



RYAN CORNER WIND FARM AMENDMENT TO PERMIT NO. 20060222

Planning Permit Assessment Report

For: Ryan Corner Development Pty Ltd

REFERENCE: 105123 PPAR RP01(V4)/Final/April 2017

ENVIRONMENTAL RESOURCES MANAGEMENT AUSTRALIA PTY LTD



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For and on behalf of

Environmental Resources Management Australia

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1 INTRODUCTION

ERM has been engaged by Union Fenosa Wind Australia Pty Ltd (UFWA) on behalf of Ryan Corner Development Pty Ltd (Ryan Corner Development) (the permit applicant) to prepare an application to amend the existing planning permit (Permit No. 20060222) and associated endorsed plans and documents relating to the Ryan Corner Wind Farm. The amendments are sought pursuant to Section 97(I) of the *Planning and Environment Act 1987 (P&E Act)*, under secondary consent pursuant to Condition 2 of the permit, and pursuant to other permit conditions

The proposed amendments sought pursuant to Section 97(I) of the *P&E Act* relate to:

- amending Condition 3 of the permit to allow for an increase in the overall turbine height (to the tip of the rotor blade when vertical) and a minimum rotor blade sweep clearance above ground level;
- amending Condition 2 of the permit to allow for the future micro-siting of turbines without the need for further Ministerial consent;
- amending Condition 5 of the permit to require landscape mitigation works to be offered to dwellings within 4km of the nearest turbine (currently approved at 1.5km);
- amending Condition 9 to reflect obstacle lighting requirements as a result of the new turbines;
- amending Conditions 18 and 19 of the permit to reflect current noise standards; and
- amending Condition 22 of the permit to allow shadow flicker to exceed particular limits at the consent of relevant landowner(s).

The proposed amendments sought under secondary consent and other permit conditions relate to amending current endorsed plans and documents to reflect:

- the proposed amended turbine specifications;
- the removal of 12 turbines;
- micro-sited turbines;
- modified GPS co-ordinates;
- the removal of nacelle signage from the turbines;
- obstacle lighting requirements relating to the new turbine types; and
- different traffic impacts as a result of the proposed new turbine types.

The proposed amendments to the turbine specifications are required as a result of recent technological advances in turbine design which has resulted in a greater choice of models on the market which have improved operational efficiency. As such, it is proposed to utilise an alternate turbine model with a greater overall maximum height (to the tip of the rotor blade when vertical). The increased turbine efficiency will enable the total number of turbines to be reduced, while enabling a greater output.

The key changes to the number and specifications of the turbines are:

- An increase in wind turbine height resulting in a maximum overall height of 180m.
- A minimum rotor blade sweep clearance above ground level for turbines of 40m, except for one turbine which will have a minimum rotor blade sweep clearance above ground level of 30m
- A reduction of 12 wind turbines, resulting in a total of 56 turbines.
- Micro-siting of 28 turbines within 100 metres of the approved location.

All of the proposed amendments will not alter what the permit allows nor require any additional approvals in their own right.

This report assesses the strategic justification and planning merits of the proposed amendment pursuant to the relevant statutory and strategic policy provisions. The assessment contained in this report is based on a number of technical assessments and amended endorsed plans which have been prepared to accompany the application.

The *current* endorsed plans and documentation are listed below. A copy of this documentation together with a copy of Permit No. 20060222 are included in a separate document ('Volume 2') titled '*Permit No. 20060222 and Current Endorsed Plans and Documents*' dated February 2017, and are listed below.

- Site Plan (Ref. RCWF-DP-01-V002) dated 9 December 2011;
- Wind Turbine Dimensions, Profile and Elevation View (Ref. RCWF-DP-02-V003) dated 10 February 2012;
- Roadside and Nacelle Signage Details (Ref. RCWF-DP-05-V001 dated 10 February 2012;
- 132kv Substation Layout and Elevation Plan (Ref. RCWF-DP-03-V001) dated 11 May 2011;
- Monitoring Mast Details (Ref. RCWF-DP-04-v001) dated 10 February 2012;
- Wind Turbine GPS Coordinates;
- Landscape Management Plan and Landscape for the Substation and Switchyard (Ref. 0105133 No. LS2 - Landscape Plan for Substation and Switchyard) dated 19 March 2010;
- Obstacle Lighting Requirements Report (Ref. 100401-03) dated 20 September 2011;
- Environmental Management Plan (Ref. 0105123 RP01 Rev. 3.0) dated 9 February 2012; and
- Traffic Management Plan (Ref. 43315958/01/05) dated 23 December 2011 (included as Annex G of the Environmental Management Plan); and
- Pre-construction TV/Radio Reception Survey dated 20 January 2010.

The following *amended* plans and documents have been prepared for endorsement under secondary consent and other permit conditions. A copy of this documentation is included in a separate document ('Volume 4') titled '*Proposed Amended Plans and Documents for Endorsement*' dated February 2017.

- Site Plan 'Figure 4.1 - Proposed Site Layout' (Ref.0105123_001_RCWF_SITE_LAYOUT_161213.mxd) prepared by ERM dated 13 December 2016;
- Wind Turbine Dimensions Profile and Elevation View (Ref. RCWF-DP-02-v05) dated 24 March 2017;
- Roadside Signage Details (Ref. RCWF-DP-05-v03) dated 24 March 2017;
- Wind Turbine Co-ordinates ('RCWF Microsited Locations') dated 6 March 2017;
- Aeronautical Impact Assessment (Ref. 100401-03) prepared by Aviation Projects dated December 2015; and
- Traffic Management Plan (Ref. 43315958/01/05) prepared by URS dated 24 March 2017.

The following additional documentation has been prepared to accompany this application. A copy of this documentation is included in a separate document ('Volume 5') titled '*Other Accompanying Assessments and Plans*' dated February 2017.

- Figure 4.2 - 'Comparison of Approved (2012) and Proposed Site Layout' (Ref.0105123_002_RCWF_LAYOUT_161213.mxd) prepared by ERM dated 13 December 2016;
- Figure 4.3 - 'Proposed Site Layout in Proximity to Dwellings and Township Zone (Yambuk)' (Ref.0105123_003_RCWF_LAYOUT_161213.mxd) prepared by ERM dated 13 December 2016;

- Figure 4.4 - 'Alignment of External Transmission Lines Connecting to Tarrone Terminal Station' (Ref. 0105123_HDWF/RCWF_C01_161213.cdr) dated 13 December 2016;
- Table 4.5 - 'Distance of Each Turbine to the Nearest Property Boundary';
- Noise Assessment (Ref. Rp 001 R01 2014362ML) dated 25 August 2016 and accompanying letter (Ref. Lt 001 2014362ML) dated 25 August 2015 prepared by Marshall Day Acoustics;
- Landscape and Visual Impact Assessment Review (Ref. 0105123 RCWF RPT4) prepared by ERM dated February 2017;
- Photomontages (Drawing Nos. RC01-(01) to RC01-(03), RC02-(01) to RC02-(04), and RC03-(01) to RC03-(05) all dated 28 October 2015 prepared by ERM;
- Shadow Flicker Assessment (Ref. 170485_AUME-R-01, Rev. C) prepared by DNV-GL dated 22 December 2015;
- Biodiversity Impact Assessment (Ref. 14144(8.3)) prepared by Brett Lane & Associates dated February 2017;
- Electromagnetic Interference Assessment (Ref. 170492_AUME-R-01, Rev. B) prepared by DNV-GL dated 12 February 2016; and
- Cultural Heritage Assessment (Ref. 3230.100) prepared by Archaeology at Tardis dated 21 December 2016.

This report finds that the proposal is consistent with relevant statutory and strategic policy provisions of the Moyne Planning Scheme. In particular the proposal is expected to enhance the approved wind farm and ultimately result in a net community benefit for the State, regional and local community by way of bringing 'green' energy to the market which will be facilitated by the proposed amendments.

2 BACKGROUND

The Ryan Corner Wind Farm was assessed under the *Environment Effects Act 1978* (EE Act). This meant the project required the preparation and exhibition of an Environment Effects Statement (EES) as well as a planning permit application for the wind energy facility. A separate planning permit application was made to Moyne Shire Council for the removal of native vegetation associated with the wind farm site. The Minister for Planning 'called-in' these planning permit applications, allowing the EES and planning applications to be assessed concurrently.

2.1 Environmental Effects Statement

In July 2005, the Minister for Planning determined that the project required an EES under the EE Act, given the potential for but not limited to, the following impacts:

- a) *'Potential impacts on terrestrial biodiversity and habitat, in particular where remnant native vegetation and ecological communities may be affected by the development of the wind energy facility;*
- b) *Potential impacts on birds and bats, in particular species listed under the Flora and Fauna Guarantee Act 1988;*
- c) *Potential impacts on landscape and visual amenity in the area;*
- d) *Potential noise, shadow flicker and other amenity impacts at nearby dwellings;*
- e) *Potential impacts on Aboriginal and non-Aboriginal cultural heritage;*
- f) *Potential cumulative impacts in combination with the Codrington and Yambuk wind farms and other proposed wind farms on environmental assets.'*

As such, an EES was prepared for the Ryan Corner Wind Farm to enable a rigorous assessment of potential impacts.

In May 2007, the Minister appointed a Panel Inquiry and a public hearing was held in August and September 2007. The Inquiry determined in their report dated March 2008 that the environment effects of the project could *'be avoided or managed effectively to produce an acceptable outcome in terms of applicable legislation and policy'* and that a permit should be issued. In May 2008, the Minister's Assessment of the EES was released and the recommendations of the Inquiry were supported.

The proposed amendment is not expected to significantly alter the environmental impacts considered under the EES and managed by the existing permit conditions. Further, the proposed amendment is consistent with the recommendations in the Ministers Assessment of the environmental impacts under the *Environmental Effects Act 1987*. This matter is further discussed later in this report.

2.2 Planning Permit History

2.2.1 Planning Permit No. 20060222

The Ryan Corner Wind Farm was approved by the Minister for Planning under Planning Permit No. 20060222 on 21 August 2008. The permit allows for the:

'Use and development of land for a Wind Energy Facility'

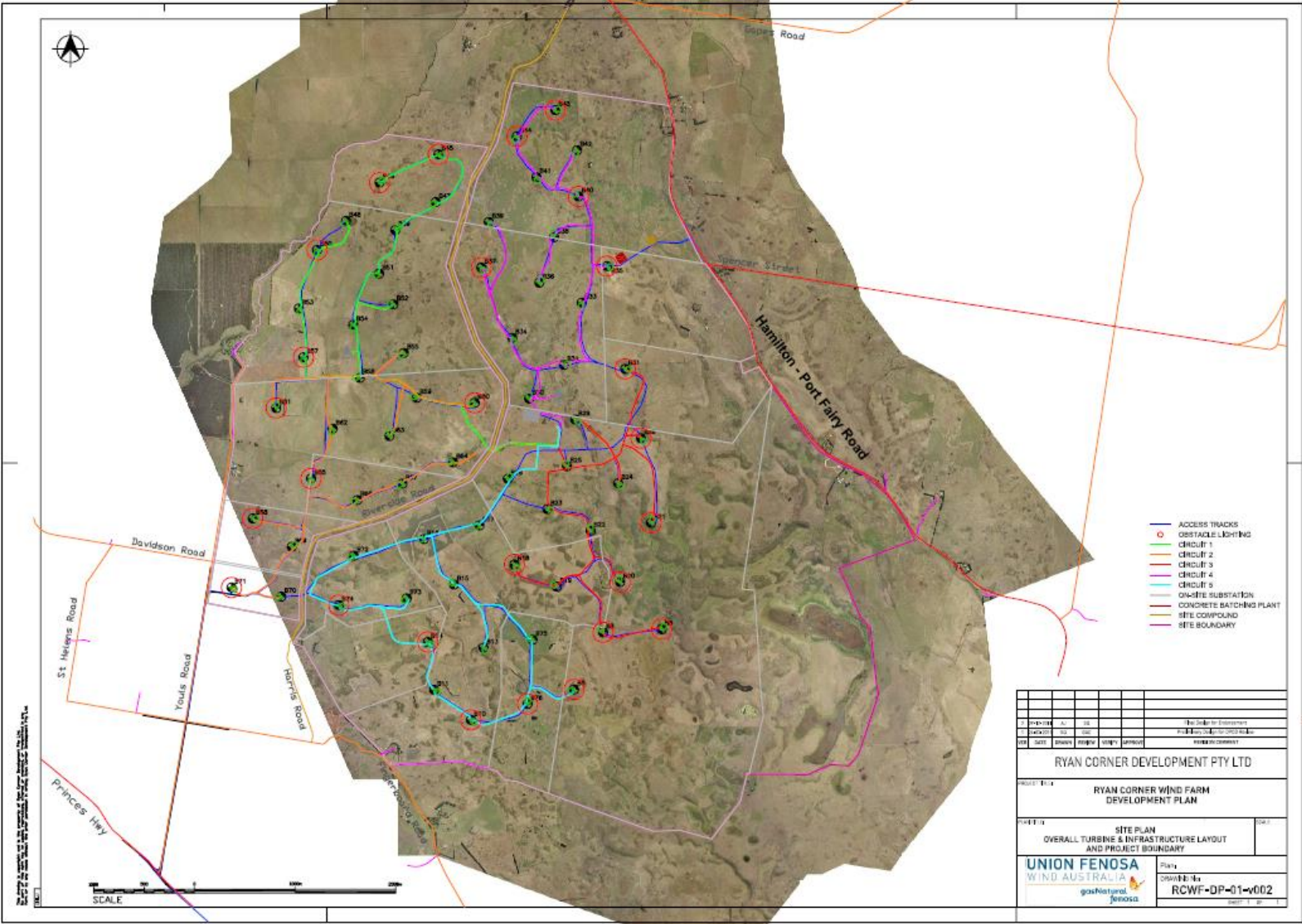
Endorsed plans were issued in accordance with Condition 1 of permit on 23 February 2012 by the (then) Department of Planning and Community Development (DPCD) (now Department of Environment, Land, Water and Planning (DELWP)). These plans together with other documents endorsed in accordance with other permit conditions are listed below. A copy of the permit and endorsed plans and documentation are included in the separate document ('Volume 2') titled *'Permit No. 20060222 and Current Endorsed Plans and Documents'* dated February 2017 which accompanies this application.

- Site Plan (Ref. RCWF-DP-01-V002) dated 9 December 2011;

- Wind Turbine Dimensions, Profile and Elevation View (Ref. RCWF-DP-02-V003) dated 10 February 2012;
- Roadside and Nacelle Signage Details (Ref. RCWF-DP-05-V001 dated 10 February 2012;
- 132kv Substation Layout and Elevation Plan (Ref. RCWF-DP-03-V001) dated 11 May 2011;
- Monitoring Mast Details (Ref. RCWF-DP-04-v001) dated 10 February 2012;
- Wind Turbine GPS Coordinates;
- Landscape Management Plan and Landscape for the Substation and Switchyard (Ref. 0105133 No. LS2 - Landscape Plan for Substation and Switchyard) dated 19 March 2010;
- Obstacle Lighting Requirements Report (Ref. 100401-03) dated 20 September 2011;
- Environmental Management Plan (Ref. 0105123 RP01 Rev. 3.0) dated 9 February 2012; and
- Traffic Management Plan (Ref. 43315958/01/05) dated 23 December 2011 (included as Annex G of the Environmental Management Plan); and
- Pre-construction TV/Radio Reception Survey dated 20 January 2010.

An extract of the endorsed layout plan which details the location of the turbines as currently approved is included in *Figure 2-1*. It is noted that one turbine (B27) was deleted between the issue of permit and endorsed plans. Therefore, while the permit allows for 68 turbines, only 67 turbines are endorsed on the plans.

Figure 2.1 Endorsed Layout Plan



Condition 3 of the planning permit details the wind farm turbine specifications, as follows:

'Except with the written consent of the Minister for Planning, the wind energy facility must meet the following requirements to the satisfaction of the Minister for Planning (inter alia):

- a) the wind energy facility must comprise no more than 68 wind turbines;*
- b) the maximum wind energy facility capacity must not exceed 136MW;*
- c) the overall maximum height of the wind turbines (to the tip of the rotor blade when vertical) must not exceed 121.5 metres above natural ground level;*
- d) wind turbines must be mounted on a tubular steel and/or concrete tower with a height of no greater than 78 metres;*
- e) each wind turbine is to have not more than three rotor blades, with each blade having a length of no greater than 43.5 metres'...*

These specifications were based on the Gamesa Eolica G87-2.0MW wind turbine model originally proposed.

The permit has been acted on with the construction of the wind farm's Early Works (Stage 1) commencing in the form of one of the two access roads and associated drainage pipes, several hundred metres of access tracks and associated drainage pipes, and a site compound compacted gravel platform.

An extension to the date that the development is required to be completed by under Condition 32 ii) of planning permit No. 20060222 was granted by the (then) DPCD on 9 April 2015. The development of the wind farm's Main Works (Stage 2) must now be completed by 29 August 2019.

2.2.2 Previous Amendment to Approved Turbine Specifications

On 12 August 2010, approval was granted by the (then) DPCD to increase the overall turbine height and blade length requirements contained within Condition 3 of permit. Approval was granted in the form of written consent (letter from DPCD dated 12 August 2010) and as such the actual endorsed plans and permit were not amended. The approved changes provided scope for the use of alternate turbine models (either the Vestas V90 or Repower MM92) as part of the wind farm.

Specifically, the changes allowed:

- An overall turbine height of 126.3m (an increase of 4.8m from that originally approved);
- A turbine tower height of 80m (an increase of 2m from that originally approved); and
- A blade length of 46.25m (an increase of 2.75m from that originally approved).

A copy of this letter is included as Annex B of this report.

2.2.3 Planning Permit No.PL07/067

A separate planning application was made to Moyne Shire Council for the removal of native vegetation in association with the wind farm. This application was called-in by the Minister for Planning to be determined concurrently with wind farm application. On 21 August 2008, Planning Permit No.PL07/067 was issued by the Minister for the 'native vegetation to be removed, lopped or destroyed'.

It is noted that the proposed realignment of access tracks and micro-siting of turbines will not result in any further impacts on native vegetation. Therefore no amendment is sought in respect of this permit. This matter is further discussed in later sections of this report.

2.3 Hawkesdale Wind Farm

UFWA also applied for, and was granted, a planning permit for the Hawkesdale Wind Farm. This application was assessed and approved at a similar time to Ryan Corner Wind Farm. The Hawkesdale Wind Farm was approved by the Minister on 12 August 2008 under Planning Permit No. 20060221.

UFWA proposes to apply to amend the Hawkesdale Wind Farm planning permit in the same manner as outlined in this application for the Ryan Corner Wind Farm. In conjunction with the proposed amendment for Ryan Corner, a separate application has been made to the Minister for similar changes to the Hawkesdale Wind Farm. It is expected that these applications will be considered by the Minister concurrently.

3 EXISTING ENVIRONMENT

3.1 Wind Farm Site

Ryan Corner Wind Farm is located in south-west Victoria, approximately 12 km north-west of Port Fairy, adjacent to the Hamilton-Port Fairy Road in the Shire of Moyne. The location of the Ryan Corner Wind Farm is illustrated in Figure 3-1 below. This figure also shows the wind farm in relation to the Hawkesdale Wind Farm located to the north-east.

Figure 3.1 Locality Plan



The site covers an area of approximately 3,600 ha and incorporates 11 individual land holdings. The land has an extensive history of sheep and cattle grazing. There are six dwellings located within the wind farm site as well as farm sheds, stock yards and agricultural infrastructure.

Topographically, the site has a gradual slope from the north-east to the south-west. The site comprises a mosaic of basaltic 'stony rises' with intervening depressions, including some small ephemeral wetlands. Over time, clearing and pasture improvement has resulted in a modified landscape. Vegetation comprises large areas of modified exotic pasture, marshes and wetlands, with some areas of native ground cover and scattered trees remaining.

3.2 Surrounding Land Use and Development

The surrounding area is predominantly used for grazing and comprises farmland. There are several townships within the wider surrounds including Yambuk, Codrington, Port Fairy and Koroit, located within 15km of the wind farm site. At the nearest point, the wind farm is located approximately 5.5km inland from the coastal sand dunes.

The site is bounded by Hamilton-Port Fairy Road to the north-east and east, with individual properties adjoining the south-east, north and south of the site. Shaw River forms the north-west boundary of the site and Youls Road adjoins the south-west.

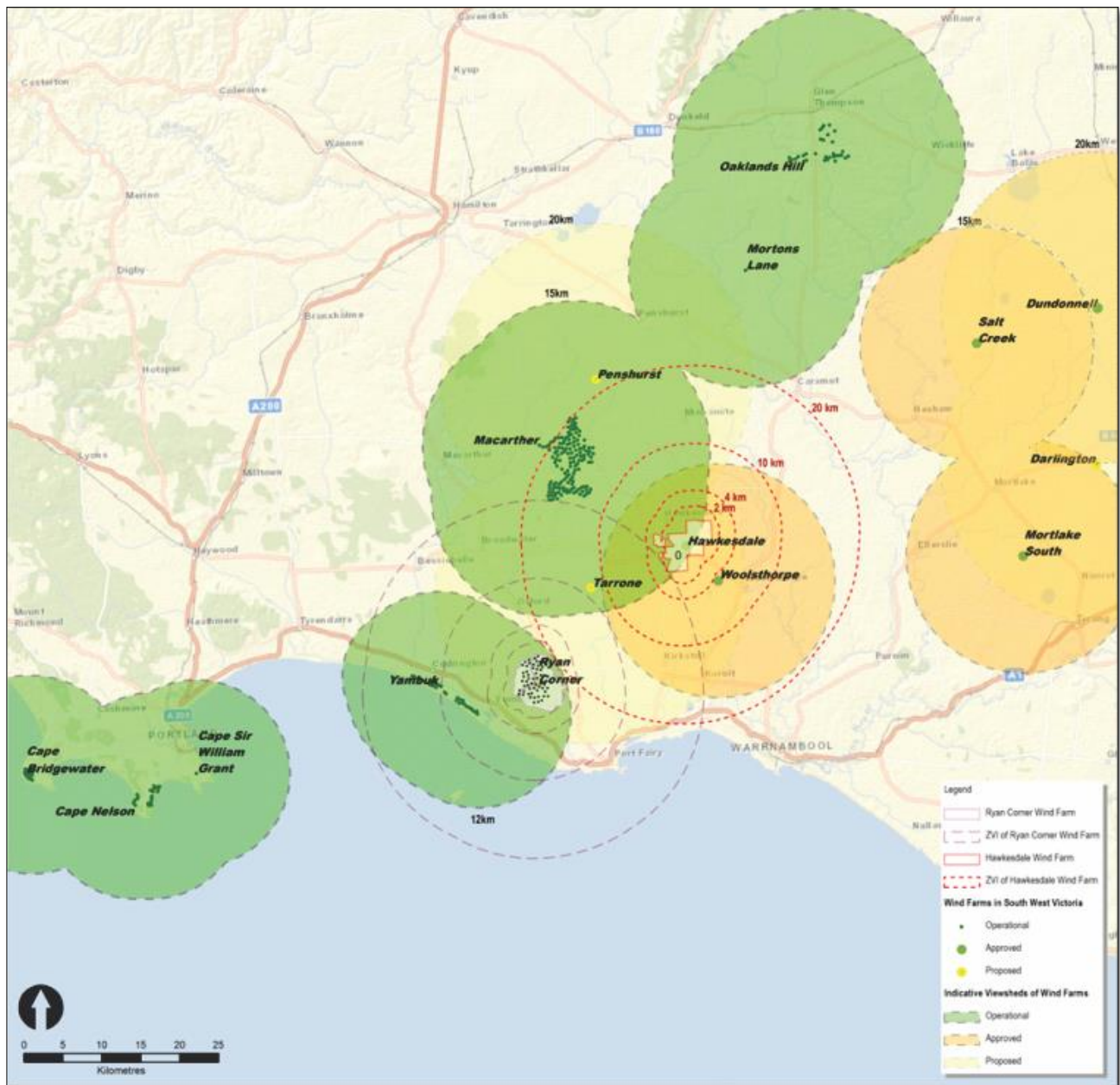
Access to the wind farm site is approved and endorsed via two points; one from Hamilton-Port Fairy Road and the other from Youls Road.

The nearest existing wind farms to the Ryan Corner Wind Farm are the Codrington and Yambuk Wind Farms, which were present at the time of the original application for the wind farm. Several wind farms in the area have subsequently been approved with some now operating. A summary of approved and operating wind farms in proximity to Ryan Corner Wind Farm are provided in *Table 3.1* and *Figure 3.2*.

Table 3-1 Wind Farms located in proximity to Ryan Corner Wind Farm (extracted from the Landscape and Visual Impact Assessment)

| Location | No. of Turbines | Distance and Direction (approx.) | Status |
|---|-----------------|----------------------------------|---------------------|
| Codrington | 14 | 9 km south west | Operating |
| Yambuk | 20 | 7 km south | Operating |
| Macarthur | 140 | 18 km north east | Operating |
| Portland Wind Energy project (Cape Bridgewater, Cape Nelson and Cape Sir William Grant) | 52 | >50 km west | Operating |
| Mortons Lane | 13 | 60 km north | Operating |
| Oaklands Hill | 32 | 70 km north | Operating |
| Hawkesdale (Amendment Application) | 31 (26) | 20 km north east | Approved / Amending |
| Woolsthorpe | 20 | 22 km north east | Approved |
| Salt Creek | 15 | 65 km north east | Approved |
| Mortlake South | 51 | 61 km east | Approved |
| Tarrone | 17 | 11 km north east | Proposed |
| Penshurst | 223 | 33 km north | Proposed |
| Dundonnell | 104 | 83 km north east | Approved |
| Darlington | 80 | 73 km north east | Proposed |

Figure 3.2 Wind Farms in proximity to Ryan Corner Wind Farm (extracted from the Landscape and Visual Impact Assessment)



The wind farm will not impact on any major electricity easements, and there are no major electricity easements located within 60 metres of the wind farm.

4 THE PROPOSAL

It is proposed to amend Permit No. 20060222 (permit conditions) pursuant to Section 97(I) of the *P&E Act*. It is also proposed to amend endorsed plans and documents under secondary consent pursuant to Condition 2 of the permit as well as other permit conditions.

Section 97(I) of the *P&E Act* allows for amendments to be made to a planning permit where the Minister for Planning has granted the permit.

Secondary consent allows for amendments to be made to endorsed plans and documents if a condition of the permit allows such amendments to be made with the written consent of the responsible authority.

Condition 2 of the permit allows for secondary consent approvals by stating that:

‘The use and development as shown on the endorsed plans must not be altered or modified without the written consent of the Minister for Planning;’

All of the proposed amendments are generally required to:

- allow for an increase in the overall turbine height (to the tip of the rotor blade when vertical) and a reduced number of turbines as a result of recent advancements in wind farm technologies;
- allow for the future micro-siting of turbines without the need for Ministerial consent;
- require landscape mitigation works to be offered to dwellings within 4km of the nearest turbine (currently approved at 1.5km) to reflect the proposed amended turbine specifications;
- reflect obstacle lighting requirements as a result of the new turbines;
- allow for shadow flicker limits to be exceeded subject to approval from relevant landowner(s); and
- ensure that the operation of the windfarm complies with current noise standards.

No changes are proposed to what the permit allows and the proposal will not result in any additional permit triggers in their own right.

A summary of the proposed amendments sought pursuant to Section 97(I) of the *P&E Act* as well as those under secondary consent and other permit conditions are clearly set out in *Table 4-1* below.

Table 4.1 Proposed Amendments

| | Proposed Amendments sought under Secondary Consent Pursuant to Condition 2 and other Conditions of Permit No. 20060222 |
|-----------------------|---|
| Endorsed Plans | <p>It is proposed to amend the following endorsed plans and documents under Secondary Consent. These documents are included in the separate document (‘Volume 2’) titled ‘<i>Permit No. 20060222 and Current Endorsed Plans and Documents</i>’ dated February 2017.</p> <ul style="list-style-type: none"> • Site Plan (Ref. RCWF-DP-01-V002 dated 9 December 2011) (endorsed pursuant to Condition 1a of the permit) to reflect the proposed removal of twelve turbines, and micro-siting of turbines; • Wind Turbine Dimensions, Profile and Elevation View (Ref. RCWF-DP-02-V003 dated 10 February 2012) (endorsed pursuant to Conditions 1c and 1d) to reflect the proposed changes to the turbine specifications. • Roadside and Nacelle Signage Details (Ref. RCWF-DP-05-V001 dated 10 February 2012) (endorsed pursuant to Condition 1f) to reflect the proposed reduction in the number of turbines, increased wind farm capacity and removal of the nacelle signage; • Wind Turbine GPS Coordinates (endorsed pursuant to Condition 1b) to reflect the removal of twelve turbines and micro-sited turbines; and • Obstacle Lighting Requirements Report (Ref. 100401-03 dated 20 September 2011) (endorsed pursuant to Condition 1e) to reflect updated lighting requirements of the proposed new turbines. |

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| | <p>It is proposed to amend the following endorsed plans pursuant to other permit conditions. These documents are included in the separate document ('Volume 2') titled 'Permit No. 20060222 and Current Endorsed Plans and Documents' dated February 2017.</p> <ul style="list-style-type: none"> • Environmental Management Plan (EMP)* (Ref. 0105123RP01 Rev. 3.0) dated 9 February 2012 (endorsed pursuant to Condition 13) to reflect the proposed amended Traffic Management Plan (refer below); and • Traffic Management Plan (Ref. 43315958/01/05) dated 23 December 2011 (endorsed pursuant to Condition 10) to reflect the different truck sizes and traffic generation impacts during construction as a result of the proposed new turbines. <p>* The EMP is only being amended to update Annex G which relates to the Traffic Management Plan. It is expected that the EMP itself would be updated (as appropriate) for endorsement once the assessment of the proposed amendment is appropriately progressed.</p> <p>The <i>amended</i> plans and documents proposed for endorsement are listed below. A copy of this documentation is included in the document ('Volume 4') titled 'Ryan Corner Wind Farm – Proposed Amended Plans and Documents for Endorsement' dated February 2017.</p> <ul style="list-style-type: none"> • Site Plan 'Figure 4.1 – Proposed Site Layout' (Ref.0105123_001_RCWF_SITE_LAYOUT_161213mxd) prepared by ERM dated 13 December 2016; • Wind Turbine Dimensions Profile and Elevation View (Ref. RCWF-DP-02-v05) dated 24 March 2017; • Roadside Signage Details (Ref. RCWF-DP-05-v03) dated 24 March 2017; • Wind Turbine Co-ordinates ('RCWF Microsited Locations') dated 6 March 2017; • Aeronautical Impact Assessment (Ref. 100401-03) prepared by Aviation Projects dated December 2015; and • Traffic Management Plan (Ref. 43315958/01/05) prepared by URS dated 24 March 2017. |
| | <p>Proposed Amendments to Permit No. 20060222 pursuant to Section 97(I) of the P&E Act</p> |
| Condition 3 | <p>It is proposed to amend Condition 3 as follows:</p> <p><i>'Except with the written consent of the Minister for Planning, the wind energy facility must meet the following requirements to the satisfaction of the Minister for Planning:</i></p> <ol style="list-style-type: none"> <i>a) the wind energy facility must comprise no more than 68 56 wind turbines;</i> <i>b) the maximum wind energy facility capacity must not exceed 136MW;</i> <i>c) the overall maximum height of the wind turbines (to the tip of the rotor blade when vertical) must not exceed 121.5 180 metres above natural ground level;</i> <i>d) wind turbines must be mounted on a tubular steel and/or concrete tower. with a height of no greater than 78 metres;</i> <i>e) each wind turbine is to have not more than three rotor blades, with each blade having a length of no greater than 43.5 metres; and the lowest point of a sweep of the rotor blade tip must not be less than 40 metres above ground level at the turbine base for all turbines except for turbine B35 that must not be less than 30 metres above ground level at the turbine base.</i> |

| | |
|-----------------------|--|
| Condition 2 | <p>It is proposed to amend Condition 2 as follows:</p> <p><i><u>'The use and development as shown on the endorsed plans must not be altered or modified without the written consent of the Minister for Planning; except that the micro siting of wind turbines; where the siting of a wind turbine is altered by no more than 100 metres, will be regarded as generally in accordance with the endorsed plans, if the Minister for Planning is satisfied that the micro siting will not give rise to a material change to assessed landscape, flora and fauna, cultural heritage, visual amenity, shadow flicker, noise or aviation impacts when compared to those of the endorsed plans. (as defined in this condition,) is permitted provided that:</u></i></p> <ul style="list-style-type: none"> <i><u>a) the developer of the wind energy facility has written advice from appropriately qualified experts that the alteration or modification will not result in a material adverse change in landscape, flora and fauna, cultural heritage, visual amenity, shadow flicker, noise, fire risk or aviation impacts compared to the endorsed plans;</u></i> <i><u>b) the turbine is not relocated so that it is within 1 km of a dwelling that existed on [insert date] unless evidence has been provided to the satisfaction of the responsible authority that the owner of the dwelling has consented in writing to the location of the turbine;</u></i> <i><u>c) the turbine is not relocated so that it results in the removal of any additional remnant native vegetation, unless that removal has been authorised by a planning permit; and</u></i> <i><u>d) no turbine base is located within:</u></i> <ul style="list-style-type: none"> <i><u>i. 100 metres from a Road Zone Category 1 or land in a Public Acquisition Overlay to be acquired for a road;</u></i> <i><u>ii. 40 metres from a Road Zone Category 2;</u></i> <i><u>iii. 20 metres from any other road;</u></i> <i><u>iv. 5 metres from the site boundary;</u></i> <i><u>v. 50 metres from a waterway, wetlands or designated flood plain; or</u></i> <i><u>vi. within an exclusion zone of any licensed communications link.</u></i> <p><i><u>Any micro-siting of turbines in accordance with this condition will be regarded as being in accordance with the endorsed plans, and no consent under condition 2 will be required to reflect the micro-siting of turbines in compliance with this condition.</u></i></p> <p><i><u>For the purpose of this condition, micro-siting of turbines means an alteration to the siting of a turbine by not more than 100 metres.</u></i></p> <p><i><u>For the purposes of this condition, micro-siting of turbines includes any consequential changes to access tracks and electricity reticulation lines and the measurement of any distance between a dwelling and a turbine must be from the centre of the tower of the turbine (at ground level) to the closest point of the dwelling.</u></i></p> <p><i><u>Copies of the written advice referred to in this condition must be provided to the Minister for Planning.</u></i></p> |
| Condition 5 a) | <p>A program of voluntary landscape mitigation works to the satisfaction of the Minister for Planning must be made available to the owners of dwellings within 4.5 4.0 kilometers of the nearest turbine, to the owners of dwellings 4, 5, 104 and 105 as identified in Figure 20.46 of the Ryan Corner Wind Farm Environment Effects Statement and Application for Planning Permit (Gamesa Australia/TME Australia, October 2006) and the Collins property at 800 Fingerboard Road, Yambuk</p> |
| Condition 9* | <p>Obstacle lighting for aviation safety must meet the following requirements, to the satisfaction of the Minister for Planning:</p> <ul style="list-style-type: none"> <i><u>a) The number of lit turbines are kept to the minimum required, such that the wind farm is not declared a hazard to aviation.</u></i> <i><u>b) The individual lighting installations must be in accordance with the CASA Advisory Circular 139-18(0) and the CASA Manual of Standards, particularly Chapter 9.</u></i> <i><u>c) The obstacle lighting should be generally in accordance with the 'Ryan Corner</u></i> |

| | |
|----------------------------|---|
| | <p><u>Wind Farm Obstacle Lighting Design V1.1' prepared by Aviation Projects dated 9 October 2015;</u></p> <p><i>d) The impact minimisation features allowed under the documents in 9(b) must be installed including, but not limited to:</i></p> <ul style="list-style-type: none"> <i>(i) Treatment of the rear of the blade to avoid reflection of aviation lights;</i> <i>(ii) Shielding of the lights on the top and bottom such that the maximum intensity of light is limited to a beam of 3 degrees, with only 0.5 degrees of this beam width below the horizon; and</i> <i>(iii) All lights on the wind farm synchronised to flash in unison.</i> <p><i>e) Within the guidance of 9(b) above, advice must be sought from a suitably qualified wildlife ecologist to ensure the light flashing period minimises any impact on bats or night flying birds.</i></p> <p>* CASA may require other amendments to this Condition.</p> |
| Condition 18 and 19 | <p>It is proposed to amend Condition 18 as follows:</p> <p><i>'Except as provided below in this condition, the operation of the wind energy facility must comply with New Zealand Standard 6808:1998 2010 the Assessment and Measurement of Sound from Wind Turbine Generators in relation to any dwelling existing on land in the vicinity of the wind energy facility as at 11 April 2007, to the satisfaction of the Minister of Planning. In determining compliance with the standard, the following requirements apply:</i></p> <ul style="list-style-type: none"> <i>a) The sound level from the wind energy facility, when measured outdoors within 10 metres of a dwelling at any relevant nominated wind speed, must not exceed the background level (L95) by more than 5dBA or a level of 40dBA L95, whichever is the greater.</i> <i>b) Compliance at night must be separately assessed with regard to night time data. For these purposes the night is defined as 10.00pm to 7.00am.</i> <p><i>This condition does not apply if an agreement has been reached with a landowner through which the landowner accepts predicted noise levels or otherwise agrees to implement appropriate acoustic attenuation measures to ensure a reasonable level of acoustic amenity in relation to the indoor habitable areas of their dwelling(s), and acknowledges that the operation of the wind energy facility may still generate noise in outdoor areas at the dwelling(s) which may from time to time exceed the standard'</i></p> <p>It is proposed to amend Condition 19 as follows:</p> <p>Condition 19</p> <p><i>'An independent post-construction noise monitoring program must be commissioned by the proponent within 2 months after the commissioning of the first turbine and continue for 12 months after the commissioning of the last turbine, to the satisfaction of the Minister for Planning. The independent expert must have experience in acoustic measurement and analysis of wind turbine noise. The program must be carried out in accordance with New Zealand Standard 6808:1998 2010 as varied by Condition 18 above. The operator under this permit must pay the reasonable costs of the monitoring program.'</i></p> |
| Condition 22 | <p>It is proposed to amend Condition 22 as follows:</p> <p><i>'Shadow flicker from the wind energy facility must not exceed 30 hours per annum at any dwelling existing at 6 August 2007.</i></p> <p><i>This condition does not apply to any dwelling on land on which part of the wind energy facility is erected. This exemption will be given effect through an agreement with an owner of land to which this permit applies that will apply to any occupant of the dwelling <u>if the operator of the wind energy facility has entered into an agreement with a landowner under which the landowner acknowledges and accepts that shadow flicker may exceed 30 hours per annum at the landowner's dwelling. Evidence of the agreement must be provided to the satisfaction of the responsible authority</u>.'</i></p> |

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| | Micro-siting |
| | <p>It is proposed to micro-site 28 turbines in accordance with Condition 2 which reads:</p> <p><i>'The use and development as shown on the endorsed plans must not be altered or modified without the written consent of the Minister for Planning; except that the micro siting of wind turbines, where the siting of a wind turbine is altered by no more than 100 metres, will be regarded as generally in accordance with the endorsed plans, if the Minister for Planning is satisfied that the micro siting will not give rise to a material change to assessed landscape, flora and fauna, cultural heritage, visual amenity, shadow flicker, noise or aviation impacts when compared to those of the endorsed plans'.</i></p> <p>For clarity, the proposed amendment to Condition 2 (referred above) is to allow for any future micro-siting of turbines to occur (eg. which may become necessary during construction) without the need for Ministerial consent.</p> |

Further details of the key elements of the proposal are provided below.

4.1 Wind Turbine Specifications

It is proposed to utilise a turbine model with different specifications to that currently approved. The proposed turbine model would have a maximum height of 180 metres, requiring an increase in height of 53.7 metres from that approved. A maximum height of 180 metres would apply to all turbines, with the exception of turbine B35 which would have a maximum height of 160 metres. This turbine is at a reduced scale to minimise shadow flicker impacts to the nearest dwellings located to the east.

It is proposed to remove specifications regarding hub heights and rotor blade lengths from the permit. It is considered that these criteria are overly prescriptive and, taking a pragmatic approach, become problematic when tendering for a more cost effective turbine model which may comply with the overall maximum turbine height (as specified in the permit) but comprise different hub and/ or rotor blade dimensions.

However, it is acknowledged that ground clearance of the rotor blade is important to address potential impacts on bats and avifauna flight paths. Therefore it is proposed to introduce a minimum ground clearance limit of 40 metres (30 metres for turbine B35) in the turbine specifications. This limit is generally in accordance with the turbine envelope of the approved turbines (33.75 metres).

Visual impact and bat and avifauna considerations are further discussed at Sections 7.2.1 and 7.3.2 of this report respectively.

Table 4-2 below sets out the proposed changes to the approved wind turbine numbers and overall maximum turbine height.

Table 4.2 Wind Turbine Change

| | Overall Height (m) | Number of Turbines |
|------------------------|--------------------|--------------------|
| Approved Layout | | |
| All Turbines | 126.3 | 68 |
| Amended Layout | | |
| Turbine B35 | 160 | 1 |
| All other Turbines | 180 | 55 |

The materials to be used in the tower construction are expected to be steel or combination of steel and concrete.

4.2 Number of Wind Turbines

It is proposed to reduce the total number of turbines from 68 (as approved on permit) to 56. The endorsed plans however reflect the removal of one turbine (B27) and therefore, while the permit allows for 68 turbines, 67 are endorsed.

The turbines proposed to be removed and their coordinates as endorsed are detailed in *Table 4.3*. Of the turbines to be removed, eight of these are sited on the western periphery of the wind farm. The location of these turbines is shown in *Figure 4-1* below.

Table 4.3 Wind Turbines to be Removed

| Turbine Number | Turbine ID | Wind Turbine Coordinates (AGD66) | |
|----------------|------------|----------------------------------|---------------|
| | | Eastings (m) | Northings (m) |
| 1 | B11 | 597368 | 5758879 |
| 2 | B19 | 598587 | 5759905 |
| 3 | B27 | - | - |
| 4 | B42 | 598787 | 5764236 |
| 5 | B50 | 596205 | 5763246 |
| 6 | B51 | 596673 | 5763159 |
| 7 | B53 | 596023 | 5762666 |
| 8 | B57 | 596069 | 5762181 |
| 9 | B61 | 595799 | 5761677 |
| 10 | B65 | 596145 | 5760977 |
| 11 | B68 | 595565 | 5760580 |
| 12 | B71 | 595355 | 5759895 |

4.3 Micro-siting

It is proposed to micro-site 27 turbines. This will involve relocating the turbines within 100 metres of their approved location in accordance with Condition 2 of Permit. Access tracks will remain in the approved locations, and some access tracks will be removed as a result of the removal of turbines. It is noted that there will be some small extensions of approved access tracks to reach micro-sited turbines however these will be located within the approved micro-sited areas.

The turbines proposed for micro-siting and the distance from that approved is detailed in *Table 4-4*. The proposed site layout is shown in *Figure 4-1*. A comparison of the approved and proposed site layout is shown in *Figure 4.2*. The distance of turbines to nearest dwellings and township zoned land is shown in *Figure 4-3*.

The distance of each turbine to the nearest property boundary is shown in *Table 4.5*.

Table 4.4 Turbines to be Micro-sited

| Turbine Number | Turbine ID | Proposed Turbine Coordinates (AGD66) | | Distance from Approved Location (m) | Direction from Approved Location |
|----------------|------------|--------------------------------------|---------------|-------------------------------------|----------------------------------|
| | | Eastings (m) | Northings (m) | | |
| 1 | B8 | 599580 | 5759399 | 95 | South-west |
| 2 | B9 | 599046 | 5759421 | 30 | South |
| 3 | B10 | 597757 | 5758672 | 94 | North-east |
| 4 | B15 | 597523 | 5759851 | 85 | South-west |
| 5 | B16 | 597291 | 5760468 | 95 | North-east |
| 6 | B18 | 598232 | 5760192 | 95 | North-east |
| 7 | B20 | 599229 | 5760008 | 60 | North-east |
| 8 | B29 | 598768 | 5761513 | 50 | South |
| 9 | B31 | 599170 | 5762065 | 95 | West |
| 10 | B33 | 598794 | 5762791 | 80 | North-west |
| 11 | B35 | 599017 | 5763152 | 95 | North-west |
| 12 | B36 | 597836 | 5763071 | 80 | West |
| 13 | B38 | 598479 | 5763372 | 80 | West |
| 14 | B40 | 598734 | 5763844 | 95 | North-west |
| 15 | B41 | 598302 | 5763921 | 95 | South-west |
| 16 | B44 | 598133 | 5764316 | 80 | South-west |
| 17 | B45 | 597353 | 5764138 | 81 | South-west |
| 18 | B49 | 597048 | 5763375 | 95 | South-east |
| 19 | B52 | 596999 | 5762670 | 50 | South-east |
| 20 | B54 | 596468 | 5762502 | 95 | West |
| 21 | B55 | 597162 | 5762223 | 95 | East |
| 22 | B58 | 596563 | 5762043 | 95 | North-west |
| 23 | B62 | 596402 | 5761546 | 85 | North-east |
| 24 | B65 | 596213 | 5761044 | 95 | North-east |
| 25 | B69 | 595952 | 5760279 | 20 | South |
| 26 | B71 | 595415 | 5759928 | 68 | North-east |
| 27 | B72 | 596522 | 5760128 | 95 | South-west |

Figure 4.1 Proposed Site Layout Plan

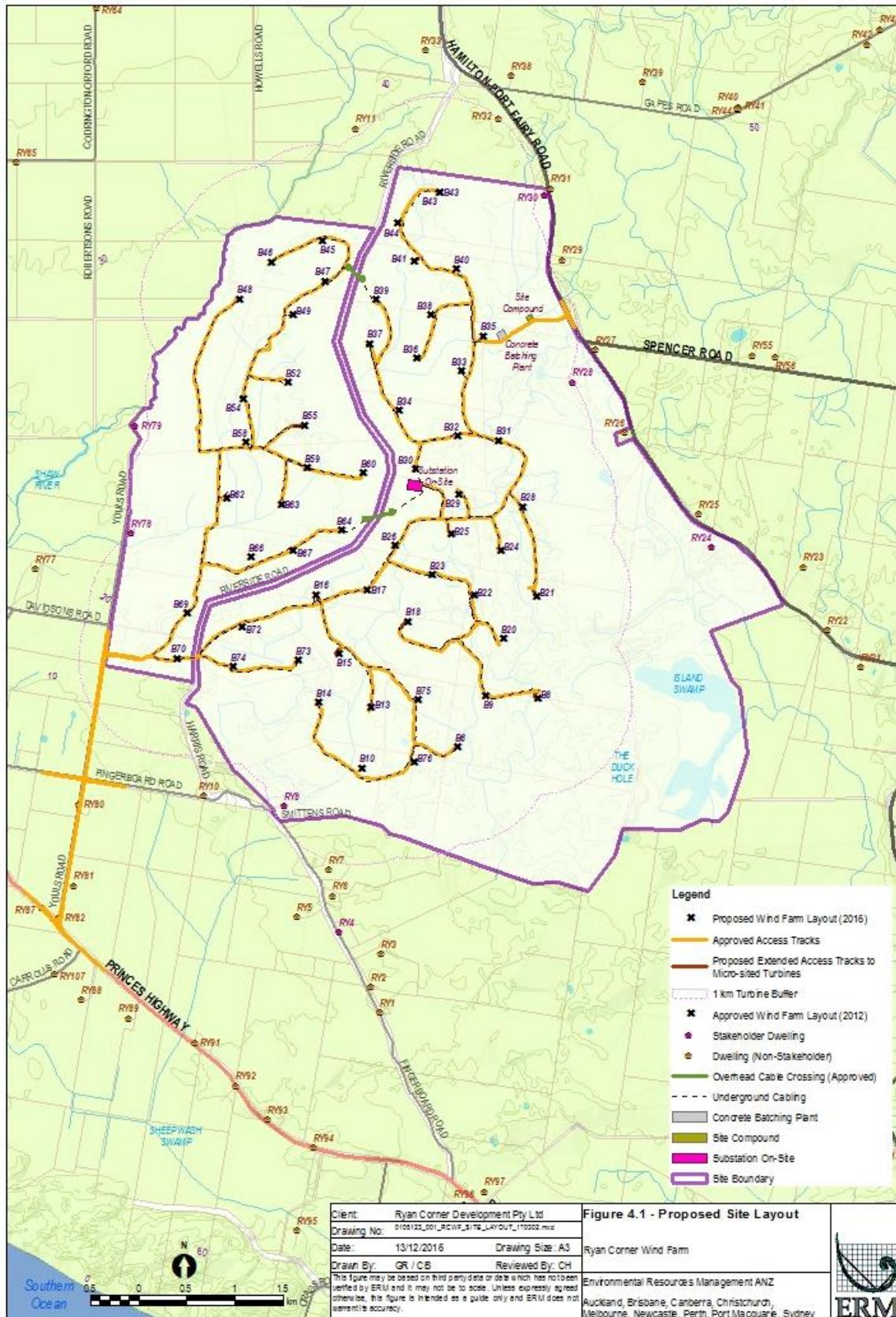


Figure 4.2 Comparison of approved and proposed site layout

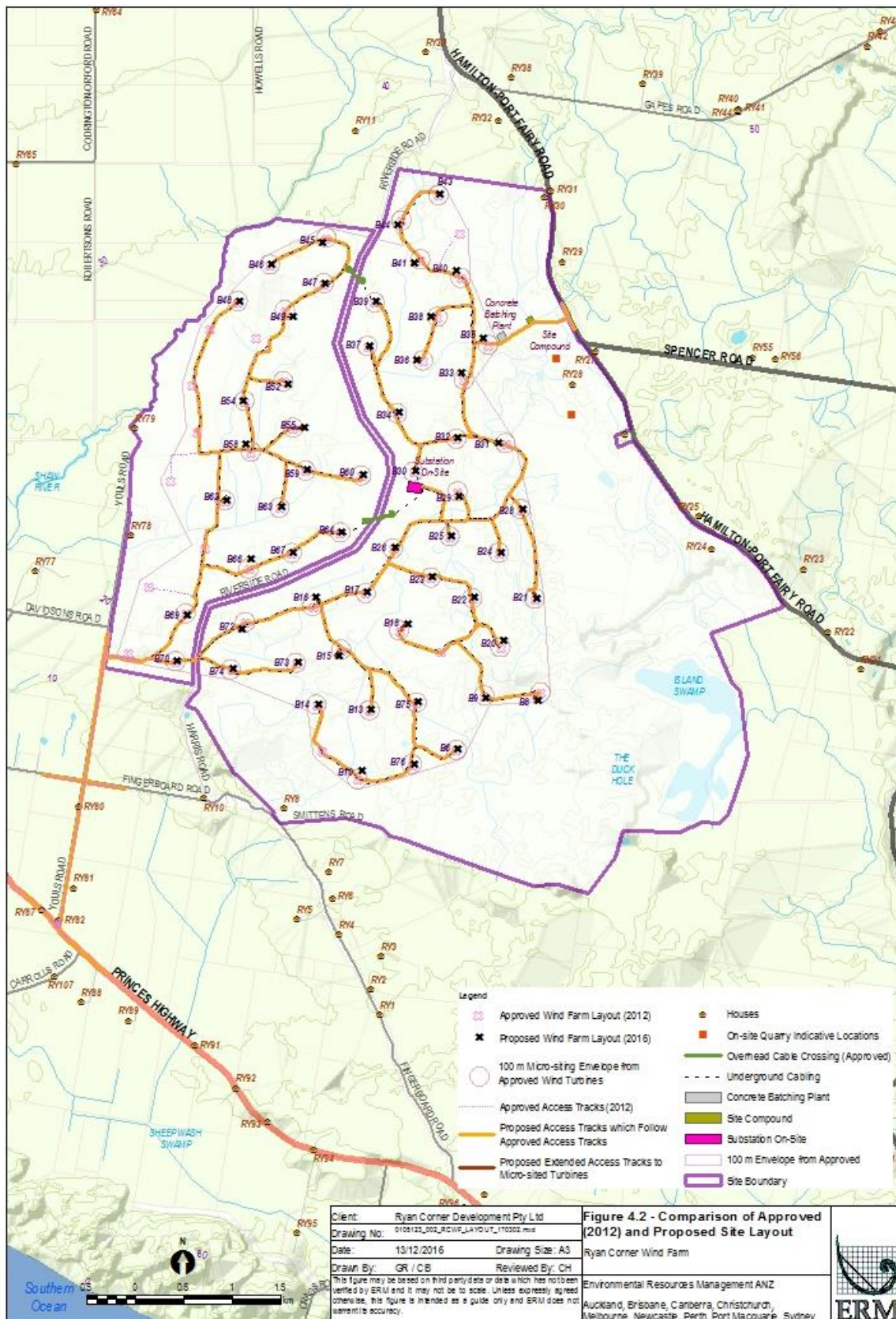


Figure 4.3 Distance of turbines to nearest dwellings and township zoned land

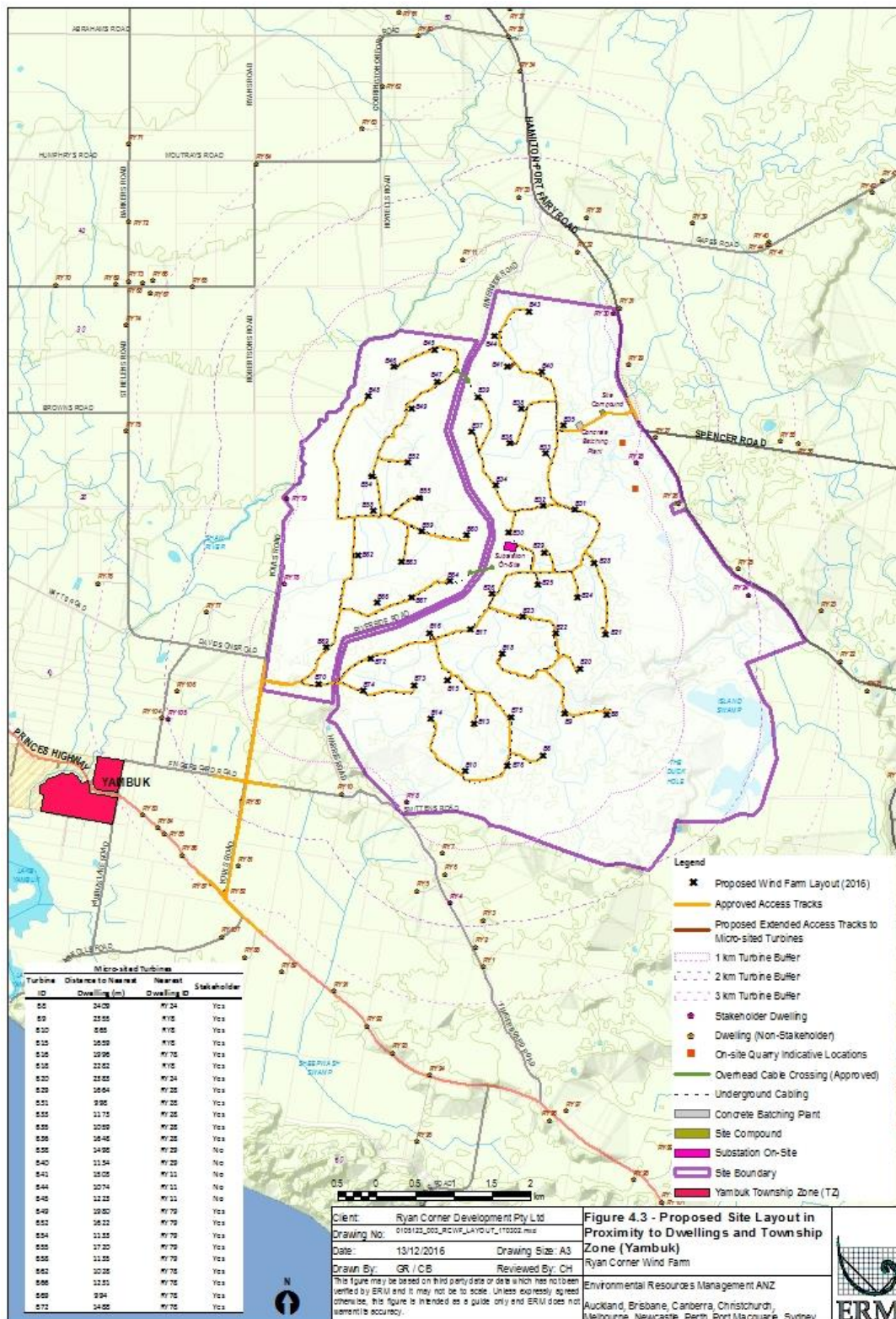


Table 4-5 Distance of each turbine to the nearest property boundary

| Turbine ID | Micro-sited | Distance to Site Boundary (m) | Distance to Nearest Dwelling (m) | Nearest Dwelling ID | Stakeholder |
|------------|-------------|-------------------------------|----------------------------------|---------------------|-------------|
| B6 | No | 1056 | | | |
| B8 | Yes | 1621 | 2409 | RY24 | Yes |
| B9 | Yes | 1660 | 2355 | RY8 | Yes |
| B10 | Yes | 519 | 865 | RY8 | Yes |
| B13 | No | 1150 | | | |
| B14 | No | 1094 | | | |
| B15 | Yes | 1464 | 1659 | RY8 | Yes |
| B16 | Yes | 1511 | 1996 | RY78 | Yes |
| B17 | No | 1977 | | | |
| B18 | Yes | 2109 | 2282 | RY8 | Yes |
| B20 | Yes | 2164 | 2383 | RY24 | Yes |
| B21 | No | 1770 | | | |
| B22 | No | 2173 | | | |
| B23 | No | 2363 | | | |
| B24 | No | 1649 | | | |
| B25 | No | 1975 | | | |
| B26 | No | 2462 | | | |
| B28 | No | 1199 | | | |
| B29 | Yes | 1742 | 1664 | RY28 | Yes |
| B30 | No | 2131 | | | |
| B31 | Yes | 1242 | 998 | RY28 | Yes |
| B32 | No | 1628 | | | |
| B33 | Yes | 1252 | 1173 | RY28 | Yes |
| B34 | No | 1884 | | | |
| B35 | Yes | 893 | 1059 | RY28 | Yes |

| Turbine ID | Micro-sited | Distance to Site Boundary (m) | Distance to Nearest Dwelling (m) | Nearest Dwelling ID | Stakeholder |
|------------|-------------|-------------------------------|----------------------------------|---------------------|-------------|
| B36 | Yes | 1378 | 1648 | RY28 | Yes |
| B37 | No | 1184 | | | |
| B38 | Yes | 1018 | 1498 | RY29 | No |
| B39 | No | 727 | | | |
| B40 | Yes | 872 | 1134 | RY29 | No |
| B41 | Yes | 473 | 1503 | RY11 | No |
| B44 | Yes | 130 | 1074 | RY11 | No |
| B45 | Yes | 194 | 1223 | RY11 | No |
| B46 | No | 413 | | | |
| B47 | No | 605 | | | |
| B48 | No | 245 | | | |
| B49 | Yes | 805 | 1980 | RY79 | Yes |
| B52 | Yes | 1112 | 1622 | RY79 | Yes |
| B54 | Yes | 894 | 1133 | RY79 | Yes |
| B55 | Yes | 1543 | 1720 | RY79 | Yes |
| B58 | Yes | 1032 | 1135 | RY79 | Yes |
| B59 | No | 1716 | | | |
| B60 | No | 2268 | | | |
| B62 | Yes | 985 | 1028 | RY78 | Yes |
| B63 | No | 1542 | | | |
| B64 | No | 2161 | | | |
| B66 | Yes | 1286 | 1231 | RY78 | Yes |
| B67 | No | 1679 | | | |
| B69 | Yes | 687 | 994 | RY78 | Yes |
| B70 | No | 202 | | | |
| B72 | Yes | 721 | 1488 | RY78 | Yes |
| B73 | No | 1032 | | | |

| Turbine ID | Micro-sited | Distance to Site Boundary (m) | Distance to Nearest Dwelling (m) | Nearest Dwelling ID | Stakeholder |
|------------|-------------|-------------------------------|----------------------------------|---------------------|-------------|
| B74 | No | 372 | | | |
| B75 | No | 1351 | | | |
| B76 | No | 732 | | | |
| B43 | No | 209 | | | |

4.4 Obstacle Lighting

Obstacle lighting of turbines for aviation safety purposes will be undertaken in accordance with CASA requirements and as reflected in the proposed amended Condition 9 of the permit, the final of wording of which is likely to be informed by CASA.

CASA has issued its response to the proposed amendment, which concludes that:

‘CASA recommends that the wind farm is lit with steady red low intensity lighting at night as per Section 9.4 of the CASA Manual of Standards Part 139. Characteristics for low intensity are stated in subsection 9.4.7.

CASA agrees that the turbines that should be lit are those identified by the consultant in the drawing ‘Ryan Corner Wind Farm Obstacle Lighting Design V1.1, (9October 2015).’

A copy of CASA’s response which accompanies the Aeronautical Impact Assessment is included in the document (‘Volume 4’) titled ‘Proposed Amended Plans and Documents for Endorsement’ dated February 2017.

Aviation and obstacle lighting is further discussed at Section 7.2.5 of this report.

4.5 Quarry and Construction Materials

The use of quarries will be required to access raw materials for the production of concrete for the construction of turbine and crane foundations as well as access roads. There are two on site quarries as well as a number of off-site quarries which could be used however the selection of quarry site(s) is not yet finalised. The off-site quarries under consideration are the Davidson Quarry located approximately 25km to the east of the site, and Holcim Quarry located approximately 15km to the north of the site.

A suitable on-site water source has not yet been determined for use during construction however it is expected that water may be transported from Warrnambool.

. The indicative location of the two on-site quarries is shown on *Figure 4.2* and *Figure 4.3*. It is noted that the current endorsed site layout plan does not (and was not required to) show the location of on-site quarries.

4.6 Connection to the Network Grid

Ryan Corner and Hawkesdale Wind Farms will connect to the network grid at the existing Tarrone terminal station located on the north east corner of Landers Lane and Riordans Road approximately 10 km north of Ryan Corner Wind Farm and 13km south west of Hawkesdale Wind Farm.

Ryan Corner Development purchased a 83ha site which abuts the Tarrone terminal station to the east, and intend to construct a substation on this land. This substation will transform voltage from the 132kV transmission lines extending

from the Ryan Corner and Hawkesdale Wind Farms to the 500kV transmission line which traverses east west and is located immediately to the south of Tarrone terminal station.

The alignment of the 132kV transmission lines connecting from Ryan Corner and Hawkesdale Wind Farms as well as the location of the proposed substation are shown at *Figure 4.4*.

A separate permit application will be submitted in relation to the substation in accordance with the Moyne Planning Scheme.

It is noted that a planning permit is not required for the use and development of the 132 kV transmission line (defined as a 'minor utility installation' under the Moyne Planning Scheme). The alignment of the transmission line for Ryan Corner and Hawkesdale Wind Farms traverses private cleared land and as such does not require native vegetation removal (which may otherwise trigger a requirement for a planning permit).

4.7 Contribution to energy generation, 'green' energy and the local economy

The proposed amended Ryan Corner Wind Farm will have a capacity of up to 224MW (56 x 4.0MW). This represents an increase in energy yield of approximately 70% compared to the current approved wind farm and is able to be achieved with twelve less turbines.

The proposed Ryan Corner Wind Farm will be able to power approximately 137,000 households in Victoria whilst eliminating approximately 688,000 tons of greenhouse gases per year. This will help the government reach its renewable energy target of 33,000 Gigawatt hours by 2020.

The overall investment for the wind farm will be approximately \$360 million. The project is expected to generate approximately 110. full time equivalent jobs during construction and 10 permanent jobs during operation.

In addition, there will be annual generation levies to be payable to the Moyne Shire Council (approximately \$326,000) and annual rental payments to host landowners (approximately \$725,000).

4.8 Changes to Permit Conditions

In addition to the proposed amendments to Condition 3 regarding turbine specifications (refer Section 4.1 above), the proposed amendments to other permit conditions are required to:

- allow for the future micro-siting of turbines without the need for further Ministerial consent (Condition 2);
- require landscape mitigation works to be offered to dwellings within 4km of the nearest turbine (Condition 5);
- require appropriate lighting of the new turbines for aviation reasons (Condition 9);
- reflect current noise standards (Conditions 18 and 19); and
- allow shadow flicker to exceed relevant limits at the consent of relevant landowner(s) (Condition 22).

These matters are further discussed at Section 7.4 of this report.

5 LEGISLATIVE FRAMEWORK

This section summarises the relevant State legislation, with the exception of State planning policies (including the Wind Energy Guidelines) which are discussed in *Section 6*.

5.1 Planning and Environment Act 1987

The purpose of the P&E Act is to establish a framework for planning the use, development and protection of land in Victoria in the present and long-term interests of all Victorians. The proposed amendment remains consistent with the key objectives of the P&E Act and will result in the orderly and sustainable development and use of land that will have minimal impact on natural resources and ecological processes.

The P&E Act establishes a planning framework, a relevant objective of which is '*to establish a system of planning schemes based on municipal districts to be the principal way of setting out objectives, policies and controls for the use, development and protection of land.*' A summary of the relevant objectives and policies of the Moyne Planning Scheme (Planning Scheme) is provided at *Section 6* of this report.

5.2 Environment Effects Act 1978

The EE Act provides for the assessment of projects that are capable of having a significant effect on the environment. The EE Act enables the Minister for Planning to decide whether an EES should be prepared for a Project. An EES was prepared for the Project which was subject to public exhibition and an Independent Panel of Inquiry. The Panel recommended approval of the wind farm and the Minister supported the Panel's recommendation.

Depending on the extent of any subsequent amendments to the approved wind farm, a revised proposal can require referral to the Minister to determine whether further assessment is required under the EE Act. *The Ministerial Guidelines for Assessment of Environmental Effects 2006* acknowledge that variations to a project are often required post approval. Of note, the Guidelines acknowledge 'proponent-initiated variations' in response to, for example, technological or commercial factors. The Guidelines state that '*the nature and scale of such changes, and hence appropriate responses, may vary considerably. Where a revised proposal could involve significant 'new' effects on the environment, the proponent may need to refer the revised proposal to the Minister for a decision as to whether further assessment is required under the Environment Effects Act*'(emphasis added).

Importantly, the proposed amendment is consistent with the recommendations in the Ministers Assessment of the environmental impacts under the *EE Act* in relation to the original application for Ryan Corner Wind Farm, issued in May 2008.

The Minister's recommendation has regard to relevant matters which were assessed at the public Inquiry. These are discussed as follows, and are also discussed later in this report.

With regard to cultural heritage, the Minister recommendation was to grant a permit once the Cultural Heritage Management Plan (CHMP) was approved under the *Aboriginal Heritage Act 2006*. The proposed amendment will not alter the status quo regarding the approved CHMP. Of note is that the approved access tracks are not proposed to be realigned (noting that some will be removed and there will be some minor 'extensions' of approved access tracks within approved micro-sited areas), thereby avoiding concerns regarding potential impacts on areas of cultural heritage sensitivity.

With regard to landscape and visual amenity, the Minister's recommendation supports the Inquiry's recommendations for landscaping and aviation lighting to be in accordance with Conditions 4, 5, and 9 in the permit. The proposed amendment will not alter the status quo regarding Condition 4 which requires a landscape plan for the substation. Minor amendments are proposed to Conditions 5 and 9 as discussed in other parts of this report however there will be no implications as a result of these amendments with regard to the requirements of the *EE Act*.

With regard to noise, the Minister's recommendation supports the Inquiry's recommendations for noise monitoring and any necessary compliance measures to be undertaken in accordance with Conditions 18-21 of the permit. The proposed

amendment will not alter the status quo regarding these conditions as it relates to the requirements of the *EE Act* notwithstanding that it is proposed to amend Conditions 18 and 19 to reflect current noise standards.

With regard to flora and fauna, the Minister's recommendation supports the Inquiry's recommendations for relevant documentation to be prepared in accordance with Conditions 1-3, 9 and 16 of the permit. The proposed amendment will not alter the status quo regarding these conditions in terms of requirements of the *EE Act*, notwithstanding that it is proposed to amend Conditions 2, 3 and 16 as discussed in other sections of this report.

With regard to electromagnetic interference, the Minister's recommendation supports the Inquiry's recommendations for pre and post monitoring of electronic interference to be undertaken in accordance with Conditions 24-26 of the permit. This status will not change as a result of the proposed amendment.

With regard to traffic management, the Minister's recommendation supports the Inquiry's recommendations for a traffic management plan (TMP) to be prepared and implemented in accordance with Conditions 10-11 of the permit. The status quo of these conditions as it relates to the requirements of the *EE Act* will not change as a result of the proposed amendment, notwithstanding that the TMP is being amended as part of the proposal.

With regard to Safety, the Minister's recommendation supports the Inquiry's recommendations for a Wildfire and Emergency Response Plan to be prepared and implemented as part of the Environmental Management Plan in accordance with Condition 13 of the permit. This status quo will not change as a result of the proposed amendment.

With regard to Aviation Lighting and Safety, the Minister's recommendation supports the Inquiry's recommendation of minimising the safety lighting required in consultation with CASA in accordance with Condition 9 of the permit, and forwarding relevant details of the wind farm to CASA in accordance with Condition 28 of the permit. The status quo of these conditions will not change as a result of the proposed amendment.

With regard to shadow flicker, the Minister's recommendation supports the Inquiry's recommendations for shadow flicker to be monitored in accordance with Conditions 22-23 of the permit. The proposed amendment will not alter the status quo regarding these conditions as it relates to the requirements of the *EE Act*, notwithstanding that it is proposed to amend Condition 22 as discussed in other sections of this report.

With regard to cumulative effects, the Minister's recommendation finds that the cumulative effects are low and can be managed effectively. For reasons mentioned throughout this report the proposed amendment will have no unreasonable net cumulative impacts, and on the contrary will reduce the cumulative impact on the basis that twelve turbines are being removed which will reduce the wind farm footprint and potential visual impacts.

In consideration of the above, the proposed amendment is not expected to significantly alter the environmental impacts considered under the EES and managed by the existing permit conditions. The above is supported by relevant accompanying technical assessments which conclude that there will be minimal impacts as a result of the proposed amendments.

Therefore, it was concluded that the proposal will not 'trigger' the need for additional assessment under the *EE Act* and, assessment of any potential environmental impacts will therefore, occur under the P&E Act under the planning permit amendment process.

A copy of the Minister's assessment and recommendations is included as Annex A of this report.

5.3 Other Relevant Legislation

Land use and development within Victoria is also controlled by other related legislation. Planning Schemes outline policy relating to a range of environmental, social and economic matters and refer to various legislation and approvals. Other relevant legislation includes (but not necessarily limited to):

- *Aboriginal Heritage Act 2006*;
- *Catchment and Land Protection Act 1994*;
- *Crown Land (Reserves) Act 1978*;
- *Environmental Protection and Biodiversity Act 1999*;
- *Flora and Fauna Guarantee Act 1998*;
- *Heritage Act 1995*;
- *Road Management Act 2004*; and
- *Wildlife Act 1975*.

The above legislation and any associated regulations, policies and guidelines have been considered, where relevant, as part of the technical assessments in support of this amendment.

6 MOYNE PLANNING SCHEME

The proposed amendment requires planning approval pursuant to the Planning Scheme, as implemented by the P&E Act. There have been a number of changes to both State and local planning policy since the original application was assessed. These changes however do not significantly alter the assessment of the application. The relevant current policies and provisions of the Scheme are detailed below.

6.1 State Planning Policy Framework

The SPPF comprises principles that elaborate upon the objectives of planning in Victoria. These policies have changed since the assessment of the original application, however the general objectives remain relevant. The following policies are applicable to the proposed amendment.

Clause 10 – Operation of the State Planning Policy Framework

Clause 10.01 ‘Purpose’ outlines the purpose, goal, application and decision making framework for planning in Victoria. The primary objective is *‘to provide for the fair, orderly, economic and sustainable use and development of land.’*

Clause 10.04 ‘Integrated Decision Making’ recognises the need to integrate the range of policies relevant to the issues to be determined and to balance conflicting objectives in favour of net community benefit and sustainable development.

Clause 11 – Settlement

Clause 11 ‘Settlement’ aims *‘to prevent environmental problems caused by siting incompatible land uses close together.’*

Clause 11.05-3 ‘Rural productivity’ seeks to *‘manage land use change and development in rural areas to promote agriculture and rural production’.*

Clause 11.05-4 ‘Regional planning strategies and principles’ seek to *‘develop regions and settlements which have a strong identity, are prosperous and are environmentally sustainable’.* One of the strategies seeks to avoid *‘development impacts on land that contains high biodiversity values, landscape amenity, water conservation values, food production and energy production capacity, extractable resources and minerals, cultural heritage and recreation values, assets and recognised uses.’*

Clause 12 – Environmental and Landscape Value

Clauses 12.01 ‘Biodiversity’ recognises the need to protect and conserve Victoria’s biodiversity and to ensure that permitted clearing of native vegetation results in no net loss in the contribution made by native vegetation to Victoria’s biodiversity.

Clause 12.04-2 ‘Landscapes’ seeks *‘to protect landscapes and significant open spaces that contribute to character, identity and sustainable environments.’*

Clause 13 – Environmental Risk

Clause 13.03 ‘Soil degradation’ highlights the importance of minimising environmental degradation and hazards including protecting areas prone to erosion and minimising the impact of salinity through the prevention of inappropriate development in areas affected by salinity.

Clause 13.04-1 ‘Noise abatement’ includes a strategy to ensure that development and community amenity is not prejudiced by noise emissions.

Clause 13.05-1 ‘Bushfire planning strategies and principles’ recognises the importance of strengthening community resilience to bushfires.

Clause 14 – Natural Resource Management

Clause 14 ‘Natural resource management’ states that *‘Planning is to assist in the conservation and wise use of natural resources...’*

Clauses 14.01 ‘Agriculture’ encourages sustainable agricultural land uses and the protection of productive farmland from inappropriate development or subdivision of land.

Clause 14.02-1 ‘Catchment planning and management’ seeks to *‘assist the protection and, where possible, restoration of catchments, waterways, water bodies, groundwater, and the marine environment’*.

Clause 14.02-2 ‘Water quality’ seeks to protect water quality and ensure that land use activities potentially discharging contaminated runoff or wastes to waterways are sited and managed to minimise such discharges; and to protect the quality of surface water and groundwater resources, rivers, streams, wetlands, estuaries and marine environments.

Clause 15 – Built Environment and Heritage

Clause 15 ‘Built Environment and Heritage’ stipulates that *‘Planning should ensure all new land use and development appropriately responds to its landscape, valued built form and cultural context, and protect places and sites with significant heritage, architectural, aesthetic, scientific and cultural value.’*

Clause 15.02-1 ‘Energy and resource efficiency’ encourages land use and development that assists in the efficient use of energy and minimisation of greenhouse gases.

Clauses 15.03 ‘Heritage’ aims to ensure the conservation of places of historic and Aboriginal cultural heritage.

Clause 17 – Economic Development

Clause 17 ‘Economic Development’ states that *‘Planning is to contribute to the economic well-being of communities and the State as a whole by supporting and fostering economic growth and development by providing land, facilitating decisions, and resolving land use conflicts, so that each district may build on its strengths and achieve its economic potential.’*

Clause 18 – Transport

Clause 18.01-2 ‘Transport system’ recognises that new land uses and development should be planned to ensure appropriate transport routes are available and that transport practices reduce environmental impacts.

Clause 19 – Infrastructure

Clause 19.01-1 ‘Provision of Renewable Energy’ promotes *‘the provision of renewable energy in a manner that ensures appropriate siting and design considerations are met.’* This policy provides strong strategic support for renewable energy projects, including wind farm developments. Strategies of particular relevance include:

- *‘Facilitate renewable energy development in appropriate locations.’*
- *In considering proposals for renewable energy, consideration should be given to the economic and environmental benefits to the broader community of renewable energy generation while also considering the need to minimise the effects of a proposal on the local community and environment.’*
- *In planning for wind energy facilities, recognise that economically viable wind energy facilities are dependent on locations with consistently strong winds over the year.’*

The Clause states that planning must consider *Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria* (Department of Environment, Land, Water and Planning, January 2016). This document is discussed later in this report.

6.2 Local Planning Policy Framework

The Local Planning Policy Framework (LPPF) contains the Municipal Strategic Statement (MSS) and Local Planning Policies and outlines the vision for future land uses and development within the Moyne Shire. While there have been numerous changes to the LPPF since the original assessment of the wind farm, the overall objectives remain consistent. The following sections of the LPPF are relevant to the amended proposal.

6.2.1 Municipal Strategic Statement

Clause 21.03 – Factors Influencing Future Planning and Development

Clause 21.03 outlines the following factors which are relevant to the proposal and of importance to the Shire's future land use and development:

- *'The municipality relies heavily on agricultural activity as its economic base.*
- *Existing roadside vegetation is under threat and needs to be preserved through protection.*
- *The importance of landscape character to the economy of the Region and the need to relate new development to landscape character.*
- *The importance of views of the landscape from road corridors, and the need to control and manage development that is highly visible from main road corridors and principal tourist routes.*
- *The need to retain the dominance of the landscape from key viewing locations throughout the Region.*
- *The need to ensure the sustainable protection of remnant native vegetation along and adjoining the coast, estuaries, wetlands, waterways and the coastal hinterland.'*

Clause 21.04 – Municipal Vision

Clause 21.04 outlines the following in relation to the Shire's land use and development vision:

'Where the economy uses the strengths of the agricultural foundation to further diversify and improve production and increase opportunities for value added activities, industrial expansion, tourism and recreation and leisure experiences... Where resources are used in a sustainable way to promote the aspirations of its residents and meet the needs of tourists and visitors, while still valuing, protecting and enhancing the significant natural landscape, environmental features and heritage places for the appreciation of future generations.'

Clause 21.06 – Environment

Clause 21.06 outlines the following policy objectives (amongst others):

- *'To encourage restoration of degraded land, particularly stream frontages.*
- *To protect water quality by preventing urban run-off leading to erosion, siltation or degradation of waterways.*
- *To protect significant natural environments and where appropriate form effective open space and/or habitat corridors, along river and coastal areas.*
- *To develop and implement sensible fire management solutions that reduce risks to the community and recognise the balance between fire safety and healthy natural environments.*
- *To apply principles of ecologically sustainable development within the Municipality wherever feasible.*
- *To identify landscapes of high scenic value.*
- *To retain the open and rural character of views and outlooks, particularly from main road corridors.'*

Clause 21.07 – Economic Development

Clause 21.07 seeks *'to support and facilitate the development of local employment opportunities.'* This Clause recognises that agriculture is the most significant land use in the Shire and the most important sector of the land and regional economy.

In addition, **Clause 21.07** recognises that:

'Wind farms have been established along the Yambuk and Codrington coasts. There is an increasing amount of pressure for wind farms and gas plants along the coastal hinterland from Peterborough to Warrnambool, including large wind farms containing multiple turbines.'

Clause 21.08 – Infrastructure and Particular Uses

Clause 21.08 seeks to maintain and enhance key infrastructure including the local road network and to ensure private developers contribute to the provision of new infrastructure.

6.2.2 Local Planning Policies

Clause 22.01 – Settlement and Housing

Clause 22.01-1 'Aboriginal heritage' applies to all land and aims *'to promote the protection and appropriate management of Aboriginal cultural heritage values.'*

Clause 22.02 – Environment

Clause 22.02-2 'Rare and threatened species' seeks to protect Victorian rare and threatened flora and fauna species listed under the *Flora and Fauna Guarantee Act 1988* and maintain and enhance critical habitat for the survival of such species.

Clause 22.02-8 'Flora and fauna local policy' recognises that the majority of the Shire has been cleared for agriculture and contains limited areas of natural vegetation cover. It is policy to encourage the protection, conservation and enhancement of flora and fauna communities throughout the Shire.

Clause 22.03 – Economic Development

Clause 22.03-4 'Agricultural production' applies to all land in the Farming Zone and states that the preservation of agricultural land in large holdings is necessary to maintain the agricultural economy of the area. Relevant objectives include:

- *'To support, protect and assist in the diversification of agriculture.'*
- *To ensure that land capability and land suitability will be considered in the assessment of use and development proposals.'*
- *To ensure that the use and development of land within Moyne is not prejudicial to agricultural industries or to the productive capacity of the land.'*

Clause 22.03-8 'Fire protection local policy' applies to all land in the Farming Zone and has the objectives to ensure *'that land use and development does not increase the level of fire risk'* and *'that adequate fire protection measures are considered.'*

6.3 Zoning and Overlay Controls

Zoning and overlay controls set out the land use objectives for the area by giving direction as to how the land should be developed and used now and in the future. The controls establish whether a planning permit is required for particular uses and development.

The zoning and overlay controls relating to the wind farm site have not significantly changed since the original assessment of the application. The wind farm site remains within the Farming Zone (FZ) and adjoins land within the Road Zone Category 1 (RDZ1), being Hamilton-Port Fairy Road located to the north-east.

The relevant zones are detailed in the following sections. A zoning map showing the location of the site is provided at *Figure 6-1*.

The site is not subject to any overlay controls.

6.3.1 Farming Zone

The wind farm site is located in the FZ pursuant to **Clause 35.07** of the Moyne Planning Scheme.

The purpose of the FZ is:

- *'To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.'*
- *To provide for the use of land for agriculture.*
- *To encourage the retention of productive agricultural land.*
- *To ensure that non-agricultural uses, particularly dwellings, do not adversely affect the use of land for agriculture.*
- *To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision.*
- *To protect and enhance natural resources and the biodiversity of the area.'*

Under the provisions of **Clause 35.07-1** a planning permit is required for a 'wind energy facility' as it is specified as a Section 2 (permit required) use subject to it meeting the requirements of Clause 52.32 (discussed later in this report). The land use definition of a wind energy facility is included at Section 6.4 of this Report.

Pursuant to **Clause 35.07-4**, a permit is required for building and works for Section 2 (permit required) uses.

6.3.2 Road Zone Category 1

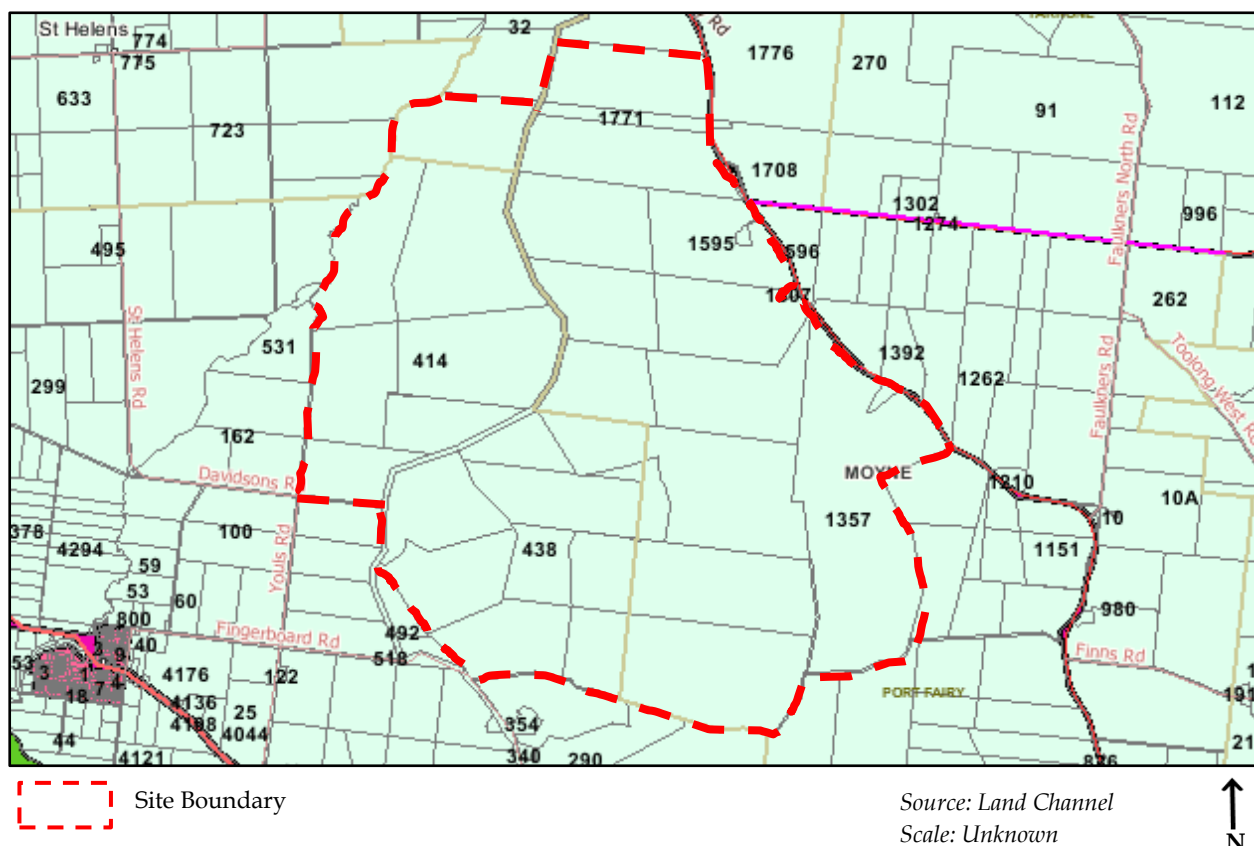
The wind farm site adjoins Hamilton-Port Fairy Road located to the north-east which is contained within the RDZ1 pursuant to **Clause 36.04**.

The purpose of this zone includes:

- *'To identify significant existing roads.'*
- *To identify land which has been acquired for a significant proposed road.'*

Pursuant to **Clause 36.04-2** a permit is required to construct a building or construct or carry out works for a Section 2 use. The proposed amendment does not trigger the need for a planning permit pursuant to this Clause.

Figure 6-6.1 Zoning Map



6.4 Land Use Definition

6.4.1 Clause 74 – Land Use Terms

Amendment VC107 to the Victoria Planning Provisions (VPP) was gazetted on 26 November 2015. This Amendment (amongst other things) amended the land use definition of ‘wind energy facility’ at Clause 74 ‘Land Use Terms’ of the Planning Scheme, to remove reference to the transmission or distribution system of power lines from the land use definition. The previous land use definition was introduced as part of Amendment VC125 (gazetted 11 June 2015) which included this infrastructure as part of the wind energy facility definition. Prior to VC125, such infrastructure was often considered to be a ‘minor utility installation’ which did not require a permit. When the original permit was issued for the approved wind farm, a permit was not required for this infrastructure.

A ‘wind energy facility’ is now defined as:

‘Land used to generate electricity by wind force. It includes land used for:

- a) any turbine, building or other structure or thing used in or in connection with the generation of electricity by wind force;*
- b) an anemometer.*

It does not include turbines principally used to supply electricity for domestic or rural use of the land.’

6.5 Particular and General Provisions

Particular provisions are specific requirements that relate to particular uses and developments, while general provisions are operational requirements. These provisions have been amended since the original assessment to reflect State legislative changes and current policy and guidelines. In addition, a new provision relevant to the proposal (Clause 52.37 ‘Post Boxes and Dry Stone Walls’) has been introduced which seeks to protect historic post boxes and dry stone walls. The provisions relevant to the proposed amendment are detailed below.

6.5.1 Clause 52.17 – Native Vegetation

The statutory framework for assessing native vegetation removal has changed since the issue of the original permit, which has resulted in changes to Clause 52.17. The key change relates to the introduction of the Permitted clearing of native vegetation – Biodiversity assessment Guidelines (Biodiversity Guidelines), which forms an Incorporated document in the Planning Scheme.

The general purpose of **Clause 52.17** remains as follows:

- *‘To ensure permitted clearing of native vegetation results in no net loss in the contribution made by native vegetation to Victoria’s biodiversity. This is achieved through the following approach:*
 - *Avoid the removal of native vegetation that makes a significant contribution to Victoria’s biodiversity.*
 - *Minimise impacts on Victoria’s biodiversity from the removal of native vegetation.*
 - *Where native vegetation is permitted to be removed, ensure that an offset is provided in a manner that makes a contribution to Victoria’s biodiversity that is equivalent to the contribution made by the native vegetation to be removed.*
- *To manage native vegetation to minimise land and water degradation.*
- *To manage native vegetation near buildings to reduce the threat to life and property from bushfire.’*

In accordance with this Clause a permit is required to remove, destroy or lop native vegetation, including dead native vegetation, except if a specified exemption applies as listed in the Clause. Pursuant to **Clause 52.17-6**, the biodiversity impacts of the removal of native vegetation are required to be offset in accordance with the Biodiversity Guidelines (DEPI, 2013).

A Planning Permit (No.PL07/067) has been issued for the removal of native vegetation on the wind farm site. The proposed amendment will not result in any further impacts on native vegetation and therefore no further approvals are required pursuant to **Clause 52.17**. This matter is further discussed later in this report.

6.5.2 Clause 52.29 – Land Adjacent to a Road Zone Category 1

The purpose of **Clause 52.29** ‘Land Adjacent to a Road Zone Category 1’ includes:

‘To ensure appropriate access to identified roads.’

In accordance with this Clause a permit is required to create or alter access to a road in a Road Zone, Category 1.

Hamilton-Port Fairy Road which abuts the wind farm site to the north east is included in the RDZ1 and access to the wind farm from this road has been approved pursuant to the current permit and endorsed plans. No changes are proposed to this access as a result of the proposal and as such no further planning approvals are required in relation to this access.

6.5.3 Clause 52.32 – Wind Energy Facility

Clause 52.32 has been amended a number of times since the original application was assessed. Notwithstanding, the purpose of the Clause remains unchanged and seeks:

‘To facilitate the establishment and expansion of wind energy facilities, in appropriate locations, with minimal impact on the amenity of the area.’

Pursuant to **Clause 52.32-2** a permit is required to use and develop the land for a ‘wind energy facility’.

The amendments introduced a range of changes to the assessment of wind farm proposals, particularly in relation to landscape and noise impact assessment, with the prohibition of wind farms in locations with high conservation, environmental, amenity and/or landscape values. A key change relates to the prohibition of turbines located within 1km of a dwelling. However this does not apply if written consent is obtained from the dwelling owner before lodging the planning permit application.

More specifically, **Clause 52.32-3** requires that *'an application that includes a turbine that is within one kilometre of an existing dwelling must be accompanied by:*

- *A plan showing all dwellings within one kilometre of a proposed turbine.*
- *Evidence of the written consent of any owner of an existing dwelling located within one kilometre of a proposed turbine that forms part of a Wind energy facility.'*

This however, does not apply to an application to amend a permit under Section 97I of the P&E Act, unless the permit would:

- *'increase the number of turbines; or*
- *change the location of a turbine so that the centre of its tower (at ground level) is located closer to an existing dwelling (within one kilometre of a permitted turbine) than the centre of the tower (at ground level) of the closest permitted turbine to that dwelling'.*

The proposal will not increase the number of turbines, nor result in a turbine being located closer to an existing dwelling located within one kilometre of an approved turbine. Therefore the proposal complies with the current requirements of **Clause 52.32** in this respect.

The decision guidelines remain similar to those considered in the original application; however contain reference to the current Wind Energy Guidelines and Noise Assessment Standard. The responsible authority is directed to give consideration to the following:

- *'The State Planning Policy Framework and the Local Planning Policy Framework including the Municipal Strategic Statement and local planning policies.*
- *The effect of the proposal on the surrounding area in terms of noise, blade glint, shadow flicker and electromagnetic interference.*
- *The impact of the development on significant views, including visual corridors and sightlines.*
- *The impact of the facility on the natural environment and natural systems.*
- *The impact of the facility on cultural heritage.*
- *The impact of the facility on aircraft safety.*
- *Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria (Department of Environment, Land, Water and Planning, January 2016).*
- *The New Zealand Standard NZS6808:2010, Acoustics – Wind Farm Noise'.*

6.5.4 Clause 52.37 – Post Boxes and Dry Stone Walls

This provision was introduced in to the Planning Scheme in December 2008, after the original permit was issued for the wind farm. The purpose of **Clause 52.37** 'Post Boxes and Dry Stone Walls' is:

'To conserve historic post boxes and dry stone walls.'

In accordance with this Clause a permit is required to demolish, remove or alter a dry stone wall constructed before 1940. This does not apply to:

- *'Dry stone structures other than walls and fences.*
- *The demolition or removal of a section of a dry stone wall to install a gate.*
- *The reconstruction of damaged or collapsing walls which are undertaken to the same specifications and using the same materials as the existing walls.'*

The proposal does not involve the demolition, removal or alteration to any dry stone walls and therefore a permit is not required pursuant to this Clause.

6.5.5 Clause 61.01-1 – Administration and Enforcement of this Scheme

Clause 61.01 states that the Minister for Planning is the responsible authority for planning permit applications for the *'use and development of land for a Wind energy facility.'*

6.5.6 Clause 62 - Uses, Building, Works, Subdivision and Demolition Not Requiring a Permit

Under the provisions of this Clause, road works within the Farming Zone are exempt from requiring planning approval in their own right.

6.5.7 Clause 65 – Decision Guidelines

Clause 65 provides additional decision guidelines that the responsible authority must have regard to before deciding on the amended application.

6.6 Other Relevant Documentation

There are a number of documents referred to or Incorporated in the Planning Scheme, which are relevant to the planning considerations of the proposal. These include:

- *Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria* (DELWP, January 2016);
- *Permitted clearing of native vegetation – Biodiversity assessment guidelines* (DEPI, 2013);
- *Great South Coast Regional Growth Plan* (Victorian Government, 2014); and
- *Glenelg-Hopkins Regional Catchment Strategy 2013-2019* (Glenelg-Hopkins Catchment Management Authority (GHMA), 2013).

In addition, there are a number of other policy documents of note that are not Reference or Incorporated documents within the Planning Scheme, including:

- *Draft National Wind Farm Development Guidelines* (Environment Protection and Heritage Council (EPHC), 2010);
- *Victorian Greenhouse Strategy Action Plan* (DSE, 2005);
- *South West Landscape Assessment Study* (DPCD and Planisphere, 2013);
- *Major Energy Proposals and their Ancillary Infrastructure Policy* (Moyne Shire Council, 2011); and
- *Environmental Sustainability Strategy* (Moyne Shire Council, 2012).

Of the above, key documents of particular relevance to the proposal are discussed below.

6.6.1 Policy and Planning Guidelines for Development of Wind Energy Policies in Victoria (Wind Energy Guidelines)

The Wind Energy Guidelines are prepared by the Victorian Government to assist in the development and assessment of applications for wind farms. The Guidelines form a Reference document at **Clause 52.32** of the Planning Scheme.

At the time of assessment of the original application, the relevant Wind Energy Guidelines were dated 2003. Since then the Guidelines have been amended a number of times, with the current Guidelines dated January 2016.

The current guidelines (amongst other things), include the updated land use definition of 'wind energy facility' (as discussed earlier in Section 6.4 of this report), and identifies the information required to accompany applications for wind farms and matters which must be considered by the responsible authority in assessing planning permit applications. These are set out at Section 5 of the Guidelines, and relate to:

- contribution to Government Policy Objectives;
- amenity of the surrounding area, taking into account noise, blade glint, shadow flicker and electromagnetic interference;
- landscape and visual amenity;
- flora and fauna;
- aircraft safety; and
- construction impacts and decommissioning.

These matters are discussed in Section 7 of this report.

6.6.2 Draft National Wind Farm Development Guidelines

The purpose of the *Draft National Wind Farm Development Guidelines* (the Draft National Guidelines) (EPHC, 2010) is to provide a nationally consistent set of best-practice methods for assessing the impacts associated with wind farm developments and operations. The Environment Protection and Heritage Standing Committee has since decided to cease further development of the Guidelines but considers them a relevant reference document for industry and planning authorities.

6.6.3 Permitted clearing of native vegetation – Biodiversity assessment guidelines

The proposal is required to take into account the principles of the Biodiversity Assessment Guidelines (DEPI, 2013), which is an Incorporated document at **Clause 81.01** of the Planning Scheme. The purpose of the Biodiversity Assessment Guidelines is to guide how impacts on biodiversity should be considered when assessing an application for a permit to remove, lop or destroy native vegetation. The Guidelines seek to achieve '*No net loss in the contribution made by native vegetation to Victoria's biodiversity.*'

The proposal will not result in any further impacts on native vegetation. This matter is further discussed later in this report.

7 ASSESSMENT

7.1 Planning Policy

Matters raised in the following planning policy assessment are also discussed in further detail in subsequent sections of this report.

7.1.1 State and Local Planning Policy Frameworks

The State Planning Policy Framework (SPPF) comprises general principals for the land use and development in Victoria, while the Local Planning Policy Framework (LPPF) sets the local and regional strategic context for Moyne. There have been numerous changes to Clauses within the SPPF and LPPF since the original planning permit was issued in 2008. The general intent and objectives of the Scheme however, have not significantly changed. Following is an assessment of the amended proposal against the current Planning Policy Framework.

The proposed amendment seeks to utilise advances in technology which will result in a more efficient and sustainable wind farm than that originally proposed. As such, the proposal will enhance the *'the fair, orderly, economic and sustainable use and development of land'* in accordance with **Clause 10**. The proposal will not alter the approved land use, nor will it result in any project infrastructure in closer proximity to sensitive land uses. Rather the proposed micro-siting and removal of turbines will allow for greater separation distances between the wind farm and dwellings. In accordance with **Clause 11**, the proposal will not result in any further conflict with existing surrounding uses.

The wind farm site has an extensive history of sheep and cattle grazing and the amended proposal will have no further impact on the agricultural use of the land above that approved. The importance of agricultural land within Moyne is emphasised within Council's MSS at **Clause 21.03** and **21.04** and reiterated in **Clause 22.03**, which highlights the municipalities reliance of agricultural activity as an economic base. The nature of a wind farm, comprising the sporadic placement of turbines and access tracks, allows the continued use of the land for agriculture. In accordance with the objectives of local policy and **Clause 11.05-3**, the proposal will promote further agricultural activities as the amendment will reduce the extent of wind farm infrastructure on the site with the reduction of 12 turbines, thereby increasing the overall area available for agricultural use.

The proposal will ensure the wind farm utilises current technological advances. **Clause 11.05-4** encourages the development of *'regions and settlements which have a strong identity, are prosperous and are environmentally sustainable'*. The provision of such a renewable energy source within the Shire, within reasonable proximity to Port Fairy, will continue to contribute to the strong identity of Moyne as an environmentally sustainable region. The amended layout, comprising the minor changes to turbine siting and access tracks has been designed to avoid any additional environmental impacts.

As part of the original planning permit application and EES, extensive environmental assessments were undertaken and environmental management plans developed. It was determined that the wind farm would not unreasonably impact on the biodiversity values of the site or surrounding area, thereby meeting the objectives of **Clause 12**, and **Clause 22.02**. As discussed in greater detail in Section 7.3 of this report the amendment will not result in any undue amenity impacts above those previously considered. Further, approval has been granted under a separate planning permit for the removal of native vegetation, and the proposal will not result in any further impacts on native vegetation.

Given the nature of wind farms, there is potential for environmental risks, as referred in **Clause 13**, during both construction and operational phases. An Environmental Management Plan (EMP) has been approved for the project, which comprises a number of sub-plans. These include but are not limited to, a Sediment, Erosion and Water Quality Management Plan, a Wildfire Prevention and Emergency Response Plan and a Noise Management Plan. All works will be undertaken in accordance with the EMP. The Traffic Management Plan which forms a sub-plan of the EMP has been updated to reflect the proposal. This, coupled with the compliance with the EMP generally, will ensure not only environmental risks are addressed but also, that natural resources, such as waterways and wetlands are protected in compliance with **Clause 14** and **Clause 21.06**. It is noted that the content of the EMP itself would require updating to reflect the proposed amended layout, different turbine models, updated legislation etc (as appropriate). It is envisaged that the EMP would be updated and submitted for endorsement pursuant to Condition 13 once this particular proposal is appropriately progressed, for certainty.

The proposal has been sited with consideration given to the objectives of **Clause 15**, which seeks to ensure land use and development appropriately responds to the landscape and protects places of historic value. With the increase in turbine height and minor siting amendments proposed, consideration has been given to any potential additional landscape and visual impacts. As discussed later in Section 7.2.1 of this Report, the proposal will not result in undue visual impacts within this modified, rural landscape. Further, as discussed later in Section 7.3.3 of this report, the amended access tracks and turbine siting will not impact on areas of cultural heritage sensitivity. This will ensure the proposal complies with the broader objectives of State policy and specifically, **Clause 22.01**.

The wind farm will result in a direct and positive impact to the local and regional economy, in accordance with the objectives of **Clause 17** and specifically, **Clause 21.07**. The amendment will not detrimentally impact investment, and the wind farm will continue to result in significant economic instalments to the community. Furthermore, the wind farm will provide landholders with a second income source while allowing agricultural production to continue with minimal impact. There is opportunity for income generated from the wind farm to be reinvested by landholders into agricultural enterprises.

The wind farm has been planned to ensure appropriate access is available to the site, specifically during the construction period. A detailed Traffic Management Plan has been approved for the project, which has been updated in light of the current amendment. This is discussed in further detail in Section 7.2.6 of this report. This will ensure appropriate access is maintained and no significant impacts result to the local and regional road network in accordance with **Clause 18.01-2** and **Clause 21.08**. Given the proposed increase in height, consideration has been given to the requirements for obstacle lighting to ensure the development is appropriate in light of aircraft activity, in compliance with **Clause 18.04-3**. This matter is further discussed in Section 7.2.5 of this report.

Importantly, **Clause 19.01-1** promotes the provision of renewable energy in appropriate locations. The site of Ryan Corner Wind Farm has been previously determined as an appropriate location as demonstrated by the EES and planning permit approval. The proposal wholly complies with the objectives of this clause, with the wind farm expected to generate approximately 675 GWh each year of renewable energy for use by Australian consumers.

7.1.2 Particular Provisions

In addition to the objectives and strategies of State and local policy, there are a number of particular provisions which detail specific requirements relevant to the proposed amendment. These provisions have been amended since the original assessment to reflect legislative changes and current policy and guidelines. Following is an assessment of the amended proposal against the relevant provisions.

Clause 52.17 relates to native vegetation removal and triggers the need for a planning permit to remove native vegetation unless a specific exemption applies. This provision reiterates the objectives of **Clause 12** and **Clause 22.02** and seeks to ensure that native vegetation removal results in no net loss in the contribution made by native vegetation to Victoria's biodiversity. A planning permit has been issued for the removal of native vegetation on the wind farm site, and the proposal will not result in any further impacts on native vegetation. Therefore no further planning approvals are required pursuant to Clause 52.17.

Clause 52.29 relates to land adjacent to a Road Zone Category 1 (i.e. Hamilton-Port Fairy Road) and seeks to ensure appropriate access is maintained to these roads. Under this provision, a permit is required to create or alter access to Hamilton-Port Fairy Road. Approval has been granted for the creation of access to the wind farm site from Hamilton-Port Fairy Road along the north-east boundary, this approval has been exercised as part of Early Works (Stage 1) and this access entrance has been completed, and no changes are proposed to this access point as a result of the proposal. A Traffic Management Plan was endorsed as part of the EMP. This has been updated in light of the amendment, which will require longer vehicles to transport the proposed turbines. Potential traffic impacts are discussed in detail at Section 7.2.6 of this report.

Clause 52.32 seeks to facilitate the establishment and growth of wind farms in appropriate locations. A permit is required for the use and development of the wind farm under this Clause. There have been a number of significant changes to this Clause since assessment of the original application. An application that includes a turbine within one kilometre of an existing dwelling must now be accompanied by written consent of the owner of the dwelling within one kilometre. This however, does not apply to an amendment to an existing permit, so long as the number of turbines is not increased and no turbine within one kilometre of a dwelling is located any closer to that dwelling than approved. As approved, there are a number of turbines located within one kilometre of an existing dwelling. With the removal of a

number of turbines, particularly along the west side, only two dwellings will remain within one kilometre (RY8 and RY78), both of which are stakeholders in the wind farm. The proposed micro-siting will not locate turbines any closer to these dwellings than approved and therefore the proposal complies with the current requirements of **Clause 52.32**.

Consideration has been given to the application requirements contained in **Clause 52.32-4**, as follows:

Site and Context Analysis

In relation to the site:

- A description of the site including size, shape, orientation, current land uses and characteristics of the site is provided in Section 3.1 of this report.
- A description of existing vegetation types, condition and coverage are included in the Biodiversity Impact Assessment included in Annex J of this report.
- A detailed overview of flora and fauna listed under the *Flora and Fauna Act 1998* and *EPBC Act 1999* were provided in the original application which accompanied the approved wind farm. Details on such flora and fauna as it is relevant to the proposed amendments are provided in the Biodiversity Impact Assessment included in Annex J of this report.
- A detailed overview of potential impacts on areas of cultural heritage sensitivity are provided in the approved Cultural Heritage Management Plan associated with the approved wind farm. Details on potential impacts on areas of cultural heritage sensitivity as they relevant to the proposed amendments are included in the Cultural Heritage Assessment included in Annex M of this report.

In relation to the surrounding area:

- A description of the surrounding area including land uses, distances to dwellings etc is provided in Section 3.2 of this report. A detailed overview of the surrounding area was provided in the Planning Permit Application Report and accompanying technical reports which accompanied the approved wind farm.
- Details of key views to and from the site are provided in the Landscape and Visual Impact Assessment and accompanying photo montages included in Annex H of this report.

Design Response

- Details of the proposed amendments are provided in Section 4 of this report and accompanying technical assessments included in Annexes C to N of this report.
- Details on visual simulations illustrating the development in the context of the surrounding area and from key public view points are provided in the Landscape and Visual Impact Assessment and photo accompanying montages included in Annex H of this report.
- A detailed overview of how the approved wind farm responds to the site analysis was provided in the Planning Permit Application Report and accompanying technical assessments which accompanied the approved wind farm.
- Details on how the proposed amendments respond to the opportunities and constraints of the site in relation to visual impact, flora and fauna, noise and cultural heritage are provided in Section 7 of this report and accompanying technical assessments included in Annexes G to N of this report.
- A detailed overview of why the site is suitable for the wind energy facility was provided in the Planning Permit Application Report which accompanied the approved wind farm. It is also referred to in Section 7.1.1 of this report.
- An Environmental Management Plan has been approved in relation to the approved wind farm, pursuant to Condition 13 of the permit.

Consideration has been given to the decision guidelines contained in **Clause 52.35-5**, as follows:

- Compliance of the proposal with the SPPF and the LPPF is discussed in Section 7.1.1 above. The amendment complies with the general objectives of State and local policy and will result in an efficient use and sustainable development in an appropriate location. The effect of the amendment on the surrounding area in terms of noise, blade glint, shadow flicker and electromagnetic interference is discussed later in this report. Technical assessments have determined that any potential impacts can be appropriately mitigated and the proposal will not result in any undue impacts on surrounding properties above those previously considered.

- The impact of the development on significant views is discussed at Section 7.2.1 of this report. A Landscape and Visual Impact Assessment has been prepared in light of the increase in turbine height, reduced number of turbines, and micro-siting of turbines. The Assessment concluded that although larger turbines are proposed, this will not result in significant visual impacts above that originally assessed.
- The amendment will result in minimal impacts to the natural environment and natural systems above those previously considered. Existing mitigation measures contained within the approved EMP will adequately address impacts to soil and water quality, waterways and natural resources. Technical assessments have been undertaken to address potential impacts to bats and avifauna as a result in the increase in turbine height and to flora as a result of micro-siting. As discussed in Sections 7.3.1 and 7.3.2 of this report, the proposal will not result in any further native vegetation removal and is not expected to result in any significant impacts to flora and fauna.
- Any potential impacts to cultural heritage will be limited to those areas in which access tracks and turbine locations are changing. As detailed in Section 7.3.3 of this report, the proposed amended access tracks and turbine siting will not impact on areas of cultural heritage sensitivity.
- With the increase in turbine height, potential impacts may result to aircraft safety. An Aviation Impact Assessment has been prepared which has determined that the proposal is acceptable in terms of aviation safety. This is discussed in detail at Section 7.2.5 of this report.
- The wind farm has been designed in accordance with the Wind Energy Guidelines. Approval of the wind farm confirms that the site location is appropriate and was selected in accordance with Section 2.2 of the Guidelines to minimise impacts on significant environmental, cultural and landscape values. The preparation of this amended application has been undertaken in accordance with Section 4.2 and included pre-application discussions with relevant authorities and stakeholders and incorporates technical advice from relevant specialists which has ultimately informed the amended layout of the wind farm. All information as relevant to the amendment and required under Section 5 has been provided in support of this application.
- The proposed wind turbines and potential noise impacts have been assessed in accordance with the current applicable Standard (NZS6808:2010), as discussed at Section 7.2.2 of this report. A Noise Assessment has been prepared using proposed turbine models and found that noise impacts can be appropriately managed to ensure an appropriate level of amenity is maintained for surrounding residences.
- Crucially, as the proposed amendments will not result in a material change to the environmental effects of the Ryan Corner Wind Farm as approved, and match the particular criteria set out at Clause 52.32-8, the application is exempt from a panel process. This exemption will facilitate the development of an approved wind energy facility consistent with the intent of this clause.

Clause 52.37 was introduced into the Scheme following approval of the wind farm and, as relevant to the proposal, seeks to conserve historic dry stone walls. Wind farm infrastructure has been sited to avoid dry stone walls and consequently, the proposed micro-siting and realignment of access tracks will not impact any dry stone walls. Therefore approval is not required for the proposed amendment pursuant to this clause.

7.1.3 Zone Controls

Farming Zone

Clause 35.07 seeks to provide for and conserve agricultural land and protect and enhance biodiversity. The issuing of the planning permit confirms that the site is ideally suited to the use and development of a wind farm. The land is capable of hosting a wind farm of this scale and the location makes use of existing infrastructure, being in close proximity to the electricity grid to enable connection to the network. The site is well separated from surrounding townships, thereby minimising opportunity for conflict with sensitive uses. In addition, given the agricultural nature of the land, the site has been substantially cleared of native vegetation and comprises a modified landscape. The amendment will not alter the use of the land, and simply proposes minor changes to approved wind farm infrastructure.

Moreover, with the reduction in turbine numbers, wind farm infrastructure will occupy less of the site than that approved, covering less than 2% of the total site area. This will enable further land to be utilised for agricultural activities. The proposed micro-siting will locate turbines further away from the wind farm boundary and not result in additional conflict between surrounding land uses.

In terms of environmental considerations, the proposal has been informed by the findings of technical assessments and responds to site conditions to avoid areas of environmental significance and minimise impacts on biodiversity. The turbines have been micro-sited away from areas of environmental, historical and cultural sensitivity. Technical assessments have been undertaken to detail how the proposal manages environmental issues and these are discussed later in this report. Furthermore, the amendment will have minimal impacts on visual amenity, specifically on vistas within public viewpoints, as detailed in the Landscape and Visual Impact Assessment and discussed at Section 7.2.1 of this report.

In summary, the proposed amendment will result in no additional conflict with surrounding agricultural uses and will enable the continued agricultural use of the land with the overall infrastructure footprint reduced from that approved. The relevant environmental impacts of the proposal have been given detailed consideration through the preparation of technical assessments and the proposal will not result in any undue impacts on biodiversity. Therefore it is considered that the proposal complies with the key objectives of the Farming Zone.

Road Zone Category 1

The wind farm site adjoins Hamilton-Port Fairy Road to the north-east which is contained within the Road Zone Category 1 (RDZ1). An access point has been approved to the wind farm site from Hamilton-Port Fairy Road pursuant to **Clause 36.04**. Construction of this access point (referred to as the eastern site access) was completed in 2012, as part of the Early Works (Stage 1). No change is proposed to this access.

7.2 Amenity Impacts

Relevant findings of the various impact assessments prepared to accompany the proposed amendment are summarised below.

7.2.1 Landscape and Visual

The Landscape and Visual Impact Assessment (LVIA) addresses the proposed changes to turbine height and siting. The increase in turbine height will result in the turbines being visible from a greater distance within the landscape than those approved. The area of landscape that will potentially be affected is known as the viewshed and this will increase to approximately 20km (from approximately 15km). The site however, is located within a highly modified landscape and the existing rural activities, associated structures and other infrastructure have created a landscape that can readily absorb change.

The impact of the proposed amendment has been assessed at a total of 28 viewpoints. These viewpoints reflect those assessed for the original proposal and comprise predominantly views from public roads and some dwellings.

The reduction in the overall number of turbines will increase the distance from the closest turbine at 18 viewpoints. The increase in distance however, will not result in any significant changes to the visual impact at these locations.

The level of visual impact at the viewpoints as a result of the increase in turbine heights remains largely unchanged. Therefore for most viewers, it is considered that the proposed changes will be imperceptible within the landscape.

Overall, the change in visibility of the turbines is of such a minute magnitude that the proposed alterations will not be discernible from a distance. Whilst the increase in height will mean that the turbines can be viewed from a greater distance, this will be at a considerable distance (i.e. over 15km) and therefore the turbines will not dominate the landscape nor result in a visually obtrusive built form, particularly when compared to the approved wind farm.

Further, the proposed amendment to Condition 5 of the permit requires a program of voluntary landscape works to be made available to the owners of dwellings within 4.0km of the nearest turbine and to four additional dwellings considered at greatest risk from visual impact. This measure is considered more than adequate to accommodate the proposed amendment.

Please refer to the LVIA Assessment included in Volume 5 '*Other Accompanying Assessments*' for further details regarding potential visual impacts.

7.2.2 Noise

Given the proposed change in turbine models, the Noise Assessment has been prepared to determine potential noise impacts in accordance with current regulations. At the time of approval of the planning permit, wind farm noise impact was assessed in accordance with the New Zealand Standard 6808:1998 (NZS 6808:1998). Condition 18 of the permit requires compliance with NZS 6808:1998 at *'any dwelling existing on land in the vicinity of the wind energy facility as at 11 April 2007'*. NZS 6808:1998 was amended in 2010 and subsequently, NZS 6808:2010 currently applies to wind farms approved in Victoria since 2010.

The 2010 revision of NZS 6808 related predominantly to technical refinements and minor improvements to methodology. The relevant noise limit remains substantially the same in the 1998 and 2010 versions of the Standard, with the most recent version requiring wind farm noise to be below 40dB (LA90 (10 min)), or 5dBA above the background level, whichever is higher in most circumstances.

The Noise Assessment details noise impacts of three candidate turbine models in light of the proposed turbine siting, in accordance with NZS 6808:2010. The key characteristics of these turbines are outlined in Table 7-1.

Table 7.1 Turbine Type

| | Vestas V126 | Senvion 3.0M122 | GE 3.2-130 |
|---------------------------|-------------|-----------------|------------|
| Rated Power (MW) | 3.3 | 3.0 | 3.2 |
| Rotor Diameter (m) | 126 | 122 | 130 |
| Hub Height (m) | 117 | 117 | 110 |

A total of 111 residential properties have been identified in the vicinity of the wind farm.

In accordance with NZS 6808:2010 noise levels for each candidate turbine model have been assessed against a base noise limit of 40dB LA90 for properties identified as noise sensitive locations. High amenity noise limits are not applicable on the basis that the site and surrounding area is included in the Farming Zone where high amenity noise limits are not considered to be applicable.

For stakeholders a base noise limit of 45dB LA90 was used as recommended by supplementary guidance commonly referenced in Victoria (ETSU-R-97).

The noise assessment accompanying this application concludes that:

- *'Compliance with the lowest possible NZS 6808:2010 noise limit is achieved at all wind speeds at all identified noise sensitive locations for two (2) candidate turbine models (Vestas V126 and Senvion 3.0M122)*
- *Compliance with the lowest possible NZS 6808:2010 noise limit is marginally exceeded at one (1) noise sensitive location by 0.1 dB for the remaining candidate turbine model (GE3.2-130)*
It is our understanding that this turbine model can be operated in noise reduced mode and therefore applying such settings to selected turbines would result in predicted noise levels compliant with the lowest possible NZS 6808:2010 noise limit
- *Compliance with the raised ETSU-R-97 noise limit is achieved at all wind speeds at all stakeholder properties for all candidate turbine models*
- *Compliance with the lowest possible NZS 6808:2010 noise limit is achieved at all wind speeds at all remaining properties in the vicinity of the wind farm for all candidate turbine models.'*

In addition the noise assessment found that noise levels from the proposed amended wind farm will be below 35dB within the Township Zone of Yambuk.

With regard to the applicability of the high amenity area noise limit in the vicinity of the wind farm the assessment finds that the Farming Zone and Township Zone are not promoted in the planning scheme as having a higher degree of protection of amenity relating to the sound environment. Using relevant VCAT decisions as a guide, the high amenity noise limit detailed in NZS 6808:2010 is therefore not considered to be applicable for residential properties in the vicinity of the wind farm.

Please refer to the Noise Assessment included in Volume 5 '*Other Accompanying Assessments*' for further details regarding potential noise impacts. Construction and operation noise management plans form part of the endorsed EMP for the wind farm. A Noise and Vibration Management Sub-Plan addressing construction impacts is provided at Section 12 of the EMP and a Noise Management Sub-Plan addressing operational impacts is provided at Section 22 of the EMP. The management measures contained within these plans remain relevant, however the operation of the wind farm should now comply with the current Standard (NZS 6808:2010), rather than former NZS 6808:1998 as reflected in Condition 18 and 19 of the Permit. It is therefore proposed to update the permit and amend Condition 18 and 19 to reflect current NZS 6808:2010.

7.2.3 Shadow Flicker

The Shadow Flicker Assessment has been prepared to assess the expected annual shadow flicker duration as a result of the proposed amendments. The report has been undertaken on the basis of Victorian Planning Guidelines which specify a shadow flicker limit of 30 hours per year to be experienced in the area immediately surrounding any dwelling.

Condition 22 of the original planning permit issued for the site addresses shadow flicker and affirms the requirement that any surrounding dwellings must not experience more than 30 hours per annum of shadow flicker as the result of the wind farm. However, this Condition also states that this limit may be exceeded should an agreement be achieved with the landowner of on-site dwellings in which the landowner acknowledges and accepts that shadow flicker may exceed 30 hours per annum at the landowner's dwelling.

We propose to amend this Condition to allow for an agreement to be reached between any affected landowner, not solely those whose properties are located within the site. This will allow for greater flexibility in exceeding the limit of shadow flicker duration in the unlikely event that additional landowners will be affected by any unforeseen amendments to the wind farm.

In terms of the shadow flicker assessment itself, it was found that four locations are predicted to experience theoretical shadow flicker duration in excess of the recommended limit of 30 hours per annum compared to the original application in which only one dwelling exceeded the maximum limit. The dwellings affected are stakeholder dwellings in which it is expected that an agreement will be reached allowing the required limit to be exceeded. Importantly, taking into account the reduction in shadow flicker that will be experienced due to factors including cloud cover and turbine orientation, the 'actual' shadow flicker duration is expected to be substantially less.

Should any perceived amenity impacts arise during the operation of the wind farm, these can be dealt with through the required complaint evaluation and response process in accordance with Condition 23 of permit.

Please refer to the Shadow Flicker Assessment included in Volume 5 '*Other Accompanying Assessments*' for further details regarding potential shadow flicker impacts.

7.2.4 Electro Magnetic Interference

The Electromagnetic Interference (EMI) Assessment was prepared to assess potential EMI impacts as a result of the proposed increase in turbine heights and the removal and micro-siting of turbines.

Wind farms may potentially cause interference to television broadcast signals, fixed point-to-point links, fixed point-to-multipoint links, satellite television and internet services, broadcast radio signals, meteorological and aviation radars, and trigonometrical stations. The EMI Assessment considers the relative change in potential EMI impacts as a result of the proposed amendments.

It finds that the proposed layout has the potential for less interference to fixed point-to-point links as a result of the reduction in the number of turbines.

With regard to terrestrial television broadcasts, it finds that the increase in turbine heights may result in increased potential for interference to television signals. However, in the event that TV interference is an issue during the construction or operation of the wind farm, there are a large number of reasonable mitigation options available which are listed at Section 4.15.5 of the EMI Assessment.

Conditions 25 and 26 of the permit requires the wind farm operator to implement appropriate mitigation measures at relevant dwelling(s) in the event that interference is experienced at these dwellings during operation of the wind farm. These requirements are considered to be more than adequate to accommodate potential impacts as a result of the proposed variations to the turbine specifications and locations. Relevant mitigation measures may include those listed in the EMI Assessment.

For other services the EMI Assessment finds that the proposal is not likely to have significantly different impacts to these services than the approved wind farm.

Please refer to the EMI Assessment included in Volume 5 'Other Accompanying Assessments' for further details regarding potential EMI impacts.

7.2.5 Aviation and Obstacle Lighting

As a result of the proposed increase in turbine height and siting of turbines, potential aviation impacts have been assessed to ensure the amendment will not unduly impact aircraft safety. The Aeronautical Impact Assessment has been prepared to assess aviation impacts and the potential need for obstacle lighting as a result of the proposed amendment.

The Aeronautical Impact Assessment has been prepared in accordance with applicable industry guidelines and civil aviation safety regulations. The wind farm is located in Class G airspace, which relates to non-controlled airspace. There are two aerodromes identified within the vicinity (30NM) of the wind farm, as detailed in Table 7-2.

Table 7.2 Nearby Aerodromes

| | Status | Distance to closest Turbine |
|-------------|------------|-----------------------------|
| Warrnambool | Registered | 14.5NM/27km |
| Portland | Certified | 29.5NM/55km |

The highest terrain on which a turbine will be located has an elevation of 44m AHD. As a result, the highest obstacle will be turbine B40 with a maximum elevation of 224m (735 feet AHD) at the blade tip. This will not penetrate any Obstacle Limitation Surfaces (OLS) or Procedures for Air Navigation Services – Aircraft Operations (PANSOPS) surfaces.

Given the above, the proposal will not impact any nearby designated air routes or impact prescribed airspace. For this reason the proposal will not impact existing local aviation activities. In accordance with Condition 28 of Permit, to enable details of the wind farm to be shown on aeronautical charts of the area, any amended endorsed plans will be provided to CASA, the Department of Defence (Royal Australian Air Force Aeronautical Information Service) and to any organisation responsible for providing air ambulance services.

Consideration has been given to the need for obstacle lighting on the turbines in light of the proposed amendment. Obstacle lighting was not determined necessary for the approved wind farm, as detailed in the endorsed Obstacle Lighting Requirements Assessment dated September 2011. Notwithstanding, a lighting Maintenance Sub-Plan forms part of the endorsed EMP if obstacle lighting is required in the future.

Obstacle lighting as a result of the higher turbines will be undertaken in accordance CASA's requirements. Their response to the proposed amended turbines concludes that:

'CASA recommends that the wind farm is lit with steady red low intensity lighting at night as per Section 9.4 of the CASA Manual of Standards Part 139. Characteristics for low intensity are stated in subsection 9.4.7.'

CASA agrees that the turbines that should be lit are those identified by the consultant in the drawing 'Ryan Corner Wind Farm Obstacle Lighting Design V1.1, (9October 2015).'

Condition 9 of the permit has regard to obstacle lighting requirements. It is expected that CASA would inform the final amended wording of this condition as a result of the proposed higher turbines.

Please refer to the Aeronautical Impact Assessment included in Volume 4 'Proposed Amended Plans and Documents for Endorsement' for further details regarding potential aeronautical and obstacle lighting impacts.

7.2.6 Traffic

The greatest traffic impact as a result of the wind farm will occur during the construction period of the development. Traffic during this stage will consist of over-dimensional (OD) vehicles, construction vehicles and personnel vehicles. The amendment has the potential for a number of traffic implications due the larger turbines proposed. A letter has been prepared by URS summarising the key changes from that approved and a revised Traffic Management Plan (TMP) has been prepared to address these changes.

The larger turbines will require a greater number of OD vehicles to transport each wind turbine as well as longer vehicles to transport the blades. Although more vehicles are required per turbine, the reduction in the number of overall turbines proposed means that there would be no significant increase in overall OD vehicle traffic. The OD vehicles will increase in length from 56.6 to 68.8 metres. The increase in length of these vehicles will mean that slightly larger turning circles are required, resulting in minor changes along the OD route. These are:

- An increase in area of the road reserve used to construct the pavement at the intersection of Princes Highway and Youles Road, and increase in the clear zone within this road reserve. This change will have a minor/moderate impact.
- An increase in the clear zone required and adjustment to the pavement (with no increase in pavement area) at the western access point. These changes are minor and the effect will be negligible.

In addition, the larger turbines will result in an increase in heavy haulage traffic for the construction of foundations for the turbines, crane hardstands and access roads. As mentioned earlier at Section 4.5 of this report, there are existing quarries located within the wind farm site as well as off site quarries which could be used during the construction phase of the wind farm. Although the choice(es) of quarry is not yet finalised, it is expected that it will be based on economies of scale and the potential to minimise heavy haulage traffic on public roads.

Selection of heavy haulage routes can only be determined once the quarry site(s) have been finalised. As such it is recommended that a sub-TMP is prepared in relation to the selection of any off-site quarry.

The TMP endorsed pursuant to Condition 10 of the permit has been amended to reflect the increase in size of the proposed wind turbines and resultant traffic impacts as described above. However there are no major differences to the current endorsed TMP. Please refer to the Traffic Management Plan and accompanying letter included in Volume 4 *'Proposed Amended Plans and Documents for Endorsement'* for further details regarding potential traffic impacts.

7.3 Environmental Impacts

Relevant findings of the various environmental impact assessments prepared to accompany the proposed amendment are summarised below.

7.3.1 Flora

The Biodiversity Impact Assessment which accompanies this application concludes that there are no impacts on native vegetation or EPBC listed communities as a result of the proposed micro-siting of turbines.

It is noted that no changes are proposed to the approved access tracks (apart from the removal of tracks as a result of the removal of turbines and some small extensions of tracks within approved 'micro-sited' areas to reach micro-sited turbines) and therefore there are no concerns regarding potential impacts on native vegetation or EPBC listed communities as a result of realigned access tracks.

7.3.2 Bat and Avifauna

The proposed amendment has the potential to impact bats and avifauna primarily as a result of the increase in turbine height which may impact flight paths. A Bat and Avifauna Management Plan forms part of the approved EMP for the wind farm and has been endorsed in accordance with Condition 16 of the Permit. The management and mitigation measures contained in the approved plan remain relevant to the current proposal. A review however has been undertaken by BL&A to understand the potential risk for birds and bats as a result of the amendment.

The review has given consideration to turbine envelope encompassing a maximum height of 180 metres and minimum rotor swept clearance above ground level of 40 metres. It also gives consideration to turbine B35 which has a maximum height of 160 metres and minimum rotor swept clearance above ground level of 30 metres.

Birds

A bird utilisation study was undertaken by BL&A dated 2007 for the original proposal, in which the height of flying birds was recorded and documented. Based on original survey results, the wind farm site was found to be dominated by common farmland birds and none of the species found regularly over the site were rare or threatened. It was found that 96.3% of birds were recorded flying below RSA height, which, in the case of the approved turbines, was less than 35 metres above ground. No birds were recorded flying above the RSA, with the remaining 3.7% recorded within RSA height. As such, the proposed new turbines are expected to have a very minor impact on birds.

The increase in blade length will result in a significantly increased extent of the RSA for each turbine. While this increase may put birds that fly at RSA height at greater risk of collision, with the increased ground clearance, the amount of birds expected to fly at RSA height has in fact decreased. For turbine B35, the lowest height of the RSA will be reduced by less than four metres in comparison to existing approved turbines, to 30 metres above ground. This may lead to a proportionate increase in the number of birds exposed to a risk of collision with this turbine.

Overall however, the changes will lead to a decrease in the potential interaction between birds and wind turbines, as fewer birds will be exposed to the elevated RSA. As such, no significant impacts are expected on the bird population as a result of the proposed amendment.

Brolga

There are no major changes in Brolga distribution within 10km of the wind farm site since the planning permit was issued.

The Biodiversity Impact Assessment states that Brolga fly more frequently below 30 metres. Therefore the proposed minimal rotor swept clearance of 40 and 30 metres above ground level would minimise potential collision risk for Brolgas.

Bats

A bat study was undertaken by BL&A and Greg Richards and Associates in 2007 for the original wind farm to assess the level of bat activity and species on site. The study recorded bat calls by a detector to a height of 75 metres above ground. The study found that bat activity was relatively low, with a total of nine species recorded. These were mostly common species, with the exception of the Southern Bent-wing Bat which is a threatened species, both in Victoria and nationally. The study found that bats tend to be low flying, with less than 25 calls recorded above a height of 50 metres over 16 nights. No Southern Bent-wing bat calls were recorded at a height of over 50 metres, with all calls that could be attributed to this species recorded within 20 to 25 metres of ground.

Given the low flying heights of bats, the proposed minimal rotor swept clearance of 40 metres (30 metres for turbine B35) above ground level would minimise the number of bats exposed to collision risk. In particular, all calls that could be attributed to the Southern Bent-wing Bat were recorded below the proposed RSA height and therefore, no additional impacts are anticipated to this species as a result of the proposed amendment to the wind farm.

Aviation Night Lighting

Given that the comparative level of bird and bat utilisation for the wind farm is relatively low, CASA's requirements for obstacle lighting, that being steady red low intensity lighting on selected turbines, is acceptable from a biodiversity point of view.

Aviation lighting is further addressed at Section 7.2.5 of this report.

Please refer to the Biodiversity Impact Assessment included in Volume 5 '*Other Accompanying Assessments*' for further details on potential biodiversity impacts.

7.3.3 Cultural Heritage

The approved access tracks are not proposed to be realigned (noting that some will be removed and there will be some minor 'extensions' of approved access tracks located within approved micro-sited areas), thereby avoiding concerns regarding potential impacts on areas of cultural heritage sensitivity as a result of realigned access tracks. It is noted however that there will be some small extensions to approved access tracks to reach micro-sited turbines however these will be located within the approved 'micro-sited' areas.

With regard to the proposed micro-siting of turbines, the letter prepared by Archaeology at Tardis concludes, following a review of the existing Cultural Heritage Management Plan (CHMP 10299), that the proposal is consistent with the existing CHMP and therefore does not require the preparation of a new or revised CHMP. In addition, it was found that the proposed amendments do not 'trigger' the requirement for any additional approvals in relation to historic heritage given that no harm is expected to occur to the previously recorded historical sites within the activity area, nor to any dry stone walls. In addition, no heritage overlay provisions apply to the activity area.

Notwithstanding the above, any unexpected impacts to Aboriginal cultural heritage (eg. which may become apparent during construction) would be managed appropriately through the existing mitigation measures and contingency plans outlined in the approved CHMP.

Please refer to the Cultural Heritage Assessment included in Volume 5 '*Other Accompanying Assessments*' for further details on potential impacts on areas of cultural heritage sensitivity.

7.4 Changes to permit conditions

It is proposed to amend a number of permit conditions, some of which relate directly to the proposed amendments to the turbine specifications and layout, while others are proposed to reflect current regulations and wording utilised on recent planning approvals for wind energy facilities. An assessment of the proposed amendments to permit conditions is provided below.

Condition 2

It is proposed to amend Condition 2 to facilitate the efficient micro-siting of turbines. This is proposed in light of recent Ministerial decisions (such as the Ararat Wind Farm) which have allowed similar, less restrictive controls in accordance with the intent of the micro-siting provision. This will enable micro-siting to occur without further consent of the Minister, if advice has been received from suitably qualified experts that the alteration will not give rise to a material change to assessed landscape, flora and fauna, cultural heritage, visual amenity, shadow flicker, noise, fire risk or aviation impacts when compared to those of the endorsed plans.

This change is considered reasonable as often minor changes to turbine siting are required (eg. during construction) for reasons that cannot be foreseen at the planning stage. It is likely to be impractical and may cause unnecessary delays if consent from the Minister was required to further micro-site turbines. The proposed wording will enable minor changes to layouts to occur efficiently, while ensuring no further environmental or amenity impacts would result by requiring confirmation of relevant written expert advice to be provided to the Minister.

Further, recent decisions/ recommendations issued in relation to wind farms (eg. Ararat and Dundonnell) include conditions which do not require Ministerial consent to micro-site turbines. The proposed amended wording of Condition 2 has been derived from and reflects these decisions/ recommendations.

Condition 3

The amendments proposed to Condition 3 are required to reflect the new wind turbine specifications proposed. A full impact assessment as a result of these changes has been provided throughout this report.

The proposed removal of the MW output limit from Condition 3(b) is reasonable because it is unnecessary from a planning perspective and no longer common in wind energy facility planning permits.

It is considered appropriate to remove specifications regarding hub heights and rotor blade lengths from the permit condition as these criteria are overly prescriptive and, taking a pragmatic approach, become problematic when tendering

for a more cost effective turbine model which may comply with the overall maximum turbine height (as specified in the permit) but comprise different hub and/ or rotor blade dimensions.

However, it is acknowledged that ground clearance of the rotor blade is important to address potential impacts on bats and avifauna flight paths. Therefore the proposed to introduce a minimum ground clearance limit of 40 metres (30 metres for turbine B35) in the turbine specifications in Condition 3 is appropriate.

Condition 5

The proposed amendments to Condition 5 of the permit will ensure that landscape mitigation works are appropriately being offered to dwellings located with 4km of turbines as a result of the proposed new turbines as recommended in the LVIA.

Condition 9

The proposed amendment to Condition 9 of the permit will ensure that CASA's requirements for obstacle lighting associated with the proposed new turbines are appropriately reflected. It is expected that CASA would inform the final amended wording of this condition.

Conditions 18 and 19

The proposed amendments to Conditions 18 and 19 will appropriately reflect current Standards by deleting reference to NZS 6808:1998 and replacing it with the current New Zealand Standard (NZS 6808:2010).

Consequential amendments to these conditions have been made in order to appropriately reflect the requirements of NZS 6808:2010. The proposed wording is based on recent decisions/ recommendations issued in relation to wind farms.

Condition 22

It is appropriate for Condition 22 of the permit to be amended to allow dwellings that are not on the wind farm site to exceed 30 hours of shadow flicker per annum if an agreement has been entered into with the operator and landowner to such effect. The current wording of this condition only allows dwellings on the wind farm site to enter into such agreements, while more contemporary wording (reflected on other recent wind farm permits) generally does not distinguish between those dwellings on or off-site. Although there are not expected to be any undue shadow flicker impacts for dwellings off-site, it is considered reasonable to amend this condition to enable the flexibility, if required, at a later date.

8 CONCLUSION

This report has been prepared to accompany a planning application for an amendment to the existing planning permit relating to the Ryan Corner Wind Farm (Permit No. 20060222 issued August 2008). The amendment is sought pursuant to Section 97(1) of the *Planning and Environment Act 1987* (P&E Act) and under secondary consent pursuant to Condition 2 of the permit.

The proposal seeks minor amendments to permit conditions and endorsed plans. In particular it is proposed to amend the specifications of the turbines as detailed under Condition 3 of the permit and to reduce the overall number of turbines. Approval is also sought to micro-site a number of turbines pursuant to Condition 2 of the existing permit.

These amendments are required as a result of recent technological advances in turbine design which has resulted in a greater choice of models on the market which have improved operational efficiency. As such, it is proposed to utilise an alternate turbine model with a minimum blade clearance from the ground. The increased turbine efficiency will enable the total number of turbines to be reduced, while enabling a greater output.

The key changes proposed are summarised as follows:

- An increase in wind turbine height of 53.7 metres, resulting in an overall maximum height of 180 metres.
- A reduction of 12 wind turbines, resulting in a total of 56 turbines.

Micro-siting of 28 turbines within 100 metres of the approved location.

The above changes will require an amendment to Condition 3 of the permit which has regard to turbine specifications.

Amendments to the following endorsed plans are also proposed:

- Site Plan 'Figure 4.1 – Proposed Site Layout' (Ref.0105123_001_RCWF_SITE_LAYOUT_161213mxd) (pursuant to Condition 1a of the permit);
- Wind Turbine Dimensions Profile and Elevation View (Ref. RCWF-DP-02-v04) (pursuant to Conditions 1 and 1d of the permit);
- Roadside and Nacelle Signage Details (Ref. RCWF-DP-05-v02) (pursuant to Condition 1f of the permit);
- Wind Turbine Co-ordinates ('RCWF Microsited Locations') (pursuant to Conditions 1b of the permit);
- Aeronautical Impact Assessment (Ref. 100401-03) (pursuant to Condition 1e of the permit); and
- Traffic Management Plan (Ref. 43315958) (pursuant to Condition 10 of the permit). This Plan also forms part of the endorsed Environmental Management Plan (EMP) (refer below); and
- EMP (Ref. 0105123 Rev. 3) (pursuant to Condition 13 of the permit) in so far as the Traffic Management Plan has been amended.

In addition to the above, a number of amendments are proposed to other permit conditions to reflect current regulations and wording used on recent planning permits issued for wind energy facilities.

A summary of our findings relating to both elements of the proposal is as follows:

Proposed Amendments to turbine specifications and layout

Planning Policy

The proposal is consistent with relevant State and local planning policy particularly in relation to minimising potential environmental impacts and facilitating the development of an approved wind energy facility.

Landscape and Visual Impacts

The proposed increase in turbine heights and amended layout will have a negligible visual impact on the surrounding environment compared to the approved wind farm.

Noise

The proposed new turbines and amended site layout will meet relevant noise standards providing a specific turbine model is used in particular locations and/or relevant turbines operate in 'noise reduced mode' to ensure compliance in relation to one sensitive receptor.

With regard to the Township Zone of Yambuk, the noise assessment found that noise levels from the proposed wind farm will be below 35dB within this zone.

With regard to the applicability of the high amenity area noise limit in the vicinity of the wind farm the assessment finds that the Farming Zone and Township Zone are not subject to a higher degree of protection of amenity relating to the sound environment. Therefore the high amenity noise limit detailed in NZS 6808:2010 is not considered to be applicable for residential properties in the vicinity of the wind farm.

Shadow Flicker

The proposed new turbines and amended site layout will meet relevant shadow flicker standards, apart from at four dwellings which are stakeholder properties where written agreements to exceed these standards are expected to be reached.

Electromagnetic Interference

The proposed new turbines and amended site layout is not expected to increase the potential for electromagnetic interference compared to the approved wind farm, apart from terrestrial television broadcasts where interference may occur as a result in the increase in turbine heights. However, any interference experienced during the operation of the wind farm may be appropriately addressed via existing planning permit conditions which require the wind farm operator to implement appropriate mitigation measures at relevant dwelling(s) if required.

Aviation and Obstacle Lighting

The proposed new turbines and amended site layout will not impact any nearby designated air routes or impact prescribed airspaces. Obstacle lighting will be undertaken in accordance with CASA's requirements.

Traffic

The proposed larger turbines will require larger over-dimensional (OD) vehicles and greater number of vehicle trips during construction. However the proposed reduction in turbine numbers will mean that there will be no significant increase in overall OD vehicle traffic.

The larger OD vehicles required to transport the larger turbines will require slightly larger turning circles (requiring alterations to the pavement within the road reserve) and increase in the clear zone at two locations of the OD route leading to the wind farm site. In both instances the required changes are considered to be minor.

The larger turbines will also result in an increase in heavy haulage traffic for the construction of foundations for the turbines, crane hardstands and access roads.. Once the choice of any off-site quarry is finalised, it is recommended that a sub-TMP is prepared in relation to the quarry.

Flora

The proposed micro-sited turbines will not impact on native vegetation and/ or EPBC listed communities.

Bat & Avifauna

The increase in the proposed minimum rotor swept area (RSA) of 40 metres above ground level from the proposed 34.5 metres above the ground will decrease overall potential risk of bird collision to common farm land species of birds given that the majority of birds (over 90%) were recorded as below 40 metres and the majority of bats are recorded below this height. The inclusion of 1 turbine (Turbines B35) with a lower minimum RSA height of 30 metres will have a limited incremental increase to the risk to both birds and bats, but this is offset by the removal of a number of turbines from the proposed development footprint.

With regard to broilgas, the proposed minimum rotor swept area 40 metres above ground level will minimise potential collision risk for Broilgas, as these birds fly most frequently below 30 metres.

With regard to bats given their low flying heights, the proposed minimum rotor swept area (RSA) of 30 metres above ground level the RSA is expected to minimise potential risk of bat collision to acceptable levels.

With regard to aviation night lighting, given that the comparative level of bird and bat utilisation for the wind farm is relatively low, CASA's requirements for obstacle lighting is acceptable from a biodiversity point of view.

Cultural Heritage

The proposed micro-siting of turbines is not expected to result in any additional impacts to Aboriginal or historic heritage places. Any unexpected impacts to Aboriginal cultural heritage (eg. which may become apparent during construction) would be managed appropriately through the existing mitigation measures and contingency plans outlined in the approved CHMP.

Proposed amendments to permit conditions

The proposed amendments to relevant permit conditions will reasonably allow:

- any future micro-siting of turbines to occur without requiring the further approval of the Minister for Planning (Condition 2);
- the different turbine type subject to this proposal to be erected on site (Condition 3);
- obstacle lighting to be installed to CASA's requirements (Condition 9);
- the operation of turbines to meet current 'noise' standards (Conditions 18 and 19); and
- shadow flicker impacts to off-site properties to exceed relevant standards subject to the written consent of the owners of these properties (Condition 22).

Summary

For the above reasons the potential net impacts as a result of the proposed changes to the approved Ryan Corner Wind Farm are not unreasonable and able to be appropriately mitigated where necessary.

We therefore respectfully submit that the application should be approved.

Annex A - Minister's Assessment under the EE Act

ENVIRONMENT EFFECTS ACT 1978

RYAN CORNER WIND FARM

ASSESSMENT

May 2008

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1 INTRODUCTION

1.1 Purpose of this document

On 22 July 2005, the Minister for Planning determined that the proposed Ryan Corner Wind Farm requires assessment under the *Environment Effects Act 1978* (EE Act), beginning with the preparation of an Environment Effects Statement (EES).

This document is the Minister's Assessment under the EE Act. It provides the Minister for Planning's findings and recommendations with respect to the environmental effects of the Ryan Corner Wind Farm. The Assessment will be taken into account in decisions under the *Planning and Environment Act 1978* (P&E Act) for the relevant planning permit application (20060222).

1.2 Project description

TME Australia Pty Ltd (TME) is the proponent for the Ryan Corner Wind Farm, a wind energy facility of up to 68 wind turbine generators with a total rated capacity of up to 136 megawatts (MW). It is estimated that the wind farm would generate up to 357,400 MWh of electricity per year.

The preliminary wind farm design is based on the Gamesa Eolica G87-2.0 MW turbine. It is proposed to mount each turbine on a steel tower with a hub height of 78 metres. The nacelle on top of the tower would house the mechanical and electrical components (including gearbox, generator, brakes, wiring and hydraulic/lubricating systems). A three-bladed rotor, with a diameter of 87 metres, would be mounted at the front of the nacelle. The overall height of the turbine structure would be approximately 121.5 metres to the zenith of the rotor blade. Access to each turbine would be provided by a network of unsealed tracks, which would initially be 5 to 7 metres wide in order to accommodate construction vehicles. Once construction is completed, the tracks would be reduced in width to about 2 to 3 metres to provide access for maintenance vehicles during the operational life of the wind farm.

It is proposed to link each turbine to an on-site substation by an underground cable network (with two overhead cable crossings of Riverside/Harris Road). The electricity generated by the Ryan Corner Wind Farm would be transferred to the electricity grid via an overhead 132 kV power line from the on-site substation to a high voltage substation at the site proposed for the Hawkesdale Wind Farm¹ (about 25 km north east of the Ryan Corner site). The route length of the proposed power line is about 32 km.

The key activities involved in development of the Ryan Corner Wind Farm are:

- Site clearing.
- Establishing site compound and lay down areas.
- Transport of equipment, materials and staff.
- Earthworks for tracks, foundations and underground cables.

¹ TME is also the proponent for the Hawkesdale Wind Farm. A separate planning permit application has been lodged with the Minister for Planning for this wind farm.

- Turbine foundation works.
- Erection of tower and turbine structures, using a large mobile crane.
- Construction of building infrastructure, including substation and control room.
- Installation of electrical infrastructure.
- Site restoration following commissioning of the wind farm.

Chapter 4 of the EES provides a more detailed description of the main components of the project.

1.3 Project setting

The site for the Ryan Corner Wind Farm covers an area of about 3,600 hectares of mainly cleared farming land, about 12 km north-west of Port Fairy in Moyne Shire. The site is generally bounded by the Port Fairy – Hamilton Road, Fingerboard Road and Shaw River. It is dissected by Riverside Road and Harris Road.

The development footprint for the wind farm would be about one per cent of the 12 rural holdings making up the project site.

The site contains a series of stony rises that are a feature of the Western District volcanic plains. Ritchies Creek and Shaw River cross the site before flowing southward into Lake Yambuk. The site also contains several ephemeral wetlands (including a large wetland known as Island Swamp) and a permanent water body (known as Duck Hole).

The site's vegetation largely consists of pasture grasses with little over-storey vegetation. Relatively intact native vegetation occurs within and adjoining the Riverside Road reserve. Patches of remnant native vegetation also occur on the ridges in the south-eastern part of the site and around the ephemeral wetlands. The remnant native vegetation has generally been highly modified by the long history of grazing on the site.

The surrounding area is predominantly used for stock grazing. Other nearby land uses include blue gum plantations, quarrying, a chicken farm and holiday accommodation.

The nearest towns are Yambuk (3km to the west), Port Fairy (12 km to the southeast) and Kirkstall (15 km to the east).

1.4 Structure of this Assessment

Chapter 2 of this document outlines the EES process for the Ryan Corner Wind Farm, while Chapter 3 describes the main considerations bearing on the Assessment, including the evaluation objectives, which reflect relevant legislation and policy.

The main part of this Assessment is found in Chapter 4, which provides the Minister's assessment of the environmental effects of the Ryan Corner Wind Farm within the framework of an integrated set of evaluation objectives.

Chapter 5 provides a response to the key recommendations of the Inquiry.

2 STATUTORY PROCESSES

2.1 Environment Effects Statement

On 22 July 2005, the Minister for Planning determined that the project requires an Environment Effects Statement (EES) under the *Environment Effects Act 1978*. An EES was required because:

- The site contains areas of Stony Knoll Shrubland Ecological Vegetation Class, which is endangered in Victoria and provides important habitat for a number of threatened species, including the Stripped Legless Lizard.
- There is a high likelihood of movements by threatened avifauna species between the wetlands on site, the adjacent Lake Aringa and Lake Yambuk (7 km south west of the site).
- The site is located 6 km from the coast and within 7 km of the existing Codrington and Yambuk wind energy facilities, raising the potential for significant cumulative impacts.
- There is a high probability of Aboriginal cultural heritage occurring on the site due to its landscape features and the past occupation of the area by Aboriginal people.
- An EES process would allow for a rigorous assessment of the above matters as well as potential cumulative landscape and biodiversity impacts.

Assessment Guidelines, specifying the range of matters to be addressed in the EES, were issued in December 2005.

The EES was prepared by TME and its consultants and then placed on exhibition from 10 February to 23 March 2007. Fourteen submissions were received as a result of the public notice for the EES. Of these submissions, five opposed the proposed Ryan Corner Wind Farm and two (from Moyne Shire Council and Sustainability Victoria) supported the proposal. The remaining submissions from government agencies raised no objections but requested specific conditions be attached to any permit that may be granted.

On 3 May 2007, the Minister for Planning appointed three persons (Mr Nicholas Wimbush, Mr Christopher Banon and Dr Leon Collett²) to conduct an inquiry under the *Environment Effects Act 1978*.

The Inquiry held a directions hearing on 2 July 2006. Public hearings were held from 6 to 9 August 2007.

The Inquiry reconvened on 25 September 2007 after it was discovered that the Civil Aviation Safety Authority had changed its position on the need for aviation obstacle lighting at the Ryan Corner Wind Farm. The Inquiry subsequently directed the proponent to provide further public notice in relation to this matter. One submission was received in response to the notice.

² Dr Collett passed away after the Inquiry hearings. The Minister for Planning confirmed that the remaining members of the Inquiry should complete the report on the Ryan Corner Wind Farm.

The Inquiry provided its report to the Minister for Planning on 11 March 2008. The next step under the *Environment Effects Act* is for the Minister for Planning to provide an Assessment of the environmental effects of the Ryan Corner Wind Farm to decision-makers under Victorian law. The decision-makers must then consider the Assessment before deciding whether to allow the proposal to proceed.

2.2 Statutory approvals

The Ryan Corner Wind Farm proposal requires a number of statutory approvals, including the following:

- A permit for the use and development of the site as a wind energy facility under the *Planning and Environment Act 1987*.
- A permit to clear native vegetation on the site under the *Planning and Environment Act 1987*.
- Approval of a cultural heritage management plan under the *Aboriginal Heritage Act 2006*.

Planning Permit Application 20060222 for the wind energy facility was lodged with the Minister for Planning on 31 October 2006. This application was exhibited concurrently with the EES.

On 26 February 2007, TME lodged Planning Permit Application PL07/067 for the removal of native vegetation on the wind farm site with Moyne Shire Council. On 30 March the Council gave notice of the application to adjoining owners/occupiers. At the request of the Council, the Minister decided on 23 May 2007 to “call in” the application under section 97C of the *Planning and Environment Act 1987*.

The Minister appointed the same three inquiry members as a panel to consider Planning Permit Applications 20060222 and PL07/067 under sections 97E, 153 and 155 of the *Planning and Environment Act 1987*.

3 ASSESSMENT CONTEXT

In determining whether, and on what basis, the proposed Ryan Corner Wind Farm should proceed, this Assessment takes account of relevant legislation and policy, including the Moyne Planning Scheme, which together form the context against which the environmental effects of this proposal need to be evaluated.

Under section 4(1) of the *Planning and Environment Act 1987*, the objectives for planning in Victoria are:

- (a) to provide for the fair, orderly, economic and sustainable use and development of land;
- (b) to provide for the protection of natural and man-made resources and the maintenance of ecological processes and genetic diversity;
- (c) to secure a pleasant, efficient and safe working, living and recreational environment for all Victorians and visitors to Victoria;
- (d) to conserve and enhance those buildings, areas or other places which are of scientific, aesthetic, architectural or historical interest or otherwise of special cultural value;
- (e) to protect public utilities and other assets and enable the orderly provision and coordination of public utilities and other facilities for the benefit of the community;
- (f) to facilitate development in accordance with the objectives set out in paragraphs (a), (b), (c), (d) and (e);
- (g) to balance the present and future interests of all Victorians.

Section 4(2) sets objectives for the planning framework established by the Act, including “(d) to ensure that the effects on the environment are considered and provide for explicit consideration of economic and social effects when decisions are made about the use and development of land”.

The State Planning Policy Framework (SPPF), which is part of the Moyne Planning Scheme, sets State-level policy for planning and for considering development proposals. Clause 11 of the SPPF incorporates an overall goal of integrating environmental, social and economic factors in the interests of net community benefit and sustainable development.

Specific clauses in the SPPF that are relevant to the assessment of the Ryan Corner Wind Farm include:

- Protection of catchments, waterways and groundwater (clause 15.01);
- Air quality (clause 15.04);
- Noise abatement (clause 15.05);
- Protection from wildfire (clause 15.07);
- Coastal areas (clause 15.08);
- Conservation of native flora and fauna (clause 15.09);
- Heritage (clause 15.11);
- Renewable energy (15.14)
- Tourism (clause 17.04);
- Agriculture (clause 17.05);
- Airfields (clause 18.04).

The local policy framework and other provisions in the Moyne Planning Scheme must also be considered. The local policies of particular relevance are:

- Aboriginal heritage clause (22.02.1);
- Rare and threatened species (clause 22.02-2);
- Hilltop and ridgeline protection (clause 22.02-7);
- Flora and fauna (clause 22.02-8);
- Agricultural production (clause 22.03-4);
- Fire protection (clause 22.03-8).

Clause 52.32 of the Moyne Planning Scheme specifies the decision guidelines for a wind energy facility, which cover a broad range of environmental effects. These refer specifically to the *Policy and planning guidelines for development of wind energy facilities in Victoria* (2003). This is a key policy document outlining how the Victorian Government will facilitate the appropriate development of wind energy facilities, balancing environmental, social and economic outcomes.

In addition, a range of other State and national legislation, policies and strategies provide critical context for this assessment of environmental effects for the Ryan Corner Wind Farm in relation to greenhouse, biodiversity, cultural heritage, noise, air quality, water quality and water management. Of particular relevance are the following policies and strategies:

- *The Greenhouse Challenge for Energy – Driving investment, creating jobs and reducing emissions* (2004) provides the Victorian Government policy position on reducing greenhouse gas emissions from the stationary energy sector.
- *Our Environment, Our Future - Sustainability Action Statement* (2006) outlines Victorian Government actions to support a sustainable energy supply system in Victoria, including the introduction of the Victorian Renewable Energy Target.
- *Victoria's Biodiversity – Directions in Management* (1997), which was prepared under the *Flora and Fauna Guarantee Act 1988*, provides a framework for responding to biodiversity challenges in different bioregions.
- *Victoria's Native Vegetation Management – A Framework for Action* (2002) gives effect to the native vegetation goals of *Victoria's Biodiversity Strategy*, as well as reflecting Victoria's commitments to national policies.
- *State Environment Protection Policy (Waters of Victoria)* provides the legislative framework for the protection of beneficial uses and the objectives for the protection of these uses.
- *Glenelg Hopkins Regional Catchment Strategy 2003-2007* provides a framework for managing land, water and biodiversity assets in the catchment. It is the overarching strategic document for specific regional action plans such as the River Health Strategy and the Salinity Plan.

In light of the legislative and policy framework that applies to the Ryan Corner Wind Farm as well as the potential effects and risks, a set of evaluation objectives have been formulated to guide an integrated assessment of the project. These objectives were included in the Assessment Guidelines for the EES and are reproduced below:

- (1) *To contribute to government policy objectives to maintain a secure, efficient and affordable supply of energy in Victoria while reducing the intensity of greenhouse gas emissions from the energy sector.*

This evaluation objective reflects the Victorian Government's broad policy objectives stated in *The Greenhouse Challenge for Energy – Driving investment, creating jobs and reducing emissions* (2004). Both the *National Greenhouse Strategy 1998* and *Victorian Greenhouse Strategy 2002* recognise the important role of renewable energy as a component of a strategic framework for tackling the enhanced greenhouse effect. The evaluation objective also reflects the more specific policies stated in clause 15.14 of the SPPF (Renewable Energy) and *Policy and planning guidelines for development of wind energy facilities in Victoria* (2002). The latter document stresses that, in decisions on applications for wind energy facilities, considerable weight should be given to the Victorian Government's objectives on developing renewable energy.

- (2) *To minimise the adverse impacts of the facility on visual landscape values, particularly along sections of the coast of high sensitivity for public recreation and tourism.*

This objective reflects the objectives of SPPF clause 15.08 (Coastal areas), the *Victorian Coastal Strategy* (2002) and supporting coastal planning documents. It also reflects the policy of protecting areas of environmental and visual significance stated in clause 22.02-7 (Hilltop and ridgeline protection) in the Moyne Planning Scheme.

- (3) *To ensure that the construction and operation of the facility does not unduly affect the amenity of nearby dwellings.*

This evaluation objective reflects the objectives of planning under the *Planning and Environment Act 1987* and the principles set out in clause 11.03 of the SPPF.

- (4) *To avoid or minimise impacts on species and communities listed under the Flora and Fauna Guarantee Act 1988 to the greatest extent practicable, to avoid or minimise impacts on other indigenous species and communities, and to comply with net gain requirements for biodiversity outcomes.*

This objective reflects clause 15.09 of the SPPF and the goals for biodiversity management set out in *Victoria's Biodiversity Strategy 1997* (which was prepared under the *Flora and Fauna Guarantee Act 1988*). It also reflects the more detailed provisions in *Victoria's Native Vegetation Management – A Framework for Action* (2002).

- (5) *To avoid or minimise impacts on places with Aboriginal and non-Aboriginal cultural heritage values, to the greatest extent practicable.*

This objective reflects the objectives of clauses 15.11 (Heritage) and 22.02-1 (Aboriginal heritage) of the Moyne Planning Scheme and the intent of the *Aboriginal Heritage Act* (2006) and the *Heritage Act 1995*.

- (6) *To minimise any physical impacts from the construction and operation of the facility, such as erosion, sedimentation, road damage and traffic hazards.*

This objective reflects the objectives of clauses 15.01 of the Moyne Planning Scheme, the *Glenelg Hopkins Regional Catchment Strategy 2003 to 2007* and relevant SEPPs under the *Environment Protection Act 1970*.

- (7) *Overall, to provide a clear societal benefit, taking account of economic benefits, social outcomes and residual environmental impacts.*

This objective derives from the objectives of planning in the *Planning and Environment Act 1987*. It also accords with the principle of balancing conflicting objectives in favour of net community benefit and sustainable development as stated in clause 11 of the SPPF.

4 INTEGRATED ASSESSMENT

4.1 Greenhouse

Objective: To contribute to government policy objectives to maintain a secure, efficient and affordable supply of energy in Victoria while reducing the intensity of greenhouse gas emissions from the energy sector.

The EES estimates that the Ryan Corner Wind Farm would generate 357,400 MWh of electricity per annum, based on a conservative capacity factor of 30 per cent. This output would be sufficient to meet the power requirements of about 67,000 households in Victoria. The annual greenhouse gas savings from this renewable energy source would displace 332,389 tonnes of carbon dioxide equivalent³.

In 2006, the Victorian Government passed legislation to lift Victoria's levels of renewable energy generation from the current 4 per cent to 10 per cent by 2016, through the Victorian Renewable Energy Target (VRET). Under VRET, electricity retailers are required to purchase an additional 3,275 gigawatt-hours (GWh) of renewable energy by 2016. This will result in more than 1000 megawatts of renewable energy generation capacity being installed, while reducing greenhouse gas emissions by more than 2.5 million tonnes per year.

The Ryan Corner Wind Farm would contribute about 11 per cent to meeting VRET. It would accord with the objectives and actions in *Our Environment, Our Future - Sustainability Action Statement* (2006) and the *Victorian Greenhouse Strategy* (2002).

I note that the Inquiry has found that the Ryan Corner Wind Farm would have a net positive effect on greenhouse gas emissions and is thus consistent with applicable policy.

It is my assessment that the Ryan Corner Wind Farm would make an important contribution to the Victorian Government's efforts to maintain a secure, efficient and affordable supply of energy in Victoria while reducing the intensity of greenhouse gas emissions from the energy sector.

4.2 Landscape

Objective: To minimise the adverse impacts of the facility on visual landscape values, particularly along sections of the coast of high sensitivity for public recreation and tourism.

This section of the Assessment considers the effect of the Ryan Corner Wind Farm on the broad landscape values within the project's viewshed. The effects on the visual amenity of nearby dwellings is considered in section 4.3 of this Assessment. The cumulative effects of the Ryan Corner Wind Farm, in combination with the existing

³ This estimate is based on McLennan Magasanik Associates Pty Ltd (2006) *Assessment of Greenhouse Gas Abatement from Wind Farms in Victoria* report to Sustainability Victoria.

and proposed wind farms in the vicinity, on both broad landscape values and the amenity of individual dwellings are considered in section 4.7.

Chapter 20 of the EES provides a detailed description of the methodology applied by Environmental Resources Management Australia (ERM) in investigating the potential visual effects of the Ryan Corner Wind Farm. These investigations covered an area within 15 km of the wind farm site. Beyond this distance the visual effect of the wind turbines would be regarded by ERM as insignificant. The visual sensitivities of the various landscape units within the viewshed have been rated by ERM. This rating varies from medium - high for coastal dunes and reserves down to a low rating for the rural plains (because of modified nature of such landscapes).

The significance of the landscape effect of the wind farm was assessed from representative viewpoints along the coast, the Princes Highway and local roads, based on a combination of factors including: the visual sensitivity of the landscape unit; the distance to the proposed wind farm; and the levels of visitation to the viewpoint.

Since the southern boundary of the site is about 5 km from the coast, the visual effects of the proposed wind farm on coastal landscape values are of some importance. The *Coastal Spaces Landscape Assessment Study*⁴ has examined the coastal region from Warrnambool to the South Australian border. The study has assigned a rating of regional significance to the coastal strip between Port Fairy and Yambuk. The Ryan Corner site is well beyond this regionally significant coastal landscape.

The EES found that the wind farm would not be visible from The Craggs and Lake Yambuk lookouts, which are within the coastal strip. It is therefore concluded that the proposed Ryan Corner Wind Farm would not significantly affect coastal landscape values.

The landscape effects from other viewpoints along the highway and other local roads were assessed as having low significance.

The Inquiry generally supports the landscape assessment approach adopted by ERM and finds that the overall visual impact of the wind farm on the regional landscape is low.

After taking into account the Inquiry's analysis, it is my assessment that the potential effects of the Ryan Corner Wind Farm on areas with significant landscape values are likely to be low.

4.3 Amenity

Objective: To ensure that the construction and operation of the facility does not unduly affect the amenity of nearby dwellings.

⁴ Department of Sustainability and Environment (2006) *Coastal Spaces Landscape Assessment Study – Protection and Management of Victoria's Coastal Landscapes – State Overview Report*

The Ryan Corner Wind Farm could have a number of effects on the amenity of the local community. These effects include:

- noise generated by wind turbines;
- effects on views from dwellings;
- shadow flicker;
- electromagnetic interference.

These potential effects are assessed below.

Noise

The EES investigations included monitoring of background noise levels at five houses in the vicinity of the wind farm site. These locations were considered representative for background noise conditions for 23 dwellings in the vicinity of the wind farm; of these, seven are owned by farmers who are beneficiaries of the wind farm project. The nearest non-stakeholder⁵ dwelling is about 1 km from the closest turbine.

Noise modelling has been undertaken in accordance with the *New Zealand Standard for Acoustics: The Assessment and Measurement of Sound from Wind Turbine Generators (NZS 6808:1998)*. It was found that predicted noise levels at all but three of the dwellings would easily comply with the acceptable limit⁶ recommended by the standard. These three dwellings are owned by landholders who are beneficiaries of the wind farm.

The Inquiry has concluded that the noise from the Ryan Corner Wind Farm will not result in unacceptable environmental impact on surrounding properties and has endorsed draft conditions for the planning permit⁷.

It is my assessment, having regard to the Inquiry's conclusions, that the application of NZS 6808 would ensure that the amenity of dwellings would not be unduly affected by noise generated by the Ryan Corner Wind Farm provided that:

- once the full facility is operational, an independent acoustic expert undertakes an analysis of wind farm noise levels at nearby dwellings to confirm compliance in relation to NZS 6808;
- a 5 dBA penalty is applied in the event of annoying tonal variations, cyclic beats or other special audible characteristics being detected;
- the night-time period is separately considered from daytime background noise periods in order to give greater emphasis to avoidance of sleep disturbance.

It is further my assessment that TME should prepare a noise complaint and evaluation plan to provide for the possible occurrence of special noise characteristics during stable atmospheric conditions at night time. The plan should include procedures for investigating the frequency of possible sleep disturbance and providing a suitable operational response.

⁵ Non-stakeholders are people living near the wind farm site that do not have a lease agreement with TME Australia for the location of wind turbines on their land.

⁶ NZS 6808:1998 recommends that the noise level from a wind farm at a residential site should not exceed the background level (L_{A95}) by more than 5 dB(A) above the existing background level, whichever is the greater.

⁷ During the hearings, the Inquiry asked the Department of Planning and Community Development to prepare draft conditions for a planning permit for discussion purposes. These conditions are set out in Appendix B of the Inquiry report.

Visual amenity

The EES includes an analysis of the visual effects of the proposed wind farm on dwellings in close proximity to the site. According to the EES, there are 14 non-stakeholder dwellings within 1.5 km of the wind farm and a further 22 houses between 1.5 km and 3 km of the wind farm. The EES uses seven representative dwellings with different orientations to the wind farm to illustrate the potential effects on views from local dwellings. In the EES the visual impacts from the various viewpoints were rated as low, medium or high, the critical factor being the amount of existing screening vegetation near the dwelling. The EES indicated that additional screening could be provided near dwellings to reduce visual effects to a low level.

The Inquiry formed the view that the owners of dwellings within 1.5 km of the nearest wind turbine (see Figure 20.46 of the EES) should be offered the opportunity to have additional vegetation screening⁸ provided near their dwellings at the proponent's expense. The Inquiry recommended additional vegetation screening should also be offered to the owners of dwellings marked 4, 5, 104 and 105 on that figure (which are close to the 1.5 km distance) and to the Collins property at 800 Fingerboard Road, Yambuk (who have raised concerns about visual impacts).

The Inquiry has given further consideration to the visual amenity effects of aviation obstacle lighting at the wind farm. Because the Commonwealth Aviation Safety Authority (CASA) reversed its earlier opinion on whether this lighting was necessary for safety reasons, the Inquiry instructed the proponent to provide further public notice of the possible aviation lighting scheme that may be required at the Ryan Corner Wind Farm and its potential visual effects. One submission was received, which supported the use of aviation lighting for safety reasons.

The Inquiry has considered the potential effects based on a number of demonstration projects for different types, intensities and shielding of lighting. In addition the Inquiry chair visited the Mt Millar Wind Farm in South Australia which is lit according to CASA's requirements.

The Inquiry has found that the visual impact of aviation lighting can be mitigated to acceptable levels through landscaping and shielding of the lights.

It is my assessment that the effects on visual amenity from the proposed Ryan Corner Wind Farm would be acceptable, provided that:

- the owners of dwellings identified by the Inquiry above should be offered additional visual screening at the proponent's cost in view of the potentially significant effects on their views; and
- landscaping at non-stakeholder properties is undertaken and the lights are shielded to the maximum extent allowed under CASA's Advisory Circular "Obstacle Marking and Lighting of Wind Farms" AC139-18(0) July 2007.

Shadow flicker

The EES includes calculations of the shadow flicker that would be experienced by dwellings in the vicinity of the proposed Ryan Corner Wind Farm. Based on very

⁸ An example of a landscaping measure that could filter or reduce views of the wind farm from a dwelling is shown on Figure 20.65 of the EES.

conservative assumptions, it has been calculated that all but one dwelling would be subject to less than 30 hours per annum of shadow flicker. After making allowance for cloud cover, the actual shadow flicker at this dwelling would be lower than the level specified in the wind energy guidelines.

It is my assessment that the Ryan Corner Wind Farm would not result in unacceptable shadow flicker at dwellings.

Electromagnetic interference

Submitters have raised concerns about the deterioration of television reception following the commissioning of the Yambuk and Codrington wind farms and are concerned that there will be a similar problem with the Ryan Corner proposal.

The EES provides an outline of the television transmissions that could be affected by the Ryan Corner Wind Farm. Figure 12.2 of the EES identifies the zone of potential interference (generally within 5 km of the wind farm site). The EES describes a number of measures that could be used to ensure that television reception within this zone does not deteriorate. TME proposes to undertake monitoring of television reception at dwellings within the zone of potential interference before the commissioning of the proposed wind farm. According to the EES, the proponent would implement appropriate measures to rectify any loss in quality identified within six months after the facility is operational.

It is my assessment that any electromagnetic interference issues can be effectively managed provided the proponent:

- appoints a suitably qualified person to determine the strength of radio and television signals received at dwellings within the zone of potential interference identified in Figure 12.2 of the EES before construction of the wind farm;
- investigates any complaint about a loss of signal strength at a dwelling to determine if the loss of signal strength has been caused by the operation of the wind farm; and
- undertakes reasonable and feasible measures to restore the reception at least to the quality that existed prior to development of the wind farm.

Conclusion on amenity

It is my assessment that the Ryan Corner Wind Farm will not unduly affect the amenity of local residents, provided the mitigating measures described in the EES as modified by the Inquiry are satisfactorily implemented.

4.4 Flora and fauna

Flora

The Ryan Corner site is generally highly modified and has a long history of grazing, however some remnant native vegetation occurs in isolated patches and in the Riverside Road Reserve. The remnant native vegetation in the Riverside Road Reserve has a high quality.

The EES investigations of flora included surveys to map native vegetation on the site, as well as targeted surveys for specific threatened species.

The EES noted that it was difficult to discern the ecological vegetation classes (EVCs) for the remnant native vegetation because of the high degree of modification. The main EVCs are likely to be: Stony Knoll Shrubland, Plains Grassy Woodland and Aquatic Herbfield.

No flora species listed under the *Flora and Fauna Guarantee Act 1988* (FFG Act) were recorded on site during the EES field investigations; however the EES acknowledges the possible occurrence on the site of listed species such as Curly Sedge, Purple Clover and Leafy Greenhood.

The design of the wind farm has incorporated a number of measures to avoid or minimise impacts on native vegetation and threatened species. These include:

- selecting turbine positions and locating access tracks so they avoid native vegetation wherever possible;
- linking turbines in the west of the site to the substation east of the site by installing overhead cabling to span the Riverside Road reserve; and
- limiting vehicle access by providing only one vehicle crossing from the western to the eastern side of the wind farm; the crossing point has been selected to avoid the high quality remnant vegetation in the Riverside Road reserve.

These measures effectively avoid areas on the wind farm site containing the endangered Stony Knoll Shrubland EVC.

The Inquiry has found that the environmental impacts on flora should be negligible and can be avoided or managed in the context of the native vegetation management framework.

It is my assessment that the design of the wind farm incorporates sound measures to avoid or minimise the potential effects on native vegetation and significant flora species. Any residual effects on native flora can be satisfactorily managed through the preparation and implementation of a native vegetation management plan in consultation with DSE.

Terrestrial fauna

The EES investigations included a range of fauna surveys, including targeted surveys for threatened frog and reptile species that may occur on the site.

No herpetofauna (amphibians and reptiles) and no other ground fauna species listed under the FFG Act was recorded in the EES investigations. Nevertheless the EES acknowledges that there is a moderate likelihood of some of these species occurring on the Ryan Corner Wind Farm site (Swamp Skink, Growling Grass Frog). The proposed wind farm layout has been designed to avoid, as far as possible, habitat that would be suitable for such species.

The Inquiry is satisfied that the project, if implemented as outlined in the EES, will have negligible environmental impact on ground fauna, given the nature of the site as

cleared farmland and on the basis that the proposed turbine layout and access tracks have been selected to avoid disturbance to significant areas of habitat.

Having regard to the Inquiry's analysis, it is my assessment that the proposed Ryan Corner Wind Farm is unlikely to have a significant effect on ground fauna species that are listed under the FFG Act.

Avifauna

Comprehensive bird utilisation studies were undertaken at the wind farm site to provide the basis for an avifauna risk assessment. It was found that three introduced species (Skylark, Common Starling and European Goldfinch) made up about 53 per cent of the birds observed during the surveys. Waterbirds and raptors were present, but in very low numbers (3.7 per cent of birds observed).

Four bird species that are listed under the FFG Act were observed during the bird utilisation studies; these species were the Great Egret, Intermediate Egret, Little Egret and Brolga. Other species that are considered vulnerable were also recorded at the site (Glossy Ibis, Latham's Snipe and Hardhead). Apart from Latham's Snipe⁹, all observations of threatened bird species occurred in the south-east corner of the wind farm site, in the vicinity of Island Swamp, Duck Hole and ephemeral water bodies. The wind farm design includes a setback of turbines at least one kilometre from the water bodies in the south-east corner of the Ryan Corner site.

The EES examines the potential risks to threatened species based on their habitat, distribution and population numbers. The potential risk to waterbird species has been considerably reduced by the set back to the water bodies and avoidance of other key habitat areas.

The threatened species of most concern is the Brolga. The Victorian Brolga population is estimated to be about 600 however there appears to have been limited breeding success in recent years because of prolonged drought conditions. A Brolga pair was observed regularly near the water bodies in the south east of the site. Brett Lane and Associates conducted targeted Brolga surveys in the region (within 20 km) surrounding the Ryan Corner Wind Farm site in the breeding season (July to November 2006). A planned flocking season survey (December to May 2007) was not undertaken because the prolonged drought conditions meant that the significant wetland habitats on the site and in the wider region did not hold much water.

The potential effects of the Ryan Corner Wind Farm on the Brolga have been subject to detailed investigation in the studies supporting the EES and in material presented by the proponent and the Department of Sustainability and Environment (DSE) at the Inquiry hearings.

Having regard to the Inquiry's analysis and the expert evidence available, it is my assessment that the potential effects of the Ryan Corner Wind Farm on avifauna, including threatened species such as Brolga, are likely to be low.

⁹ The Latham's Snipe was recorded in the northern part of the site in a small patch of low quality grassland. This is a migratory species that is not listed under the FFG Act but is considered "near threatened" by DSE.

Southern Bent-wing Bat

The EES investigations included comprehensive surveys for the Southern Bent-wing Bat, which is a listed species under the FFG Act. As noted by the Inquiry, the bat surveys for the Ryan Corner Wind Farm represent one of the most extensive and highly detailed studies of the movement of this species conducted to date in Victoria. The usage of the wind farm site by bat species, including the Southern Bent-wing Bat, was found to be low because of generally poor habitat. The Blue Gum plantation adjoining the wind farm site was found to have much higher levels of bat activity¹⁰.

The Inquiry heard expert evidence on the potential effects on the Southern Bent-wing Bat from Dr Greg Richards (on behalf of the proponent) and Dr Lindy Lumsden of DSE.

Having regard to the Inquiry's analysis, it is my assessment that the potential risk to the Southern Bent-wing Bat from the Ryan Corner Wind Farm is low.

Conclusion on flora and fauna

It is my assessment that the Ryan Corner Wind Farm would not have a significant effect on flora and fauna provided the measures set out in the EES are satisfactorily implemented. A post-construction program for monitoring bird and bat mortality should be undertaken, in consultation with DSE. If unforeseen and significant impacts on threatened species are detected, the proponent should put in place appropriate mitigation or offsetting measures in consultation with DSE.

4.5 Cultural heritage

Objective: To avoid or minimise impacts on places with Aboriginal and non-Aboriginal cultural heritage values, to the greatest extent practicable.

Although there were no previous records of Aboriginal places in the Ryan Corner Wind Farm site, field investigations by the proponent's consultant, in consultation with the Framlingham Aboriginal Trust, identified two Aboriginal stone hut circles and a fish/eel trap. The wind farm design was modified to delete turbines near the stone hut circle and eel trap in the south-eastern part of the site. In addition, another turbine position was moved 100 metres to avoid impacts on the stone hut circle located in the middle of the wind farm site. The EES acknowledges that other Aboriginal cultural heritage sites may be discovered in subsurface investigations resulting in the need for further modifications to the wind farm layout.

The heritage investigations also identified a dry stone wall of low historical significance which will not be affected by the wind farm proposal.

Under the *Aboriginal Heritage Act 2006*, the proponent is required to submit a cultural heritage management plan for approval under the Act. It is my assessment that the potential effects of the Ryan Corner Wind Farm on cultural heritage can be

¹⁰ In the November 2006 survey, the average number of Southern Bent-wing Bat calls at survey points in the wind farm site was in the range 0.5 to 1.1 calls per night. At the survey point in the plantation, the average number was 8.9 calls per night. In the March 2007 surveys, a similar pattern of low wind farm usage by the species relative to the plantation and other areas preferred by this bat species was confirmed.

effectively managed through the approval and implementation of a cultural heritage management plan under the *Aboriginal Heritage Act 2006*.

4.6 Environmental management

Objective: To minimise any physical impacts from the construction and operation of the facility, such as erosion, sedimentation, road damage and traffic hazards.

Apart from the specific environmental effects covered in the preceding sections, the construction and operation of the Ryan Corner Wind Farm could have a number of other physical impacts requiring careful management. These include:

- potential erosion of exposed works areas;
- effects on waterways from site runoff;
- damage and disruption of traffic on public roads during the construction phase; and
- fire and other public safety risks.

The EES addresses a number of these potential effects and puts forward sound implementation measures to deal with these. In particular the EES outlines the measures that would be detailed in an environmental management plan including:

- a traffic management plan that details access routes to the sites, intersection upgrades and protocols for large vehicle movements;
- best practice measures for minimising soil erosion and managing site runoff;
- a waste management plan;
- operational measures to manage fire risks in liaison with the Country Fire Authority; and
- operational measures to minimise risks to public safety from blade failure, lightning strike and electrical equipment.

The Inquiry has found that the wind farm should not pose a risk to public safety and mitigation and management measures are available to reduce the risk even further.

Having regard to the Inquiry's analysis, it is my assessment that the preparation and implementation of an environmental management plan as outlined in the EES would satisfactorily manage the potential physical effects of the project.

4.7 Cumulative effects

Chapter 21 of the EES provides a comprehensive analysis of the full range of potential cumulative effects from the Ryan Corner Wind Farm. This analysis was guided by the Assessment Guidelines for the EES. The most significant issues, which extend beyond the immediate area of the wind farm, are the potential effects on the regional Brolga population and on landscape (because of the existing Yambuk and Codrington wind farms). The EES rated the cumulative effects as low.

The Inquiry has reviewed the cumulative effects put forward in the EES and found that the EES provides a reasonable response to the issue of cumulative impact. The Inquiry's view is that the cumulative effects are either of a low level of concern (e.g.

landscape) or can be effectively avoided or managed during project development (Brolga and Southern Bent-wing Bat).

Having regard to Inquiry's analysis, it is my Assessment that the cumulative effects of the Ryan Corner Wind Farm have been comprehensively assessed and they do not give rise to any unacceptable effects which would warrant refusal of the proposal.

4.8 Net societal benefit

Objective: Overall, to provide a clear societal benefit, taking account of economic benefits, social outcomes and residual environmental impacts.

The proposed Ryan Corner Wind Farm would have a capital cost in the order of \$250-300 million of which 25-30 per cent would be spent locally for civil works and tower construction. About \$1 million would be injected annually into the local economy during the operational life of the wind farm in the form of payments to farmers, rates, community support and salaries for operational staff.

The major employment benefits would occur in the construction phase with up to 120 jobs created. Ongoing employment of personnel to service both the Ryan Corner and proposed Hawkesdale wind farms would represent about 8 to 12 equivalent full-time positions.

The proposal is unlikely to have any significant negative economic effects on local business enterprises (predominantly agriculture).

The Inquiry found that the Ryan Corner Wind farm would have a net positive social and economic effect on the regional community.

The proposal would make an important contribution to the Victorian Government's efforts to maintain a secure, efficient and affordable supply of energy in Victoria while reducing the intensity of greenhouse gas emissions from the energy sector.

The potential adverse effects of the proposal on biodiversity, landscape, cultural heritage and residential amenity are unlikely to be significant provided the project is implemented in accordance with the mitigation measures specified in the EES and as further detailed in an environmental management plan.

Based on the foregoing, it is my assessment that the Ryan Corner Wind Farm would provide a clear societal benefit after taking into account economic benefits, social outcomes and residual environmental impacts.

5 RESPONSE TO INQUIRY RECOMMENDATIONS

The Inquiry's recommendations are reproduced in *italics* with the response by the Minister for Planning in normal type font below.

Recommendation in chief

Inquiry recommendation

The Inquiry recommends that subject to the detailed recommendations in this report, it considers that the environmental effects of the Ryan Corner Wind Energy Facility can be managed and a permit should be issued.

Minister's response

It is my assessment that the above recommendation be supported. It is my intention to grant a planning permit once the relevant cultural heritage management plan has been approved under the *Aboriginal Heritage Act 2006*.

Landscape and visual amenity

Inquiry recommendations

Landscaping for the infrastructure on-site should be provided in accordance with condition 4 of the draft planning permit in Appendix B.

Off-site landscaping should be offered to properties within 1.5km of the nearest turbine, to dwellings numbers 4, 5, 104 and 105 in Figure 20.46 of the EES and the Collins property at 800 Fingerboard Road Yambuk in accordance with condition 5 of the draft planning permit in Appendix B.

The visual impact of aviation lighting should be minimised by minimising the number of lit turbines and installing appropriate technical responses in accordance with condition 9 of the draft planning permit in Appendix B.

Minister's response

It is my assessment that the above recommendations be supported.

Aviation obstacle lighting

Inquiry recommendation

The Minister for Planning investigate aviation obstacle lighting for wind farms in conjunction with the wind energy industry and the Civil Aviation Safety Authority with a view to developing assessment criteria for obstacle lighting in the planning process.

Minister's response

I note the Inquiry's finding that the potential effects on visual amenity from aviation obstacle lights (if required) at the Ryan Corner Wind Farm could be mitigated to acceptable levels by landscaping at non-stakeholder properties and by shielding to the maximum extent allowed under the relevant CASA Advisory Circular and Manual of Standards. A number of wind farms have now been approved in Victoria which would require aviation obstacle lighting. At this stage none of these is currently fully operational. The Waubra Wind Farm is likely to be the first project with aviation obstacle lighting operational in Victoria. I have asked DPCD to discuss with

Sustainability Victoria the merits of conducting a post-construction survey to ascertain the community's response to the aviation obstacle lighting at the Waubra Wind Farm (once it is fully operational). This survey would provide a valuable indicator on the extent of any real effects of such lighting and the need for any further investigation of this matter.

Noise

Inquiry recommendation

Noise monitoring and any necessary compliance measures be undertaken in accordance with conditions 18-21 in the draft planning permit in Appendix B.

Minister's response

It is my assessment that the above recommendation be supported.

Flora and fauna

Inquiry recommendations

The detailed identification of areas to be cleared and the identification and implementation of necessary offsets should be undertaken in accordance with conditions 1-3 in the draft planning permit shown in Appendix C.

An Environmental Management Plan in accordance with condition 13 in Appendix B should be prepared and implemented to minimise any potentially detrimental effects on native vegetation during construction.

An Environmental Management Plan in accordance with condition 13 in Appendix B should be prepared and implemented to minimise any detrimental effects on ground fauna habitat during construction.

A post construction bird monitoring and response program should be prepared and implemented to minimise the environmental impacts on the Brolga population in accordance with condition 16 in Appendix B.

A post construction bat monitoring and response program should be prepared and implemented to minimise the environmental impacts on the Southern Bent-wing Bat population in accordance with condition 16 in Appendix B.

That any aviation lighting proposed for the site be designed to minimise impacts on bats and night flying birds in accordance with condition 9 in Appendix B.

Minister's response

It is my assessment that the above recommendations be supported.

Electromagnetic interference

Inquiry recommendation

Pre and post monitoring of electromagnetic interference be undertaken and mitigation measures implemented as appropriate in accordance with conditions 24-26 as shown in Appendix B.

Minister's response

It is my assessment that this recommendation be supported.

Traffic management

Inquiry recommendation

A Traffic Management Plan be prepared and implemented in accordance with conditions 10-11 in Appendix B.

Minister's response

It is my assessment that the above recommendation be supported.

Safety

Inquiry recommendation

A Wildfire and Emergency Response Plan be prepared and implemented as part of the Environmental Management Plan in accordance with condition 13 in the draft planning permit in Appendix B.

Minister's response

It is my assessment that the above recommendation be supported.

Aviation obstacle lighting

Inquiry recommendation

The Proponent seek to minimise to the greatest extent possible the aviation safety lighting required on the Ryan Corner Wind Farm in consultation with the Civil Aviation Safety Authority. A proposed permit condition (number 9) in Appendix B requires any such lighting to be to the satisfaction of the Minister for Planning.

Minister's response

It is my assessment that the above recommendation be supported.

Information to RAAF

Inquiry recommendation

Details of the height and location of turbines on the endorsed plans be supplied to the RAAF AIS in accordance with condition 28 in the draft planning permit in Appendix B.

Minister's response

It is my assessment that the above recommendation be supported.

Shadow flicker

Inquiry recommendation

Shadow flicker be monitored such that it does not exceed 30 hours per year at any non-stakeholder dwelling in accordance with conditions 22-23 in Appendix B.

Minister's response

It is my assessment that the above recommendation be supported.

Cumulative effects

Inquiry recommendation

The Minister for Planning considers developing a 'Cumulative Impact Assessment Framework' for wind farms in south western Victoria.

Minister's response

The Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978 provide guidance for the consideration of cumulative effects. While these Ministerial guidelines acknowledge the difficulty that can be faced by proponents in providing a regional perspective, they make it clear that the proponent is expected to provide an assessment of relevant effects (e.g. landscape values, risks to fauna) in a form that can be integrated with information relating to other projects and thus enable the Minister to assess the cumulative effects.

I note that the Inquiry was satisfied with the manner in which the cumulative effects of the Ryan Corner Wind Farm were considered in relation to other existing and approved wind farms in the region. I consider that the information provided in the EES is sufficient for me to assess the cumulative effects from a regional perspective and to endorse the Inquiry's finding that the cumulative effects are low and can be managed effectively.

JUSTIN MADDEN MP
Minister for Planning

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