11. Visual Assessment

11.0 VISUAL ASSESSMENT

Integral Landscape Architecture and Visual Planning were engaged to undertake a Visual Impact assessment for the Kyoto Energy Park proposal. The Visual Assessment contains three (3) volumes as follows:

- *Appendix B- Integral Landscape Architecture and Visual Planning Visual Assessment Study Volume 1 - Main Report (May 2008)*
- *Appendix B(i)- Integral Landscape Architecture and Visual Planning Visual Assessment Study Volume 2 - Figures (May 2008)*
- *Appendix B(ii)- Integral Landscape Architecture and Visual Planning Visual Assessment Study Volume 3 - Photomontage (May 2008)*

The completed Visual Assessment Report meets the Director General's Requirements for the visual amenity impacts of this development. The findings of this assessment are discussed below.

11.1 Methodology

The visual impact of the components of the Kyoto Energy Park was determined by assessing the:

- significance of the existing **Visual Setting** **(see Section 11.1.1)**;
- **Viewing Locations** **(see Section 11.1.2)**;
- **Visual character** of the development **(see Section 11.1.3)**;
- **Statutory Framework** **(see Section 11.1.4)**.

These factors and considerations were then analysed to determine both the **Visual Effect (Section 11.2)** and the **Visual Sensitivity (Section 11.4)** of the project. The Visual Effect is in itself a combination of the area of the Primary view zone occupied by the turbines and the visibility of the turbines which is represented by the **Zone of Visual Influence** or **ZVI (Section 11.3)**. Both the Visual Effect and the Visual Sensitivity are then used to determine the overall **Visual Impact (Section 11.5)** of the project. Critical locations have been selected for visual reproduction of visual impact using **Photomontages (Section 11.6)**. **Recommendations and Visual Mitigation (Section 11.10)** for visual screening and mitigation have been made based on overall Visual Impact.

11.1.1 Visual Setting of the Kyoto Energy Park

The primary visual catchment is defined by the mountain range to the north, the hills to the east of Scone, the Hunter Valley to Muswellbrook and the hills to the east of Bunnan. Visual impacts outside the primary visual catchment are not considered to be significant when compared to those in much closer proximity within it.

A number of landscape units were identified within this primary visual catchment referred to as landscape units as shown in Figure 11.0. These include:

- Townships & Villages
- Broad Valleys
- Enclosed Valleys
- Wooded Hills
- Northern Hills and mountains

The landscape units within the primary visual catchment and visual settings of the Kyoto Energy Park sites on Mountain Station and Middlebrook collectively exhibit great visual diversity. The significance of these units was used in determining the special visual value is derived from the rock formations in both wooded hills to the west of Scone and the Northern Hills and Mountains.

Visual quality of a landscape unit has little influence on visual effect, nor does it of itself define the visual qualities of visual settings that include more than one landscape unit but it does give an indication of the distinctive landscapes in the locality and the relative values of the visual quality of the various landscape units.

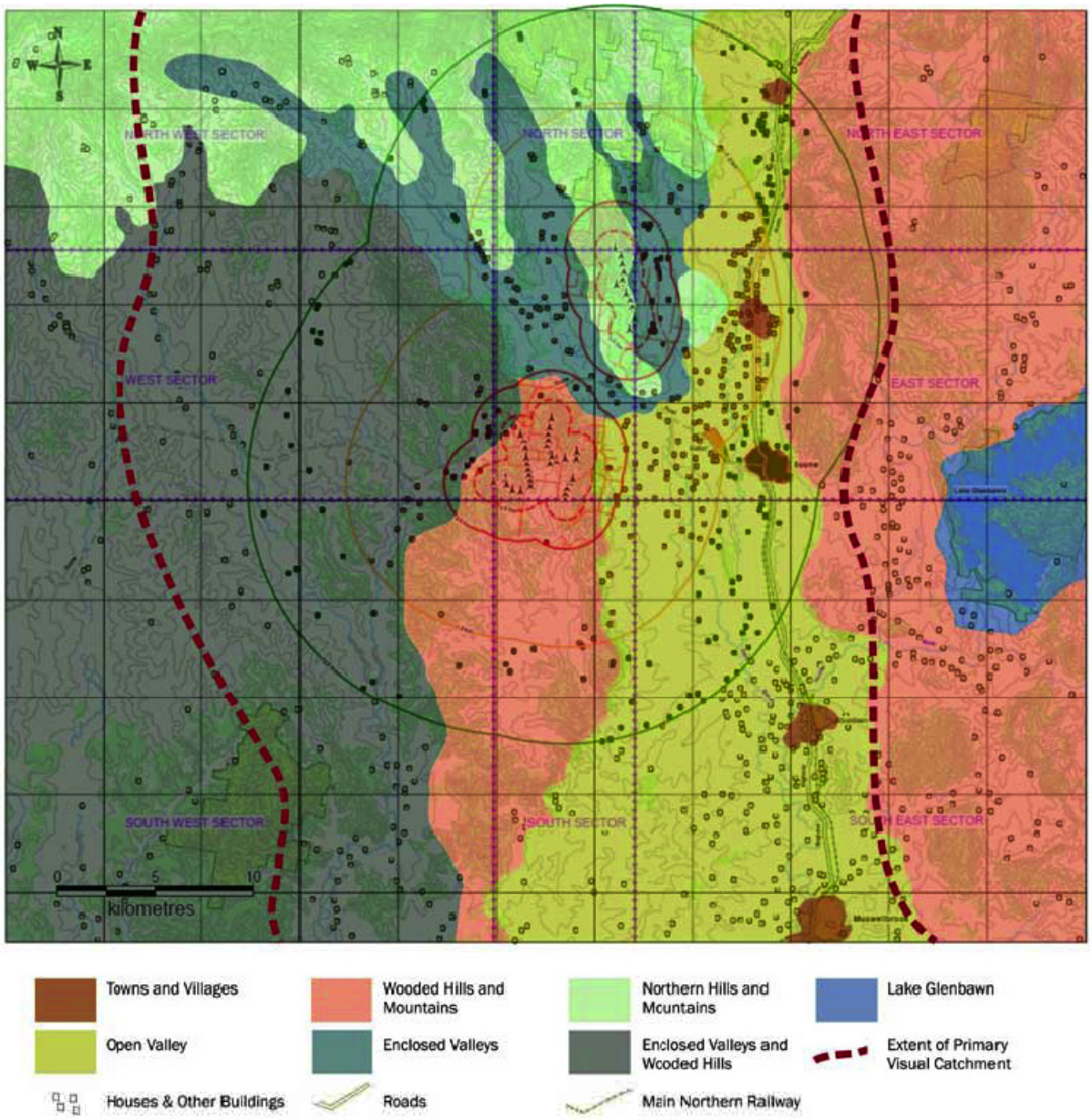

Figure 11.0 Landscape Units surrounding the Kyoto Energy Park

11.1.2 Viewing Locations

An evaluation of land use maps, aerial photographs and field investigations illustrated the character of land use and the viewing locations and distance from the wind farm site. Land use around the Kyoto Energy Park includes rural residential and small rural land, broad acre agricultural lands, recreation areas, conservation lands, major roads, minor roads and urban areas. These uses all have different visual expectations of the landscape, with some having a higher demand for visual amenity than others.

Distance of viewing location from the wind farm is important to visual effect of the Kyoto Energy Park structures. The closer the viewing area is, the larger the portion of the view as a whole and the primary view zone that will be occupied by the Kyoto Energy Park elements and therefore the higher the Visual Effect. The converse being the further away the smaller and less significant the area of the view and the primary view zone is occupied by the Kyoto Energy Park resulting in a lower visual effect.

Distance of a viewing location from the wind farm elements is also important to visual sensitivity. With an increase in distance to an undesirable development element it is likely that sensitivity to it will also decrease.

11.1.3 Visual Character of the project

All components of the Kyoto Energy Park together comprise the visual character of the development. The visual effect of the Kyoto Energy Park reduces the further the viewer moves away from it. It is also dependant on how much of the primary view the components will occupy. It is also affected by foreground screening, distance and community perception. The contribution of each component to the visual character is outlined below:

Wind Turbines
Wind turbines will be the major visual element of the Kyoto Energy Park project. The height and visual spread of the turbines creates a large area that would be impacted on by them. These elements will contrast strongly with the landscape surrounding them. Those turbines located on the ridge line are the major visual element as the strong line created by them. This will be added to by the movement of the blades.

Access Tracks
Site access tracks will generally be upgraded along existing routes. Some areas of minor cuts and fills on side slopes adjacent to the ridge top would also be required along with sedimentation and erosion control measures. Many of the existing access tracks are already formed and therefore only selective tree clearing will be required along existing routes. This will not create a distinctive line and colour contrast in the landscape as a result of vegetation clearing and earth works. Any minor visual effect created by these works will be decrease with time as rehabilitation of the road batters has occurred.

Managers Residence, Visitor's and Education Centre
These elements will have a low visual effect due to their limited vertical scale and location from the adjoining viewing locations. Further landscape treatments will ensure that they are successfully screened.

Mt Moobi Solar PV Farm
There are two distinct visual components being considered. The first is a solar panel array in rows and the second is a parabolic dish type structure. The solar panel arrays would be arranged in rows with orientation towards the north. The visual effect of the siting of these elements can be mitigated with low tree planting. The Parabolic collectors will require large tree plantings for screening purposes as they are taller than the banks of panels. It is also proposed to relocate the collectors away from the ridgeline dependent on the height of the structure.

Mini hydro plant (Closed-loop)
The low visual effect of the mini hydro plant can be easily mitigated by screening. Additionally, any effect is further softened by the existing topography and vegetation of the location of the plant.

Maintenance Shed
This element would be located adjacent to the access road on Mountain Station. Therefore due to their limited vertical scale and location within woodland they would be screened from the adjoining viewing locations. Further landscape treatments will ensure that they are successfully screened.

Site Substation
The site substation has a relatively low visual effect due to its location area of occupation and the fact that it well shielded from view.

Transmission Lines
Two (2) transmission line routes have been selected as preferred options in this report. The final route would be selected mainly on the final overall capacity of the Kyoto Energy Park, in consultation with Energy Australia (see Section 19.10 Preferred Connection Option).

Transmission line routes were identified in consultation with Energy Australia, the network distributor for the area. Proposed transmission line route have been selected to reduce visual effect by:
- locating poles away from built up areas and rural residential zones as much as possible;
- locating poles in existing road reserves

- replacing old poles to reduce cluttering
- providing options for line routes over private land subject to negotiation

The replaced poles and lines will be larger in scale than existing and the configuration will depend on the need to accommodate one or two high voltage circuits. The preferred pole type is concrete as shown in Figure 19.9. Overall pole height will vary with application (terminal pole, intermediate pole) and final design considerations. from location to location and will vary from rural to urban situations. Distribution lines would be accommodated on the new transmission pole.

In most situations the visual effect should be moderate given the location of the existing distribution lines along the routes.

11.1.4 Statutory Framework

The Kyoto Energy Park falls under Part 3A of the Environmental Planning and Assessment Act (EPAA) The Visual Assessment has considered statutory requirements for the project under a Part 3A application. Other guidelines used in the visual assessment and methodology included:

- Considerations of Director Generals Requirements
- Major Projects SEPP
- Scone Local Environmental Plan (LEP) 1986
- Amendment to Scone LEP (No 64)
- Upper Hunter Land Use Strategy
- Wind Farms and Landscape Values – National Assessment Framework.

Wind Farms and Landscape Values, National Assessment Framework

The Wind Farms and Landscape Values National Assessment Framework is intended to provide a rigorous and transparent method for assessing, evaluating and managing the impact of wind farms on landscape values. This framework was based upon findings developed through a stringent research and consultation process, ensuring best-practice is used.

The National Assessment Framework highlights the importance of community involvement and consultation throughout the assessment process stating “successful implementation of this framework relies on the use of a range of professional skills including, but not limited to, natural and cultural heritage, community consultation and facilitation, visual assessment, and development modelling and computer graphics. Table 11.0 below presents the key steps outlined within the National Assessment Framework process.

Table 11.0 Compliance with Wind Farms and Landscape Values National Assessment Framework

Step	Requirements	Outcomes
Step 1 Assess the landscape values	• Establish the landscape values of the wind farm site and surrounding areas. • Undertake a preliminary landscape assessment, pre feasibility through documenting the level of existing knowledge and identification of communities who hold value of the wind farm site. Tasks include: - Desktop Review - Seek information from local authority - Identify potential community and stakeholder interests - Site survey - Preliminary assessment of landscape values • Document the landscape values associated with the wind farm site and surrounding area, and to evaluate the significance of the values. Tasks include: - Define the study area for assessment, including the ZVI	Landscape values and visual settings were described in Section 11.1.1 Extensive research was undertaken by Integral Pty Ltd in 2007/2008 Stakeholder interests were determined during early stages of the project and the attendance at a Community Information Day See Section 5.0 Landscape values have been assessed and summarised in Section 11.1.1 The ZVI is contained in Section

Step	Requirements	Outcomes
	- Landscape character analysis - Natural and cultural values analysis - Involve communities and stakeholders in identifying landscape values	11.3 Visual Landscape Character 11.1.3
Step 2 Describe and model the wind farm in the landscape	Provide reliable, objective data (including visual assessment) that can inform assessment of impacts in Step 3 and assist communities to understand the development and its potential impacts on landscape values. Tasks include: - Describe the development - Model the development - Prepare a visual assessment report	Detailed land information data was supplied by local government and other authorities and was used as a basis for computer modelling of visual impacts as contained in Appendix B
Step 3 Assess the impacts of the windfarm on landscape values	Assess, in a rigorous and transparent manner, the likely impacts of the proposed wind farm on the identified landscape values. Tasks include: - Seek community input to potential impacts - Identify and describe impacts - Identify potential cumulative impacts - Identify other relevant factors - Evaluate impacts	Direct community participation was sought from Pamada and Integral. In addition a Community Information Day was attended by Integral and Pamada representatives with independent feedback used in the analysis.
Step 4 Factors for consideration	Develop and test measures to respond to the identified negative impacts of the wind farm on landscape values. Tasks include: - Changes to location or sitting of the wind farm or ancillary infrastructure - Layout and design considerations - Minor changes and mitigation measures - Recommend changes to the development	A revised layout included the removal of 5 turbines to reduce visual impacts and visual cluttering. Design strategies and visual treatments to reduce the visual effect of turbines and ancillary components are summarised in Section 11.10

11.2 Visual Effect

The Visual Effect is a measure of the contrast and visual integration into the setting. A number of factors influence the visual effect of the elements including visibility, distance of a viewing area from the wind farm elements, scale of the structures, visual expression factors of elements, components of the landscape, and components of landscape affected by project structures.

A consideration of both the number of the wind turbines that would be seen (ZVI) and a calculation of the percentage of the Primary View Zone occupied by it, determines the Visual Effect.

11.3 Zones of Visual Influence (ZVI)

The ZVI diagram was based on visibility of wind turbine structures at 150m above ground level. The ZVI is important and a good indication to likely visibility of the wind farm component based on topography alone. Visibility categories have been split into 20%, 40%, 60%, 80% and 100%. For a visual impact to occur, the wind farm elements have to be visible. The ZVI represents the percentage visibility of the wind turbines at a particular location based on topography alone

In many locations visibility is further screened or restricted due to the presence of foreground vegetation and or built elements. For example the wind turbines are visible from Scone's main street as accurately suggested by the ZVI however buildings along the street screen it from view except at intersections where roadways crossing the main road create view corridors to wind turbines elements on Mountain Station.

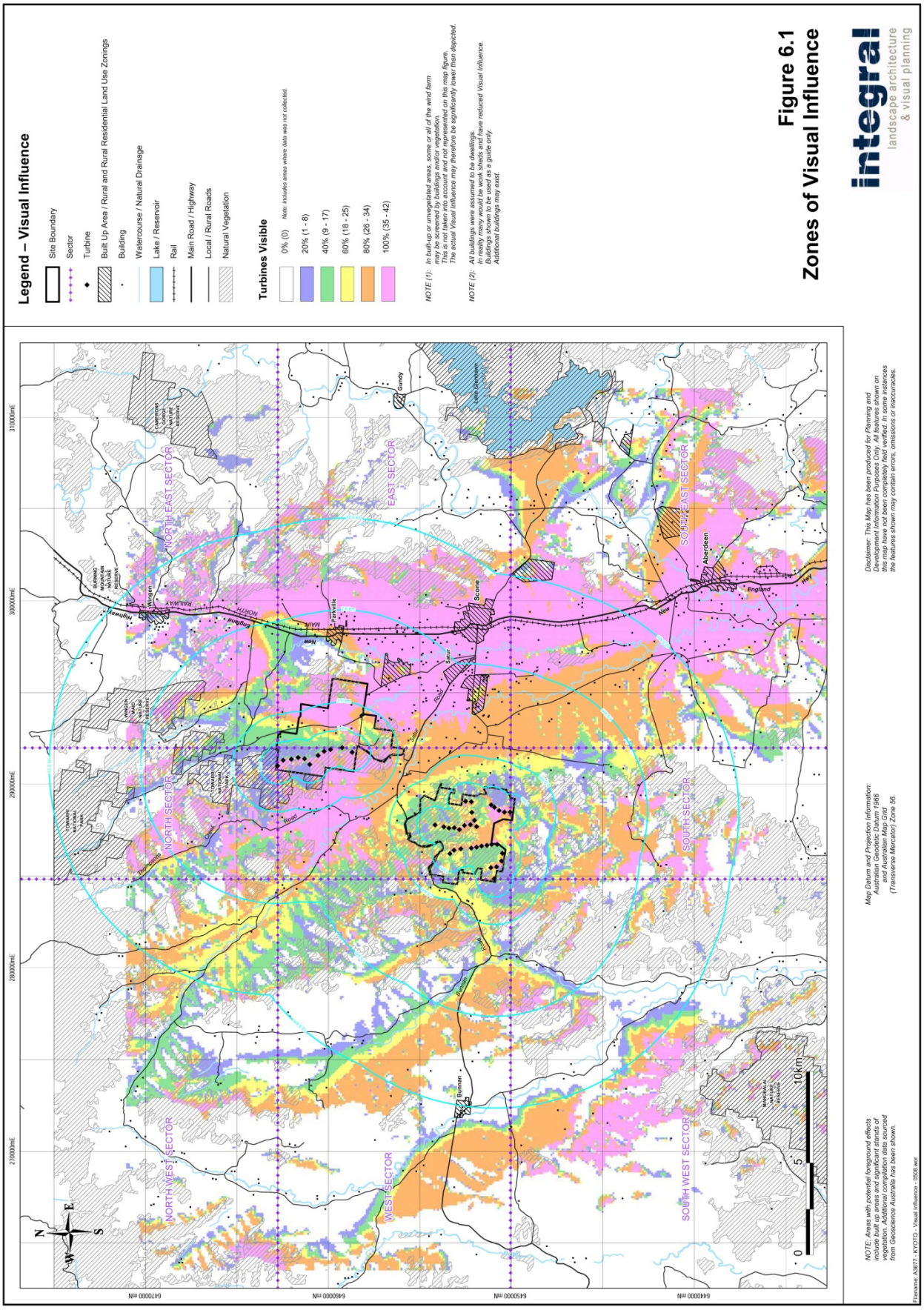

Figure 11.1 Kyoto Energy Park – Zones of Visual Influence (ZVI) Map (Integral 2008)

11.4 Visual Sensitivity

The Visual Sensitivity is affected by community perceptions, visibility of the structures, and whether the components are being viewed from high sensitivity locations, moderate sensitivity locations, or low sensitivity locations. Visual Sensitivity is used to define how critical a change to the landscape will be perceived by those viewing the landscape.

Visual Sensitivity was therefore considered mainly in terms of landuse activity from the viewing location, which gives a good indication of the importance of views, and distance, which affects scale and visibility. These factors were able to be mapped to determine sensitivity based on location and distance from the Kyoto Energy Park components.

11.5 Visual Impact

The visual impact of the Kyoto Energy Park is for the greater part created by the wind turbines as a result of the scale and location of the structures. The visual impact assessment therefore focused on this development component of the Kyoto Energy Park.

Other components of the Kyoto Energy Park have been assessed in the context of the visual values of the landscape and visual effect for each element. The impact of the transmission line will be moderate to low, given its alignment along and replacement of an existing power line with resultant moderate to low visual effects and impacts. Internal power reticulation between turbines and other generators will consist of buried cables with no visual impact.

For areas that have visibility to the Kyoto Energy Park sites, a visual impact will be experienced. The visual impact is the final measure of the environmental impact of the Kyoto Energy Park in relation to visual values for the area. Visual Impact is dependant on two sets of factors, Visual Effect and Visual Sensitivity as described above. The wind farm turbines will always have a Visual Effect, however if it is not seen from a particular situation, there will be no Visual Impact on that locality.

To calculate the preliminary visual impact in a the surrounding areas a detailed 'Visual Impact' map was produced to highlight areas that may require further consideration or detailed investigation. These areas represented as 'High Visual Impact' are shown in Figure 11.4 of the main report (referred to as Figure 8.1 Integral Oct 2008), which illustrates the overall Visual Impact of the wind farm component on the Kyoto Energy Park.

Calculation of visual impact has been conservatively estimated for the following reasons:

- When calculating the area of the primary view zone occupied by the wind farm components at a given distance (for calculation of visual effect), calculations assume that the wind turbines occupy a rectangular cross sectional area (i.e. similar to a solid wall of 150m in height across the width of the wind farm view area). This exaggerates the area taken up by the turbines in the primary view and thereby increases the area of visual impact represented in the maps.
- Also wind turbine visibility at a specific point on the landscape has ignored screening effects from buildings, vegetation and other structures.
- It has been assumed that wind turbines on both sites (Middlebrook and Mountain Station) are visible from locations as represented in the ZVI. While the turbines may be visible from that location (mainly in between the two sites) as represented in the ZVI, in actual fact some may not be able to be viewed at the same time, for example at locations along Bunnan Road and from Clifton Hills Estate. Thereby the visibility as represented in the ZVI and hence the Visual Impact of the wind turbines when viewed from these locations (generally between the two sites) has been exaggerated.
- Residence locations have been identified mainly using aerial photos and have therefore conservatively assumed to be all residential dwellings. Non residential premises such as farm and machinery sheds, factories, agri-businesses etc. would be identified during the Visual Impact Assessment and would generally not require landscaping or other treatments.

  There were no residencies located within a 0-1km radius of wind turbines on both sites. Approximately 23 and 13 buildings were identified within a 1.0 - 2.5km radius of Mountain Station and Middlebrook Station respectively. There are a large number of non-residential buildings located within a 2.5 - 7.5km radius of the wind turbines on each site. The proportion of residencies within

this range is difficult to determine and would be verified during the Visual Impact Assessment within the defined areas.

The Visual Impact Map conservatively represents the area of affectation for the visual impact of turbines. The map illustrates areas (defined as potential for high visual impact) that will require further detailed investigation for determination if mitigation treatments at residencies is required. To achieve this a Visual Impact Assessment shall be undertaken within 6 months of commencement of operations as described in Section 11.7 below.

11.6 Photomontage images

Photomontage images have been used at 7 selected locations surrounding the Kyoto Energy Park sites. Photomontages have been used to illustrate the visual relationship of the wind farm components to the various foreground, middle ground and background components of the landscape as seen from various locations around the sites. Photomontage images are attached in Appendix B(ii) Volume 3. Examples of these photomontage images are reproduced below in Figure 11.2 and 11.3 below. These reproductions have been copied are not to scale.

11.7 Visual Impact Assessment

The Visual Impact Map is shown in Figure 8.1 (Integral Oct 2008), which identifies the area of potential high visual impact for land surrounding the Kyoto Energy Park proposal. To determine the degree of impact within these areas and whether treatments at residencies within these areas are required a further assessment upon commencement of operations will be undertaken.

Within 6 months of commencement of operations a preliminary assessment of homesteads will be undertaken by a specialist visual consultant to determine if visual treatments such as screen planting and integration are warranted.

Integration and/or screen planting at homesteads that have a primary view impacted and that experience high visual impact will be provided. Areas for consideration are:

- residencies in the Thompson's Creek Rd, Lower Sparkes Creek Rd, Dart Brook Rd and Middlebrook Rd and;

and to a lesser extent areas affected in vicinity of Moobi Rds and areas east of Mountain Station.

These areas are within highly impacted areas as defined by Figure 8.1 Visual Impact Map Appendix B(i) Integral Visual Assessment Study Volume 2.

Technical assistance through community workshops may be required with planting in highly impacted properties. Some compensatory landscape treatments will be provided for households that are worst affected generally in Thompson's Creek Rd, Lower Sparkes Creek Rd, Dart Brook Rd and Middlebrook Rd, and Moobi (and adjacent) Rds, within highly impacted areas as defined by Figure 8.1 (Integral Oct 2008).

Note: This photomontage is a reproduction of the original having been reduced to fit on the paper and therefore does not represent a true scale or representation of the correct eye view approximation.

Figure 6.16 | View from Clifton Gardens on to the western side of Mountain Station from approximately 1.5km away.

Note: This photomontage is a reproduction of the original having been reduced to fit on the paper and therefore does not represent a true scale or representation of the correct eye view approximation.

Figure 6.11 | View from Halcolm Hill shows wind turbines on both Mountain Station and Middlebrook Station. The nearest turbine is approximately 12.5 km away.

Total montage image is at a reduced scale to enable the extent of the wind farm to be captured on an A3 page, top image.

The existing view in terms of actual magnification is illustrated in the before shot, shown bottom left.

The segment of the photomontage within the same section is then magnified to achieve 'actual' eye size for windfarm elements, shown bottom right. All photomontages are illustrated in this way.

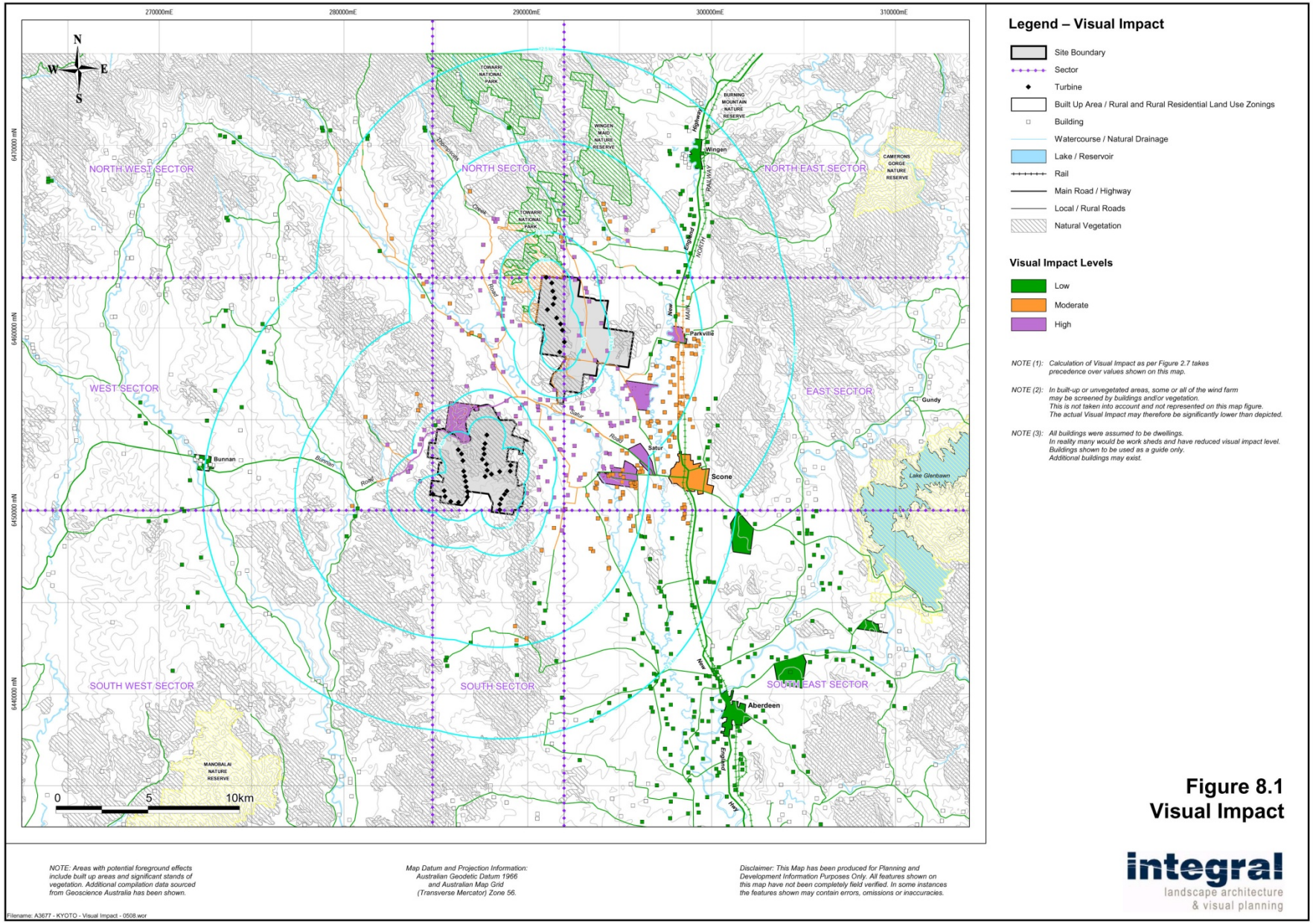

Figure 8.1
Visual Impact

integral
landscape architecture
& visual planning

The wind turbines create a strong contrast and lack visual integration creating strong visual effects. All other components generally have low visual impacts. This is due to the limited vertical scale and the ability of the existing landscape and any subsequent planting to screen or visually integrate these elements into the landscape.

The Middlebrook Station turbines are within a range of visual settings that include Castle Rock (local heritage item), is within a 7(a) (Environmental Protection ”A” – Scenic Zone) zoning and has distinctive landscape character values. The original turbine layout was for 47 wind turbine in total. A revised layout for 42 turbines was made which included removal of the turbine closest to Castle Rock and relocation of the second closest turbine further away based on visual recommendations. In addition a total of 4 turbines were removed from the Mountain Station site along the Mt Moobi Plateau to reduce visual cluttering and visual layering effects from an easterly perspective.

Some of the components including Maintenance shed and site substation are located in the north-eastern portion of Mountain Station property, at low elevation and well shielded from the road. Visual impacts for these elements are negligible.

Construction facilities would be located on site for approximately 20 months duration. These facilities will have low visibility and are located at low elevation.

The most highly impacted view locations are the rural residences in close proximity and those that are within small scale landscape and visual settings. This visual condition is created in locations such as Thompson’s Creek Road and to a lesser extent along Parts of Middlebrook Road. Here intimate valley views are to varying extents dominated by ridge top wind farm components. Visual treatments for these locations are discussed in Section 11.10.2.

Visual impact was found to be lower for rural residencies located to the east of Mountain Station where there is a much broader valley and the scale of visual settings is much greater. Also the visual orientation of households is less likely to be towards the topographic feature that is Mountain Station, however there will be exceptions.

The visual impact on Scone is generally moderate reflecting moderate visual effects and sensitivities at this distance. The impacts on the more distant towns of Aberdeen and Muswellbrook will be low.

The visual impact on the highway and railway is generally low and is likely to be a visual feature in an ever changing view as seen from these travel corridors.

The Kyoto Energy Park Visual Impact Map is reproduced above in Figure 11.4 (Figure 8.1 as shown).

11.8 Shadow Flicker

Shadow flicker from wind turbines can occur when the sun is low in the sky and moving shadows are cast by the rotating blades on an area around them. When viewed from a stationary position this can appear as a flicker.

There are currently no guidelines for Shadow Flicker assessment in NSW. The occurrence of shadow flicker was modelled by Garrad Hassan Pty Ltd using guidelines most notably that of the Victorian wind farm guidelines, which is considered standard industry practice. Shadow flicker calculated in this manner overestimates the number of annual hours of shadow flicker experienced at a specified location.

Garrad Hassan has adopted the more conservative approach and has used a limit to the length that a shadow can be cast of 1 km from a turbine. Analysis of duration of shadow flicker has been conducted for the area around the proposed Kyoto Energy Park, with approximation of shadow diffusion with distance. Maps of shadow flicker duration have been produced using a sophisticated computer model for regions immediately around the proposed development showing the predicted hours per annum of shadow flicker. These maps are reproduced in Figure 11.4 for Middlebrook Station and Figure 11.5 for Mountain Station.

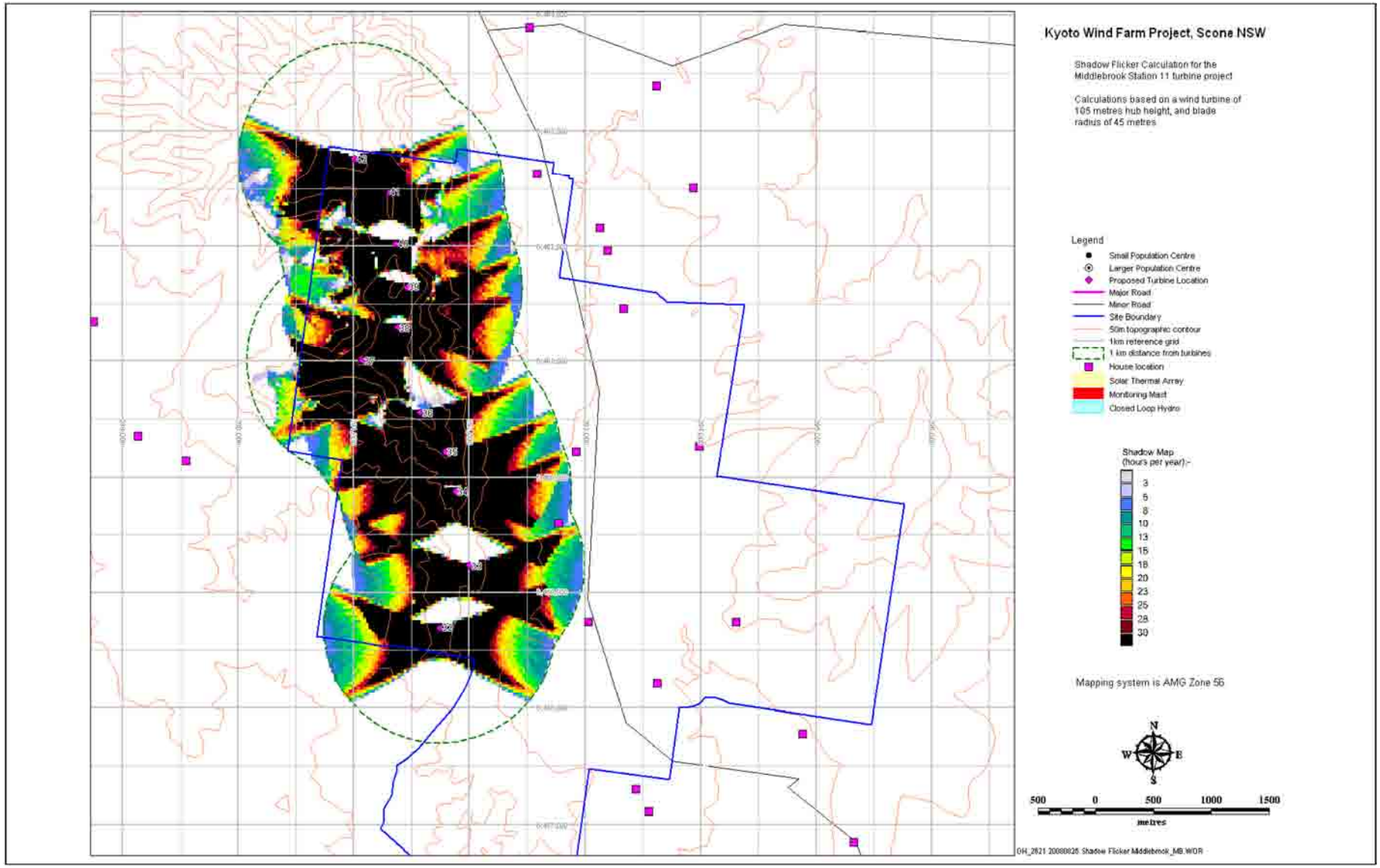

Figure 11.4 Modelled Shadow Flicker hours at Middlebrook Station (Garrad Hassan 2008)

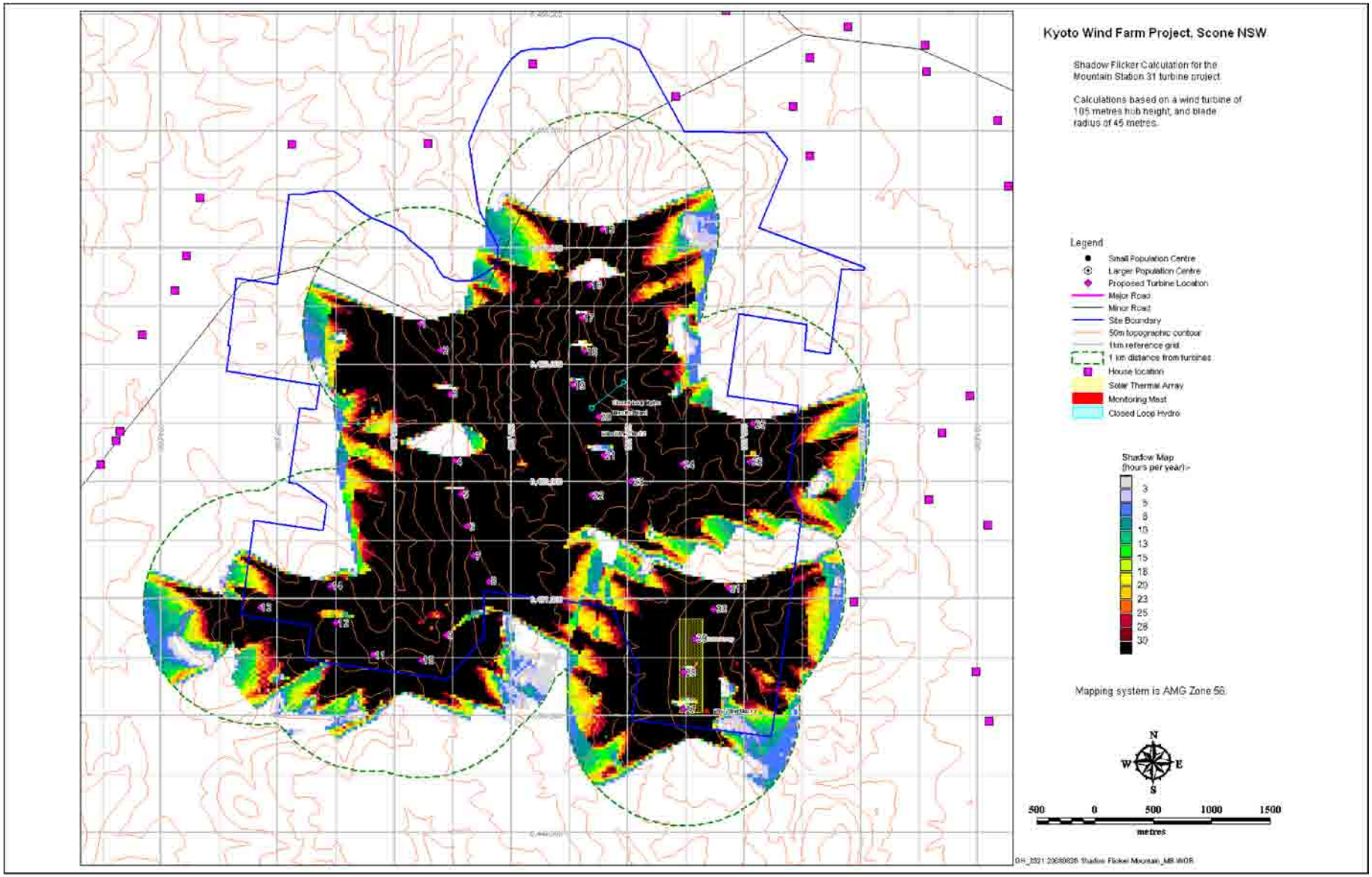

Figure 11.5 Modelled Shadow Flicker hours at Mountain Station (Garrad Hassan 2008)

The assessment concludes that no nearby houses has modelled shadow flicker of greater than 30 hours per annum (current guidelines) and therefore shadow flicker is not expected to be a constraint to the project.

The Flicker model shows that the Manager's residence proposed on Mountain Station will experience greater than 30 hours p.a. of Shadow Flicker from wind turbines. The Manager's residence shall be used solely for the accommodation of the Park Manager. Shadow Flicker impacts on the residence shall be considered in the final design of the residence and managed through the operation of an onsite Occupational Health and Safety Plan.

11.9 Blade Glint

Blade glint refers to the potential for the movement of the blades to catch the light and produce glint which may be seen from surrounding areas. Blade glint is nearly impossible to quantify due to the variations of sunlight, light intensity, cloud cover and the complex geometry of the wind turbines and the surrounding terrain. If it were to occur, as with shadow flicker, it would only occur for a short period as the sun moves in the sky.

At present there are no formal regulations or guidelines in NSW pertaining to Blade Glint. To carry out their assessment, Garrad Hassan has used the Victorian wind farm guidelines as standard industry practice.

The paint used on modern blades and tower of the wind turbines helps to significantly reduce any occurrence of glinting. Blades would be finished with a surface treatment of low reflectivity (i.e. matt finish) to ensure that glint is minimised. In this way blade glint can be mitigated through the use of matt coatings.

11.10 Design Strategies, Visual Mitigation Treatments

The major visual impacts created by the Kyoto Energy Park are created by the wind turbines in the project. Because of the scale of the wind turbines, visual treatments to reduce visual sensitivity and visual effect need to be achieved at or close to the viewing locations. Visual treatments of other components of the Kyoto Energy Park can be completed at the site.

The full range of visual treatments have been separated into treatments to be applied to generator components and facilities on site and treatments to be applied to receivers identified as having a potential visual impact.

11.10.1 Visual Mitigation Treatments at Site

Wind Turbine Colour

Colour of the wind turbine elements is the only practical consideration for treatment of wind turbine components on site. In this context the off-white and softer light greys or soft grey-greens are to be used.

Mt Moobi Solar PV Farm

The solar plant is located on the eastern edge of the Mountain Station Site along the Mt Moobi Plateau. It will consist of arrays of solar panels arranged along short east west rows with the panels set at approximately 30 degrees (fixed frame) of the horizontal to face the northern sun. The maximum elevation of the solar plant is 1.5 - 14m height above ground level, dependent upon the final solar option. For a full description of solar options refer to Section 2.3.7.

There should also be a visual buffer on the eastern escarpment to screen the solar plant from view. Planting should consist of a minimum of 5 rows of indigenous trees and tall shrubs, with vegetation height dependent on final solar option selected. If the parabolic-dish structures are utilised (height =14m) then these structures would be set back from the eastern edge of the Mt Moobi escarpment.

There will be no reflected light from the collectors on surrounding residents as they will be orientated or track towards the sun.

Mini- hydro Plant (Closed-loop)

This plant is well integrated and screened from external view. Care should be taken in minimizing clearing of trees when constructing the water pipe lines on slopes. Holding tanks and associated facilities should be coloured olive green to minimise colour contrast. Screen planting to header tanks and upper sections of water race pipelines should occur as required.

Site Access Roads

Generally roads will not be visible to surrounding areas and will generally utilise existing roads and tracks. Treatments will aim at reducing visual contrast and scale of the roadways. Specific recommendations include:

- Roads and construction tracks are to use existing trails where possible;
- New trails and roadways should avoid tree clearing to utilize the tree canopy for screening purposes;
- Route selection should minimize views on to the road, giving special care in relation to potential views from locations parallel to the road alignment;
- Minimise straight alignments and follow the contour of land;
- Design the road batters to maximize integration;
- Design consideration for road down sizing and or restoration after construction;
- Road Batter revegetation;
- Off site planting, as used for wind turbine integration treatments, will also have benefits for road integration.

Buildings

Final design of all buildings shall be completed prior to construction including the Manager's residence, Visitor's and Education Centre and the Maintenance shed. Design principles to be adopted in the final design include:

- Buildings on ridgelines shall be height limited in accordance with the Visual Assessment (Appendix B). The Managers residence will have a height limit of 8m. The Visitors and Education Centre shall have a height limit of 6m. Both buildings will be heavily integrated into the landscape with vegetation screening;
- The building roof of the Visitors and Education Centre is to create an overhang to produce a shadow effect on external walls;
- The Maintenance Shed is located on the flats in a well screened area with limited visual interference to surrounding areas. The height and colour of the shed shall be based upon final design and allow for low visual form and function of the structure;
- The buildings will be painted with colours to assist in the integration of buildings into the surrounds;
- Supplementary planting should be provided to integration elements both in front of and behind built form elements;
- Building elements should be designed and of a colour suitable to achieve minimum contrast with existing colours of receiving landscape.

Overhead Transmission Lines

Treatments to increase visual integration and decrease visibility to sensitive viewing locations include.

- Replace the old timber poles (with cross arms supporting insulators) with simple pole structures featuring cantilevered insulators to accommodate new circuits;
- Existing distribution circuits are to be placed on the new transmission line poles;
- The poles should be the new light green colouring as shown in Figure 19.9 (Concrete poles);
- At viewer locations integration planting should be undertaken as needed in areas such as highly affected rural homesteads;
- Supplementary planting should occur along alignments within town settings and approaches to achieve visual integration of the transmission line structures.

11.10.2 Visual Mitigation Treatments at viewing location

Screen Planting and Landscaping

Some rural homesteads were identified in the vicinity of the Kyoto Energy Park sites that could potentially be impacted upon and require amelioration treatments to create a vegetation filter to that part of the skyscape affected by the wind farm component.

The Visual Impact Map shown in Figure 11.4 will be used to identify homesteads that will require further investigation. Pamada will engage a suitably qualified landscape consultant to undertake an assessment of visual impact treatments to affected locations.

Treatments will consider the following:

- Integration and or screen planting at homesteads that have primary view impacted and that experience high visual impact;
- Compensatory landscape treatments for impacted homesteads generally in Thompson Creek Road , Lower Sparkes Creek Road, Dart Brook Road and Middlebrook Road areas;
- Clump planting of native trees along highly exposed rural roads;
- Complementary landscape treatments of residences in affected areas in the vicinity of Moobi Road as well as adjacent roads;
- Treatment of road edges and or driveways to provide screening and/or visual integration elements.

The assessment shall commence 6 months after the commencement of operations of the wind farm component of the Kyoto Energy Park. Remedies and treatments for visual impact shall be addressed on a case-by-case basis and implemented at affected locations as a complimentary measure.

Kyoto Energy Park Scone is wholly an Australian Enterprise. The Management is 100% Australian.
The funding of this proposal and report is 100% Australian.
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