NSW GOVERNMENT

Yass Valley Wind Farm

State Significant Development Modification Assessment

(SSD 6698 MOD 1)

October 2018

Cover photo

Source: Bungendore, with a wind farm in the background. Bungendore, NSW. Department of Planning and Environment Image Database (https://images.planning.nsw.gov.au)

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Glossary

Abbreviation	Definition
Consent	Development Consent
Council	Hilltops Council, Yass Valley Council
Department	Department of Planning and Environment
DoI – L & W	Department of Industry – Lands and Water
EA	Environmental Assessment
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
GWh	gigawatt hours
ha	hectare
IPC	Independent Planning Commission
km	kilometre
m	metre
Minister	Minister for Planning
OEH	Office of Environment and Heritage
RMS	Roads and Maritime Services
RTS	Response to Submissions
SEARs	Secretary's Environmental Assessment Requirements
Secretary	Secretary of the Department of Planning and Environment
SSD	State Significant Development

Executive Summary

Coppabella Wind Farm Pty Ltd, a wholly owned subsidiary of Xinjiang Goldwind Science & Technology Co. Ltd. (Goldwind), has approval to construct and operate the Yass Valley Wind Farm (the project). The project is located approximately 25 kilometres (km) west of Yass, within the Hilltops Council and Yass Valley Council local government areas.

Goldwind is seeking to modify the development consent (SSD 6698) for the Yass Valley Wind Farm. The key aspects of the proposed modification (Modification 1) include:

- increasing the maximum dimensions of the turbines, including the blade tip height (from 150 to 171 metres) and rotor diameter (from 121 to 142 metres);
- reducing the maximum number of approved turbines from 79 to 75;
- sealing and redesigning the site access along Whitefields Road to reduce vegetation clearing from 4.85 to 0.49 hectares (ha);
- increasing the vegetation clearing limit on the wind farm site for endangered ecological communities (EEC) from 68.3 to 179.8 ha comprising predominantly derived native grassland; and
- a number of design refinements and project scope clarifications.

The location of the turbines has not changed, no additional turbines are proposed, and the turbine hub height has not increased.

Goldwind's primary justification for the proposed modification is that the changes proposed reflect:

- technological improvements in the turbine technology, in which larger turbines with longer turbine blades achieve increased generation efficiency and lower production costs; and
- improved site knowledge and understanding of the construction constraints following detailed design, additional site investigations and pre-construction planning.

The Department notes that proposal to increase the maximum dimensions of the turbines reflects the general industry trend whereby developers are taking advantage of improvements in technology to increase generation efficiency with larger turbines.

The project was originally approved on 30 March 2016 by the Independent Planning Commission (formerly known as the Planning Assessment Commission) under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) following a comprehensive assessment process. Accordingly, the proposed modification is to be assessed and determined under Section 4.55(2) of the EP&A Act.

Under the Minister's delegation dated 14 September 2011, the Independent Planning Commission is the consent authority for the modification application as more than 25 public submissions by way of objection were received.

The Department publicly exhibited the modification application and its Environmental Assessment from 22 September 2017 to 23 October 2017 and received 100 submissions, including 82 objections and 5 submissions in support of the proposal.

The majority of submissions received from the general public were from residents living outside the region, located greater than 50 km from the project site. However, 10 submissions were from residents residing within 5 km of the project site, 9 of which objected to the proposal.

The key issues raised in community submissions objecting to the modification related to the increased visual impacts and biodiversity impacts of the modification.

During the assessment process, the Department visited the site on several occasions and consulted with local residents, the Yass Landscape Guardians, Hilltops Council, Yass Valley Council and other government agencies.

A number of government agencies, including both Councils, provided advice related to their respective regulatory responsibilities, and recommended a range of updates to the conditions of consent that the Department has considered and adopted, where relevant.

In assessing the merits of the modification application, and particularly the potential impacts on the local community, the Department carefully considered the potential visual impacts of the proposal.

The Department's assessment of the potential visual impacts considers the incremental change between the approved and proposed modified turbines only, and focuses on the impacts on the broader landscape characteristics surrounding the project site and non-associated residences located in proximity to the project.

In that regard, it's important to note that since the project was approved Goldwind has obtained additional neighbour agreements with the owners of 25 non-associated residences/properties located in proximity to the project. Under these agreements, landowners accept the visual impacts of the project, and these residences/properties have been considered 'associated' for the purposes of the Department's visual assessment of the modification application.

As a result, the Department's assessment focused on the 8 remaining non-associated residences located within 3.4 km of a turbine, which is the threshold distance identified in the *NSW Wind Energy Framework's Visual Assessment Bulletin* at which turbines with a 171 m blade tip height may potentially have high visual magnitude impacts.

Accordingly, while the Department acknowledges the turbines would be visible at distances greater than 3.4 km, it considered that the incremental change in impact as a result of the turbine height increase at those residences located greater than 3.4 km from a turbine and the broader landscape would be negligible.

Moreover, the deletion of the 3 turbines in the southeastern portion of the project would result in a reduction in visual impacts to the non-associated residences located in proximity to that area.

Additionally, while most non-associated residences in the local area would be able to see more of the turbine blades, the Department considers that no non-associated residences would have a higher visual impact rating, with the highest visual impact rating remaining as moderate.

This is a result of a combination of a number of factors, including the modest increase in height of the turbines and the distance from the nearest non-associated residences to the closest turbines.

Consequently, the Department considers that the residual impacts of the increased turbine height do not warrant additional mitigation at any non-associated residences over and above the visual screening required by the existing development consent for all residences located within 5 km of turbine.

In relation to the biodiversity impacts, based on the findings of Goldwind's ecological assessments and concerns raised by the Office of Environment and Heritage (OEH), Goldwind revised the modified project layout to further minimise the biodiversity impacts, including reducing the native vegetation clearing requirements from 298.8 ha to 276.2 ha, reducing the number of hollow-bearing trees that would be required to be removed from 426 to 282 and reducing the clearing along Whitefields Road from 4.89 ha to 0.45 ha.

Using conservative assumptions, the modified project would still increase the native vegetation clearing requirements for the approved project by 190.3 ha, from 85.9 ha to 276.2 ha. Of the 190.3 ha, an additional 111.5 ha of endangered ecological communities (EEC) listed under the *Biodiversity Conservation Act 2016* would be removed, although this is predominantly derived native grassland with only an additional 20.7 ha of EEC woodland in moderate to good condition proposed to be cleared. The modified project would also increase the number of hollow-bearing trees required to be removed from 251 to 282.

The proposed increase in the vegetation clearing limit is not related to the increase in turbine dimensions. Instead, it is a result of improved site knowledge and a greater understanding of the construction constraints following detailed design, additional site investigations and pre-construction planning.

Importantly, Goldwind has advised that it would not be able to construct the project as approved with the existing vegetation clearing restriction.

The Department's assessment found that despite the increased disturbance, the modified project would not result in any significant impacts on threatened species or EECs, and would not pose a significant or unacceptable level of risk to bird and bat species.

The Department has consulted with OEH to develop strengthened biodiversity conditions for the project which include the preparation of a detailed Bird and Bat Adaptive Management Plan. Additionally, Goldwind would be required to offset the residual impacts of the modified project in accordance with the *NSW Biodiversity Offsets Policy for Major Projects*.

The Department has also considered a range of other matters including potential impacts relating to noise, heritage, aviation, traffic/transport, radiocommunications, waste, soil and erosion. In summary, the Department's assessment concluded that the amended conditions of consent would effectively manage and minimise any other residual impacts associated with the proposed modification.

While the Department acknowledges there is some community opposition from local landowners and special interest groups to the proposed modification, the Department considers that the proposed modification would allow the benefits of the project to be realised.

Importantly, the project would deliver a range of economic benefits, including up to 200 full time construction jobs and 15 full time operational jobs, with a capital investment of up to $500 million.

The project is also consistent with the Commonwealth's *Renewable Energy Target* and the NSW *Climate Change Policy Framework* as it would generate approximately 830 gigawatt hours of renewable energy per year over its operating life, equivalent to 113,700 homes annually, with estimated emissions savings in the order of 700,000 tonnes CO2-e per year.

Additionally, Goldwind would contribute up to $187,500 a year to community enhancement through voluntary planning agreements with both Hilltops and Yass Valley Councils, and an additional $100,000 per year through a supplementary community investment model.

Given these benefits can be achieved without resulting in any significant additional adverse impacts on the environment or the local community, the Department considers that the modified project is approvable, subject to the recommended conditions of consent.

Contents

1. Introduction

Coppabella Wind Farm Pty Ltd, a wholly owned subsidiary of Xinjiang Goldwind Science & Technology Co. Ltd. (Goldwind), has approval to construct and operate the Yass Valley Wind Farm (the project). The project is located approximately 25 kilometres (km) west of Yass, within the Hilltops Council and Yass Valley Council local government areas (see Figure 1).

There are a number of other operating, approved or proposed wind farms in the region (see Figure 2). With the exception of the approved, but not yet constructed, Conroy's Gap Wind Farm which is located 10 km to the project's south-east, all of these wind farms are located at least 30 km from the project site, and are not expected to cause any cumulative impacts on individual residences. Impacts on the broader landscape would be mitigated to a large extent by the distance between wind farms and the rolling hills that characterise the topography of the region.

The project was approved by the Independent Planning Commission (IPC) (formerly known as the Planning Assessment Commission) on 30 March 2016 under Part 4 of the EP&A Act. Importantly, while the proposal was for 124 turbines across three precincts (i.e. 79 turbines in the Coppabella precinct, 27 turbines in the Marilba precinct and 18 turbines in the Conroy's Gap Extension precinct), the IPC only granted approval for 79 turbines and associated infrastructure in the Coppabella precinct, in accordance with the Department's recommendation.

The project as currently approved involves:

- construction and operation of up to 79 wind turbines (up to 150 m in height), associated infrastructure and access tracks;
- construction and operation of one substation and one switchyard; and
- connection of the switchyard to TransGrid's existing 132 kilovolt (kV) overhead transmission line.

The major transport link in the region is the Hume Highway and the project site is approved to be accessed via Whitefields Road, from the Hume Highway (see Figure 3).

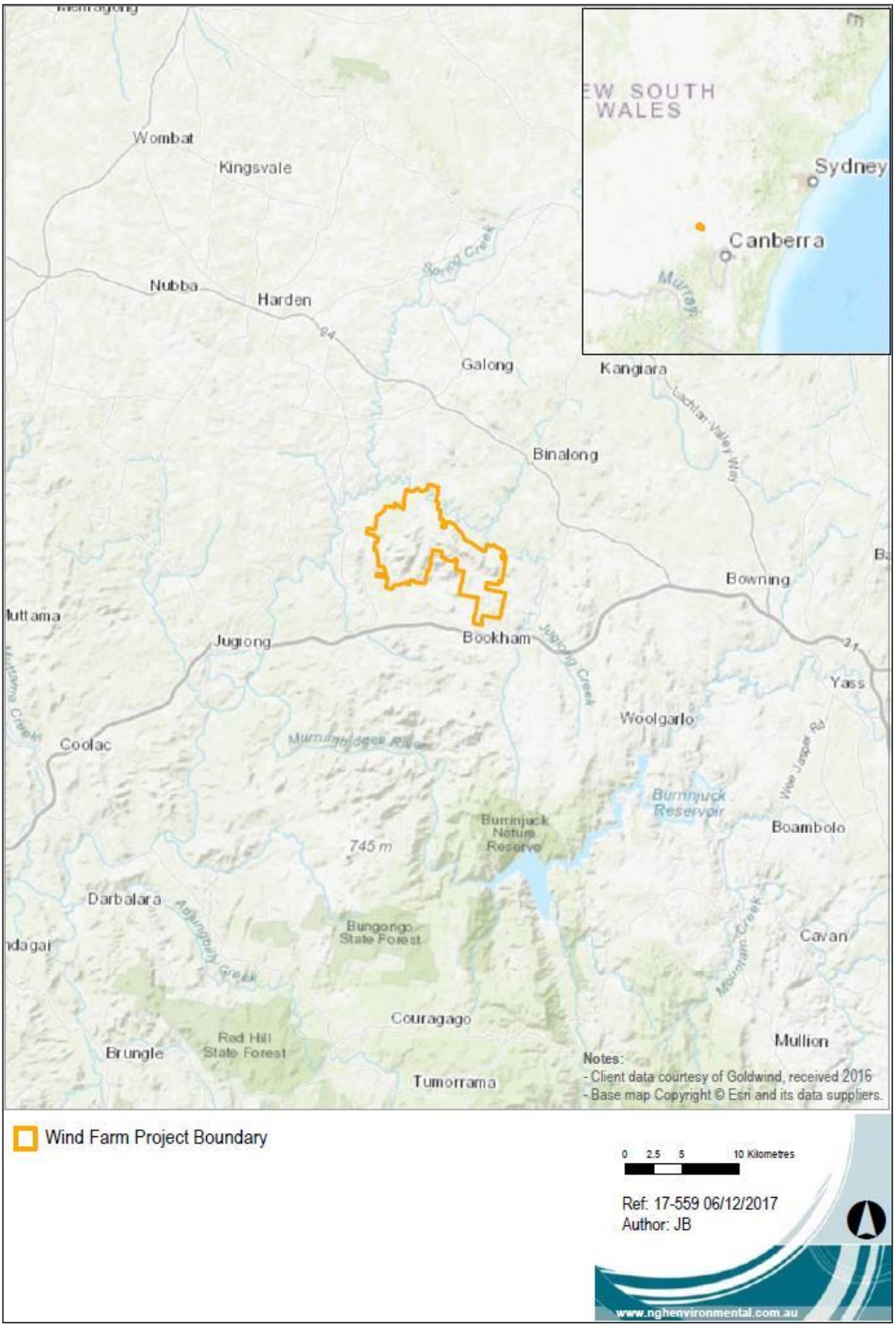

Figure 1 | Project Location

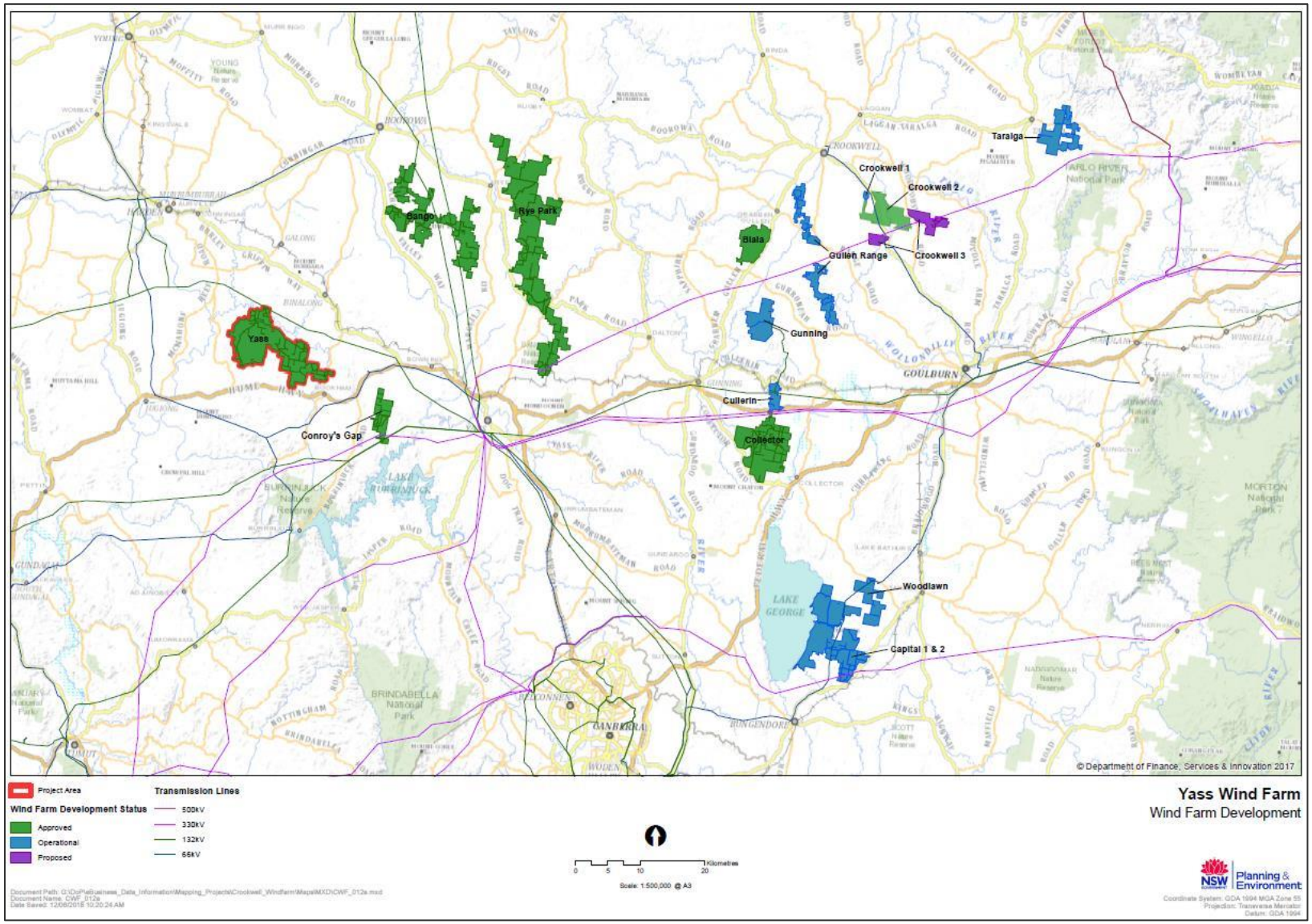

Figure 2 | Regional Context

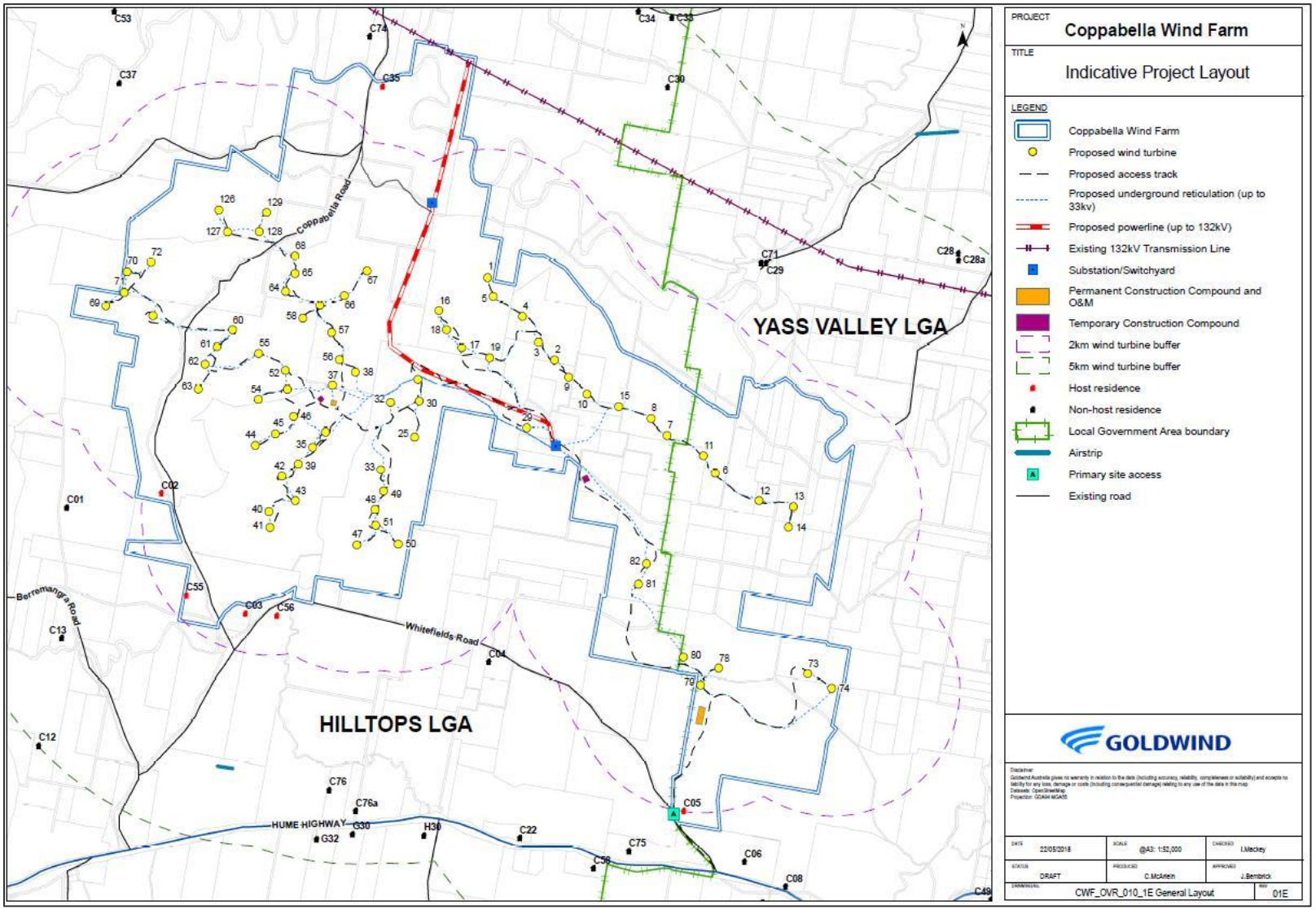

Figure 3 | Modified Project Layout

2. Proposed Modification

Goldwind is seeking to modify the development consent (SSD 6698) for the Yass Valley Wind Farm. The modification is described in detail in the Environmental Assessment (EA) submitted in support of the application (see **Appendix D**).

In addition, following public exhibition, Goldwind proposed changes to the modification application as described in the EA. These changes are described in the Response to Submissions (RTS) (see **Appendix F**) and Additional Information (see **Appendix G**). In summary, the modification application involves four main components, including:

1. *Turbine changes:*
    - increasing the maximum dimensions of the turbines including the blade tip height (from 150 m to 171 m) and rotor diameter (from 121 m to 142 m) with no change to the hub height;
    - removing 4 turbines (i.e. Turbine Nos. 36, 75, 76 and 77) to reduce both visual impacts and avoid impacts to 65 hollow bearing trees;
2. *Design refinements:*
    - redesigning the site access along Whitefields Road to reduce clearing from 4.85 ha to 0.49 ha and avoid impacts to 45 hollow-bearing trees;
    - refining the design and changing the location of access tracks, including relocating the access track near the substation to avoid impacts on a substantial hollow-bearing tree, and relocating the access track between Turbine Nos. 17 and 19 to avoid impacts to 33 hollow-bearing trees;
    - changing the location of ancillary infrastructure, overhead and underground powerlines (up to 33 kV) and additional temporary construction compounds and laydown areas;
    - reusing excavated material onsite; and
    - upgrading a 2 km section of Coppabella Road to facilitate use by light vehicles;
3. *Vegetation clearing:*
    - increasing the vegetation clearing limit of endangered ecological communities (EEC) by 111.5 hectares (ha), from 68.3 ha to 179.8 ha;
4. *Subdivision:*
    - clarifying that the project includes the subdivision of land to create new lots for the approved substation and any switchyards; and
    - any deemed subdivision arising from the grant of leases or licences for project elements.

Goldwind's primary justification to change the turbine dimensions is that the proposal reflects technological improvements in the turbine technology, in which larger turbines with longer turbine blades achieve increased generation efficiency and lower production costs.

The proposed increase in the vegetation clearing limit is not related to the increase in turbine dimensions. Instead, it is a result of improved site knowledge and a greater understanding of the construction constraints following detailed design, additional site investigations and pre-construction planning. Importantly, Goldwind has advised that it would not be able to construct the project as approved with the existing vegetation clearing restriction.

3. Statutory Context

3.1 Scope of Modifications

The project was originally approved by the IPC on 30 March 2016 under Part 4 of the EP&A Act.

Section 4.55(2) (previously Section 96(2)) of the EP&A Act allows for a development consent granted in this way to be modified by the consent authority if it is satisfied that the proposed project as modified is substantially the same as the project for which consent was originally granted.

The proposed modification does not seek to significantly alter the approved project as:

- there has been no change to the project area;
- no new turbines are proposed as part of the modification and 4 turbines have been removed;
- although individual turbines are proposed to increase in size from up to 150 m to 171 m blade tip height, with an increase in rotor diameter from up to 121 m to 142 m, the turbines would be located in the existing approved locations (subject to micro-siting limits); and
- the modified layout is generally in accordance with the approved project, apart from variations to the location of ancillary infrastructure, including access tracks, overhead and underground powerlines (up to 33 kV) and additional temporary construction compounds and laydown areas.

Consequently, the Department is satisfied that the application can be characterised as a modification to the existing consent under Section 4.55(2) of the EP&A Act, as it would result in substantially the same project as the project for which consent was originally granted.

3.2 Consent Authority

The Minister for Planning is the consent authority for the modification application. However, under the Minister's delegation dated 14 September 2011, the IPC must determine the modification application for the project as more than 25 public submissions by way of objection were received during the exhibition of the application.

3.3 NSW Wind Energy Framework

In December 2016, the Department released the new NSW Wind Energy Framework (the Framework).

The Framework provides a merit-based approach to the assessment of wind energy projects, which is focused on the issues unique to wind energy, particularly noise and visual impacts. The key documents comprising the Framework include:

- Wind Energy Guideline;
- Visual Assessment Bulletin;
- Noise Assessment Bulletin; and
- Standard Secretary's Environmental Assessment Requirements (SEARs).

The Framework applies to this modification application. Goldwind prepared the EA for the modification application, including the Visual Impact Assessment and Noise Impact Assessment, with regard to the relevant aspects of the Framework (as discussed further in Section 5).

3.4 Commonwealth Approvals

The project was declared a 'controlled action' under the *Environment Protection and Biodiversity Conservation Act 1979* (EPBC Act) on 11 October 2013, as it potentially would impact nationally-listed threatened species, communities and migratory species.

Prior to the project being approved by the IPC in 2016, on 5 November 2014 the project received Commonwealth approval under the EPBC Act. This approval was for up to 126 turbines (EPBC 2013/7606).

As the Commonwealth approval was inconsistent with the IPC's approval for 79 turbines, on 28 December 2017 the Applicant resubmitted the proposed modified project for up to 76 turbines to the Commonwealth (EPBC 2017/8129), noting that an additional turbine has now been removed, with the objective of making the Commonwealth consent and the State consent consistent with each other.

The Commonwealth declared the modified project to be a 'controlled action' on 21 February 2018 and the Department understands the Commonwealth is unlikely to make a final decision on the application until the IPC has made a determination for the proposed modification under the EP&A Act.

4. Engagement

4.1 Department's Engagement

In accordance with clause 10 of Schedule 1 to the EP&A Act and clause 118 of the *Environmental Planning and Assessment Regulation* 2000 (EP&A Regulation), the Department exhibited the application from 22 September 2017 to 23 October 2017 (32 days):

- on the Department's website;
- at the offices of the Department; and
- at Hilltops Council and Yass Valley Council's offices.

The modification application was advertised in the Yass Tribune and Harden Murrumburah Express. Previous submitters were notified of the modification application and invited to make a submission. The modification application was also referred to Hilltops Council, Yass Valley Council, the Office of Environment and Heritage (OEH), Environment Protection Authority (EPA), Airservices Australia, the Civil Aviation Safety Authority (CASA), Rural Fire Services (RFS), Local Land Services (LLS), the Aerial Agriculture Association of Australia (AAAA), the Department of Industry – Lands and Water (DoI – L&W), Roads and Maritime Services (RMS), the Department of Defence and NSW Health.

During the assessment process, the Department also visited the site, met with the Yass Landscape Guardians in Bookham, and consulted with local residents, the relevant Councils and government authorities.

4.2 Goldwind's Engagement

To supplement the formal exhibition process, Goldwind also undertook its own consultation with the local community and government agencies.

Goldwind has provided regular updates to the project Community Consultative Committee and made information about the proposed modification available via a project newsletter (distributed to all residences within 10 km of the project), its website and local newspaper advertisements. Goldwind also consulted neighbouring landowners and notified host landowners.

4.3 Summary of Submissions

The Department received a total of 100 submissions on the project, including:

- 10 from government agencies;
- 5 from special interest groups; and
- 85 from the community.

A summary of the submissions is provided in Table 1, and a full copy of the submissions is attached in **Appendix E**.

Goldwind provided a response to the issues raised in submissions (see **Appendix F**), and the Department has considered this response in its assessment of the merits of the proposed modification.

Table 1 | Summary of Submissions

Submitters	Number	Position
Government Agencies	**10**	
• Hilltops Council • Yass Valley Council • Environmental Protection Authority • Office of Environment and Heritage • Department of Industry – Crown Lands & Water • Division of Resources and Energy • Roads and Maritime Services • Airservices Australia • Civil Aviation Safety Authority • NSW Health		Comment
Special Interest Groups	**5**	
• Yass Landscape Guardians	1	Object
• Australian Wind Alliance • Coppabella Wind Farm Landowners Group	3	Support
• Harden Regional Development Corporation • Hume Pastoral Company Pty Ltd	1	Comment
Community	**85**	
	81	Object
	2	Support
	2	Comment
TOTAL	**100**	

4.4 Key Issues – Government Agencies

While none of the agencies objected to the proposed modification, several commented on aspects relevant to their regulatory responsibilities, including recommended conditions. These comments and recommendations are summarised below, and where relevant, considered in more detail in Section 5 of this report.

The **Environment Protection Authority (EPA)** did not raise any concerns about the proposed modification and noted that sector management or noise management mode could be used to address the predicted noise impacts at the one receiver where the criteria is predicted to be marginally exceeded (i.e. 1.7 dB at non-associated residence C04). Additionally, the EPA recommended updating the approval conditions to reflect the contemporary noise requirements for wind energy projects. The Department has considered these matters further in Section 5 of this report and updated the conditions accordingly.

The **Office of Environment and Heritage (OEH)** raised concerns regarding potential biodiversity impacts, particularly in regard to the increased vegetation clearing required, the quality of vegetation mapping prepared to inform Goldwind's assessment, and the impacts of the larger turbines on birds and bats.

OEH also raised concern with the potential Aboriginal heritage impacts associated with the new disturbance areas. The Department has considered these matters in detail in Section 5 of this report.

The **Department of Industry – Lands and Water (DoI - L&W)** requested Goldwind provide further details regarding the water demands of the modified project, the size of the turbine footings, and recommended Goldwind be required to develop an Erosion and Sediment Control Plan for the project. DoI - L&W also advised that Goldwind should consult with Crown Lands in relation to the use of any Crown public roads within the project area. The Department notes the existing conditions of consent already require Goldwind to comply with several of these obligations, and has considered these matters further in Section 5.

The **Division of Resources and Energy (DRE)** indicated there were no resource sterilisation issues associated with the proposed modification.

Roads and Maritime Services (RMS) did not raise any concerns about the proposed modification, noting that Goldwind is neither proposing to make any alterations to the approved access route nor increase the traffic generated by the project.

Airservices Australia (Airservices) confirmed the impacts on the performance of the Mt Bobbara Radar would be able to be mitigated through the new Automatic Dependent Surveillance-Broadcast (ADS-B) facility recently commissioned near Dederang in Victoria. As such, Airservices did not have any residual concerns regarding the impacts of the modified project on the performance of any of its communications, navigation and surveillance facilities or impacts on any registered or certified aerodromes.

The **Civil Aviation Safety Authority (CASA)** did not raise any concerns about the proposed modification, but recommended that the wind farm should be lit with steady red medium intensity lighting at night in accordance with contemporary requirements. CASA also advised that one turbine would infringe on the obstacle clearance limit for Cootamundra Airport by 4.6 m, but indicated this could be mitigated through detailed design and micro-siting. The Department has considered these matters further in Section 5.

NSW Health did not raise any concerns with the proposed modification, and noted that the EA and proposed mitigation measures adequately address any potential public health impacts, particularly in regard to noise and shadow flicker.

Yass Valley Council requested Goldwind consider increasing the terms of its offer for the Voluntary Planning Agreement (VPA) to reflect Council's *Community Enhancement Fund Policy* (2016). Additionally, Yass Valley Council raised concerns regarding the proposed road upgrades for the approved primary site access route along Whitefields Road. Goldwind has consulted further with Yass Valley Council and has resolved these two matters, as discussed in Section 5.

Hilltops Council also requested additional considerations for the terms of Goldwind's VPA offer and raised concerns about the proposed upgrades to Coppabella Road. Additionally, Hilltops Council requested the IPC hold a local public meeting prior to making a determination of the modification application. Goldwind has consulted further with Hilltops Council and has resolved these matters, as discussed in Section 5.

4.5 Key Issues – Special Interest Groups

Of the 5 special interest groups that made a submission, 3 supported the modification, 1 objected to it and 1 provided comments. The Department has summarised the matters raised by special interest groups below, and has considered these issues further in Section 5.

The **Australian Wind Alliance, Coppabella Wind Farm Landowners Group** and **Harden Regional Development Corporation** support the modification and cited the broader benefits of the project and the proposed modification, including the economic benefits it would provide to the local area and the contribution it would have towards Australia's *Renewable Energy Target*.

The **Yass Landscape Guardians** objected to the modification and raised concerns about the increased visual and biodiversity impacts due to the larger turbine dimensions, specifically in regard to the increased risk of bird/bat strike, impacts to Superb Parrot habitat and impacts to Box Gum Woodland EEC.

Hume Pastoral Company Pty Ltd did not object to the proposed modification, but provided comments raising concerns about the increased visual and biodiversity impacts due to the larger turbine dimensions, the financial viability of the project, workplace health and safety, and bushfire risk.

4.6 Key Issues – Community

Of the 85 submissions from the public, 81 objected to the modification, 2 supported it and 2 provided comment, as summarised in Table 2.

Table 2 | Summary of Community Submissions

Submitters	Total	Object	Support	Comment
< 5 km	10	9	0	1
5 – 10 km	13	12	1	0
10 – 50 km	26	24	1	1
> 50 km	36	36	0	0
TOTAL	**85**	**81**	**2**	**2**

The submissions from the public were spread across residents residing locally (within 5 km of the project site), regionally (within 50 km of the project site) and across the State, with 6 submissions from out of state (i.e. Australian Capital Territory and Queensland). For those submissions from residents residing in the local area (within 5 km from the project site), 9 objected to the proposal and 1 provided comment.

The 2 submissions supporting the modification cited the benefits of renewable energy generation, and the regional economic benefits of the project.

The key issues raised in community submissions objecting to the modification related to the increased visual impacts and biodiversity impacts of the modification.

A number of submissions raised concerns about the broader impacts of the project as approved. While the Department acknowledges the concerns of the community about the project, many of these issues were considered in detail during the assessment of the original project, and are not directly relevant to the assessment of the current modification.

Notwithstanding, the Department has considered the issues raised in submissions and has sought to strengthen and clarify the existing conditions of consent to address some of the community's concerns. The Department has summarised the key issues raised in public submissions in Table 3, and has considered these issues further in Section 5.

Table 3 | Summary of Issues Raised in Submissions

Issue	
Visual	• validity of the visual impact assessment and visual impact rating assigned to receiver locations • inadequacy of the wireframes and photomontages • increase in visual impacts from larger turbines • impacts of night lighting, if required • change in landscape character • adverse effects of shadow flicker
Biodiversity	• increased risk of bird/bat strike due to larger swept area of turbine blades • increased clearing of habitat, particulary for the Superb Parrot and Eastern Bentwing Bat • increased clearing of Box Gum Woodland EEC
Other	• land use compatibility • lack of consultation with the local community • lack of reliability due to intermittent energy supply provided from renewable wind energy • increased risk of soil erosion • increase in noise from larger turbines, including low frequency noise and infrasound • depreciation of property values • increased risk of bushfires, and interference with aerial fire-fighting operations • perceived health impacts • responsibility for decommissioning • interference with local telecommunications • restricting aerial agricultural practices • increased use of water, impacting local supply • increase impacts on Aboriginal heritage • road safety during construction on local roads • scale of changes too significant to be a modification

5. Assessment

In assessing the merits of the modification application, the Department has considered the:

- existing conditions of consent;
- previous documentation associated with the original application for the project,
- EA, submissions, RTS and additional information for the proposed modification;
- relevant environmental planning instruments, policies and guidelines; and
- relevant provisions of the EP&A Act, including the objects of the Act.

A list of the key documents that informed the Department's assessment is provided in **Appendix A**. The following is a summary of the findings of the Department's assessment.

5.1 Visual

Concerns about the increase in visual impacts from the larger turbines were raised in a number of public submissions. In particular, the landowners of 4 residences located within 5 km of the project objected to the modification application on visual impact grounds, including C06, C13, C60 and G30 (see Figure 4).

Goldwind commissioned a Visual Impact Assessment for the proposed modification, which was prepared by Green Bean Design in September 2017. This assessment was prepared with regard to the relevant aspects of the *NSW Wind Energy Framework*'s *Visual Assessment Bulletin*.

Goldwind's assessment concluded that the modified project would not result in a greater visual magnitude impact than the magnitude impact associated with the approved project at any non-associated residences. However, public submissions were also critical of the methodologies used in Goldwind's assessment.

The Department undertook several site visits during the assessment process. This included visiting properties in the vicinity of the project to discuss concerns with local residents.

Visual Context

The regional setting is not characterised by areas identified as having high scenic value or that have been zoned for tourism, environmental management or conservation, and the closest conservation area, Burrinjuck Nature Reserve, is located approximately 15 km south of the project site. However, the local community places importance on the landscape as many residents have chosen to live in the area for its rural character. In that regard, there are 18 residences located in the vicinity of the project (i.e. within 3.4 km), including six associated residences.

The closest population centre to the project site is the township of Bookham (see Figure 1) approximately 5 km to the southeast of the project, which incorporates land use zones RU5 Rural Village, R5 Large Lot Residential and RE1 Public Recreation. Bookham has around 15 residences, and including the immediate surrounds, hosts a population of 161 (2016 census).

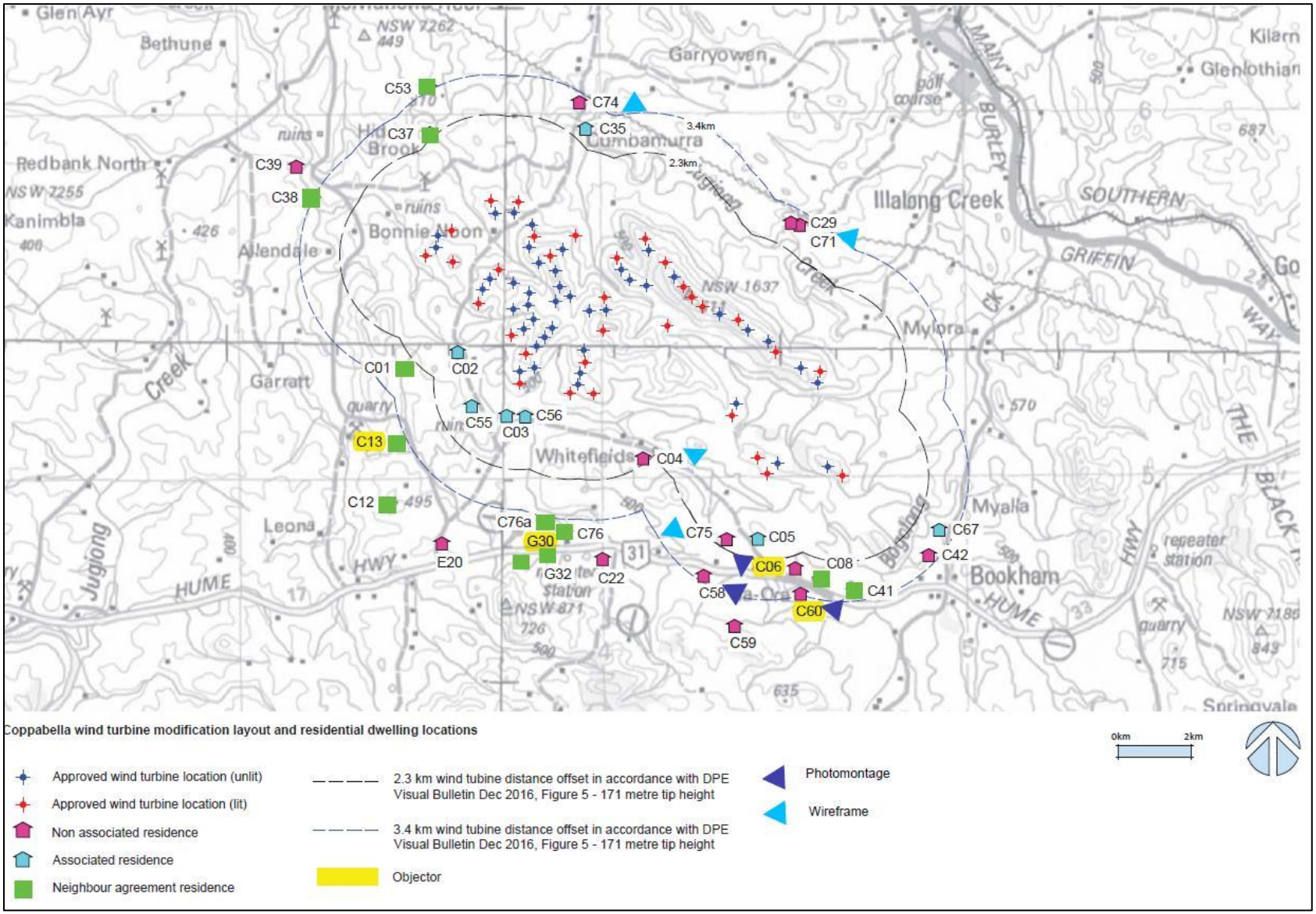

Figure 4 | Location of Residence and Draft Obstacle Lighting Plan

Based only on the distance from turbines, Bookham could be affected by the visual impacts of the project. However, due to the intervening topography and vegetation, even with the increase in turbine dimensions, there would be limited visibility of the turbines from the township itself.

Binalong, is a township located approximately 9 km northeast of the site and comprises a relatively small number of rural residences and homesteads. Binalong would have distant views of turbines, largely shielded by intervening vegetation and topography and would not be impacted by the increase in turbine dimensions.

Avoidance and Mitigation Measures

In response to the concerns raised in the submissions, Goldwind removed 3 turbines (i.e. Turbine Nos. 75, 76 and 77) from the project layout to reduce visual impacts. The Department acknowledges that this would have the effect of reducing the visual impacts of the project at some of the closest residences (i.e. C05, C58, C75).

The existing conditions of consent require Goldwind to:

- implement appropriate visual mitigation (e.g. landscaping and screening) at any non-associated residence located within 5 km of a turbine commensurate with the level of visual impact on the residence, where the applicable landowner requests such mitigation;
- implement all reasonable and feasible measures to minimise the impacts of the visual appearance of the project, including the off-site lighting impacts of the project; and
- ensure that shadow flicker associated with wind turbines do not exceed 30 hours per year at any non-associated residence.

Since the project was approved in March 2016, Goldwind has obtained additional neighbour agreements with the landowners of 25 non-associated residences/properties located in proximity to the project, in which landowners accept the visual impacts of the project. These include the landowners of residence C01, C07, C08, C12, C13, C30, C33, C37, C38, C41, C46a, C53, C73, C76, C76a, C78, G30, G32, M26, M28, M30, M31 (see Figure 4) and three properties adjoining the project site with no residence. Of the 12 non-associated residences located within 3.4 km of the project, four of these have neighbour agreements.

The residences/properties with neighbour agreements have been considered 'associated' for the purposes of the Department's visual assessment of the modification application.

Assessment

The Department's assessment of the potential visual impacts considers the incremental change between the approved and proposed turbines. As the Department is limited to assessing the incremental change, the Department is not in a position to recommend deletion, or relocation, of approved turbines.

It is noted that the location of the turbines has not changed (subject to micro-siting limits), no additional turbines are proposed, and the turbine hub height has not increased.

The Department's assessment focused on the 8 non-associated residences located within 3.4 km of a turbine, which is the threshold distance identified in the *NSW Wind Energy Framework's Visual Assessment Bulletin* at which turbines with a 171 m blade tip height may potentially have high visual magnitude impacts.
Accordingly, while the Department acknowledges the turbines would be visible at distances greater than 3.4 km, it considered that the incremental change in impact as a result of the turbine height increase at those residences located greater than 3.4 km from a turbine would be negligible.

The proposed deletion of 3 turbines from the southeastern portion of the layout would result in an overall reduction in visual impacts to residences in this area as a result of being located further from the closest turbine and/or less turbine hubs being visible. In particular, the turbines closest to residences C06 and C60 are now 2.8 km and 3.5 km away respectively (increasing from 2 km and 2.55 km). Additionally, there would be an overall reduction in visual impacts for 4 residences (C06, C58, C60 and C75) where less turbine hubs are visible as a result of the removal of turbines.

Although most of the non-associated residences within 3.4 km would see more blade tips of the modified project compared to the approved project, the Department considers that no residence would have a higher visual impact rating, with the highest visual impact rating remaining at moderate and some visual impact ratings decreasing.

This is a result of a combination of a number of factors including the modest increase in height and the closest turbine being located more than 2.28 km from the nearest non-associated residence (C04). Additionally, many turbines are located in the far middleground of views from residences reducing the perceptible change of the increase in height. Finally, in some instances the increased height would be offset by the removal of turbines closest to residences.

The Department considers that overall, the residual impacts of the increased turbine height would not be significant, and would be adequately mitigated through the visual impact mitigation measures available to residences in the existing conditions of consent.

An assessment comparing the visibility and scale of the modified project layout relative to the approved project layout, including the Department's assessment of all non-associated residences located within 3.4 km of a turbine, is summarised in Table 4. The assessment includes residence C60, now 3.5 km from the nearest turbine, but previously 2.55 km in the approved layout. Each residence is discussed in further detail below.

Table 4 | Visual Impact Assessment for the Modified Project Relative to the Approved Project

Residence	Distance to closest turbine (km)	Closest turbine	Turbine hubs visible	Turbine tips visible in modified project	Increase / decrease in turbine tips visible (% change)	Department's assessed impact	
						Approved project	Modified project
C04	2.28 (no change)	50	39 (reduced by 3)	50	Decrease - 1 (2%)	Low / Moderate	Low / Moderate
C06	2.83 (0.80 further)	79	22 (reduced by 3)	34	Increase + 5 (17%)	Moderate	Low / Moderate
C29	3.03 (no change)	8	18 (no change)	24	Increase + 2 (9%)	Not assessed	Moderate
C58	3.32 (no change)	79	41 (reduced by 3)	59	Increase + 4 (7%)	Low / Moderate	Low
C60	3.50 (0.95 further)	79	27 (reduced by 3)	44	Increase + 3 (7%)	Low	Low
C71	2.98 (no change)	8	15 (no change)	24	Increase + 2 (9%)	Not assessed	Moderate
C74	3.19 (no change)	129	60 (no change)	63	Increase + 1 (2%)	Moderate	Moderate
C75	2.83 (no change)	79	2 (reduced by 3)	4	Decrease - 1 (20%)	Low / Moderate	Low

Residence C04

With the removal of Turbine Nos. 75, 76 and 77, residence C04 would be the only residence located within 2.3 km of a turbine, the distance designated in the *NSW Wind Energy Framework*'s *Visual Assessment Bulletin* within which turbines with a 171 m blade tip should be avoided, unless the Applicant provides a detailed assessment and justification for their placement. The Department notes this distance for the approved turbines with a 150 m blade tip is 2.0 km.

Figure 5 provides wireframe analyses from residence C04 looking north, comparing the approved and modified projects. Note that wireframe analyses do not include vegetation and other intervening structures that may affect visibility.

While residence C04 would have less turbine hubs and tips visible from the modified project, the magnitude impacts of the nearest turbines (i.e. Turbine No. 50 and Turbine No. 81) would increase marginally. As such, on balance the Department considers the visual impact on this residence would remain moderate.

However, the Department considers these impacts could be minimised through the provision of visual impact mitigation measures (such as landscaping and visual screening), which would be available for this residence on request of the landowner under the existing development consent.

Residences C06 and C60

The landowners of residence C06 and C60 objected to the modification application and raised particular concerns about the visual impacts of the turbines located nearest them, specifically in regard to the dominance impacts associated with the height and proximity of the turbines.

With the removal of Turbine Nos. 75, 76 and 77, the distance between the residences and the nearest turbines would increase:

- from 2.03 km (Turbine No. 77) to 2.83 km (Turbine No. 79) at residence C06; and
- from 2.55 km (Turbine No. 77) to 3.50 km (Turbine No. 79) at residence C60.

Figures 6 and 7 provide photomontages from residence C06 and C60, respectively, looking north. These figures show that both of these residences have existing vegetation partially screening their views north towards the turbines.

During the assessment process the Department visited residences C06 and C60, and met with the landowners in order to verify the predicted visual impacts at the residences (i.e. it did not just rely on photomontages). While both of the residences would have more turbine tips visible in the far middleground with the modified project, the Department considers that the removal of Turbine Nos. 75, 76 and 77 materially decreases the visual magnitude impacts at these residences by removing all turbines in the foreground, and as such:

- the visual impact at residence C06 would decrease from moderate to low/moderate; and
- the visual impact at residence C60 would remain low.

Additionally, the Department considers the residual visual impacts could be effectively mitigated through the provision of additional vegetation which could enhance the existing screening located to the north of the residence. The existing conditions of consent require Goldwind to implement visual impact mitigation measures for this residence at the request of the landowner.

Residence C29/C71

Both residences C29 and C71 were associated with the project at the time of the development application for the approved project, and as such, were not assessed by the Department when the approved project was assessed. However, due to changes in the project layout, these residences are no longer associated with the project.

Figure 8 provides wireframe analyses from residence C71 looking southwest, comparing the approved and modified projects. Residence C29 is located approximately 50 m to the west of residence C71, and would have similar views.

Both residence C29 and C71 have surrounding scattered vegetation which is not included in the wireframe analysis, including tree planting to the southwest, which would partially screen their views of the turbines. Despite this existing screening, turbines would still be partially visible in two 60° sectors, in these residences' near middleground, evenly spaced along the ridgeline located in the northeastern area of the project site.

Given the characteristics of these residences' views of the modified project, the Department considers the visual impacts on these residences would be moderate.

However, the Department considers these impacts could be sufficiently mitigated through the provision of visual impact mitigation measures (such as landscaping and visual screening), which could enhance the existing vegetation screening and would be available for these residences under the existing development consent, as they are now considered non-associated.

Residence C58

Residence C58 is located approximately 190 m south of the Hume Highway on a slight elevated rise with primary views north across the Hume Highway towards the southeastern area of the project site.

Figure 9 provides a photomontage from residence C58 looking north. With the removal of Turbine Nos. 75, 76 and 77, only 5 turbines would remain visible in the near middleground (i.e. Turbine Nos. 73, 74, 78, 79 and 80) within one 60° sector. As can be seen in the photomontage, of these 5 turbines, 3 would be screened by existing vegetation.

While an additional 4 turbine tips would be visible at this residence as a result of the modified project, all of these additional turbines would be located within the far middleground to background view from the residence (i.e. between approximately 6 km to 11 km from the residence).

As such, the Department considers the visual impact on this residence would decrease from low/moderate to low.

The existing conditions of consent require Goldwind to implement visual impact mitigation measures for this residence at the request of the landowner.

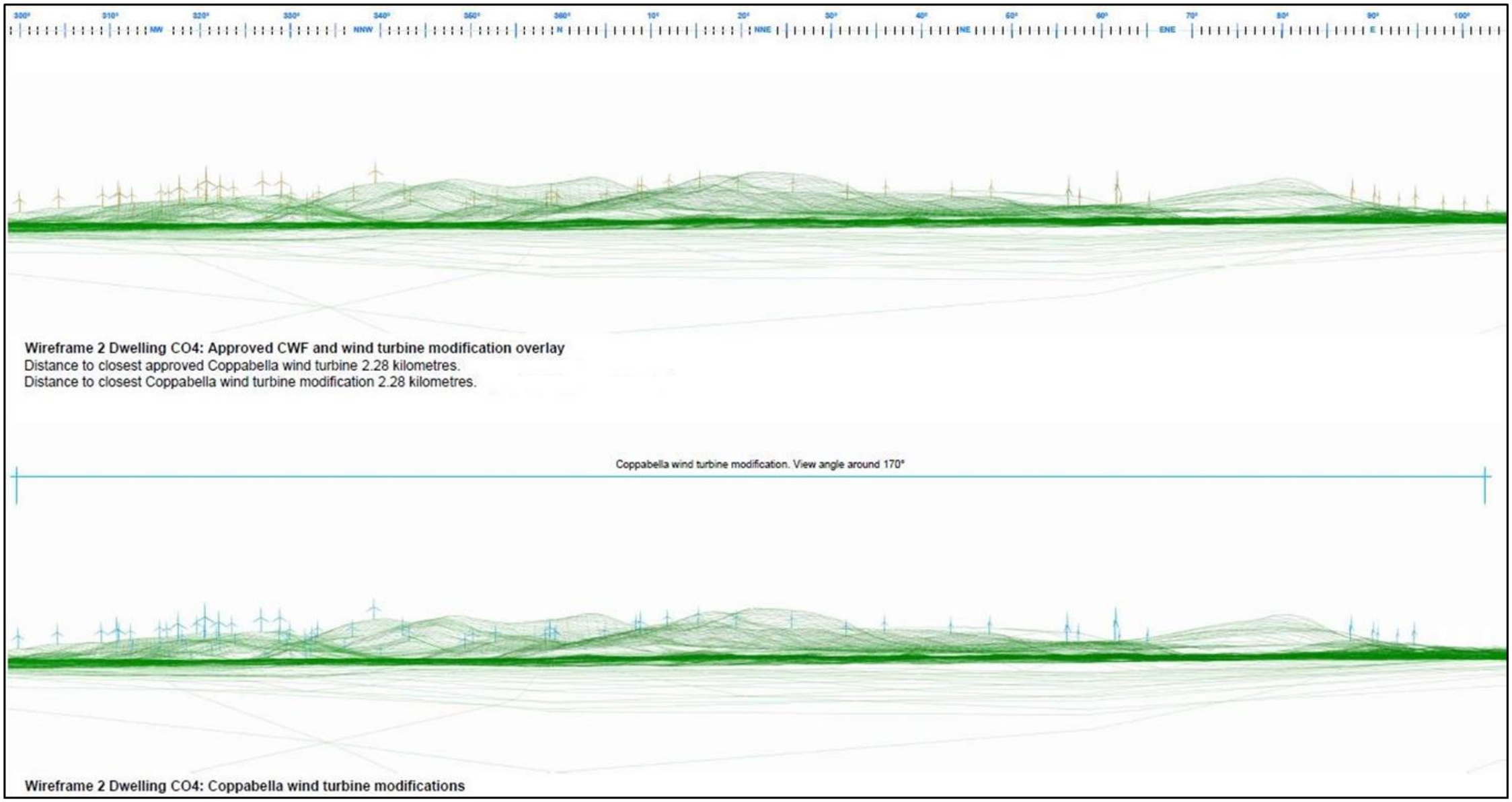

Figure 5 | Residence C04 wireframe looking north towards turbines

Figure 6 | Residence C06 photomontage looking north towards turbines

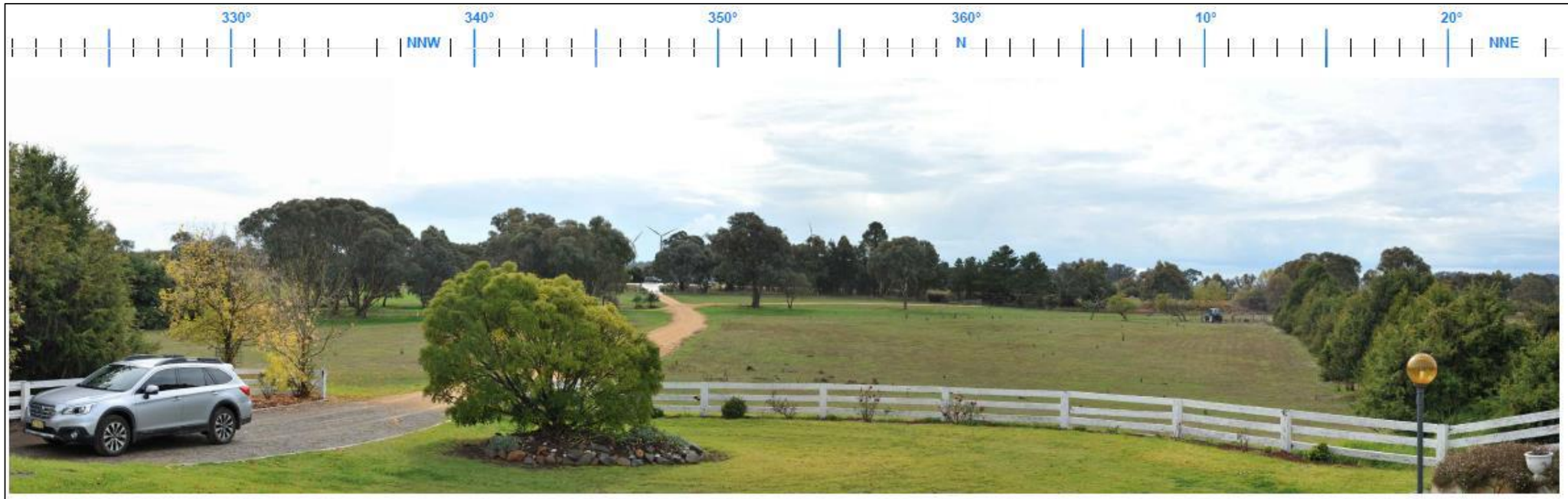

Figure 7 | Residence C60 photomontage looking north towards turbines

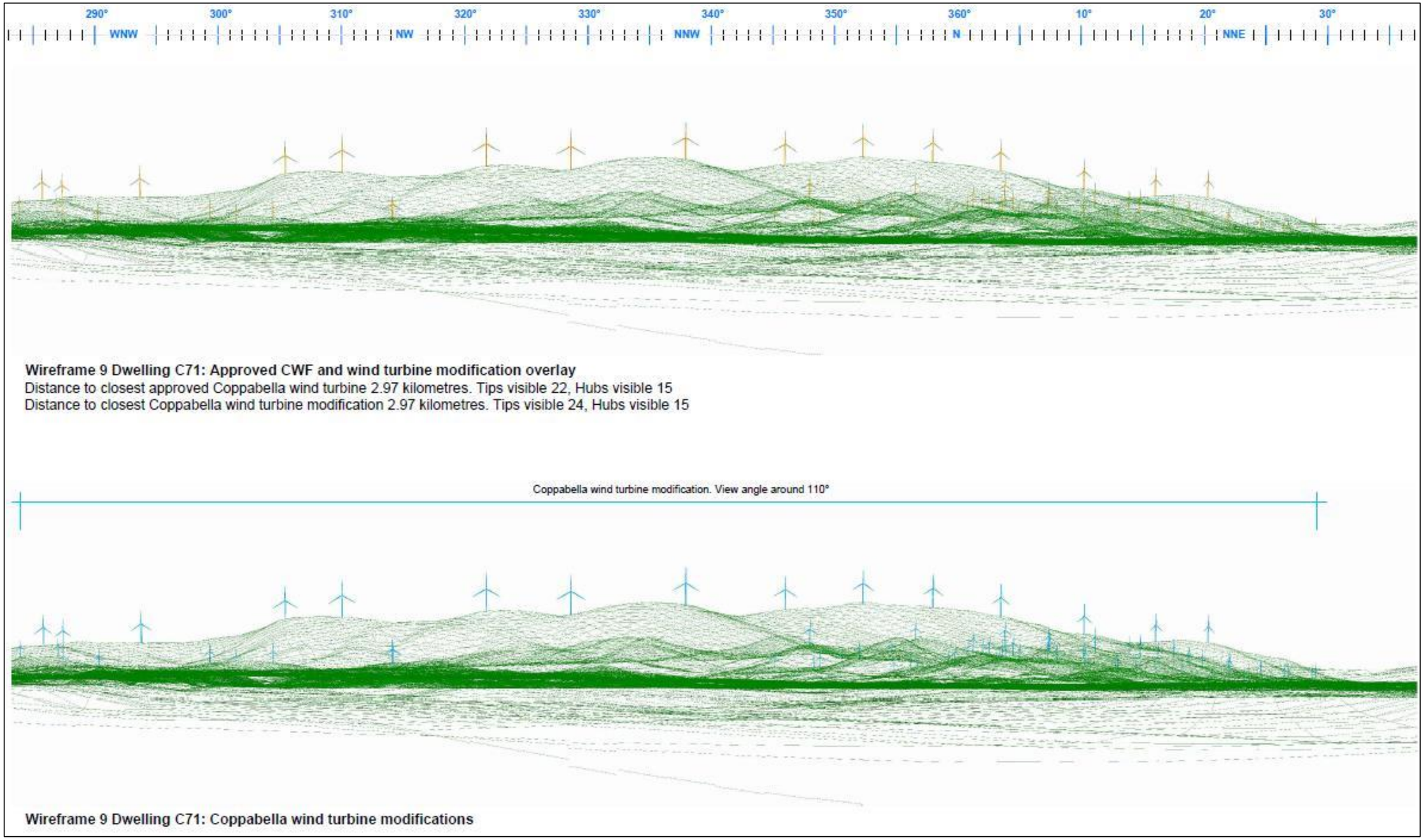

Figure 8 | Residence C71 wireframe looking southwest towards turbines

Figure 9 | Residence C58 photomontage looking north towards turbines

Residence C74

Residence C74 is located to the north of the project off Cumbamurra Road, approximately 10 km west of Binalong, with the nearest turbine (i.e. Turbine No. 129) located 3.19 km to the southwest of the residence.

Figure 10 provides wireframe analyses from residence C74 looking south, comparing the approved and modified projects.

Only 1 additional turbine tip would be visible at this residence, with the majority of turbines located in the far middleground to background view from the residence within two 60˚ sectors.

Given the characteristics of the views from this residence, the Department considers the visual impacts on this residence would remain moderate as a result of the proposed modification.

The Department considers these impacts could be effectively mitigated through the provision of visual impact mitigation measures (such as landscaping and visual screening) to augment the existing vegetation screening. The existing conditions of consent require Goldwind to implement visual impact mitigation measures for this residence at the request of the landowner.

Residence C75

Residence C75 is located approximately 175 m north of the Hume Highway with primary views directed south across the Hume Highway away from the project site. The nearest turbine (i.e. Turbine No. 79) would be located 2.83 km to the residence's northeast.

Figure 11 provides wireframe analyses from residence C75 looking north, comparing the approved and modified projects. This shows that the topography to the north of the residence largely screens its views towards the project.

With the removal of Turbine Nos. 75, 76 and 77, the tips of only 4 turbines (i.e. Turbine Nos. 73, 74, 78 and 80) and hubs of only 2 turbines (Turbine Nos. 73 and 74) would remain visible in the near middleground within one 60˚ sector.

As such, the magnitude impacts at this residence would decrease and the Department considers the residual visual impact on this residence would decrease from low/moderate to low.

The existing conditions of consent require Goldwind to implement visual impact mitigation measures for this residence at the request of the landowner.

Obstacle Lighting

Although CASA did not determine that night lighting was required during the assessment of the approved project, the conditions require any aviation hazard lighting complies with CASA's requirements.

Goldwind's Aviation Impact Statement concluded that obstacle lighting is not required on the proposed larger turbines. However, CASA recommended that the wind farm should be lit with steady red medium intensity lighting at night in accordance with contemporary requirements, in order to reduce any residual risk for aviation safety.

In response to CASA's recommendation, Goldwind prepared a draft Obstacle Lighting Layout Plan and undertook an assessment of the visual impacts of the obstacle lighting (see Figure 4 and **Appendix G**).

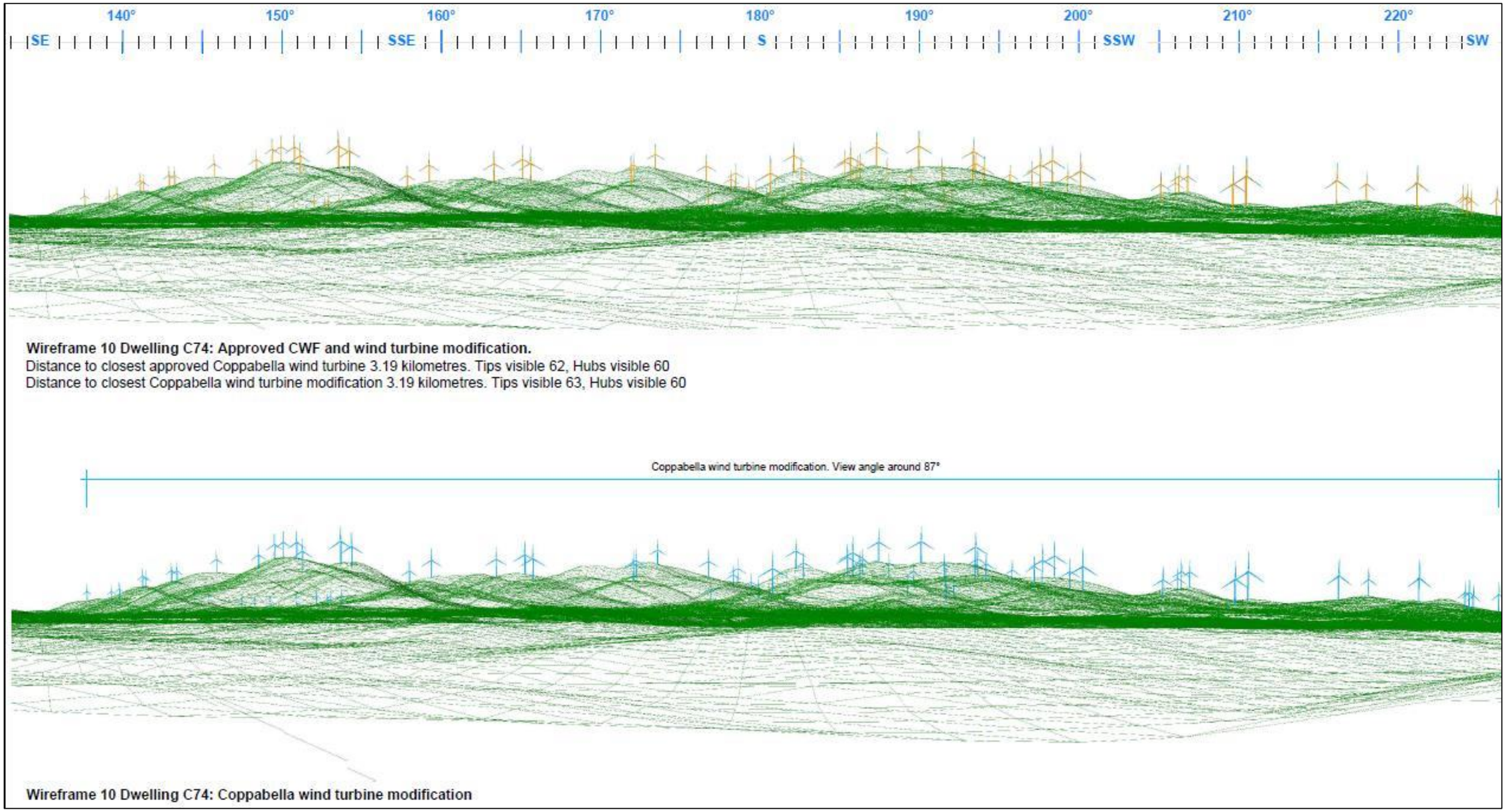

Figure 10 | Residence C74 wireframe looking south towards turbines

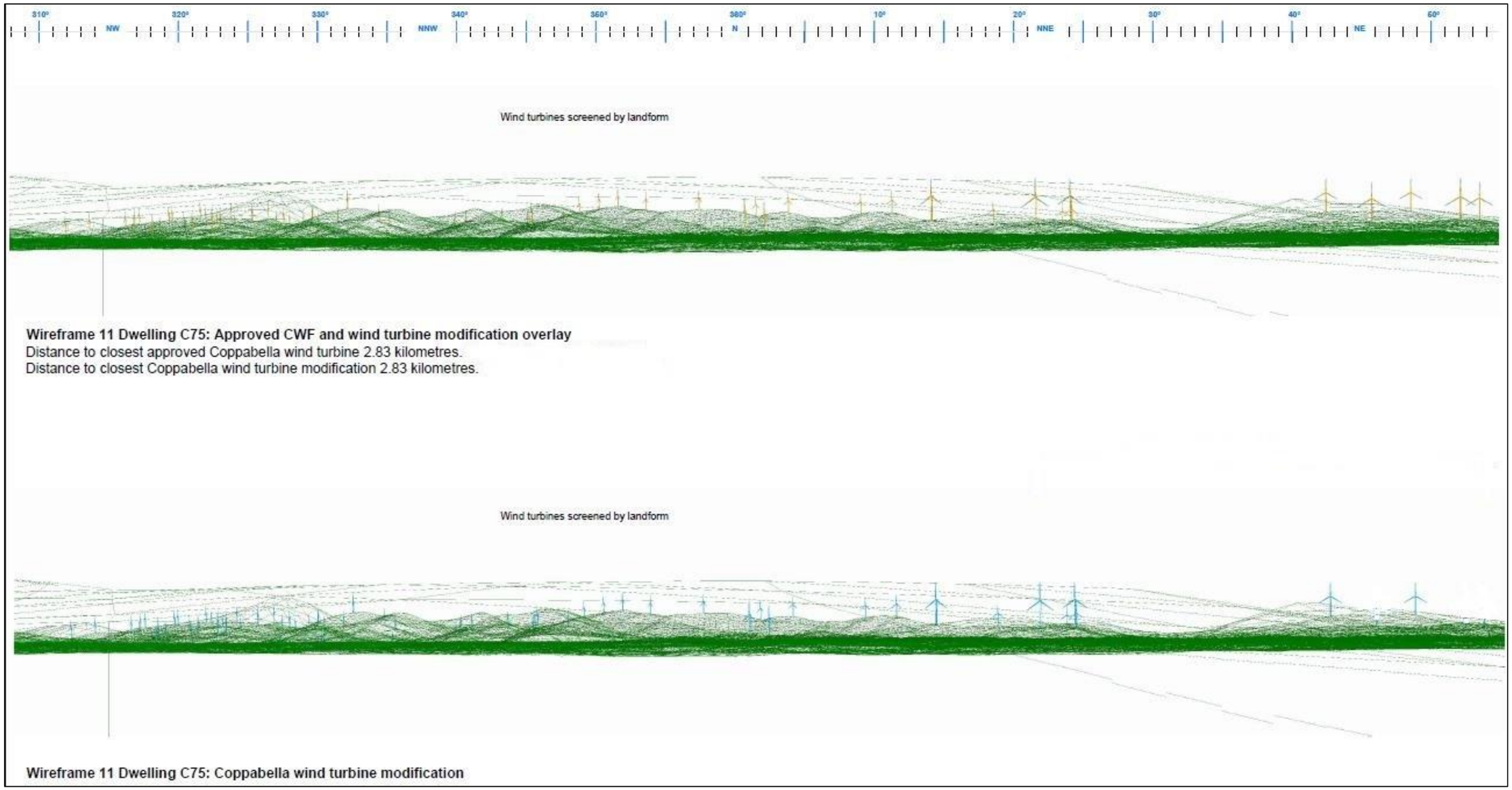

Figure 11 | Residence C75 wireframe looking north towards turbines

The assessment concluded that although obstacle lighting mounted on turbines could be visible at night for a number of kilometres, the actual intensity of the lighting appears no greater than other sources of night time lighting, such as vehicle head and tail lights. The impacts could be minimised through visual screening at impacted residences, the installation of directional shielding at the light source, regulation of lighting intensity or the implementation of lights with aircraft detection systems.

However, the Department considers that the addition of obstacle lighting has the potential to increase visual impacts at residences.

The existing conditions of consent require Goldwind to consult with CASA about this matter and ensure that any lighting is installed in accordance with CASA requirements and in a manner that minimises any adverse visual impacts on local residents.

The Department has recommended that the conditions be strengthened to require any aviation hazard lighting installed to utilise an aircraft detection lighting system to minimise visual impacts. Such a system would only activate the lights when an aircraft is detected in the near vicinity (i.e. 5.5 km horizontal/304 m vertical) and deactivate the lighting once the aircraft has passed.

Conclusion

In summary, the Department considers that the visual impacts of the increase in the size of the turbines on the broader landscape are minor as a result of the modification, particularly with the removal of Turbine Nos. 75, 76 and 77.

Additionally, Goldwind has also obtained neighbour agreements with the majority of landowners located in proximity to the project, in which landowners accept the visual impacts of the project.

However, the Department acknowledges there are concerns about the incremental change in visual impacts from some local landowners and special interest groups.

Notwithstanding, the Department considers that the impacts of the modified project are not significant and do not warrant additional mitigation at any non-associated residences, over and above the visual screening required by the existing development consent for all residences located within 5 km of a turbine.

5.2 Biodiversity

The project site and surrounds is characterised by cleared farmland mostly derived from Blakely's Red Gum – Yellow Box Gum Woodland, which has largely been disturbed by historic grazing and is of limited conservation value. However, remnant stands of the original vegetation remain as paddock trees or large scattered patches of woodland along roadsides and on the slopes of the ridges.

The site includes habitat for threatened species and EECs, which would be impacted by the project through direct habitat loss from the clearing of vegetation, and the operation of the turbines present a risk of bird and bat strike.

The modified project layout would increase the native vegetation clearing requirements by 190.3 ha, of which an additional 111.5 ha of EEC listed under the *Biodiversity Conservation Act 2016* (BC Act) would be required to be removed. Additionally, the rotor swept area (RSA) would increase by 15% with the larger turbines which would increase the risk of bird and bat strike. The requirement to clear more vegetation is a result of both improved site knowledge and understanding of the construction process following detailed design, and the proposal to use a larger turbine model.

Following approval of the project in March 2016, Goldwind undertook a number of additional ecological assessments and surveys to further inform the project's biodiversity impacts and the modification application, including:

- 2016 Superb Parrot Flight Path Mapping Surveys, NGH Environmental, March 2017;
- Hollow Bearing Tree Survey, NGH Environmental, July 2017;
- Biodiversity Credit Report, NGH Environmental, July 2017;
- Proposed Turbine Modification Impacts on Birds and Bats, Brett Lane & Associates, August 2017;
- Targeted Threatened Flora Surveys, NGH Environmental, October 2017;
- Response to Biodiversity and Heritage Submissions, NGH Environmental, March 2018;
- Regent Honeyeater Advice, Brett Lane & Associates, March 2018; and
- Regent Honeyeater Expert Report, Ross Crates, April 2018.

Additionally, Goldwind visited the site with OEH on 15 January 2018.

The NSW Government's policies in relation to biodiversity impact assessment and offsetting have changed since the project was approved, including changes to the classification of native vegetation condition and the introduction of new procedures.

As the majority of Goldwind's assessments that informed the modification application were undertaken prior to the commencement of the BC Act, under the transitional arrangements, the project can still be assessed and determined under the *NSW Biodiversity Offsets Policy for Major Projects*.

Accordingly, the offset credit requirements have been calculated in accordance with using the *Framework for Biodiversity Assessment* (FBA) credit calculator.

Avoidance and Mitigation

OEH raised concerns regarding potential biodiversity impacts of the modification application, particularly in regards to the increased vegetation clearing required, the accuracy of the vegetation mapping prepared to inform Goldwind's assessment, and the impacts of the larger turbines on birds and bats.

Based on the concerns raised by OEH and the findings of the additional ecological assessments, Goldwind revised the project layout during the assessment process for the modification application to minimise the biodiversity impacts of the project, including:

- removing an additional turbine (i.e. Turbine No. 36) to avoid impacts to 58 hollow-bearing trees;
- relocating the access track between Turbine Nos. 17 and 19 to avoid impacts to 33 hollow-bearing trees;
- relocating the access track near the substation to avoid impacts to a substantial hollow-bearing tree; and
- redesigning the site access along Whitefields Road to reduce clearing from 4.89 ha to 0.45 ha and avoid impacts to 45 hollow-bearing trees.

A comparison of the biodiversity impacts along Whitefields Road between the approved project layout and the revised modified project layout are summarised in Table 5.

Table 5 | Comparison of Impacts on Whitefields Road

Impact	Approved project	Modified project
Clearing of vegetation (i.e. Blakely's Red Gum – Yellow Box Gum Woodland - Moderate to Good (Low Diversity) (MR528))	Up to 4.89 ha	0.45 ha
Hollow-bearing trees	Removal of 49 trees	Removal of 4 trees and lopping of 8 trees*

** All limbs to be lopped have been inspected and are not hollow-bearing.*

Additionally, the removal of 3 turbines to mitigate the visual impacts of the modified project (i.e. Turbine Nos. 75, 76 and 77) would avoid impacts to a further 7 hollow-bearing trees.

In summary, in response to OEH's concerns, Goldwind revised the modified project layout during the assessment process for the modification application to minimise the biodiversity impacts of the project, including:

- reducing the native vegetation clearing requirements from 298.8 ha to 276.2 ha, (see Table 6); and
- reducing the number of hollow-bearing trees that would be required to be removed from 426 to 282.

The residual biodiversity impacts of the modified project layout are discussed further below.

Vegetation Community Impacts

As noted previously, one of the key concerns OEH raised about the modification application was in regard to the accuracy of the vegetation mapping that was prepared to inform the quantification of vegetation community impacts. Namely, OEH identified:

- a number of areas that had been mapped as either exotic dominant pasture or Blakely's Red Gum – Yellow Box Gum Woodland - Derived Grassland in Moderate to Good Condition (Low Diversity), that it considered should be mapped as Blakely's Red Gum – Yellow Box Gum Woodland - Derived Grassland in Moderate to Good Condition (High Diversity), and;
- a number of areas that had been mapped as Blakely's Red Gum – Yellow Box Gum Woodland - Derived Grassland that it considered should be classified as woodland, not as derived native grassland.

In response to these concerns, Goldwind undertook a site visit with OEH representatives on 15 January 2018 to confirm the vegetation type and condition at a number of those areas where discrepancies had been identified.

Goldwind updated the vegetation mapping and quantified the vegetation community impacts according to the outcomes of the site visit. A comparison of the impacts between the approved project layout, the original modified project layout and the revised modified project layout are summarised in Table 6.

In summary, the modified project layout would increase the native vegetation clearing requirements by 190.3 ha, from 85.9 ha to 276.2 ha. Of this 190.3 ha, an additional 111.5 ha of EEC listed under the BC Act would be required to be removed.

Goldwind has mapped the majority of the EEC required to be cleared (~81%) as Blakely's Red Gum – Yellow Box Gum Woodland - Derived Grassland EEC in Moderate to Good Condition (Low Diversity), which is derived native grassland with sparsely distributed trees, that has been subject to past clearing and grazing. As such, only an additional 20.7 ha of Blakely's Red Gum – Yellow Box Gum Woodland EEC in Moderate to Good Condition would be required to be cleared as a result of the modification (see Table 6).

Table 6 | Vegetation Community Impacts

Vegetation community type (BVT code)	PCT ID	Biometric condition	Conservation significance	Impact			
				Approved project	Modified project EA	Modified project RTS	Difference**
Blakely's Red Gum – Yellow Box Gum Woodland (MR528)	277	Moderate to Good (High Diversity)	EEC	0.6	0.3	0.3	-0.3
Blakely's Red Gum – Yellow Box Gum Woodland (MR528)	277	Moderate to Good (Low Diversity)	EEC	10.1	36.2	31.1	+ 21
Blakely's Red Gum – Yellow Box Gum Woodland (MR528)	277	Low	-	18.1	0.3	0.3	-17.8
Blakely's Red Gum – Yellow Box Gum Woodland – Derived Grassland (MR528)	277	Moderate to Good (High Diversity)	EEC	0	2.3	2.1	+ 2.1
Blakely's Red Gum – Yellow Box Gum Woodland – Derived Grassland (MR528)	277	Moderate to Good (Low Diversity)	EEC	53.4	141.8	146	+ 92.6
Blakely's Red Gum – Yellow Box Gum Woodland – Derived Grassland (MR528)	277	Low	-	2.7	95	77.2	+ 74.5
Red Stringybark – Long-leaved Box Dry Grass Forest (MR598)	290	Moderate to Good (High Diversity)	-	0.3	0.5	0.4	+ 0.1
Red Stringybark – Long-leaved Box Dry Grass Forest (MR598)	290	Moderate to Good (Low Diversity)	-	0.6	7.5	6.3	+ 5.7
Red Stringybark – Long-leaved Box Dry Grass Forest – Derived Grassland (MR598)	290	Moderate to Good (Low Diversity)	-	0	14.6	12.2	+ 12.2
Yellow Box – River Red Gum and Riparian Woodland (MR616)	74	Moderate to Good (Low Diversity)	EEC	0.1	0.3	0.3	+ 0.2
Exotic dominated pasture	-	-	-	14.7	63.1	59.3	+ 44.6
Total vegetation				100.6	361.9	335.5	+ 234.9
Total native vegetation				85.9	298.8	276.2	+ 190.3
Total EEC				**64.2***	**180.9**	**179.8**	**+ 115.6**

** The conditions of consent for the approved project allow up to 68.3 ha of EEC to be cleared.*

*** Difference is between approved project and modified project RTS.*

Goldwind undertook tests of significance for Blakely's Red Gum – Yellow Box Gum Woodland EEC, including Derived Grassland, and Yellow-Box River Red Gum and Riparian Woodland EEC against the criteria in Section 5A of the EP&A Act [1] and the *NSW Threatened Species Assessment Guidelines: The Assessment of Significance*. The tests of significance concluded that the project is unlikely to result in any significant impacts on the abundance, range and distribution of these EECs.

The Department agrees with the findings of Goldwind's assessment and further considers that the impacts of the modified project layout are reasonable for a wind farm of this scale.

The Department considers that Goldwind has applied the principles of the *NSW Biodiversity Offsets Policy for Major Projects* in its design of the modified project by avoiding any unnecessary impacts on biodiversity where possible, minimising the residual impacts through mitigation measures and proposing offsets to compensate for the remaining impacts. In that regard, the impacts of the modified project on EECs would need to be offset in accordance with the *NSW Biodiversity Offsets Policy for Major Projects*.

OEH remains concerned that some areas mapped as Blakely's Red Gum – Yellow Box Gum Woodland - Derived Grassland EEC in Moderate to Good Condition (Low Diversity) has not been mapped correctly and should be mapped as being in Moderate to Good Condition (High Diversity). To address these residual concerns, Goldwind has committed to undertaking targeted surveys in those areas OEH continue to have concern with at the appropriate time of year (i.e. late Spring) to validate the condition of the vegetation for the purposes of determining the offset liability.

As the number and class of offset credits that would need to be retired may vary, the Department has not recommended updating the biodiversity conditions with the estimated revised offset credit requirements for the modified project layout, but alternatively has recommended that Goldwind be required to confirm the number and class of biodiversity offset credits required to be retired following the targeted surveys and prior to the commencement of construction, as discussed below.

This approach provides a significant incentive for Goldwind to avoid and minimise impacts on the biodiversity values of the locality during further detailed design of the project.

The Department notes that while the condition of the vegetation has implications for the modified project's offset liability requirements, it does not change the overall quantum of EEC that would be impacted.

Flora Impacts

Goldwind undertook a new search of the relevant online databases as part of the modification application, and identified an additional two flora species listed under the BC Act, in addition to the Yass Daisy (*Ammobium craspedioides*), with the potential to be present on the project site based on known or potential habitat, as listed in Table 7.

Table 7 | Additional Threatened Flora Species with Potential to Occur on the Project Site

Species	Conservation Significance
Dwarf Bush-pea (Pultenaea humilis)	Vulnerable
Small Purple-pea (Swainsona recta)	Endangered

[1] Following repeal of the *Threatened Species Conservation Act 1995* on 25 August 2017, the provisions under Section 5A of the EP&A Act regarding tests of significance are now set out in Section 7.3 of the *Biodiversity Conservation Act 2016*.

Goldwind undertook targeted surveys for these two species as part of the modification application, and did not find either of the two species. As such, both the Department and OEH consider that an offset is not required for these species.

Notwithstanding, the Department has recommended updating the existing conditions to ensure impacts are avoided on the Dwarf Bush-pea and Small Purple-pea, in addition to the Yass Daisy, during the construction of the project.

Fauna Impacts

The modified project has the potential to increase the impact on fauna in a number of ways, particularly through the increase in direct habitat loss as a result of the increased clearing in vegetation, including hollow-bearing trees, and through an increased risk of bird and bat strike due to the changes in the turbine dimensions.

Habitat Loss

The assessments and surveys undertaken for the approved project identified that potential habitat for the Golden Sun Moth and Regent Honeyeater would be impacted. An offset liability was determined for both of these species accordingly and incorporated into the conditions of consent for the approved project (see Table 9).

As part of the modification application, Goldwind undertook additional targeted surveys and habitat analysis for the Golden Sun Moth, Koala, Regent Honeyeater and Superb Parrot, in consultation with OEH. None of these species, except the Superb Parrot, were found during these surveys.

In regard to the Golden Sun Moth and Koala, following detailed consideration of the assessments, surveys and habitat analysis for these species, OEH considers these species are unlikely to occur on the project site. As such, offsets for these species habitats are not required. Importantly, the 1,028 offset credit liability for Golden Sun Moth habitat included in the conditions of consent for the approved project is no longer required (see Table 9).

In regard to the Regent Honeyeater, while it was not detected during the surveys, the modified project layout would increase the impact on Yellow Box, White Box, Blakely's Red Gum and Red Stringybark trees (which are considered foraging habitat for the Regent Honeyeater) by 5.81 ha, from 10.4 ha to 16.21 ha. As such, the offset credit liability would increase from 801 to 1,248 to compensate for this additional loss in habitat (see Table 9).

In regard to the Superb Parrot, approximately 48.2 ha of the modified project's development footprint is located within one of its known breeding areas in Blakely's Red Gum – Yellow Box Gum Woodland EEC, including Derived Grassland, and Yellow Box – River Red Gum and Riparian Woodland EEC. While there is no formally listed breeding habitat for the Superb Parrot under the BC Act, the removal of hollow-bearing trees which are suitable nesting habitat for this species within the 48.2 ha of EEC has the potential to result in impacts on this species.

Despite Goldwind's efforts to minimise impacts to hollow-bearing trees, the revised modified project layout would increase the project's impacts on hollow bearing trees by 31, from 251 to 282 (12.4%). Of these 282 trees that would be impacted, 65 are located within the 48.2 ha of Superb Parrot suitable nesting habitat.

The Department notes that Goldwind would be required to offset the impacts of the modified project on Blakely's Red Gum – Yellow Box Gum Woodland EEC, including Derived Grassland, and Yellow-Box River Red Gum and Riparian Woodland EEC (including any hollow-bearing trees), as discussed above. Accordingly, the impacts on the Superb Parrot suitable nesting habitat would also be compensated for as part of the biodiversity offsets for the project.

Additionally, Goldwind has committed to further minimising tree hollow removal, where it is possible within the development footprint, in order to minimise the impact on Superb Parrot breeding habitat.

The existing conditions of consent already require Goldwind to minimise the impact on hollow-bearing trees along Whitefields Road. The Department has recommended strengthening the conditions to restrict Goldwind to remove no more than 4 hollow-bearing trees along Whitefields Road.

Additionally, the Department has recommended strengthening the conditions to require Goldwind to minimise the clearing of hollow-bearing trees, native vegetation and key habitat within the development footprint.

With further avoidance measures during detailed design, the number and class of offset credits that would need to be retired may vary. As such, the Department has not recommended updating the biodiversity conditions with the estimated revised offset credit requirements for the modified project layout, as discussed below, but alternatively has recommended that Goldwind be required to confirm the number and class of biodiversity offset credits required to be retired following detailed design of the project and prior to the commencement of construction.

This approach provides a significant incentive for Goldwind to avoid and minimise impacts on the biodiversity values of the locality during further detailed design of the project.

Bird and Bat Strike

Goldwind commissioned Brett Lane & Associates to undertake a collision risk assessment of the proposed modification to identify if any bird and bat species would be at a higher risk of strike from the changes to the turbine dimensions. The proposed modification would increase the dimensions of the turbines, including increasing the:

- maximum height of RSA from 150 m to 171 m;
- minimum height of RSA from 29 m to 30 m;
- rotor diameter from 121 m to 142 m; and
- RSA from 13,478 m^2 to 15,460 m^2 (i.e. by 15%).

In summary, while the proposed modification would result in a minor increase in the total RSA, it would not decrease the height of the minimum RSA.

The collision risk assessment concluded that the impacts of the proposed modified turbines on birds are not significant, however, would:

- increase the risk of collision to birds flying between 40 m and 100 m;
- increase the risk of collision by Wedge-tailed Eagles and other high-flying raptors, including the Little Eagle;
- not significantly change the risk to the Superb Parrot due to the minimal overall change to RSA extent below 60 m, the height below which most flights by this species occur; and
- not significantly increase risk to the populations of most of the species located on the project site, as they are common and widespread.

In regard to bats, the collision risk assessment concluded that the impacts of the proposed modified turbines are not significant, and that the Eastern Bentwing Bat is unlikely to experience any increased risk from the modified project, since most if its flights are expected to occur below the RSA.

The Department is satisfied that Goldwind has provided a suitably robust assessment of the potential risk of the modified project on bird and bat species from blade strike, and recognises that adaptive management techniques (e.g. minimising the availability of raptor perches, swift carcass removal, pest control and sector management of turbines) would assist in reducing any impact.

In that regard, the Department has recommended strengthening the existing conditions to include a requirement for Goldwind to prepare a stand-alone Bird and Bat Adaptive Management Plan in consultation with OEH that includes:

- at least 12 months worth of baseline data on threatened and 'at risk' bird and bat species and populations in the locality that could be affected by the development;
- a detailed description of the measures that would be implemented on site for minimising bird and bat strike during operation of the development, including:
    - trigger levels for further investigation of the potential impacts of the project on particular bird or bat species or populations;
    - an adaptive management program that would be implemented if the development is having an adverse impact on a particular threatened or 'at risk' bird and/or bat species or populations;
    - a detailed program to monitor and report on the effectiveness of these measures; and
    - provisions for a copy of all raw data collected as part of the monitoring program to be submitted to OEH and the Secretary.

Additionally, the Department has recommended strengthening the conditions regarding micro-siting (i.e. detailed design) of the project to require the revised location of a wind turbine to be at least 50 m from hollow-bearing trees; or where the proposed wind turbine location is already within 50 m of one or more existing hollow-bearing trees, the cumulative distance between these hollow-bearing trees and the turbine is either maintained or increased.

With the implementation of these measures, the Department considers that the modified project would not pose a significant risk or unacceptable risk to bird and bat species or populations, including the Regent Honeyeater and Superb Parrot, from blade strike.

In summary, following consideration of impacts of the modified project on the threatened fauna species, the Department accepts that impacts to threatened fauna species from the project as modified would not be materially different to the approved project.

Notwithstanding, the impacts would need to be offset in accordance with the *NSW Biodiversity Offsets Policy for Major Projects*, as discussed below.

Biodiversity Offset

Tables 8 and 9 summarise the estimated ecosystem and threatened species offset requirements, respectively, for the modified project (based on the estimated impacts in the modified project's RTS) compared to the approved project, and the area of land that would be required to retire the credits for the modified project.

Table 8 | Ecosystem Offset Requirements

Vegetation community type (BVT code)	PCT ID	Credits required		Area of land required (ha)*
		Approved project	Modified project	
Blakely's Red Gum – Yellow Box Gum Woodland (MR258)	277	732	1,006	125.1
Red Stringybark – Long-leaved Box Dry Grass Forest (MR598)	290	34	360	43.7
Yellow Box – River Red Gum and Riparian Woodland (MR616)	74	3.3	8	0.9
Total		**769.3**	**1,374**	**169.7**

**As provided in the Biodiversity Credit Report, dated July 2017, based on a total ecosystem credit requirement of 1,578. As the updated ecosystem credit requirement for the revised modified layout is 1,374, the area of land required to meet the ecosystem offset credits would be less.*

Table 9 | Threatened Species Offset Requirements

Species	Credits required	
	Approved project	Modified project
Regent Honeyeater (Anthochaera phrygia)	801	1,248
Golden Sun Moth (Synemon plana)	1,028	0

It's important to note that under the *NSW Biodiversity Offsets Policy for Major Projects* an offset is not required for an impact on native vegetation that has a site value score of less than 17. Therefore, as the 146 ha of Blakely's Red Gum – Yellow Box Gum Woodland - Derived Grassland in Moderate to Good Condition (Low Diversity) has a site value score of less than 17, it does not generate an ecosystem credit requirement.

As stated previously, OEH continues to express concern that portions of the Blakely's Red Gum – Yellow Box Gum Woodland - Derived Grassland mapped as being in Moderate to Good Condition (Low Diversity) has not been mapped correctly and should be mapped as being in Moderate to Good Condition (High Diversity), and Goldwind has committed to undertaking targeted surveys in those areas to validate the condition of the vegetation for the purposes of determining the offset liability.

To ensure the impacts on EEC is restricted, the Department has recommended conditions restricting Goldwind to only removing up to:

- 31.4 ha of Blakely's Red Gum – Yellow Box Gum Woodland EEC; "
- 148.1 ha of Blakely's Red Gum – Yellow Box Gum Woodland – Derived Grassland EEC; and "
- 0.3 ha Yellow Box – River Red Gum and Riparian Woodland EEC.

While Goldwind has not proposed specific land-based offsets for the project, it has identified potential offset sites within and around the project site, including within the areas previously identified as the Marilba and Conroys Gap Extension precincts, to demonstrate that it can meet the estimated credit requirements.

The potential offset sites identified by Goldwind within the project site comprise a total of 983.26 ha and include:

- 886.05 ha of Blakely's Red Gum – Yellow Box Gum Woodland in Moderate to Good condition; and
- 97.21 ha of Red Stringybark - Long-Leaved Box Dry Grass Forest in Moderate to Good condition.

These offset sites would comfortably meet the offsetting requirements for Blakely's Red Gum – Yellow Box Gum Woodland and Blakely's Red Gum – Yellow Box Gum Woodland – Derived Grassland EEC, even if portions of the Derived Grassland mapped as being in Moderate to Good Condition (Low Diversity) is mapped as being in Moderate to Good Condition (High Diversity).

Additionally, these potential offset sites include 93.07 ha of habitat which is suitable to retire the required species credits for the Regent Honeyeater.

However, there is a shortfall of 0.9 ha of Yellow Box – River Red Gum and Riparian Woodland in the potential offset sites within the project site. To address this shortfall, Goldwind undertook an assessment of land in the vicinity of the project site owned by landowners associated with the project. This assessment identified at least 1.02 ha of Yellow Box – River Red Gum and Riparian Woodland in the vicinity that would be able to satisfy the credit requirement for this ecosystem.

The Department also notes that the *NSW Biodiversity Offsets Policy for Major Projects* allows for the retirement of biodiversity offset credits to be achieved by a number of mechanisms (not just through land-based offsets), namely:

- acquiring or retiring 'biodiversity' credits within the meaning of the BC Act[2];
- making payments into an offset fund that has been established by the NSW Government; or
- providing suitable supplementary measures.

Notwithstanding, the Department considers that the required ecosystem and species credits for the modified project would be able to be successfully retired using land-based offsets either within or in the vicinity of the project site, as proposed by Goldwind.

However, the Department notes that with the proposed additional survey effort and further avoidance measures during detailed design, the number and class of credits that would need to be retired may vary.

As such, the Department has not recommended updating the biodiversity conditions with the estimated revised offset credit requirements for the modified project layout, but alternatively has recommended that Goldwind be required to confirm the number and class of biodiversity offset credits required to be retired following detailed design of the project and prior to the commencement of construction. Goldwind would be required to retire the required biodiversity offset credits within 2 years of the commencement of construction, to the satisfaction of OEH.

As mentioned above, the Department considers this approach provides a significant incentive for Goldwind to avoid and minimise impacts on the biodiversity values of the locality during further detailed design of the project. The Department notes that this approach is not inconsistent with current Government policy under the BC Act.

Conclusion

The Department considers that the impacts of the modified project layout, and subsequently the required offsets, are reasonable for a wind farm of this scale. Overall, the Department considers that the modified project could be undertaken in a manner that maintains the biodiversity values of the locality over the medium to long term, with the implementation of appropriate avoidance, mitigation and offsetting measures.

In that regard, the Department has recommended updating the biodiversity conditions as follows:

- avoiding impacts to the Dwarf Bush-pea (*Pultenaea humilis*) and Small Purple-pea (*Swainsona recta*);
- minimising the impact on hollow-bearing trees, native vegetation and key habitat within the development footprint;
- micro-siting of wind turbines must be a minimum of 50 m from hollow-bearing trees, or where the proposed wind turbine location is already within 50 m of one or more hollow-bearing trees, the cumulative distance between these hollow-bearing trees and the turbine is either maintained or increased;
- restricting the removal of hollow-bearing trees along Whitefields Road to no more than 4;
- requiring the landscaping plan for Whitefields Road to include species that are endemic to the locality;
- requiring Goldwind to retire the required biodiversity offset credits within 2 years of commencing construction, to the satisfaction of OEH; and
- strengthening the conditions regarding the Bird and Bat Adaptive Management Plan, including requiring a stand-alone document be prepared in consultation with OEH.

[2] Following repeal of the Threatened Species Conservation Act 1995 on 25 August 2017, credits created under that Act are taken to be 'biodiversity credits' under the Biodiversity Conservation Act 2016, in accordance with clause 22 of the Biodiversity Conservation (Savings and Transitional) Regulation 2017.

5.3 Other Issues

The Department has summarised its assessment of a range of other matters in Table 10.

While the community has raised concerns in submissions about a number of other matters, including the broader impacts of the project as approved, the Department is satisfied that all other issues associated with the proposed modification are minor and/or would be adequately managed through the existing conditions of approval.

Table 10 | Other Issues

Issue	Consideration	Recommendation

Noise	• Goldwind commissioned a noise impact assessment to assess the operational noise of the modified project, in accordance with the *NSW Wind Energy Framework: Noise Assessment Bulletin*.
	• The Department and the Environment Protection Authority (EPA) consider that the noise impact assessment of the project as modified has been carried out in accordance with the relevant guideline.
	• Using conservative assumptions, the assessment demonstrates that the modified project would be able to comply with the relevant noise criteria at all non-associated residences, except for residence C04.
	• The noise levels at residence C04 were predicted to exceed the criterion by up to 1.7 dB at wind speeds of between 8 to 12 m per second when the wind is coming from a northerly direction.
	• However, given the conservative assumptions used in the noise modelling, the Department and the EPA consider this exceedance unlikely to occur.
	• Notwithstanding, Goldwind undertook an assessment to determine how to achieve the criterion, and determined five turbines mode (i.e. Turbine Nos. 47, 48, 49, 50 and 51) would need to be put in sector management (i.e. shutdown).
	• With this option available for the operation of the turbines, the Department and the EPA consider that the noise generated by the modified project would be able to comply with the applicable noise criteria at all non-associated residences.
		The Department has recommended updating the noise conditions to:
		• be consistent with the Department's standard noise conditions, including:
		  • requiring the operation of the wind turbines to be measured in accordance with the requirements of the *Wind Energy: Noise Assessment Bulletin*; and
		  • requiring the operation of ancillary infrastructure to comply with the requirements of the *NSW Noise Policy for Industry*; and
		• require Goldwind to assess whether the performance of any noise mitigation measures implemented, including sector management and noise management mode, ensure compliance with the noise criteria in the consent.

Issue	Consideration	Recommendation
Heritage	• The EA includes an Aboriginal Cultural Heritage Assessment for the modified project, in accordance with the applicable guidelines. • The assessment identified an additional 40 Aboriginal heritage items which would potentially be directly impacted by the project as modified. • However, 20 Aboriginal heritage items of the 29 items which would have been directly impacted by the approved project would now be avoided. • As such, 49 Aboriginal heritage items would potentially be directly impacted by the project as modified. • All of the Aboriginal heritage items that would potentially be impacted are stone artefacts and were assessed as having either low/moderate or moderate significance. • The assessment recommended that where possible impacts to these items be avoided, and if impacts cannot be avoided, a program of salvage be undertaken. • With these measures, both the Department and OEH consider that the project would not significantly impact the Aboriginal heritage values of the locality.	The Department has recommended updating the Aboriginal heritage conditions to: • avoid impacts to the 20 Aboriginal heritage items which are now located outside of the modified project's development corridor; • require impacts on the additional 29 identified Aboriginal heritage items be minimised, and where impacts cannot be avoided, salvage excavations and collections be undertaken; and • strengthen the requirements of the Heritage Management Plan to ensure the impacts are minimised as far as practicable.

Aviation safety	• The project is located 40 km southeast of Cootamundra airport and 51 km southeast of Young airport. Five (5) private airstrips are located within 5 km of the project, which have historically been used for aerial agriculture. With the removal of Turbine Nos. 75, 76 and 77, the closest non-associated private airstrip is approximately 2.7 km from the nearest wind turbine.
	• Goldwind commissioned Aviation Projects to undertake an Aviation Safety Assessment of the modified project in September 2017, which concluded:
	  • one modified turbine would infringe on the obstacle clearance limit for Cootamundra Airport by 4.6 m, but this could be mitigated through detailed design and micro-siting;
	  • obstacle lighting would not be required to maintain an acceptable level of aviation safety;
	  • there would be no impacts on any published Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) air routes or grid Lowest Safe Altitudes (LSALTs); and
		The Department has recommended updating the conditions to:
		• restrict any turbines from being located within 100 m of the site boundary, unless otherwise agreed by the adjoining landowner; and
		• require that wind turbines have aviation hazard lighting installed that utilises an aircraft detection lighting system, unless otherwise agreed by CASA. As outlined in Section 5.1, any such lighting would also need to use best management practice for bat deterrence.

Issue	Consideration	Recommendation
	• there would be no impacts on aerial agricultural, recreation, air ambulance or military low jet operations. • CASA largely agreed with the findings of the assessment but recommended that the turbines be lit at night consistent with the provisions of the National Airports Safeguarding Framework *Guideline D: Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation*. In its recommendation, CASA noted that the aviation hazard lighting could utilise an aircraft detection lighting system to minimise visual impacts. • The impact on navigation and radar facilities was assessed separately in Goldwind's Aviation Impact Management Plan, which was undertaken following approval of the project, in accordance with the conditions of consent. • While Airservices Australia initially raised concerns about the modifications impacts on the performance of the Mt Bobbara Radar, following review of Goldwind's Aviation Impact Management Plan, Airservices Australia has subsequently confirmed the impacts can be mitigated through the new Automatic Dependent Surveillance-Broadcast (ADS-B) facility recently commissioned near Dederang in Victoria. • As such, Airservices Australia does not have any residual concerns regarding the proposed modifications impacts on the performance of any of its communications, navigation and surveillance facilities or its impacts any registered or certified aerodromes. • Some submissions expressed concerns about the potential impacts of the project on aerial fertiliser application on land in the immediate area surrounding the wind turbines. In response, Goldwind amended the locations of turbines to be set back a minimum of 100 m from the project site boundary, consistent with the recommendations for turbine setbacks of the Aerial Agricultural Association of Australia's (AAAA) *National Wind Farm Operating Protocols* (May, 2014). • The Department notes that any impacts are expected to be minimal noting that alternative techniques (such as use of helicopters) could continue to be used for this type of application. Furthermore, any impacts are likely to be primarily limited to the properties associated with the project. • As such, the Department considers that the modified project is unlikely to result in any significant aviation hazards or impacts to aerial agricultural activities.	

Issue	Consideration	Recommendation

Subdivision	• Goldwind is proposing to subdivide:
	  • Lot 31 DP753602 to create a new lot for the 132 kV substation; and
	  • Lot 2 DP717646 to create a new lot for the switchyard which would connect to TransGrid's 132 kV transmission line.
	• The lots proposed to be subdivided are located on land zoned RU1 – Primary Production under the *Harden Local Environmental Plan (LEP) 2011*. The minimum lot size for land zoned RU1 is 40 ha.
	• Both of the proposed lots resulting from the subdivisions would be approximately 0.8 ha each, which is below the minimum lot size.
	• However, to the extent that the *Harden LEP 2011* restricts the grant of consent for subdivisions below the minimum lot size, the restriction does not confine the application of the modification power in Section 4.55 of the EP&A Act because it is not taken to be granting of consent.
	• As such, while the Department must consider the restriction in assessing the merits of the proposed modification, the restriction does not in itself prevent approval of the proposed modification.
	• The Department considers that the proposed subdivision is consistent with the objectives of the *Harden LEP 2011*, as:
	  • the subdivided land would not be used for residential purposes;
	  • it would encourage encourage the development of non-agricultural land uses that are compatible with the character of the zone;
	  • ensure lot sizes are appropriate for the use of the land to minimise land use conflicts; and
	  • it is necessary for the on-going operation of the project as it would enable Transgrid to take ownership of its portion of the substation site.
	• Further, Hilltops Council did not raise concerns about the proposed subdivision.
	• As such, the Department supports the Applicant's request to subdivide the land.
		The Department has recommended updating the conditions to:
		• enable Goldwind to subdivide the land, and subsequently lodge a subdivision application with a Principal Certifying Authority in accordance with clause 157 of the EP&A Regulation.

Issue	Consideration	Recommendation
Traffic and transport	• Goldwind is proposing to use a 2 km unsealed section of Coppabella Road as a secondary access route to facilitate movements between Turbines Nos. 60 and 130 and Turbine Nos. 68 and 128 by light vehicles during construction, operation and decommissioning of the project (see Figure 3). • To facilitate use of this section of Coppabella Road by light vehicles, Goldwind is proposing to undertake minor road upgrades (which would not impact any roadside vegetation). • The Department notes that the existing conditions restrict all over-dimensional and heavy vehicles associated with the project to using Whitefields Road, which is the approved primary site access. • The Department and Hilltops Council consider that Coppabella Road is suitable for light vehicle traffic associated with the project subject to the implementation of minor upgrades, including applying an all-weather gravel surface seal. • In regard to Whitefields Road, Yass Valley Council requested that as a preference Whitefields Road not be used as the project's primary site access. However, Yass Valley Council requested that if it were to be used as the primary site access, it should be sealed in accordance with Council's road standard policy while minimising impacts on roadside vegetation. • The Department notes that Whitefields Road is the approved primary site access route for the project and the distance along it that would be required to be upgraded is relatively short (i.e. 1.1 km). • Additionally, while an alternative site access route was investigated along Berremangra Road and Coppabella Road, it would require substantial upgrades at the intersection of Berramangra Road and the Hume Highway, and for a distance of approximately 10 km along Berremangra Road and Coppabella Road. There are also more residents and traffic along Berremangra Road and Coppabella Road, and Hilltops Council does not support the use of these roads for over-dimensional and heavy vehicles. • Consequently, while the concerns of some residents about the use of Whitefields Road are acknowledged, the Department considers that the use of Whitefields Road would have fewer environmental impacts than the alternatives and remains the most appropriate access road for the wind farm. The Department has also recommended the road be sealed in accordance with Yass Valley Council's request.	The Department has recommended updating the conditions to require Goldwind to: • upgrade the section of Coppabella Road to be used as a secondary access route, including applying an all-weather gravel surface seal, prior to the commencement of construction, to the satisfaction of Hilltops Council; and • upgrade the section of Whitefields Road to be used as a primary access route, including widening and sealing to a minimum width of 5 m with 0.5 m gravel shoulders, while avoiding and/or minimising the clearing of mature vegetation adjacent to the road, to the satisfaction of Yass Valley Council.

Issue	Consideration	Recommendation

Radio Communications	• Goldwind commissioned Lawrence Derrick & Associates to undertake an assessment of the modified project on radiocommunications services in April 2017, which concluded:
	  • seven of the modified turbines (i.e. Turbine Nos. 32, 38, 56, 58, 66, 68 and 129) would have insufficient clearance with 5 UHF link paths to radio site 9542 (Coppabella Hill), which is located in the centre of the project site near Turbine No. 25; and
	  • Turbine No. 25 is located too close to radio site 9542, as it is only 72 m from the radio site.
	• Goldwind has committed to micrositing the relevant turbines within the 100 m allowance to avoid these impacts, and undertaking additional mitigation, if required, including:
	  • consulting with the affected link operators to re-route their links or to install repeaters, or to tolerate small intrusion of blades into the clearance zones; and
	  • arranging microwave links to replace UHF links where the substitution provides suitable clearance.
	• As such, the Department is satisfied that the modified project is unlikely to result in any significant impacts on radiocommunications services.
		Notwithstanding, the Department has recommended strengthening the existing conditions to:
		• require Goldwind to make good any disruption to radio or telecommunications services (including point-to-point microwave links) no later than 1 month following the disruption of the service. If there is a dispute about the mitigation measures to be implemented or the implementation of these mitigation measures, then either party may refer the matter to the Department for resolution.

Soil and erosion	• A number of submissions raised concerns about the risks of erosion and sedimentation associated with the modified project. These concerns were in relation to both the risks during construction of the project, as well as throughout the projects ongoing operational life. • The Department notes that this issue was assessed in detail during the assessment of the original project, and the existing conditions require Goldwind to minimise any soil erosion associated with the construction and decommissioning of the development by implementing the relevant mitigation measures in *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004). • As part of the proposed modification, Goldwind has included a 5 m buffer in the modified project's development footprint to account for indirect impacts during construction, such as the installation of sediment and erosion controls. • Additionally, Goldwind has committed to preparing and implementing a tailored Soil and Water Management Plan to ensure it minimises erosion and sediment transfer during construction and operation of the project.	Notwithstanding, the Department has recommended strengthening the existing conditions to: • ensure the turbines and ancillary infrastructure, particularly any access roads on steep slopes, are designed, constructed and maintained to minimise any soil erosion; • update the incident notification and non-compliance notification requirements; and • update the requirements for the independent environmental audit.

Issue	Consideration	Recommendation
Waste	• Goldwind is proposing to reuse material excavated from the turbine footings, hardstands and access tracks, including rock, as a gravel road base for the project's access track. • The beneficial reuse of this material would reduce the volume of traffic delivering material to the site and associated haulage impacts and costs. • In order to facilitate the use of rock as a gravel road base, a significant proportion may require crushing to achieve a suitable size. • The Department notes that both the extraction of material and crushing of material are considered scheduled development activities and would require an Environmental Protection Licence (EPL) under the Protection of the Environment Operations Act 1997. • The EPA did not raise any concerns with the proposed reuse of excavated material, and advised that Goldwind would need to make a separate application to the EPA for an EPL prior to commencing construction. • As such, the Department is satisfied that the proposed reuse of excavated material would not have significant impacts and any residual impacts would be able to be suitably mitigated and managed through the provisions of the EPL.	• No specific conditions required.
Community contributions	• In their submissions, both Hilltops Council and Yass Valley Council requested that the terms of Goldwind's VPA offer be increased in correlation with the larger proposed turbines, in accordance with Yass Valley Council's Community Enhancement Fund Policy 2016. • In response, Goldwind committed to developing a supplementary community investment model, in which it would invest an additional $100,000 per year (CPI adjusted annually) into the local area over the life of the project. • This additional investment would be separate to, and not included in, the terms of the offer for the VPA. • The Department notes that the existing conditions require Goldwind to enter into a VPAs with the Council prior to the commencement of construction, in accordance with the terms of the applicable offer. • The offer at the time of consent being granted was $2,500 per turbine per year over the operational life of the development, commencing on the date on which the development begins operation and ceasing when the development is decommissioned (adjusted to CPI from 1 July commencing on the first anniversary of the operational date).	• No specific conditions required.

Issue	Consideration	Recommendation
	• While the Department would prefer the additional committed funds to be included in the VPA, under section 7.7 of the EP&A Act, a consent authority can only require the developer to enter into a VPA in accordance with the terms of its offer. • Therefore, as Goldwind is not proposing to change the terms of its offer for the VPAs, the Department has not recommended updating the conditions of consent in this regard. • The Department notes that under the terms of the offer in the consent, Goldwind would contribute up to $187,500 a year to community enhancement through VPAs with the Councils. • With the additional $100,000 per year committed by Goldwind, this would equate to up to $287,500 a year being invested into the local community. • Both Councils have accepted Goldwind's supplementary community investment model, in addition to the terms of its offer for the VPAs.	

Decommissioning and rehabilitation	• A number of submissions raised concerns about decommissioning of wind turbines and associated infrastructure after the operational life of the project.
	• The Department notes that the existing conditions require Goldwind to:
	  • decommission wind turbines (and associated infrastructure) within 18 months of the cessation of operations;
	  • progressively rehabilitate the site, and minimise the total disturbance area exposed at any time; and
	  • comply with a number of rehabilitation objectives, including removing redundant above-ground infrastructure, restoring rural land capability and vegetation, ensuring public safety and ensuring the site is maintained in a safe, stable and non-polluting condition.
	• This approach is consistent with current government policy, including the requirements of the *NSW Wind Energy Framework*.
		Notwithstanding, the Department has recommended strengthening the existing conditions to:
		• require the wind turbine pads be covered with soil and/or rock and revegetated on decommissioning.

6. Recommended Conditions

The Department has drafted a Notice of Modification (see **Appendix B**) for the proposed modification, as well as a consolidated version of the development consent as modified (see **Appendix C**).

In modifying the development consent, the Department has taken the opportunity to update and strengthen the existing conditions to focus more on outcomes and to better reflect contemporary conditions applying to other wind farms in NSW.

The Department has also worked closely with the Councils to update the road upgrade conditions for the project, the EPA to develop contemporary noise conditions (including those relating to compliance monitoring), and OEH to update the biodiversity and heritage conditions for the project.

7. Conclusion

The Department has assessed the merits of the modification in accordance with the relevant requirements of the EP&A Act.

With the implementation of the amended conditions, the Department is satisfied that the modified project achieves a reasonable balance between maximising the efficiency of the with wind resource development and minimising the potential impacts on the local community and environment.

Notwithstanding, the Department acknowledges the concerns of the local community about the impacts of the project as a whole, and the potential increase in impacts associated with the larger turbines.

In particular, the Department considered the potential visual and biodiversity impacts of the modified project, and specifically considered the incremental change between the approved and proposed project.

In this regard, the Department considers that the amended conditions of consent would effectively manage and minimise any residual impacts associated with the proposed modification, particularly in regard to biodiversity and visual impacts.

As is the case for all major projects in NSW, the Department and EPA would continue to have a compliance role in monitoring the ongoing environmental performance of the project and enforcing the conditions of approval.

The proposed modification would allow the benefits of the project to be realised. In this regard, the project would deliver a range of economic benefits, including up to 200 full time construction jobs and 15 full time operational jobs, with a capital investment of up to $500 million.

Additionally, Goldwind would contribute up to $187,500 a year to community enhancement through voluntary planning agreements with both Councils, and an additional $100,000 per year through a supplementary community investment model.

The project is also consistent with the Commonwealth's *Renewable Energy Target* and the NSW *Climate Change Policy Framework* as it would generate approximately 830 gigawatt hours (GWh) of renewable energy per year over its operating life, equivalent to 113,700 homes annually, with estimated emissions savings in the order of 700,000 tonnes CO2-e per year.

On balance, the Department considers that the proposed modification has merit, and is in the public interest.

As such, following on from its assessment of the modified project, the Department considers that the proposed modification is approvable, subject to the amended conditions of consent (outlined in **Appendix B**). This assessment report is hereby presented to the Independent Planning Commission of NSW for determination.

Recommended by:

Diana Mitchell
A/Team Leader
Resource and Energy Assessments

Recommended by:

Mike Young
A/Executive Director
Resource Assessments and Business Systems

10/10/18.

Appendices

Appendix A – List of Documents

Coppabella (Formerly Yass Valley) Wind Farm Modification Application Environmental Assessment Report, NGH Environmental Pty Ltd, September 2017.

Coppabella Wind Farm Modification Application Proponent's Response to Submissions, Goldwind Australia Pty Ltd, February 2018.

Coppabella Wind Farm Modification Application Response to Biodiversity and Heritage Submissions, NGH Environmental Pty Ltd, March 2018.

Coppabella Wind Farm Regent Honeyeater Expert Advice, Brett Lane & Associates Pty Ltd, 5 March 2018.

Coppabella Wind Farm Regent Honeyeater Expert Report, Ross Crates, April 2018.

Coppabella Wind Farm Night Time Obstacle Lighting, Green Bean Design, 13 April 2018.

Proposed Yass Valley Wind Farm: Coppabella Hills and Marilba Hills Precincts Environmental Assessment, NGH Environmental Pty Ltd, November 2009.

Yass Valley Wind Farm Preferred Project & Submissions Report, Epuron Projects Pty Ltd, 8 September 2014.

Appendix B – Notice of Modification

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8751

Appendix C – Consolidated Development Consent

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8751

Appendix D – Environmental Assessment

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8751

Appendix E – Submissions

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8751

Appendix F – Response to Submissions

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8751

Appendix G – Additional Information

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8751