ACP-2021-006

ENABLING BVLOS RPAS OPERATIONS FROM KEEVIL AIRFIELD, WILTSHIRE

STAGE 4B

AIRSPACE CHANGE PROPOSAL
FINAL SUBMISSION

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; a project team 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
Version 1	All	Project LOVERIDGE lead	2 Nov 22

Contents

1. References

1.1 **Reference material.** The table below details all documents that will be referenced throughout this document. This includes previous material submitted as part of this Airspace Change Proposal as well as external publications.

Ref	Document	Publication Date
A	DAP1916 Statement of Need v2	21 Sep 21
B	Stage 1B Design Principles and Stakeholder Engagement	9 Dec 21
C	Stage 2A Design Options Development	22 Jan 22
D	Stage 2B Initial Options Appraisal	2 Mar 22
E	Stage 3B Consultation Document	1 Jun 22
F	Stage 3B Full Options Appraisal	1 Jun 22
G	Electronic Conspicuity Flight Data	1 Jun 22
H	Stage 3 Environmental Impact Assessment	1 Jun 22
I	Stage 4A Consultation Review	2 Nov 22
J	Stage 4A Final Options Appraisal	2 Nov 22
K	CAP 1616 – Airspace Change	1 Mar 21
L	CAP 760 – Guidance on the Conduct of Hazard Identification, Risk Assessment and the Production of Safety Cases	10 Dec 10
M	CAP 1711 – Airspace Modernisation Strategy	Dec 18
N	ACP-2020-047 Keevil Temporary Danger Area	Mar 20

1.2 **List of abbreviations.**

ADS-B	Automatic Dependent Surveillance - Broadcast
ACP	Airspace Change Proposal
AGL	Above Ground Level
AIP	Aeronautical Information Publication
AMSL	Above Mean Sea Level
ATC	Air Traffic Control
ATS	Air Traffic Service
ATSU	Air Traffic Service Unit
BVLOS	Beyond Visual Line Of Sight
CAA	Civil Aviation Authority
CADS	Centralised Aviation Data Service
CAP	Civil Aviation Publication
CAS	Controlled Airspace
DA	Danger Area
DACS	Danger Area Crossing Service
DAAIS	Danger Area Activity Information Service
DAM	Defence Aerodrome Manual
DP	Design Principle
EC	Electronic Conspicuity
EVLOS	Extended Visual Line of Sight
FISO	Flight Information Services Officer
FL	Flight Level
FLARM	‘Flight Alarm’ – EC solution typically utilised by gliders
GA	General Aviation (gliders, light aircraft, private helicopters, balloons)
GCS	Ground Control Station

LARS	Lower Airspace Radar Service
NOTAM	Notice to Airmen
MAA	Military Aviation Authority
MAC	Mid-Air Collision
MLAT	Multilateration
MOD	Ministry of Defence
PPR	Prior Permission Request
PSR	Primary Surveillance Radar
RA	(1) Regulatory Article (2) Royal Artillery
RPA	Remotely Piloted Aircraft
RPAS	Remotely Piloted Air System
RTS	Release to Service
SoN	Statement of Need
SPTA	Salisbury Plain Training Area
SSR	Secondary Surveillance Radar
TDA	Temporary Danger Area
UAS	Unmanned/ uncrewed Aircraft System
UAV	Unmanned/ uncrewed Air Vehicle
VLOS	Visual Line of Sight
VRP	Visual Reference Point
WK	Watchkeeper RPAS

2. Introduction

2.1 This document forms part of Stage 4B of the Airspace Change Proposal ACP-2021-006 and has been prepared in accordance with Civil Aviation Publication (CAP) 1616. This proposal began in September 2021 and has developed in line with the process below within the timeline agreed with the CAA.

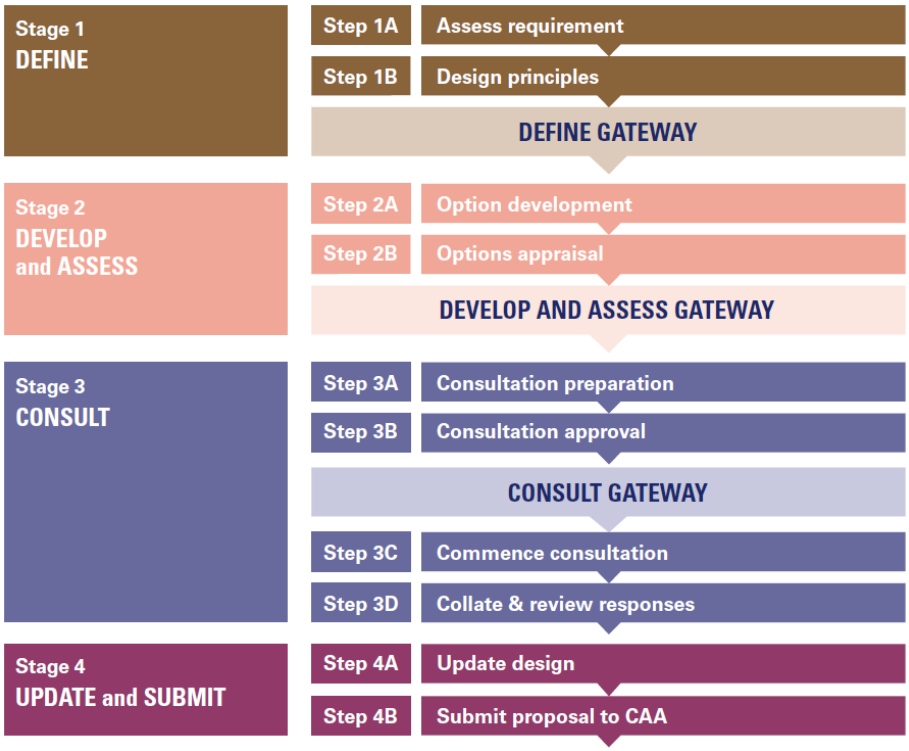

Image 1: Overview of the airspace change process (CAP1616 p.19)

2.2 This proposal addresses the need to create segregated airspace in order to facilitate the operation of military Remotely Piloted Air Systems beyond visual line of sight (BVLOS) from Keevil Airfield, Wiltshire. The scope of this proposal is to create a Danger Area to allow RPAS to operate from Keevil and facilitate access to the Salisbury Plain Danger Area complex.

2.3 This proposal was deemed by the CAA to be a Level M1 ACP under CAP 1616 as an anticipated consequence of the change proposed is an alteration of civil aviation traffic patterns below 7,000 feet over an inhabited area. The proposal has been developed in line with the timeline agreed with the CAA below:

Stage	Date
DEFINE Gateway	17 Dec 21
DEVELOP AND ASSESS Gateway	25 Feb 22
CONSULT Gateway	27 May 22
UPDATE AND SUBMIT	28 Oct 22
DECIDE Gateway	24 Feb 22
IMPLEMENT (Target AIRAC)	Jun 23

Keevil Airfield

2.4 Keevil Airfield, formerly RAF Keevil, is a satellite aerodrome of RAF Brize Norton. It is located to the North West of Salisbury Plain Training Area (SPTA), adjacent to the villages of Keevil and Steeple Ashton. 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.

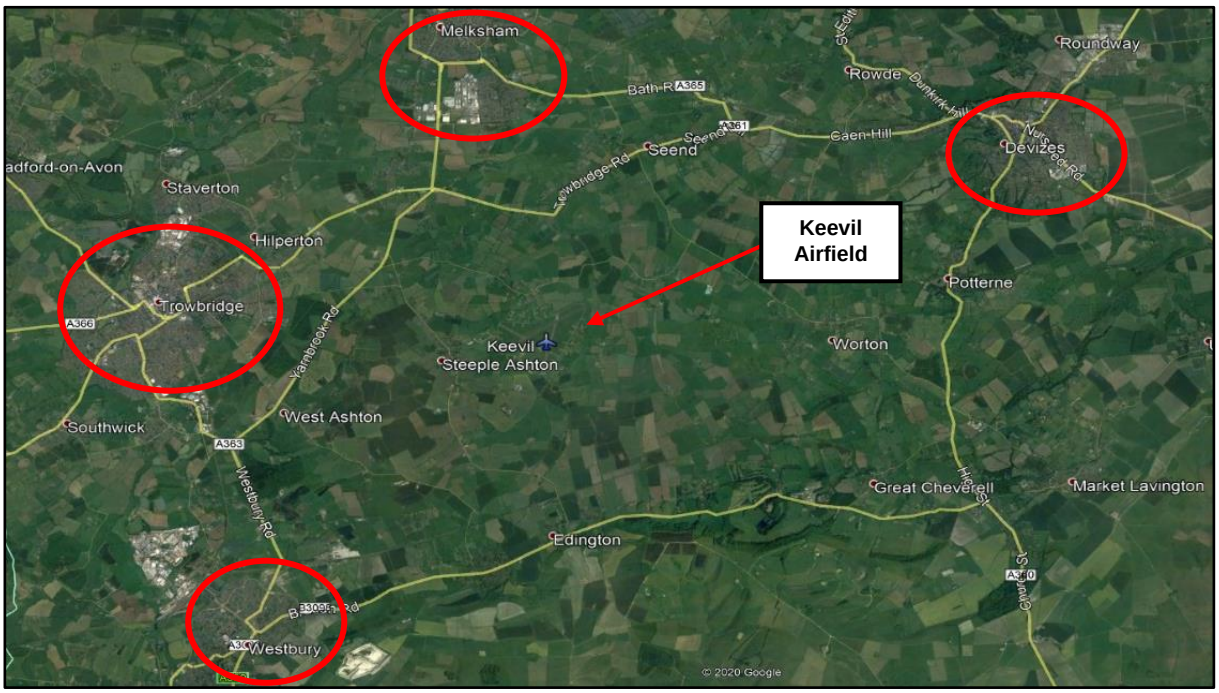

Image 2: Keevil Airfield in relation to built up areas

2.5 The airfield itself now offers limited infrastructure and airfield facilities but remains an active site for military and civilian air and ground activities such as gliding, military para-dropping, troop air assault tactical insertions and ground manoeuvres in support of exercises on Salisbury Plain.

Image 3: Keevil Airfield aerial photograph

2.6 The airfield has one declared usable runway: 06/24 with the remaining runways forming taxiways in a triangle layout. These taxiways (01/19 and 12/30) are not currently in a condition suitable for the take-off or landing of military aircraft.

2.7 Keevil was used by the MOD in summer 2021 to deploy the Watchkeeper Remotely Piloted Air System (RPAS) for three months, using a Temporary Danger Area created under ACP-2020-047 (Ref. N) in order to assess the viability of future operations of RPAS from Keevil in order to support military training on SPTA.

3. Executive Summary

3.1 As outlined in the Statement of Need at Ref. A and in Section 5 the Ministry of Defence (the Sponsor) is seeking to establish a Danger Area (DA) to facilitate Beyond Visual Line of Sight flying of Remotely Piloted Air Systems between Keevil Airfield and the existing Danger Areas of Salisbury Plain Training Area (SPTA). This permanent airspace change proposal follows

3.2 In accordance with CAP 1616 the Sponsor sought feedback from stakeholders on draft design principles (Ref. B) which would be used to assess various options to be developed in Stage 2. Feedback at this stage was useful but not all relevant as feedback often involved comment on the entire ACP rather than just the Design Principles.

3.3 Stage 2A saw Design Options developed against the design principles (Ref. C), feeding the Initial Options Appraisal (Ref. D) in which the Sponsor first discounted some options (RMZ, TMZ, controlled airspace) and evaluated various Danger Area options and extant navigational warnings against the ‘do nothing’ baseline. This also involved a period of stakeholder engagement.

3.4 Stage 3 saw the development of consultation material (Ref. E and F) as well as a consultation strategy. On passing the CONSULT gateway the Sponsor began a 12-week public consultation which involved face-to-face consultation events, local roadshows and virtual briefings.

3.5 This generated 64 responses via CitizenSpace which were analysed and categorised accordingly into responses that either have the potential to affect the proposal or not. This was summarised in the Consultation Review (Ref. I)

3.6 Following the Consultation Review and the Final Options Appraisal (Ref. J) it was determined that no significant changes were required to the final proposal. Therefore, as a result of all the submissions discussed above and in para. 1.1, the Sponsor developed the final proposal outlined in the document.

4. Current Airspace Design

4.1 Structure and routes.

4.1.1 Keevil is currently notified as both a Glider Site and a Drop Zone used for free-fall parachuting and heavy supply drops. The DZ is activated when required by NOTAM up to FL150. The glider site conducts winch launches up to 3,200ft AMSL. It is described within ENR 5.5 'Aerial Sporting and Recreational Activities' as follows:

KEEVIL GLIDER SITE, WILTS (AD) (W & T) 511850N 0020643W	Upper limit: 3000 FT AGL Lower limit: SFC	Phone: Bannerdown Gliding Club 01380-870411.	Site elevation: 200 FT AMSL. Hours: HJ
KEEVIL PARACHUTE SITE, WILTS A circle, 2 NM radius, centred at 511851N 0020637W	Upper limit: FL150 Lower limit: SFC	Phone: Opr/User - Various. Brize Norton ATC: 01993-895521/896814/896804.	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.

4.1.2 Additionally, Keevil is currently marked on VFR aeronautical charts (note 4), 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'*

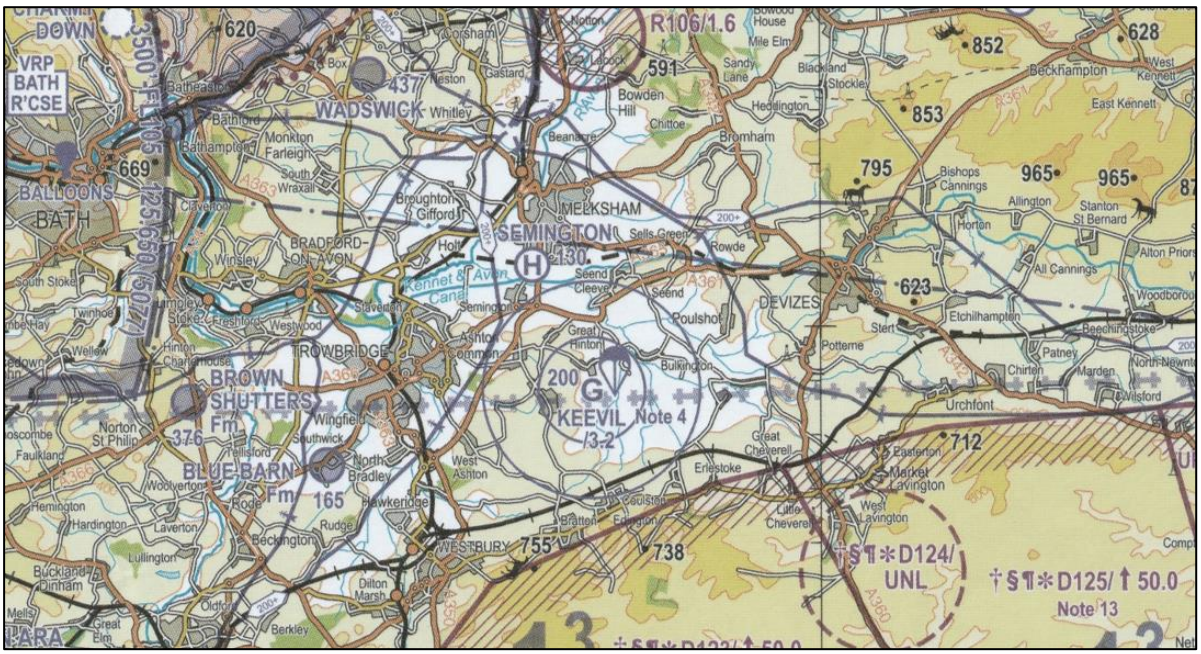

Image 4 – Keevil Local Airspace Source: CAA 1:250k Aeronautical Chart, Sheet 7

4.1.3 The most significant airspace structure of note in the region is Salisbury Plain which is used for both ground and air military training. Currently Salisbury Plain Danger Areas are described within ENR 5.1 as follows:

Identification and Name Lateral Limits	Upper Limit Lower Limit	Remarks
EG D123 IMBER 511724N 0020107W - 511339N 0015746W - 511348N 0015705W - 511023N 0015325W - 511006N 0015702W - 511106N 0020713W - 511329N 0021149W - 511516N 0020939W - 511705N 0020312W - 511724N 0020107W	Upper limit: 50000 FT ALT Lower limit: SFC	Vertical Limits: Upper Limit: Up to ALT 50000 0615-2359 (0515-2300). Upper Limit: Up to ALT 3000 (OCNL notified up to ALT 50000) 2359-0615 (2300-0515). Activity: Ordnance, Munitions and Explosives / Para Dropping / Unmanned Aircraft System (VLOS/BVLOS) / Electronic/Optical Hazards. Service: DACS: Boscombe Down ATC on 126.700 MHz when open; at other times DAAIS via London Information on 124.750 MHz. Contact: Pre-flight information / Booking: Salisbury Operations, Tel: 01980-674710 or 674730 when open. Remarks: SI 1963/1293, SI 1981/1882. Danger Area Authority: DIO. Static data Failed to load data! Hours: H24
EG D124 LAVINGTON A circle, 1.5 NM radius, centred at 511527N 0015812W	Upper limit: UNL Lower limit: SFC	Activity: Ordnance, Munitions and Explosives / Unmanned Aircraft System (VLOS/BVLOS) / Electronic/Optical Hazards. Service: DACS: Boscombe Down ATC on 126.700 MHz when open; at other times DAAIS via London Information on 124.750 MHz. Contact: Pre-flight information / Booking: Salisbury Operations, Tel: 01980-674710. Remarks: SI 1981/1882. Danger Area Authority: DIO. Hours: Activated by NOTAM.
EG D125 LARKHILL 511828N 0015004W - 511059N 0014641W - 511023N 0015325W - 511348N 0015705W - 511339N 0015746W - 511724N 0020107W - 511807N 0015635W - 511828N 0015004W	Upper limit: 50000 FT ALT Lower limit: SFC	Vertical Limits: Upper Limit: Up to ALT 50000 0615-2359 (0515-2300). Upper Limit: Up to ALT 3000 (OCNL notified up to ALT 50000) 2359-0615 (2300-0515). Activity: Ordnance, Munitions and Explosives / Para Dropping / Unmanned Aircraft Systems (VLOS/BVLOS) / Electronic/Optical Hazards. Service: DACS: Boscombe Down ATC on 126.700 MHz when open; at other times DAAIS via London Information on 124.750 MHz. Contact: Pre-flight information / Booking: Salisbury Operations, Tel: 01980-674710 or 674730. Remarks: SI 1965/1327, SI 1981/1882. Danger Area Authority: DIO. Hours: H24
EG D126 BULFORD 511621N 0013746W - 511525N 0013606W - 511247N 0013759W - 511233N 0013942W - 511044N 0014308W - 511059N 0014641W - 511351N 0014759W thence clockwise by the arc of a circle radius 5	Upper limit: 1400 FT ALT Lower limit: SFC	Vertical Limits: OCNL notified to FL 90. Activity: Ordnance, Munitions and Explosives / Para Dropping / Unmanned Aircraft System (VLOS/BVLOS). Service: DACS: Boscombe Down ATC on 126.700 MHz when open; at other times DAAIS via London Information on 124.750 MHz. Contact: Pre-flight information / Booking: Salisbury Operations, Tel: 01980-674710 or 01980-674730 or Boscombe Down ATC, Tel: 01980-663246.

NM centred on 510912N 0014504W to 511354N 0014225W - 511621N 0013746W		Remarks: SI 1970/1282, SI 1981/1882. Danger Area Authority: DIO. Hours: H24
EG D128 EVERLEIGH 511852N 0014215W - 511621N 0013746W - 511354N 0014225W thence anti-clockwise by the arc of a circle radius 5 NM centred on 510912N 0014504W to 511351N 0014759W - 511828N 0015004W - 511852N 0014215W	Upper limit: 1400 FT ALT Lower limit: SFC	Vertical Limits: OCNL notified up to ALT 50000. Activity: Ordnance, Munitions and Explosives / Para Dropping / Unmanned Aircraft System (VLOS/BVLOS). Service: DACS: Boscombe Down ATC on 126.700 MHz when open; at other times DAAIS via London Information on 124.750 MHz. Contact: Pre-flight information: Salisbury Operations, Tel: 01980-674710 or 674730. Remarks: SI 1981/1882. Danger Area Authority: DIO. Static data Failed to load data! Hours: H24

4.1.4 At the time of publication of this proposal Salisbury Plain Danger Areas are under review to amend the routine upper limit of the Danger Areas, activating only to 50,000ft when required by NOTAM.

4.2 **Airspace usage and proposed effect.**

4.2.1 Keevil continues to be utilised regularly by the MOD to conduct a variety of air and ground activities. This includes use as a tactical landing zone and drop zone for RAF Air Transport aircraft as well as a technical and tactical training location for rotary-wing assets from the Joint Helicopter Command (JHC) and the Army Aviation Centre, Middle Wallop.

4.2.2 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. Bannderdown Gliding Club primarily occupy Keevil at weekends however play host to a number of gliding competitions throughout the year.

4.2.3 The Wessex Model Flying Club may use Keevil for model aircraft flying. However, during military activities the club utilises a dedicated site 3 miles from Keevil.

4.2.4 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). The airfield sits approximately 2.5NM North of Salisbury Plain Danger Area 123 and 8NM from the boundary of the Bristol CTA (3,500-FL105).

4.2.5 A number of small private airstrips, microlight sites and glider sites exist to the North and West of SPTA including the following, all of which are located within 7NM of Keevil:

Brown Shutters Farm	Devizes (Urchfont)
Craysmarsh Farm	Lydeway Field
Devizes (Coate)	Wadswick

4.2.4 **Usage statistics.** Keevil Airfield itself is currently used weekly by JHC, both day and night. RAF air transport aircraft historically used the airfield 15-20 times per year but have significantly reduced their operations since 2020 due to a sensitive local operational consideration. It is hoped that use by the RAF Air Mobility Force will increase to 15-20 times per year in the coming 24 months.

4.2.5 Whilst it is difficult to ascertain exact airspace use due to the fact that the aircraft lies solely within Class G, the Sponsor conducted a quantitative assessment as part of the Full and Final Options Appraisals (Ref F and J). In summary, the following deductions were made about current aircraft behaviour:

- Over a two-week period (weekdays only) 164 aircraft operated in the vicinity of Keevil- 88 were civilian and 76 were military.
- The majority of air users currently elect to route around the Keevil area to the North (76% of air users).
- The majority of users routinely operating below 3,000ft and within 2NM of the airfield are military helicopters and local gliders (gliders launched from Keevil itself).
- Some air users (around 1 in 12) elect to use the railway line for VFR navigation.
- Very few (17) air users elect to transit overhead below 3,000 ft AMSL during the 2 week period. The average operating altitude for those 17 aircraft were between 1000 - 2000 ft AMSL.

4.2.6 It is therefore concluded that the proposed effect of a Danger Area with a vertical dimension between 3,000 and 3,500ft AMSL will have a limited impact on air users when compared with the current situation.

4.3 **Operational efficiency, complexity, delays and choke points.**

4.3.1 Airspace around Keevil is monitored by several military and civilian radars with overlapping coverage of the region. The airspace benefits from several Lower Airspace Radar Services (LARS) as shown in Image 5 which aim to provide advice and information for the safe and efficient conduct of flight in the area. Aircraft operating in the vicinity of Keevil who wish to obtain an air traffic service typically receive a LARS from either Boscombe Down, Brize Norton or a listening squawk with Bristol.

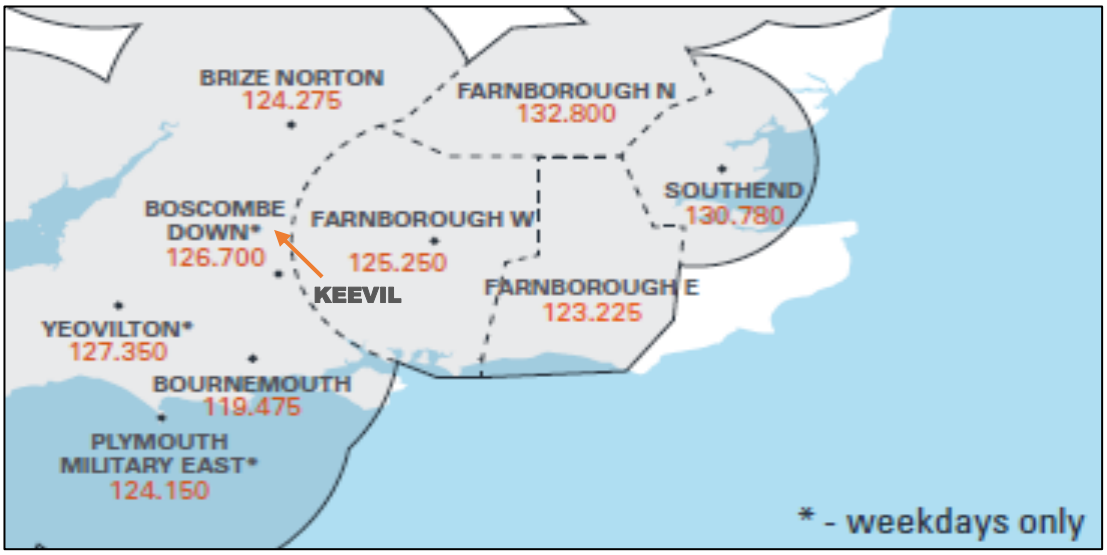

Image 5 - Lower Airspace Radar Service Coverage in Southern England.
Source: CAP1535 The Skyway Code

4.3.2 The Future Airspace Strategy VFR Implementation Group (FASWIG) register of VFR Significant Areas[1] lists the Brize Norton/Boscombe Down/Bristol Gap as a 'busy VFR area with a wide range of local and transit traffic'. It also states that the gap is only 'moderately constrained by Bristol Class D in the West but any increase of CAS would increase the density of traffic…and place a further major obstruction to non-CAS pilots as rerouting is not a practical option because of Bristol and Brize Norton CAS and Salisbury Plain

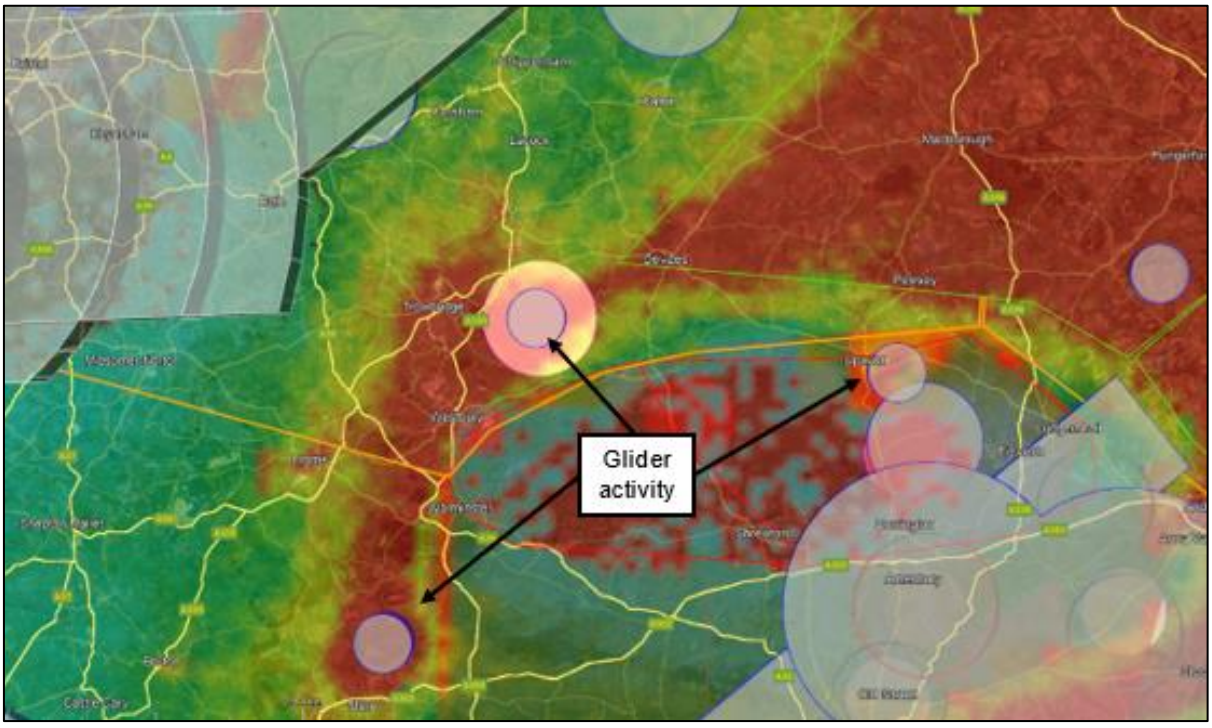

Image 6 – VFR Significant Areas in General. Source: FASVIG, Google Earth

ranges'[2].

4.3.3 From the VFR heatmap (Image 6) it can be deduced that:

[1] http://docs.fasvig.info/Projects/MAS01/20170930-MAS01-0002-FASVIG-VSA-V2.pdf
[2] Register of VFR Significant Areas v2, p39

- The ‘Bristol gap’ is more congested towards Salisbury Plain than Bristol CTA.

- The gap between the Keevil and the boundary of Salisbury Plain DA is not as widely utilised as operating to the North of Keevil between Frome, Westbury and Trowbridge.

4.3.4 However, this data does not factor in the transit altitude of aircraft are operating around Keevil so this data must be used in conjunction with the ADS-B and glider data that was gathered, which can be seen in Image 7 as well as in Ref. F and G, with additional data added post-consultation in Annex A to Ref J.

4.3.7 Whilst, due to the time of year and limited time of data collection, the data below may underrepresent the volume of aircraft tracks expected during the summer it is assessed that the behaviour of air users will not change.

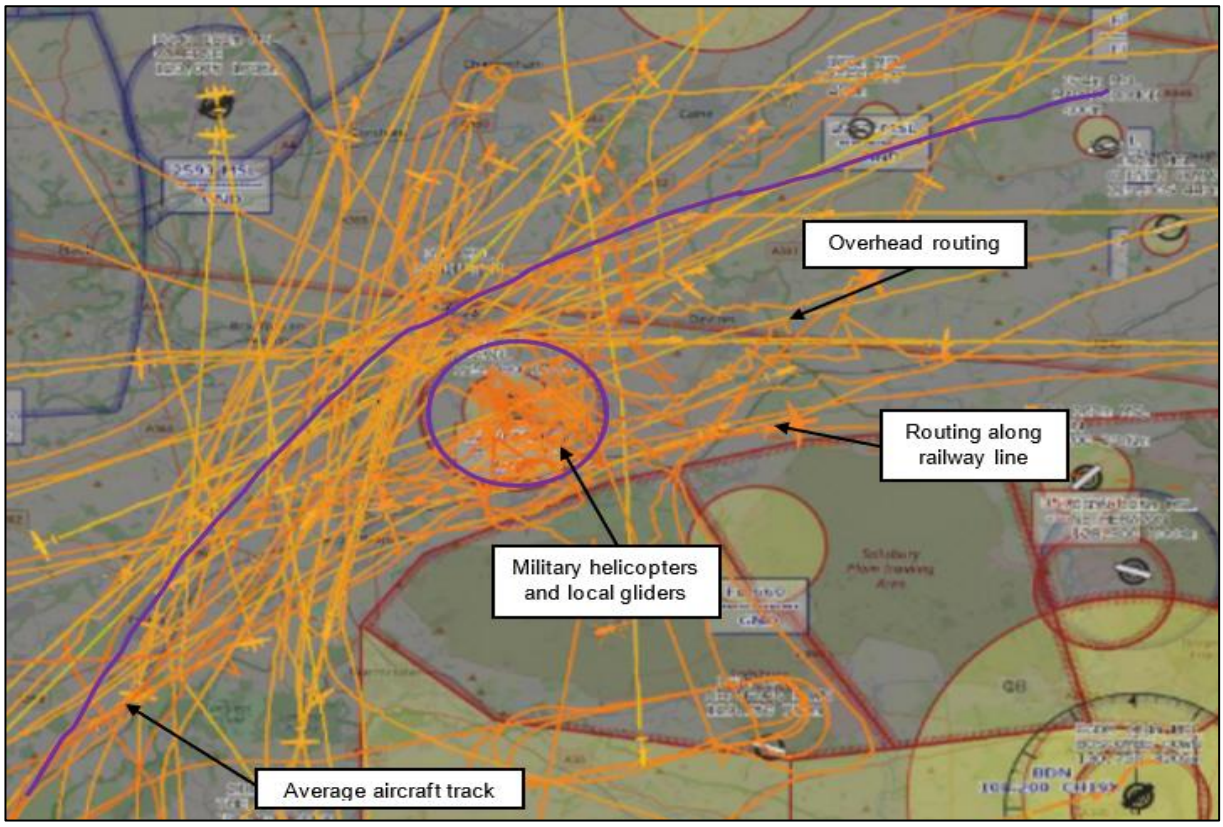

Image 7 – Electronic Conspicuity data Source: globe.adsbexchange.com

4.4 **Safety issues.**

4.4.1 In order to assess any safety issues with the current airspace structure the Sponsor used UK Airprox Board data to understand whether the choke point between SPTA and Bristol translated into an increased air safety risk.

4.4.2 Image 8 was obtained from the UK Airprox Board website[3] and depicts all filed airprox incidents between 1st January 2011 and 8th April 2022 to the UK Airprox Board.

[3] https://www.airproxboard.org.uk/reports-and-analysis/interactive-map/

The data presented in the graphic is for all air traffic (military and civilian) operating VFR or IFR. Commercial air transport aircraft have been omitted.

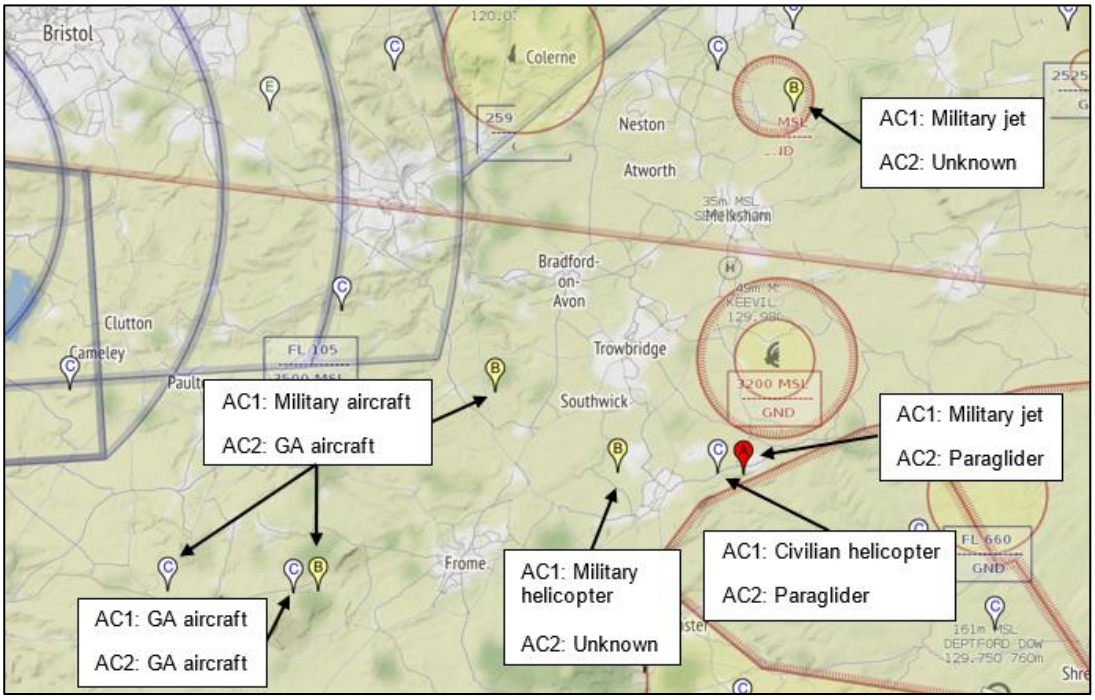

Image 8 – Airprox Board data Source: Mr C Fox, Airprox Board

4.4.3 It can be deduced that, based on the current volume of air traffic, the 'pinch-point' does not present an increased air safety risk.

4.5 **Environmental issues.**

4.5.1 Throughout the Options Appraisal the Sponsor assesses that there is a negligible impact on local air quality, noise and biodiversity as a result of aviation activities currently undertaken in and around Keevil.

4.5.2 It remains difficult to meaningfully quantify any environmental issues currently for the following reasons:

- As the affected area is entirely within Class G airspace the operation of aircraft cannot be accurately predicted.

- The number and type of aircraft movements in the area cannot be accurately quantified. The variety of GA aircraft makes a quantitative assessment on predicted greenhouse gas emissions or noise pollution impossible to accurately determine.

4.5.3 The Sponsor will discuss environmental considerations as a result of this ACP further in Sections 7 and 14.

5. Statement of Need

5.1 **Statement of Need (SoN).**

5.1.1 The SoN was submitted to the CAA at Stage 1 of the CAP 1616 process as was uploaded to the CAA Airspace Change Portal as Ref A in September 2021. It reads as follows:

> *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.*

5.1.2 Keevil offers substantial improvements to training outputs compared with other live flying locations and will allow the MOD to significantly accelerate wider RPAS conceptual development due to the increased opportunities to integrate with wider Army and Defence exercises. Alternative locations like Boscombe Down, Upavon, Netheravon or Deptford Down have been discounted either due to its existing operations or runway limitations.

5.2 **Airspace Modernisation Strategy.** This proposal does not form part of the Airspace Modernisation Strategy (Ref M). This ACP does not aim to solve the strategic issue of RPAS integration within UK airspace, nor does it seek to ‘invent’ anything novel.

5.2.1 In order to comply with current policy a Danger Area is the most recognised method of achieving segregated airspace for operating RPAS in the UK. Future airspace modernisation may negate the requirement for segregated airspace or introduce alternative methods of segregating RPAS in future at which point this airspace structure will no longer be required.

6. Proposed Airspace Description

6.1 **Objectives/ requirements for proposed design.**

6.1.1 The objective of the proposed design is to create segregated airspace in order to allow RPAS to operate between Keevil Airfield and Salisbury Plain, when required.

6.1.2 The requirements to segregate RPAS within UK airspace can be found within CAP 722 and Regulatory Article 2320. Due to the requirement to operate Beyond Visual Line of Sight (BVLOS) without the ability to apply see-and-avoid or operate under the Rules of the Air, Segregated Airspace is required to enable BVLOS operations from Keevil to Salisbury Plain Training Area (SPTA). This airspace is not designed to be the panacea for operating RPAS within UK airspace, but rather to facilitate a current requirement to facilitate BVLOS operations from Keevil into SPTA D123 in the short-term.

6.1.3 The DA over Keevil Airfield will facilitate:

a. Departures into and recoveries from SPTA D123 in order to conduct military RPAS training.
b. Circuit training for pilot currency requirement only.
c. Emergency recovery of the RPAS from SPTA to Keevil Airfield.

6.1.4 The Danger Area consists of:

a. A single structure, surface to 3,200ft AMSL
b. A 4.9 Nautical Mile (9.1km) wide Danger Area, orientated in line with runway 06/24 in order to facilitate extended approaches.
c. The DA extends south to intercept D123, the primary operating area for any RPAS departing from Keevil.
d. The airspace to the North of Keevil has been reduced to the minimum required, discounting the use of runway 01/19 in the interest of reducing any funnelling effect for aircraft transits around the airspace. All requested airspace have been kept to the absolute minimum in order to facilitate the Flexible Use of Airspace principle.

6.2 **Proposed new airspace definition and usage.**

6.2.1 The proposal is to introduce a Danger Area, activated by NOTAM to connect Keevil and SPTA. The draft AIP entry is as follows:

Identification and Name Lateral Limits	**Upper Limit Lower Limit**	**Remarks**
EG D… KEEVIL 511937N 0020745W 512054N 0020410W 511947N 0020303W 511705N 0020312W 511602N 0020657W 511700N 0020932W 511744N 0021015W 511937N 0020745W	Upper limit: 3200 FT ALT Lower limit: SFC	Activity: Unmanned Aircraft System (VLOS/BVLOS). Service: DACS: Boscombe Down ATC on 126.700 MHz when open; at other times DAAIS via London Information on 124.750 MHz. Contact: Pre-flight information / Booking: Salisbury Operations, Tel: 01980-674710. Danger Area Authority: *TBC* Hours: Activated by NOTAM.

6.2.2 The Danger Area will appear on aeronautical charts as follows:

Image 9 – Proposed new Keevil Danger Area
Chart Source: CAA 1:250k Aeronautical Chart, Sheet 7

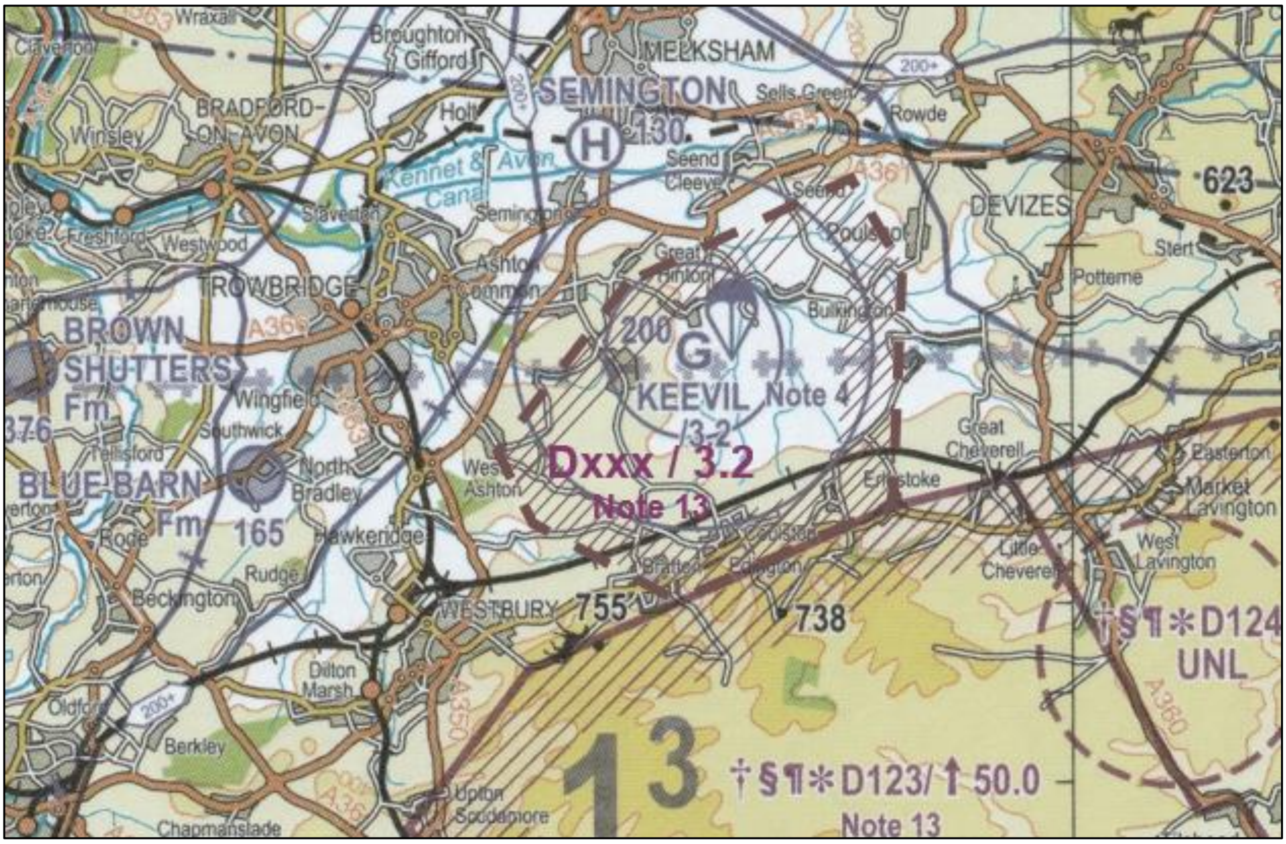

Image 10 – Proposed new Keevil Danger Area in detail
Chart Source: CAA 1:250k Aeronautical Chart, Sheet 7

NOTE 4. KEEVIL AERODROME (511850N 0020643W). In addition to use as a Glider Launching Site, Keevil is used extensively as a Military Dropping Zone. Pilots are advised to avoid the aerodrome at all times by 2NM laterally and 2000ft AAL vertically (elevation 200ft AMSL).

NOTE 13. Due to the complexity of the Danger Areas in the Salisbury Plain area, users are advised to refer to the UK AIP ENR 5.1 for further details.

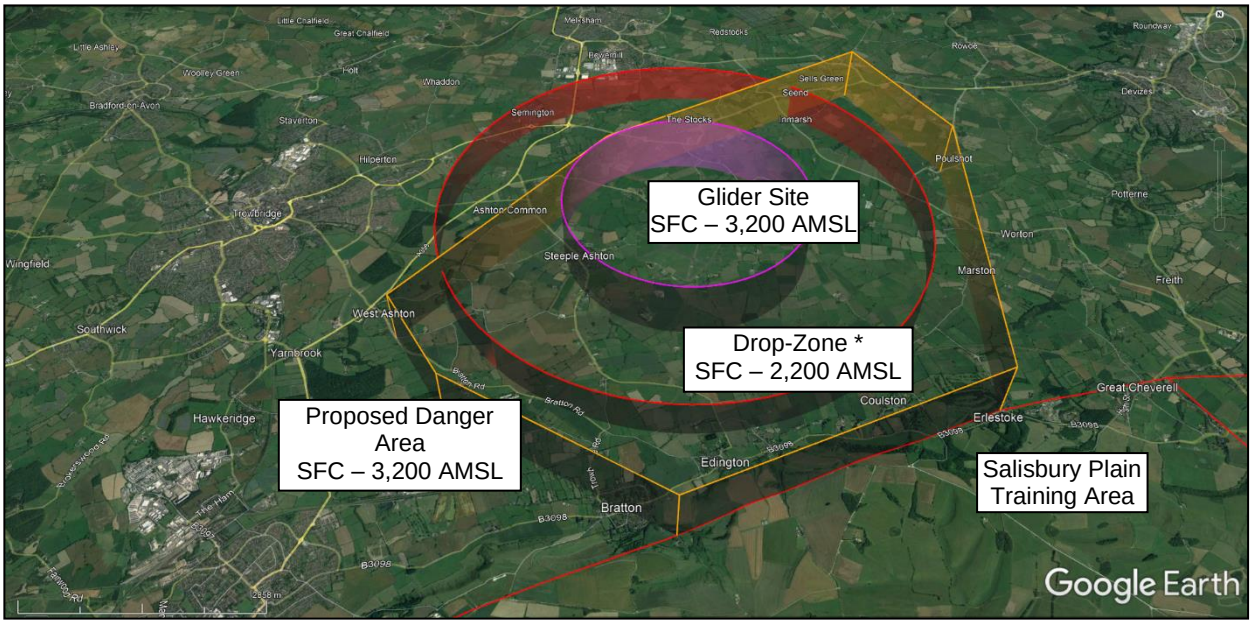

Image 11 – Overlay of new Danger Area with Glider Site and Drop Zone
Source: Google Earth
** NOTAM up to FL150. Note 4 on CAA 1:250k Aeronautical Chart, Sheet 7 states "Supply drops may take place at any time within 2 NM and below 2000 FT"*

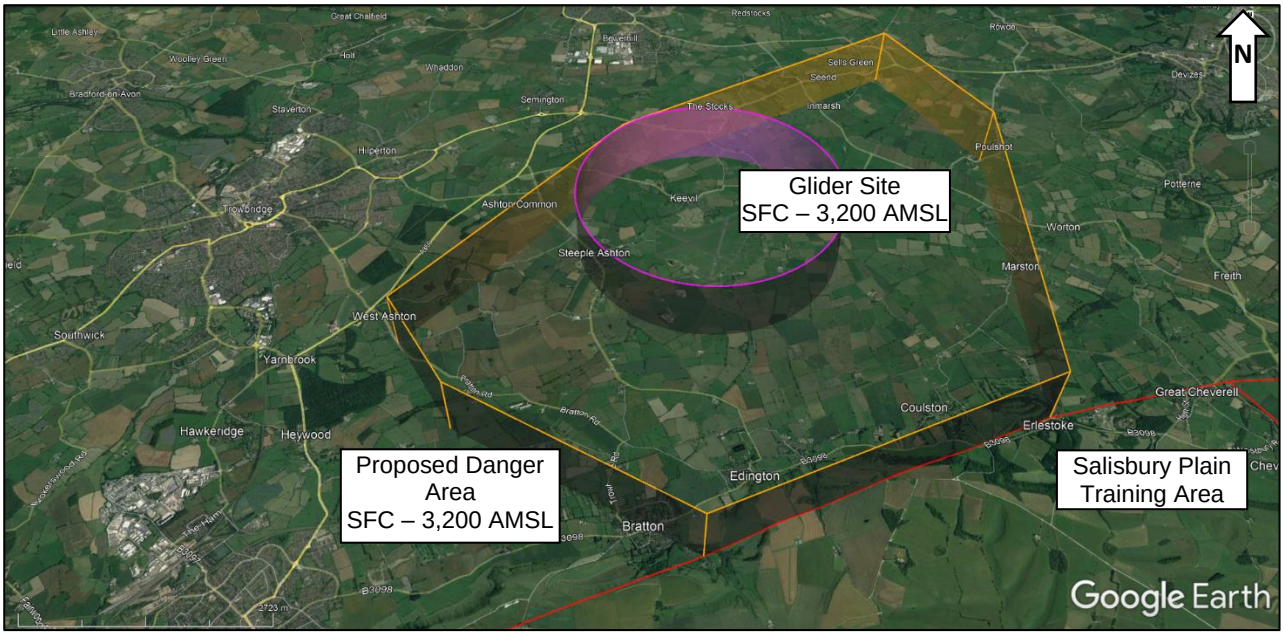

Image 12 – Overlay of new Danger Area with Glider Site
Source: Google Earth

6.2.2 **Usage.** The airspace will only be activated when required by NOTAM. When not in use the airspace will revert to the current structure. Whilst it is not the intent to operate

year-round or on a permanent basis it is anticipated that the airfield (and thereby the airspace) will be predominately used between May- September for RPAS (although fixed-wing and rotary activity will continue throughout the year). The Danger Area will only require activation for RPAS operation and is not required by air transport or rotary-wing aircraft. Therefore, the Drop Zone will remain as a navigational warning within the AIP to facilitate such activity.

6.2.3 The airfield will be utilised predominantly during the working week only (Monday-Thursday between the hours of 0830-1730 and 0830 and 1430 on a Friday). Normal operations will see 1-2 RPAS airfield movement per day. It is anticipated that the Danger Area would be activated for 3-6 weeks at a time (excluding weekends).

6.2.4 When the Keevil DA is active, a Danger Area Crossing Service (DACS) will be provided by MOD Boscombe Down. In addition, a Danger Area Activity Information Service (DAAIS) will also be available from London Info on 124.750.

6.2.5 RPAS activity will predominantly take place in the morning, to depart into Salisbury Plain, and in late afternoon, during recovery. Some circuits may be required for currency purposes 2-3 times per week for no more than 1 hour at a time. Aircraft wishing to obtain a DACS may be denied during periods of RPAS departure and recovery but will be available upon establishment in D123.

6.3 **Mitigations.** The following mitigations will reduce the impact of the Danger Area, when active:

- DACS will reduce the impact on the vast majority of air traffic operating in the area.

- Specific Letters of Agreement will reduce the impact on paragliding, a local farm strip and HEMS.

- The Danger Area will only be NOTAM'd for the periods of RPAS activity and for the least amount of time as possible. Gliding, rotary-wing and fixed wing activities will not require the use of the Danger Area and will use existing Navigational Warnings.

- NOTAMs will be promulgated as early as possible in order to assist in flight planning.

- Should RPAS activity be cancelled or concluded early, the airspace will be deactivated as soon as practicable.

- Should Boscombe Down LARS (and therefore a DACS) not be available due to workforce of equipment, the airspace will be deactivated.

6.4 **Mitigations not adopted.** The following mitigations were discussed during consultation but will not be taken further:

- The use of ATIS frequency and/or bespoke procedures for some air users to access the Danger Area has been discounted in order to keep operating procedures as simple as possible for both air users and Boscombe Down ATC. Frequencies / procedures will be as per the proposed AIP entry.

7. Impacts and Consultation

7.0.1 **During Stage 1** The Sponsor engaged with a wide variety of potential stakeholders and sought their feedback on the initial Design Principles that was used to frame the Design Options during Stage 2.

7.0.2 Engagement began on 22nd October 2021. The majority of engagement was conducted in writing and the Sponsor received 16 responses via email. The Sponsor also conducted in-person engagement with over 30 local stakeholders as part of the Salisbury Plain Training Area Air Users Working Group.

7.0.3 There was a relatively low response rate at this stage and some feedback was deemed to fall outside of the specific feedback on Design Principles as they focussed on the types of structures, rather than Principles governing the structures. The overarching theme from general aviation stakeholders was concerns over the removal of valuable Class G airspace in the area and the restrictions that may be placed on them that would limit their freedom of manoeuvre around the North West of Salisbury Plain.

7.0.4 Whilst largely supportive, feedback from some local stakeholders requested greater representation of their interests and suggested the inclusion of a principle relating to noise abatement.

7.0.5 As a result of the engagement, two Design Principle were modified, and a further Design Principle has been added. The draft principles have also been categorised in priority order however there was limited feedback specifically relating to priorities.

7.0.6 **During Stage 2** the Sponsor invited Stakeholders to assess whether the Design Principles developed in Stage 1, will be adhered to in the Design Options proposed.

7.0.7 Three Design Options were proposed:

a. **Do Nothing** – This created the baseline to measure all the other options against but would not facilitate RPAS operations.

b. **Use the Drop-Zone already over Keevil Airfield** as a method of providing segregation in order to enable RPAS operations.

c. **Use a basic Danger Area** design consisting of a single structure connected to the Salisbury Plain Danger Area and

d. **Use multiple structures**, one DA around Keevil airfield to facilitate take-off and landings, and one “hanging airspace” DA that would facilitate the crossing of the RPAS into the SPTA DA.

7.0.8 During this stage, the CAA provided guidance that the use of a DZ will not amount to the level of segregation required to enable RPAS operations, and the Sponsor therefore discounted this option.

7.0.9 **During Stage 3** the Sponsor conducted a 12-week (Wednesday 1st June to Wednesday 24th August) consultation on the remaining 2 Design Options. Each Design Option had 2 examples for that specific Option. The Consultation documentation included the Full Option Appraisal with Environmental Impact Assessments and supporting

evidence. A total of 72 stakeholders were directly targeted (a full list of stakeholders can be found in the Consultation Review Ref I. This included:

- 25 x NATMAC members
- 34 x local aviation stakeholders
- 10 x local community stakeholders
- 3 MPs

7.0.10 Internal MOD stakeholders were consulted via the Defence Airspace and Air Traffic Management (DAATM).

7.0.11 A total of 64 responses were received. 51 were sent by individuals and 13 sent by organisations53.12% of responses identified themselves as 'local community stakeholders'. This included Parish councils, local bodies as well as individuals. No feedback from MPs was received via MOD or public channels. 45.31% of responses were from 'aviation stakeholders', including local and national individuals and clubs, including General Aviation, gliding, hang-gliding and paragliding as well as commercial stakeholders such as HEMS and hot air balloon operators.

7.0.12 Option 2 Design was favoured by 70.31% of respondents. The majority of feedback pointed to the fact this this shape is able to better facilitate operating procedures that can facilitate multiple routes and holding locations between the airfield and Salisbury Plain, thus reducing noise impacts on local communities. Aviation stakeholder who supported this option preferred the simplicity of this airspace design over the Option 3 designs which would be more complex in terms of activation and interpretation. Additionally, it was considered by some stakeholders that Option 2 Design 1 represented the best compromise between stakeholder groups in terms of facilitating future noise abatement procedures (as per the design principles and as the primary concern of local residents) and minimising the volume of airspace required (the main concern of aviation stakeholders).

7.0.13 Option 3 Design 2 was favoured by 20.31% of stakeholders, almost exclusively aviation stakeholders. Generally, support for this design was due to the facilitation of the 'low-level corridor' thereby allowing transit between Keevil and D123. Comments against Option 3 designs noted that the creation of essentially two separate Danger Areas (the airfield and the transit corridor) is more complex, both in terms of navigating the space but also in terms of NOTAM activation.

7.0.14 Although some of the feedback did not directly impact the design of the proposed Danger Area, each point has been addressed and contributed to the development of operational procedures where possible.

7.0.15 During the Final Options Appraisal at Stage 4A, Option 2 – Design 2 and Option 3 (both designs) were discounted due to either containing airspace not required for RPAS operations, or the increase in risk of MAC the Options would have resulted in.

7.1 **Net impact summary.**

7.1.1 Due to the current behaviour of aircraft in the region largely avoiding overflight of Keevil according to Ref G, the proposed DA of Option 2 Design 1 will not increase the funnelling effect between SPTA and Bristol CTR as it is able to limit any unnecessary encroachment to the North of Keevil.

7.1.2 Additionally the lowering of the DA altitude to 3,200 ft AMSL to coincide with that of the glider site will further reduce the impact of aircraft overflying Keevil.

7.1.3 The addition of a DACS will allow pilots who previously avoided flying through the Keevil overhead at altitudes below 3,200 ft AMSL an opportunity to cross.

7.2 **Units affected by this proposal.**

7.2.1 It is anticipated that this proposal will affect both local general aviation and the local community. Image 13 shows consultation responses by stakeholder type, indicating strong interest from both groups. Specific impacts will be discussed below.

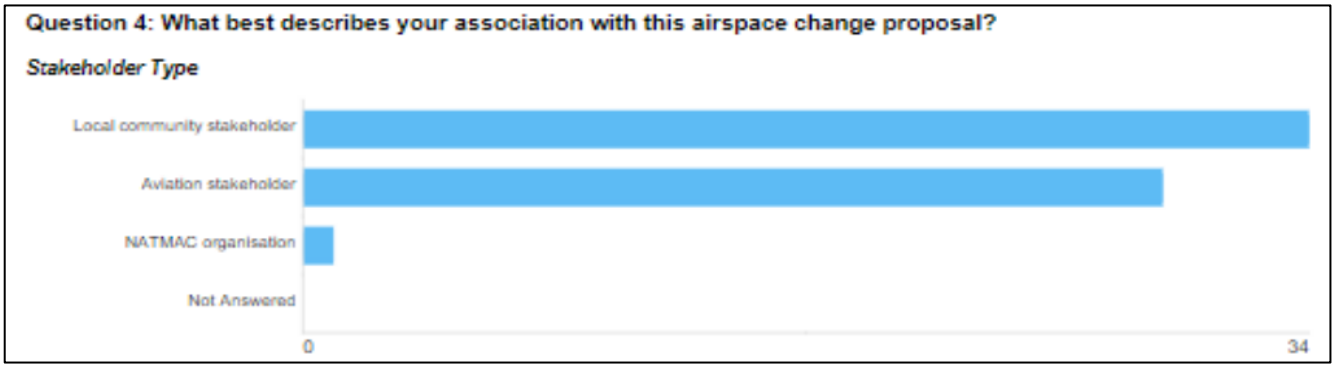

Image 13 – Electronic Conspicuity data Source: Stage 4A Consultation Review

7.3 **Military impact and consultation.** This is a Ministry of Defence ACP. Internal impacts and consultation have been conducted via Defence Airspace and Air Traffic Management (DAATM). The creation of the Keevil DA will have a positive impact on military outputs.

7.4 **General Aviation impact and consultation.** The following GA stakeholders have been identified through consultation as being impacted:

7.4.1 **Edington Hill Farm Strip.** Located 5km South of the airfield, the Edington Hill is a private grass strip located within the boundary of D123. Consultation with the operators was positive and no concerns were raised. Any operational impact will be captured in an updated Letter of Agreement that already exists between the airstrip and Salisbury Plain Air Ops.

7.4.2 **Hang Gliding and Paragliding from Westbury White Horse.** Stakeholder feedback indicated concerns over the impact on hang-gliding and paragliding activities from Westbury White Horse. This identified the need to update the existing Letter of Agreement between Salisbury Plain Training Area and the Avon Hang Gliding and Paragliding Club (Annex C). The intent behind this LoA is to provide localised procedures to allow managed access to the South-Western section of the DA. Access to this area will be on a case-by-case basis and will result in the Western transit route used by RPAS (see Annex A) to enter SPTA to be prohibited from use whilst paragliders are active.

7.4.3 **Local gliding activities.** There were constructive discussions with the BGA and local gliding clubs throughout this ACP. Their main concerns were the altitude of the proposed airspace for gliders cross-country flying, the lack of airspace access for gliders without a radio and requirement to call Boscombe Down LARS for a service due to capacity of the frequency. This resulted in a request to look into the use of a bespoke ATIS frequency to inform glider pilots of the status of the airspace. After discussions with the

CAA and DAATM the Sponsor has concluded that this introduces additional risk to the safe management of this airspace, with Boscombe Down ATC ultimately responsible to managing access as the sole ATSU. Therefore, when active, this airspace will affect gliders operating cross-country without a radio. For those who are unable to obtain an air traffic service or DACS from Boscombe Down are encouraged to file a FCS1522 'UK Airspace Access or Refusal of ATS Report'[4]. Due to the analysis conducted in Ref. J and the mitigations outlined in para 6.3 it is concluded that although there will be an impact on some gliding activity, the majority will be unaffected due to the frequency of airspace activation and the DACS available via ATC.

7.5 **Commercial Air Transport impact and consultation.** Due to its location and airspace dimensions the proposal will have no effect on commercial air traffic. However, the airspace will have an effect on the nearby Wiltshire Air Ambulance (WAA). Consultation throughout the process has been positive and no objections have been raised. Experience from the Temporary Danger Area in summer 2021 demonstrated that operating procedures laid out in the Letter of Agreement at the time was appropriate. During discussions WAA did suggest including other HEMS units into any future LoA to ensure they can equally benefit from the procedures should the be required to enter the airspace when responding to an incident. The LoA (Annex D) will include Wiltshire, Dorset and Somerset (Specialist Aviation Services), Hampshire and Isle of Wight and Great Western Air Ambulances (Babcock) to ensure there is no disruption to blue light aviation services.

7.6 **CO2 environmental analysis impact and consultation.** The Sponsor has determined that although any additional airspace around Keevil is relevant to traffic below 7,000ft AMSL, the level of the impact will not be quantifiable due to the freedoms associated in the class of airspace and the range of options available for transiting aircraft up to 7,000ft AMSL. A DA with the introduction of a crossing service, may allow aircraft to transit previously avoided airspace directly in the future, reducing their route length and thereby CO2 emissions should they be below 3,200ft AMSL. It is therefore not possible to create a Quantitative Assessment on the consequential impact on CO2 emissions. The sponsor has assessed that any additional airspace introduced at Keevil will result in a net-zero additional impact on CO2 emissions.

7.7 **Local environmental impacts and consultation.** During consultation, a common theme raised by Stakeholders were the need to minimise the effect of noise produced from aircraft operations at Keevil. These were concerning the Sponsors aircraft rather than the consequential impact of other air traffic. The Sponsor has concluded that there will be a negligible impact on the local environment- further detail can be found in Section 8 and 14.

7.8 **Economic impacts.** No economic impacts have been identified as part of consultation. Due to the current trend of airspace users largely avoiding the Keevil overhead it is assessed that the impact on fuel burn and thus cost on routing around the proposed DA will be similar to what airspace users are currently experiencing. This impact may even be reduced when a DACS is afforded, reducing the routing length by 1Nm compared to routing around the airspace when the DA is active.

[4] This form may be used to contact the CAA about being denied access to airspace, being refused an air traffic service, or being refused the type of air traffic service you requested.

8. Analysis of Options

8.1 Summary of Options Appraisal

8.1.1 The Options Appraisals conducted at each stage of the ACP required an assessment of the impacts of the Design Options against a “Do Nothing” Option. The Appraisal for each stage can be found in Ref D, F and J. Due to Keevil falling wholly in class G airspace, it was not possible to quantifiably determine, for example, the impact on commercial or general air traffic transiting the area. The chosen methodology throughout the ACP was to conduct a qualitative assessment of the different options, against the headings identified in CAP1616, Appendix E, Table E2: “Guide to expected approach to key analysis for a typical airspace change”. The application of a qualitative assessment has been applied previously in other ACPs of similar scale / proportionality and is compliant both with CAP1616 and the Government Green Book[5]. The impact of commercial air traffic transiting the area has therefore been included into that of general air traffic, using electronic flight tracking software to determine pilot behaviour in the area. The impact of this ACP on military air traffic will be managed internally by the MOD and has therefore not been included into this document.

8.1.2 At each stage, the options taken forward have been further appraised before being retained or discounted, following information received during consultation.

8.1.3 During Stage 2, a qualitative Environmental Impact Assessment was conducted with the following factors assessed:

- Noise
- Overflight
- CO_2 Emissions
- Air Quality
- Impact on Tranquillity and biodiversity

8.1.4 Each factor in the Environmental Impact Assessment (Ref H) was considered against each Option presented, in order to develop the options and reduce the impact to be as low as possible.

8.1.5 **‘Do nothing baseline’.** A summary below is an abridged version of the assessment of the current situation as part of the Final Options Appraisal at Ref. J.

Image 14 – Do Nothing / Current Situation

Source: CAA 1:250k Aeronautical Chart, Sheet 7

[5] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1063330/Green_Book_2022.pdf

Group	Impact	Level of Analysis
Communities	Noise impact on health and quality of life	Qualitative
Evidence		
The types of aircraft that will be most affected are gliders (minimal noise impact), microlights, light aircraft and low flying helicopters (the majority being military). Gliders launching from Keevil predominantly operate during the weekends only (Friday afternoon – Sunday, sunrise to sunset). During periods of operation the area will see multiple glider launchers per hour. Currently military rotary wing helicopters from RNAS Yeovilton, Culdrose and Middle Wallop, RAF Benson and Odiham utilise Keevil several times per week for technical and tactical training. Military para-dropping occurs less frequently but is conducted periodically in support of large exercises (three to four times per year at present).		
Group	**Impact**	**Level of Analysis**
Communities	Air quality	Qualitative
Evidence		
The Sponsor assesses that currently there is a negligible impact on local air quality as a result of aviation activities.		
Group	**Impact**	**Level of Analysis**
Wider society	Greenhouse gas impact	Qualitative
Evidence		
It remains difficult to meaningfully quantify the amount of greenhouse gas emission in the 'do nothing' scenario for the following reasons: - As the affected area is entirely within Class G airspace the operation and number of aircraft cannot be accurately predicted or quantified. - The variety of GA aircraft makes a quantitative assessment on the efficiency of engines and the predicted greenhouse gas emissions impossible to accurately determine.		
Group	**Impact**	**Level of Analysis**
Wider society	Capacity / resilience	Qualitative
Evidence		
The Sponsor assesses that currently there is a negligible impact on wider society capability / resilience as a result of aviation activities.		
Group	**Impact**	**Level of Analysis**
General Aviation	Access	Qualitative
Evidence		
The entire area sits within Class G airspace therefore GA have significant freedom and access. However, ADS-B traces indicate that the majority of GA are already routing around the area due to the published navigation warnings within ENR 5.5.		
Group	**Impact**	**Level of Analysis**
General Aviation / Commercial Airlines	Economic impact from increased effective capacity	Qualitative
Evidence		
There are currently no affects to air transport or passenger numbers brought on by the current airspace structures in the area.		
Group	**Impact**	**Level of Analysis**
General Aviation / Commercial Airlines	Fuel Burn	Qualitative

Evidence		
ADS-B, MLAT, FLARM and SkyDemon user data indicates that GA are largely already routing around Keevil or climbing above it.		
Group	**Impact**	**Level of Analysis**
Commercial Airlines	Training Costs	N/A
Evidence		
It is assessed that there is currently no impact on commercial airline training costs as a result of the Drop Zone or Glider site.		
Group	**Impact**	**Level of Analysis**
Commercial Airlines	Other Costs	N/A
Evidence		
It is assessed that there are no additional costs to commercial airlines as a result of the current airspace structure.		
Group	**Impact**	**Level of Analysis**
Airport / Air Navigation Service Provider	Infrastructure Costs	N/A
Evidence		
There are no additional infrastructure costs for airports or ANSPs associated with Keevil airfield.		
Group	**Impact**	**Level of Analysis**
Airport / Air Navigation Service Provider	Operational Costs	N/A
Evidence		
There are no additional operational costs for airports or ANSPs associated with Keevil airfield.		
Group	**Impact**	**Level of Analysis**
Airport / Air Navigation Service Provider	Deployment Costs	N/A
Evidence		
There are currently no deployment costs for airports or ANSPs.		

8.2 **Options Considered.**

8.2.1 Three Options were initially considered and compared against the “Do nothing” option:

a. **Option 1** presented the proposal to use the existing Drop-Zone as a means of providing segregation to enable BVLOS RPAS operations. Noting that the DZ was not intersecting DA D123, a further NOTAM would have been required to “bridge the gap” between the DZ and D123.

b. **Option 2** consisted of a simple Danger Area design, all starting from the surface to a set altitude, consisting of a single structure. This option was further divided into two design:

i. **Option 2 Design 1** – A multi-point DA, designed to reduce the amount of airspace to as little as needed for RPAS Operations, and

ii. **Option 2 Design 2** – A single circular DA created with the Design Principle “simplicity” in mind.

c. **Option 3** consisted of a Multi-sectored DA design, with the take-off and landing sector on the surface, and the transit sector as “hanging airspace” connecting the surface DA to the D123 DA. This option was further divided into two design:

i. **Option 3 Design 1** – A circular design, based on the dimensions of the DZ, with a “hanging airspace” section connecting the circular DA with D123

ii. **Option 3 Design 2** – A circular design, based on the dimensions of the DZ, with a “hanging airspace” section connecting the circular DA with D123. The Northern section of the circular airspace has been reduced in order to reduce the possible resulting funnelling effect to the North of Keevil.

8.2.2 Option 1 was discounted during Stage 2 of the ACP as it was concluded that a DZ and NOTAM would not provide the segregation required by current regulation.

8.2.3 Option 2 Design 2 was discounted during the Final Options Appraisal. Due to the simplicity of its design, it contained an area to the North of Keevil not required for RPAS operation, and therefore did not adhering to the Design Principles.

8.2.4 Option 3 Design 1 and Option 3 Design 2 was also discounted during the Final Options Appraisal. This was primarily due to the assessed increased the risk of MAC and airspace infringements for those who wished to transit through the Keevil-D123 corridor. For the small amount of air users this would benefit, it was assessed to not be the optimal solution.

8.3 Analysis of the Options

8.3.1 Option 2 - Danger Area (simple design).

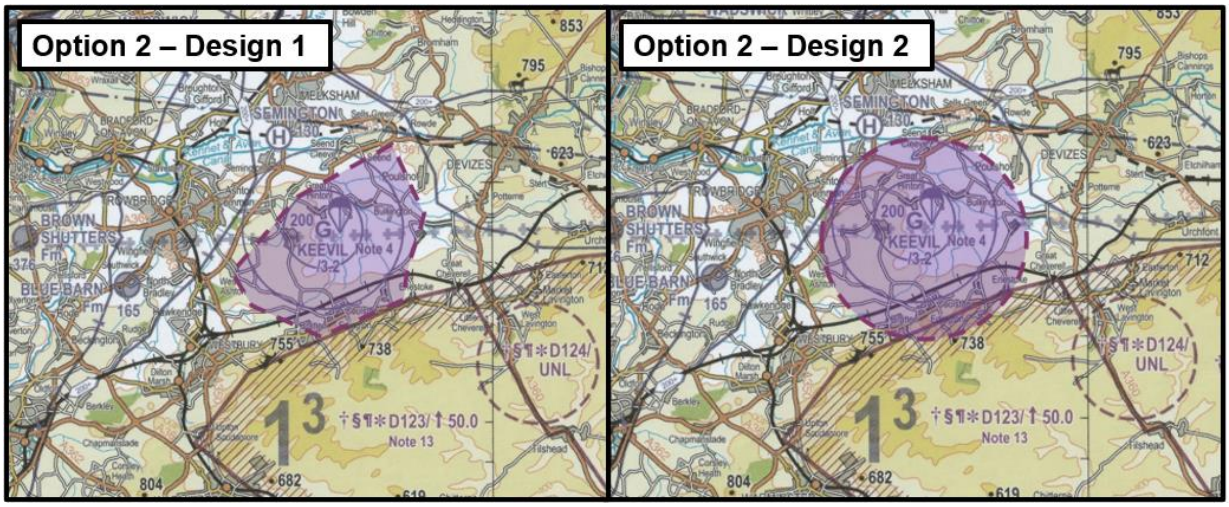

Image 15.A – Simple Designs (multi point) Image 15.B – Simple Designs (circular design)
Source: CAA 1:250k Aeronautical Chart, Sheet 7

Group	Impact	Level of Analysis
Communities	Noise impact on health and quality of life	Qualitative
Evidence		
It is assessed that a Danger Area will lead to: • No change in the level of noise compared with the 'do nothing' option. The same level of gliding and military activity will continue. • A decrease in noise in some areas with fewer aircraft routing via the railway line between the DZ and D123 (or routing higher if they still elect that track). • No change in noise patterns for aircraft on a direct track using a Crossing Service. • A decrease in noise for aircraft climbing over the activated airspace higher than they currently may choose to.		
Group	**Impact**	**Level of Analysis**
Communities	Air quality	Qualitative
Evidence		
The Sponsor has concluded that a Danger Area around Keevil will not result in an increase of CO2 emissions. It is assessed that there is no additional impact on air quality compared to when the existing DZ or glider site is activated.		
Group	**Impact**	**Level of Analysis**
Wider society	Greenhouse gas impact	Qualitative
Evidence		
No additional greenhouse gas emissions compared to the impact from the DZ/ glider site. There is no anticipated increase in air traffic in the area as a result of a Danger Area being activate compared with 'do nothing' option.		
Group	**Impact**	**Level of Analysis**
Wider society	Capacity / resilience	Qualitative
Evidence		
No change compared with Option 0.		
Group	**Impact**	**Level of Analysis**
General Aviation	Access	Qualitative
Evidence		
The area is extensively used by GA to route around SPTA. The ADS-B data indicates that GA are largely already routing around the Keevil area due to extant navigational warnings. A lesser number of pilots are routing via the railway line between the airfield and D123. Even fewer pilots are choosing to route overhead, particularly below 4,000ft. With a DACS being afforded there may be an increase in aircraft opting to route through the Keevil overhead whilst the Danger Area is active as they will be able to receive information of any activity over the airfield. However, there will be an increased amount in aircraft routing around or over the airspace (when active) if they are not equipped with or qualified to operate a radio as it will not be possible to obtain a Crossing Service.		
Group	**Impact**	**Level of Analysis**
General Aviation / Commercial Airlines	Economic impact from increased effective capacity	Qualitative
Evidence		
There are no changes to air transport or passenger numbers brought on by this proposal. The altitude and location of the proposed airspace does not impact on any airline activity.		
Group	**Impact**	**Level of Analysis**

General Aviation / Commercial Airlines	Fuel Burn	Qualitative
Evidence		
Air user data indicates that GA are largely already routing around Keevil or climbing above it. Additionally, any climb that would be required as a result of the DA being activated is inconsequential in fuel burn. There is no identified fuel burn impact on commercial airlines.		
Group	**Impact**	**Level of Analysis**
Commercial Airlines	Training Costs	N/A
Evidence		
It is assessed that there will be no impact on commercial airline training costs as a result of this design option.		
Group	**Impact**	**Level of Analysis**
Commercial Airlines	Other Costs	N/A
Evidence		
It is assessed that there will be no additional costs to commercial airlines as a result of this design option.		
Group	**Impact**	**Level of Analysis**
Airport / Air Navigation Service Provider	Infrastructure Costs	N/A
Evidence		
There are no additional infrastructure costs for airports or ANSPs associated with this option.		
Group	**Impact**	**Level of Analysis**
Airport / Air Navigation Service Provider	Operational Costs	N/A
Evidence		
There are no additional operational costs for airports or ANSPs associated with this option.		
Group	**Impact**	**Level of Analysis**
Airport / Air Navigation Service Provider	Deployment Costs	N/A
Evidence		
There are no deployment costs for airports or ANSPs associated with this option.		

8.3.2 It is assessed that a simple Danger Area design best adheres to the Design Principles. The Sponsor has determined that the altitude of the DA can be reduced from 3,500 to 3,200ft AMSL in order to further reduce the impact to aircraft wishing to transit over it. This is at the same altitude as the Glider Site and will thus have a positive Human Factor impact avoiding the publication of multiple altitudes for different purposes over the same area. The introduction of a DA at 3,200ft AMSL will have a negligible impact on both the environment and the majority of air users although it is noted that it will, when active, affect non-radio equipped aircraft and those wishing to utilise the railway line for VFR navigation at low level.

8.3.3 **Option 3 - Danger Area (multi-sector design).**

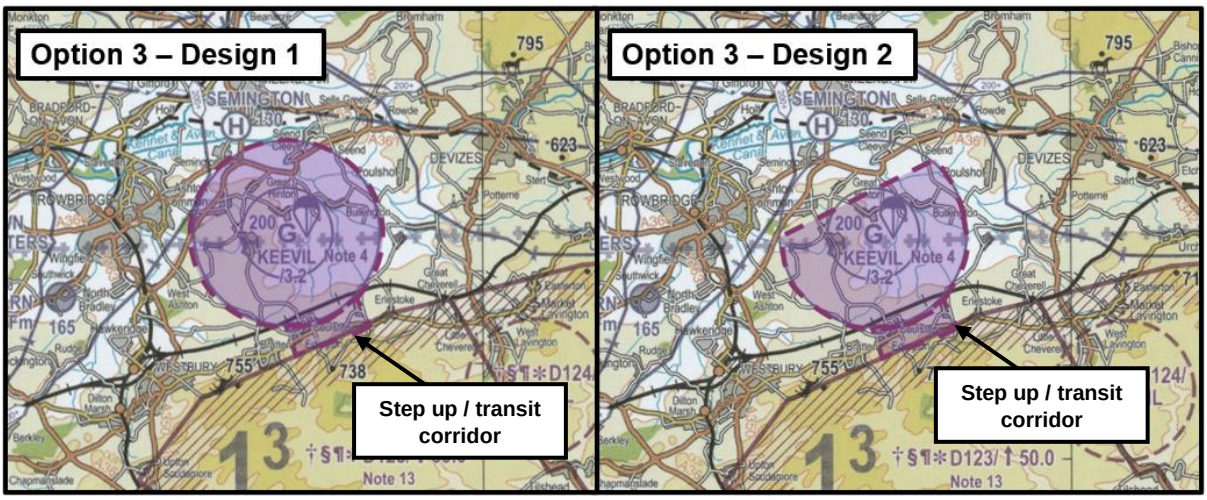

Image 16.A – Multi-Sector Design – Circular Image 16.B – Multi-Sector Design – Semi-Circular
Source: CAA 1:250k Aeronautical Chart, Sheet 7

Note: The multi-sector design consists of several structures (the corridor is "hanging airspace" not connected to the surface).

Group	Impact	Level of Analysis
Communities	Noise impact on health and quality of life	Qualitative
Evidence		
It is assessed that a multi-sector Danger Area will lead to: • No change in the level of noise compared with the 'do nothing' option. • No change in noise patterns for aircraft on a direct track using a Crossing Service. • A decrease in noise for aircraft choosing to climb to transit over the activated airspace. • A slight increase in noise due to lower flying aircraft following the railway line in between the DZ and SPTA.		
Group	**Impact**	**Level of Analysis**
Communities	Air quality	Qualitative
Evidence		
The Sponsor has concluded that a Danger Area around Keevil will not result in an increase of CO2 emissions. It is assessed that there is no additional impact on air quality compared to Option 0 or 2.		
Group	**Impact**	**Level of Analysis**
Wider society	Greenhouse gas impact	Qualitative
Evidence		
No additional greenhouse gas emissions would arise compared to when the current DZ is activated. It is expected that if more aircraft choose to route through the airspace rather than around it will result in a minor reduction in aircraft emissions.		
Group	**Impact**	**Level of Analysis**
Wider society	Capacity / resilience	Qualitative
Evidence		
No change compared with Option 0.		
Group	**Impact**	**Level of Analysis**
General Aviation	Access	Qualitative
Evidence		

The key difference between options 2 and 3 is the aim to facilitate VFR navigation using the railway line between D123 and Keevil. It is assessed that:

- Only a small amount of air users utilise the railway line to navigate the gap between SPTA and Keevil.
- 'Hanging airspace' could create a very small transit gap that may increase the risk of MAC or airspace infringements if aircraft are forced into a small gap, intensified by the fact that some may not be operating radios or electronic conspicuity.

Group	Impact	Level of Analysis
General Aviation / Commercial Airlines	Economic impact from increased effective capacity	Qualitative
Evidence		
There are no changes to air transport or passenger numbers brought on by this proposal. The altitude and location of the proposed airspace does not impact on any airline activity.		

Group	Impact	Level of Analysis
General Aviation / Commercial Airlines	Fuel Burn	Qualitative
Evidence		
No change compared with Option 0 or 2.		

Group	Impact	Level of Analysis
Commercial Airlines	Training Costs	N/A
Evidence		
It is assessed that there will be no impact on commercial airline training costs as a result of this design option.		

Group	Impact	Level of Analysis
Commercial Airlines	Other Costs	N/A
Evidence		
It is assessed that there will be no additional costs to commercial airlines as a result of this design option.		

Group	Impact	Level of Analysis
Airport / Air Navigation Service Provider	Infrastructure Costs	N/A
Evidence		
There are no additional infrastructure costs for airports or ANSPs associated with this option.		

Group	Impact	Level of Analysis
Airport / Air Navigation Service Provider	Operational Costs	N/A
Evidence		
There are no additional operational costs for airports or ANSPs associated with this option.		

Group	Impact	Level of Analysis
Airport / Air Navigation Service Provider	Deployment Costs	N/A
Evidence		
There are no deployment costs for airports or ANSPs associated with this option.		

8.3.4 It can be concluded that, as with Option 2, this Danger Area option will have a negligible environmental impact compared with the ‘do nothing’ option.

8.3.5 Whilst Options 3 is not the simplest DA option, it was considered in order to continue to provide aircraft that use to transit in between the DZ and SPTA using the railway line the ability to continue doing so when the newly proposed DAs are active. It is assessed that this will only benefit a small number of air users and may increase both the risk of airprox, mid-air collision as well as airspace infringements.

8.3.6 Additionally, as both airspace structures would be required to be activate at the same time in order to facilitate RPAS transit to and from Salisbury Plain, it will result in additional administrative and operational considerations for ATC and air users.

8.3.7 Due to the additional risk of MAC and airspace infringements as a result of Option 3, this option is to be discounted.

8.4 **Selected preferred option**

8.4.1 Option 2 Design 1 was determined to be the best design option following the Final Options Appraisal. The full appraisal can be found at Ref J.

9. Airspace Description Requirements

	The proposal should provide a full description of the proposed change including the following:	Description for this proposal:
a	The type of structure	Danger Area (activated by NOTAM) within Class G airspace in order to provide segregated airspace connecting Keevil with SPTA
b	The hours of operation of the airspace and any seasonal variations	Activated by NOTAM. Most activity will occur in the Spring and Summer months for exercise periods typically weeks at a time. Weekend and night activity will be extremely infrequent and be notified as far in advance as possible. Hours of operation will be restricted to the hours of Boscombe Down ATC to ensure a Danger Area Crossing Service is available.
c	Interaction with domestic and international en-route structures, TMAs or CTAs. Connectivity to aerodromes not connected to CAS should be covered	The closest controlled airspace is the Bristol CTA and is not affected by this proposal.
d	Airspace buffer requirements (if any)	The closest airspace to the proposed DA is the Bristol CTA, 5.7 Nm laterally from the closest edge to the DA. In accordance with CAA Document "Special Use Airspace - Safety Buffer Policy For Airspace Design Purposes" Section 2.6, UAS operating BVLOS must have a minimum buffer of 5 Nm from a TMA, CTA or CTR. The DA therefore does not have an impact on controlled airspace and additional buffer requirements are not required. All RPAS operations are contained inside the confines of the DA
e	Supporting information on traffic data including statistics and forecasts for the various categories of aircraft movements (passenger, freight, tests and training, aero club, other)	No change to current airfield movements. If this proposal is successful, there will be an increase in RPAS movements between Keevil and SPTA.
f	Analysis of the impact of the traffic mix on complexity and workload of operations	When the airspace is active, the airfield will be exclusively used by the military. Boscombe Down ATC already operate a LARS in the area so no change is anticipated on complexity and workload.
g	Evidence of relevant draft Letters of Agreement, including any arising out of consultation and/or airspace management requirements	Three extant LoA's will be updated. A new LoA will also be added for HEMS. All LoA drafts can be found at Annexes B-E.
h	Evidence that the airspace design is compliant with ICAO	The airspace design is compliant with CAA Policy Document 20200721-*"CAA Policy for the*

	Standards and Recommended Practices (SARPs) and any other UK policy or filed differences, and UK policy on the Flexible Use of Airspace (or evidence of mitigation where it is not)	*established for permanent and temporary Danger Areas"* issued by the SARG and is in accordance with CAP 740.
i	The proposed airspace classification with justification for that classification	Danger Area (Class G). Alternative options such as RMZ, TMZ, existing airspace structures was considered to not be complaint with MAA Regulatory Article 2320 in providing the required segregation. The use of controlled airspace was considered to be unjustifiable.
j	Demonstration of commitment to airspace users equitable access to the airspace as per the classification and where necessary indicate resources to be applied or a commitment to provide them in line with forecast traffic growth. 'Management by exclusion' would not be acceptable	The Letter of Agreement between Salisbury Plain Air Ops, Joint Helicopter Command and MOD Boscombe Down will guarantee the provision of a DACS. Additionally, the airspace will only be activated when a DACS is available to other air users thereby not denying radio-equipped air users unnecessarily.
k	Details of and justification for any delegation of ATS	N/A

10. Safety Assessment

10.1 An initial safety assessment was conducted during Stage 2 and developed within the Full and Final Options Appraisals. The safety assessment is summarised as follows:

- A Danger Area may cause an increase in the risk of Mid Air Collision (MAC) if the airspace structure contributes to an increase in the funnelling effect of aircraft between SPTA and Bristol CTR.

- It is assessed that this risk will only increase in the event that **all** air traffic chooses to route around the DA to the North and if the gap between the DA and Bristol CTR is also reduced. The provision of a DACS will further mitigate against aircraft being required to route North unless absolutely necessary.

- Pilots currently routing through the Keevil overhead without using the Glider Common frequency or in receipt of an air traffic service may not be aware of any glider winch launching activity taking place (placing themselves and any gliders in danger of collision). The addition of a DA with a published DACS frequency will reduce the likelihood of MAC due to ATC's awareness of traffic wishing to operate within the vicinity of the airfield.

10.2 Additionally, the risks associated with all military operations in the area are identified and reduced using the BowTie risk assessment model. Specific airfield operating safety assessments are conducted by the MOD. Additionally, all aircraft operate in accordance with a Release to Service document.

10.3 It is assessed that no additional safety considerations exist with the simple Danger Area compared with those associated with the existing airspace.

11. Operational Impact

	An analysis of the impact of the change on all airspace users, airfields and traffic levels must be provided, and include an outline concept of operations describing how operations within the new airspace will be managed. Specifically, consideration should be given to:	Evidence of compliance / proposed mitigation:
a	Impact on IFR general air traffic and operational air traffic or on VFR General Aviation (GA) traffic flow through the area	Trend analysis shows that air users already generally avoid the Keevil area, owing to the published navigational warnings. Evidence supporting this was gathered for the Options Appraisal (Ref D and F) in the form of heatmaps, Electronic Conspicuity and SkyDemon user data.
b	Impact on VFR operations (including VFR routes where applicable)	The Danger Area, when active, may inhibit air users from using the railway line to the South of the airfield for VFR navigation. Data demonstrates that only a minority of air users choose this feature for navigation. The mitigation is the provision of a DACS.
c	Consequential effects on procedures and capacity, i.e. on SIDs, STARs and/or holding patterns	N/A
d	Impact on aerodromes and other specific activities within or adjacent to the proposed airspace	There is an impact on the heliport in Outmarsh/ Semington (home of the Wiltshire Air Ambulance) as well as the Edington Hill Farm Strip. The impact on their operations when the Danger Area is active is mitigated by Letters of Agreement.
e	Any flight planning restrictions and/or route requirements	If air users plan to transit the airspace when notified as active they must plan to obtain a DACS from Boscombe Down. However, air users must also be prepared to route above or around the Danger Area should their request be denied due to RPAS departing or recovering from Keevil at that time.

12. Supporting Infrastructure / Resources

	General requirements:	Evidence of compliance / proposed mitigation:
a	Evidence to support RNAV and conventional navigation as appropriate with details of planned availability and contingency procedures	N/A
b	Evidence to support primary and secondary surveillance radar (SSR) with details of planned availability and contingency procedures	N/A
c	Evidence of communications infrastructure including R/T coverage, with availability and contingency procedures	R/T coverage from Boscombe Down ATC of the area is proven as a LARS is already provided. Evidence from the Temporary Danger Area in Summer 2021 demonstrated radio communication from 500ft AGL. Glider Common frequency (129.980MHz) is also available for participatory traffic. Availability of Boscombe Down ATSU is outlined in ENR 1.6 para. 4.1.6.
d	The effects of failure of equipment, procedures and/or personnel with respect to the overall management of the airspace must be considered	The Danger Area will only be activated when a DACS can be afforded by Boscombe Down. Therefore, should ATC be unavailable due to equipment failure or personnel issues, the DA will be deactivated.
e	Effective responses to the failure modes that will enable the functions associated with airspace to be carried out including details of navigation aid coverage, unit personnel levels, separations standards and the design of the airspace in respect of existing international standards or guidance material	N/A
f	A clear statement on SSR code assignment requirements	SSR code assignment will be in accordance with ENR 1.6 ATS Surveillance Services and Procedures under Boscombe Down ATC.
g	Evidence of sufficient numbers of suitably qualified staff required to provide air traffic services following the implementation of a change	Boscombe Down has sufficient numbers of suitably qualified staff to provide a DACS as it already has the workforce as a LARS facility. The internal MOD LoA will ensure that whenever the Danger Area is active a DACS will be available.

13. Airspace and Infrastructure

	General requirements:	Evidence of compliance / proposed mitigation
a	The airspace structure must be of sufficient dimensions with regard to expected aircraft navigation performance and manoeuvrability to fully contain horizontal and vertical flight activity in both radar and non-radar environments	N/A
b	Where an additional airspace structure is required for radar control purposes, the dimensions shall be such that radar control manoeuvres can be contained within the structure, allowing a safety buffer.	N/A
c	The Air Traffic Management system must be adequate to ensure that prescribed separation can be maintained between aircraft within the airspace structures and safe management of interfaces with other airspace structures	N/A
d	Air Traffic Control procedures are to ensure required separation between traffic inside a new airspace structure and traffic within existing adjacent or other new airspace structures	ATC procedures for entry into the Salisbury Plain range Danger Areas will be in accordance with the LoA to ensure required separation of aircraft.
e	Within the constraints of safety and efficiency, the airspace classification should permit access to as many classes of user as practicable	When not activated the airspace reverts to Class G which is the most unrestrictive airspace classification. When active transit of the Danger Area will be available through a DACS to any air user with a radio.
f	There must be assurance, as far as practicable, against unauthorised incursions. This is usually done through the classification and promulgation	Changes to the airspace, if successful, will be notified through the AIRAC publication. Airspace will be published on aeronautical charts and detailed within the AIP. Notification of activation will be promulgated via NOTAM. The chosen simple airspace design reduces the likelihood of airspace infringement.
g	Pilots shall be notified of any failure of navigational facilities and of any suitable alternative facilities available and the method of identifying failure and notification should be specified	N/A
h	The notification of the implementation of new airspace structures or withdrawal of redundant airspace structures shall be adequate to allow interested parties sufficient time to comply with	Changes to the airspace, if successful, will be notified through publication that is

	user requirements. This is normally done through the AIRAC cycle	promulgated via the AIRAC cycle.
i	There must be sufficient R/T coverage to support the Air Traffic Management system within the totality of proposed controlled airspace	N/A
j	If the new structure lies close to another airspace structure or overlaps an associated airspace structure, the need for operating agreements shall be considered	The Danger Area will connect Keevil with the existing D123 of SPTA. Internal LoA between JHC, MOD Boscombe Down ATC and Salisbury Plain Air Ops (Annex E) will consider all necessary operating agreements.
k	Should there be any other aviation activity (low flying, gliding, parachuting, microlight site etc) in the vicinity of the new airspace structure and no suitable operating agreements or air traffic control procedure can be devised, the change sponsor shall act to resolve any conflicting interests	The sponsor has captured operating/ air traffic control procedures within Letters of Agreements (Annexes B-E) that will alleviate the impacts on aviation activity in the vicinity (including hang-gliding, paragliding, GA and HEMS).
	ATS route requirements:	Evidence of compliance / proposed mitigation:
a	There must be a sufficient accurate navigational guidance based on in-line VOR/DME or NDB or by approved RNAV derived sources, to contain the aircraft within the route to the published RNP value in accordance with ICAO/Eurocontrol standards	N/A
b	Where ATS routes adjoin terminal airspace there shall be suitable link routes as necessary for the ATM task	N/A
c	All new routes should be designed to accommodate P-RNAV navigational requirements	N/A
	Terminal airspace requirements:	Evidence of compliance / proposed mitigations:
a	The airspace structure shall be of sufficient dimensions to contain appropriate procedures, holding patterns and their associated protected areas	N/A
b	There shall be effective integration of departure and arrival routes associated with the airspace structures and linking to designated runways and published instrument approach procedures (IAPs)	N/A
c	Where possible, there shall be suitable linking routes between the proposed terminal airspace and existing en-route airspace structure	N/A
d	The airspace structure shall be designed to ensure that adequate and appropriate terrain clearance can be readily applied within and adjacent to the proposed airspace	N/A
e	Suitable arrangement for the control of all classes of aircraft (including transits) operating within or	N/A

	adjacent to the airspace in question, in all meteorological conditions and under all flight rules, shall be in place or will be put into effect by the change sponsor upon implementation of the change in question (if they do not already exist)	
f	The change sponsor shall ensure that sufficient visual reference points are established within or adjacent to the subject airspace to facilitate the effective integration of VFR arrivals, departures and transit of the airspace with IFR traffic	The nearest VRPs (Chippenham and Radstock) assist in VFR transit in the vicinity of Bristol's Class D. No additional VRPs are required to assist VFR transit of the Danger Area.
g	There shall be suitable availability of radar control facilities	N/A
h	The change sponsor shall, upon implementation of any airspace change, devise the means of gathering (if these do not already exist) and of maintaining statistics on the number of aircraft transiting the airspace in question. Similarly, the change sponsor shall maintain records on the numbers of aircraft refused permission to transit the airspace in question, and reasons why. The change sponsor should note that such records would enable ATS managers to plan staffing requirements necessary to effectively manage the airspace under their control	In accordance with CAP 740 and Annex E Boscombe Down ATC will gather and maintain statistics for aircraft requesting transit of the DA, those afforded a DACS and those denied entry.
i	All new procedures should, wherever possible, incorporate Continuous Descent Approach (CDA) profiles after aircraft leave the holding facility associated with that procedure	N/A
	Off-route airspace requirements:	Evidence of compliance / proposed mitigations:
a	If the new structure lies close to another airspace structure or overlaps an associated airspace structure, the need for operating agreements shall be considered	The Danger Area will connect Keevil with the existing D123 of SPTA. Internal LoA between JHC, MOD Boscombe Down ATC and Salisbury Plain Air Ops (Annex E) will consider all necessary operating agreements.
b	Should there be any other aviation activity (military low flying gliding, parachuting, microlight site etc) in the vicinity of the new airspace structure and no suitable operating agreements or air traffic control procedures can be devised, the change sponsor shall act to resolve any conflicting interests	The sponsor has captured operating/ air traffic control procedures within Letters of Agreements (Annexes B-E) that will alleviate the impacts on aviation activity in the vicinity (including hang-gliding, paragliding, GA and HEMS).

14. Environmental Assessment

14.1 As explained in Appendix B to CAP 1616, the CAA must only take account of civil environmental impacts, meaning that noise, carbon and local air quality assessments will exclude the impacts generated by military aircraft and operations. As per Ref. H, only qualitative data has been used to assess environmental impact of this ACP.

	Theme	Content	Evidence of compliance / mitigation
a	WebTAG analysis	Output and conclusions of the analysis (if not already provided elsewhere in the proposal)	No meaningful data was able to be obtained from WebTAG as articulated in Ref H.
b	Assessment of noise impacts (Level 1/ M1 proposals only)	Consideration of noise impacts, and where appropriate the related qualitative and/or quantitative analysis, including whether the anticipated noise impact meets the criteria for a proposal to be called-in by the Secretary of State. If the change sponsor expects that there will be no noise impacts, the rationale must be explained	Owing to the airfields' location within Class G, quantitate data was not possible to obtain. See Ref. H for rationale. Consequential noise impacts are discussed at Ref. H para. 6, 21 and 22.
c	Assessment of CO2 emissions	Consideration of the impacts on CO2 emissions, and where appropriate the related qualitative and/or quantitative analysis. If the change sponsor expects that there will be no impact on CO2 emissions impacts, the rationale must be explained	It is assessed that there is no impact on CO2 emissions. The level of the impact will not be quantifiable due to the freedoms associated in the class of airspace and the range of options available for transiting aircraft. See Ref. H para.8 and 28.
d	Assessment of local air quality (Level 1/ M1 proposals only)	Considerations of any impact on local air quality, and where appropriate the related qualitative and/or quantitative analysis. If the change sponsor expects that there will be no impact on local air quality, the rationale must be explained	The Sponsor has confirmed that the area considered does not impact on any Air Quality Management Areas (AQMA). The proposal will most likely result in aircraft routing around, flying through at their current altitude, or overflying the airspace in a similar manner that they are currently operating with no additional impact on the AQMAs. See Ref. H para. 9 and 27.
e	Assessment of impacts upon tranquillity (Level 1/ M1 proposals only)	Considerations of any impact upon tranquillity, notably on Areas of Outstanding Natural Beauty or National Parks, and where appropriate the related qualitative and/or quantitative analysis.	The area concerned does not fall within a National Park or Area of Outstanding Natural Beauty (AONB). The number of powered aircraft transiting through the area is not projected to increase as a result of newly proposed

		If the change sponsor expects that there will be no tranquillity impacts, the rationale must be explained	airspace. See Ref. H para. 10 and 29.
f	Operational diagrams	Any operational diagrams that have been used in the consultation to illustrate and aid understanding of environmental impacts must be provided	Operational diagrams are included in Ref. H, pages 4 and 5.
g	Traffic forecasts	10-year traffic forecasts, from the anticipated date of implementation must be provided (if not already done so elsewhere in the proposal)	Traffic is not expected to significantly differ from that currently experienced in the area over the next 10-years. See Ref. H para. 31.
h	Summary of environmental impacts and conclusion	A summary of all of the environmental impacts detailed above plus the change sponsor's conclusions on those impacts	No quantative data was obtained to support the assessment of the consequential impact on the environment relating to this ACP. It was summarised that this the introduction of this Danger Area would have a negligible impact on the environmental factors listed in CAP 1616.

15. Annexes

A	OFFICIAL-SENSITIVE Final Design Supporting Evidence (CAA only)	Submitted separately to the main document
B	Letter of Agreement between Salisbury Plain Training Area and Edington Hill Farm Strip (Draft – CAA only)	
C	Letter of Agreement between Salisbury Plain Training Area and Avon Hang-Gliding and Paragliding Club (Draft – CAA only)	
D	Letter of Agreement between Salisbury Plain Training Area, Joint Helicopter Command and HEMS (Draft – CAA only)	
E	Letter of Agreement between Salisbury Plain Training Area, MOD Boscombe Down and Joint Helicopter Command (Draft – CAA only)	