ngh environmental

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Dear Anna,

RE: DA2017.445 PROPOSED FLIGHT TRAINING SCHOOL 1070 PRINCES HIGHWAY, FROGS HOLLOW – FLIGHT TRAINING QUERIES

We refer to the accompanying Submissions Report prepared by NGH Environmental. This report responds to submissions made to the notification of the DA, submissions voiced at the Public Briefing Meeting and additional information requests from Council to assist in the determination of the subject development application.

Further to our correspondence of 10 August 2018, the information in this letter is provided for Council's guidance in relation to proposed flight training activity.

Proposed use of other airports

Restrictions placed on airspace are exercised by Airservices Australia and by the Office of Airspace Regulation (OAR), which is a division of the Civil Aviation Safety Authority (CASA). Airspace is broadly divided into two main categories: uncontrolled and controlled airspace, which is regulated by Airservices Australia. Controlled airspace relates to areas that are actively monitored and managed by air traffic controllers and generally relates to major airports (such as Sydney, Gold Coast, etc). Most of the Australian airspace is uncontrolled.

In addition to controlled airspace, there is also restricted airspace which is regulated by the OAR. Restricted airspace refers to prohibited and danger areas where certain types of activities take place that may present a risk to aviation.

Provided the above airspace restrictions are observed, an individual pilot, a flight training school or a commercial aviation company, may utilise any airport in Australia on any given day. A pilot must observe all procedures that are specific to utilising that airport (such as the use of certain runways or aircraft parking areas), but there are no restrictions preventing the use of airports.

As outlined above, most of the Australian airspace is uncontrolled. The nominated airports of Merimbula, Mallacoota, Moruya, Bombala, Cooma – Snowy Mountains and Polo Flat are within uncontrolled (Class G) airspace and there are no restrictions preventing the use of these airports.

Assistance provided by Commonwealth aviation agencies (ie. Airservices Australia, CASA/RAA and the Department of Infrastructure) during the preparation of the information supporting the development application advised that all aircraft movements are governed by Commonwealth legislation, which would prevail over any inconsistency at the State or local level.

Potential for prohibitions on flight training

Council has raised a concern regarding the additional impacts on Frogs Hollow and Merimbula, should one of the nominated airports not permit flight training or impose limitations on flight training. In this regard, the ERSA (En Route Supplement Australia) Sheets administered and published by Airservices Australia were previously supplied to Council to confirm there are no restrictions preventing flight training or circuit training at these respective airports.

Advice provided by Commonwealth aviation agencies indicates that it is a complex process for airport operators to apply to change the airspace architecture surrounding an airport and/or to seek to impose restrictions on such flight training activities. Airports are approved for airport activities. They are similar to road infrastructure facilities, which are there to be used freely by road users.

The OAR continuously monitors airspace for changes in use and residual risk. The OAR conducts airspace reviews to ensure airspace is safe, fit for purpose and all relevant published details are accurate for airspace stakeholders. Airspace reviews occur on a regular cycle, are triggered by a change proposal or in response to recommendations from an aeronautical study. Changes to airspace or airport use are generally supported only where there are risks to the safety of airport stakeholders.

For example, thus far in 2018 the OAR has published reviews of uncontrolled airspace at Bathurst, Dubbo, Mildura, Proserpine/Whitsunday Coast, Ayers Rock and Port Macquarie airports. These reviews found opportunities for operational improvements, but no airspace changes were required in these instances to mitigate safety impacts. Excepting Proserpine, each of these airports has a moderate level of aircraft movement (20,000-40,000 movements annually – Ayers Rock has a high level at over 300,000 movements). Each of these airports caters for a wide range of aviation activities including passenger transport, medical aviation, emergency services, flight training, general aviation, recreational aviation, FIFO charter flights, skydiving, hot air balloons, gliders and helicopters.

As an aside, submissions have noted that skydiving, emergency services, passenger transport and other users operate at such airports as Moruya, Merimbula and Mallacoota. However, cooperation with other types of airport users is not an issue that would be unique to the student pilots associated with the proposed flight school. It is a reality for all airport users, and similar to the use of public roads by road users who must give priority where required and cooperate with each other.

Any proposal to change airspace architecture is considered by the OAR in accordance with the principles outlined in the OAR Airspace Risk and Safety Management Manual (ARASMM). Any approved airspace changes are legislated under the *Airspace Regulations 2007*.

Any proposal to prohibit or change permitted aviation activities at an aerodrome must be submitted to the OAR (CASA) through the 'Request for Change' process. This incorporates a detailed review of the submission, a consultation process with airspace stakeholders and a safety assessment undertaken by CASA. If supported by the OAR, such changes or prohibitions would be published by Airservices Australia in the ERSA Sheet specific to that airfield.

Circuit training component

As discussed in the SEE Addendum report, circuit training comprises a component of the wider flight training program. A student pilot may need to complete 70-80 circuits to acquire the handling skills and competencies. It is noted that not all of the circuit training component would be undertaken as a full "touch and go" circuit.

Attention is drawn to the circuit "template" that the student pilots follow in departing or landing at an airfield. This flight training within the circuit pattern factors into their competency in the circuit training component of the wider flight training syllabus. Therefore, the student pilots may be likely to complete only 55-65 dedicated "touch and go" circuits across the 15 days of flight training (or equivalent).

Flight schedule and travel time to nominated airports

Council raises a concern that the aircraft would not be able to reach the nominated airports and return to Frogs Hollow within the allotted time. NGH notes that considerable planning has been conducted by SAFCA in the development of the project and all operational aspects have been considered.

The following table contains information about the distances of each nominated airport from Frogs Hollow:

Table 1: Distances and direct travel time to nominated airports

Nominated airport	Approx. travel distance	Minimum direct travel time (approx.)
Merimbula airport	19 km	11 minutes
Bombala airport	58 km	30 minutes
Polo Flat airport	82 km	42 minutes
Cooma-Snowy Mountains airport	90 km	45 minutes
Mallacoota airport	91 km	46 minutes
Moruya airport	101 km	52 minutes

As indicated in the table above, each of the nominated airports are located within two hours return travel time to Frogs Hollow. As outlined below, the student pilots would perform 4 circuits on average per training day. Excepting Moruya, all airports are located within two hours return travel time (including time to carry out 4 circuits at the designated airport).

Where training is proposed to be conducted at Moruya airport, the format may be altered slightly. At maximum capacity, eight aircraft may be flown to Moruya airport by eight student pilots and instructors and 16 student pilots transported on a mini bus. At maximum capacity, 24 students would conduct circuit training from Moruya airport.

Note: where students are transported by mini bus to Moruya from Stage 4 of the proposed development onwards, for simplicity this minor reduction in take-offs is not reflected in the following tables.

As indicated in Table 3 on the following pages, an average figure for training at Moruya airport (and for other nominated airports) would be 96 circuits. The use of the nominated airports would be rotated over the proposed 15 days of suitable weather flight training. It is anticipated that each airport would be used for approximately 10 of the proposed 15 suitable weather flight training days per month.

In some instances, flight training may be compressed for some of the more distant airports such as Moruya. In this instance, up to 240 circuits per training day may be flown at Moruya at maximum capacity of the proposed flight school. This is an upper limit, which would occur on approximately 6 suitable weather flight training days. Where the clustered movements occur for 6 training days, there would be no further requirement to use Moruya airport for that given training month.

Progressive staging of flight movements

As indicated in the information supporting the development application, it is proposed that the facility would be established over nine progressive stages. Accordingly, the intended flight training would commence with a low level of activity. This would progress incrementally.

Table 2: Progressive staging of flight movements					
Number of students in residency	*Number of students in flight training phase*	*Operational aircraft*	*Take offs at FH per flight training day*	*Average circuits per day (4 per student)*	*Total take-offs at FH per training week**
Stage 1					
72 students	24 students	8 aircraft	24 take offs	96 circuits	99 take offs
Stage 2					
108 students	36 students	12 aircraft	36 take offs	144 circuits	149 take offs
Stage 3					
144 students	48 students	16 aircraft	48 take offs	192 circuits	198 take offs
Stage 4					
180 students	60 students	20 aircraft	60 take offs	240 circuits	248 take offs
Stage 5					
216 students	72 students	24 aircraft	72 take offs	288 circuits	295 take offs
Stage 6					
252 students	84 students	28 aircraft	84 take offs	336 circuits	347 take offs
Stage 7					
288 students	96 students	32 aircraft	96 take-offs	384 circuits	396 take offs
Stage 8					
324 students	108 students	36 aircraft	108 take offs	432 circuits	445 take offs
Stage 9					
360 students	120 students	40 aircraft	120 take offs	480 circuits	495 take offs

***Note**; the figures provided are based on an average of four circuits per day per student pilot. Total take offs per week is based on five suitable flying days Monday to Friday and 12 percent (rounded up) of students undertaking remedial training on a Saturday. Take offs above do not include "touch and go" take offs conducted at Frogs Hollow.*

Split of flight movements between nominated airports

Several factors are relevant to the share of flight movements between the nominated airports. Weather conditions on any given day of intended flight training would be the most notable of these.

An indicative spread of circuit training between Frogs Hollow and the nominated airports is provided for Council's guidance in the table below. As indicated on the previous pages, it is proposed to rotate the use of other nominated airports for the 15 days of suitable weather flight training. At maximum capacity of the proposed flight school, it is intended that 4 of the 6 nominated airports may be visited/utilised on a given flight training day in addition to the use of the home airfield Frogs Hollow.

Table 3: Indicative schedule - 15 weather suitable flight training days					
Number of students in flight training phase	*Number of circuits based on average 4 circuits per student per training day*	*Number of circuits conducted at Frogs Hollow*	*Length of circuit training at Frogs Hollow*	*Circuits conducted at each other airport*	*Length of circuit training conducted at each other airport (4)*
Stage 1					
24 students	96 circuits	96 circuits		-	-
Stage 2					
36 students	144 circuits	144 circuits		-	-
Stage 3					
48 students	192 circuits	192 circuits		-	-
Stage 4 – (use of 3 airports in addition to Frogs Hollow)					
Circuit training at Frogs Hollow would be undertaken during the 5 x breaks in the take-off and landing schedule . At Stage 4, each break is approximately 120 minutes in length.					
60 students	240 circuits	60 circuits	5 sessions x 12 minutes per session	60 circuits	3 sessions x 20 minutes per session
Stage 5 – (use of 3 airports in addition to Frogs Hollow)					
Circuit training at Frogs Hollow would be undertaken during the 5 x breaks in the take-off and landing schedule . At Stage 5, each break is approximately 100 minutes in length.					
72 students	288 circuits	72 circuits	5 sessions x 15 minutes per session	72 circuits	3 sessions x 24 minutes per session
Stage 6 – (use of 3 airports in addition to Frogs Hollow)					
Circuit training at Frogs Hollow would be undertaken during the 5 x breaks in the take-off and landing schedule . At Stage 6, each break is approximately 80 minutes in length.					
84 students	336 circuits	84 circuits	5 sessions x 17 minutes per session	84 circuits	3 sessions x 28 minutes per session
Stage 7 – (use of 4 airports in addition to Frogs Hollow)					
Circuit training at Frogs Hollow would be undertaken during the 5 x breaks in the take-off and landing schedule . At Stage 7, each break is approximately 60 minutes in length.					
96 students	384 circuits	77 circuits	5 sessions x 16 minutes per session	77 circuits	3 sessions x 26 minutes per session
Stage 8 – (use of 4 airports in addition to Frogs Hollow)					
Circuit training at Frogs Hollow would be undertaken during the 5 x breaks in the take-off and landing schedule . At Stage 8, each break is approximately 40 minutes in length.					
108 students	432 circuits	87 circuits	5 sessions x 18 minutes per sessions	87 circuits	3 sessions x 29 minutes per session
Stage 9 – (use of 4 airports in addition to Frogs Hollow)					
Circuit training at Frogs Hollow would be undertaken during the 5 x breaks in the take-off and landing schedule . At Stage 9, each break is approximately 20 minutes in length.					
120 students	480 circuits	96 circuits	5 x 20 minute sessions	96 circuits	3 sessions x 32 minutes

Prevailing wind conditions

Council has raised concerns about the suitability of the site with regard to the wind conditions and the capacity of the aircraft intended to be used. An operational wind analysis is attached for Council's reference.

In considering take-off and landing capability, the effect of prevailing winds must be considered in the context of the wind direction to the aircraft body and runway/s. Wind will have one of the following effects on an aircraft when taking off or landing: a direct headwind, tailwind, crosswind or a partial headwind/crosswind (eg. 45 degree angle to the aircraft body).

All aircraft have a direct crosswind limitation specified by the manufacturer. For the Bantam aircraft, which would be used predominantly at the facility, the manufacturer specifies a direct crosswind limit of 15 knots (or 25.9km/h).

For Frogs Hollow, it is important to note that two perpendicular runways are available. If there was a direct crosswind for the primary runway (ie. a direct easterly or westerly wind), it would mean the secondary runway would instead be used. On the secondary runway, a direct easterly or westerly wind would instead be a headwind or tailwind, which is more beneficial than a crosswind.

Given the two perpendicular runways, a direct crosswind can be avoided by using the alternative runway. As the training aircraft would not be subjected to a direct crosswind, the worst-case direction in considering the crosswind limits would instead be at 45-degree to the aircraft body and runway/s. For example, for an aircraft using Runway 36 (taking off on the primary runway in a northerly direction) this would be either directly from the north-east or the north-west.

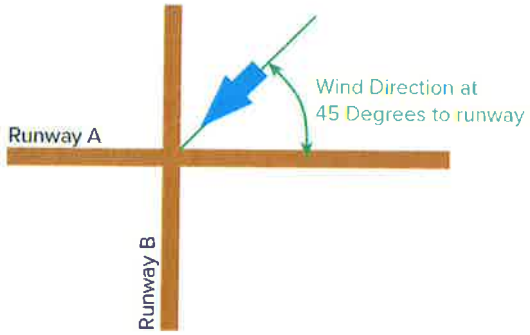


Image 1.9 **'Worst case wind direction"**

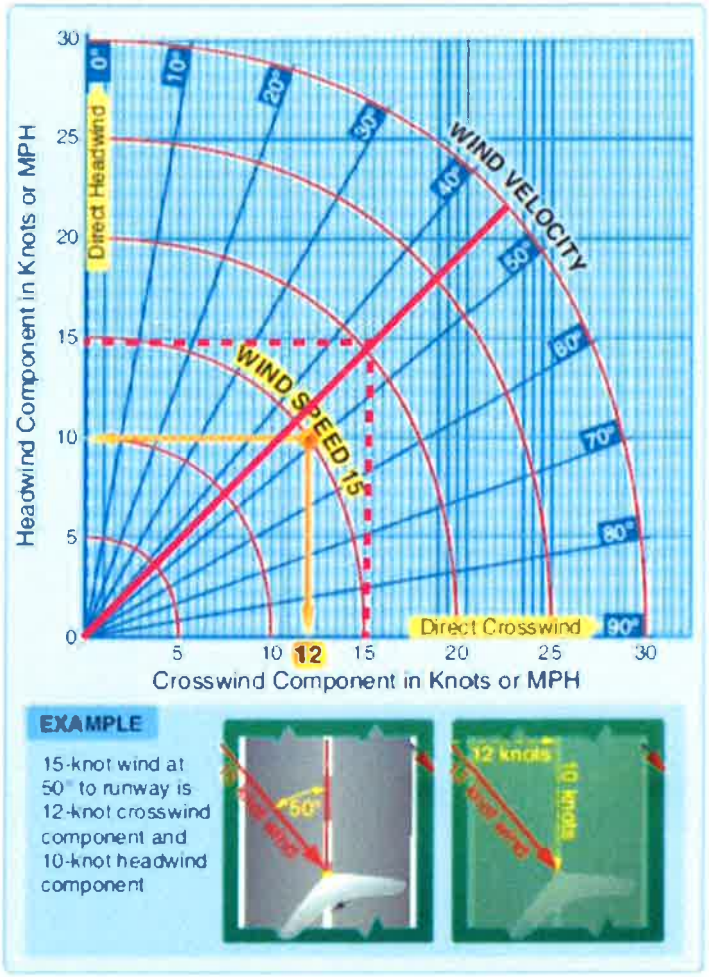
The image above shows the wind direction that will produce the highest level of crosswinds on either runway at any time.

- As this angle is split in between the two runways, changing runways does not make a difference to the crosswind component
- As this is not a direct crosswind (perpendicular to the operating runway), the effective crosswind speed is one component of the wind and can be calculated using the table on the following page.

As indicated previously, wind at a 45 degree angle to the aircraft body is characterised as a partial headwind/crosswind. According to the manufacturer, the Bantam has a crosswind limit of 15 knots (or 25.9km/h). Therefore, a standard headwind and crosswind chart (see figure on the following page) can be used to calculate the maximum wind velocity at 45-degrees that would produce a crosswind exceeding 15 knots. This would demonstrate the maximum wind velocity that the Bantam could perform safely within.

Using the standard headwind and crosswind chart, it is evident that a crosswind component of 15 knots would be produced by a wind of 20 knots (37km/h) at 45 degrees to the aircraft.

The relationship between direction of wind and the resulting headwind components and crosswind components can be seen in the table below.



Meteorological records were examined for 2017/18, which cited only five days where a wind velocity of 20 knots (37km/h)was exceeded during the 10 operational months of flight training.

Meteorological records and the attached analysis demonstrate that the wind would not be an impediment to the proposed operations. Wind can, in fact, be beneficial to reduce the distance needed for take-off and landing. Unlike most flight training schools, there is considerable respite in the proposed flight training schedule to account for any days of inclement weather, including rare days of exceptional wind conditions. The degree of flexibility in the flight training schedule acknowledges the weather factors and provides for the flight training requirements to be achieved within the agreed parameters of operational times.

We trust that the information contained within assists Council in the finalisation of its assessment of the subject development application.

Yours sincerely,
NGH Environmental

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