



**Snowdonia Aerospace Airspace Change Proposal  
Design Options Development (Stage 2A), ACP-2020-02  
Llanbedr Aerodrome Traffic Zone (ATZ)**

## Document Details

Approval Level	Name	Authorisation
Author		Consultant
First reviewer		Airfield Manager
Second reviewer and release authorisation		Chief Executive

Issue	Amendment Details	Date
1.0	First formal release	29 <sup>th</sup> May 2020

## Executive Summary

**This report documents the “Stage 2A Options Development” element of the Snowdonia Aerospace LLP submission for an Airspace Change Proposal, Reference: ACP-2020-02, Llanbedr Aerodrome Traffic Zone (ATZ), under the Civil Aviation Authority (CAA) CAP1616 Airspace Change Process.**

Snowdonia Aerospace LLP is continuing to progress and further develop a number of complementary business opportunities at Llanbedr Aerodrome relating to aerospace Research, Development, Test and Evaluation (RDT&E) and military aircraft training. To support these operations (and others) action is required to upgrade and formalise the current airspace around the Aerodrome as the present provision is insufficient to meet the identified future need and risks restricting opportunities that are in the strategic economic interest of the UK and Welsh governments and required to sustain long term employment in the region. Snowdonia Aerospace LLP (hereafter also referred to as the Change Sponsor) is therefore developing two Airspace Change Proposals (ACPs) to underpin these activities:

- ACP-2019-58, Llanbedr Danger Area (DA), which can be accessed online via: <https://airspacechange.caa.co.uk/PublicProposalArea?pID=193>
- ACP-2020-02, Llanbedr Aerodrome Traffic Zone (ATZ), which can be accessed online via: <https://airspacechange.caa.co.uk/PublicProposalArea?pID=211>

This document relates to the latter application, ACP-2020-02, that has been prompted by an opportunity for Llanbedr Aerodrome to be re-used by RAF Valley to support military aircraft training, particularly approach training for Hawk T2s of No.4 and 25 squadrons, thereby allowing fast and slow moving aircraft traffic to be separated in the vicinity of Valley itself and also providing a diversion in the event of poor weather. Whilst the initial opportunity relates to military air training, it should be noted that the ATZ is a standard safety measure that will protect all current and forecasted mixed-use aviation operations in the vicinity of Llanbedr Aerodrome.

The CAA Civil Aviation Publication CAP1616 defines a six-stage process through to implementation of a permanent airspace change, some of which have more than one step. This document addresses the requirements for Stage 2A: Options Development. The objectives for Stage 2A are as follows:

- identify all the possible airspace design options;
- evaluate the design options against the design principles from Stage 1B;
- evaluate that the design options are compliant with the required technical criteria.

The following primary conclusions have been made for Stage 2A:

1. The Change Sponsor is proposing a single design option only;
2. Justification for a single design option is predicated on the assumption, agreed with the CAA at Stage 1A (assess requirements) and encapsulated in the Stage 1B design principles, that the airspace design will conform with the standard definition of an ATZ as detailed in Article 5 of the Air Navigation Order, 2016;
3. This assumption was tested as part of the extensive stakeholder engagement conducted within Stage 1B, which concluded that a standard ATZ definition was appropriate and was supported by a general acknowledgement of the value of an ATZ as an aviation safety mechanism;
4. The design option proposal (Fig.1) is therefore that the Llanbedr Aerodrome ATZ will extend from the surface to a height of 2,000ft above the level of the aerodrome within the area bounded by a circle centred on the midpoint of Runway 17/35 and having a radius of 2.5 nautical miles;
5. Runway Protection Zones (RPZ), as defined by the CAA, will also apply;
6. By definition, the design option is fully compliant with the required technical criteria.



**Figure 1** - The proposed Aerodrome Traffic Zone and Runway Protection Zones at Llanbedr superimposed on a 1:50,000 scale local map to show the full horizontal extent

## Table of Contents

<b>1. Introduction</b> .....	<b>6</b>
<b>1.1. Background</b> .....	<b>6</b>
<b>1.2. Opportunity to be addressed and Statement of Need</b> .....	<b>7</b>
<b>1.3. The cause of the opportunity and associated factors or requirements</b> .....	<b>7</b>
<b>2. Design Options and Design Principle Evaluation</b> .....	<b>8</b>
<b>2.1. CAP1616 requirements and document scope</b> .....	<b>8</b>
<b>2.2. Design options</b> .....	<b>8</b>
<b>2.3. Design principle evaluation</b> .....	<b>10</b>
<b>3. Conclusions and Next Steps</b> .....	<b>11</b>
<b>3.1. Conclusions</b> .....	<b>11</b>
<b>3.2. Next steps</b> .....	<b>11</b>



# 1. Introduction

## 1.1. Background

Llanbedr Aerodrome (EGFD), Gwynedd (Figures 2a-2d), is sited on a coastal promontory at the northerly end of Cardigan Bay<sup>1</sup> with bi-directional over-water approaches to the 2000m+ main runway (17/35), which is at an elevation of 8m above mean sea level. There are two additional cross runways 05/23 and 15/33. Under upcoming aerodrome licensing proposals it is currently intended the runways will be 2,188m, 1,199 and 799m respectively. The local geography is predominantly coastal lowland and farmland within Snowdonia National Park that is bounded to the east by the Rhinog mountains, which rise to 756m at a distance of 9500m (approx.) from the main runway. The village of Llanbedr (population 645, 2011 census) is 2000m (approx.) to the north-east of the northern threshold and there's also a transitory population during summer months at the Shell Island campsite (approx. 1000m to the north-west of the main runway northern threshold) and the Dyffryn caravan park (approx. 500m to the south of the main runway southern threshold). The overall population density is consistent with that for Gwynedd as a whole - *i.e.* <50 people per square km<sup>2,3</sup>.



**Fig. 2a** - aerial view looking west



**Fig. 2b** - aerial view looking east



**Fig. 2c** - aerial view looking north



**Fig. 2d** - aerial view looking south

Llanbedr Airfield has a long history of research, development, test and evaluation (RDT&E) flying activities, particularly associated with the use of target drones, and also as a secondary/tertiary operating site for RAF Valley (EGOV, approx. 58km north/north-west). An Aerodrome Traffic Zone (ATZ)<sup>4</sup> and the original Danger Area D202 supported these activities prior to QinetiQ/MOD vacating the site in 2004, along with extant Danger Area D201, the closest edge of which is 25km (approx.) south-west of Llanbedr<sup>5</sup>.

<sup>1</sup> [View on Google Maps](#)

<sup>2</sup> Ref: [National Statistics Wales, June 2018](#)

<sup>3</sup> Ref: [Annual Lower Super Output Area \(LSOA\) Population Estimates, 2018](#)

<sup>4</sup> Aerodrome Traffic Zone (ATZ) as detailed in Article 5 of the Air Navigation Order, 2016, Ref: [Air Navigation Order, 2016](#)

<sup>5</sup> Ref: <https://www.aurora.nats.co.uk/htmlAIP/Publications/2018-08-02/html/eAIC/EG-eAIC-2018-087-Y-en-GB.html>

## COMMERCIAL-IN-CONFIDENCE

The airfield currently supports an increasing mix of small (<20kg) and light (<150kg) drone RDT&E and General Aviation (GA) operations together with visiting military aircraft (fixed wing and rotary) and others including the search and rescue (SAR) helicopter from Caernarfon (EGCK, approx. 35km north/north-west), Police helicopter and Air Ambulance. The airspace is currently Class G. A local Flight Information Service (FIS) has been provided to support day-to-day operations and a Temporary Danger Area (Ref: QINETIQ/MS/AD/LET1404197, 15<sup>th</sup> September 2014) has previously been consulted on and implemented to support local aerospace RDT&E activities and provide a safe corridor to D201. There are GA aircraft operations most flyable days with an average of 100 to 200 movements per month. The airfield has also been designated as one of the candidate sites for a UK Spaceport by the Department for Transport (DFT) and Snowdonia Aerospace LLP has recently received a grant award from the UK Space Agency to develop a Horizontal Spaceport Development Feasibility Plan.

### 1.2. Opportunity to be addressed and Statement of Need

Snowdonia Aerospace LLP is continuing to progress and further develop a number of complementary business opportunities at Llanbedr Aerodrome relating to aerospace RDT&E and military aircraft training. To support these operations (and others) action is required to upgrade and formalise the current airspace around the Aerodrome as the present provision is insufficient to meet the identified future need and risks restricting opportunities that are in the strategic economic interest of the UK and Welsh governments and required to sustain long term employment in the region. Snowdonia Aerospace LLP (hereafter also referred to as the Change Sponsor) is therefore developing two Airspace Change Proposals (ACPs) to underpin these activities:

- ACP-2019-58, Llanbedr Danger Area (DA), which can be accessed online via: <https://airspacechange.caa.co.uk/PublicProposalArea?pID=193>
- ACP-2020-02, Llanbedr Aerodrome Traffic Zone (ATZ), which can be accessed online via: <https://airspacechange.caa.co.uk/PublicProposalArea?pID=211>

This document relates to the latter application, ACP-2020-02, that has been prompted by an opportunity for Llanbedr Aerodrome to be re-used by RAF Valley to support military aircraft training, particularly approach training for Hawk T2s of No.4 and 25 squadrons, thereby allowing fast and slow moving aircraft traffic to be separated in the vicinity of Valley itself and also providing a diversion in the event of poor weather. Whilst the initial opportunity relates to military air training, it should be noted that the ATZ is a standard safety measure that will protect all mixed-use aviation operations in the vicinity of Llanbedr Aerodrome. The Statement of Need for the application is declared as follows:

- *To provide protection for all traffic on the manoeuvring area at Llanbedr (EGFD) and all aircraft flying in the vicinity of the aerodrome via implementation of a standard Aerodrome Traffic Zone (ATZ) extending from the ground up to 2000 feet with a radius of 2.5nm around the midpoint of Runway 17/35.*

### 1.3. The cause of the opportunity and associated factors or requirements

Consolidation of UK military air training at RAF Valley has increased the need for supporting secondary/tertiary airfields to mitigate the potential aviation and programme schedule risks associated with the throughput of student pilots that might arise as a consequence of local air traffic congestion and/or poor weather. The combination of safety, operational, technical and environmental factors associated with mixing military air training with low volume aerospace RDT&E activities at Llanbedr is consistent with previous operations and was further validated during a successful detachment of Hawk T2s from Valley to Llanbedr during the Eisteddfod in August 2017.

The proposal does not form part of the Civil Aviation Authority (CAA) Airspace Modernisation Strategy (AMS)<sup>6</sup>, but it does not conflict with the plan in any way.

<sup>6</sup> Ref: <https://www.caa.co.uk/News/New-Airspace-Modernisation-Strategy-launched-to-overhaul-UK-airspace/>

## 2. Design Options and Design Principle Evaluation

### 2.1. CAP1616 requirements and document scope

The CAA Civil Aviation Publication CAP1616<sup>7</sup> provides guidance on the regulatory process for changing the notified airspace design and planned and permanent redistribution of air traffic, and on providing airspace information.

CAP1616 defines a six-stage process through to implementation of a permanent airspace change, some of which have more than one step. However, it is recognised that requested airspace changes can vary hugely in size, scale and complexity and this variation has led the CAA to scale the process accordingly (CAP1616, Para. 50). Furthermore, the CAA will consider requests from the Change Sponsor for additional scaling of the process when there is a good reason and it is proportionate to do so.

On the 23<sup>rd</sup> January 2020 the CAA Airspace Regulation team met with Snowdonia Aerospace LLP to discuss an appropriately scaled submission for ACP-2020-02, Llanbedr Aerodrome Traffic Zone. Subsequent to this meeting, the CAA determined that the simplified Aerodrome Traffic Zone (ATZ) Policy Statement, December 2019<sup>8</sup>, could not be applied due to the potential for increased traffic movements, but did agreed to a scaled CAP1616 submission with a combined Define, Develop and Assess Gateway in June 2020. To meet this combined Gateway, Snowdonia Aerospace as the Change Sponsor is required to submit the following documents:

- Stage 1A: Assess Requirements - Statement of Need (previously submitted)
- Stage 1B: Design Principles;
- Stage 2A Options Development;
- Stage 2B Options Appraisal.

This document addresses the requirements for Stage 2A: Options Development, which has the following objectives:

- to identify all the possible airspace design options;
- to evaluate the design options against the design principles from Stage 1B in a fair and consistent manner;
- to evaluate that the design options are compliant with the required technical criteria.

The remainder of this section describes the design option(s) for ACP-2020-02, Llanbedr Aerodrome Traffic Zone, as put forward by the Change Sponsor and evaluates the option(s) against the design principles from Stage 1B.

### 2.2. Design options

The purpose of CAP1616 is to avoid “solutionising” and to impose a structured process that delivers a considered and balanced airspace design and implementation. In this regard the design principles precede the development of design options, although following the previous Stage 1A discussion with CAA re. application of the ATZ Policy Statement versus CAP1616 there is an implicit assumption (not least in the title) that the resulting design will be a standard Aerodrome Traffic Zone (ATZ).

The Change Sponsor is therefore proposing a single design option that conforms with the standard definition of an ATZ as detailed in Article 5 of the Air Navigation Order, 2016<sup>5</sup> and which is thereby also fully compliant with the required technical criteria.

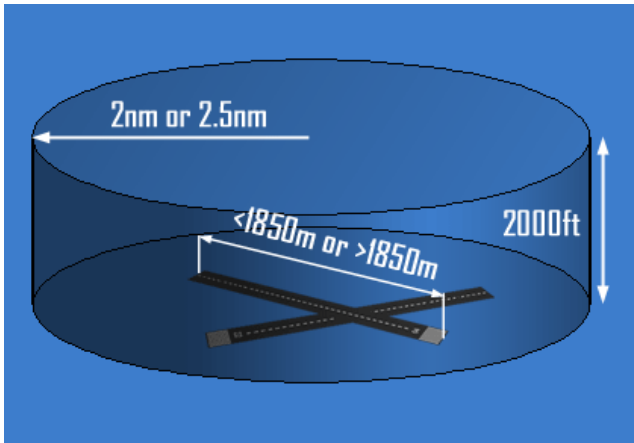
<sup>7</sup> Ref: [https://publicapps.caa.co.uk/docs/33/CAP1616\\_Airspace%20Change\\_Ed\\_3\\_Jan2020\\_interactive.pdf](https://publicapps.caa.co.uk/docs/33/CAP1616_Airspace%20Change_Ed_3_Jan2020_interactive.pdf)

<sup>8</sup> Ref: <http://publicapps.caa.co.uk/docs/33/PolicyStatementEstablishmentAndDimensionsOfATZs.pdf>

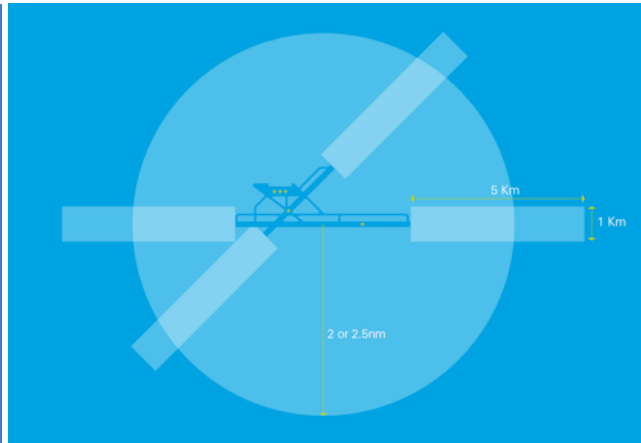


## COMMERCIAL-IN-CONFIDENCE

The ATZ definition is illustrated in Figure 3 below (along with the additional Runway Protection Zones (RPZ) that have been introduced by the CAA to counter drone operators flying without permission<sup>9</sup>) and described in full in the following Paragraphs (1) to (8):



**Fig. 3a** - The Aerodrome Traffic Zone: A 2 or 2.5 nautical mile radius 'cylinder' around the aerodrome, extending 2000 ft above ground level, centred on the longest runway



**Fig. 3b** – Runway Protection Zones: A rectangle extending 5 kilometres from the threshold of the runway and 500m either side to a height of 2000 ft above ground level

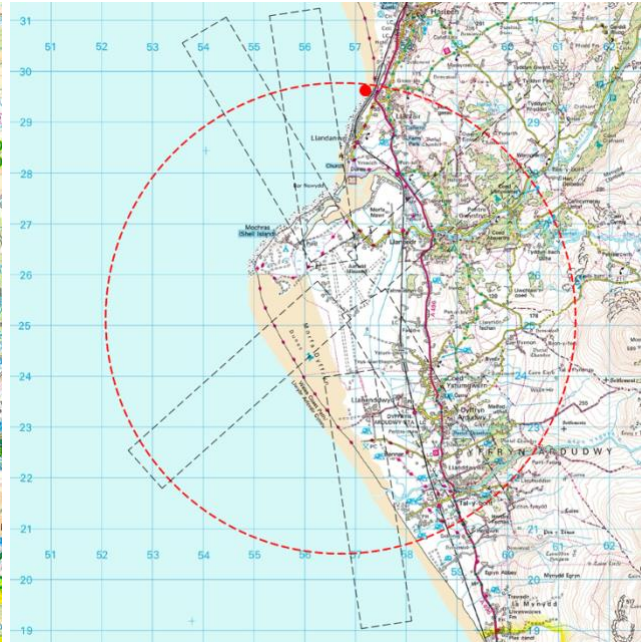
1. Subject to paragraphs (3) and (8), the aerodrome traffic zone of a notified aerodrome which is not on an offshore installation and at which the length of the longest runway is notified as 1,850 metres or less is that specified in paragraph (2);
2. The aerodrome traffic zone at an aerodrome referred to in paragraph (1) is the airspace extending from the surface to a height of 2,000 feet above the level of the aerodrome within the area bounded by a circle centred on the notified mid-point of the longest runway and having a radius of two nautical miles.
3. Paragraph (4) applies if -
  - (a) the aerodrome traffic zone specified in paragraph (2) would extend less than 1.5 nautical miles beyond the end of any runway at the aerodrome; and
  - (b) this paragraph is notified as being applicable.
4. The aerodrome traffic zone is that specified in paragraph (5) as though the length of the longest runway at the aerodrome were notified as greater than 1,850 metres.
5. Subject to paragraph (8), the aerodrome traffic zone of a notified aerodrome which is not on an offshore installation and at which the length of the longest runway is notified as greater than 1,850 metres is that specified in paragraph (6).
6. The aerodrome traffic zone is the airspace extending from the surface to a height of 2,000 feet above the level of the aerodrome within the area bounded by a circle centred on the notified midpoint of the longest runway and having a radius of 2.5 nautical miles.
7. Subject to paragraph (8), the aerodrome traffic zone of a notified aerodrome which is on an offshore installation is the airspace extending from mean sea level to 2,000 feet above mean sea level and within 1.5 nautical miles of the offshore installation.
8. The aerodrome traffic zone of a notified aerodrome excludes any airspace which is within the aerodrome traffic zone of another aerodrome which is notified for the purposes of this article as being the controlling aerodrome.

<sup>9</sup> Ref: <https://www.caa.co.uk/Consumers/Unmanned-aircraft/Our-role/Airspace-restrictions-for-unmanned-aircraft-and-drones/>

The length of the main runway at Llanbedr Aerodrome (17/35) will be 2,188m under upcoming aerodrome licensing proposals (reduced slightly from the current 2,286m) and hence Paragraphs (4) to (6) and (8) apply. The ATZ will therefore extend from the surface to a height of 2,000 feet above the level of the aerodrome within the area bounded by a circle centred on the notified midpoint of Runway 17/35 and having a radius of 2.5 nautical miles. Figure 4 presents the proposed ATZ at Llanbedr superimposed on a local map to show the full horizontal extent.



**Fig. 4a** - The proposed ATZ at Llanbedr superimposed on a 1:250,000 scale local map to show the full horizontal extent



**Fig. 4b** - The proposed ATZ at Llanbedr superimposed on a 1:50,000 scale local map to show the full horizontal extent

### 2.3. Design principle evaluation

The above design was included explicitly within the design principles at Stage 1B and tested as part of an extensive stakeholder engagement. In addition to a number of targeted stakeholder meetings, a questionnaire was also sent out to over 160 stakeholders and interested parties and 52 responses were received.

With regard the technical definition of the ATZ, there was only one response that suggested any alternative to the promulgation of a standard ATZ and that was from a local paragliding group who requested a “notch” be created in the airspace design to avoid their operating area on the dunes around Harlech. Fig. 4b shows that the very southern edge of the paragliding operating area (shown with a red dot) intersects the very northern edge of the ATZ with approximately 200 metres of overlap. The land in this immediate area is owned by the National Trust who only allow 36 paragliding launches per year and hence most operation is conducted further to the north. The Runway Protection Zones may overlap the paragliding operating area, but this only applies restrictions on use of drones. It is therefore believed that operational and safety issues can be managed via Letters of Agreement and that no change to the technical design principles is warranted.

None of the other design principles (and/or stakeholder feedback that shaped them) were considered to be inconsistent with promulgation of a standard ATZ and hence the design principle evaluation concluded that the ATZ design option was appropriate and this was supported by a general acknowledgement of the value of an ATZ as an aviation safety mechanism. Furthermore, by definition, the design option is fully compliant with the required technical criteria.

### 3. Conclusions and Next Steps

#### 3.1. Conclusions

The following conclusions have been drawn from the “Stage 2A Options Development” element of the Snowdonia Aerospace LLP submission for an Airspace Change Proposal, Reference: ACP-2020-02, Llanbedr Aerodrome Traffic Zone (ATZ), under the Civil Aviation Authority (CAA) CAP1616 Airspace Change Process:

1. The Change Sponsor is proposing a single design option only;
2. Justification for a single design option is predicated on the assumption, agreed with the CAA at Stage 1A (assess requirements) and encapsulated in the Stage 1B design principles, that the airspace design will conform with the standard definition of an ATZ as detailed in Article 5 of the Air Navigation Order, 2016;
3. This assumption was tested as part of the extensive stakeholder engagement conducted within Stage 1B, which concluded that a standard ATZ definition was appropriate and was supported by a general acknowledgement of the value of an ATZ as an aviation safety mechanism;
4. The design option proposal is therefore that the Llanbedr Aerodrome ATZ will extend from the surface to a height of 2,000 feet above the level of the aerodrome within the area bounded by a circle centred on the notified midpoint of Runway 17/35 and having a radius of 2.5 nautical miles;
5. Runway Protection Zones (RPZ), as defined by the CAA, will also apply;
6. By definition, the design option is fully compliant with the required technical criteria.

The design option is shown in full in Figure 5.

#### 3.2. Next steps

The design option stated here together with the previous design principles from Stage 1B will be used to inform the Design Options Appraisal (Stage 2B). More generally, the conclusions will also be used to help inform the Consultation Preparation (Stage 3A).





**Figure 5** - The proposed Aerodrome Traffic Zone (red dashes) and Runway Protection Zones (black dashes, post aerodrome licencing) at Llanbedr superimposed on a 1:50,000 scale local map to show the full horizontal extent



This page is intentionally left blank