

Airspace Assessment

Flat Rocks Wind Farm

Prepared for: Moonies Hill Energy Pty Ltd

May 2011

Moonies Hill Energy Pty Ltd
78 Pensioner Rd
Kojonup, WA, 6395

Table of Contents

1. Executive Summary	4
2. Objectives and Limitations.....	5
3. Overview.....	5
3.1 General Aviation Safety	6
3.2 Aerial Agricultural Operations	9
3.3 Other Safety Factors.....	10
3.4 Consultation.....	10
Summary.....	11
Figures	
Figure 1 – Flat Rocks Wind Farm locality map.	12
Figure 2 – Aerodrome Locations.	13
Figure 3 – Private Airstrip Locations.....	14
Figure 4 – Proposed Palomar Airstrip.....	15
Tables	
Table 1 – Private Airstrip Proximity.....	16
Table 2 – Private Airstrip Owners.	16
Appendices	17
Appendix 1 – Summary of Stakeholders	17
Appendix 2 - Katanning Aerodrome Chart.....	18
Appendix 3 - Katanning Approach Procedures	19
Appendix 4 – CASA Correspondence.....	20
Appendix 5 – Air Services Australia Correspondence.....	21
Appendix 6 – Other Correspondence	24

AIP	Aeronautical Information Publication
AMSL	Above Mean Sea Level
CASA	Civil Aviation Safety Authority
EMI	Electromagnetic Interference
FRWF	Flat Rocks Wind Farm
IAP	Instrument Approach Procedures
IFR	Instrument Flight Rules
IMC	Instrument Meteorological Conditions
LSALT	Lowest Safe Altitude
MSA	Minimum Safe Altitude
MTOW	Maximum Takeoff Weight
NOTAM	Notices to Airmen
OLS	Obstacle Limitation Surface
RWY	Runway
RAAF	Royal Australian Air Force
VFR	Visual Flight Rules
WTG	Wind Turbine Generator

1. Executive Summary

It is concluded in this report that the Flat Rocks wind farm will have a negligible effect on civil aircraft operations within the vicinity of the proposed site.

The project will have no significant effect on the operations of the Kojonup Aerodrome and local private and agricultural aviation activities. Discussions with Airservices Australia have determined that some minor modifications to the approach procedures at the Katanning Aerodrome maybe required. MHE has a costing of the procedure and will notify Airservices Australia prior to the commencement of construction to initiate this change. Further, it is assessed that the proposed wind turbines will have a minor effect on the calculation of Lowest Safe Altitude (LSALT) by pilots conducting operations under the IFR or at night. The effect is assessed as being operationally insignificant.

The risk of airborne collision with wind turbines is considered minimal during daylight operations in Visual Meteorological Conditions since pilots will be able to see and avoid the large structures. For night flights or those under Instrument Meteorological Conditions, providing that pilots are made aware of the existence and location of the 140m high wind turbines, suitable adjustments can be made to flight paths. Subject to appropriate notification to pilots by way of NOTAM and inclusion of the structures on aeronautical charts, there should be no increase in collision risk due the proposed Flat Rocks Wind farm beyond that offered by natural terrain.

In preparing this report MHE liaised with Air services Australia, the Civil Aviation Safety Authority, Aerial Agricultural Association of Australia, operating aerial agricultural contractors, local aerodrome operators, private plane and airstrip owners, the Royal Flying Doctor Service and the Regional Passenger Transport and Aviation Policy , Department of Transport, Western Australian Government and local landowners. No direct objections to the proposal were identified in these discussions with regards to aviation activity.

Prior to commencement of construction the MHE will provide notice to CASA to enable the regulator to assess obstacle lighting needs and undertake a formal qualitative risk assessment seeking input from local planning authorities, aerodrome operator, insurers and financiers. MHE will also provide advice to Airservices Australia on charting amendments and the RAAF in accordance with the procedures given in AC 139-08(0), Reporting of Tall Structures to enable the national data base of tall structures to be updated.

2. Objectives and Limitations

The objective of this report is to examine the effect of the proposed Flat Rocks Wind Farm (FRWF) on aviation activities within a thirty kilometer radius of the 80m met mast located in the center of the development area. The report examines the effects of the proposed project on general aviation safety, the operations of the Kojonup and Katanning Aerodromes, private aviation activities, electromagnetic interference and the use of aerial agricultural spraying in and around the wind farm.

In preparing this report MHE liaised with Air services Australia, the Civil Aviation Safety Authority, Aerial Agricultural Association of Australia, operating aerial agricultural contractors (fixed wing and helicopter), local aerodrome operators, private plane and airstrip owners, the Royal Flying Doctor Service and the Regional Passenger Transport and Aviation Policy , Department of Transport, Western Australian Government and local landowners.

This study considers the effect of the proposed project in terms of the existing arrangements at Kojonup and Katanning Aerodromes. If, at some future time, the aerodrome owners were to consider an upgrade of the aerodrome or to introduce different types of operations, or to introduce larger aircraft, then there may be limitations imposed by the wind turbines associated with the proposed wind farm.

The electromagnetic interference (EMI) section addresses the effect of wind turbine generators in regard to electrical or electromagnetic interference to satellite navigation aids. Other potential EMI effects of the proposed wind farm including television and radio reception and the use of GPS for agricultural applications, are not assessed in this report.

3. Overview

The proposed 74 turbine Flat Rocks wind farm is located approximately 35km south east of Kojonup, 35km north west of Tambellup, 35km west of Broomehill and 45km south west of Katanning, Figure 1. Existing aviation activity in the vicinity of the proposed wind farm was identified through consultation with CASA and the local community. The closest aerodromes to the proposed development site are the Kojonup and Katanning aerodromes which are owned and maintained by the respective local shires. Kojonup Aerodrome is located 23.5km to the North West of the nearest WTG at an elevation of 277m. Katanning Aerodrome is located approximately 33km North East of the nearest WTG at an elevation of 285m. Registered private aircraft owners in the general vicinity have been identified through CASA and contacted for comment. Figure 2 illustrates the location of the operating aerodromes. The proposed development area is shown in red, and a 30km radius from the center of the development is marked in light green.

3.1 General Aviation Safety

Civil aviation safety can potentially be impacted by wind farms in three ways, intruding into the obstacle limitation surface (OLS) of aerodromes or Lowest Safe Altitudes on particular air routes, the presentation of an obstacle hazard and interference with aviation navigational aids and Visual Flight Rules (VFR) routes.

3.1.1 Intruding into Obstacle Limitation Surface (OLS) or Lowest Safe Altitude (LSALT)

Any tall structures provide a general hazard and collision risk to air traffic in the civil airspace. In July 2007 CASA released Advisory Circular (AC) 139-18(0) to provide advice to wind farm developers on turbine lighting and the management of wind farms within OLS of aerodromes. The OLS is a defined area of airspace above and around licensed aerodromes and is typically around 15km. CASA is currently undertaking a review of this circular and intends to develop and release a new set of guidelines. In view of this MHE contacted CASA and Airservices Australia to discuss the Flat Rock wind farm proposal and its implications on surrounding aviation activity and the requirement for obstacle lighting.

The proposed Flat Rocks wind farm is located outside the typical OLS from any registered or certified aerodromes, but within the 30km buffer suggested in correspondence with CASA (Appendix 4) of an unregistered aerodrome. The closest unregistered aerodrome to the proposed wind farm are the Kojonup and Katanning aerodromes located 23.5km to the North West and approximately 33km North East of the nearest WTG (wind turbine generator), respectively. MHE contacted Airservices Australia in March 2011 for comment on the wind farm proposal, Appendix 5. Airservices Australia identified no likely affects to Kojonup aerodrome operations as a result of the proposed Flat Rocks wind farm development. They did identify the need for some minor changes to the 25 Minimum Sector Altitude (MSA) procedures at the Katanning aerodrome due to penetration of maximum allowable height of 522.70m, Appendix 5.

“The MSA is the height an aircraft can descend to in preparation for conducting an approach and extends from a nominated point on the aerodrome, usually a navaid or in Katanning’s case the Aerodrome Reference Point (ARP), out to 25 nautical miles or 46.3kms. Added to this is an additional 5nm or 9.26km buffer that is also considered, therefore taking the total assessment area out to 30nm or 55.56km from the aerodrome.”

Airservices Australia noted that no other sector or circling altitude, nor any approach or departure at Katanning airport will be affected. These changes are the responsibility of Airservices Australia at the expense of the wind farm operator. MHE has been informed that correspondence on this matter has been provided to the Shires of Kojonup and Broomehill-Tambellup. A detailed costing of the alterations to the procedures was requested from Airservices Australia by MHE. The Proposal Overview is as follows;

“This proposal is submitted by Airservices Australia (Airservices) to Moonies Hill Energy Pty Ltd in response to communication received from Michael Baulch, for the amendment of a design for an aRea NAVigation (RNAV) / Global Navigation Satellite System (GNSS) Instrument Flight Procedures (IFP) for runway 25 at Katanning Aerodrome in Western Australia.

The proposal details the work to be completed and Airservices’ fees associated with service delivery.”

The Procedure Design is detailed as follows;

Airservices will, in accordance with its CASR Part 173 certificate:

- *Amend the design of RNAV (GNSS) approach procedures for the airport on runway 25 at Katanning Aerodrome in Western Australia;*
- *Undertake quality assurance, environmental and accuracy checks of the designs; and*
- *Incorporate and maintain the designs into the appropriate Aeronautical Information*

MHE will advise Airservices Australia to undertake this procedural change prior to commencement of construction of the Flat Rocks Wind Farm.

Six privately operated airstrips are located within the vicinity of the proposed wind farm as shown in Figure 3. Two of these airstrips are located within the wind farm development envelope. The owner operator is aware that some limitations to use may result from the proposed development. Table 1 shows the distance and direction to the private airstrips from the development envelope. The operation of these private airstrips will not be affected by the proposal. Naturally it is the responsibility of pilots operating out of these strips or any paddocks in the vicinity of the wind farm, to be aware of the conditions on and surrounding the landing sites. All operators of the private airstrips have been contacted and informed of the wind farm proposal; no concerns were raised regarding current aviation operations, Table 2.

Craig Dennis of Etipup Grazing recently purchased “Palomar”, a property neighbouring the FRWF site, and has communicated his intentions to locate an airstrip in the northwest corner of the property. In these discussions with MHE he mentioned his intentions to purchase a new larger aircraft which will require a 1 000m cross strip to operate. MHE has requested the co-ordinates of the proposed strip so they could be considered in this report. At the time of writing this report, the co-ordinates had not been supplied. Figure 4 shows the proposed location of the airstrip based on discussions between MHE and Mr. Dennis. The Flat Rocks wind farm development should not impact on the operation of the proposed “Palomar” airstrip.

The risk of airborne collision presented by wind turbine generators is minimal during daylight operations in Visual Meteorological Conditions since pilots will be able to see and avoid the large wind turbine structures. For flights at night or under Instrument Meteorological Conditions, providing that pilots are made aware of the existence and location of the 140m high wind turbine generators, they are able to make suitable adjustments to their flight paths. Subject to

appropriate notification of pilots by way of NOTAM and inclusion of the structures on aeronautical charts, there should be no increase in collision risk beyond that presented by natural terrain.

Construction of the wind turbines associated with the Flat Rocks wind farm will have a minor effect on the calculation of Lowest Safe Altitude (LSALT) by pilots conducting operations under the IFR or at night. The effect is considered operationally insignificant.

A report commissioned by Sustainability Victoria (July 2009) and undertaken by Hart Aviation commented that;

“Available records indicate that, world wide, there are over 75,000 wind turbines of various sizes in operation, or planned to be in operation, and the number is quickly expanding. This includes both onshore and offshore facilities. There is clear evidence that these wind turbines / wind farms can coexist successfully with aviation operations. Indeed, no evidence could be found of any aircraft collision with a wind turbine, or any other related incident. This, of course, is not without precautions in place like obstruction lights (in cases where a particular hazard has been identified), and appropriate identification on aeronautical maps.”

3.1.2 Presentation of an Obstacle Hazard

Prior to commencement of construction, MHE will provide notice to CASA and the RAAF in accordance with the procedures given in AC139-18(0), Obstacle Marking and Lighting of Wind Farms and AC 139-08(0), Reporting of Tall Structures respectively. MHE will also notify FESA, of appropriate information regarding the wind turbine layout and dimensions; to assist in their planning and execution of fire response should it be required in the area.

In terms of the requirement to light wind farms, CASA’s advice according to document AC139-18(0), which is currently under review, indicates that red medium intensity lighting should be included to mark the extent of groups of wind turbines. CASA advised that the red lights should be placed on turbines at intervals not exceeding 900m, and that it may be possible to mark the outline of the wind farm by using fewer lights. Some shielding of these obstacle lights has also been permitted to minimize the visual impact on the night time environment, provided it does not reduce their effectiveness. If the 900m interval method of assessment was used 14 of the 74 turbines would require obstacle lights.

As CASA has indicated in their correspondence to MHE, they have no enforceable recommendations regarding the lighting of wind turbines in the case of the proposed wind farm due to its proximity to registered aerodromes. MHE commits to complying with any relevant obstacle lighting guidelines that CASA may release prior to the commencement of construction of the Flat Rocks wind farm and to undertake a formal qualitative risk assessment including comment from local planning authorities, aerodrome operators, insurers and financiers.

In accordance with AC139-18(0), Obstacle Marking and Lighting of Wind Farms, tall structures including wind turbines, need to be sufficiently conspicuous by day to provide contrast with the background. MHE will ensure compliance with this standard as the wind turbine generators and towers associated with the proposed Flat Rocks wind farm will be light grey in colour, and therefore contrast significantly with the background terrain and vegetation.

3.1.3 Interference with Aviation Navigational Aids

Wind farms can interfere with radar operations, causing reflection of signals or other effects consistent with other electromagnetic signals. Correspondence from Airservices Australia received in March this year, (Appendix 5 – 3 march), confirmed the proposed Flat Rocks wind farm will not interfere with aviation communication and navigation aids. Correspondence from Airservices Australia (attached at Appendix 5) states;

“This proposed wind farm will not impact the technical performance of Precision/Non-Precision Nav Aids, HF/VHF Comms, A-SMGCS, Radar, or Satellite/Links.”

3.2 Aerial Agricultural Operations

The minimum level for flight by civilian aircraft, in accordance with the Visual Flight Rules (VFR), other than during take-off and landing maneuvers, is determined by CASA at 500ft (approximately 152m) above ground in areas outside urban development in daylight visibility conditions. At night and in low visibility conditions, the minimum height is 1000ft (approximately 305m) above ground or the highest obstacle in the area. Typically only pilots who undertake crop dusting, cattle mustering, pipeline or power line surveys, fire fighting, helicopter operations, search and rescue perform civilian VFR flight operations below 500ft. Pilots who undertake these low level operations undergo special training and are required to take all obstacles into account when planning and conducting low flying operations. It is a general view of pilots that wind farms are more readily visible than power lines, masts and towers, and inclusion of the location and existence of the wind farms on aeronautical charts will enable them to appropriately plan their operations.

Specific concerns have been raised during community consultations regarding the proposed wind farm and the ability to deploy crop dusters or aerial agricultural aircraft on neighbouring properties. Aerial agricultural spraying is the application of agricultural inputs, typically herbicides, fungicides and fertilizers by air in wet years, or when land based methods are impractical or for treatments required late in the crop development. These aircraft operate during the day and normally from the farmer’s paddock or a nearby private airstrip. The majority of neighbouring landowners would employ aerial agricultural services on a frequency ranging from never, 3-5 yearly intervals to annually. Whilst it is accepted by stakeholder landowners, those who have agreed to host turbines on their farms, that areas in and around the turbines maybe no longer be accessible by fixed wing aircraft, this impact will be restricted to these landowners.

In order to fully assess the impact of the Flat Rocks wind farm on aerial agricultural applications, MHE contacted several aerial agricultural operators (Appendix 1 – Summary of Stakeholder Consultation.) and invited them to discuss the potential impacts of the proposed wind farm on both stakeholder and non-stakeholder properties. The consultation included pilots who have worked in the vicinity of the development site and on neighbouring properties, and pilots who work in and around operating wind farms in other areas of the state. Discussions revealed that the identification and avoidance of obstacles, in conjunction with consideration of weather patterns, in particular wind speed and direction, is a routine part of planning for aerial

applications that pilots are trained to deal with as part of their normal operations. Wind turbines should therefore be assessed appropriately as an additional obstacle. All pilots agreed it would be possible to access the majority of neighbouring paddocks with fixed wing aircraft. In some areas however, the fixed wing aircraft may operate in a less efficient manner as the approach may be from the non-preferred direction or incur extra turns to avoid the wind turbine.

As fixed wing aerial applications will be restricted amongst the wind turbines on stakeholder properties, MHE contacted a helicopter operator to gain an additional comment of accessibility. These discussions revealed that all non-stakeholder properties would be fully accessible for aerial operations with little or no effect on efficiency by a helicopter and at a cost comparable to fixed wing applications. It was also noted that aerial applications would be possible within the wind farm itself, i.e. amongst the wind turbines, depending on weather conditions, thereby enabling the continuation of aerial applications on the majority of stakeholder properties.

3.3 Other Safety Factors

The proposed height of the wind turbine generators of 140m (less than 500ft) AGL is less than wind farms previously considered by CASA. Although CASA can advise against construction of the project it has no power to prevent it. CASA may decide to increase the conspicuousness of the towers by the requiring the addition of strobe lighting or red lights either flashing or steady. Strobe lighting may produce complaints from nearby residents. All lighting has the disadvantage of cost of maintenance. It also raises the question of limitations on aviation activity if the obstacle lighting is either temporarily or permanently unserviceable.

The line of towers will be sufficiently conspicuous in visual meteorological conditions so as to make lighting unnecessary. Operations in low light or poor weather should be conducted under the IFR. The associated flying operations procedures guarantee obstacle clearance once the obstacles have been published on aeronautical charts. Although it is not a CASA requirement (see specific correspondence from Vas Saris on this matter in Appendix 4) Moonies Hill Energy is committed to lighting turbines in consultation with the local aerodrome operators.

3.4 Consultation

MHE has consulted with all relevant stakeholders as detailed in Appendix 1. In addition to the relative aviation authorities and operators discussed in previous sections, MHE has contacted the Royal Flying Doctor Service and the Regional Passenger Transport and Aviation Policy, Department of Transport (Appendix 6), Western Australian Government and local landowners. Additional consultation was held with Private Aircraft and airstrip owners as detailed in 3.1.1 of this report. No direct objections to the proposal were identified in the written correspondence or discussions with regards to aviation activity.

Summary

This report demonstrates that the Flat Rocks wind farm development will present little additional risk to civil aircraft operations within the vicinity of the proposed site and that such risk is within the level generally acceptable in the industry.

Operations at Kojonup Aerodrome will not be affected by the proposed wind farm. Air Services Australia has indicated that a minor adjustment to the approach procedures at Katanning Aerodrome maybe required. The adjustment to procedures entails raising the MSA by 100 ft, which is operationally insignificant. MHE has a quotation for the required alterations from Airservices Australia and is committed to fund these changes prior to the commencement of construction. Private airstrip operations will not be affected by the wind farm however pilots operating out of these strips or any paddocks in the vicinity of the wind farm, need to be aware of the conditions on and surrounding the landing sites. No concerns were raised regarding current aviation operations by private airstrips owners. Aerial agricultural operations will be largely unaffected on non-stakeholder properties, whilst some areas in close proximity to the wind turbines of stakeholder properties may be inaccessible.

The absence of ground based navigation aids and published instrument approach procedures in the area means that the proposed wind farm will have little or no effect on instrument flight procedures.

Currently there are no enforceable obstacle lighting requirements for wind farms. MHE will notify CASA and RAAF of the location and height of the wind turbines prior to commencement of construction for inclusion of the structures on aeronautical charts, ensuring the appropriate notification of pilots by way of NOTAM. An assessment for obstacle lighting will be undertaken at this time and consider input from local planning authorities, aerodrome operators, insurers and financiers. The wind turbine generators installed at the Flat Rocks wind farm will be light grey in colour to ensure they are conspicuous against the surrounding background in terms of ground cover and vegetation. This is necessary to ensure that pilots can see and avoid the towers during daylight operations.

Figure 1 – Flat Rocks Wind Farm locality map.

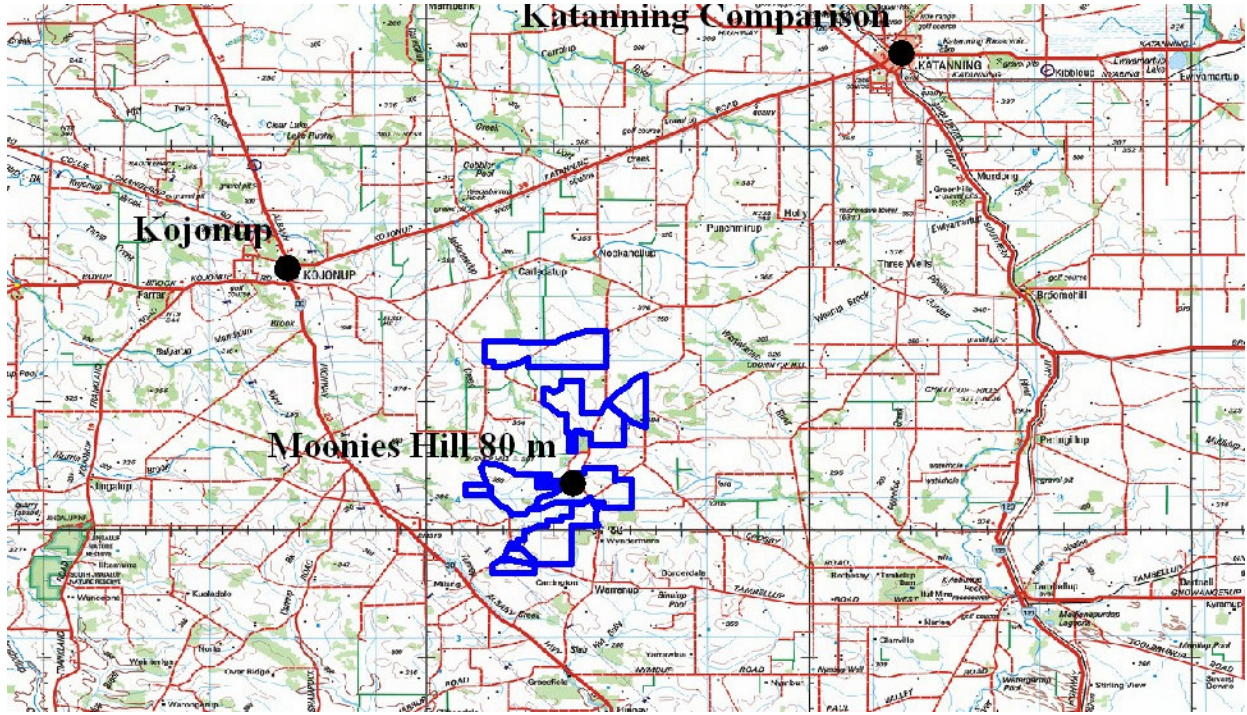


Figure 2 – Aerodrome Locations.

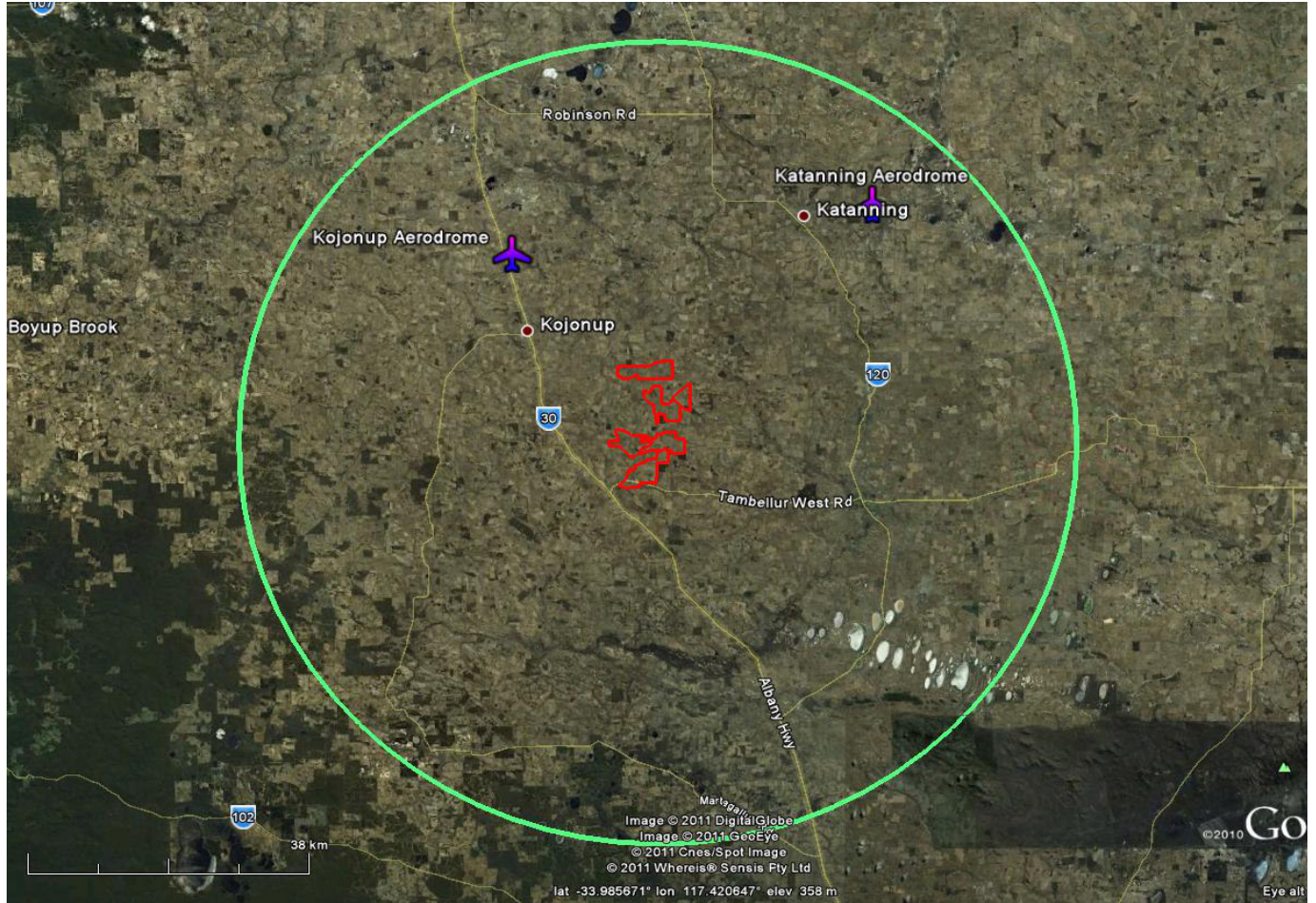


Figure 3 – Private Airstrip Locations.

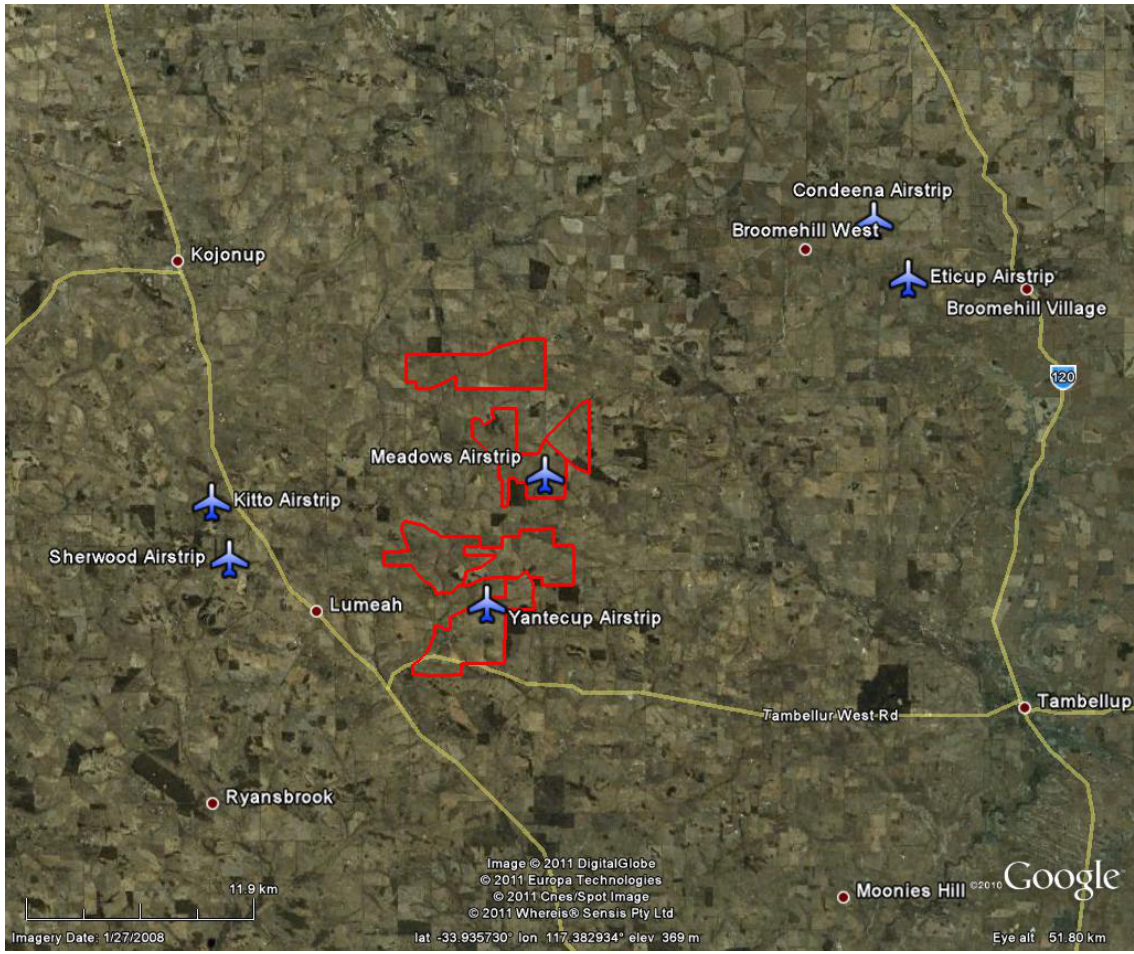
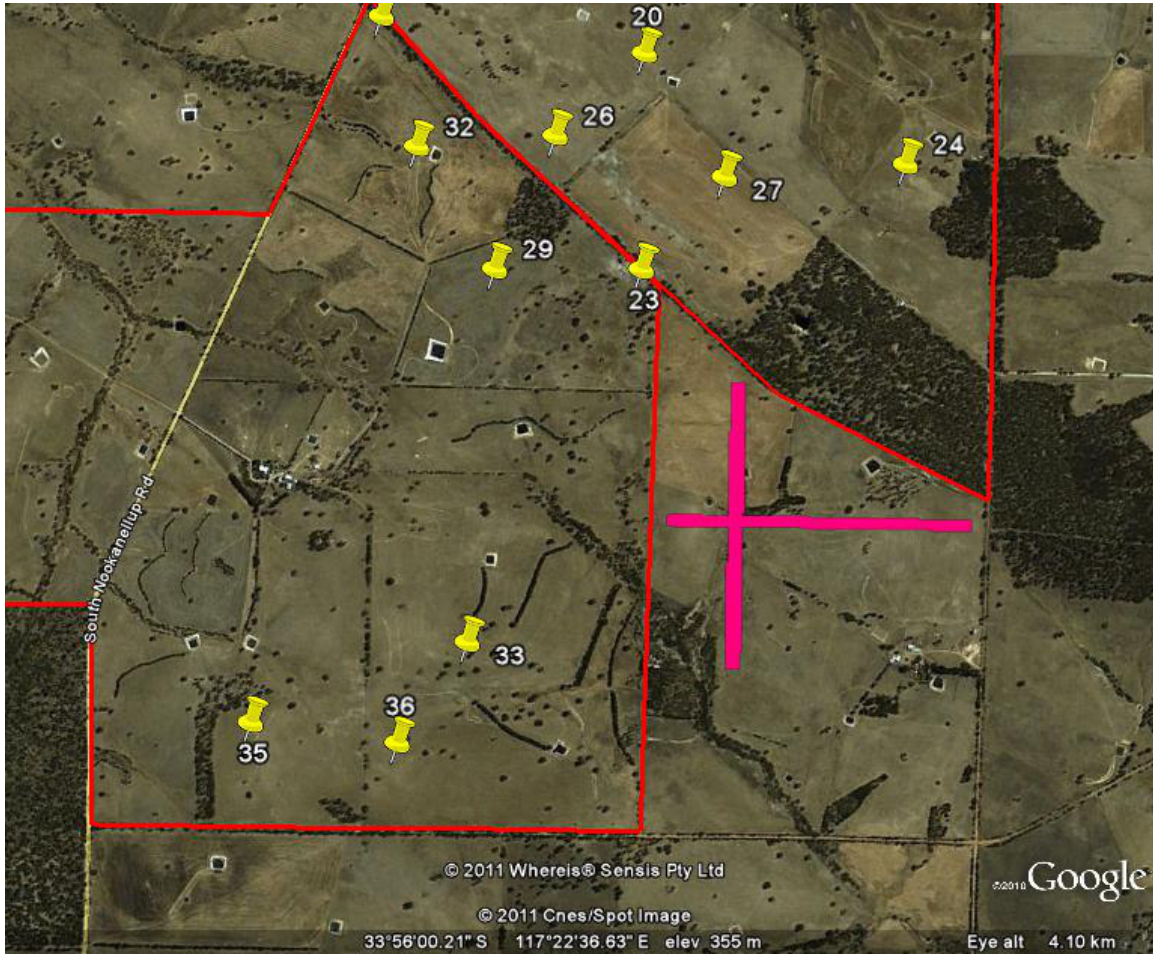


Figure 4 – Proposed Palomar Airstrip



*Note: Location of proposed Palomar strip is estimated, actual co-ordinates not supplied at time of report writing

Table 1 – Private Airstrip Proximity.

Airstrip ID	Distance from FRWF	Direction from FRWF
Sherwood	9.5 km	West
Kitto	10.2 km	West
Condeena	18.1 km	North East
Eticup	18.3 km	East

Table 2 – Private Airstrip Owners.

Name	Location	Contact	Comments
Craig Heggaton	Sherwood, PO Box 21, Kojonup, WA, 6395	25-May-11	No issues raised
Ian Anderson	Condeena, PO Box 11, Broomehill, WA, 6318	26-May-11	No issues raised
Craig Dennis	Eticup Grazing, PO Box 57, Broomehill, WA, 6318	25-May-11	Concerned with proposed strip
Geoffery Thorn	“The Meadows”, Broomehill WA 6318	15 Jan-11	No issues, aware of windfarm impact

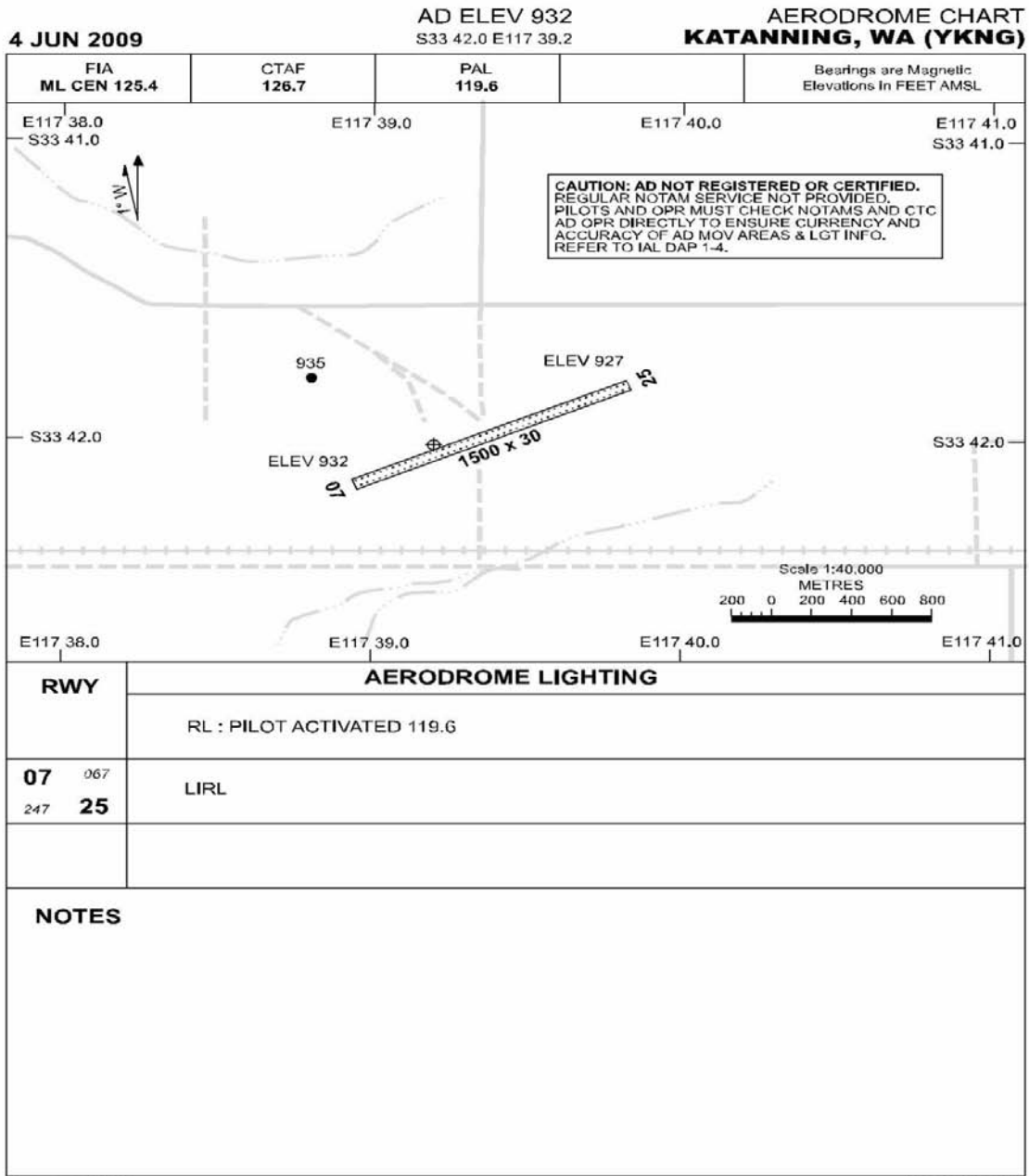
Appendices

Appendix 1 – Summary of Stakeholders

Summary of Stakeholder Agencies

Entity	Address	Date of Enquiry	Comment
Air Services Australia	GPO Box 367, Canberra, ACT, 2601	22-Oct-10	Response attached Appendix 5
Civil Aviation Safety Authority	PO Box 2005 Canberra ACT 2601	22-Oct-10	Response attached Appendix 4
South West Aerial Services	Lot 1874 Giles Rd, Wagin, WA, 6315	22-Feb-11	Continuing Discussion
Dunn Aviation	Wongan-Ballidu Airport, Ballidu, WA, 6606	22-Feb-11	No response to date
Repacholi Aviation	PO Box 1399, Canning Vale, WA, 6155	22-Feb-11	No response to date
Aerial Agricultural Association of Australia	PO Box 353, Mitchell, ACT, 2911	26-Jan-11	No response
Shire of Kojonup	Through ongoing discussion and referred by ASA		Ongoing discussion
Shire of Broomehill Tambellup	Through ongoing discussion and referred by ASA		Ongoing discussion
Shire of Katanning	Michelle Stewart		Ongoing discussion
RAAF	RAAF Base Pearce, Bullsbrook	24-May-11	No response to date
RFDS	3 Eagle Drive. Jandakot, WA, 6164	25-May-11	Response attached Appendix 6
Goodwin McCarthy Helicopters	Manna Park, Nyabing, WA, 6341	Various	
WA Govt	Regional Passenger Transport and Aviation Policy, Dept of Transport	26-May-11	Response attached Appendix 6
Tauras Aviation	Aerodrome Road, Cunderdin, WA 6407	22-Feb-11	Discussion regarding accessibility of spraying operations.

Appendix 2 - Katanning Aerodrome Chart



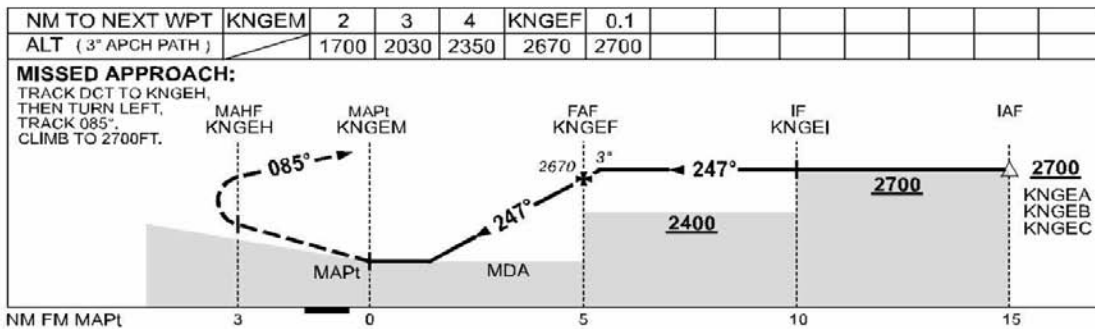
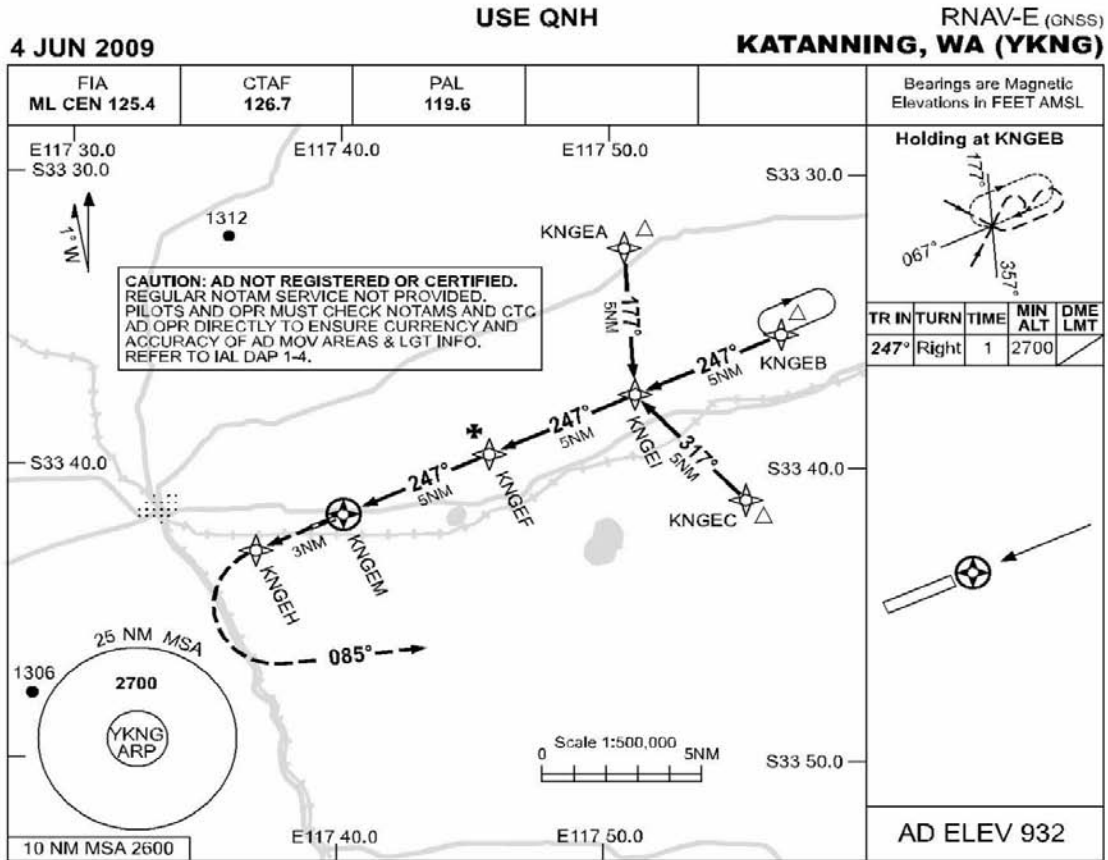
Changes: CTAF.

KNGAD01-119

© Airservices Australia 2009



Appendix 3 - Katanning Approach Procedures



NOTES

CATEGORY	A	B	C	D
				NOT APPLICABLE
CIRCLING	1700 (768-2.4)		1800 (868-4.0)	
ALTERNATE	(1268-4.4)		(1368-6.0)	

1. MAX IAS:
INITIAL : 210KT.

Changes: CTAF.

KNGGN01-119

© Airservices Australia 2009



Appendix 4 – CASA Correspondence

Michael Baulch

From: SARIS, VAS [VAS.SARIS@casa.gov.au]
Sent: Thursday, 26 August 2010 10:10 AM
To: Michael Baulch
Cc: Doherty, Greg
Subject: RE: Wind Tower Lighting [SEC=UNCLASSIFIED]

Hi Michael

The lighting requirements are recommended but not enforceable if the structures are outside the vicinity of regulated aerodromes. Regulated aerodrome have Obstacle Limitation Surfaces which protect airspace of the aerodromes (approx 15m radius); however aeronautical instrument let down produces can commence from 30 km of an aerodrome so CASA may have interest to that range, depending on the type of aerodrome. If it is not under CASA regulatory jurisdiction, we would then recommend that any proponent should discuss the project with private aerodrome operators to determine possible development or current operations may be impacted by the wind farm proposal.

I am not the assigned Inspector for WA, will pass this onto Greg who has the local knowledge of the area.

Regards

Vas

Michael Baulch

From: Doherty, Greg [Greg.Doherty@casa.gov.au]
Sent: Monday, 30 August 2010 12:22 PM
To: Michael Baulch
Subject: RE: Wind Tower Lighting [SEC=UNCLASSIFIED]
Attachments: Kojo Wind.jpg

Michael,

Ref Moonie Hills Windfarm at Kojonup.

I refer to your email dated 23 August 2010 and can confirm that the boundaries have been located and shown on the attached Google drawing.

From the information provided, the location is well away from any registered or certified aerodrome.

Please be advised that CASA has no specific authority to direct action relating to structures away from aerodromes. However, it is recommended that Moonie Hills Energy Pty Ltd undertake the following consultation to assess the potential hazard posed to aviation by the proposed windfarm development.

1. Identify Aeroplane Landing Areas that may be operated by Shires or local land owners and consult with the operators to determine any potential hazards due to the windfarm structures.
2. Contact the Aerial Agricultural Association of Australia 02 6241 2100 and provide information to determine potential hazards during aerial application operations.
3. It is recommended that the applicant considers their duty of care and determine whether or not the windfarm should be lit. As the windfarm is greater than 30 kilometres from a registered or certified aerodrome, CASA cannot mandate the lighting or marking of the structures. It is CASA's view that the lighting and marking is a decision for the developer after considering associated safety requirements from planning authorities, insurers or financiers.
4. As the Shire of Katanning aerodrome will soon be registered, it is important that the developer consults with the shire to determine any affect from the windfarm with respect to the Katanning Instrument Approach.
5. All structures over 45m must be reported to the RAAF Aviation Information Service. The attachment has the appropriate email address and forms to be completed.

http://casa.gov.au/wcmswr/_assets/main/rules/1998casr/139/139c08.pdf

I trust that the information provided will assist with the safety assessment of this project.

Regards

Greg Doherty
Aerodrome Inspector
Airways and Aerodromes Regulatory Division
Perth Office
Telephone 9366 2872

Appendix 5 – Air Services Australia Correspondence

Michael Baulch

From: Tattam, Steve [steve.tattam@AirservicesAustralia.com]
Sent: Thursday, 3 March 2011 8:36 AM
To: Michael Baulch
Cc: council@kojonup.wa.gov.au; mail@shirebt.wa.gov.au
Subject: Airservices Australia Assessment - Flat Rocks Wind Farm South East of Kojonup, WA (Airservices Assessment Reference: WA-WF-005)

Importance: High

(Airservices Assessment Reference: WA-WF-005)

Dear Michael,

I refer to your request for Airservices Australia (Airservices) to conduct an assessment on potential impact Aviation Air Traffic Management services in relation to the proposed Flat Rocks Wind Farm project located South East of Kojonup, Western Australia.

At a maximum height of 526.00m (1726ft) AHD, some of the proposed wind turbines will affect the Katanning Aerodrome 25 Minimum Sector Altitude (MSA) procedure. No other sector or circling altitude, nor any approach or departure procedure at Katanning airport is affected. Please Note: The maximum allowable height for any of the wind turbines associated with this wind farm proposal is **522.70m (1715ft) AHD** before the 25 MSA procedure is affected.

This proposed wind farm will not impact the technical performance of Precision/Non-Precision Nav Aids, HF/VHF Comms, A-SMGCS, Radar, or Satellite/Links.

If applicable to the airport, no assessment was conducted in relation to Naverus designed Required Navigation Performance - Authorisation Required (RNP-AR) type procedures or any other procedures designed by external Part 173 providers.

These comments are also provided for information and advice to the following Shire Offices to fulfil their DA consultation requirements:

Shire of Broomehill – Tambellup (Reference: ADM0283) – Attn Joanne Trezona *CEO*

Shire of Kojonup (Reference: DB.BDA.8) – Attn Stephen Gash *CEO* & Phil Shephard *Town Planner*

Regards,

Steve Tattam

Airport Relations & Development Manager
Airservices Australia
E-mail: steve.tattam@airservicesaustralia.com

Secretariat to ASTRA - www.astra.aero

Ph 02 6268 4891
Mobile 0402 776 524
www.airservicesaustralia.com

Michael Baulch

From: Tattam, Steve [steve.tattam@AirservicesAustralia.com]
Sent: Thursday, 24 March 2011 9:03 AM
To: michael@baulch.com.au
Cc: Wilson, Gayla
Subject: Airservices Australia Procedure Amendment - Flat Rocks Wind Farm South East of Kojonup, WA

Hi Michael,

As we just discussed on the phone, whilst the affecting turbines of your proposed wind farm are outside of the splay assessment areas for the actual approach into Katanning aerodrome, the Minimum Sector Altitude (MSA) is penetrated. The MSA is the height an aircraft can descend to in preparation for conducting an approach and extends from a nominated point on the aerodrome, usually a navaid or in Katanning's case the Aerodrome Reference Point (ARP), out to 25 nautical miles (nm) or 46.3kms. Added to this is an additional 5nm or 9.26km buffer that is also considered, therefore taking the total assessment area out to 30nm or 55.56km from the aerodrome. As the MSA is the height at which approaches generally commence, any adjustment here will also have the knock on affect to the approach itself.

Airservices will initiate a cost proposal for you for relevant procedural amendment work that will be required.

Please note that before any Procedure amendment work takes place Airservices will require formal confirmation from your office that the Development Application for this wind farm has been approved.

Once agreement is established between Airservices and your office, I will then seek to provide advice to the following Shires:

Shire of Kojonup
Shire of Broomehill-Tambellup
Shire of Katanning

Before a cost proposal can be raised, can I please obtain/confirm the following details from you:

Proponent: Michael Baulch - **Position?**

Moonies Hill Energy Pty Ltd
78 Pensioner Road
Kojonup WA 6395

ABN?

Ph: 08 9831 1166
Mob: 0419 354 803

Emails: info@mhenergy.com.au
michael@baulch.com.au

Web: <http://www.mhenergy.com.au/index.html>

Regards,

Steve Tattam

Airport Relations & Development Manager
Airservices Australia
E-mail: steve.tattam@airservicesaustralia.com

Secretariat to ASTRA - www.astra.aero

Appendix 6 – Other Correspondence

Michael Baulch

From: Michael Bleus [Michael.Bleus@rfdswa.com.au]
Sent: Monday, 23 May 2011 12:20 PM
To: Michael Baulch
Subject: RE: Flat Rocks Windfarm

Good Afternoon Michael,

Based on the Coordinates that you have given me, the wind farm shouldn't present any problems for us to operate into Kojonup.

Having plotted the West and North figures they are 28 kms from the airstrip.

Good luck with the development.

Regards
Michael

Michael Bleus
Chief Pilot
RFDS Western Operations
3 Eagle Drive
Jandakot WA 6164

T (08) 9417 6376
F (08) 9417 6379
M 0417 948 959
E Michael.Bleus@rfdswa.com.au
> www.flyingdoctor.org.au



Michael Baulch

From: Kennedy, Michael [Michael.Kennedy@transport.wa.gov.au]
Sent: Tuesday, 24 May 2011 3:48 PM
To: Michael Baulch
Subject: RE: Flat Rocks Wind Farm

Afternoon Michael

Thank you for your email seeking comment on the likely effect of your development in terms of aviation safety. Matters concerning aviation safety are a Commonwealth responsibility and I note you have already contacted Air services Australia and CASA who are the agencies responsible for aviation safety.

Regards
Michael

Michael Kennedy
Principal Policy Officer
Regional Passenger Transport and Aviation Policy
Department of Transport
Ph : 9216 8897
Fax: 9216 8022