Section 8 – Visual Impact Assessment Criteria and Matrices
- Section 16 – Conclusion

Figures included in Addendum A incorporate amended figures from the exhibited LVIA, as well as new figures that address comments and recommendations outlined in the Peer Review.

Figures presented in Addendum A include:

- Figure 1 – Distance effect (included as Figure 5 Visibility and Distance in the exhibited LVIA).
- Figure 2 – Landscape Character Areas (new figure not included in the exhibited LVIA).
- Figure 3 – Residential view locations (beyond Collector Village). (Included as Figure 15 Residential view locations in the exhibited LVIA).
- Figure 4 – Collector Village relative to south portion of proposed Collector Wind Farm (new figure not included in the exhibited LVIA).
- Figure 5 – Collector Village receptor locations (new figure not included in the exhibited LVIA).
- Figure 6 – Transport corridors (included as Figure 16 Public view locations in the exhibited LVIA).

1.3 Upper Lachlan Local Environmental Plan 2010 (LEP 2010)

Details of relevant statutory regulations and prescribed guidelines which have been considered and referenced in the preparation of the project EA are detailed in the EA Section 3 Statutory, Policy and Planning Context.

All land within the development envelope is zoned RU2 Rural Landscape, and the project, which is considered to be "*electricity generating works"*, is a type of development permitted with consent in the RU2 zone.

1.4 Upper Lachlan Shire Council Wind Power Generation Development Control Plan

GBD has reviewed the Upper Lachlan Shire Council's Development Control Plans (DCP) for Wind Power Generation and confirm that this LVIA addresses a number of key DCP requirements with regard to consideration of visual assessment, and includes provision for:

- the assessment of visual impact and scenic value;
- the assessment of cumulative impact;
- shadow flicker assessment;
- viewshed mapping; and
- photomontages.

The assessment of potential visual significance associated with Shadow Flicker has been assessed and included in **Section 11.5** of the EA.

1.5 Draft NSW Planning Guidelines: Wind Farms (December 2011)

The DoP&I issued the Draft Planning Guidelines: Wind Farms (NSW Draft Guidelines) in December 2011, which provide guidance and information for wind farm applicants, consent authorities as well as communities and stakeholder groups. The NSW Draft Guidelines were placed on public exhibition between December 2011 and March 2012; however, had not been finalised or formally adopted by the New South Wales Government prior to completion of this LVIA.

The NSW Draft Guidelines set out key considerations for the upfront assessment of landscape and visual impact for residential dwellings within a 2km radius of proposed wind turbines (through the Gateway Process

and Site Compatibility Certification) and specific assessment requirements that may be set out in the DoP&I Director Generals Requirements on a project by project basis. The NSW Draft Guidelines also set out a comprehensive framework for the assessment of landscape and visual impacts including residential dwellings within 2 km proximity of proposed wind turbines. Landscape and visual issues are outlined in Appendix A of the NSW Draft Guidelines 'Meeting assessment requirements - Landscape and visual amenity' (Refer **Appendix A** of Addendum A).

This LVIA has considered and given regard to the NSW Draft Guidelines to the fullest extent practicable, and addresses the key landscape and visual amenity aspects set out in the DoP&I checklist issued to the Proponent in the DoP&I correspondence dated 18 April 2012. The key landscape and visual amenity aspects are set out in **Table 3**.

Table 3 DoP&I Landscape and visual amenity checklist

Key aspects	LVIA Reference/Response
Provide photomontage from all non-host dwellings within 2 km of a proposed wind turbine	Photomontages have been prepared from non involved residential dwellings within and beyond the 2 km wind turbine offset. (Refer LVIA **Section 10**).
Identify the zone of visual influence of the wind farm (no less than 10 km) and likely impacts in community and stakeholder values.	This LVIA has identified a 10 km zone of visual influence surrounding the proposed wind farm development and assessed likely impacts in community and stakeholder values (Refer LVIA **Sections 7, 8** and **14**).
Consider cumulative impacts on landscape and views.	This LVIA has considered potential cumulative landscape and visual impacts (Refer LVIA **Section 9**).
Outline mitigation measures to avoid or manage impacts.	This LVIA has outlined mitigation measures to minimise potential impacts (Refer LVIA **Section 15**).

7.6.1 Distance effect

With an increase in distance the proportion of a person's horizontal and vertical view cone occupied by a visible turbine structure, or group of turbine structures, will decline. In order to demonstrate this a series of single frame photographs have been taken from pre-set distances (1.5 km, 4 km, 7 km and 10 km) toward wind turbines at the Capital wind farm in New South Wales. The photographs, illustrated in **Figure 1**, demonstrate the degree to which the apparent visible height of a wind turbine decreases with increasing distance (in a negative exponential relationship), and the increasing amount of horizontal skyline visible with an increasing distance.

As the view distance increases so do the atmospheric effects resulting from dust particles and moisture in the atmosphere, which makes the turbines appear to be grey thus potentially reducing the contrast between the wind turbines and the background against which they are viewed.

Whilst the distance between a view location and the wind turbines is a significant factor to consider when determining potential visibility, there are other issues which may also affect the degree of visibility. **Table 13** outlines the relative effect of distance on visibility and has been based on empirical research conducted by the University of Newcastle (2002) as well as direct observations made during wind farm site inspections.

Table 13 – Distance effect

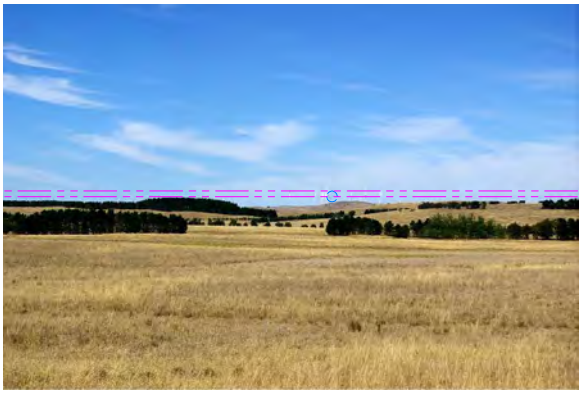
Distance from turbine	Distance effect
>20 km	Wind turbines become indistinct with increasing distance. Rotor movement may be visible but rotor structures are usually not discernible. Turbines may be discernible but generally indistinct within viewshed resulting in **Low** level visibility and **Nil** where influenced or screened by surrounding topography and vegetation.
10 km – 20 km	Wind turbines noticeable but tending to become less distinct with increasing distance. Blade movement may be visible but becomes less discernible with increasing distance. Turbines discernible but generally less distinct within viewshed (potentially resulting in **Low** level visibility).
5 km – 10 km	Wind turbines visible but tending to become less distinct depending on the overall extent of view available from the potential view location. Movement of blades discernible where visible against the skyline. Turbines potentially noticeable within viewshed (potentially resulting in **Low to Moderate** level visibility).

Table 13 – Distance effect

Distance from turbine	Distance effect
3 – 5 km	Wind turbines clearly visible in the landscape but tending to become less dominant with increasing distance. Movement of blades discernible. Turbines noticeable but less dominant within viewshed (potentially resulting in **Moderate** level visibility).
1 – 3 km	Wind turbines would generally dominate the landscape in which the wind turbine is situated. Potential for high visibility depending on the category of view location, their location, sensitivity and subject to other visibility factors. Turbines potentially dominant within viewshed (potentially resulting in **Moderate to High** level visibility).
<1 km	Wind turbines would dominate the landscape in which they are situated due to large scale, movement and proximity. Turbines dominant and significant within viewshed (potentially resulting in **High** level visibility).

Capital Wind Farm - View distance 1.5 km

Capital Wind Farm - View distance 4 km



Capital Wind Farm - View distance 7 km

Capital Wind Farm - View distance 10 km

Capital Wind Farm turbines: Suzlon88,
80 m hub height, 88 m rotor diameter

Photographs: Pentax K10D, 50mm lens

Figure 1
Distance effect

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Assessment of landscape effects

Section 6

6.1 Landscape character areas

A fundamental part of this LVIA is to understand and describe the nature and sensitivity of different components of the landscape within the project 10 km viewshed, and to assess the landscape character in a clear and consistent process. For the purpose of this LVIA, landscape character is defined as '*the distinct and recognisable pattern of elements that occur consistently in a particular type of landscape'* (The Countryside Agency and Scottish Natural Heritage 2002).

This LVIA has identified five Landscape Character Areas (LCA's), which occur within the project 10 km viewshed. The five LCA's represent areas that are relatively consistent and recognisable in terms of their key visual elements and physical attributes; which include a combination of topography/landform, vegetation/landcover, land use and built structures (including settlements and local road corridors).

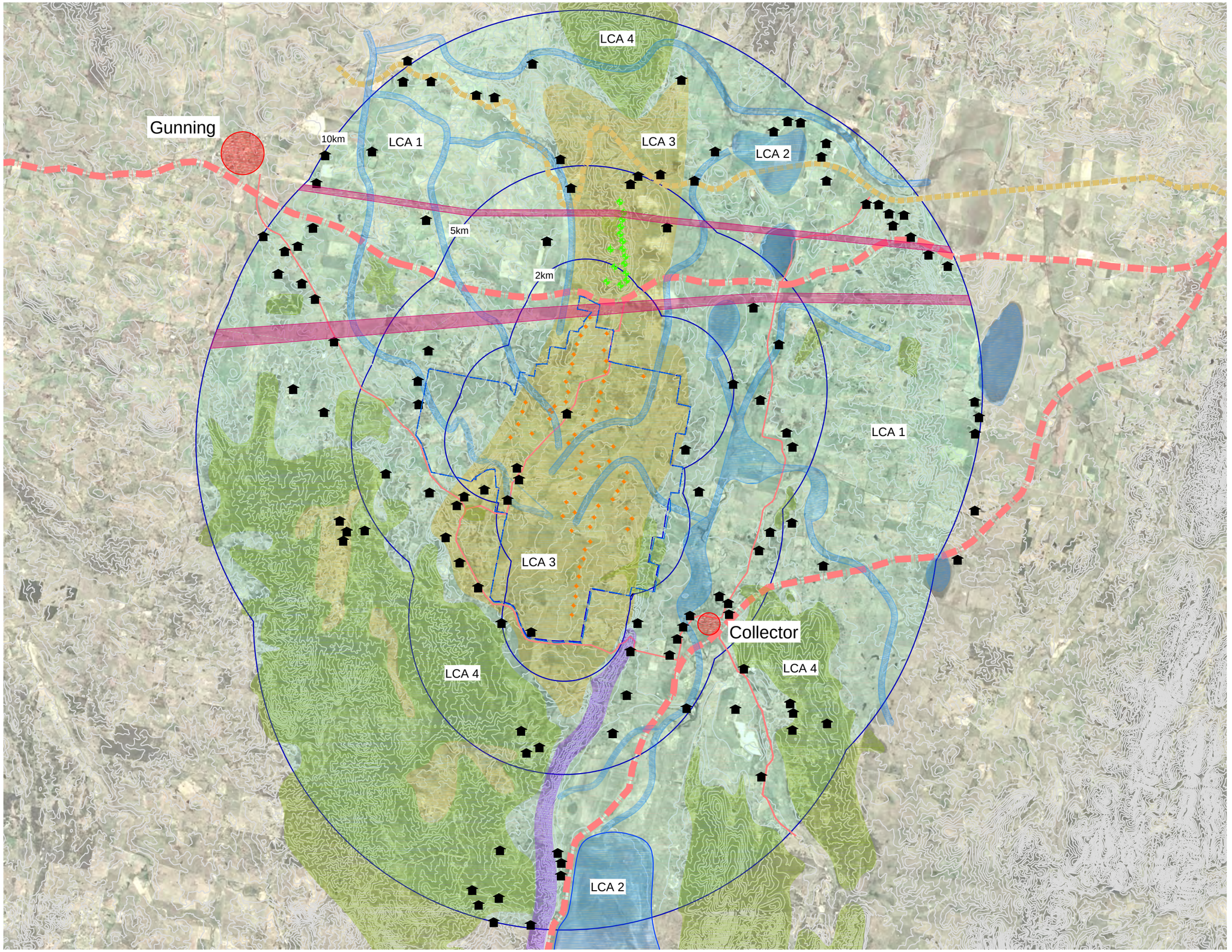
The five LCA's have been identified through a desk top assessment and described during the landscape assessment fieldwork carried out for the LVIA. The five LCA are illustrated in **Figure 2**. The LCA's are not considered to be discrete areas, and characteristics within one LCA may occur within adjoining or surrounding LCA's. For the purpose of this LVIA the five LCA are:

- LCA 1 – Undulating pastoral/agricultural landscape;
- LCA 2 – Wetland and drainage lines;
- LCA 3 – Slope and ridgeline areas;
- LCA 4 – Timbered areas (cultural and remnant native);and
- LCA 5 – Urban/rural settlement.

6.2 Landscape Sensitivity Assessment

The British Landscape Institute describes landscape sensitivity as '*the degree to which a particular LCA can accommodate change arising from a particular development, without detrimental effects on its character'*.

The assessment of landscape sensitivity is based upon an evaluation of the physical attributes identified within each LCA, both singularly and as a combination that gives rise to the landscape's overall robustness and the extent to which it could accommodate the wind farm development. The criteria used to determine landscape sensitivity are outlined in **Table 6** and based on current good practice employed in the assessment of wind



Source: Google Earth Pro Digital Globe 2013

Legend

- Collector wind farm project area
- Proposed Collector wind turbine
- Distance from proposed Collector wind turbine
- Existing 132 / 330 kV powerline route
- Hume and Federal Highway
- Main Southern Railway
- Operational Cullerin wind turbine
- Lake George Escarpment
- LCA 1 - Undulating pastoral & agricultural landscape
- LCA 2 - Wetland and drainage lines
- LCA 3 - Slope and ridgeline areas
- LCA 4 - Timbered areas
- LCA 5 - Urban/rural settlement

0km 4km

Figure 2
Landscape Character Areas

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farm developments. This LVIA draws on the Land Use Consultants report on landscape sensitivity for wind farm developments on the Shetland Islands (March 2009). Landscape sensitivity is a relative term, and the intrinsic landscape values of the surrounding landscape could be considered of a higher or lower sensitivity than other areas in the NSW/ACT Border Region Renewable Energy Precinct.

Whilst the assessment of landscape sensitivity is largely based on a systematic description and analysis of landscape characteristics, this LVIA acknowledges that some individuals and other members of the local community would place higher values on the local landscape. These values could transcend preferences (likes and dislikes) and include personal, cultural as well as other parameters.

Table 6 – Criteria for the assessment of Landscape Sensitivity

Landscape Sensitivity Assessment Criteria			
Characteristic	**Aspects indicating lower sensitivity to the wind farm development**	↔	**Aspects indicating higher sensitivity to the wind farm development**
Landform and scale: patterns, complexity and consistency	• Large scale landform • Simple • Featureless • Absence of strong topographical variety	↔	• Small scale landform • Distinctive and complex • Human scale indicators • Presence of strong topographical variety
Landcover: patterns, complexity and consistency	• Simple • Predictable • Smooth, regular and uniform	↔	• Complex • Unpredictable • Rugged and irregular
Settlement and human influence	• Concentrated settlement pattern • Presence of contemporary structures (e.g. utility, infrastructure or industrial elements)	↔	• Dispersed settlement pattern • Absence of modern development, presence of small scale, historic or vernacular settlement
Movement	• Prominent movement, busy	↔	• No evident movement, still
Rarity	• Common or widely distributed example of landscape character area within a regional context	↔	• Unique or limited example of landscape character area within a regional context
Intervisibility with adjacent landscapes	• Limited views into or out of landscape • Neighbouring landscapes of low sensitivity • Weak connections, self contained area and views	↔	• Prospects into and out from high ground or open landscape • Neighbouring landscapes of high sensitivity • Contributes to wider landscape

Table 6 – Criteria for the assessment of Landscape Sensitivity

Landscape Sensitivity Assessment Criteria			
Characteristic	**Aspects indicating lower sensitivity to the wind farm development**	↔	**Aspects indicating higher sensitivity to the wind farm development**
	• Simple large scale backdrops		• Complex or distinctive backdrops

The landscape sensitivity assessment criteria set out in **Table 6** have been evaluated for each of the five LCA's by applying a professionally determined judgement on a sliding scale between 1 and 5.

A scale of 1 indicates a landscape characteristic with a lower sensitivity to the wind farm development (and would be more likely to accommodate the wind farm development). A scale of 5 indicates a landscape characteristic with a high level of sensitivity to the wind farm development (and less likely to accommodate the wind farm development).

The scale of sensitivity for each LCA is outlined in **Tables 7** to **11** and is set out against each characteristic identified in **Table 6**.

The overall landscape sensitivity for each LCA is a summation of the scale for each characteristic identified in **Tables 7** to **11**. The overall scale is expressed as a total out of 30 (i.e. 6 characteristics for each LCA with a potential top scale of 5). Each characteristic is assessed separately and the criteria set out in **Table 6** are not ranked in equal significance. The overall landscape sensitivity for each of the five LCA has been determined as either:

High (Scale of 24 to **30)** – key characteristics of the LCA will be impacted by the proposed project, and will result in major and visually dominant alterations to perceived characteristics of the LCA which may not be fully mitigated by existing landscape elements and features. The degree to which the landscape may accommodate the proposed project development will result in a number of perceived uncharacteristic and significant changes.

Medium to High (Scale of 16 to **23)** – recognisable characteristics of the LCA will be altered by the proposed project, and result in the introduction of visually prominent elements that will alter the perceived characteristics of the LCA but may be partially mitigated by existing landscape elements and features within

the LCA. The main characteristics of the LCA, patterns and combinations of landform and landcover will still be evident.

Medium (Scale 11 to 15) – distinguishable characteristics of the LCA may be altered by the proposed project, although the LCA may have the capability to absorb some change. The degree to which the LCA may accommodate the proposed project would potentially result in the introduction of prominent elements to the LCA, but may be accommodated to some degree.

Low Rating (Scale of 6 to **10)** – the majority of the LCA characteristics are generally robust, and would be less affected by the proposed project. The degree to which the landscape may accommodate the wind farm would not significantly alter existing landscape character.

Very Low or Negligible Rating (Less than 6) the characteristics of the LCA will not be impacted or visibly altered by the proposed project.

6.3 Analysis of landscape sensitivity

The following section of this LVIA provides an analysis of landscape sensitivity within the viewshed of the wind farm development and considers each of the five LCA's.

6.3.1 LCA 1 Undulating grassland

Plate 1 – Typical view across undulating grassland landscape

Table 7 – LCA 1 - Undulating grassland -Landscape Sensitivity

	Lower Sensitivity		↔		Higher Sensitivity
	Low	Low to Med	Medium	Med to High	High
Rating	1	2	3	4	5
Landform and Scale		2			
	The undulating grassland LCA is a **large scale** and open landscape with a **gently undulating landform**. The structure of the landform is **simple** containing few distinct features and has a general **absence of any strong topographical elements**.				
Landcover		2			
	Landcover within the LCA is predominantly **simple and predictable** within the context of widespread pasture areas across the regional area of the Southern Tablelands. The overall landscape pattern created by the grass pasture is **smooth, regular and uniform**. Areas of cultural planting surround the majority of rural dwellings in the form of evergreen windbreaks.				
Settlement and human influence			3		
	A **dispersed settlement** pattern occurs across the LCA landscape and comprises rural farm homesteads including documented local historical structures. There is a general **absence of modern development** throughout this landscape, excluding agricultural structures and local roads and access tracks.				
Movement			3		
	Movement is generally **restricted** to occasional passing traffic, livestock as well as agricultural machinery.				
Rarity		2			
	Undulating grassland is generally **well represented and a common feature** across the NSW/ACT Border Region Renewable Energy Precinct.				
Intervisibility			3		
	Undulating grassland areas appear as a **simple backdrop** in views from surrounding elevated areas. Undulating landform can retain and constrict views within the landscape, but **generally contributes** to the wider landscape.				
Overall Sensitivity Rating	Medium (Score 15 out of 30)				

6.3.2 LCA 2 Wetland and Drainage Lines

Plate 2 – Typical view across wetland area and drainage lines landscape

Table 8 – LCA 2 – Wetland Area and Drainage Lines - Landscape Sensitivity

	Lower Sensitivity		↔		Higher Sensitivity
	Low	Low to Med	Medium	Med to High	High
Rating	1	2	3	4	5
Landform and Scale		2			
	Wetland areas and drainage line areas are generally contained by the gently sloping landform resulting in a **small** to **moderate** scale landform. The landform is simple containing **few distinct** features and has an absence of any strong topographical elements.				
Landcover		2			
	Landcover is predominantly **simple and predictable** within the context of widespread drainage areas across the broader regional area of the Southern Tablelands. The overall landscape pattern created by grass pasture within this landscape is **smooth, regular and uniform**, although mosaics of timbered stands on adjoining slopes and hillsides create some diversity and contrast in pattern.				
Settlement and human influence			3		
	There is a general **absence of settlement** within this landscape with a small and dispersed number of agricultural structures (some abandoned), minor access tracks and fences occurring throughout. Some modifications to landscape have been carried out to accommodate road access and the former railway line.				
Movement			3		
	A **lack of any significant movement** gives this landscape an overall still character.				
Rarity				4	
	Although wetland areas and drainage lines are generally **well represented** and a **common** feature across the broader regional area of the Southern Tablelands, the local Wet Lagoon Nature Reserve represents a more **limited** wetland feature found in the Southern Tablelands and is listed as an Environmental Heritage Item within the Upper Lachlan Shire Council Local Environmental Plan.				
Intervisibility		2			
	Intervisibility is limited as views from within this landscape are often contained by sloping landform rising above the river valley and drainage lines. Views along drainage lines, as well as views from areas above and across river valley and drainage lines provide links with adjoining landscape areas.				
Overall Sensitivity Rating	Medium to High (Score 16 out of 30)				

6.3.3 LCA 3 Slopes and ridgelines

Plate 3 – Typical views along simple slope and ridgeline landscape

Table 9 – LCA 3 - Slopes and ridgelines - Landscape Sensitivity

	Lower Sensitivity		↔		Higher Sensitivity
	Low	Low to Med	Medium	Med to High	High
Rating	1	2	3	4	5
Landform and Scale			3		
	Simple slope and ridgeline areas are represented by a generally open and **large scale** landform with distant views available from elevated areas within this landscape. The landform is **simple** containing **few distinct features** and has some **strong topographical elements**.				
Landcover			3		
	Landcover is predominantly **simple and predictable** within the context of similar areas across the Southern Tablelands. The overall landscape pattern created by grass pasture within this landscape is **smooth, regular and uniform**, although mosaics of timbered areas on surrounding slopes and cultural planting surrounding dwellings create some **diversity and contrast** in pattern.				
Settlement and human influence			3		
	Settlement is **occasional** and **dispersed** within this landscape and does not generally occur along the top of ridgelines or on elevated and exposed slopes. The main influences of human activity are the effects of **agricultural improvement** within the landscape.				
Movement				4	
	Movement is generally **limited** to local roads and access tracks.				
Rarity		2			
	Simple slopes and ridgelines are generally **well represented** and a **common feature** across the broader regional area of the Southern Tablelands.				
Intervisibility			3		
	Intervisibility is **limited** as views from within this landscape are often contained by undulating or sloping landform rising to ridgelines, however, potential distant views do occur from elevated landform to **provide links** to adjoining landscape areas.				
Overall Sensitivity Rating	Medium to High (Score 18 out of 30)				

6.3.4 LCA 4 Timbered Areas

Plate 5 – Typical views across timbered areas

Table 10 – LCA 4 - Timbered Areas- Landscape Sensitivity

	Lower Sensitivity		↔		Higher Sensitivity
	Low	Low to Med	Medium	Med to High	High
Rating	1	2	3	4	5
Landform and Scale			3		
	Timbered areas occur across a range of landform types that are generally defined by gently sloping or undulating landform resulting in a **moderate scale** landform. The landform is **simple** containing **few distinct features** and has some **strong topographical elements**.				
Landcover		2			
	Landcover is predominantly simple and predictable within the context of similar timbered areas across the Southern Tablelands. The overall landscape pattern created by timbered areas creates diversity and contrast to the smooth, regular and uniform grass pasture and cultivated areas within this landscape. The darker coloured foliage of timbered areas contrast against the surrounding backdrop of lighter toned pasture and cultivated areas.				
Settlement and human influence			3		
	Settlement is **occasional** and **dispersed** within timbered areas with the majority of dwellings visually screened from surrounding landscape areas. The main influences of human activity are the effects of **agricultural improvement** within the landscape.				
Movement			3		
	Movement is generally **limited** to local roads and access tracks.				
Rarity		2			
	Timbered areas are reasonably **well represented** and an established feature across broader regional areas of the New South Wales Southern Tablelands.				
Intervisibility			3		
	The level of intervisibility between this landscape and adjoining areas is generally determined by the location and extent of timbered area relative to view locations, but on the whole is **limited** as views from within this landscape are constrained by vegetation, combined with sloping landform. Views from scattered or lightly timbered areas **provide links** to adjoining landscape areas.				
Overall Sensitivity Rating	Medium to High (Score 16 out of 30)				

6.3.5 LCA 5 Settlements and Homesteads

Plate 6 – Typical views across settlement areas

Table 11 – LCA 5 – Settlements and Homesteads - Landscape Sensitivity

	Lower Sensitivity		↔		Higher Sensitivity
	Low	Low to Med	Medium	Med to High	High
Rating	1	2	3	4	5
Landform and Scale		2			
	Dispersed rural settlement, including homesteads and the Collector village are generally surrounded by sloping and low undulating landform resulting in an overall **small to medium scale** rural environment.				
Landcover			3		
	The overall landscape pattern is defined by human scale indicators including houses, commercial buildings and roads together with a variety of urban structures that creates some **diversity and contrast** in pattern.				
Settlement and human influence			3		
	Dwellings are dispersed beyond the regional settlement area of Goulburn and are generally associated with individual farms and rural structures.				
Movement		2			
	Low level movement through the rural landscape surrounding homesteads and the Collector village is contrasted by frequent vehicular movements along the Hume and Federal Highway including heavy goods vehicles.				
Rarity			3		
	Small scale village settlements and homesteads are **dispersed** across the landscape, as well as the broader regional area of the NSW Southern Tablelands.				
Intervisibility			3		
	Intervisibility is **limited** where views are partially contained by buildings and structures, although views from elevated areas of the settlement extend beyond and across adjoining landscape areas.				
Overall Sensitivity Rating	Medium to High (Score 16 out of 30)				

6.4 Landscape values

6.4.1 What are landscape values?

For the purpose of this LVIA landscape values have been considered as a set of professional judgements on the importance to society of the local and regional landscape surrounding the proposed wind farm development. Societal landscape values may extend across a range of specific interests such as historic, ecological or cultural issues. The purpose of identifying local and regional landscape values is to consider what, if any, losses to landscape features or characteristics may result from the construction and operation of the wind farm development, and how this may impact upon local and regional landscape values.

6.4.2 Historical landscape values

Both the local and regional landscape has a strong association with early European settlement and agricultural production and specifically the establishment of pastoral properties. The European historical and cultural association with settlement and agrarian transition is set against a backdrop of indigenous populations being relocated and ultimately removed from the landscape. The removal of the indigenous population resulted in long held landscape cultural values and practices being replaced by those employed by early settlers in the mid to early 19th century. Landscape change resulting from the abrupt replacement of landscape values (from subsistence to industrial agriculture) has wrought significant alteration to the landscape; however the existing landscape pattern is one that most people at the local and regional scale would recognise as typical and representative of a rural agricultural landscape. A detailed consideration and assessment of the relationship between landscape and indigenous populations is described in the Heritage Assessment Report within the **EA**.

6.4.3 Existing landscape values

Whilst the landscape is likely to hold more significant value at a local level, for those who both work and reside within the landscape surrounding the proposed wind farm development, there are no specific references to designations or policies which indicate or recognise a 'high value' landscape. There are no 'iconic' landscape elements (including constructed or natural features) that occur within the local or regional landscape which have a broader public value or that are recognised at a national level. The majority of land within and surrounding the wind farm development is privately owned and, at a local and regional scale, opportunities for the broader public to access and explore the landscape and obtain distant and panoramic views are largely

limited to existing rights of way such as road corridors and short section of the Bicentennial Trail following Lerida Road South.

The Proponent commissioned Auspoll Pty Ltd to conduct a survey to identify which aspects of the local landscape people most enjoyed. Local residents identified the mountain range and hills; bush vegetation; rural and agricultural outlook; open space and Lake George were the principal elements identified. The majority of respondents to the survey indicated a preference to view these elements from residential locations as well as local roads including trips along to Federal Highway toward Goulburn and Canberra.

6.5 Summary

In terms of overall landscape sensitivity and value, this LVIA has determined that the landscape within the viewshed of the proposed Collector wind farm has a medium/medium to high sensitivity to accommodate change, and represents a landscape that is reasonably typical of landscape types found in surrounding areas of the Southern Tablelands. The medium/medium to high sensitivity also recognises the aspects of landscape valued by local residents as identified in the survey commissioned by the Proponent.

As a landscape with an overall medium/medium to high sensitivity to accommodate change, some characteristics are likely to be altered by the wind farm; however, the landscape will have some capability to accommodate change. This capability is largely derived from the presence of predominantly large scale and open landscape across portions of the wind farm, together with the relatively low settlement density within the Collector 10km viewshed.

In the context of landscape sensitivity, this LVIA has determined that the Project would not be an unacceptable development within the Collector Wind Farm 10km viewshed, which in a wider context also contains built elements such as roads, agricultural industry, aircraft landing strips, communication towers, power lines as well as approved and operational wind farms within and beyond the broader area of the Project viewshed.

This LVIA notes that the operational Cullerin Wind Farm is located within the Collector Wind Farm 10km viewshed and the operational Gunning Wind Farm located to the north of the Collector Wind Farm 10km viewshed.

Although the physical presence of the Cullerin and Gunning Wind Farms would tend to minimise the immediate impact of the Collector Wind Farm on existing landscape characteristics, this LVIA does not suggest

or conclude that the presence of operational wind farm developments negates or diminishes landscape characteristics surrounding existing wind farm developments.

Despite being 'naturalistic' in appearance large portions of the NSW Southern Tablelands landscape have been heavily modified by agricultural improvement for pasture and arable production post European settlement. Irrespective of the extent and nature of modifications to the landscape, it is not correct to assume that the landscape surrounding the Project should be any less valued as a result of modification. Physical change in the appearance of the landscape is an ongoing and constant process from both human and environmental influences and can result in both positive and negative effects.

Visual Impact Assessment Criteria and Matrices

Section 8

8.1 Introduction

This LVIA has assessed and determined the potential visual significance of the project on:

- residential dwellings within the landscape surrounding and within the project site up to 10 km from the proposed wind turbine locations (refer **Figure 3** and **Table 18**);
- residential dwellings within Collector village (refer **Figure 5** and **Table 19**);
- heritage items within Collector village (refer **Figure 5** and **Table 20**);
- receptors travelling along local roads and highways (refer **Figure 6** and **Table 21**); and
- other private and public spaces within and surrounding Collector village.

The significance of visual impact resulting from the construction and operation of the Collector wind farm would result primarily from a combination of:

- the overall sensitivity of visual receptors in the surrounding landscape; and
- the scale or magnitude of visual effects presented by the wind farm development.

8.2 Visual receptor sensitivity

The sensitivity of visual receptors has been determined and described in this LVIA by reference to:

- the location and context of the view point;
- the occupation or activity of the receptor; and
- the overall number of people affected.
- **Tables 14** and **15** outline the criteria and levels of sensitivity and numbers of people that have been applied to the various occupations or types of activity which people may be engaged in the landscape surrounding the project.

Table 14 – Receptor sensitivity

Receptor category	Sensitivity
Residents at home (including rural residential dwellings within and surrounding Collector Village)	***Highest Sensitivity***
Pedestrians (outdoor recreation) with a focus on the landscape and on particular views (including people walking or riding on the Bicentennial National Trail)	▽
Public recreational space including parks and gardens with some focus on the surrounding	▽

Table 14 – Receptor sensitivity

Receptor category	Sensitivity
landscape	
Workers engaged in rural employment/farming	***Medium sensitivity***
People engaged in outdoor sports and recreation which does not involve or depend upon appreciation of views of the landscape (such as the Collector Oval)	▽
Motorists travelling along local roads and highways (including the Hume and Federal Highways)	▽
Business (commercial)	***Lower Sensitivity***

Table 15 – Numbers of receptors

Criteria	Definition
Number of receptors	
High	>400 people per day
Medium	101 - 200 people per day
Low	11 - 100 people per day
Very low	<10 people per day

This LVIA notes that a high number of people affected may not always determine a high level of sensitivity. For example, a large number of receptors in a category that would otherwise be of low or moderate sensitivity (such as motorists on the Hume and Federal Highway) may not necessarily increase the sensitivity of these receptor locations given the relatively very short to short duration of view.

8.3 Magnitude of visual effect

The scale or magnitude of visual effects associated with the project have been determined and described by reference to:

- the distance between the view location and the wind farm turbines;
- the duration of effect;
- the extent of the area over which the wind farm could be theoretically visible (ZVI hub height)

- the degree of visibility subject to existing landscape elements (such as forested areas or tree cover).

An overall determination of visual impact at each view location has also been assessed and determined against the criteria outlined in **Table 16** below:

Table 16 – Sensitivity and magnitude assessment criteria

Criteria	Definition
Distance	
Long	5 km - 10 km +
Medium	3 km – 5 km
Short	1 – 3 km
Very short	<1 km
Duration of effect	
High	> 2 hours
Medium	30 - 120 minutes
Low	10 – 30 minutes
Very low	< 10 minutes
Degree of visibility	
High	41 -68 wind turbines visible
Medium	21 – 40 wind turbines visible
Low	11 – 20 wind turbines
Very low	1 – 10 wind turbines visible

The sensitivity and magnitude assessment criteria outlined in **Tables 14, 15** and **16** are used as a guide to determine levels of visual significance. **Table 17** presents the visual significance criteria matrix and characterises both the sensitivity and magnitude of visual receptors within the landscape surrounding the Collector Wind Farm site.

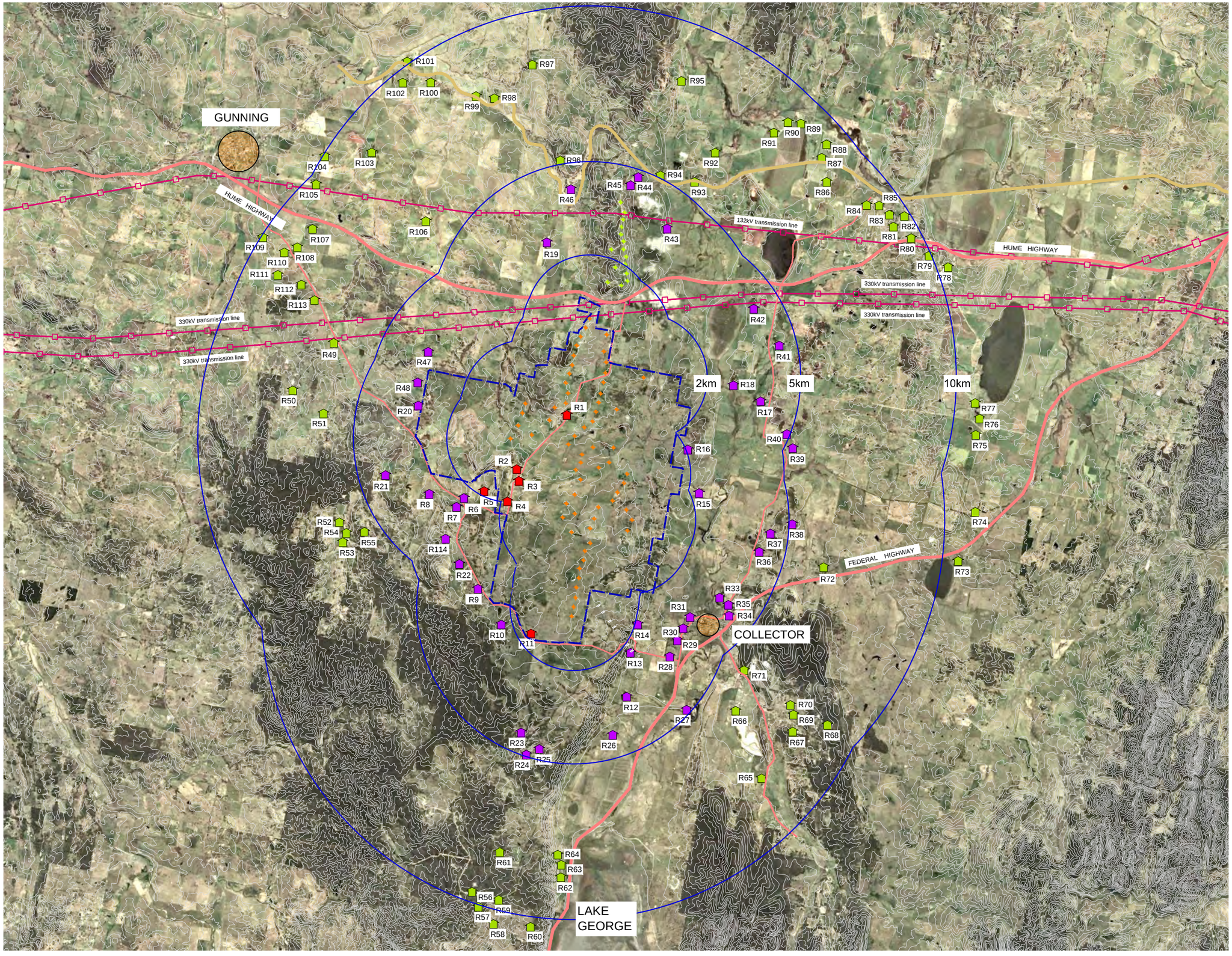
8.4 Residential and Public View Location Visibility Matrices

Tables 18 and 19 present Visibility Matrices for residential and public view locations within the Collector Wind Farm 10km viewshed. Residential, public and road corridor view locations are illustrated in Figures 3, 5 and 6. The contextual setting and relationship between Collector Village and the closest wind turbines within the southern portion of the project site is illustrated in **Figure 4**.

Table 17 Visual significance criteria matrix

			Scale or magnitude of change in view caused by proposed development			
			High	**Medium**	**Low**	**Very Low**
			Very short distance view over a long duration of time. A high extent of wind turbine visibility would tend to dominate the available skyline view and significantly disrupt existing views or vistas.	Short to medium distance views over a medium duration of time. A moderate extent of wind turbine visibility would have the potential to dominate available views with visibility recessing over increasing distance.	Medium to long distance views over a low to medium duration of time. Wind turbines in views, at long distances or visible for a short duration not expected to be significantly distinct in the existing view.	Visible change perceptible at a very long distance, or visible for a very short duration, and/or is expected to be less distinct within the existing view.
Sensitivity of visual receptor	**High**	**Typical indicators**	High	Medium to High	Medium	Low to Medium
		High numbers of receptors or those with proprietary interest and prolonged viewing opportunities such as residents and visitors to attractive and/or well-used landscape recreational facilities. Views from a regionally important location whose interest is specifically focussed on the landscape				
	Medium	Medium numbers of residents and moderate numbers of visitors with an interest in their environment e.g. visitors to State Forests, such as bush walkers and horse riders etc…. Larger numbers of travellers with an interest in their surroundings.	Medium to High	Medium	Low to medium	Low
	Low	Low numbers of visitors with a passing interest in their surroundings e.g. those travelling along local roads. Viewers whose interest is not specifically focussed on the landscape e.g. workers, commuters.	Medium	Low to Medium	Low	Very low to low
	Very Low	Very Low numbers of viewers or those with a passing interest in their surroundings e.g. those travelling along major roads or highways.	Low to Medium	Low	Very low to low	Very low

This table is used as a guide only. The descriptions of magnitude and sensitivity are illustrative only. Each case is assessed on its own merits using professional judgement and experience, and there is no defined boundary between levels of impacts.



Source: Copyright Google Earth Pro, Digital Globe 2013

Legend

- Residence - within 2km of proposed Collector wind turbine
- Residence - between 2km and 5km of proposed Collector wind turbine
- Residence - between 5km and 10km of proposed Collector wind turbine
- Proposed Collector wind turbine
- Distance from proposed Collector wind turbine
- Operational Cullerin wind turbine
- Collector Wind Farm site boundary
- Highway or local road
- Main Southern Railway
- Existing 132/330kV transmission line

0km 4km

Figure 3
Residential View Locations
(beyond Collector village)

RATCH-Australia Corporation

GREEN BEAN DESIGN
landscape architects

COLLECTOR WIND FARM

8.5 Visual significance matrix (residences beyond Collector Village)

Table 18 – Visual significance matrix (Refer **Figure 3** for receptor locations beyond Collector Village)

Receptor Location	Category of Potential View Location	View context from residence toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility (ZVI hub height)	Visual significance
R1	Involved residential dwelling	Views from residence and surrounding curtilage extend toward proximate turbines within north portion of the Project site.	282 m	Very Low	Varies Potential long term views	High	High	High
R2	Involved residential dwelling	Views from residence and surrounding curtilage extend toward proximate turbines within north portion of the Project site.	634 m	Very Low	Varies Potential long term views	High	High	High
R3	Occasional occupation (shearing shed)	N/A	1.39 m	Very Low	Varies Potential long term views	Medium	High	Low
R4	Involved residential dwelling	Views from residence and surrounding curtilage toward the Project are partially screened by vegetation bounding residence.	1.82 km	Very Low	Varies Potential long term views	High	High	Low to Medium
R5	Non-involved residential dwelling	Views from residence and surrounding curtilage extend toward proximate turbines within the north portion of the Project site.	1.82 km	Very Low	Varies Potential long term views	High	High	High
R6	Non-involved residential dwelling	Views from residence and surrounding curtilage extend toward proximate turbines within the north portion of the Project site.	2.4 km	Very Low	Varies Potential long term views	High	High	High
R7	Non-involved residential dwelling	Views from residence and surrounding curtilage toward the Project are partially screened by	2.76 km	Very Low	Varies Potential long	High	Moderate	Low to Medium

Table 18 – Visual significance matrix (Refer **Figure 3** for receptor locations beyond Collector Village)

Receptor Location	Category of Potential View Location	View context from residence toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility (ZVI hub height)	Visual significance
		vegetation bounding residence.			term views			
R8	Non-involved residential dwelling	Views from residence and surrounding curtilage extend toward turbines within portions of the Project site.	3.10 km	Very Low	Varies Potential long term views	High	Moderate	Medium to High
R9	Non-involved residential dwelling	Views from residence and surrounding curtilage toward the Project are partially screened by vegetation bounding residence and within property.	3.1 km	Very Low	Varies Potential long term views	High	High	Medium
R10	Non-involved residential dwelling	Views from residence and surrounding curtilage toward the Project are partially screened by vegetation bounding residence and within property.	2.14 km	Very Low	Varies Potential long term views	High	High	Low to Medium
R11	Involved residential dwelling	Views from residence and surrounding curtilage extend toward turbines within portions of the Project site.	1.3 km	Very Low	Varies Potential long term views	High	High	High
R12	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	3.2 km	Very Low	Varies Potential long term views	High	Low	Nil
R13	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	2.4 km	Very Low	Varies Potential long term views	High	Low	Nil
R14	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	2.3 km	Very Low	Varies Potential long term views	High	Low	Nil
R15	Non-involved	Views from residence and surrounding curtilage	2.41 km	Very Low	Varies	High	Moderate	Low to Medium

Table 18 – Visual significance matrix (Refer **Figure 3** for receptor locations beyond Collector Village)

Receptor Location	Category of Potential View Location	View context from residence toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility (ZVI hub height)	Visual significance
	residential dwelling	toward turbines are partially screened by undulating topography and vegetation.			Potential long term views			
R16	Non-involved residential dwelling	Views from residence and surrounding curtilage extend toward turbines within portions of the Project site.	2.15 km	Very Low	Varies Potential long term views	High	High	High
R17	Non-involved residential dwelling	Views from residence and surrounding curtilage toward the Project turbines are partially screened by vegetation and built structures surrounding residence.	3.97 km	Very Low	Varies Potential long term views	High	High	Low to Medium
R18	Non-involved residential dwelling	Views from residence and surrounding curtilage toward the Project are partially screened by vegetation and built structures surrounding residence, although more distant views may occur toward turbines within the south portion of the Project site.	2.92 km	Very Low	Varies Potential long term views	High	High	Low to Medium
R19	Non-involved residential dwelling	Views from residence and surrounding curtilage extend south to south east across portions of the Project site.	2.8 km	Very Low	Varies Potential long term views	High	High	Medium
R20	Non-involved residential dwelling	Views from residence and surrounding curtilage toward the Project turbines are partially screened by undulating landform and timbered areas as well as vegetation within property.	3.1 km	Very Low	Varies Potential long term views	High	High	Low
R21	Non-involved residential dwelling	Views toward the Project turbines are partially screened by topography and/or vegetation.	4 km	Very Low	Varies Potential long term views	High	Low	Low
R22	Non-involved residential	Views from residence and surrounding curtilage toward the Project are partially screened by	3.5 km	Very Low	Varies	High	High	Low

Table 18 – Visual significance matrix (Refer **Figure 3** for receptor locations beyond Collector Village)

Receptor Location	Category of Potential View Location	View context from residence toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility (ZVI hub height)	Visual significance
	dwelling	vegetation bounding residence and within property.			Potential long term views			
R23	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	3.9 km	Very Low	Varies Potential long term views	High	Low	Nil
R24	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	4.5 km	Very Low	Varies Potential long term views	High	Low	Nil
R25	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	4.3 km	Very Low	Varies Potential long term views	High	Low	Nil
R26	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	4 km	Very Low	Varies Potential long term views	High	Low	Nil
R27	Non-involved residential dwelling	Views toward the Project turbines are largely screened by vegetation surrounding the residential dwelling.	4.8 km	Very Low	Varies Potential long term views	High	High	Low
R28	Non-involved residential dwelling	Views toward the Project turbines are largely screened by vegetation surrounding the residential dwelling.	3.6 km	Very Low	Varies Potential long term views	High	Moderate	Medium
R29	Non-involved residential dwelling	Views toward the Project turbines are partially screened by vegetation to the west of the residential dwelling.	3.7 km	Very Low	Varies Potential long term views	High	High	Medium
R30	Non-involved	Views toward the Project turbines are partially	3.8 km	Very Low	Varies	High	High	Medium

Table 18 – Visual significance matrix (Refer **Figure 3** for receptor locations beyond Collector Village)

Receptor Location	Category of Potential View Location	View context from residence toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility (ZVI hub height)	Visual significance
	residential dwelling	screened by vegetation to the west of the residential dwelling.			Potential long term views			
R31	Non-involved residential dwelling	Views toward the Project turbines are partially screened by vegetation to the west of the residential dwelling.	3.4 km	Very Low	Varies Potential long term views	High	High	Medium
R33	Non-involved residential dwelling	Views toward the Project extend west toward the eastern portion of the wind farm although some screening is provided by vegetation to the west of the dwelling.	3.7km	Very Low	Varies Potential long term views	High	High	Low
R34	Non-involved residential dwelling (3 Dwellings)	Views toward the Project extend west toward the eastern portion of the wind farm.	4.1km	Very Low	Varies Potential long term views	High	High	Medium to High
R35	Non-involved residential dwelling (3 Dwellings)	Views toward the Project extend west toward the eastern portion of the wind farm.	4.6km	Very Low	Varies Potential long term views	High	High	Medium to High
R36	Non-involved residential dwelling	Views toward the Project turbines are partially screened by vegetation to the west of the dwelling.	4.2km	Very Low	Varies Potential long term views	High	High	Low
R37	Non-involved residential dwelling	Views toward the Project turbines are partially screened by vegetation to the west of the dwelling.	4.6 km	Very Low	Varies Potential long term views	High	High	Low
R38	Non-involved residential dwelling	Views toward the Project turbines are partially screened by vegetation to the west of the dwelling and beyond the property.	5.3 km	Very Low	Varies Potential long term views	High	High	Low

Table 18 – Visual significance matrix (Refer **Figure 3** for receptor locations beyond Collector Village)

Receptor Location	Category of Potential View Location	View context from residence toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility (ZVI hub height)	Visual significance
R39	Non-involved residential dwelling	Views toward the Project turbines are partially screened by vegetation to the west of the dwelling and beyond the property.	5.3 km	Very Low	Varies Potential long term views	High	High	Low
R40	Non-involved residential dwelling	Views toward the Project turbines are partially screened by vegetation surrounding the residential dwelling.	4.95 km	Very Low	Varies Potential long term views	High	High	Low to Medium
R41	Non-involved residential dwelling	Views toward the Project turbines are partially screened by vegetation surrounding the residential dwelling.	4.5 km	Very Low	Varies Potential long term views	High	High	Low
R42	Non-involved residential dwelling	Views toward the Project turbines are partially screened by vegetation surrounding the residential dwelling.	4.2 km	Very Low	Varies Potential long term views	High	High	Low to Medium
R43	Non-involved residential dwelling Resident	Views toward the Project turbines are largely screened by vegetation surrounding the residential dwelling.	4 km	Very Low	Varies Potential long term views	High	Moderate	Low
R44	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	4.9 km	Very Low	Varies Potential long term views	High	Low	Nil
R45	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	4.6 km	Very Low	Varies Potential long term views	High	Low	Nil
R46	Non-involved residential dwelling	Views toward the Project turbines are partially screened by undulating landform and vegetation within and beyond property.	4.3 km	Very Low	Varies Potential long term views	High	Low	Low

Table 18 – Visual significance matrix (Refer **Figure 3** for receptor locations beyond Collector Village)

Receptor Location	Category of Potential View Location	View context from residence toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility (ZVI hub height)	Visual significance
R47	Non-involved residential dwelling	Views toward the Project turbines are partially screened by undulating landform and vegetation within and beyond property.	3.5 km	Very Low	Varies Potential long term views	High	High	Medium
R48	Non-involved residential dwelling	Views toward the Project turbines are partially screened by undulating landform and vegetation within and beyond property.	3.7 km	Very Low	Varies Potential long term views	High	High	Medium
R49	Non-involved residential dwelling	Views toward the Project turbines are partially screened by vegetation within and beyond property.	6.4 km	Very Low	Varies Potential long term views	High	Moderate	Low
R50	Non-involved residential dwelling	Views toward the Project turbines are partially screened by topography and/or vegetation.	7.3 km	Very Low	Varies Potential long term views	High	High	Low
R51	Non-involved residential dwelling	Views toward the Project turbines are partially screened by topography and/or vegetation.	6 km	Very Low	Varies Potential long term views	High	Moderate	Low
R52	Non-involved residential dwelling	Views toward the Project turbines are partially screened by topography and/or vegetation.	6 km	Very Low	Varies Potential long term views	High	High	Low
R53	Non-involved residential dwelling	Views toward the Project turbines are partially screened by topography and/or vegetation.	6.2 km	Very Low	Varies Potential long term views	High	Moderate	Low
R54	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	6 km	Very Low	N/A	High	Low	Nil

Table 18 – Visual significance matrix (Refer **Figure 3** for receptor locations beyond Collector Village)

Receptor Location	Category of Potential View Location	View context from residence toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility (ZVI hub height)	Visual significance
R55	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	6 km	Very Low	N/A	High	Low	Nil
R56	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	9.3 km	Very Low	N/A	High	Low	Nil
R57	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	9.7 km	Very Low	N/A	High	Low	Nil
R58	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	10 km	Very Low	N/A	High	Low	Nil
R59	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	9.3 km	Very Low	N/A	High	Low	Nil
R60	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	10 km	Very Low	N/A	High	Low	Nil
R61	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	7.5 km	Very Low	N/A	High	Low	Nil
R62	Non-involved residential dwelling	Views toward the Project turbines are largely screened by topography and/or vegetation.	8.3 km	Very Low	Varies Potential long term views	High	Low	Low
R63	Non-involved residential dwelling	Views toward the Project turbines are largely screened by topography and/or vegetation.	8 km	Very Low	Varies Potential long term views	High	Low	Low
R64	Non-involved	Views toward the Project turbines are largely	7.6 km	Very Low	Varies	High	Low	Low

Table 18 – Visual significance matrix (Refer **Figure 3** for receptor locations beyond Collector Village)

Receptor Location	Category of Potential View Location	View context from residence toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility (ZVI hub height)	Visual significance
	residential dwelling	screened by topography and/or vegetation.			Potential long term views			
R65	Non-involved residential dwelling	Distant views toward south eastern portion of the Project site.	8.1 km	Very Low	Varies Potential long term views	High	High	Low
R66	Non-involved residential dwelling	Views toward the Project turbines are partially screened by vegetation surrounding the residential dwelling.	6.2 km	Very Low	Varies Potential long term views	High	High	Low
R67	Non-involved residential dwelling	Views toward the Project turbines are partially screened by timbered areas and vegetation surrounding the residential dwelling.	8.1 km	Very Low	Varies Potential long term views	High	High	Nil
R68	Non-involved residential dwelling	Views toward the Project turbines are partially screened by timbered areas and vegetation surrounding the residential dwelling.	9.1 km	Very Low	Varies Potential long term views	High	High	Nil
R69	Non-involved residential dwelling	Distant views toward south eastern portion of the Project site.	8 km	Very Low	Varies Potential long term views	High	High	Low
R70	Non-involved residential dwelling	Distant views toward south eastern portion of the Project site.	7.7 km	Very Low	Varies Potential long term views	High	High	Low
R71	Non-involved residential dwelling	Views toward the Project turbines are partially screened by timbered areas and vegetation surrounding the residential dwelling.	6 km	Very Low	Varies Potential long term views	High	High	Low

Table 18 – Visual significance matrix (Refer **Figure 3** for receptor locations beyond Collector Village)

Receptor Location	Category of Potential View Location	View context from residence toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility (ZVI hub height)	Visual significance
R72	Non-involved residential dwelling	Views toward the Project turbines are partially screened by vegetation surrounding the residential dwelling.	6.5 km	Very Low	Varies Potential long term views	High	High	Low
R73	Non-involved residential dwelling	Elevated and distant views toward portions of the Project site.	10 km	Very Low	Varies Potential long term views	High	High	Low
R74	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	<10 km	Very Low	Varies Potential long term views	High	Nil	Nil
R75	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	10.83 km	Very Low	Varies Potential long term views	High	Nil	Nil
R76	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	10.86 km	Very Low	Varies Potential long term views	High	Nil	Nil
R77	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	10.68 km	Very Low	Varies Potential long term views	High	Nil	Nil
R78	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	10.4 km	Very Low	Varies Potential long term views	High	Nil	Nil
R79	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	9.97 km	Very Low	Varies Potential long term views	High	Nil	Nil

Table 18 – Visual significance matrix (Refer **Figure 3** for receptor locations beyond Collector Village)

Receptor Location	Category of Potential View Location	View context from residence toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility (ZVI hub height)	Visual significance
R80	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	9.7 km	Very Low	Varies Potential long term views	High	Nil	Nil
R81	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	9.4 km	Very Low	Varies Potential long term views	High	Nil	Nil
R82	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	9.85 km	Very Low	Varies Potential long term views	High	Nil	Nil
R83	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	9.5 km	Very Low	Varies Potential long term views	High	Nil	Nil
R84	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	9 km	Very Low	Varies Potential long term views	High	Low	Nil
R85	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	9.3 km	Very Low	Varies Potential long term views	High	Nil	Nil
R86	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	8.6 km	Very Low	Varies Potential long term views	High	High	Nil
R87	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	8.5 km	Very Low	Varies Potential long term views	High	High	Nil

Table 18 – Visual significance matrix (Refer **Figure 3** for receptor locations beyond Collector Village)

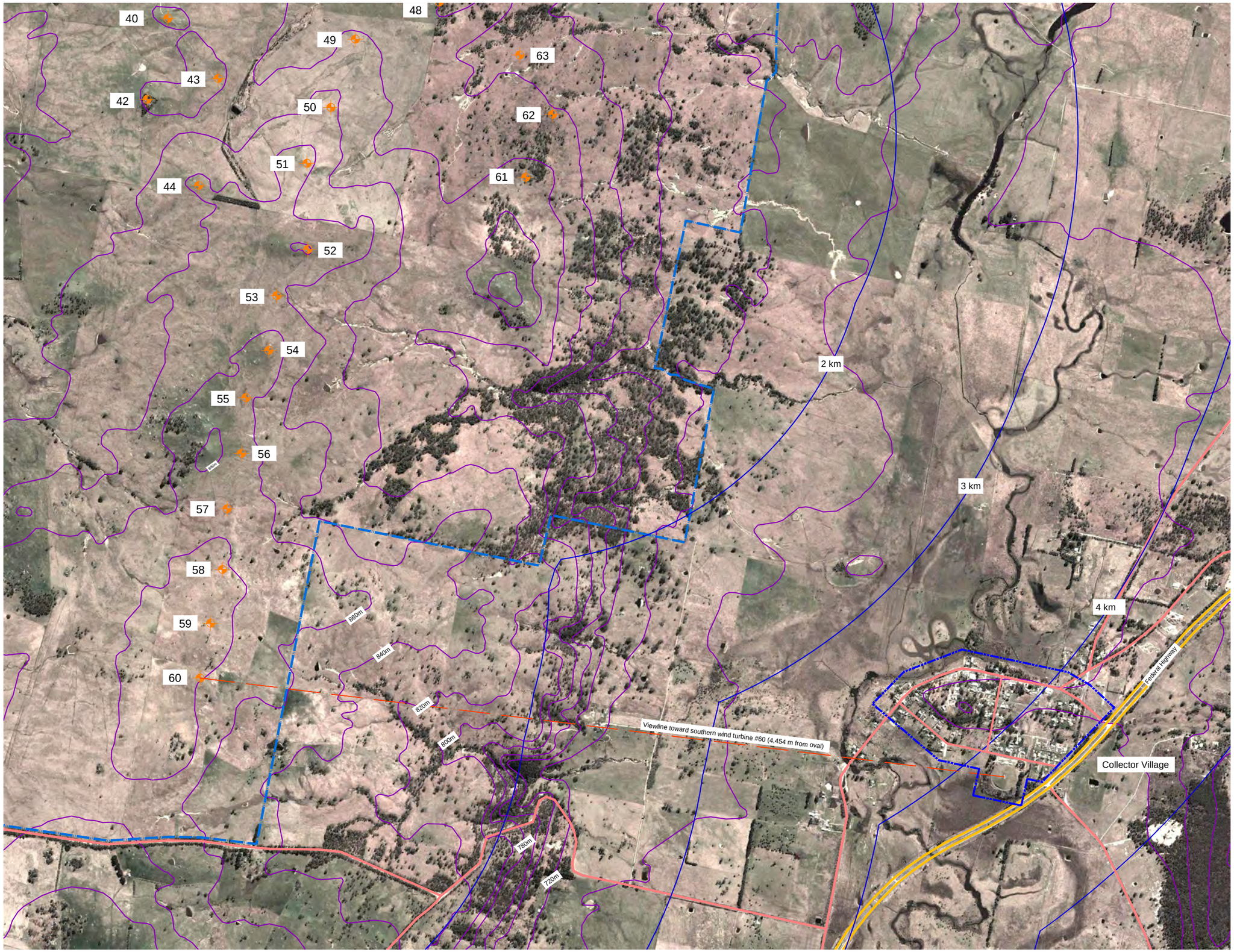
Receptor Location	Category of Potential View Location	View context from residence toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility (ZVI hub height)	Visual significance
R88	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	9 km	Very Low	Varies Potential long term views	High	High	Nil
R89	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	9.2 km	Very Low	Varies Potential long term views	High	High	Nil
R90	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	9 km	Very Low	Varies Potential long term views	High	High	Nil
R91	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	8.5 km	Very Low	Varies Potential long term views	High	High	Nil
R92	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	6.8 km	Very Low	Varies Potential long term views	High	High	Nil
R93	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	5.7 km	Very Low	Varies Potential long term views	High	High	Nil
R94	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	5.2 km	Very Low	Varies Potential long term views	High	Moderate	Nil
R95	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	8.3 km	Very Low	Varies Potential long term views	High	Low	Nil

Table 18 – Visual significance matrix (Refer **Figure 3** for receptor locations beyond Collector Village)

Receptor Location	Category of Potential View Location	View context from residence toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility (ZVI hub height)	Visual significance
R96	Non-involved residential dwelling	Views toward portions of the Project site occur beyond the proximate view toward the Cullerin wind farm turbines.	5.2 km	Very Low	Varies Potential long term views	High	Low	Low
R97	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	8.4 km	Very Low	Varies Potential long term views	High	Low	Nil
R98	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	7.8 km	Very Low	Varies Potential long term views	High	Low	Nil
R99	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	8 km	Very Low	Varies Potential long term views	High	Low	Nil
R100	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	9.2 km	Very Low	Varies Potential long term views	High	High	Nil
R101	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	10 km	Very Low	Varies Potential long term views	High	Moderate	Nil
R102	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	9.7 km	Very Low	Varies Potential long term views	High	Moderate	Nil
R103	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	8.8 km	Very Low	Varies Potential long term views	High	Moderate	Nil

Table 18 – Visual significance matrix (Refer **Figure 3** for receptor locations beyond Collector Village)

Receptor Location	Category of Potential View Location	View context from residence toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility (ZVI hub height)	Visual significance
R104	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	9.9 km	Very Low	Varies Potential long term views	High	Low	Nil
R105	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	9.7 km	Very Low	Varies Potential long term views	High	Low	Nil
R106	Non-involved residential dwelling	Distant views toward portions of the Project.	6 km	Very Low	Varies Potential long term views	High	High	Low
R107	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	8.8 km	Very Low	Varies Potential long term views	High	Low	Low
R108	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	8.8 km	Very Low	Varies Potential long term views	High	Low	Low
R109	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	10 km	Very Low	Varies Potential long term views	High	Low	Low
R110	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	9.2 km	Very Low	Varies Potential long term views	High	Low	Low
R111	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	8.9 km	Very Low	Varies Potential long term views	High	Low	Low



Source: Copyright Google Earth Pro, Digital Globe 2013

Legend

- Collector Village envelope
- Proposed Collector wind turbine
- Distance from proposed Collector wind turbine
- Collector Wind Farm Site Boundary
- Federal Highway
- Local road

0m 500m

Figure 4
Collector Village relative to south portion of proposed Collector Wind Farm

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COLLECTOR WIND FARM

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Legend

- Collector Village envelope
- Distance from proposed Collector wind turbine
- Federal Highway
- Local road
- Viewline toward wind turbine
- Heritage Item (Upper Lachlan Shire Council LEP 2010)

H1 - Collector Memorial Hall
H2 - St Bartholomews RC Church
H3 - Uniting Church
H4 - Uniting Church Cemetery
H5 - Bushrangers Hotel
H6 - Collector Public School
H7 - Wheat Sheaf Inn
H8 - Collector Inn
H9 - All Saints Anglican Church*
H10 - Catholic and Anglican Cemetery*

* Not listed as heritage item within LEP

- Involved residential dwelling
- Non-involved residential dwelling or public location with indirect or direct views toward a low to medium number of the proposed Collector wind turbines.
- Non-involved residential dwelling or public location with partial screening of direct views toward a very low to low number of the proposed Collector wind turbines.
- Non-involved residential dwelling with significant or complete screening of views toward the proposed Collector wind turbines.
- Combined or single lot property boundary
- Unoccupied commercial property

0m 100m

Figure 5
Collector Village receptor locations

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Table 18 – Visual significance matrix (Refer **Figure 3** for receptor locations beyond Collector Village)

Receptor Location	Category of Potential View Location	View context from residence toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility (ZVI hub height)	Visual significance
R112	Non-involved residential dwelling	Views toward the Project turbines are screened by topography and/or vegetation.	8 km	Very Low	Varies Potential long term views	High	Low	Low
R113	Non-involved residential dwelling	Views from residence and surrounding curtilage extend toward turbines within portions of the Project site.	7.5 km	Very Low	Varies Potential long term views	High	High	Low to Medium
R114	Non-involved residential dwelling	Views from residence and surrounding curtilage extend toward turbines within portions of the Project site.	3.7 km	Very Low	Varies Potential long term views	High	High	Medium

8.6 Visual significance matrix (within Collector Village)

Table 19 – Visual significance matrix (Refer **Figure 5** for receptor locations within Collector Village)

View Location	Category of Potential View Location	View context toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility	Visual significance
C1	Collector Oval – public access	Views from the Collector oval toward a small portion of the wind farm are partially screened by tree cover.	4.21 km	Very Low	Varies Potential long term views	High	Very low	Low
C2	Non-involved residential dwelling	Views toward the proposed wind turbines from the residential dwelling are largely screened by tree planting along the west edge of the property. Partial views toward a very small number of wind turbines	4.28 km	Very Low	Varies Potential long term views	High	Very low	Nil/Very low

Table 19 – Visual significance matrix (Refer **Figure 5** for receptor locations within Collector Village)

View Location	Category of Potential View Location	View context toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility	Visual significance
C3	Non-involved residential dwellings (5)	Indirect views toward the proposed wind turbines from residential dwellings along Bourke Street are partially screened by adjoining dwellings.	4.05 km	Very Low	Varies Potential long term views	High	Very low	Low
C4	Non-involved residential dwellings (4)	Indirect views toward the proposed wind turbines from residential dwellings along Bourke Street are partially screened by adjoining dwellings.	4.23 km	Very Low	Varies Potential long term views	High	Very low	Low
C5	Non-involved residential dwellings (5)	Indirect views toward the proposed wind turbines from residential dwellings along George Street are partially screened by adjoining dwellings.	4.19 km	Very Low	Varies Potential long term views	High	Very low	Nil/Very low
C6	Non-involved residential dwellings (3)	Indirect views toward the proposed wind turbines from residential dwellings along George Street are largely screened by tree cover and landform to the north west and west of the dwellings.	4.01 km	Very Low	Varies Potential long term views	High	Very low	Nil/Very low
C7	Non-involved residential dwellings (6)	Indirect views toward the proposed wind turbines from residential dwellings along George Street are largely screened by tree cover and landform to the north west and west of the dwellings.	4.10 km	Very Low	Varies Potential long term views	High	Very low	Nil/Very low
C8	Involved residential dwelling	Indirect views toward the proposed wind turbines from residential dwelling between Goulburn and Church Street are largely screened by tree cover surrounding dwelling.	4.19 km	Very Low	Varies Potential long term views	High	Very low	Very low
C9	Involved residential dwelling	Indirect views toward the proposed wind turbines from residential dwelling between Goulburn and Church Street will be partially screened by tree cover.	4.12 km	Very Low	Varies Potential long term views	High	Low to Medium	Low to Medium
C10	Non-involved residential	Indirect views toward the proposed wind turbines from residential dwelling between Goulburn and	4.08 km	Very Low	Varies Potential long	High	Very low	Nil/Very low

Table 19 – Visual significance matrix (Refer **Figure 5** for receptor locations within Collector Village)

View Location	Category of Potential View Location	View context toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility	Visual significance
	dwelling	Church Street will be partially screened by tree cover and dwelling structures to the north west of the dwelling.			term views			
C11	Non-involved residential dwelling	Indirect views toward the proposed wind turbines from residential dwelling between Goulburn and Church Street will be partially screened by tree cover and dwelling structures to the north west of the dwelling.	4.02 km	Very Low	Varies Potential long term views	High	Very low	Nil/Very low
C12	Non-involved residential dwelling	Potential direct and indirect view toward the proposed wind turbines from residential dwelling west of Church Street with partial screening through tree planting alongside Church Street.	4.03 km	Very Low	Varies Potential long term views	High	Low to Medium	Low to Medium
C13	Non-involved residential dwellings (2)	Potential direct and indirect view toward the proposed wind turbines from residential dwelling west of Church Street with partial screening through tree planting within property boundary and alongside Church Street.	3.91 km	Very Low	Varies Potential long term views	High	Low to Medium	Low to Medium
C14	Non-involved residential dwellings	Views toward the proposed wind turbines from residential dwellings on the north east corner of Lorn and Goulburn Streets will be largely screened by tree cover located on the north west corner of Lorn and Church Street.	3.87 km	Very Low	Varies Potential long term views	High	Very low	Nil/Very low
C15	Non-involved residential dwellings (3)	Views toward the proposed wind turbines from residential dwellings on the east side of Lorn Street will be largely screened by tree cover located to the west corner of Lorn Street.	3.91 km	Very Low	Varies Potential long term views	High	Very low	Nil/Very low
C16	Non-involved residential dwelling	Views toward the proposed wind turbines from residential dwelling on the north west corner of Lorn and Goulburn Streets are largely screened by landform and tree cover to the west of the	3.85 km	Very Low	Varies Potential long term views	High	Very low	Low

Table 19 – Visual significance matrix (Refer **Figure 5** for receptor locations within Collector Village)

View Location	Category of Potential View Location	View context toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility	Visual significance
		dwelling.						
C17	Non-involved residential dwelling	Views toward the proposed wind turbines from residential dwelling on the south side of Goulburn Street will be partially screened by tree cover to the west of the dwelling.	3.83 km	Very Low	Varies Potential long term views	High	Low	Low
C18	Non-involved residential dwellings (2)	Views toward the proposed wind turbines from residential dwellings on the north side of Goulburn Street are partially screened by tree cover to the north of the dwellings.	3.79 km	Very Low	Varies Potential long term views	High	Low	Low
C19	Non-involved residential dwellings (2)	Views toward the proposed wind turbines from residential dwellings on the north side of Goulburn Street are partially screened by tree cover to the north of the dwellings.	3.72 km	Very Low	Varies Potential long term views	High	Low	Low
C20	Non-involved residential dwellings (3)	Indirect and direct views extend toward wind turbines at medium distance along ridgeline and beyond.	3.67 km	Very Low	Varies Potential long term views	High	Low to Medium	Medium
C21	Non-involved residential dwelling	Indirect and direct views toward the wind turbines are partially screened by tree planting within the property. Views extend toward wind turbines at medium distance above and beyond ridgeline.	3.74 km	Very Low	Varies Potential long term views	High	Low to Medium	Medium
C22	Non-involved residential dwelling	Indirect and direct views toward the wind turbines are partially screened by tree planting and built structures within adjoining property. Partial views extend toward wind turbines at medium distance above and beyond ridgeline.	3.64 km	Very Low	Varies Potential long term views	High	Low to Medium	Low to Medium
C23	Non-involved residential dwelling	Indirect and direct views toward the wind turbines are partially screened by tree planting and built structures within property. Partial views extend toward wind turbines at medium distance above	3.60 km	Very Low	Varies Potential long term views	High	Low to Medium	Low to Medium

Table 19 – Visual significance matrix (Refer **Figure 5** for receptor locations within Collector Village)

View Location	Category of Potential View Location	View context toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility	Visual significance
		and beyond ridgeline.						
C24	Non-involved residential dwellings (6)	Views extend north to north west toward wind turbines along and above ridgeline from residential dwellings at the western end of Goulburn Street, extending north down to O'Sullivan Street.	3.61 km	Very Low	Varies Potential long term views	High	Low to Medium	Medium
C25	Non-involved residential dwellings (3)	Direct views toward wind turbines with some partial screening by tree planting alongside the O'Sullivan and Murray Street road frontage.	3.57 km	Very Low	Varies Potential long term views	High	Low to Medium	Medium
C26	Non-involved residential dwelling	Direct views from dwelling north west toward wind turbines above and beyond ridgeline with some partial screening through tree cover to the west of the dwelling.	3.49 km	Very Low	Varies Potential long term views	High	Low to Medium	Medium
C27	Non-involved residential dwellings (3)	Indirect views toward the wind turbines are largely screened by tree cover and/or topography to the west and north of the dwellings.	3.65 km	Very Low	Varies Potential long term views	High	Very low	Very low
C28	Non-involved residential dwelling	Indirect views toward the wind turbines are partially screened by tree cover and/or topography to the west and north of the dwellings.	3.77 km	Very Low	Varies Potential long term views	High	Very low	Low
C29	Collector Police Station	Indirect views toward the wind turbines are partially screened by tree cover and/or topography to the west and north of the dwellings.	3.85 km	Very Low	Varies Potential long term views	High	Very low	Low
C30	Non-involved residential dwellings (2)	Indirect views toward the wind turbines are partially screened by tree cover and/or	3.75 km	Very Low	Varies Potential long	High	Very low	Low

Table 19 – Visual significance matrix (Refer **Figure 5** for receptor locations within Collector Village)

View Location	Category of Potential View Location	View context toward Collector wind farm	Approximate distance to closest turbine	Relative number of people	Duration of effect	View Location sensitivity	Extent of visibility	Visual significance
		topography to the west and north of the dwellings.			term views			
C31	Non-involved residential dwellings (2)	Indirect views toward the wind turbines are partially screened by tree cover alongside the Murray Street road frontage.	3.58 km	Very Low	Varies Potential long term views	High	Very low	Low

8.7 Visual significance matrix (heritage items within Collector Village)

Table 20 – Visual significance matrix (Refer **Figure 5** for heritage item locations within Collector Village)

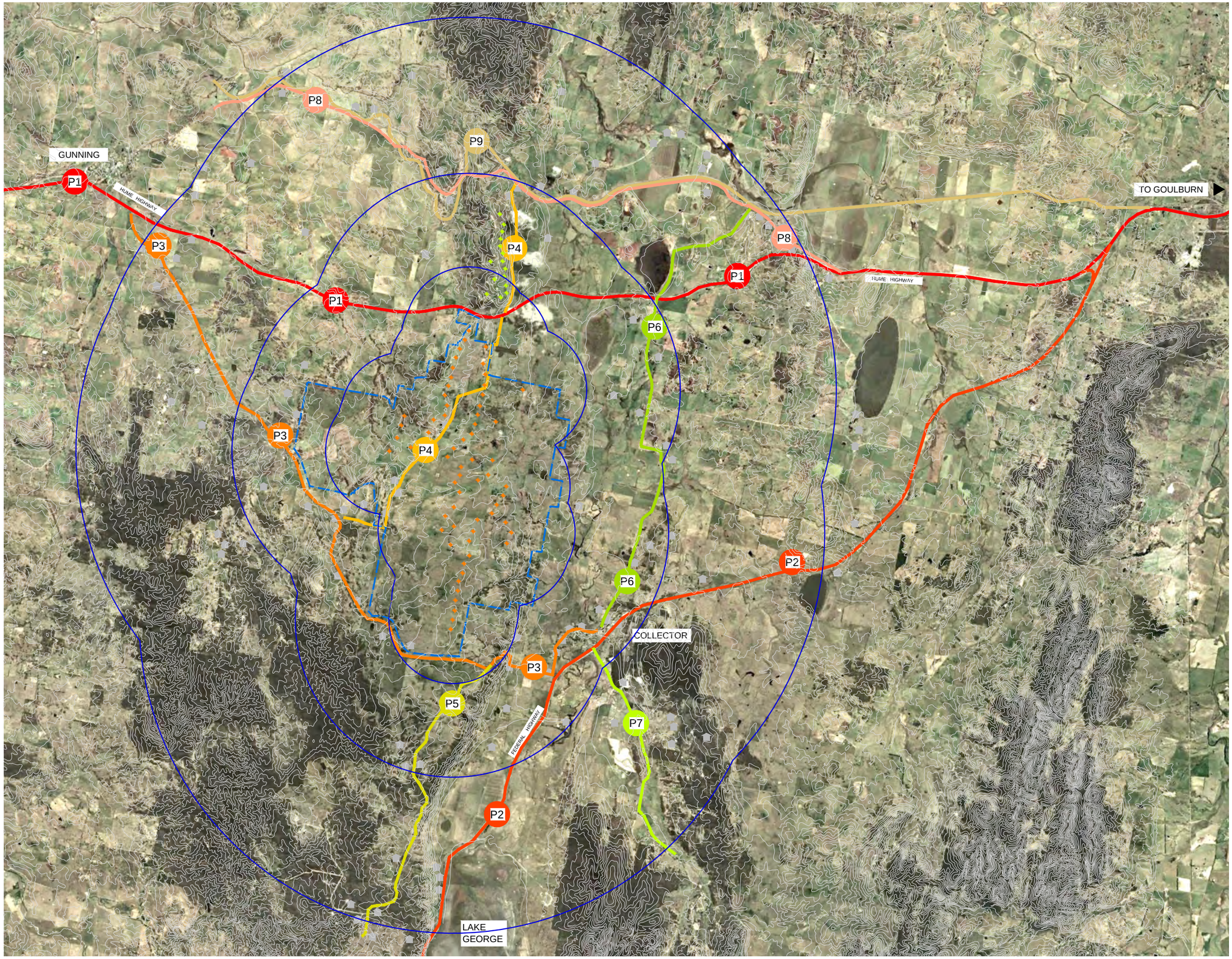
Heritage item name, LEP schedule number and significance	Location and category of receptor	Description of heritage item (where available)	Approximate distance to closest turbine	Relative number of receptors	Duration of effect	View location sensitivity	Extent of visibility	Visual significance upon heritage values
H1 Collector Memorial Hall (134) Local significance	Bourke St Visitor	Built in 1952, the hall in noted for local significance for district residents attending important social and cultural events, as well as being a focal point for remembrance and recreational activities.	3.86 km	Very Low	Varies	High	Low	Very Low
H2 St Bartholomew's Roman Catholic Church (133) Local significance	Bourke St Visitor	-	3.91 km	Very Low	Varies	High	Low	Very Low

Table 20 – Visual significance matrix (Refer **Figure 5** for heritage item locations within Collector Village)

Heritage item name, LEP schedule number and significance	Location and category of receptor	Description of heritage item (where available)	Approximate distance to closest turbine	Relative number of receptors	Duration of effect	View location sensitivity	Extent of visibility	Visual significance upon heritage values
H3 Uniting Church (131) Local significance	Bourke St Visitor	Erected in Collector in 1865 and remains a prominent building in the village landscape.	3.61 km	Very Low	Varies	High	Low	Very Low
H4 Uniting Church Cemetery (132) Local significance	Bourke St Visitor	-	3.69 km	Very Low	Varies	High	Low	Very Low
H5 The Ben Hall Sites – Bushranger Hotel (130) State significance (SHR 01827)	24 Church St	Constructed between 1860 and 1861 the Bushranger Hotel "contributes to the State significance of the Ben Hall sites as a surviving example of the many public houses and stores robbed by Ben Hall and his gang". The Hotel is also noted as a good example of "hotels built in response to the increase n population during the period of the gold rush in the area".	3.64 km	Very Low	Varies	High	Low	Low
H6 Collector Public School – Building B00A (1916) and School Residence (1916) (135) Local significance	Lorn Street	The current building was occupied in 1916 following the destruction of the previous school building in 1914.	3.89 km	Very Low	Varies	High	Low	Very Low

Table 20 – Visual significance matrix (Refer **Figure 5** for heritage item locations within Collector Village)

Heritage item name, LEP schedule number and significance	Location and category of receptor	Description of heritage item (where available)	Approximate distance to closest turbine	Relative number of receptors	Duration of effect	View location sensitivity	Extent of visibility	Visual significance upon heritage values
H7 Wheat Sheaf Inn (former) (137) Local significance	Murray St	-	3.55 km	Very Low	Varies	High	Low	Very Low
H8 Collector Inn (136) Local significance	7 Murray St	Established c.1824 the building, although modified, is highly significant locally as a focal point of commercial enterprise in the Collector village.	3.52 km	Very Low	Varies	High	Low	Low
H9 All Saints Anglican Church	Bourke St Visitor	Foundation stone laid in 1859 and consecrated on 25th March 1873,	3.87 km	Very Low	Varies	High	Low	Nil/Very low
H10 Anglican Cemetery	Bourke St Visitor	-	3.81 km	Very Low	Varies	High	Low	Nil/Very low



Legend

- P1 Hume Highway
- P2 Federal Highway
- P3 Gunning Collector Road
- P4 Lerida Road South & North (Bicentennial National Trail)
- P5 Marked Tree Road
- P6 Collector Road
- P7 Currawang Road
- P8 Old Hume Highway
- P9 Main Southern Railway
- Proposed Collector Turbine
- Existing Cullerin Turbine
- Residential dwelling or structure

0km 4km

Figure 6 -
Transport corridors

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8.8 Visual significance matrix (transport corridors)

Table 21 – Visual significance matrix (Refer **Figure 6** for transport corridor locations within 10 km viewshed)

View Location	Category of Potential View Location	View context	Approximate length of road or rail line within Collector 10km viewshed	Approximate distance to closest wind turbine	Relative number of people	Period of view	View location sensitivity	Visual significance
P1 Hume Highway	Motorist	Both eastbound and westbound views would extend toward portions of the Project; however, visibility will be determined by the direction of travel relative to turbine locations as well as the extent of tree planting alongside the road corridor.	11.5km eastbound 12km westbound	650 m	High	Very Short Term	High	Low
P2 Federal Highway	Motorist	Views from vehicles travelling both north and southbound along the Federal Highway will have opportunities to view turbines within the east portion of the Project site and views from southbound vehicles are likely to view a greater number of turbines from more distant and elevated locations of the highway.	20km (northbound and southbound)	4 km	High	Very Short Term	High	Low
P3 Gunning Collector Road	Motorist	Largely indirect views toward the Collector wind turbines occur from sections of the unsealed road from vehicles travelling in both directions. Undulating landform between the road and the wind farm site would restrict views along some sections of the road, as would a reasonable extent of tree cover alongside and beyond the road corridor. Very short term indirect glimpsed views through roadside vegetation occur proximate to the turbines at the southern end of the wind farm site.	23km (southeast and northwest bound)	840m	Very Low to Low	Very Short Term	Low	Low
P4 Lerida Road South and Bicentennial Trail	Motorist, Horse, Cyclist or Hiker	Direct and proximate views toward turbines would occur along portions of Lerida Road South as it passes parallel to, and between turbines located on two of the principal ridgelines within the Project site boundary. Motorists travelling south will also have direct views toward the	9.7km	50m	Very Low to Low	Motorists Very Short Term Horse Riders, Hikers and	Low	Low

Table 21 – Visual significance matrix (Refer **Figure 6** for transport corridor locations within 10 km viewshed)

View Location	Category of Potential View Location	View context	Approximate length of road or rail line within Collector 10km viewshed	Approximate distance to closest wind turbine	Relative number of people	Period of view	View location sensitivity	Visual significance
		Cullerin wind farm turbines when travelling north. The Bicentennial Trail follows Lerida Road South between the Gunning Collector Road to the south of the wind farm and the Hume Highway on the north boundary of the wind farm site. The Trail extends along the east coast of Australia for around 5,330 km from Victoria to North Queensland, and is available to horse riders, hikers and bicycles. The opportunity to experience wind turbines in close proximity would not be unique to the Collector Wind Farm as the Bicentennial Trail also passes the Cullerin, Gullen and Crookwell Wind Farm sites.				Cyclists Moderate to Short Term		
P5 Marked Tree Road	Motorist	Views from vehicles travelling north along the Marked Tree Road would be subject to a large degree of screening by landform and timbered areas extending beyond the road corridor.	11km	1.9km	Very Low	Very Short Term	Low	Low
P6 Collector Road	Motorist	Direct and indirect views from vehicles travelling north and south between Collector and Breadalbane toward the eastern portion of the Project.	16km	3km	Very Low to Low	Very Short Term	Low	Low
P7 Currawang Road	Motorist	Direct views from vehicles travelling north to northwest toward the Federal Highway junction would include views of the Collector wind farm and turbines within the eastern portion of the wind farm area.	8km	4.4km (at junction to Federal Highway)	Low	Very Short Term	Low	Low
P8 Old Hume	Motorist	Views toward the Project would occur from small sections of the Old Hume Highway, although the majority of views toward the wind farm would be screened by a combination of undulating	22km	4.4km	Very Low	Very Short Term	Low	Low

Table 21 – Visual significance matrix (Refer **Figure 6** for transport corridor locations within 10 km viewshed)

View Location	Category of Potential View Location	View context	Approximate length of road or rail line within Collector 10km viewshed	Approximate distance to closest wind turbine	Relative number of people	Period of view	View location sensitivity	Visual significance
Highway		landform and vegetation alongside and beyond the road corridor.						
P9 Main Southern Railway	Passenger	Views toward the Project from the Main Southern Railway are largely contained by landform and portions of the railway line in cutting within the 10km viewshed.	5km	3.7km	Moderate to High	Very Short Term	Low	Low

8.9 Summary of visual significance (residential view locations)

This LVIA identified a total of 113 residential view locations (including two clusters of three residential dwellings) within the 10km Collector viewshed; however, one of these view locations was determined to be a non residential structure.

Table 22 summarises the assessment of residential view locations within the Collector Wind Farm 10km viewshed that are located beyond the boundary of Collector Village as defined in this LVIA.

Table 22 – Summary of visual significance within 10km viewshed, residential dwellings beyond Collector Village

Visual significance within 10km viewshed (beyond Collector Village)						
Visual significance	Nil	Low	Low to Medium	Medium	Medium to High	High
	50 (44%)	36 (32 %)	9 (8%)	9 (8%)	3 (3%)	6 (5%)

A total of 3 residential dwellings determined to have a high visual impact have been identified as involved residential dwellings.

This LVIA identified 66 residential dwellings within the Collector Village extent (as defined for the purpose of this visual assessment). **Table 23** summarises the assessment of residential view locations that are located within the boundary of Collector Village as defined in this LVIA.

Table 23 – Summary of visual significance, residential dwellings within Collector Village

Visual significance within Collector Village						
Visual significance	Nil/Very Low	Low	Low to Medium	Medium	Medium to High	High
	10 (20 dwellings) (30%)	11 (26 dwellings) (39%)	5 (6 dwellings) (10%)	5 (14 dwellings) (21%)	-	-

The field assessment for the majority of residential view locations was undertaken from the closest publicly accessible location, with a conservative approach adopted where there was no opportunity to confirm the actual extent of available view from areas within or immediately surrounding the residence. It is anticipated that some visibility ratings would be less than those determined subject to a process of verification from private property.

8.10 Summary of visual significance (heritage items within Collector Village)

The Upper Lachlan LEP 2010, Schedule 5 – Part 1 Heritage Items, lists a total of 8 heritage items within Collector Village. These items include churches, a community hall, public school and inns/hotels. The heritage items define and represent important built structures of local and cultural significance.

Whilst some heritage items (such as the Collector Public School) will not have a direct visual link to wind turbines, others (such as the Bushrangers Hotel) will occur within a viewshed extending toward wind turbines. The local and state significance of heritage items within Collector contribute to the appreciation and development of religious and social values (including the pubs and stores robbed by Ben Hall and his gang). However, the significance of the heritage items is not directly related to the surrounding landscape which, including the urban context of Collector Village, has undergone significant levels of adaptation and physical change over time. The potential for the Project to impact upon the significance of heritage values is therefore considered very low to low.

8.11 Summary of visual significance (transport corridors)

A total of nine transport corridor view locations were identified as part of the LVIA. An assessment of the visual impact for each public view location indicated that for the Collector Wind Farm layout:

- 0 of the 9 transport corridor view locations have been determined to have a high visual impact;
- 0 of the 9 transport corridor view locations have been determined to have a moderate visual impact;
- 9 of the 9 transport corridor view locations have been determined to have a low visual impact; and
- 0 of the 9 transport corridor view locations have been determined to have a nil visual impact.

8.12 Summary of visual significance from 'other public and private areas'

Publically accessible areas within the Collector Wind Farm 10 km viewshed are largely restricted to local road corridors and streets within Collector, as well as the sports oval located within the south portion of Collector Village (accessed from Bourke Street).

Observations made during the course of the fieldwork, indicate that the local road corridors and Collector streets are not utilised for significant periods of pedestrian or recreational activities (cycling, walking etc…). Whilst views will extend toward a very small number of wind turbines from portions of Bourke Street, and a

moderate number of wind turbines from portions of Church, O'Sullivan and Murray Streets, the Project is not expected to have a significant impact on these public locations.

The Collector Community Association completed a project to upgrade amenities at the Collector Oval in 2012 to benefit local and regional communities, and to provide open space for Collector Public School sporting events. The oval is an important location for community activities which largely comprise sporting events with no specific direct link to the surrounding landscape or views beyond the oval. Whilst existing tree planting along the western boundary of the oval will provide some partial screening of views, a small number of wind turbines would be visible, but would be unlikely to result in a significant level of visual significance.

GBD acknowledge that the proposed Project may have the potential to impact people engaged in predominantly farming or recreational activities, where views toward wind turbines occur from surrounding agricultural areas. Ultimately the level of visual impact would depend on the type of activities engaged in as well as the location of the activities together with the degree of screening provided by local landform or vegetation within individual properties. Whilst views toward the turbines will occur from a wide area of surrounding rural agricultural land, this LVIA has determined that the sensitivity of visual impacts is less for those employed or carrying out work in rural areas compared to potential views from residential dwellings; however the sensitivity of individual view locations will also depend on the perception of the viewer.

It should be noted that the term 'visual impact' does not necessarily imply or represent an individual's negative response toward the visibility of wind turbines, and that perceptions of wind farms amongst individuals within any community can be positive, negative or neutral.

8.13 Future residential dwellings

A number of residential dwellings in the vicinity of the Project are located below surrounding ridgelines to maximise potential for shelter from prevailing wind, and/or where exposed tend to include a degree of shelter from windbreak planting or tree planting around dwellings. The tendency to locate residential dwellings in sheltered situations also acts to limit the extent of available views across the surrounding landscape for the majority of residential view locations, although there are a small number of dwellings that appear to have been located on properties to take advantage of distant and panoramic views.

Although future planning for residential dwellings is limited by the existing settlement pattern and minimum allotment size for subdivision, potential development would be able to take advantage of any approved layout design for the Collector Wind Farm when determining the optimal location for residential dwellings on individual portions of land to minimise views toward wind turbines if desired. In some circumstances future residential dwellings could be located to take advantage of local topographic features in order to screen views toward wind turbines or implement advance mitigation measures such as tree planting for windbreak and/or screening purposes.

Should additional residential dwellings be constructed on existing portions of land immediately adjacent to the Project site, then there is likely to be an associated visual impact not only with additional residential structures within the landscape but also a range of domestic infrastructure associated with it.

Conclusion

Section 16

16.1 Summary

In summary, this LVIA concludes that the Collector Wind Farm would have an overall low to medium visual significance on the majority of non-involved residential and public view locations, including sections of the Hume and Federal Highways, as well as sections of the local road network identified in this LVIA.

As a landscape with an overall medium/medium to high sensitivity to accommodate change, some characteristics are likely to be altered by the wind farm; however, the landscape will have some capability to accommodate change. This capability is largely derived from the presence of predominantly large scale and open landscape across portions of the wind farm, together with the relatively low settlement density within the Collector 10km viewshed.

This LVIA determined that the Collector Wind Farm would have a high visual impact on 3 non-involved and 3 involved residential dwellings within the 10km viewshed. The high visual impact would largely result from the proximity of wind turbines to the residential dwellings or orientation of dwellings relative to the wind turbines. GBD understand that none of the involved landowners have expressed concerns with regard to the potential visual impact of the Project, including the potential visibility of wind turbines from within, or immediately surrounding their residential dwellings.

The Collector Wind Farm is unlikely to have an overall significant impact upon residential receptors within Collector Village. Views toward the Project from the majority of residential receptors within the village would be either completely or partially screened by tree cover and/or landform.

Around 10 residential dwellings (in the north west portion of the village) would have a combination of direct and indirect views toward the wind turbines with potential medium visual significance. Some residential receptors with a medium level of significance would be afforded some partial screening of views toward wind turbines through tree planting within and surrounding property boundaries. The closest wind turbine would be around 3.5 km to a residential dwelling with a medium visual significance.

Publically accessible areas within Collector Village, including the oval and streetscape views along Bourke Street, would be afforded some degree of screening through existing tree planting and landform rising toward the centre of the village. Views from streets bounding the north and west portion of the village (including

Church Street, O'Sullivan and Murray Street) will extend toward wind turbines within the south and east portion of the project area. Views for both pedestrians and motorists would be very short term and unlikely to result in a significant visual impact.

This LVIA identified heritage items within Collector Village that are listed with local and state significance in the Upper Lachlan Shire Council LEP (2010). The heritage items include built structures such as churches, a community hall, public school and hotel/inns. This LVIA determined that the Project will not have a significant impact upon the cultural significance or fabric of the Collector Village heritage items listed in the Upper Lachlan Shire Council LEP (2010).

The five LCA's identified and described in this LVIA are generally well represented throughout the Upper Lachlan Shire Council area and more generally within other regions across the NSW Southern Tablelands. This LVIA has determined that the landscape surrounding the Project will have some ability to accommodate the physical changes associated with the Collector Wind Farm and its associated structures.

The majority of residential dwellings surrounding the Project site are strategically situated within the landscape to mitigate exposure to inclement weather, or have adopted measures to reduce these impacts by planting and maintaining windbreaks around residential dwellings. The extent of windbreak planting reduces the potential visibility of the Project from a number of residential view locations in the surrounding landscape.

This LVIA identified and assessed views from public locations and surrounding road corridors. The LVIA determined that the Project would have an overall low visual significance for both public view locations and road corridors. The low visual impact would be largely due to the proximity of the wind turbines relative to the view location as well as the combined screening influence of undulating landform and tree cover. The majority of the public view locations are dynamic (motorists travelling along local roads) and include contextual views that would potentially change in reasonably quick succession within the spatial qualities of the surrounding landscape.

It is acknowledged that the Project has the potential to impact people engaged in predominantly farming or rural recreational activities, where views toward the Project occur from surrounding and non-involved agricultural areas. Ultimately the level of impact would depend on the type of activities engaged in as well as the location of the activities together with the degree of screening provided by local landform or vegetation

within individual properties. Whilst views toward the turbines would occur from a wide area of surrounding rural agricultural land, this LVIA has determined that the sensitivity of visual impacts is less for those employed or carrying out work in rural areas compared to potential views from residential dwellings.

This LVIA has determined that the majority of non-involved landowners within the wind farm 10km viewshed are unlikely to have direct and open views toward the wind farm from their residential dwellings largely due to undulating landform, timbered areas and scattered tree cover.

This LVIA has determined that the construction of the Collector Wind Farm would not result in significant 'direct', 'indirect' or 'sequential' cumulative impacts when considered against any known existing or proposed wind farm developments, including the Cullerin, Capital and Gunning Wind Farm projects. Intervisibility between approved and proposed wind farms is influenced by undulating landform and tree cover within and beyond the Collector Wind Farm 10km viewshed.

The potential substation location is unlikely to result in a significant visual impact for surrounding residential or public view locations. A combination of distance between substation and transmission line components to surrounding view locations and the presence of scattered and grouped tree vegetation would tend to reduce visibility.

Both pre-construction and construction activities are unlikely to result in an unacceptable level of visual impact due to the temporary nature of these activities together with proposed restoration and rehabilitation strategies. The preferred location for some of the construction activities, including the on-site concrete batch plant, would generally be located away from publicly accessible areas, with the closest residential view locations generally comprising involved landowners.

Night time obstacle lighting would have the potential to be visible from surrounding view locations, as well as areas beyond the Collector Wind Farm 10km viewshed. The level of visual impact would diminish when viewed from more distant view locations, with a greater probability of night time lighting being screened by landform and/or tree cover. It should also be noted that the night time lighting installed on the Cullerin Wind Farm (as illustrated in this LVIA) has been decommissioned by Origin Energy following a risk based aviation assessment. A number of recent wind farm developments in New South Wales have also been approved without a requirement for night time lighting, including the Gullen Range and Glen Innes Wind Farms.

Although some mitigation measures are considered appropriate to minimise the visual effects for a number of the elements associated with the Project, it is acknowledged that the degree to which the wind turbines would be visually mitigated is limited by their scale and position within the landscape relative to surrounding view locations. Despite this, the Proponent has engaged in ongoing consultation with local residents and made a number of adjustments to the location of individual turbines to minimise visual impacts where possible.

Subject to DoP&I determination, and any conditions of approval, the Proponent would consider implementing landscape treatments to screen and mitigate the potential visual impact of the wind farm for individual neighbouring properties (including those determined to have a high visual impact) within an appropriate and agreed distance from the wind farm project area. The extent and nature of appropriate mitigation measures would be subject to consultation and agreement with individual property owners.

Appendix A – NSW Draft Planning Guidelines (December 2011). Meeting Assessment Requirements: Landscape and Visual Amenity

Appendix A: Meeting assessment requirements

Where a wind farm application is State significant development (SSD), specific assessment requirements are specified in Director General's Requirements (DGRs). This appendix includes information to assist applicants with assessing particular impacts from a wind farm proposal in cases where DGRs require particular impacts to be assessed. The assessment must be detailed in the proponent's EIS.

Landscape and visual amenity

The visual impact of a wind farm depends on the extent of the change to the landscape caused by the development, taking into account:

- the visibility of the development
- the locations and distances from which the development can be viewed
- landscape values and their significance
- the sensitivity of the landscape features to change

The visual impact of the development relates to:

- the number, height, scale, spacing, colour and surface reflectivity of the wind turbines
- the quantity and characteristics of lighting, including aviation obstacle lighting (subject to CASA requirements and advice)
- potential for visual clutter caused by turbine layout and ability to view through a cluster or array (visually well ordered series) of turbines in an orderly manner
- the removal or planting of vegetation
- the location and scale of other buildings and works including transmission lines and associated access roads
- proximity to sensitive areas
- proximity to an existing or proposed wind farm, having regard to cumulative visual effects.

The features of the landscape include:

- the topography of the land
- the amount and type of vegetation
- natural features such as waterways, cliffs, escarpments, hills, gullies and valleys
- visual boundaries between major landscape types
- the type, pattern, built form, scale and character of development, including roads and walking tracks
- flora and fauna habitat
- cultural heritage sites
- the skyline

Assessing landscape and visual amenity impacts

DGRs typically require a comprehensive assessment of the impact of a proposed wind farm on the landscape character, landscape values, visual amenity and any scenic or significant vistas to be undertaken. There should be a particular focus on any neighbours' houses within 2 km of a proposed wind turbine that do not host the wind farm facility. The assessment should include:

- a description of the assessment methodology and a clear justification of it including discrete justification of the methodology for assessing impacts at neighbours' houses within 2 km of a proposed wind turbine
- a description of all relevant components of the project, including turbine heights and layout – where micro-siting or a range of turbines is proposed, the assessment should be based on the 'worst case' layout and turbine height
- a description of the landscape including key features

- a description of the visibility of the development
- photomontages of the project and associated transmission lines taken from:
  - potentially affected residences (including approved but not yet developed dwellings or subdivisions with residential rights) within 2 km of a proposed wind turbine or other associated infrastructure (note that the number of photomontages may be reduced in less sensitive landscapes such as industrial areas),
  - urban settlements, and
  - significant public view points including roads, lookout points and walkways.
- identification of the zone of visual influence of the wind farm (no less than 10km)
- a description of the significance of the landscape values and character in a local and regional context
- a description of community and stakeholder values of the local and regional visual amenity and quality and perceptions of the project based on surveys and consultation.
- assessment of cumulative impacts on the landscape and any cumulative visual impacts from transmission line infrastructure and any surrounding approved or operational wind farms in the locality

Mitigating landscape and visual amenity impacts

The feasibility, effectiveness and reliability of proposed mitigation measures should be assessed. The extent of any residual impacts left over after mitigation measures have been implemented should also be described. Examples of mitigation measure that proponents can use to reduce the visual impact of a proposed wind farm include:

- where possible, locate turbines:
  - away from areas with high scenic values
  - away from areas with high visibility from local residents
- select turbines that :
  - look the same, have the same height and rotate the same way
  - are off-white or grey colouring
- minimise the removal of vegetation
- plant vegetation to provide a visual screen
- reduce impacts of night and obstacle lighting by
  - limiting lighting on towers to that required for safe operation and aviation safety and
  - use of lighting design which minimises glare
- underground electricity wires where practicable
- use alternative transmission line pole designs to minimise visual impact.

Appendix B – Truescape Photomontage from Bourke Street, Collector Village

GREEN BEAN DESIGN *landscape architects* PO Box 3178 Austral NSW 2179 - Mobile 0430 599 995

TRUESCAPE

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RATCH – Australia Corporation
Collector Windfarm

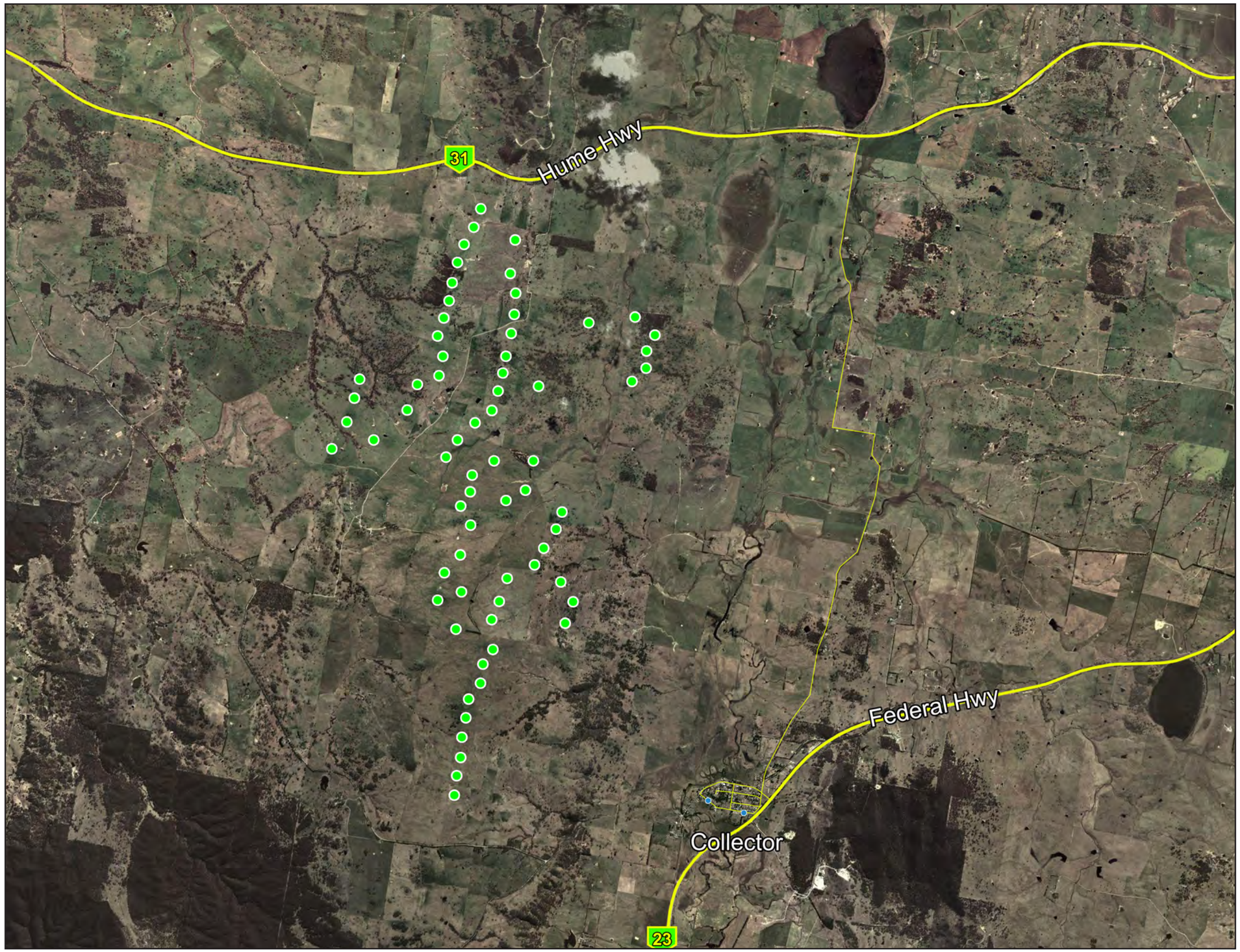
Existing & Proposed Booklet

May 2013

www.truescape.com

Location Map

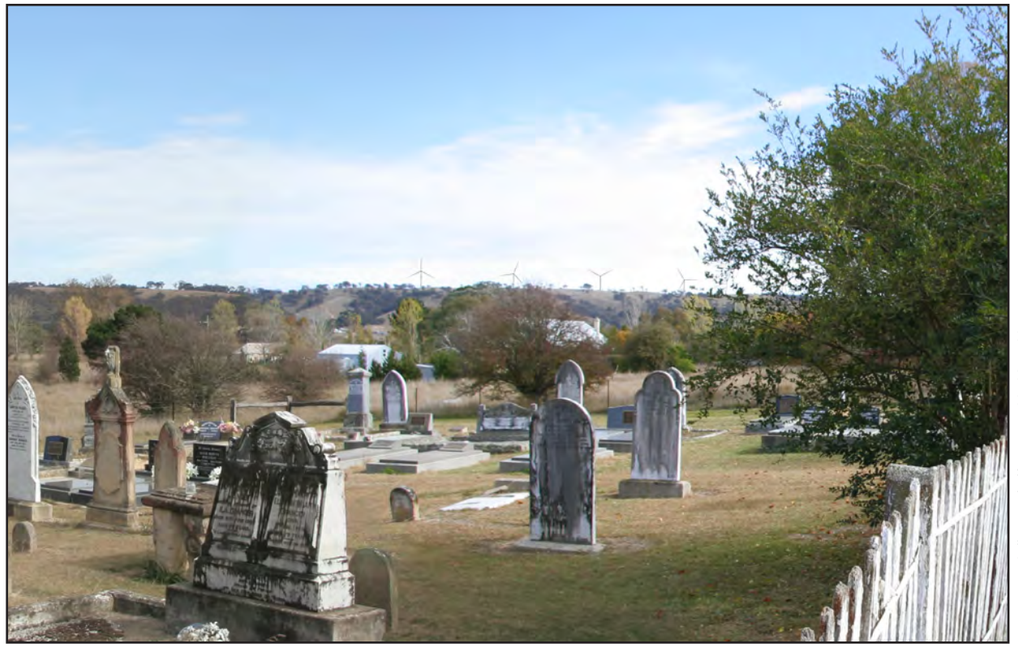
- Turbine Position
- Camera Position



Site 08 : Bourke St, Collector - *Looking West - Current View*

Site 08 : Bourke St, Collector - *Looking West - Proposed View*

Site 08 : Bourke St, Collector - *Looking West - Current View (zoomed version)*



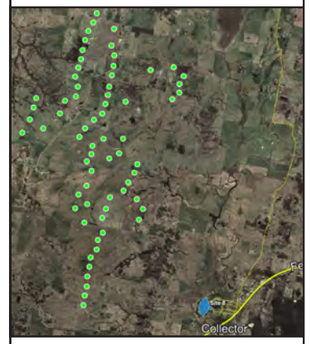
Site 08 : Bourke St, Collector - *Looking West - Proposed View (zoomed version)*

RATCH-Australia Corporation

Collector Windfarm

Site 08 :
Bourke St, Collector
Looking West

- Turbine Position
- Camera Position

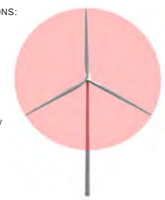


Easting (MGA 94):	**721907.94**
Northing (MGA 94):	**6133718.54**
Date of photography:	**8 May 2013 at 10:33 am**
Orientation of view:	**W**
Nearest visible turbine (m) :	**4123**
Turbines Orientation:	**NW**

TURBINE SPECIFICATIONS:

VESTAS V112

- Hub Height: 94m
- Blade Diameter: 112m
- Total Height at Tip: 150m
- Generating Capacity: 3.0MW



Notes:

Viewpoint location is based on handheld GPS coordinates.

Distance to the nearest visible turbine, is measured from the viewpoint location to the hub of visible turbine.

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CollectorWindfarm_May2013SITE08

Site 11 : Bourke St, Collector - *Looking West - Current View*

Site 11 : Bourke St, Collector - *Looking West - Proposed View*

Site 11 : Bourke St, Collector - *Looking West - Current View (zoomed version)*

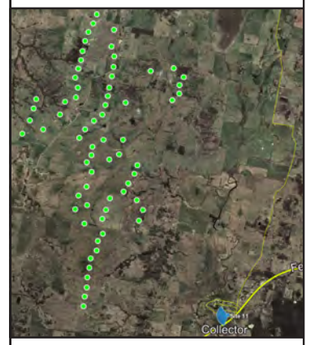
Site 11 : Bourke St, Collector - *Looking West - Proposed View (zoomed version)*

RATCH-Australia Corporation

Collector Windfarm

Site 11 :
Bourke St, Collector
Looking West

- Turbine Position
- Camera Position



Easting (MGA 94):	**722489.32**
Northing (MGA 94):	**6133507.03**
Date of photography:	**8 May 2013 at 10:48 am**
Orientation of view:	**W**
Nearest visible turbine (m) :	**4763**
Turbines Orientation:	**NW**

TURBINE SPECIFICATIONS:

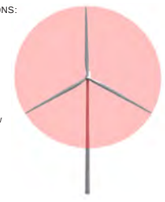
VESTAS V112

Hub Height: 94m

Blade Diameter: 112m

Total Height at Tip: 150m

Generating Capacity: 3.0MW



Notes:

Viewpoint location is based on handheld GPS coordinates.

Distance to the nearest visible turbine, is measured from the viewpoint location to the hub of visible turbine.

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CollectorWindfarm_May2013S|TE11