

CAELUS2

AYRSHIRE & ARRAN

ACP-2022-103

TARGETED AVIATION
STAKEHOLDERS ENGAGEMENT



CAELUS



PROJECTCAELUS.CO.UK



Introduction

Dear Stakeholder,

You are receiving this briefing pack because your organisation was identified as an Aviation Stakeholder that might be impacted by the BVLOS RPAS flights (and associated temporary segregated airspace) planned as part of CAELUS2 Future Flight Challenge project. The flight route this pack refers to has two legs, which connect a) University Hospital Crosshouse with the Arran War Memorial Hospital b) University Hospital Crosshouse with University Hospital Ayr.

We did our best to adjust our proposals in such a way, so that potential impact on your organisation and your members is minimised through adjustment of the segregated airspace designs and timings of our operations. We appreciate that there are specific needs you might have that we are not yet aware of, therefore we kindly invite you to a dialogue and we will see if there are any further reasonable adjustments we can make to our proposals or specific agreements that can be achieved between Project CAELUS2 and your organisation.

We would really appreciate if you could carefully review the following material with the appropriate members of your team and get back to us as soon as possible, but **no later than 11 June 2023** with any questions/requests or a confirmation that you are happy with the proposal and have no objections to it. The deadline of 11 June 2023 is there to make sure that we have sufficient time to discuss stakeholder needs and **adjust our proposals as required by 2 July 2023, when the engagement is due to be completed**. We will, however, remain available beyond that date and throughout our planned period of operations in case your circumstances change or should we require to update you on our plans. Information will be also regularly updated on the UK CAA [portal](#).

Kindly note, that some stakeholders may require a signed Letter of Agreement and/or arrangement of special procedures. If you believe that LoA is required for your organisation and you don't hear from us within 1 week of receiving this pack – please reach out to us and we will be happy to assist.

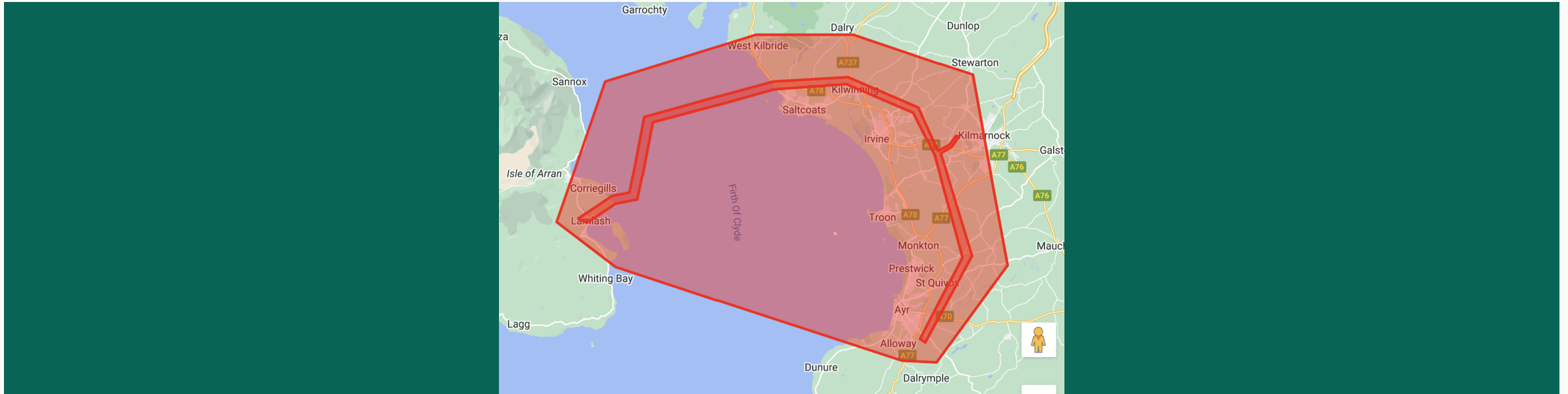
Kind regards,

Alex

On behalf of CAELUS2 FFC Project

Statement of Need

Potentially Affected Area



N2

Note: The project overall considers 5 different potential routes, however, they will all happen at different locations and times. This engagement material only refers to route called "N2" or "Ayrshire & Arran" and refers to [ACP-2022-103](#).

Statement of Need

ACP-2022-103: Project Overview

The CAELUS (Care & Equity – Healthcare Logistics UAS Scotland) **consortium is led by AGS Airports Ltd on behalf of NHS Scotland** and the consortium partners and part **funded by Innovate UK through the Industrial Strategy Challenge fund, Future Flight** competition. The project which brings together AGS Airports, NHS Scotland, NATS, ATKINS, Cellnex, Connected Places Catapult and 10 other companies are working together to demonstrate the viability of a national drone network that can transport essential medicines, bloods and other medical supplies throughout Scotland. The project will deliver a Concept of Operations **(CONOPS) for the transition to fully integrated UAS operations** at a national level. This specific workstream, led by NATS will develop and publish a phased approach outlining proposed airspace constructs and detailing regulatory and technology gaps required to enable the transition. **Elements of this CONOPS will be validated** through live flight operations, differentiating CAELUS from other projects by seeking to move the industry forward by proposing and validating a method of operations that are fully integrated and sustainable.

Statement of Need

ACP-2022-103: Healthcare opportunity

With approximately **26% of Scotland's population living in remote or rural areas** spread across 69% of the land mass, service delivery can encounter constraints which contributes to treatment inequity. NHS Scotland encompassing the Territorial Boards and Scottish Ambulance Service (SAS) views the adoption of Unmanned Aircraft Systems (UAS) or drones as an opportunity to **transform the patient experience** and reduce the impact of traffic congestion and CO2 emissions. Key to this is the driver of the NHS Scotland Recovery Plan (2021) which highlights the essential need for research, innovation and redesign as integral to the recovery of NHS Services. **For both SAS and NHS Scotland equity** in the delivery of healthcare **is a key driver** for involvement in this project as NHS Scotland considers how to remobilise and redesign services to address the needs of Scotland's health and social care challenges. A current strategic directive for SHIP (Scottish Health Industry Partnership) is to grow the economy (community wealth building) and **support remobilisation, accelerating the adoption of Innovation into NHS and Social Care** (Life Sciences in Scotland, 2022). A drone-based network has the potential to **reduce mileage and produce significant time saving opportunities** improving patient experience, outcomes and equity in care delivery. As a formal partner of the consortium, NHS Scotland via lead board NHS Grampian, are providing a joined-up approach bringing input and expertise from **health boards and SAS under the "Once-for Scotland"** banner. The NHS will define and support at ground level the clinical use cases that will be flown or simulated in the live and digital demonstrations.

Statement of Need

ACP-2022-103: Informing Regulation

Today, most beyond visual-line-of-sight (BVLOS) UAS operations can only be conducted within segregated airspace. The most common way to achieve this is to establish temporary danger areas (TDAs) for the UAS to operate within. Current regulation is designed to consider a per flight basis without means to provide a scalable solution. Recognised detect and avoid capabilities are basic. CAELUS intend to **validate a developed concept of operations around airspace structure and use that is scalable and sustainable.**

Statement of Need

ACP-2022-103: Proposed Operations

We aim to **utilise volumes of segregated airspace** across Scotland in a total of 5 locations to enable us to prove elements of our proposed future concept of integrated airspace. For this proposal, we intend to fly in the Ayrshire & Arran region representing use cases for the West NHS Innovation board and the Scottish Ambulance Service.

The use cases will require **volumes of segregated airspace** to be in place for a **maximum of 8 weeks** with expected **flying during 4 of those weeks**. Our proposal is that we activate this for limited duration. **The segregated airspace** dimensions and duration of activation **will be informed by stakeholder feedback**. This segment of flying will be undertaken by Skyports.

A system of **ADS-B Receivers** will be deployed to demonstrate an **additional layer of situational awareness** to the UAV pilot along the flying routes and contribute to the Detect and Avoid solutions that will form part of the demonstrations.

CAELUS2 Background

Part-funded by Innovate UK Future Flight Challenge

16 Partners

Led by AGS and supported by NHS-Scotland.

Airspace Integration

ConOps created by NATS and will be validated through trials and aims to gather data that could be used for safe integration of RPAS in the future.

NHS Need

Serve real-life use cases across urban and rural environments. Improve equality of healthcare in remote and rural areas.

"Once for Scotland"

Access differing service delivery models provides the ability to more rapidly spread learning and benefits across the regions.

Explore reducing the need for patient travel in 3 NHS innovation regions.



NHS Use Cases

CAELUS would enable samples and supplies to be delivered rapidly, within a time controlled window with medical grade, temperature controlled and monitored packaging

Local Chemotherapy/Oncology Products Administration

- Reduces patient travel time, stress and cost by removing the need to travel to specialist centres.

Faster blood product cross-matching

- Faster emergency treatment.
- Better patient outcomes.
- More efficient use of blood products.

Faster Lab Testing

- Earlier start of targeted medications in a patient's treatment.
- Potential reduction in antibiotic resistance.
- Better patient outcomes.
- Shorter Hospital Stay

Faster Emergency Medicine

- Better patient outcomes.
- Shorter hospital stay.



UAV AIRCRAFT



SWOOP KITE

TYPE: EVTOL

MTOW: 25 KG

PAYLOAD: 4 KG

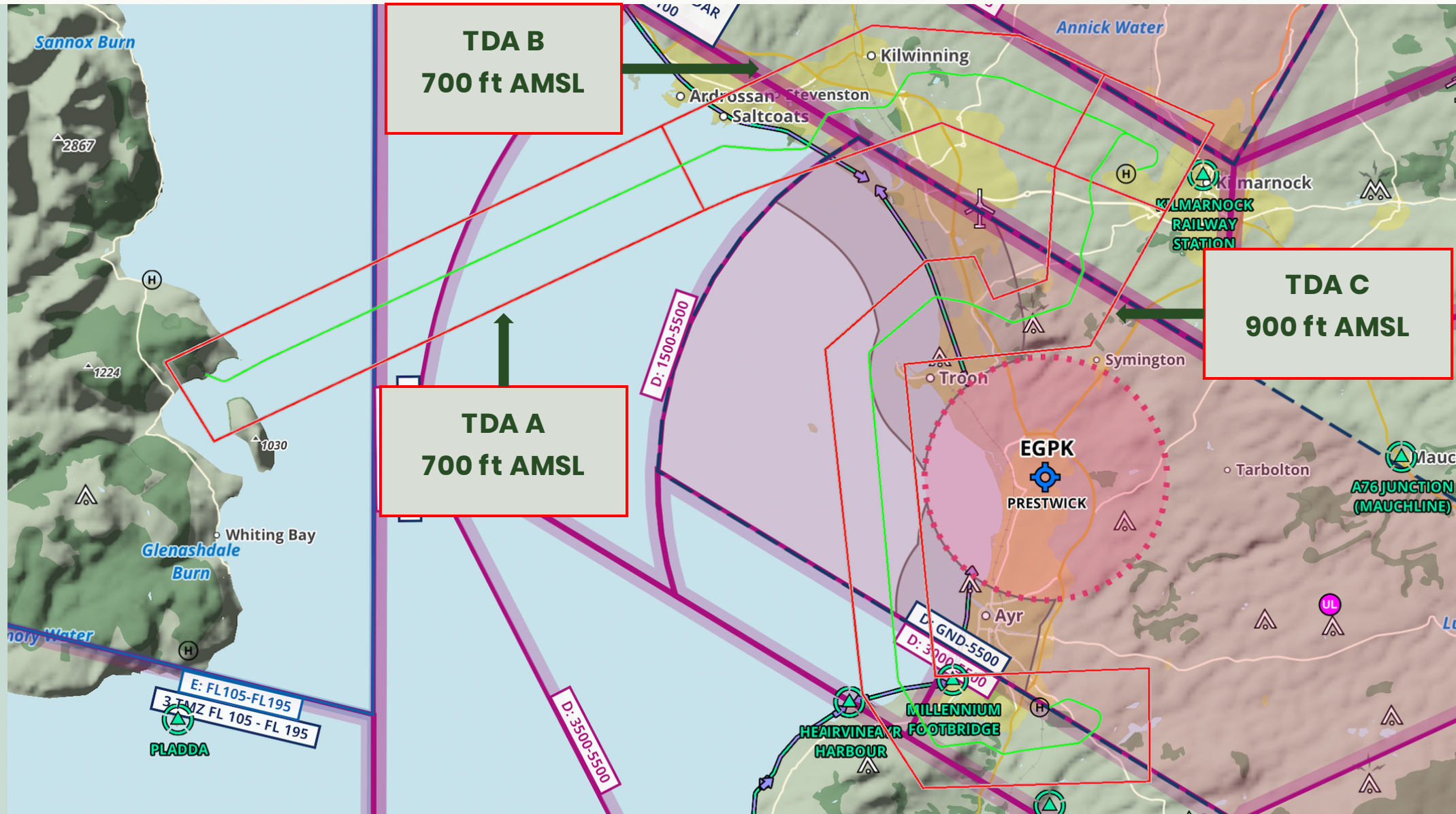
CRUISE: 66 KTS IAS

TYPICAL ALT: 400 FT AGL

RANGE: 225 KM

N2 (Ayrshire & Arran) ROUTE

<p>- DEP/ARR: UNIVERSITY HOSPITAL CROSSHOUSE</p>	<p>- ARR/DEP: ARRAN WAR MEMORIAL HOSPITAL - ARR/DEP: UNIVERSITY HOSPITAL Ayr</p>
<p>REQUIRED AIRSPACE AND DIMENSIONS</p>	<p>TSA + TDA: ~2-4 km wide along the route from surface to ceiling of 700 ft AMSL for the Crosshouse-Arran leg and 900 ft AMSL for the Crosshouse-Ayr leg. Designs will be fully finalised after engagement.</p>
<p>REQUIRED WINDOW OF OPPORTUNITY</p>	<p>Operations to be conducted over 4 consecutive weeks once started. It is proposed that the 4 weeks will commence on the 22nd September 2023. However, for feedback purposes please consider any impact this proposal may have on your operations up to 22 December (still only 4 consecutive weeks). This will allow for any delay in the CAA approval process or mitigation for any significant operations identified during the engagement process. Final dates will be promulgated in the AIC.</p>
<p>ACTIVATIONS</p>	<p>Activation by NOTAM for short periods up to twice a day. See detailed proposed schedule on following slides.</p>



N2: Proposed Route + TDA on Airspace Map
KML could be downloaded using [Dropbox Link](#)



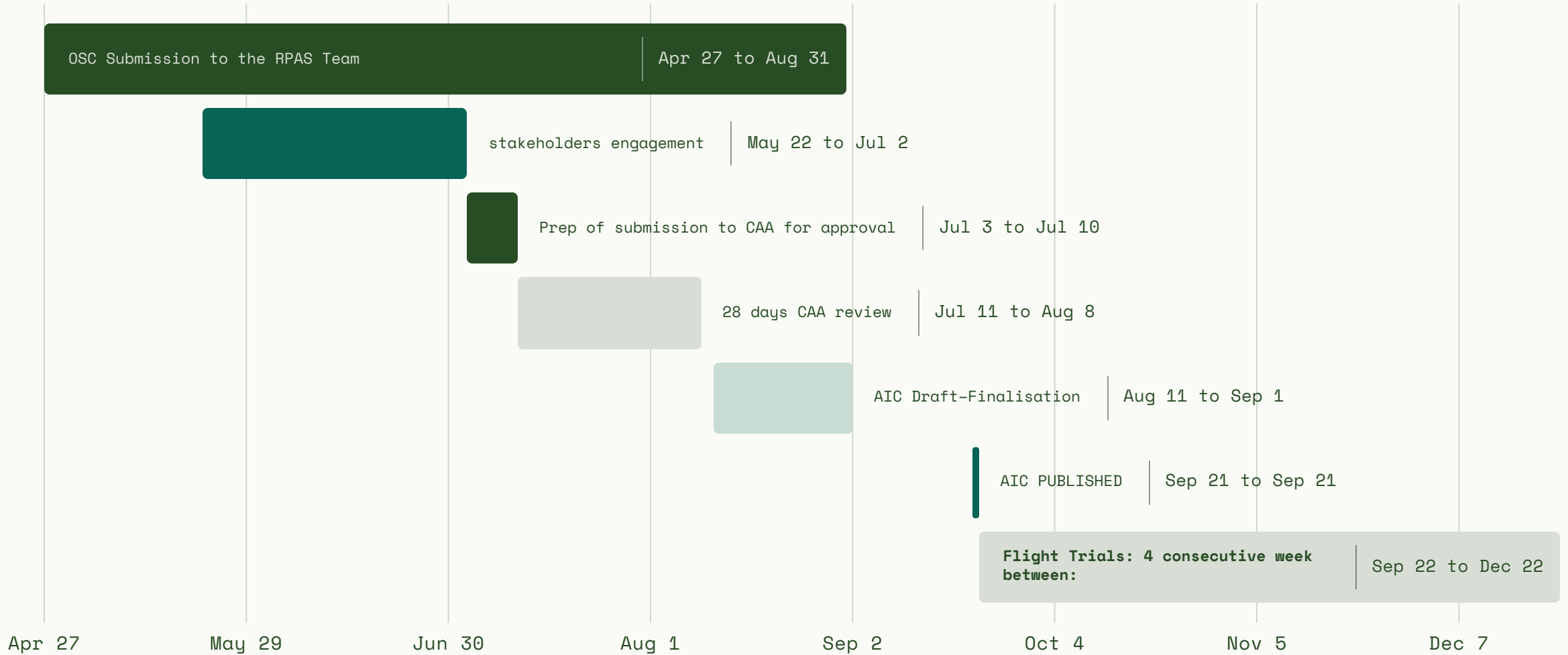
N2: Proposed Route + TDA on Airspace & Satellite Map
 KML could be downloaded using [Dropbox Link](#)

PROPOSED PERIODS OF ACTIVATIONS

	AM Activation		PM Activation	COMMENTS
WEEK 1	07:00-10:00 L	OR	13:00-16:00 L	<ul style="list-style-type: none"> - Only one period of flying with morning activation preferred (dependent on weather). Only one appropriate NOTAM with min 24 hours notice will be activated. - 3-6 one-way flights are expected to be completed (1-2 flights per hour). - Only one TDA route (A+B or C) will be activated.
WEEK 2	07:00-10:00 L	AND	13:00-16:00 L	<ul style="list-style-type: none"> - Afternoon activation will be planned in addition to the morning one - We will be aiming for 2 flights per hour by that point - Only one TDA route (A+B or C) will be activated
WEEK 3	07:00-11:00 L	AND	13:00-16:00 L	<ul style="list-style-type: none"> - Morning activation is increased from 3 to 4 hours - Both TDA routes (A+B and C) could be active between 07:00-09:00
WEEK 4	07:00-11:00 L	AND	13:00-17:00 L	<ul style="list-style-type: none"> - Both morning an evening activations are increased to 4h - Both TDA routes (A+B and C) could be active for the whole duration of the morning OR afternoon activation
NOTE 1:	- Activation periods described above are maximum durations and could be reduced on particular days if not operationally required.			
NOTE 2:	- Contact details for information as to the activation status of the TDAs will be promulgated via the AIC. We will endeavour to arrange for Danger Area Information or Danger Area Crossing Service from a local ATSU if possible, but this has not yet been confirmed and can not be relied upon.			
NOTE 3:	- Skyports will promulgate the TDA activation times and contact details of the Flight Operations Team by NOTAM at least 24 hours before the planned use.			

Timeline for N2

ACP-2022-103



LOCAL STAKEHOLDERS IDENTIFIED

N2: University Hospital Ayr - Arran War Memorial Hospital - University Hospital Crosshouse

Aerodromes in Immediate Vicinity & ANSPs	GA Airfields, Clubs and Unlicensed Sites	Emergency services	Other Aviation Stakeholders	Other Non-Aviation Stakeholders
Prestwick Airport	Prestwick Flight Centre Ltd	Police	Ladyburn Heliport	University Hospital Ayr
Prestwick Airport (ANSP)	Prestwick Flying Club	GAMA Helimed	Turnberry Heliport	Arran War Memorial Hospital
University Hospital Crosshouse Heliport	Air Training Corps	SCAA Helimed	Malin Court Heliport	University Hospital Crosshouse
Arran Heliport	Stair microlight site	Bristow SAR	Ayr Racecourse Heliport	
	Kilkerran Airfield	OHS Rescue	Warrix Flying Group	
	Bute Airfield	Babcock Mission Critical Services Onshore	Arran Helicopter Landing Site Project	
	Scottish Aero Club (Perth)			
	Strathaven Airfield			
	Scottish Mountain Paragliding Club			

NATIONAL GA STAKEHOLDERS

(excluding emergency services)

ARPAS-UK		Light Aircraft Association		General Aviation Safety Council	
General Aviation Alliance		PPL/IR (Europe)		General Aviation Awareness Campaign	
British Balloon and Airship Club		Royal Aero Club		Drone Major	
British Gliding Association		British Model Flying Association		AIRFIELD OPERATORS GROUP	
British Hang Gliding and Paragliding Association		British Business and General Aviation Association		AIRPORT OPERATORS ASSOCIATION	
British Microlight Aircraft Association		British Helicopter Association			
British Skydiving Association		Aircraft Owners and Pilots Association			
Helicopter Club of Great Britain		Airspace4All			

EMERGENCY SERVICES ORGANISATIONS

Babcock		NPAS		Helicentre	
BRISTOW SAR		Great North Air Ambulance		2Excel	
GAMA HELIMED		Aeronautical Rescue Coordination Centre			
Falk Fire Services UK		Maritime and Coastguard Agency			
SAS		PDG Helicopters			
UK Police					
OHS Rescue Helicopter					

NATIONAL DEFENCE AND SAFETY CRITICAL ORGANISATIONS

MoD DAATM		RAF			
Military Aviation Authority (MAA)					
Navy Command HQ					
United States Visiting Forces (USVF)					
BAE Systems					
UK Airprox Board (UKAB)					
UK Flight Safety Committee (UKFSC)					
NATS					

How to Respond

ACP-2022-103

If you received this briefing pack directly from CAELUS2AIRSPACE@TRAXINTERNATIONAL.CO.UK over email, then please **respond in the same thread before 11 June 2023** or if you were forwarded this briefing pack by somebody else – please email us your comments, but also do not forget to **include your name** and whether you are representing an **organisation (if so – what organisation) or if you are an individual**.

We would really appreciate if in your response you confirm if:

- You have no objections to the proposal.
- You feel that you will be impacted by the proposal – if so, please say how and any mitigations that could help.
- Any **comments/concerns/suggestions** that are relevant **to the ACP-2022-103** and the operations described in this pack.

Depending on your feedback, we will either reply to questions via email or schedule an online conference call.

Also, please **feel free to propose additional stakeholders** that you think are relevant to this engagement.

If you represent a national level organisation, you might have been previously invited to a pre-engagement briefing session on the project overall. Questions raised at these sessions have been combined into a single document, but some are still awaiting review by Subject Matter Experts. Please expect that a file with complete set of responses could be downloaded using this [Dropbox link](#) by 1st week of June and/or you receive a personal email response.



PRIMARY CONTACT

@ CAELUS2AIRSPACE@traxinternational.co.uk

Abbreviations

AGL	Above Ground Level
ATZ	Aerodrome Traffic Zone
BVLOS	Beyond Visual Line of Sight
CAT	Commercial Air Traffic
CTR	Control Zone
EVTOL	Electric Vertical Take off and Landing
FFC	Future Flight Challenge
FRZ	Flight Restriction Zone
GA	General Aviation
NATS	National Air Traffic Services
MTOW	Maximum Take Off Weight
RPAS	Remotely Piloted Aircraft System
UA	Unscrewed Aircraft
UAV	Unscrewed Aerial Vehicle
UKRI	UK Research and Innovation
SAS	Scottish Ambulance Service
TDA	Temporary Danger Area
TOLP	Take off and Landing Point
TSA	Temporary Segregated Area

Arran – Crosshouse TDA (Part A)

Identification and lateral limits - Crosshouse - Arran						
	Area bounded by straight lines joining:					
WP	Lat (N)	Lon (S)	Lat (N)	Lon (E)	Upper & lower limit	Remarks
1	55.630081	-4.826697	55° 37' 48.29" N	004° 49' 36.11" W	Lower: SFC Upper: 700ft AMSL	Activity: UAS Beyond Visual Line of Sight (BVLOS) Hours: When notified Sponsor: AGS Airports
2	55.601339	-4.800714	55° 36' 04.82" N	004° 48' 02.57" W		
3	55.5220380	-5.0969131	55° 31' 19.33" N	005° 05' 48.88" W		
4	55.5490268	-5.1266617	55° 32' 56.49" N	005° 07' 35.98" W		

Arran – Crosshouse TDA (Part B)

Identification and lateral limits - Crosshouse - Arran						
	Area bounded by straight lines joining:					
WP	Lat (N)	Lon (S)	Lat (N)	Lon (E)	Upper & lower limit	Remarks
1	55.6007439	-4.5213082	55° 36' 02.67" N	004° 31' 16.70" W	Lower: SFC Upper: 700ft AMSL	Activity: UAS Beyond Visual Line of Sight (BVLOS) Hours: When notified Sponsor: AGS Airports
2	55.6310817	-4.6570583	55° 37' 51.89" N	004° 39' 25.41" W		
3	55.6068167	-4.7784139	55° 36' 24.54" N	004° 46' 42.28" W		
4	55.630081	-4.826697	55° 37' 48.29" N	004° 49' 36.11" W		
5	55.601339	-4.800714	55° 36' 04.82" N	004° 48' 02.57" W		
6	55.6643883	-4.6988481	55° 39' 51.79" N	004° 41' 55.85" W		
7	55.6609258	-4.6098383	55° 39' 39.33" N	004° 36' 35.41" W		
8	55.6304153	-4.4916701	55° 37' 49.49" N	004° 29' 30.01" W		

Ayr – Crosshouse TDA (Part C)

Identification and lateral limits - Crosshouse - Ayr						
	Area bounded by straight lines joining:					
WP	Lat (N)	Lon (S)	Lat (N)	Lon (E)	Upper & lower limit	Remarks
1	55.5546861	-4.5675173	55° 33' 16.86" N	004° 34' 03.06" W	Lower: SFC Upper: 900ft AMSL	Activity: UAS Beyond Visual Line of Sight (BVLOS) Hours: When notified Sponsor: AGS Airports
2	55.5486762	-4.6796649	55° 32' 55.23" N	004° 40' 46.79" W		
3	55.4419481	-4.6614852	55° 26' 31.01" N	004° 39' 41.34" W		
4	55.4445596	-4.5325745	55° 26' 40.41" N	004° 31' 57.26" W		
5	55.4059057	-4.5323384	55° 24' 21.26" N	004° 31' 56.41" W		
6	55.4038949	-4.6690404	55° 24' 14.02" N	004° 40' 08.54" W		
10	55.4360550	-4.7053999	55° 26' 09.79" N	004° 42' 19.43" W		
11	55.5537513	-4.7275933	55° 33' 13.50" N	004° 43' 39.33" W		
12	55.5839211	-4.6664433	55° 35' 02.11" N	004° 39' 59.19" W		
13	55.5853890	-4.6374030	55° 35' 07.40" N	004° 38' 14.65" W		
14	55.5708415	-4.6258341	55° 34' 15.02" N	004° 37' 33.00" W		
15	55.5773818	-4.5934884	55° 34' 38.57" N	004° 35' 36.55" W		
16	55.6158456	-4.5882942	55° 36' 57.04" N	004° 35' 17.85" W		
17	55.6475221	-4.5580733	55° 38' 51.07" N	004° 33' 29.06" W		
18	55.6303986	-4.4916701	55° 37' 49.43" N	004° 29' 30.01" W		