English Channel Airspace Requirements – (ACP 2021 088)

Stakeholder Engagement Letter – Design Principles (Stage 1B)
September 2022

Glossary of Terms

ACP	Airspace change proposal
ADS-B	Automatic Dependent Surveillance-Broadcast
AGL	Above ground level
AIC	Aeronautical Information Circular
AMSL	Above mean sea level
ANO	Air Navigation Order
ATC	Air Traffic Control
ATZ	Aerodrome Traffic Zone
BHL	Bristow Helicopters Ltd
BVLOS	Beyond visual line of sight
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
DA	Danger Area
DAA	Detect and Avoid
DAAIS	Danger Area Activity Information Service
DACS	Danger Area Crossing Service
DfT	Department for Transport
EC	Electronic Conspicuity
FRTOL	Flight Radio Telephony Operators' Licence
FRZ	Flight Restriction Zone
GCS	Ground Control Station (UAS Cockpit)
HMCG	Her Majesty's Coastguard
JRCC	Joint Rescue Command Centre
MCA	Maritime and Coastguard Agency
MTOM	Maximum Take-Off Mass
NATS	National Air Traffic Services
NOTAM	Notice to Airmen
OA	Operational Authorisation
OGD	Other UK Government Departments
OSC	Operating Safety Case
RPA	Remotely Piloted Aircraft
RPAS	Remotely Piloted Aircraft System
SA	Situational Awareness
SAR	Search and Rescue
SERA	Standardised European Rules of the Air
SOP	Standard Operating Procedure
TCAS	Traffic Alert and Collision Avoidance System
TDA	Temporary Danger Area
TMZ	Transponder Mandatory Zone
UAS	Unmanned Aircraft System
UKSAR	United Kingdom Search and Rescue
UKSAR(H)	United Kingdom Search and Rescue Helicopter
VHF	Very High Frequency
VLOS	Visual line of sight

1. Requirement

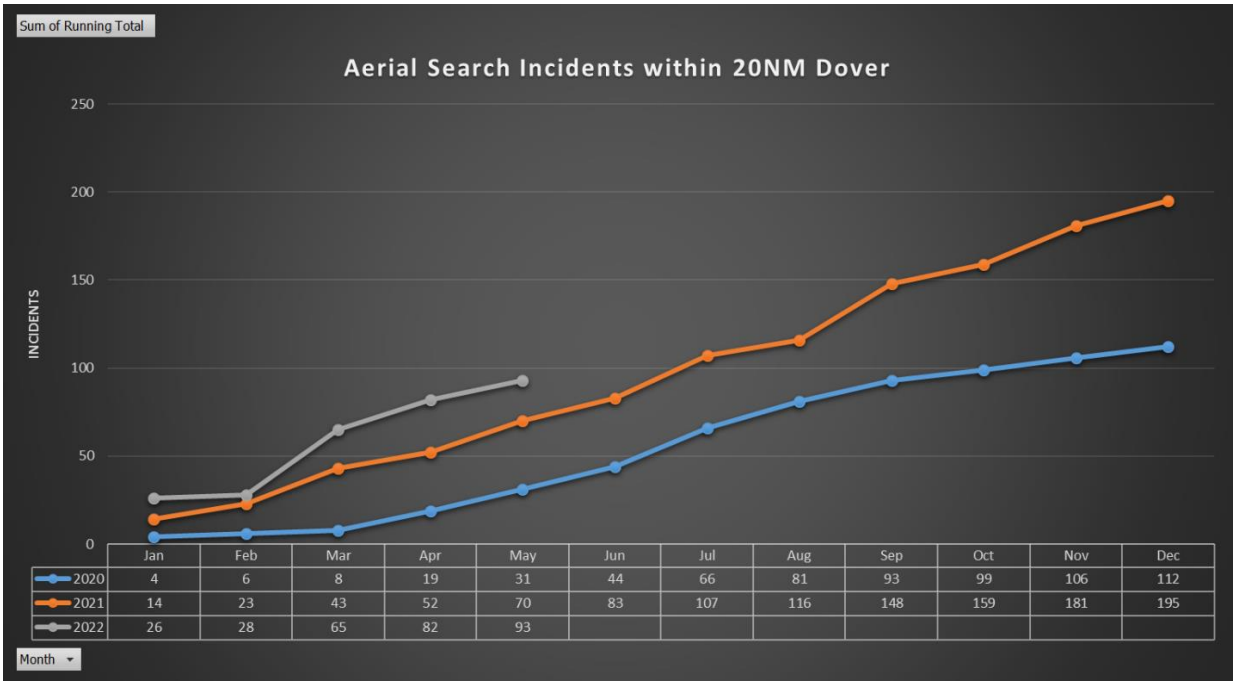
This document details a proposed permanent change to airspace in the vicinity of The English Channel. This change is required to support the ongoing operation of Unmanned Aircraft Systems (UAS) operated by Bristow Helicopters Limited (BHL) on behalf of the Maritime and Coastguard Agency and His Majesty's Coastguard (HMCG).

The Department for Transport (DfT) has been requested to expand routine situational awareness (SA) patrols of the English Channel. This expansion is due to the increased levels of small boat crossings which regularly result in Search and Rescue (SAR) operations following multiple '999' calls. Based on the situational awareness from the UAS, HMCG decision makers can ascertain the scale and accurate location of an incident and mobilise the appropriate rescue assets. This essential State requirement is currently addressed by Bristow Helicopters Limited (BHL) utilising UAS deployed from Lydd Airport using the current temporary danger area (TDA) complex.

HMCG are working closely with local authorities, emergency services and other government departments to utilise resources effectively to cope with the current and predicted increase in regional SAR incidents. Deploying UAS for situational awareness patrols and safety overwatch in the English Channel provides operational staff at HMCG with vital intelligence which can be shared with other emergency services, UK Gov Departments, and local organisations to ensure effective deployment of air, sea and ground resources. As a consequence, the opportunity may also be provided to maintain UK SAR helicopter (SAR(H) assets at readiness to conduct their primary life-saving role thus reducing pressure on the service and crews.

Due to the enduring nature of this requirement and in line with UK regulatory policy for TDAs, a permanent solution to replace the current English Channel TDA complex is needed to continue to support the UK Government's response in the region. It is expected that as well as supporting HMCG operations, the final airspace solution will consider the requirements of all parties and will be designed and managed in such a way as to provide opportunity to continue to support the UK's multi-agency response.

HM Coastguard Historic Incident Data – English Channel



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2020	4	6	8	19	31	44	66	81	93	99	106	112
2021	14	23	43	52	70	83	107	116	148	159	181	195
2022	26	28	65	82	93							

The above chart shows the number of HMCG incidents within 20nm of Dover across 2020, 2021 and 2022 so far.

i. The blue line shows the number of HMCG incidents beginning to increase from March 2020 with a significant surge from April 2020 onwards. This correlates directly with the increase in attempted small boat crossings of The English Channel.

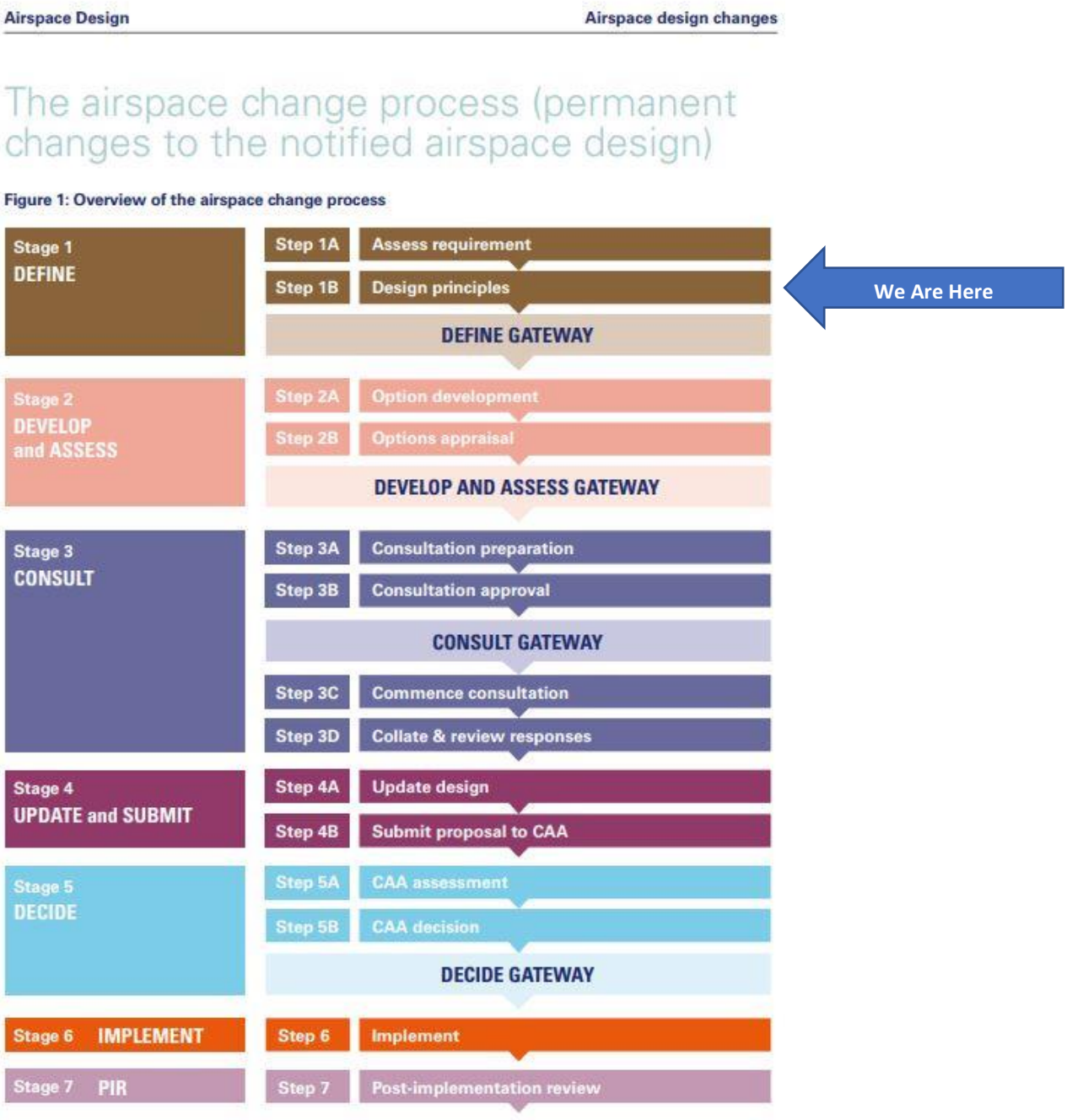
ii. The orange line shows data for 2021, clearly showing a large increase on 2020. This trend continues sharply from February 2021 onwards. This increase is being driven by a surge in attempted small boat crossings.

iii. 2022 again shows a significant increase in incident rate over the previous two years. The trend is expected to be maintained across the rest of the year with crossing rates predicted to endure for the foreseeable future.

iv. To date UAS operations have delivered over 500 hrs of flying in support of HMCG taskings.

2. Airspace Change Regulation

In 2018, the Civil Aviation Authority (CAA) published a new process (CAP1616), that requires any changes to airspace to pass through seven stages. Change sponsors must involve stakeholders at specified stages of the CAP1616 process to ensure the process is transparent. In January 2021, BHL and the MCA completed the first step of the process (Step1A), by submitting our Statement of Need to the CAA defining the reasoning behind our application. The CAA confirmed that it was appropriate and provisionally assessed our proposal as a level 1 change. This means the full CAP1616 process applies. To make the details of all changes available to everyone, the CAA have created a dedicated website (airspacechange.caa.co.uk/about-airspace-changes) where you can see all airspace change proposals currently being developed. Our Statement of Need and full details of CAP1616 are also on this website.



3. Approach

This document sets out our approach to the next part of the airspace-change process (Step 1B). Step1B is the second part of the 'Define' stage of CAP1616. It considers the general principles we should follow when we eventually design the airspace structure. The design principles are general considerations, not detailed proposals. The feedback we get during Step 1B will give us a good understanding of what is important to stakeholders and will guide and shape our design principles. While discussions at this stage relate only to the design principles, further discussions, including a formal consultation, will be carried out later in the process.

We are asking stakeholders (the people and organisations who can affect, or be affected by, any change to airspace) to give us their views, while we consider the principles we should follow when designing any change to airspace. At the end of this document there is a series of questions. Your answers to these will help us understand what principles are most important to you. Your feedback will help to guide the decisions we make as we move further through the CAP1616 process to the design stages and help us shape changes that have the potential to provide the most significant benefits.

Our part in this co-ordinated approach will relate to unmanned aircraft flying below 7,000 feet. Throughout this document, we will tell you how you can get involved and find out more about the process. We hope you find this document useful and look forward to hearing your views.

4. Unmanned Aircraft System Regulation - CAP 722 Unmanned Aircraft System Operations in UK Airspace – Guidance

CAP 722, Unmanned Aircraft System Operations in UK Airspace – Guidance and Policy, is compiled by the CAA Unmanned Aircraft Systems Unit (UAS Unit). CAP 722 is intended to assist those who are involved with the development, manufacture, or operation of UAS to identify the route to follow in order that the appropriate operational authorisation(s) may be obtained, and to ensure that the required standards and practices are met. Its content is primarily intended for non-recreational UAS operators.

Furthermore, CAP 722 highlights the safety requirements that must be met, in terms of airworthiness and/or operational standards, before a UAS is allowed to operate in the UK. In advance of further changes to this document, updated information can be found on the CAA website. Remotely piloted aircraft and drones | Civil Aviation Authority (caa.co.uk)

CAP 722 does not replace civil regulations but provides guidance as to how civil UAS operations may be conducted in accordance with those regulations, along with any associated policy requirements.
Wherever possible the guidance has been harmonised with any relevant emerging international UAS regulatory developments. It is acknowledged that not all areas of UAS operations have been addressed fully. It is therefore important that operators, industry and government sectors remain engaged with the CAA and continue to provide comment on this document.

The primary method of obtaining a copy of the latest version of CAP 722 is via the CAA website under the 'Publications section. Updated information can be found within the 'Latest Updates' section of the CAA website's UAS webpages. The CAA also provides a more general aviation update service via the SkyWise system.

5. UAS Operating Categories

The CAA has set three UAS categories dependent on the complexity and scale of the UAS. The category a UAS is within determines the requirements to operate the UAS.

- Open category – No authorisation required. The limitations of the category are set out in the regulations and cannot be changed.

- Specific category – An 'operational authorisation' is required to be held by the UAS operator and the conditions set out in the authorisation document.

- Certified category – Authorisation is provided through the provision of certification (of the aircraft and the UAS operator) and licencing (for the remote pilot) and compliance with the related conditions and/or specifications.

6. Bristow Helicopters Ltd - UAS Operational Authorisation

Based on the risk model associated with our operations BHL currently hold a Specific category UAS Operational Authorisation. The Specific category covers operations that present a greater risk than that of the Open category, or where one or more elements of the operation fall outside the boundaries of the Open category. The key element of the Specific category is that the UAS operator is required to hold an operational authorisation, which has been issued by the CAA. This operational authorisation will be based on the CAA's evaluation of a safety risk assessment that has been produced by the UAS operator or, in some circumstances, has been 'pre-defined' and published by the CAA. The operational authorisation document sets out the privileges and limits of the operation. Given the name of the category, each operational authorisation is specific to the named UAS operator and is dependent on the risk assessment and evidence supplied to the CAA by that operator.

7. Regulatory Impact on Available Airspace Options

The UK uses Danger Areas (DA) as the primary method of airspace segregation operations covered within UAS CAP 722, Chapter 2, Operational Guidance Operational Guidance (November 2020), Page 56. For flights within segregated airspace, whilst some restrictions may still apply, an unmanned aircraft will generally be given freedom of operation within the bounds of the allocated airspace, subject to any agreed procedures and safety requirements. An authorisation to operate will take into account the risks associated with any unintended excursion from the segregated airspace and it will also consider the possibility of airspace infringements. In addition, measures may be put in place to enhance the safety of UAS activities will also be considered in the authorisation process. While segregated airspace, by its nature, provides exclusive use of that airspace to the UAS activity, boundaries are not impervious to aircraft infringements. In order to enhance the safety of UAS operations, the following constraints may be imposed:

• Where available, the remote pilot is to make use of an Air Traffic Service (ATS) provider to monitor UAS flights and to provide a service to them and to other aircraft operating in the vicinity of the segregated airspace.

• Communications are to be maintained between the ATS provider and the remote pilot.

Procedures are to be put in place for, amongst others, emergency recovery, loss of control link and the avoidance of infringing aircraft. Until UAS can comply with the requirements for flight in non-segregated airspace.

Para 2.1.2 of CAP 722 Beyond visual line of sight operations (BVLOS) states

> **'**(BVLOS) Operation of an unmanned aircraft beyond a distance where the remote pilot is able to respond to or avoid other airspace users by direct visual means (i.e. the remote pilot's observation of the unmanned aircraft) is considered to be a BVLOS operation. Unmanned aircraft intended for BVLOS operations will require either:
>
> 1. A technical capability which has been accepted as being at least equivalent to the ability of a pilot of a manned aircraft to 'see and avoid' potential conflictions. This is referred to as a Detect and Avoid (DAA) capability. Further details regarding DAA can be found at 3.6; Note: Any DAA capability would be expected to ensure compliance with Regulation (EU) 923/2012 the Standardised European Rules of the Air (SERA) chapter 2 (avoidance of collisions), as adjusted by Rule 8 of the Rules of the Air Regulations 2015 (Rules for avoiding aerial collisions);
>
> 2. A block of airspace to operate in which the unmanned aircraft is 'segregated' from other aircraft - because other aircraft are not permitted to enter this airspace block, the unmanned aircraft can operate without the risk of collision, or the need for other collision avoidance capabilities; *or*
>
> 3. Clear evidence that the intended operation will pose 'no aviation threat' and that the safety of persons and objects on the ground has been properly addressed. Note: The ultimate responsibility for avoiding collisions lies with the remote pilot, irrespective of the flight rules that the flight is being conducted under, or any ATC clearances that may have been issued.'

UAS currently operating in the area of the English Channel are not equipped with a DAA capability that complies with Regulation (EU) 923/2012 the Standardised European Rules of the Air (SERA) chapter 2 (avoidance of collisions), as adjusted by Rule 8 of the Rules of the Air Regulations 2015 (Rules for avoiding aerial collisions).

Current technical capability and UK UAS regulation therefore restrict BVLOS UAS operation to DAs. TDA's by policy and design do not provide an enduring solution. As such, the only compliant option within current CAA regulation is a permanent DA.

8. Current Operational Baseline

In accordance with this State request, BHL have deployed the Schiebel S-100 Camcopter UAS to Lydd Airport to conduct operations in the English Channel on behalf of HMCG. The UAS is tasked by the Aeronautical Rescue Coordination Centre (ARCC) in the same way as the manned SAR(H) service. Once airborne over the Channel, the UAS is operationally controlled by HMCG based in Dover. The aircraft is operated in the Channel TDA complex in accordance with CAA approved deconfliction procedures agreed between all current users. EG_Circ_2022_Y_085_en.pdf (ead-it.com).

AERONAUTICAL INFORMATION CIRCULAR Y 085/2022

UNITED KINGDOM

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01293-983880 (Content - SARG/Airspace Regulation)

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25 Aug 2022

Subject
Operational

Civil Aviation Authority

TEMPORARY DANGER AREA - ENGLISH CHANNEL TEMPORARY DANGER AREA COMPLEX
25 AUGUST - 31 MARCH 2023

1 Between the **25 August 2022 and 31 March 2023**, multiple Remotely Piloted Aircraft Systems (RPAS) will continue to operate out of Lydd Airport and out of the Port of Dover area, to carry out operational flights for the purposes of Maritime Surveillance in the area of the English Channel. As the aircraft will be operating Beyond Visual Line of Sight (BVLoS) and have no Detect and Avoid capability, a number of Temporary Dangers Areas (TDA) will be established to facilitate the safe operation over the English Channel.

2 The TDA complex will be constituted of 8 Danger Areas to facilitate transiting and search areas of the RPAS. A chart of the area is included within the briefing document.

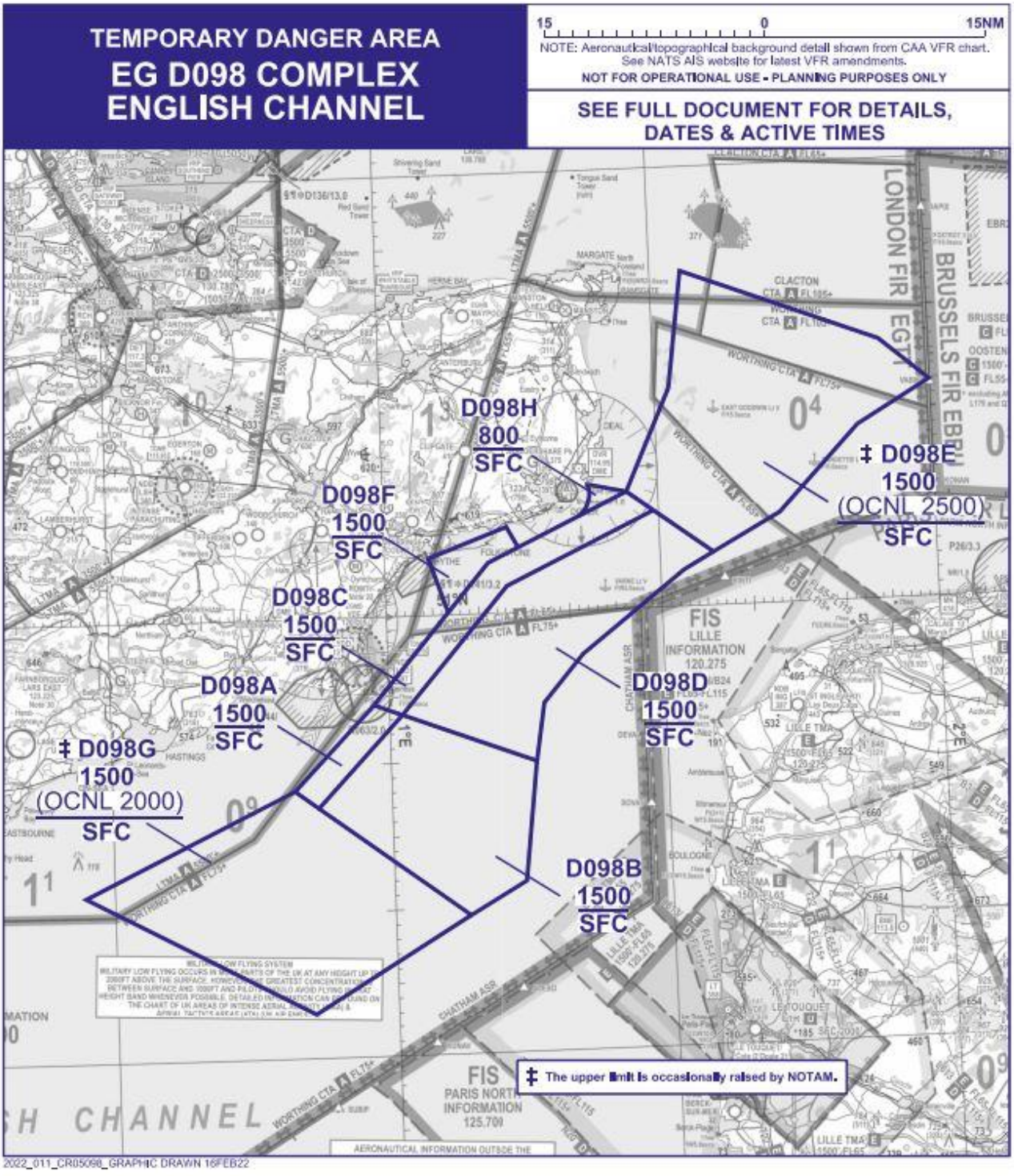
3 Only the required Danger Areas will be activated and only for required duration to minimise impact to other airspace users.

4 Activation of the areas will be via NOTAM, where the NOTAM should be issued with at least 24 hours-notice prior to activation. In exceptional circumstances, this notification period may be reduced.

5 Whilst operating within the area of Lydd and the English Channel, where possible, it is requested aircraft monitor Lydd Approach on 120.705 MHz, London Centre on 121.500 MHz or London Flight Information Service on 124.600 MHz as TDA activations will be announced on these frequencies.

6 Whilst there may be some impact to other airspace users, the Channel Temporary Danger Area complex has been designed to minimise the impact to General Aviation operators who wish to operate between the UK and France. Only the areas required by the State will be activated. The airspace required will be kept under review to ensure only the volume required is activated and only for the minimum amount of time needed to safely complete the activity.

REQUIRED DANGER AREAS WILL BE NOTIFIED BY NOTAM


TEMPORARY DANGER AREA
EG D098 COMPLEX
ENGLISH CHANNEL
15 0 15NM
NOTE: Aeronautical/topographical background detail shown from CAA VFR chart.
See NATS AIS website for latest VFR amendments.
NOT FOR OPERATIONAL USE - PLANNING PURPOSES ONLY
SEE FULL DOCUMENT FOR DETAILS,
DATES & ACTIVE TIMES
D098H
800
SFC
D098F
1500
SFC
D098C
1500
SFC
D098A
1500
SFC
‡ D098G
1500
(OCNL 2000)
SFC
‡ D098E
1500
(OCNL 2500)
SFC
D098D
1500
SFC
D098B
1500
SFC
LONDON FIR EGTT
BRUSSELS FIR EBBU
FIS
LILLE
INFORMATION
120.275
FIS
PARIS NORTH
INFORMATION
125.700
‡ The upper limit is occasionally raised by NOTAM.
CHANNEL
2022_011_CR05098_GRAPHIC DRAWN 16FEB22

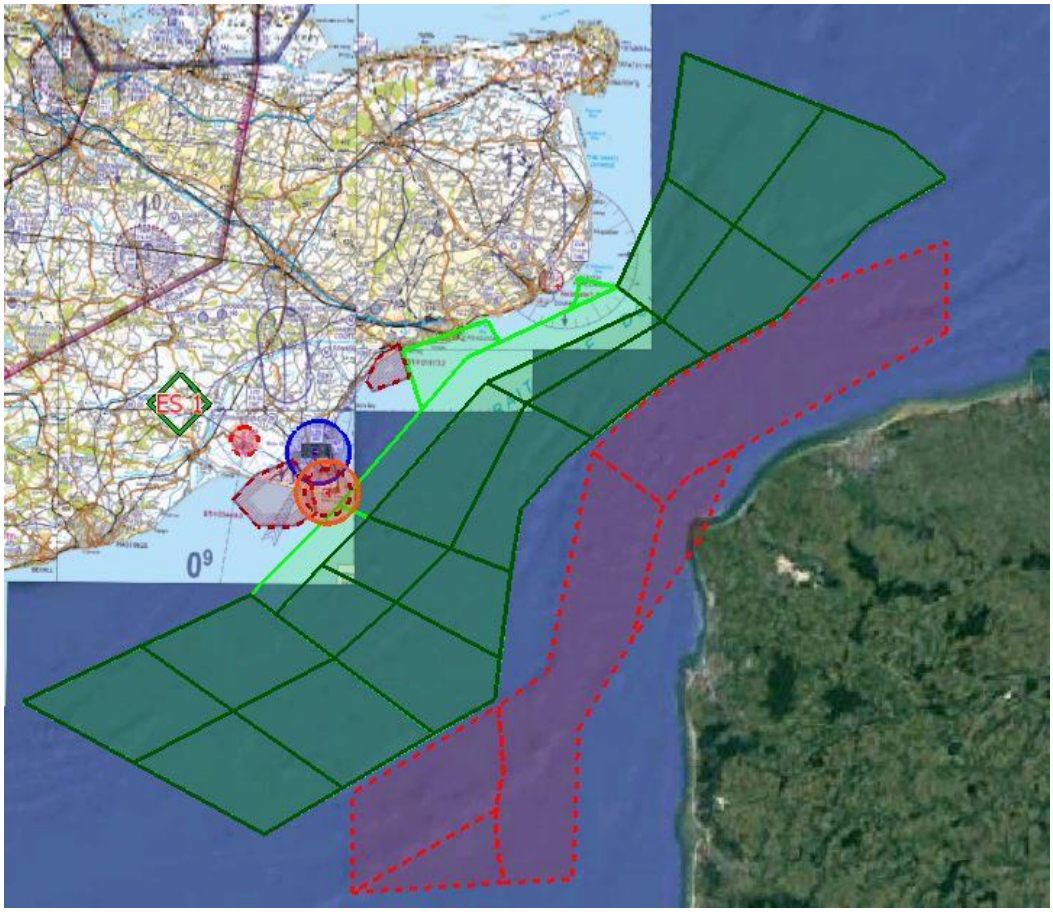
9. Standard Operating Procedures

The current TDA complex is NOTAM'd as active 7 days a week within an agreed UAS response window. There is a minimum 24 hrs notice period for NOTAMs. No dynamic activation is possible in line with CAA direction. Utilising standard operating procedures agreed with Lydd Airport and approved by the CAA, the UAS operates within Lydd ATZ just like any other aircraft. The ATZ is sterilised by Lydd ATC to allow the UAS to arrive and depart. Under control of Lydd ATC the UAS is allocated a departure/arrival slot and operates as directed. This process takes approx. 15mins. There is no requirement to use the runway. The UAS hover taxis within visual line of sight (VLOS) of the external pilot from its allocated take-off and landing slot before transitioning to BVLOS operation during departure. The UAS departs/arrives under full control of Lydd ATC utilising agreed routes. Manned aircraft have priority within Lydd ATZ unless the UAS is operating under a 'Rescue' callsign.

Due to the established segregation afforded by Lydd ATZ (in Blue below) and Dungeness RA (in Red below), there is no requirement to segregate or apply for any changes to airspace within the current Lydd ATZ and Dungeness Power Station RA footprint. This ACP application only refers to operations outside of these two areas which are currently used to access the TDA complex.

Only one UAS is flown at a time under callsign "Coastguard 50" with "Unmanned" used as a prefix on the initial call. Should a situation arise where Coastguard50 is tasked to a safety of life at sea (SOLAS) event this callsign may change to "Rescue50" as allocated by the ARCC.

The UAS Ground Control Station (GCS) is equipped with VHF Airband radio which are used by FRTOL operators to communicate with Lydd ATC and other airborne assets. The GCS radio reception is powerful enough to cover the entire Channel area of operation. UAS conspicuity is provided by a MODE S/ADS-B out transponder. This system is compatible with the TCAS systems as fitted to UKSAR(H).



Current Airspace Overview

Once clear of the overland access route provided by Lydd ATZ and Dungeness RA, UAS operations are wholly conducted within the maritime environment.

10. TDA Deconfliction

Operations in the Channel are undertaken in accordance with agreed airspace deconfliction procedures. All parties operating in the TDA on behalf of the State are signatories on this CAA approved document.

11. Deployed UAS – Schiebel S-100 Camcopter

The Schiebel S-100 Camcopter is a light unmanned helicopter with a maximum take-off weight of 200kg. It is powered by small rotary engine fuelled by AVGAS. The aircraft has a single flight endurance of approximately 5 hours dependant on role fit and environment. The aircraft routinely conducts multiple flights and is capable of flying both at night and during the day.

12. Environmental/Noise impact

All aircraft movements from Lydd are captured within the approved operating licence and environmental impact assessment of the airport. UAS operation poses no greater environmental impact than any other user of the airport. On the contrary, the UAS provides opportunity to hold the UKSAR(H) Leonardo Aw189 at readiness. As well as reserving this vital rescue asset and its crew for its primary lifesaving role, a significant reduction in aircraft emissions, noise and fuel consumption is realised by substituting manned helicopter operations with the UAS. The Schiebel S-100 Camcopter consumes approx. 9 litres of fuel per hour, vs. 500 litres per hour for the AW189 The transit route into the TDA is sparsely populated marsh land with limited noise exposure to the general public. Whilst in the offshore operating area the UAS is barely audible from the mainland and assets at sea level. Measured sound volume @ 886ft AGL is 73.7 dBA which is comparable to an electric lawn mower. The standard UAS operating height in the current TDA exceeds this altitude so it can be assumed the noise level at sea level will be lower still.

13. So why not just keep using the current TDA?

By policy definition, a TDA has a limited life span (90 days). The continued re-establishment of the temporary complex has highlighted the need for a permanent airspace change. This will allow State sponsored UAS activity to continue to respond to the ongoing challenges and threats to safety at life at sea in the region.

14. Duration of the proposed change

In line with regional incident statistics and predicted levels of SAR taskings within the English Channel, it is foreseen that a long lasting UAS capability will continue to be required to cover the period from the expiry of the current TDA complex until the 1st of March 2027. If in the future the requirement no longer exists or a technical advancement negates the need for the airspace change, it will be relinquished.

15. Design principles rationale

1. **Maintain or enhance current levels of safety –** Safety is of paramount importance when designing any new airspace solution moving forward. It is universally agreed that the new airspace structure should, as a minimum, maintain the current levels of safety provided by the existing TDA complex whilst exploring opportunities to increase this where possible.

2. **Comply with UAS regulatory framework** – in accordance with CAP722 and considering UAS capability across all current users of the TDA complex, any airspace solution must be compliant with the current regulatory framework for BVLOS UAS operation to be considered as a viable option. Please see Chapter 7.

3. **Consider the requirements of all potential users –** Any future airspace design must consider the wider UK government response to small boat crossings in the region. The final design must satisfy the operational requirements of all users to maintain current response capability as a minimum.

4. **Minimise impact on other airspace users –** It's clear that the impact of airspace segregation is a key stakeholder concern. As such, its deemed appropriate that this consideration be captured in the founding design principles.

5. **Avoid overflight of congested areas –** Access routes to the maritime operating environment should be designed to avoid intentional overflight of congested areas. The topography of the area provides opportunity to exercise the first rule of risk mitigation 'avoid'.

6. **Operating area to be located over the sea –** With the exception of the access route to Lydd Airport and Dover JRCC, UAS operations are wholly conducted over the English Channel. There is no requirement to conduct operations over land. This also provides opportunity to reinforce design principles 5 and 7

7. **Minimise the noise and environmental impact on areas affected by the proposed change –** Protection of the existing environment in the vicinity of the proposed change area is of paramount importance. By adding this principle to the design criteria ensures this key consideration is captured at the inception of the process and is maintained throughout this application.

16. Stakeholder engagement

To make sure we gather a representative range of views, we are directly contacting specific stakeholders to inform them of the process to enable us to gather a wide range of views during Step 1B. BHL kindly request that where the recipient represents individual parties that the document is shared with its with its membership. This document and more information on this application is published on the CAA airspace change portal. (airspacechange.caa.co.uk).

17. How the information will be used

We are asking all those taking part to consider and comment on the 8 proposed design principles listed in Annex A. These proposed design principles, explore a range of considerations we believe need to be taken into account.

If you would like to give us your views, you can do so by completing the matrix in Annex A and returning it to airspacechangeproposal@bristowgroup.com. You can also see up-to-date information on the process at airspacechange.caa.co.uk.

18. Stakeholder Engagement Time Frame.

From the 22nd of September 2022 until the 25th of October, we will be gathering your views on what our design principles should be. This information will then help us produce a set of draft design principles before sending our proposals to the CAA along with an explanation of how we took the views of stakeholders into account. We expect the CAA to review our proposals at the next gateway assessment on the 25th of November 2022. If the CAA are satisfied with the design principles, we will be able to proceed to Stage 2 of the CAP1616 process, 'Develop and Assess' and begin developing specific designs for the airspace. The purpose of this Step 1B is to develop a set of principles that will form the basis of the more detailed work that will follow which we will formally consult stakeholders on.

19. Annex A

Stage 1B Proposed Design Principles (please complete and return to airspacechangeproposal@bristowgroup.com Please use remaining table fields to add further principles you feel we should consider).

Design Principle	Agree	Disagree
1. Maintain or enhance current levels of safety.	☐	☐
2. Comply with UAS regulatory framework.	☐	☐
3. Consider the requirements of all potential users.	☐	☐
4. Minimise impact on other airspace users.	☐	☐
5. Avoid overflight of congested areas.	☐	☐
6. Operating area to be located over the sea.	☐	☐
7. Minimise the noise and environmental impact on areas affected by the proposed change.	☐	☐

Bristow Helicopters Ltd
airspacechangeproposal@bristowgroup.com