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CONSULTING SERVICES

Exeter Airport Airspace Change Proposal

Aviation Stakeholder Consultation Document



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Executive Summary

Introduction

Exeter Airport (Exeter) has identified a requirement to change their existing airspace to assist Air Traffic Control (ATC) in providing enhanced levels of information to aircraft operating in and out of Exeter and to aircraft in transit near the Airport.

Justification - The Need for Change

Exeter is located within Class G uncontrolled airspace, where aircraft are not subject to mandatory compliance with ATC instructions and are only required to adhere to a small set of compulsory flight rules. Aircraft can therefore enter, leave and transit the local airspace without a requirement to gain permission from Exeter ATC. The current operations of commercial and passenger carrying aircraft in and out of Exeter, in Class G airspace, requires recurrent ATC tactical intervention, including the re-routing of arriving aircraft or delaying of departing commercial passenger traffic to ensure the safety of all airspace users.

This airspace environment has led to reportable safety events, with unknown airspace users interacting with arriving and departing air traffic. The arrival and departure phase of flight is a busy time on the flight deck and unexpected, short-notice ATC interventions add significantly to pilot workload in these phases. While current operations are safe, there have been occasions where the prevalence of unknown aircraft operating near Exeter could have potentially led to a degradation of safety margins. Consequently, this proposal aims to address this issue with the establishment of Controlled Airspace (CAS) surrounding Exeter is to safeguard Instrument Flight Rules (IFR) traffic operations at the Airport and to ensure deconfliction between the air traffic operating near the Airport.

Airspace Change Proposal (ACP) Consultation

This consultation is about a proposal to establish Class D CAS surrounding Exeter. The proposed CAS and coordinated procedures would enhance efficiency, by reducing the need for ATC intervention and avoiding action, which in turn reduces traffic delays on the ground or in the air, whilst maintaining flight safety for all aviation stakeholders. The Airspace Change Proposal (ACP) will allow for a reduction in the track miles flown by commercial passenger and cargo aircraft; consequently reducing unnecessary aircraft emissions and overflight of local communities.

Consultation Process

Exeter wish to engage with all aviation stakeholders that might be affected by this ACP. Constructive feedback will inform the development of the ACP, ensuring that any positive impact is enhanced and negative impact is minimised. The consultation period is 13 weeks incorporating the Easter and May Day Bank Holidays, during which all consultee responses received by Exeter will be recorded prior to consultation that closes on **Thursday 9th June 2017**.

Once the consultation process closes, a Consultation Report will provide an analysis of the responses. Any changes made to the proposal to reflect solutions to themes and issues that

have arisen, will be included to ensure that the proposal is balanced. The formal ACP will then be submitted to the Civil Aviation Authority (CAA, the UK civil aviation regulator); including the full CAS design together with a safety assessment to demonstrate that proposed changes will be safe.

CAA experts will then scrutinise the documentation that Exeter submits throughout a period likely to last at least 16 weeks. Exeter will be required to justify the proposal sufficiently to the CAA in order to gain permission to implement the proposed CAS. Once the full consultation process is complete, the CAA will announce its decision about whether to implement the proposed CAS.

Note: The CAA has reviewed the content of this document.

Table of Contents

1	Introduction	1
1.1	Exeter Airport Airspace Change Proposal	1
1.2	The Consultation Process	1
1.3	Who is Being Consulted and How Can I Participate?	2
1.4	Method of Consultation	2
1.5	Consultation Contacts	3
1.6	Deadline for Responses	3
1.7	Consultation Results	3
1.8	ACP Delivery to the CAA.....	3
1.9	CAA Actions	4
1.10	CAA Consultation Regulatory Oversight.....	4
2	Justification - The Need for Change	6
2.1	Justification.....	6
2.2	Airspace Considerations.....	6
2.3	Airspace Efficiency	9
2.4	Airport Capacity.....	10
3	Options Considered	11
3.1	Overview.....	11
3.2	Option 1 – Do Minimal	11
3.3	Option 2 – Change the Nature of the Airspace Surrounding the Airport.....	12
4	Proposed CAS Design	14
4.1	Overview.....	14
4.2	Pre-Consultation of Proposed Airspace Design.....	14
4.3	VFR Flights and Visual Reference Points (VRP)	16
5	Potential Effects on Airspace Users	18
5.1	Overview.....	18
5.2	MoD - RNAS Yeovilton and Lyme Bay Danger Areas.....	18
5.3	Enhanced User Status – Exeter Provision of ATS within N864.....	19
5.4	Effect on Local General Aviation Operations	19
5.5	Mitigation Measures Summary.....	22
6	References	24
A1	Consultee Lists	25
A1.1	Airport User Group	25

A1.2	Local Airspace User Group.....	25
A1.3	National Organisations (NATMAC)	25
A1.4	Civil Aviation Authority (CAA)	26
A1.5	Local Authorities.....	26

Table of Figures

Figure 1	Exeter Airport and the Current Surrounding Airspace	7
Figure 2	Projected Exeter Airport ATM	9
Figure 3	Exeter Airport CAS Design Concept Showing Proposed Lateral and Vertical Extents of CTA Sectors	15
Figure 4	DSGC Glider Box Concept.....	21

Table of Tables

Table 1	Table of References	24
---------	---------------------------	----

1 Introduction

This Section provides the rationale behind the requirement to develop the airspace structure in support of flight operations at Exeter Airport and discusses the scope of the consultation process. In addition, the section provides an outline of the consultation process and details why the consultation is undertaken, who has been engaged in consultation and how the consultation results will be utilised.

1.1 Exeter Airport Airspace Change Proposal

Exeter Airport (Exeter) has identified a requirement to adapt the existing airspace surrounding the Airport to assist Air Traffic Control (ATC) in providing enhanced levels of information to aircraft operating in and out of Exeter and the local area. Therefore, Exeter has instructed Osprey Consulting Services Ltd (Osprey) to manage an Airspace Change Proposal (ACP). Exeter considered various options, but in order to maintain levels of safety and enhance airspace efficiency, whilst causing minimal disruption to all aviation stakeholders, Exeter propose to establish Class D Controlled Airspace (CAS) around the existing Exeter Airport Aerodrome Traffic Zone (ATZ).

It is expected that the ACP will:

- Safeguard IFR flight operations at Exeter;
- Ensure safe separation between the IFR traffic and promote proactive coordination of VFR traffic operating near the Airport; and
- Protect aircraft operating within the Visual Circuit at Exeter that routinely need to extend beyond the boundary of the ATZ.

The proposed new airspace and coordinated procedures will enhance efficiency, by reducing the need for avoiding action, which in turn reduces traffic delays on the ground or in the air whilst maintaining flight safety for all aviation stakeholders.

This document seeks the views of interested aviation stakeholder parties that might be affected by the implementation of CAS; see Annex A1 for a list of those being consulted. Responses to this consultation will be accepted by email; full details are contained within the “Consultation Contacts” (Section 1.5).

1.2 The Consultation Process

This document has been compiled in accordance with the Civil Aviation Publication (CAP) 725: *CAA Guidance on the Application of the Airspace Change Process* [Reference 1]. CAP 725 contains the Regulatory Requirements for the proposal and implementation of an airspace change, which is derived from International Civil Aviation Organisation (ICAO) Standards and Recommended Practices, Single European Sky Regulations, EUROCONTROL requirements and UK specific requirements as determined by the Civil Aviation Authority (CAA). In adherence with [CAP 725](#), this document is published to enable consultation and engagement with all relevant aviation stakeholders. Exeter will use the results of this

consultation to finalise the proposed airspace design, and the consultation responses will form part of the document submission to the CAA for consideration in the regulatory decision for airspace change.

Exeter Airport, as the Sponsor, is fully responsible for conducting the consultation process for the proposed airspace change; this includes any associated costs, including the collation and analysis of all consultee responses. During the consultation period, all aviation stakeholders are invited to review the proposals outlined within this document and are invited to submit a response in writing or via email to the Exeter Airport Consultation Contact, as detailed in this section.

1.2.1 Regulatory Background

The UK CAA is directed by parliament in the Transport Act 2000 (produced by the Department for Transport) [Reference 2] and the CAA (Air Navigation) Directions to manage UK airspace [Reference 3]. Airspace designs aim to facilitate safe and efficient operations whilst meeting the requirements of all airspace users as far as reasonably possible. In addition, the CAA is required to take into account any international obligations and act in accordance with government environmental objectives in the assessment of the merits of an airspace change. The primary obligation of the CAA is to ensure that Air Navigation Service Providers (ANSPs), Exeter in this case, exercise their air navigation functions to maintain a high standard of safety in the provision of air traffic services. This duty, imposed on the CAA by the Transport Act 2000, takes priority over all other duties of the CAA.

As a result, airports are bound by a multitude of regulatory documents sponsored by the CAA. For Exeter to request alterations to UK airspace, an ACP must be produced and formally submitted for consideration by Airspace Regulation (AR – formerly the Directorate of Airspace Policy, DAP) of the CAA.

Note: The CAA has reviewed the content of this document.

1.3 Who is Being Consulted and How Can I Participate?

Exeter wishes to engage with all aviation stakeholders that might be affected by the ACP. Constructive feedback will inform the proposal development, ensuring that positive impact is enhanced and any negative impact is minimised. This also meets the CAA mandatory requirement to undertake stakeholder consultation as part of the submission of an Airspace Change Proposal.

Exeter is seeking your feedback on our proposed CAS design and will consider making changes to the design once all responses have been analysed.

1.4 Method of Consultation

The consultation is being conducted in accordance with the Cabinet Office Code of Practice on Consultation, as required by the CAA in CAP 725 [Reference 1].

This consultation document is to be made widely available and can be viewed on the Exeter website (Section 1.5). The aim of this document is to provide a clear and concise explanation of the ACP for all stakeholders. If further clarification is required, please address this to the Exeter Consultation Contact via email.

1.5 Consultation Contacts

All consultation responses should be submitted electronically to Exeter, using the relevant email address on the Exeter Airport website where further information is available:

www.exeter-airport.co.uk/acp-consultation

Email address: acpconsultation@exeter-airport.co.uk

For the consultation to be effective, it is essential for consultees to be able to express their relevant viewpoints; therefore, Exeter Airport Management kindly ask for responses to be submitted in a timely manner. For any clarification or queries, please make it clear that you are requesting further information in the email subject.

1.6 Deadline for Responses

This Consultation will close on **Thursday 9th June 2017** and we request that all responses be submitted by that date.

All responses received will be treated with due care and sensitivity by Exeter Airport, by the consultation specialists, and by the CAA. The Airport undertakes not to disclose personal data to any third party, with the exception of the CAA, without prior permission.

1.7 Consultation Results

Exeter will record every consultee response received; once the consultation process closes, a report will be produced containing the analysis of the results, and the necessary changes that will be made to the proposal to reflect solutions to themes and issues that have arisen during the consultation process. Although unlikely, should the issues identified require major changes to the proposal, a further consultation on the revisions would be required.

Exeter may contact consultees if response clarification or additional information is required. Following the closure deadline, all responses will be analysed.

The Airport will consider any appropriate design modifications, particularly those that will improve operations without causing any detrimental environmental effects. The feedback for consultees, mentioned above, on the responses received and the decision on the final proposal option selected will be published on the Exeter website. This feedback, in a Consultation Report, published prior to any proposal, will highlight the key themes that arose during the consultation process and how Exeter will incorporate those concerns into the ACP.

1.8 ACP Delivery to the CAA

The full proposal submitted to the CAA will include the following: the full CAS design, safety assessments to demonstrate that the changes will be safe, and the results of the consultation to demonstrate that the proposal is balanced and that it meets stakeholder requirements.

The CAA requires that all consultation material, including copies of responses from consultees and others, are included in the formal ACP submission to the CAA. In order to provide a meaningful response, Exeter need to know which organisation

that you represent if applicable. The record of consultation correspondence and the analysis of the results will be presented in the Consultation Report, which will be presented to the CAA as part of the overall airspace change submission. The consultation results are an important element of the formal proposal submission to the CAA; the CAA will take your responses into consideration during the regulatory decision process.

1.9 CAA Actions

The CAA will use a team of experts to scrutinise the documentation that Exeter submits throughout a period likely to last at least 16 weeks.

Once the CAA has made their decision on whether the submission is appropriate and proportional, they will inform us and publish the results.

In determining whether to approve the proposal, the CAA must also follow legislation and guidance set by the Government, through the Department for Transport. Its principal functions and duties are set out in primary legislation within the Civil Aviation Act 1982, the Airports Act 1986, the Transport Act 2000 and the Civil Aviation Act 2012¹. In exercising its air navigation functions, the CAA must give priority to maintaining a high standard of safety in the provision of air traffic services in accordance with those statutory duties, particularly concerning Section 70(1) of the Transport Act 2000. This requires the CAA to:

- Secure the most efficient use of airspace consistent with the safe operation of aircraft and the expeditious flow of air traffic;
- Satisfy the requirements of operators and owners of all classes of aircraft;
- Take account of any guidance on environmental objectives;
- Facilitate the integrated operation of air traffic services provided by or on behalf of the Armed Forces of the Crown.

In addition, the CAA will also consider Government policies on the future development of air transport.

1.10 CAA Consultation Regulatory Oversight

The consultation process for the ACP is managed by Exeter Airport, in compliance with CAP 725 [Reference 1]. In the case of complaints relating to the adherence of Exeter to the consultation process, CAA Airspace Regulator (CAA AR) (Coordination) is to be contacted through the details below. Please note; the CAA is only responsible for overseeing the consultation process and will not comment on the proposed changes.

Airspace Regulator (Coordination)
Airspace, ATM and Aerodromes
Safety and Airspace Regulation Group
CAA House
45-59 Kingsway
London WC2B 6TE

¹ <https://www.caa.co.uk/Our-work/Corporate-reports/Strategic-Plan/Our-statutory-duties/>
[Accessed 10th November 2016].

E-mail: airspace.policy@caa.co.uk

Please note that these contact details should only be used to submit a complaint about non-adherence to the consultation process. Responses to the consultation content (the proposed airspace design) should be sent to Exeter Airport; details of how to do so are provided within Section 1.5 of this document.

2 Justification - The Need for Change

This Section discusses the rationale behind Exeter's justification to develop the airspace structure in support of flight operations.

2.1 Justification

For an airspace change, it is necessary to outline the need for a change. Increased air traffic levels, changes in regulatory guidance, improved aircraft performance and enhanced navigational system accuracy and reliability have all contributed to the emerging need for a re-design of the airspace surrounding Exeter Airport. Although Exeter ATC handles the current operational issues safely and effectively on a tactical basis, any future increase in traffic may result in overload situations as controllers try to accommodate more aircraft in a limited volume of airspace, particularly to the east of the Airport.

The principle areas of concern regarding current operations at Exeter is one of limited protection currently afforded to commercial aircraft, including passenger-carrying airliners, operating near the airport. An explanation of how this is negatively affecting the airport's operations in terms of airspace, efficiency, effectiveness and capacity are provided in the following sub-sections.

2.2 Airspace Considerations

Exeter Airport is located within uncontrolled Class G airspace, where aircraft are not subject to mandatory compliance with ATC instructions and are only required to adhere to a small set of compulsory flight rules. Consequently, aircraft can enter, leave and transit the airspace without ATC permission. Exeter has an established Aerodrome Traffic Zone (ATZ), which is also classified as Class G airspace, of radius 2.5 Nautical Miles (NM) centred on the Exeter Airport Aerodrome Reference Point (ARP), expanding from ground level to 2,000 ft above aerodrome level (aal). The ATZ is the only airspace established to provide aircraft operating at Exeter with any degree of protection. Pilots of aircraft within the ATZ, or requesting entry into the ATZ are required to make their presence known to Exeter ATC and comply with ATC instructions.

Figure 1 provides an indication of the current airspace profile that surrounds Exeter.



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Figure 1 Exeter Airport and the Current Surrounding Airspace

The current operations of commercial and passenger carrying aircraft operating in and out of Exeter Airport in Class G airspace requires recurrent ATC tactical intervention. This may include the re-routing of arriving aircraft or delaying the departure of commercial passenger traffic in order to ensure the safety of all airspace users. The majority of Commercial Air Transport (CAT) aircraft arrive via the N864 airway, which is Class A CAS (between the red parallel shaded lines that radiate from the bottom of the diagram, oriented, north-northeast of Exeter in the centre of Figure 1 above) which offers protection to CAT flying under Instrument Flight Rules (IFR)². CAT is then vectored off, and below, this route into the Class G (uncontrolled airspace), to subsequently descend and make an approach to the Airport. This practice inevitably brings CAT into potential conflict with local General Aviation (GA) and transitory air traffic operating in Class G airspace, often during the most critical stages of flight.

Given the speeds, rates of climb/descent, and manoeuvrability of the CAT, the ability of air traffic controllers to intervene with traffic avoidance instructions, or for airline pilots to respond to Airborne Collision Avoidance System (ACAS) warnings, or, as they are known, 'Resolution Advisories' (RA), is limited. This difficult environment has led to reportable safety events, between unknown aircraft and aircraft arriving and departing to/from Exeter, resulting in 3 Air Proximity (AIRPROX)³ in 2016 and over 600 recorded instances of controller intervention due to unknown aircraft over an 8 year period (2009 – 2016). These incidents create a significant increase in workload and distract ATC from the task of providing a service in Class G airspace. Additionally, the arrival and departure phase of flight is a busy time on the flight deck, unexpected ATC interventions (often at very short notice) add significantly to pilot workload too and adds uncertainty into CAT operations. While current operations are safe, there have been occasions where the prevalence of unknown traffic operating within the vicinity of the Airport could have potentially led to a degradation of safety margins.

Routine Airline Safety Reports demonstrate that the immediate reaction of a pilot to urgent radar vectoring instructions can detract from the otherwise optimal operation of the aircraft. Interruptions during critical, high workload, phases of flight (approach and departure from airports) are clearly undesirable and should be obviated if the means to mitigate the situation (e.g. the provision of CAS) exists. CAP 717: *Radar Control - Collision Avoidance Concepts* [Reference 4] details the necessity for pilots to react promptly and decisively to such urgent instructions.

Exeter considers that CAS is necessary to maximise the levels of airspace efficiency for commercial and other aircraft operating to and from the Airport in these most critical stages of flight. Projected increase in Air Transport Movements (ATM) are anticipated at Exeter. This detail is replicated from the Exeter Airport Management Business Plan is contained in Figure 2.

² The most important concept of IFR flying is that separation is maintained regardless of weather conditions.

³ An AIRPROX is a situation in which, in the opinion of a pilot or air traffic services personnel, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised.

	FY17	FY18	FY19	FY20	FY21	FY22
Scheduled	11,720	11,942	13,050	13,460	13,710	14,370
IT Charter	1,295	1,322	1,316	1,376	1,370	1,584
Mail	510	504	506	508	506	506
General Aviation	8,735	8,893	8,893	8,893	8,893	8,893
Corporate Aviation	1,978	1,856	1,949	2,047	2,149	2,257
Training & Testing	10,597	9,998	9,998	9,998	9,998	9,998
Military & Official	475	410	410	410	410	410
Compass Swing	66	66	66	66	66	66
Engine Testing	240	236	236	236	236	236
Maintenance	391	394	394	394	394	394
Medical	17	17	17	17	17	17
Overshoots	1,077	1,051	1,051	1,051	1,051	1,051
Others	3,316	3,257	3,257	3,257	3,257	3,257
Total	40,417	39,947	41,143	41,713	42,057	43,039

Figure 2 Projected Exeter Airport ATM

Furthermore, extensive MoD operations (within the UK Military Low Flying System and local Danger Areas (DAs)), the increased tempo of GA flight operations, changes in regulatory guidance and enhanced CAT aircraft performance have all contributed to the emerging need for Class D CAS to be established at the Airport.

The introduction of CAS would mean that the routing of GA and CAT would be more predictable and regularised, which in turn would reduce airspace traffic interactions, flight deck workload as well as ATC workload whilst providing higher integrity and efficiency to all airspace users near the Airport. This would maintain the safe management and integration of operations near Exeter Airport by implementing a known air traffic environment.

The proposed changes to airspace and procedures, creating a ‘known air traffic environment’, will enable Exeter ATC to maintain a high degree of flight safety and effectiveness by providing adequate protection to aircraft, along with other associated environmental and capacity benefits.

2.3 Airspace Efficiency

The safety, operational and navigational requirements of Exeter, its on-base flight operators and local aerodromes, have influenced the development of the proposed airspace design.

CAA Policy recommends that Public Transport flights be conducted, wherever possible, within CAS, in line with airline operators’ desire that CAS be provided throughout the airspace in which Public Transport flights take place. CAP 493, MATS (Manual of Air Traffic Services) Part 1, Section 1, Chapter 6, 13A.3 [Reference 5], states:

“Unless an aircraft has planned to leave controlled airspace, it is not to be vectored outside the horizontal or vertical limits....”

The establishment of Class D CAS at Exeter Airport would allow Exeter to routinely employ Continuous Descent Approaches (CDAs) and Continuous Climb Departure

(CCD) profiles. This means that commercial pilots can configure aircraft to utilise optimum fuel efficiencies, which in turn will lead to a reduction in airliner fuel consumption and noise footprint. When aircraft have to make short notice turns and/or climbs and descents in order to avoid unknown traffic, the re-configuration of the aircraft leads to power changes in the engines, which can lead to more fuel being consumed and greater emissions of engine noise. Within CAS, the controllers would have the confidence to make and execute plans to utilise the airspace more efficiently based on the safe knowledge that any aircraft within the airspace are 'known'. The interactive, effective management of arriving and departing aircraft reduces the workloads of the air traffic controllers and the flight deck crews alike.

2.4 Airport Capacity

Despite continued economic pressures in Europe, Exeter reports that passenger numbers have increased by 20% between 2011/12 and 2016/17 with the introduction of new routes, which will continue to be added to in the coming years. The Exeter ACP has been designed with the intent to protect current day-to-day operations at the Airport, whilst providing the flexibility to incorporate, effectively and efficiently, projected growth (projected 3% year on year growth to the end of this decade) in CAT [Reference 6].

3 Options Considered

This Section defines all of the options considered by Exeter and the rationale behind the selection of the most viable option.

3.1 Overview

Exeter Airport lies within uncontrolled, Class G airspace. The Exeter ATZ, as discussed in Section 3.2, provides the only airspace within which all aircraft are required to make their presence known, by radio, to Exeter ATC and comply with instructions.

The safe operation of aircraft, particularly passenger aircraft, in the unknown and uncontrolled environment of Class G Airspace, is supported by the provision of Air Traffic Services (ATS) using radar surveillance or by a Procedural Service (PS). Exeter ATC provides ATS in core hours (approximately 06.30 local to 02.00 local daily). When using radar surveillance, the provision of a De-confliction Service (DS) requires the controllers to provide vectors to aircraft under their control to keep them away from other known or unknown aircraft on the radar display, to ensure prescribed separation standards are not eroded. When radar is not available, separation is only provided between participating IFR traffic through the use of a PS.

The principle objectives for the design of CAS surrounding an airport are:

- As a minimum, to maintain the current level of safety;
- To make the airspace more efficient for all users;
- Provide protection to public transport passenger aircraft in the critical stages of flight prior to landing and after departure;
- Be of the minimum practicable dimensions, commensurate with the regulatory and environmental requirements and the safe and efficient use of airspace;
- Provide for access to the maximum extent practicable by all classes of aircraft.

In accordance with the CAA document CAP 725, Exeter must justify the need for changing its airspace, and provide details of the variety of options considered in the development of the proposed design. Exeter has considered a number of options to determine how best to meet the needs of the Airport and other aviation stakeholders. This section outlines the options that Exeter considered in determining the proposed changes, the reasoning behind such changes with an explanation as to why options have, or have not, been discounted.

3.2 Option 1 – Do Minimal

3.2.1 Improved GA Education and Liaison

Radar surveillance at Exeter has revealed the increasing nature of aviation activity within the vicinity of the Airport and cumulative incidents have prompted a need to identify mechanisms to maintain, as a minimum, safety to all aviation users operating within the vicinity of the Airport. Exeter currently engages with local aviation operators, both directly and indirectly to encourage better communication, and use of the local airspace. Whilst many transit aircraft do contact Exeter ATC, there are still a significant number that continue to fly close to the Airport and its traffic patterns without requesting an ATS from Exeter ATC.

The increase in transitory aircraft numbers has meant that Safety Significant Events (SSE) continue to occur. This is partly due to the transitory aircraft either calling late, (approaching the ATZ boundary) or making incorrect assumptions as to Airport activity. Exeter considers that the current mitigations to provide a 'better informed' airspace environment are insufficient.

The Air Traffic Service Manager (ATSM) at Exeter has been proactive in engaging with local airspace users. These activities have improved the overall operational environment of airspace surrounding the airport and the Airport ATC will continue their development with the application of an Exeter Frequency Monitoring Code (FMC). However, on their own, these activities are insufficient to resolve the current flight safety concerns and therefore Option 1 is not considered sufficient to address the concerns presented in Section 2.

3.3 Option 2 – Change the Nature of the Airspace Surrounding the Airport

3.3.1 Overview

A collaborative approach to the airspace change with local airspace operators presents an opportunity to develop permanent solutions that will endure, whilst enhancing the overall safety of aircraft within the Exeter Airport air traffic management environment.

There are many options available to mandate aircraft to call Exeter ATC and provide an 'informed' environment, thereby improving the situational awareness for controllers and pilots alike. Exeter have considered several options in their development of potential solutions and is keen to minimise the impact to local aviation stakeholders, whilst ensuring that aircraft operating in and out of Exeter have an additional layer of safety.

3.3.2 Transponder Mandatory Zone (TMZ)

The CAA defines a TMZ as an airspace of defined dimensions whereby the carriage and use of an operational transponder is mandated. This option would enhance situational awareness for the controllers, and other airspace users, to a degree, as many of the aircraft that fly close to Exeter already carry a transponder. However, the real crux of the issue is that Exeter ATC cannot communicate with aircraft if they choose not to call Exeter ATC of their own volition. In addition, whilst the carriage and use of a transponder would facilitate the activation of Traffic Collision Avoidance Systems (TCAS) it would not necessarily resolve the issues currently experienced by Exeter. In addition, it could add a financial burden on some elements of the GA community. Therefore, the option for a TMZ is not considered a viable solution.

3.3.3 Combined Radio Mandatory Zone (RMZ)/TMZ

A combined RMZ and TMZ would enhance situational awareness, but would not provide 'mandatory' control of the air traffic environment; the airspace would remain Class G uncontrolled airspace. This option would potentially require a larger area of airspace since there would be no guarantee of achieving agreement and/or coordination between Exeter ATC and transit aircraft and controllers would need more time, and therefore airspace, to develop and execute their plans. Since this option fails to address the full range of issues experienced at the Airport it has been discounted as a viable option.

3.3.4 Establish Class D CAS

A Class D Control Zone (CTR) and associated Control Areas (CTA) would offer protection to aircraft arriving or departing the Airport. Exeter recognises that full procedure containment for the current RNAV (GNSS) Approaches, allowing Continuous Descent Approaches (CDA), with Class D CAS, could produce an adverse effect on GA stakeholders. However, Exeter has received full support from on-airport based GA stakeholders and many opportunities for continued access to the airspace will be possible through the development of Letters of Agreement (LoA) or Memoranda of Understanding (MoU) to mitigate any operational effects to local aviation stakeholders.

4 Proposed CAS Design

This Section provides details of the proposed CAS surrounding Exeter Airport, which is required to support current and future Airport operations, which will form the basis of the Exeter Airport Airspace Change Proposal. It outlines the aims of the proposed change and implementation of the changes.

4.1 Overview

The design of CAS is a careful balance between the competing needs of all of the various airspace users, whilst taking into account the environmental effect of the aircraft operations and maintaining safe operations. The aim is to determine the optimum airspace design whilst minimising disruption to local aerodromes, residents, GA activities and MoD operations.

The CAA recommends that in the development of airspace arrangements, including the design of CAS, the sponsor should involve local aviation stakeholders using Focus Groups. In the development of this proposal, Exeter has established or utilised the following groups:

- The Airport Users Group, and the operators at Dunkeswell and North Hill Aerodromes; and
- The Military Airspace Users Working Group (MAUWG) via the Defence Airspace and Air Traffic Management (DAATM) team.

The role of the Airport Users Group and Local Aerodrome Operators is to contribute to the development of design options, identify issues that will be considered important by stakeholders and identify areas that need clarification or additional information.

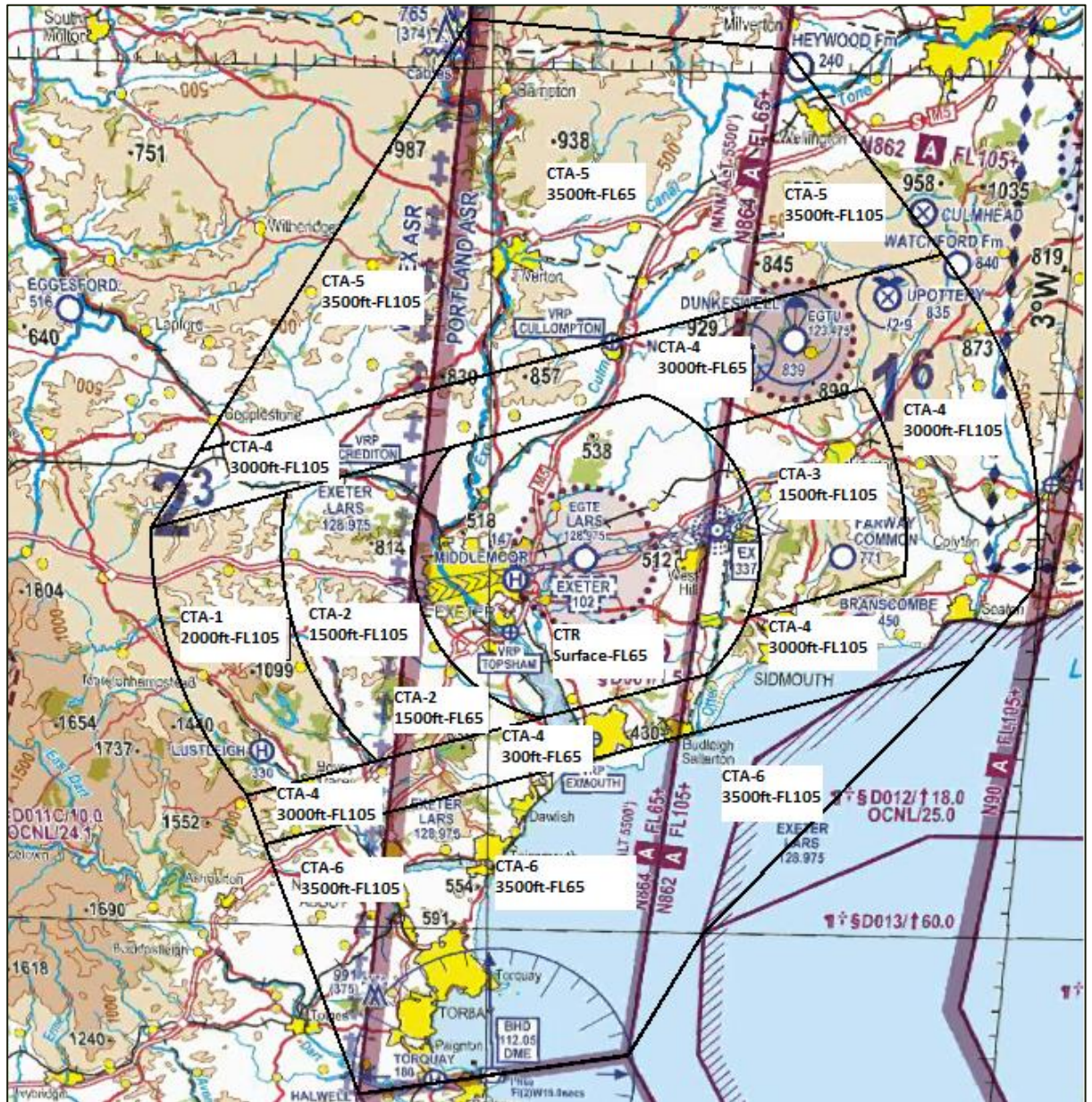
4.2 Pre-Consultation of Proposed Airspace Design

Discussions with local GA and Sports and Recreation operators identified concerns based upon a perceived curtailment of their freedom of airspace access and utilisation.

Exeter has taken careful consideration of the dimensions of the proposed CAS structure in response to these concerns and the subsequent design strategy has involved input from local aviation operators. A detailed review of the initial concept, held in conjunction with the MoD, resulted in a minimum volume of CAS addressing concerns of 'head room' between the base of some CTAs and the underlying terrain.

Figure 3 provides the detail of an initial CAS design concept.

Note: *The CAS design concept in Figure 3 is not a final design and is subject to amendment.*



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Figure 3 Exeter Airport CAS Design Concept Showing Proposed Lateral and Vertical Extents of CTA Sectors

The proposed Class D CAS design in Figure 3 comprises:

- CTR from surface level up to FL65;
- Two CTA sectors to the west of Exeter with base altitudes stepping-down toward the airport of 2,000 ft (CTA 1) and 1,500 ft (CTA 2) to the CTR boundary;
- Two CTA sectors to the east of Exeter with base altitudes stepping-down toward the airport of 3,000ft (CTA 4) and 1,500 ft (CTA 3) to the CTR boundary;
- Two CTA sectors from the north of Exeter with a base altitudes of 3,500 ft (CTA 5) stepping-down to 3,000ft (CTA 4) to the CTR boundary,
- Two CTA sectors from the south of Exeter with a base altitudes of 3,500 ft (CTA 6) stepping-down to 3,000ft (CTA 4) to the CTR boundary,

Notes:

- Eastern portion of CTR not located beneath Airway N864 has an upper limit of FL 65, with CTA above with an upper limit of FL 105;
- CTA sectors, or parts thereof, located beneath Airway N864 have an upper limit of FL 65;
- CTA sectors outside the lateral extent of Airway N864 have an upper limit of FL 105.

4.3 VFR Flights and Visual Reference Points (VRP)

Exeter wish to make as little impact as is practicable on the extant operation of VFR flights at and near the Airport, including operations to and from the aerodromes and operators detailed in Section 5. Exeter ATC does not envisage any capacity problems in integrating VFR flights, including transit flights along established, historical tracks, into the traffic flow within the proposed CAS.

Exeter is reviewing the current Exeter Visual Reference Points (VRPs) to facilitate straightforward clearances for VFR pilots, but whenever practicable, aircraft will be offered a direct routing.

Aircraft wishing to transit the proposed Exeter CAS, either VFR or IFR, will be offered a direct routing when traffic levels allow. Exceptionally it may be necessary to specify an ATC clearance with reference to the notified VRPs, or by radar vectoring, or delaying transit clearance through the CAS. Exeter expects that refusals are only likely in exceptional circumstances and a slight delay or a proposed re-route is a more likely scenario. For CAA auditing purposes, a requirement exists that airports log all refusal events to which Exeter ATC will comply.

4.3.1 Special VFR Flights

Exeter would allow aircraft operating Special VFR (SVFR) with appropriate access to the proposed CAS in accordance with the rules for SVFR flight. SVFR clearances are applicable only within CTRs and under conditions that would usually require aircraft to comply with IFR, with clearances granted when traffic conditions permit it to take place without affecting to IFR flights. SVFR flights are normally utilised by aircraft operations conducted with visual reference to the ground. SVFR clearances require standard IFR separation between other SVFR flights and between SVFR and IFR

flights. The routing within CTRs to the SVFR clearance limits will normally be with reference to VRPs.

4.3.2 Secondary Surveillance Radar (SSR) Frequency Monitoring Code

Exeter is considering proposing the introduction of an Exeter SSR Frequency Monitoring Code Procedure, sometimes referred to as a 'Listening-Out Squawk', along with the use of VRPs, is likely to significantly reduce the volume of RT transmissions, and therefore increase ATC capacity, particularly with GAT. Pilots who have no intention of entering the CTR/A, can select the monitoring squawk to indicate that they are 'listening-out' on the published frequency and they can be contacted if necessary; they do not require an ATS and will remain outside CAS. The resultant reduction in RT will provide Exeter ATC with additional capacity to deal with GAT Class D transit requests.

5 Potential Effects on Airspace Users

This Section describes the potential effects that the implementation of Exeter CAS may have on other aviation stakeholder activities, and discusses the development process of agreeing mitigation measures intended to minimise those effects.

5.1 Overview

The use of a minimum volume of Class D airspace will enhance protection to aircraft operating IFR at the Airport, providing greater predictability whereby radio-equipped aircraft operating VFR should be able to continue to utilise current routings. Pilots will be required to obtain a clearance from ATC in order to enter the proposed Class D CAS, either by radio or through LoA or MoU arrangements. Aircraft not fitted with a radio will be able to fly within the CAS by negotiating a pre-flight clearance with ATC.

5.2 MoD - RNAS Yeovilton and Lyme Bay Danger Areas

The requirements of the commercial organisation must dovetail with that of the MoD unit, where training of pilots for maritime and littoral operations is essential. Exeter consulted the MoD through MAUWG and Defence Airspace and Air Traffic Management (DAATM) Teams with regard to military operations at RNAS Yeovilton and with the Lyme Bay Danger Area complex (D012).

Initial discussions with DAATM and Flag Officer Sea Training (FOST) representatives indicated that the implementation of proposed CAS in support of Exeter flight operations would have an effect on a limited number of MoD flight operations.

5.2.1 Lyme Bay Danger Area Complex:

The MoD indicated the potential to agree a Flexible Use of Airspace (FUA) arrangement potentially allowing Exeter to utilise a portion of the airspace associated with D012 from 3,500 ft amsl and above when the MoD did not require the airspace. Further discussions will take place to establish agreement on a concept of operations in-line with the CAA SARG Policy Statement: *Policy for ATS Provision Within Controlled Airspace by Units not Notified as the Controlling Authority* [Reference 7].

The MoD requested that any proposed CAS would not require any airspace associated with D013. Exeter agreed to avoid utilising the airspace of D013.

5.2.2 RNAS Yeovilton Instrument Flying (IF) Training Areas:

RNAS Yeovilton operates a system of IF training areas in support of rotary wing flying training at the Unit. The areas constitute the Yeovilton Area of Intense Aviation Activity (AIAA); individual areas are activated as required on an opportunity basis by Yeovilton. The vertical dimensions of the areas are from the surface up to 6,000 ft amsl. The proposed Exeter CAS is expected to infringe one area

(Area 5). Further discussions will take place to establish the acceptability of the MoD to allow Exeter to utilise part of Area 5.

5.2.3 TACAN Approach Procedures (RNAS Yeovilton Runways 04 and 09)

Discussion with the MoD will establish how the implementation of the proposed Exeter CAS would affect the provision of these TACAN Approach procedures.

5.2.4 RNAS Yeovilton Aircraft Transit to South Coast Exercise Areas

Yeovilton based aircraft routinely transit from the Aerodrome and other areas to the South Coast Exercise Areas . Flights operate both IFR and VFR and transit routings are based on individual flight training requirements. Exeter will be able to provide an ATS to any aircraft requiring to route through the proposed Exeter CAS.

5.3 Enhanced User Status – Exeter Provision of ATS within N864

Exeter is developing a strategy to become the provider of ATS within a portion of Airway N864 above the proposed Exeter CAS.

Initial discussions with Cardiff Airport and London Area Control Centre (LACC) indicated that both units were supportive of Exeter’s intention to implement the proposed CAS. Cardiff Airport stated that complementary procedures be established through the development of a LoA between the two airports.

5.4 Effect on Local General Aviation Operations

Exeter acknowledges the large volume of GA and glider operations within the area and recognises that the proposed CAS for Exeter will have an effect on operations. Exeter aims to reduce the level of impact to these operations to the minimal practicable by establishing robust LoAs with each of the operators at Dunkeswell and North Hill Aerodromes to enable operations to continue with the minimum of disruption. In addition, Exeter intends to work with the British Gliding Association (BGA) to mitigate as far as practicable, the concerns from the Gliding Community and develop strategies to accommodate large-scale gliding events in the area.

Light aircraft operators based at Exeter are used to operating in an ATC managed environment, albeit Class G uncontrolled airspace, and it is envisaged that their operations within the proposed Class D CAS would continue as previously. They would benefit from a known and managed traffic environment throughout their normal local flying training areas. Special VFR clearance would be available within the proposed Exeter Airport CTR (in accordance with the UK post-SERA application of Special VFR) to enable access to and from the Airport in poor weather conditions, whilst being safely separated from all other aircraft.

Initial discussions with the following local aerodromes and operators have taken place, to ensure that coordination of flight operations is achieved between Exeter and the operator:

- Dunkeswell Aerodrome - Devon and Somerset Flight Training;
- Dunkeswell Aerodrome - SkyDive Buzz Ltd; and
- North Hill Airfield - Devon and Somerset Gliding Club.

All proposed LoAs and MoUs will be submitted to the CAA AR as part of the formal airspace change proposal on completion of the consultation process.

5.4.1 Devon and Somerset Flight Training at Dunkeswell Aerodrome

Exeter anticipate that Dunkeswell Aerodrome (licensed), with its associated ATZ, located approximately 11 NM northeast of the Airport, will wholly remain in Class G uncontrolled airspace. Light aircraft, including some non-radio aircraft and a parachuting operator, are based at the Aerodrome. The establishment of Class D CAS will have an effect on Dunkeswell flight operations (a CTA will overlay the aerodrome ATZ); a LoA between the Aerodrome and Exeter ATC will detail integration of generic GA Dunkeswell air traffic operating in the area and CAS access arrangements.

5.4.2 Dunkeswell Parachuting Operations

An additional LoA between Exeter ATC and the parachuting operator located at Dunkeswell will detail flight notification procedures, areas of operations and communication requirements.

5.4.3 Devon and Somerset Gliding Club (DSGC) at North Hill Airfield

North Hill Airfield (unlicensed) is a privately owned glider site approximately 10 NM northeast of the Airport. The airfield will also remain in Class G uncontrolled airspace (a CTA will overlay the aerodrome). It is anticipated that the establishment of Class D CAS will have an effect on North Hill flight operations. A LoA between Exeter ATC and the operators at the Airfield is being developed to incorporate procedures that will allow flight operations within designated areas of the proposed Exeter CAS. In addition, the LoA will detail arrangements for aircraft notification of their requirement to transit/operate in other areas within the proposed CAS.

Consultation with representatives of the DSGC alongside the BGA have concentrated on a strategy that would integrate the flight operations of the DSGC with that of Exeter Airport. Initial concepts regarding the implementation of CAS with associated Radio Mandatory Zones (RMZ) and the use of Glider Boxes where gliding flight operations can take place have been discussed.

RMZ Concept

The concept of CAS with associated RMZ has been considered as by the Airport as unviable. DSGC considered that the proposed CAS design was not proportionate to the Airport's requirement to provide efficiencies in the airspace in support of CAT operations. DSGC therefore suggested that an RMZ concept surrounding part of the proposed initial Glider Box design be considered by Exeter Airport. The RMZ areas would extend from ground level up to FL65 and remain as Class G uncontrolled airspace.

The Airport considers, as previously mentioned, that an RMZ does not provide an appropriate element of control in the RMZ area as CAT aircraft would not therefore remain in and therefore be afforded the associated protection of remaining in CAS throughout flight.

Glider Box Concept

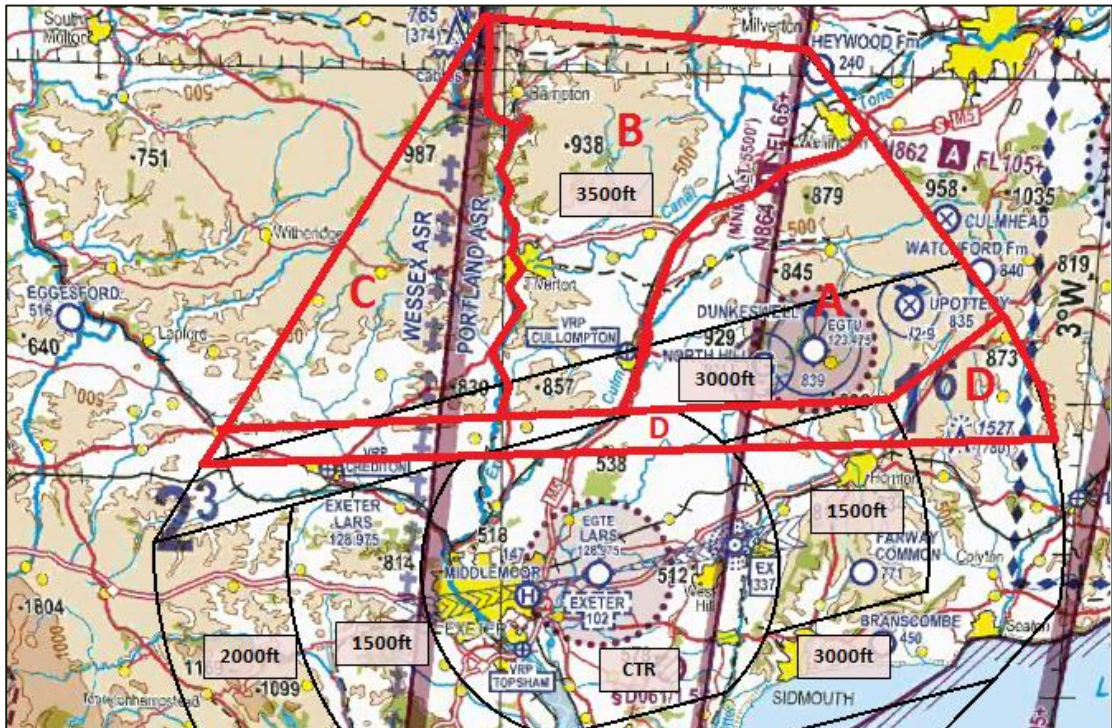
Initial discussion with DSGC concluded with an initial glider box design that was planned to allow gliding operations to take place within the proposed CAS. The

design included the facilitation for DSGC gliders to transit through CAS outside of the designated box areas out into Class G uncontrolled airspace to complete intended flight profiles.

A glider box design was constructed based on the requirement that DSGC Gliders operating IFR can be accommodated in Glider Boxes within the CAS design, subject to CAA approval.

Figure 4 provides a diagrammatical design concept for the development of Glider Boxes for use by DSGC.

Note: The Glider Box design concept in Figure 4 is not a final design and is subject to amendment.



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Figure 4 DSGC Glider Box Concept

The following height banding is suggested for the DSGC flight operations in the Glider Boxes shown in Figure 4:

- Boxes A, B and C: Base of CAS up to 5,000 ft amsl – VFR and IFR Glider operations; and
- Box D: Ground Level or Base of CAS (as appropriate) up to 4,500 ft amsl – VFR Glider operations.
 - DSGC Gliders may operate IFR in Box D subject to the appropriate clearance to do so from Exeter ATC dependent on the traffic situation.

Exeter Airport plan to ensure that IFR CAT is provided with a minimum 500 ft vertical separation from the top altitude of an IFR Glider Box when notified as active and provide traffic information on glider traffic whilst in transit within or adjacent to

the VFR Glider Box. In addition, Exeter intend that 3 nautical miles (NM) lateral separation from the edge of the Box D to the runway 26/08 approach/departure centreline would be included in the final design.

DSGC operations do not always conform to Visual Flight Rules (VFR) flight in Class G airspace when operating above 3,000 ft amsl. DSGC aircraft operate up to the cloud base (thus technically Instrument Meteorological Conditions, IMC); no indication of the number of pilots at DSGC capable, nor the frequency of this type of operation has been provided thus far. Above 3,000 ft amsl in Class G airspace, the VFR rules provided in Manual of Air Traffic Services (MATS) Part 1 (CAP 493) [Reference 5] dictates that aircraft operating VFR should remain 1,000 ft below the base of cloud and have a horizontal separation from cloud of 1,500 m. The same requirement exists for VFR operations in Class D CAS.

In Class D CAS, IFR traffic is to be separated from other IFR traffic. Further discussion is to take place between Exeter Airport, who will seek CAA guidance, and DSGC to establish that DSGC glider flights will be responsible for their own separation from other DSGC glider flights within the confines of agreed Glider Box lateral and vertical dimensions in all meteorological conditions. Subject to CAA regulatory agreement, this will be detailed as part of the LoA between the two parties.

5.4.4 Other Regional Flight Operations

A small number of helicopter operations are currently active within the vicinity of the proposed Exeter CAS. AH Helicopter Services Ltd, a commercial helicopter operator, utilises a site to the southwest at Lustleigh. A MoU between Exeter ATC and the Helicopter operators will detail integration of helicopter traffic along with CAS access arrangements.

Peripheral aerodromes that lie well outside the boundary of the proposed Exeter CAS are not directly affected by the proposal and it considered LoAs and MoUs will not be necessary. Flights operating to/from these aerodromes will be given ATC clearance through the proposed Exeter CAS in accordance with the normal rules for Class D airspace. Exeter ATC will provide access to the proposed CAS environment 'to the maximum extent practicable by all classes of aircraft'.

5.5 Mitigation Measures Summary

The following activities are being developed to eliminate or minimise disruption to other aviation stakeholders, based on LoAs or MoUs:

- a) The proposed CAS design will be limited to ensure that the current Exeter Airport flight procedures are appropriately safeguarded;
- b) Exeter intends to confirm the efficacy of current VRPs to ensure that CAS crossing routes are transparent (based on historical tracks) and that local operating areas are properly accommodated within the CAS. This will also assist in the handling of non-radio aircraft wishing to enter the proposed CAS;
- c) The current guide to airspace surrounding Exeter Airport will be updated and widely distributed to incorporate details of routes, frequencies and procedures to be undertaken to facilitate the safest, and most efficient

options for operating in the Yeovilton AIAA in the vicinity of Exeter Airport and RNAS Yeovilton;

- d) Engagement programmes will continue with local GA operators;
- e) All existing MoUs and LoAs are being reviewed and will be amended to coincide with the proposed change in airspace use. New agreements are being developed with operators at aerodromes in close proximity to the proposed airspace; potential options include the implementing of a glider box (or boxes) for North Hill;
- f) Coordination with the MoD will aim to minimise the effect on flying training operations at RNAS Yeovilton; and
- g) Coordination with Plymouth Military (responsible for ATS provision within D012) will aim to facilitate flexible use of this airspace, potentially allowing more aircraft to fly through during range inactivity.

Exeter ATC is committed to providing access to any revised CAS, when safe and appropriate, with continued provision of the current level of ATS both within and outside any revised airspace. It is intended that the revised constructs should not be detrimental to airspace users as a whole.

6 References

Reference	Name	Origin
1	CAP 725: CAA Guidance on the Application of the Airspace Change Process. Fourth Edition dated 15 th March 2016	Civil Aviation Authority
2	Transport Act (2000): Chapter 38 Dated: 30 th November 2000	UK Government
3	The Civil Aviation Authority (Air Navigation) Directions 2001 (incorporating Variation Direction 2004) Dated: 2004	Department for Transport
4	CAP 717: Radar Control - Collision Avoidance Concepts. Third Edition dated 23 rd January 2009	Civil Aviation Authority
5	CAP 493, MATS (Manual of Air Traffic Services) Part 1 Sixth Edition, Amendment 1, Corrigendum, dated 2 nd April 2015	Civil Aviation Authority
6	Exeter Airport Management Business Plan Dated: October 2016	Exeter Airport
7	CAA Safety and Airspace Regulation Group (SARG): Policy for ATS Provision Within Controlled Airspace by Units not Notified as the Controlling Authority. Dated 27 th April 2016	Civil Aviation Authority

Table 1 Table of References

A1 Consultee Lists

A1.1 Airport User Group

FlyBe
Airways Flight Training
Aviation Southwest
Robin Flying Group

A1.2 Local Airspace User Group

Dunkeswell Aerodrome: Devon and Somerset Flight Training
Dunkeswell Aerodrome: SkyDive Buzz Ltd
North Hill Airfield: Devon and Somerset Gliding Club
Farway Common Airstrip
Branscombe Airfield
Watchford Farm Airstrip

A1.3 National Organisations (NATMAC)

3 AF-UK/A3
AEF
Airport Operators Association
AOA
AOPA UK
Aviation Division NCHQ
Aviation Environment Federation
BA
BAE Systems
BALPA
BATA
BBAC
BBGA
BGA
BHPA
BMAA
BMFA
BPA
British Helicopter Association
CAA
CAA SRG
DAATM
GASCo
GATCO
HCGB

Heathrow Airport
Heavy Airlines
HQ DAAvn
LAA
Light Airlines
Low Fares Airlines
Military Aviation Authority (MAA)
Ministry of Defence
MoD Flight Test Regulator
NATS
PPL/IR Europe
SARG
UAVS Association
UKAB
UKFSC/GAPAN

A1.4 Civil Aviation Authority (CAA)

SARG

A1.5 Local Authorities

Devon County Council
Exeter City Council