Ministry of Defence

ACP-2021-078

Enabling Remotely Piloted Aircraft Operations from RAF Fairford - HALE

Stage 5A – Technical Amendment Request

Contents

Introduction

After the Stage 4B Final Submission, the ACP progressed to Stage 5. In accordance with the CAP 1616, the CAA reviewed and assessed the final airspace change proposal and requested supplementary information and clarification from the change sponsor on HALE RPA operations above FL 500. This led to the CAA requesting the Sponsor to explore the possibility of requesting a technical amendment to the proposed airspace to raise the upper limit of segments C and D to FL660

Section 1 – Background

In Stage 2, the Sponsor proposed an airspace design with an upper limit of FL600 to account for the full climb of HALE RPA to the transit altitude of between FL500 and FL 600. After informal discussions with the CAA after Stage 2, the Sponsor worked under the assumption that operations above FL500 would not require a danger area as that airspace would be considered effectively segregated from civil traffic. For this reason, the upper limit of the design proposed in Stage 3 was lowered to FL500.

Additionally, the Sponsor expected the specific procedures for operations above FL500 to be covered in a HALE RPA Operation Arrangement between US Air Forces in Europe (USAFE), the MoD, and the CAA. This was explained the Stage 3 Full Options Appraisal with the following statement:

> *HALE RPA will remain within segregated airspace at all times below FL500 when operating within the London or Scottish FIR/UIR. This ACP is solely to allow the RPA to climb and descend in to and out of RAF Fairford from SFC to FL500. Based on ongoing engagement with the CAA and other stakeholders, the Sponsor anticipates that when operating in the London or Scottish UIR at FL500 and above, HALE RPA will operate as agreed in a type-specific Operational Arrangement with the CAA and MoD. The Operational Arrangement is in the process of being agreed and is not part of this ACP.*

Section 2 – Rationale for Amendment Request

After the Stage 4B Final Submission of the ACP, the CAA informed the Sponsor that an active form of segregation would be required above FL500 to comply with CAP 722[1]. During the Stage 5 process, detailed in CAP 1616, CAA requested that the Sponsor explore the possibility of requesting a technical amendment to the proposed airspace to raise the upper limit of segments C and D to FL660.

This extension would allow for compliance with CAP 722 while the HALE RPA continue to climb above FL500. This would enable onward transit at level flight. An upper limit of FL660 would also future-proof the danger area complex by extending it to the top of controlled airspace. This would allow any future aircraft that may be able to climb above FL660 to do so without requiring a new ACP.

[1] CAP 722 states that BVLOS activities must be segregated in the absence of a CAA-approved DAA capability. As stated earlier in this ACP, US HALE RPA do not have that capability.

The CAA asked the Sponsor to engage with NATS to determine if there would be any additional impacts associated with the increase in the upper limits of segments C and D, over what was detailed in the Stage 3 consultation response.

The design submitted in Stage 4 will be included in Section 3 of this document while the proposed technical amendment will be included in Section 5.

Section 3 – Stage 4B Design Submission

Stage 4B Danger Area Design Submission

Figure 1 shows the dimensions of the design proposal submitted in Stage 4B. Figure 2 shows the draft AIP entry for the design submitted in Stage 4B.

Figure 1 – Stage 4B EGD218 Design & Altitudes

Stage 4B Draft AIP Entry Submission

Identification and Name Lateral Limits	Upper Limit Lower Limit	Remarks
EG DXXXA 514814.6781N 0013542.6655W 514015.5302N 0013518.3381W 513958.2712N 0014917.4903W 514109.7736N 0015928.0273W 514743.8395N 0015951.5420W 514814.6781N 0013542.6655W	Upper limit: FL75 Lower limit: SFC	AMC - Manageable. Activity: Unmanned Aircraft System Beyond Visual Line Of Sight with an Indicated Airspeed (IAS) of 150 KTS or less (BVLOS less than 150 KTS) Service: DACS: Brize Radar on 124.275 MHz when open; at other times Swanwick Mil via London Information on 124.750 MHz. DAAIS: London Information on 124.750 MHz. Contact: Booking: Military Airspace Management Cell – Managed Airspace, Tel: 01489-612495. Danger Area Authority: HQ Air. Hours: Activated by NOTAM.
EG DXXXB 520517.9586N 0020404.4772W 514802.5866N 0014539.0339W 514749.0714N 0015601.3430W 514900.9897N 0020407.2290W 515341.5143N 0022131.7597W 520517.9586N 0020404.4772W	Upper limit: FL240 Lower limit: FL50	AMC - Manageable. Activity: Unmanned Aircraft System Beyond Visual Line Of Sight with an Indicated Airspeed (IAS) of 150 KTS or less (BVLOS less than 150 KTS) Service: DACS: Below FL160 Brize Radar on 124.275 MHz when open. At/above FL160 Swanwick Mil via London Information on 124.750 MHz. DAAIS: London Information on 124.750 MHz. Contact: Booking: Military Airspace Management Cell – Managed Airspace, Tel: 01489-612495. Danger Area Authority: HQ Air. Hours: Activated by NOTAM.
EG DXXXC 521533.3938N 0021509.7197W 520517.9586N 0020404.4772W 515341.5143N 0022131.7597W 515700.8470N 0023402.1072W 520117.1456N 0023841.6667W 521533.3938N 0021509.7197W	Upper limit: FL500 Lower limit: FL160	AMC - Manageable. Activity: Unmanned Aircraft System Beyond Visual Line Of Sight with an Indicated Airspeed (IAS) of 150 KTS or less (BVLOS less than 150 KTS) Service: DACS: Swanwick Mil via London Information on 124.750 MHz. DAAIS: London Information on 124.750 MHz. Contact: Booking: Military Airspace Management Cell – Managed Airspace, Tel: 01489-612495. Danger Area Authority: HQ Air. Hours: Activated by NOTAM.
EG DXXXD 523258.4562N 0023413.8553W 521533.3938N 0021509.7197W 520117.1456N 0023841.6667W 521342.2425N 0025220.6709W 522606.8022N 0025117.9630W 523258.4562N 0023413.8553W	Upper limit: FL500 Lower limit: FL200	AMC - Manageable. Activity: Unmanned Aircraft System Beyond Visual Line Of Sight with an Indicated Airspeed (IAS) of 150 KTS or less (BVLOS less than 150 KTS) Service: DACS: Swanwick Mil via London Information on 124.750 MHz. DAAIS: London Information on 124.750 MHz. Contact: Booking: Military Airspace Management Cell – Managed Airspace, Tel: 01489-612495. Danger Area Authority: HQ Air. Hours: Activated by NOTAM

Figure 2 – Stage 4B Draft AIP Entry Submission

Section 4 – Proposed Technical Amendment to Increase Altitude of DA

Proposed Amendment to Increase Altitude of Segments C and D

The proposed technical amendment would only change the upper limits of segments C and D from FL500 to FL660. There are no other amendments being sought to the altitudes of other segments and there would be no change to the proposed activation times, frequency, or duration of activation. This amendment is solely for regulatory compliance and future-proofing of the danger area complex.

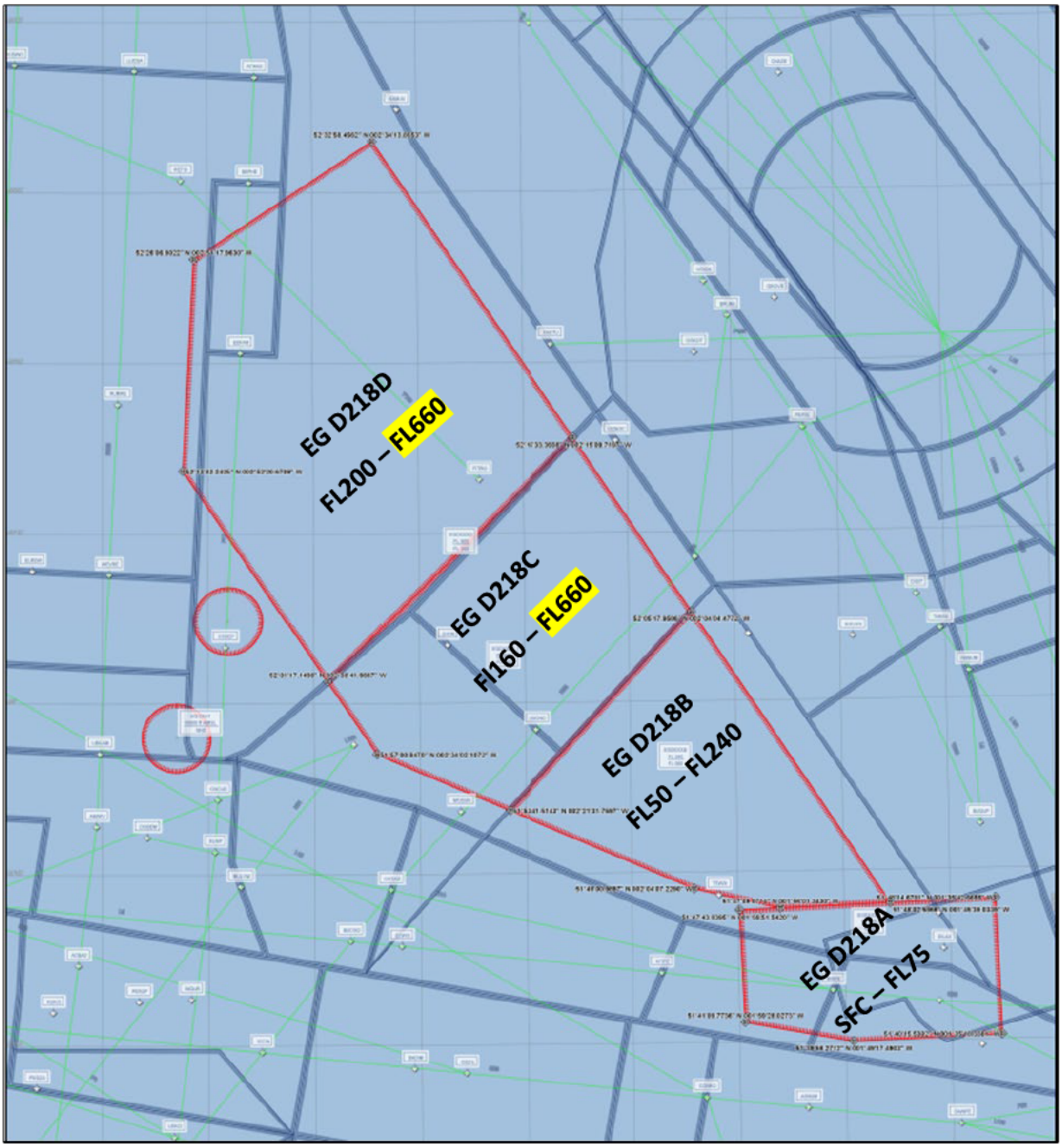

Figure 3 – Proposed Amendment of EGD218 C & D (Upper Altitude to FL660)

Proposed Draft AIP Entry Amendment

Figure 4 (below) proposes the amended upper limits of EGD218C and EGD218D and corrects minor errors identified in the remarks section.

Identification and Name Lateral Limits	Upper Limit Lower Limit	Remarks
EGD218A FAIRFORD 514814.6781N 0013542.6655W 514015.5302N 0013518.3381W 513958.2712N 0014917.4903W 514109.7736N 0015928.0273W 514743.8395N 0015951.5420W 514814.6781N 0013542.6655W	Upper limit: FL75 Lower limit: SFC	AMC - Manageable. Activity: Unmanned Aircraft System Beyond Visual Line Of Sight with an Indicated Airspeed (IAS) of 150 KTS or less (BVLOS less than 150 KTS) Service: DACS: Brize Radar on 124.275 MHz. DAAIS: London Information on 124.750 MHz. Contact: Booking: Military Airspace Management Cell – Managed Airspace, Tel: 01489-612495. Danger Area Authority: HQ Air. Hours: Activated by NOTAM.
EGD218B FAIRFORD 520517.9586N 0020404.4772W 514802.5866N 0014539.0339W 514749.0714N 0015601.3430W 514900.9897N 0020407.2290W 515341.5143N 0022131.7597W 520517.9586N 0020404.4772W	Upper limit: FL240 Lower limit: FL50	AMC - Manageable. Activity: Unmanned Aircraft System Beyond Visual Line Of Sight with an Indicated Airspeed (IAS) of 150 KTS or less (BVLOS less than 150 KTS) Service: DACS: Below FL160 Brize Radar on 124.275 MHz. At/above FL160 Swanwick Mil on 128.700 MHz. DAAIS: London Information on 124.750 MHz. Contact: Booking: Military Airspace Management Cell – Managed Airspace, Tel: 01489-612495. Danger Area Authority: HQ Air. Hours: Activated by NOTAM.
EGD218C FAIRFORD 521533.3938N 0021509.7197W 520517.9586N 0020404.4772W 515341.5143N 0022131.7597W 515700.8470N 0023402.1072W 520117.1456N 0023841.6667W 521533.3938N 0021509.7197W	Upper limit: FL660 Lower limit: FL160	AMC - Manageable. Activity: Unmanned Aircraft System Beyond Visual Line Of Sight with an Indicated Airspeed (IAS) of 150 KTS or less (BVLOS less than 150 KTS) Service: DACS: Swanwick Mil on 128.700 MHz. DAAIS: London Information on 124.750 MHz. Contact: Booking: Military Airspace Management Cell – Managed Airspace, Tel: 01489-612495. Danger Area Authority: HQ Air. Hours: Activated by NOTAM.
EGD218D FAIRFORD 523258.4562N 0023413.8553W 521533.3938N 0021509.7197W 520117.1456N 0023841.6667W 521342.2425N 0025220.6709W 522606.8022N 0025117.9630W 523258.4562N 0023413.8553W	Upper limit: FL660 Lower limit: FL200	AMC - Manageable. Activity: Unmanned Aircraft System Beyond Visual Line Of Sight with an Indicated Airspeed (IAS) of 150 KTS or less (BVLOS less than 150 KTS) Service: DACS: Swanwick Mil on 128.700 MHz. DAAIS: London Information on 124.750 MHz. Contact: Booking: Military Airspace Management Cell – Managed Airspace, Tel: 01489-612495. Danger Area Authority: HQ Air. Hours: Activated by NOTAM

Figure 4 – Proposed Amended Draft AIP Entry Submission

Section 5 – Engagement

Feedback Request

The CAA and Sponsor identified NATS as the relevant stakeholder most likely to be impacted by the proposed amendment. The Sponsor formally requested feedback from NATS on any potential impacts expected due to this amendment. Specifically, the Sponsor asked if any additional impacts were expected above and beyond those already identified in the NATS Stage 3 consultation response.

In line with this request, the Sponsor also requested clarity on assumptions of the environmental impact assessment to determine if it is reasonable to assume that the impacts detailed in Stage 3 would be similar or identical to the expected impacts of the amended airspace. It was unclear if the simulation was limited to FL500. If this was limited to FL500, it is possible that the same impact output would occur with the proposed altitude extension due to the extremely limited traffic density above FL500.

NATS Feedback

NATS provided feedback that confirmed that the NATS Analytic model was built using the dimensions of the previously submitted airspace with an additional 2000ft buffer above and below to account for the CAA SUA buffer policy. They also shared that there were no aircraft identified above FL500 in the traffic sample used.

NATS asked for additional information on how much longer the airspace would need to remain active before being released and the onward routing of the HALE RPA.

They also shared that the description of “future proofing” was not aligned with the intent of the CAA’s AMS and that it effectively implements a barrier to High Altitude Operations. Further, NATS explained that they would consider objecting to the proposal if future-proofing was meant to be a “just in case” option as this would not fit with the principle of the FUA policy.

NATS also cautioned that while current usage may indicate that there would be no impacts to raising the upper level of the airspace, the Sponsor did not appear to consider future civilian traffic that will operate from FL500 – FL660.

Sponsor Response to NATS Feedback

Despite the increasing upper limit of EGD218C and EGD218D, the Sponsor does not expect any difference in the duration of activation prior to releasing the airspace as the flight profile is not anticipated to change. The aircraft was always expected to climb to a transit altitude above FL500 but as explained in section 1, the Sponsor worked under the assumption that segregated airspace would not be required above FL500. Because of this, the estimated duration of when the airspace would be able to be returned is not expected to change.

The CAA is still finalising the airspace reservation procedures for onward transit and the Sponsor will share the details of this as soon as it is received.

The Sponsor feels that the idea of “future-proofing” this ACP is in line with the principle of FUA and the Airspace Modernization Strategy. One of the objectives listed in the Airspace Modernization Strategy is, “‘future-proofing’ new airspace designs today to enable emerging requirements for Free Route Airspace and trajectory-based operations, thus minimising the potential need later on for lengthy changes in airspace design.”[2] The Sponsor feels that this is equally relevant to emerging requirements for HALE RPA flight at higher levels. Incorporating this capability now will prevent the need for future lengthy airspace changes.

Future civilian traffic at higher levels has been considered. This amendment not only protects the HALE RPA operating above FL500. It also protects future civilian traffic that will eventually operate from FL500 to FL660 by ensuring there is adequate segregated airspace to provide a safe environment for all. It should also be noted that, in line with FUA principles, only the required altitudes will be booked based on the operational requirement for each flight. This will ensure that as much airspace as possible will remain available to other users of the airspace.

Conclusion

The Sponsor has concluded that based on current usage, this technical amendment is not expected to increase impacts above those stated in the previous submission. A future increase in civilian traffic in the extremely high altitude environment may cause additional impacts in the future but the Sponsor is unable to determine these impacts at this time. Furthermore, the proposed time, frequency, and duration of activation should minimise potential future impacts.

If it is determined that increasing the upper levels of EGD218C and EGD218D to FL660 to future-proof the airspace is not possible, the Sponsor requests that the upper limits be increased to at least FL600 to account for current HALE RPA capabilities.

[2] CAP 1711 Airspace Modernisation Strategy 2023–2040 Part 1: Strategic objectives and enablers, pg. 51

Annex 1 – Engagement Evidence

From: [redacted]

To: [redacted]

Cc: [redacted]

Subject: [Non-DoD Source] RE: Fairford ACP Amendment

Date: Friday, February 2, 2024 11:05:20 AM

This is the NATS NERL plc response to the proposed Fairford ACP Amendment.

In response to the question, 'Having re-read the NATS environmental impact assessment provided for the stage 3 consultation, I cannot see any detail over whether the analysis only covered flights only affected up to FL500 as that was the top level being assessed, or whether there were simply no flights in the sample data that flight-planned above that level'. NATS Analytics have confirmed that they built their model on the airspace plus a 2000ft buffer above and below the proposed airspace to account for the CAA SUA buffer policy for airspace design. Within the small traffic sample available to complete the analytics in the MOD's timeframe, there were no aircraft above FL500.

The Stage 5 Document states that there will be no change to the proposed durations of the activation (2 to 3 hours). Pre-tactically this should make no difference and we can mitigate any risk by stipulating that ASM protocols will state no more than 3 hour activations if needed. All our assurance work and previous consultation is based on this. Further consideration; if the aircraft is required to remain in the SUA to get to its planned transit level, it's logical to assume that the airspace will not be released for some time longer than expected. Clarity to understand how much longer it would take the RQ4 to climb to its transit level from FL500 and then reach the point on its transit route where it will no longer require the SUA to be active in case of a lost link or emergency return to RAF Fairford is essential to enable a complete response.

Although we are more frequently seeing CAT operating at FL470 – FL510, it is easy to think that, based on current airspace usage, there isn't any impact by raising the Upper Level of the DAs to FL660. This proposal does not appear to consider future High Level Ops of "new entrant" traffic which will operate at these extremely high altitudes, potentially for long periods of times in some cases. Therefore, the proposal described as "future proofing" is not aligned with the intent of the CAA's AMS effectively implementing a barrier to High Altitude Operations that industry says are nearer to reality than is, perhaps, the current perception. You could read "future proofing" as "just in case" and this does not fit with the principle of FUA Policy and in this regard, we would need to consider objecting to the proposal.

Accepting that the ACP is only considering the implementation of the SUA and not the onward routeing of the RPAS, the two are intrinsically linked and we still need more information and engagement on the CAA's development of the 'agreement' with MOD and USAFE stakeholders for this and overflight of the FIR by BVLOS. Our assurance processes require this to manage our Operation.

It should also be noted that the proposal and consultation has been undertaken on a single platform (RQ4) and consequently so has NATS operational assurance processes. Any use by other platforms would need to be re-assessed following our SMS regulatory requirements.

Regards

[redacted]
NATS
[redacted]
[redacted]
E: [redacted]

From: [redacted]
To: [redacted]
Cc: [redacted]
Subject: RE: Fairford ACP Amendment
Date: Thursday, January 25, 2024 1:14:00 PM
Attachments: Stage 5A Technical Amendment Request.pdf

Gentlemen,

Please see the attached formal document detailing the proposed technical amendment and our formal request for feedback from NATS. We are standing by to help provide any clarification required and will make every effort to meet at your convenience, as necessary.

[redacted]

Respectfully,
[redacted]
Airspace Access
HQ USAFE-AFAFRICA A3/A3AA
[redacted]

From: [redacted]
Sent: Wednesday, January 24, 2024 8:00 PM
To: [redacted]
Cc: [redacted]
Subject: [Non-DoD Source] RE: Fairford ACP Amendment

[redacted]

The CAA Case Officer for the ACP-2021-078 'Enabling Remotely Piloted Aircraft System Operations from RAF Fairford – HALE' is considering making a potential recommendation to the ACP decision maker to increase the vertical limits of the proposed Danger Area to FL660. Their rationale is that it would to help enable onward transits by allowing the aircraft to be level prior to leaving the area, as well as future-proofing the area for any potential future platform to climb above FL660 and leave the area (operating under due regard). For the CAA to be able to make an accurate decision recommendation, they have requested that MOD engage with NATS to determine what the impact would be of the increase in Danger Area dimensions, over and above what was stated in NATS' stage 3 consultation response.

Summary of proposed change
It is proposed that the upper vertical limit of Sections C and D would **increase from FL500 to FL660**.

There is no proposed change to the top levels of sections A&B, or any of the coordinates of any areas, or any of the base levels. There is no change from the proposed number of activations per week, or times of use stated in the original consultation; in short, the only proposed change is to C&D upper limits.

Whilst we appreciate that this is short notice to ask for comment on a change and that NATS have formal internal processes to follow, we ask that you consider this as soon as possible, to allow the CAA to make a decision in line with the original timeline (16 Feb 24 to make the cut off for the major AIRAC implementation on 16 May 24). Please take this email as a formal request, with USAFE planning to send on a more formal document detailing the change in the very near future (hopefully tomorrow). Having re-read the NATS environmental impact assessment provided for the stage 3 consultation, I cannot see any detail over whether the analysis only covered flights only affected up to FL500 as that was the top level being assessed, or whether there were simply no flights in the sample data that flight-planned above that level. As part of the NATS response, clarification on this would be appreciated as I'm sure that the CAA environmental regulator will ask that question. If you are also able to provide an initial estimate of when you might be able to provide a response, it would be greatly appreciated so we can feed it back to the CAA.

Regarding the transits to/from the proposed Danger Areas, whilst it is out of scope of the ACP itself, it is understood that the CAA has provided NATS with little information on how this will work from an airspace and ATM perspective. The MOD has also had limited visibility of the mechanics of what is being proposed thus far. I have a meeting with the CAA on Friday on this matter to see what progress has been made and I will request that the CAA provide feedback on progress to yourselves (either directly or through DAATM), so NATS can incorporate as much as is known into the forthcoming HazIDs.

If you have any questions on the above then please do not hesitate to ask.

Best regards,

[redacted] | SO2 Airspace Plans | Defence Airspace and Air Traffic Management | Aviation House | 1E Beehive Ringroad Crawley West Sussex RH6 0YR | Mobile Telephone: [redacted]