



Ministry
of Defence

Headquarters Air Command

Room 1W27, Spitfire Block
Royal Air Force
High Wycombe
Buckinghamshire
HP14 4UE

10 Nov 2023

AIRSPACE CHANGE PROPOSAL – ACP-2023-047

Introduction

This document forms part of the airspace change process as defined in Civil Airspace Publication (CAP)1616. RAF Waddington is the main operating base for the large Remotely Piloted Air System (RPAS), Protector RG Mk1. Permanent segregated airspace will be established in the UK to support Protector's operation at RAF Waddington; this comes into force at the end of this month. It is unlikely to be activated for routine Protector operations until spring 2024 when the Ministry of Defence (MOD) will conduct test and evaluation activities prior to Protector entering formally into service. During this and future activity in the UK, Protector will require a diversion airfield to be made available in the event that, for any unforeseen reason RAF Waddington becomes unavailable. Following investigation into several military airfields, RAF Marham has been identified as the most suitable and preferred diversion airfield.

This airspace change (ACP-2023-047) is being managed under the airspace trial process as outlined in CAP1616. The purpose of the proposed change is to establish and trial temporary segregated airspace in the form of a Temporary Danger Area (TDA) centred on RAF Marham. The trial seeks to confirm that RAF Marham is a suitable diversion airfield for Protector and will be conducted in accordance with a trial / test plan with specified and measurable objectives. It will also inform the development of ACP-2023-022¹, which is at the first stage of the CAP1616 process and seeks to establish permanent segregated airspace in the vicinity of RAF Marham to facilitate continued and enduring access to a diversion airfield for Protector.

The aim of this letter is to inform all stakeholders of the proposed introduction of the TDA at RAF Marham and to ensure that everyone has a full understanding of what, if any, effect it may have on them and to provide them with the opportunity to provide feedback. This letter forms part of the ACP engagement activity and is being sent to you as an identified stakeholder for comment. The Change Sponsor is the MOD.

TDA Requirement

This TDA proposal aims to introduce a volume of airspace overhead RAF Marham to enable the MOD to demonstrate that the airspace, associated procedures and infrastructure at RAF Marham will provide a suitable diversion airfield capability for both Protector UK test and evaluation (T&E) activity and later in-service operations². It is envisaged that up to 2 planned diversions to RAF Marham will be conducted in the period May - August 2024. Each diversion profile will involve an arrival and departure from RAF Marham. It is important to note that the TDA will need to be active for all Protector flying, including sorties from RAF Waddington when a planned diversion is not expected (i.e. the TDA may be active but not necessarily used). Please see section below entitled **Utilisation** for more detail.

¹ ACP-2023-022 is at Step 1a of the CAP1616 process, details of which can be found on the CAA ACP Portal here: [Airspace change proposal public view \(caa.co.uk\)](#)

² In-service operations are due to commence in late 2024



Protector has a 79ft wingspan and is 38ft long. It is powered by a single TPE 331-10 turbo-prop engine and will be certified to fly in UK airspace. The aircraft will be operated by fully qualified RAF crews.

Statement of Need

The formal Statement of Need is provided on the CAA ACP portal as follows:

The RAF will commence flight of Protector in the UK late in 2023, when it will initially be flown under a military permit to fly (MPTF). The airspace integration safety argument (AISA) for in-service flight will not be in place until delivery of the Release to Service (RTS), anticipated late 2024. Delivery of the RTS is dependent on specific evidence which will be gathered through UK test and evaluation scheduled to commence once new permanent segregated airspace is in place as proposed under ACP-2019-18. Access to a nominated diversion airfield is required during this evidence-gathering T&E activity, where flight outside classes A and C airspace will be necessary.

Regulatory Requirement and Safety Assessment

This section describes why specifically segregated airspace in the form of a TDA is being requested for the Protector activity at RAF Marham.

UK military aviation is regulated by the Military Aviation Authority (MAA). Accordingly, the Protector programme is subject to the MAA Regulatory Publications (MRP). Of particular relevance to the operation of Protector in UK airspace is MAA Regulatory Article (RA) 2320 – MAA regulation for operation of military RPAS. The RA states the criteria for beyond visual line of sight (BVLOS³) RPAS operation such that within UK airspace, BVLOS operations should:

- *Either* employ an appropriately approved Detect and Avoid (DAA) capability to enable compliance with the Rules of the Air appropriate to the class of airspace,
- *or* be flown using a Layered Safety Approach that specifically requires flight in segregated airspace.

Protector will be fitted with a limited DAA capability only and, since RAF Marham and the proposed TDA sit entirely within Class G airspace, flight in segregated airspace is required. Establishment of a TDA will permit Protector, in the event of an actual or planned (practise) diversion, to access RAF Marham in a safe environment, maintain regulatory compliance, and provide protection of other airspace users of any associated and identified hazardous activities.

³ The MAA Master Glossary defines BVLOS as the operation of a Remotely Piloted Aircraft beyond a distance where the Remote Pilot is able to respond to or avoid other airspace users by visual means.

Establishment of the Proposed TDA

The establishment of the TDA will provide the required volume of segregated airspace to enable Protector to access RAF Marham. It will enter and depart the proposed TDA from/to the Class C airspace above (see Figure 2). When below FL195⁴ in the vicinity of RAF Marham Protector will remain within the TDA at all times. The airspace is described below.

The airspace is a cylinder of 5 nm radius and has vertical dimensions of surface to Flight Level (FL)195. The 5 nm radius circle is centred on RAF Marham's Aerodrome Reference Point⁵ (ARP).

Figure 1 illustrates the lateral dimensions of the proposed TDA at RAF Marham and Figure 2 illustrates a cross-section of the proposed TDA from a southwest/northeast perspective⁶.

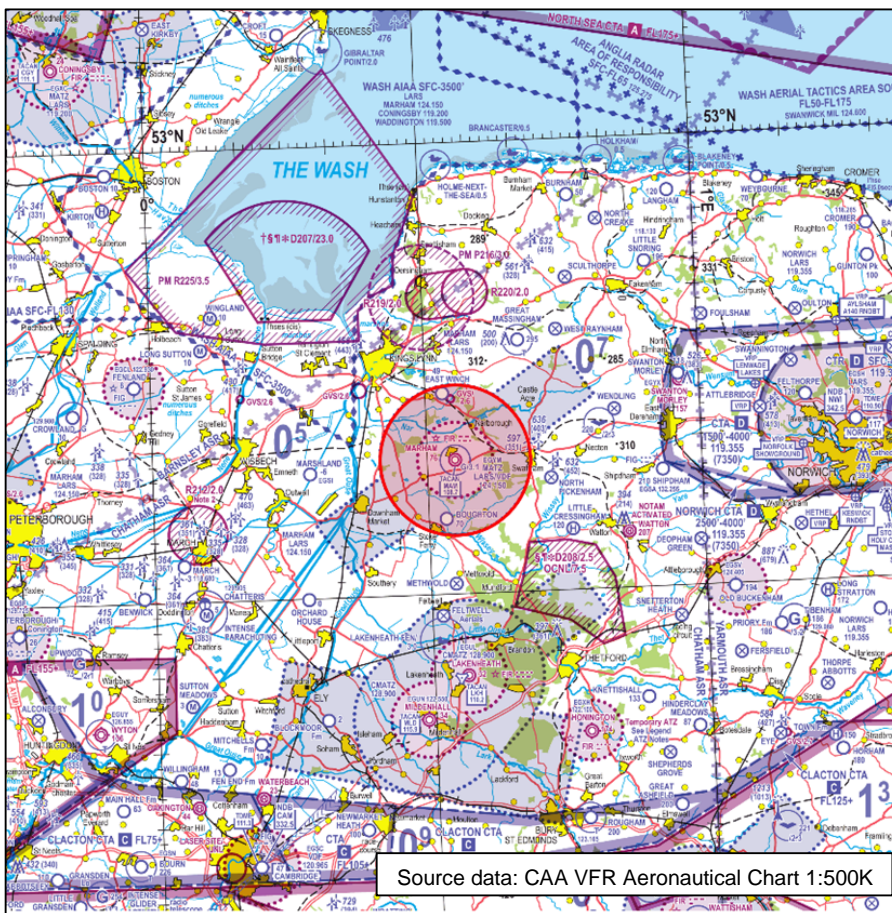


Figure 1 - RAF Marham TDA Lateral Dimensions

⁴ A Flight Level (FL) is used to ensure that all aircraft are flying to a common datum to ensure height separation is maintained (1 Flight Level = approximately 100 ft, eg FL 195 = approximately 19,500 ft).

⁵ RAF Marham airfield reference point is the midpoint of RW05/23 (52 38 54.26N 000 33 02.42E)

⁶ Norwich International Airport is not directly aligned with RAF Marham's extended centreline, but it is shown here to provide an idea of the proximity of its controlled airspace in relation to RAF Marham's Military Aerodrome Traffic Zone (MATZ)

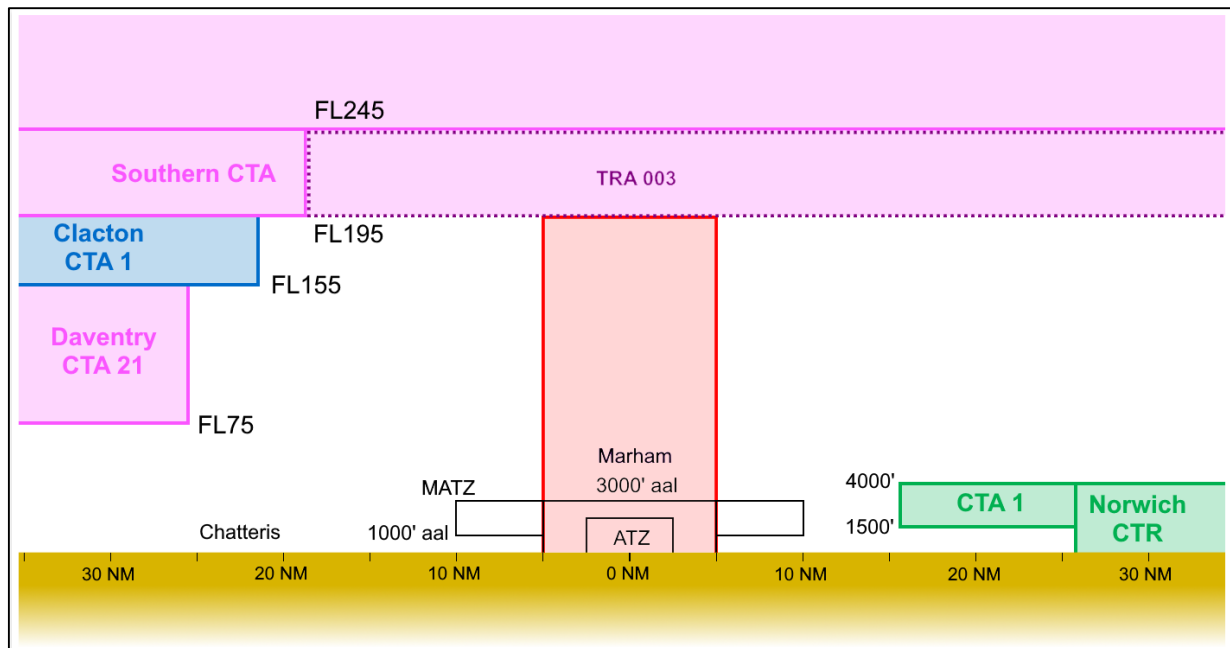


Figure 2 - RAF Marham TDA SW/NE Cross-section

Measures to Minimise the Impact on other Airspace Users

General

The proposed TDA will be activated when Protector flying is due to take place, either from RAF Waddington or when it is repositioning back to RAF Waddington following an actual diversion to Marham. The TDA will be activated by NOTAM⁷ at least 24hrs in advance. To ensure minimum disruption to other airspace users a Danger Area Crossing Service (DACS) will be offered within the TDA by Marham ATC. Therefore, even if the airspace has been notified as being active, it may be possible for both civil and military aircraft to transit through it under a clearance from Marham ATC.

Safety

Marham ATC will be staffed at all times during Protector operations, whether the aircraft is operating from RAF Waddington or RAF Marham. Protector will be equipped with a transponder and will squawk as directed by ATC. Information on the current status of the airspace will be available including a DACS from Marham ATC, with both UHF and VHF frequencies available. In addition a Danger Area Activity Information Service (DAAIS) may be available from London Information. Full details of how to obtain information on the status of the TDA will be provided in the activation NOTAM.

Utilisation

It is envisaged that the MOD will conduct up to 2 planned flights in and out of RAF Marham between May - August 2024. However, throughout this period, regardless of whether Protector is expected to access the proposed TDA it will be activated by NOTAM whenever **any** Protector flying is taking place. This is to enable Protector to access RAF Marham as a diversion airfield in the event that, for any unforeseen reason, RAF Waddington becomes unavailable.

⁷ A **Notice to Aviation (NOTAM)**, is a notice containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations. In this instance it is a flexible means of switching on and off the airspace concerned.

Key features of this proposal

The following insert provides some key facts that the MOD would like to emphasise.

TDA activation dates

May – August 2024 (inclusive)

TDA dimensions

Lateral - 5nm radius circle centred on RAF Marham's aerodrome reference point

Vertical - Surface to FL195

Purpose of TDA

To provide segregated airspace for Protector activity only, such that MOD can conduct a trial to demonstrate that the airspace, associated procedures and infrastructure at RAF Marham will provide a suitable diversion airfield capability for both Protector UK T&E activity and later in-service operations.

ACP-2023-022 Forthcoming Engagement

The MOD has commenced a further airspace change with the ACP identification of ACP-2023-022. This will propose permanent segregated airspace in the vicinity of RAF Marham. The airspace structure is likely to be very similar, if not identical, to the airspace proposed in this engagement letter for ACP-2023-047. We mention it here to pre-warn you that your feedback will be invited for a second time in the very near future, but the second approach will be for the permanent change. The MOD will endeavour to make it clear on which proposal your feedback is being sought.

How to Provide Feedback

The MOD welcomes comments and feedback from all interested parties. All comments received regarding this proposal will be taken into consideration before a final design is submitted to the CAA. All the details of this airspace change proposal are available on the CAA's Airspace Change Portal here: [Airspace change proposal public view \(caa.co.uk\)](https://caa.co.uk/air-space-change-proposal-public-view). The ACP identification number is ACP-2023-047. Feedback on the proposed change and what is important to you should be sent to:

The Airspace Change Manager at UASCDC-ACP@qinetiq.com

A feedback form is provided on the next page. Alternatively, a Word document is attached to the email containing this material for your use.

The Change Sponsor has elected to run this engagement for a duration of 6 weeks. Therefore, Stakeholders are requested to return any feedback by Friday 22 December 2023.

Responses regarding the proposed TDA must be received by Friday 22 December 2023.

Late responses may be considered for inclusion in the final submission to the CAA (anticipated no later than 12 January 2024) but the Change Sponsor cannot guarantee this.

ACP-2023-047 Response Form

Name	
Representing	
Address (including postcode if possible)	
Feedback:	