BVLOS TRIAL IN NON-SEGREGATED AIRSAPCE

Trial Strategy

V1.0 Dec 2020

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Introduction

Consortium partners Trax International, uAvionix, Plane Finder and ANRA Technologies are working together with trial hosts Goodwood Aviation Innovation Centre and trial participants Skyports on a project that aims to prove a concept of safe Beyond Visual Line of Sights (BVLoS) Un-manned Aerial System (UAS) operations alongside conventional traffic in non-segregated airspace.

The consortium wishes to demonstrate the concept via a live airspace trial which needs the permission of the CAA. However, before a live airspace trial can take place the consortium requires the protection of a Temporary Danger Area (TDA) to develop the operating procedures and protocols and gain the safety assurances needed to enable the CAA to permit such a trial.

Establishing a TDA requires sponsors to follow one part of CAP1616 (a temporary change to the notified airspace design) as well as the CAA Policy for the Establishment of Permanent and Temporary Danger Areas. Conducting a live airspace trial requires the consortium to follow a separate process within CAP1616 (airspace trial). Furthermore, the consortium requires the use of a TDA for c.5mths which is longer than the TDA Policy/Temporary Airspace Change typically caters for (90days). This project therefore doesn't neatly fit the definition of either a trial or a temporary airspace change but overlaps them both.

This document, the Trial Strategy, describes the project's high-level objectives and intentions and provides as much information as technically possible at this early stage. It articulates all the information that can be provided at this moment in time and what information and requests the CAA will receive in the future. **This trial strategy is for information only and is not requesting any permissions from the CAA**, but it enables CAA planning and welcomes the opportunity for feedback from the CAA as to the methodology proposed for adhering with the overlapping elements of CAP1616 in the most efficient manner.

To request permission for a live trial requires us to submit a trial plan to the CAA. However, at this stage we cannot submit a complete, single trial plan with all assurances to request permission for a live trial. For this reason, we propose that the trial plan is delivered to the CAA in two parts:

1. Part 1 will contain the request for the establishment of a TDA and thereby contain all information required in CAP1616 and the CAA Policy for the Establishment of Permanent and Temporary Danger Areas. This will include the necessary safety assurances required for operations within the TDA as well as much information as possible as to the activity that will take place within the TDA. Part 1 is expected to be presented to the CAA in late January 2021.

2. Part 2 will contain the request for permission for a live trial and will provide the complete information of safety evidence and stakeholder consultation on the TMZ. Part 2 is expected to be presented to the CAA in July 2021 and will deliver the requirements of CAP1616 Paragraph 313.

All information and dates given within this Trial Strategy may be subject to change as the project develops.

The Concept of Operation

Background Context

CAP722 and CAP1861 indicate that Beyond Visual Line of Sight (BVLOS) operations in the UK are possible in unsegregated airspace, subject to the 'Detect and Avoid' capability of the Unmanned Air System (UAS) being as good as the 'See and Avoid' capability of conventional aircraft under Visual Flight Rules (VFR).

If a UAS will be operating BVLoS with no detect and avoid capability, then segregated airspace (a Temporary Danger Area (TDA)) should be established. TDAs are required, because they reduce risks to conventional traffic imposed by Remotely Piloted Aircraft System (RPAS) to as low as practically possible.

It is understood that there are currently multiple live applications with the CAA for the establishment of TDAs to enable BVLoS RPAS operations. Continuing acceptance of these requests will create a patchwork of temporary airspace segregations across the UK which could eventually become unsustainable due to the impact on safety and efficiency, specifically:

- SAFETY – more temporary segregated airspace increases the risk of infringements by other aircraft into the protected zone,
- EFFICIENCY – more temporary segregated airspace limits access to aircraft into the protected zone, constraining the operations of other aviation activities (some which may also be essential to CV19 responses).

This project has received funding from Innovate UK as part of the Drone solutions for COVID-19: Innovate UK Article 25 competition and the aim is to conduct a live trial of BVLoS operations in non-segregated airspace.

It is proposed that the location of the trial and trial preparation will be at and around Goodwood Airfield, located in Class G airspace and who have previously had a TDA in place for BVLoS drone operations. This project has the full support of the previous Goodwood TDA applicant, the Goodwood Aviation Innovation Centre and Goodwood Aerodrome. This project aims to integrate with Goodwood's current operation to ensure minimal impact on the current airspace users.

For the TMZ, the project will develop an airspace trial plan in accordance with CAP1616. The trial plan will contain the evidence necessary for the CAA to approve a live demonstration of BVLoS operations within an established, Temporary TMZ within Class G airspace. However, the evidence for the trial will first need to be gained from testing within the protection of a TDA[1].

Owing to the need to first develop the operating procedures and protocols within a TDA, at this stage we cannot submit a full trial plan with all assurances to request permission for a live trial within a TMZ and for this reason the trial plan will be delivered to the CAA in two stages:

1. Trial Plan Part 1 – A request for the establishment of a TDA and details of the activity to take place within the TDA
2. Trial Plan Part 2 – Full trial plan and request for live trial within a TMZ.

[1] The BVLoS Development Pathway (CAP1861) suggests that tests in segregated airspace should precede tests in a non-segregated environment.

The aim of the trial is to create a long-term solution for safe UAS operations alongside conventional manned aircraft in non-segregated airspace.

The trial will enhance the safety of day-to-day operations in Class G airspace via the broadcast of real-time Flight Information and Traffic Information to enhance the situational awareness of all airspace users and stakeholders.

This will be achieved through a gradual build-up of safety assurances and the development of operating protocols in a controlled, segregated environment. The procedures will adhere to all existing and expected regulations and guidance:

- CAP 393 (The Air Navigation Order)
- CAP 722 (Unmanned Aircraft System Operations in UK Airspace – Guidance)
- CAP 722A (Unmanned Aircraft System Operations in UK Airspace – Operating Safety Cases)
- CAP1861 (Detect & Avoid Ecosystem for BVLOS in Non-Segregated Airspace)
- CAP 1763 (ANO Amendments - Guidance for Small Unmanned Aircraft users)
- CAP 1789 (The EU UAV Regulation Package – Outline)
- Regulations (EU) 2019/947 on the rules and procedures for the operation of unmanned aircraft and (EU) 2019/945 on unmanned aircraft systems and on third-country operators of unmanned aircraft systems
- Commission Delegated Regulation (EU) 2020/1058 amending Delegated Regulation (EU) 2019/945 as regards the introduction of two new unmanned aircraft system classes

Concept of Operation to be trialled

Plane Finder's existing surveillance coverage of Goodwood will be enhanced with additional Plane Finder and uAvionix systems to provide robust, low level coverage around the area. Locations have been identified for siting of supplementary receivers and new transmitters and permissions for 978Mhz broadcast trial licenses have been received from OFCOM.

A TMZ established around Goodwood Aerodrome[2] will require the carriage of Mode S or CAP1931 approved ADS-B Out devices. This is in line with emerging CAA policy on TMZs currently under development.

The Plane Finder and uAvionix system will detect the ADS-B and Mode S transmissions and will Multilaterate the Mode S signals. In addition, for added safety and situational awareness, the systems will also detect FLARM transmissions, although carriage of FLARM devices alone does not currently meet the requirement for TMZ entry.

This data will be fused into ANRA's SmartSkies platform to provide the UAS operator with a surveillance picture, providing them with a 'detect' capability to inform their 'avoid' response.

The Goodwood FISO will also have access to a standalone display for their enhanced situational awareness.

[2] Dimensions and timings To Be Determined

The Mode S (MLAT) and FLARM data will be re-broadcast on 978Mhz via a Traffic Information Service – Broadcast (TIS-B) together with pertinent Flight Information such as weather information and TMZ status via a Flight Information Service – Broadcast (FIS-B).

Although not mandated equipment for entry to the TMZ, any airspace user with ASD-B In capability will be able to receive the TIS-B and FIS-B broadcast. Together with the ADS-B out transmissions directly from the aircraft, this will provide a significant enhancement to the situational awareness of all airspace users in the area.

The FIS-B and TIS-B broadcast is expected to be available regardless of any ongoing UAS operations.

The recognised traffic environment within the TMZ together with a set of operating procedures[3] will enable the UAS BVLoS operator to demonstrate a 'Detect and Avoid' capability of the Unmanned Air System (UAS) being as good as the 'See and Avoid' capability of conventional aircraft under Visual Flight Rules (VFR) alongside other airspace users in Class G airspace.

[3] To Be Determined ahead of the live TMZ trial

Trial Preparation

This project is extremely ambitious and innovative and will be the first of its kind in the UK and Europe. Whilst the technology to be trialled to deliver the surveillance environment and the TIS-B/FIS-B broadcast already exists to defined International Standards, the operating procedures, protocols and regulations to allow the UAS operator to perform BVLoS UAS operations alongside conventional traffic using this concept do not currently exist.

In order to develop these operating procedures and protocols and to generate the safety assurances required to allow CAA to grant permission for a TMZ trial, the project first needs the establishment of a TDA to provide the segregated protection for the development.

Temporary Danger Area

A TDA was previously established at Goodwood aerodrome between June and September 2020, surface – 2,000ft within a 5nm radius of the Aerodrome Reference Point, under a separate application by the Goodwood Innovation Centre. The intention was for the TDA to be activated as required, by NOTAM but only between 0600-0800 UTC outside of normal aerodrome opening hours. However, due to the CV19 pandemic, the sponsor was unable to utilise the TDA. It was never activated via NOTAM.

It is the intention of this project to apply to the CAA for permission for another TDA to be activated at Goodwood aerodrome from 11th April 2020 for a period of 5 months.

To ensure minimal impact to the Goodwood operation, it is intended that the dimensions and broad hours of operation of the TDA will be as per the original application. However, we are considering extending the availability to cover additional hours outside of Goodwood operations, rather than just 0600-0800 UTC. This will be confirmed following engagement with our stakeholders. We may also need to carry out further testing after submission of the 2nd trial plan at the request of CAA and we would need the ability to activate the TDA for that testing. These requirements drive the request for a TDA availability of greater than the normal 90-day period.

We will follow the requirements documented within the CAA Policy for the Establishment of Permanent and Temporary Danger Areas and have planned engagement activity to take place during December 2020 and January 2021. More details are available in the Stakeholder Engagement section of this document.

Following the stakeholder engagement, the project will submit a request for the TDA to the CAA. This can be expected by the CAA no later than 30th January 2021 to enable TDA promulgation on 8th April 2021. The request will contain the following information and be within the Trial Plan – Part 1:

a) Finalised proposed design of the TDA, demonstrating consideration of the engagement conducted.
b) Report summarising the engagement to include: list of stakeholders, a summary of the engagement approach and timeline, original engagement documentation, original responses and analysis of the responses. The analysis will provide a clear audit trail to show what the stakeholder said and what we did (and why) with that information.

c) Outline of the TDA management process. This should, were proportionate, consider the requirements stipulated within the main body of the Policy for the establishment of Permanent and Temporary Danger Areas.
d) Safety Assessment demonstrating how the hazard will be contained within the TDA.
e) Draft Aeronautical Information Circular (AIC).
f) Details and objectives of the testing and development activity to take place within the TDA
g) In addition, we will upload onto the airspace portal redacted copies of documents listed in points a-d above.

Ahead of the promulgation of a TDA, in addition to the activities above, the project will be undertaking the following series of activities in preparation for any BVLOS operations:

1. Installation of a network of Electric Conspicuity (EC) receivers and 978Mhz transmitters to provide robust and effective coverage.
2. Validation of the accuracy and latency of the surveillance system and understanding of limitations.
3. Testing and refinement of the UTM and FISO Situational Awareness displays[4] to enable monitoring of live UAS telemetry and conspicuous aircraft.
4. Testing of FIS-B and TIS-B transmissions and coverage. This will be a NOTAM'd activity
5. Provide RPAS operators (and other equipped aircraft) with real-time, shared situational awareness of the airspace.
6. VLOS UAS flight testing that demonstrate both the coverage and technical specifications of the air/ground receive/transmit functions and UTM system.
7. VLOS development of the operating procedures that UAS operators shall adopt to ultimately enable remote, see and avoid BVLOS operations.

Once a TDA has been established, it will enable the initial BVLOS testing. Namely:

a) BVLOS[5] flight testing within the segregated TDA that demonstrate and refine the procedures, permissions, rules and capabilities that UAS operators must be able to demonstrate in order to enable BVLOS in a remote detect and avoid environment, including system failures and contingency scenarios.
b) Testing of the HMI system and operating procedures in a controlled BVLOS environment (within TDA) with flights by specially briefed General Aviation fixed-winged and rotary aircraft[6].

At this stage, it is understood that no CAA permissions are required other than for the establishment of the TDA itself, specific OSC approvals for participating UAS operators to operate BVLoS within it and for the test-broadcast of TIS-B and FIS-B transmissions.

[4] FISO will not have any display in the tower without permission from CAA.
[5] Participating UAV Operating Safety Cases (OSC) will require CAA approval for the Goodwood TDA.
[6] Commercial AOCs will not be involved in this testing. Participating UAV Operating Safety Cases (OSC) may require further CAA approval for this activity.

TMZ Consultation

During this period of testing, the project will consult with its stakeholders on the establishment of a Temporary TMZ. This consultation will request feedback on the TMZ size and dimensions, carriage and access requirements, provision for non-equipped aircraft, duration and timings, as well as requesting feedback on any concerns as to whether the trial will be safe and operationally viable.

Timeline

The figure below illustrates the key project dates.

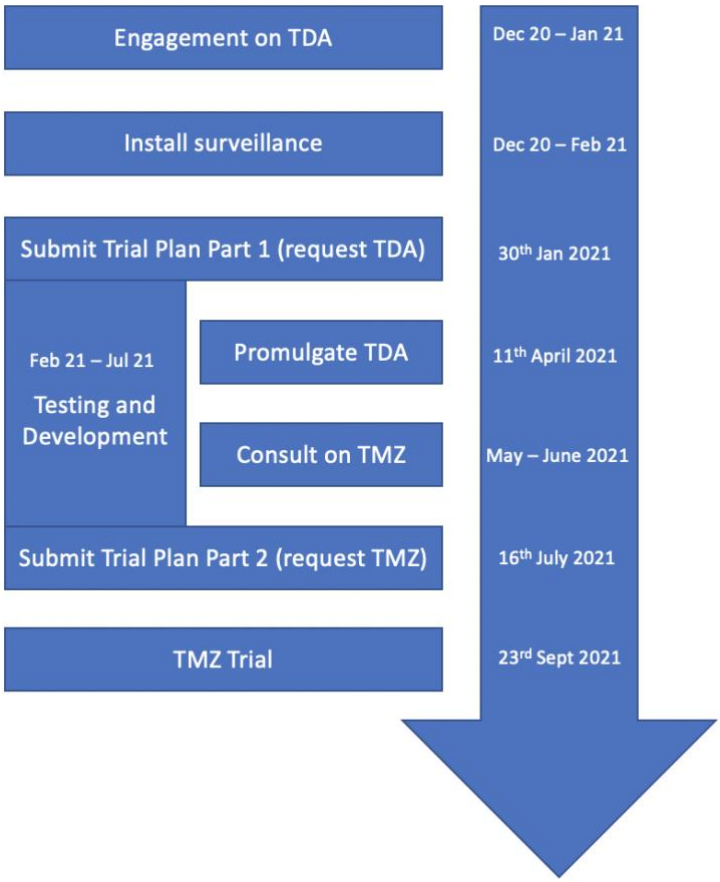

Figure 1 Indicative timeline of key project dates

Draft Trial Objectives

The trial is aiming to achieve the following key objectives:

- To create a long-term solution for safe UAS operations alongside conventional manned aircraft in non-segregated airspace.
- Enhance the safety of day-to-day operations in Class G airspace via the broadcast of real-time Flight Information and Traffic Information to enhance situational awareness of all airspace users and stakeholders.

This is to be achieved through a gradual build-up of safety assurances and the development of operating protocols in a controlled, segregated environment (TDA). This will lead to a demonstration in non-segregated airspace (TMZ) with General Aviation access, subject to meeting a minimum level of EC equipage.

The Trial Plans will contain the objectives for each element of the trial.

Before and After

The trial preparation in the TDA and trial within the TMZ will take place in the vicinity of Goodwood aerodrome without interrupting day-to-day aerodrome operations.

Goodwood is a busy aerodrome in Class G airspace serving a variety of fixed-wing and rotary aircraft. A FISO provides a Flight Information Service to aircraft on frequency within the ATZ and oversees operations to/from their 3 grass runways. The surrounding airspace is very busy with General Aviation including the Gliding Community.

Goodwood aerodrome welcome and support the trial but the project must not negatively impact the Goodwood operation or their customers.

As outlined above, it is the ambition of the project that a TDA will be promulgated from 11th April – 23rd Sept 2021 from surface to 2000ft and activated via NOTAM as required, outside of Goodwood opening hours.

On cessation of the TDA availability, it will be replaced by a TMZ from 23rd Sept – 16th Dec 2021 during which the BVLOS operating procedures will be trialled in conjunction with TIS-B and FIS-B transmissions. The exact specifications of the TMZ will become available through consultation with our stakeholders.

A trial report will be available before the end of 2021.

After the trial, the airspace will revert to its existing state of an ATZ within Class G airspace with no TMZ promulgated. However, if the trial demonstrates safety benefit, it is expected that we will request permission for the surveillance and rebroadcast equipment and associated TIS-B and FIS-B transmissions to continue. The withdrawal of the TMZ may reduce the overall safety benefit gained to other airspace users at this point from the trial owing to the absence of a fully known surveillance environment, however, we believe the continued availability of the TIS-B and FIS-B transmissions would be a welcome safety enhancement to the current arrangement.

Should the airport operator, the Goodwood Innovation Centre or any other sponsor wish to establish a permanent TMZ in this area, they are aware they will need to follow the full Airspace Change Process as detailed in CAP1616. As detailed in paragraph 324 of CAP1616, *it is not always practical or prudent to disestablish a trial procedure.* If a sponsor wishes to extend the duration of the TMZ whilst progressing an ACP they will first engage with their stakeholders before making a formal request to the CAA.

Draft Success Criteria

Project success is currently envisaged to be declared following a safe trial which:

- Demonstrates safe UAS BLVoS operations alongside conventional fixed-wing and rotary aircraft in non-segregated airspace with no detrimental impact on Goodwood aerodrome's operations
- Documents the operating procedures and protocols that UAS operators must be able to demonstrate they can meet in order to obtain CAA permission for BVLoS operations utilising the concept.

Safety Assurances for the TMZ

The safety assurances required to gain CAA permission for a live trial of BVLoS operations within a TMZ will be generated ahead of, and documented within, the submission of Trial Plan Part 2.

It is anticipated that the safety assurances will cover the following aspects:

- Surveillance system tested for coverage, accuracy and latency.
- Limitations of system (inc coverage) understood and mitigated.
- UAS behaviour and limitations tested.
- Site Acceptance Testing of surveillance picture and surveillance HMI.
- BVLoS routes and operating areas within the TMZ defined and assessed against terrain, obstacles and overflight of populated areas.
- Operating protocols for UAS operator and FISO developed and refined. i.e. defining what the UAS operator and FISO can and can't do with the information presented.
- Introduction of controlled GA flights to test operating procedures and protocols.
- Hazard Identification and Mitigation.
- Training and self-sign-off (akin to a Greenfield Validation) for UAS operator and FISO to use the surveillance picture/HMI.

Ahead of this, the Trial Plan Part 1 will contain a safety assessment demonstrating how the hazard (UAS) will be contained within the TDA and a Test Plan of the proposed activity.

It is the intention of the project team to work collaboratively with the CAA, via the CAA innovation team, throughout the project to help develop the safety requirements and assurances ahead of submission of the Trial Plans.

Noise Impacts and Considerations

The CAA Policy on Airspace Trials requires sponsors to explain how they have considered and assessed the likely noise impact of its proposal. In addition, for trials longer than 90 days, that affect traffic distribution below 7,000 feet, the following information must be prepared by the change sponsor and used to engage with those affected:

a) For noise from day flights (0700 to 2300), 65 dBA Lmax footprints that illustrate the loudest and most frequent types of aircraft that will be participating in the trial.

b) For noise from night flights (2300 to 0700), 60 dBA L footprints that illustrate the loudest and most frequent types of aircraft that will be participating in the trial.

c) Equivalent footprints that illustrate where the trial traffic would otherwise have flown (this assumes that any aircraft that partakes in a trial would have flown on an alternate route that reflects current operations)

d) Information on the expected frequency (both absolute and as a percentage of total traffic during the trial period) and timing of flights participating in the trial

e) Operational diagrams that illustrate the estimated overflight swathe of trial traffic, up to 7,000 feet (see 'Operational diagrams' above).

The intent behind these requirements were undoubtably written in relation to understanding the shift in noise distribution from conventional aircraft as a result of the proposed trial or temporary change to the notified airspace design. In addition, the operation of UAS whilst operating **within** the Visual Line of Sight by any person does not require any noise assessment although it does require UAS operators to adhere to separation rules with respect to congested areas, uninvolved people, vessels, vehicles and structures.

Owing to the innovative nature of this project, the policy, guidance and noise modelling information on UAS operations is yet to be developed, and therefore it will not be possible to generate accurate noise footprints. Furthermore, as outlined in the sections below using the limited information currently available, the expected low levels of UAS movements combined with the limited time of operation and the anticipated levels of noise, do not suggest that it would be practicable to generate day/night 65/60 dBA noise footprints.

We do not expect any change in the patterns of conventional traffic as a result of this trial. This will be confirmed in the Trial Plans.

This project is fully aware that without the development of policy or guidance on UAS operations, public perception on noise and indeed nuisance aspects could lead to delays and opposition to the commercialisation of UAS operations in the UK.

In order to comply the CAA requirement to consider and assess the likely noise impact of the operation of the trial procedures, we have included an indication of the likely noise impacts of UAS operations

in this Trial Strategy and will update this information in Trial Plan Parts 1 and 2, if it becomes available. This is set out in the sections below and is based on publicly available information, advice from Skyports and our estimates on the number and frequency of UAS operations together with an indication of UAS flight areas that we are assessing at this early stage.

Existing Goodwood Aerodrome Noise Monitoring requirements

Goodwood aerodrome do not have any requirements to monitor noise levels. They have a Section 52 agreement with Chichester District Council the terms of which can be viewed on Goodwood's website here[7]:

Chichester District Council sit on Goodwood aerodrome's consultative committee and will be engaged throughout this project. See section on Stakeholder Identification and Engagement Plan.

Indicative UAS noise

Owing to the emerging market for UAV technology, there is very limited information publicly available about the noise created by drones. Table 1 shows the extrapolated outcome of a study[8] which looked at the noise produced by a hovering DJI multicopter. The drone used for the study is smaller than the proposed drone that Skyports intend to use[9]. Table 2 provides information on the speed specifications of the Skyports drone and the time it will take for a drone to reach certain heights above ground level.

It is important to note that unlike the DJI multicopter, the Skyport drone (which is one of the main drones[9] intended to be used as part of the trial) has two modes of operation; multicopter mode and fixed wing mode. Multicopter mode is used for take off and landing, and fixed wing mode is used throughout the rest of the flight. When in fixed wing mode at 400ft or higher, the drone operator states that it is almost imperceptible from the ground[10]. It is anticipated that the drone will operate in multicopter mode within the Goodwood aerodrome boundary; beyond the boundary it will operate in fixed wing mode. The exception to this is when landing and taking off from sites outside of the aerodrome boundary.

We recognise that noise created by drones is complex and note that the below tables aims to give high level estimations, based on the information currently available. Regulatory policy, guidance and noise modelling information on UAS operations is yet to be developed.

[7] https://www.goodwood.com/flying/aerodrome/noise-management/aerodrome-consultative-committee/section-52-agreement/

[8] Zhang, Yingzhe & Lee, Incheol & Lin, Dakai. (2017). Measurement of Noise from a Moving Drone Using a Phased Array Microphone System.

[9] There may be other drones which take part in the trial other than Skyports however, we expect them to be the main participant.

[10] We will look to corroborate this statement during the trials

Table 1 Drone noise and speed estimations

	Drone Height (m) AGL	Data Extrapolated to 10KHz (LAmax) (Hovering)
DJI Multicopter	4	77 dB
	20	70 dB

Table 2 Skyport Drone: Time in flight

	Drone Height (m) AGL	Time to height (s)	
Skyport Drone (.5 Max speed, ROC 6.94m/s)	4	0.58	SkyPort drone virtually imperceptible from the ground at 400ft
	20	2.88	
	122 (Fixed wing mode)	17.57	
Skyport Drone (Max speed, ROC 13.89 m/s)	4	0.29	SkyPort drone imperceptible by 400ft
	20	1.44	
	122 (Fixed wing mode)	8.78	

Using the information from the tables above, and assuming that the drone climbs vertically before changing to fixed wing mode when it reaches 400ft, we suggest that the drone could be a maximum of around 77dB for 1-2 seconds, before climbing to around 70dB in under 3 seconds, and would climb to where it would be almost imperceptible (at ground level) in 18 seconds.

Information on the way noise is measured can be found on the CAA website here:

https://www.caa.co.uk/Consumers/Environment/Noise/Measuring-and-modelling-noise/

And NATS have some useful information on noise comparisons on their website here, although note this is oriented towards conventional aviation:

https://www.nats.aero/environment/noise-and-emissions/measuring-noise/

Information on noise produced by drones is currently very limited. The project welcomes any requests for the CAA to perform their own UAS noise measurement assessments to help inform the development of policy or guidance on UAS operations.

Number and frequency of UAS operations

We currently envisage that there could be typically upto 12 UAS movements on any one day comprising of 12 take-offs and 12 landings although this number of movements will not occur every day.

If we assume that the drone makes some sort of noise for 18 seconds on take-off and again on landing, and we undertake an average one take-off and one landing a day, then it would equate to c.36 seconds of noise. During a day of 12 landings and 12 take-offs, this would equate to c.7mins and 12 seconds of noise which when scaled to average noise contours would be negligible against the overall noise of the aerodrome and racetrack.

This noise assessment is indicative. Where possible we will update with more information within the Trial Plans as more information becomes available.

Potential location of UAS operations

Exact routes and/or operating areas are yet to be defined, nor is it yet known if there will be specific UAS routes in and around the area or if they will be flexible. However, in preparation for the testing, the project has mapped out all residential, built up or potentially populated areas within 5nm of Goodwood aerodrome and all the flight routes will be planned in such a way as to meet CAP 722 requirements and applicable exemptions/permissions wherever relevant. Moreover, that will lead to minimising overflight of any residences in a bid to mitigate any noise and/or nuisance aspects. Figure 2 below shows all of these areas identified within a 5nm radius of Goodwood aerodrome.

Figure 2 Populated areas identified within 5nm of Goodwood Aerodrome

Stakeholder Identification and Engagement Plan

Stakeholder Identification

Table 3 lists all the stakeholders identified so far that may have an interest in this project. They include all of the stakeholders previously engaged by the Goodwood Innovation Centre for the original TDA request as well as some additional stakeholders identified by the project.

Table 3. Identified Stakeholders for TDA engagement and TMZ consultation

Stakeholders		
Goodwood Aerodrome & Aero Club	Bembridge Airport	CAA: Innovation Team, SARG, UAS Team
Goodwood Flying School	Shoreham Airport	Farnborough Airport
Goodwood Aircraft Engineering	Sandown Airport	ARC Rescue Co-ordination Centre
Elite Helicopters	Bognor Regis Gliding Centre	DAATM
Ultimate High	Parham Gliding Site, Southdown Gliding Club	National Police Air Service
Boultbee Flight Academy	Glidden Microlight Site	Kent, Surrey & Sussex Air Ambulance Trust
GA Aircraft	Thorney Island Royal Artillery Station	BGA
Solent Airport	Southampton Airport	LAA
GAA	BMFA	A4A
Chichester & District Model Aero Club	Lasham Gliding Club	NATMAC
Aerodrome Consultative Committee (Boxgrove, Lavant, Singleton, Tangmere and Westhampnett Parish Councils, Chichester District Council, The Chichester Society, Summersdale Residents Association, Sussex Police and West Sussex County Council.)	Local Businesses e.g. Rolls Royce Factory, The Goodwood Hotel	Sussex Police
NATS	South Downs National Park	Specialist Aviation Services

PDG Helicopters	Bristow SAR	Heliair
Western Power		

Engagement on the Temporary Danger Area

Engagement on the TDA will follow the requirements of the CAA Policy for the Establishment of Permanent and Temporary Danger Areas.

We plan to engage with the Stakeholders listed in table 3 above; many of these Stakeholders were previously engaged during the previous TDA application.

We intend to circulate an engagement document to all Stakeholders to inform them of the proposed TDA application and request feedback to support development of the TDA itself. The document will include information regarding the proposed Temporary Danger Area and the purpose of the application. In addition to the information regarding the TDA, it will give stakeholders an overview of the wider aims of the overall project and the expected next steps which will eventually involve a consultation on a TMZ. The document will refer stakeholders to this Trial Strategy for more information.

Stakeholders will have the opportunity to ask any questions or clarify information using a dedicated email address and telephone appointments will also be offered where beneficial. Hard copies of all engagement documentation will be available upon request.

The engagement is expected to take place between December 2020 and January 2021.

Consultation on the TMZ

Consultation on the TMZ will follow the requirements of the CAP1616 Airspace Trial process. The project will consult with its stakeholders on the establishment of a Temporary TMZ. This consultation will request feedback on the TMZ size and dimensions, carriage and access requirements, provision for non-equipped aircraft, duration and timings, as well as requesting feedback on any concerns as to whether the trial will be safe and operationally viable.

The stakeholders identified in table 3 above, and any additional stakeholders identified during the project, will be notified of the planned TMZ consultation and its proposed dates and duration as part of the TDA engagement process. In addition to this, stakeholders will be informed via email in advance of the consultation with the specific details of the consultation.

It is anticipated that the consultation material will be a single consultation document which summarises the overall project and specific details of the proposed TMZ. It will allow stakeholders to see how the information gathered during the earlier stages of the project has influenced the overall plan with the TMZ, it will provide clear information regarding the proposed TMZ, as well as explaining how responses to the consultation will shape the outcome.

We will collate and analyse all responses to the consultation. In addition to this, we plan to offer a dedicated email address for any questions and will arrange phone calls to answer stakeholder's

queries where required. The Goodwood Consultative Committee will be offered a web briefing. Hard copies of the Consultation Document and any supporting information will be available on request and we will provide an address for written responses.

Throughout the consultation process, a Frequently Asked Questions document will be updated to aid in clarifying information for stakeholders, where required.

The consultation is currently planned to take place between May and June 2021. We propose that the consultation will run for a period of 8 weeks which differs from the 12 weeks outlined in CAP1616. We believe that 8 weeks is proportionate given the TMZ will only be established for 3 months, and as the project is linked to the COVID 19 response, we are required to meet pressing UKRI deadlines to deliver solutions. In addition, our TDA engagement will describe our intentions to consult on a TMZ, including the duration of that consultation, and therefore give our stakeholders many more months to feedback any concerns or suggestions, ahead of the TMZ consultation itself.

A report summarising the feedback received during the consultation, and how this has shaped our TMZ application, will be available as part of the Trial Plan Part 2 submission.

Engagement and monitoring of complaints throughout the trial period

Throughout the establishment of the TDA and TMZ we will undertake regular engagement with stakeholders to ensure that there is awareness of the trial and the associated complaints procedure within CAP1616.

As part of this engagement activity, we will make clear that complaints must meet the criteria set out by the CAA, in order for the CAA to consider whether to investigate.

We will collate, monitor and report complaints to the CAA. Where appropriate, we will continue to add to the Frequently Asked Questions document developed throughout the consultation.

We will immediately investigate any complaints raised regarding safety.

Next steps

The following bullet points set out the next steps relevant to the CAP1616 processes to be performed by the project:

- Engage stakeholders on the specifics of the TDA. This engagement is expected to take place throughout December 2020 and early January 2021.
- Following the engagement, the project will submit to the CAA a request for the TDA. This can be expected by the CAA no later than 30th January to enable TDA promulgation on 8th April 2021. The request will contain the following information and be within the Trial Plan – Part 1:
  a) Finalised proposed design of the TDA, demonstrating consideration of the engagement conducted.
  b) Report summarising engagement to include: list of stakeholders, a summary of engagement approach and timeline, original engagement documentation, original responses and analysis of the responses. The analysis will provide a clear audit trail to show what the stakeholder said and what we did (and why) with that information.
  c) Outline of the TDA management process. This should, were proportionate, consider the requirements stipulated within the main body of the Policy for the establishment of Permanent and Temporary Danger Areas.
  d) Safety Assessment demonstrating how the hazard will be contained within the TDA.
  e) Draft Aeronautical Information Circular (AIC), if required.
  f) Details and objectives of the testing and development activity to take place within the TDA
  g) In addition, we will upload onto the airspace portal redacted copies of documents listed in points a-d above.

In conjunction with these activities, we will begin installation and testing of the surveillance and rebroadcast capability.