



ACP-2021-025

Group of TDAs connecting Orkney and Shetland Islands for SATE UAS operations

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 Proposal ACP-2021-025. This ACP aims to establish a complex of Temporary Danger Areas (TDA) during notified periods to enable trial operations of Unmanned Aircraft Systems (UAS).

These TDAs will connect selected locations of Mainland Scotland, the Orkney and the Shetland Islands as part of the Sustainable Aviation Test Environment (SATE) project.

This ACP process can be consulted in the [Airspace Change Portal](#).

SATE Project

The SATE ([Sustainable Aviation Test Environment](#)) will create the UK's first operationally based low-carbon, aviation test centre at Kirkwall Airport in the Orkney Islands.

Part funded by UK Research and Innovation (UKRI) through the Industrial Strategy Challenge Fund. The [Future Flight Challenge](#) is investing up to £125 million to develop greener ways to fly, such as all-electric aircraft and deliveries by drone, by advancing electric and autonomous flight technologies. The investment is matched by £175 million from industry.

The challenge aims to bring together technologies in electrification, aviation systems and autonomy to create new modes of air travel and capability.

The SATE will be a UK first and it is hoped will test and showcase new technology that can be adopted for island and wider use, with the aim to create social benefit and economic prosperity.

The SATE project will feature:

- Flight trials demonstrated in a real-life context
- Trials including low-carbon aircraft using electric, hydrogen and Sustainable Aviation Fuels (SAF) as well as Unmanned Autonomous Vehicles (UAV)
- Airport infrastructure improvements

- Improved regional air connections
- Local supply chain and employment impacts
- Contribute to Net-Zero aviation goal

The SATE Consortium is formed of the following 13 members, led by Highlands and Islands Airports (HIAL): Loganair, Ampaire, ZeroAvia, Windracers, Flarebright, University of the Highlands and Islands (UHI), European Marine Energy Centre (EMEC), Denchi Group, Cloudnet, Highlands and Islands Transport Partnership (HiTrans), Highlands and Islands Enterprise (HIE), and the Orkney Island Council (OIC).

As part of the SATE consortium, Windracers will demonstrate the application of ULTRA Unmanned Aircraft System (UAS) for delivering on-demand supplies to remote communities that currently suffer from mistimed or limited logistics. Preliminary engagement with key local stakeholders has confirmed the priority for medical supplies to remote health care service providers and other relevant use cases that would generate significant benefit to local residents and businesses.

About ULTRA UAS

[Windracers Ltd](#) and the [University of Southampton](#) have been working together since 2018 in the development of an Unmanned Aircraft System (UAS) specially conceived to provide a solution to a multitude of operational requirements that involve the transport of critical supplies for humanitarian and research activities.

The result is ULTRA UAS: a twin-engine, fixed wing aircraft with an MTOW of 350 kg capable of carrying 100-kg payloads. The aircraft is designed for reliability with a fault-tolerant architecture that features multiple redundancy of critical subsystems, proven fail-safe mechanisms and electronic conspicuity.



Figure 1 ULTRA UAS has a 10 m wingspan and cruises at 75 knots

In May 2020 ULTRA UAS was deployed over the Solent and completed the first BVLOS point-to-point operations between Lee-on-Solent and the Isle of Wight, executing a trial support service for the NHS as a response to the COVID-19 breakout. As part of this initiative, in December 2020 ULTRA UAS also completed a successful mission to the Isles of Scilly, connecting Land's End and St Mary's Airports.

More recently Windracers partnered with DronePrep and Royal Mail to demonstrate the application of ULTRA UAS delivering regular flights between mainland England and the Isles of Scilly. The [Isles of Scilly Airbridge](#) delivered scheduled return flights over a period of four weeks between Perranporth Airfield and St. Mary's Airport.

Airspace Change Proposal

ACP-2021-025 aims to set up a complex of Temporary Danger Areas divided in 5 segments, connecting the following locations:

- Wick Airport
- Kirkwall Airport
- Eday Airport
- North Ronaldsay Airport
- Fair Isle Airport
- Lerwick/Tingwall Airport
- Unst Airport

These airspace structures will be activated during short periods of time, separately or in combination to allow the intended itinerary. Activation times will be agreed with local stakeholders around scheduled flights.

It is anticipated that the TDA will be activated via NOTAM, at least 24 hours in advance, during expected hours of low aerial activity, between 30th August and 10th October 2021.

The initial proposal (Figure 2) identifies five different segments:

- A: Wick - Kirkwall
- B: Kirkwall - Eday - North Ronaldsay
- C: North Ronaldsay - Fair Isle
- D: North Ronaldsay - Tingwall
- E: Tingwall - Unst

In this proposal, each TDA segment is 1.54 nm wide and extends from surface (SFC) to 2500 ft Above Mean Sea Level (AMSL). The UAS will climb-out from the departing airport, fly the route directly down the centreline of the corridor at 2000 ft then descend to the arrival airport.

Changes to geometry, altitudes and schedule can be made upon analysis of feedback from all airspace Stakeholders. The earlier we receive this feedback, the easier it is for us to come up with a solution that causes the least impact on everybody's operations. Stakeholders will be informed of these changes and opportunity to provide additional comments will be provided.

Details of the TDA segments can be found in Appendix A.

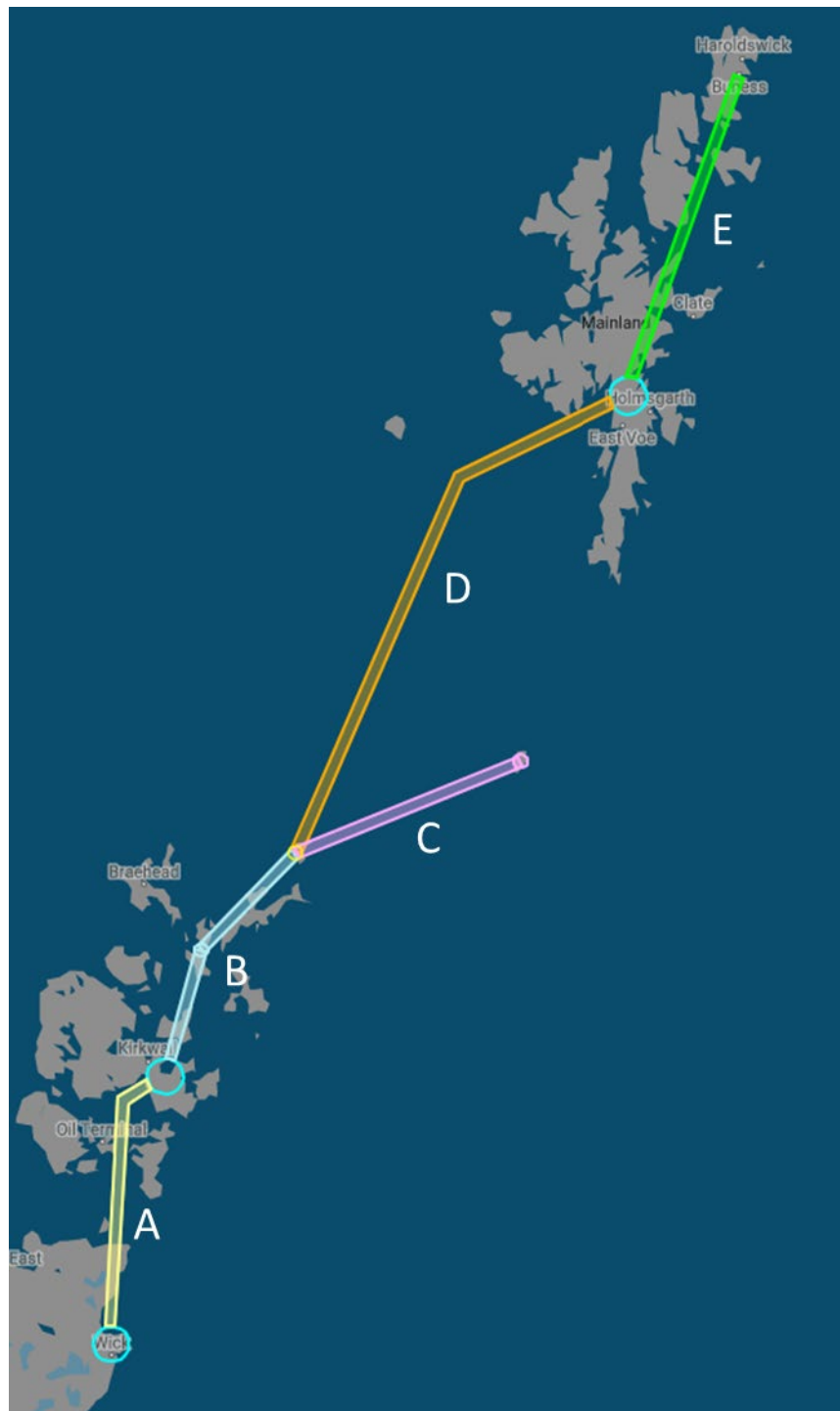


Figure 2 The proposed TDA is divided in 5 segments

Timeline

The intended operations will take place during a period of up to six weeks during summer/autumn 2021. An initial proposal of the TDA activation timeline has been summarised in the following table. Specific times of operations will be defined based on the requirements of the various stakeholders involved.

Table 1 Proposed scheduled of implementation ACP-2021-025

TDA Segment	Route	Proposed activation dates
A	Wick-Kirkwall	30/08 - 03/09 04/10 - 08/10
B	Kirkwall-Eday-North Ronaldsay	07/09 - 10/09 20/09 - 24/09 28/09 - 01/10
C	North Ronaldsay-Fair Isle	20/09 - 24/09
D	North Ronaldsay-Lerwick	28/09 - 01/10
E	Lerwick-Unst	28/09 - 01/10

Why are we contacting you?

During the planning of this airspace change we have identified a number of members of the aviation community that may 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-2021-025 process,
- 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 unmanned aircraft and other frequent airspace users.

How to submit your feedback

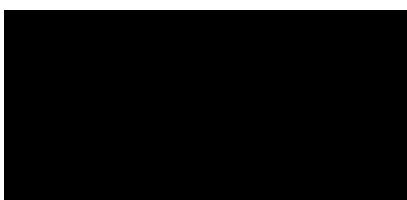
We have sent you a form in PDF format for you to provide feedback. You can fill in the form and email it to operations@windracers.org.

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.

Please send us your feedback before **17:00 on Friday 25th June 2021**.

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

Yours Faithfully,



Windracers Limited

Appendix A Detail of TDA segments

Segment A: Wick - Kirkwall

The proposed TDA provides a corridor 1.54 nm wide connecting the Aerodromes' Traffic Zones (ATZ) of Wick airport and Kirkwall airport and extends from surface (SFC) to 2500 ft. As shown in Figure 3, the corridor is split into two legs with the aim of avoiding busy areas above local airfields. One leg leaving Wick ATZ is 25 NM and the second leg entering Kirkwall ATZ is 3.5 NM.

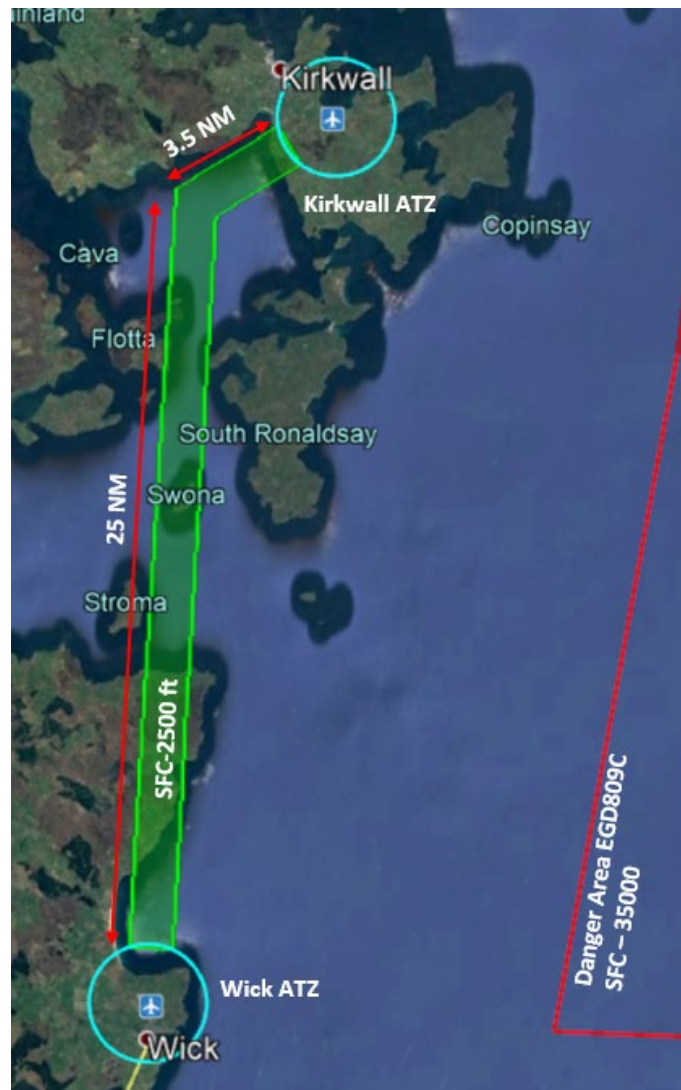


Figure 3 TDA Segment A, Wick-Kirkwall, Proposed Design

Segment B: Kirkwall - Eday - North Ronaldsay

The initial proposal is to split the TDA into two legs connecting in a straight line 12.6 NM long the ATZ of Kirkwall airport and Eday airport and in another straight line 15 NM long Eday airport and North Ronaldsay airport. The TDA is 1.54 NM wide and extend from surface to 2500 ft and the UAS will fly the route at 2000 ft.



Figure 4 TDA Segment B, Kirkwall-Eday-North Ronaldsay, Proposed Design

Segment C: North Ronaldsay - Fair Isle

The proposed TDA provides a corridor of 26.7 NM length connecting North Ronaldsay airport and Fair Isle airport in a straight line. The TDA will extend from surface to 2500 ft and the UAS will fly the route at 2000 ft. There will be a climb-out from each airport to reach this altitude.

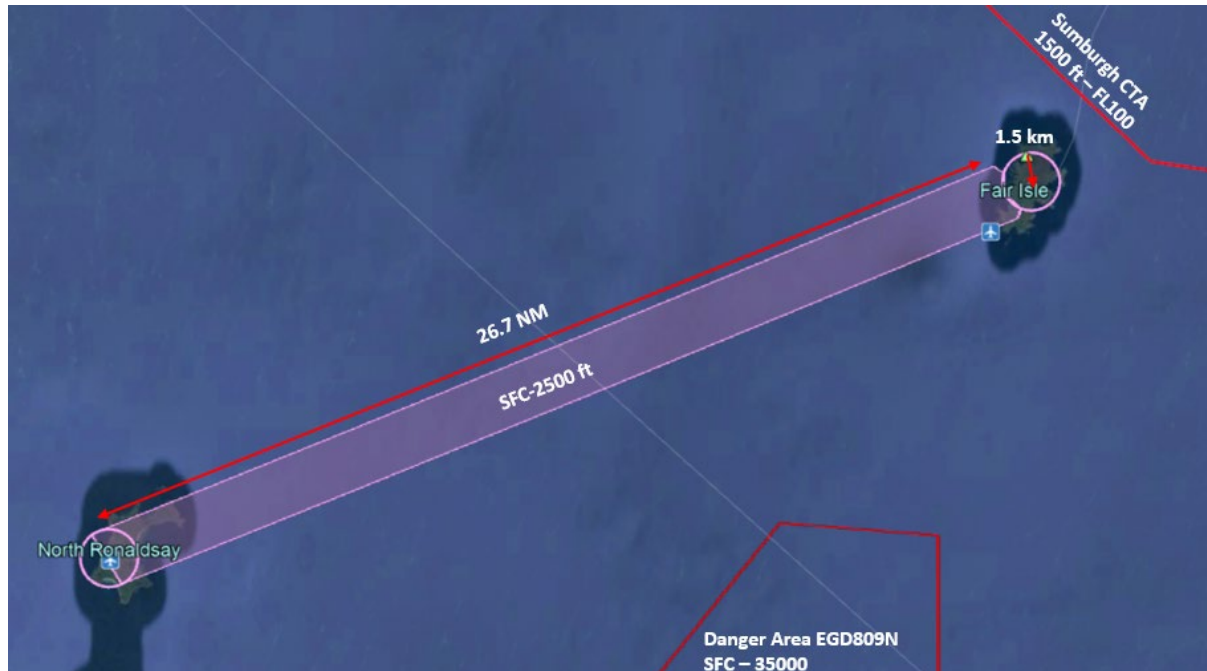


Figure 5 TDA Segment C, North Ronaldsay-Fair Isle, Proposed Design

Segment D: North Ronaldsay - Lerwick

The proposed TDA provides a corridor 1.54 NM wide connecting North Ronaldsay airport and the ATZ of Tingwall airport. The corridor is split into two legs in order to avoid Sumburgh's Controlled Traffic Region (CTR) where a minimum of 2.5 NM clearance is kept from this area. The two legs are 46.5 NM and 15 NM long respectively. The TDA will extend from surface to 2500 ft and the UAS will fly the route at 2000 ft.

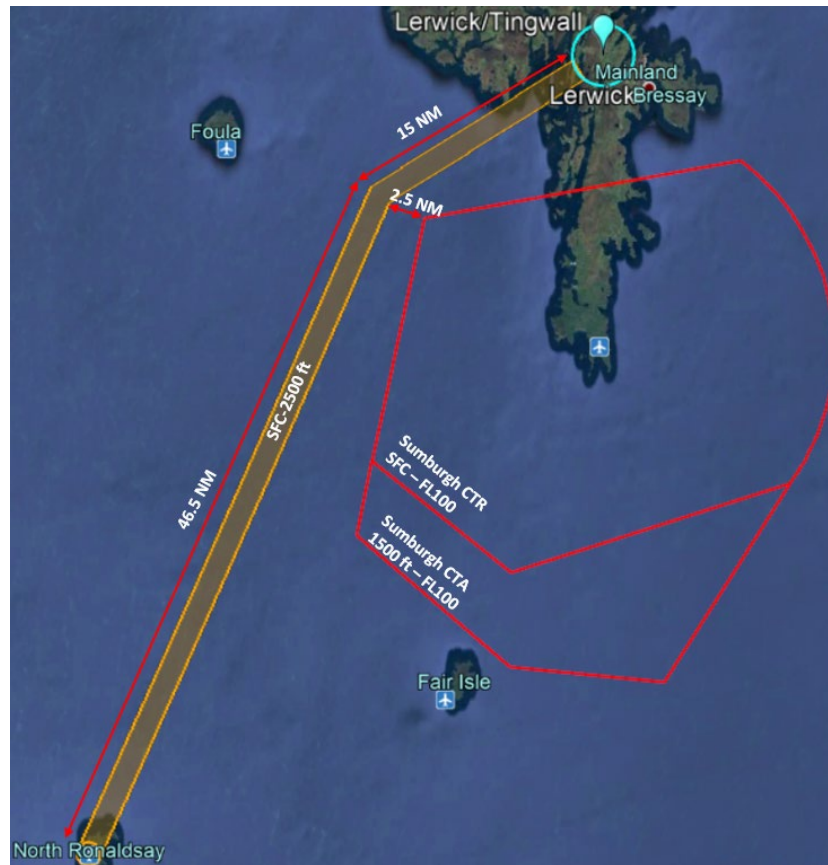


Figure 6 TDA Segment D, North Ronaldsay-Lerwick, Proposed Design

Segment E: Lerwick - Unst

In this initial proposal, the TDA connects the ATZ or Tingwall airport and Unst airport in a straight line with a corridor of 33.5 NM long and 1.54 NM wide. The TDA will extend from surface to 2500 ft and the UAS will fly the route at 2000 ft.

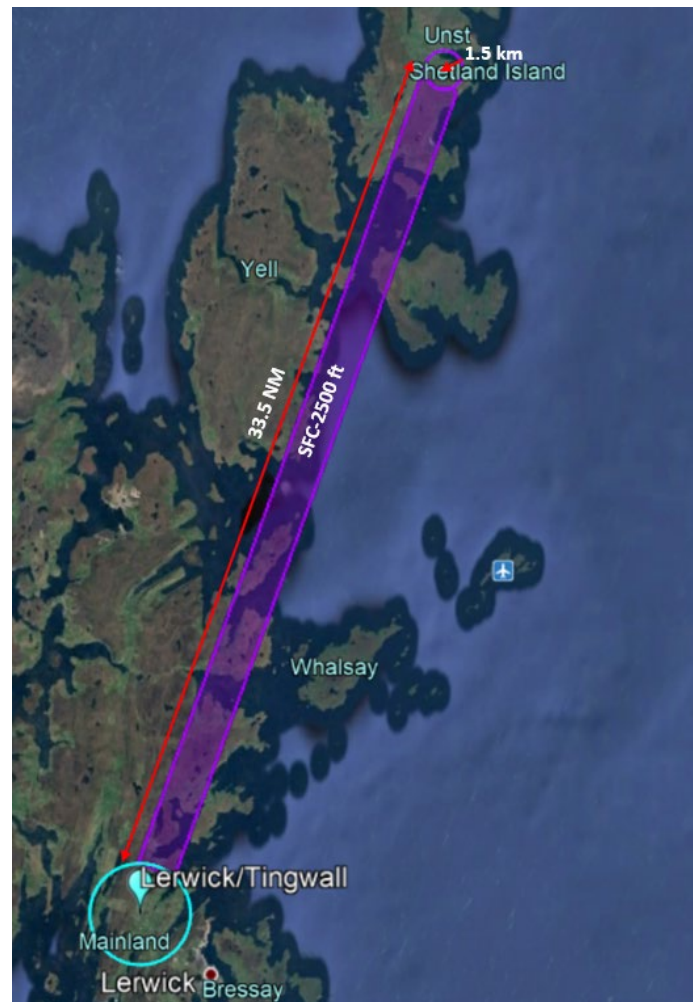


Figure 7 TDA Segment E, Lerwick-Unst, Proposed Design