In the matter of the Golden Plains Wind Farm

Planning Panels Victoria

Proponent: WestWind Australia Pty Ltd

Expert Witness Statement of Ian Jennings

Expert of WestWind Energy Pty Ltd

1 Name and address

Ian Jennings

27 Hilda Street,

Essendon Vic 3040

2 Qualifications and experience

Annexure A contains a statement detailing my qualifications and expertise and addressing the matters set out within Planning Panels Victoria's Guide to Expert Evidence.

3 Scope

3.1 Role in Preparation of the Application

As the principal consultant at Chiron Aviation Consultants I peer reviewed the SGS Hart Aviation Report titled *Report on Aviation Related Issues, Golden Plains Wind Farm, Project # 1797-01, dated 9 January 2018* [Hart Report]. This review, dated 5 March 2018, was submitted by WestWind Energy Pty Ltd as part of its Planning Application and Environmental Effects Statement.

I am responsible, as the principal consultant at Chiron Aviation Consultants, for the preparation of the technical report titled *"Final Report, Golden Plains Wind Farm Aviation Impact Statement, Qualitative Risk Assessment and Obstacle Lighting Review, CCP02 dated 20 April 2018"* [Chiron Report] which was submitted by WestWind Energy Pty Ltd as part of its Planning Permit Application and Environment Effects Statement.

I prepared the Aviation Impact Statement, conducted the Qualitative Risk Assessment and prepared the Obstacle Lighting Review. I conducted the consultation process with Airservices Australia and the Department of Defence.

3.2 Instructions

My instructions to prepare this witness statement are set out in Annexure C, with particular reference to the findings of my peer review report with respect to the aviation and night lighting impacts of the Project and associated quarry. I was also asked to address submissions that are relevant to my area of expertise and respond to any relevant matters.

3.3 Process and Methodology

I reviewed the Chiron Report and compared the aeronautical data contained in the current Australian Aeronautical Information Publication (AIP) dated 24 May 2018 with that used in the report. There are no material changes.

The methodology used in the preparation of this witness statement was the same as that used in the Chiron Report, namely to review:

- Obstacle Limitation Surfaces for nearby certified and registered aerodromes;
- Published instrument approach procedures and associated PANS-OPS prescribed airspace for nearby certified and registered aerodromes;
- Published flight paths for infringement of Lowest Safe Altitudes;
- Published flying training areas; and
- Communications, Navigation and Surveillance Systems.

I have also reviewed the current AIP (dated 24 May 2018) and CASA documents as well as the National Airports Safeguarding Framework (NASF) Guideline D *Managing the Risk to Aviation Safety of Wind Turbine Installations (Wind Farms)/Wind Monitoring Towers*[1] for any material changes to the information used in the Chiron Report.

4 Findings

4.1 Summary of Opinions

Save where otherwise indicated I adopt the *Final Report, Golden Plains Wind Farm Aviation Impact Statement, Qualitative Risk Assessment and Obstacle Lighting Review, CCP02 dated 20 April 2018* and the letter *Aviation Peer Review, dated 5 March 2018* as the basis of my evidence before Planning Panels Victoria.

Abbreviations

Abbreviations used in this statement, and the meanings assigned to them for the purposes of this statement are detailed in the following table:

Abbreviation	Meaning
AC	Advisory Circular (document supporting CASR 1998)
AHD	Australian Height Datum
AIA	Aeronautical Impact Assessment
AIP	Aeronautical Information Publication
AIS	Aviation Impact Statement
ALA	Aeroplane Landing Area
ARP	Aerodrome Reference Point
AsA	Airservices Australia
ATC	Air Traffic Control(ler)
CAO	Civil Aviation Order
CAR	Civil Aviation Regulation 1988
CASA	Civil Aviation Safety Authority
CASR	Civil Aviation Safety Regulation 1998
Cat	Category
DAP	Departure and Approach Procedures (charts published by AsA)
DME	Distance Measuring Equipment
ERSA	Enroute Supplement Australia
ft	feet
GA	General Aviation
GNSS	Global Navigation Satellite System
GPWF	Golden Plains Wind Farm
ICAO	International Civil Aviation Organisation
IFR	Instrument Flight Rules

[1] NASF Guideline D ï last accessed 28 June 2018
https://infrastructure.gov.au/aviation/environmental/airport_safeguarding/nasf/files/4.1.3_Guideline_D_Wind_Turbines.pdf

Abbreviation	Meaning
km	kilometres
LAT	Latitude
LONG	Longitude
LSALT	Lowest Safe Altitude
m	metres
MOC	Minimum Obstacle Clearance
MOS	Manual of Standards, published by CASA
MSA	Minimum Sector Altitude
NASAG	National Airports Safeguarding Advisory Group
NASF	National Airports Safeguarding Framework
NDB	Non Directional Beacon
nm	Nautical Mile (= 1.852 km)
NOTAM	NOtice To AirMen
OLR	Obstacle Lighting Review
OLS	Obstacle Limitation Surface
PANS-OPS	Procedures for Air Navigation Services ï Aircraft Operations
PSR	Primary Surveillance Radar
QRA	Qualitative Risk Assessment
RPT	Regular Public Transport
RWY	Runway
SFC	Surface
SSR	Monopulse Secondary Surveillance Radar
VFR	Visual Flight Rules
VOR	Very high frequency Omni directional Range
YARA	Ararat Registered Aerodrome
YBLT	Ballarat Registered Aerodrome
YDER	Derrinallum ALA

Aerodromes and Airstrips

As described in section 1.2 of the Chiron Report, aerodromes fall into four categories:

- Military or Joint User (combined military and civilian);
- Certified;
- Registered; and
- Uncertified or Aeroplane Landing Areas

A Military aerodrome is operated by the Department of Defence and is suitable for the operation of military aircraft. A Joint User aerodrome is a Military aerodrome used by both military and civilian aircraft, for example Darwin International and Townsville International Airports.

A Certified Aerodrome, certified under Civil Aviation Safety Regulation (CASR) 139.040, is available for Regular Public Transport and Charter operations and has a runway suitable for use by an aircraft having a maximum carrying capacity of more than 3,400kg or a passenger seating capacity of more than 30 seats, for example Melbourne International Airport, Avalon Airport, Mildura Airport and Portland Airport.

A Registered Aerodrome, registered under CASR 139.260, is one to which CASR 139.040 does not apply and the operator has applied to CASA to have it registered, for example Ballarat, Horsham, Warracknabeal, Stawell and Ararat Airports.

An Uncertified Aerodrome is any other aerodrome or airstrip and is referred to as an Aeroplane Landing Area (ALA). These range in capability and size from having a sealed runway with lighting capable of accommodating corporate jet aircraft to a grass paddock

that is smooth enough to land a single engine light aircraft or a purpose built aerial agricultural aircraft.

Military, Certified and Registered aerodromes are listed in the Aeronautical Information Publication[2] (AIP) and are subject to a NOTAM[3] service that provides the aviation industry with current information on the status of the aerodrome facilities. This information is held in the public domain, is available through aeronautical publications and charts and is kept current by mandatory reporting requirements.

ALA are not required to be listed in the AIP so information about them is not held in the public domain, is not available through aeronautical publications and charts and is not required to be reported. Where ALA information is published in the AIP it is clearly annotated that it is not kept current. Consequently, ALA can come into use and fall out of use without any formal notification to CASA, AsA or any other authority. Airstrips that appear on survey maps often no longer exist; others exist but do not feature on maps. Similarly a grass paddock used as an ALA is not usually discernable on satellite mapping services such as Google Earth.

Military, Joint, Certified and Registered aerodromes usually have OLS and PANS-OPS surfaces prescribed to protect the airspace associated with published instrument approach and landing procedures. An ALA cannot have a published instrument approach and landing procedure so cannot have associated prescribed airspace protected by OLS or PANS-OPS. All operations into ALA therefore, must be conducted in accordance with the Visual Flight Rules (VFR) and in Visual Meteorological Conditions (VMC).

Use of Aerodromes

The pilot-in-command of an aircraft is responsible for ensuring the aerodrome or airstrip being used is suitable for the intended operation.

The use of aerodromes is governed by CAR 92 ï Use of Aerodromes, which requires that a person must not land an aircraft on, or engage in conduct that causes an aircraft to take off from a place unless, having regard to all the circumstances of the proposed landing or take-off (including prevailing weather conditions), the aircraft can do so in safety.[4]

Aviation Obstacle Lighting

With respect to aviation obstacle lighting section 6.2 of the Chiron Report finds that: -

> ñIn line with the NASF Guideline D and the findings of the QRA (see 6.13.2 and 6.14), obstacle lighting is not considered necessary because the assessed risk to aviation safety is LOW and therefore no additional mitigation is required.ò

The issue of aviation obstacle lighting is covered in the National Airport Safeguarding Framework (NASF) Guideline D.

The Civil Aviation Safety Authority (CASA) cannot mandate aviation obstacle lighting where the obstacle is beyond the aerodrome Obstacle Limitation Surface (OLS) and does not penetrate the Procedures for Air Navigation Services ï Aircraft Operations (PANS-OPS) surfaces, Lowest Safe Altitudes (LSALT) or any other prescribed airspace. This is discussed in section 6.1 of the Chiron Report. The GPWF does not penetrate any OLS, PANS-OPS, LSALT or any other prescribed airspace. To my knowledge CASA has never undertaken a risk analysis as required by NASF Guideline D paragraphs 33 and 34 to determine whether aviation night lighting should be included on the proposed wind farm. The Chiron Report contains the results of the Qualitative Risk Assessment carried out in accordance with NASF Guideline D paragraph 34 (above) that concludes the Golden Plains Wind Farm, with 230m AGL wind turbine tip height turbines is not a hazard to aircraft safety.

Wind turbines, by their size and colour are considered, by day, to be conspicuous objects that do not need additional risk mitigation. For VFR aircraft flying at night, a height of 1000 feet above the highest obstacle within 10nm of the aircraft must be maintained. Given the

[2] AIP; a mandatory worldwide distribution system for the promulgation of aviation rules, procedures and information

[3] NOTAM (Notice to Airmen); a mandatory reporting service to keep aerodrome and airways information current and available to the aviation industry world wide

[4] CAR 92 in full is shown on page 6.

regulated clearance requirements for aircraft flying VFR at night or IFR, aviation obstacle lighting at night is not mitigating a risk and is therefore not required.

In my opinion, aviation obstacle lighting is not required for the Golden Plains Wind Farm.

Low Flying

With respect to low flying, as carried out by aerial agricultural application aircraft, aerial firefighting, emergency services and other authorised low level flying the turbine tip height has minimal impact. All other aircraft are required to be at least 500ft above the highest object on the terrain below. In the case of the Golden Plains Wind Farm this is 755ft (230m turbine tip height) plus 500ft (CAR 157 requirement) equals 1255ft Above Ground Level.

Low Flying is governed by Civil Aviation Regulation (CAR) 157 ï Low Flying[5] that states at the following sub regulations:

- (1) The pilot in command of an aircraft must not fly the aircraft over: (a) any city or populous area at a height lower than 1000 feet; or (b) any other area at a height lower than 500 feet;
- (2) An offence against sub regulation (1) is an offence of strict liability;
- (3) A height specified in sub regulation (1) is the height above the highest point of the terrain, **and any object on it**, within a radius of (a) in the case of an aircraft other than a helicopter ï 600 metres; or (b) in the case of a helicopter ï 300 metres; from a point on the terrain vertically below the aircraft.

Sub regulation (4) provides a number of exceptions to sub regulation (1). Sub regulation (4) states: Sub regulation (1) does not apply if: (a) through stress of weather or any other unavoidable cause it is essential that a lower height be maintained. The subsequent parts (b) through (h) refer to specific CASA authorised activities such as aerial agricultural applications or search and rescue operations.

The operative word in (4) (a) is **unavoidable**. Flying into an area of low cloud and reduced visibility is avoidable. At all times a VFR pilot must have a forward visibility of 5000 metres and remain clear of cloud.

CAR 157

To assist the Panel, CAR 157 is shown below.

157 Low flying[6]

(1) The pilot in command of an aircraft must not fly the aircraft over:

(a) any city, town or populous area at a height lower than 1,000 feet; or

(b) any other area at a height lower than 500 feet.

Penalty: 50 penalty units.

(2) An offence against subregulation (1) is an offence of strict liability.

*Note: For **strict liability**, see section 6.1 of the Criminal Code.*

(3) A height specified in subregulation (1) is the height above the highest point of the terrain, and any object on it, within a radius of:

(a) in the case of an aircraft other than a helicopter—600 metres; or

(b) in the case of a helicopter—300 metres;

from a point on the terrain vertically below the aircraft.

(3A) Paragraph (1)(a) does not apply in respect of a helicopter flying at a designated altitude within an access lane details of which have been published in the AIP or NOTAMS for use by helicopters arriving at or departing from a specified place.

(4) Subregulation (1) does not apply if:

[5] CAR 157 ï Low Flying is provided over the page.

[6] CAR 157 - https://www.legislation.gov.au/Details/F2016C00872/Html/Volume_3#_Toc462908884 last accessed 28/06/2018

(a) through stress of weather or any other unavoidable cause it is essential that a lower height be maintained; or

(b) the aircraft is engaged in private operations or aerial work operations, being operations that require low flying, and the owner or operator of the aircraft has received from CASA either a general permit for all flights or a specific permit for the particular flight to be made at a lower height while engaged in such operations; or

(c) the pilot of the aircraft is receiving flight training in low-level operations or aerial application operations, within the meaning of Part 61 of CASR; or

(d) the pilot of the aircraft is engaged in a baulked approach procedure, or the practice of such procedure under the supervision of a flight instructor or a check pilot; or

(e) the aircraft is flying in the course of actually taking-off or landing at an aerodrome; or

(f) the pilot of the aircraft is engaged in:

(i) a search; or

(ii) a rescue; or

(iii) dropping supplies;

in a search and rescue operation; or

(g) the aircraft is a helicopter:

(i) operated by, or for the purposes of, the Australian Federal Police or the police force of a State or Territory; and

(ii) engaged in law enforcement operations; or

(h) the pilot of the aircraft is engaged in an operation which requires the dropping of packages or other articles or substances in accordance with directions issued by CASA.

CAR 92

To assist the panel, CAR 92 is shown below.

92 Use of aerodromes[7]

(1) A person must not land an aircraft on, or engage in conduct that causes an aircraft to take off from, a place that does not satisfy one or more of the following requirements:

(a) the place is an aerodrome established under the Air Navigation Regulations;

(b) the use of the place as an aerodrome is authorised by a certificate granted, or registration, under Part 139 of CASR;

(c) the place is an aerodrome for which an arrangement under section 20 of the Act is in force and the use of the aerodrome by aircraft engaged in civil air navigation is authorised by CASA under that section;

(d) the place (not being a place referred to in paragraph (a), (b) or (c)) is suitable for use as an aerodrome for the purposes of the landing and taking-off of aircraft;

and, having regard to all the circumstances of the proposed landing or take-off (including the prevailing weather conditions), the aircraft can land at, or take-off from, the place in safety.

Penalty: 25 penalty units.

(2) CASA may, in relation to an aerodrome, issue directions relating to the safety of air navigation.

(3) A person must not contravene a direction.

Penalty: 25 penalty units.

(4) An offence against subregulation (1) or (3) is an offence of strict liability.

[7] CAR 92 - https://www.legislation.gov.au/Details/F2017C00094/Html/Volume_3#_Toc473724736 last accessed 4/07/2018

*Note: - For **strict liability**, see section 6.1 of the Criminal Code.*

Aerial Agricultural Applications

Aerial agricultural applications aircraft are purpose built aircraft flown by appropriately endorsed pilots. Aerial Agricultural pilots undergo extensive low level flying training as well as chemical handling and applications training and are permitted under CAR 157 subregulation (4) (b) to fly at low level.

As noted in section 5.9 of the Chiron Report, a local aerial agricultural applications operator made the comment *"wind farms are becoming common, they're a fact of life, we know more about them and can operate safely in their vicinity"*.

A number of factors are involved in the selection of run orientation over a given ground area being:

- The longest run length available;
- The operation type, i.e. spraying or spreading;
- The wind direction (for spraying operations, runs are normally carried out crosswind; this is not necessarily the case for spreading operations); and
- Obstructions and their orientation relative to the area to be treated.

Aerial agricultural operations are only carried out in light to moderate winds, i.e. up to 15kts (7.8m/s) depending on the type of operation. To this end, the turbulence downwind of wind towers will not be significant, indeed no more than that from lines of tall trees.

Previous work undertaken by myself and colleagues at Ambidji, shows that, for example an Air Tractor 802 (AT802A) aircraft [the largest purpose built aerial agricultural aircraft with a MTOW of 7252kg] fully loaded travelling at normal operational airspeed is able to safely end an application run at 450m from a turbine and execute a 180 degree turn to commence the next application run. The turn radius of an aircraft is a function of aircraft weight and speed, therefore a smaller and lighter aircraft is able to commence the turn at the end of an application run closer to the obstacle. For example a Piper Pawnee (PA25-235) aircraft [with a MTOW of 1317kg] fully loaded travelling at normal operational airspeed is able to safely end an application run at 249m from a turbine and execute a 180 degree turn to commence the next application run. If the application run is parallel to a line of turbines then the offset from the obstacle is the same as for any other obstacle, for example a line of trees, and is approximately 2 wing spans or for an AT802A 37m and a PA25-235 23m.

The use of helicopters provides greater flexibility for aerial application in situations where obstacles preclude the use of fixed wing aircraft. Helicopters, because of their manoeuvrability, are able safely work more closely to obstacles such as wind breaks along property boundaries. In my opinion the use of helicopter applications in conjunction with fixed wing applications will allow aerial applications up to adjacent property boundaries which are close to wind turbines.

Aerial Firefighting

Aerial Firefighting aircraft are usually aerial agricultural applications aircraft or at times specifically modified civil or military aircraft flown by appropriately endorsed pilots. These pilots are permitted under CAR 157 subregulation (4) (b) to fly at low level.

Section 5.13 of the Chiron Report deals with aerial firefighting and notes that *"It is important to remember that aircraft alone do not extinguish fires."* The report also notes that the rural firefighting agencies in Victoria, New South Wales, South Australia and Western Australia all view wind turbines and wind farms to be ójust another hazardôthat is considered in the risk management process associated with aerial firefighting. The South Australian Country Fire Service fact sheet titled *Understanding Aerial Firefighting* explains the use and limitations of aircraft in firefighting. The major point made is that:

> ñ*The popular perception amongst much of the population is that aircraft alone can put out bushfires. This is not true. CFS firefighters and fire appliances for the vast majority of instances are the primary and only method of controlling bushfires."*

It is also noted, at section 5.13 of the Chiron Report that these same rural firefighting agencies make the point that access for fire trucks and personnel, and consequently their

ability to fight a fire within a wind farm is greatly enhanced by the access roads built for construction and maintenance of the turbines.

Where and how an aircraft is flown is decided by the pilot-in-command who has the ultimate responsibility for the safety of that aircraft.

Aerial firefighting operations are constrained by a number of factors such as wind velocity, visibility, turbulence generated by the fire, location of ground based firefighting assets, buildings and obstacles such as terrain, powerlines and communications towers. The retardant is dropped from as low as possible in order to get maximum saturation on the ground.

As noted in the Aerial Applications section above *"wind farms are becoming common, they're a fact of life, we know more about them and can operate safely in their vicinity".*

Aerotech Australasia, a large South Australian based aerial agricultural applications and aerial firefighting organisation, note the following on their website: -

> *"Part of the success of the rapid initial attack strategy is the purpose built firebombing air-tankers that we use. The Air Tractor 802 F (AT 802F) is widely recognised as the most effective air-tanker worldwide for 'rapid initial attack'.*
>
> *With huge power and payload coming from the Pratt & Whitney PT-6 turbine engine, Aerotech's fleet of Air Tractor aircraft are a real powerhouse. Fast to get airborne and with a ferry-speed of over 300km/h, combined with Aerotech's access to remote strips, results in a great formula for effective aerial firefighting.*
>
> *The aircraft are rugged, which is necessary for landing at remote airstrips to access water. They are fast and extremely manoeuverable, enabling access to 'tight' areas and allowing fast turns in a short radius to attack the critical area of the fire.[8]"*

Video footage and an accompanying affidavit was presented as evidence to the South Australian Environment, Resources and Development Court as part of a hearing regarding a proposed wind farm. I was an expert witness at that hearing and so I had an appointment to view this information. I requested White and Case to obtain a copy of this video and accompanying affidavit, as I wanted to refer to it in my statement as I believe it clearly demonstrates the use of both aerial and ground based firefighting within a wind farm. At least one of the aircraft shown in the video and photographs is an Air Tractor AT802 [VH-ODP] operated by Aerotech Australasia. Another of the photographs clearly shows the ease of access for ground based firefighting assets along the roads constructed within windfarms and the clear areas around the base of the turbine towers. Copies of these items are attached at Annexure E.

Additionally, in January 2018 12 aerial firefighting resources were used at a fire on the slopes of Mt Misery in the Langi Kal Kal area including at the Waubra Wind Farm[9]. In this case the aircraft used included the Erickson S64 Skycrane helicopter (often referred to as *Elvis*) and a converted Lockheed C130 Hercules 4 engine aircraft. The C130 has a MTOW of 70,000kg and a wingspan of 40m. The S64 has a MTOW of 21,300kg and a rotor diameter of 22m. By comparison a Boeing 737 ï 800 (B738) airliner has a MTOW of 85,100kg and a wing span of 34.3m.

[8] Aerotech Australasia, First Response, the right aircraft http://www.aerotech.net.au/1st-response-aircraft last accessed 13/07/2018

[9] Source *"Massive air attack helps contain large grassfire near Waubra", Derrick Krusche, The Courier,* Fairfax Media 19 January 2018 http://www.thecourier.com.au/story/5177592/massive-air-attack-helps-contain-large-grassfire-near-waubra/?cs=62 last viewed 13/07/2018

Figure 1. Hercules Multi Engine Aerial Tanker at Waubra Wind Farm January 2018.

Photograph by Jeremy Bannister, The Courier

Pilots of both aerial agricultural and aerial firefighting aircraft now have greater knowledge about wind turbines and are more familiar with operating safely within their vicinity. To this end, aerial operations in close proximity to wind turbines is being safely undertaken. .

4.2 Any Additional Work Undertaken Since Submission of Application

Additional work undertaken has been to review the locations of the two ALA referred to in submissions 13 and 20.

A field visit to the Wallinduc, Rokewood and Wingeel area was undertaken on Friday 6 July 2018. This visit covered the general area of the GPWF. The location of the airstrip mentioned in submission 20 could not be confirmed from public roads. The Glenfine West house and woolshed was visible from Burgers and Quarrel Road. The location of the airstrip mentioned in submission 13 was visible from the Wingeel Road.

I requested White and Case to obtain a copy of video footage and an accompanying affidavit that I had viewed when it was presented as evidence to the South Australian Environment, Resources and Development Court as part of a hearing regarding a proposed wind farm. I identified the registration mark of one of the aircraft through a photograph in the affidavit. Using the CASA Aircraft Register I was able to confirm that this aircraft [VH-ODP] is operated by Aerotech Australasia. This video and accompanying affidavit clearly demonstrates the use of both aerial and ground based firefighting assets within a wind farm.

4.3 Response to Submissions

I have reviewed the following submissions that raise issues concerning aviation:

- Submission 5
- Submission 13
- Submission 15
- Submission 17
- Submission 19
- Submission 20
- Submission 22
- Submission 25
- Submission 26
- CASA late submission

My detailed response to the matters raised in these submissions is set out in Annexure D.

4.4 Conditions

I have reviewed the permit conditions preferred by DELWP and West Wind Energy and in my opinion aviation obstacle lighting is not required because the overall risk to aviation in the area of the GPWF is low, therefore the GPWF is not a hazard to aircraft safety and no further mitigation is required.

In my opinion notification of the endorsed development plans should be to:

a) CASA, Airservices Australia and RAAF via the procedure and form referred to in Civil Aviation Safety Authority Advisory Circular AC 139-08 (v2.0) *Reporting of tall structures and hazardous plume sources* dated March 2018. Airservices Australia now has the responsibility for maintaining the obstacle database for the Australian aviation community as well as making it available to mapping agencies and domestic and international aviation organisations;
b) Aerodrome operators within 30km of the external boundaries of the site;
c) Flying Training organisations based at Ballarat, Bacchus Marsh, Point Cook and Lethbridge Park aerodromes;
d) Organisations responsible for providing aerial firefighting, air ambulance and search and rescue, for example Victoria Police Air Wing, Ambulance Victoria Air Ambulance and the Country Fire Authority;
e) Local aerial agricultural applications operators; and
f) Aerial Agricultural Association of Australasia.

An Aviation Impact Statement, the Chiron Report, has been submitted to Airservices Australia and the Department of Defence who have responded that the GPWF will not impact on their facilities or operations [refer to the Chiron Report sections 4.9 and 4.10].

5 Declaration

I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Panel.

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Dated: - 19th July 2018

Annexure A ï Response to PPV Guide to Expert Evidence

Expert's Qualifications

My qualifications and experience are set out in Annexure B.

Expertise to Make Report

My area of expertise is airspace and air traffic management. I also have expertise in the area of aircraft maintenance planning and aircraft performance. Through these activities I have an extensive knowledge of aviation regulations.

I have undertaken Aeronautical Impact and Qualitative Risk Assessments and Obstacle Lighting Reviews for Wind Farm projects in Victoria, New South Wales, South Australia and Western Australia. These have included investigations into the impact of wind farms on the operation of Aeroplane Landing Areas and the use of aerial agricultural applications activity. Additionally, I have undertaken Aviation Impact Assessments for organisations wishing to develop land within and adjacent to the Melbourne Airport Environs Overlay.

A common requirement of all these positions is a thorough knowledge of aviation legislation and regulations and the ability to apply them to the task at hand. I have also taught ñair legislationò(rules and regulations) and ñbasic aero knowledgeò(how aeroplanes fly) as part of my time as an Air Traffic Services Senior Instructor.

I am a Certified Air Ground Radio Operator with CASA Aviation Reference Number (ARN) 435274.

Reports Relied Upon to Prepare Expert Witness Statement

"Final Report, Golden Plains Wind Farm Aviation Impact Statement, Qualitative Risk Assessment and Obstacle Lighting Review, CCP02 dated 20 April 2018".

"Aviation Peer Review, Chiron Aviation Consultants, dated 5 March 2018;"

Aviation Peer Review, Hannah Wilson, dated 5 March 2018 Affidavit and accompanying video as submitted to South Australian EDR Court

Annexure B ï Curriculum Vitae

Name	**Ian Jennings**
Date of Birth	15 June, 1949
Nationality	Australian
Education	▪ Diploma or Air Traffic Control ï Airservices Australia ▪ Bachelor of Education ï LaTrobe University *Majors in Adult Education and Curriculum Studies* ▪ Further Certificate of Business Studies (Management) ï Kangan Batman TAFE *Majors in Personnel and Industrial Relations* ▪ Certificate IV Workplace Training and Assessment ï Airservices Australia ▪ Diploma of Electronic Engineering *(partially complete)* ï RMIT
Certifications	▪ Aviation Safety and Lead Auditor ï Aviation Compliance Solutions ▪ Incident Investigators Course *(Air Traffic Services)* ï Airservices Australia ▪ Understanding Risk Management ï Emergency Management Australia ▪ DAMP (Drug & Alcohol) Supervisor ï Civil Aviation Safety Authority ▪ Understanding Environmental Management ï SIA Global ▪ Certified Air ï Ground Radio Operator - CASA
Professional Associations	▪ Member Risk Management Institution of Australasia
Key Skills and Attributes	▪ Extensive knowledge and understanding of aviation regulatory requirements ▪ High level technical literacy with the ability to understand and explain complex technical literature ▪ Leadership and People Management ▪ Project Management ▪ Training Design, Development and Delivery ▪ Risk Management ▪ Safety Management ▪ Aviation safety auditing and incident investigation
Career Overview	Ian has an extensive background in Air Traffic Services having spent 25 years with Airservices Australia in a variety of operational and management positions. He has a detailed understanding of Air Traffic Control/Management, airspace and aerodrome issues, particularly in his previous role as an ATS Centre Group Leader. He has held positions as a Manager responsible for ATS training, personnel standards and licensing. He was part of a management team tasked with major airspace consolidation and transition of air traffic services on the east coast of

Australia to the TAAATS/Eurocat system. In this role he gained experience in developing courses and simulator exercises for training and rating air traffic services staff.

Ian has 10 yearsô experience in the corporate charter airline industry providing aircraft facility management, maintenance control and planning, aircraft modification project management and technical services management.

More recently Ian has consulted in the across diverse aviation fields from training Air Traffic Services personnel in Fiji, determining design aircraft performance requirements for airport upgrades to conducting aeronautical impact and qualitative risk assessments for tall structures including wind farms.

A common requirement of all these positions is a thorough knowledge of aviation legislation and regulations and the ability to apply them to the task at hand. Ian has also taught ñair legislationò (rules and regulations) and ñbasic aero knowledgeò (how aeroplanes fly) as part of his time as an Air Traffic Services Senior Instructor.

In addition Ian holds tertiary qualifications in education, training and management

Ianôs consulting activities with have ranged from aeronautical assessments, Qualitative Risk Assessments, to aircraft maintenance system audits, training development and organisational reviews.

Employment History

From **Present**

Position/Company ***Owner and Principal Consultant – Chiron Aviation Consultants***

Relevant Work Experience Ianôs recent consulting activities have included the following:

- Aeronautical Impact, Qualitative Risk and Obstacle Lighting Assessments for wind farm projects in WA, SA, NSW and Vic;
- Provide Expert Witness evidence for wind farm projects to Planning Panels in Victoria and the Environment, Resources and Development Court in South Australia;

From **2016 - 2017**

Position/Company ***Senior Managing Consultant – Landrum & Brown***

Relevant Work Experience Provision of management and aviation consultancy services in support of Landrum & Brownôs airspace, airports and airworthiness projects.

Ianôs recent consulting activities have included the following:

- Aeronautical Impact, Qualitative Risk and Obstacle Lighting Assessments for wind farm projects in WA, SA, NSW and Vic;
- Provide Expert Witness evidence for wind farm projects to Planning Panels in Victoria and the Environment, Resources and Development Court in South Australia;
- Recruit and train staff, oversight facility set-up and commence the Certified Air-Ground Radio Service at Ballina Byron Gateway Airport;

From : **2011 - 2016**

Position/Company: ***Principal Consultant - Ambidji***

Relevant Work Experience :

Provision of management and aviation consultancy services in support of Ambidjiôs airspace, airports and airworthiness projects.

Ianôs recent consulting activities have included the following:

- Aeronautical Impact, Qualitative Risk and Obstacle Lighting Assessments for wind farm projects in WA, SA, NSW and Vic;
- Establish design aircraft performance requirements for proposed airport upgrade at Dili Airport, Timor Leste;
- Airspace review and Air Traffic Control training associated with the introduction of ADS-B surveillance equipment in Fiji;
- Aeronautical Impact Assessments of proposed land developments in the vicinity of Melbourne Airport;
- Maintenance System audit and organisational review for West Wing Aviation;

From : **2009 - 2011**

Position/Company: ***Base Manager and Maintenance Controller – LUFT Aviation Charter Pty Ltd***

Relevant Work Experience :

Established the position and consolidated the maintenance control of four large corporate jet aircraft. Undertook a complete audit of all maintenance records that identified significant anomalies. These were rectified in order to establish, and demonstrate to the Regulators, the airworthiness of the aircraft. Managed the daily operations of the aircraft, hangar and airside facilities. Established close working relationships with the airport authorities, local and overseas maintenance organisations, manufacturersôTechnical Representatives and spare parts suppliers to facilitate the safe and expeditious use of the aircraft.

From : **2001 - 2009**

Position/Company : ***Technical Services Manager – Executive Airlines Pty Ltd***

Relevant Work Experience :

Established the Technical Services Section to manage the acquisition, distribution, control and storage of technical and regulatory data required for the maintenance of jet and turboprop aircraft. Provided technical, regulatory, risk management and safety input into the management of the maintenance and airside operations facilities. Provided project management for the modification and maintenance of a specialised aircraft used for hydrographical survey by the Royal Australian Navy. Provided ad-hoc in-house training on a variety of technical and operational topics. Conducted regular audits of Operational and Maintenance System manuals to ensure continued compliance with regulatory and manufacturersôrequirements and specification.

From : **1994 - 2001**

Position/Company : ***Air Traffic Services – Melbourne - Airservices Australia***

Relevant Work Experience :

As a key member of the management team tasked with major airspace consolidation and transition of air traffic services on the east coast of Australia to the TAAATS/Eurocat system. This project required;

- Airspace design;
- Risk assessment and management;
- Training design and delivery (simulator and classroom);
- Staff training and assessment;
- Internal and external liaison regarding service delivery;
- Management of staff during the change process.

As Manager Melbourne Flight Service managed 180 Air Traffic Services staff during a period of major organisational change and uncertainty. This involved;

- Budget control and forecasting ï approx. $8 million annually;
- All aspects of staff management including rosters, overtime and leave;
- Successfully implementing major new work practices resulting from a national Enterprise Bargain industrial agreement;
- Industrial relations issues ï including instructing an Industrial Officer in the Industrial Relations Commission for a satisfactory outcome;
- Successfully resolving a specific workplace harassment case;
- Management of work related injury cases;
- Successfully implementing remedial action associated with OH&S (workplace safety) issues;
- Staff suspension and counselling action related to air safety incidents;
- Air safety incident investigation;
- Liaising effectively with all levels of management within the organisation, with external organisations including clients, regulators and government.

As Group Leader Melbourne Flight Service managed 60 Air Traffic Services staff during a period of major airspace and procedural change. This involved;

- All aspects of staff management;
- Development of airspace specific operating procedures;
- Training and rating endorsement;
- Staff proficiency assessment including remedial training;
- Air Safety Incident investigation including staff suspension and training.

From : **Pre 1994**

Position/Company : ***Air Traffic Services - Airservices Australia***

Relevant Work Experience :

As Manager Flight Service Training College managed the closure of the facility. This involved;

- Staff redeployment;
- Disposal of assets;
- Transfer of intellectual property.

As Senior Instructor Flight Service Training College managed;

- The day to day requirements of the Instructors and students;
- Content and delivery of the course;
- Performance assessment including counselling and termination.

As Simulator Manager, Flight Service Training College managed the;

- Utilisation of the simulator by multiple courses;
- Design of simulator programs to meet specific training needs;
- Updated simulator programs to reflect current procedures;
- Upgrade Simulator fidelity;
- Performance assessment including counselling and termination.

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22 June 2018

By Email and Post

Ian Jennings
Chiron Consultants
27 Hilda Street
Essendon VIC 3040
ian_jennings@netspace.net.au

Our Ref: 0649782-0002

Dear Ian,

Golden Plains Wind Farm – Engagement of Expert Witness – Aviation / Aviation night lighting

We act as legal advisors to WestWind Energy Pty Ltd (**WestWind**), with respect to the planning and environmental approvals required for the development of the 800MW Golden Plains Wind Farm (the **Project**).

This letter confirms and sets out the scope of your retainer to prepare an expert witness statement and give evidence in relation to the Project at the panel hearing for the Project.

1. **Background**

1.1 **Applications**

As you are aware, the matters that will be before the panel include the following:

- The application for a planning permit for use and development of a wind energy facility and associated infrastructure, the use and development of a utility installation and the destruction and lopping of native vegetation. The planning permit application was first lodged on 16 August 2017 and an amendment was lodged with the department in April 2018. The amendment addressed turbine location changes on the basis of native and cultural heritage which were discovered as a result of the further investigations for the Environmental Effects Statement;
- Assessment of the environmental impacts of the Project and associated quarry pursuant to the *Environment Effects Act 1978*; and
- Assessment of the impacts of the Project on matters of national significance pursuant to the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

22 June 2018

2. Scope

2.1 Tasks

We would like you to prepare an expert witness statement for the panel in which you consider the findings of your peer review report with respect to the aviation and night lighting impacts of the Project and associated quarry. We would also like you to address submissions that are relevant to your area of expertise and respond to any relevant matters. We attach relevant submissions for your review in your capacity as peer reviewer.

2.2 Form of your expert witness statement

Your expert witness statement should be prepared in accordance with Planning Panel Victoria's Guide to Expert Evidence (**Guide**). We enclose a copy of the Guide for your reference. You are required to review and understand the Guide and to ensure your witness statement addresses all matters set out in the Guide, in particular those matters listed under the heading 'Content and Form of Experts Report'. Please contact us if there is anything in this Guide which you do not understand, or if you have questions in relation to it. Your witness statement should include matters required as set out in the Guide such as:

(a) A reference to any technical report or reports that you rely upon (your peer review report);

(b) A statement to the effect that you adopt the findings in reports you helped to prepare and were submitted as part of the application and identifying any departure from the findings and opinions you express in those reports;

(c) Any key assumptions made in preparing your witness statement.

3. Timing

The panel hearing is due to commence on 30 July 2018. It is likely that WestWind's case will commence on 31 July and go through until 3 August 2018. Please advise of your availability during this period.

The following are key dates for your evidence:

- 2 July – first draft of expert witness statement due;
- 9 July – second draft of expert witness statement due;
- 16 July – likely date that expert statements will be required to be filed;
- 23 July – provide a draft PowerPoint presentation for review if you propose to use a PowerPoint presentation.

4. Fee estimate and invoicing

It is important to note that you continue to be contractually engaged by WestWind. WestWind will continue to be responsible for the payment of your fees, in accordance with your fee proposal for preparing a witness statement. If you have not yet provided such a fee proposal, please provide us with one so we can forward to WestWind for approval. Your accounts should be sent directly to Marla Brauer at WestWind.

22 June 2018

5. **Confidentiality**

Your expert report prepared in accordance with this retainer is confidential and is not to be copied or used for any purpose unrelated to the panel hearing without our permission.

Material supplied by White & Case or WestWind is, unless it is already in the public domain, confidential and is not to be copied or used for any purpose unrelated to your retainer without permission.

6. **Conflict of interest**

It is important that you are free from any possible conflict of interest in providing your advice and evidence. You should ensure that you have no connection with any potential party to the panel hearing which could preclude you from providing your expert opinion in an objective and independent manner.

7. **Your duties and responsibilities as an expert witness**

As set out in the Guide, an expert witness has a duty to the panel and not to the person engaging the expert. You are not an advocate for any party. Consequently, though you are retained by WestWind, you are retained as an expert to assist the panel, and have an overriding duty to it. The panel will expect you to be objective, professional and form an independent view as to the matters in respect of which your opinion is sought.

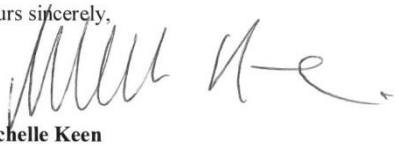
Until your expert witness statement is in final form it should not be signed. You should, however, be aware that unsigned documents may need to be disclosed to other parties.

8. **Communications**

Unless advised otherwise, all communications, whether verbal or written, should be directed to our office so that we can coordinate, manage and integrate work activities with our client's requirements, and ensure legal professional privilege is maintained as appropriate.

If you have any questions, please contact us.

Yours sincerely,



Michelle Keen
Partner

T +61 3 8486 8018
E michelle.keen@whitecase.com

Attachments:

1. Planning Panels Victoria's *Guide to Expert Evidence*
2. Submissions

Issue	Submission No.	Response	Any Recommended New or Modified Conditions
Aviation Safety - Airstrip *Turbines will be located adjacent to an informal air strip and will adversely impact the use of the air strip*	**5 & 13**	The airstrip referred to in these submissions is not listed in the AIP and therefore no information about it is available in the public domain. Refer to page 3 *Aerodromes and Airstrips* of this statement for an explanation of aerodrome classifications. The Chiron Report, at sections 1.3 and 5.2, refers to a number of Uncertified Aerodromes (ALA) within 30nm of the GPWF. All of these, except for Derrinallum, are listed in the AIP ERSA and therefore information about them is in the public domain. The airstrip appears, from Google Earth, to be an onï farm access road that runs east west and is approximately 750m in length. It intersects with another onï farm access road that runs north south which may be suitable for use as an airstrip. The nearest turbine [GP229] is approximately 760m from the western end of the airstrip and is approximately 220m north of the extended runway centreline. There are two other turbines [GP231] ï which are approximately 960m from the western end of the airstrip and approximately 600m south of the extended runway centreline and [GP227] which is approximately 1320m from the western end of the airstrip and approximately 70m south of the extended runway centreline. Any micro-siting of these turbines may reposition them up to 100m from their planned positions. Such micro-siting may bring the turbine closer to the runway centreline and the end of the airstrip, however such micro-siting of the turbines will have minimal impact on the continued safe operation of the airstrip. A visit to the area and subsequent investigation on Google Earth reveals that there is a Single Wire Earth Return (SWER) powerline running across the extended runway centreline approximately 450m from the western end of the airstrip. This SWER is not fitted with visibility enhancing marker balls or flags	**None**

		and is difficult to see. Any aircraft taking off to the west has to avoid this powerline. The most likely avoidance manoeuvre would be a climbing turn before reaching the powerline. Such a turn also takes the aircraft away from the very visible turbines. Takeoff and landing on a north/south oriented airstrip, such as the intersecting on-farm access road would keep the aircraft clear of the SWER and the turbines. CAR 92 ï Use of Aerodromes, requires that a person must not land an aircraft on, or engage in conduct that causes an aircraft to take off from a place unless, having regard to all the circumstances of the proposed landing or take-off (including prevailing weather conditions) the aircraft can do so in safety. Given that the airstrip is used by highly manoeuvrable, purpose built aerial agricultural applications aircraft flown by suitably trained and endorsed pilots, my opinion is that the GPWF will not preclude the safe use of this airstrip and therefore it will remain viable.	

Aerial Spraying *Our farm business often uses aircraft to spray and fertilise our crops and pastures.*	**5 & 13**	The area of land closest to the turbines, parallel and to the east of the Wingeel Road, contains a Single Wire Earth Return (SWER) powerline approximately 150m from the road. The SWER is a constraint to aerial applications in that area. Refer to Aerial Agricultural Applications section on page 7 above.	**None**

Firefighting *Concern regarding inability to fight fires.*	**5 & 13**	Refer to Aerial Firefighting section on page 7 above.	**None**

Issue	Submission No.	Response	Any Recommended New or Modified Conditions
Aviation Lighting *Concern regarding possible need for aviation lighting.*	**15**	Refer to Aviation Obstacle Lighting section on page 4 above and Chiron Report ï section 6 Obstacle Lighting Review. The risk assessment, conducted by Chiron Aviation Consultants in accordance with the NASF Guideline D paragraph, 34 concluded : - *"This Risk Assessment finds that the overall risk to aviation in the area of the Golden Plains Wind Farm is LOW; therefore the GPWF is* ***not a hazard to aircraft safety*** *and no further mitigation is required."* **Aviation obstacle lighting is not required.**	**None**

Issue	Submission No.	Response	Any Recommended New or Modified Conditions
Aerial Spraying *Our farm business often uses aircraft to spray and fertilise our crops and pastures.*	**15**	Refer to Aerial Agricultural Applications section on page 7 above. This property is south of the Rokewood/Shelford Road and abuts the northern boundary of the GPWF. The boundary between this property and the GPWF is saw tooth in nature with aircraft access available from the east and north away from the turbines of the GPWF. As noted in the Chiron Report ï section 5.9, the Aerial Agricultural Association of Australiaôs policy is to oppose wind farm developments on economic and safety grounds. This policy has not been updated since May 2011. Also, as noted in section 5.9 of the Chiron Report, a local aerial agricultural applications operator made the comment *"wind farms are becoming common, they're a fact of life, we know more about them and can operate safely in their vicinity"*. The use of helicopters provides greater flexibility for aerial application in situations where obstacles preclude the use of fixed wing aircraft.	**None**

Firefighting	**15**	Refer to Aerial Firefighting section on page 7 above.	**None**

Concern regarding inability to fight fires.			

Issue	Submission No.	Response	Any Recommended New or Modified Conditions
Aviation Lighting *Concern regarding possible need for aviation lighting.*	**17**	Refer Aviation Obstacle Lighting section on page 4 above. Chiron Report ï section 6.2 refers. ñThis Risk Assessment finds that the overall risk to aviation in the area of the Golden Plains Wind Farm is LOW; therefore the GPWF is ***not a hazard to aircraft safety*** and no further mitigation is required.ò **Aviation obstacle lighting is not required.**	**None**

Issue	Submission No.	Response	Any Recommended New or Modified Conditions
Aerial Spraying *Our farm business often uses aircraft to spray and fertilise our crops and pastures.*	**19 & 26**	Refer to Aerial Agricultural Applications section on page 7 above. I have reviewed the location of the properties and to the best of my knowledge they are located wholly to the north of the Rokewood/Shelford Road and are, therefore, sufficiently distant from the turbines for the wind farm to have no impact on the use of aerial applications. Also, as noted in section 5.9 of the Chiron Report, a local aerial agricultural applications operator made the comment *"wind farms are becoming common, they're a fact of life, we know more about them and can operate safely in their vicinity"*.	**None**

Firefighting *Concern regarding inability to fight fires.*	**19 & 26**	Refer to Aerial Firefighting section on page 7 above.	**None**

Issue	Submission No.	Response	Any Recommended New or Modified Conditions
Adverse impact on airstrip use *Our airstrip is regularly used for agricultural spraying and fertilizer applications and provides potential landing options in times of emergency and the air ambulance.*	**20, 22 & 25**	The airstrip on Glenfine is not listed in the AIP and therefore no information about it is available in the public domain. Refer to page 3 *Aerodromes and Airstrips* of this document for an explanation of aerodrome classifications. The Chiron Report, at sections 1.3 and 5.2, refers to a number of Uncertified Aerodromes (ALA) within 30nm of the GPWF. All of these, except for Derrinallum, are listed in the AIP ERSA and therefore information about them is in the public domain. From information in these submissions and a search on Google Earth, this grass airstrip runs north west - south east (RWY 34/16) and is approximately 900m in length. The south eastern end of the airstrip is approximately 2.8km from the nearest turbine (GP001), which is 1900m north east adjacent to the extended runway centreline at a point 2100m from the south eastern end of the airstrip. An aircraft taking off to the south east is not flying toward the wind farm and would have sufficient room to manoeuvre clear of the wind farm. In my opinion, the GPWF will not preclude the safe use of the airstrip on Glenfine and therefore it will remain viable.	**None**

Air Ambulance *… … potential landing options in times of emergency and the air ambulance.*	**20, 22 & 25**	The Chiron Report, at sections 5.12.1, 5.12.2 and 5.12.3 refers to the operation of Police Air Wing, HEMS and fixed wing air ambulance. Ambulance Victoria operates four fixed and five rotary wing air ambulance aircraft.[10] The four fixed wing aircraft are Beechcraft Super King Air (B200) based at Essendon. They are pressurized twin turbo-prop aircraft that are used primarily for patient transfer between hospitals. These aircraft usually operate from aerodromes that are equipped for day and night operations in all weather conditions such as Warrnambool and Ballarat.	**None**

[10] Refer to https://www.ambulance.vic.gov.au/about-us/our-services/air-ambulance/ last accessed 13/07/2018

		The five helicopters are based at Essendon, La Trobe Valley, Bendigo and Warrnambool. These Helicopter Emergency Medical Service (HEMS) aircraft primarily respond to life ï threatening emergencies which are mainly trauma and paediatric cases, with the balance mainly inter ï hospital transfers/critical retrievals and a small amount of Search And Rescue (SAR) and transporting remote area patients. Air ambulance operations in the Rokewood, Wallinduc, and Cressy area would most likely be undertaken by the Warrnambool based HEMS, particularly if the patient is to be taken to Warrnambool Colac or Geelong hospitals. Unlike air ambulance operations in remote Australia where extreme distances require the use of fixed wing aircraft, Ambulance Victoria use the regionally based HEMS for emergency use. In my opinion it is extremely unlikely that the Glenfine airstrip would be used for fixed wing air ambulance operations.	

Aerial Spraying *Our farm business often uses aircraft to spray and fertilise our crops and pastures.*	**20, 22 & 25**	Refer to Aerial Agricultural Applications section on page 7 above. As noted in the Chiron Report ï section 5.9 the Aerial Agricultural Association of Australia policy is to oppose wind farm developments on economic and safety grounds. The Glenfine boundary is to the west of the Pitfield/Cressy Road then the nearest turbine is approximately 280m east of this road. As such there will be minimal impact on aerial applications at this property Also, as noted in section 5.9 of the Chiron Report, a local aerial agricultural applications operator made the comment *"wind farms are becoming common, they're a fact of life, we know more about them and can operate safely in their vicinity"*.	**None**

Firefighting *Concern regarding inability to fight fires.*	**20, 22 & 25**	Refer to Aerial Firefighting section on page 7 above.	**None**

Issue	Submission No.	Response	Any Recommended New or Modified Conditions
Aviation Obstacle Lighting *Recommendation to install aviation obstacle lighting.*	**CASA**	Refer to Aviation Obstacle Lighting section on page 4 above. Section 6, Obstacle Lighting Review of the Chiron Report sets out the considerations for aviation obstacle lighting. In particular, section 6.1 sets out the Australian Regulatory Framework for obstacle lighting of wind farms. CASA may recommend aviation obstacle lighting but cannot mandate it for the GPWF and in my opinion based on the risk assessment undertaken is not required.	**None**

IN THE ENVIRONMENT RESOURCES & DEVELOPMENT COURT
OF SOUTH AUSTRALIA

Nos 01, 12, 13 & 14 of 2016
BETWEEN

Gillon McLACHLAN

Peter ROYAL

EASTERN MOUNT LOFTY RANGES LANDSCAPE GUARDIANS

Stirling McGREGOR

Appellants

and

MID MURRAY COUNCIL

First Respondent

and

TILT RENEWABLES AUSTRALIA PTY LTD (formerly TRUSTPOWER AUSTRALIA HOLDINGS PTY LTD)

Second Respondent

AFFIDAVIT OF HANNAH WILLSON

Filed on behalf of the second respondent, TILT RENEWABLES AUSTRALIA PTY LTD (formerly TRUSTPOWER AUSTRALIA HOLDINGS PTY LTD) by its solicitor:

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ADELAIDE SA 5000
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L86
P8918

Date of filing: 23 FEB 2017

AFFIDAVIT

I, **Hannah Willson** of Waterloo Wind Farm, Schutz Road, Waterloo, South Australia 5413, Asset Management Specialist, MAKE AN AFFIRMATION AND SAY:

1. In January 2017 I was an employee of EnergyAustralia Pty Ltd ("**EA**").

2. EA was at that time the operator of the Waterloo Wind Farm.

Waterloo Wind Farm

3. The Waterloo Wind Farm consists of 37 Vestas V90 wind turbines (Circuits A, B, C, & D), and 6 Vestas V117 wind turbines (Circuit E), arranged in a reasonably straight line running north-south along the top of a ridge line. The Waterloo Wind Farm is located roughly 4 km due east of the township of Waterloo, South Australia.

4. Now produced to me and exhibited hereto marked "**HW-1**" is a map of the Waterloo Wind Farm which I have annotated. I explain the annotations further below.

5. The V90 turbines have a hub height of about 80 m, and blades approximately 44 m long. The V117 turbines have a hub height of about 90 m, and blades in the order of 57 m long.

6. Circuit A consists of 7 wind turbines and is situated furthest to the north. It is separated from Circuit B by a gap of about 5 km. Circuit B lies just south of Mollers Gap Road, and consists of 9 wind turbines. Circuit C abuts Circuit B to the south, and also consists of 9 wind turbines. Circuit D abuts Circuit C to the south, and consists of 12 wind turbines. Circuit E lies further south again, and consists of 6 wind turbines.

My role

7. In January 2017, I held the roles of Business Support Specialist and Business Administrator. I was responsible for day-to-day finances, community engagement, landholder engagement, contractor management and health and safety, for the Waterloo Wind Farm. My role includes being

David Alexander Vincent
A Commissioner for taking
Affidavits in the Supreme
Court of South Australia

21/2/17

the first point of contact for the SA Country Fire Service ("**CFS**") in the event of a fire which might interact with the Wind Farm.

8. I had held the same or similar roles with EA in relation to the Waterloo Wind Farm full time for the past 4 years, and part time for about 18 months prior to that.

9. For those past 5½ years, and in January 2017, I was based at the Waterloo Wind Farm site office. The site office is co-located with the Wind Farm's electrical substation and site workshop on Schutz Road, and is marked on the map HW-1.

10. In the course of my role I have become very familiar with the Wind Farm. I have stood at the base of each wind turbine in the Farm at least twice, and some as many as 30 times. I have driven all the surrounding roads on many occasions, including Old Burra Road, Emuville Road, River Source Road, Light River Road, Steelton Road, Tothill Belt Road, Heinrich Road, and Apoinga Road. I have driven all the cross tracks and public roads that cross the Wind Farm site, including Moller's Gap Road, and Quinn's Gap Road. I go up on the ridge (upon which the Wind Farm is situated) at least once per week. I have met or spoken with all the host landowners and many people in the local community and discussed the Wind Farm. I have conducted tours of the Wind Farm.

11. None of the Waterloo Wind Farm turbines have ever caught fire.

12. As part of developing the Waterloo Wind Farm, a wide access road suitable for heavy vehicle use was constructed up to the ridge, and along the ridge, linking all the turbines in Circuits B, C, D & E. This road has been maintained for access to Wind Farm infrastructure and emergency access.

January 2017 fire

13. On 17 January 2017, a little before 2 pm, a grass fire started approximately in the area shown on the map HW-1 (due west of Circuit B, and due south of Quinn's Gap Road). My observations on 17 and 18 January 2017 were that the fire moved in a south-easterly direction, fanning out somewhat as it burnt

up the side of the ridge toward the wind turbines. I have marked this fire on the map HW-1. Later in the day, an ember escaped the main fire, and started a fire to the east of Circuit B, which then moved in a generally north-westerly direction, burning up the ridge toward the wind turbines. I have also marked this fire on the map HW-1.

14. At the time the fire started, I was at the site office. So far as I can recall all the Wind Farm turbines were operating.

15. I was later told by Vicky Schutz, that the fire had been caused by a harvester which Mr Schutz had been operating with his tractor.

16. At about 2.01 pm I was telephoned by Andrew Allchurch of the local CFS. He said words to the effect that there was a fire on or near the ridge, that I should advise my personnel and get them out of danger. He asked if I could open various access gates within the Wind Farm and manually open the security gates. I agreed to do so.

17. The CFS have access cards for the security gates; manually opening those gates is an extra precaution.

18. On that day there were 2 service technicians working at the Waterloo Wind Farm. Two of them were working in Circuit B and could see the fire approaching. I arranged for them to return to site office in accordance with our Emergency Response Plan ("**ERP**"). It was agreed that the safest way to return to site office was to exit out of the gate at Quinns Gap Road, leaving that gate open for emergency services vehicles to access through, and to continue to Light River Road and back to the office.

19. At about 2.05 pm I was again telephoned by Mr Allchurch. He said words to the effect that he had deployed water bombers, and could I pause Circuit B and the northern half of Circuit C. I agreed.

20. I then telephoned Ben McFarlane at EA. He logged in remotely to the Wind Farm control system and paused the wind turbines in Circuit B and the northern half of Circuit C. The setup of the Waterloo Wind Farm permits individual turbines to be paused or returned to operation remotely. After Mr

McFarlane had paused those turbines, I observed that the balance of the wind farm remained operational and continued to generate electricity.

21. Pausing a turbine does not prevent it rotating. Pausing is done by 'feathering' the turbine's blades so as to catch as little wind as possible, and disengaging the turbine's generator so that no electricity is produced. No brake is applied to the blades. If there is wind, a paused turbine may rotate slowly.

22. I observed that some of the paused turbines in Circuit B and C continued to slowly rotate while fire-fighting operations were underway.

23. At about 2.15 I observed that two fixed-wing waterbombing aircraft had commenced dropping water or retardant on the fire. They were later joined by two more. I also saw a CFS helicopter flying at a higher altitude monitoring the fire-fighting efforts for most of the afternoon.

24. I observed that the aircraft would approach the fire from the west, flying roughly eastward. On most occasions the aircraft would bomb the fire as the aircraft approached the wind farm. The aircraft would then fly between the wind turbines out to the east, make a banked u-turn and then fly west back through the wind farm to pick up another load of water or retardant. On other occasions the aircraft would fly through the wind farm (from west to east), u-turn, and then fly back through the wind farm over the fire (from east to west) and then drop their load.

25. I observed that the aircraft would fly below the hub height of the wind turbines, and through the area in which the blades were slowly turning. I estimate that the aircraft would come as close as 25 m from the wind turbine towers.

26. As I and the workers watched the waterbombing aircraft at work, I decided that it might assist their operations if the rest of Circuit C were paused. At about 2.17 pm, I made a further phone call to Mr McFarlane, who then paused those 4 turbines.

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Affidavits in the Supreme
Court of South Australia

21/2/17

27. Initially I and the 3 workers observed the aircraft from the site office, I moved up the ridge to open 1 gate. Two service technicians, with fire safety equipment, moved further along to open a second gate for Emergency Services vehicles. We were able to observe and record video footage of the water bombers flying throughout the wind farm.

28. The CFS, SA Police, and State Emergency Service established a command post on the hardstand at the base of turbine CD, which I have marked on the map HW-1.

29. From the command post, the service technicians observed the firefighting operations and took photos and videos of that. I also took photographs from my viewing position. Now produced to me and exhibited hereto marked "**HW-2**" is a numbered bundle of photographs which I took. Those photos accurately depict what I observed.

30. Now produced to me and exhibited hereto marked "**HW-3**" is a numbered bundle of photographs which were taken by the service technicians and given by them to me. Those photos also accurately depict what I observed.

31. Now produced to me and exhibited hereto marked "**HW-4**" is DVD containing a compilation that I have prepared of a video taken by me, and videos taken by the service technicians and given by them to me. The video compilation also accurately depicts what I observed.

32. At about 3.15 pm Mr Allchurch advised me that he deemed the ridge to be safe for workers to fully shut down the 6 wind turbines which were closest to the fire, namely turbines BA, CD, CC, CB, CA, & CE.

33. I then arranged for that to occur. In a full shutdown, turbines are braked and are stopped in the "rabbit ears" position (one blade pointing vertically down in alignment with the tower, and the other two blades pointing 30 degrees above horizontal).

34. At about 3.30 pm a CFS tanker truck appeared. I observed that at least two tanker trucks were used to fight the fire.

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Affidavits in the Supreme
Court of South Australia

21/2/17

35. In addition, approximately 35 CFS fire appliance vehicles attended to fight the fire, together with 25 CFS farm units (essentially utes with fire-fighting equipment, operated by local landowners to assist the CFS).

36. I observed that about 5 of the fire-fighting vehicles attended at the bottom of, and east of, the ridge just south of Quinn's Gap Road in order to fight the fire which had sprung up east of the ridge. The other 50-odd vehicles all used the ridge road for fire-fighting purposes.

37. Ultimately the fires on both sides of the ridge road were extinguished. On the west, vegetation was burnt right up to the edge of the road.

38. None of the infrastructure comprising the Waterloo Wind Farm was damaged by the fire, and the turbines which were shut down were subsequently restarted.

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Affidavits in the Supreme
Court of South Australia

21/2/17

40. I know the facts herein of my own knowledge, except where specifically set out and explained.

AFFIRMED by the abovenamed Deponent

at Waterloo.....
(place)

on 21 February 2017.....
(date)

Before me,
DAVID ALEXANDER VINCENT
.....
(full name)

David Alexander Vincent
A Commissioner for taking
Affidavits in the Supreme
Court of South Australia

.....
Signature of Attesting Witness

.....
Signature of Deponent

IN THE ENVIRONMENT RESOURCES & DEVELOPMENT COURT
OF SOUTH AUSTRALIA

Nos 01, 12, 13 & 14 of 2016
BETWEEN

Gillon McLACHLAN
Peter ROYAL
EASTERN MOUNT LOFTY RANGES LANDSCAPE GUARDIANS
Stirling McGREGOR
Appellants

and

MID MURRAY COUNCIL
First Respondent

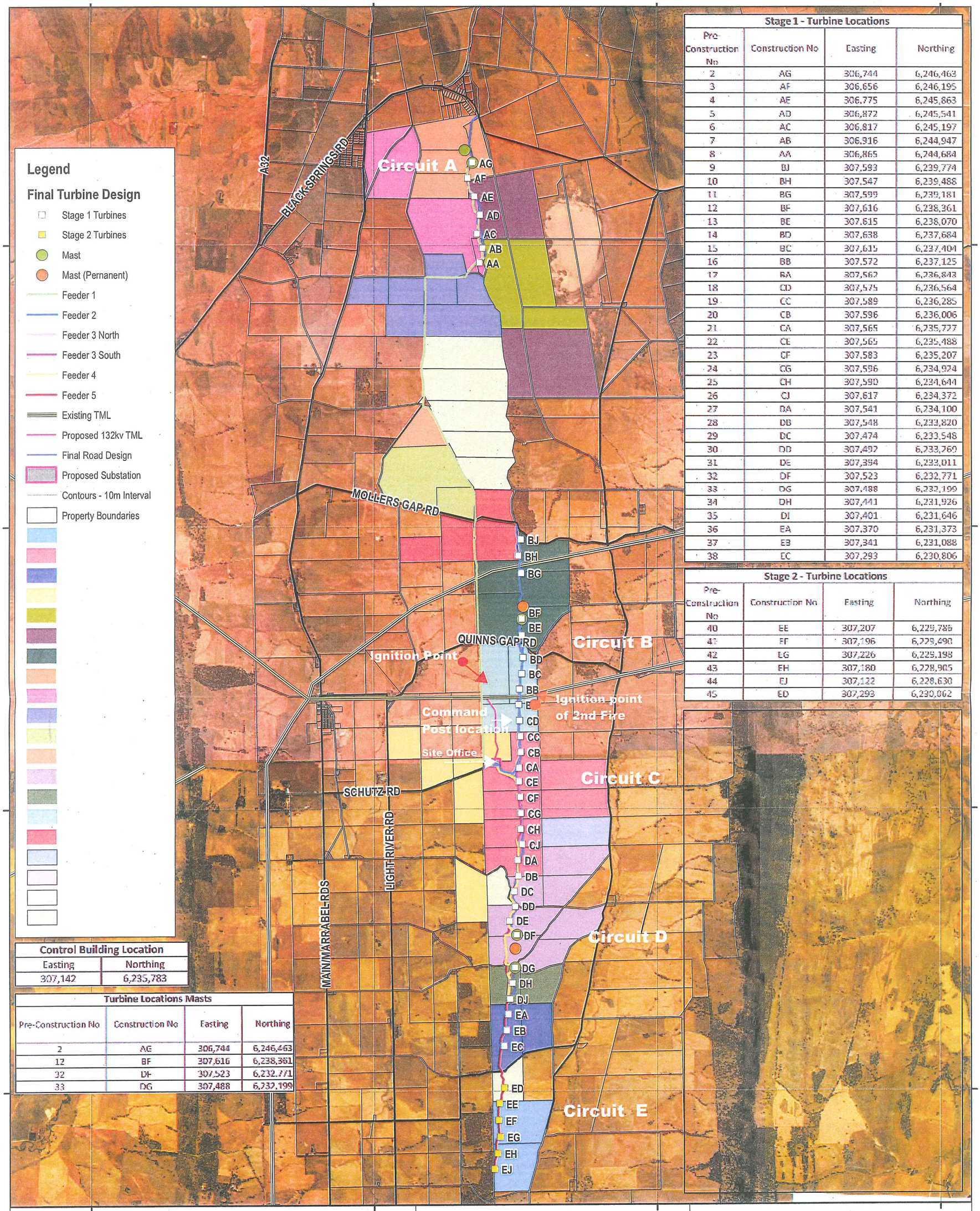
And

TILT RENEWABLES AUSTRALIA PTY LTD (formerly TRUSTPOWER AUSTRALIA HOLDINGS PTY LTD)
Second Respondent

EXHIBIT TO AFFIDAVIT MARKED "HW-1"

This is the exhibit marked "HW-1" to the Affidavit of Hannah Willson
Affirmed on 21/2/17
Before me:

David Alexander Vincent
A Commissioner for taking
Affidavits in the Supreme
Court of South Australia



Control Building Location	
Easting	Northing
307,142	6,235,783

Turbine Locations Masts			
Pre-Construction No	Construction No	Easting	Northing
2	AG	306,744	6,246,463
12	BF	307,616	6,238,361
32	DH	307,523	6,232,771
33	DG	307,488	6,232,199

Stage 1 - Turbine Locations			
Pre-Construction No	Construction No	Easting	Northing
2	AG	306,744	6,246,463
3	AF	306,656	6,246,195
4	AE	306,775	6,245,863
5	AD	306,872	6,245,541
6	AC	306,817	6,245,197
7	AB	306,916	6,244,947
8	AA	306,865	6,244,684
9	BJ	307,593	6,239,774
10	BH	307,547	6,239,488
11	BG	307,599	6,239,181
12	BF	307,616	6,238,361
13	BE	307,615	6,238,070
14	BD	307,638	6,237,684
15	BC	307,615	6,237,404
16	BB	307,572	6,237,125
17	BA	307,562	6,236,843
18	CD	307,575	6,236,564
19	CC	307,589	6,236,285
20	CB	307,596	6,236,006
21	CA	307,565	6,235,727
22	CE	307,565	6,235,488
23	CF	307,583	6,235,207
24	CG	307,596	6,234,974
25	CH	307,590	6,234,644
26	CJ	307,617	6,234,372
27	DA	307,541	6,234,100
28	DB	307,548	6,233,820
29	DC	307,474	6,233,548
30	DD	307,492	6,233,260
31	DE	307,394	6,233,011
32	DF	307,523	6,232,771
33	DG	307,488	6,232,199
34	DH	307,441	6,231,926
35	DJ	307,401	6,231,646
36	EA	307,370	6,231,373
37	EB	307,341	6,231,088
38	EC	307,293	6,230,806

Stage 2 - Turbine Locations			
Pre-Construction No	Construction No	Easting	Northing
40	EE	307,207	6,229,785
41	EF	307,196	6,229,490
42	EG	307,226	6,229,198
43	EH	307,180	6,228,905
44	EJ	307,122	6,228,630
45	ED	307,293	6,230,062

Map Scale **1:60,000**

When printed @ A3

0 0.5 1 2 Km

Datum: **GDA94** Projection: **MGA94 Zone 55**

Project N°: **PI30323**
GIS File Ref: **WWF Gen_site_locations**
Version: **1**

Prepared by: **Genevieve Simard**
Reviewed by: **Mark Jackson**
Verified by:
Date: **Nov 11, 2009**

Waterloo Wind Farm

Lots, Landowners, Leases and General Site Location

SKM

Roaring40

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EXHIBIT TO AFFIDAVIT MARKED "HW-2"

This is the exhibit marked "HW-2" to the Affidavit of Hannah Willson
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Before me:

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Photo 1

Photo 2

Photo 3

Photo 4

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EXHIBIT TO AFFIDAVIT MARKED "HW-3"

This is the exhibit marked "HW-3" to the Affidavit of Hannah Willson
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Photo 5

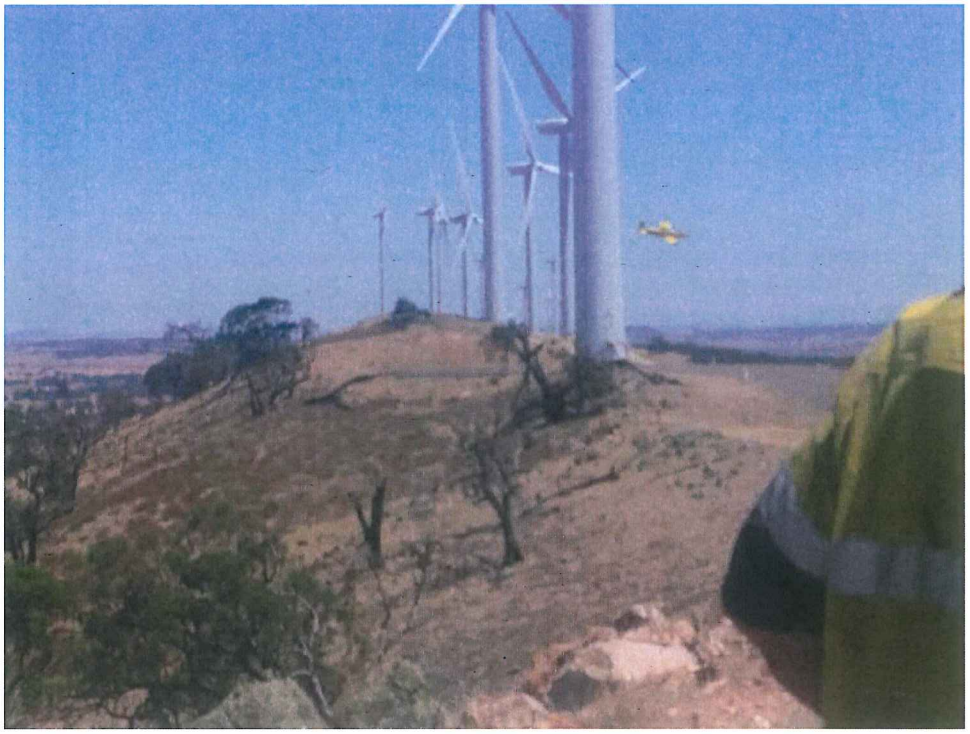

Photo 6

Photo 7

Photo 8

Photo 9

Photo 10

Photo 11

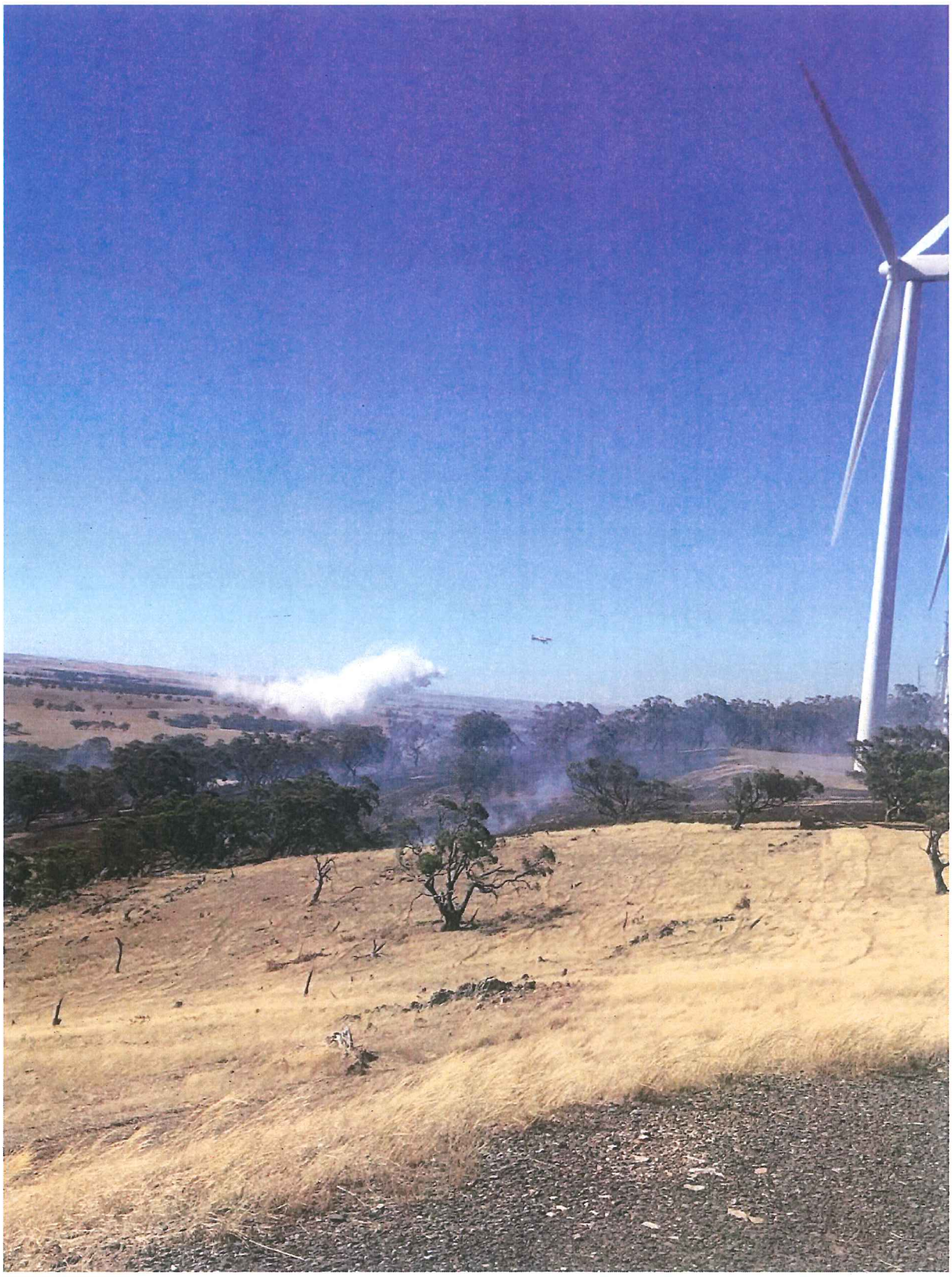

Photo 12

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EXHIBIT TO AFFIDAVIT MARKED "HW-4"

This is the exhibit marked "HW-4" to the Affidavit of Hannah Willson
Sworn on 21/2/17
Before me:

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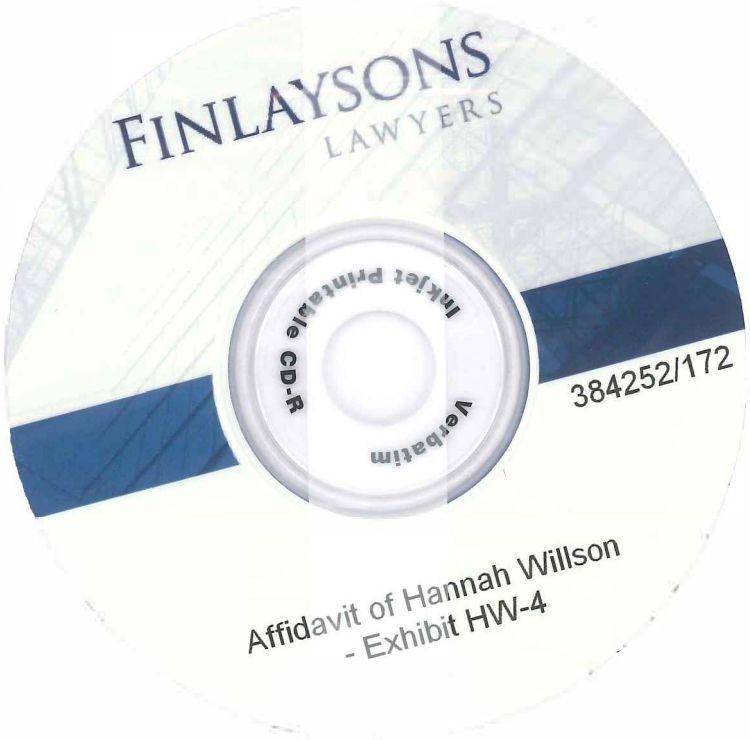
FINLAYSONS
LAWYERS
Inkjet Printable
CD-R
Verbatim
384252/172
Affidavit of Hannah Willson
- Exhibit HW-4