

ACP-2021-006

**ENABLING BVLOS RPAS OPERATIONS FROM KEEVIL
AIRFIELD, WILTSHIRE**

STAGE 2A – OPTIONS DEVELOPMENT



Ministry
of Defence

Responsible Authors of this Document

The Sponsor for this Airspace Change Proposal is the Ministry of Defence and will be managed under Project LOVERIDGE. The project team is drawn from Joint Helicopter Command, specifically the Watchkeeper Force and 47th Regiment Royal Artillery.

Only responsible authors may implement amendments via the Project LOVERIDGE lead. All revisions will be listed and detailed in the table below.

Revision Number	Affected Part	Revised By	Notes
Initial Issue 1.0		Project LOVERIDGE lead	

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Introduction

This document forms part of Stage 2 of the Airspace Change Proposal ACP-2021-006. To ensure any new stakeholders that were identified as a result of Stage 1 are fully conversant with the proposal this document will include an overview of the Statement of Need and the Design Principles that were formed as a result of Stage 1. The CAA accepted the Sponsors' submission at the Stage 1 'DEFINE' Gateway on 17th December 2021 and a redacted version of the submission can be found on the Portal¹.

The aim of the proposal is to facilitate Beyond Visual Line of Sight (BVLOS) take-off and landing of Remotely Piloted Air System (RPAS) from Keevil Airfield, Wiltshire in order to operate within the extant Danger Area complex over Salisbury Plain Training Area.

The aim of this document is to assist Stakeholders in assessing the suitability of the Design Options proposed by the Change Sponsor. It also provides evidence to the CAA that the Change Sponsor has adhered to the process laid out in CAP 1616 for Stage 2A of the ACP which forms part of the overall submission for the Stage 2 Gateway.

Stakeholders are invited to comment on the **type** of Design Options proposed to ensure that they are **aligned with and able to achieve** the Design Principles developed in Stage 1. The specific size and shape of the Design Options will be further developed in subsequent Stages. Stakeholders are also invited to provide additional feedback of the ACP at this stage as a result of Stage 1.

¹ <https://airspacechange.caa.co.uk/PublicProposalArea?PID=341>

Section 1

Context

Statement of Need (SoN). Approval is sought for a Permanent Airspace Change surrounding Keevil Airfield, a satellite aerodrome of RAF Brize Norton located North West of the Salisbury Plain Danger Areas. In order to comply with current MAA regulation, segregated airspace is required to facilitate Beyond Visual Line of Sight (BVLOS) operation of military Remotely Piloted Air Systems (RPAS) between Keevil and EG D123; the principal operating airspace already utilised for military BVLOS activity. The airspace design must enable military RPAS to remain within segregated airspace at all times. Operating from Keevil allows for essential aircrew and groundcrew training in an environment that is not practicable from other UK locations.

Design Principles. Following the stakeholder engagement during Stage 1, the Design Principles below were developed and submitted to the CAA:

DP	Design Principle	Priority
A	Provide a safe environment for all airspace users	1
B	Provide sufficient airspace to meet all reasonable technical requirements for the Watchkeeper RPAS platform that are required to facilitate safe access to and from SPTA and usage of Keevil Airfield.	2
C	Minimise the impact to other airspace users, both in terms of activation and volume of airspace required.	3
D	Make the airspace as accessible as possible to all types of air user.	4
E	Use standard airspace structure where possible (conformity, simplicity and safety).	5
F	Minimise the impact of operating noise to local residents	6

Airfield Overview. Keevil Airfield is located to the North West of Salisbury Plain, adjacent to the villages of Keevil and Steeple Ashton. It is situated approximately 2.5NM from the Salisbury Plain Danger Area boundary. Between the airfield and EG D123 are the villages of Edington and Coulston. The larger towns of Westbury and Trowbridge are found to the West of the airfield and Melksham and Devizes to the North and East respectively.

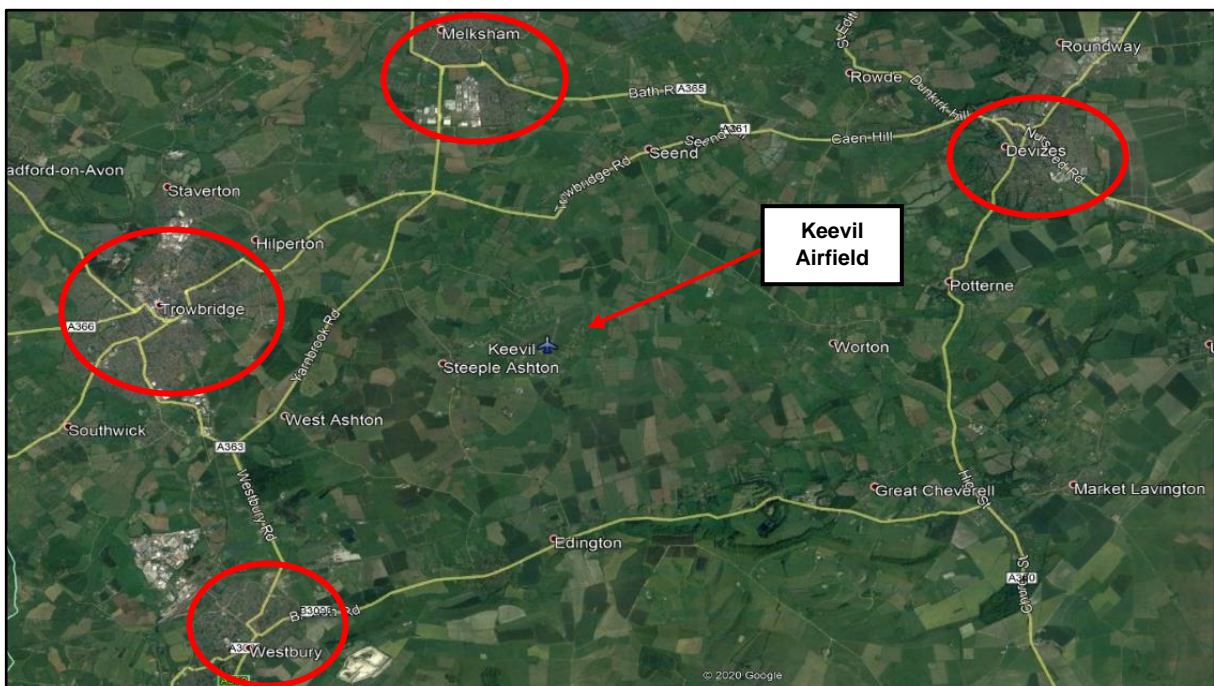
Keevil is a satellite airfield of RAF Brize Norton and is utilised by the MOD as a tactical landing zone, drop zone and training area for ground units. Keevil is also used by RAF Tactical Air Transport aircraft such as the C130 Hercules and A400M Atlas as well as rotary-wing assets from the Joint Helicopter Command to conduct technical and tactical training.

The airfield is home to the Bannerdown Gliding Club who fly a variety of sailplanes and towing aircraft for recreational purposes. They are a member of the Royal Air Force Gliding and Soaring Association. Bannerdown Gliding Club primarily occupy Keevil at weekends however play host to a number of gliding competitions throughout the year. The Wessex Model Flying Club also use Keevil for model

aircraft flying. However, during military activities the club utilises a dedicated site 3 miles from Keevil.



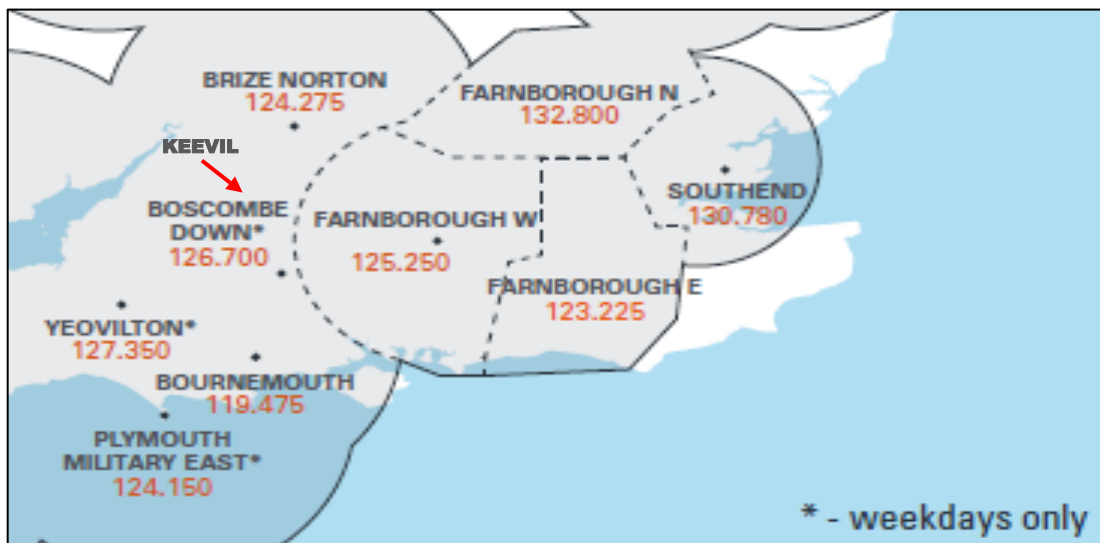
Airfield in detail



Area in general

Local Airspace. The airfield is situated entirely within Class G airspace. The local airspace is popular with General Aviation (GA) traffic and it is used frequently by aircraft routing around the SPTA Danger Areas and the Bristol Control Area (Class D).

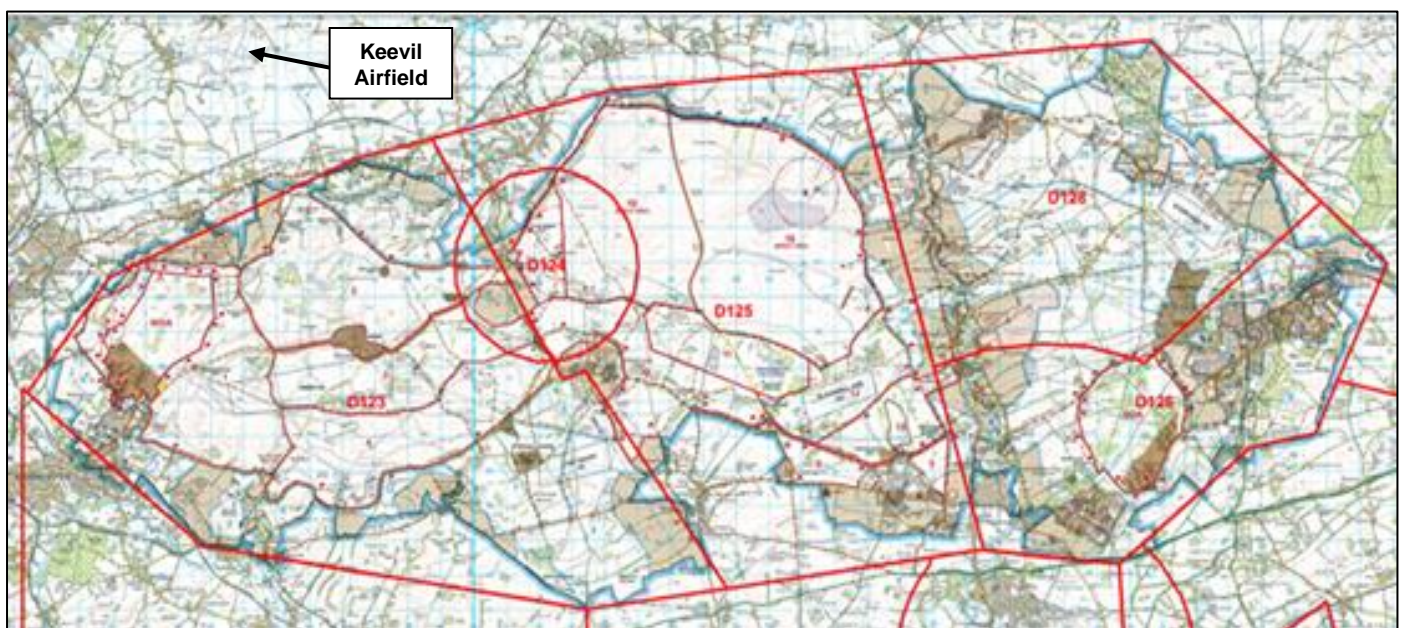
Airspace around Keevil is monitored by several military and civilian radars with overlapping coverage of the region. Additionally, the airspace benefits from several Lower Airspace Radar Services (LARS) which aim to provide advice and information for the safe and efficient conduct of flight in the area.



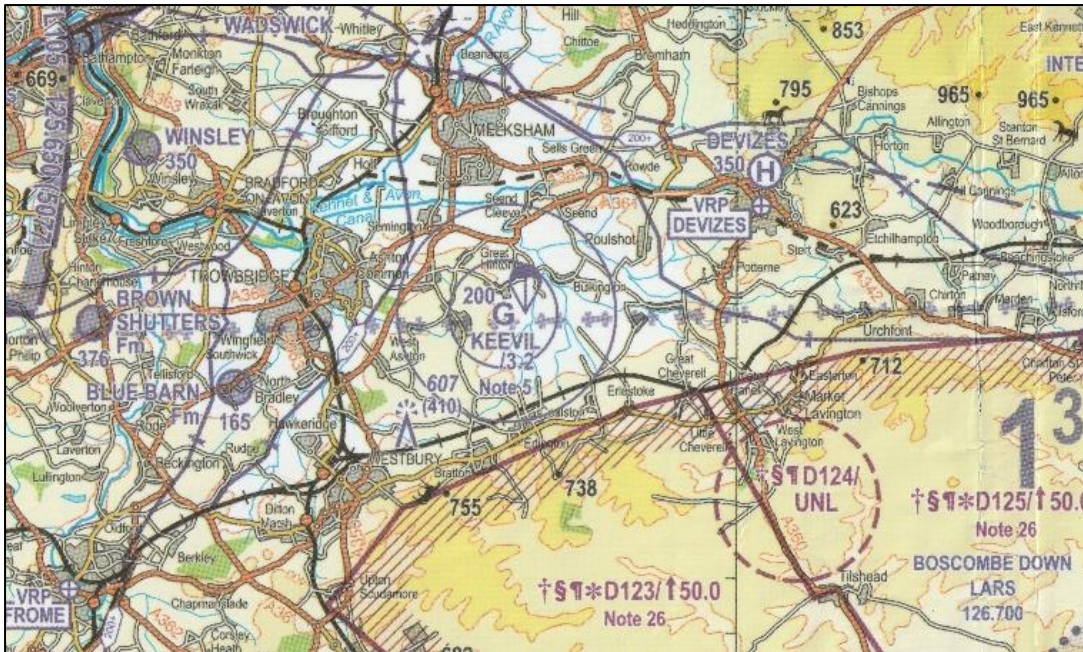
Lower Airspace Radar Service Coverage in South West England

The Wiltshire Air Ambulance operates from a private site in the village of Semington, 2.5 miles to the North of the airfield. As a result of ACP-2020-047² a Letter of Agreement between the MOD and the Air Ambulance was signed to ensure safe operation for HEMS aircraft at all times.

The Avon Hang Gliding and Paragliding Club routinely use Westbury White Horse as a launch site. This is approximately 3.5 miles South West of the airfield and marked on military Low Flying Charts.



² The establishment of a Temporary Danger Area for use by the Watchkeeper RPAS in Spring 2021.



The Keevil Drop Zone / Gliding Site is currently marked on VFR aeronautical charts, with a note that reads:

'Keevil Aerodrome is used extensively as a military dropping zone and pilots are advised to avoid the aerodrome at all times by 2NM laterally and 2,000ft vertically'.

Keevil is listed within the AIP, ENR 5.5 'Aerial, Sporting and Recreational Activities' as follows:

KEEVIL, WILTS A circle, 2NM radius, centred at 511851N 0020637W	Upper limit: FL150 Lower limit: SFC	Phone: Opr/User – Various. Brize Norton ATC: 01993- 095521/896814/896804	Airfield used for gliding, free-fall parachuting and heavy supply drops from military Hercules aircraft. Supply drops may take place at any time within 2 NM and below 2000 FT. Hours: Activated by NOTAM.
KEEVIL GLIDER SITE, WILTS (AD) (W & T) 511850N 0020643W	Upper limit: 3000FT Lower limit: SFC	Phone: Bannerdown Gliding Club 01380-870411	Site elevation: 200 FT AMSL Hours: HJ.

Desired Outcome of Airspace Change Proposal

The MOD is seeking to enable Keevil as a location for both BVLOS RPAS as well as military flying and recreational gliding. The requirement for a new airspace structure is only sought during the times of RPAS operations to create segregated airspace in accordance with CAP 722 and RA 2320.

Section 2

Design Options

The Sponsor explored various design options that could satisfy CAP 722 and MAA Regulatory Article 2320. The options below were discounted early as they were deemed unsuitable to facilitate BVLOS RPAS activity from Keevil. Full justification will be provided at Stage 2B.

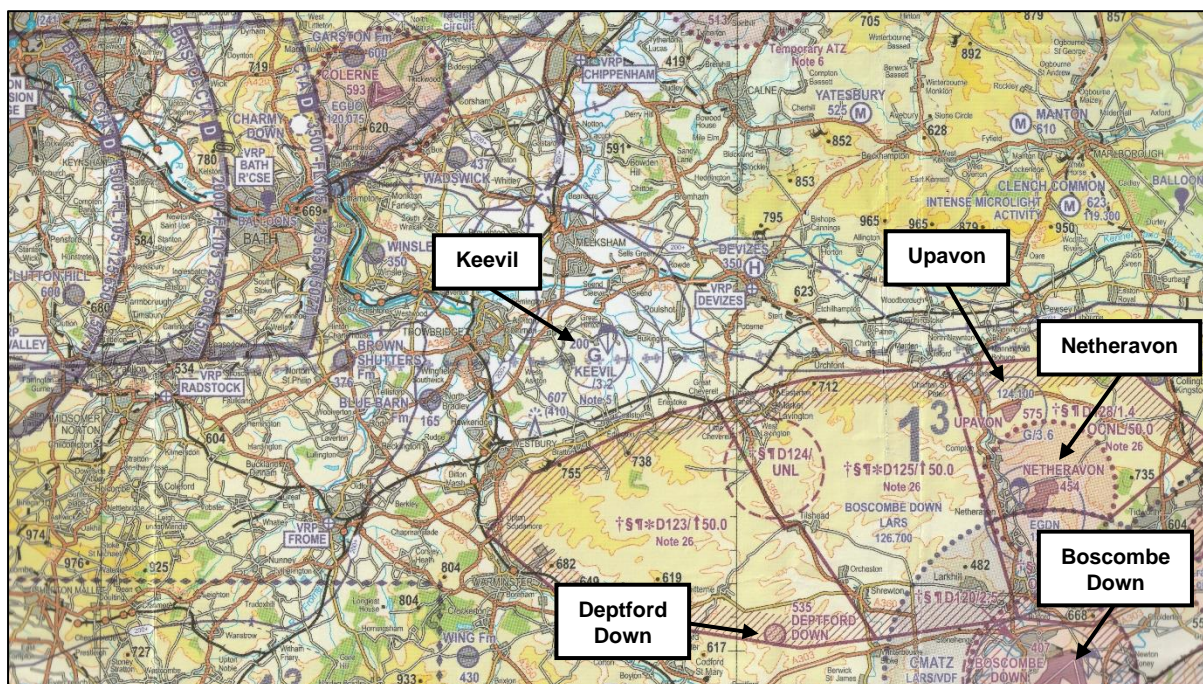
- Air Traffic Zone
- Area of mandated Electronic Conspicuity (TMZ / ADS-B / FLARM) and RMZ
- Restricted Area
- Controlled Airspace (Class A, C or D)

The Sponsor considered the following options and airspace structures as suitable to measure against the Design Principles whilst adhering SoN:

1. Do nothing
2. Use existing airspace structures
3. Danger Area

The size and shape of the Design Options proposed below are for illustrative purposes only and an assessment must be made on the suitability of the structure in terms of meeting the Design Principles, with further design refinement to occur before future consultation.

Option 1 - Do Nothing

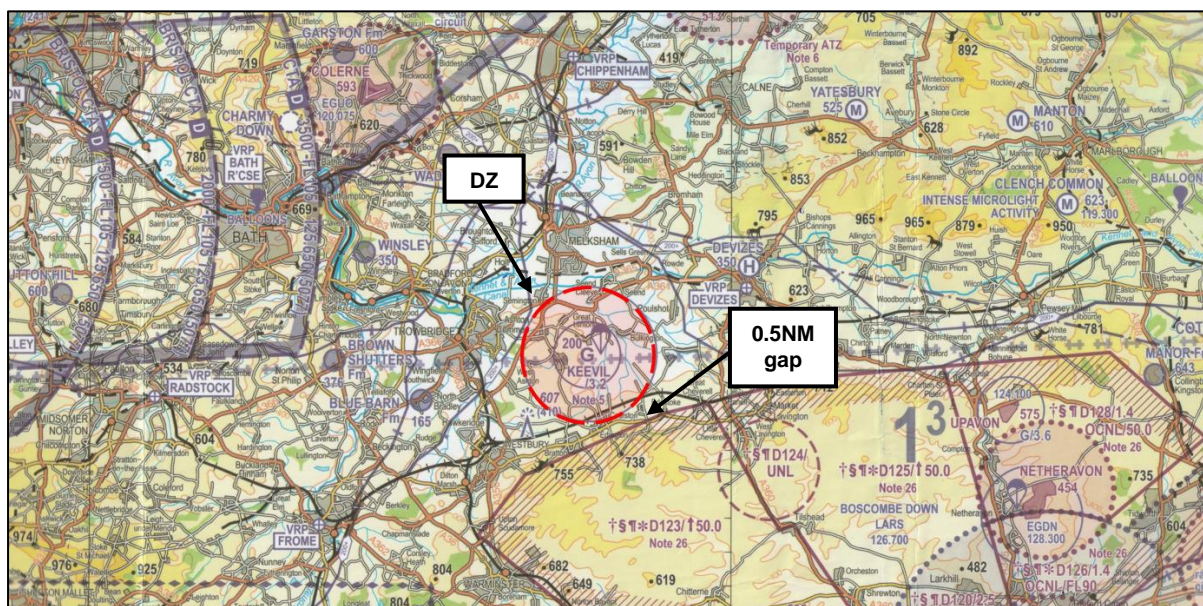


The Sponsor is currently unable to operate RPAS within SPTA due to a lack of suitable locations for launch and recovery. The use of alternative airfields within this area have been investigated and discounted as not being suitable to support the

specific military RPAS operations conducted by the Sponsor. Due to its classification this analysis cannot be provided directly to stakeholders but will be shared with the CAA as required.

Should the Sponsor not be able to operate RPAS within SPTA it will detrimentally affect military training. This option is considered to NOT meet the SoN but does allow a baseline to measure the effectiveness of subsequent proposals.

Option 2 - Use Existing Airspace Structures



Keevil Airfield is a designated Gliding Site and Parachute Drop Zone as detailed on page 5.³ The DZ is designated from SFC - FL150 (max), with a 2NM radius. The DZ does not intersect with EG D123- with a 0.5NM gap existing between the DZ and the Danger Area boundary.

Although there is currently no precedence for using a DZ to afford segregation to RPAS operating BVLOS, the Sponsor would like to consider its effectiveness against the Design Principles in this specific location. The DZ could be activated up to 3500ft AMSL by NOTAM, as an example, to allow RPAS to transit between Keevil and Salisbury Plain.

To bridge the 0.5NM gap between the DZ and D123, the Sponsor would like to propose an 'RPAS Crossing Corridor', activated by NOTAM when required. Alternatively, a small extension to the North of D123 to shift the DA 0.5NM closer to Keevil could be considered. Regardless, the Sponsor notes that alternative acceptable means of compliance would be required in order to satisfy the SoN and ensure the risk of operations remained as low as reasonably practicable. Furthermore, the Sponsor would need assurance that this airspace structure satisfies the requirement for segregated airspace in accordance with current regulation.

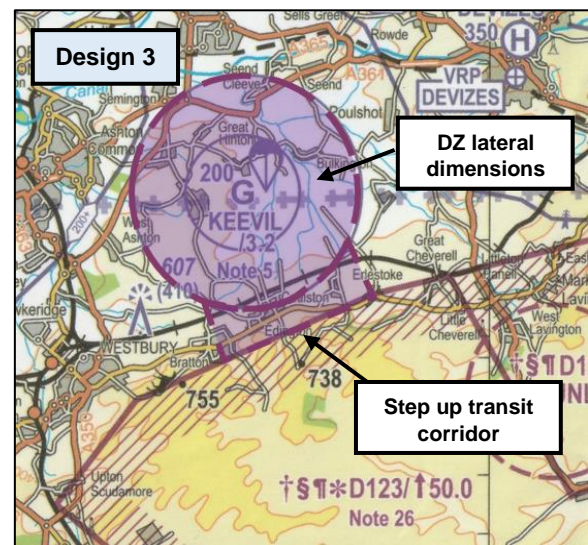
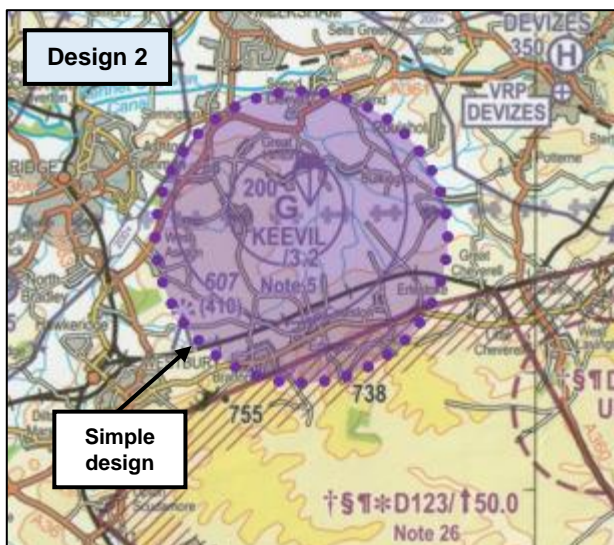
³ ENR 5.5

Option 3 - Danger Area

Danger Areas (DA) are currently the primary method of achieving segregated airspace outside of controlled airspace to facilitate BVLOS RPAS operations in the UK⁴.

A Danger Area for Keevil could be activated by NOTAM only when required in order to best meet Design Principles C and D. Additionally, services such as a Danger Area Crossing Service (DACS) or Danger Area Activity Information Service (DAAIS) would be explored to ensure access to GA traffic would not be unnecessarily impeded.

The Danger Area designs below outline various options for future development. Feedback is sought if stakeholders believe one Danger Area design better adheres to the Design Principles than the others, particularly in relation to Design Principles C, D and E.



⁴ ENR 1.1 Sect 5.1.3.2.1

Section 3

Next Steps

Stakeholders are invited to comment on the airspace design options proposed to ensure that they are aligned with and able to achieve the Design Principles developed in Stage 1.

Stakeholders are requested to provide feedback by **Wednesday 2nd February 2022**. This will ensure that the feedback can be presented to the CAA in time for the February Gateway.

Please note - the above options are not yet fully developed. Further refinement will not happen until after stakeholder feedback and Stage 3 of the ACP process. Stakeholders will then get further opportunities to discuss the proposal during consultation.

A stakeholder feedback form can be found at Annex A. Completed forms may be returned in the following ways:

Email: 47RA-Project-LOVERIDGE@mod.gov.uk

Letter: Project LOVERIDGE
FAO Regimental Operations Officer
47th Regiment Royal Artillery
Horne Barracks
SALISBURY
Wiltshire
SP4 8QE

Alternatively, an online form can be submitted at the link [here](#).

The timeline for this ACP can be found below. All documents relating to the ACP so far can be found on the CAA Airspace Change Portal⁵. The ACP number is ACP-2021-006.

STAGE	DATE
DEFINE GATEWAY	17 DEC 21
DEVELOP AND ASSESS GATEWAY	25 FEB 22
CONSULT GATEWAY	29 APR 22
UPDATE AND SUBMIT	26 AUG 22
DECIDE GATEWAY	24 FEB 23
IMPLEMENT (TARGET AIRAC)	15 JUN 23

Submit to AIS by 17 Mar

⁵ <https://airspacechange.caa.co.uk/PublicProposalArea?pID=341>

STAKEHOLDER DESIGN OPTION FEEDBACK FORM

The Sponsor kindly invites you to provide feedback regarding the Design Options. Please respond either by:

- Scanning the QR code and fill in the online Form
- Follow this link <https://forms.office.com/r/2gVLN4McWY>
- Print this form and send as a letter
- Fill in the Word document version of this form attached to the email sent to all Stakeholders.



The Sponsor thanks you for your assistance and time.

Name:	
Organisation:	
Email:	

1. **Do you assess that the following Design Options achieve the Design Principles?**
 (Please place a Y / N in the relevant section)

DP	Design Principle	Option 1 - Do Nothing	Option 2 - Use Existing Airspace Structures	Option 3 - Danger Area
A	Provide a safe environment for all airspace users			
B	Provide sufficient airspace to meet all reasonable technical requirements for the Watchkeeper RPAS platform that are required to facilitate safe access to and from SPTA and usage of Keevil Airfield.			
C	Minimise the impact to other airspace users, both in terms of activation and volume of airspace required.			

D	Make the airspace as accessible as possible to all types of air user.			
E	Use standard airspace structure where possible (conformity, simplicity and safety).			
F	Minimise the impact of operating noise to local residents			

2. Which Design Option(s) do you believe best deliver(s) the Design Principles as a whole? Please place a X in the desired box(es)

Option 1 - Do Nothing	Option 2 - Use Existing Airspace Structures	Option 3 - Danger Area

3. Do you have any specific feedback relating to the use of the Drop Zone / NOTAMs to achieve an equivalent level of segregation for RPAS operating from Keevil?

4. Do you have any recommendations to the Sponsor or alternative options you would like the Sponsor to consider at this Stage?

Thank you for your submission. The closing date for this form is Wednesday 2nd February 2022.