



ACP-2021-025

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

Summary of Stakeholder Engagement

Introduction

The SATE (Sustainable Aviation Test Environment) project, to be based at Kirkwall Airport in the Orkney Islands, will see the creation of the UK's first operationally based low-carbon aviation test centre. SATE will test and showcase new technology that can be adopted for island and wider use, and ultimately provide social benefit and local economic prosperity.

As part of the SATE consortium, Windracers aims to showcase the use of ULTRA Uncrewed Aircraft System (UAS) across several routes between the Scottish mainland and the Orkney and Shetland Islands.

The aircraft is the result of the joint work of [Windracers Ltd](#) and the [University of Southampton](#) and has been designed to satisfy a multitude of operational requirements involving the transport of critical supplies to isolated areas. The ULTRA platform is a cargo UAS with an MTOW of 400 kg capable of carrying 100 kg payloads. The aircraft has a fault-tolerant architecture that features multiple redundancy of critical subsystems, proven fail-safe mechanisms and electronic conspicuity.

In May 2020 Windracers successfully deployed ULTRA UAS over the Solent and completed the first UK BVLOS aerial point-to-point operations between mainland England 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, ULTRA UAS also completed a successful mission to the Isles of Scilly, connecting Land's End and St Mary's.

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 daily scheduled return flights over a period of four weeks between Perranporth Airfield and St. Mary's Airport.

Building from the experience in delivering scheduled BVLOS point-to-point flights, with ACP-2021-025 Windracers aims to fill in the logistic gap that affects the communities of the Orkney and Shetland Islands using ULTRA UAS technology. The UAS can deliver supplies to remote communities that suffer from limited logistics and on-demand urgent pharmaceuticals and high-cost portable medical equipment to remote health centres.

Stakeholder Engagement

Identification of audience

Identification of the engagement audience was done by analysing which individuals or organisations are likely to be affected by this airspace change. The following populations were analysed:

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.

The intended TDA will enable UAS flights under 7000 ft AGL, 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.

List of Stakeholders

The list of stakeholders has been provided in APPENDIX A.

Engagement Approach

User-cases identification

Windracers carried out early engagement with parties in the Shetland and Orkneys islands to identify the user cases and define the routes for the SATE project. Main companies engaged at this stage were: NHS, Royal Mail, Oil and Gas industry. A summary of the engagement meetings with dates, attendees and topic is provided in APPENDIX B. A representative of Windracers was always present in the meetings.

Stakeholder pre-engagement

A period of stakeholder pre-engagement was carried out by Windracers to brief about the project key airspace users and airfield owners before the release of the Statement of Need on the Airspace Change Portal. Feedback on the routes and places to avoid was received during this period which allowed Windracers to present a more defined proposal. A summary of the pre-engagement is presented in APPENDIX C.

Formal stakeholder engagement

As part of the formal stakeholder engagement Windracers adopted the following strategy:

- On 27th May 2021 an initial engagement letter requesting feedback was sent to all identified stakeholders via email (APPENDIX D). This letter was sent along with a PDF form (APPENDIX E) to provide feedback.
- After each feedback form received Windracers would setup a meeting with the stakeholder engaged to talk about the project and discuss risk mitigations and coordination of operations.

- A second engagement letter with the updates to the TDA design and operations was sent out to the stakeholders on 6th July 2021 via email requesting feedback. (APPENDIX F)
- A third letter of engagement with timeline updates following the Initial Assessment Meeting was sent to the stakeholder on 12th July 2021. Feedback via email was requested. (APPENDIX F)
- A Concept of operations document was created with details of the operations for all the airfields, air traffic services and major operators involved to sign. (APPENDIX F)
- A fourth engagement letter was sent to the stakeholders on the 27th September 2021 to inform them of the CAA decision to approve the ACP and share the TDA activation schedule and Air Traffic Services provided. (APPENDIX F)

The formal period for the Stakeholders to send feedback was of nine weeks and three day (total 46 working days).

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.

Project phases

The scope of the SATE project has been divided in two phases. The first phase will take place during September-October 2021 and the second phase during March-April 2022.

This scheduled was informed to all stakeholders on the 12th July 2021 and had no objecting feedback.

The initial phase is to be published on the AIC of 23rd September 2021.

The current Concept of Operations (Appendix F) covers phase 1 of the project.

Phase 2 of the project cannot yet be defined in detail due to the following reasons:

- Current plans to transfer the provision of Sumburgh Radar service from NATS (Aberdeen) to HIAL (Inverness) at the end of 2021.
- AIC publishing schedule for 2022 is yet to be published.

Therefore, an additional endeavour of engagement will be carried out after completion of Phase 1, with the following activities:

- All participating stakeholders will be informed of Phase 2 scheduled, and
- Key local stakeholders will be engaged as necessary to agree on the Concept of Operations for Phase 2.

Evidence of these activities will be referred to the CAA and published in the ACP portal.

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
G.1	HIAL - Wick Airport	<p>04/02/21 Initial meeting to discuss the possibility of using the airfield for UAV operations.</p> <p>08/02/21 Follow-up meeting on routes decisions and timeline estimate.</p> <p>12/03/21 Initial engagement meeting with SATCO explaining normal operations procedures and qualifications. Received feedback on known activity based at the airports, common routes, services that can be provided, radar coverage. Received suggestions on operations height and indications on the least busy parts of the airports.</p> <p>24/06/21 Meeting with Wick ATC discussing in more detail the concept of operation and coordination with Kirkwall ATC.</p> <p>06/07/21 Meeting to gather information on radar coverage, ground setup and procedures at the airfield and en route.</p> <p>19/07/21 Meeting to define the concept of operations procedures and facilities at the airport.</p>	No action required to address the stakeholder's feedback.

G.2	HIAL - Kirkwall Airport	<p>04/02/21 Initial meeting to discuss the possibility of using the airfield for UAV operations.</p> <p>01/03/21 Preliminary engagement meeting and SATE socialisation.</p> <p>12/03/21 Initial engagement meeting with SATCO explaining normal operations procedures and qualifications.</p> <ol style="list-style-type: none"> 1. Received feedback on known activity based at the airports (Loganair, local GA, Helicopters). 2. Basic service can be provided to the UAS crew. 3. Contact Sumburgh radar for more information on radar coverage. 4. Local helicopters operate at Helicopters 2000-3000ft while commercial flights at FL60. Suggested to operate at 1000ft. <p>19/06/21 Received completed stakeholder feedback form.</p> <ol style="list-style-type: none"> 5. Additional questions asked with the feedback. <p>24/06/21 Meeting with Kirkwall ATC discussing in more detail the concept of operation and the provision of traffic information service (DAAIS) by Kirkwall ATC.</p> <ol style="list-style-type: none"> 6. Position reports should be in relation to the KWL DVOR and associated DME. 7. The UAS crew will be in contact with Kirkwall ATC via VHF radio. <p>12/07/21 Meeting to review the concept of operations.</p> <ol style="list-style-type: none"> 8. Positive response to the failsafe mechanisms. <p>19/07/21 Meeting to review the concept of operations.</p>	<ol style="list-style-type: none"> 1. The operators mentioned have been contacted as part of the Stakeholder Engagement process for this ACP. 2. No action required. 3. Sumburgh radar has been contacted during the Stakeholder Engagement process. 4. The vertical limits of segments A and B have been reduced to 1500ft with the UAS operating at 1000ft. 5. The questions have been addressed via email. Additional information and the full list of questions and answers can be found in appendix G.2 6. No action required. 7. No action required. 8. Details on the failsafe mechanisms can be found in the Concept of Operations document.
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G.3	<p>HIAL - Sumburgh Airport</p>	<p>05/03/21 Meeting to receive feedback on the main operators in the area.</p> <ol style="list-style-type: none"> 1. Main operators are Oil and Gas operators: CHC, Bristow and NHV. <p>10/03/21 Preliminary engagement meeting and SATE socialisation.</p> <p>22/06/21 Meeting to discuss concept of operations for the flight to the Shetland islands.</p> <ol style="list-style-type: none"> 2. Positive response to the operations. 	<ol style="list-style-type: none"> 1. The operators mentioned have been contacted as part of the Stakeholder Engagement process for this ACP. 2. No action required.
G.4	<p>Orkney Island Council - Eday and North Ronaldsay Airports</p>	<p>19/02/21 Orkney Council engagement meeting about the use of Council's Airports.</p> <p>21/07/21 Meeting to discuss procedures at the airports, Concept of Operations and facilities at the airports. Positive response to the operations.</p>	<p>No action required to address the stakeholder's feedback.</p>
G.5	<p>Shetland Island Council - Tingwall and Unst Airports</p>	<p>10/03/21 Initial meeting to discuss the possibility of using Tingwall airfield for UAV operations and SATE project briefing.</p> <p>23/03/21 Meeting to discuss operations and the use of Unst airfields.</p> <p>30/03/21 Meeting to gather information on Unst Airfield, activity schedules for the summer and companies operating at the airfield.</p> <ol style="list-style-type: none"> 1. When activities take place, the airport will be manned for deconfliction. <p>22/06/21 Meeting at Tingwall airport for site assessment and briefing of operations.</p> <ol style="list-style-type: none"> 2. Feedback on VHF range, radar coverage, airport procedures and airport facilities. 	<ol style="list-style-type: none"> 1. An agreement with deconfliction procedures will be created for the operations of Phase 2. 2. A concept of operations document with procedures at Tingwall airport will be created for Phase 2.
G.6	<p>National Trust for</p>	<p>01/06/21 Feedback form response.</p>	<ol style="list-style-type: none"> 1. The weather limits of the aircraft will be

	Scotland - Fair Isle Airport	<ol style="list-style-type: none"> 1. Warning about strong winds. 2. Positive response on TDA design to minimise impact on operations. 3. Provided information on local operators: Islanders and Coastguard Helicopters operate VFR at 1000ft or below; transiting helicopters routing to the West of Shetlands operate IFR at 3000ft; GA flights are PPR. 4. Suggested times of the day and weekend to operate to avoid conflicting with commercial operations. <p>02/06/2021 Meeting to brief about the project and operations.</p> <ol style="list-style-type: none"> 5. Received feedback on the airport facilities and procedures, local operators (Airtask) and connectivity of the island. <p>20/07/21 Follow up meeting to discuss the concept of operation at the airfield.</p> <ol style="list-style-type: none"> 6. Positive response on the operations. 	<p>assessed in accordance with the Windracers Operating Safety Case by the ULTRA UAS crews at both ends using information from METARs, TAFs, VOLMETs and available online weather information.</p> <ol style="list-style-type: none"> 2. No action required. 3. Windracers have contacted the local operators mentioned as part of the Stakeholder Engagement for the ACP. 4. Time separation from commercial flights, TDA activation times limited to the flight window and a small buffer, continuous communication and coordination to allow for schedule changes and the provision of air traffic services should minimise disruptions to other traffic during weekdays. 5. Aircraft will be commanded to give way to crewed aircraft. Airtask has been contacted as part of the Stakeholder Engagement process. 6. No action required.
G.7	NATS - Sumburgh radar	<p>25/06/21 Feedback form received.</p> <ol style="list-style-type: none"> 1. Request TDA D altitude change. 2. Request TDA C upper limit to be 1500ft. 3. Suggested to operate only on weekends to avoid disruption to commercial flights. 4. Strongly encourage engagement with Bristow, 	<ol style="list-style-type: none"> 1. Windracers requested to the CAA to change TDA D vertical limits to 1500ft-2500ft. 2. The vertical limit of segment C was not changed. However, a DACS is provided for this segment to allow crossing of other traffic.

		<p>Babcock, CHC, NHV, Bristow SAR and Airtask, Maritime patrols and HIAL Sumburgh.</p> <p>01/07/21 Meeting to brief about the project and operations.</p> <p>5. Request air traffic service to cover TDA-C, -D, -E and explained the change of management of Sumburgh Radar.</p> <p>6. Feedback on VHF communication range and testing required and radar coverage.</p> <p>15/07/21 Follow up meeting to discuss concept of operations, service provided and procedures.</p> <p>7. Can provide a DACS, communicate via phone, send concept of operations.</p>	<p>3. Time separation from commercial flights, TDA activation times limited to the flight window and a small buffer and the provision of air traffic services should minimise disruptions to other traffic during weekdays.</p> <p>4. All the stakeholders mentioned have been contacted during the ACP.</p> <p>5. A Danger Area Crossing Service is provided by Sumburgh Radar for segment C. Air Traffic Services for segments D and E will be sought from Sumburgh Radar (HIAL) for Phase 2.</p> <p>6. Windracers will need to test the VHF communications with Sumburgh Radar before commencing operations. The radar coverage for the area of operations is good down to 200ft.</p> <p>7. Sumburgh radar can provide a crossing service to segment C. Communication on position reports of the UAS can be done over the phone. More information is provided in the Concept of Operations document signed by Sumburgh Radar.</p>
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G.8	Airtask	<p>22/06/21 Meeting at Tingwall airport for site assessment and briefing of operations. Feedback on VHF range, radar coverage, airport procedures and airport facilities.</p> <p>25/06/21 Meeting to talk about the project and discuss risk mitigations and coordination of operations.</p> <ol style="list-style-type: none"> 1. Requested service to cross and enter the TDA 2. Request to involve additional operations based at Cranfield, Inverness and Shetland which can be affected by the UAS operations. 3. Suggested to NOTAM the VLOS range around fair isle rather than TDA. <p>13/07/21 Received feedback form.</p> <ol style="list-style-type: none"> 4. Request TDA-D altitude to be changed to be between 1500ft and 2500ft. 5. Suggested to loiter to the North West of the VLOS range in Fair Isle. 6. Requested to not operate when the aircraft is on ground at Fair Isle. <p>03/08/21 Concept of Operations review.</p> <ol style="list-style-type: none"> 7. Requested the UAS to give way to commercial operations. 	<ol style="list-style-type: none"> 1. Sumburgh radar will be used to provide a DACS for TDA C. 2. Operations based at Cranfield, Inverness and Shetland have been contacted on 16/07/21 and no response received. 3. An area of 1.5 km radius around Fair Isle Airfield corresponding to the Visual Line of Sight (VLOS) of the Safety Pilot will not be covered by the TDA. 4. Windracers requested to the CAA to change TDA D vertical limits to 1500ft-1500ft. 5. A loiter 4 NM from Fair Isle aerodrome has been included in the operations as a hold position to give way to operations at Fair Isle. 6. The schedule has been adapted to avoid operation when Airtask is at Fair Isle. 7. The UAS will be commanded to hold to give way to departing Airtask flights also accounting for their emergency procedures.
G.9	Loganair	<p>01/03/21 Preliminary engagement meeting and SATE socialisation.</p> <ol style="list-style-type: none"> 1. Request to accommodate flights around Loganair schedule 2. Request a Letter of Agreement to allow for changes in the schedule <p>09/06/21 Meeting to discuss the operations.</p>	<ol style="list-style-type: none"> 1. The UAS will provide time separation from the Loganair VFR interisland schedule and vertical separation from the Loganair IFR flights. Details are shown in the Concept of Operation document signed by Loganair. 2. A Concept of Operations document has been signed by all

		<p>3. Interisland service is flexible and can accommodate the flights</p> <p>4. No ADSB out from Loganair. A procedural service with ATC with position reports is required</p> <p>5. Loganair main line flies above inter island service</p> <p>24/06/21 Meeting with Loganair and Kirkwall ATC to discuss concept of operations and procedures.</p> <p>6. Request to add a dogleg to avoid Sanday.</p> <p>7. Request to change TDA to be away from the approaches to R27 and from the trajectory in case of engine failure on take-off.</p> <p>04/08/21</p> <p>8. Request to be contacted before commencement of trials or if flights are not occurring</p>	<p>ATSUs and main operators.</p> <p>3. No Action required.</p> <p>4. A DAAIS is provided by Kirkwall ATC for segments A and B with coordination procedures and position reports with input from the ATUS to provide deconfliction with other traffic.</p> <p>5. Vertical separation can be provided with the Loganair main line.</p> <p>6. The TDA geometry has been changed to be clear of Sanday by 2 NM. More information on the TDA design is found in the Concept of Operation document available on the ACP portal.</p> <p>7. The geometry of TDA-A has been changed to be further south to be clear of the instrument approaches and the trajectory of the emergency procedures without affecting Lamb Holm airfield.</p> <p>8. If WR's schedule changes, so that the TDA activation needs to change, all the key stakeholders will be informed.</p>
G.10	Gama aviation	<p>10/06/21 Feedback form received.</p> <p>1. Request Air Traffic Services.</p> <p>2. Informed on operating altitudes: above 2500ft for IFR flights and 2000ft for VFR flights</p>	<p>1. TDA A and B have a DAAIS provided by Kirkwall ATC and TDA C have a DACS provided by Sumburgh Radar.</p> <p>2. TDA A and B have been lowered to 1500ft and TDA C is</p>

		<p>Contacted to set up a meeting but no response.</p> <p>06/07/21 Acknowledged received second engagement letter.</p>	<p>provided with a crossing service.</p>
G.11	Wiking Helicopter	<p>02/06/21 Feedback form received.</p> <ol style="list-style-type: none"> 1. Request protection for the UAS and other traffic for departures and arrivals at Wick. 2. Request to lower TDA A. 3. No issues to accommodate the training flights around the TDA schedule. <p>04/06/21 Phone call to discuss operations and deconfliction.</p> <ol style="list-style-type: none"> 4. Request deconfliction in Wick. 	<ol style="list-style-type: none"> 1. The UAS crew will be communicating via VHF radio with Wick ATC and will follow their instructions to deconflict with other aircraft. 2. TDA A has been lowered to 1500ft. 3. No action required. 4. The UAV will be commanded to loiter outside the ATZ, within the TDA to give priority to helicopter. Once the helicopter is landed the UAS will be commanded into the ATZ to land. Circuits and radiotelephony procedures like crewed aircraft will be followed.
-	Babcock	<p>05/03/21 Meeting to introduce the project.</p> <p>Sent engagement letters and no response.</p>	-
-	CHC	<p>Sent engagement letters and no response.</p>	-
G.12	Bristow UK SAR	<p>07/06/21 Feedback form received.</p> <ol style="list-style-type: none"> 1. No issues to work around the geometry and schedule for TDA C for routine training operations. 2. Requesting Air Traffic Services for TDA C and to hold in case of emergency TDA crossing. <p>11/06/21 Meeting</p> <ol style="list-style-type: none"> 3. Helicopters operate 1000ft-500ft 4. Bristow is in contact with Sumburgh Radar during operations. 	<ol style="list-style-type: none"> 1. No action required. 2. TDA C is provided with Danger Area Crossing Service (DACS) from Sumburgh Radar and the UAS will be commanded to give way to all crewed aircraft operations. 3. Windracers requested to the CAA to change TDA D vertical limits to 1500ft-2500ft. 4. Windracers will be in contact with Sumburgh radar during operations

			which will provide DACS to TDA C.
-	Bristow Oil and Gas	Sent engagement letters and no response.	-
G.13	NHV Helicopters Ltd	<p>01/06/21 Feedback form received.</p> <ol style="list-style-type: none"> 1. Request Air Traffic Services for TDA A. 2. Requesting to be informed on scheduled times of operation. 3. Operating altitude of NHV helicopters is 2000ft or above. <p>07/06/21 Meeting to discuss the operations and deconfliction.</p> <ol style="list-style-type: none"> 4. Concerns on priorities of flights. 5. Feedback on electronic conspicuity fitted on their aircraft. 	<ol style="list-style-type: none"> 1. A DAAIS is in place for TDA A with coordination procedures with input from the ATUS to provide deconfliction. The UAS will be commanded to give way to all crewed operations. 2. Flight schedules will be published as soon as they are approved on the ACP portal. 3. The vertical limit of TDA-A has been lowered to 1500ft. 4. The UAS will be commanded to give way to NHV operations 5. No action required.
G.14	Shetland Space Centre	<p>09/04/21 Meeting to introduce the project</p> <p>01/06/21 Feedback form received. No impact on their operations.</p>	No action required to address the stakeholder's feedback.
G.15	NLB (Northern Lighthouse Board)	<p>17/06/21 Feedback Form received.</p> <ol style="list-style-type: none"> 1. Operations planned in Wick between 4th and 10th October 2. Asked to deal directly with PDG Aviation services. <p>25/06/21 Meeting to discuss operations and deconfliction.</p> <ol style="list-style-type: none"> 3. Feedback on electronic conspicuity fitted on the helicopters. 4. Emergency flights operations require hours rather than minutes to plan. 	<ol style="list-style-type: none"> 1. Windracers is not planning to operate in Wick during that period of time. 2. Windracers has been in contact with PDG aviation services (Appendix G.16) 3. No action required. 4. The time required to plan the operations allows to contact Windracers or the ATSU to inform about the flight and change the UAS schedule or cancel the UAS flight to give way to the crewed aircraft operations.

G.16	PDG Aviation Services	<p>14/06/21 Feedback form received.</p> <ol style="list-style-type: none"> 1. Request an altitude change to TDA A to allow transit. 2. Request Air Traffic Service for TDA A to allow transit. <p>15/06/21 Meeting to discuss operations and deconfliction.</p> <ol style="list-style-type: none"> 3. Feedback on areas of operation and electronic conspicuity of their helicopters. 4. Request for a contact number of the UAS crew. <p>13/07/21 Received email with queries about ACP.</p> <ol style="list-style-type: none"> 5. Request for a DACS for segment A and to not activate the TDA if the cloud base is lower than 2000ft throughout the segment to ensure crossing of the area for their operations. 6. Asked to cancel to NOTAM at the end of each flight <p>08/09/21 Received email acknowledging the mitigations implemented and stating there is nothing further to discuss.</p>	<ol style="list-style-type: none"> 1. The TDA vertical limit was lowered from 2500ft to 1500ft. 2. A DAAIS is provided by Kirkwall ATC for segments A and B with coordination procedures with input from the ATUS to provide deconfliction with other traffic. 3. No action required. 4. A contact number will be provided with the NOTAM for TDA activation and in the Concept of Operations which will be published in the airspace change portal. 5. A DAAIS is in place with coordination procedures with input from the ATUS to provide deconfliction. Suggested to contact the ATSU if an emergency operation is required to take place and the UAS team will change the schedule or cancel the flight to give way to crewed aircraft operations. 6. The TDA is activated only for the flight window and a short buffer. The CAA will be informed to cancel the NOTAM when it is known that a flight will not take place.
-	Lamb Holm Airfield Orkney and GA Orkney	<p>18/03/2021 Meeting to introduce the project</p> <ol style="list-style-type: none"> 1. Request that the TDA does not go over the airfield. <p>23/06/21 Meeting at Lamb Holm Airfield to discuss operations and deconfliction.</p> <ol style="list-style-type: none"> 2. Positive feedback received on the operations and request to 	<ol style="list-style-type: none"> 1. TDA segment A has been routed around the Airfield. 2. The flight schedule will be made available once it is approved.

		be kept informed on the flights schedule.	
-	GA Tingwall	Sent engagement letters and no response.	-
-	Shetland UAV operators	Sent engagement letters and no response.	-
-	Moray Flying Club	Sent engagement letters and no response.	-
G.17	GAA (General Aviation Alliance)	<p>14/07/21 Response to the second engagement letter.</p> <ol style="list-style-type: none"> 1. Request a Danger Area Crossing Service (DACS) 2. Asked who key stakeholders are 3. Asked to have the TDA active for the least amount of time possible with a safety buffer 4. Asked to cancel to NOTAM if the flight is not taking place 5. Asked when and where the schedule of flights will be published 6. Asked for a signed agreement for to allow active TDA crossing 	<ol style="list-style-type: none"> 1. A DACS is provided for segment C by Sumburgh radar and a DAAIS is provided by Kirkwall ATC for segments A and B. Coordination procedures have been put in place with input from the ATUS to provide deconfliction with other traffic. Different steps have been followed to reduce the impact on other airspace users such as reduction of TDA altitude and segments A and B won't be active simultaneously. Information on Traffic services was informed to stakeholders in the second engagement letter and is written in more detail in the Concept of Operations which will be published in the airspace change portal. 2. Key stakeholders are frequent operators in the area. 3. The TDA will be activated for the least amount of time required. This includes the time to

			<p>complete the flights plus a short safety buffer. The schedule with the flight times also shows the TDA activation times.</p> <p>4. The CAA will be informed to cancel the NOTAM when it is known that a flight will not take place.</p> <p>5. Flight schedules will be published as soon as they are approved on the ACP portal.</p> <p>6. A Concept of Operations document with procedures on separation and deconfliction has been signed by all participating ATSUs.</p>
-	Light Aircraft Association (LAA)	Sent engagement letters and no response.	-
-	Airspace4All	Sent engagement letters and no response.	-
-	Aircraft Owners and Pilots Association (AOPA)	Sent engagement letters and no response.	-
-	British Business and General Aviation Association (BBGA)	Sent engagement letters and no response.	-
G.18	British Helicopter Association (BHA)	<p>04/06/21 Feedback form received.</p> <p>1. Queries on what visual and electronic conspicuity the UAS is equipped with, payload carried during operations and emergency procedures in place.</p> <p>2. Request for a contact number or frequency for emergency service helicopters can access the TDA if needed.</p> <p>13/07/21 Email received</p> <p>3. Positive response to lowering the TDA vertical limits.</p>	<p>1. Queries were answered in an email on 07/06/21: ULTRA UAS is equipped with ADS-B IN/OUT and Mode S Transponder. External lighting modules are fitted in the aircraft. Operations are restricted to daylight hours and no dangerous goods will be carried. Windracers Ltd has an</p>

			<p>Emergency Response Plan in place in case of fly-away, crash or incident.</p> <p>2. A contact number will be provided with the NOTAM for TDA activation and in the Concept of Operations which will be published in the airspace change portal. Windracers will be in contact with Kirkwall ATC TDA-A,B and with Sumburgh radar for TDA-C which will coordinate procedures to give way to emergency service helicopters. Windracers also directly engaged with Bristow helicopters on 11/06/21 (the emergency service helicopters).</p> <p>3. No action required.</p>
G.19	British Gliding Association (BGA)	08/06/21 Email received 1. The proposed TDA does not impact on gliding operations.	1. No action required.
-	British Hang Gliding and Paragliding Association (BHPA)	Sent engagement letters and no response.	-
-	British Microlight Aircraft Association (BMAA)	Sent engagement letters and no response.	-
-	Helicopter Club of Great Britain (HCGB)	Sent engagement letters and no response.	-
-	CAA UAS Sector	Sent engagement letters and no response.	-
G.20	Association of Remotely Piloted Aircraft	Sent engagement letters. 15/07/21 Received email with support to the project.	No action required to address the stakeholder's feedback.

	Systems UK (ARPAS-UK)		
G.21	Ministry of Defence - Defence Airspace and Air Traffic Management (MoD DAATM)	<p>23/06/2021 Feedback form received.</p> <ol style="list-style-type: none"> 1. Content with TDA dimensions. 2. Request a Danger Area Crossing Service (DACS) and information about it. 3. Request for a contact which Windracers will provide with the NOTAM for TDA activation. <p>06/07/21 Email response to the second engagement letter</p> <ol style="list-style-type: none"> 4. No further feedback provided. 	<ol style="list-style-type: none"> 1. No action required. 2. A DACS is provided for segment C by Sumburgh radar and a DAAIS is provided for segment A and B. Information on Traffic services was informed to stakeholders in the second engagement letter and will be written more in detail in the Concept of Operations which will be published in the airspace change portal. 3. A contact number will be provided with the NOTAM for TDA activation and in the Concept of Operations which will be published in the airspace change portal. 4. No action required.
-	RAF Lossiemouth	Sent engagement letters and no response.	-
-	Specialist Aviation	Sent engagement letters and no response.	-
-	National Police Air Service	Sent engagement letters and no response.	-
-	British International Helicopters	Sent engagement letters and no response.	-
G.22	UKARCC (UK Aeronautical Rescue Coordination Centre)	<p>18/06/21 Feedback form received.</p> <ol style="list-style-type: none"> 1. Content with lateral route 2. Ask to engage with Bristow's Helicopters to discuss their concerns about TDA vertical heights blocking their operations. 3. Request for a contact number of the UAS crew. 	<ol style="list-style-type: none"> 1. No action required. 2. Bristow was engaged on 11/06/21 and a solution to give way to their operations was discussed: Windracers will be in contact with Sumburgh radar and the UAS will be commanded to hold to give way to Bristow operations.

			3. A contact number will be provided with the NOTAM for TDA activation and in the Concept of Operations which will be published in the airspace change portal.
-	2Excel	14/07/21 Sent engagement letters and no response.	-
G.23	Scottish Natural Heritage	06/07/21 Received email with information on protected areas. 19/07/21 Received email that the operations of Phase 1 will have no impact on Fair Isle Special Protection area (SPA)	No action required to address the stakeholder's feedback.

APPENDIX A - List of Stakeholders

Group 1:

- HIAL - Wick Airport
- HIAL - Kirkwall Airport
- HIAL - Sumburgh Airport
- Orkney Island Council - Eday and North Ronaldsay Airports
- Shetland Island Council - Lerwick and Unst Airports
- National Trust for Scotland - Fair Isle Airport
- NATS Aberdeen - Sumburgh Radar

Group 2:

- Airtask Group
- Loganair
- Gama aviation
- Wiking Helicopter
- Babcock
- CHC
- Bristow SAR
- Bristow Oil and Gas
- NHV Helicopters Ltd
- Shetland Space Centre
- NLB (Northern Lighthouse Board)
- PDG Aviation Services

Group 3:

- Lamb Holm Airfield Orkney
- GA Orkney
- GA Tingwall
- Shetland UAV operators
- Moray Flying Club

Group 4:

- GAA (General Aviation Alliance)
- Light Aircraft Association (LAA)
- Airspace4All
- Aircraft Owners and Pilots Association (AOPA)
- British Business and General Aviation Association (BBGA)
- British Helicopter Association (BHA)
- British Gliding Association (BGA)
- British Hang Gliding and Paragliding Association (BHPA)
- British Microlight Aircraft Association (BMAA)
- Helicopter Club of Great Britain (HCGB)
- NATS
- CAA UAS Sector
- Association of Remotely Piloted Aircraft Systems UK (ARPAS-UK)
- Ministry of Defence - Defence Airspace and Air Traffic Management (MoD DAATM)
- RAF Lossiemouth
- Specialist Aviation

- National Police Air Service
- British International Helicopters
- UKARCC (UK Aeronautical Rescue Coordination Centre)
- 2Excel

Group 5:

- Scottish Natural Heritage

APPENDIX B - Use Cases Meetings Summary

Date	Attendees	Topic
18/01/2021	[REDACTED]	Shetland NHS use case
22/01/2021	[REDACTED]	NHS West Islands use case
29/01/2021	[REDACTED]	NHS Outer Hebrides use case
17/02/2021	[REDACTED]	Orkney (Hoy) Use case
04/03/2021	[REDACTED]	Use cases for Oil and Gas industry on Flotta
15/03/2021	[REDACTED]	Use-cases for the food and drink industry in Orkney.
30/03/2021	[REDACTED]	NHS ORKNEY - Eday
04/05/2021	[REDACTED]	HIE – Highlands and Islands Enterprise
17/06/2021	[REDACTED]	Royal Mail Orkney and Shetland routes
30/07/2021	[REDACTED]	Defining Royal Mail payload to North Ronaldsay and Fair Isle

APPENDIX C - Stakeholder Pre-Engagement Meetings Summary

Date	Attendees	Topic	Conclusions / Tasks assigned
04/02/2021	[REDACTED]	Possible airfields and contacts	<ul style="list-style-type: none"> Kirkwall/Wick-Stornoway coupled with Flare Bright Possible airfields: Kirkwall, Wick, Papa Westray, North Ronaldsay, Fair Isle, Lerwick/Tingwall, Flotta, Stornoway, Barra
08/02/2021	[REDACTED]	Routes decisions and timeline estimate	<ul style="list-style-type: none"> Bring Inverness in More engagement with NHS Orkney User cases: Royal Mail, NHS, Oil & Gas, Shellfish
19/02/2021	[REDACTED]	Orkney Council engagement and use of Council's Airports	<ul style="list-style-type: none"> Add use case: Eday Pre-engagement with local parties advised before starting CAA process (Statement of Need)
01/03/2021	[REDACTED]	Preliminary engagement and SATE socialisation	<ul style="list-style-type: none"> UAV flights can be accommodated around LoganAir schedule LoganAir to support project Letter of Agreement needed to allow changes in schedule (e.g. due to weather)
05/03/2021	[REDACTED]	Babcock Discussions	<ul style="list-style-type: none"> Potential meeting with Oil and Gas Operators at a Quarterly meeting. Emails sent to CHC, Bristow and NHV
10/03/2021	[REDACTED]	Project brief with Shetland Council	<ul style="list-style-type: none"> Meeting with key colleagues in Tingwall airport and Shetlands Council will be organised Use cases on Shetland Islands for small communities difficult to reach

12/03/2021	[REDACTED]	SATCO engagement at Kirkwall & Wick	<ul style="list-style-type: none"> • SATCOs answered questions on known activity based at the airports, common routes, services that can be provided, radar coverage • Suggested ideal operations height and indicated the least busy parts of the airports • Explained our operations procedures and qualifications to the SATCOs, to be summarised and sent to them
18/03/2021	[REDACTED]	Lamb Holm Airfield	<ul style="list-style-type: none"> • Agreed on routing around the Airfield • Engaged and supportive in principle • Further engagement when team is in Orkney • Keen to remain connected with the project
30/03/2021	[REDACTED]	Unst airport	<ul style="list-style-type: none"> • Information about Unst Airfield and activity schedules for the summer. • When activities take place, the airport will be manned for deconfliction • [REDACTED] will contact the companies operating at the airfield and organise a subsequent meeting for engagement
09/04/2021	[REDACTED]	Flights into Unst – Shetland Space Centre	<ul style="list-style-type: none"> • Happy to work together to coordinate activities and discuss facilities required for the trial flights into Unst, such as accommodation and hangarage. • Interest in working on a long-term collaboration to ship packaging to Unst for the Shetland Space Centre and their clients. • Will schedule a meeting in a few weeks for further discussions • Shetland UAV operator - [REDACTED]

APPENDIX D - Initial Letter of Engagement and Email

Temporary Airspace Change ACP-2021-025 - Request for Feedback

Operations <operations@windracers.org>

Thu 27/05/2021 14:20



2 attachments (1 MB)

ACP-2021-025 Feedback Form.pdf; ACP-2021-025 Engagement Letter.pdf

Dear Airspace Stakeholder,

I am writing today to kindly request your feedback to the Temporary Airspace Change Proposal ACP-2021-025.

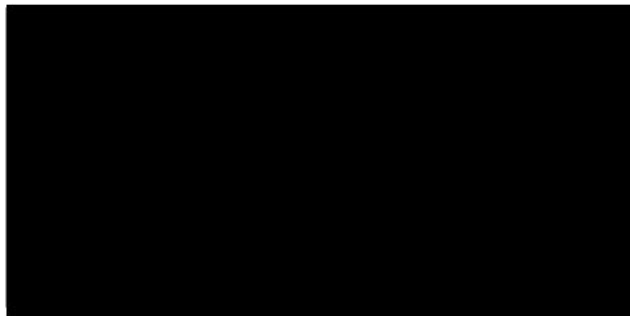
This ACP aims to establish a complex of Temporary Danger Areas (TDA) during notified periods to enable pilot operations of Unmanned Aircraft Systems (UAS) between several locations of mainland Scotland, the Orkney and the Shetland Islands.

The letter attached contains details of the project, proposed operations and initial design for this airspace change.

Please use the form attached to provide your feedback.

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

Kind regards,



Operations

Thu 17/06/2021 16:56



2 attachments (1 MB) Download all Save all to OneDrive - Rallye LLP

Dear Airspace Stakeholder,

I am writing today 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 pilot operations of Unmanned Aircraft Systems (UAS) between several locations of mainland Scotland, the Orkney and the Shetland Islands.

The letter attached contains details of the project, proposed operations and initial design for this airspace change.

Please use the form attached to provide your feedback.

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

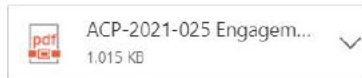
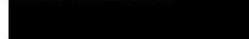
Kind regards,





Operations

Thu 17/06/2021 13:54



2 attachments (1 MB) Download all Save all to OneDrive - Rallye LLP

Good afternoon,

I was passed your contact by a person from NHV.

We would like to inform you about the Airspace Change Proposal ACP-2021-025.

This ACP aims to establish a complex of Temporary Danger Areas (TDA) during notified periods to enable pilot operations of Unmanned Aircraft Systems (UAS) between several locations of mainland Scotland, the Orkney and the Shetland Islands.

The letter attached contains details of the project, proposed operations and initial design for this airspace change.

We are willing to engage with Sumburgh ATSUs (most importantly Sumburgh Radar) to assess the feasibility of these operations and discuss potential provision of DAAIS service.

Please respond to this email or fill in the feedback form attached.

Kind regards,



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.

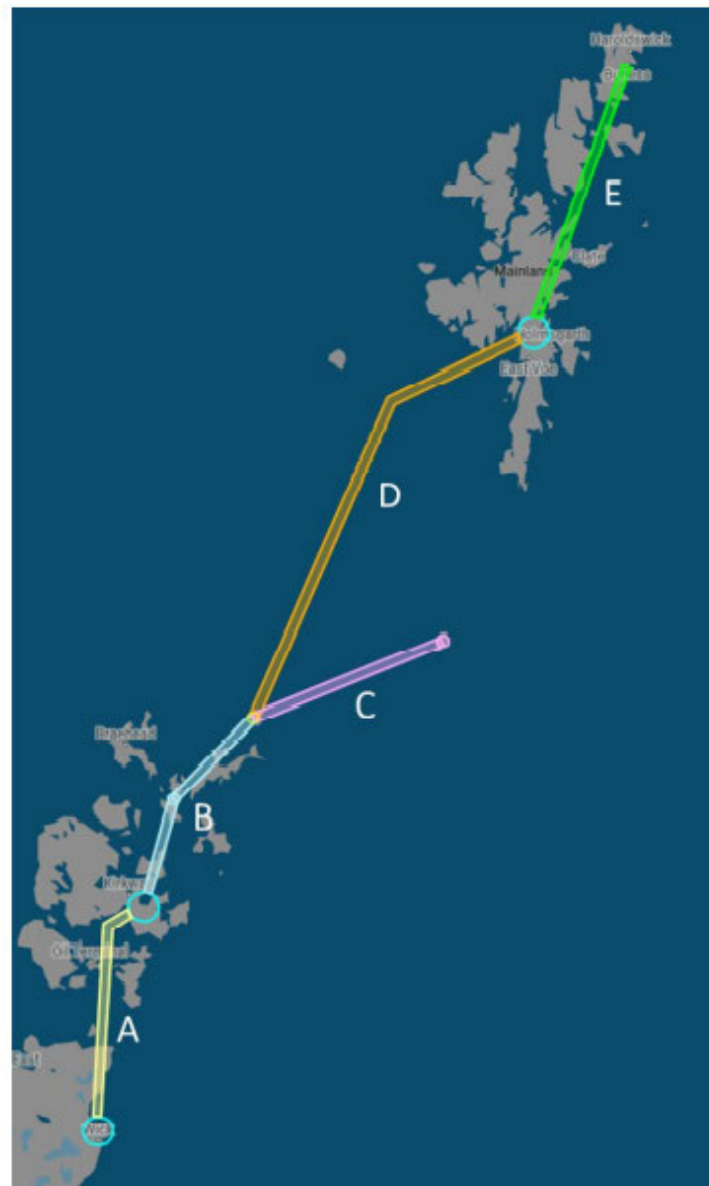


Figure 2 The proposed TDA is divided in 5 segments

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

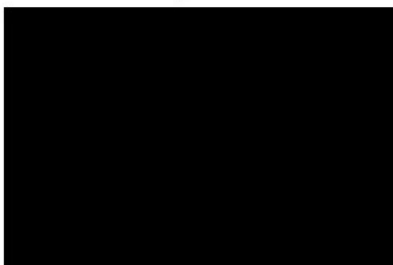
We have sent you a form in PDF format for you to provide feedback. You can fill in the form and email it to operations@windracers.org.

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,



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.

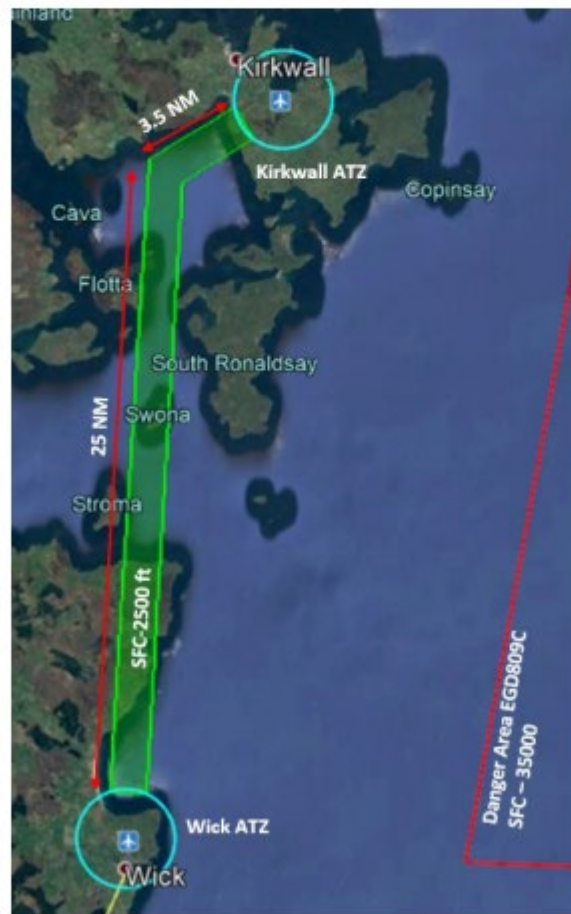


Figure 3 TDA Segment A, Wick-Kirkwall, Proposed Design

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.

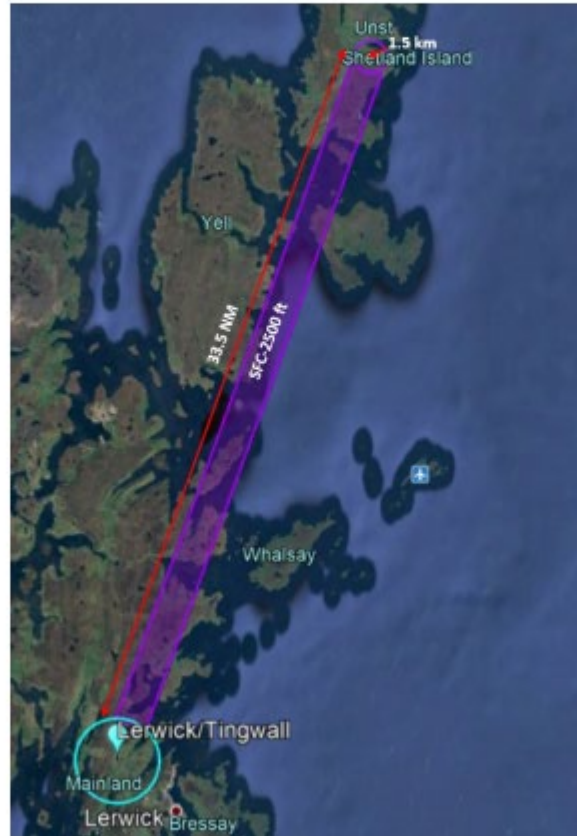


Figure 7 TDA Segment E, Lerwick-Unst, Proposed Design

APPENDIX E - Engagement Feedback Form

Windracers Ltd
Temporary Airspace Change ACP-2021-025

STAKEHOLDER FEEDBACK FORM



ACP-2021-025

**Group of TDAs connecting Orkney and Shetland Islands for SATE
(Sustainable Aviation Test Environment) UAS operations**

Feedback Form

Name	
Organisation	
Email address	
Telephone number	

SECTION 1. Safety and Viability

<p>1. Please provide feedback on how the lateral route of the TDA could be designed to minimise the impact on your operations. Please include sketches or examples and refer to individual segments of the TDA where necessary.</p>

<p>2. Please provide feedback on the range of altitudes of the TDA which would minimise the impact on your operations. Please refer to individual segments of the TDA where necessary</p>
<p>3. Please provide feedback on the possible range of operating hours of the TDA which would minimise the impact on your operations.</p>
<p>4. Please provide feedback on any particular safety issues regarding these operations that concern your organisation and how these should be addressed.</p>

5. What would be the best way to address any safety issue concerning your organisation? (Please check one of the following options)	
<input type="checkbox"/> Providing time separation from the operations of your organisation, e.g. early in the morning or late in the afternoon	<input type="checkbox"/> Providing vertical separation from the operations of your organisation (TDA vertical layout).
<input type="checkbox"/> Providing lateral separation from the operations of your organisation (geographical layout).	<input type="checkbox"/> Other
Please provide more information about the preferred method of separation:	
<div></div>	

SECTION 2. Level of engagement

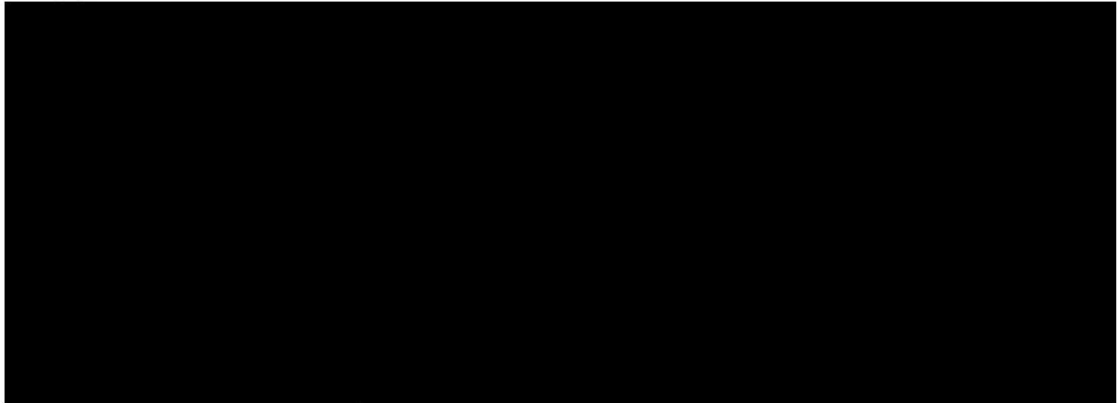
6. With regards to the level of engagement in the ACP process, your organisation: (Check all that apply)	
<input type="checkbox"/> does not require further engagement in this airspace change process.	<input type="checkbox"/> should be involved in the design of the airspace change.
<input type="checkbox"/> would require to be informed of any changes to the ACP process.	<input type="checkbox"/> should put together a deconfliction agreement with Windracers before start of the UAS operations.
Please justify:	
7. Please provide any further comments or questions. We will get in touch to answer your queries.	

APPENDIX F - Follow-up Communications

Temporary Airspace Change ACP-2021-025 - End of Stakeholder Engagement



Operations
Tue 06/07/2021 10:52



ACP-2021-025 Second E...
438 KB



Dear Airspace Stakeholder,

This email is a follow up to the Temporary Airspace Change Proposal ACP-2021-025 engagement letter sent on the 27th May 2021.

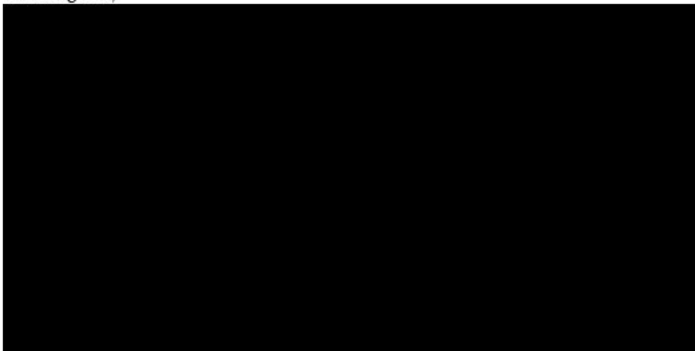
Following the feedback from a number of Stakeholders some changes have been made to the Temporary Danger Area arising from the ACP-2021-025.

Please find attached a letter containing all the updates to the Temporary Danger Area design and operations.

Feedback can be provided by replying to this email not later than 17:00 on Friday 16th July 2021.

We look forward to hearing from you.

Kind regards,



[Reply](#) | [Reply all](#) | [Forward](#)



ACP-2021-025

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

Targeted Engagement with Aviation Stakeholders

Dear Stakeholder,

Following our initial communication of the 27th May we have received valuable feedback regarding the design principles and geometry of the Temporary Danger Area scoped within ACP-2021-025. Some Stakeholders have also sent suggestions about how best to provide situational awareness for other airspace users.

All the feedback received so far has been highly useful and is greatly appreciated. The outcomes of this engagement process are described within the sections below.

Design criteria

Based on the multiple responses received, the following requirements were identified:

- Change the height of segments A and B to 1500 ft AMSL. This will help provide vertical separation from IFR traffic and helicopter operations.
- Change the geometry of segment A to be clear of instrument departure/approach procedures at Kirkwall and keep away from Lamb Holm airfield.
- Change the geometry of segment B to clear 2 NM airspace around Sanday Airfield.
- Liaise with local Air Traffic Services to provide DAAIS or DACS for the different TDA segments.

Temporary Danger Area Geometry Changes

TDA- Segment A: Wick - Kirkwall

The proposed TDA that connects Wick ATZ and Kirkwall ATZ is split into two legs. One leg extends to the South West of KWL on QDR 255 deg while the other leg extends to the North of WIK on QDR 3.3 deg. The TDA terminates at each airport ATZ. The TDA extends from surface to 1500 ft AMSL and the UAV will fly the route directly down the centre line of the TDA at 1000 ft. Details of the TDA dimensions are provided in Appendix A.

TDA-B: Kirkwall - Eday - North Ronaldsay

The design of the proposed TDA between Kirkwall, Eday and North Ronaldsay has been modified in order to clear 2 NM airspace around Sanday Airfield. The TDA is divided into two legs with the first one extending 17.5 NM North East of of KWL on QDR 15 deg. The upper limit of the TDA has been lowered to 1500 ft and the UAV will fly the route at 1000 ft.



Figure 1 The proposed TDA is divided in 5 segments

Provision of Air Traffic Services

As requested by many stakeholders during the engagement, either Danger Area Activity information (DAAIS) or Danger Area Crossing (DACS) services will be provided for each segment of the TDA. This will allow other traffic to be aware of TDA activity hours en-route and eventually cross the TDA if not occupied by the UAV.

For TDA segments A and B, Kirkwall ATC will provide DAAIS and will be in radio contact with the UAV crew to receive position reports and provide traffic information.

Information about the Temporary Danger Area will also be available on Kirkwall ATIS.

Arrangements are being made for the provision of DAAIS/DACS for TDA segments C, D and E with existing ATSUs and will be shared with all stakeholders as soon as these are available.

Deconfliction

ULTRA UAS is equipped with Modes-A,C,S transponder and ADS-B in/out, making the platform visible to ground radars and ADS-B receivers within range. The 10 m wingspan aircraft is coloured bright red and is equipped with navigation, position, and strobe LED lights providing visual conspicuity.

During operations, ULTRA UAS crew will follow standard radiotelephony procedures in accordance with CAA Radiotelephony Manual (CAP413). ULTRA UAS crew will always give way to crewed aviation by following recommendations/instructions from the ATS.

Separation to other aircraft will be provided on different levels:

- The UAS will fly according to a published schedule designed to provide time separation from other VFR scheduled flights;
- The UAS routes are designed to provide vertical separation from IFR flights;
- The use of segregated airspace;
- Pre defined loitering positions where the UAS can be commanded to give way to crewed aircraft;
- Pre defined circuit patterns for each airfield;
- Activation of the TDA will be done upon agreement with key stakeholders to de-risk changes to scheduled flights.

Timeline

The intended operations will take place during a period of up to six weeks during summer/autumn 2021. The proposed TDA activation dates and times of operations are pending approval by the CAA. These will be informed to all stakeholders before commencing operations.

Live impact assessment

During implementations, the ACP sponsor will continue receiving and collating feedback, not only related to the airspace change but also about the UAS operations. All feedback will be forwarded to the CAA. Windracers will evaluate the feedback and together with the CAA will modify the procedures where necessary to ensure the level of safety is not affected.

How to submit your feedback

You can submit your feedback about the ACP-2021-025 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 targeted stakeholder engagement period for ACP-2021-025 will finish at **17:00 on Friday 16th July 2021**.

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

Yours Faithfully,



The map shows the TDA-A flight path from Wick to Kirkwall. The path is highlighted in green and red. Key locations and distances are marked:

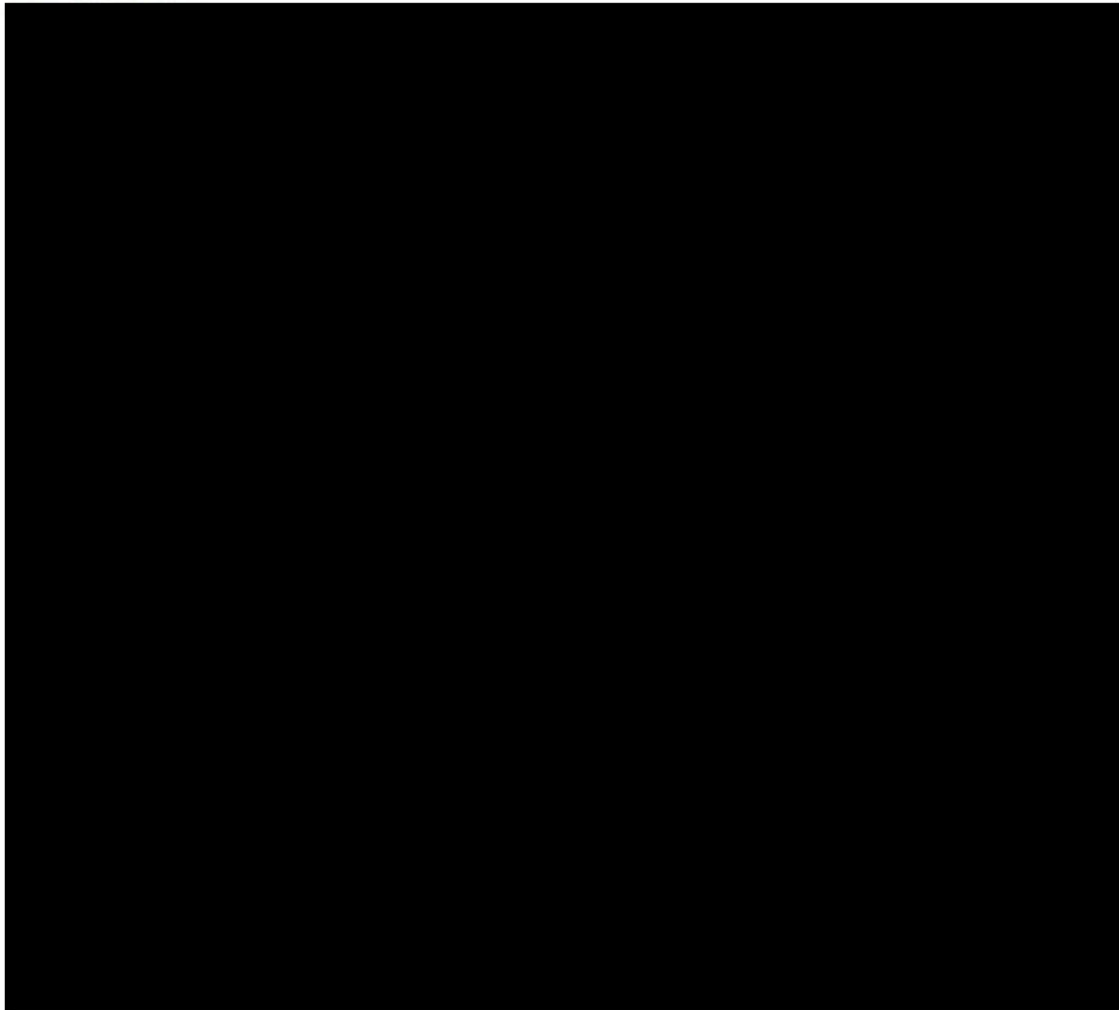
- Wick ATZ** (Wick Aerodrome Traffic Zone) at the start of the path.
- Wick** and **Ackergill** are labeled near the start.
- A distance of **1.54 NM** is marked between Wick and Ackergill.
- The path then follows a long, straight line north, labeled **SFC-1500 ft AMSL** (Surface to 1500 feet Above Mean Sea Level).
- A distance of **23.3 NM** is marked along this segment.
- The path then turns east towards Kirkwall, with a distance of **5 NM** marked for this final segment.
- Kirkwall ATZ** (Kirkwall Aerodrome Traffic Zone) is at the end of the path.
- Other locations shown on the map include: Brough, Dunnet, Castletown, Bower, Lyth, Watten, Kelso, Mey, John O'Gaill, Brims, Longhope, Lyness, Orphir, Hoy, Links, Orkney, and Burray.



Temporary Airspace Change ACP-2021-025 - Timeline update

Operations <operations@windracers.org>

Mon 12/07/2021 17:14



1 attachments (429 KB)

ACP-2021-025 Third Engagement Letter.pdf;

Dear Airspace Stakeholder,

Following our initial assessment meeting with the Civil Aviation Authority the timeline for operations within the Temporary Danger Area scoped within ACP-2021-025 has been updated.

The letter attached contains all the relevant information.

You can provide feedback by replying to this email. Please note that the last day of stakeholder engagement is 1st August 2021.

We look forward to hearing from you.

Kind regards,

A small rectangular area at the bottom of the email is blacked out, redacting the signature and any contact information that might have been present.



ACP-2021-025

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

Targeted Engagement with Aviation Stakeholders

Dear Stakeholder,

Following our initial assessment meeting with the Civil Aviation Authority (CAA), updates have been made to the timeline and the operations of the Temporary Danger Area scoped within ACP-2021-025. All the documents from the meeting are available to the public on the [Airspace Change Portal](#).

Timeline

In the timeline provisionally approved by the CAA the operations are divided in two phases:

- PHASE 1: 27th September - 24th October.
During this phase the following routes will be covered:
 - Kirkwall - Wick
 - Kirkwall - Eday - North Ronaldsay
 - Kirkwall - Fair Isle

The proposed activation period for the TDA segments is summarised below. Please note that the TDA will be activated for a short period of time each day. A schedule with the time of operation and TDA activation will be provided before commencing operations.

TDA Segment	Activation period
TDA-A	27/09/21 - 03/10/21
TDA-B	04/10/21 - 24/10/21
TDA-C	16/10/21 - 24/10/21

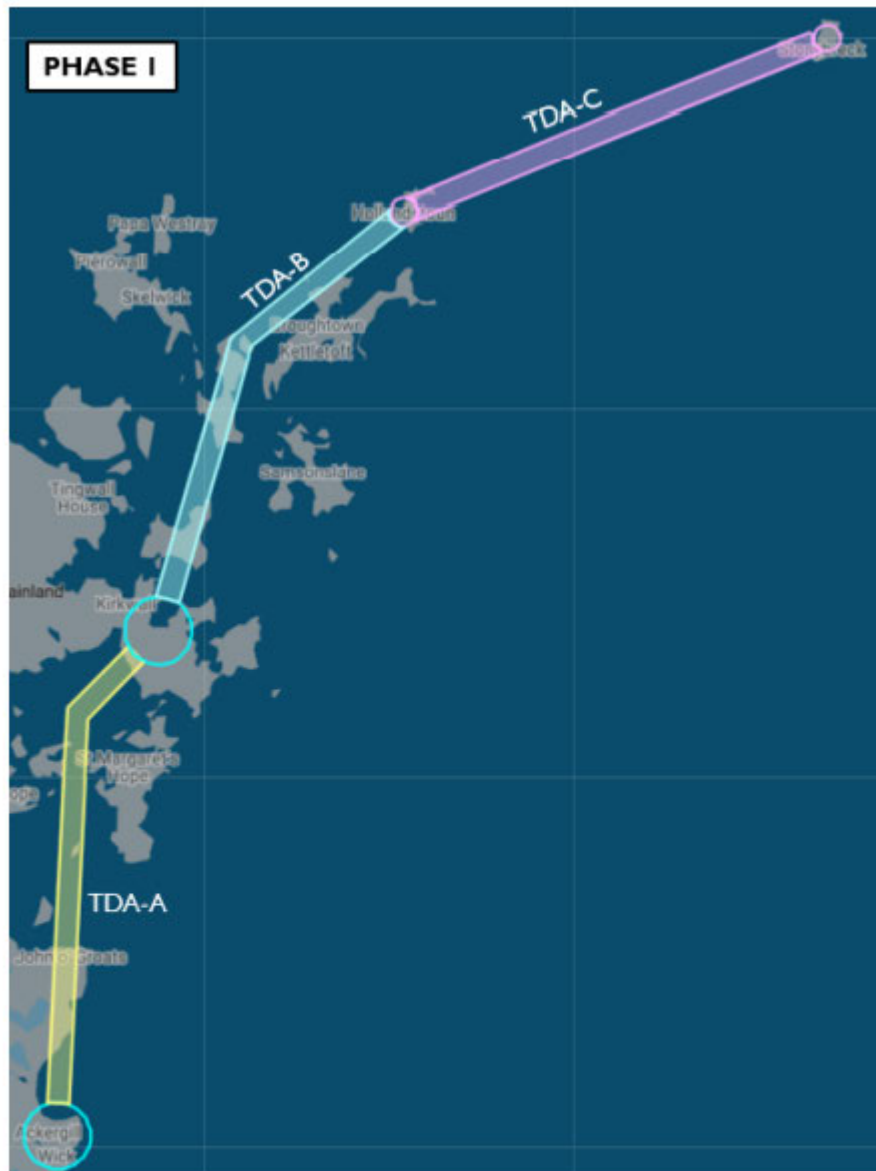


Figure 1 Geometry of TDA-A, TDA-B, TDA-C used in PHASE 1 of ACP-2021-025.

- **PHASE 2: 14th March - 30th April 2022**
The part of the project involving the Shetland Islands has been moved to the spring of 2022. This phase will involve the following routes:
 - Kirkwall - Lerwick
 - Lerwick - Unst

During this phase TDA-B, TDA-D and TDA-E will be used. Precise dates of TDA activation period will be provided before the commencing PHASE 2.



Figure 2 Geometry of TDA-B, TDA-D, TDA-E used in PHASE 1 of ACP-2021-025.

How to submit your feedback

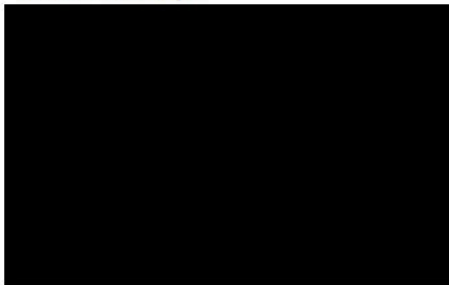
You can submit your feedback about the ACP-2021-025 by email to operations@windracers.org.

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 Formal Stakeholder Engagement period for ACP-2021-025 will finish at **17:00 on Friday 1st August 2021**.

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

Yours Faithfully,



ACP-2021-025 Concept of Operations



ACP-2021-025

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

PHASE 1 - Concept of Operations

This Concept of Operations outlines the terms of agreement between the parties listed below with regard to the Airspace Change proposal ACP-2021-025 and the operation of ULTRA Unmanned Aircraft System (UAS) within the Temporary Danger Area derived from this ACP.

This document is complementary to other Agreements and Operational Instructions within the scope of these operations. All relevant documentation will be available at <https://airspacechange.caa.co.uk/PublicProposalArea?pid=359>.

AGREEMENT BETWEEN:

- Windracers Limited;
- Kirkwall ATC;
- Wick ATC;
- Sumburgh Radar;
- Loganair;
- Airtask;
- Orkney Island Council; and
- National Trust for Scotland.

ACP-2021-025 Concept of Operations

1.Introduction

Windracers are part of the Sustainable Aviation Test Environment (SATE) project and aim to fly a number of UAS flights within Temporary Danger Areas (TDAs).

PHASE 1 of the project will take place between 27th September - 24th October where Windracers aim to fly between Wick, Kirkwall, North Ronaldsay and Fair Isle.

During PHASE 2 between 14th March and 30th April 2022 they aim to fly within TDA-B, TDA-D and TDA-E.

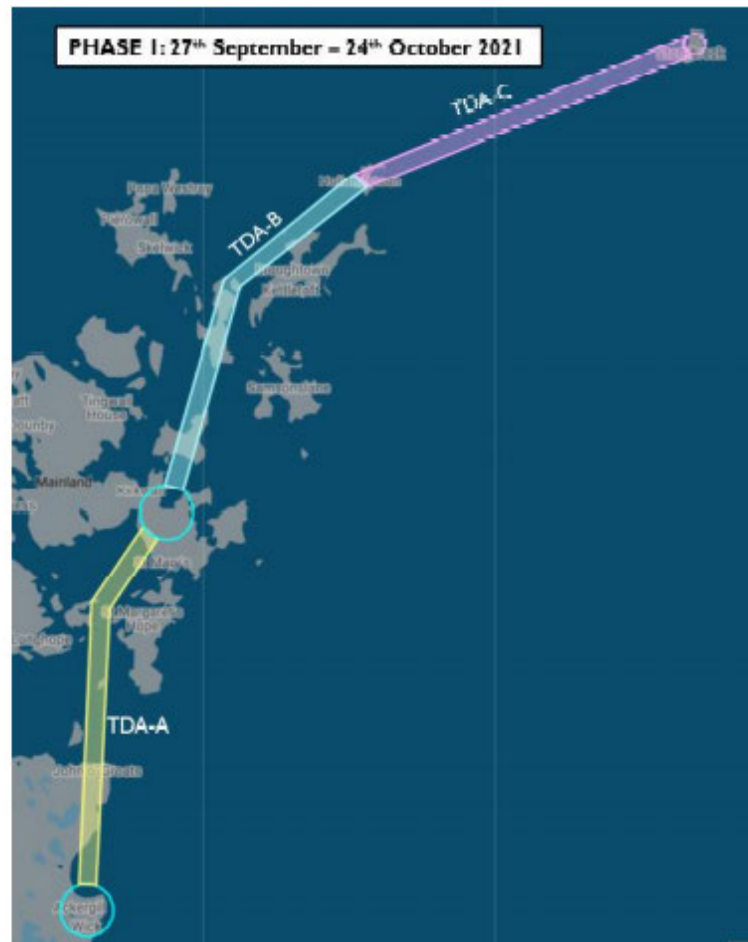


Figure 1 Horizontal layout of the TDA showing the three TDA segments used in PHASE 1.

This concept of operations covers the operations of PHASE 1 and has been produced to identify a set of procedures which may assist in facilitating these flights, safely integrating them with the operations of the other stakeholders involved. Another document will be created for the operations of PHASE 2 after the completion of the PHASE 1 flights.

Note: Nothing in this concept of operations prevents a controller from using their own discretion and initiative in response to UAV operations and the prevailing traffic conditions.

ACP-2021-025 Concept of Operations

2.TDA design principles

The design of the TDA follows a set of principles and requirements identified during the Targeted Stakeholder Engagement:

- 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 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.

3.TDA Activity

The TDA will be published for the activity of 'UAS BVLOS Operations' and will only be used by Windracers to operate U/L TRA UAS, provided these operations are within the scope of a current CAA Operational Authorisation.

4.TDA Management and Activation Procedures

Windracers is the controlling authority for all TDAs scoped in ACP-2021-025 and is responsible for the promulgation of all NOTAMs. They will also make the final decision on whether a flight will go ahead with input from ATC where required.

Activation and de-activation of the TDA will be requested by Windracers in accordance with the conditions described below:

- 5 days in advance of the flight stakeholders will be contacted to ascertain if there are any issues that will affect the flight.
- If any of the stakeholders have conflicting scheduled flights this should be informed 72 hours before the start of proposed operations. All commercial operations have priority over the UAS operations.
- 2 days before the flight the NOTAM will be promulgated giving the activation date and times of the TDA.
- A NOTAM will be promulgated for each day of activation, with a minimum notice of 24 hours.

ACP-2021-025 Concept of Operations

5. Flights schedule

Phase 1 ULTRA UAS operations will take place during a period of four weeks during September/October 2021.

TDA activation dates are summarised in the Table below.

Table 1 TDA activation dates.

TDA Segment	Activation Period
TDA-A	27/09/21 – 01/10/21
TDA-B	04/10/21 – 24/10/21
TDA-C	16/10/21 – 24/10/21

The schedule has been designed to have time separation with inter-island services. Procedural separation with services from/to mainland is assumed. TDA activation times for each day of operations are presented in section 11.

6. Air Traffic Services

Kirkwall ATC will provide a Danger Area Activity Information Service (DAAIS) for TDAs A and B. This includes a traffic information service on the UAV with radials and bearings and provide integration with other traffic for landing in Kirkwall. This service will be available from Kirkwall Tower on 118.305 MHz.

Information about the Temporary Danger Area and UAS Activity will also be available on Kirkwall information ATIS on 108.600 MHz.

Kirkwall ATC will provide a **Basic service** to the UAS.

Sumburgh Radar will provide a Danger Area Crossing Service (DACS) for TDA C on 131.300 MHz.

7. Contact Telephone Numbers

Table 2 Contact Telephone Numbers.

Unit	Landline	Mobile
Wick		
Kirkwall		
Sumburgh Radar		
UAS Crew		
UAS Crew		
Operations		
Kirkwall Pilots' Office		
Loganair Ops - Glasgow		

8. Weather Minima

ULTRA UAS operations are subject to operational limits due to weather. The weather minima detailed below is to allow the UAS pilot to observe if the UAS is dangerously positioned on the approach and is a CAA requirement.

- Maximum wind speed - 40 knots;

4th August 2021

ACP-2021-025 Concept of Operations

- Maximum crosswind component - 20 knots;
- Precipitation - 2.5mm/hour;
- Visibility - 3000m only applicable at aerodromes of departure and arrival; and
- Cloud - BKN 1000ft only applicable at aerodromes of departure and arrival.

Note: No visibility or cloud limits en-route.

9. Position Reports and Cloud Control

Position reports may be requested from the UAS pilot. The position reports can be as accurate as +/- 3ft.

Kirkwall ATC

Reports to Kirkwall ATC will be in relation to the KWL DVOR and associated DME.

Sumburgh Radar

Position reports to Sumburgh radar will be in relation to the TDA segment where the UAS is flying and if it is entering or leaving the segment.

Cloud Control

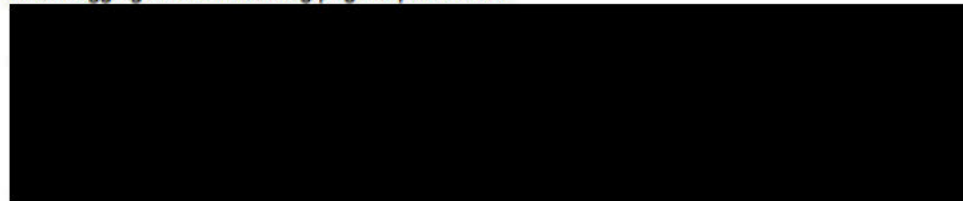
The progress of the UAS can be monitored at [REDACTED] but this is only to be used for situational awareness and cannot be utilised for controlling or separating aircraft against the UAS.

Clicking on the link will bring you the Distributed Avionics home page. Use the Login button on the top right corner to be prompted to the authentication page. Login details are as below.

Username: [REDACTED]

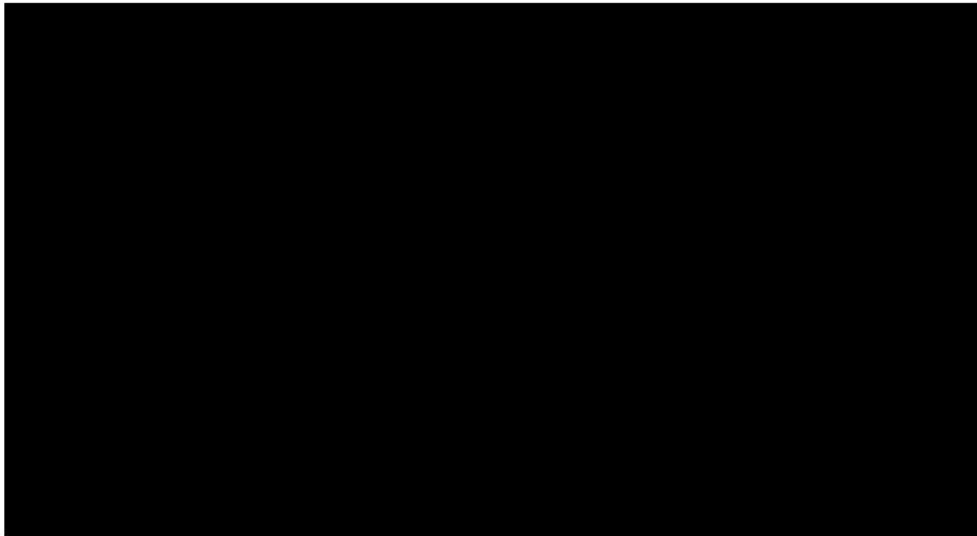
Password: [REDACTED]

After logging in the following page is presented:



By clicking on "Live" the current mission will be shown in a page similar to the one shown below.

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10. Taxiing and Flight

During the taxiing phase the UAS is controlled by the UAS pilot. From take-off to landing the UAS is controlled by a programme.

The programming may be changed during the flight to accommodate holding request by ATC. The re-programming takes approximately 20 seconds and ATC must factor this into their integration of the UAS with other traffic.

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11. Proposed Procedures to Mitigate the Risk for IFR and VFR Traffic

Flight A

The times detailed below for flight A are during periods when there are no Loganair IFR or VFR flights at Kirkwall. However, during these periods Kirkwall and Wick ATC may have non-scheduled traffic such as diversions, transit, ambulance, SAR and emergency flights which may affect the UAS flight.

A safety buffer of 30 minutes is included before the first flight and after the last flight to account for delays.

Table 3 WICK-KIRKWALL schedule.

27 th September – 3 rd October 2021											
WICK - KIRKWALL											
TDA ACTIVATION		Monday		Tuesday		Wednesday		Thursday		Friday	
		11:20-16:15		11:20-16:15		10:00-12:30		09:50-14:25		09:50-14:25	
KIRKWALL	Dep	11:50	14:10	11:50	14:10	10:30	-	10:20	12:20	10:20	12:20
WICK	Arr	12:25	14:45	12:25	14:45	11:05	-	10:55	12:55	10:55	12:55
	Dep	12:50	15:10	12:50	15:10	11:30	-	11:20	13:20	11:20	13:20
KIRKWALL	Arr	13:25	15:45	13:25	15:45	12:05	-	11:55	13:55	11:55	13:55

Flight A TDA

The dimensions of the TDA for flight A between Wick and Kirkwall are 1.54 nautical miles in diameter and surface to 1500ft. The UAS will fly within the TDA at 1000ft.

The TDA terminates at the ATZs.

Within the TDA there is a loiter position at the dogleg. This position is 9 nautical miles from Kirkwall on the 215 radial and 7 nautical miles south of the approach for runway 09 and the climb-out for runway 27. As detailed in the image below. A further loiter position is 4 nautical miles to North of Wick aerodrome.

ACP-2021-025 Concept of Operations

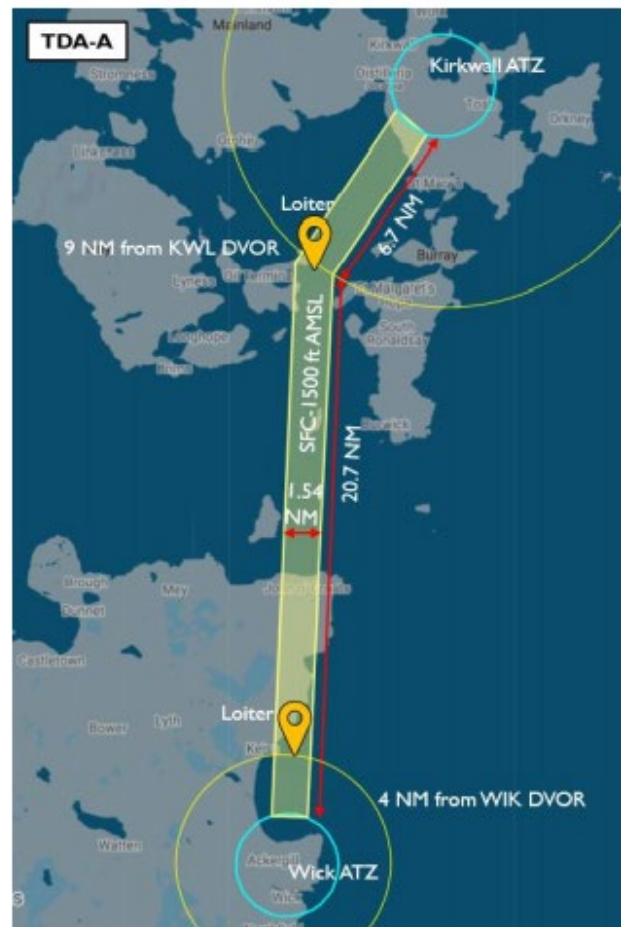


Figure 2 TDA-A dimensions and loiter positions.

ACP-2021-025 Concept of Operations



Figure 3 TDA-A dogleg latter position.

Coordination

30 minutes prior to the commencement of Flight A Windracers will contact Kirkwall ATC to ascertain if the flight is occurring and to supply any pertinent information which may affect the flight.

The UAS pilot will request start and taxi instructions from Kirkwall ATC. Kirkwall ATC will coordinate the UAS departure time, ETA for Wick and the handover point at 15 nautical miles with Wick ATC.

The UAS pilot will be on frequency 118.305 MHz with Kirkwall ATC on departure from Kirkwall and be transferred at 15 nautical miles to Wick ATC on frequency 119.705 MHz.

On arrival Wick ATC will clear the UAS to land and issue taxi instructions.

The UAS pilot will request start and taxi instructions from Wick ATC. Wick ATC will coordinate the UAS departure time, ETA for Kirkwall and the handover point at 15 nautical miles with Kirkwall ATC.

The UAS pilot will be on frequency 119.705 MHz with Wick ATC on departure from Wick and be transferred at 15 nautical miles to Kirkwall ATC on frequency 118.305 MHz.

On arrival Kirkwall ATC will clear the UAS to land and issue taxi instructions.

Kirkwall and Wick ATC will be provided with the UAS pilot's mobile numbers as a contingency.

Instrument Approach Procedures (IAPs):

Kirkwall

1. The TDA A does not affect the runway 27 direct arrival, overhead and the RNP IAPs or their standard missed approach procedures; and

ACP-2021-025 Concept of Operations

2. The TDA A does not affect the runway 09 direct arrival, overhead and the RNP IAPs or their standard missed approach procedures.

Wick

1. The TDA does not affect runways 31 and 13 instrument approaches.

Integration

The UAS flies at approximately 70 knots, 1 mile a minute for the purpose of time and distance calculations.

Where required due to inbound or departing traffic the pilot may be requested by Kirkwall or Wick ATC to orbit (UAS can fly a 200 m orbit) the UAS at a loiter position or any point within the TDA until the traffic situation allows the flight to continue.

ATC will make this decision with regard to departures, estimates received on inbound traffic and the position of the UAS within the TDA.

The UAS will not enter the ATZ without an ATC clearance and all crewed flights have priority over the UAS flight.

If the UAS has passed the loiter position then departures may be held on the ground and arrivals taken into the hold until the UAS has landed.

Kirkwall

In Kirkwall the UAS will join overhead for a right hand circuit for a runway 27 approach and a left hand circuit for a runway 09 approach or right hand circuit for a runway 32 approach and left hand circuit for a runway 14 approach.

The UAS may also be requested to orbit on the downwind leg of the circuits.

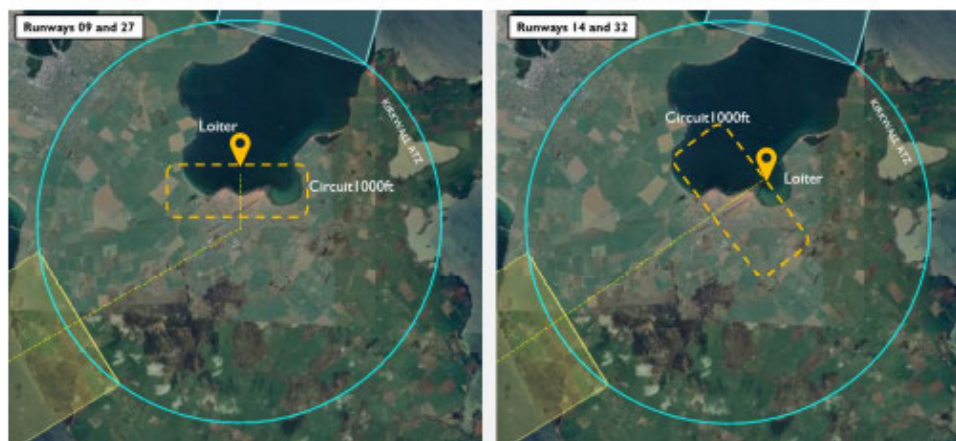


Figure 4 Kirkwall UAS landing circuits for flight A.

Loganair agrees that between 27th September and 24th October 2021 their IFR scheduled aircraft will only fly IAPs. No visual approaches or self-position approaches will be flown.

Kirkwall ATC will place a message on the ATIS giving details of the UAS activity.

ACP-2021-025 Concept of Operations

No training flights will be accepted during the period that the TDA is active.

Wick

In Wick the UAS will join downwind for a left hand circuit for runway 13 and right hand circuit for runway 31.

The UAS may also be requested to orbit on the downwind leg of the circuits.

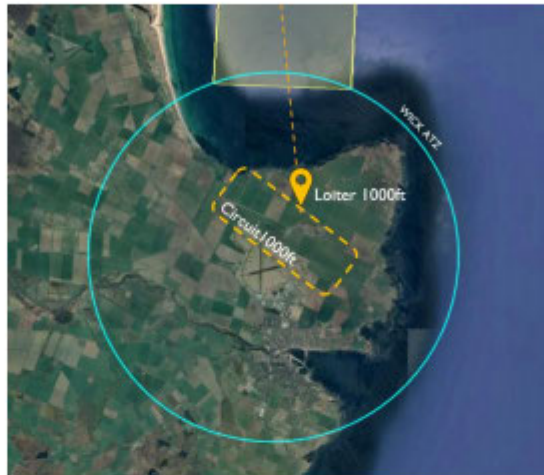


Figure 5 Wick UAS landing circuits for flight A.

ACP-2021-025 Concept of Operations

Flight B

The times detailed below for flight B are during periods when there are no Loganair IFR or VFR flights at Kirkwall and no VFR flights at Eday and North Ronaldsay. However, during these periods Kirkwall ATC may have non-scheduled traffic such as diversions, transit, ambulance, SAR and emergency flights which may affect the UAS flight.

A safety buffer of 30 minutes is included before the first flight and after the last flight to account for delays.

Table 4 KIRKWALL-NORTH RONALDSAY schedule.

4 th October – 10 th October 2021 KIRKWALL – NORTH RONALDSAY												
TDA ACTIVATION		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday				
		11:20-14:55	11:20-14:55	10:15-13:50	11:50-13:25	11:50-13:25	10:45-14:20	11:30-15:05				
KIRKWALL	Dep	11:50 13:20	11:50 13:20	10:45 12:15	10:20 11:50	10:20 11:50	11:15 12:45	12:00 13:30				
NORTH RONALDSAY	Arr	12:05 13:35	12:05 13:35	11:00 12:30	10:35 12:05	10:35 12:05	11:30 13:00	12:15 13:45				
	Dep	12:25 13:55	12:25 13:55	11:20 12:50	10:55 12:25	10:55 12:25	11:50 13:20	12:35 14:05				
KIRKWALL	Arr	12:55 14:25	12:55 14:25	11:50 13:20	11:25 12:55	11:25 12:55	12:20 13:50	13:05 14:35				

Table 5 KIRKWALL-EDAY-NORTH RONALDSAY schedule.

11 th October – 17 th October 2021									
KIRKWALL – EDAY – NORTH RONALDSAY									
TDA ACTIVATION		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	
		11:20-15:55	11:20-15:55	10:15-13:25	11:50-14:25	11:50-14:25	10:45-15:20	11:00-16:05	
KIRKWALL	Dep	11:50 13:50	11:50 13:50	10:45 -	10:20 12:20	10:20 12:20	11:15 13:15	12:00 14:00	
EDAY	Arr	12:05 14:05	12:05 14:05	11:00 -	10:35 12:35	10:35 12:35	11:30 13:30	12:15 14:15	
	Dep	12: 20 14:20	12:20 14:20	11:25 -	10:50 12:50	10:50 12:50	11:45 13:45	12:30 14:30	
NORTH RONALDSAY	Arr	12:35 14:35	12:35 14:35	11:40 -	11:05 13:05	11:05 13:05	12:00 14:00	12:45 14:45	
	Dep	12:55 14:55	12:55 14:55	12:20 -	11:25 13:25	11:25 13:25	12:20 14:20	13:05 15:05	
KIRKWALL	Arr	13:25 15:25	13:25 15:25	12:55 -	11:55 13:55	11:55 13:55	12:50 14:50	13:35 15:35	

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Flight B TDA

The dimensions of the TDA for flight B between Kirkwall, Eday and North Ronaldsay are 1.54 nautical miles in diameter and surface to 1500ft. The UAS will fly within the TDA at 1000ft.

The North Ronaldsay and Eday airstrips are contained within the TDA.

Within TDA B there are loiter positions:

- 4 nautical miles to the North East of Kirkwall aerodrome;
- 4 nautical miles to the South West of Eday airstrip;
- 4 nautical miles to the North East of Eday Airstrip; and
- 5 nautical miles to the South West of North Ronaldsay airstrip.

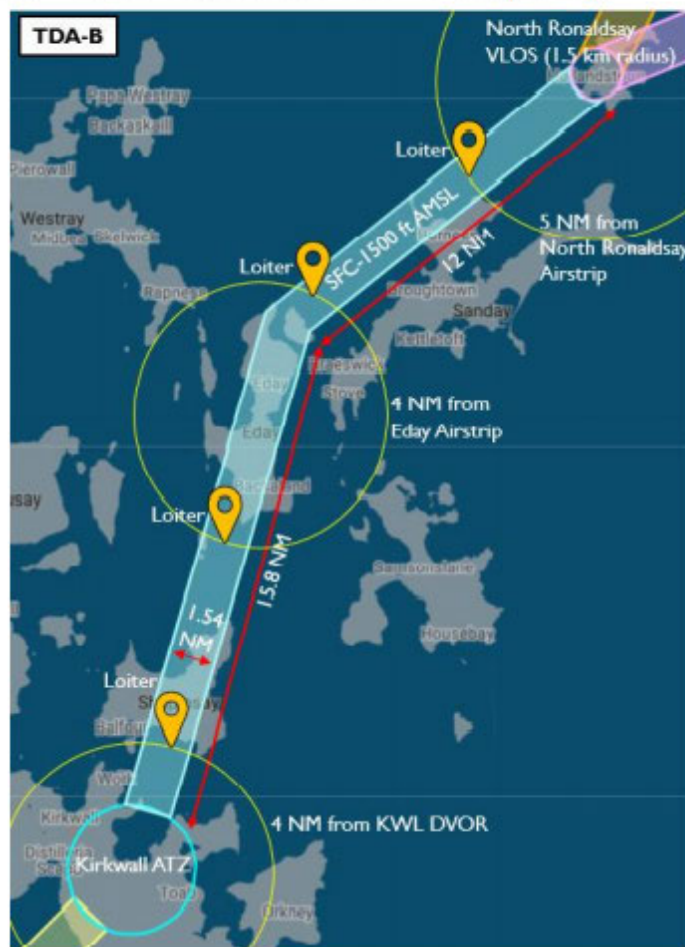


Figure 6 TDA-B dimensions and loiter positions.

Coordination

30 minutes prior to the commencement of Flight A Windracers will contact Kirkwall ATC to ascertain if the flight is occurring and to supply any pertinent information which may affect the flight.

4th August 2021

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The UAS pilot will contact Kirkwall ATC on 118.305 MHz to request start and taxi instructions. Kirkwall ATC will coordinate the UAS departure time, ETA for North Ronaldsay with the UAS pilots at North Ronaldsay and Eday.

The UAS pilot will be on frequency 118.305 MHz with Kirkwall ATC for the duration of the flight B.

Prior to departure from North Ronaldsay and Eday the UAS pilot will contact Kirkwall ATC and inform them of their intentions. Once airborne the UAS pilot will coordinate the UAS departure time and ETA for Kirkwall with Kirkwall ATC.

On arrival Kirkwall ATC will clear the UAS to land and issue taxi instructions.

Kirkwall ATC will be provided with the UAS pilot's mobile numbers as a contingency.

Instrument Approach Procedures (IAPs):

1. The TDA does not affect the runway 09 or 27 direct arrival, overhead and the RNP IAPs or their standard missed approach procedures.

Integration

The UAS flies at approximately 70 knots, 1 mile a minute for the purpose of time and distance calculations.

Where required due to Loganair inter-island or other traffic the UAS pilot may be requested by ATC to orbit (UAS can fly a 200m orbit) the UAS at a loiter position or any point within the TDA until the traffic situation allows the flight to continue.

ATC will make this decision with regard to the prevailing traffic conditions and the position of the UAS within the TDA.

The UAS will not enter the ATZ without an ATC clearance and all crewed flights have priority over the UAS flight.

Kirkwall

The UAS will join downwind for a right hand circuit for a runway 27 approach and a left hand circuit for a runway 09 approach or right hand circuit for a runway 32 approach and left hand circuit for a runway 14 approach.

The UAS may also be requested to orbit on the downwind leg of the circuits.

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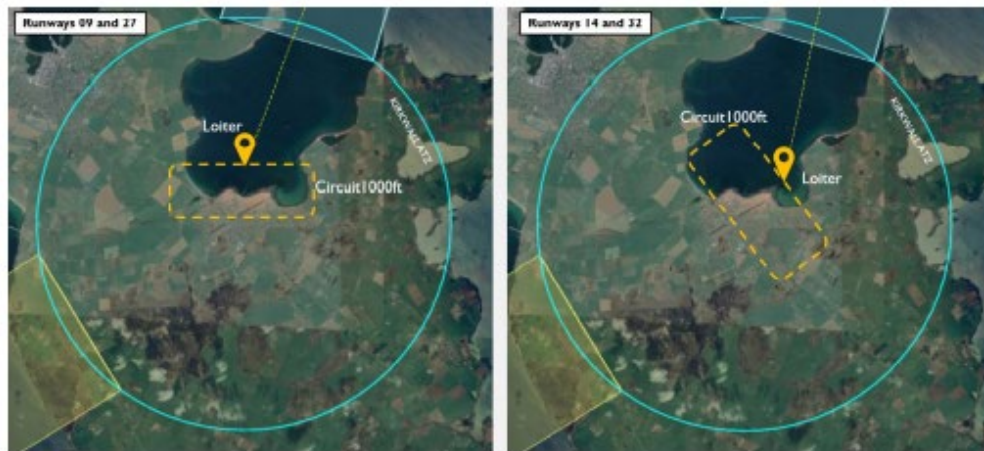


Figure 7 Kirkwall UAS landing circuits for flight B

Loganair agrees that between 27th September and 24th October 2021 their IFR scheduled aircraft will only fly IAPs. No visual approaches or self-position approaches will be flown.

Kirkwall ATC will place a message on the ATIS giving details of the UAS activity.

No training flights will be accepted during the period that the TDA is active.

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Flight C

The times detailed below for flight C are during periods when there are no Loganair IFR or VFR flights at Kirkwall, Eday and North Ronaldsay and no Airtask flights at Fair Isle. However, during these periods Kirkwall ATC may have non-scheduled traffic such as diversions, transit, ambulance, SAR and emergency flights which may affect the UAS flight.

A safety buffer of 30 minutes is included before the first flight and after the last flight to account for delays.

Table 6 KIRKWALL-FAIR ISLE schedule.

18 th October – 24 th October 2021								
KIRKWALL – FAIR ISLE								
TDA ACTIVATION		Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
		12:00-15:20	12:00-15:20	09:20-12:30	09:50-13:00	09:50-13:00	11:00-14:10	11:00-14:10
KIRKWALL	Dep	12:30	12:30	09:50	10:20	10:20	11:30	11:30
FAIR ISLE	Arr	13:25	13:25	10:45	11:15	11:15	12:25	12:25
	Dep	13:55	13:55	11:05	11:35	11:35	12:45	12:45
KIRKWALL	Arr	14:50	14:50	12:00	12:30	12:30	13:40	13:40

Flight C TDA

The dimensions of the TDA for flight C between Kirkwall and Fair Isle are 1.54 nautical miles in diameter. TDA-B extends from surface to 1500 ft and TDA-C is from surface to 2500 ft. The UAV will depart Kirkwall aerodrome and fly within TDA-B at 1000ft. Once established in TDA-C the UAV will climb and fly at 2000 ft to Fair Isle where it will descend to 1000ft before entering the VLOS area. A similar pattern will be followed for the return flight.

There are four loiter positions:

- 4 nautical miles to the North East of Kirkwall aerodrome;
- 4 nautical miles to the South West of Eday airstrip;
- 4 nautical miles to the North East of Eday airstrip;
- 5 nautical miles to the South West of North Ronaldsay airstrip;
- 5 nautical miles to the North East of North Ronaldsay airstrip; and
- 4 nautical miles from Fair Isle airfield.

ACP-2021-025 Concept of Operations

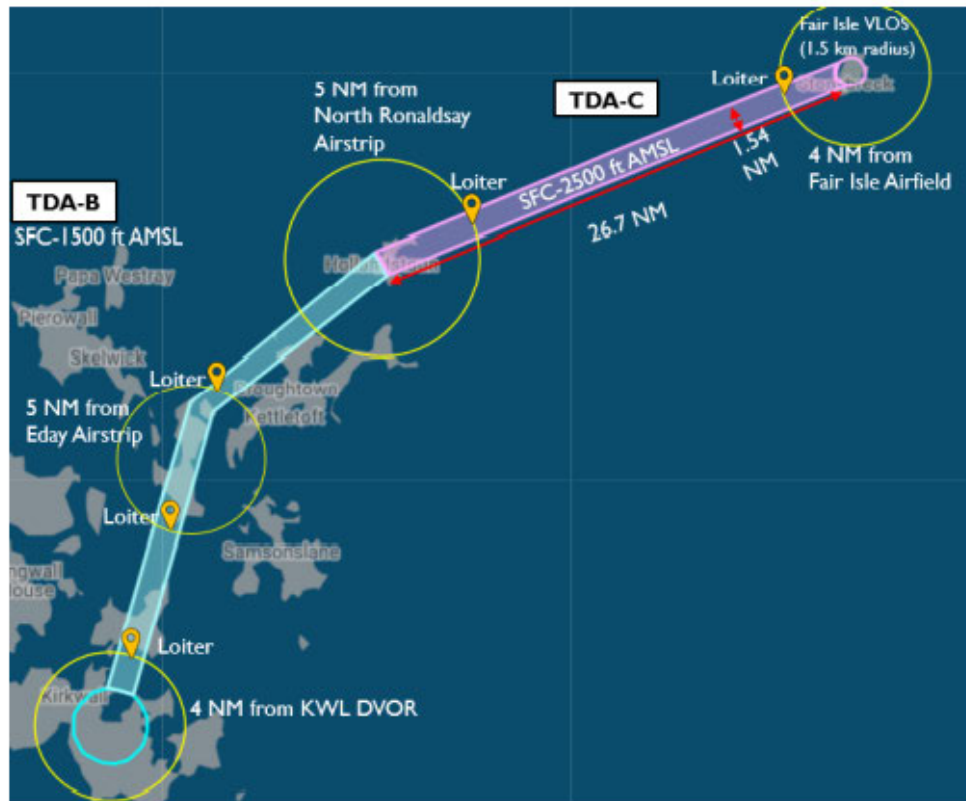


Figure 8 TDA-C dimensions and loiter positions.

Coordination

30 minutes prior to the commencement of Flight C Windracers will contact Kirkwall ATC to ascertain if the flight is occurring and to supply any pertinent information which may affect the flight.

The UAS pilot will contact Kirkwall ATC on 118.305 MHz to request start and taxi instructions. Kirkwall ATC will coordinate the UAS departure time, ETA for Fair Isle and the handover point at North Ronaldsay with Sumburgh radar.

At North Ronaldsay Kirkwall ATC will transfer the UAS to Sumburgh Radar.

The UAS pilot will inform Sumburgh Radar by calling the phone number 07747 734858 in the following occasions:

- When the UAS enters TDA-C;
- When the UAS has landed at Fair Isle;
- 10 minutes before the UAS takes off;
- When the UAS is airborne in TDA-C; and
- When the UAS is exiting TDA-C.

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Sumburgh Radar will coordinate with Kirkwall ATC the UAS departure time from Fair Isle, ETA for Kirkwall and the handover point 10 nautical miles to the North East of North Ronaldsay.

At the handover point Sumburgh Radar will transfer the UAS to Kirkwall ATC on 118.305.

On arrival Kirkwall ATC will clear the UAS to land and issue taxi instructions.

Kirkwall ATC and Sumburgh Radar will be provided with the UAS pilot's mobile number as a contingency.

Instrument Approach Procedures (IAPs):

1. The TDA does not affect the runway 09 or 27 direct arrival, overhead IAPs or the standard missed approach procedure.

Integration

The UAS flies at approximately 70 knots, 1 mile a minute for the purpose of time and distance calculations.

Where required due to Loganair inter-island or other traffic the UAS pilot may be requested by ATC to orbit (UAS can fly a 200m orbit) the UAS at a loiter position or any point within the TDA until the traffic situation allows the flight to continue.

ATC will make this decision with regard to the prevailing traffic conditions and the position of the UAS within the TDA.

Kirkwall

The UAS will join downwind for a right hand circuit for a runway 27 approach and a left hand circuit for a runway 09 approach or right hand circuit for a runway 32 approach and left hand circuit for a runway 14 approach.

The UAS may also be requested to orbit on the downwind leg of the circuits.

The UAS will not enter the ATZ without an ATC clearance and all crewed flights have priority over the UAS flight.



Figure 9 Kirkwall UAS landing circuits for flight C

4th August 2021

ACP-2021-025 Concept of Operations

Loganair agrees that between 27th September and 24th October 2021 their IFR scheduled aircraft will only fly IAPs. No visual approaches or self-position approaches will be flown.

Kirkwall ATC will place a message on the ATIS giving details of the UAS activity.

No training flights will be accepted during the period that the TDA is active.

Fair Isle

Figure 10 shows the proposed circuit and loiter locations at Fair Isle airstrip. All crewed flights have priority over the UAS flight. The UAS will loiter 4 NM from Fair Isle airstrip to give way to manned aviation.

The UAS will be commanded to hold to give way to departing Airtask flights up until they pass the halfway point between Fair Isle and Sumburgh (Approximately 10 minutes after departure from Fair Isle).

The VLOS range around Fair Isle airstrip is not included within the TDA.

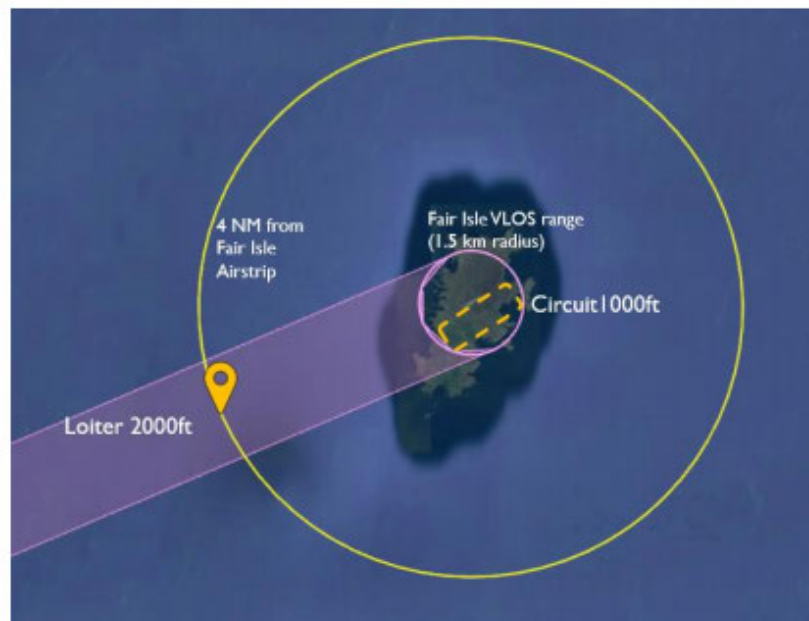


Figure 10 Fair Isle UAS landing circuit and loiter location for flight C.

ACP-2021-025 Concept of Operations

12. Failsafe Mechanism

UAS Communications systems

In normal operations, from take-off to landing, the UAS is commanded from the Ground Control Station (GCS) using a serial radio communication system (referred to as *C2 link*) in radio line-of-sight (RLOS) with a tested range of approximately 60 km.

Additionally, the aircraft can be controlled by the Safety Pilot using a handheld transmitter that can only be used when the UAS is within visual line-of-sight (VLOS): up to 1.5 km horizontal and 1000 ft vertical distance from the Safety Pilot.

Failsafe mechanism

The UAS and the GCS constantly send two-way messages that confirm that the C2 links is operative. This interchange happens up to twice per second and is known as the 'heartbeat'.

In case of a multiple failure that affects the C2 link the UAS will trigger the failsafe mechanism. The sequence of events is described below:

1. The system continues flying the current task (route, loiter) and begins a timer (from the last heartbeat received). This timer is currently configured to 20 seconds.
2. After the timer is finished the UAS will navigate to the closest 'return route'. A return route is a waypoint based pre-programmed route that will take the aircraft to the VLOS range.
3. Once the last waypoint of the route is reached, the aircraft will loiter indefinitely in a ~200 m radius orbit at that location.
4. The Safety Pilot will take control of the UAS and recover the aircraft manually.

NOTE: The failsafe return route is always defined within the boundaries of the TDA.

C2 Failure procedure

Should a C2 failure occur, the GCS will display both visual warnings and auditory alarms. The crew will then follow this procedure:

1. The pilot in command (PIC) will transmit a PAN call to the relevant ATSU. This call should include latest known position and altitude and estimate time of arrival to the VLOS range.
2. The PIC will follow the Emergency Procedure Checklist to troubleshoot the problem
3. The PIC will monitor the position of the UAS using ADS-B signature and communicate to the relevant ATSU.
4. Once the aircraft has reached the last waypoint (within VLOS range) and upon clearance to land by the ATC, the Safety Pilot will take control of the UAS and land manually.

Should the C2 link be re-established during this process, the PIC will cancel the distress call and inform intentions, whether to continue with the mission (only if the source of trouble is known and completely solved) or to recover the aircraft.

ACP-2021-025 Concept of Operations



Figure 11 Return route followed by the aircraft in case of C2 failure in TDA-A.

ACP-2021-025 Concept of Operations



Figure 12 Return route followed by the aircraft in case of C2 failure in TDA-B and TDA-C.

13. Live Impact Assessment

The live impact of the operations will be assessed during implementation of the ACP with regular meetings with stakeholders and the CAA. This will allow Windracers to receive feedback on the live impact of U/L TRA UAS operations.

ACP-2021-025 Concept of Operations

14. Signatures

By signing this Concept of Operations, the parties are accepting the operational conditions described above and commit to comply with the provisions of this agreement.

Signature:  Date: 8/5/2021

Signature:  Date: 8/9/2021

Signature:  Date: 8/10/2021

Signature:  Date: 8/5/2021

Signature:  Date: 8/10/2021

Signature:  Date: 8/10/2021

Signature:  Date: 8/10/2021

4th August 2021

ACP-2021-025 Concept of Operations

Signature:  Date: 8/5/2021

Signature:  Date: 8/5/2021

Signature:  Date: 8/5/2021

4th August 2021

ACP-2021-025 CAA Decision

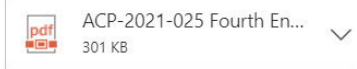


Operations

Fri 27/08/2021 17:30



[Redacted]



Dear Airspace Stakeholder,

Following the targeted stakeholder engagement activities, the CAA has reviewed the documentation related to ACP-2021-025 and have decided to approve the Temporary Danger Area (TDA) complex associated with Phase 1 of the project.

The letter attached contains all the relevant information.

Should you have any queries, please do not hesitate to contact us.

Kind regards,

[Redacted signature]



ACP-2021-025

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

Targeted Engagement with Aviation Stakeholders

Dear Stakeholder,

I am writing in relation to the Airspace Change Proposal (ACP) titled 'Group of TDAs connecting Orkney and Shetland Islands for SATE UAS operations (ACP-2021-025)'.

Following the targeted stakeholder engagement activities, the CAA has reviewed this ACP and related documents and have decided to approve the Temporary Danger Area (TDA) complex associated with Phase 1 of the project.

Implementation

The TDA will be activated via NOTAM, at least 24 hours in advance of operations. One NOTAM will be issued for each day of operations

Phase 1 of SATE project will make use of segments A, B and C of the TDA complex in the following schedule.

27 th September – 3 rd October 2021							
TDA Segment A							
TDA ACTIVATION	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
	11:20-16:15	11:20-16:15	10:00-12:30	09:50-14:25	09:50-14:25	-	-
4 th October – 10 th October 2021							
TDA Segment B							
TDA ACTIVATION	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	-
	11:20-14:55	11:20-14:55	10:15-13:50	11:50-13:25	11:50-13:25	10:45-14:20	-
11 th October – 17 th October 2021							
TDA Segment B							
TDA ACTIVATION	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	-
	11:20-15:55	11:20-15:55	10:15-13:25	11:50-14:25	11:50-14:25	10:45-15:20	-
18 th October – 24 th October 2021							
TDA Segments B and C							
TDA ACTIVATION	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	-
	12:00-15:20	12:00-15:20	09:20-12:30	09:50-13:00	09:50-13:00	11:00-14:10	-

We will endeavour to comply with this schedule; however, these hours can vary slightly depending on other aerial operations, weather, and availability of air traffic services.

Geometry of the TDA complex is as described below:

Segment	Lower Limit	Upper Limit
A	SURFACE	1500 FT
B	SURFACE	1500 FT
C	SURFACE	2500 FT

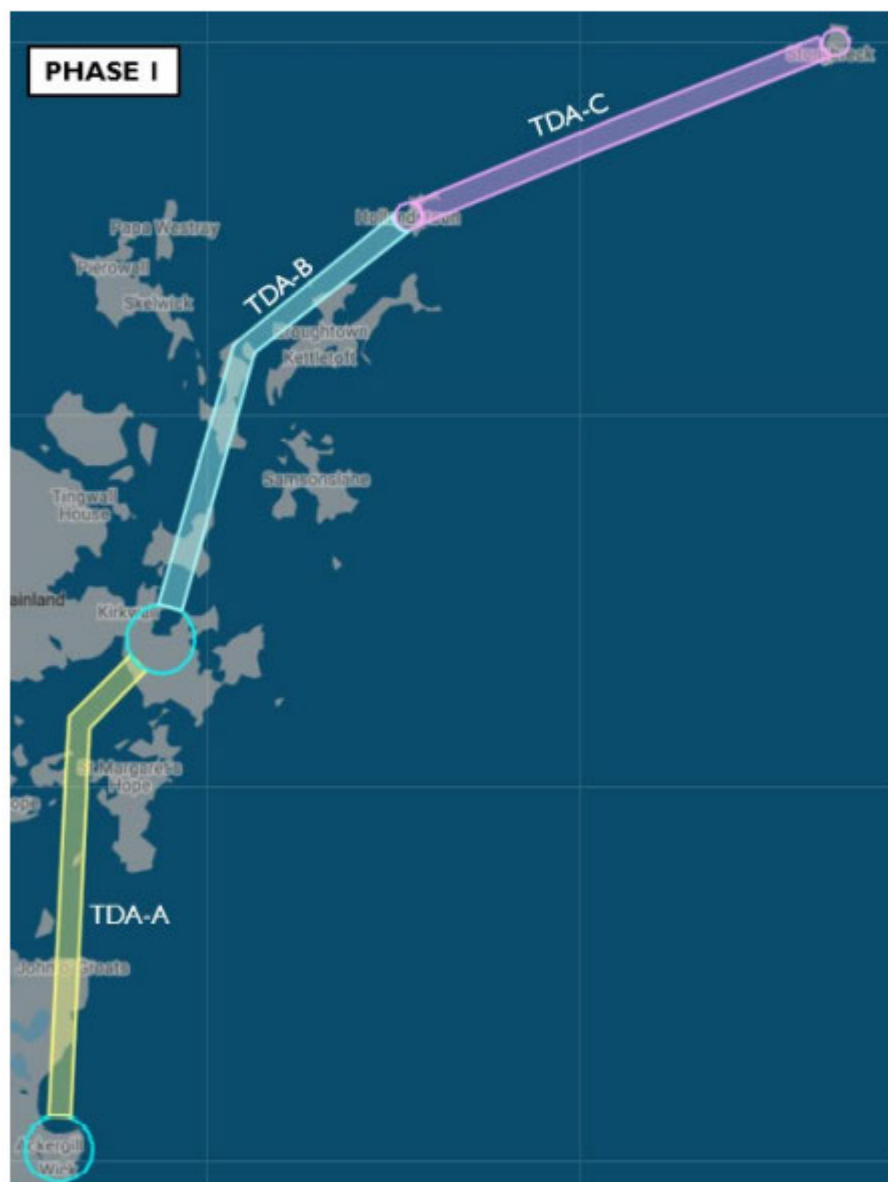


Figure 1 Geometry of TDA-A, TDA-B, TDA-C used in PHASE 1 of ACP-2021-025.

Air Traffic Services

Kirkwall ATC will provide a Danger Area Activity Information Service (DAAIS) for segments A and B. This service will be available from Kirkwall Tower on 118.305 MHz.

Information about the Temporary Danger Area and UAS Activity will also be available on Kirkwall information ATIS on 108.600 MHz.

Sumburgh Radar will provide a Danger Area Crossing Service (DACS) for TDA C on 131.300 MHz.

Phase 2

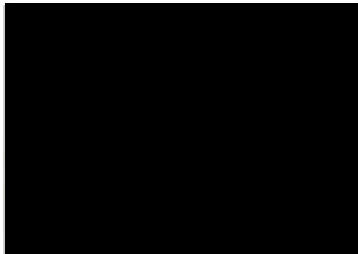
Phase 2 of the project is anticipated to take place during Spring 2022. You will be contacted again soon as part of the additional engagement process associated with this next phase.

Live impact assessment

During the implementation period, Windracers will receive and collate any feedback from all stakeholders and general public. All queries received will be informed to the CAA and action will be taken where necessary to reduce the impact of our operations.

Should you have any queries about this airspace change or its associated aerial activity, please do not hesitate to contact operations@windracers.org.

Yours Faithfully,



APPENDIX G - Engagement Evidence

G.1 Wick Airport (HIAL)

Question for Orkney's SATCOs

1

[REDACTED]

Wick Airport Q&A.docx
14 KB

Good morning [REDACTED]

Please see attached response to your questions from the Wick SATCO, I have contacted the Kirkwall SATCO and he will get back to me as soon as he can.

Kind regards

[REDACTED]

Thu 04/02/2021 21:32

To: [REDACTED]

Cc: [REDACTED]

Referring to my notes, we discussed this list of possible routes :

- Kirkwall-Wick ([REDACTED] will arrange the meetings with these SATCO's)
- For other airfields on Orkney – Papa Westray, North Ronaldsay, these are operated by the Orkney Islands Council and I assume we can approach them easily enough via [REDACTED]
- Fair Isle is operated (to my surprise) by the National trust for Scotland
- Lerwick/Tingwall is operated by the Shetlands Islands council – A contact we have been given [REDACTED] – we don't have her direct number but we should be able to get her contact details
- Two Organisations operating on Flotta – 1. Repsol Sinopce [REDACTED] – Ops Managers - [REDACTED] and 2. NovWellstream / Opus – MD - [REDACTED] Flotta has a gravel strip (along with heli-pad). This may not be in great shape as it has not been used for "years" following a crash. Looks possible on the aerial photo but that is hardly definitive !
- I have subsequently found that the grass airfield marked on the charts for Hoy is actually no longer in use as an airfield – this may or may not affect the possibilities there. There may be alternatives there in any case.

Would you prefer to make the first contact with the Lerwick and Flotta contacts or would you like us to assist there (frankly between us we don't have any special relationship to leverage) ?

We also discussed a possible Kirkwall/Wick-Stornoway (coincidentally aprox the same distance as Inverness-Stornoway) this could also be coupled with the Flare Birght capability to give locations on the North Coast (ie. Thurso, Durness etc..) that have no access to airfields and are very remote communities a possibly very interesting use case for precision deliveries.

We also discussed Stornoway-Barra following interest from NHS Western Isles.

We had a discussion with [REDACTED] today from the Orkney Islands Council and discussed the GA engagement around the SATE project – he suggested that routes would be better discussed with as wide a group as possible before applications made and I think both [REDACTED] and [REDACTED] are well aware of some obvious sensitive sites – to avoid the mistakes made on the Oban-Mull trial where I believe they compromised Glenforsa operations without fully engaging.

For access to further HIAL SATCO's we will come back asap.

Warmest regards

[REDACTED]

[REDACTED]

- Which of these aerodromes have ATZ?
Wick has an ATZ, active during notified opening hours, radius 2nm centred on [ARP, SEC-2000ft](#)
- What level of Air Traffic Services are provided?
During normal opening [hours](#) a non-surveillance ATC service provided, predominantly Class G environment, so Basic or Procedural service available.
- How many movements are there per day?
At present only a couple of movements in and out of Wick per day.
- How many of these are scheduled flights?
No scheduled flights currently operate to/from Wick.
- What emergency services operate from the aerodrome?
No emergency services operate from the aerodrome.
- What noise abatement policies are there?
No noise abatement procedures at Wick.
- Any flight clubs? Flight schools?
No flying schools, though there are four locally based GA aircraft.
- Which are the most common routes and areas where flights happen?
Wiking Helicopters operate to/from the Beatrice Offshore Windfarm to S-SE of Wick on a regular basis, generally at 1000ft on a basic Service.
Oil and Gas Helicopter transits SE to NW, sometimes via the Wick overhead, but more often on a direct route which takes them approx. 5nm to the east of Wick, generally between 2-3000ft on either a basic or procedural service.
Ferry flights to/from Iceland from NW and then to/from Europe
- Can the ATSUS provide DAAIS or DACS services over TDAs?
[Depends](#) who is the controlling authority for the TDA.
- If the UAV flight happen outside normal operating hours, can the ATSUS be manned?
With enough prior notice, we would endeavour to meet special opening requests; however, these cannot be guaranteed.
- Are there periods of time during the day when aerial activity is lower?
At present we have no scheduled operations, so we are unable to accurately [forecast busy/quiet](#) times.

Surveillance coverage

1

Flag for follow up.

Wed 07/07/2021 16:43



Good afternoon both,

Hopefully the attached survey which includes Wick and Kirkwall will be of use and I have some charts to send once I'm back in the office.

Please treat as Commercial in Confidence.

Kind regards

[Redacted signature]

[Redacted signature block]

RE: ACP-2020-025 Concept of Operations DRAFT

Mon 26/07/2021 10:22

To: Operations <operations@windracers.org>

1 attachments (2 MB)

Wick VCR.jpg;

Thanks for forwarding on your CONOPS draft document, which I've now managed to circulate amongst the Wick ATCOs to obtain their comments.

Firstly, can you please amend the contact telephone number for Wick ATC to [REDACTED] - the number you have in your document is the discrete number provided to Kirkwall ATC for their sole use only in order to give us some form of caller ID for incoming calls from Kirkwall ATC.

With regards your operating minima for departure/take off, are you still intending on operating if the TAF at either Wick or Kirkwall suggests that the conditions may drop below your minima during the course of the flight? Similarly, will you be signing up with the met office for Wick and Kirkwall weather warnings and will you operate if there is a fog warning or gale warning in place? Please note that, due its location, Wick can sometimes be badly affected by fog off the sea and often it tends not to burn off as the day progresses, but can hang over the airfield for several days at a time - even though just two miles inland, it can be almost like CAVOK with sunshine and blue skies, the airport can be sat in LVPs for days on end.

I note the plan to operate seven days a week 27/09 -03/10. At present, Wick is only open Mon-Fri 0800-1700L, Sat CLOSED, Sun 0900-1030, 1100-1300 & 1330-1500L. Can you confirm that you'd expect Wick to stay open and act as the diversion airfield until it has been confirmed that the aircraft has landed back at Kirkwall? Normally we'd only stay open beyond our notified opening time for a max of 15 minutes to act as an alerting service for any aircraft that departed dead on our closing time.

With regards the Sat/Sun operation you will need to request a special opening (for the Saturday) and an extension of watch (for the Sunday. As ATC rosters have to be produced by 20th of the preceding month, any such requests for the first weekend in October would have to be received and confirmed by us by 19th September.

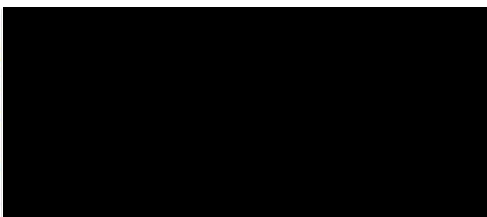
Other than the above comments, we're all fairly content with how the operation looks to be shaping up.

I've spoken with our Tels Engineer who has confirmed that the frequencies you intend to use will have no impact on any of the equipment they maintain on behalf of HIAL.

I've attached a photo of the Wick VCR so you can see how it looks - your aerals can be attached to the railing on the roof and then a cable run down the edge of the building to the conference room, which can be seen in the foreground with the door and window. We've roughly measured the distance from the roof to the window and it's approximately 28m.

Regards,

[REDACTED]



Re: ACP-2020-025 Concept of Operations DRAFT

Operations <operations@windracers.org>

Mon 26/07/2021 13:51

To:

Dear

Thank you for your feedback.

I have amended the telephone number for Wick ATC to

Operations can only take place if both the starting and destination airports are in VMC at take off and reduction of visibility is not forecasted. This will be assessed by the ULTRA UAS crews at both ends using information from METARs, TAFs, VOLMETs and available online weather information.

Do you have a suggested weather information source for Wick Airport?

In case of warnings for dense fog or strong winds issued on the Met Office we almost certainly won't be flying, however the final decision will be down to the UAS crew on the day.

We will be happy to modify the timeline and operate from Monday 27th September to Friday 1st October to avoid operating out of Airport's opening hours.

Thank you for sending the picture of the tower and the building, this is very useful to us.

We will update the Concept of Operations document and send it over shortly to sign.

If you need any other information, please don't hesitate to contact us.

Kind regards,



G.2 Kirkwall Airport (HIAL)

RE: Temporary Airspace Change ACP-2021-025 - Request for Feedback

Operations <operations@windracers.org>

Mon 21/06/2021 11:39

To:

Cc:

Good morning

Many thanks for your message. Please see the answer to your queries below:

- Who will be responsible for activating/publishing the TDAs?
The activation of the TDA will be requested by Windracers. This will be done upon consulting the local/key stakeholders, to make sure there are not expected schedule changes or other activities that could be affected.
An agreement will be in place so that we will message the stakeholders ~5 days in advance. If no reasonable issues are informed, the NOTAM to activate the TDA will be requested ~2 days in advance of the activity.
- Will the TDAs be activated solely by the publishing of a NOTAM?
The idea is that the NOTAM for each day of activation should be published with enough time in advance so that any airspace users can consult it and see it on moving map applications/websites. If you have in mind other ways of third-party notification, please let us know.
- How far in advance will the NOTAMs be published?
Minimum 24 hours, but we aim for 48 hours.
- Is there an expectation that the timings of these TDAs might be changed at short notice?
No. The TDA activation schedule will allow for some time buffers to contain any deviations and we don't expect to change these timings.
- If so, do you believe a NOTAM is sufficient promulgation for activating TDAs in class G airspace? Given that many pilots regularly come on frequency with ATC completely unaware of their content and there is no requirement for even radio contact with ATC.
In our experience we have used NOTAMS as the main way of promulgating the activation of TDAs. Also, key stakeholders will have access to the schedule and notice via email.
- Who will be the controlling authority for the TDAs?
Management of the TDA is responsibility of Windracers as sponsor of the ACP. As expressed in the answers above, the activation will be requested upon engagement with local/key stakeholders.
- Who makes the final decision on the day as to whether or not the UAS flight takes place?
As any other aviation activity, it is the Pilot-in-command who assesses all the weather, airspace, and airworthiness conditions before deciding whether the flight takes place or not. If there are reasonable concerns from ATC or other airspace users, the flight will be cancelled.
- If the Kirkwall ATCO believes there are too many other movements, are they able to cancel the TDA and cancel the flight?
Yes. I would suggest we include this limit in the letter of agreement. E.g. expected movements/hour.
- Is it the expectation that all other flights are held high / out of the way until the UAS flight is complete and the TDAs deactivated?
No. All crewed flights have priority over the UAS flight.
It is expected that the UAS will be held low/outside the ATZ in a holding location (to be agreed) until safe to proceed with the approach.

- Are you aware that – although there are obviously periods where there are no expected schedules – the traffic at Kirkwall is extremely unpredictable, and that schedule times change dramatically every day? Also, the fact that the regular helicopter, GA, and ambulance aircraft are entirely impossible to predict?
Yes, we are aware of that. The UAS and operations are flexible, and we can command the UAS to a holding location (to be agreed) to give way to any crewed aircraft.
- Are you aware of any procedures for clearing other aircraft for approaches / departures through TDAs? Also that Kirkwall is a non-surveillance ATC unit?
Yes. As with any crewed traffic, the ATS does not require surveillance. The UAS crew will be able to provide accurate position reports and follow ATC instructions to provide separation with other traffic. The TDA is not restricted airspace. Therefore, other aircraft can cross it, if necessary, during approach/departure, provided the position of the UAS is known and separation can be guaranteed.
- Who will be controlling the aircraft?
There will be a crew at each location. Most of the time it will be controlled by a crew located in Kirkwall airport, who will be in radio contact with Kirkwall ATC.
- Is the entire flight automated?
A mission is uploaded on the flight control system before commencing. The aircraft then performs the fly without intervention from take-off to landing. The flight plan can be changed or overridden at any point during the flight. We can command climb, descent, loiter, go-around, change of runway, etc.
- What communication, if any, will the operator have with ATC?
VHF radio as any crewed aircraft. It follows CAP 413 Radiotelephony procedures. The UAS have G registration.
We will also provide a telephone number to contact the crew (in case not reachable via VHF).
- What capabilities do they have? As in... can they climb / descend / orbit immediately at our request? (If at all).
Yes, upon ATC request we can command the aircraft to climb, descent or orbit immediately. All these will only happen within the bound of the TDA.
e.g. if we are requested by ATC to climb above the TDA ceiling, the operator will respond UNABLE and remind the limit of the TDA.
- How accurately and precisely can the UAS orbit? (If at all).
It can hold in orbits as small as 200 m radius. The navigation accuracy is +/- 3 ft.
- Is there a camera on the aircraft?
There is one camera on board. That camera is not broadcasting to ground, and it only records the airframe for investigation and development purposes.
- Is the UAS able to taxi around airfield and hold at holding points?
Yes. UAS is taxied manually by a marshal using a remote control, following ATC instructions (just as crewed aircraft). He'll walk as close as 10 meters from the UAS until lined up to take off.
The marshal will stand near the runway safety area during UAS departures/approaches.
- What weather minima do they have for safe operation?
Max wind: 40 knots
Max cross wind component: 20 knots
Precipitation: <2.5mm/hr
Visibility: 3km and BKN at 1000 ft at the locations of departure and arrival. No visibility limits on route.
- What service, if any, are ATC expected to provide?
We would like the ATC to provide DAAIS for the adjacent TDA segments (Segments A-B: KOI ATC, Segments C-D-E: LSI Radar). Should this not be possible, this service can be provided by NATS or by us via phone. However, we believe that the service is more effective when provided by local ATC who will

know when the UAS is using the TDA, and also it is the “go to” source of airspace information for other airspace users.

- Who has priority – schedule and normal movements, or the UAS?
Scheduled and non-scheduled crewed movements.
- Will the flight have a flight category?
The UAS flight is not usually categorised. I suspect it would be category Z, however I will pass this query to the Airspace Policy team at the CAA.
- Are there any AFS category requirements?
I’m not aware of the meaning of AFS. I’d appreciate if you could clarify.
- Will we be able to get instant position reports?
Yes, just as a crewed aircraft, we can provide position reports, relative to VOR/DME beacons, VRPs, or known GNSS waypoints. We would like to discuss these, so we can upload the most adequate references on the system to provide the information in the most useful format.
- How accurate are the position / altitude reports?
The UAS reports are as accurate as +/- 3ft in all axis. Barometric altitude can be corrected by QNH provided.
- Does the TDA end at Kirkwall?
All TDA segments are designed with the following principle: Where there is an ATZ, the TDA finishes at the ATZ boundary. Where there is not an ATZ (Eday, Fair Isle, etc) the TDA also covers the airfield.
- Will our ATZ still be our ATZ or is it all included in the TDA?
The ATZ does not change. It is not contained within the TDA. The UAS will not be commanded to ingress the ATZ until clearance from ATC has been provided.
- The illustrations show the TDA stretching out to the south west... is the UAS able to make an approach for RW27 / depart RW09 and remain within the TDA?
Yes. The UAS will be commanded to join a standard circuit pattern to the Runway in use for the approach. This circuit is quite small (downwind leg >2 km) and will be contained within the ATZ.
- How long a final approach does the UAS require?
Following the last answer, please see the picture below. As a reference the yellow dashed line represent the UAS circuit within Wick ATZ.



- If we can confirm that the UAS has departed Kirkwall, and is almost at Wick, do you know if we able to have other aircraft fly through the TDA in and around Kirkwall?
Technically this is possible. Once the UAS is further than halfway on the way to Wick, we can guarantee that it will not fly back towards Kirkwall.
This is also to be discussed with the Airspace Regulator at the CAA.
- What has been the input from air ambulance operators and the helicopter operators?
We have engaged very positively with several helicopter and emergency service operators. Generally, their request is for us to bring down the level of segment A and D (which we are considering).
Also, they are comfortable with us loitering outside the ATZ while they depart/approach.
- What has been the input from LoganAir?
We have had two meetings with LoganAir. Our proposal is to fly around the Inter-island schedule, therefore providing time separation with these traffics. And fly under the instrument routes used by the mainland services.
We will have another meeting with LoganAir on Thursday.
- What have LoganAir said about how the TDAs to the north will affect their north isles Islander movements? (Bear in mind again, that although they have scheduled movements these are regularly subject to delays – primarily due to weather).
We are aware that the inter-island services are subject to delays and schedule changes.
Although the TDA activation will have a time buffer we expect to delay or cancel the UAS flight, if necessary, to avoid any conflict.
- If – for example – both the north isles Islander and the UAS flights have been waiting to depart Kirkwall for an improvement in the weather, who would get priority?
The Islander.

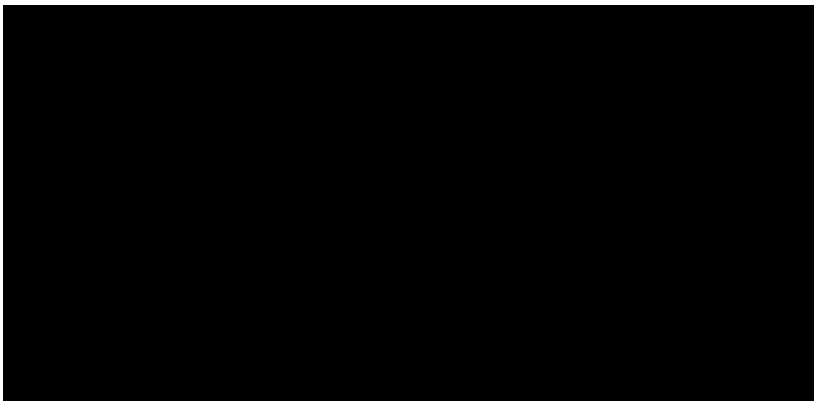
I hope this answer your queries.

I have cc'd [REDACTED] on the email as he might have similar questions.

I appreciate that you are unable to attend the meeting next week. However, we would be interested in having a conversation so we can answer any further queries.

Please let us know about your availability next week for a teams call.

Many thanks,



From: [REDACTED]
Sent: 19 June 2021 09:35
To: Operations <operations@windracers.org>
Subject: RE: Temporary Airspace Change ACP-2021-025 - Request for Feedback

RE: ACP-2021-025 routes layout update

[REDACTED]
Fri 25/06/2021 14:56

To: Operations <operations@windracers.org>
[REDACTED]

Hi [REDACTED]

A case 1 is better for air traffic and the schedules from the mainland. Aircraft descend down to 2400ft on the direct arrival IAP for runway 09, which would give 1400ft vertical separation.

However in A case 2 aircraft descend down to 1900ft which would only give 900ft vertical separation.

Also could the dogleg be pushed further away from the 09 approach and climb-out. At the moment it is only 15 degrees 270 – 255), it would be good if it was around 30 to 45 degrees, but I understand this would probably increase the flying time from the dogleg.

Regards

[REDACTED]

From: Operations <operations@windracers.org>
Sent: 25 June 2021 10:10

[REDACTED]
Subject: ACP-2021-025 routes layout update

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Dear all,

Thank you all for taking some time yesterday to talk about the project.

We have considered your feedback and comments about the operations and proposed some changes to the geometry of the Temporary Danger Area. The main changes are to separate the 'dog leg' from Kirkwall instrument approaches, to keep away from Lamb Holm airfield and to clear 2NM airspace around Sanday Airfield.

Please note that for segment A two cases have been proposed:

- CASE 1: 'Dog leg' extending 7 NM to the South West of KWL on QDR 255 deg.
- CASE 2: 'Dog leg' extending 7 NM to the South East of KWL on QDR 120 deg.

TDA vertical limit of segments A and B will be lowered to 1500 ft and the UAV will cruise at 1000 ft.

We would be grateful if you could provide some feedback to the new proposed layout before we inform the rest of the stakeholders involved.

Thank you for your time.

Kind regards,
[REDACTED]

RE: ACP-2021-025 routes layout update

[REDACTED]
Fri 25/06/2021 17:50
[REDACTED]

No problem, 45 degrees away from the approach and climb-out for the runways sound a lot better. How far away is the dogleg now from the 09 approach directly North if it is 225 degrees and 7 miles from Kirkwall?

Regards

[REDACTED]

From: Operations <operations@windracers.org>
Sent: 25 June 2021 16:42

[REDACTED]
Subject: Re: ACP-2021-025 routes layout update

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi [REDACTED]

Reading your response I realised there is an error in the bearing I wrote down. The radial of A Case 1 is **225 deg** therefore giving 45 deg separation from the 09 approach and climb-out.

The correct data for segment A is:

- CASE 1: 'Dog leg' extending 7 NM to the South West of KWL on QDR **225 deg**.
- CASE 2: 'Dog leg' extending 7 NM to the South East of KWL on QDR 120 deg.

We appreciate that A CASE 1 would be preferred for air traffic and the schedules from the mainland and we will check the Loganair mainline tracks for an engine failure after takeoff to determine if 45 deg separation is good enough.

Apologies for my mistake, I hope this clarifies the TDA dimensions.

Kind regards,

[REDACTED]

Re: ACP-2021-025 routes layout update

Operations <operations@windracers.org>

Wed 30/06/2021 12:01



Dear [REDACTED]

The corner of the dogleg is now 4.85 nautical miles from the 09 approach directly north. I have attached a picture to check if I understood correctly.

Please let me know if you need any other information.

Kind regards,

[REDACTED]

Re: ACP-2021-025 routes layout update

Operations <operations@windracers.org>

Mon 05/07/2021 12:04

[REDACTED]

1 attachments (189 KB)

TDA dimensions 20210705.pdf;

Hi [REDACTED]

Please find attached the new diagrams with the TDA dimensions. TDA-A and TDA-B are the ones with amended dimensions.

During our meeting in Kirkwall Airport you mentioned you will be in contact with Gama Aviation. Would you be able to pass us their contact since we would like to keep them updated with changes to the TDA.

Also, would you be able to share with us the document with the Loganair movements at Kirkwall airport you put together?

Thank you for your help.

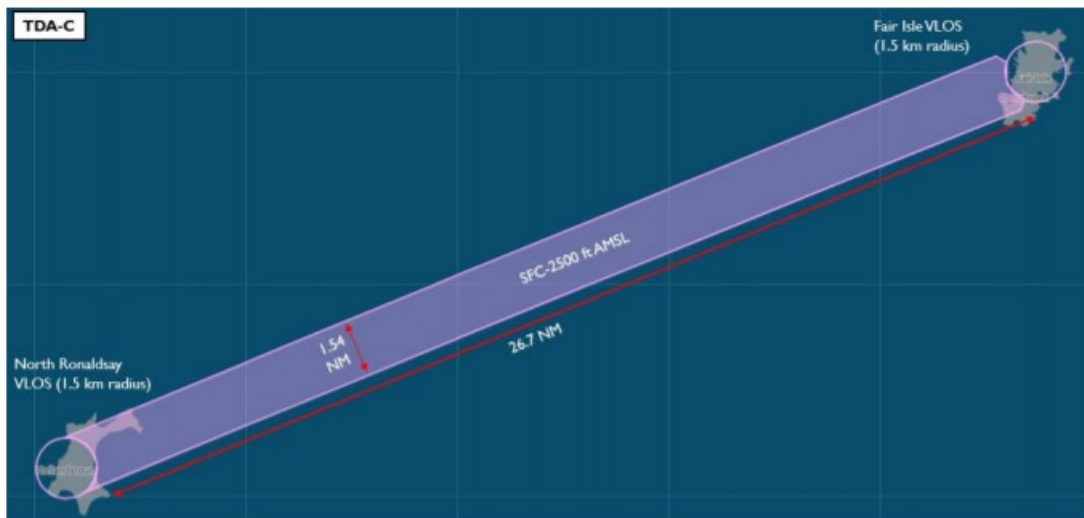
Kind regards,

[REDACTED]

[REDACTED]



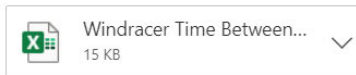






Mon 05/07/2021 12:36

To: Operations



Hi [REDACTED]

The contact at Gama is [REDACTED]

Also please find attached the spreadsheet detailing all the arrival and departure times for the schedules at Kirkwall.

Regards

[REDACTED]



Wed 07/07/2021 17:00

To: Operations



Hi [REDACTED]

I'm looking for some more information.

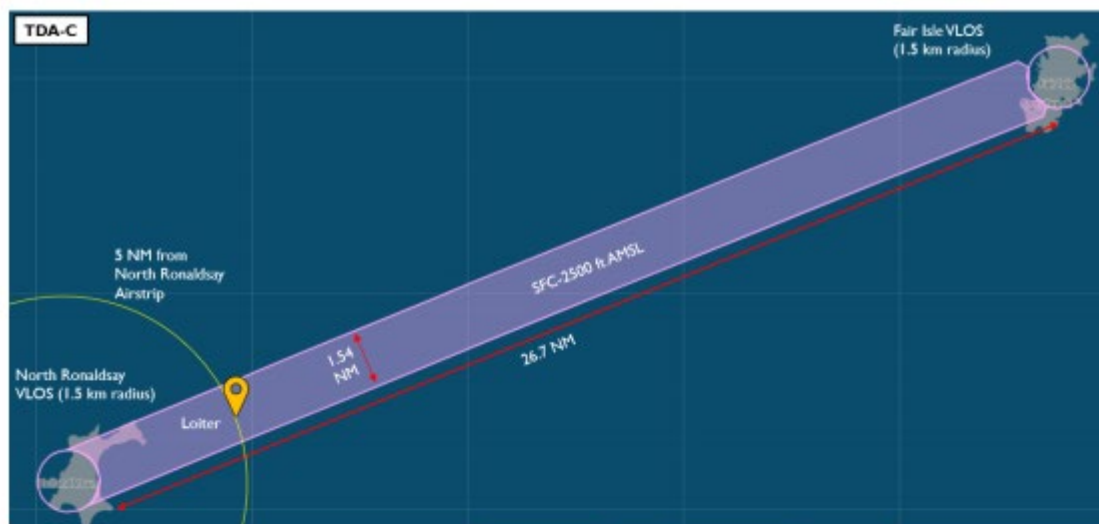
- Could you give me the bearing from Kirkwall for the first part of the flight B TDA;
- Could you make the loiter positions 5 miles from the Kirkwall DVOR and the North Ronaldsay airstrip for the flight B TDA; and
- Could you make aloiter position 5 miles from the North Ronaldsay airstrip for the flight C and D TDAs.

Could you update the drawings and email them to me. Thanks.

Regards

[REDACTED]

[REDACTED]



Please let me know if you need any other information.

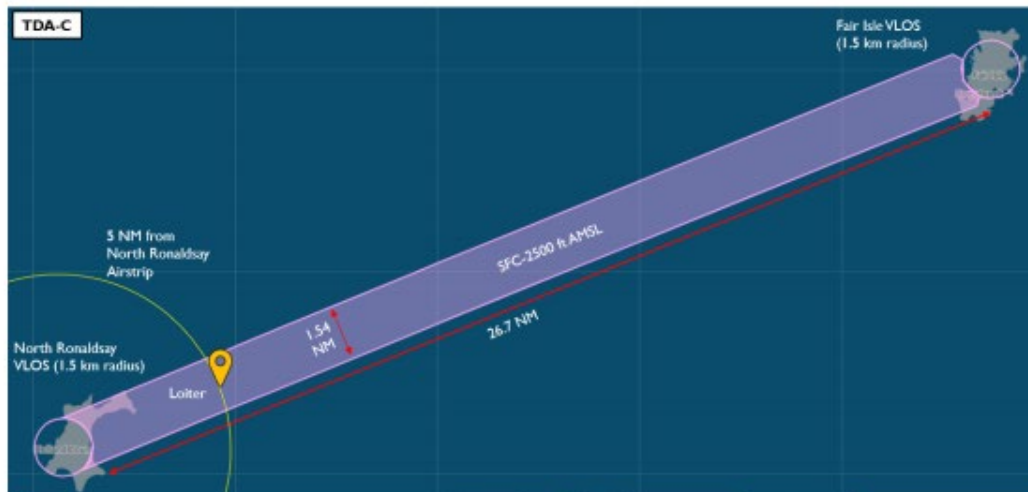
Re: Kirkwall CONOPS

Thu 08/07/2021 13:14

Hi

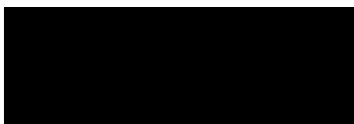
- The first part of TDA-B is 17.5 nautical miles to the North West of KWL on QDR 15 deg
- I have added a loiter 5 nautical miles from Kirkwall DVOR. At this distance the loiter point is placed over land, if it was reduced to 4 NM it would be over sea which is a preferred option for lower ground risk
- Loiters 5 NM from North Ronaldsay have been added to the diagrams below for TDA-B, -C, -D.





Please let me know if you need any other information.

Kind regards,



G.3 Sumburgh Airport (HIAL)

From: [REDACTED]
Sent: 23 June 2021 12:11
[REDACTED]
Subject: Sumburgh Radar - NATS Aberdeen

[REDACTED]
I dropped my counterpart at NATS Aberdeen [REDACTED] who is the Manager ATC for Aberdeen with a brief explanation. He was aware of the project.

His e-mail address is [REDACTED]

Best regards

[REDACTED]


[REDACTED]

Sumburgh Radar - NATS Aberdeen

1

[REDACTED]

👍 ↶ ↷ ➡ ...

 Windracers Presentation ...
1 MB

[REDACTED]

Thank you. Very much appreciated. Please find attached as promised a copy of yesterday's presentation.

Very grateful for your help and assistance and coming all the way out to Tingwall for the meeting.

I have also copied [REDACTED] and [REDACTED] who will pick up the contact with Alun and engage him directly on the details of the project and agree the anticipated operational elements. We will keep you copied in and updated as we go along.

For info We are talking to the Orkney GA community today at Lamb Holm and to Kirkwall ATC and Loganair (again) tomorrow. We have an engagement with the Air Task head office guys on Friday.

Once again your support is really much appreciated

[REDACTED]

[REDACTED]

[REDACTED]

From: [REDACTED]

Sent: 03 June 2021 11:13

Subject: RE: Air Task contact ?

[REDACTED]

Hope this e-mail finds you well.

Please see below another contact we received from Hugie when planning a Flight safety meeting:

[REDACTED] Safety manager.

He might be able to advise of other persons of interest.

Regards

[REDACTED]

[REDACTED]

G.4 Orkney Island Council - Eday and North Ronaldsay Airports

Orkney islands council airfields



3 attachments (5 MB)

Summer 2021 Timetable.pdf; DSCN4246.JPG; WIN_20210126_10_20_17_Pro.jpg;

Classification: OFFICIAL

Good afternoon,

It was good to chat with you earlier, I thought I should send you a picture of our runways surface material so that you can see what you will be operating off of, if you would like to do a site inspection or visit to any of the airfields let me know and we can organise that.

I've attached a snap of the CAA chart which shows the location of Lamb Holm which should be avoided and I've marked with a blue blob the approximate location of another private strip close to Harray along with the disused airfields Skeabrae and Twatt which I would suggest should all be avoided as well.

The key stakeholders that use our airfields are;

Loganair
Scottish air ambulance service
Coastguard

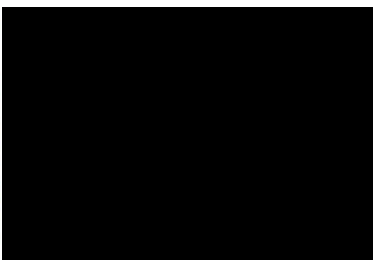
Other interested parties include,

GA alliance and the LAA Highland Strut (Inverness), I have sent them the press release.

AOPA
LAA
RAF Lossiemouth
Highland Gliding Club
Highland Aviation
Moray Flying Club
Easter Airfield
Shempston Flying Group

And locally here the Lamb Holm recreational pilot's.

Feel free to contact me at any time if you would like more information about anything and I look forward to seeing your aircraft in operation this summer.



G.5 Shetland Island Council - Lerwick/Tingwall and Unst Airports

Unst Airfield



 2 attachments (11 MB)

Unst Aerodrome - MoD Listing 2009.pdf; Ordale Airfield.jpg;



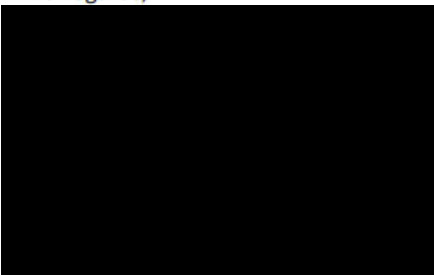
Thank you for taking the time to discuss the SATE Project and how we can contribute to the proof of concept programme for this summer.

For information, please find attached some basic historic details for Unst airfield. The runway and stand are in very good condition and there should be no operational issues.

Also the local UAV operators can be contacted through 

Happy to discuss further.

Kind regards,



RE: SATE project

[REDACTED]
Fri 02/07/2021 12:26
[REDACTED]

Hi [REDACTED]

We are hoping for the beginning of October for flights in/out of Tingwall. Windracers [REDACTED] (in copy) have an engagement meeting with the CAA next week and again hopefully dates should be clearer. We will of course revert with greater specificity when we have it.

We have now completed the detailed first round of engagements with all key stakeholders – including the Air Task management who we caught up with on a Teams call last Friday. We have also engaged The Aberdeen based, NATS Sumburgh Radar team.

All the feedback is being digested and potential changes to the proposed geometry of the TDA's are being considered. More importantly it has also allowed us to complete a more detailed operational assessment. All these will be fed into a new document that will be distributed soon so that final agreement from all key stakeholders can be sought.

May I thank you once again for your hospitality last week. It was such a pleasure to visit Tingwall and Shetland for the first but hopefully not the last time !

All the very best

[REDACTED]

[REDACTED]

From: [REDACTED]
Sent: 01 July 2021 14:30
To: [REDACTED]
Subject: SATE project

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi [REDACTED] Hope you are well,

Could you provide me with the dates you would expect the aircraft to be operating out of Tingwall please?

Regards

[REDACTED]

G.6 National Trust for Scotland - Fair Isle Airport

Windracers Ltd
Temporary Airspace Change ACP-2021-025

STAKEHOLDER FEEDBACK FORM



ACP-2021-025

**Group of TDAs connecting Orkney and Shetland Islands for SATE
(Sustainable Aviation Test Environment) UAS operations**

Feedback Form

Name	<div></div>	
Organisation		
Email address		
Telephone number		

SECTION 1. Safety and Viability

<p>1. Please provide feedback on how the lateral route of the TDA could be designed to minimise the impact on your operations. Please include sketches or examples and refer to individual segments of the TDA where necessary.</p>
<p>The TDA appears well designed to minimise impact on operations as much as possible. However, weather conditions at Fair Isle caused by low cloud and variations in wind direction may create problems. With wind directions between WSW and NNW and ENE to SE severe turbulence can be expected off the high west cliffs or the prominent Sheep Rock, a prominent feature on the east coast.</p>

<p>2. Please provide feedback on the range of altitudes of the TDA which would minimise the impact on your operations. Please refer to individual segments of the TDA where necessary</p>
<p>Islanders and Coastguard helicopter operating at one thousand feet and below VFR, also potential transitting helicopters routing to West of Shetland operating up to three thousand feet (mainly IFR so would be level at three thousand feet, so above TDA).</p> <p>General Aviation flights do land at Fair Isle, often en-route Orkney - Shetland. These are normally confined to the summer months and should be strictly PPR.</p>
<p>3. Please provide feedback on the possible range of operating hours of the TDA which would minimise the impact on your operations.</p>
<p>Early in the morning would work, although during summer a flight departs from Tingwall at 07:30am on a Monday. By 5pm scheduled flights are back on the ground at Tingwall. During summer there is a scheduled flight around midday Saturday. Normally no flights on a Sunday.</p> <p>A timetable of scheduled flights is available, usually two or three a day, occasionally just one. However, schedules are very dependent on weather conditions so actual timings can change significantly.</p> <p>Annual movements at Fair Isle are around 800-900. During the pandemic there have been fewer flights than usual, though are now beginning to rise again.</p> <p>After 4/5pm or over the weekend?</p>
<p>4. Please provide feedback on any particular safety issues regarding these operations that concern your organisation and how these should be addressed.</p>
<p>Concerns over low level traffic operating in the area. These will be addressed through stakeholder engagement and NOTAM action.</p> <p>The Shetland Flight Information Notification Scheme is a way of informing other local airspace users of intended drone flights. An email can be sent which will be seen by all members of the scheme, including the ATC units at Aberdeen, Sumburgh and Tingwall, as well as the HM CoastGuard helicopter crews and the Airtask Islander crews. ATC will also inform other aircraft of the drone or UAV flight in the Fair Isle area.</p> <p>For information: http://www.shetland-flyer.media/dronesafety/sfins.html</p>

5. What would be the best way to address any safety issue concerning your organisation? (Please check one of the following options)	
<input checked="checked" type="checkbox"/> Providing time separation from the operations of your organisation, e.g. early in the morning or late in the afternoon	<input type="checkbox"/> Providing vertical separation from the operations of your organisation (TDA vertical layout).
<input type="checkbox"/> Providing lateral separation from the operations of your organisation (geographical layout).	<input type="checkbox"/> Other
Please provide more information about the preferred method of separation:	
<p>A deconfliction agreement with Windracers would be required, with input from Airtask, operators of the Shetland Islands Inter-Island Air Service and the Search and Rescue Coastguard helicopter as both operate 1000ft and below.</p>	

SECTION 2. Level of engagement

6. With regards to the level of engagement in the ACP process, your organisation: (Check all that apply)	
<input type="checkbox"/> does not require further engagement in this airspace change process.	<input checked="" type="checkbox"/> should be involved in the design of the airspace change.
<input checked="" type="checkbox"/> would require to be informed of any changes to the ACP process.	<input checked="" type="checkbox"/> should put together a deconfliction agreement with Windracers before start of the UAS operations.
Please justify:	
As a licensed Aerodrome we are required to comply with CAA regulations and have procedures in place to do so.	
7. Please provide any further comments or questions. We will get in touch to answer your queries.	
There is little current infrastructure at Fair Isle Aerodrome, other than a windsock and Air/Ground radio. Mains electricity has recently been installed. RFFS is provided. All staff are part-time. The Aerodrome is licensed daylight hours only for scheduled flights and PPR flights. Battery lights are deployed for night-time emergency medevacs (helicopter). I am in charge of the Met Office Fair Isle meteorological station, located 1000m south of the Aerodrome and can provide pilots with preflight weather information.	

Wind Racers meeting 20/07/21



Good afternoon

My apologies for the late login to the Teams meeting this morning. It was good to catch up with latest project developments and a number of queries answered.

The following is the link to the latest hourly SYNOP observations from the Met Office station on Fair Isle. I have a display in my office which gives me the current information. The Met Office site is 1000m due south of the airstrip. Because of the topography of the island conditions at the airstrip can vary significantly from the met station. In particular cloud base, visibility and wind (speed and direction).

Ogimet observations:

<http://www.ogimet.com/synops.phtml.en>

Fair Isle WMO number is 03008

More information about the Shetland Flight Information Notification Scheme can be found at:

<http://www.shetland-flyer.media/dronesafety/sfins.html>

If you send a request to join to dronesafety@shetland-flyer.co.uk they will send an email with an email address for flight notifications and a suggested format for flight information.

Best Regards




G.7 NATS - Sumburgh Radar

RE: UAS project Orkney and Shetland Islands - Temporary Airspace Change ACP-2021-025

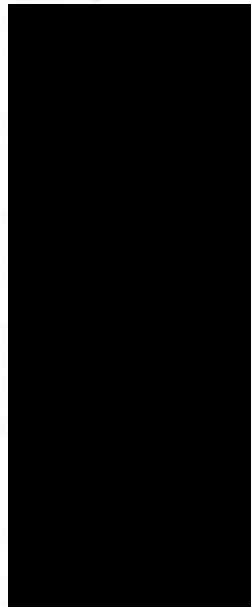


NATS centrally has received the details of the ACP, and I've provided feedback to my HQ who will collate a single combined NATS response.

However, it would be most useful to have a meeting to understand your operation and how it will integrate with the Sumburgh Radar sector, especially the offshore helicopter operation. I'm afraid I can't do Friday, the earliest would be

1st July if you're available? If possible I would like my  (cc'ed) to join us, we'll be available between 1130 and 1400 on that day.

Kind Regards



Temporary Airspace Change ACP-2021-025 - Request for Feedback - NATS response



 1 attachments (209 KB)

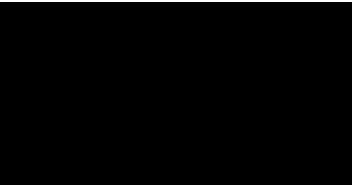
ACP-2021-025 Feedback Form (NATS response).pdf;

Dear 

Thank you for providing NATS the opportunity to comment on your ACP. Please find attached the NATS comments for your consideration - please feel free to contact me if you have any questions or require any clarification.

Regards





NATS Internal

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ACP-2021-025

**Group of TDAs connecting Orkney and Shetland Islands for SATE
(Sustainable Aviation Test Environment) UAS operations**

Feedback Form

Name	<div></div>	
Organisation		
Email address		
Telephone number		

SECTION 1. Safety and Viability

1. Please provide feedback on how the lateral route of the TDA could be designed to minimise the impact on your operations. Please include sketches or examples and refer to individual segments of the TDA where necessary.
<p>See comments below regarding segment D's proximity to Controlled Airspace.</p> <div></div>

2. Please provide feedback on the range of altitudes of the TDA which would minimise the impact on your operations. Please refer to individual segments of the TDA where necessary
<p>With regards the Sumburgh Radar operation, segments C and D are an area of concern. Segment C is traversed by IFR commercial helicopters in support of the Offshore industry, routing from Aberdeen to the West of Shetland (WoS), typically at altitudes of 2000 and 3000 feet.</p> <p>We note the operating altitude of the UAS is 2000ft, with an upper TDA limit of 2500ft. A UAS operating altitude of 1000ft and upper TDA limit of 1500ft would help reduce the impact on this part of the operation.</p> <p>Segment D is more problematic. A number of offshore helicopters operate in and out of Sumburgh airport to installations to the west and north west of Sumburgh. The departures, if IFR would be at 3000ft and therefore shouldn't be impacted, however recovery back to the airport can typically be at 1000ft VFR.</p> <p>Again lowering the upper TDA limit would help reduce the impact, but the proximity to the Controlled Airspace boundary doesn't leave a lot of space for the aircraft to manoeuvre once clear of the TDA.</p> <p>Providing a bigger buffer may help in this regard.</p>
3. Please provide feedback on the possible range of operating hours of the TDA which would minimise the impact on your operations.
<p>The majority of commercial traffic occurs during the week. Consideration should be given to limiting operations in segments C and D to weekends only.</p>
4. Please provide feedback on any particular safety issues regarding these operations that concern your organisation and how these should be addressed.
<p>There is no mention of a controlling authority or provision of a Danger Area Crossing Service being provided. What contingencies are being considered for aircraft in an emergency, or Search and Rescue aircraft requiring entry into the TDAs?</p> <p>Electronic conspicuity is mentioned - will this be in the form of a ModeA/C or S transponder? Whilst it is accepted that the UAS will be operating within a TDA, an unverified and unvalidated SSR return (or indeed a PSR only return) could result in avoiding action being taken by aircraft under our control potentially increasing workload.</p>

5. What would be the best way to address any safety issue concerning your organisation? (Please check one of the following options)	
<input checked="checked" type="checkbox"/> Providing time separation from the operations of your organisation, e.g. early in the morning or late in the afternoon	<input type="checkbox"/> Providing vertical separation from the operations of your organisation (TDA vertical layout).
<input type="checkbox"/> Providing lateral separation from the operations of your organisation (geographical layout).	<input type="checkbox"/> Other
Please provide more information about the preferred method of separation:	
<p>As mentioned above, alterations to the upper TDA limit would help mitigate issues with the operation. A greater lateral shift away from the Controlled Airspace boundary could also be considered to assist VFR recovery into Sumburgh from the west and north west.</p> <p>Provision of a Danger Area Crossing Service to allow aircraft in an emergency or SAR aircraft to enter the TDA should be considered.</p> <p>Deconflicting the use of the TDAs to weekends would significantly reduce the impact on the Sumburgh Radar operation.</p>	

SECTION 2. Level of engagement

<p>6. With regards to the level of engagement in the ACP process, your organisation: (Check all that apply)</p>	
<p><input type="checkbox"/> does not require further engagement in this airspace change process.</p> <p><input checked="" type="checkbox"/> would require to be informed of any changes to the ACP process.</p>	<p><input type="checkbox"/> should be involved in the design of the airspace change.</p> <p><input type="checkbox"/> should put together a deconfliction agreement with Windracers before start of the UAS operations.</p>
<p>Please justify:</p>	
<p>Whilst we are not directly involved in this trial, it's overall design has the potential to impact our operation considerably.</p>	
<p>7. Please provide any further comments or questions. We will get in touch to answer your queries.</p>	
<p>If not already done, we would strongly encourage engagement with the 4 offshore helicopter operators (Bristow, Babcock, CHC and NHV), Bristow SAR, Airtask who operate the local Islander passenger service, along with maritime patrols, and HIAL Sumburgh.</p> <p>Question regarding the TDA around Unst and Fair Isle, what is the vertical extent of the TDA as there is no ATZ associated with those airfields?</p>	

Temporary Airspace Change ACP-2021-025 follow up

Operations <operations@windracers.org>

Mon 05/07/2021 16:02

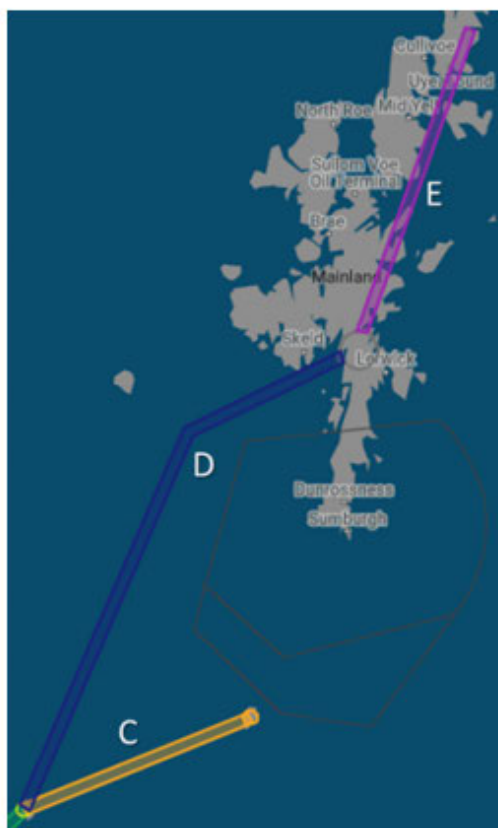
Good afternoon [REDACTED]

Thank you for your taking some time to talk to us last week.

Following up from our conversation I would like to answer some of the queries:

Only one of the three segments would be active at a given time:

Given the UAS flights schedule, the use of the TDA segments will be so that only one segment – of those under Sumburgh Radar service (C, D, E) - will be active at any time. When in route between Kirkwall and Lerwick or Kirkwall and Fair Isle, the UAS will be handed over from KOI ATC to LSI RDR overhead North Ronaldsay.



Separation and deconfliction:

Part of the current stakeholder engagement endeavour has been allocated to socialising our intended schedule of flights with usual airspace users in the Orkney and Shetland Islands. This engagement will continue through the TDA implementation.

The aim is to plan the UAS flights around other scheduled flights (AirTask, LoganAir) to reduce the possibility of conflicts between traffics. In a more tactical level, the intention of activating a TDA segment will be informed to the key stakeholders 5 days in advance, if any of the stakeholders have conflicting scheduled flights this should be informed 72 hours before the start of proposed operations.

The TDA will be activated via NOTAM, at least 24 hours in advance of operations. One NOTAM will be issued for each day of operations.

DAAIS or DACS provision:

In recent operations we carried out in Cornwall we had a similar TDA structure, which was provided with DAAIS service by Newquay Radar. This proved very effective as other airspace users could get timely information about the use of the TDA directly from the ATS.

Given the availability of surveillance in the area, Sumburgh Radar could provide DACS or DAAIS service over segments C, D and E of the proposed ACP-2021-025, with high certainty of the UAS position and overall situational awareness of traffic in the area.

Should a DACS service be feasible, the crossing of other traffic through the TDA segment (whilst active) could be permitted.

It is important to note that, apart from the surveillance information, the PIC will provide position reports as required or at any selected reference point.

Pilot qualifications:

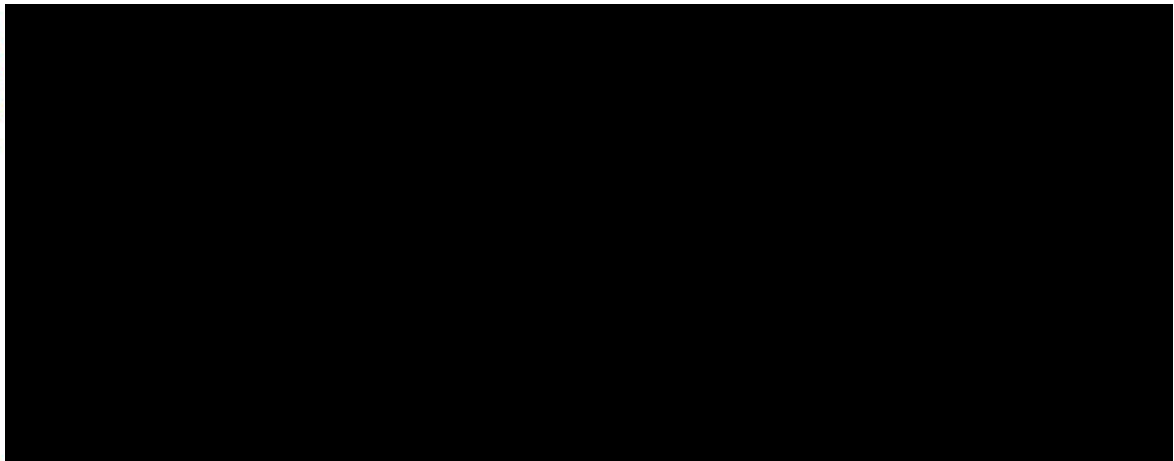
The UAS will always be monitored and commanded by a remote pilot-in-command. This role is undertaken by a qualified person who has completed the training requirements approved by the CAA. Given the size and complexity of the system, this training comprises elements of standard UAV qualifications (GVC/A2 CofC), private pilot's training (FRTOL), and specific system operation (in-house simulated and field training).

We hope this answers some of your queries. We would like to have the chance to further discuss the service that could be provided with a follow up meeting.

Could you let me know your availability for a teams meeting this or next week?

Thank you for your time.

Kind regards,



G.8 Airtask Group

Windracers Ltd
Temporary Airspace Change ACP-2021-025

STAKEHOLDER FEEDBACK FORM



ACP-2021-025

Group of TDAs connecting Orkney and Shetland Islands for SATE (Sustainable Aviation Test Environment) UAS operations

Feedback Form

Name	<div></div>	
Organisation		
Email address		
Telephone number		

SECTION 1. Safety and Viability

1. Please provide feedback on how the lateral route of the TDA could be designed to minimise the impact on your operations. Please include sketches or examples and refer to individual segments of the TDA where necessary.

As discussed at the dedicated presentation by Windracers on June 25th (closing day for comment), Airtask are concerned that the Licensed Aerodrome on Fair Isle and the services which operate to and from it are put at a disadvantage compared with other affected aerodromes such as Lerwick and Kirkwall in that the TDA C includes the whole of the area of the aerodrome itself and all airspace to a radius of 1.5 km from the ARP. This is not immediately apparent from the sketches and could preclude the operation of an aircraft which was on the ground at Fair Isle operating off schedule or subject to a technical delay, but otherwise able to take-off and manoeuvre inside the equivalent of an ATZ and avoid the corridor section of the TDA. We suggest that the TDA should not encroach over the licensed aerodrome which we provide services to, as is the case with Lerwick. I.e. provide the equivalent of an ATZ at such locations.

2. Please provide feedback on the range of altitudes of the TDA which would minimise the impact on your operations. Please refer to individual segments of the TDA where necessary

1. Our BN2 aircraft operate scheduled inter island VFR services on behalf of Shetland Island Council which potentially cross the proposed TDA segments C, D and E. These conflict; C with the approach and departure to/from Fair Isle; D with ad-hoc services between Fair Isle and Foula which occur during load consolidation; and D + E potentially with services from Lerwick to Foula.

C can only be dealt with by giving Fair Isle the equivalent of an ATZ. D could be dealt with by limiting the TDA to the band 1500 ft to 2500 ft with the Windracer operating at 2000 ft as proposed and allowing aircraft to cross beneath. We note that this is under discussion with the CAA as * marked in the text of the Delivery document. Our pilots would prefer not to use this method of deconfliction, but if nothing else is available then it would suffice. Our aircraft may operate up to 1500 ft but could maintain 1000 ft beneath the TDA giving 1000 ft separation. Confliction with services between Lerwick and Foula when TDAs D and E are notified could be dealt with by routing in/out of the ATZ to the northwest (a further reason for repositioning the loiter point in the ATZ mentioned in Section 4 item 2 of this document). In the case of weather precluding this direction of operation, again by limiting the TDA to the band 1500 ft to 2500 ft, aircraft from Tingwall could route beneath the TDAs. However, as these parts of the D and E TDAs are close to the Lerwick terminal, it is expected that they would probably extend to the surface?

2. As also discussed at the presentation, we operate 2 x F406 maritime patrol aircraft from Inverness on behalf of Marine Scotland. The crews of these aircraft are warranted as Fisheries Protection Officers and they may need to fly at any altitude between the surface and 10,000 ft in the course of performing surveillance of fishing activity in Scottish waters. This could conflict with any of the TDAs as they operate both close inshore and to the limit of the EEZ - mostly under VFR. TDAs C and D traverse longer stretches of water and are more likely to be crossed in the course of a patrol by one of these aircraft. It may be possible for the aircraft to overfly the TDA or underfly it if its base was raised over a suitable distance. Again, it is suggested that deconfliction is best achieved by timing, declaration of the TDA being cold and liaison with our Inverness operations department. It would be unfortunate if the aircraft had a boat under surveillance that was covered by the TDA.

3. We also mentioned that we operate a BAe 146-301 aircraft for UKRI and its many academic partners, conducting atmospheric research flying which may involve operating at low level near the Northern Isles, typically whilst investigating phenomena connected with the oil and gas fields in the area. Raising the base of TDAs would possibly be a method of de-confliction when this aircraft is operating at low levels (it may operate very close to the surface). Once again de-confliction by liaison with our operations teams would seem to be the most effective way of achieving solutions.

3. Please provide feedback on the possible range of operating hours of the TDA which would minimise the impact on your operations.

From discussions so far we understand that it is accepted by the sponsors of the SATE trial that manned commercial flights will take precedence. Generally all of our operations occur in daylight between 0800L and 1700L M-F (the exception being possible Saturday operations in Shetland). We will forward our timetable of scheduled inter island services so that preliminary arrangements can be made. It must be borne in mind that the services are flown VFR and are very weather dependent. Our absolute minima over Shetland are 550 ft asl with 3 km visibility with additional wind limitations. Services must often necessarily operate off schedule, which will require de-confliction. Liaison with our Shetland base is the best method of achieving this. As mentioned in the briefing, our maritime patrol routes are dictated by Marine Scotland's requirements and are only decided on the day of operation. A close liaison with our operations team at Inverness will need to take place to achieve any de-confliction required. MS generally only require us to dispatch one aircraft per day for a patrol that lasts on average around 4.5 hours. This may be to anywhere in the EEZ, so the likelihood of conflict is reduced purely by geography. Nevertheless, the seas around Orkney and Shetland have major fishing grounds and the fairly frequent patrols to the area may conflict with the TDAs. The surveillance of fishing activity may often take place from 4000 ft using sensors but sometimes requires low passes to be made near vessels of interest. We would require access to a TDA particularly when surveillance indicates that illegal activity may be taking place. For this reason and others we would prefer that Aberdeen radar were able to provide a DACS rather than DAAIS. The atmospheric research aircraft does visit the area as noted in section 2 above, however this occurs fairly infrequently and the chances of conflict are low. Again, liaison with our operations team at Cranfield will determine whether or not de-confliction is required and how it may best be resolved.

4. Please provide feedback on any particular safety issues regarding these operations that concern your organisation and how these should be addressed.

1. Our pilots have expressed concern regarding the placement of the loiter positions at Fair Isle and Lerwick. The Fair Isle position is very close to the climb out from runway 24 and approach to runway 06. We suggest this would be better place on the northwest perimeter of the VLOS circle well away from normal operations in case an aircraft was delayed to/from Fair Isle. Note misgivings in Sections 1 and 2 of this feedback form regarding protection available to aircraft movements at aerodromes without ATZs. It is assumed that the ATZs are not being notified as part of the TDAs. This should be confirmed.

2. Similarly, at Lerwick, the 1000 ft loiter position is close to inbound/outbound tracks Lerwick to Foula. This should be re-sited closer to the TDA D or E corridors. The 2000 ft loiter positions may be adequate though pilots have expressed a preference for them to be moved a further 2 nm away from the ATZ but it is unclear what altimeter settings are proposed. Are the loiter points heights or altitudes? Both terms are used in the documents.

3. Operations at Fair Isle should not take place if there is an Airtask aircraft on the ground there at the same time. The the movement area is constrained.

5. What would be the best way to address any safety issue concerning your organisation? (Please check one of the following options)	
<input checked="" type="checkbox"/> Providing time separation from the operations of your organisation, e.g. early in the morning or late in the afternoon	<input type="checkbox"/> Providing vertical separation from the operations of your organisation (TDA vertical layout).
<input type="checkbox"/> Providing lateral separation from the operations of your organisation (geographical layout).	<input type="checkbox"/> Other
Please provide more information about the preferred method of separation:	
<p>As detailed above. The best way of achieving separation from our operations is by open liaison with our base operations management at each of our locations.</p> <div style="background-color: black; height: 100px; width: 100%;"></div> <p>We will provide advance notice of our scheduled operations but these are only one aspect of our work in the area.</p>	

SECTION 2. Level of engagement

6. With regards to the level of engagement in the ACP process, your organisation: (Check all that apply)	
<input type="checkbox"/> does not require further engagement in this airspace change process.	<input type="checkbox"/> should be involved in the design of the airspace change.
<input type="checkbox"/> would require to be informed of any changes to the ACP process.	<input checked="" type="checkbox"/> should put together a deconfliction agreement with Windracers before start of the UAS operations.
Please justify:	
<p>As detailed in discussions between Mr D Holden and Mr M Collins following SATE Windracers presentation on June 25th. We have two main concerns, firstly that scheduled and necessarily off schedule operations by our Shetland based inter island aircraft are unimpeded and secondly that our maritime patrols have the required access to sea areas potentially beneath TDAs.</p>	
7. Please provide any further comments or questions. We will get in touch to answer your queries.	
<p>I was unable to provide comment before the presentation on 25th June and have been relying on the notes taken during that meeting as adequate until now. This response is intended to set out in writing the aspects of the operation we would wish to clarify before it occurs in October.</p>	

G.9 Loganair

ACP for Unmanned Aircraft in Kirkwall



Fri 28/05/2021 15:26



Good afternoon [REDACTED]

We spoke at the beginning of March regarding our planned SATE operations from Kirkwall, connecting several locations in the Orkney and the Shetland Islands.

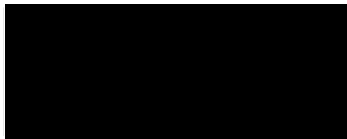
Since then, we have been quite busy with the [Isles of Scilly Airbridge](#) project, that got some PR and I hope you have seen.

Yesterday I started the formal stakeholder engagement for the Airspace Change related to the SATE project. Although it'd be very useful to receive your feedback in the format we sent, we believe that a more individual engagement with key stakeholders brings the most benefit to the process.

Please let me know if you have some availability next week (preferably Thursday or Friday) to set up a meeting and discuss in more detail how we can guarantee the safety and success of these trials.

I look forward to hearing from you.

Kind regards,



Loganair/SATE - follow up call



Thu 17/06/2021 17:30

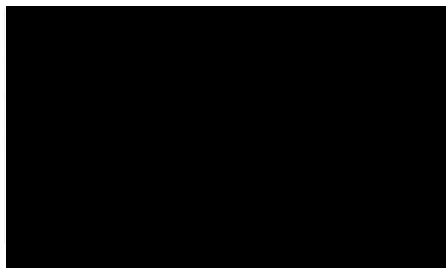


Meeting invite accepted. Not sure if you want a free-form meeting or set to an agenda, but my issues remain:

- (i) DACS/DAAIS;
- (ii) Electronic conspicuity;
- (iii) Provision of VFR/IFR separation;
- (iv) Drone holding areas/altitude;
- (v) Communication protocols and procedures;
- (vi) Weather minima

I am still of the view that - for ATC, CAT and GA - this is one of the most challenging drone trials undertaken in the UK so far, given the nature of the airspace and its utilisation. Segregated airspace is not the way forward for all concerned and whilst we'll work hard to make it work at this stage I'm not optimistic, particularly given the timescales.

Regards,



Re: ACP-2021-025 routes layout update

[REDACTED]
Fri 25/06/2021 10:44
[REDACTED]

Hello [REDACTED]

That was a productive session yesterday.

Dogleg round Sanday airfield is much appreciated and will keep us well separated if we are in the air at the same time.

Thanks,
[REDACTED]

Get [Outlook for iOS](#)

From: Operations <operations@windracers.org>

Sent: Friday, June 25, 2021 10:10:13 AM

[REDACTED]
Subject: ACP-2021-025 routes layout update

Dear all,

Thank you all for taking some time yesterday to talk about the project.

We have considered your feedback and comments about the operations and proposed some changes to the geometry of the Temporary Danger Area. The main changes are to separate the 'dog leg' from Kirkwall instrument approaches, to keep away from Lamb Holm airfield and to clear 2NM airspace around Sanday Airfield.

Please note that for segment A two cases have been proposed:

- CASE 1: 'Dog leg' extending 7 NM to the South West of KWL on QDR 255 deg.
- CASE 2: 'Dog leg' extending 7 NM to the South East of KWL on QDR 120 deg.

TDA vertical limit of segments A and B will be lowered to 1500 ft and the UAV will cruise at 1000 ft.

We would be grateful if you could provide some feedback to the new proposed layout before we inform the rest of the stakeholders involved.

Thank you for your time.

Kind regards,
[REDACTED]

RE: ACP-2021-025 routes layout update

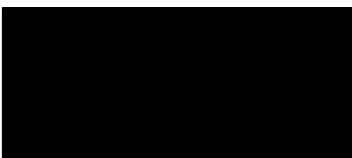
Fri 25/06/2021 11:01



Morning [REDACTED]

Thanks again for facilitating yesterday's meeting. And for the compromises made towards ensuring that we can maintain the regularity and safety of our inter-isles and mainline services. I will expedite my analysis of the potential tracks taken by Saab 340 and ATR aeroplanes in the event of an engine failure after takeoff and report as soon as I can sometime next week.

Regards,



From: [REDACTED]

Sent: 19 July 2021 08:18

To: [REDACTED]

Cc: [REDACTED]

Subject: Engine failure procedures - Kirkwall

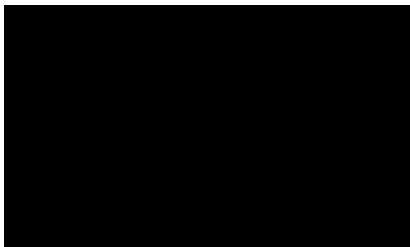
CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Morning all

[REDACTED] apologies. I'm up in Kirkwall for my annual check on the Islander and remind myself that I undertook to send you our engine failure procedures for 340 and ATR. They're attached.

With regard to the TDAs, the only issue is the EFP from R27 which will potentially take us quite far south, especially in a northerly wind.

Best regards,



Safety Spotlight — Remember FACTS for a safer Scotland.

From: [REDACTED]
Sent: Monday, July 19, 2021 12:00:54 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: Engine failure procedures - Kirkwall

Hi [REDACTED]

Thanks for the information.

With regards to the runway 27 engine failure procedure see the diagram below.



The UAS at the loiter position at the dogleg at 1000ft causes you concern. What range would a loiter position need to be South of the dogleg to remove your concerns. The UAS can be held at this loiter position if there is traffic on the approach for runway 27 as the mitigation against your engine fail procedures.

Regards

[REDACTED]

Re: Engine failure procedures - Kirkwall

Good Afternoon [REDACTED]

The dogleg has been modified to accommodate your requirements while maintaining separation from Lamb Holm airfield.

All the information on TDA dimensions and procedures for the operations have been summarised in a Concept of Operations document that will be shared with you as soon as possible.

Kind regards,

From: [REDACTED]

Sent: 19 July 2021 17:02

To: [REDACTED]

Cc: [REDACTED]

Subject: Re: Engine failure procedures - Kirkwall

Hello [REDACTED]

The EFP is for use on takeoff only and not missed approaches (failure at V1 for example being the limiting case). In a wind with a northerly component say up to 20 knots we might very well be tight against the dogleg. Would moving the dogleg another 2nm south be feasible? Or the QDR to about 210-215 deg?

Regards,

From: [REDACTED]

Sent: 04 August 2021 10:49

To: [REDACTED]

Cc: [REDACTED]

Subject: RE: Please DocuSign: CORRECTED1 - ACP-2021-025 Concept of Operations Phase 1.pdf

Hi [REDACTED]

I wanted to make sure that my response from the Inter Island Air Service viewpoint was not running contrary to Loganair's mainline response.

I have a few minor points to raise before signing.

It may be useful for you to include the Kirkwall Pilots' Office phone number [REDACTED]

From your document, the onus is on ATC to contact Windracers and by extension I imagine that you would expect Loganair to check with Windracers. It should be the other way round. Windracers should be contacting ATC and other affected parties before commencement of trials or if trials are not going ahead.

Under the Integration section of Part A, I feel that a sentence should be added to indicate that if the UAS has passed the loiter position it may be reprogrammed to return to the loiter position until cleared by ATC. Of course ATC can request either option or choose another means of providing separation.

No training flights to be accepted during the period that the TDA is active. If a training flight is scheduled for the period of Windracers' test program, I will contact you well in advance and we can negotiate a solution I am sure.

Best regards,

From: Operations [mailto:operations@windracers.org]

Sent: 05 August 2021 10:44

To: [REDACTED]

Subject: RE: Please DocuSign: CORRECTED1 - ACP-2021-025 Concept of Operations Phase 1.pdf

Dear [REDACTED]

Many thanks for your feedback. Please see my comments below:

1. We have now included Kirkwall Pilot's Office phone number in the ConOps.
2. The paragraph about ATC contacting WR was added by Kirkwall's ATC. However, we do not expect people to contact us, unless tactical coordination is needed. Wording has been changed on the ConOps. Regardless of who initiates the communication, we won't initiate activities before talking to them.
If WR's schedule changes for any reason, so that the TDA activation needs to change, all the key stakeholders (signing of the ConOps) will be informed. We'll create a mailing list for this and will phone those that would be specifically affected.
If either LoganAir, Airtask or other crewed service requires us to move or modify our schedule, we expect to hear directly from that party or through the ATC.
Please note we cannot commit to call individual stakeholders on the day we fly unless there are changes to the schedule.
3. Regarding the loiter position. We will not be crossing this position unless cleared with ATC. However, they could instruct us to return to it. That is not a problem. We believe that the following paragraphs support this:
 - a. Nothing in this concept of operations prevents a controller from using their own discretion and initiative in response to UAV operations and the prevailing traffic conditions.
 - b. Where required due to inbound or departing traffic the pilot may be requested by Kirkwall or Wick ATC to orbit (UAS can fly a 200 m orbit) the UAS at a loiter position or any point within the TDA until the traffic situation allows the flight to continue.
ATC will make this decision with regard to departures, estimates received on inbound traffic and the position of the UAS within the TDA.
The UAS will not enter the ATZ without an ATC clearance and all crewed flights have priority over the UAS flight.
4. Agree. Please let us know about your training flights taking place and we'll accommodate around them.

Please find attached the latest version of the ConOps. Please make any revisions you consider necessary before we distribute among stakeholders.

Kind regards,

[REDACTED]

G.10 Gama aviation

Windracers Ltd
Temporary Airspace Change ACP-2021-025

STAKEHOLDER FEEDBACK FORM



ACP-2021-025

**Group of TDAs connecting Orkney and Shetland Islands for SATE
(Sustainable Aviation Test Environment) UAS operations**

Feedback Form

Name	
Organisation	
Email address	
Telephone number	

SECTION 1. Safety and Viability

1. Please provide feedback on how the lateral route of the TDA could be designed to minimise the impact on your operations. Please include sketches or examples and refer to individual segments of the TDA where necessary.

Mostly we fly IFR at levels well above 2500 ft, however at times we fly VFR on all of your proposed legs except 'C' and 'E', and usually at 2000'. We are going to need a traffic service (or better) if we are going to share the airspace.

2. Please provide feedback on the range of altitudes of the TDA which would minimise the impact on your operations. Please refer to individual segments of the TDA where necessary

If the drones were to fly at 500' it would reduce the possible conflict.

3. Please provide feedback on the possible range of operating hours of the TDA which would minimise the impact on your operations.

For Lerwick operations - timed when Sumburgh radar is active would be helpful for position updates.

4. Please provide feedback on any particular safety issues regarding these operations that concern your organisation and how these should be addressed.

There is direct conflict with any VFR sectors we operate on. This is going to necessitate accurate time & position reports to avoid being VFR in the same space at the same time.

5. What would be the best way to address any safety issue concerning your organisation? (Please check one of the following options)	
<input type="checkbox"/> Providing time separation from the operations of your organisation, e.g. early in the morning or late in the afternoon	<input type="checkbox"/> Providing vertical separation from the operations of your organisation (TDA vertical layout).
<input type="checkbox"/> Providing lateral separation from the operations of your organisation (geographical layout).	<input checked="" type="checkbox"/> Other
Please provide more information about the preferred method of separation:	
<p>If the drones were to operate in hours of darkness that would remove the conflict as we don't generally fly VFR at night.</p>	

6. With regards to the level of engagement in the ACP process, your organisation:
(Check all that apply)

<input type="checkbox"/> does not require further engagement in this airspace change process.	<input type="checkbox"/> should be involved in the design of the airspace change.
<input checked="" type="checkbox"/> would require to be informed of any changes to the ACP process.	<input checked="" type="checkbox"/> should put together a deconfliction agreement with Windracers before start of the UAS operations.

Please justify:

There is direct conflict with our VFR operations for the Fixed-wing air ambulance service. We need to either co-ordinate with this operation or suspend VFR operations altogether.

7. Please provide any further comments or questions. We will get in touch to answer your queries.

G.11 Wiking Helicopters

Windracers Ltd
Temporary Airspace Change ACP-2021-025

STAKEHOLDER FEEDBACK FORM



ACP-2021-025

**Group of TDAs connecting Orkney and Shetland Islands for SATE
(Sustainable Aviation Test Environment) UAS operations**

Feedback Form

Name	
Organisation	
Email address	
Telephone number	

SECTION 1. Safety and Viability

1. Please provide feedback on how the lateral route of the TDA could be designed to minimise the impact on your operations. Please include sketches or examples and refer to individual segments of the TDA where necessary.

The north-bound TDA corridor does not directly impact our tasking flying to the wind-farm, as we depart eastbound. Training flying could be affected by the TDA, but this would very much depend on the time period for which the TDA is active. As outlined in paragraph 3 below, we need to be provided with details of what protections will be put in-place for the UAS and other traffic during departure and arrival at Wick, as this is the point of potential confliction with our operation.

<p>2. Please provide feedback on the range of altitudes of the TDA which would minimise the impact on your operations. Please refer to individual segments of the TDA where necessary</p>
<p>Preferred TDA altitudes would be:</p> <p>1. Surface to 1000ft 2. Above 2500ft</p> <p>These would have less of an impact on our operations than a TDA from surface to 2500ft.</p>
<p>3. Please provide feedback on the possible range of operating hours of the TDA which would minimise the impact on your operations.</p>
<p>Wiking Helikopter are tasked by Siemens Gamesa to fly from Wick airport in support of the Beatrice offshore wind farm. Flying can take place at anytime within the operating hours of Wick airport and Wiking is the primary operator based at the airport. When not flying on task it is highly likely that we will be conducting training flying from the airport. With regards to the timing of a NOTAM for a TDA, we have the flexibility with our training flying to accommodate these times, but much less so with our tasking flying. The impact on our tasking flying would very much depend on what restrictions are imposed at the Wick departure/arrival point, e.g. is there a movements ban in force for a specified time period? Where on the airport will the drone operate from? We will not be able to adequately assess the impact on our operation until these details are made clear.</p> <p>As a general rule it would be better for the TDA to be in place for just the first 30mins of the airport opening hours, rather than later in the day.</p>
<p>4. Please provide feedback on any particular safety issues regarding these operations that concern your organisation and how these should be addressed.</p>
<p>The primary safety concern is the what procedures will be implemented for deconfliction of the UAS with other traffic during departure and arrival at Wick airport.</p>

3

SECTION 2. Level of engagement

6. With regards to the level of engagement in the ACP process, your organisation: (Check all that apply)	
<input type="checkbox"/> does not require further engagement in this airspace change process.	<input checked="" type="checkbox"/> should be involved in the design of the airspace change.
<input checked="" type="checkbox"/> would require to be informed of any changes to the ACP process.	<input checked="" type="checkbox"/> should put together a deconfliction agreement with Windracers before start of the UAS operations.
Please justify:	
Justification is provided in paragraphs 1 to 4 above.	
7. Please provide any further comments or questions. We will get in touch to answer your queries.	



[REDACTED]

Yes, it was a very informative chat and a useful first step in deconflicting our operations.

I look forward to hearing from you as things progress.

Kind regards,

[REDACTED]

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On 4 Jun 2021, at 10:32, Operations <operations@windracers.org> wrote:

[REDACTED]

It was great talking to you this morning.

I just want to highlight some of the points discussed:

- ULTRA UAS is a fixed-wing ~10-meter wingspan aircraft that features multiple redundancy of critical subsystems.
- Equipped with ADS-B IN/OUT and Mode S Transponder. Position and Navigation lights.
- Circuits and radiotelephony procedures like crewed aircraft.
- Intention is to operate the KOI-WIC route for a week (TUE-FRI). Currently is planned on w/c 30/08, but this can change depending on regulatory process.
- TDA will be active for a maximum of 3 hours each day. Schedule of flights will be provided.
- Deconfliction procedure case:

Helicopter is arriving/departing when the UAS is arriving:

The UAV will be commanded to loiter outside the ATZ, within the TDA at 2000 ft AMSL to give priority to helicopter.

Once the helicopter is landed (and after few minutes to avoid turbulence) the UAS is commanded into the ATZ to land.

We will engage with other companies operating in the area as well as WIC and KOI ATCOs to make sure we are all in the same page.

I will let you know if there are any changes on this plan.

Kind regards,

[REDACTED]

G.12 Bristow UK SAR

Windracers Ltd
Temporary Airspace Change ACP-2021-025

STAKEHOLDER FEEDBACK FORM



ACP-2021-025

**Group of TDAs connecting Orkney and Shetland Islands for SATE
(Sustainable Aviation Test Environment) UAS operations**

Feedback Form

Name	<div></div>	
Organisation		
Email address		
Telephone number		

SECTION 1. Safety and Viability

<p>1. Please provide feedback on how the lateral route of the TDA could be designed to minimise the impact on your operations. Please include sketches or examples and refer to individual segments of the TDA where necessary.</p>
<p>See section 4</p>

<p>2. Please provide feedback on the range of altitudes of the TDA which would minimise the impact on your operations. Please refer to individual segments of the TDA where necessary</p>
<p>See section 4</p>
<p>3. Please provide feedback on the possible range of operating hours of the TDA which would minimise the impact on your operations.</p>
<p>See section 4</p>
<p>4. Please provide feedback on any particular safety issues regarding these operations that concern your organisation and how these should be addressed.</p>
<p>For our routine training operations, we can work around the geometry and timings of any of the proposed routes. As we operate a 24hr search and rescue service, we are often called to make unscheduled transits at any time of day to anywhere within the proposed area. If we were tasked to a location requiring a transit through an active TDA, could this be negotiated through the relevant ATC authority? As long as this is possible for emergency operations, I cannot see any issues with the proposals.</p>

5. What would be the best way to address any safety issue concerning your organisation?
(Please check one of the following options)

- | | |
|---|--|
| <input type="checkbox"/> Providing time separation from the operations of your organisation, e.g. early in the morning or late in the afternoon | <input type="checkbox"/> Providing vertical separation from the operations of your organisation (TDA vertical layout). |
| <input type="checkbox"/> Providing lateral separation from the operations of your organisation (geographical layout). | <input checked="" type="checkbox"/> Other |

Please provide more information about the preferred method of separation:

An option to put the aircraft in a holding pattern to allow emergency transit through TDA's would facilitate SAR operations at any time of day across all locations. Danger area crossing could be co-ordinated through the appropriate ATC agency.

SECTION 2. Level of engagement

6. With regards to the level of engagement in the ACP process, your organisation: (Check all that apply)	
<input type="checkbox"/> does not require further engagement in this airspace change process.	<input type="checkbox"/> should be involved in the design of the airspace change.
<input checked="" type="checkbox"/> would require to be informed of any changes to the ACP process.	<input type="checkbox"/> should put together a deconfliction agreement with Windracers before start of the UAS operations.
Please justify:	
It would be helpful to remain informed of any developments to the ACP process in order to assess how potential conflicts could be avoided.	
7. Please provide any further comments or questions. We will get in touch to answer your queries.	

G.13 NHV Helicopters Ltd

Windracers Ltd
Temporary Airspace Change ACP-2021-025

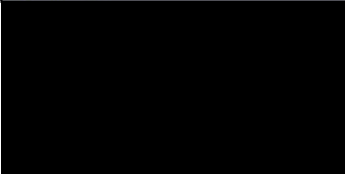
STAKEHOLDER FEEDBACK FORM



ACP-2021-025

**Group of TDAs connecting Orkney and Shetland Islands for SATE
(Sustainable Aviation Test Environment) UAS operations**

Feedback Form

Name		
Organisation		
Email address		
Telephone number		

SECTION 1. Safety and Viability

<p>1. Please provide feedback on how the lateral route of the TDA could be designed to minimise the impact on your operations. Please include sketches or examples and refer to individual segments of the TDA where necessary.</p>
<p>The segment between Wick and Kirkwall will only work if ATC can permit entry into the TDA. The offshore helicopter industry frequently uses Wick and Kirkwall for refuelling enroute to the West of Shetland and the East Shetland basin.</p>

<p>2. Please provide feedback on the range of altitudes of the TDA which would minimise the impact on your operations. Please refer to individual segments of the TDA where necessary</p>
<p>If the TDA is at 2500' overhead the airfields, ATC coordination will be required to allow entry to the ATZ. Standard inbound routing on the HMR is 2000'.</p>
<p>3. Please provide feedback on the possible range of operating hours of the TDA which would minimise the impact on your operations.</p>
<p>We operate 7/7, generally 0700 to 1900. Weekends are quieter than weekdays.</p>
<p>4. Please provide feedback on any particular safety issues regarding these operations that concern your organisation and how these should be addressed.</p>
<p>None more than any other operation which is adjacent to busy offshore helicopter routes.</p>

5. What would be the best way to address any safety issue concerning your organisation?
(Please check one of the following options)

- | | |
|---|--|
| <input checked="checked" type="checkbox"/> Providing time separation from the operations of your organisation, e.g. early in the morning or late in the afternoon | <input type="checkbox"/> Providing vertical separation from the operations of your organisation (TDA vertical layout). |
| <input type="checkbox"/> Providing lateral separation from the operations of your organisation (geographical layout). | <input type="checkbox"/> Other |

Please provide more information about the preferred method of separation:

SECTION 2. Level of engagement

6. With regards to the level of engagement in the ACP process, your organisation: (Check all that apply)	
<input type="checkbox"/> does not require further engagement in this airspace change process.	<input type="checkbox"/> should be involved in the design of the airspace change.
<input checked="" type="checkbox"/> would require to be informed of any changes to the ACP process.	<input checked="" type="checkbox"/> should put together a deconfliction agreement with Windracers before start of the UAS operations.
Please justify:	
Continuation of commercial activities in support of national oil and gas infrastructure	
7. Please provide any further comments or questions. We will get in touch to answer your queries.	

G.14 Shetland Space Centre

Windracers Ltd
Temporary Airspace Change ACP-2021-025

STAKEHOLDER FEEDBACK FORM



ACP-2021-025

**Group of TDAs connecting Orkney and Shetland Islands for SATE
(Sustainable Aviation Test Environment) UAS operations**

Feedback Form

Name	<div></div>	
Organisation		
Email address		
Telephone number		

SECTION 1. Safety and Viability

<p>1. Please provide feedback on how the lateral route of the TDA could be designed to minimise the impact on your operations. Please include sketches or examples and refer to individual segments of the TDA where necessary.</p>
<p>TDA section E Lerwick (Tingwall) - Unst</p> <p>Appendix A shows a 1.5km radius about Unst airfield. The distance to the proposed SSC launch site is approximately 8.5km to the NNE, thus giving a distance between the northern limit of your proposed TDA and the SSC site of approximately 7.0km. As currently planned for our proposed upcoming operations any required safety zones should not exceed this.</p>

<p>2. Please provide feedback on the range of altitudes of the TDA which would minimise the impact on your operations. Please refer to individual segments of the TDA where necessary</p>
<p>TDA section E Lerwick (Tingwall) - Unst Appendix A gives the vertical extent of the TDA corridor as 2500ft (altimeter datum not specified). As currently planned for our proposed upcoming operations this should not pose any conflicts.</p>
<p>3. Please provide feedback on the possible range of operating hours of the TDA which would minimise the impact on your operations.</p>
<p>Not known at this time.</p>
<p>4. Please provide feedback on any particular safety issues regarding these operations that concern your organisation and how these should be addressed.</p>
<p>Operations from the SSC site will be conducted in accordance with CAA ANO processes or UK Space Industry Regulations 2021 (when they come into force). In advance of approval for SSC operations in accordance with the afore mentioned, SSC does not currently expect there to be any safety confliction with your operations as described in your accompanying TDA engagement letter.</p>

5. What would be the best way to address any safety issue concerning your organisation?
(Please check one of the following options)

- | | |
|--|--|
| <input checked="" type="checkbox"/> Providing time separation from the operations of your organisation, e.g. early in the morning or late in the afternoon | <input type="checkbox"/> Providing vertical separation from the operations of your organisation (TDA vertical layout). |
| <input checked="" type="checkbox"/> Providing lateral separation from the operations of your organisation (geographical layout). | <input type="checkbox"/> Other |

Please provide more information about the preferred method of separation:

As stated in para 4 SSC does not currently expect there to be any safety confliction with your operations as described in your accompanying TDA engagement letter. However, for your information, if there were to be any such confliction then lateral or time separation would probably be the preferred methods to achieve safe operations by both parties.

SECTION 2. Level of engagement

6. With regards to the level of engagement in the ACP process, your organisation: (Check all that apply)	
<input type="checkbox"/> does not require further engagement in this airspace change process.	<input type="checkbox"/> should be involved in the design of the airspace change.
<input checked="" type="checkbox"/> would require to be informed of any changes to the ACP process.	<input type="checkbox"/> should put together a deconfliction agreement with Windracers before start of the UAS operations.
Please justify:	
To allow SSC to be fully informed of your operations to monitor if any safety confliction arises (see para 4).	
7. Please provide any further comments or questions. We will get in touch to answer your queries.	

G.15 Northern Lighthouse Board (NLB)

Windracers Ltd
Temporary Airspace Change ACP-2021-025

STAKEHOLDER FEEDBACK FORM



ACP-2021-025

Group of TDAs connecting Orkney and Shetland Islands for SATE (Sustainable Aviation Test Environment) UAS operations

Feedback Form

Name	<div></div>	
Organisation		
Email address		
Telephone number		

SECTION 1. Safety and Viability

1. Please provide feedback on how the lateral route of the TDA could be designed to minimise the impact on your operations. Please include sketches or examples and refer to individual segments of the TDA where necessary.

TDA A

Helicopter operations from Wick Airport to Sule Skerry Lighthouse (4th to 10th October) - NLB Contract Helicopter will be in the vicinity carrying out personnel transfers during some of this period. PDG Helicopters operate on our behalf and are dealing directly with yourselves in this consultation.

TDA B to E

No planned operations within these routes and dates, unless an outage arises that requires helicopter support from either Kirkwall, Sumburgh or Tingwall.

<p>2. Please provide feedback on the range of altitudes of the TDA which would minimise the impact on your operations. Please refer to individual segments of the TDA where necessary</p>
<p>Not applicable.</p>
<p>3. Please provide feedback on the possible range of operating hours of the TDA which would minimise the impact on your operations.</p>
<p>NLB operations only operate during daylight hours.</p>
<p>4. Please provide feedback on any particular safety issues regarding these operations that concern your organisation and how these should be addressed.</p>
<p>Not NLB's remit - this would be our Helicopter Provider - PDG Helicopters at Inverness.</p>

5. What would be the best way to address any safety issue concerning your organisation? (Please check one of the following options)	
<input type="checkbox"/> Providing time separation from the operations of your organisation, e.g. early in the morning or late in the afternoon	<input type="checkbox"/> Providing vertical separation from the operations of your organisation (TDA vertical layout).
<input type="checkbox"/> Providing lateral separation from the operations of your organisation (geographical layout).	<input checked="" type="checkbox"/> Other
Please provide more information about the preferred method of separation:	
as detailed in No 4 above.	

SECTION 2. Level of engagement

6. With regards to the level of engagement in the ACP process, your organisation: (Check all that apply)	
<input checked="" type="checkbox"/> does not require further engagement in this airspace change process.	<input type="checkbox"/> should be involved in the design of the airspace change.
<input checked="" type="checkbox"/> would require to be informed of any changes to the ACP process.	<input type="checkbox"/> should put together a deconfliction agreement with Windracers before start of the UAS operations.
Please justify:	
<p>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 is involved in this consultation. They would advise NLB of any issues that would affect our tasking in the Orkney and Shetland areas.</p>	
7. Please provide any further comments or questions. We will get in touch to answer your queries.	
<p>NLB are happy to engage in further communications in regard to this ACP as it develops.</p>	

RE: Temporary Airspace Change ACP-2021-025 - Timeline update

[REDACTED]
hu 29/07/2021 12:56
[REDACTED]



Good afternoon [REDACTED]

NLB acknowledges and notes the revised timelines and Phases of operation of the TDAs and our original comments previously submitted remain the same.

Please continue to advise us of any further developments of your SATE UAS operations.

Could you please also add the following email addresses to future correspondence:-

[REDACTED]

[REDACTED]

We look forward to hearing from you again in due course.

Kind regards
[REDACTED]

[REDACTED]

G.16 PDG Aviation Services

Windracers Ltd
Temporary Airspace Change ACP-2021-025

STAKEHOLDER FEEDBACK FORM



ACP-2021-025

**Group of TDAs connecting Orkney and Shetland Islands for SATE
(Sustainable Aviation Test Environment) UAS operations**

Feedback Form

Name	<div></div>	
Organisation		
Email address		
Telephone number		

SECTION 1. Safety and Viability

<p>1. Please provide feedback on how the lateral route of the TDA could be designed to minimise the impact on your operations. Please include sketches or examples and refer to individual segments of the TDA where necessary.</p>
<p>PDG operate a variety of CAT and SPO activities throughout the UK.</p> <p>PDG is also the aviation provider for the GLA - General Lighthouse Authority, and in Scotland for NLB - Northern Lighthouse Board - and as such may be required to attend lighthouse locations at short notice for safety critical reasons. (Image of NLB lighthouse locations attached).</p> <p>The proposed TDAs may prevent short notice deployment to certain locations. Moving sector A offshore may help.</p>

2. Please provide feedback on the range of altitudes of the TDA which would minimise the impact on your operations. Please refer to individual segments of the TDA where necessary

PDG routinely operate between surface and 2000' AGL depending on weather conditions and tasking requirements, and may be negatively impacted by TDAs up to 2500'.

A TDA with vertical range of 1000' to 2500' would allow some flexibility to transit West to East below (if this configuration is permissible).

3. Please provide feedback on the possible range of operating hours of the TDA which would minimise the impact on your operations.

PDG can theoretically provide 24 hour operations, however in practice and in particular in the proposed area operation, day VFR is the norm.

4. Please provide feedback on any particular safety issues regarding these operations that concern your organisation and how these should be addressed.

PDG flights are not scheduled and often for safety critical reasons. There must be a facility for the operator to transit the proposed TDA at short notice.

5. What would be the best way to address any safety issue concerning your organisation?
(Please check one of the following options)

☐ Providing time separation from the operations of your organisation, e.g. early in the morning or late in the afternoon

☒ Providing vertical separation from the operations of your organisation (TDA vertical layout).


☐ Providing lateral separation from the operations of your organisation (geographical layout).

☐ Other

Please provide more information about the preferred method of separation:

SECTION 2. Level of engagement

6. With regards to the level of engagement in the ACP process, your organisation: (Check all that apply)	
<input type="checkbox"/> does not require further engagement in this airspace change process.	<input checked="" type="checkbox"/> should be involved in the design of the airspace change.
<input type="checkbox"/> would require to be informed of any changes to the ACP process.	<input checked="" type="checkbox"/> should put together a deconfliction agreement with Windracers before start of the UAS operations.
Please justify:	
7. Please provide any further comments or questions. We will get in touch to answer your queries.	



Good afternoon,

Thank you for the update on progress of your ACP.

PDG's priorities from this consultation are:

- To stress the importance of a DACS supplied by Wick or Kirkwall whenever the TDA is activated, so that PDG aircraft are not impeded in their tasking.
- To request that the TDA is de-activated at the earliest opportunity after use.
- To ask that Scottish Information are kept aware of the TDA status in case comms to Wick/Kirkwall is not possible.
- To suggest a minimum cloudbase for activation of the TDA of 2000' AGL, allowing a band of airspace above the TDA for VFR aircraft to transit.

Regards,



Re: ACP-2021-025 - Feedback from PDG

Operations <operations@windracers.org>

Fri 16/07/2021 11:22

Thank you for your feedback.

Please see the response to your queries below:

To stress the importance of a DACS supplied by Wick or Kirkwall whenever the TDA is activated, so that PDG aircraft are not impeded in their tasking.

Coordination procedures are being put together with input from the ATSUs to enable other traffic to arrive or depart the different airports without conflict. The principle of these agreements is to 'give way' to any manned aircraft.

Kirkwall ATC will provide a Danger Area Activity Information Service (DAAIS) for TDA segments A and B and Sumburgh Radar will provide a DACS for TDA C.

Although Having a DACS would be our preferred option, unfortunately, not all ATSUs are in capacity of providing DACS.

To request that the TDA is de-activated at the earliest opportunity after use.

TDA activation will be NOTAM'd only for the time window of the planned UAV flights (plus a short time buffer).

As soon as it is known that a flight will not take place, we will request the cancellation of the NOTAM to the CAA. Timeline for publication depends on availability of CAA resources.

From experience, when we request a cancellation, we send the 'draft' NOTAM to the CAA so that the process is as efficient as possible.

To ask that Scottish Information are kept aware of the TDA status in case comms to Wick/Kirkwall is not possible.

Scottish information will be able to pass the information available in the NOTAM with TDA activation times.

To suggest a minimum cloudbase for activation of the TDA of 2000' AGL, allowing a band of airspace above the TDA for VFR aircraft to transit.

ULTRA UAS operations are subject to operational limits due to weather. Operations can only take place if both the starting and destination airports are in VMC at take-off and reduction of visibility is not forecasted. However, no visibility limitations are applicable en route and the UAS can fly into cloud in the TDA.

To facilitate operations of other airspace users Kirkwall ATC will provide a Danger Area Activity Information Service (DAAIS) for TDAs A and B and Sumburgh Radar will provide a DACS for TDA C.

We hope this provides the required information.

Should you have any other queries, please let us know and we will aim to attend as soon as possible.

Kind regards,

Wed 21/07/2021 10:29

To: Operations



Good morning,

Thank you for your response to my feedback.

Unfortunately, your responses do not reassure me that PDG aircraft will not be adversely affected by the TDA activations.

For example, if the cloudbase is 1500'AGL during an activation periods, then TDA-A is effectively acting as a 30Nm barrier from Wick to Kirkwall preventing VFR transit East/West without a significant re-routing to the south or north of the TDA.

A DAAIS does not help VFR traffic transit East/West during activation periods, whereas a DACS would.

While I appreciate the low likelihood of a PDG aircraft requiring access while the TDA is active during the short trial window, a risk exists that we are impeded in responding to safety critical tasking (lighthouse support operations), and your current arrangements make no provision for this scenario.


Regards,

[Redacted signature]

RE: ACP-2021-025 - Feedback from PDG

Operations <operations@windracers.org>

Wed 21/07/2021 14:59



Many thanks for your feedback.

We appreciate your concern regarding safety critical tasking of PDG aircraft for lighthouse operations and the access to the airspace occupied by segment A.

It is important to remark that one of the principles used to define this Airspace Change is to prioritise any crewed aircraft operation over the UAV activity. Therefore, the following provisions have been made:

TDA MANAGEMENT AND ACTIVATION PROCEDURES

Activation and de-activation of the TDA will be requested by Windracers in accordance with the conditions described below:

- Windracers will distribute the schedule of flights at least 2 weeks in advance of the operations (Available in ACP portal).
- 5 days in advance of the flight stakeholders will be contacted to ascertain if there are any issues that will affect the flight.
- If any of the stakeholders have conflicting scheduled flights this should be informed 72 hours before the start of proposed operations.
- 2 days before the flight the NOTAM will be promulgated giving the activation date and times of the TDA.
- A NOTAM will be promulgated for each day of activation, with a minimum notice of 24 hours.

AIR TRAFFIC SERVICES

Kirkwall ATC will provide a Danger Area Activity Information Service (DAAIS) for TDAs A and B. This includes a traffic information service on the UAV with radials and bearings and provide integration with other traffic for landing in Kirkwall. This service will be available from Kirkwall Tower on 118.305 MHz. Current capacity of Kirkwall ATC does not allow for DACS provision.

Information about the Temporary Danger Area and UAS Activity will also be available on Kirkwall information ATIS on 108.600 MHz.

Nothing in the concept of operations prevents a controller from using their own discretion and initiative in response to UAV operations and the prevailing traffic conditions. This means that under ATC instructions the UAV will either stay on ground, be commanded to loiter at defined locations or return to take-off location if necessary, to 'give way' to crewed traffic.

Additionally, from a meeting with the Lighthouse Board on 25th June I understood that, unlike SAR operations, safety critical tasking for lighthouse operations does not require very short response times (hours instead of minutes) and that a period of planning is usually required. My suggestion would be to contact either one of the ATSU's or the UAV crew directly (contact number published with NOTAM), and advise of the operation. We will be in the obligation of changing the schedule of -or even cancelling- the UAV operations to allow PDG flights.

Please note that, given the strategic TDA management and availability of ATS services, limiting our operations to a cloud base minimum (e.g. 2500 ft) is not consider proportionate to the likelihood of conflicting traffic.

Should you have further queries, please let us know.

Kind regards,



Mon 06/09/2021 12:43

To: Operations



Good afternoon,

I believe Windracers were trying to get hold of me last week. Unfortunately I have been flying most days, and will be working away for the next couple of weeks, so I'm not able to arrange a video meeting.

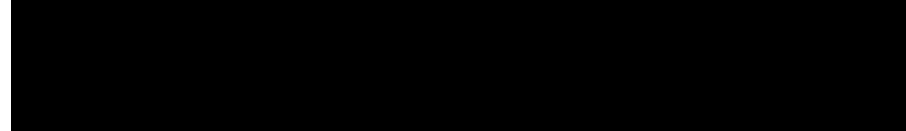
I have noted the mitigations you have implemented, particularly the facility to call Windracers Operations directly for short-notice entry of PDG aircraft into the TDA's.

I don't believe there is anything further to discuss, but feel free to reply to this email if you need anything from me.

Regards,

[Redacted signature]

G.17 General Aviation Alliance (GAA)



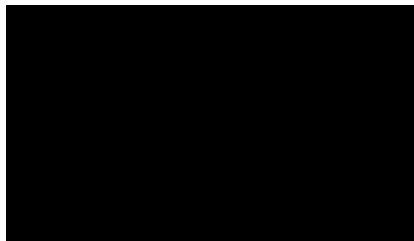
Hi [REDACTED]

Thank you for your email.

The GAA wishes the following to be addressed:

1. As acknowledged by the CAA the DAAIS service is pretty much useless for TDAs as it merely repeats what is available by NOTAM and so the pilot already has this information pre-flight. It does not provide any form of access to a TDA NOTAM'd as active, and it is misleading to infer that it does so.
2. All the TDAs need to have a DACS
3. "Activation of the TDA will be done upon agreement with key stakeholders to de-risk changes to scheduled flights."
Who are the key stakeholders?
4. "The UAS will fly according to a published schedule"
Therefore the TDAs can be NOTAM'd as active just for the time that each will actually be in use for a flight with a small time buffer either side, say 30 minutes. Is this what will happen, if not then for what time windows will the TDAs be NOTAM'd as active?
5. "The UAS will fly according to a published schedule"
How far in advance will this schedule be published, where will it be published and how will pilots know these details?
For personal and business trips pilots need to be able to plan days in advance, therefore the UAS schedule is needed days in advance
6. Will the NOTAM for a flight be cancelled as soon as it is known that that particular flight will not be happening?

Regards



RE: Temporary Airspace Change ACP-2021-025 - End of Stakeholder Engagement

Wed 14/07/2021 10:35

To: Operations <operations@windracers.org>

Hi [REDACTED]

Many thanks for the prompt response and clarifications/confirmations.

- I think that CAP 493 and the CAA Policy Statement on Danger Areas are not very clear on the provision of DAAIS or DACS.

Welcome to the queue that has been saying this to the CAA!!!!

- However, it is my understanding (TBC with CAA) that they could enable the crossing of the TDA to Category A flights, as they would be aware of the exact position of the UAV either by position reports or surveillance.

A category A flight can do pretty much anything and sort out the paperwork afterwards. But the number of category A flights is pretty minimal and none of them are GA.

- Although this would be our preferred option, unfortunately, not all ATSUs are in capacity of providing DACS.

Then maybe it should be up to the TDA sponsor to provide the necessary facilities?

- coordination procedures are being put together with input from the ATSUs to enable other traffic to arrive or depart the different airports without conflict

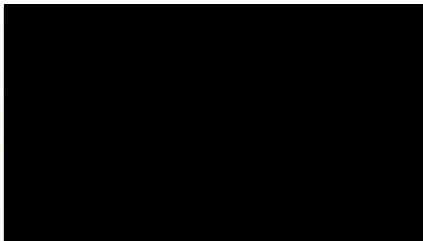
We suggest that it will need written agreement from the CAA that these procedures permit pilots to fly within a TDA NOTAM'd as active, otherwise they might not be worth the paper that they are written on.

- We are willing to publish the schedule before the implementation period.

Have you thought about when/how/etc?

For the "how" we could help by sending it to the Associations, obviously the more notice the better.

Regards



From: Operations <operations@windracers.org>

Sent: 14 July 2021 09:59

To: [REDACTED]

Subject: RE: Temporary Airspace Change ACP-2021-025 - End of Stakeholder Engagement

Good morning [REDACTED]

Many thanks for your feedback. Please see the response to your queries below:

1. As acknowledged by the CAA the DAAIS service is pretty much useless for TDAs as it merely repeats what is available by NOTAM and so the pilot already has this information pre-flight. It does not provide any form of access to a TDA NOTAM'd as active, and it is misleading to infer that it does so.

I agree that a DAAIS will **(in most scenarios)** provide the same information that a pilot would have seen in the NOTAM before flight. Nonetheless, it is not always correct to assume all pilots would consult these NOTAMs.

I think that CAP 493 and the CAA Policy Statement on Danger Areas are not very clear on the provision of DAAIS or DACS. However, it is my understanding (TBC with CAA) that they could enable the crossing of the TDA to Category A flights, as they would be aware of the exact position of the UAV either by position reports or surveillance.

Also, coordination procedures are being put together with input from the ATSUs to enable other traffic to arrive or depart the different airports without conflict. The principle of these agreements is to 'give way' to any manned aircraft.

2. All the TDAs need to have a DACS

Although this would be our preferred option, unfortunately, not all ATSUs are in capacity of providing DACS.

3. "Activation of the TDA will be done upon agreement with key stakeholders to de-risk changes to scheduled flights."

Who are the key stakeholders?

Stakeholders that have scheduled or frequent operations in the area.

This includes local GA (Lamb Holm) and we'd be happy to include other parties where necessary.

4. "The UAS will fly according to a published schedule"

Therefore the TDAs can be NOTAM'd as active just for the time that each will actually be in use for a flight with a small time buffer either side, say 30 minutes. Is this what will happen, if not then for what time windows will the TDAs be NOTAM'd as active?

Yes, that is exactly what will happen. TDA activation will be NOTAM'd only for the time window of the planned UAV flights (plus a short time buffer).

5. "The UAS will fly according to a published schedule"

How far in advance will this schedule be published, where will it be published and how will pilots know these details?

For personal and business trips pilots need to be able to plan days in advance, therefore the UAS schedule is needed days in advance

We are willing to publish the schedule before the implementation period.

6. Will the NOTAM for a flight be cancelled as soon as it is known that that particular flight will not be happening?

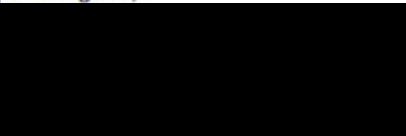
As soon as it is known that a flight will not take place, we will request the cancellation of the NOTAM to the CAA. Timeline for publication depends on availability of CAA resources.

From experience, when we request a cancellation, we send the 'draft' NOTAM to the CAA so that the process is as efficient as possible.

I hope this provides the required information.

Should you have any other queries, please let us know and we will aim to attend as soon as possible.

Kind regards,



RE: Temporary Airspace Change ACP-2021-025 - End of Stakeholder Engagement

Operations <operations@windracers.org>

Wed 21/07/2021 8:56



During the last week we have gained more certainty on the schedule and participation of the ATSUs in this operation.

I can now confirm that segments A and B will be provided with DAAIS by Kirkwall ATC and segments C, D and E will have DACS by Sumburgh Radar. This means that only segments A and B won't be available for other traffic whilst the TDAs are active, however, we have taken the following steps to reduce the impact:

- The vertical limit of these two segments was brought down to 1500 ft AMSL. The UAV will cruise at 1000 ft AMSL.
- Segments A and B will not be simultaneously active. Only one of them two.
- The activation periods will be only as short as required for the intended flights plus a short buffer.
- Once the activity is complete, we will aim to request the deactivation of the TDA as soon as practicably possible.

Procedures for separation and deconfliction are being put together in a Concept of Operations to be signed by the participant ATSUs. This document will also include the provisional schedule of TDA activation and UAV flights.

This document will be sent to the CAA on or before the 4th of August and published in the ACP portal upon approval. It will be public at least one month before commencement of operations.

We would be happy to send you the schedule and keep you in the mailing list for any changes. We also appreciate your offering to distribute these communications with the Associations.

Should you have any other queries, please let us know and we will aim to attend as soon as possible.

Kind regards,



G.18 British Helicopter Association (BHA)

Windracers Ltd
Temporary Airspace Change ACP-2021-025

STAKEHOLDER FEEDBACK FORM



ACP-2021-025

**Group of TDAs connecting Orkney and Shetland Islands for SATE
(Sustainable Aviation Test Environment) UAS operations**

Feedback Form

Name	<div></div>	
Organisation		
Email address		
Telephone number		

SECTION 1. Safety and Viability

1. Please provide feedback on how the lateral route of the TDA could be designed to minimise the impact on your operations. Please include sketches or examples and refer to individual segments of the TDA where necessary.
<div>No Comment</div>

2. Please provide feedback on the range of altitudes of the TDA which would minimise the impact on your operations. Please refer to individual segments of the TDA where necessary
No Comment
3. Please provide feedback on the possible range of operating hours of the TDA which would minimise the impact on your operations.
<p>The document does not specify whether the Ops will be limited to daylight hours. There is also no details on how the drone is lit - high intensity strobes etc. Again no mention if it has a detect and avoid capability. It does say it is electronically conspicuous (EC), but not what the EC system is, so a judgment can be made whether manned aircraft have the required EC to pick it up: FLARM, ADSB, IFF etc.</p> <p>Without detail of equipment it impossible to make a judgment therefore recommend ops are limited to daylight hours</p>
4. Please provide feedback on any particular safety issues regarding these operations that concern your organisation and how these should be addressed.
<p>See above. Is it intended to carry dangerous air cargo as defined by ICAO. If yes how is the said cargo identified, so there is no risk to 3rd party in the event of an accident?</p> <p>Is there a Emergency Response Plan in the event of an accident/incident or the drone going 'rogue'? Recent AAIB reports have revealed that preservation of evidence is not understood by the unmanned world and vital evidence has been lost.</p> <p>Is there a contact frequency or telephone numbers so that emergency service helicopters can access the TDA should there be a need during times of activation.</p>

5. What would be the best way to address any safety issue concerning your organisation? (Please check one of the following options)	
<input type="checkbox"/> Providing time separation from the operations of your organisation, e.g. early in the morning or late in the afternoon	<input type="checkbox"/> Providing vertical separation from the operations of your organisation (TDA vertical layout).
<input type="checkbox"/> Providing lateral separation from the operations of your organisation (geographical layout).	<input checked="" type="checkbox"/> Other
Please provide more information about the preferred method of separation:	
Fit the drone with a detect and avoid capability	

SECTION 2. Level of engagement

6. With regards to the level of engagement in the ACP process, your organisation: (Check all that apply)	
<input type="checkbox"/> does not require further engagement in this airspace change process.	<input type="checkbox"/> should be involved in the design of the airspace change.
<input checked="" type="checkbox"/> would require to be informed of any changes to the ACP process.	<input type="checkbox"/> should put together a deconfliction agreement with Windracers before start of the UAS operations.
Please justify:	
No justification is required for BHA to remain in the engagement.	
7. Please provide any further comments or questions. We will get in touch to answer your queries.	

Temporary Airspace Change ACP-2021-025 - British Helicopter Association



Thank you for sending your feedback to this ACP.

The operations will be conducted during daylight hours and it is not in our plans to carry dangerous goods.

ULTRA UAS is equipped with ADS-B IN/OUT and Mode S Transponder. External lighting modules are fitted in the aircraft. These contain conventional navigation, position, and strobe LED lights, thus providing all required lightning functions and visual conspicuity.

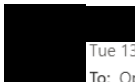
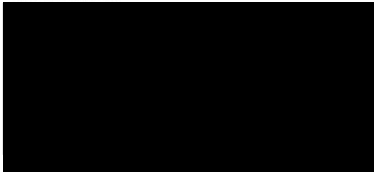
Windracers Ltd has an Emergency Response Plan in place in case of fly-away, crash or incident. This is included in our safety case which has been approved by the CAA and it is readily available to all our operators during operations.

Standard radiotelephony procedures like crewed aircraft are carried out during operations. When the TDA will be activated a phone contact of the crew will be made available.

The TDA will be activated based on a set of scheduled flights. This schedule will be made available to all stakeholders before commencement of the activity.

We hope this answers all your queries. If you have any other queries please don't hesitate to contact us.

Kind regards,



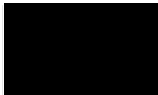
Tue 13/07/2021 11:14

To: Operations



Many thanks.

The BHA has no objections to the 3rd draft. Good to see you responded positively to the North Sea Operators asking for a lower max height.



G.19 British Gliding Association (BGA)

Temporary Airspace Change ACP-2021-025 - Request for Feedback

 11+  

 Tue 08/06/2021 12:49

To: Operations

This proposed TDA does not impact on gliding operations.



G.20 Association of Remotely Piloted Aircraft Systems UK (ARPAS-UK)

Re: Temporary Airspace Change ACP-2021-025 - End of Stakeholder Engagement

Thu 15/07/2021 10:27

To: Operations



Good morning,

ARPAS UK supports the TDA requests that are contained within ACP-2021-025.

kind regards



G.21 MoD DAATM (Ministry of Defence - Defence Airspace and Air Traffic Management)

Windracers Ltd
Temporary Airspace Change ACP-2021-025

STAKEHOLDER FEEDBACK FORM



ACP-2021-025

**Group of TDAs connecting Orkney and Shetland Islands for SATE
(Sustainable Aviation Test Environment) UAS operations**

Feedback Form

Name	<div></div>	
Organisation		
Email address		
Telephone number		

SECTION 1. Safety and Viability

1. Please provide feedback on how the lateral route of the TDA could be designed to minimise the impact on your operations. Please include sketches or examples and refer to individual segments of the TDA where necessary.
No suggested changes. Content that the TDA dimensions are minimum to accommodate operation and no conflict with existing danger areas.

<p>2. Please provide feedback on the range of altitudes of the TDA which would minimise the impact on your operations. Please refer to individual segments of the TDA where necessary</p>
<p>No comments.</p>
<p>3. Please provide feedback on the possible range of operating hours of the TDA which would minimise the impact on your operations.</p>
<p>No comments.</p>
<p>4. Please provide feedback on any particular safety issues regarding these operations that concern your organisation and how these should be addressed.</p>
<p>No specific safety concerns, only comments relating to management of the airspace.</p>

<p>5. What would be the best way to address any safety issue concerning your organisation? (Please check one of the following options)</p>	
<input type="checkbox"/> Providing time separation from the operations of your organisation, e.g. early in the morning or late in the afternoon	<input type="checkbox"/> Providing vertical separation from the operations of your organisation (TDA vertical layout).
<input type="checkbox"/> Providing lateral separation from the operations of your organisation (geographical layout).	<input checked="" type="checkbox"/> Other
<p>Please provide more information about the preferred method of separation:</p>	
<p>The MOD would like to better understand how the TDA will be managed to enable flexibility for military (and other) aircraft operating in the area. The segmented approach goes some way to achieving this, but the following questions have arisen:</p> <p>Is there any plan to have a danger area crossing service?</p> <p>If so, when will it be in effect and by who?</p> <p>Who is the planned danger area authority and how can they be contacted to seek information about activity?</p>	

SECTION 2. Level of engagement

6. With regards to the level of engagement in the ACP process, your organisation: (Check all that apply)	
<input type="checkbox"/> does not require further engagement in this airspace change process.	<input type="checkbox"/> should be involved in the design of the airspace change.
<input checked="" type="checkbox"/> would require to be informed of any changes to the ACP process.	<input checked="" type="checkbox"/> should put together a deconfliction agreement with Windracers before start of the UAS operations.
Please justify:	
<p>The MOD wishes to be included in any further engagement related to this ACP.</p> <p>Although the design has aimed to minimise the size of the TDA and the segments enable activation of only the areas required for the BVLOS activity planned at that time, it would still be useful to understand whether there will be any other measures to facilitate flexible sharing of the airspace for military aircraft operating in the vicinity, or if the intent is for all other users to avoid the TDA when active. This may not require a formal deconfliction agreement, just for the requested information to be promulgated appropriately.</p>	
7. Please provide any further comments or questions. We will get in touch to answer your queries.	
<p>No comments.</p>	

G.22 UKARCC (UK Aeronautical Rescue Coordination Centre)

Windracers Ltd
Temporary Airspace Change ACP-2021-025

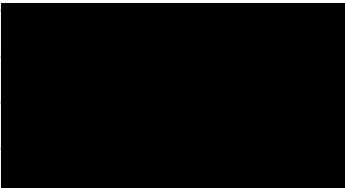
STAKEHOLDER FEEDBACK FORM



ACP-2021-025

**Group of TDAs connecting Orkney and Shetland Islands for SATE
(Sustainable Aviation Test Environment) UAS operations**

Feedback Form

Name		
Organisation		
Email address		
Telephone number		

SECTION 1. Safety and Viability

<p>1. Please provide feedback on how the lateral route of the TDA could be designed to minimise the impact on your operations. Please include sketches or examples and refer to individual segments of the TDA where necessary.</p>
<p>ARCC content with how lateral route shown on documentation</p>

2. Please provide feedback on the range of altitudes of the TDA which would minimise the impact on your operations. Please refer to individual segments of the TDA where necessary
ARCC comment : this is really for Bristow's Helicopters to comment. Clearly the vertical height blocks the TDAs cover is conflicting with the levels at which our SAR-H operates at. Bit as ARCC is not providing an ATC service to our aircraft, no comment offered here.
3. Please provide feedback on the possible range of operating hours of the TDA which would minimise the impact on your operations.
ARCC Comment: Obviously SAR-H has the potential to operate at any time in a 24 hour period.
4. Please provide feedback on any particular safety issues regarding these operations that concern your organisation and how these should be addressed.
With good use of the NOTAM system and a direct dial contact number provided, ARCC believes effective separation (procedural?) can be achieved on those occasions where SAR-H need to penetrate the TDAs. I would propose in addition to whatever ATC arrangements have/will be made with Sumburgh, that ARCC assume responsibility to ALSO call your UAV operator on those occasions.

5. What would be the best way to address any safety issue concerning your organisation?
(Please check one of the following options)

- | | |
|---|--|
| <input type="checkbox"/> Providing time separation from the operations of your organisation, e.g. early in the morning or late in the afternoon | <input type="checkbox"/> Providing vertical separation from the operations of your organisation (TDA vertical layout). |
| <input type="checkbox"/> Providing lateral separation from the operations of your organisation (geographical layout). | <input checked="" type="checkbox"/> Other |

Please provide more information about the preferred method of separation:

as stated above, due to 24/7 nature of SAR-H, a contact number to establish position of UAV. But ARCC more than happy to adopt what the Bristow's crews at Sumburgh (& Inverness) recommend

SECTION 2. Level of engagement

6. With regards to the level of engagement in the ACP process, your organisation: (Check all that apply)	
<input type="checkbox"/> does not require further engagement in this airspace change process.	<input type="checkbox"/> should be involved in the design of the airspace change.
<input checked="" type="checkbox"/> would require to be informed of any changes to the ACP process.	<input type="checkbox"/> should put together a deconfliction agreement with Windracers before start of the UAS operations.
Please justify:	
7. Please provide any further comments or questions. We will get in touch to answer your queries.	

G.23 Scottish Natural Heritage

RE: ULTRA UAS Operations at Fair Isle

[REDACTED]

Tue 06/07/2021 18:23

To: Operations <operations@windracers.org>

1 attachments (662 KB)

2021 07 16 - Protected Areas in Orkney and Shetland - Windracers.jpg;

Dear [REDACTED]

Fair Isle is a protected area under multiple nature conservation designations, but it is possible that you will also be intending to fly over, or into, other protected areas. I attach a map showing nature conservation designations in Orkney and Shetland. My main areas of interest are marine birds and I will be able to help with advice on requirements for those interests which are mostly protected under Special Protection Area (SPA) legislation, it's possible (depending on precisely where and what the flights will be doing) that other features, notably those habitats and species protected by Special Areas of Conservation (SAC). There could be some additional considerations relating to specially protected species such as seals and other marine mammals.

Most likely this operation will require assessment under the Conservation (Natural Habitats, &c.) Regulations 1994, more information can be found here

<https://www.nature.scot/professional-advice/planning-and-development/environmental-assessment/habitats-regulations-appraisal-hra>

It may well be that the activity will be considered not to affect the sites and species protected, but until details of the project are known it is not possible to determine. Otherwise general rules for avoiding protected areas will apply. At the time of year proposed for the flights most breeding species will have fledged their young and many will have left the sites. However, some non-breeding species will have arrived at their wintering or passage locations and they may also need consideration. Some guidance more specific to raptors but generally gives principles is found here

<https://www.nature.scot/sites/default/files/2017-09/Guidance%20Note%20-%20Helicopters%20Aircraft%20and%20Schedule%201%20%26%201A%20species.pdf>

At the moment I suggest that we remain in contact, and when you have details of dates and number of flights, flight routes, altitudes and landing locations we can better advise on how much consideration from a protected sites aspect would be required.

Hope that helps, happy to answer any more questions you have at this stage.

Regards

[REDACTED]

[REDACTED]

RE: ULTRA UAS Operations at Fair Isle

[REDACTED]

Mon 19/07/2021 14:47

To: Operations <operations@windracers.org>

Dear [REDACTED]

Thank you for the response.

Judging from the diagram, I expect the flights you propose from 18th-24th October will be from North Ronaldsay to Fair Isle (and return?).

The period of flight available will avoid the breeding season for seabirds on Fair Isle (and North Ron for that matter). There will still be plenty of seabirds about. Northern fulmar will be present in considerable numbers, and I would expect gulls (mainly herring gull) and northern gannet to be common. The area around the isle will be mainly clear of auks (except Black Guillemot) which tend to fly in lower airspace in any case. Skuas should be absent by those dates.

Given the low number of flights into what is a regularly used airstrip in any case, the low risk of collision and the nil risk of disturbance to breeding birds I would consider that there is no likely significant effect of this proposal to the qualifying interests of Fair Isle Special Protection area (SPA).

The habitat surrounding Fair Isle Airstrip is also classified as a Special Area of Conservation (SAC). The normal operation of your aircraft will have no impact on the SAC.

If the flights were to take place within the breeding period of seabirds on the island then it would be worthwhile considering details of the approach and departure line (to avoid low flights over major parts of the seabird colony). This would be of benefit to the seabirds and the aircraft as it would help reduce risk of collision. Provided approaches over the cliffs of the island are reasonably high (>200m) then I consider that risk of bird strike is low.

In the original plans there were flights mentioned to Shetland mainland and on to Unst. Are those still expected to take place?

I hope that this is useful.

Kind regards,

[REDACTED]