

APPENDIX F:
INDEPENDENT PEER REVIEW – VISUAL ASSESSMENT

Biala Wind Farm

Landscape and Visual Impact Assessment

Independent Expert Review

Prepared for:

NSW Government Department of Planning and Environment

Prepared by:

GREEN BEAN DESIGN
landscape architects

GREEN BEAN DESIGN PTY LTD
PO Box 3178 Austral NSW 2179
Principal: Andy Homewood BSc (Dual Hons), DipLM, DipHort, Registered Landscape Architect, AILA
(ABN: 86 603 575 702)

December 2016

DOUCMENT CONTROL

Item	Detail
Project Name:	Biala Wind Farm Landscape and Visual Impact Assessment
Report Title:	Independent Expert Review
Project Number:	16-215
Version Number:	v5
Status:	Final
Author:	Andrew Homewood , Registered Landscape Architect, AILA <i>Graduate Diploma Landscape Management, Bachelor Science (Dual Honours) Landscape Design and Archaeology, National Diploma Horticulture</i>
Date:	2 December 2016

1 Introduction

The NSW Government Department of Planning and Environment (DPE) has engaged Green Bean Design Pty Ltd (GBD) to provide independent expert advice on the Biala Wind Farm Landscape and Visual Impact Assessment to inform the DPE's assessment of the project.

2 Scope of works

The GBD scope of works has been defined by DPE to:

- focus on the nature of the impacts of the Biala wind farm based on the landscape and visual assessment provided in the project's environmental impact statement (EIS) and response to submissions (RTS); and
- focus on whether the proposed management and mitigation measures are effective, reasonable and feasible and if required, recommendations to improve their effectiveness.

3 Review process

GBD has undertaken a number of tasks in preparing the independent expert advice. These tasks include:

- Meetings and briefing sessions with DPE
- Desktop review of the Biala Wind Farm LVIA
- Review of RTS and responses to requests for further information
- Site visits undertaken with DPE on Monday 9th November 2015 and Tuesday 22 March 2016
- Attendance at site meetings with landowners and community group
- Preparation of draft and final report outlining review and independent expert advice as requested.

Both site visits were undertaken with representatives from DPE and included inspections and meetings with local landowners surrounding the Biala Wind Farm site.

4 Biala Wind Farm Landscape and Visual Impact Assessment

The Biala Wind Farm Landscape and Visual Impact Assessment (LVIA) was prepared by Clouston Associates (July 2015) and included in the Biala Wind Farm Environmental Impact Statement.

Following public exhibition the LVIA was updated and included in the Biala Wind Farm Response to Submissions Report (February 2016). Further LVIA advice and clarifications were provided in response to a DPE Request for further information (June 2015).

The consideration of the nature of landscape and visual impacts of the Biala Wind Farm has been undertaken by reference to the documentation prepared by Clouston Associates as noted above, and specifically the most recent version of the visual assessment included in the Biala Wind Farm Additional Visual Analysis (June 2016). Whilst the focus of the independent expert advice is on the nature of impacts and proposed mitigation measures, GBD has assessed the overall approach and methodology adopted by Clouston Associates for the Biala Wind Farm LVIA.

The Biala Wind Farm LVIA methodology is set out in Section 1.3 of the Landscape Character and Visual Impact Assessment Report (July 2015). GBD confirm that the LVIA methodology is considered to be in general accordance with industry best practice and established guidelines.

Whilst the overall methodology is considered to be applicable, GBD note that some of the rating categories outlined in Appendix A of the Biala Wind Farm LVIA are not necessarily in accordance with best practice. Key issues include:

- Within the category of sensitivity it would be expected that views from residential dwellings to be the most sensitive locations.
- The consideration of distance with regard to visual effect can be a significant determinant; however, recent guidelines from Scottish Natural Heritage (2014) suggest caution in the application of offset distances. From our experience we would expect the potential for 'High' visual impacts to occur beyond 2,000 metres of the Biala wind turbines and conversely Moderate visual impacts to be found within 7,000 metres.
- GBD do not support the rating categories for period of view and consider that a 5 minute exposure would not result in a moderate to high impact when taken as a proportion of time available during daylight hours.

The application of rating categories does appear to be somewhat inconsistent across the view locations included in the LVIA; however, GBD does not consider that the misapplication of rating categories has significantly impacted the overall determination of visual effects included in the Clouston Associates LVIA.

5 Biala Wind Farm nature of impacts

In order to identify and verify the nature of visual impacts associated with the Biala Wind Farm, GBD has undertaken a review of each Clouston Associate assessment report, and specifically the updated ratings provided in the Biala Wind Farm Additional Visual Analysis (June 2016) included in the response to DPE request for further information.

The Clouston Associates Additional Visual Analysis report was prepared following the GBD and DPE site inspections and determination of GBD preliminary visual effect ratings for residential view locations surrounding the Biala Wind Farm site. GBD have updated the preliminary visual effect ratings following:

- a detailed desk top assessment incorporating site inspection findings
- further consideration of the criteria relevant to the visual assessment and
- a detailed review of the Clouston Associates Additional Visual Analysis.

As GBD and Clouston Associates adopt similar industry best practice guidelines in their landscape and visual impact assessment work, the application of professional judgement is based upon a similar set of criteria and process of analysis.

GBD considers that this results in a relatively high degree of confidence in the comparison of results; however, as the process is based on professional judgement there is an expectation that some degree of variance may occur where interpretation of site specific issues, including the influence of existing screening and the magnitude of visual effects may be subject to an individual's level of visual impact assessment experience and exposure to the assessment of wind farm developments.

6 Review and verification of Clouston Associates assessment

GBD have reviewed the additional visual analysis undertaken by Clouston Associates. The additional visual analysis is included as Appendix B, Biala Wind Farm Additional Visual Analysis Issue D (6 June 2016). The additional visual analysis was prepared to provide:

- re-assessment of the expected visual impacts of the Biala Wind Farm on dwellings H03A, H03B, H13, H14 and H15 following a detailed site visit undertaken by Clouston Associates on 29th April 2016.
- an assessment of the expected visual impacts at several dwellings not considered within the original assessment. These include H19, H20, H21, H22 and H23 off Sapphire Road
- a discussion of mitigation effectiveness at dwellings that have recorded an expected visual impact rating of moderate high or high
- wire frame images to demonstrate indicative visual impacts at H03A, H13, H14 and H15
- a reassessment of the impacts on DA18, taking into account new information on the likely positioning and orientation of the dwelling.

The additional visual analysis identified a total of 25 residential dwellings. Five of the residential dwellings have been identified as being involved with the wind farm development. In accordance with standard practice, the five involved residential dwellings have not been included in the visual analysis. The residential dwellings are located between 2 km and up to 6 km from the Biala Wind Farm wind turbines. The non involved dwelling locations are illustrated in the Additional Visual Analysis report.

Table 1 outlines the GBD consideration of visual effect and adopts the overall assessment criteria used by Clouston Associates which is included in the original Biala Wind Farm LVIA report (July 2015).

The GBD determination of visual effect is not intended to replace, and does not supercede, the determination provided by Clouston Associates. In many instances the determination of visual effect corresponds between the GBD and Clouston Associates assessments. The GBD assessment has been undertaken in accordance with the scope of work as requested by DPE and presents our professional opinion with regard to the potential visual effect of the Biala Wind Farm development. There is no suggestion that the Clouston Associates determination, implied or otherwise, is incorrect.

Table 1 identifies the residential dwellings surrounding the Biala Wind Farm together with their status as either involved or non-involved with the project. **Table 1** also identifies the nearest wind turbine to each

residential dwelling as well as the most recent Clouston Associates visual impact rating and the GBD preliminary and final GBD visual impact rating.

Table 1 - Biala Wind Farm Residential Assessment Table

Landholder ID	Status	Clouston Associates distance from Nearest WTG (m)	Visual Impact			Discussion and recommendations
			Clouston Associates 6 June 2016	GBD Preliminary Assessment	GBD Final Assessment 15 August 2016	
H01	Involved	911	-	-	-	As an involved dwelling this location has not been assessed. GBD recommendation: No further action required.
H02	Involved	912	-	-	-	As an involved dwelling this location has not been assessed. GBD recommendation: No further action required.
H03	Non-involved	2,409	Medium to High	Medium to High	Medium	The GBD Preliminary Assessment has been amended from Medium to High to a Medium visual impact. The amendment to a Medium visual impact has been determined following an additional detailed assessment to consider the likely extent of existing tree screening surrounding the dwelling. Existing tree screening is considered likely to block views of the wind turbines from rooms within and from areas immediately surrounding the dwelling. The dwelling appeared to be uninhabited during the DPE and GBD site inspection; however, the dwelling is not considered to be dilapidated or uninhabitable. Views toward the Biala wind turbines will be available from other

Table 1 - Biala Wind Farm Residential Assessment Table

Landholder ID	Status	Cloustone Associates distance from Nearest WTG (m)	Visual Impact			Discussion and recommendations
			Cloustone Associates 6 June 2016	GBD Preliminary Assessment	GBD Final Assessment 15 August 2016	
						<p>areas of the farm including the shearing shed and holding pens, however built structures and mature trees within and surrounding the farm will screen views from some areas beyond the dwelling. It is generally accepted that views toward wind turbines will occur from working areas on rural properties and that screening views from paddocks is not considered effective or feasible.</p> <p>Mitigation measures:</p> <p>GBD concur with Cloustone Associates assessment that additional tree planting would have some potential to further mitigate potential visual impacts from the dwelling and potentially reduce the level of visual impact from Medium to Low visual impact.</p> <p>GBD recommendation:</p> <p>The Proponent should be required to consult with and offer mitigation through landscape treatments to the landholder/s of residential dwelling H03 if necessary to supplement the screening effect of existing tree planting.</p>
H03a	Non-involved	4,216	Medium to High	Medium to High	Medium to High	<p>The dwelling is located on high ground to the north of the proposed Biala Wind Farm site and has distant existing views toward the Gullen</p>

Table 1 - Biala Wind Farm Residential Assessment Table

Landholder ID	Status	Clouston Associates distance from Nearest WTG (m)	Visual Impact			Discussion and recommendations
			Clouston Associates 6 June 2016	GBD Preliminary Assessment	GBD Final Assessment 15 August 2016	
						<p>Range and Gunning Wind Farm wind turbines.</p> <p>Direct views will extend toward the proposed Biala wind turbines, including potential views from some rooms within the dwelling. Existing and proposed turbines would occupy a large portion of the overall view from the dwelling location.</p> <p>Mitigation measures:</p> <p>GBD concur with Clouston Associates that tree planting to the south of the dwelling would have some potential to mitigate the potential visual impact to a moderate to low level.</p> <p>GBD recommendation:</p> <p>The Proponent should be required to consult with and offer mitigation through landscape treatments to the landholder/s of residential dwelling H03a.</p>
H03b	Non-involved	3,496	Low	Nil	Nil	<p>The dwelling is surrounded by mature tree and shrub planting which will effectively screen any potential significant views toward the proposed Biala wind turbines.</p> <p>GBD recommendation:</p> <p>No further action required.</p>

Table 1 - Biala Wind Farm Residential Assessment Table

Landholder ID	Status	Clouston Associates distance from Nearest WTG (m)	Visual Impact			Discussion and recommendations
			Clouston Associates 6 June 2016	GBD Preliminary Assessment	GBD Final Assessment 15 August 2016	
H04	Non-involved	2,598	Medium to Low	Low	Nil	<p>Opportunities to gain views toward the proposed Biala wind turbines will be limited and effectively restricted by existing topography and vegetation, including a large block of woodland between the dwelling and proposed wind turbines.</p> <p>GBD recommendation: No further action required.</p>
H05	Non-involved	2,243	Medium to Low	Low	Nil	<p>The dwelling is surrounded by tree and shrub planting which will effectively screen views toward the proposed Biala wind turbines.</p> <p>GBD recommendation: No further action required.</p>
H06	Non-involved	2,004	Medium	Low	Medium	<p>Wind turbines within the operational Gullen Range Wind Farm are not visible from the H06 residence or residential curtilage. The closest Gullen Range wind turbines, within the north portion of the Gullen Range wind farm (around 4 kilometres east to north east of the residence), are screened by gently rising and undulating landform with mature tree cover south of Grabben Gullen village.</p> <p>Views toward the Biala wind turbines from rooms within the dwelling will be screened by a single row of conifers forming a hedge along the</p>

Table 1 - Biala Wind Farm Residential Assessment Table

Landholder ID	Status	Clouston Associates distance from Nearest WTG (m)	Visual Impact			Discussion and recommendations
			Clouston Associates 6 June 2016	GBD Preliminary Assessment	GBD Final Assessment 15 August 2016	
						<p>southern boundary of the dwelling curtilage. Views toward the Biala wind turbines from the dwelling curtilage, including areas of the garden to the north, west and south of the dwelling, will also be screened by tree planting alongside the dwelling curtilage.</p> <p>The Biala wind turbines will be visible from a relatively small area of the dwelling curtilage (to the south and south east of the dwelling). Wind turbine visibility will be more distinct and direct from the driveway between the conifer hedge and tree planting to the east of the dwelling. Views will extend toward the majority of wind turbines from vehicles travelling to and from the dwelling, as well as for people working or relaxing within this portion of the property.</p> <p>Mitigation measures:</p> <p>Whilst views from within the dwelling toward the Biala wind turbines are screened by a conifer hedge, mitigation measures should be considered to supplement existing hedgerow planting and provide longer term screening potential. Subject to discussions with the landowner, additional planting to extend screening from areas of the garden to the south and south east of the dwelling should be</p>

Table 1 - Biala Wind Farm Residential Assessment Table

Landholder ID	Status	Clouston Associates distance from Nearest WTG (m)	Visual Impact			Discussion and recommendations
			Clouston Associates 6 June 2016	GBD Preliminary Assessment	GBD Final Assessment 15 August 2016	
H07	Non-involved	2,062	Medium	Medium	Medium	<p>considered.</p> <p>GBD recommendation:</p> <p>The Proponent should be required to consult with, and offer mitigation, through landscape treatments to the landholder/s of residential dwelling H06. Mitigation should be considered with specific regard to the potential extension and/or supplement of existing conifer planting to the south of the dwelling and along the residential driveway.</p> <p>Wind turbines within the operational Gullen Range Wind Farm are visible to the north east and east of the H07 dwelling, the immediate dwelling curtilage, as well as general working areas surrounding farm buildings beyond the dwelling.</p> <p>Views toward the Gullen Range wind turbines from H07 include towers and full rotors as well as partial views to rotors where partially screened by clumps and scattered groups of tree cover to the north and north east of the residence.</p> <p>The more distinct and directly visible Gullen Range wind turbines are located within a portion of the northern sector of the Gullen Range</p>

Table 1 - Biala Wind Farm Residential Assessment Table

Landholder ID	Status	Clouston Associates distance from Nearest WTG (m)	Visual Impact			Discussion and recommendations
			Clouston Associates 6 June 2016	GBD Preliminary Assessment	GBD Final Assessment 15 August 2016	
						<p>Views toward the Gullen Range wind turbines within the mid and southern sectors of the Gullen Range wind farm are less visually prominent at around and beyond 10 kilometres from the dwelling. The closest Gullen Range wind turbines to the dwelling (at around 3.6 and 4 kilometres), are located within the north portion of the Gullen Range Wind Farm and likely to be visible through an approximate 50 degree field of view. Views toward the proposed Biala wind turbines will be separated by an approximate 100 degree field of view. Views from the existing temporary, and proposed permanent dwelling locations, will extend to around 17 Biala wind turbines, including views toward upper sections and blades of wind turbines. will be visible from the property and a proposed dwelling location. Views, which are indirect to the proposed Biala wind turbines, also extend toward operational wind turbines within the northern sector of the Gullen Range Wind Farm.</p> <p>Mitigation measures: Mitigation measures including tree planting are considered to have potential to reduce the Medium visual impact, however tree planting</p>

Table 1 - Biala Wind Farm Residential Assessment Table

Landholder ID	Status	Clouston Associates distance from Nearest WTG (m)	Visual Impact			Discussion and recommendations
			Clouston Associates 6 June 2016	GBD Preliminary Assessment	GBD Final Assessment 15 August 2016	
						for mitigation should also be coordinated with the proposed dwelling location on the property. GBD recommendation: The Proponent should be required to consult with and offer mitigation through landscape treatments to the landholder/s of residential dwelling H07 including landscape mitigation to the proposed dwelling location.
H08	Involved	962	-	-	-	As an involved dwelling this location has not been assessed. GBD recommendation: No further action required.
H09	Non-involved	2,005	Medium	Low	Low	The dwelling is located on a gently sloping landform which, together with existing tree cover, will provide some degree of screening toward the Biala wind turbines. There will be generally limited opportunity to obtain views of the proposed Biala wind turbines from the dwelling. GBD do not concur with the Clouston Associates determination of a Medium visual impact. GBD recommendation: No further action required.

Table 1 - Biala Wind Farm Residential Assessment Table

Landholder ID	Status	Clouston Associates distance from Nearest WTG (m)	Visual Impact			Discussion and recommendations
			Clouston Associates 6 June 2016	GBD Preliminary Assessment	GBD Final Assessment 15 August 2016	
H10	Involved	1,002	-	-	-	As an involved dwelling this location has not been assessed. GBD recommendation: No further action required.
H11	Non-involved	2,001	Medium	Low	Low	The residence is located on the crest of a low hill adjacent to the Grabben Gullen road and is surrounded by dense vegetation. Whilst views extend toward around 3 of the Biala wind turbines, views toward the majority of proposed Biala wind turbines will be largely screened by vegetation and tree cover which surround the residence. Any potential glimpsed views toward the closest Gullen Range wind turbines from areas beyond the dwelling would extend over a distance between 7 and 8 kilometres. GBD do not concur with the Clouston Associates determination of a Medium visual impact. GBD recommendation: No further action required.
H12	Non-involved	2,035	Medium	Low	Low	The H12 dwelling is located to the east and above the Grabben Gullen Road with potential distant views extending north east to east toward Gullen Range wind turbines within the north to south sectors of the

Table 1 - Biala Wind Farm Residential Assessment Table

Landholder ID	Status	Clouston Associates distance from Nearest WTG (m)	Visual Impact			Discussion and recommendations
			Clouston Associates 6 June 2016	GBD Preliminary Assessment	GBD Final Assessment 15 August 2016	
						<p>Gullen Range Wind Farm site. The closest Gullen Range wind turbines would be in excess of 8.5 kilometres from the dwelling.</p> <p>The dwelling is located on the lower side of an east facing slope and below a row of tall evergreen trees. The tree planting, around 60 metres to the west of the dwelling, will effectively screen views toward the majority of Biala wind farm turbines. Views toward wind turbines within the north portion of the Biala Wind Farm site will occur from the dwelling driveway whilst travelling toward the Grabben Gullen road. Given the main view direction from the dwelling is directly away from the Biala wind farm site it is unlikely that the expected level of wind turbine visibility will result in a Medium visual impact, therefore GBD do not concur with the Clouston Associates determination of a Medium visual impact.</p> <p>GBD recommendation: No further action required.</p>
H13	Non-involved	2,377	Medium to Low	Low	Low	<p>The dwelling is located on south side of Biala Gurrundah Road with a low ridge situated between the dwelling and the proposed Biala wind turbines. Views are likely to extend toward some rotors and tips of a</p>

Table 1 - Biala Wind Farm Residential Assessment Table

Landholder ID	Status	Clouston Associates distance from Nearest WTG (m)	Visual Impact			Discussion and recommendations
			Clouston Associates 6 June 2016	GBD Preliminary Assessment	GBD Final Assessment 15 August 2016	
						small number of wind turbines with more proximate views toward wind turbines within the south portion of the project site. Overall potential impacts are considered to be low. GBD recommendation: No further action required.
H14	Non-involved	2,382	Medium	Medium to Low	Medium to Low	The dwelling is located on south side of Biala Gurrundah Road with a low ridge situated between the dwelling and the proposed Biala wind turbines. Views are likely to extend toward some rotors and tips of a small number of wind turbines with more proximate views toward wind turbines within the south portion of the project site. Overall potential impacts are considered to be low. GBD recommendation: No further action required.
H15	Non-involved	2,442	Low	Low	Low	The dwelling is located below a low ridge in the landscape and views toward the proposed Biala wind turbines will be substantially blocked by a vegetated hill above the dwelling. A small number of wind turbines (largely rotors and tips) may be visible from some areas surrounding the dwelling.

Table 1 - Biala Wind Farm Residential Assessment Table

Landholder ID	Status	Clouston Associates distance from Nearest WTG (m)	Visual Impact			Discussion and recommendations
			Clouston Associates 6 June 2016	GBD Preliminary Assessment	GBD Final Assessment 15 August 2016	
						GBD recommendation: No further action required.
DA16	Involved	1,093				As an involved dwelling this location has not been assessed. GBD recommendation: No further action required.
H17	Non-involved	2,920	Medium	Nil	Nil	The dwelling is located on the east side of a ridge with significant vegetation screening between dwelling and site. GBD does not anticipate any views extending toward the proposed Biala wind turbines from the dwelling. GBD do not concur with the Clouston Associates Medium visual impact rating. GBD recommendation: No further action required.
DA18	Non-involved	2,119	Medium	High	Medium to Low	The proposed dwelling will be located on the side of a hill with a south to south east aspect. Views toward the Biala wind turbines are likely to be largely screened by landform rising to the north and north west of the proposed dwelling location with potential views extending toward a small number of wind turbines in the south portion of the project site.

Table 1 - Biala Wind Farm Residential Assessment Table

Landholder ID	Status	Clouston Associates distance from Nearest WTG (m)	Visual Impact			Discussion and recommendations
			Clouston Associates 6 June 2016	GBD Preliminary Assessment	GBD Final Assessment 15 August 2016	
H19	Non-involved	7,810	Medium	Medium to Low	Medium to Low	<p>Mitigation measures: Mitigation through tree planting may assist in the reduction of potential visual impacts from a Medium to a Low and should be verified following the dwelling construction.</p> <p>GBD recommendation: The Proponent should be required to consult with and offer additional mitigation through landscape treatments to the landholder/s of residential dwelling DA18 subject to a future site inspection and verification of potential visual impacts following construction of the dwelling.</p> <p>Distant views will extend toward the proposed Biala wind turbines; however, views will be partially screened by ridgeline and undulating landform to the east and north east of the dwelling. The distance between the residential dwelling and the wind turbines is unlikely to result in any significant levels of visual impact.</p> <p>GBD recommendation: No further action required.</p>
H20	Non-involved	6,960	Low	Low	Low	Distant views will extend toward a small number of proposed Biala

Table 1 - Biala Wind Farm Residential Assessment Table

Landholder ID	Status	Clouston Associates distance from Nearest WTG (m)	Visual Impact			Discussion and recommendations
			Clouston Associates 6 June 2016	GBD Preliminary Assessment	GBD Final Assessment 15 August 2016	
						wind turbines; however, views in general will be partially screened by ridgeline and undulating landform to the east and north east of the dwelling. The distance between the residential dwelling and the wind turbines is unlikely to result in any significant levels of visual impact. GBD recommendation: No further action required.
H21	Non-involved	5,100	Low	Low	Low	Distant views toward the proposed Biala wind turbines will be screened by undulating landform and tree screening to the east of the dwelling. GBD recommendation: No further action required.
H22	Non-involved	5,740	Medium to Low	Low	Low	Distant views toward the proposed Biala wind turbines will be largely screened by undulating landform and tree screening to the east of the dwelling. GBD recommendation: No further action required.
H23	Non-involved	5,700	Nil	Low	Low	Distant views will extend toward a small number of proposed Biala wind turbines; however, views in general will be partially screened by ridgeline and undulating landform to the east and north east of the

Table 1 - Biala Wind Farm Residential Assessment Table

Landholder ID	Status	Clouston Associates distance from Nearest WTG (m)	Visual Impact			Discussion and recommendations
			Clouston Associates 6 June 2016	GBD Preliminary Assessment	GBD Final Assessment 15 August 2016	
						dwelling. GBD recommendation: No further action required.

7 Grabben Gullen Village

The Clouston LVIA concludes that the proposed Biala Wind Farm *'will not impact the character of Grabben Gullen Village, where views toward the wind farm are blocked by tree cover and landform'*.

For the purpose of this review the Grabben Gullen Village boundary is defined by the extent identified as Zone R2 and RU5 Village on the Land Zoning Map – Sheet LZN_005B in the Upper Lachlan Shire Local Environmental Plan 2010.

Whilst land within the R2 and RU5 Zones form the core of the Grabben Gullen Village, this review has also considered the potential for visual impact on residential dwellings within rural small holdings (Zone RU4) adjoining the Grabben Gullen Village.

The GBD review has undertaken a detailed aerial photographic assessment which, together with information gathered from site inspections, indicates that the large majority of dwellings within the Grabben Gullen Village have tree or shelter belt/privacy planting around them. These plantings effectively screen views beyond the dwellings and their curtilage including views south toward the Biala Wind Farm project site.

Whilst the zone of visual influence diagrams included in the Clouston LVIA illustrate potential visibility of wind turbines between wind turbine hub and tip of blade, views toward the Biala Wind Farm site south of the Grabben Gullen Village will be screened by a gently undulating landform in association with tree cover.

GBD undertook a cross section analysis and determined that a small number of residential dwellings (around 3 or 4 in total), located on gently rising ground along Hewitts Lane (within an area identified as Zone RU4 adjoining the Grabben Gullen Village), may have partial views toward half blade and wind turbine blade tips above scattered tree cover south of the village. These views are not considered to be significant and would result in very low to almost negligible levels of visual impact.

GBD concur with the Clouston LVIA statement that views from residential dwellings within the Grabben Gullen Village (Zones R2 and RU5) toward the proposed Biala Wind Farm are blocked by tree cover and landform, and acknowledge that views from the large majority of dwellings surrounding the Grabben Gullen Village (within Zone RU4), toward the Biala wind turbines will be restricted by landform and tree cover.

8 View from residential dwellings along Range Road

Views toward the proposed Biala Wind Farm turbines from around 10 residential dwellings located north and south of the Range Road corridor (south east of Grabben Gullen Village) will be screened and/or partially screened by tree and hedgerow planting extending around the majority of dwellings. Where views extend toward the proposed Biala Wind Farm turbines they will be largely restricted to the upper portions of wind turbine structures and generally in excess of 4 kilometres.

Views will also be predominantly limited to wind turbines within the north and west portion of the Biala Wind Farm site. Views toward the proposed Biala Wind Farm turbines will also be partially restricted by areas of tree cover to the east and west of the Grabben Gullen road corridor. Whilst residential dwellings along the Range

Road corridor were not assessed in the Clouston LVIA, the GBD review considers that the proposed Biala Wind Farm will have an overall low visual impact on residential dwellings to the north and south of the Range Road corridor.

9 Cumulative visual impact from Grabben Gullen Village

Around seven residential properties located in the east portion of the Grabben Gullen Village have potential views (at around 3 kilometres) toward a small number of wind turbines within the north portion of the operational Gullen Range Wind Farm. However, these same residential dwellings will not have views toward the Biala Wind Farm turbines and therefore a cumulative visual impact between the proposed Biala Wind Farm and operational Gullen Range Wind Farm will not occur from residential dwellings within the Grabben Gullen Village.

10 Cumulative visual impact from dwellings along Range Road

Views toward the proposed Biala Wind Farm site from rural residential dwellings (within Zone RU1) to the south east of Grabben Gullen Village, including dwellings located adjacent to, or setback from the Range Road corridor, are generally restricted by a combination of low undulating landform, vegetation surrounding and screening dwellings as well as tree cover alongside sections of the Range Road and Grabben Gullen road corridors.

Whilst a small number of rural residential dwellings along Range Road have short distance views (within and around 1 kilometre) toward wind turbines within the north portion of the operational Gullen Range Wind Farm, more distant (around 4 kilometres) and indirect views toward the proposed Biala wind turbines will be largely or partially screened by landform and tree cover. It is considered unlikely that the visual magnitude of the proposed Biala wind turbines, or portions of visible wind turbines, would result in any significant level of cumulative visual impact where visible from dwellings along the Range Road corridor.

11 Proposed management and mitigation measures

Cloustone's Additional Visual Analysis report identifies screen planting around affected dwellings as the most effective form of mitigation appropriate to the Biala Wind Farm project. GBD concur that screen planting is likely to be the most effective form of mitigation; however, as noted in the Additional Visual Analysis report, screen planting may also restrict and foreshorten views from residential dwellings toward the surrounding landscape.

GBD have determined that up to five non involved residential dwellings would potentially benefit from the installation of landscape planting works to mitigate visual impacts from, or within proximity to, residential dwellings surrounding the Biala wind turbines.

Where screen planting cannot result in both a feasible and effective mitigation measure for medium to high and high visual impacts then alternative mitigation measures should be considered. Alternative measures should include consideration being given to the removal and/or repositioning of individual wind turbines where such action would result in significant visual mitigation outcomes.

Based on our site inspections and detailed assessment, GBD do not consider that any of the residential dwellings identified in the Additional Visual Analysis are likely to experience a level of visual impact where mitigation through acquisition should be considered.