RAAF BASE AMBERLEY

BASE AIRCRAFT NOISE MANAGEMENT PLAN

Approved by:

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AMENDMENT CERTIFICATE

AL	Date	Change	Signature
1	19-Sep-19	Initial draft.	SQNLDR M Clarke
2	29-Jan-21	Updated security classification. Update aircraft types. Inclusion of Super Hornet noise management. Annual/full review.	

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RAAF BASE AMBERLEY AIRCRAFT NOISE MANAGEMENT PLAN

References

A. Air Force Aircraft Noise Management Strategy 2018-2023
B. Conditions attached to the approval of Australian Super Hornet Operation, RAAF Base Amberley, QLD, EPBC 2008/4410
C. Australian Super Hornet Public Environmental Report, 2009
D. Air Command Standing Instruction (Operations) 03-11, Aircraft Noise Management

Introduction

1. Aircraft noise is an unavoidable consequence of Air Force operations and training. The impact of aircraft noise affects communities in different ways. Air Force has an obligation to reduce the effects of aircraft noise on local communities to the maximum extent possible, whilst achieving operational and training outcomes for Government. Consequently, aircraft noise is managed locally by personnel who know and understand community concerns.

2. RAAF Base Amberley Base Aircraft Noise Management Plan (BANMP) informs and aims to improve public understanding of aircraft noise management strategies in the vicinity of RAAF Base Amberley.

3. RAAF Base Amberley is located 40 km south-west of Brisbane on the outskirts of Ipswich. It is Air Force's largest base and employs over 5000 people. It is the home base for the F/A-18F Super Hornet, E/A-18G Growler, the C-17A Globemaster, the KC-30A Multi Role Tanker Transport, and the C-27J Spartan aircraft. The base also often hosts other aircraft types, which may operate at Amberley during major exercises, whilst conducting local training, transiting to other destinations or for heavy maintenance purposes.

4. RAAF Base Amberley is responsible for the Evans Head Air Weapons Range, which is located approximately 230km south of Brisbane. Evans Head Air Weapons Range is used for air-to-surface gunnery and bombing training.

5. The primary users of the Evans Head Air Weapons Range are Amberley based Air Combat Group (ACG) flying squadrons, which include F/A-18F Super Hornet and E/A-18G Growler as well as RAAF Base Williamtown F-35A Lightning II aircraft, Army rotary wing aircraft and foreign military aircraft.

Background and scope

6. The BANMP has been raised in compliance with the Air Force Aircraft Noise Management Strategy, Reference A. The BANMP applies to all flying and ground operations involving Air Force aircraft, civil-registered aircraft leased by the Air Force, Defence contracted aircraft operated by external service providers and foreign military aircraft operating from RAAF Base Amberley.

7. The BANMP also addresses the requirements of Condition 1, 2 and 3 of the 2014 Variation of Approval of Super Hornet flying operations at RAAF Base Amberley, Reference B. As such this BANMP outlines standard Super Hornet flying operations from RAAF Base Amberley, the number and timing of aircraft movements and design of flight paths and flight procedures to reduce aircraft noise effects as well as a description of how deviations from standard Super Hornet flying operations are managed. In addition, noise complaints, monitoring and mitigation strategies for the Super Hornets are included.

8. This plan does not provide procedures or requirements required to meet Workplace Health and Safety obligations. Adherence to the requirements of this plan is not required if it is considered that adverse Workplace Health and Safety outcomes might result.

Description of standard aircraft operations

9. RAAF aircraft permanently based at RAAF Base Amberley include:

a. F/A-18F Super Hornet fighter aircraft with twin jet engines,

b. EA-18G Growler electronic attack aircraft with twin jet engines,

c. C-17A Globemaster III heavy airlift aircraft with four turbofan engines

d. KC-30A Multi Role Tanker Transport aircraft with two turbofan engines,

e. C-27J Spartan tactical airlift aircraft with two turboprop engines,

f. AugustaWestland AW139 turbo shaft helicopter operated by Canadian Helicopter Corporation for Search and Rescue, and

g. DA-40 Diamond Air Force cadet training aircraft with one piston engine.

10. Normal flying operations for military aircraft are from 7:00am to 10:00pm Australian Eastern Standard Time (AEST). Night flying is restricted to the minimum required to achieve training targets. Flying before and after these hours can occur including weekend flying without notice.

11. The average number of military aircraft movements is 2300 per month.

12. RAAF Base Amberley utilises six primary training areas indicated at figure one. To reduce localised noise impacts, aircraft are dispersed across different training areas to achieve a fair distribution of noise across local communities. The majority of training is conducted either over water or in low populated areas.

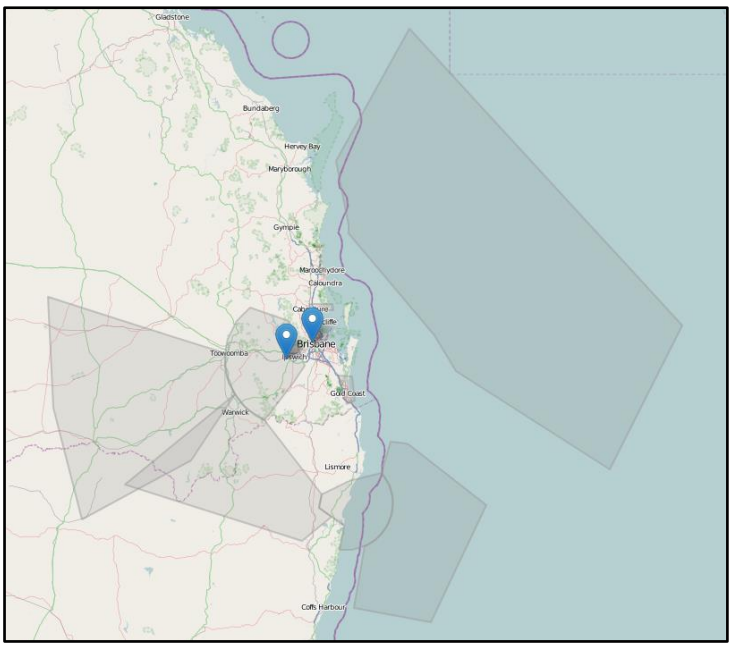

Figure One: RAAF Base Amberley Primary Training Areas

13. Where possible, RAAF Base Amberley will advise the local community of non-routine flying events. This is not always possible due to changes in weather conditions or operational restrictions which may require aircraft to operate over land training areas more frequently. Members of the public can access information regarding planned and non-routine flying via the RAAF Base Amberley Flying Operations[1] website.

14. RAAF Base Amberley has two runways as shown in figure two. Runway 15/33 is the primary runway and 04/22 is the secondary cross-strip. An Instrument Landing System used to guide pilots to a safe landing in poor weather services runway 15.

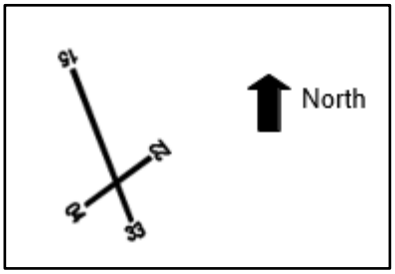

Figure Two: RAAF Base Amberley Runway Orientation

15. Preferred runway use is determined primarily by wind direction and is stipulated by Air Traffic Control (ATC) to ensure safety of flight. When ATC is not active, pilots determine the most suitable runway by examining the wind conditions from weather reports and wind socks located at the airfield.

Variations to standard aircraft operations

16. The most common foreseeable variation to the regular flying schedule at RAAF Base Amberley is visiting aircraft from other bases. At times, aircraft may operate outside normal airfield operating hours with approval granted by the Amberley Air Base Executive Officer. Attempts will be made where possible to advertise changes to the community. Defence has an extensive range of aircraft with differing engine configurations including:

a. F-35A fighter aircraft with a single jet engine,

b. BAE Hawk 127 with a single jet engine,

c. Pilatus PC-21 with a single turboprop engine,

d. Boeing 737 Business Jet with two turbofan engines,

e. C-130J Hercules with four turboprop engines,

f. Falcon 7X business jet with three turbofan engines,

g. P-8A Poseidon with two turbofan engines,

h. AP-3C Orion with four turboprop engines,

i. B350 King Air with two turboprop engines,

[1] Website link [https://aircraftnoisemap.airforce.gov.au/assets/site.html?558#base/5]

j. Various single and multi-rotor aircraft, single and twin turboshaft engines

k. Visiting aircraft types from International Defence Forces.

17. Unforeseeable variations (caused by inclement weather and aircraft serviceability issues) will occur from time to time. Noise control minimisation measures will be implemented as required, where possible.

RAAF Base Amberley noise minimisation

18. RAAF Base Amberley maintains guidelines such as Base Standing Instructions and Range Standing Instructions designed to provide a baseline for aircraft operations in Defence operating airspace. These instructions are to be adhered to by all operators. Some of these instructions are designed to reduce noise impacts from aircraft operations. ACG also has Standing Instructions, which provide the basis for aircraft operations flown by all ACG aircrew. These include:

a. **Fly Neighbourly procedures.** Air Force is working with local communities to reduce noise impacts whilst balancing operational and training requirements. Air Force commits to undertake flying operations in a manner which is considerate of our local communities, whilst maintaining safe operation of our aircraft and achieving the required levels of capability. Guided by these principles Air Force will:

(1) Comply with published airfield noise abatement procedures

(2) Use appropriate runway length for departures to maximise height over local communities

(3) Minimise the use of afterburner on fast jets during take-off and minimise noise during climb out

(4) Limit the speed of aircraft over populated areas

(5) Minimise flight over residential areas and other noise sensitive buildings such as hospitals and schools

(6) Avoid low flying over known noise sensitive areas such as livestock yards

(7) Minimise flying late at night or early in the morning

(8) Include aircraft noise awareness in pilot training and familiarisation

(9) Notify local communities of major exercises or other non-routine training and flying activities such as flying displays.

b. To further minimise noise at some bases Air Force will:

(1) Limit continuous circuit training at night and on weekends and public holidays

(2) Use satellite airfields for repetitive aircraft circuits

(3) Vary flight paths to share noise

(4) Consider continuous descents to reduce noise

(5) Implement local engine run-ups procedures

(6) Minimise jet or turbo prop engine testing at night.

c. **Aircraft engine maintenance ground operations.** Post-aircraft maintenance may require installed engine ground testing across all power settings. This particular type of testing is performed during the day wherever possible, but may at times be during the evening for operational reasons. The following time restrictions apply to all engine runs at RAAF Base Amberley:

(1) Between 7.00am to 10.00pm (AEST) –

i. Military fast jets including the F/A-18F Super Hornet, EA-18G Growler and F-35A Lightning II – up to 80% power setting for a maximum of 60 minutes duration each time

ii. All other aircraft – no restrictions

(2) Between 10.00pm and 7.00am, only when required to achieve an urgent operational outcome that cannot be delayed, only above idle if absolutely necessary and for the minimum period possible and avoiding cycling of engine power settings. Approval must be sought from the Air Base Executive Officer. Notice to local residents may occur if time permits an advisory to be issued.

Super Hornet and Growler noise management

19. **Planned periods of Super Hornet flying operations.** The majority of F/A-18F and EA-18G operations will occur Monday to Friday within the period 7am to 7pm. Operations after 7pm will usually only be planned Monday to Thursday in regular blocks of night flying activity. All flying operations will be planned within the following constraints which remain consistent with the restrictions specified in the 2009 Public Environment Report at Reference C, unless variation is approved by the Air Base Executive Officer in accordance with the procedures of the BANMP;

a. No departures or arrivals between 11pm and 7am unless operationally required;

b. No continuous practice circuits after 10pm;

c. Weekend operations only when required for operational outcomes or required to support events of public significance such as (for example) Australia Day, Anzac Day and Riverfire.

d. Maximum of 46 weeks of planned flying operations per calendar year, with periods of respite from flying operations scheduled over the New Year and mid-year.

e. Maximum of 20 movements conducted between the period of 7pm and 11pm.

20. **Planned Super Hornet movements.** F/A-18F and EA-18G annual movement forecasts are shown at table one. Reference C noise modelling outcomes were based on an annual forecast of 4648 F/A-18F movements[2]. In 2016 the forecast movement total was adjusted to 5261 movements and approved by the Department of Environment in accordance with the conditions attached to the Australian Super Hornet Flying Operations Approval. In 2017 the forecast F/A-18F movement total was adjusted to 4820 movements. With the staged introduction of the EA-18G Growler from February 2017 it was necessary to update noise modelling based on a forecast of 7700 combined F/A-18F and EA-18G movements, which represents the forecast steady state movement rate from the 2019-20 timeframe.

21. Table one also includes forecast visiting military fast jet movements. Although visiting military jet movements are not subject to Department of Agriculture, Water and the Environment approval, they are included in this plan to acknowledge that the impact of military fast jet noise is not dependant on the operator of the aircraft.

Table One: Forecast Military Fast Jet Movements at RAAF Base Amberley

F/A-18F and EA-18G	**Fast Jet Movements**
Arrivals and departures (combined)	6650
Circuits (1 circuit counts as 2 movements)	525
Total F/A-18F and EA-18G movements	7700
Visiting Military Fast Jets	
F/A-18 or F-35 equivalent arrivals and departures	900
Hawk light fighter equivalent arrivals and departures	60

22. **Super Hornet takeoff power settings.** Reference C forecast that 70% of takeoffs would be conducted using afterburner power settings, usually when taking off at higher weights. Operational experience has identified that due to faster acceleration and higher immediate rates of climb, higher altitudes can be achieved faster with afterburner takeoffs whilst still deselecting afterburner before the aircraft crosses the airfield boundary. This results in an overall improved noise outcome in the vicinity of the airfield. Accordingly, modelling reflected in this plan allows for 100% of departures using afterburner power settings.

23. **Super Hornet departure flight paths**. Aircraft departing on Runway 33 will maintain runway heading until reaching four nautical miles before turning to departure heading, except for departures to north, which will maintain runway heading until reaching six nautical miles. Aircraft departing on Runway 15 will maintain a southerly track until reaching four nautical miles before turning to departure heading[3]. For departures that require overflight of Ipswich or the suburbs of Brisbane, Super Hornets will initially turn to the west after reaching four nautical miles to enable climb to well above 10,000 feet altitude before tracking towards the east. In all cases aircraft will maximise rate of climb after take-off prior to reaching the four or six nautical mile position. Variations to the requirement to maintain track to four or six nautical miles can occur when the departure is conducted in periods of poor pilot visibility and if Air Traffic Control require an earlier or later turn to maintain positive de-confliction with other airborne aircraft.

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2 An aircraft that conducts a single take-off followed by a single landing conducts two movements.

3 The requirement to track to 6 nautical miles for departures to the north on runway 33, and the requirement to maintain a southerly track until reaching 4 nautical miles when departing from runway 15 are additional mitigation measure over those contained in Reference C. These new requirements are intended to reduce noise impact to the north east, west and south west of the base.

24. Although the majority of F/A-18F and EA-18G departures will follow one of the standard departure routes as shown figures three, four and five, some final departure tracks may vary when required for operational outcomes, most often when aircraft are deploying away from RAAF Base Amberley and are required to join published air routes in civilian airspace.

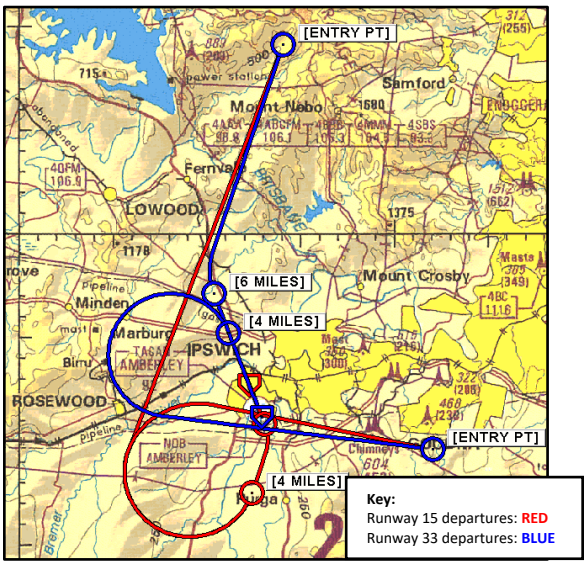

Figure Three: Departures to the North East and Eastern Training Area

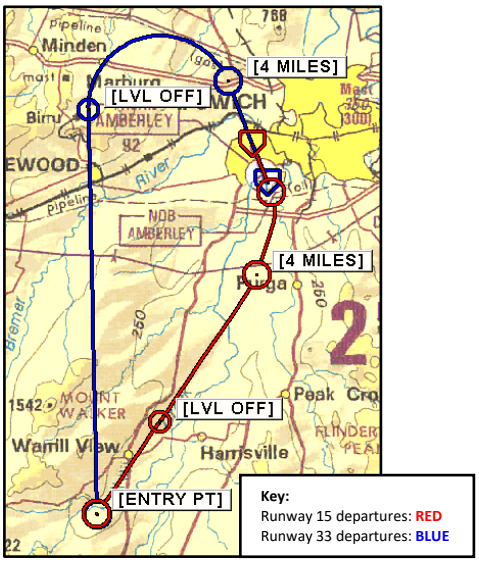

Figure Four: Departures to Southern Training Areas

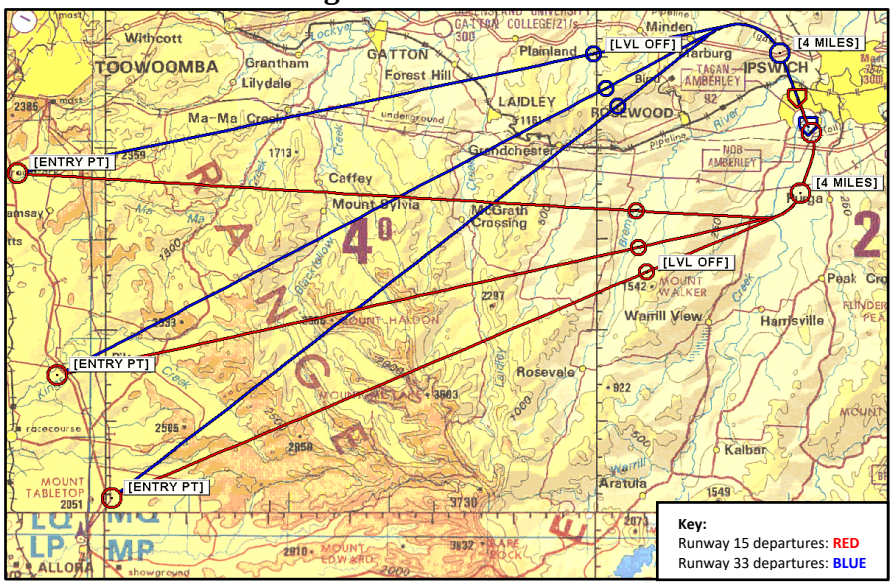

Figure Five: Departures to the Western Training Area

25. **Super Hornet arrival flight paths.** In periods of clear visibility, the majority of arrival flight paths will be conducted via an 'Initial and Pitch' procedure as displayed in figure six and seven. In periods of poor visibility or when required for training, arrivals will be conducted via an instrument approach or visual straight in approach procedure. These arrival procedures are shown in figures eight, nine, ten and eleven. Revised noise modelling reflected an updated overall percentage of arrivals via the Initial and Pitch procedure of 70% compared to Reference C forecast of 80%.

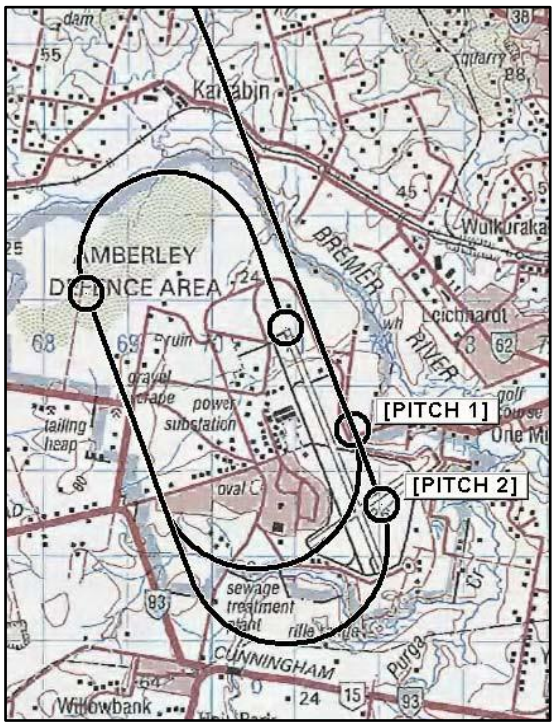

Figure Six: Initial and Pitch Runway 15 (from the South)

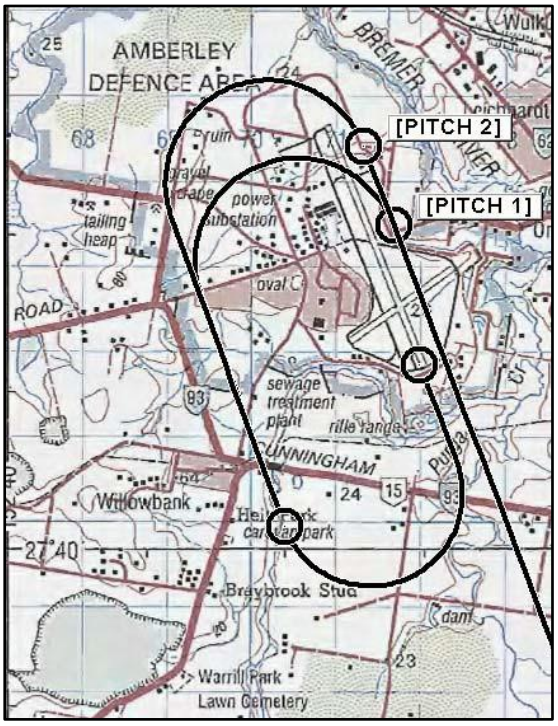

Figure Seven: Initial and Pitch Runway 33 (from the South)

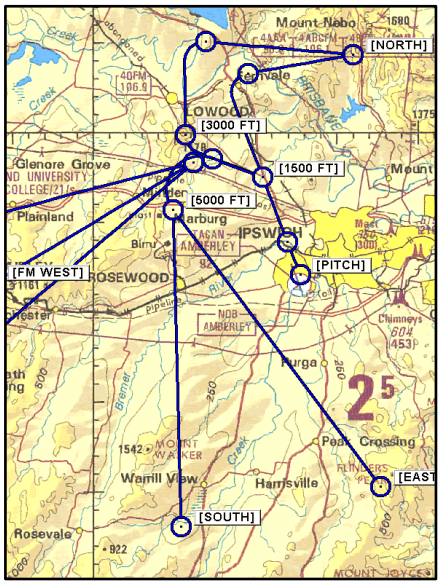

Figure Eight: Runway 15 Arrivals for Initial and Pitch

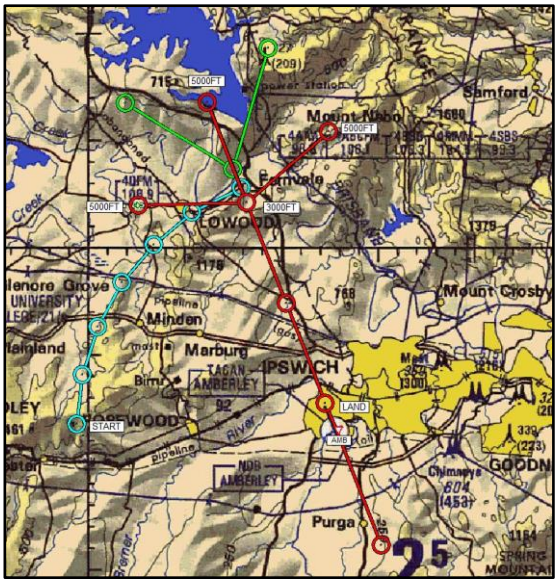

Figure Nine: Runway 15 Instrument Approaches or Straight-In Arrivals

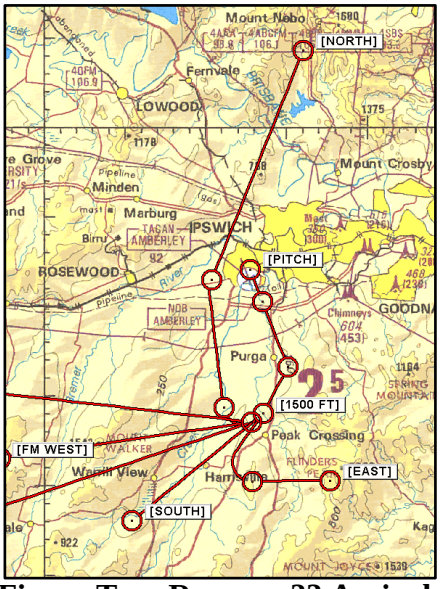

Figure Ten: Runway 33 Arrivals for Initial and Pitch

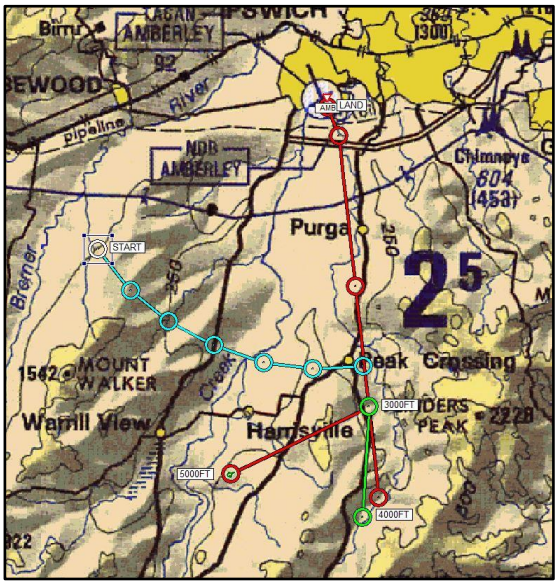

Figure Eleven: Runway 33 Instrument Approaches or Straight-In Arrivals

26. **Super Hornet circuit procedures.** Aircraft returning to land via the Initial and Pitch procedure fly a circuit pattern from abeam the airfield to position for landing. Circuits are normally flown at 1500 feet above ground level, but occasionally may be flown lower in periods of poor weather or when required for aircrew training. To minimise noise impact to Ipswich suburbs to the east of the airfield, all F/A-18F and EA-18G circuit patterns are planned to be flown to the west of the main runway as shown in figure twelve. Circuits may be flown after take-off when required for aircrew training or aircrew currency requirements. Only when required due to exceptional circumstances such as an aircraft emergency, unanticipated poor weather, or when required for Air Traffic Control de-confliction procedures, will circuits be flown to the east of the main runway or on the shorter cross runway

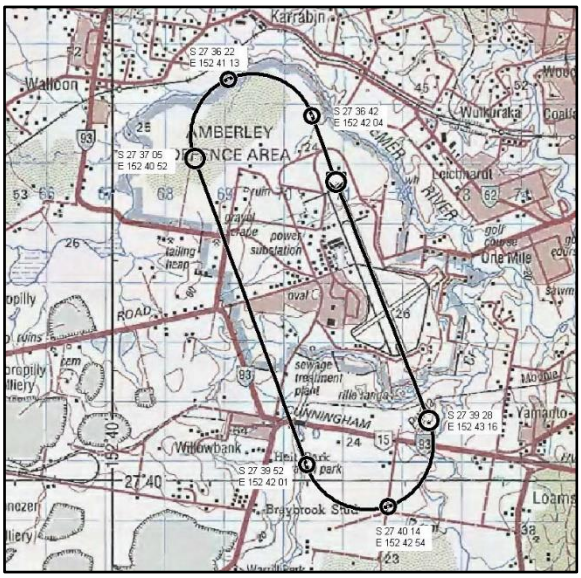

Figure Twelve: Circuit Pattern Avoiding Walloon and Willowbank

27. **Super Hornet minimum altitudes.** Except when allowed by an approved variation, F/A-18F and E/A-18G aircraft will not fly below 1500 feet (450 metres) above ground level within 10 nautical miles (18.5 kilometres) of RAAF Base Amberley except when taking off, landing, or operating in the circuit.

28. **Super Hornet foreseeable variations.** From time to time a requirement to conduct F/A-18F or EA-18G flying operations in a manner different to that specified in this plan can be identified ahead of the event occurring. In these circumstances the RAAF Base Amberley Senior Australian Defence Force Officer (or promulgated delegate) can approve the variation taking into account the potential for adverse outcomes versus the operational benefit that will be achieved. It is not intended that approval of foreseeable variations by the Senior Australian Defence Force Officer becomes a means to achieve a permanent change to requirements of this plan. Foreseeable variations can include:

a. Planned use of runway 04 or runway 22;

b. Weekend flying;

c. Planned flight below 1500 feet above ground level within 10 nautical miles of RAAF Base Amberley when not taking off or landing, or operating in the circuit;

d. Material changes to flight paths, including circuit direction;

e. Planned continuous circuits between 10pm and 7am;

f. Departures or arrivals at RAAF Base Amberley between 11pm and 7am;

g. Greater than the planned calendar year movements;

h. Flightline engine running above idle power between 10pm and 7am; and

i. Engine runs above idle at the Engine Test Cell between 10pm and 7am.

29. **Super Hornet unforeseeable variations.** Occasionally divergences from the requirements of this plan are required, but cannot be predicted or pre-determined. In these circumstances, personnel involved are to prioritise minimising potential adverse outcomes for the public over operational outcomes, but not at the expense of maintaining safe operations. Some examples of unforeseen variations are:

a. Variations to flight paths or vertical profiles which have unavoidably occurred as a result of aircraft emergency, hazardous weather, or directions from ATC;

b. Use of runway 04 or runway 22 for take-off or landing due to an aircraft emergency or an unplanned unavailability of the main runway;

c. Flying operations after 11pm when originally planned to cease prior to that time but unforeseen delays occurred after departure; and

d. Other deviations necessary to ensure that safety to military personnel or the public are not compromised.

RAAF Base Amberley Airspace

30. In addition to the Evans Head Air Weapons Range, aircraft operating from RAAF Base Amberley utilise nearby General Flying Training Areas and Low Flying Areas for training and exercises. Amberley Training Areas are shown in figure one and Amberley airspace is shown in figure thirteen.

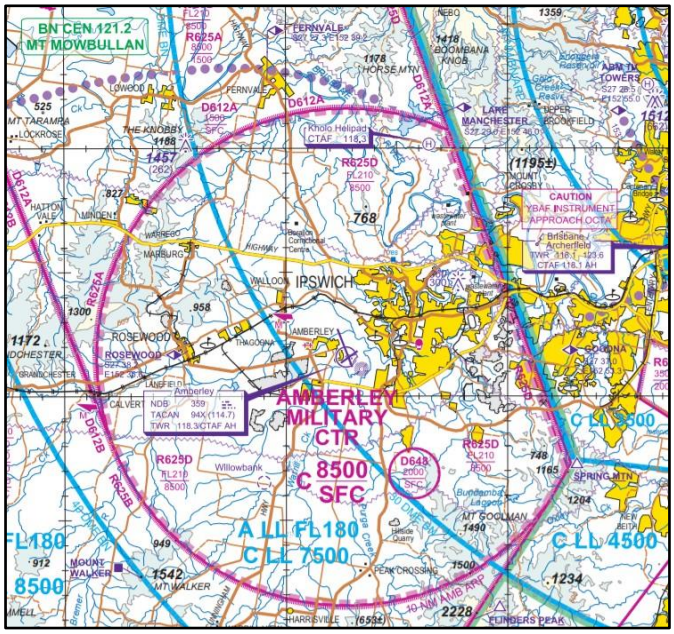

Figure Thirteen: RAAF Base Amberley Airspace

Working with community

31. Residents should consider the Australian Noise Exposure Forecast (ANEF) map for RAAF Base Amberley, which provides information about aircraft noise exposure. ANEF maps provide a forecast of anticipated noise for a future period, for that location. The ANEF does not show every flight path and homeowners with properties outside of the ANEF map zones may still experience aircraft noise. The Noise and Flight Path Monitoring System (NFPMS) has been developed to provide a more accurate and useful record of flight paths of all aircraft and noise events.

32. **Communication.** RAAF Base Amberley communicates regularly with the local council and community about on base operations in a variety of formal and informal means. The RAAF Base Amberley Consultative Working Group meets quarterly and is an important mechanism for local interaction and discussion in relation to aircraft noise. The RAAF Base Amberley[4] and Evans Head Air Weapons Range[5] websites provide further details.

33. RAAF Base Amberley makes all attempts to advise local communities of non-routine flying operations via Media Releases, social media, RAAF Base Amberley flying operations[6] website.

34. For Evans Head Air Weapons Range operations, Air Force works with the Community Advisory Panel to identify planned dates for range use in order to deconflict with

[4] Website link [https://www.defence.gov.au/AircraftNoise/Amberley/Default.asp]
[5] Website link [https://www.defence.gov.au/AircraftNoise/EvansHead/Default.asp]
[6] Website link [https://aircraftnoisemap.airforce.gov.au/assets/site.html?339#base/5]

significant public events. A Media Release and email alerts are issued to key local stakeholders including State and Local Government, Aboriginal organisations, local businesses, NSW Roads and Maritime Services and a Mariners. A schedule of proposed flying is published on the Evans Head Air Weapons Range Use Schedule[7] website.

Noise monitoring

35. Defence operates NFPMS to provide the community information about aircraft noise associated with military operations. The NFPMS website can be accessed via the Defence Aircraft Noise[8] website. On this site, RAAF Base Amberley has an interactive and accessible database, which can be used to develop reports of aircraft flight paths and volume of aircraft traffic. The site also provides details of the monitoring station locations around RAAF Base Amberley. The stations are not located in training areas outside the immediate Amberley area. The four monitoring locations are:

a. Willowbank Lawn Cemetery;

b. Kholo Botanical Gardens, Muirlea;

c. Walloon Primary School; and

d. The Christian Outreach Centre, Yamanto.

36. The NFPMS was developed by Defence to monitor noise and provide a public record of flying activity at RAAF Base Amberley. The NFPMS allows individuals to gain an understanding of all flying activity in the vicinity of the Base. Defence uses the data to publish a monthly report of fast jet flying activity, and all aircraft flight activity.

37. **Super Hornet Annual Noise Report.** In order to evaluate the accuracy of noise modelling undertaking in Reference C as well as monitoring compliance with Super Hornet and Growler noise mitigation strategies, RAAF Base Amberley Air Base Executive Officer will provide an Super Hornet Annual Noise Report (ANR). The ANR will make comparisons between the NFPMS measured data in successive years and identifies trends and changes in aircraft operation, flight paths and noise impact. In addition, the ANR will provide an opportunity to report publicly on actions and recommendations made in relation to Australian Super Hornet Flying Operations at RAAF Base Amberley. The ANR will report on the following in relation to the Super Hornet:

a. Total movements per runway,

b. Departure and arrival paths,

c. Engine runs,

d. The number and timing of movements,

e. Respite and flying operations,

f. Evaluations of noise impacts (including average and maximum values) and

g. A summary of recommendations made by the Aircraft Noise Ombudsman (ANO).

[7] Webpage link [https://www.defence.gov.au/AircraftNoise/EvansHead/Schedule.asp]
[8] Webpage link [https://www.defence.gov.au/AircraftNoise/NFPMS/Default.asp]

Noise complaints

38. RAAF Base Amberley manages noise complaints from the public in accordance with Air Command Standing Instruction (Operations) 03-11, Reference D. Complaints regarding Air Force aircraft noise can be made via:

a. the Defence switchboard on 1300 333 362 and ask to be connected to RAAF Base Amberley,

b. online by the aircraft noise enquiry or complaint form[9], or

c. mail to:

Staff Officer Aircraft Noise Management
R8-03-030
Russell Drive
Russell
ACT 2601

39. On receipt of a noise complaint, a Defence member will initiate an investigation to determine the occurrence and likely operating Squadron. Contact will be made to the complainant to provide information on the nature of the operations to the query.

40. All completed investigations are forwarded to Air Force Headquarters Staff Officer Aircraft Noise Management, Canberra for further vetting.

41. Further details on the aircraft noise complaint process can be found on the Defence Aircraft Noise[10] website.

42. If a complainant is unsatisfied with how their aircraft noise complaint has been handled, the complainant may seek an independent review by the ANO. The ANO will only review aircraft noise complaints that have already been submitted to the Department of Defence. Further information on the ANO including the ANO Charter and other policies can be found on the ANO website[11].

43. A complaint investigation can be submitted to the ANO via:

a. The ANO's online complaint form[12],

b. Toll free phone number 1800 266 040,

c. Email ano@ano.gov.au, or

d. Mail:

Aircraft Noise Ombudsman
GPO Box 1985
Canberra City ACT 2601

[9] Webpage link [https://www.defence.gov.au/AircraftNoise/OnlineForm.asp]
[10] Webpage link [https://www.defence.gov.au/AircraftNoise/ContactUs.asp]
[11] Webpage link [https://ano.gov.au/about/]
[12] Webpage link [https://ano.gov.au/complaints/form.asp]

Review and update process

44. This document will be reviewed annually.

45. The document will be made available on the RAAF Base Amberley[13] webpage of the Defence Aircraft Noise website[14].

[13] Webpage link [https://www.defence.gov.au/AircraftNoise/Amberley/Noise.asp]
[14] Webpage link [https://www.defence.gov.au/AircraftNoise/Default.asp]