MT FYANS
WIND FARM

APPENDIX R

BUSHFIRE ASSESSMENT

GHD

AUGUST 2022

Mount Fyans Wind Farm

Fire and Bushfire Assessment

Hydro Tasmania

11 August 2022

→ The Power of Commitment

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1. Introduction

1.1 Background

Hydro Tasmania Pty Ltd (Hydro Tasmania), acting on behalf of Woolnorth Wind Farms Holding Pty Ltd (Woolnorth) has commissioned GHD to undertake a bushfire assessment for the proposed Mount Fyans Wind Farm (MFWF) on the Hamilton Highway, north of Mortlake, Victoria.

The MFWF development is proposed to consist of the following:

- *Approximately 81 wind turbines with a maximum height of 200 m (the tip of the turbine blade in the vertical position) (subject to change);*
- *On-site substation including a control room and maintenance facility;*
- *Offsite substation with will contain transformers and switch gear to transform output from 220kV to 500kV immediately east of the existing Mortlake Substation;*
- *Approximately 19 kilometres of overhead electrical line connecting the on-site substation to the new offsite substation (see above);*
- *Underground cable connecting the turbine clusters;*
- *Approximately 79 kilometres of internal access tracks; and*
- *Up to two permanent wind monitoring (anemometry) masts.*

Temporary infrastructure associated with the construction of the Project will include:

- *Construction facilities including office space, meeting rooms, first aid room, toilets and parking and materials storage area;*
- *Laydown area; and*
- *On-site concrete batching plants.*

The development footprint in which this infrastructure is located is hereafter referred to as the 'turbine envelope' and it should be noted that there may be adjustments to building and asset locations based on parallel studies and further site consultation.

The transmission line easement from the Hamilton Highway south-west to the Mortlake substation is hereafter referred to as the 'transmission development envelope'.

The broader site, which surrounds the turbine envelope, is hereafter referred to as the 'project site'.

1.2 Report scope

This report was initially prepared in 2017 and following minor changes in the proposed locations of some turbines has been updated in August 2018, April and November 2020, June 2021 and subsequently August 2022. This report has been prepared to support the planning application and demonstrate that appropriate fire management and risk management strategies have been identified for the project site.

The report is structured to address the requirements identified in *Design Guidelines for and Model Requirements for Renewable Energy Installations* (CFA 2022) for wind energy facilities (hereafter referred to as CFA wind farm guidelines). The bushfire protection objectives detailed in the CFA wind farm guidelines broadly correspond to those outlined in Clause 53.02-4 of the planning scheme.

It is noted that some bushfire protection objectives in the planning scheme are not directly applicable to wind farms as outlined in Table 1.

Table 1 Planning scheme clause application

Clause	Applicable/Not Applicable	Comment
53.02-4.1 Landscape, siting and design objectives	Applicable	Clause is applicable to wind farm development with respect to risk from landscape beyond the site as well as siting of buildings
53.02-4.2 Defendable space and construction objective	Not applicable	Clause relates to buildings used for dwellings or accommodation and therefore is not applicable to wind farm development
53.02-4.3 Water supply and access objectives	Not applicable	Clause relates to buildings used for dwellings or accommodation and therefore is not applicable to wind farm development
53.02-4.4 Subdivision objectives	Not applicable	Wind farm development does not include subdivision of land

The MFWF project site is located within the Farming Zone of the Moyne Planning Scheme (Clause 35.07) in which a wind energy facility is a Section 2 use.

With the exception of the sub-station connecting the wind farm transmission lines to the electricity grid (at the far south-western extent of the project), the project site does not fall within the Bushfire Management Overlay (BMO) of the Moyne Planning Scheme (Clause 44.06 *Bushfire Management Overlay*).

The proposed sub-station is to be located immediately adjacent to an existing sub-station (Mortlake terminal Substation) and proposed to be developed within a new parcel of land within the BMO.

The proposed subdivision triggers a permit requirement under the BMO pursuant to Clause 44.06-2 of the Moyne Planning Scheme. The BMO mapping has been expanded to cover existing pine plantations present in that location.

Due to the nature of the infrastructure proposed, the sub-station, it is considered reasonable for the Responsible Authority to waive the requirements for a formal bushfire assessment under Clause 44.06-3 of the Moyne Planning Scheme.

We consider that the Responsible Authority can waive this requirement for the following reasons:

– The BMO has been triggered on the basis of the existing pine plantation present in that location. As part of the project, all pine planation within the subdivision around the substation will be permanently cleared.
– The effect of the permanent pine plantation clearance will be that the sub-station will be more than 200 metres from the pine plantation on neighbouring land and therefore subject to LOW Bushfire Attack Level (BAL) and not attract a requirement for any bushfire protection measures.
– The substation will be unmanned at all times (except during maintenance) and will be comprised on non-combustible electrical apparatus within a secure compound free of vegetation.
– The usual ‘approved measures’ including building construction standards are not applicable for electrical infrastructure
– The usual ‘approved measures’ for provision of access for fire and emergency services, and water for firefighting are also not applicable for open-air sub-station with non-combustible high voltage electrical equipment which would never attract a firefighting response
– The permit trigger under the BMO is for a subdivision to facilitate the development for a non-habitable building.

Given the above, GHD considers that a *Bushfire Hazard Site Assessment, Bushfire Hazard Landscape Assessment,* and *Bushfire Management Statement* as would normally be required (under Clause 44.06-3) triggered by the proposed subdivision of land within the BMO are not relevant to the assessment of this application and requests that the Responsible Authority waive this requirement accordingly.

Furthermore, it is noted that the proposed sub-station and associated transmission lines will be subject to statutory vegetation clearance requirements and compliance with the *Electricity Safety (Electric Line Clearance) Regulations 2015.*

Whilst some existing residences are already established within the project site, no new temporary or permanent dwellings are proposed as part of this development. Consequently, Clause 53.02-3 and Clause 53.02-4.3 of the planning scheme are not considered applicable to the proposal.

This report also references a number of bushfire management aspects which have been discussed with the CFA (6 October 2017) as part of the development of the project design. CFA preliminary advice and feedback has been considered and incorporated into the project design, as well as informing this document.

1.3 Scope and limitations

This report: has been prepared by GHD for Hydro Tasmania and may only be used and relied on by Hydro Tasmania for the purpose agreed between GHD and Hydro Tasmania as set out in section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than Hydro Tasmania arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Hydro Tasmania and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

2. Locality and site description

2.1 Subject land

The project site is located on private freehold land under various ownerships but under long term lease arrangements. The project site can be access from multiple external points including the Hamilton Highway, Mortlake-Ararat Road, South Road, off the Woorndoo-Darlington Road and the North Road (refer Figure 1). The site is located within the Moyne Local Government Area.

The project site for the proposed development is an irregular, elongated shape covering approximately 13,050 hectares, of which approximately 3,450 hectares forms an envelope around the proposed wind turbines.

2.1.1 Existing use and development

The existing use of the project site is predominantly agricultural grazing and cropping purposes. The proposed MFWF turbine layout is designed to exclude areas within the project site that include or adjoin:

– Existing residences (15 dwellings are located within the project site);
– High sensitivity for Aboriginal Cultural Heritage;
– Visual amenity value of Mt Shadwell from the Hamilton Highway;
– Brolga, threatened species, threatened vegetation communities and identified remnant vegetation;
– High geo-heritage values; or
– Specific areas identified by landholders.

2.1.2 Existing access arrangements

A main access point to the site is via the Hamilton Highway, east of Mortlake, which forms the south-eastern boundary of the site. Additional sealed two-way access to the site includes:

– Multiple access points from the Mortlake- Ararat Road (including North Road, South Road and Castle Carey Road);
– Access to the western extent from the Hamilton Highway (west of Mortlake); and
– Access to the Mortlake Substation from Connewarren Lane.

2.1.3 Existing vegetation

The turbine envelope is predominantly cleared of native vegetation. The remnant native vegetation present has been reduced to individual specimens or very scattered patches associated with shallow wetlands, stony rises or former stock routes. More broadly the majority of the project site and the adjoining properties contain non-native vegetation (exotic grasses and crops, shelterbelts, woody weeds and planted/garden areas) maintained to a low height by livestock or cropping.

The main threatened vegetation communities identified within the turbine envelope (Biosis 2017[1]) consist of:

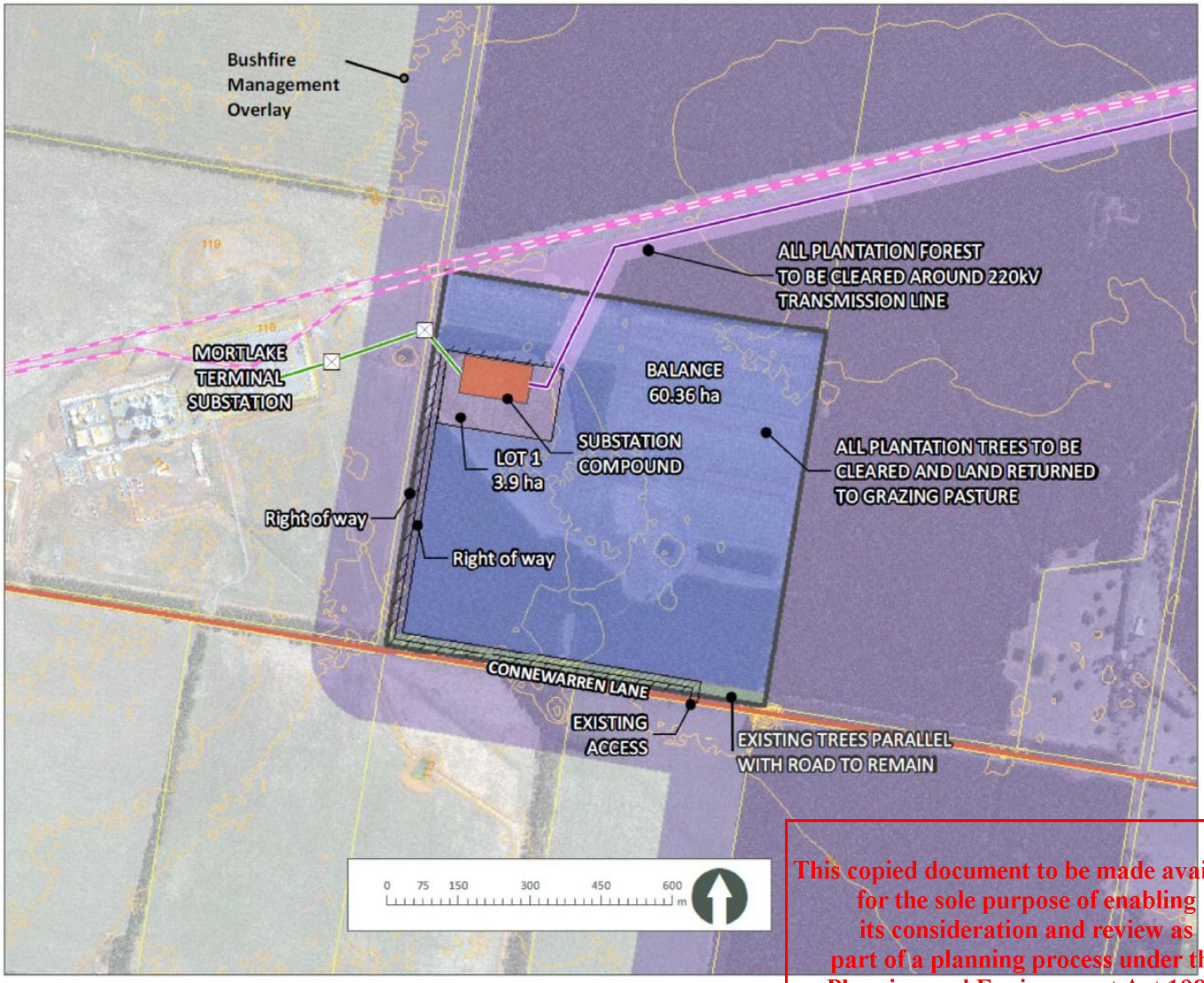
– Plains Grassy Wetland (Ecological Vegetation Class (EVC) 125) (41 hectares)
– Heavier-soils Plains Grassland (EVC 132_61) (6 hectares)
– Plains Grassy Woodland (EVC 55) (0.3 hectare)
– Aquatic Herbland (EVC 653) (3.1 hectare)

2.1.4 Pine plantation clearance at sub-station site

The sub-division (Lot 1 – 3.9 ha) in which the project sub-station is proposed, presently contains mature pine plantation. All pine plantation within the sub-station sub-division, and the 60.36 hectare area immediately

[1] Biosis (2017) *Mount Fyans Wind Farm: flora and fauna existing conditions.* Report prepared for Hydro Tasmania 24 February 2017

surrounding the subdivision (see Map 1 below) is to be permanently cleared such that setbacks from the proposed substation to pine plantation on adjacent land will be at least 200 metres (as per the Map 1 below).



Map 1 *Map of subdivision and pine plantation clearance at MFWF substation*

2.1.5 Waterways

The project site is relatively flat and is drained by Salt Creek in the western sections and Blind Creek in the central and eastern sections. The flow in both creeks is intermittent. Within the project site there is a series of permanent and seasonal wetlands, both saline and freshwater.

2.2 Locality and surrounding land

2.2.1 Existing use and development around the site

Existing use and development on surrounding land (refer Figure 1) is almost entirely for agricultural purposes including grazing and hay production, small townships and wind power generation. The nearest population centres to the MFWF turbine envelope are:

– The village of Woorndoo is located approximately 10 km north of the closest MFWF turbine;
– The village of Darlington is located approximately 10 km east of the closest MFWF turbine;
– The village of Hexham is located approximately 6 km west of the closest MFWF turbine; and
– The township of Mortlake is located approximately 6 km south-west of the closest MFWF turbine.

The nearest existing and proposed wind farm developments in the area include:

– Darlington Wind Farm, which is to directly adjoin the south-eastern boundary of MFWF;
– Dundonnell Wind Farm, which is to directly adjoin the north-eastern boundary of MFWF;
– Salt Creek Wind Farm, which is located approximately 5 km north-east of the closest MFWF turbine; and
– Mortlake South Wind Farm, which is located south of Mortlake township.

2.2.2 Access to infrastructure and surrounding road networks

The project site is well serviced by primary public roads (Figure 1) including:

– Hamilton Highway (B140) (sealed two lane road);
– Mortlake – Ararat Road (sealed two lane road);
– Connewarren Lane (sealed two lane road);
– North Road (gravel one lane road with armoured shoulders for passing);
– South Road (gravel one lane road with grass shoulders for passing); and
– Woorndoo-Darlington Road (sealed one lane road with armoured shoulders for passing).

The development of the MFWF project site will also include approximately 79km of internal access tracks.

A number of minor and unnamed tracks associated with farm dwellings and related agricultural operations are located across the project site.

Paper Size A3

0 0.7 1.4 2.1 2.8 3.5

Kilometers

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

N

LEGEND

- Proposed Wind Turbines
- Transmission Line
- Project Site Boundary
- Other Local Government Boundaries
- Location of Moyne Shire
- On-Site Substation / Control Centre
- Proposed Road Layout
- Works Excluded Area
- Contour 10 m

Hydro Tasmania
Mt Fyans Wind Farm Update

Job Number 31-12589081
Revision A
Date 11/08/2022

Site Location

Figure 1

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Data source: DELWP, VicMap, 2017; Hydro Tasmania, Proposed Infrastructure, 2017 Created by: fcarve

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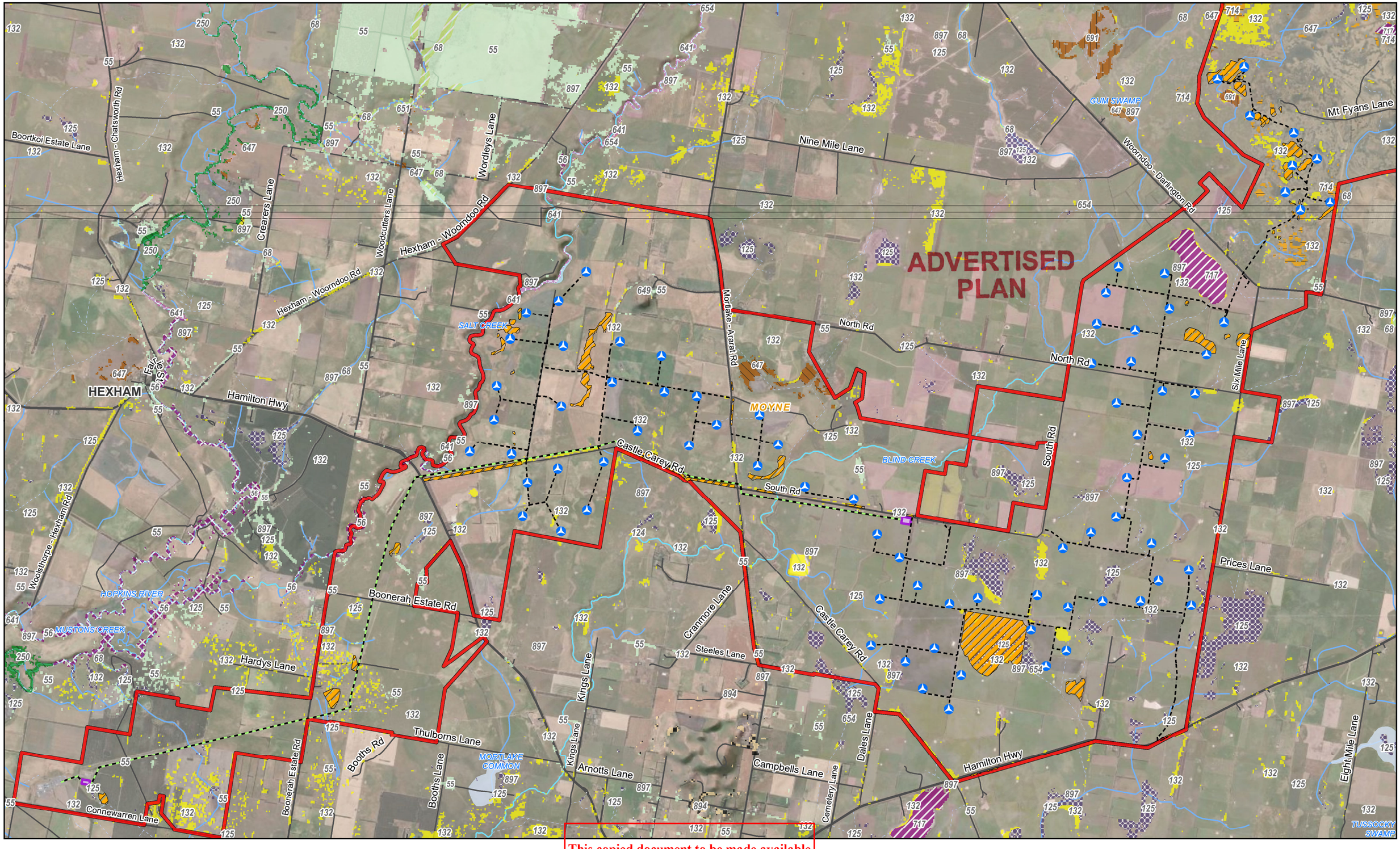

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Kilometers

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
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EVCs

Figure 2

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Data source: DELWP, VicMap, 2017; Hydro Tasmania, Proposed Infrastructure, 2017 Created by: fcarve

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3. Bushfire hazard site assessment

This Bushfire Hazard Site Assessment considers both the site itself and the area within 150 metres from the extent of envelope defined by the proposed locations of individual turbines.

The layout of the proposed development areas on the project site is provided in Figure 1.

Figure 2 provides an annotated map of vegetation types and bushfire hazards that are described in this section.

3.1 Vegetation classification

The extent of the modelled vegetation types on and within 150 m of the project site is shown in Figure 2 and detailed in Table 2. These modelled vegetation types have been ground-truthed and significant ecological communities/habitat identified as an excluded area (i.e. outside the turbine envelope) (Biosis 2017[2]), Vegetation types are cross referenced with Table 2.3 and Figures 2.4(A) to 2.4(G) of AS 3959:2009.

Native vegetation within 150 metres of the turbine envelope is predominantly 'unmanaged grassland', which structurally resembles 'sown pasture' (G-26) or 'open herbfield' (G-27). Whilst classified as 'unmanaged', the grassland is maintained at a low height (generally less than 10 cm) due to periodic cropping and managed livestock grazing. It includes a range of exotic grass and weed species from the historic use of the land for agricultural purposes.

Areas outside the MFWF turbine envelope within identified works exclusion areas contain wetland vegetation (EVC 125 - primarily comprised of common tussock grass (*Poa labillardierei*), and heavier soils plains grassland (EVC 132_6 - containing herbs and grass species such as kangaroo grass (*Themeda triandra*) and wallaby grasses (*Rytidosperma spp.*). Structurally the areas would resemble Tussock Grassland (G-21, G-22).

3.2 Topography and effective slope

A large proportion of the site is associated with Salt Creek and Blind Creek drainage lines and is mostly is flat or contains slopes that are less than 5 degrees. Elevation across the entire site ranges from 140m to 190m above sea level (see Figure 1), with the MFWF turbine envelope relatively flat.

Overall, slope classes within the grassland vegetation hazard (taking into account both the site and land within a 150 metre boundary from the site) are generally flat (Figure 3) or less than 2.5 degrees downslope, with the MFWF turbine envelope generally not exceeding 5 degrees downslope.

[2] Biosis (2017) *Mount Fyans Wind Farm: flora and fauna existing conditions.* Report prepared for Hydro Tasmania 24 February 2017

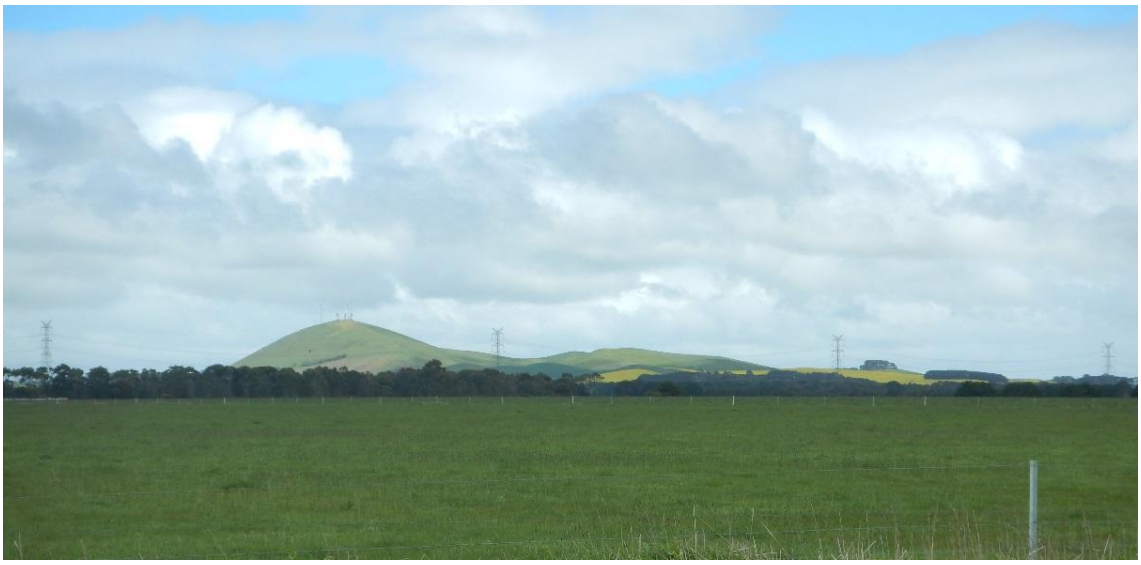

Figure 3 *Site photographs*

Table 2 Vegetation classification and effective slope on and within 150 metres of site

Photographs October 2017	AS3959-2009 Vegetation class	AS3959-2009 Vegetation type	Vegetation description	Minimum distance of existing vegetation type from proposed development	Effective slope
 	Grassland (unmanaged)	Sown Pasture (G-26) Open Herbfield (G-27)	Grassland dominated by exotic species, including pasture improved species. Vegetation generally maintained at a low height (<10 cm) due to heavy livestock grazing. A number of cypress (*Cupressus spp.*), sugar gum (*Eucalyptus cladocalyx*) and pine (*Pinus spp.*) linear windbreaks occur across the MFWF turbine envelope	Occurs within the MFWF turbine envelope in accordance with CFA wind farm guidelines: – the control room/transformer has a 30 m asset protection zone (grass <10mm in height) – wind turbines have a 4-10m asset protection zone (grass <10mm in height)	Generally: – <2.5 degrees downslope to flat within the MFWF footprint
	Grassland (unmanaged)	Tussock Grassland (G-21, G-22).	Wetland vegetation (EVC 125 – Plains Grassy Wetland) primarily comprised of common tussock grass (*Poa labillardierei*)	Occurs outside the MFWF turbine envelope	Generally: – 0-2.5 degrees downslope to flat
	Woodland and Grassland (unmanaged)	Open Woodland – Low Open Woodland (G06, G07) and Sown Pasture (G-26)	Scattered low growing river red gums (*Eucalyptus camaldulensis*) occur within and adjoining the transmission development envelope from the MFWF turbine envelope to the Mortlake off-site substation. These remnant trees are growing within actively managed and heavily grazed paddocks dominated by exotic pasture species.	The powerline route will seek to avoid scattered river red gums. However, where individuals cannot be avoided they may be cut back or removed in accordance with *Electricity Safety (Electric Line Clearance) Regulations 2015* and the *Code of Practice for Electric Line Clearance.*	Generally: – 0-2.5 degrees downslope to flat

4. Bushfire hazard and landscape assessment

The project site is considered to be located within Broader Landscape Type One (as per Planning Practice Note 65 (Department of Environment, Land, Water and Planning (DELWP) 2014[3]). There are a number of landscape related factors that influence bushfire risk at the project site and within the turbine envelope, which are detailed in the following section and summarised in Figure 4.

4.1 Vegetation

The proposed development site is located within actively grazed grassland and adjoins grazed and cropped areas, that at the time of assessment was low overall fuel hazard as a result of grazing.

The wetland Poa tussock vegetation (EVC 125), located outside the MFWF turbine envelope but within the broader project site, is considered unlikely to support a bushfire for much of the year. However, it may support a fire during drought periods or under high wind conditions. Within the wider landscape, the project site is surrounded by actively managed grazed grasslands and cropping areas, including those within areas identified for future windfarm developments.

The Barwon South-West Regional Bushfire Planning Assessment (BSW RBPA) (April 2012) notes that north-eastern sections of Moyne Shire are devoid of expansive areas of woodland or forest vegetation and corresponding bushfire hazard.

4.2 Bushfire history

A review of bushfire history in the area did not identify any recent bushfires on the project site, with larger fires historically being more frequent in southern parts of Moyne Shire nearer the coast (Moyne Shire 2011[4]). The only large fire recorded from the surrounding area, in the northern part of the shire, occurred in 2007/8 in the Cobra Killuc Wildlife Reserve (approximately 4km north of the MFWF project site), with 250 hectares of grassy woodland burnt.

4.3 Potential bushfire scenarios

The grazed grasslands and croplands surrounding the project site have the potential to support a fast-moving fire when sufficiently cured and if sufficient grass sward is present. Cheney and Sullivan (2008)[5] identified that the grass sward height has more influence on fire behaviour than the fuel load. The CSIRO Grassland Fire Spread Model (Cheney et al 1998[6]) does not use fuel load as a specific variable but uses three classes of pasture condition (undisturbed, cut/grazed or overgrazed/eaten out) in the model to predict fire spread (Cruz et al 2015)[7]. This highlights the influence that the active management of pasture within the project site and surrounding areas in reducing the grass sward height has a significant influence in moderating potential fire behaviour in the landscape.

Potential ignition risks, as identified by the CFA locally, include lighting strikes, ignition from vehicles (from highway and servicing new sale yards), arson and accidental ignitions from farming operations (such as harvesting).

Grass fires are usually wind driven, spreading in narrow elliptical shapes rather than wide fronts. While grass fires usually have higher rates of spread than dry forest in the same conditions, they have difficulty spreading where grass fuels are overgrazed/eaten out (i.e., the grass sward height is reduced) or there are breaks in the landscape (such as a road or track), or where grass fuels are not fully cured. Grass fire spread is also less in cut/grazed pastures than in undisturbed pastures.

[3] Department of Environment, Land, Water and Planning (DELWP) (2014) *Planning Practice Note 65 – Preparing and Assessing a Planning Application under the Bushfire Provisions in Planning Schemes.* DELWP, July 2014
[4] Moyne Shire (2011) Municipal Emergency Management Plan 2011-2014. Moyne Shire August 2011
[5] Cheney PN and Sullivan A (2008) *Grassfires: Fuel, Weather and Fire Behaviour.* Second Edition, CSIRO Publishing 150pp
[6] Cheney PN, Gould J and Anderson, W. (1998). *Prediction of Fire Spread in Grasslands.* International Journal of Wildland Fire 8(1) 1-13
[7] Cruz M.G., Gould J.S., Alexander M.E, Sullivan A.L., McCaw W.L., Matthews S. (2015) *A Guide to Rate of Fire Spread Models for Australian Vegetation.* CSIRO Land and Water Flagship, Canberra, ACT, and AFAC, Melbourne, Vic, 123pp

An adverse fire impacting the project site potentially could occur (when sufficient grass sward is present) from the west to north west under hot, dry pre-frontal conditions, or from the south west following the passage of cold front. This scenario would require a fire to develop from the spot fire ignition point and spread as a narrow elliptical wind driven and short-lived fire through pasture and cropped areas. Grass fires would need to cross a range of pasture conditions (cut, grazed or eaten out). The greatest potential for grassfires occurs after a short drought period (of up to two months) that follows a wet spring that has supported abundant grass growth, and grasses become fully cured. However active management of pastures and crops within and adjoining the project site, through commercial grazing and cropping, are unlikely to create such elevated fuel risk conditions. As such a grassfire burning towards, within or from the turbine envelope is likely to be short-lived, of a narrow elliptical wind driven shape, with a reduced rate of spread than a natural grassland. Grass fires spreading in low fuel conditions are also less likely to be able to cross a formed break, such as the internal and external road network throughout the site.

4.4 Bushfire detection and suppression resources

4.4.1 Detection

The 'open' and relatively flat nature of the landscape in the immediate vicinity of the project site means that smoke from bushfires and grassfires would be visible for a considerable distance. Detection would most likely occur from local landholders (both within the MFWF project site and off-site), Mortlake residents or road users on the Hamilton Highway.

Where initial detection of an ignition is restricted (such as during the night), and low humidity persists into the night, such conditions may allow the fire to develop during the night unnoticed for short periods. Although it can be reasonably expected that smoke in the vicinity of the Hamilton Highway or around existing farming residences on the site would be smelt during the night, or seen and reported shortly after daybreak, before fire behaviour escalation later in the day.

4.4.2 Ground based fire-fighting resources

The project site is located in CFA District 05 (Southwest) but also adjoins CFA District 06 and District 16. There are six CFA brigades located within the Mortlake Group of CFA District 05 including Hexham and Mortlake brigades. There is also a brigade at Darlington (CFA District 6) stationed to the east of the MFWF, and a brigade at Woorndoo (CFA District 16) located north of MFWF. It is noted volunteer CFA fire fighter numbers are declining across the region.

4.4.3 Aerial fire-fighting resources

There are no dedicated aerial firefighting resources located within the landscape surrounding the project site, however in the event of a fire a aerial fire-fighting resources could be tasked from surrounding regions if required.

The Department of Infrastructure and Regional Development (2017[8]) identifies the following considations in relation to aerial firefighting operations which are relevant to the MFWF development:

- A risk-based approach is adopted to low flying aircraft operations
- During the day, large wind turbines are sufficiently conspicuous due to their shape and size, provided the white colour of the turbine is of a contrasting colour to the background.
- Turbines are not located in the vicinity of a commercial aerodrome
- Lighting has not been recommended by CASA
- In general, the effect of turbulence on aircraft in the vicinity is not known with certainty. Wind farm operators should be conscious of a duty of care to communicate this potential risk to aviation operators (with CASA) in the vicinity of the wind farm. Notification of the location of the wind turbines so that can be identified on the relevant aeronautical charts (both Airservices Australia and RAAF)

[8] Department of Infrastructure and Regional Development (2017) National Airports Safeguarding Framework – Managing the Risk to Aviation Safety of Wind Turbine Installations (Wind Farms)/Wind Monitoring Towers Last updated 11 April 2017 (https://infrastructure.gov.au/aviation/environmental/airport_safeguarding/nasf_principles_guidelines.aspx) Accessed 6/11/2017

In accordance with CFA's *Design Guidelines and Model Requirements for Renewable Energy Facilities* (CFA, 2022), wind turbines are located a minimum distance of 300 metres apart. Further, wind turbines will be provided with automatic shut-down, and the ability to be completely disconnected from the power supply in the event of fire.

Aerial firefighting operations would not be recommended in the immediate vicinity of turbine envelope, and this should be documented in the bushfire management plan for the site. Outside the turbine envelope aerial firefighting operations may be approved based on a risk-based approach, and as approved by the incident controller, air attack supervisor and the aircraft pilot. Any low-level aircraft operator (firefighting or agricultural) is required to complete a visual assessment of potential physical obstacles prior to undertaking operations.

The worse case fire scenario with the MFWF project site is a fast-moving grassfire, which is unlikely to require a large scale intensive and long engaged aerial firefighting operations (as would be required in forested and woodland areas). The type of aerial operations would be most likely an air tractor dropping retardant lines, that could be completed outside the turbine footprint for safety reasons. Air-tractor pilots are normally very experienced in identifying and avoiding physical obstacles such as powerlines, and it would potentially not need to operate within the turbine, unless safe to do so and approved by the incident controller and the air attack supervisor.

4.5 Neighbourhood safer place

The nearest neighbourhood safer place is located at Mortlake Market Square (corner Hamilton Highway (B140) and Townsend Street) (approximately 6 km south west of the main MFWF entrance). The route between the site and the neighbourhood safer places includes mostly agricultural land (grazing/cropping with very little native vegetation.

The type of fire behaviour expected at the site (short lived and elliptical in shape) and the construction and landscaping of the administration building makes this a suitable option to shelter onsite from a grassfire.

Fire spread potential from all directions - creeks, roads (internal and external) and managed grasslands may limit the potential for grassfires to spread

Managed grazing and cropping

Managed grazing and cropping

Managed grazing and cropping

Managed grazing and cropping

HEXHAM

MOYNE

SALT CREEK

BLIND CREEK

GUM SWAMP

MUSTONS CREEK

HOPKINS RIVER

MORTLAKE COMMON

TUSSOCKY SWAMP

Boortkoi Estate Lane
Wordleys Lane
Hexham - Woorndoo Rd
Nine Mile Lane
Woorndoo - Darlington Rd
Mt Fyans Lane
Hexham - Chatsworth Rd
Crearers Lane
Woodcutters Lane
Hexham - Woorndoo Rd
Fairfield St
North Rd
Mortlake - Ararat Rd
North Rd
Woolsthorpe - Hexham Rd
Hamilton Hwy
Castle Carey Rd
South Rd
South Rd
Six Mile Lane
Prices Lane
Boonerah Estate Rd
Cranmore Lane
Steeles Lane
Castle Carey Rd
Hardys Lane
Boonerah Estate Rd
Kings Lane
Kings Lane
Five Mile Lane
Thulborns Lane
Booths Rd
Booths Lane
Arnotts Lane
Prentices Lane
Cairnlea Lane
Campbells Lane
Cemetery Lane
Dales Lane
Hamilton Hwy
Eight Mile Lane
Connewarren Lane

Paper Size A3

0 0.5 1 1.5 2 2.5
Kilometers

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 54

N

LEGEND

- Proposed Wind Turbines
- Transmission Line
- Project Site Boundary
- Location of Moyne Shire
- On-Site Substation / Control Centre
- Proposed Road Layout
- Works Excluded Area

Hydro Tasmania
Mt Fyans Wind Farm Update

Job Number	31-12589081
Revision	A
Date	11/08/2022

Bush/grass Fire Factors

Figure 4

\\ghdnet\ghd\AU\Melbourne\Projects\31\12589081\GIS\Maps\Deliverables\12589081_000_KBM_A3L1.mxd

Data source: DELWP, VicMap, 2017; Hydro Tasmania, Proposed Infrastructure, 2017 Created by: fcarve

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5. Bushfire management mitigation measures

A discussed in Section 1 no Bushfire Management Mitigation Measures other than compliance with the *Electricity Safety (Bushfire Mitigation) Regulations 2013* and the *Electricity Safety (Electric Line Clearance) Regulations 2020* are required.

With the exception of the sub-station connecting the wind farm transmission lines to the electricity grid (at the far south-western extent of the project), the project site does not fall within the Bushfire Management Overlay (BMO) of the Moyne Planning Scheme (Clause 44.06 *Bushfire Management Overlay*).

The proposed sub-station is to be located immediately adjacent to an existing sub-station and developed within a new parcel of land within the BMO.

The proposed subdivision triggers a permit requirement under the BMO pursuant to Clause 44.06-2.

Due to the nature of the infrastructure proposed, the sub-station, it is considered reasonable for the Responsible Authority to waive the requirements for a formal Bushfire Assessment and associated inputs under Clause 44.06-3 of the Moyne Planning Scheme.

We consider that the Responsible Authority can waive this requirement for the following reasons:

– The BMO mapping has been expanded to include the existing pine plantation present in that location. As part of the project, all pine plantation within the subdivision around the substation will be permanently cleared.
– The effect of the permanent pine plantation clearance will be that the sub-station will be more than 200 metres from the pine plantation on neighbouring land and therefor subject to LOW Bushfire Attack Level (BAL) and not attract a requirement for any bushfire protection measures.
– The sub-station will be unmanned at all times (except during maintenance) and will be comprised of non-combustible electrical apparatus within a secure compound free of vegetation.
– The usual 'Approved Measures' including building construction standards are not relevant for electrical infrastructure.
– The provision of access for fire emergency services, water for firefighting are also not applicable for open-air sub-stations with non-combustible high voltage electrical components which would never attract a firefighting response.
– The permit trigger under the BMO is for a subdivision to facilitate the development for a non-habitable building.

Part of the MFWF site is located within a Bushfire Management Overlay (BMO), the approach taken for the development is to meet the aims and objectives of the BMO across the project site and turbine envelope.

The entire project site (and region) is designated as a Bushfire Prone Area (BPA) within the Victorian BPA mapping system (*Building Act 1993*).

This section provides details of the proposed development that are considered relevant to the management of bushfire on the site and subsequently explains how the proposal aligns with the *Design Guidelines and Model Requirements for Renewable Energy Installations* (CFA 2022) for wind energy facilities. These have been cross-referenced (where relevant) to the comparative approved measures (AMs) of Clause 53.02-4 *Bushfire protection objectives* of the Moyne Planning Scheme.

A summary of the compliance of the proposal against the CFA wind farm guidelines (CFA 2022) is provided in Section 5.2.

5.1 Relevant features of the proposal

5.1.1 Buildings

The administration building/control room for the development is located in the central part of the site Figure 1) on South Road. It is accessed from either North Road / Six Mile Lane or Castle Carey Road/Mortlake-Ararat Road.

Temporary administration buildings including offices and amenities buildings will also be erected on site during construction phase.

The control room building, which will adjoin the On-site Substation, and the temporary construction buildings are classified as a Class 5 Building under the National Construction Code (NCC). The NCC does not provide for any bush fire specific performance requirements for Class 5 to 8 buildings, and therefore compliance with AS3959 in relation to construction standards do not apply. Clause 53.02-4.2 and Clause 53.02-4.3 of the Moyne Planning Scheme apply to a dwelling or accommodation building and also do not apply.

Clause 53.02-4.1 Landscape, siting and design applies to the proposed buildings and compliance with the Approved Measures have been considered in the proposal as outlined in Section 5.1.5.

In accordance with 6.2.4 of the CFA wind farm guidelines a thirty-metre fuel reduced zone (grass <100 mm in height) is to be maintained around these structures. This will ensure that in the event of a grassfire impacting proposed building locations, the radiant heat flux at the building will not exceed 12.5 kW/m2.

The control room will be staffed during business hours and an after-hours contact and response system will be in place after hours.

5.1.2 Firebreaks around individual turbines

In accordance with Section 6.2.4 of the *Design Guidelines and Model Requirements for Renewable Energy Installations* (CFA 2022) a perimeter fire break is not required around the property or the wind turbine envelope. However, in accordance with the aforementioned guidelines, a minimum 20 metre width fire break will be provided around the base of each turbine.

5.1.3 Access arrangements

The project site can be accessed from multiple external points including the Hamilton Highway, Mortlake-Ararat Road, South Road, off the Woorndoo-Darlington Road and the North Road (Figure 1).

Within the project site, approximately 79 km of gravel access roads will be constructed with minimum 4 m width and 4 m height clearance and passing bays at least every 600 m in accordance with 6.2.1 of the *Design Guidelines and Model Requirements for Renewable Energy Installations* (CFA 2022). Road grades and dips will conform to the model requirements of the aforementioned CFA guidelines.

Pre-construction and annual on-site familiarisation exercises can be used to inform brigades about site layout and access points.

5.1.4 Water supply for fire fighting

Static water supply points (not less than 45,000 L) will be provided for the development, near the main entrance to the facility, and 3 further supply points – 1 in each of the three wind envelope polygons (see Figure 1) in accordance with Section 6.2.2 of the *Design Guidelines and Model Requirements for Renewable Energy Installations* (CFA 2022). Static water supply point locations will be based on further consultation with local CFA personnel (both the District 5 Operations Officer (South Catchment) and the CFA Mortlake Group). The location of static water supply points will be documented in a Bushfire Emergency Plan prepared for the site (see Section 5.1.7). Static water supply point design, access and fittings will conform to the model requirements of the aforementioned CFA guidelines.

5.1.5 Landscape, siting and design

The Approved Measures of the planning scheme in relation to landscape, siting and design as set out in Clause 53.02-4.1, and relating to bushfire risk to the development from the landscape beyond the site, have been considered in the design of the proposal as outlined below:

- AM 2.1 – The substation and control building have been located in areas where the risk from the surrounding landscape is able to be mitigated to an acceptable level.
- AM 2.2 – The grid connection substation is located in an area adjacent to an existing terminal substation and a wind farm substation and achieves an acceptable separation from the bushfire hazard with good access to a public road. Similarly, the on-site substation and control building are located in a grassland area that can achieve suitable separation to hazards and have good direct access to the public road network.
- AM 2.3 – The control building, while not technically required to comply with AS3959 (refer Section 5.1.1), has been designed to sit on a concrete base, in a compound surrounding by parking and storage areas which will provide a low fuel area. This will minimise the risk to the building.

Based on the above, compliance with the Approved Measures for Clause 53.02-4.1 is considered to be achieved in the proposal.

5.1.6 Design compatibility for aerial firefighting

In accordance with section 6.2.5 of the *Design Guidelines and Model Requirements for Renewable Energy Installations* (CFA 2022), wind turbines will be positioned not less than 300m from other wind turbines, to facilitate aerial firefighting response at the site.

5.1.7 Bushfire Response / Evacuation arrangements

As discussed in Section 4.5, there is no Neighbourhood Safer Place in the immediate vicinity of the development. Consequently, it is proposed that the bushfire response procedures documents in a Bushfire Emergency Plan (BEP) prepared for the site incorporate:

- Procedures for the management of the site / relocation / evacuation of people depending upon the fire danger rating
- Emergency Assembly / Shelter in Place (control room/administration building) arrangements in the event of a fire, and when evacuation is not considered feasible

Given the topography and vegetation on the site, any bushfires on the site are anticipated to be narrow, elliptical shape and fast moving but relatively short duration (refer Section 4.3).

Emergency assembly in the administration/control room building is considered to provide suitable protection from radiant heat in the event of a fire given:

- The expected fire behaviour; and
- The maintained Asset Protection Zone (APZ) around the building (30 metres)

It is proposed that a BEP is developed for the proposal as a permit condition. As advised by the CFA, the BEP would be required to address matters including:

- Consultation with local CFA personnel (both the District 5 Operations Officer (South Catchment) and the CFA Mortlake Group);
- The Fire Danger Rating triggers for the modifying site activities, closure of the facility and shutting down of turbines;
- Monitoring and notifying staff and visitors of forecast Fire Danger Rating and any consequential actions;
- Details of the location/s for emergency assembly, evacuation and shelter-in-place (in the event that evacuation from the site is not practicable);
- Arrangements to mitigate potential risks associated with cropping areas including if additional water supply and boundary breaks are required;
- Transport arrangements for staff and visitors;

– Training/induction of staff and visitors;
– The nature and frequency of emergency procedure exercises; and
– Emergency procedures (bushfire action statements) including the assignment of roles and responsibilities to staff. This will also include consideration of High Angle Rescue arrangements.
– Aerial firefighting restrictions (including any NOTAM applying) and arrangements to provide turbine locations to Airservices and the Defence force.

5.1.8 CFA preliminary advice

Preliminary project and design information was provided to the CFA (Mr Phillip Wall, Fire Safety Officer, South West Region) to provide background to discussions between the CFA (Mr Phillip Wall) and GHD (Dominic Adshead, Clarice Chen) on 6 October 2017.

Ongoing consultation with CFA will be undertaken as the project progresses to ensure the requirements are met.

5.2 Summary of proposal against *Design Guidelines and Model Requirements for Renewable Energy Installations* (CFA 2022)

Sections 5.2.1 to 5.2.6 summarise how the proposal will meet the model requirements of CFA's *Design Guidelines and Model Requirements for Renewable Energy Installations* (the CFA Guidelines]).

5.2.1 Consultation with CFA

Preliminary consultation with CFA has been undertaken. Further consultation with CFA will be ongoing as the project progresses to ensure requirements are met in the design and operation of the facility.

5.2.2 Fire risk management

It is proposed that a Bushfire Emergency Plan is developed for the proposal as a permit condition (see Section 5.1.7). The BEP would be prepared to address these requirements as set out in Section 1 and Section 2 of the CFA Guidelines (CFA 2022).

5.2.3 Facility location and design

5.2.3.1 High-risk environments

Noting that the proposed windfarm site sits within a Bushfire Prone Area (refer Section 5) the proposal has been assessed against policy at *Clause 13.02-1S (Bushfire Planning), as per sections 1 to 4 of this report,* as well as addressing the following:

a. The impact of any ignitions arising from the infrastructure (solar panels, wind turbines, battery energy storage systems, electrical infrastructure) on nearby communities, infrastructure and assets.
b. The impact of bushfire on the infrastructure (e.g. ember attack, radiant heat impact, flame contact).
c. Assessment of whether the proposal will lead to an increase in risk to adjacent land and how the proposal will reduce risks at the site to an acceptable level.

It is considered that the risks associated with the proposed windfarm can be adequately mitigated by the proposed fire protection measures that are documented in this report.

5.2.3.2 Emergency vehicle access

The following requirements represent CFA's minimum expectations for emergency vehicle access at wind energy facilities (CFA 2022):

a. [Perimeter road not required for wind energy facilities.]
b. Roads must be of all-weather construction and capable of accommodating a vehicle of fifteen (15) tonnes.
c. Constructed roads should be a minimum of four (4) metres in trafficable width with a four (4) metre vertical clearance for the width of the formed road surface.
d. The average grade should be no more than 1 in 7 (14.4% or 8.1°) with a maximum of no more than 1 in 5 (20% or 11.3°) for no more than fifty (50) metres.
e. Dips in the road should have no more than a 1 in 8 (12.5% or 7.1°) entry and exit angle.
f. Roads must incorporate passing bays at least every 600 metres, which must be at least twenty (20) metres long and have a minimum trafficable width of six (6) metres. Where roads are less than 600 metres long, at least one passing bay must be incorporated.
g. Road networks must enable responding emergency services to access all areas of the facility, including fire service infrastructure, buildings, and battery energy storage systems and related infrastructure.

h. *The provision of at least two (2) but preferably more access points to the facility, to ensure safe and efficient access to and egress from areas that may be impacted or involved in fire. The number of access points must be informed through a risk management process*

The proposal includes approximately 79 km of gravel access roads to be constructed (4 m width and 4 m height clearance). They are linked to sealed access roads at multiple locations including the Hamilton Highway, multiple access points from the Mortlake-Ararat Road and from Connewarren Lane.

In relation to the proposal:

– Constructed internal access tracks meet the minimum width and vertical clearance requirements;
– Tracks can achieve a load limit of 15 tonnes;
– Tracks are all-weather;
– Tracks are located on flat or slight slopes (< 5 degrees) and dips can meet entry and exit requirements; and
– Passing can be accommodated for fully loaded fire tankers at the required intervals.

The proposed arrangements meet the minimum expectations as set out in the CFA guidelines.

Applicable Planning Scheme measures (Clause 53.02-4)

– Not directly applicable as Clause 53.02-4.3 (and Table 4) only applies to buildings and accommodation.

5.2.3.3 Firefighting water supply

The fire protection requirements for wind energy facilities are set out as follows (CFA 2022):

a. *The fire protection system for wind energy facilities must incorporate at least one static fire water storage tank of at least 45,000L effective capacity at each site entrance.*
b. *Additional static fire water storage tanks of at least 45,000L effective capacity must also be incorporated in facility design. The number and location of tanks is to be determined through a comprehensive risk management process (Risk Management Plan), in consultation with CFA.*
c. *Fire water must be provided to cover buildings, control rooms, substations and grid connections, in consultation with CFA.*
d. *Nacelles must be equipped with automatic fire detection, alarm and fire suppression systems.*
e. *Additional fire protection systems or equipment required under any Australian Standards for dangerous goods must be provided as prescribed.*

There are a range of existing water supply points, primarily dams, that are used by the CFA.

The proposal will include three additional static water supply points of at least 45,000 litres each, with one supply point located in each of the wind farm envelope polygons accessible from key access routes (Figure 1) as per discussions with the local CFA and documented in the BEP.

The proposal will comply with CFA requirements.

Applicable Planning Scheme measures (Clause 53.02-4)

– Not directly applicable as Clause 53.02-4.3 (and Table 4) only applies to buildings and accommodation.

5.2.3.4 Landscape screening and on-site vegetation

The general requirement (CFA 2022) is that *"Facilities must be designed so that the radiant heat flux (output) from vegetation does not create the potential for ignition of on-site infrastructure or other vegetation."*

The MFWF project site and surrounding area is located within a landscape dominated by managed grassland used for grazing and cropping (external to the turbine envelope). While these areas have the potential to present a bushfire risk the active management of the grass sward through grazing is expected the limit the size and run of any fire in the vicinity of the site.

In relation to the proposal:

– The MFWF turbine envelope is located on open grassland areas grazed by cattle and sheep;

– Scrub and trees are not located within 30 m of any turbine;
– Wind turbines are located more than 300 m apart; and

The above siting specification within an open grazed grassland environment (in combination with proposed firebreaks around each turbine and building) are sufficient to ensure that in the event of a grass fire spreading on the site, all proposed turbines and building will be exposed to a radiant heat flux no greater than 12.5 kW/m2.

Adjoining property use and distances to habitable buildings have been considered (refer to Project Referral Form submitted on 17/7/2017).

Applicable Planning Scheme measures (Clause 53.02-4)

– Clause 53.04-4.1 Landscape, siting and design objectives. Refer Section 5.1.5 which outlines how this provision relates to the proposal.

5.2.3.5 Fire breaks

The CFA guidelines provide requirements for firebreaks as follows:

– *A fire break must be established and maintained around … the perimeter of control rooms, electricity compounds, substations and all other buildings on-site*
– *The width of fire breaks must be a minimum of 10m, at least the distance where radiant heat flux (output) from the vegetation does no create the potential for ignition of on-site infrastructure.*
– *A fire break must be established and maintained around the base of wind turbines.*

It is further noted that CFA recommends *"that an additional reduced-fuel zone of at least 20m, abutting the fire break, is implemented around the base of wind turbines. This zone is to be cleared of trees and scrub (where permitted by the responsible authority) and grass must be no more than 100mm durin the Fire Danger Period."*

The proposal will include:

– A 30 m APZ around the control room/administration building and around temporary construction buildings (offices, meeting rooms and amenities) with grass fuel maintained <100mm
– A 10m APZ around each turbine with grass fuel maintained <100mm
– No long grass or deep leaf litter around operational areas.

The Bushfire Emergency Response plan must specify vehicle and plant requirements (including fire extinguisher) and fire danger restrictions in accordance with fire danger or an emergency warning being issued.

Applicable Planning Scheme measures (Clause 53.02-4)

– Not applicable.

5.2.3.6 Design specific to wind energy facilities

Additional design requirements specific to wind energy facilities are outlined below (CFA 2022):

– *Wind turbines must be located no less than 300 metres apart.*
– *Wind turbines must be provided with automatic shut-down, and the ability to be completely disconnected from the power supply in the event of fire.*
– *Installed weather monitoring stations must be notified to the Civil Aviation Safety Authority (CASA) as per CASA Advisory Circular AC 139.E-05 v1.0, May 2021 (as for all structures 110m or more above the ground).*
– *All guy wires and monitoring towers must be clearly marked, even where marking is not required by CASA.*

The proposed wind farm will comply with the above requirements.

Applicable Planning Scheme measures (Clause 53.02-4)

– Not applicable.

5.2.4 Facility construction and commissioning

An Emergency Management Plan must be developed for the construction and commissioning phase, before development starts (proposed condition of planning permit approval). The EMP will be based on the following MFWF construction and commissioning phase risk assessment.

Risk assessment of the potential fire ignition sources during construction is provided at Table 3. Bushfire risk reduction measures are focussed on fire prevention. Fire suppression at the ignition site at the time of ignition is a contingency measure. GHD notes that all wind turbine and powerline construction sites are within cleared, open areas where the principal form of vegetation/fuel is grass.

Table 3 Construction phase bushfire ignition risk assessment

Potential Ignition source	Prevention and Mitigation measures	Consequence	Likelihood	Risk rating
Grass fire ignition and uncontrolled spread caused by on site hot works	– Prohibited on all days of Extreme and Catastrophic Fire Danger – At all other times: • Hot works requires inclusion in the Job Safety Analysis (JSA); • All hot work will require issue of a hot work permit; • All fire prevention measures (fuel free clearance zone around hot work site; wetting down measures and spark guards) specified in the JSA and/or hot work permit to be undertaken; • Fire extinguishers or other fire response apparatus required by the JSA and/or hot work permit must be present at the work site – Upon completion of hot works appropriate checks to be undertaken to ensure no fire or smouldering material remains.	Minimal	Rare	Low
Grass fire ignition and uncontrolled spread caused by vehicle exhaust system contact with long grass	– Vehicle access onto areas other than on constructed roads and laydown areas prohibited on all days of Extreme and Catastrophic Fire Danger – At all other times: • Avoid parking in long grass;	Moderate	Rare	Low
Grass fire ignition and uncontrolled spread caused by sparks from earthmoving operations	– Prohibited on all days of Extreme and Catastrophic Fire Danger – Grass fire ignition prevention requires inclusion in the Job Safety Analysis (JSA) for all earthmoving and hole boring works – Fire extinguisher to be carried on all earthmoving machinery and present at all hole boring operations.	Moderate	Rare	Low
Grass fire ignition and uncontrolled spread caused by cigarette butts discarded by smokers	– No smoking on project site except in designated smoking areas at the construction office site or laydown areas	Moderate	Rare	Low

Notes: 1. Consequence (of grass fire ignited by project activities) assessed on the basis of grass fire occurrence on days other than Extreme and Catastrophic, due to activity prohibitions under such fire danger ratings

2. Likelihood (of grass fire ignited by project activities) assessed on the basis of risk controls (prevention and mitigation) being implemented.

5.2.5 Facility operation

An Emergency Management Plan must be developed for the MFWF operational phase, before operations commence (proposed condition of planning permit approval). The EMP will be based on the following MFWF operations phase risk assessment.

A wind energy facility EMP must include:

– Emergency procedures for fires within, and in the vicinity of, wind turbines.
– Details of any triggers or circumstances for ceasing operation of wind turbines or shutting down the facility, such as on Catastrophic Days or approach of bushfire/grassfire to the facility.
– Maximum (safe) operational wind speed and temperature conditions and operating procedures to limit fire risk.

Risk assessment for grass fire ignition associated with the proposed MFWF is provided at Table 4. Bushfire risk reduction measures are focussed on fire prevention. Fire suppression at the ignition site at the time of ignition is a contingency measure only.

Table 4 Facility operation phase bushfire ignition risk assessment

Potential Ignition source	Prevention and Mitigation measures	C	L	Risk rating
Grass fire ignition caused by an asset failure/ electrical fault in a wind turbine or on the powerline network	– Wind turbine design to incorporate : • Effective lightning protection/earthing systems to eliminate potential for lightning-induced faults within the turbine; • Design of venting/internal airflow to achieve tolerable ambient temperatures inside turbine nacelles, in hot Australian conditions; • Installation of passive fire detection systems (heat/fire/smoke detection system) which can detect overheating components, smoke or incipient fire within the nacelle to provide for early detection and power isolation/shutdown (and activation of active suppression systems if fitted); – Consideration should be given to an active fire suppression system in the wind turbine design; – Overhead power line design compliant with AS 7000:2016; – Overhead powerline line cyclic asset maintenance managed under third-party accredited systems for safety management and quality, and to standards set and audited by an independent technical regulator (EnergySafe Victoria); – Overhead powerlines located in open grassland where any grass fire would be readily seen and reported and readily accessible for robust response.	Moderate	Very Unlikely	Low
Grass fire ignition caused by conductor clashing on the overhead powerline network	– Overhead powerline design effectively eliminates potential for conductor clashing in foreseeable environmental conditions;	Moderate	Very Unlikely	Low

Potential Ignition source	Prevention and Mitigation measures	C	L	Risk rating
Grass fire ignition caused by vegetation contact with the overhead powerline network	– Overhead powerline design compliant with AS 7000:2016, within maintained easements – Vegetation clearance maintained systematically in accordance with Victorian electric line clearance regulatory requirements Electric Line Clearance Regulations 2020 prescribe the vegetation clearance requirements for electric lines. – Overhead powerlines located in open grassland where any grass fire would be readily seen and reported and readily accessible for robust response.	Moderate	Very Unlikely	Low
Grass fire ignition and spread caused by lightning strike impacting overhead powerline	– Overhead powerline design compliant with AS 7000:2016, incorporating lightning protection and earthing.	Moderate	Very Unlikely	Low
Grass fire ignition and uncontrolled spread caused by electrocuted/ ignited fauna	– Overhead powerline design compliant with AS 7000:2016, noting that 132kV transmission line design is not conducive to bird strike or fauna electrocution	Moderate	Very Unlikely	Low

Notes: 1. Likelihood (of grass fire ignition and uncontrolled spread) assessed on the basis of risk controls (prevention and mitigation) being implemented.

5.2.6 Other considerations

Other relevant considerations regarding:

– vegetation and fuel management,
– regular maintenance,
– dangerous goods storage and handling, and
– fire management and bushfire emergency planning

would be included in a Bushfire Emergency Plan which is developed for the proposal as a permit condition (see Section 5.1.7). The BEP would be prepared to address the specific requirements identified in the CFA guidelines (CFA 2022).

6. Summary

Hydro Tasmania, acting on behalf of Woolnorth, has prepared a proposal for Mount Fyans Wind Farm on the Hamilton Highway, north of Mortlake, Victoria. The proposal includes approximately 81 wind turbines (maximum height of 200 m – subject to change), on-site substation including a control room and maintenance facility, offsite substation, approximately 19 kilometres of overhead electrical line, approximately 79km of internal access tracks and up to two permanent wind monitoring (anemometry) masts. Temporary infrastructure associated with construction includes construction facilities including office space, meeting rooms, first aid room, toilets and parking and materials storage area, laydown area and on-site concrete batching plants.

All parts of the proposed development site, with the exception of the sub-station, are NOT subject to a Bushfire Management Overlay (BMO). The sub-station site, while subject to a BMO, will be entirely and permanently cleared of the pine plantation which has triggered incorporation in the BMO. This being the case, GHD considers that a *Bushfire Hazard Site Assessment, Bushfire Hazard Landscape Assessment,* and *Bushfire Management Statement* as would normally be required (under Clause 44.06-3) for sub-division are not relevant to the assessment of this application.

GHD notes that in such circumstances there is scope for the Responsible Authority, to waive these requirements accordingly.

This bushfire assessment includes a landscape assessment and fire management and risk management strategies can be incorporated into the development, that are consistent with the requirements of the *Design Guidelines and Model Requirements for Renewable Energy Facilities* (CFA 2022).

It is concluded that the proposal can comply with these requirements and can provide:

– Suitable defendable space around the proposed structures.
– Suitable static water supply consisting of tanks of at least 45,000L each which be placed at locations, as confirmed with local CFA personnel (both the District 5 Operations Officer (South Catchment) and the CFA Mortlake Group), which can service the areas proposed to be developed.
– Safe access and egress arrangements for facility staff and emergency services personnel.

Clause 53.02-4.1 of the planning scheme is considered to apply to the proposed wind farm and compliance with the Approved Measures is considered to be achieved as outlined in Section 5.1.5.

A Bushfire Emergency Plan incorporating a range of site specific procedures and mitigation measures would be developed (See Section 5.1.7) in consultation with local CFA personnel. It would describe a range of ongoing bushfire-related preparedness, site maintenance and management responsibilities within the development, together with measures to respond to the broader landscape related risks present beyond the immediate development. This plan would cover both the site construction and operations.