Windracers Limited

Summary of Stakeholder Engagement

ACP-2022-049

Version 5.0 - Dated 29/06/2023

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Revision History

Issue Number	Description	Date	PID
1.0	Initial Release	17/03/2023	Y Lawrenson
2.0	Updated Chapter 2. Stakeholder Engagement. Addition of Para 2.7: Feedback Prompted Revisions. Detailed meeting minutes added to Appendix C – Stakeholder Engagement Meetings Summary.	31/03/2023	Y Lawrenson
2.1	Raw email evidence reformatted and redacted. Para 2.1: Clarity added. Chapter 3: TDA Geometry Rationale. Para 2.6: Clarity added.	13/04/2023	Y Lawrenson
3.0	TDA geometry extended after feedback from the CAA.	18/04/2023	Y Lawrenson
4.0	Engagement letter sent out detailing changes to TDA geometry and timetabling. Addition of ATS Evidence.	06/06/2023	Y Lawrenson
5.0	Engagement update detailing operation schedule change.	29/06/2023	Y Lawrenson

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1. Introduction

In 2020, Highlands and Islands Airports Limited lead the organisation of a consortium to create the Sustainable Aviation Test Environment (SATE) in Scotland. The aim of the consortium is to bring together aviation industry specialists in the hopes of achieving low carbon aviation. To achieve this Kirkwall Airport (Orkney) has been set up as the UK's first operationally based, low carbon aviation test centre. This is an ideal base to provide regional flights across the Orkney Isles as well as mainland Scotland and the Shetland Isles.

SATE 2 now aims to expand on the success that has already been delivered and develop an uncrewed aerial vehicle (UAV) hub-and-spoke delivery network across Scotland. Windracers participated in initial trials to interconnect the Orkney and Shetland Islands. This involved setting up TDAs to cover multiple routes flown BVLOS. Going forward Windracers aims to work with local communities including councils, logistics companies, NHS Scotland and other stakeholders to supplement and build on current supply chains.

The purpose of ACP-2022-049 is to form a network of routes operating out of Kirkwall to supply the Orkney Islands with UAS middle mile delivery logistics. This will form phase one of an ongoing project that involves the Shetlands and Inner Hebrides. This document will summarise the Stakeholder Engagement undertaken by Windracers to set up appropriate Temporary Danger Areas that work for those impacted.

2. Stakeholder Engagement

2.1 Identification of Audience

Through various channels, such as CAA recommended stakeholders, prior engagement in the area, and key operational collaborators, the following populations were identified:

1. Aerodromes used for launch and recovery of the UAS and Air Traffic Service Units (ATSUs) providing traffic services for the operations.
2. Local airspace operators based in the vicinity of the launch and recovery aerodromes.
3. Frequent airspace users spanning a wider area.
4. National bodies and authorities, members of the Air Traffic Management Advisory Committee (NATMAC) distribution list.
5. Other stakeholders involved. This includes environmental stakeholders and local tourism.

The intended TDA will enable UAS flights under 2500 ft AMSL, however population of inhabited areas in the vicinity of the intended Airspace Change were not included in this engagement strategy as very low impact is expected due to the following reasons:

- The location of the TDA and planned operations occur mainly over water, during operational hours of the aerodrome used.
- Departure and recovery are carried out at conventional airports for manned aviation.
- The UAS intended to be operated within the TDA produces lower levels of noise than those of other aircraft usually flying at these locations.

2.2 List of Stakeholders

The list of stakeholders has been provided in APPENDIX B. This is broken down into the NATMAC list, Key Stakeholders, and Wider Engagement. The NATMAC list is contacted with all wider engagement details and information. It has been found that while these stakeholders require details of the Airspace Change Proposal, they do not often influence the geometry or scheduling. This often comes from Key Stakeholders, particularly the involved aerodromes and ATSUs.

2.3 Engagement Approach

2.3.1 User-Cases Identification

Windracers began early user-case identification prior to starting stakeholder engagement. This involved talking with local interested parties such as councils, the NHS and Royal Mail. A use-case survey was sent out to relevant parties and further disseminated through the SATE consortium. This then assisted in the choice of relevant airfields and route geometry.

2.3.2 Stakeholder Pre-Engagement

Prior to starting formal stakeholder engagement, planning and coordination meetings were held as part of the SATE 2 Consortium. This consortium is headed by HIAL and therefore involved the major airports considered as part of the project. Feedback on routes, places to avoid, and prior operations was received during this period which allowed Windracers to present a more defined proposal.

2.3.3 Formal Stakeholder Engagement

As part of the formal stakeholder engagement Windracers are adopting the following strategy:

Event	Date	Description
Statement of Need	15th July 2022	SoN submitted to the ACP Portal.
Initial Assessment Meeting	23rd November 2022	Meeting between CAA and Change Sponsor to present and discuss the Statement of Need, provide information on how the sponsor intends to fulfil the requirements of the airspace change and engagement process, and present provisional timescales.
Start Stakeholder Engagement	7th December 2022	Send a stakeholder engagement letter to all stakeholders. Start formal conversations on airfield usage.
Phase 1	23rd January 2023	Deadline for first responses to proposed changes. Geometry, scheduling, and flight routes looking to be finalised.
Finish Stakeholder Engagement	3rd March 2023	End of stakeholder engagement. Collect feedback and form a report.
Submission of ACP	17th March 2023	ACP submitted to portal with supporting documents.
Decision Gateway	21st April 2023	AIRAC deadline for effective date.
NATS AIC Publication	1st June 2023	
ACP Implementation	5th June – 18th August 2023	

The formal period for the Stakeholders to send feedback was of twelve weeks.

2.3.4 Timeline Rationale

The timeline set out for the suggested stakeholder engagement was decided based on prior operations and processes with the CAA. This gave the maximised time to engage with stakeholders for the planned operation scheduling. This timeline was then confirmed with the CAA during the Initial Assessment Meeting held on the 23/11/2022. Due to feedback received from the CAA it was decided to move the intended operations later in the year to allow for an increase on the expected submission review time. The change in scheduling for the planned operations was intentionally moved to ensure the regulatory process could be carried out not at the expense of stakeholder engagement. This timeline was agreed with the CAA and uploaded to the portal under Item 5 of the Initial Assessment Meeting Minutes.

2.3.5 Combination of Multiple ACP Engagement

It was decided that the stakeholder engagement for both ACPs being sponsored by Windracers Ltd in Northern Scotland would run simultaneously. This included ACP-2022-049, the engagement for which is summarised in this document, and ACP-2022-051. The rationale behind this combination of stakeholder engagement included:

- Similar stakeholders across both ACPs,
- Not wanting to confuse stakeholders but instead clearly setting out the differences between the two ACPs,

- Not wanting to overload stakeholders with multiple email chains about different ACPs.

This was then agreed with the CAA with emphasis on not overloading/confusing stakeholders with multiple ACPs from the same sponsor. To ensure the combined engagement did not detract from either project but instead enhance the feedback received, a clear distinction was made throughout about which information was applicable to which ACP.

2.4 Conduct of Engagement Activities in Multiple Rounds

It was known at the beginning of the project that the plans would evolve from the feedback received. It was therefore decided to run multiple rounds of engagement to keep all updated with any changes to the proposal. Throughout the engagement period Windracers was also introduced to new potential stakeholders. Multiple rounds of stakeholder engagement ensured the same information was going out to all parties involved.

2.4.1 Round 1

- Initial stakeholders identified:
  - NATMAC List,
  - CAA recommended contacts,
  - Stakeholders identified in previous operations in the area,
  - Stakeholders identified through research of the area.
- Stakeholders contacted with Initial Letter of Stakeholder Engagement (Summary of Stakeholder Engagement – Appendix D).
- Where clarification of details was requested, this was given as soon as Windracers were able to provide a clear and useful response. This has been documented in Appendix F of the Summary of Stakeholder Engagement.
- Meetings with key stakeholders.

The initial engagement letter was also shared to relevant contacts through contacted parties to ensure those most applicable to give feedback were receiving the information. Where new contacts were gained it was assessed whether the new contact required an immediate update or if they would be included in the second round of engagement. This was decided based on whether they would have an impact on the design and planning of the proposal or if they required awareness of the project.

2.4.2 Round 2

The aim of round 2 was to ensure stakeholders were fully informed and able to input into the ACP. At this point in the stakeholder engagement process, Windracers Ltd. looked to finalise plans and ensure all were in agreement on the proposed operations. This involved integrating feedback received during Round 1 into the planning. The feedback received was generally positive in nature and more looking for clarity than to impact the ACP.

2.4.3 Round 3

Following changes to the planned ACP after CAA feedback a third round of engagement was conducted. This included the recommended TDA extension into Kirkwall ATZ, operation schedule change, and clarity on planned loiter points. The feedback received was limited and largely a confirmation of no further impact.

2.4.4 Round 4

An update email was sent to stakeholders informing them of the operation schedule change. Limited feedback was received relating to ACP-2022-049. The timeline change was also uploaded to the ACP Portal.

2.5 Future Engagement

The live impact assessment phase starts from the Decide Gateway and aims to provide channels of communication before, during and after implementation. Windracers will receive any feedback or complaints via email on operations@windracers.org. All queries received will be informed to the CAA and action will be taken to reduce the impact on other stakeholders. This will include meetings (checkpoints) with key stakeholders to assess whether any operational aspects need to be revised.

2.6 Summary of Feedback

Feedback of all stakeholders is summarised in the Table below.

Relevant engagement communications and responses can be found in the Appendixes listed in the following table:

Appendix	Stakeholder	Stakeholders Feedback Summary	Actions Taken
F.1	Baltasound Airport (Unst)	Nothing to impact ACP-2022-049.	Meeting held 14/12/22 – Details in Appendix C
F.2	NHV	Confirm details.	Details confirmed. Finalised plans to be sent in Jan.
F.3, F.10, and F.24	DAATM	Confirm details. No additional impact to MOD activities.	Details confirmed. Finalised plans to be sent in Jan.
F.4, F.14, and F.21	Kirkwall ATC	Details of Kirkwall Operations Full understanding of UAV processes, various scenarios, preferred outcomes etc. Happy to support ACP-2022-049 with provision of DAAIS. Confirmed extension of TDA into the ATZ.	Updated throughout. Signed as key airspace stakeholder. Active input to the design of the TDA and proposed operations. This included: Naming/positioning of loiter points (meeting detailed Appendix C). C2 failure procedures (meeting detailed Appendix C). UAS behaviour joining the circuit. (meeting detailed Appendix C).
F.5 and F.23	Sumburgh	Nothing to impact ACP-2022-049.	
F.6 and F.9	LoganAir	No issues, keep updated. Sumburgh flights not affected by ACP-2022-049. Deconflict with timetabled flights. Aircraft not fully equipped with ADS-B.	Updated throughout. Signed as key airspace stakeholder. Active input to the design of the TDA and proposed operations. This included: Scheduling. Deconflicted against planned timetable. Discussion summarised in Appendix C.

F.7, F.12, F.22, and F.31	Northern Lighthouse Board	Details of planned flights. Keep updated of date/route changes. Contact PDG Helicopters to deconflict.	NLB updated with plans. PDG updated with letters of engagement.
F.8	Tingwall General Aviators Group	Clarification of details to be discussed in group.	Details confirmed.
F.11, F.25, and F.28	SaxaVord	Minimal impact. Happy to support ACP-2022-049.	
F.13	PDG Helicopters	No objection. Provision for short notice access. Supportive if the ACP has no detrimental effect on PDG operations.	Confirmed access details and confirmed notification through NOTAM.
F.15	Babcock (Scotland's Charity Air Ambulance)	Happy with deconfliction procedures. With support from Kirkwall ATC there is sufficient time to sanitise the airspace if required.	It was asked whether a DACS would be provided. Windracers informed SCAA there would be a DAISS. SCAA were happy with this level of service.
F.16	GAMA Aviation (Helimed 2)	No issues with ACP-2022-049 so long as contact is maintained with Kirkwall ATC and a NOTAM is in place for planned operations.	
F.17 and F.27	NATS	Confirmation of provision of ATS. Suggested a DACS could be provided with engagement between Windracers and Kirkwall ATC.	Drawing on experience from previous operations it was decided a DACS was not required for these operations.
F.18	Babcock (Police Scotland Air Unit)	No issues with ACP. Once the ACP is published will promulgate a safe working protocol to pilots. Happy there is ample time to sanitise.	
F.19	NatureScot	Confirmation of routes compared to current aviation activity. Confirmed no impact on protected sites.	
F.20	Bristow (Sumburgh Search and Rescue)	Requires priority is given to SAR aircraft without delay. Phone Call – 29/06/23 -ACP unlikely to impact Bristow Operations.	Confirmed emergency operations have priority over UAS flights.

F.29	Hyimpulse Technologies GmbH	Running an ACP at a similar time. Deconflicted through geography.	Will remain in contact.
F.30	Airtask Group	Updates to contact details.	
F.32	Tingwall Airport	Feedback relating to ACP-2022-051.	
-	CHC	Letter of engagement read. No comment.	
-	Offshore Helicopters	Email read. No comment.	
-	2Excel Aviation	No comment.	
-	Orkney Island Council	Happy with airfield use following submission of a valid PPR. No issues with ACP-2022-049.	
-	HIAL	Supportive of ACP-2022-049.	
-	Lamb Holm Airfield Orkney	Orkney GA community are backing an increase in electronic conspicuity. No issues with the ACP-2022-049.	
-	Wick Airport	Email read. No comment.	
-	Visit Scotland	Email read. No comment.	

2.7 Feedback Prompted Revisions

Changes were made throughout the engagement process dependant on feedback received. After the first round of stakeholder engagement this included:

a) TDAs encompass the airspace over airfields with no active ATZ.

Clarity was required on this and therefore made clearer in the second round of stakeholder engagement.

b) Westray has been added to Phase 1: Orkney Operations.

It was informally suggested through the course of engagement that this would in future be a more useful airfield to the local residents and stakeholders. Therefore, as a use case scenario it should be joined to this network of TDAs.

c) A schedule for Phase 1: Orkney Operations has been proposed.

This was after a receiving timetabling from stakeholders as detailed in Appendix C.

d) Activation period for Phase 1: Orkney Operations has changed.

This allows Windracers Ltd to maximise stakeholder engagement.

Changes made due to the second round of stakeholder engagement:

e) Failsafe return routes.

The aircraft will now return to the ‘spoke’ airfields, not back to the Kirkwall ATZ, in the event of a C2 loss of link. This is due to feedback received as detailed in Appendix C.

3. TDA Geometry Rationale

The geometry of the proposed TDA was decided through the detailed stakeholder engagement and OSC constraints. The width and height were determined as the minimum required in line with the OSC. This was further reinforced through engagement on separation deconfliction. As can be seen in Appendix F.9 there was concern of airspace incursion on low pressure days. It was confirmed with the stakeholder that the height of the TDA including the safety buffer were relevant and appropriate for the planned operations.

The geometry was also changed throughout to include Westray Airport. There was informal engagement carried out where local residents and stakeholders suggested this would be a useful addition to the network. This addition was promulgated through stakeholder engagement with no negative feedback received.

4. Air Traffic Service

In accordance with Section 70 of the Transport Act each airspace change proposal must secure the most efficient use of airspace for the safe operation of aircraft and the expeditious flow of air traffic. In the interests of securing the most efficient airspace usage Windracers has looked into various form of ATS provision including DAAIS and DACS.

The Windracers approach to ensuring ACP-2022-049 allows for the safest and most efficient use of the airspace involved:

- Understanding the required level based on previous experience.
    - Windracers has carried out similar operations in the area and across the UK using various levels of service.
    - Prior operations in the area were held with a DAAIS (ACP-2021-025).
    - Previous trials were held in Shetland with a combination of DAAIS and DACS (ACP-2021-067)
    - The use of a DACS would require 3rd party input, additional to the engagement carried out with Kirkwall ATC.
- Feedback from prior operations and stakeholder engagement.
    - Informal feedback received after similar operations in the area concluded a safe and efficient use of the airspace.
    - Unexpected airspace use by other operators, such as air ambulance, was conducted safely and efficiently through a DAAIS service.
    - Windracers informed stakeholders of the intent to use a DAAIS service and the further mitigations in place to ensure the safe usage of the airspace. This was met with agreement and no negative feedback was received nor was it suggested that a different service type would be preferable.
- Engagement with the relevant ATC services.
    - Windracers engaged with Kirkwall ATC and NATS Aberdeen to understand the level of ATS available. Kirkwall ATC confirmed they would only be able to offer a DAAIS. NATS Aberdeen initially suggested that subject to engagement and workload, NATS Aberdeen may be able to provide a DACS. When followed up on this Windracers received no reply. (Appendix F – Air Traffic Service)

Appendix A – Amendment Record

Issue Number	Amendments
1.0	Initial Release
2.0	Updated Chapter 2. Stakeholder Engagement. Addition of Para 2.7: Feedback Prompted Revisions. Detailed meeting minutes added to Appendix C – Stakeholder Engagement Meetings Summary.
2.1	Raw email evidence reformatted and redacted. Para 2.1: Clarity added. Chapter 3: TDA Geometry Rationale. Para 2.6: Clarity added.
3.0	TDA geometry extended after feedback from the CAA.
4.0	Engagement letter sent out detailing changes to TDA geometry and timetabling. Addition of ATS Evidence.
5.0	Para 2.4.3 Round 3 of engagement summary. Para 2.4.4 Round 4 of engagement summary. Para 2.6 Summary of Feedback updated. Addition of engagement evidence Appendices F.27-F.32.

Appendix B – List of Stakeholders

NATMAC

Airlines UK
Airspace4All
Airport Operators Association (AOA)
Airfield Operators Group (AOG)
Aircraft Owners and Pilots Association (AOPA)
Airspace Change Organising Group (ACOG)
Association of Remotely Piloted Aircraft Systems UK (ARPAS-UK)
Aviation Environment Federation (AEF)
British Airways (BA)
BAe Systems
British Airline Pilots Association (BALPA)
British Balloon and Airship Club
British Business and General Aviation Association (BBGA)
British Gliding Association (BGA)
British Helicopter Association (BHA)
British Hang Gliding and Paragliding Association (BHPA)
British Microlight Aircraft Association (BMAA)
British Model Flying Association (BMFA)
British Skydiving
Drone Major
General Aviation Alliance (GAA)
Guild of Air Traffic Control Officers (GATCO)
Honourable Company of Air Pilots (HCAP)
Helicopter Club of Great Britain (HCGB)
Heavy Airlines
Iprosurv
Isle of Man CAA
Light Aircraft Association (LAA)
Low Fare Airlines
Military Aviation Authority (MAA)
Ministry of Defence - Defence Airspace and Air Traffic Management (MoD DAATM)
NATS
Navy Command HQ
PPL/IR (Europe)
UK Airprox Board (UKAB)
UK Flight Safety Committee (UKFSC)
United States Visiting Forces (USVF), HQ United States Country Rep-UK (HQ USCR-UK).

Key Stakeholders

Bristow Helicopters
CHC
NHV
Offshore Helicopters
Babcock Mission Critical Services
2Excel Aviation
PDG Helicopters
Gama Aviation
Wick Airport
Kirkwall Airport
Kirkwall ATC
Sumburgh Airport
Orkney Island Council
Shetland Island Council
Saxavord Spaceport
National Trust for Scotland (Fair Isle Airport)
NATS
NATS (Aberdeen)
Airtask Group
LoganAir
Babcock Group
Bristow Group
Shetland Space Centre
HIAL
M&CA
SCAA

Wider Engagement

NLB (Northern Lighthouse Board)	Highland Gliding Club
Lamb Holm Airfield Orkney	Highland Aviation
GA Orkney	Easter Airfield
GA Tingwall	North Scotland Airfield (Barra, Benbecula, Campbeltown, Inverness, Islay, Tiree)
Shetland UAV Operators	NatureScot
Moray Flying Club	Visit Scotland
Far North Aviation	Transport Scotland

Appendix C – Stakeholder Engagement Meetings Summary

Date	Attendees	Topic	Conclusions/Tasks Assigned
14/12/22		Unst Operations	ACP-2022-049 – Nothing to affect. Details of meeting regarding ACP-2022-051 can be found in the applicable engagement summary.
01/02/23		UAS Operations in the Orkney and Shetland Islands	Explanation of Windracers - Who we are. - What we do. - What we are looking to achieve. TDA design principles and how they were developed. Timelines. TDA Geometry. Deconfliction and failsafes. Engagement aims. Ensuring safety. Use of Kirkwall Airport. Actions: Update Windracers on any requirements for Kirkwall operations e.g. airside passes.
08/02/23		Discussion of ConOps	Windracers Brief KOI ATC each morning of operations. Name loiter points in each TDA. Share range and bearing from KOI for each point. GSC (ground control station) call ATC for start. Speak with fire officer re storing of fuel and refueling UAV. Let ATC know if UAV is being manually operated. Let KOI ATC know planned operations at least one week in advance. Ensure that comms feedback to ATC when UAV has landed on outer isles airfields and are expected to be airborne. Send ConOps to DD for review. Kirkwall ATC Write plan for warming engines, process of communications etc. Feedback to OO re UAV entering ATZ. Return ConOps with comment to and . Begin work on temporary operating instructions and briefings for ATC team.

08/02/23		Discussion of ConOps	Windracers Give AFS minimum 12-hour notice for UAV operations, and 30 minutes for planned take-off. Carry out taxi and take-off time simulation ahead of operations including AFS and ATC. Share fuel tank details and discuss fuel storage and refueling processes with NB. Logan Air Share Inter-Island Summer timetable with and . Provide and with roster for flights when available (re training). Airport Fire Service (AFS) Share direct number for watch room with and . Carry out risk assessment for fuel storage and refueling once. Kirkwall Airport Send airside pass application to . Discuss erection of mast for operations, will follow same process as SATE 1.
09/02/23		Westray Airfield	Site Visit Hangarage Any changes (such as putting up temporary hangars) will go through Orkney Island Council along with airfield use.
10/02/23		Orkney Island Council - Windracers Operations	Airfield usage – PPR Temporary hangars – Requirements, specs, engineers. Landing fees. Use-cases. Aircraft tracking apps for better visibility. Potential stakeholders.
10/02/23		Orkney GA Community	Windracers (WR) General Aviation Representative (GA) WR – Presented planned TDA routes and geometry. GA – Happy with routes, geometry, and heights. GA – Most GA in the community has electronic conspicuity devices equipped. GA – GA community would like to see an increase in electronic conspicuity and are backing initiatives that are also working towards this.

			WR – Explained emergency procedures. What happens in the event of a C2 failure. The routes that the aircraft would follow. Asked how this would impact GA/any preferred routing. GA – No impact. Would expect Windracers to be in contact with Kirkwall ATC. WR – Agreed we would be in contact with Kirkwall ATC in the event of an emergency. GA – Other airspace users that should be contacted include LoganAir, Tingwall GA, Coastguard etc. WR – Agreed these companies had been contacted as part of the ACP engagement. WR – Gave contact details so GA could talk to the community and inform WR of any issues or opportunities.
08/03/23		Kirkwall ATC - Questions about UAS behaviour	Kirkwall ATC (KATC) Windracers (WR) KATC – Sent questions prior to the meeting. Detailed in Appendix F. WR – Started a simulation to demonstrate various scenarios. KATC – Discussed previous issues/misconceptions. WR – Clarified details of previous operations activity in the ATZ. WR – Ran simulations to confirm optimal circuit join pattern and abort procedures. WR – Explanation of GCS ability i.e. guided points allowing immediate loiter at location decided by ATC during flight. Simulation used to demonstrate. KATC – Clarity on ATZ regulations. WR – Optimal return route in case of C2 failure. KATC – Gave an option to remain outside of the ATZ. Loiter point suggested on ATZ border that could be used for manual recovery. WR – Could cause loss of aircraft due to loss of fuel before possible recovery. Potential for uncontrolled location of ditch. WR – Return to ‘spoke’ location for Safety Pilot recovery. Simulation used to demonstrate. KATC – This is the most agreeable option.

			WR – Provided clarity on UAS ability i.e. not able to land without permission. WR – Edge cases: Preferred routing for if C2 link was lost within the ATZ. KATC – Potential for aircraft to stay within the ATZ. Will look into this for further clarity. KATC – Found the simulations, and seeing the ground control software user interface, useful for understanding the planned operations and procedures. KATC – May have further questions from information covered. (Appendix F)

Appendix D – Initial Letter of Engagement and Email

ACP-2022-049 and ACP-2022-051

TDAs to enable BVLOS demonstration of Cargo UAV across the Orkney and Shetland Islands

Targeted Engagement with Aviation Stakeholders

Dear Stakeholder,

We are contacting you as a valued member of the aviation community to kindly request your feedback to the Temporary Airspace Change Proposals ACP-2022-049 and ACP-2022-051. These ACPs aim to establish Temporary Danger Areas (TDAs) during notified periods. The TDAs will enable the delivery of middle mile logistics and mail transport using Uncrewed Aircraft Systems (UAS) across the Orkney and Shetland Islands. These two projects will run independently in separate phases.

The outcomes of this engagement process and its analysis are laid out within the sections below. We have identified requirements regarding the design principles and geometry of the TDA scoped within the two ACPs. We also collect informative data on popular routes and areas to consider in the design of the TDAs. All feedback received is greatly appreciated.

Background

Windracers is a privately funded, Southampton-based, technology company working to improve the middle mile logistics and humanitarian aid operations with the use of UAS specifically designed for this purpose.

The Windracers ULTRA UAS is a twin engine, fixed-wing aircraft with a carrying capacity of up to 100 kg and a range of up to 1000 km. It is designed to be robust with broad wind and weather limits and capabilities for grass, gravel, and tarmac runways. It contains a highly reliable Flight Control System developed by Distributed Avionics.

Figure 1 ULTRA UAS has been developed for robustness and redundancy of its flight critical systems (Photo credit to Colin Keldie at EMEC)

Since 2019 Windracers has been flying point-to-point BVLOS operations across the UK including a previous campaign in the Orkney and Shetland Islands. This included flights to the most northern airfield in the UK (Unst) and a flight connecting both archipelagos. The flight between Tingwall and Kirkwall was completed autonomously from take-off to landing in a return flight that totalled more than 200 nautical miles. This and other numerous beyond visual line of sight (BVLOS) operations have proven the reliability of the system and suitability for deployment in commercial operations.

The Project

In 2020, Highlands and Islands Airports Limited lead the organisation of a consortium to create the Sustainable Aviation Test Environment (SATE) in Scotland. The aim of the consortium is to bring together aviation industry specialists in the hopes of achieving low carbon aviation. To achieve this Kirkwall Airport (Orkney) has been set up as the UK's first operationally based, low carbon aviation test centre. This is an ideal base to provide regional flights across the Orkney Isles as well as mainland Scotland and the Shetland Isles.

SATE 2 now aims to expand on the success that has already been delivered and develop an uncrewed aerial vehicle (UAV) hub-and-spoke delivery network across Scotland. Windracers participated in initial trials to interconnect the Orkney and Shetland Islands. This involved setting up TDAs to cover multiple routes flown BVLOS. Going forward Windracers aims to work with local communities including councils, logistics companies, NHS Scotland and other stakeholders to supplement and build on current supply chains.

The Long-Term Ambition

We believe in the integration of UAS with other airspace users outside of segregated airspace and aim to achieve this in the next few years as we develop our technology further and help shape the regulatory environment for it. Following the CAA Beyond Visual Line of Sight (BVLOS) Development Pathway (CAP1861), the TDA stemming from this ACP will be the first step towards meeting essential development requirements and safety targets.

Figure 2 BVLOS Development Pathway - from CAP1861

This initial period of operation within segregated airspace will be used to:

- characterise the use of airspace by gathering traffic data from onboard and ground sensors and non-cooperative traffic,
- carry out live engagement with different local and national stakeholders whilst demonstrating real flight operations,
- setup the necessary infrastructure and associated services for the provision of cargo delivery to the Orkney and Shetland islands,
- deliver training to new crew members and ground handling personnel,
- work with the CAA Innovation Hub and build a viable Safety Case for point-to-point BVLOS operations in non-segregated airspace.

Throughout the implementation period, we will share with all stakeholders the outcomes and learnings from these activities and our proposal for the long-term integration.

Design Criteria

Based on feedback from prior operations, the following requirements were identified:

- UAS route altitude to be as low as possible, without affecting performance of communication and navigation systems.
- The TDA should be provided with Air Traffic Services (ATS) that allow other airspace users to get information of the activity within the TDA and cross the airspace when possible.
- The UAS is to be equipped with electronic and visual conspicuity aids.
- Availability of multiple ways of contacting the UAS crew during operation.
- Availability of ways of contacting the TDA Sponsor during the ACP implementation.
- TDA activated via NOTAM at least 24 hours in advance of the activity.
- Regular assessment of live impact of the operations.

Operation Schedule

ACP-2022-049 (Orkney Islands)	ACP-2022-051 (Shetland Islands)
Start Date: 29th May 2023	Start Date: 11th September 2023
Operating Length: 12 weeks	Operating Length: 10 weeks

Operating times are to be decided with stakeholders throughout engagement period.

Temporary Danger Area Geometry

The proposed TDAs will be of a width of 1.73 NM in accordance with our minimum operational volume and safety buffer. The current proposal follows the routes previously flown from:

Orkney Islands:

- Kirkwall
- North Ronaldsay
- Eday

Shetland Islands:

- Kirkwall
- Lerwick/Tingwall
- Unst
- Fair Isle

The proposed network has also been extended to Papa Westray (Orkney Islands) and Foula (Shetland Islands).

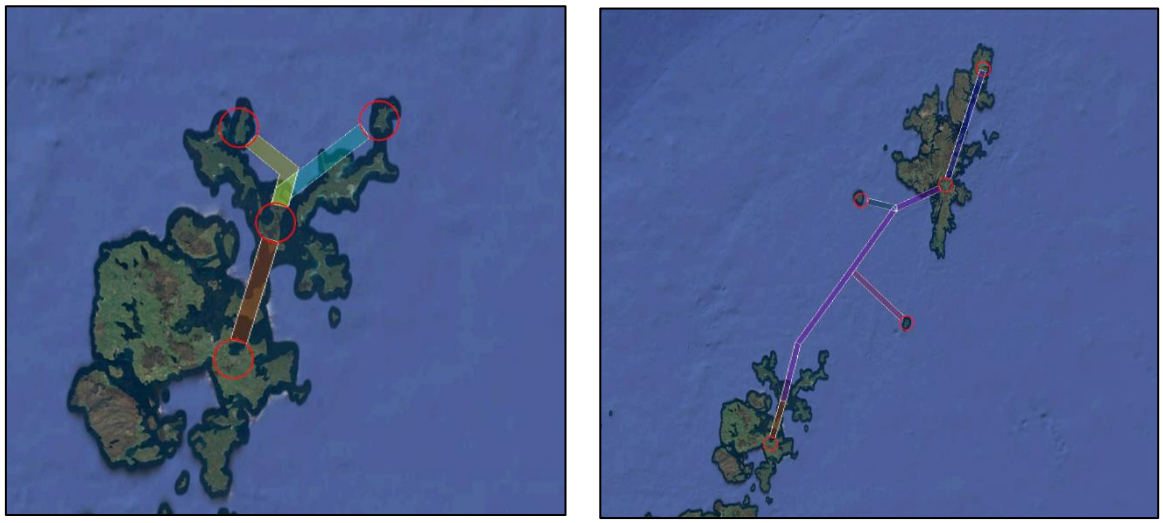

Figure 3 Proposed TDA Geometry.
Phase 1: Orkney Islands ACP-2022-049 (Left) and Phase 2: Shetland Islands ACP-2022-51 (Right).

Deconfliction

ULTRA UAS is equipped with ADSB-in/out and a Mode S transponder for electric conspicuity. The aircraft is also visually conspicuous, with a 10m wingspan and provided with position and navigation lights. Details on how to contact the flight crew for position reports will be circulated prior to operations.

Failsafe Mechanisms

The ULTRA UAS incorporates multiple failsafe mechanisms along with dual redundant systems. Should a communications issue occur the UAS will navigate to the closest 'return route'. This is a pre-programmed route with defined waypoints that will take the aircraft

into VLOS range. The aircraft will then loiter in place until the Safety Pilot takes control and recovers the aircraft manually. The loiter points will be defined through the stakeholder engagement process to minimise disruption.

Why are we contacting you?

During the planning of this airspace change we have identified a number of members of the aviation community that can be affected or might have interest in this airspace change, and we believe you (or the organization you represent) fall into this group.

You have been contacted as part of a Stakeholder Engagement Strategy intended to:

- ensure the safety and operational viability of the project,
- keep you informed of any changes to the ACP-2022-049 and ACP-2022-51,
- make sure that the principles of design and the proposed TDA will not have a harmful impact on other aviation activities, and
- develop deconfliction procedures with selected agencies to preserve adequate separation between the Uncrewed Aircraft and other frequent airspace users.

Windracers will provide a channel of communications to receive feedback or complaints from all stakeholders and general public during the period of implementation of the TDAs. All queries received will be informed to the CAA and action will be taken where necessary to reduce the impact of this Airspace Change.

We are requesting all stakeholders to participate in this Engagement Strategy so that we can identify and manage the risks of the operation. If you do not wish to be contacted again regarding ACP-2022-049 and ACP-2022-051 please get in touch at operations@windracers.org.

How to Submit Your Feedback

You can submit your feedback about ACP-2022-049 and ACP-2022-51 by email to operations@windracers.org.

Please remember to submit your feedback as soon as possible to allow us the maximum time to discuss any changes needed to ensure the operations are safe, viable, and minimise the impact on stakeholders.

The first round of stakeholder engagement for both ACPs will finish at **17:00 on Monday 23rd of January 2023**.

If you have any queries, please do not hesitate to contact us. We look forward to hearing from you.

Yours Faithfully,

Appendix E – Follow-Up Communications

Second Engagement Letter

ACP–2022-049 and ACP-2022-051

TDAs to enable BVLOS demonstration of Cargo UAV across the Orkney and Shetland Islands

Continued Engagement with Aviation Stakeholders

Dear Stakeholder,

We are getting in contact with you as a valued member of the aviation community to kindly request your feedback to the Temporary Airspace Change Proposals ACP-2022-049 and ACP-2022-051. This is an update to our original engagement from December. We have taken on board all responses and continue to ask for any further feedback.

These ACPs aim to establish Temporary Danger Areas (TDAs) during notified periods as part of the SATE 2 Project. The TDAs will enable the delivery of middle mile logistics and mail transport using Uncrewed Aircraft Systems (UAS) across the Orkney and Shetland Islands. These two ACPs will run independently in separate phases.

Changes since initial engagement:

- TDAs encompass the airspace over airfields with no active ATZ.
- Westray has been added to Phase 1: Orkney Operations.
- A schedule for Phase 1: Orkney Operations has been proposed.
- Activation period for Phase 1: Orkney Operations has changed.

ACP Design

Design Criteria

The following requirements have been identified:

- UAS route altitude to be as low as possible, without affecting performance of communication and navigation systems.
- The TDA should be provided with Air Traffic Services (ATS) that allow other airspace users to get information of the activity within the TDA and cross the airspace when possible.
- The UAS is to be equipped with electronic and visual conspicuity aids.
- Availability of multiple ways of contacting the UAS crew during operation.
- Availability of ways of contacting the TDA Sponsor during the ACP implementation.
- TDA activated via NOTAM at least 24 hours in advance of the activity.
- Regular assessment of live impact of the operations.

Temporary Danger Area Geometry

The proposed TDAs will be of a width of 1.73 NM in accordance with our minimum operational volume and safety buffer. Proposed height is SFC to 2500.

Figure 1 Proposed TDA Geometry – Phase 1: Orkney Islands ACP-2022-049

Figure 2 Proposed TDA Geometry – Phase 2: Shetland Islands ACP-2022-51

Operating Procedures

Operation Schedule

ACP-2022-049 (Orkney Islands)

TDA Segment	Route	Altitude	Activation Period
TDA - A	Kirkwall - Eday	1000 ft AMSL	05/06/23 - 11/08/23
TDA - B	Kirkwall - Papa Westray - Westray		
TDA - C	Kirkwall - North Ronaldsay		

Table 2 Phase 1: TDAs

KIRKWALL - EDAY - NORTH RONALDSAY - WESTRAY - PAPA WESTRAY						
TDA ACTIVATION		**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
		11:00-15:00	**10:45-15:50**	**10:30-13:15**	**10:20-14:45**	**10:20-14:40**
KIRKWALL	Dep	11:05 13:15	10:45 13:35	10:45	10:20 12:35	10:20 12:35
EDAY	Arr	11:20 13:30	11:00 13:50	11:00	10:35 12:50	10:35 12:50
EDAY	Dep	11:35 13:45	11:25 14:10	11:25	10:50 13:05	10:50 13:05
NORTH RONALDSAY	Arr	11:50 14:00		11:40		11:05 13:20
NORTH RONALDSAY	Dep	12:25 14:20		12:20		11:25 13:40
PAPA WESTRAY	Arr		11:40 14:20		11:05 13:20	
PAPA WESTRAY	Dep		12:20 14:45		11:25 13:40	
WESTRAY	Arr		12:25 14:50		11:30 13:45	
WESTRAY	Dep		12:45 15:10		11:50 14:05	
KIRKWALL	Arr	12:55 14:50	13:25 15:50	12:55	12:30 14:45	11:55 14:10

Table 3 Phase 1: proposed scheduling

Please note that this is the proposed schedule and there is scope for this to change depending on demand and deconfliction. Any changes will be notified and coordinated with Kirkwall ATC and airspace users. Changes to scheduling will be communicated, at a minimum, at least a week in advance. All flights and TDA activations will be notified through NOTAMs.

ACP-2022-051 (Shetland Islands)

TDA Segment	Route	Altitude	Activation Period
TDA - D	Kirkwall - Fair Isle	1000 ft AMSL	11/09/23 - 17/11/23
TDA - E	Kirkwall - Foula		
TDA - F	Kirkwall - Tingwall		
TDA - G	Kirkwall - Unst		

Table 4 Phase 2: TDAs

ACP-2022-051 scheduling will be confirmed closer to the activation period with live stakeholder engagement carried out during the Orkney operations.

Deconfliction

ULTRA UAS is equipped with ADSB-in/out and a Mode S transponder for electronic conspicuity and will therefore be visible on FlightRadar24, PlaneFinder and SkyDemon etc. The aircraft is also visually conspicuous, with a 10m wingspan and provided with position and navigation lights. Details on how to contact the flight crew for position reports will be circulated prior to operations.

Failsafe Mechanisms

The ULTRA UAS incorporates multiple failsafe mechanisms along with dual redundant systems. Should a communications issue occur the UAS will navigate to the closest 'return route'. This is a pre-programmed route with defined waypoints that will take the aircraft into VLOS range without leaving the defined TDA. The aircraft will then loiter in place until the Safety Pilot takes control and recovers the aircraft manually.

Holding Locations

Holding locations are pre-defined points the UAS can be directed to on the request of ATC due to an emergency or as a holding point to allow manned aircraft to land. Standard Windracers procedures place them 2.5 NM out of the airfield over minimally populated areas to reduce disruption.

NOTE: The aircraft also has pre-programmed rally points that are within 1000 ft of the airfield. These will only come into effect during an emergency loss of communications. ATC will be notified following the Aviate, Navigate, Communicate chain. When within VLOS the Safety Pilot will take control and manually land the aircraft.

Phase 1:

Figure 3 Orkney Holding Points

Phase 2:

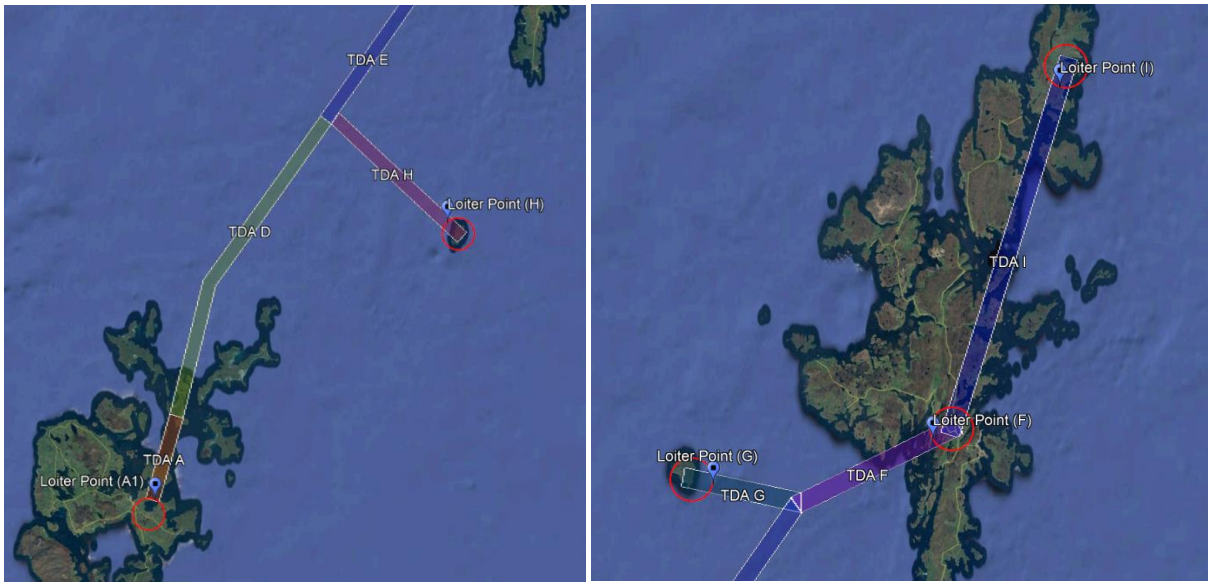

Figure 4 Shetland Holding Points

Why are we contacting you?

During the planning of this airspace change we have identified a number of members of the aviation community that can be affected or might have interest in this airspace change, and we believe you (or the organization you represent) fall into this group.

You have been contacted as part of a Stakeholder Engagement Strategy intended to:

- ensure the safety and operational viability of the project,
- keep you informed of any changes to the ACP-2022-049 and ACP-2022-51,
- make sure that the principles of design and the proposed TDA will not have a harmful impact on other aviation activities, and
- develop deconfliction procedures with selected agencies to preserve adequate separation between the Uncrewed Aircraft and other frequent airspace users.

Windracers will provide a channel of communications to receive feedback or complaints from all stakeholders and general public during the period of implementation of the TDAs. All queries received will be informed to the CAA and action will be taken where necessary to reduce the impact of this Airspace Change.

We are requesting all stakeholders to participate in this Engagement Strategy so that we can identify and manage the risks of the operation. If you do not wish to be contacted again regarding ACP-2022-049 and ACP-2022-051 please get in touch at operations@windracers.org.

How to Submit Your Feedback

You can submit your feedback about ACP-2022-049 and ACP-2022-51 by email to operations@windracers.org.

Please remember to submit your feedback as soon as possible to allow us the maximum time to discuss any changes needed to ensure the operations are safe, viable, and minimise the impact on stakeholders.

Stakeholder engagement for ACP-2022-049 will finish at **17:00 on Monday 27th of February 2023.**

If you have any queries, please do not hesitate to contact us. We look forward to hearing from you.

Yours Faithfully,

Wider Engagement Letter

ACP–2022-049 and ACP-2022-051

TDAs to enable BVLOS demonstration of Cargo UAV across the Orkney and Shetland Islands

Engagement with Aviation Stakeholders

Dear Stakeholder,

We are getting in contact with you as a valued member of the aviation community to kindly request your feedback to the Temporary Airspace Change Proposals ACP-2022-049 and ACP-2022-051. We take on board all responses and appreciate any feedback received.

These ACPs aim to establish Temporary Danger Areas (TDAs) during notified periods as part of the SATE 2 Project. The TDAs will enable the delivery of middle mile logistics and mail transport using Uncrewed Aircraft Systems (UAS) across the Orkney and Shetland Islands. These two ACPs will run independently in separate phases.

ACP Design

Design Criteria

The following requirements have been identified:

- UAS route altitude to be as low as possible, without affecting performance of communication and navigation systems.
- The TDA should be provided with Air Traffic Services (ATS) that allow other airspace users to get information of the activity within the TDA and cross the airspace when possible.
- The UAS is to be equipped with electronic and visual conspicuity aids.
- Availability of multiple ways of contacting the UAS crew during operation.
- Availability of ways of contacting the TDA Sponsor during the ACP implementation.
- TDA activated via NOTAM at least 24 hours in advance of the activity.
- Regular assessment of live impact of the operations.

Temporary Danger Area Geometry

The proposed TDAs will be of a width of 1.73 NM in accordance with our minimum operational volume and safety buffer. Proposed height is SFC to 2500.

Figure 1 Proposed TDA Geometry – Phase 1: Orkney Islands ACP-2022-049

Figure 2 Proposed TDA Geometry – Phase 2: Shetland Islands ACP-2022-51

Operating Procedures

Operation Schedule

ACP-2022-049 (Orkney Islands)

TDA Segment	Route	Altitude	Activation Period
TDA - A	Kirkwall - Eday	1000 ft AMSL	05/06/23 - 11/08/23
TDA - B	Kirkwall - Papa Westray - Westray		
TDA - C	Kirkwall - North Ronaldsay		

Table 2 Phase 1: TDAs

KIRKWALL - EDAY - NORTH RONALDSAY - WESTRAY - PAPA WESTRAY						
TDA ACTIVATION		**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
		11:00-15:00	**10:45-15:50**	**10:30-13:15**	**10:20-14:45**	**10:20-14:40**
KIRKWALL	Dep	11:05 13:15	10:45 13:35	10:45	10:20 12:35	10:20 12:35
EDAY	Arr	11:20 13:30	11:00 13:50	11:00	10:35 12:50	10:35 12:50
EDAY	Dep	11:35 13:45	11:25 14:10	11:25	10:50 13:05	10:50 13:05
NORTH RONALDSAY	Arr	11:50 14:00		11:40		11:05 13:20
NORTH RONALDSAY	Dep	12:25 14:20		12:20		11:25 13:40
PAPA WESTRAY	Arr		11:40 14:20		11:05 13:20	
PAPA WESTRAY	Dep		12:20 14:45		11:25 13:40	
WESTRAY	Arr		12:25 14:50		11:30 13:45	
WESTRAY	Dep		12:45 15:10		11:50 14:05	
KIRKWALL	Arr	12:55 14:50	13:25 15:50	12:55	12:30 14:45	11:55 14:10

Table 3 Phase 1: Proposed scheduling

Please note that this is the proposed schedule and there is scope for this to change depending on demand and deconfliction. Any changes will be notified and coordinated with Kirkwall ATC and airspace users. Changes to scheduling will be communicated, at a minimum, at lest a week in advance. All flights and TDA activations will be notified through NOTAMs.

ACP-2022-051 (Shetland Islands)

TDA Segment	Route	Altitude	Activation Period
TDA - D	Kirkwall - Fair Isle	1000 ft AMSL	11/09/23 - 17/11/23
TDA - E	Kirkwall - Foula		
TDA - F	Kirkwall - Tingwall		
TDA - G	Kirkwall - Unst		

Table 4 Phase 2: TDAs

ACP-2022-051 scheduling will be confirmed closer to the activation period with live stakeholder engagement carried out during the Orkney operations.

Deconfliction

ULTRA UAS is equipped with ADSB-in/out and a Mode S transponder for electronic conspicuity and will therefore be visible on FlightRadar24, PlaneFinder and SkyDemon etc. The aircraft is also visually conspicuous, with a 10m wingspan and provided with position and navigation lights. Details on how to contact the flight crew for position reports will be circulated prior to operations.

Failsafe Mechanisms

The ULTRA UAS incorporates multiple failsafe mechanisms along with dual redundant systems. Should a communications issue occur the UAS will navigate to the closest 'return route'. This is a pre-programmed route with defined waypoints that will take the aircraft into VLOS range without leaving the defined TDA. The aircraft will then loiter in place until the Safety Pilot takes control and recovers the aircraft manually.

Holding Locations

Holding locations are pre-defined points the UAS can be directed to on the request of ATC due to an emergency or as a holding point to allow manned aircraft to land. Standard Windracers procedures place them 2.5 NM out of the airfield over minimally populated areas to reduce disruption.

NOTE: The aircraft also has pre-programmed rally points that are within 1000 ft of the airfield. These will only come into effect during an emergency loss of communications. ATC will be notified following the Aviate, Navigate, Communicate chain. When within VLOS the Safety Pilot will take control and manually land the aircraft.

Phase 1:

Figure 3 Orkney Holding Points

Phase 2:

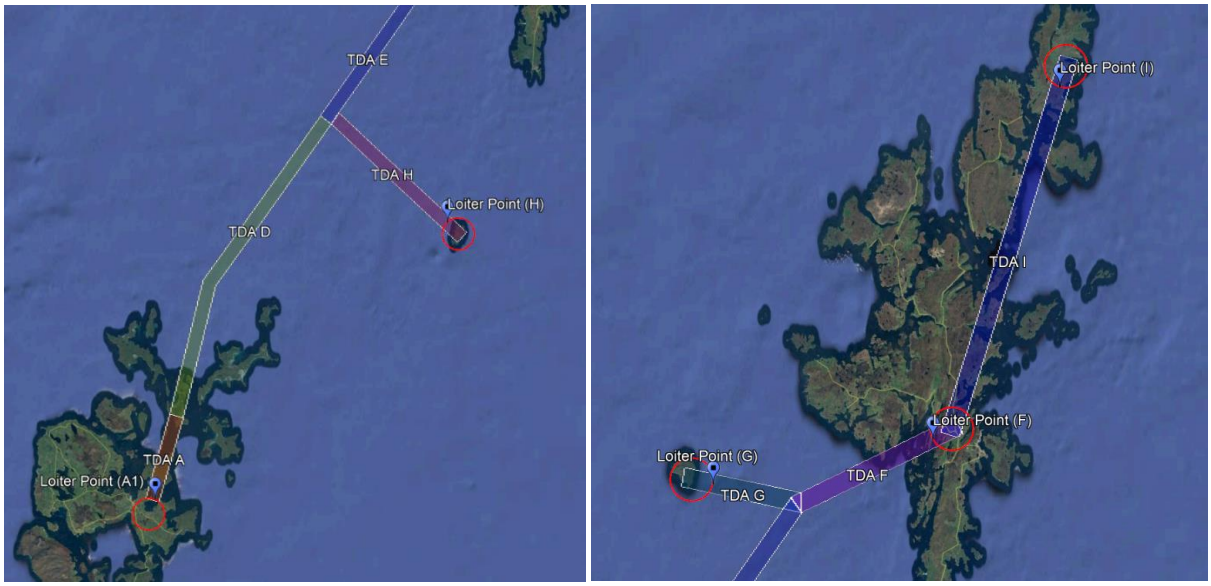

Figure 4 Shetland Holding Points

Why are we contacting you?

During the planning of this airspace change we have identified a number of members of the aviation community that can be affected or might have interest in this airspace change, and we believe you (or the organization you represent) fall into this group.

You have been contacted as part of a Stakeholder Engagement Strategy intended to:

- ensure the safety and operational viability of the project,
- keep you informed of any changes to the ACP-2022-049 and ACP-2022-51,
- make sure that the principles of design and the proposed TDA will not have a harmful impact on other aviation activities, and
- develop deconfliction procedures with selected agencies to preserve adequate separation between the Uncrewed Aircraft and other frequent airspace users.

Windracers will provide a channel of communications to receive feedback or complaints from all stakeholders and general public during the period of implementation of the TDAs. All queries received will be informed to the CAA and action will be taken where necessary to reduce the impact of this Airspace Change.

We are requesting all stakeholders to participate in this Engagement Strategy so that we can identify and manage the risks of the operation. If you do not wish to be contacted again regarding ACP-2022-049 and ACP-2022-051 please get in touch at operations@windracers.org.

How to Submit Your Feedback

You can submit your feedback about ACP-2022-049 and ACP-2022-51 by email to operations@windracers.org.

Please remember to submit your feedback as soon as possible to allow us the maximum time to discuss any changes needed to ensure the operations are safe, viable, and minimise the impact on stakeholders.

Stakeholder engagement for ACP-2022-049 will finish at **17:00 on Monday 27th of February 2023.**

If you have any queries, please do not hesitate to contact us. We look forward to hearing from you.

Yours Faithfully,

Tertiary Engagement Letter

ACP–2022-049 and ACP-2022-051

TDAs to enable BVLOS demonstration of Cargo UAV across the Orkney and Shetland Islands

Engagement with Aviation Stakeholders

Dear Stakeholder,

We are getting in contact with you as a valued member of the aviation community to kindly request your feedback to the Temporary Airspace Change Proposals ACP-2022-049 and ACP-2022-051. We take on board all responses and appreciate any feedback received.

These ACPs aim to establish Temporary Danger Areas (TDAs) during notified periods as part of the SATE 2 Project. The TDAs will enable the delivery of middle mile logistics and mail transport using Uncrewed Aircraft Systems (UAS) across the Orkney and Shetland Islands. These two ACPs will run independently in separate phases.

This letter is part of the formal stakeholder engagement process submitted to the CAA. We have taken on board the feedback from our previous rounds of engagement from both stakeholders and the CAA. The updates can be seen below:

Update to geometry

- TDA-A now extends into Kirkwall ATZ from Eday airport.

Update to timetable

- ACP-2022-049 will run 3rd of July to the 25th of August.
- ACP-2022-051 timetable not changed.

Loiter Points

- Clarity provided on planned loiter point positions.

Temporary Danger Area Geometry

The proposed dimensions of the TDAs are 1.73 nautical miles in diameter and surface to 2500ft.

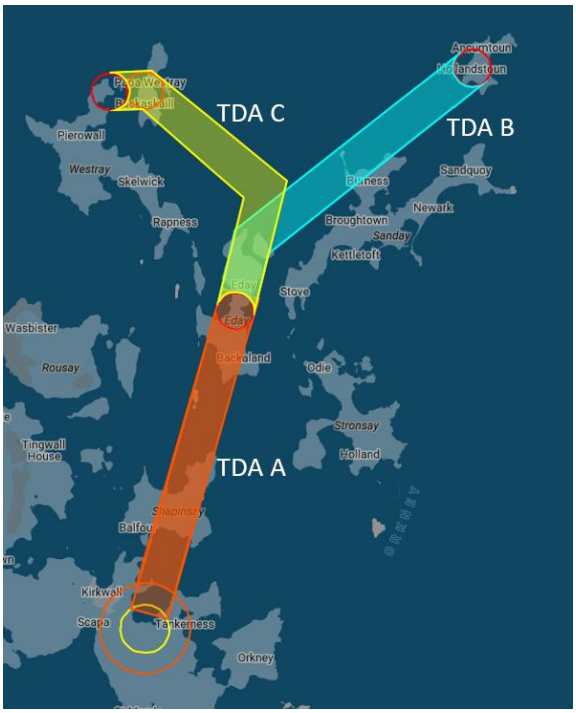

Figure 1 Proposed TDA Geometry – Phase 1: Orkney Islands ACP-2022-049

Figure 2 Proposed TDA Geometry – Phase 2: Shetland Islands ACP-2022-51

Operating Procedures

Operation Schedule

ACP-2022-049 (Orkney Islands)

TDA Segment	Route	Altitude	Activation Period
TDA - A	Kirkwall - Eday	1000 ft AMSL	03/07/23 - 25/08/23
TDA - B	Kirkwall - Papa Westray - Westray		
TDA - C	Kirkwall - North Ronaldsay		

Table 1 Phase 1: TDAs

KIRKWALL - EDAY - NORTH RONALDSAY - WESTRAY - PAPA WESTRAY						
TDA ACTIVATION		**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
		11:00-15:30	**10:30-14:05**	**10:30-13:30**	**10:20-13:25**	**10:25-13:30**
KIRKWALL	Dep	11:30 13:45	11:00	10:55	10:50	10:55
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EDAY	Dep	12:00	11:40	11:35	11:20	11:35
NORTH RONALDSAY	Arr	12:15 14:10		11:50		11:50
NORTH RONALDSAY	Dep	12:50 14:30		12:30		12:30
PAPA WESTRAY	Arr		11:55		11:35	
PAPA WESTRAY	Dep		12:35		11:55	
WESTRAY	Arr		12:40		12:00	
WESTRAY	Dep		12:55		12:20	
KIRKWALL	Arr	13:20 15:00	13:35	13:00	12:55	13:00

Table 3 Phase 1: Proposed scheduling

Please note that this is the proposed schedule and there is scope for this to change depending on demand and deconfliction. Any changes will be notified and coordinated with Kirkwall ATC and airspace users. Changes to scheduling will be communicated, at a minimum, at lest a week in advance. All flights and TDA activations will be notified through NOTAM.

ACP-2022-051 (Shetland Islands)

TDA Segment	Route	Altitude	Activation Period
TDA - A	Kirkwall - Eday	1500 ft AMSL	11/09/23 - 17/11/23
TDA - D	Eday - TDA-E		
TDA - E	TDA-D - TDA-F		
TDA - F	TDA-E - Tingwall		
TDA - G	TDA-F - Foula		
TDA - H	TDA-E - Fair Isle		
TDA - I	Tingwall - Unst		

Table 4 Phase 2: TDAs

ACP-2022-051 scheduling will be confirmed closer to the activation period with live stakeholder engagement carried out during the Orkney operations.

Deconfliction

ULTRA UAS is equipped with ADSB-in/out and a Mode S transponder for electronic conspicuity. The aircraft is also visually conspicuous, with a 10m wingspan and provided with position and navigation lights. Details on how to contact the flight crew for position reports will be circulated prior to operations.

Failsafe Mechanisms

The ULTRA UAS incorporates multiple failsafe mechanisms along with dual redundant systems. Should a communications issue occur the UAS will navigate to the closest 'return route'. This is a pre-programmed route with defined waypoints that will take the aircraft into VLOS range without leaving the defined TDA. The aircraft will then loiter in place until the Safety Pilot takes control and recovers the aircraft manually.

Holding Locations

Holding locations are pre-defined points the UAS can be directed to on the request of ATC, due to an emergency or as a holding point to allow manned aircraft to land. Standard Windracers procedures place them over water.

NOTE: The aircraft also has pre-programmed rally points that are within 1000 ft of the airfield. These will only come into effect during an emergency loss of communications. ATC will be notified following the Aviate, Navigate, Communicate chain. When within VLOS the Safety Pilot will take control and manually land the aircraft.

Phase 1:

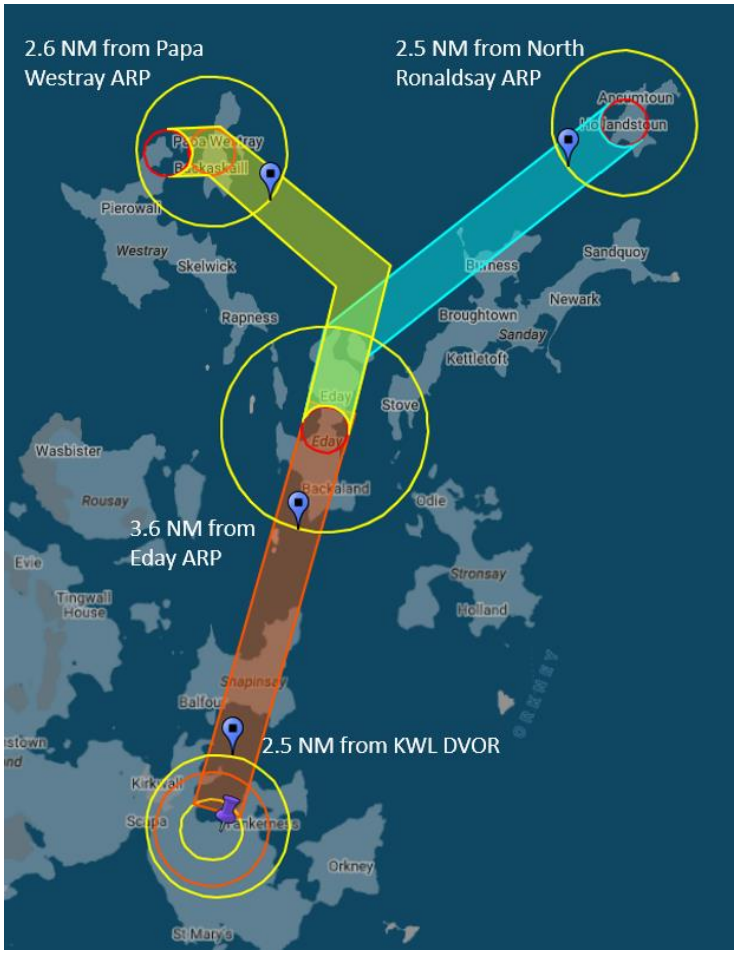

Figure 3 Orkney Holding Points

Phase 2:

Figure 4 Shetland Holding Points

Why are we contacting you?

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You have been contacted as part of a Stakeholder Engagement Strategy intended to:

- ensure the safety and operational viability of the project,
- keep you informed of any changes to the ACP-2022-049 and ACP-2022-51,
- make sure that the principles of design and the proposed TDA will not have a harmful impact on other aviation activities, and
- develop deconfliction procedures with selected agencies to preserve adequate separation between the Uncrewed Aircraft and other frequent airspace users.

Windracers will provide a channel of communications to receive feedback or complaints from all stakeholders and general public during the period of implementation of the TDAs. All queries received will be informed to the CAA and action will be taken where necessary to reduce the impact of this Airspace Change.

We are requesting all stakeholders to participate in this Engagement Strategy so that we can identify and manage the risks of the operation. If you do not wish to be contacted again regarding ACP-2022-049 and ACP-2022-051 please get in touch at operations@windracers.org.

How to Submit Your Feedback

You can submit your feedback about ACP-2022-049 and ACP-2022-51 by email to operations@windracers.org.

Please remember to submit your feedback as soon as possible to allow us the maximum time to discuss any changes needed to ensure the operations are safe, viable, and minimise the impact on stakeholders.

Stakeholder engagement for ACP-2022-051 will finish at **17:00 on Monday 29th of May 2023.**

If you have any queries, please do not hesitate to contact us. We look forward to hearing from you.

Yours Faithfully,

Appendix F – Engagement Evidence

Initial Engagement Email

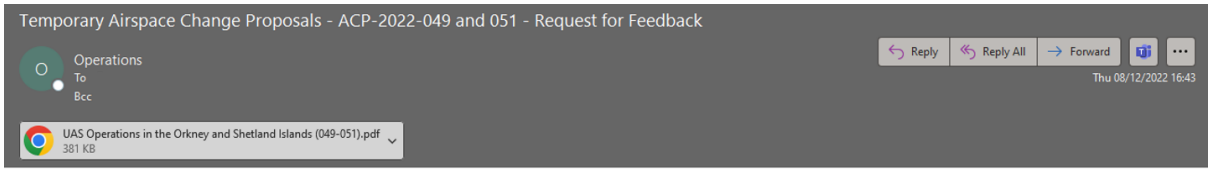
I hope this email finds you well. I am reaching out to you as part of the stakeholder engagement for two Temporary Airspace Change Proposals for ongoing projects in the SATE 2 initiative. Windracers are proposing 2 phases of Temporary Danger Areas (TDAs) to form a trial network of cargo UAV routes with the aim of providing regular service to the Orkney and Shetland Islands.

The initial phase (ACP-2022-049) proposes to cover the Orkney Islands forming a network between Kirkwall, Eday, North Ronaldsay and Papa Westray. The Shetland Islands phase (ACP-2022-051) would provide a link between Kirkwall and Tingwall as well as Unst, Fair Isle and Foula.

I have attached our stakeholder engagement letter which covers details of the ACPs including timelines and geometry. Please do contact us if you have any questions or feedback related to these ACPs, note that the first round of stakeholder engagement ends on the 23rd of January.

It would also be great to have a conversation with the team about deconfliction and the ACPs. It may be best to have a teams call about this or, if you'd prefer to meet in person, we will be in the area in the week beginning 23rd of January.

Best regards,



Dear Airspace Stakeholder,

I am writing today to kindly request your feedback to the Temporary Airspace Change Proposals: ACP-2022-049 and ACP-2022-051.

The two projects aim to form a network of Temporary Danger Areas (TDAs) connecting the Orkney Islands in Phase One (ACP-2022-049) and the Shetland Islands in Phase Two (ACP-2022-051) to provide middle mile UAS delivery and supplement current supply chains.

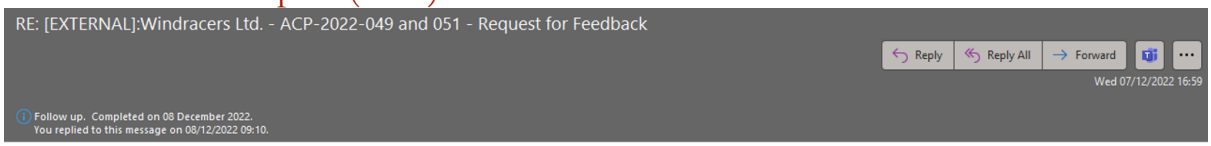
The letter attached contains details of the project, proposed operations, and how to provide feedback for these temporary airspace changes.

Should you have any questions, please reply to this email.

Kind regards,

Responses

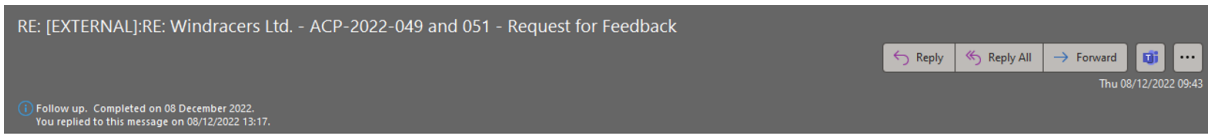
F.1 Baltasound Airport (Unst)



Hi

Can I suggest we have a call to discuss. We have our own ACP in for space launch and should make sure we are all deconflicted. Regarding operations from Unst, we can also discuss. Let me know when would be possible.

Kind Regards



Dear

Thanks for the e mail and info. We'd love to support the activity if at all possible. The slight complication is the airfield is currently dual use for our customers engine tests. Depending on times, dates and frequency I'd say it's a safe bet there will need to be a good element of coordination.

That being said, please feel free to get in touch with me when you can, and we can start working on a plan.

I look forward to chatting.

All the best, thanks

Meeting held 14/12/2022 - Details in Appendix C

F.2 NHV

RE: Windracers Ltd. - ACP-2022-049 and 051 - Request for Feedback

Reply | Reply All | Forward

Thu 08/12/2022 17:51

You replied to this message on 09/12/2022 08:56.

Hello

So that I don't have to go and find the ACPs, could you give me the vertical extent of the proposed TDA for the Shetland ACP? Unless I have missed it, I can only see the width.

Kind regards,

25 YEARS NHV

www.nhv.be

RE: Windracers Ltd. - ACP-2022-049 and 051 - Request for Feedback

Reply | Reply All | Forward

Fri 09/12/2022 08:57

Thank you for your email. The vertical limits of the TDAs will be decided over the course of our stakeholder engagement. This will depend on data we collect on popular flying routes and the input of those operating in the airspace. In previous operations in the area the TDA vertical limits were SFC-1500ft. This may change for these ACPs depending on the feedback we receive prior to implementation.

Kind regards,

F.3 DAATM

RE: Temporary Airspace Change Proposals - ACP-2022-049 and 051 - Request for Feedback

Reply | Reply All | Forward

Fri 09/12/2022 11:07

You replied to this message on 09/12/2022 11:20.

Good morning

Please can you confirm the likely altitude/level that the proposed TDAs would likely be required to? A ballpark number would suffice at this stage, thanks.

Best regards,

RE: Temporary Airspace Change Proposals - ACP-2022-049 and 051 - Request for Feedback

Reply | Reply All | Forward

Fri 09/12/2022 11:20

Good morning

The vertical limits of the TDAs will be decided over the course of our stakeholder engagement. This will depend on data we collect on popular flying routes and the input of those operating in the airspace. The altitudes are likely to be similar to previous operations in the area where the TDA vertical limits were SFC-1500ft. This may change for these ACPs depending on the feedback we receive prior to implementation.

Best regards,

RE: Temporary Airspace Change Proposals - ACP-2022-049 and 051 - Request for Feedback

Reply | Reply All | Forward

Fri 09/12/2022 11:22

You replied to this message on 09/12/2022 15:21.

Thank you. I will engage the MOD airspace user community and provide a response NLT 22 Jan 23 but hopefully sooner.

Best regards,

RE: Temporary Airspace Change Proposals - ACP-2022-049 and 051 - Request for Feedback

Reply | Reply All | Forward

Fri 20/01/2023 10:22

Follow up. Completed on 25 January 2023.
You replied to this message on 25/01/2023 14:35.

Good morning

Having engaged with MOD airspace users, I can confirm that the TDAs proposed through ACP-2022-049 and ACP-2022-051 will likely haver minimal impact on MOD activities.

Thank you for you engagement during the CAP1616 process.

Best regards,

F.4 Kirkwall ATC

Windracer Kirkwall Flights

Reply | Reply All | Forward

Tue 13/12/2022 12:06

You replied to this message on 13/12/2022 13:45.
This message was sent with High importance.

Hi

I have no comments on the engagement letter at this time. However I am very interested in seeing or having information on the following as soon as possible:

- The CONOPS.
- Flight schedule.
- Number of UASs to be used; multiple flights?
- Do the UAS pilots have PPLs?

Kirkwall has the experience of the SATE1 project to draw on. But it is extremely important that we receive as much lead in time as possible.

Regards

RE: Windracer Kirkwall Flights

Reply | Reply All | Forward

Tue 13/12/2022 13:46

Hi

It may be best for us to set up a call to discuss the ConOps and other points of interest. Unfortunately, we are fully booked for December, would you be available for early January?

To cover your other points:

- Flight Schedule
  - This will be dependent on stakeholder engagement feedback and agreed with Kirkwall Airport along with other local aerodromes.
- Number of UASs to be used; multiple flights?
  - We would begin ACP-2022-049 with a single airframe operating from Kirkwall. The intention is to then have a second aircraft for ACP-2022-051 to carry out multiple flights within a day.
- Do the UAS pilots have PPLs?
  - While some members of the team do hold PPLs we do not intend for this to be a requirement of our Safety Case.

Please do let us know if you have any other questions.

Best regards,

Meeting held 01/02/2023 – Details in Appendix C

F.5 Sumburgh Airport

Stakeholder engagement for ACP-2022-049 and ACP-2022-51

Reply | Reply All | Forward

Sun 18/12/2022 09:36

You replied to this message on 19/12/2022 09:32.

Dear colleague,

Thank you for getting in touch regarding the proposed airspace changes. I can confirm that with regards to ACP-2022-049 (Orkney Islands) there will be no impact to operations at Sumburgh Airport. With regards to ACP-2022-51 I can confirm the following:

- The approach function for Sumburgh Airport (Sumburgh Radar) is provided by NATS, based in Aberdeen. This change will impact their operations, but as our service provision is contracted to them, stakeholder engagement will need to be carried out directly with NATS.
- With regards to the ATS provision by Sumburgh Tower (provided on site at Sumburgh Airport), there will be little to no impact on the operations as the TDA sits outside the Tower's area of responsibility.
- Notification of its existence and it's operational status is important for the tower to be aware of, so that essential information can be passed to aircraft operating or routing in that area if required. This can be achieved via our daily NOTAM brief.
- With regards to the proposed change, Sumburgh Airport has no objections.

Kind regards,

RE: Stakeholder engagement for ACP-2022-049 and ACP-2022-51

Reply | Reply All | Forward

Mon 19/12/2022 09:32

Dear

That's great to hear. Just to confirm a few things:

- Notification of its existence and it's operational status is important for the tower to be aware of, so that essential information can be passed to aircraft operating or routing in that area if required. This can be achieved via our daily NOTAM brief.
  - We will put out a NOTAM well in advance of the TDA activation detailing operational times and our contact details should you need to get in touch on the day.
- With regards to the proposed change, Sumburgh Airport has no objections.
  - Thank you for letting us know. We will be outputting letters of agreement in the early months of next year to confirm details of the TDA and scheduling.

If you have any questions, please do get in touch.

Best regards,

F.6 Logan Air

RE: Windracers Ltd. - ACP-2022-049 and 051 - Request for Feedback

Reply | Reply All | Forward

Thu 05/01/2023 19:43

You replied to this message on 09/01/2023 15:20.

Hello

Thanks for the opportunity to comment on the proposals.

As the plans seem to be in line with the previous Windracers' trials in Orkney, I don't foresee any problems that can't be resolved on the ground in real time.

I look forward to seeing you back in Orkney this Summer and appreciate that you will keep us all in the loop.

Best regards,

F.7 Northern Lighthouse Board

RE: [EXT] Temporary Airspace Change Proposals - ACP-2022-049 and 051 - Request for Feedback

Reply | Reply All | Forward

Fri 20/01/2023 16:46

Follow up. Completed on 26 January 2023.
You replied to this message on 25/01/2023 17:13.

Dear

Thank you for your email and attachment, please see NLBs response below to both Airspace Change Proposals: ACP-2022-049 and ACP-2022-050.

PDG Helicopters are NLBs contract helicopter provider and will be included in this consultation as per previous ACPs, they will respond with any comments they have.

Our current planned activities within your operational windows are as follows:

- Orkney – 8th & 17th August passenger flights to Stroma Lighthouse
- Shetland – various activities between 1st and 12th October to Auskerry, Pentland Skerries and Sule Skerry helicopter working with our vessel (NLV Pharos). 24th & 25th October – passenger Flights to Muckle Flugga & Sule Skerry. 30th October to 7th November various activities with helicopter working with our vessel (NLV Pharos) at Muckle Flugga, Out Skerries and Sule Skerry

From a planning aspect we would like to be informed of any route or date changes, but all other involvement would be with our helicopter operator, who would advise NLB of any issues that would affect our tasking in the Orkney and Shetland areas.

As with previous consultations NLB are happy to engage in further communications in regard to this ACP as it develops.

Best wishes,

RE: [EXT] Temporary Airspace Change Proposals - ACP-2022-049 and 051 - Request for Feedback

Reply | Reply All | Forward

Wed 25/01/2023 17:15

Dear

Great to hear from you. We will keep you informed of any changes or updates to the ACPs.

We have contacted at PDG but please do let us know if there's anyone else we need to get in touch with.

Best regards,

RE: [EXT] RE: [EXT] Temporary Airspace Change Proposals - ACP-2022-049 and 051 - Request for Feedback

Reply | Reply All | Forward

Sun 29/01/2023 22:22

Hi

forwarded me you reply and thank you for confirming that you are in communications with our Helicopter Operator

If we think of anyone else that should be in the communications, we will let you know.

Look forward to hearing from you in due course in regard to this ACP as it develops.

Kind regards

Secondary Engagement Response

Secondary Engagement Email

Dear Airspace Stakeholder,

Following our initial engagement regarding ACP-2022-049 and 051, please find a letter detailing our updated proposal.

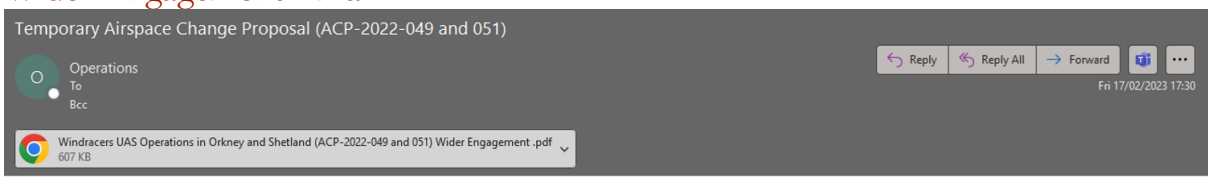
Changes made since initial engagement:

- TDA geometry now encompasses the airspace over airfields with no active ATZ.
- Westray Airport has been added to Phase 1: Orkney Operations.
- A schedule has been proposed for Phase 1: Orkney Operations.
- The activation period for Phase 1: Orkney Operations is now 05/06/23 – 11/08/23.

We would appreciate your feedback on this as soon as possible so that we can address concerns in a timely manner. Please note that we aim to submit stakeholder feedback to the CAA in early March.

Best regards,

Wider Engagement Email



Dear Airspace Stakeholder,

We are getting in contact with you as a valued member of the aviation community to kindly request your feedback to the Temporary Airspace Change Proposals ACP-2022-049 and ACP-2022-051. We take on board all responses and appreciate any feedback received.

These ACPs aim to establish Temporary Danger Areas (TDAs) during notified periods as part of the SATE 2 Project. The TDAs will enable the delivery of middle mile logistics and mail transport using Uncrewed Aircraft Systems (UAS) across the Orkney and Shetland Islands. These two ACPs will run independently in separate phases.

The letter attached contains details of the project, proposed TDA geometry, proposed operations, and how to provide feedback for this airspace change.

Please let us know if you have any questions relating to the ACPs.

Best regards,

F.8 Tingwall General Aviators Group

Hello

To help discussion in our aviators group could I ask a couple of questions?

In a day when your uav is going to an island what happens to other traffic (ga?) going to that island? Will ATC in Kirkwall have an exact departure time and hence a window when we can avoid.?

If we have display of the airborne vehicle on ads b/sqwak display can we manoeuvre to avoid or will the entire airspace be closed?

I look forward to productive discussion

Good afternoon,

Happy to help with any questions you have regarding these ACPs.

On a day where the UAV is going to an island, that route and the timings for it will be published as a NOTAM at a minimum 24hrs prior to the flight. We will be in direct contact with Kirkwall ATC during ACP-2022-049 TDA activation. They will therefore have an exact departure time.

As a Temporary Danger Area (TDA) you would not be able to fly through this airspace while active. Kirkwall ATC would inform you if the TDA is active and up to what height. The TDA would only be active while the aircraft is in the air and only up to a height of 2500 ft alt.

I should also note that only relevant TDAs would be activated. For example, if the UAV was flying Eday to North Ronaldsay this should not disrupt airspace users around Kirkwall or Westray.

Please do let us know if you have any further questions.

F.9 LoganAir

RE: Temporary Airspace Change Proposal (ACP-2022-049 and 051)

Reply | Reply All | Forward

Mon 13/02/2023 12:18

You replied to this message on 13/02/2023 13:24.

Dear

Thank you for your email and the opportunity to comment on the latest proposal.

(i) With regard to mainline Loganair operation I see no conflict between our operation and yours. We do operate between Kirkwall and Sumburgh but the planned flight levels are at FL050 and FL070. However, on very low pressure days there may be some prospect of FL050 being at an altitude of around 4000' ie within 1500' of proposed TDA geometry of 2500'.;

(ii) Again with regard to mainline operation our engine failure procedure on departure from both Kirkwall and Sumburgh is to climb on runway heading until MSA or above. Thereafter, subject to crew assessment, the routing will be back to the hold. I see no conflict but please note our engine failure procedure from runways 15/33 at Sumburgh is more complex and would require penetration of the TDA;

(iii) With regard to inter-island operations is our subject matter expert and I urge you to liaise with him on timetabling. Please note that currently our BN2 fleet used on these services is not ADS-B (in) equipped and therefore pilots will rely on see-and-avoid. Indeed, at this moment in time (although that will change) only one of the BN2 fleet has ADS-B (out) equipage. That should change from June with the second aeroplane ADS-B (out) equipped.

Regards,

RE: Temporary Airspace Change Proposal (ACP-2022-049 and 051)

Reply | Reply All | Forward

Mon 13/02/2023 13:24

Dear

Thank you for getting back to us quickly and for the feedback.

(i) We aim to fly at 1000 ft AMSL and have designed the TDA with ample vertical and horizontal safety buffer so therefore should be clear of anyone flying at 4000 ft.

(ii) Thank you for bringing this to our attention, we will discuss with Sumburgh to ensure no conflict.

(iii) We have discussed timetabling with and confirmed the current schedule against the Loganair summer timetable. If any changes are made this will be notified well in advance and checked against other airspace users planned operations.
As the drone will only operate within the segregated airspace of a TDA it should not be an issue that other aircraft are not ADS-B equipped though it is great news that the second aircraft has plans to be ADS-B (out) equipped.

If you have any other questions or feedback regarding ACP-2022-049 and 051, please do get in touch.

Best regards,

F.10 DAATM

RE: Temporary Airspace Change Proposal (ACP-2022-049 and 051)

Reply | Reply All | Forward

Mon 13/02/2023 12:46

Good afternoon

The proposed changes to your ACP submission have no additional or different impact to MOD activities.

Best regards,

F.11 SaxaVord

Saxavord Spaceport ACP-2022-049 and ACP-2022-51 feedback

Reply | Reply All | Forward

Tue 14/02/2023 14:41

To whom it may concern,

Writing as the representative for the SaxaVord Spaceport, I'm happy to confirm we remain fully supportive of the Windracers ACPs. Any impact to Saxa's operations is assessed to be minimal and Baltasound airfield ops will be coordinated real time should any other aircraft movements be required.

Please don't hesitate to get in touch if you'd like more information.

Yours

F.12 Northern Lighthouse Board

RE: [EXT] Temporary Airspace Change Proposal (ACP-2022-049 and 051)

Reply | Reply All | Forward

Wed 15/02/2023 13:46

Dear

Thank you for your email and attachment regarding the updated Airspace Change Proposals: ACP-2022-049 and ACP-2022-050, our email of 20th January remains valid and is reiterated below:

PDG Helicopters are NLBs contract helicopter provider and will be included in this consultation as per previous ACPs, they will respond with any comments they have.

Our current planned activities within your operational windows are as follows:

- Orkney – 8th & 17th August passenger flights to Stroma Lighthouse
- Shetland – various activities between 1st and 12th October to Auskerry, Pentland Skerries and Sule Skerry helicopter working with our vessel (NLV Pharos). 24th & 25th October – passenger Flights to Muckle Flugga & Sule Skerry. 30th October to 7th November various activities with helicopter working with our vessel (NLV Pharos) at Muckle Flugga, Out Skerries and Sule Skerry

From a planning aspect we would like to be informed of any route or date changes, but all other involvement would be with our helicopter operator, who would advise NLB of any issues that would affect our tasking in the Orkney and Shetland areas.

As with previous consultations NLB are happy to engage in further communications in regard to this ACP as it develops.

Best wishes,

F.13 PDG Helicopters

RE: Temporary Airspace Change Proposal (ACP-2022-049 and 051)

Reply | Reply All | Forward

Thu 16/02/2023 14:28

You replied to this message on 17/02/2023 15:55.
Click here to download pictures. To help protect your privacy, Outlook prevented automatic download of some pictures in this message.

Good afternoon,

PDG Helicopters has no objection to the proposed ACPs, provided that there provisions are in place for short-notice access to the airspace if required by operational tasking, and that the ACP will have no detrimental effect on PDG's operations.

Kind regards,

RE: Temporary Airspace Change Proposal (ACP-2022-049 and 051)

Reply | Reply All | Forward

Fri 17/02/2023 15:56

Good afternoon

Great to hear there are no objections. We do of course aim to not disrupt other airspace users operations.

In terms of short-notice access to the airspace, the TDAs will only be active when the UAS is in flight. Windracers would not be able to grant you access to the TDAs while active. Emergency access would be coordinated through Kirkwall ATC who we will be in direct contact with.

You will also be able to contact us directly to deconflict via a number and email address that will be promulgated in the appropriate NOTAM.

Please do let me know if you have any other questions.

F.14 Kirkwall ATC

Questions about UAS behaviour

Reply | Reply All | Forward

Sat 18/02/2023 13:12

Follow up. Completed on 16 March 2023.
You replied to this message on 24/02/2023 14:40.

Good afternoon.

To build upon the questions and answers in the meeting earlier this month, I would like to confirm a few things, ask a couple of additional questions and to request clarification on the UAS' behaviour in specific cases for the benefit of Kirkwall ATS.

- When the UAS is instructed to enter the Kirkwall ATZ, does it always have to be for joining the aerodrome traffic circuit?
- What are the options for joining the circuit? Can the UAS e.g. join a specific part of the circuit or final directly, or will it always position for downwind? Are all runways and their associated circuits usable?
- How is the routing determined for joining the traffic circuit? When should we expect the drone to fly overhead the aerodrome to join? Reportedly this has happened in a case where a direct routing for positioning onto a downwind leg on the north side of 09/27 was available (UAS arriving from the north), so it was unexpected.
- If a C2 failure occurs when the UAS is inside the ATZ departing/returning, what will the UAS do before manual control is established (or if unable to establish for any reason)?
- Can the UAS ever attempt to land/depart without a human instructing it to do so, such as when autolanding?
- If a C2 failure occurs when the UAS is inside the TDA returning to Kirkwall, what will the UAS do by default? Will it enter the ATZ without input?

Thank you in advance.

Meeting held 08/03/2023 – Details in Appendix C

A couple of extra questions

Reply | Reply All | Forward

Thu 09/03/2023 16:32

Good afternoon,

Thank you for the informative phone call yesterday.

A couple of further questions I would still be looking for some further clarity on.

- If the UAS loiters at a pre-programmed position in "return mode" when the C2 link is not working, is it subject to wind drift while loitering? As in, can it be pushed away from its loitering point over time in windy conditions?
- You mentioned that if the C2 link is lost, as an extreme measure the UAS engines could be shut off forcing it to ditch into water. How is this accomplished without a working C2 link, and what guarantee is there for that option to be available if such a need arose?

Thank you,

RE: A couple of extra questions

Reply | Reply All | Forward

Thu 09/03/2023 16:58

Hi

Many thanks for allow us to talk you through our operations and thought process.

To answer your questions:

- The aircraft loiters around a fixed GNSS position. It will not drift with wind over time, unless there is a complete GNSS failure. This is very unlikely as the system is equipped with
  If the failure occurs, the system will continue flying in "dead-reckon" using a big set of inertial systems
  Under this condition, the system has been tested to drift no more than 1 km after 40 minutes.

- The system is controlled using two independent communication links: one is a complete C2 link. The secondary one provides discrete controls from the handheld controller. You can use any of them to shut off the engines and force a ditch. If C2 link is lost (and not regained) and the UAS is loitering over water, we could decide to either: use the handheld controller to land the UAS, or, should the situation be so that keeping the UAS in the loiter or attempting a landing is impracticable or unsafe, we can shut the ignitions off from the handheld transmitter.

I hope this answer your questions.

Kind regards,

RE: Temporary Airspace Change Proposal (ACP-2022-049 and 051)

Reply | Reply All | Forward

Sun 26/02/2023 13:05

You replied to this message on 27/02/2023 17:36.
This message was sent with High importance.

Hi

Can you confirm that all these proposed flights start and finish at Kirkwall?

ACP-2022-051 (Shetland Islands)

TDA Segment	Route	Altitude	Activation Period
TDA – D	Kirkwall – Fair Isle	1000 ft AMSL	11/09/23 – 17/11/23
TDA – E	Kirkwall – Foula		
TDA – F	Kirkwall – Tingwall		
TDA – G	Kirkwall – Unst		

Table 4 Phase 2: TDAs

ACP-2022-051 scheduling will be confirmed closer to the activation period with live stakeholder engagement carried out during the Orkney operations.

There requires to be a point on TDA D where Kirkwall and Sumburgh Radar handover the UAS. This point should be marked on the diagram with a range and bearing from the KWL DVOR and agreed with Sumburgh Radar.

Phase 2:

Also it would be helpful for all the loiter points to have a range and bearing from the KWL DVOR in the CONOPS.

Regards

F.15 Babcock (Scotland Charity Air Ambulance (SCAA)

RE: CAUTION: External email - FW: Temporary Airspace Change Proposal (ACP-2022-049 and 051) (UNCLASSIFIED)

Reply | Reply All | Forward

Mon 20/02/2023 12:25

You replied to this message on 20/02/2023 13:45.

Classification:UNCLASSIFIED

Good afternoon

I hope you had a good weekend?

Thank you for sending this over to SCAA. In future could you also include myself directly as Babcock Regional Managing Pilot for Scotland and also the Head of Scottish Police flying on any correspondence.

With regards to the proposal we conduct relative short notice tasking to the Orkneys, whether that's Air Ambulance flights or time critical HEMS operations, flying down to a minimum of 300'. We operate from Aberdeen and so it will take us a minimum of 50 mins to get to Orkney from time of call.

Our aircraft do not have ADS-B in or out, but are fitted with TAS which can detect transponding traffic.

My concern, is that we need to have a robust means of deconflicting your operations with the need to conduct Air Ambulance Operations in the area. For example, if we are re-tasked in flight to an area where you are conducting operations, is there the ability to speak to you in flight to deconflict, in order to gain access to the TDA? Will a danger area crossing service be coordinated by Kirkwall Radar for example?

More than happy to discuss our issues, which will also be shared by Helimed 2 based in Inverness (controlled by GAMA) and SAR based at Sumburgh.

Kindest regards

RE: CAUTION: External email - FW: Temporary Airspace Change Proposal (ACP-2022-049 and 051) (UNCLASSIFIED)

Reply | Reply All | Forward

Mon 20/02/2023 13:46

Good afternoon

We had a great weekend here at Windracers, thank you for asking. I hope you also had a good weekend?

We are aware of the requirement for short notice access to the airspace and have deconfliction procedures in place to allow for this. This includes (but is not limited to):

- The UAS are fitted with both ADS-B and Mode S transponders so should be visible on TAS.
- We will be in direct contact with Kirkwall ATC who will be providing a DAAIS.
- If you require access to the TDA we can command the aircraft to loiter either in a pre-operations decided loiter point or, where required, we can command the aircraft in real time.
- Our contact details for the ground control operator will be communicated through the NOTAM covering the planned operations.

In previous operations in Orkney we have had occasions where we have needed to deconflict with Air Ambulance Operations. In these circumstances we have had agreed points with Kirkwall ATC where the aircraft will remain in a loiter until the airspace is clear.

Thank you again for getting in touch, happy to go over any deconfliction requirements you may have.

Best regards,

RE: CAUTION: External email - FW: Temporary Airspace Change Proposal (ACP-2022-049 and 051) (UNCLASSIFIED)

Reply | Reply All | Forward

Mon 20/02/2023 13:55

You replied to this message on 20/02/2023 14:04.

Classification:UNCLASSIFIED

Afternoon

Thanks for getting back to me so quickly. That all seems very sensible and workable. As long as Kirkwall Tower has direct comms with the UAV operator, there should be sufficient time to sanitize the airspace to allow us to conduct our Air Ambulance operations.

Kindest regards

F.16 GAMA Aviation (Helimed 2)

Phone call held 20/02/2023 - GAMA Operations

Windracers Temporary Airspace Change Proposals (ACP-2022-049 and 051)

Reply | Reply All | Forward

Mon 20/02/2023 14:27

Windracers UAS Operations in Orkney and Shetland (ACP-2022-049 and 051) Wider Engagement .pdf
607 KB

Hi

Great to speak with you on the phone. I've attached our Stakeholder Engagement Letter just if you need any extra information.

Otherwise, it is my understanding that Helimed 2 are happy with Windracers planned operations as long as they are in direct contact with ATC and there is a NOTAM in place.

Best regards,

F.17 NATS

RE: Temporary Airspace Change Proposal (ACP-2022-049 and 051)

Reply | Reply All | Forward

Mon 20/02/2023 14:46

You replied to this message on 20/02/2023 15:10.

Afternoon,

In the document provided it states,

The TDA should be provided with Air Traffic Services (ATS) that allow other airspace users to get information of the activity within the TDA and cross the airspace when possible.

However, the document doesn't state who the ATS will be provided by. Can you please confirm?

Regards

NATS

RE: Temporary Airspace Change Proposal (ACP-2022-049 and 051)

Reply | Reply All | Forward

Mon 20/02/2023 15:11

Good afternoon

For TDAs A, B, and C, a DAAIS will be provided through Kirkwall ATC.

In prior operations, Sumburgh Radar have provided a DAAIS for our Shetland operations. We hope for a similar arrangement for TDAs D through to J. This will be confirmed prior to submission of ACP-2022-051. We have been in contact with Sumburgh to organise this but understand that Sumburgh Radar is provided through Aberdeen NATS. We have not yet heard back from the contact details we have for Aberdeen NATS any assistance on this would be greatly appreciated.

Best regards,

Temporary Airspace Change Proposal (ACP-2022-049 and 051)

Reply | Reply All | Forward

Thu 23/02/2023 15:15

Follow up. Completed on 27 February 2023.
You replied to this message on 27/02/2023 10:04.

Afternoon,

This is the NATS NERL plc feedback on Temporary Airspace Change Proposal (ACP-2022-049 and 051).

- NATS Prestwick Centre – No impact on operations. A DAAIS will be available via the Moray Low Sector
- NATS Aberdeen - No impact on operations. A DAAIS will be available. No request has been received so far for the provision of DACS. However, subject to engagement with Windracers and Kirkwall ATC, NATS Aberdeen may be able to provide a DACS, within our AoR, and subject to workload.

Please let me know if you have any further queries.

Regards

NATS

F.18 Babcock (Police Scotland Air Unit)

Re: CAUTION: External email - FW: Temporary Airspace Change Proposal (ACP-2022-049 and 051) (UNCLASSIFIED)

Reply | Reply All | Forward

Tue 21/02/2023 21:11

You replied to this message on 22/02/2023 08:46.

Hello

I've already had engagement with regarding the SATE2 project. With regards to Babcock operations in support of Police Scotland, I don't envisage any issues. Given the long transit times from our base in Glasgow, there would be ample time to sanitise the airspace to allow us to operate if required.

Once we have visibility of the proposed ACP and the implications to the airspace, I will establish a safe working protocol which will be promulgated to our pilots.

If you need to discuss anything further, please do not hesitate to get in touch.

Kind regards,

RE: CAUTION: External email - FW: Temporary Airspace Change Proposal (ACP-2022-049 and 051) (UNCLASSIFIED)

Reply | Reply All | Forward

Wed 22/02/2023 08:47

Windracers UAS Operations in Orkney and Shetland (ACP-2022-049 and 051) Wider Engagement .pdf
607 KB

Hi

That's great. Just to confirm with you, the letter attached is about ACP-2022-049 and 051, a network of TDAs in Orkney and Shetland taking place this summer. This will lead into the work is doing to create a TMZ in the same area.

Best regards,

F.19 NatureScot

RE: Temporary Airspace Change Proposal (ACP-2022-049 and 051)

Reply | Reply All | Forward

Fri 24/02/2023 12:12

Follow up. Completed on 16 March 2023.
You forwarded this message on 27/02/2023 10:12.

Hello

Thank you for your consultation on the Windracers project and the Temporary Airspace Change Proposals ACP-2022-049 and ACP-2022-051.

I understand that the Windracer project has previously undertaken trials in Orkney. Could you please provide any previous correspondence with NatureScot, including any advice or comments provided by NatureScot on this previous operation?

Could you also confirm if the proposed flight routes will take place along existing flight paths and typical flying heights of the existing Loganair flights from Kirkwall to Eday, North Ronaldsay, Papa Westray and Westray? This information will help me to understand how the Windracer flight route differs from the existing flight operations in the Northern Isles of Orkney and if there could be any impacts we may need to assess, for example on bird species.

Kind regards,

NatureScot | Eastbank, East Road, Kirkwall, KW15 1LX
nature.scot | @nature_scot | *Scotland's Nature Agency | Buidheann Nàdair na h-Alba*

Phone call held 02/03/2023 – North Operations Officer

RE: Temporary Airspace Change Proposal (ACP-2022-049 and 051)

Reply | Reply All | Forward

Mon 06/03/2023 15:48

Follow up. Completed on 16 March 2023.
You replied to this message on 16/03/2023 12:03.

Hello

Thank you for your call last week and for consulting us on the Temporary Airspace Change Proposal ACP-2022-049 and 051. My understanding of the operation is much clearer now. You confirmed that the flight will take place in the vicinity of existing flight corridors, but avoiding any overlap in areas where the Loganair planes currently travel. The Windracer flight will land and take off from existing airports/runways in Orkney and the Northern isles and will be flying at 1000ft (which is similar to existing Loganair flights in the Northern Isles).

We have no further comments to make on this proposal. However I have included some information below which you may find useful:

- Information on protected areas is available online via our SiteLink information service which can be found here: https://www.nature.scot/information-library-data-and-research/snhi-data-services
- Further relevant information is also available online to you through the Scottish Government's Scotland's environment web. This holds a wide range of land use information such as Environmentally Sensitive Areas and Ancient Woodland Inventory.
- Impacts on protected species should be addressed by reference to the relevant standing advice available at Planning and development: protected animals.

We also discussed the potential for NatureScot to tie in with the Windracer trials and making use of this opportunity to carry out some surveying work along the flight paths. I have highlighted this to some of our teams who may be interested and I will be in touch with any feedback. Could you please suggest a timeframe that you would need our input if we are to take this forward?

Kind regards,

NatureScot | Eastbank, East Road, Kirkwall, KW15 1LX
nature.scot | @nature_scot | *Scotland's Nature Agency | Buidheann Nàdair na h-Alba*

RE: Temporary Airspace Change Proposal (ACP-2022-049 and 051)

Reply | Reply All | Forward

Thu 16/03/2023 12:04

Hello

Thank you for sending this email and apologies for not replying sooner.

Just for absolute clarity on the flights that would be taking place: this would not be in existing flight corridors as these are not formally in place but instead segregated temporary airspace corridors. The aircraft would be flying in areas of existing aviation activity and would follow current standard aviation practices in the area for example; circuit patterns and altitudes.

Thank you for the links you sent through which have been very informative for our planning when reducing our impact on the local area.

I have passed on your interest in working with us to the flight operations lead and will get back to you with a better plan of how we can be of use.

Best regards,

F.20 Bristow (Sumburgh Search and Rescue)

Re: Temporary Airspace Change Proposal (ACP-2022-049 and 051)

Reply | Reply All | Forward

Sun 26/02/2023 09:04

You replied to this message on 27/02/2023 10:23.

Windracers UAS Operations in Orkney and Shetland (ACP-2022-049 and 051) Wider Engagement .pdf
604 KB

Dear

Thank you for your email and the opportunity to comment on ACP-2022-049 and 051.

Bristow operates Search and Rescue (SAR) helicopters in the areas you intend to operate, typically in the height band SFC – 3000ft. I note the intention to permit TDA crossing "when possible" but ask that provision is made such that in the event of Category A (CAP 413) SAR operations within your TDA, or requiring crossing of your TDA, that priority is given to permit unrestricted activity by such SAR aircraft without delay, coordinated by the appropriate ATC unit.

Please come back to me if you have any questions or wish to discuss this any further.

Kind regards,

Chief Pilot, Sumburgh SAR

RE: Temporary Airspace Change Proposal (ACP-2022-049 and 051)

Reply | Reply All | Forward

Mon 27/02/2023 10:24

Dear

Thank you for getting back to us, we have confirmed this with Kirkwall ATC that priority would be given to emergency operations for ACP-2022-049. A similar agreement will be made for ACP-2022-051, with Kirkwall ATC and Sumburgh Radar. We will include this in our submission of the ACPs to the CAA.

Best regards,

F.21 Kirkwall ATC

Following feedback from the CAA the TDA has been extended to within 2 KM from the centre of runway 27/09. Due to the time sensitive nature of this change this was initially confirmed with Kirkwall ATC. A CONOPS with the change described and identified was also sent to the relevant stakeholders.

Windracers ACP-2022-049 TDA-A extension into ATZ

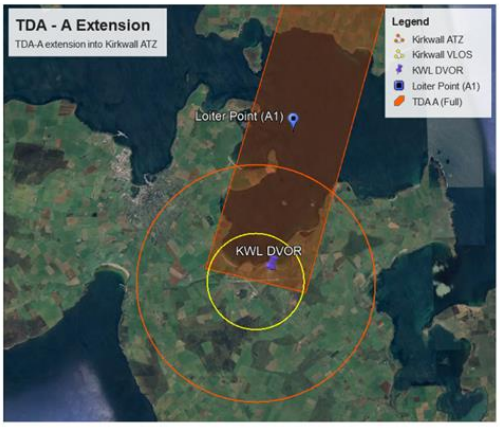
Reply | Reply All | Forward

Mon 17/04/2023 16:45

Hi

The CAA have reviewed our TDA proposal and asked that we extend the TDA south into Kirkwall ATZ to cover the distance between our VLOS and BVLOS operations.

I have attached an image of what this would look like. We have been asked to get this signed off with yourself before the CAA will continue with the application, the deadline for this is Thursday so time is limited. Apologies to spring this on you at such short notice.



After sending this email the TDA was changed from the image above to the below image to accommodate the extended VLOS range detailed in the Windracers OSC. The image below was sent in the signed ConOps.

RE: Windracers ACP-2022-049 TDA-A extension into ATZ

Reply | Reply All | Forward

Tue 18/04/2023 09:59

You replied to this message on 18/04/2023 13:12.
This message was sent with High importance.

Hi

This will change the CONOPS, have you got an updated version for me to review and a link for me to be able to sign it off.

In the office until 1400 today, so I will look out for your email as I understand that you are working to a deadline.

RE: Windracers ACP-2022-049 TDA-A extension into ATZ

Reply | Reply All | Forward

Tue 18/04/2023 13:12

Concept of Operations - ACP-2022-049 - 2.1.docx
4 MB

Hi

I have attached the updated ConOps. Please note that we will operate in the same way as planned, it is just the TDA-A geometry that has been changed.

I am just boarding a plane but can answer any questions, and will send out a version to sign if there are no queries, when I land.

RE: Windracers ACP-2022-049 TDA-A extension into ATZ

Reply | Reply All | Forward

Tue 18/04/2023 13:29

Start your reply all with: Ok, will do. Thanks! | Yes, will do. | Great, thank you! | Feedback

Hi

Happy for you to send out the new version for signatures.

Regards

DocuSign Message sent with new ConOps:

Message

Dear All, After feedback from the CAA we have extended the TDA-A Geometry into the Kirkwall ATZ. Our operating procedures have not changed. This change is detailed in the images in the attached ConOps. The extension brings the TDA within 2KM of the centre of runway 09/27. Please do get in contact if you have any questions. Best regards,

Tertiary Engagement Response

Tertiary Engagement Email

Temporary Airspace Change Proposal (ACP-2022-049 and 051)

Mon 2023-05-15 14:19

Windracers UAS Operations in ...
511 KB

Dear Airspace Stakeholder,

We hope this email finds you well. As a valued stakeholder in the airspace community, we are reaching out to you to update you on the changes to our Airspace Change Proposals (ACP-2022-049 and ACP-2022-051). The updated ACPs incorporate the feedback received from previous consultations:

Update to geometry
- TDA-A now extends into Kirkwall ATZ from Eday airport.

Update to timetable
- **ACP-2022-049 will run 3rd of July to the 25th of August.**
- The timetable for ACP-2022-051 has not changed.

Loiter Points
- Clarity provided on planned loiter point positions.

We kindly request any additional feedback is provided by the 29th of May 2023 on this email (operations@windracer.org), allowing us sufficient time to review and consider all input received.

Thank you in advance for your time, expertise, and input. We look forward to your valuable feedback to create a safer and more efficient operation.

Yours sincerely,

F.22 Northern Lighthouse Board

Wed 2023-05-17 17:13

Good afternoon

Thank you for your email and attachment regarding the updated Airspace Change Proposals: ACP-2022-049 and ACP-2022-51, our email of 15th February 2023 remains valid and is reiterated below:

are NLBs contract helicopter provider and will be included in this consultation as per previous ACPs, they will respond with any comments they have.

Our current planned activities within your operational windows are as follows:

- Orkney – 8th & 17th August passenger flights to Stroma Lighthouse
- Shetland – various activities between 1st and 12th October to Auskerry, Pentland Skerries and Sule Skerry helicopter working with . 24th & 25th October – passenger Flights to Muckle Flugga & Sule Skerry. 30th October to 7th November various activities with helicopter working with at Muckle Flugga, Out Skerries and Sule Skerry

From a planning aspect we would like to be informed of any route or date changes, but all other involvement would be with our helicopter operator, who would advise NLB of any issues that would affect our tasking in the Orkney and Shetland areas.

As with previous consultations NLB are happy to engage in further communications in regard to this ACP as it develops.

Best wishes,

F.23 Sumburgh Airport

Mon 2023-05-15 14:57

Hi

Thank you for forwarding us the updated information. We have no further comments from Sumburgh Airport regarding the updates.

Kind regards,

F.24 DAATM

Mon 2023-05-15 14:41

Good afternoon

Thank you for the updated documentation. The updated TDA proposals do not change the MOD response – minimal impact identified.

Best regards,

F.25 SaxaVord Spaceport

Mon 2023-05-15 14:34

To whom it may concern,

I'd like to thank Windracers for their timely engagement on the airspace change and updated geometry. remains confident that our operations will not be impacted by this ACP and is supportive of the overall concept and its future utility for the Island communities and our own industry needs.

If you would like to discuss anything further, please don't hesitate to get in touch.

Yours faithfully

F.26 Air Traffic Service

26.1

Thu 2023-02-23 15:15

Afternoon,

This is the NATS NERL plc feedback on Temporary Airspace Change Proposal (ACP-2022-049 and 051).

- NATS Prestwick Centre – No impact on operations. A DAAIS will be available via the Moray Low Sector
- NATS Aberdeen - No impact on operations. A DAAIS will be available. No request has been received so far for the provision of DACS. However, subject to engagement with Windracers and Kirkwall ATC, NATS Aberdeen may be able to provide a DACS, within our AoR, and subject to workload.

Please let me know if you have any further queries.

Regards

26.2

Tue 2023-05-09 11:40

Good Morning

I hope this email finds you well. I'm getting back in touch to talk about the potential for a DACS that you previously mentioned.

We are interested on understanding more about the provision of a DACS and how this would impact the workload of the ATC team. We also would be mainly communicating with Kirkwall ATC during Orkney operations so would be interested in how this would integrate with the DACS.

Please do let me know if you need any further information about our operations.

26.3

Mon 2023-05-15 16:33

Dear

I hope this email finds you well, the team are very much looking forward to being back up in Orkney shortly.

We spoke on the phone recently, however I wanted to confirm via email that the new operating dates are from the 3rd of July to the 25th of August. This has also been put out to all stakeholders so all should be aware.

We also spoke about the provision of DACS. We confirmed that this is not a service available through Kirkwall ATC for the duration of our trials.

Engagement Update

ACP-2022-049 Update

YW

Mon 2023-06-19 17:05

Dear Airspace Stakeholder,

We are writing to update you on ACP-2022-049 from our email earlier this year.

Pending CAA approval, this ACP will now be active between **September 11th and November 17th**.

We understand that the adjustment may have implications for your operations, and we encourage you to reach out to us via this email if you anticipate any impacts as a result of the revised timeline.

Thank you for your attention to this matter and we appreciate your continued collaboration.

Best regards,

F.27 NATS

RE: ACP-2022 -049 Update

Mon 2023-06-19 17:50

Start reply with: Sure, here it is. | Please see attached. | Yes, will do.

Hi

Thanks for your email- when you wrote to NATS on May 15th you notified us of the amended activity period of ACP-2022-049 (3rd of July - 25th of August) and provided a supporting 'engagement' document. .

Now that the dates have changed again, please could you forward the latest version of that document?

Thank you
Rgds

To:

Mon 2023-06-26 13:30

Windracers UAS Operations in ...
508 KB

Hi

Given the nature of this update we have been advised by the CAA that we do not need to supply a supporting engagement document.

I have attached the previous document for ease of reference.

Changes since this document was released:

Operational Schedule:
ACP-2022-049 Orkney (**September 11th and November 17th**)
ACP-2022-051 Shetland (AIC Cycle to be redetermined.)

Let me know if you have any other questions.
Best regards,

From:
Sent: Thursday, June 29, 2023 09:39
To:
Subject:

Hi
Thanks- just to confirm that both ACP049 and 051 will be taking place on the same dates; 11 September through to 17th November?
Rgds

Thu 2023-06-29 15:53

Good Afternoon

Apologies for the confusion, there will be no overlap in the ACPs. ACP-2022-049 will now take place in September to November. ACP-2022-051 is likely to be pushed into 2024.

Best regards,

F.28 SaxaVord Spaceport

Tue 2023-06-20 09:11

Dear Windracers,

Thanks for the update. I just thought I'd introduce you to who will . Both ACPs are deconflicted in geography – albeit close by. However, I did think may be able to make use of your services should you be capable of deliveries to Unst during their launch campaign, (scheduled during the time you may be up).

Just a thought!

I look forward to catching you all again soon.

F.29 Hyimpulse Technologies GmbH

RE: [EXTERNAL]:ACP-2022-049 Update

Tue 2023-06-20 10:12

Hi

Thank you for letting us know. Our TDA is targeted be active between September 21th and December 20th but we are deconflicted in geography, as mentioned.

Delivery to Unst could be something interesting. I will keep you in mind for our launch campaign.

Have a great day!

Best regards,

F.30 Airtask Group

RE: ACP-2022-049 Update

Tue 2023-06-20 12:13

Good Afternoon

Would you ensure that future requests for comment about ACPs are addressed to in addition to myself please?

is due to take over my role as I step back from day to day operations.

Thanks,

F.31 Northern Lighthouse Board

RE: [EXT] ACP-2022-049 Update

Wed 2023-06-21 16:48

Good afternoon

Thank you for your email advising that this ACP will now be active between 11th September and 17th November.

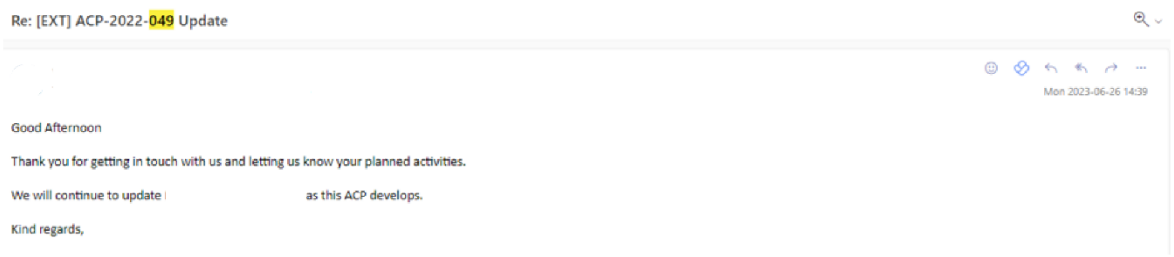
As per our previous communications dated 17th May, our planned activities remain the same:-

- Orkney & Shetland – various activities between 1st and 12th October to Auskerry, working with 24th & 25th October – passenger Flights to Muckle Flugga & Sule Skerry. 30th October to 7th November various activities with helicopter working with at Muckle Flugga, Out Skerries and Sule Skerry

From a planning aspect should any additional route or date changes occur we would like to be informed but all other involvement would be with our helicopter operator who would advise NLB of any issues that would affect our tasking in the Orkney and Shetland areas.

As with previous consultations NLB are happy to engage in further communications in regard to this ACP as it develops.

Best wishes,



Re: [EXT] ACP-2022-049 Update

Mon 2023-06-26 14:39

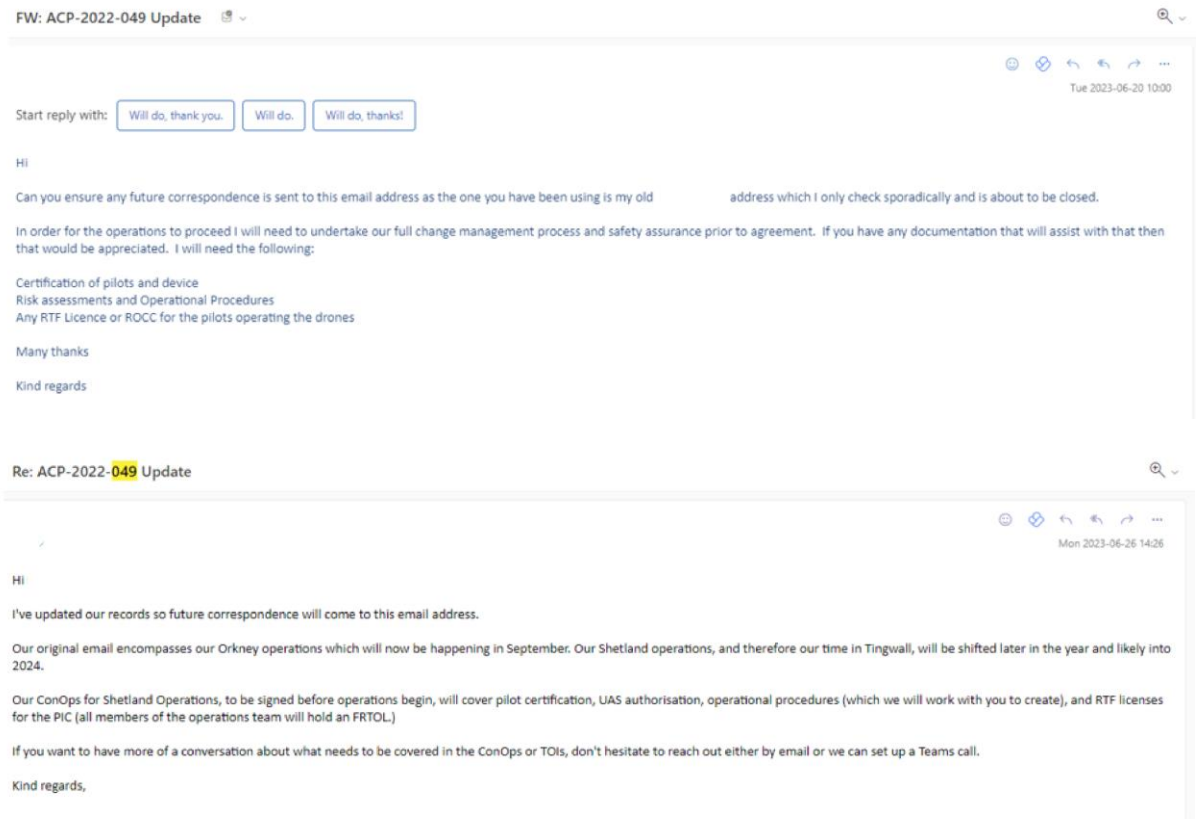
Good Afternoon

Thank you for getting in touch with us and letting us know your planned activities.

We will continue to update as this ACP develops.

Kind regards,

F.32 Tingwall Airport



FW: ACP-2022-049 Update

Tue 2023-06-20 10:00

Start reply with: Will do, thank you. | Will do. | Will do, thanks!

Hi

Can you ensure any future correspondence is sent to this email address as the one you have been using is my old address which I only check sporadically and is about to be closed.

In order for the operations to proceed I will need to undertake our full change management process and safety assurance prior to agreement. If you have any documentation that will assist with that then that would be appreciated. I will need the following:

Certification of pilots and device
Risk assessments and Operational Procedures
Any RTF Licence or ROCC for the pilots operating the drones

Many thanks

Kind regards

Re: ACP-2022-049 Update

Mon 2023-06-26 14:26

Hi

I've updated our records so future correspondence will come to this email address.

Our original email encompasses our Orkney operations which will now be happening in September. Our Shetland operations, and therefore our time in Tingwall, will be shifted later in the year and likely into 2024.

Our ConOps for Shetland Operations, to be signed before operations begin, will cover pilot certification, UAS authorisation, operational procedures (which we will work with you to create), and RTF licenses for the PIC (all members of the operations team will hold an FRTOL.)

If you want to have more of a conversation about what needs to be covered in the ConOps or TOIs, don't hesitate to reach out either by email or we can set up a Teams call.

Kind regards,