Skyports Limited

ACP-2022-001 - UAS BVLOS in Segregated Airspace – Ipswich and South East Suffolk

Targeted Engagement with Aviation Stakeholders

Version 2.0 – Dated: 1 February 2023

Amendment record

Issue	Amendment	Date
1.0	Initial Issue	22/02/2022
2.0	New (scaled down) proposal to comply with regulatory requirements; new dates of operations	01/02/2023

This document is controlled by the Change Sponsor (Skyports Limited, thereafter "Skyports"). The initial release version and any subsequent revision will be subject to the approval of the UAS Operator. Amendments to this document will be recorded in the Amendment Record. For reference, a copy of this version and all superseded versions will be stored on a secure server.

If this document is updated following meetings with the Civil Aviation Authority (CAA) or for any other reason, the UAS Operator as Change Sponsor will publish a new version on the CAA Airspace Change online portal for all to see. This is to enable the CAA to refer to the correct version if it needs to publish a determination of whether an airspace change is a relevant option to investigate.

Contents

1 Introduction

Skyports (the change sponsor) is seeking to establish a Temporary Danger Area (TDA) complex during notified periods to enable safe unmanned aircraft system (UAS) beyond visual line of sight (BVLOS) operations for up to 10 weeks, commencing 10 April 2023 (subject to regulatory approval). Skyports intends to transport medical goods, including but not limited to medical test kits, pathology samples (including dangerous goods in the form of blood samples), medicines and medical equipment by unmanned aircraft (UA) to and from healthcare facilities in Ipswich and South East Suffolk.

Subsequent to the stakeholder engagement exercise conducted between 22 February 2022 and 17 May 2022, there have been changes to the proposed flight routes and TDA design to comply with regulatory requirements. This document describes the proposed TDA design and details the changes since the last stakeholder engagement exercise.

1.1 About Skyports

Skyports develops, implements, and operates end-to-end drone deliveries overcoming inefficiencies with traditional transportation methods within the medical, e-commerce and logistics sectors.

1.2 About segregated airspace and unmanned aircraft systems (UAS)

The legal constraints on flying operations, including UAS, within the UK airspace are contained within the Air Navigation Order (ANO). UAS do not have an automatic right to airspace if safety provision cannot be made or if such operations would have an unreasonably negative impact on other aviation stakeholders. To integrate with other aviation stakeholders, UAS operators must ensure that their aircraft can demonstrate an equivalent level of compliance with the rules and procedures that apply to manned aircraft.

Until UAS can comply with the requirements for flight in non-segregated airspace, UAS BVLOS flights outside permanently established segregated airspace may be accommodated through the establishment of segregated airspace on a temporary basis.

For flights within segregated airspace, while some restrictions may still apply, a UAS 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 consider the risks associated with any unintended excursion from the allocated airspace and it will also consider the possibility of airspace infringements. In addition, measures that may be put in place to enhance the safety of UAS activities will also be considered by the CAA during authorisation. For more information, see CAP722.

Temporary segregated airspace – a TDA – can only be requested and implemented once. Due consideration has been given to the possible positive and negative impacts of the ACP on other aviation stakeholders and the local community, which is the purpose of this document.

1.3 Regulatory process

Temporary segregated airspace is by its very nature not a permanent change to airspace; however, all change sponsors are under a statutory obligation to engage aviation stakeholders and any other relevant stakeholders by following the steps set out in the Airspace Change Process. For more information, see 20200721 – CAA Policy for the Establishment of Permanent and Temporary Danger Areas (a scaled down version of CAP1616).

2 Requirement for Airspace Change – Issues and Opportunities

2.1 Improving the NHS's logistic network for medical goods delivery

This project is jointly developed by the East Suffolk and North Essex NHS Foundation Trust and ERS Medical to trial a faster, more frequent and more ecofriendly means of medical delivery. In particular, they would like to explore the use of UAS to strengthen their existing healthcare services and logistic network, whilst reducing carbon footprint.

Skyports will operate UAS on behalf of ERS Medical, which provides the NHS with collection and delivery services – reducing delivery times and operating cost compared to the existing mode of transport (primarily ground vehicles). Skyports will carry samples (including Dangerous Goods UN3373, Biological Substances Category B) collected from local medical practices for analysis at pathology laboratories at Ipswich Hospital. With the delivery solution that Skyports is offering, patient care can be more keenly focused on the patient themselves, rather than on meeting the pre-set porter collection times. This enables treatment to be commenced earlier and/or avoids non-essential treatment (e.g., unnecessary antibiotic treatments which are currently being prescribed before receipt of pathology results). Such a service would also serve to reduce testing times and speed up diagnoses for patients. Equitable healthcare for all can only be realised through increased connectivity with rural facilities.

As the NHS has been conducting routine tests, examinations, and procedures, the Skyports solution adds capacity when the NHS needs support in managing the significant demand.

2.2 Eco-friendliness

The use of electric UA to deliver and collect medical goods in Skyports' solution also reduces ground vehicle movements, which in the long run will contribute towards a reduction in carbon emissions, as the UK seeks to meet its Net Zero goal by 2050. It will further facilitate the NHS ambitious goal to be the world's first net zero national health service, aiming to reach net zero by 2040 for emissions the NHS controls directly and 2045 for emissions the NHS can influence as part of the NHS Carbon Footprint Plus, which would include road transport by ERS vehicles.

3 Status Summary of this ACP

3.1 Summary of engagement activities undertaken to date

Skyports has already conducted a 12-week targeted stakeholder engagement exercises between 22 February 2022 and 17 May 2022 to collect feedback and comments on safety and operational aspects of the airspace change proposal, as per the requirements of CAP1616. The airspace change proposal, in particular, the design of the TDA, has been revised in response to stakeholders' feedback. Other airspace users such as HEMS operators and commercial operators in the region have also been engaged to minimise the impact on their operations. Agreements and procedures are also in place for the purpose of deconfliction. The revised airspace change proposal, together with the evidence of stakeholder engagement, was submitted to the CAA Airspace Regulation team for a holistic assessment.

While the CAA Airspace Regulation team did not express any concern on the proposal in our last submission, due to the delay in assessment by the RPAS team, Skyports had to postpone the implementation dates. Moreover, some changes to flight routes have also been made to comply with regulatory requirements. For this reason, Skyports will conduct additional engagement on the latest proposal with the new TDA design and period of operations, as requested by the CAA. Once the CAA has made the final regulatory decision on the proposal detailed in this document, a full summary of stakeholder engagement evidence will be uploaded to the Airspace Change Portal under the ID ACP-2022-001.

3.2 Summary of changes in the latest proposal

For the benefit of stakeholders who have participated in the previous stakeholder engagement exercise, below is a brief summary of the changes made to the proposal. Details of the latest proposal can be found in subsequent sections of this document.

	Original Proposal (Before first engagement)	**Revised Proposal (After first engagement)**	**Current Proposal**
Duration of operation	• Up to 12 weeks	• Up to 10 weeks	• Up to 10 weeks
Routes	• Ipswich – Framlingham • Ipswich – Saxmundham • Ipswich – Holbrook • Ipswich – Alderton	• Ipswich – Saxmundham • Ipswich – Alderton	• Ipswich – Alderton
TDA Design	• A TDA complex with 7 sectors, forming a network of routes: • TDAs A, B and C for Ipswich – Framlingham • TDAs A, B and D for Ipswich – Saxmundham • TDAs A, E and G for Ipswich – Holbrook • TDAs A, E and F for Ipswich – Alderton	• A TDA complex with 2 sectors, one for each route: • TDA A Ipswich – Saxmundham (TDAs A, B, D in previous proposal combined) • TDA B Ipswich – Alderton (TDAs A, E, F in previous proposal combined) • TDA C and G removed • TDAs shape simplified	• 1 single TDA linking Ipswich and Alderton • TDA A in previous proposal removed • Design and shape of TDA B in previous proposal remain the same

4 Proposed Routes and Airspace Change Design

4.1 Route Overview

FIGURE 1: OVERVIEW OF FLIGHT ROUTE ON LOW-LEVEL VFR CHART (1:250000)

4.2 Route details

Route (Reciprocal)	Distance (km)	Altitude (ft AGL)	Avg. cruise speed (kt)	Est. Time (mins)	% of Max Endurance (of 68 mins)
Ipswich – Alderton	20	360	55	15	22

4.3 TDA Design

Skyports requires TDA within which to safely execute its operations and present the following proposed airspace design to aviation stakeholders.

4.3.1 Top-down view of the TDA

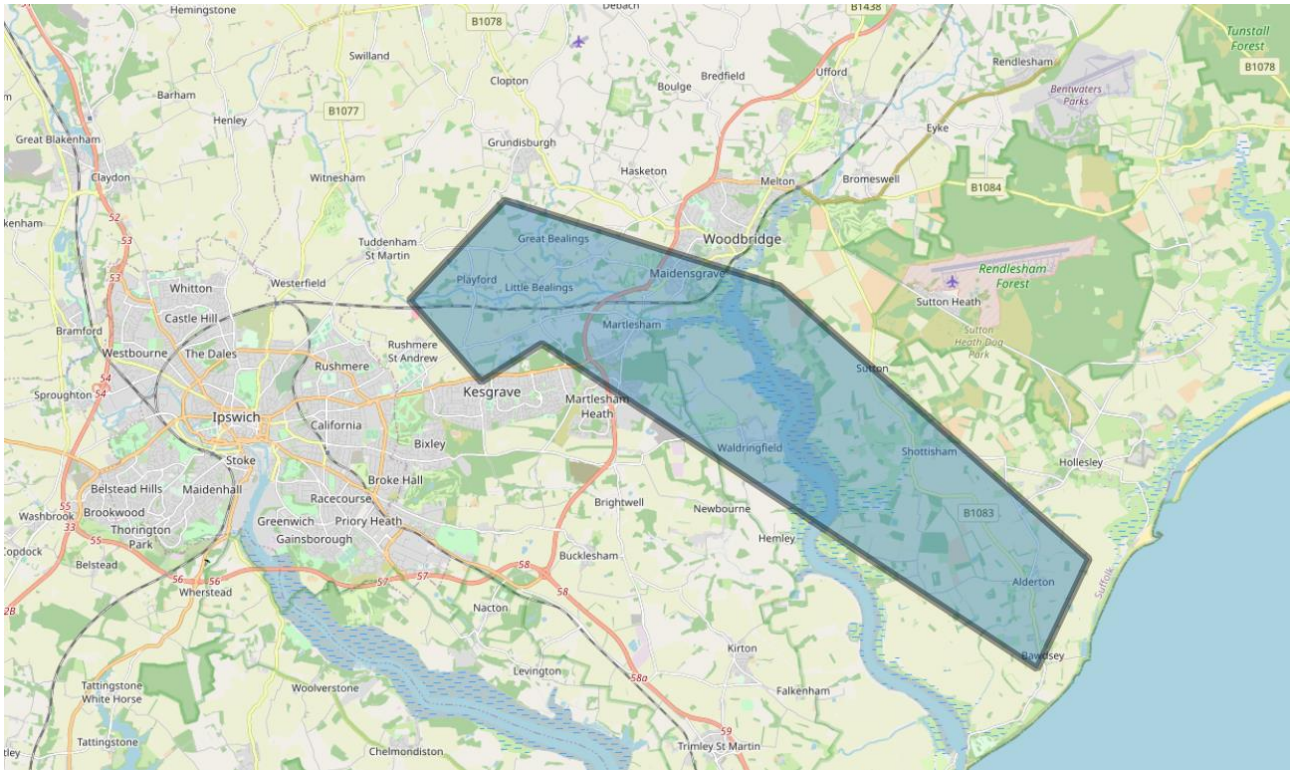

FIGURE 2: TOP-DOWN VIEW OF THE TDA

FIGURE 3: TOP-DOWN VIEW OF THE TDA (WITH FLIGHT ROUTE)

Note: The kml file showing the TDA design is available upon request.

4.3.2 TDA Boundaries

Identification and lateral limits								
	Area bounded by straight lines joining:							
WP	**Lat (N)**	**Lon (S)**	**Lat (N)**	**Lon (W)**	**Simplified Lat (N)**	**Simplified Lon (W)**	**Upper & lower limit**	**Rmks.**
1	52.10182587	1.241381876	52° 06' 06.57" N	001° 14' 28.97" E	52 06 07N	01 14 29E	Lower: SFC Upper: 550 ft AMSL Flight Altitude: < 400 ft AGL	Activity: UAS BVLOS Hours: When notified Sponsor : Skyports
2	52.08443175	1.332436260	52° 05' 03.95" N	001° 19' 56.77" E	52 05 04N	01 19 57E		
3	52.02890809	1.434825727	52° 01' 44.06" N	001° 26' 05.37" E	52 01 44N	01 26 05E		
4	52.00658742	1.417661312	52° 00' 23.71" N	001° 25' 03.58" E	52 00 24N	01 25 04E		
5	52.07271599	1.253777027	52° 04' 21.77" N	001° 15' 13.59" E	52 04 22N	01 15 14E		
6	52.06493575	1.233725141	52° 03' 53.76" N	001° 14' 01.41" E	52 03 54N	01 14 01E		
7	52.08152578	1.209957079	52° 04' 53.49" N	001° 12' 35.84" E	52 04 53N	01 12 36E		

4.4 Date and Time of Operations and TDA Activation

Subject to regulatory approval, the UAS operations will be conducted for up to 10 weeks, commencing 10 April 2023, during weekdays only. The UAS operations will only be conducted when the TDA is activated.

The TDA will be activated for up to 5 hours per day, typically within the window between 09:00 and 15:30 (e.g. 09:00 – 14:00, 10:30 – 15:30 etc.). The exact timings of the 5-hour activation on each day are subject to factors such as weather conditions and operational needs. Skyports will promulgate TDA activation schedule by NOTAM at least 24 hours in advance. Based on NHS data, Skyports envisages operating at a minimum of 10 flights per activation.

4.5 Route planning and safety considerations

Route planning is performed in accordance with Skyports' Operations Manual. Routes are planned as per below:

- ✓ Minimise (to as low as reasonably practicable) overflight of congested and urban areas;
- ✓ Minimise overflight of areas where uninvolved persons are likely to be present (e.g. footpaths, roads). If crossing of roads and paths is necessary, ensure the UA to cross the roads and paths at an angle > 45 degrees;
- ✓ Minimise overflight of environmentally sensitive areas (permission required if overflight is necessary);
- ✓ Ensure that the UA can cover the proposed route distance with a sufficient safety reserve remaining upon arrival;
- ✓ Ensure sufficient 4G signal exists to maintain primary C2 link throughout the duration of the flight;
- ✓ Ensure suitable diversion locations and RTH locations are available;
- ✓ Maintain altitude of <400ft AGL;
- ✓ Account for terrain and winds;
- ✓ Ensure UA climb/descent rates are within OEM stipulated limitations.

4.6 Technical means to be used

Type	Swoop Kookaburra Mk III Hybrid – Powered Lift transitional platform (VTOL)
Max speed	68kt
Cruise speed	55kt
Max endurance	68 mins (forward flight limit at MTOW)
Max payload	3kg
MTOM/MTOW	17kg
Lighting	Navigational lights and a white strobe
Max. wind	27 kts (14 m/s) from any direction
Min. visibility	Min. 1500m at Take-off and Landing Points. Flights will comply with visual meteorological conditions (VMC).
Precipitation	Moderate rainfall (2mm – 10mm per hour)
Cloud ceiling	No limitation
Min. / Max. Operating Temperature	0°C / +45°C
Electronic Conspicuity	The UA is fitted with ADS-B IN and OUT, which can process uncertified ADS-B signals, namely SIL/SID=0. The UA ADS-B transponder transmits on 1090Mhz, this system can also receive other ADS-B signals from certified and non certified sources, giving the widest range of visualised signals using the ADS-B protocol. The UA will not visualise Mode S only devices.
RTH Logic	Should the UA need to RTH, it will automatically evaluate the quickest time to landing (this may be to proceed to the destination, or to turn around and return to the origin). The UA returns (or proceeds forward) via the existing flightpath (i.e. it does not 'straight line' towards the landing location as per more traditional RTH workflows). This ensures the UA remains in the designated operating zone and will not overfly built-up areas.

4.6.1 Horizontal Operating Volume

The horizontal operating volume of the Kookaburra Mk III UA consists of the following:

- Flight geography
- Contingency buffer
- Ground risk buffer

The Kookaburra Mk III has two flight sectors (defined during route planning):

1) **Constrained Leg** (Figure 4): chosen when operating space is limited.

- Flight Geography = 40m (20m either side of flight path) – UA cannot orbit or turn around
- Contingency buffer = 80m (40m either side of flight path)
- Ground risk buffer = 1:1 rule buffer beginning from the edge of the contingency buffer. Typically 120m (dependent on flight altitude)

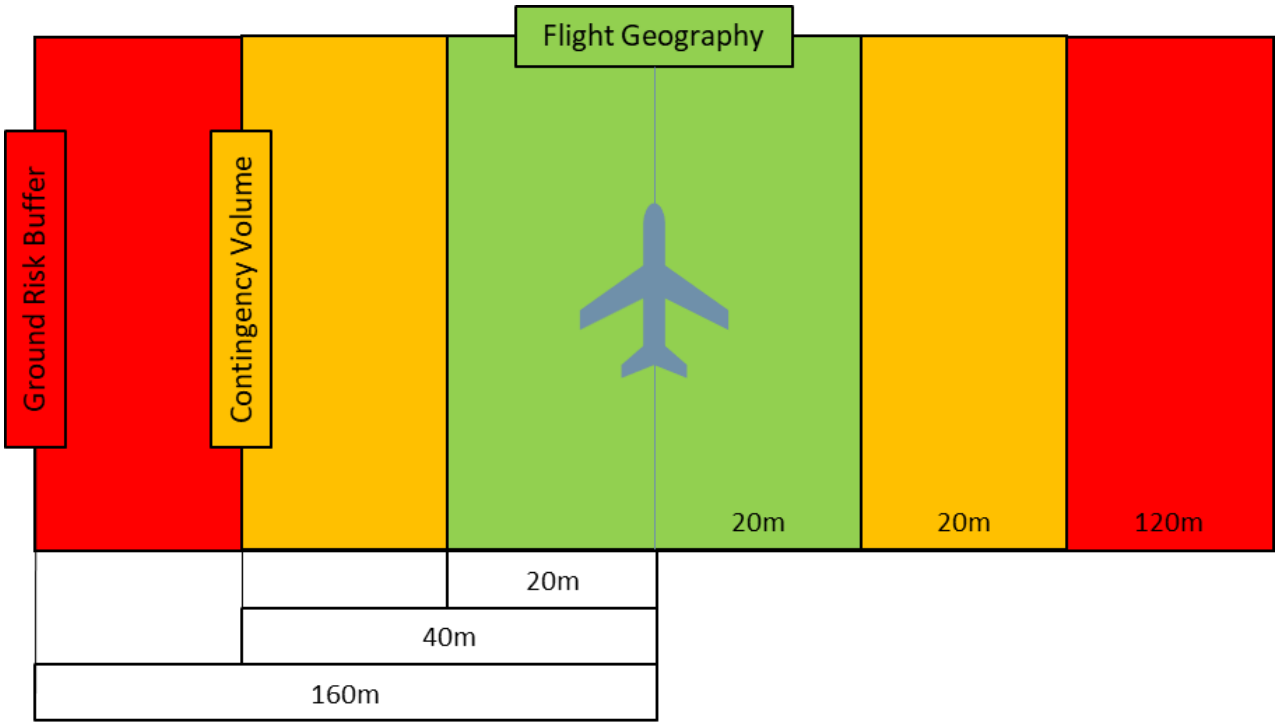

FIGURE 4: CONSTRAINED FLIGHT SECTOR (HORIZONTAL FLIGHT PROFILE)

2) Unconstrained Leg (Figure 5): chosen when operating space is larger.

- Flight Geography = 960m (480m either side of flight path) – UA can orbit and turn around
- Contingency buffer = 1400m (700m either side)
- Ground risk buffer = 1:1 rule buffer beginning from the edge of the contingency buffer. Typically 120m (dependent on flight altitude)

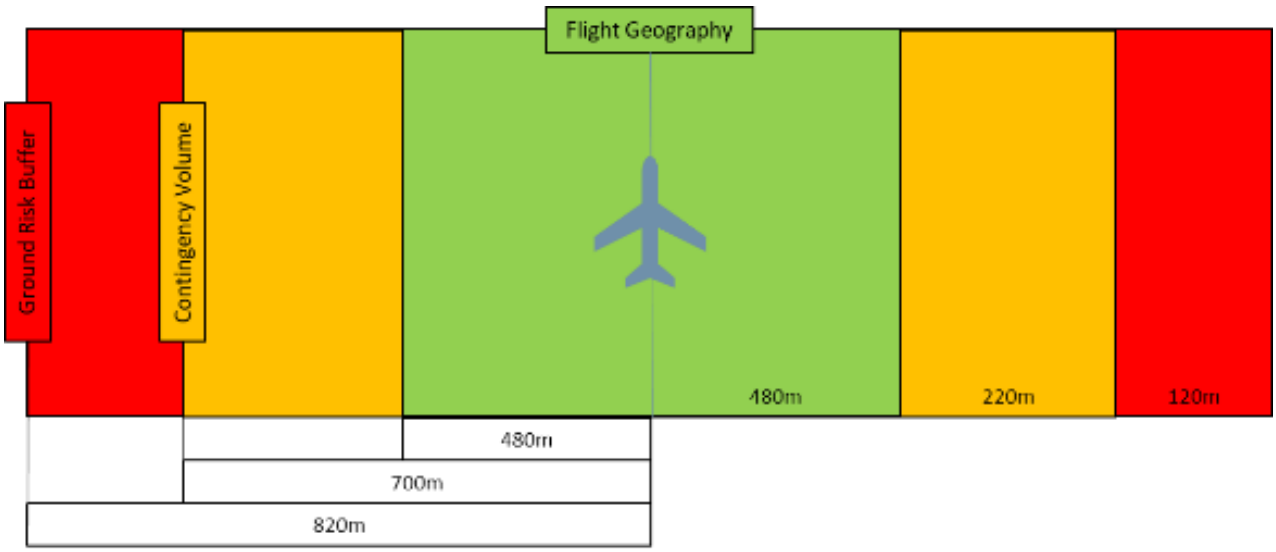

FIGURE 5: UNCONSTRAINED FLIGHT SECTOR (HORIZONTAL FLIGHT PROFILE)

4.6.2 Vertical Operating Volume

The vertical operating volume of the Kookaburra Mk III UA consists of the following:

- Flight geography: 12m above and below planned flight path.
- Contingency buffer: from ground surface below the planned flight path, extending to 30m above planned flight path.

4.7 Danger Area Activation Information Service (DAAIS)

Skyports has previously discussed with NATS and London Flight Information Service (FIS) has agreed to provide a DAAIS to cover the area of operations, which enables aircraft en-route to be able to contact Skyports and to be reminded of any active TDA in the area. Skyports will confirm with London FIS again regarding the provision of DAAIS.

5 Guidance on how to respond

5.1 Engagement period

As per the request by the CAA, this additional stakeholder engagement exercise will last 3 weeks taking place between **Wednesday 1 February 2023** and **Tuesday 21 February 2023**.

5.2 Deadline for responses

All responses should be sent to Skyports **by 17:00 on Tuesday 21 February 2023**, when the stakeholder engagement period will close. To facilitate Skyports' review of responses, and allow sufficient time for Skyports to resolve any safety related issues, stakeholders are encouraged to submit any feedback, comments and/or suggestions as early as possible.

5.3 Responses

Stakeholders are welcome to provide feedback, comments and/or suggestions related to the safety and operational aspects of this airspace change proposal. Responses should be submitted directly to Skyports via email to airspacechange@skyports.net.

Please state clearly in the email:

- your name, contact information, and the organisation you are representing (if applicable);
- whether you i) **support** the proposal; ii) **oppose** the proposal; iii) **neither support nor oppose the proposal**; and/or iv) have any **constructive suggestions** for adaption of the proposals. Please provide a rationale for your position.

You may opt to remain anonymous if you wish to do so. However, your feedback will still be incorporated into the engagement summary report to be submitted to the CAA after the engagement period.

For questions related to the airspace change process and regulatory requirements, please contact the CAA direct.

6 Post-engagement

Skyports will upload all engagement material to the Airspace Change Portal retrospectively after Stage 4. A post-engagement summary report, with feedback provided verbatim from stakeholders, will be provided to the CAA. Once the CAA has made a decision on the final airspace change design, Skyports will advise all stakeholders of the outcome.

6.1 Airspace deconfliction

Skyports will produce comprehensive and robust airspace deconfliction procedures via Temporary Operating Instructions (TOI) that secures the approval of relevant aviation stakeholders that may need to enter the TDA once activated, e.g. emergency services, and commercial airplane/helicopter operators. Skyports have already engaged relevant aviation stakeholders and secured their written approval during the previous round of stakeholder engagement. These stakeholders will be contacted again to confirm the arrangements in relation to this latest proposal.

6.2 Continued Monitoring

Throughout the implementation phase, Skyports will continue to undertake regular engagement with aviation stakeholders, and provide regular updates to the CAA when the TDA is activated and after it has been deactivated.

Appendix A: List of identified stakeholders

No.	Name	Type
1	Aircraft Owners and Pilots Association (AOPA)	Representative
2	Airfield Operators Group (AOG)	Representative
3	Airport Operators Association (AOA)	Representative
4	Airspace Change Organising Group (ACOG)	Representative
5	Airspace4All	Representative
6	Army Gliding Club (Anglia) (based at Wattisham Airfield)	Flying Club
7	Association of Remotely Piloted Aircraft Systems (ARPAS-UK)	Representative
8	Aviation Environment Federation (AEF)	Representative
9	Babcock International	HEMS
10	British Balloon and Airship Club	Representative
11	British Business Aviation and General Aviation Association	Representative
12	British Gliding Association (BGA)	Representative
13	British Hang Gliding and Paragliding Association (BHPA)	Representative
14	British Helicopter Association (BHA)	Representative
15	British Microlight Aircraft Association (BMAA)	Representative
16	British Model Flying Association (BMFA)	Representative
17	British Skydiving	Representative
18	Coastguard	HEMS
19	Crowfield	Airfield
20	East Anglian Air Ambulance (EAAA)	HEMS
21	Elmsett	Airfield
22	Essex & Suffolk Gliding Club	Flying Club
23	GAMA Aviation	HEMS
24	General Aviation Alliance (GAA)	Representative
25	General Aviation Safety Council (GASCo)	Representative
26	Great Oakley	Airfield
27	Helicopter Club of Great Britain (HCGB)	Representative
28	Heliair	Operator
29	Helicentre	Operator
30	Light Aircraft Association (LAA) (including Suffolk Coastal Strut)	Representative
31	Maritime and Coastguard Agency	Emergency Services
32	Military Aviation Authority (MAA)	Representative
33	Ministry of Defence	Military
34	Monewden	Airfield
35	National Grid	Operator
36	National Police Air Service (NPAS)	Emergency Service
37	NATS	ANSP
38	PDG Helicopters	Operator
39	Rattlesden Gliding Club	Flying Club
40	Sloane Helicopter (Children's Air Ambulance)	HEMS
41	Specialist Aviation Services	HEMS
42	TGC	Flying Club
43	Wattisham	Airfield (Military)
44	Western Power	Operator
45	Woodbridge	Airfield (Military)

Note: Additional or self-identified stakeholders maybe added during the engagement exercise, as a result of stakeholders getting in touch. Names of private individuals will not be included but their feedback will be incorporated.

Appendix B: Referenced Documents

Document	Document Title	Version & Date
DA/TDA Policy 20200721	CAA Policy for the Establishment of Permanent and Temporary Danger Areas	v1.0 21 July 2020
ANO 2016	The Air Navigation Order (ANO) 2016 and Regulations	13 April 2022
CAP 1616	Airspace Change – Guidance on the regulatory process for changing the notified airspace design and planning and planned and permanent redistribution of air traffic, and on providing airspace information	v4.0 1 March 2021
CAP 722	Unmanned Aircraft System Operations in UK Airspace – Guidance	v9.1 22 December 2022

Appendix C: Acronyms & Abbreviations

Abbreviation	Term
ACP	Airspace Change Proposal
ADS-B	Automatic Dependent Surveillance-Broadcast
AMSL	Above Mean Sea Level
AGL	Above Ground Level
ANO	Air Navigation Order
BVLOS	Beyond Visual Line of Sight
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
DA	Danger Area
DAAIS	Danger Area Activity Information Services
DAATM	Defence Airspace and Air Traffic Management
GP	General Practitioner
HSCP	Heath and Social Care Partnership
KML	Keyhole Markup Language
LAT	Latitude
LONG	Longitude
NHS	National Health Service
MOD	Ministry of Defence
MTOW	Maximum Take-Off Weight
NOTAM	Notice to Aviation
PPE	Personal Protective Equipment
SIL	Source Integrity Level
SFC	Surface
TDA	Temporary Danger Area
TOI	Temporary Operating Instruction
UA	Unmanned Aircraft
UAS	Unmanned Aircraft System
VMC	Visual Meteorological Conditions
VTOL	Vertical Take-off and Landing
WC	Well Clear

Appendix D: Glossary

Term	Definition
Aeronautical Information Publication	Long-term information essential to air navigation, including the detailed structure of UK airspace and flight procedures, which forms part of the UK Integrated Aeronautical Information Package. Sometimes informally known as the Air Pilot. Publication is the responsibility of the CAA but is carried out under licence by NATS. www.ais.org.uk.
Air navigation service provider	An organisation which operates the technical system, infrastructure, procedures, and rules of an air navigation service system, which may include air traffic control.
Airspace change proposal	A request (usually from an airport or air navigation service provider) for a permanent change to the design of UK airspace.
Airspace design	Together, the airspace structure and flight procedures
Airspace change process	The staged process an airspace change sponsor follows to submit an airspace change to the CAA for a decision. The process includes actions associated with implementation and post-implementation review, after the CAA or, where applicable Secretary of State, decision.
Airspace Modernisation Strategy	A co-ordinated strategy and plan for the use of UK airspace for air navigation up to 2040, including for the modernisation of the use of such airspace, prepared and maintained by the CAA, incorporating the previous Future Airspace Strategy. It is a requirement of the Air Navigation Directions 2017. https://www.caa.co.uk/Commercial-industry/Airspace/Airspace-ModernisationStrategy/For a-strategy/.
Airspace structure	Designated volumes of airspace within identified characteristics, including the equipment aircraft wanting to enter that airspace must carry and actions pilots must carry out before entering that airspace. The volumes of airspace are designed to ensure the safe and optimal operation of aircraft. Airspace structures consist of: a) controlled airspace, namely control zones, control areas, terminal control areas and airways; b) airspace restrictions, namely danger, restricted and prohibited areas; c) for a radio mandatory zones, transponder mandatory zones; d) other airspaces specified by the CAA when defining the airspace change process, such as, for example, flight information zones, aerodrome traffic zones, temporary segregated areas, temporary reserved areas or free-route airspace.
Beyond Visual Line of Sight (BVLOS)	An operation in which the remote pilot or observer does not use visual reference to the remotely piloted aircraft in the conduct of flight.
Consultation	Formal process seeking input into a decision, undertaken in line with the Gunning Principles, and government guidance.

Term	Definition
Danger Area	Airspace within which activities dangerous to the flight of aircraft may exist at notified times.
Design principles	The principles encompassing the safety, environmental and operational criteria and the strategic policy objectives that the change sponsor seeks to achieve in developing the airspace change proposal. They are an opportunity to combine local context with technical considerations, and are therefore drawn up through discussion with affected stakeholders.
Engagement	Catch-all term for developing relationships with stakeholders, covering a variety of activities including but not limited to consultation, information provision, regular and one-off meetings and for a, workshops and town hall discussions.
Feedback	Informal response to engagement – change sponsors may be expected to seek feedback from stakeholders in addition to formally consulting them.
Military operations	Operations undertaken by military aircraft, or military aerodromes.
Overflight	For the purposes of airspace changes, overflight is defined according to the CAA's report, CAP 1498 which outlines a measurement based upon community perception. It does not portray noise impacts. www.caa.co.uk/cap1498.
Portal	The CAA's airspace change portal – an online portal containing details of all current and previous airspace changes: https://airspacechange.caa.co.uk.
Representative group	Stakeholder group that gathers together those with similar interests in a proposal. It could be at an industry level (for instance the Airport Operators Association), national level (for instance the Aviation Environment Federation) or local level (for instance HACAN).
Sponsor (or change sponsor)	An organisation that proposes, or sponsors, a change to the airspace design in accordance with the CAA's airspace change process.
Stakeholder	An interested third party in an airspace change or PPR proposal.
Statement of Need	The means by which the change sponsor sets out what airspace issue or opportunity it is seeking to address and what outcome it wishes to achieve, without specifying solutions, technical or otherwise.
Uncontrolled airspace	Airspace in which aircraft are able to fly freely through the airspace without being constrained by instructions in routeing or by air traffic control, unless they require an air traffic control service.
Unmanned aircraft system (UAS)	An Unmanned Aircraft System (UAS) comprises individual 'System Elements' consisting of the Unmanned Aircraft (UA) and any other System Elements necessary to enable flight, such as a Remote Pilot Station, Communication Link and Launch and Recovery Element. There may be multiple UAS, RPS or Launch and Recovery Elements within a UAS.