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Ministry of Defence

30 April 2021

ACP-2018-05 COMBAT AIR TRAINING AIRSPACE POST IMPLEMENTATION REVIEW

Introduction

1. This is the formal MOD response to the request for Post Implementation Review (PIR) Data requirements for ACP-2018-05. On 28 February 2019 the Combat Air Training Airspace came into effect. The proposal adjusted the lateral boundaries of EG D323 to meet the requirement for larger areas of segregated airspace to accommodate the training requirements with the introduction of 5th generation combat aircraft. To achieve this the proposal introduced 3 new routes (N44, N66 and N110) and re-routed UL975 and UL602. In addition, the military's UK Airborne Early Warning Area (AEW) Orbit Area 4 was disestablished, and a new lobe added to AEW Area 5, and the military high-level tanker refueler route was moved into the new EG D323 complex. This ACP was sponsored by the MOD and feedback has been gathered from all stakeholders that were engaged during the ACP process.

2. Normally a PIR review would be conducted after 12 months of implementation and it is noted that this PIR has not been initiated in the expected timeframe. As a result, there is a risk that anecdotal feedback may not be as accurate or pertinent to today's environment due to the airspace having been in operation for a significantly longer period. It should also be noted that, whilst the report covers a pre-pandemic (COVID-19) period, the collation of the report has been built during a time where stakeholders have had to prioritise activities and resource. As a result, certain information and data has been unavailable or found to be disproportionately burdensome to provide so a high-level summation has been collated where appropriate

PIR Data Requirement 6 a - Safety Data

3. The MOD and NATS undertook a review to identify all safety incidents that occurred in, or near to, the D323 complex within the first year of the changes coming into effect. It should be noted that a safety report does not necessarily mean a serious incident; both MOD and NATS encourage reporting of non-mandatory incidents to enable lessons to be identified and trends analysed.

4. NATS reported that in the year prior to the change, there were 3 safety events reported. For the year after the change, there were 20. This included:

a. 1 LoS, where a pair of military air systems (under an ATS) were just outside D323.
b. 8 events related to confusion relating to hand backs or DA status.
c. 6 events related to avoiding action issued due to military aircraft excursion from D323, proactive avoiding action or near-issuing of avoiding action.
d. 3 events involved non-military aircraft entering D323.
e. 2 events related to poor co-ordination.

5. In addition, to the figure above. The MOD reported the following:

a. 11 events related to confusion caused by internal segmentation.
b. 1 event of an incursion by military aircraft entering D323 without clearance.

6. It can be argued that this spike in safety incidents is directly related to the MOD's enlargement, management and subsequent controller actions associated to activities within and around D323. However, the incidents in 4a, 4b and 4e are incidents that occurred with the already extant, and long-standing, coordination agreements in place between NATS and the MOD (in orders and LoAs); i.e. a failure to apply correct procedures, rather than the procedures themselves.

7. NATS have stated that they would welcome the MOD's continued assurance that it is committed to continual improvement of its managerial processes, as well as confirmation of its acceptance of obligations set out within extant LoAs which are designed to ensure the safety of both General and Operational Air Traffic. The MOD can confirm that they are indeed committed to the above and took the lead in implementing joint civil and military occurrence meetings in mid-2019. This established collaborative working practices on safety occurrences that involved both military and civil controllers to implement joint recommendations and improve education on both sides. Analysis by the MOD highlighted a disproportionate balance of safety occurrences seen between the MOD and Prestwick Centre (PC) in 2019, compared with Swanwick Centre (SWN) (74% between PC and the MOD). Whilst this could have been for a number of factors, it was highlighted that lack of a military presence permanently based at PC (since 2014) and understanding of each other's operation, combined with a large scale airspace change taking place, may be a contributory factor to this high proportion of safety occurrences. This led to the establishment of face to face Joint Civil/Military meetings that took place in Aug 19, Nov 19 and Feb 20 to enable NATS and the MOD to discuss numerous joint issues, including those being highlighted from this airspace change.

8. The MOD conducted a 6 month review of the initial safety assessment for the airspace change, which concluded that the impact of hazards relating to unfamiliarity with the airspace by controllers and aircrew as well as the reduction in availability of airspace due to the overland portions being active, had lessened to negligible levels due to familiarity with the changes. However, trends were identified by both NATS and the MOD (paras 4b and 5a) reference segmentation and handbacks which is covered under Operational Feedback later in the report.

PIR Data Requirement 6 b – Service Provision

9. Due to the nature of the way the D323 complex is booked, there is no ability to book the airspace on the day of operations. Therefore, issues relating to late/not notified activation of a danger area simply cannot occur. All bookings have been undertaken at D-1 or earlier. Refusals of service are an RAF(U) Swanwick capacity function and have no bearing on this airspace change. There have been no reports of the unavailability of a DACS or DAAIS, nor for denying anyone access to the airspace during relevant times where access can be granted. Clearly, access will not be granted when the airspace is booked for military use and air systems are operating within it, as this would introduce a safety risk. Any occasion where access is granted for emergencies or urgent operational reasons would be tactically managed by military ATC, with all relevant parties aware and positively controlled.

10. NATS reported that the enlargement of D323 has restricted the ability of PC to increase capacity within both the Humber and Montrose South Sectors. Such capacity constraints are not present outside of D323 activity times. This in turn has led to Military Attributable flow restrictions being implemented to traffic levels on 10 occasions.

11. This has produced a total of 6635 minutes of delay relating to the D323 complex and North Sea traffic volumes. This compares with 1071 minutes in the 12 months prior to the airspace across the whole of the UK FIR. These restrictions are either implemented directly by PC or more frequently by SWN, even though the D323 complex is located in the PC AOR. This continues to highlight the need to assess and review the impact of airspace restrictions holistically across the whole FIR and ensure deconfliction of segregated airspace activities to minimise the collective

effect of Military activity on the network. The MOD believe that the figures above, taken in isolation do not paint a full picture of the impact of the change and that further analysis would be more appropriate. The MOD would welcome a joint review with NATS to assess the reasons for the delay and identify any efficiencies.

PIR Data Requirement 6 c and d – Airspace Sharing Protocols and Flexible Use of Airspace (FUA)

12. NATS Airspace Managers report that the introduction of new protocols have been a success from an ASM point of view. The increased volume has been accommodated within the North Sea route network without causing undue disruption. The principle of FUA has been met using activation protocols, allowing for the application of vertical limitation to D323 L - R when the NAT track is predicted to be at 56N or higher. This allows both civil and military airspace users to compromise and share the contested airspace. Use of the airspace planning and booking tool (LARA) has been crucial to the success of this airspace development. However, the tool has not yet been made available to the users of the D323 complex. This has reduced (airspace) situational awareness and compromised the application and understanding of FUA.

13. There are some operational limitations to the application of the protocol as laid out below.

a. There is no consideration of the predicted volume of traffic during the fixed protocol application time (1000-1400).
b. There is no consideration of the vertical extent of the protocol, it is a fixed value (FL300).
c. The AMC (Civil and Military staffing) is closed at the weekend, therefore protocol activation for Monday is considered on Friday. This can lead to inconsistent application of the protocol as the NAT prediction may be inaccurate.
d. Civil suppression requests for the remainder of the D323 complex (A - K) confuse and complicate the ASM process.

14. Notwithstanding the limitations of the protocol process described above, the following benefits are significant.

a. Airspace sharing would not work without use of the protocols prescribed by airspace users and endorsed by the regulator.
b. In principle, the Airspace Management planning process has worked well, the agreed protocols for civil suppression requests for the extended airspace and military booking process has successfully enabled FUA.
c. The flight planning process has worked without fault, ensuring civil flight planned traffic does not enter active SUA but overflies when appropriate.

15. The MOD can confirm that the D323s have not been activated at a weekend or on a Public Holiday and that all civil requests for suppression of D323 segments L-R during a predicted NAT track at or north of 56N have been approved. This airspace sharing protocol was suspended during low traffic levels due to COVID. Of note, this protocol is based on the NAT flow and not expected traffic levels. This, combined with other NATS feedback, suggests that a review of the protocol to ensure it is still fit for purpose and not unduly restricting either operation from maximising the efficiency of the airspace could be considered. Findings may only be relevant once civil traffic flow reaches pre-pandemic levels.

16. The MOD can confirm that there have been no issues when deconflicting the high level refueler route through areas F to K. Anecdotal evidence suggests that on the one occasion where suppression could not be achieved, the airspace and air systems involved were manged tactically with no issues.

17. It is also recognised by NATS' operations, that the Reduced Coordination Area (RCA) implemented as part of this ACP has worked well and as expected. The RCA and its publication,

for transparency, is deemed critical to the ensuring the operation runs smoothly, further mitigating the impact of the expanded segregated airspace when activated.

18. As part of the change, a Level 3 Management (L3M) Cell was established at RAF(U) Swanwick. Anecdotal evidence has suggested that the L3M Cell has on the whole, increased the efficiency of airspace utilisation. Prior to the L3M Trial and the airspace change, the percentage of time that the D323s were utilised correctly (i.e. in use by aircraft or handed back for other airspace users to utilise) was 64%. There is only data for one month. During the trial, there are 2 months of data and this figure is 80%. The Trial Sponsor was present at all times to ensure adherence to the new procedures. For the first 6 months after the change (see Table 1), this percentage of time the D323s were used efficiently ranged from 48% to 74%, with an average of 60%. Comparing post implementation data to that of the Trial has multiple pitfalls. The complexity and number of the MDA portions has increased, thus increasing the length of the process to 'hand-back' airspace. The AMC report that during the initial stages of operation, L3M processes inputted exact entry times for each segment booked, rather than the first segment entered. This gives a false account of airspace utilisation as if an aircraft had booked segments G, A, L and Q, then they simply could not enter all segments at the same time. As has already been alluded to, squadrons book the airspace they require for their sortie, but will not spend the entire sortie in all those segments. The AMC changed the processes to better reflect reality. Additionally, due to resource shortages, the L3M Cell was not manned continuously. Military Supervisors undertook the task in addition to their primary duties of ensuring the safety of those providing, and under, an ATS and therefore the administrative duties of the L3M task became a lower priority. This may be reflected in the data.

19. The data highlights that the L3M Cell encountered initial issues and inefficiencies, which were identified and corrected and has in turn led to more efficient use of the airspace. Whilst it did not meet Trial levels, an average figure of 69% for the final 3 months (compared with 50% for the first 3 months) post implementation appear to back up the anecdotal evidence that the L3M Cell has helped to improve airspace utilisation. As already alluded to in other areas, the MOD are happy to undertake a review with NATS to help further increase efficiencies with airspace utilisation. The MOD recognises that more work is required to gain consensus on accepted methodology and presentation of statistics so all stakeholders can baseline and improve.

Month	**April 2019**	**May 2019**	**June 2019**	**July 2019**	**August 2019**	**September 2019**
% of hours utilised plus hours handed back	52%	51%	48%	74%	66%	66%
% of hours not utilised and not handed back	48%	49%	52%	26%	34%	34%

Table 1. Post implementation airspace utilisation statistics

20. The MOD can confirm that they liaise closely with NATS on all ACPs that affect the network and will always look to use collaborative decision-making processes and implement airspace sharing protocols that deliver MOD requirement as well as reduce the impact on the network. This is well demonstrated in a number of current ACPs that are taking place and also those that are planned for the future.

21. No level sensitive bookings have been made. Airspace users have been frequently reminded, through various forums, to only book what airspace they need. A query from NATS operations in Aug 19 asks the question of whether military users would consider level sensitive bookings and whether they would be different across the various segments of the D323 complex. Previous HAZID findings and the fact that different military users would be operating in different segments at the same time, performing different sortie profiles, suggests that this may potentially

introduce confusion as to what areas civil could overfly when the MDA was active.

22. Since the introduction of the airspace change, a review of future military airspace requirements confirmed that altitudes for military operations in SUAs will generally be between FL100 and FL550.

23. The MOD believe that the various forums organised, and feedback received, almost immediately after the airspace change came into effect, replaced the need for quarterly reviews. Evidence of this has, and continues to be, highlighted throughout this report. Direct examples not mentioned elsewhere include, but are not limited to:

a. Feedback received in the first few weeks and months of the change from NATS, MOD internal stakeholders and other external stakeholders such as Humberside Airport.
b. Extant MOD Air Safety and Information Management System (ASIMS) which mandates that all safety incidents are investigated with suitable recommendations implemented.
c. Joint MOD and NATS meetings to deal with safety occurrences that impacted both organisations.
d. Joint MOD and NATS meetings held in Aug 19, Nov 19 and Feb 20 where any issues or safety trends with the D323 complex were highlighted and resolved.
e. Routine AMC working practices that review airspace sharing protocols and provide input to the wider feedback found within this review document.
f. Internal MOD deconfliction of D323 usage by the Combat Air Interoperability Working Group (CAIWG). This led to the creation of a draft MoU between the combat air stakeholders to coordinate access and improve booking efficiency.
g. Reviews of the airspace, procedures and issues during Military Users Airspace Working Groups and other workshops held frequently during 2019 and early 2020. This addressed issues in the first few months regarding internal military bookings and confusion over entry and exit times, reportedly a second order effect of the layout of the booking system.

PIR Data Requirement 6 e – Operational Feedback

24. A common theme from NATS, the AMC, from across the combat air user community, air traffic controllers from within the RAF and NATS and backed up by safety trends is that of the internal segmentation of D323. The number and complexity of segments has caused workload issues for the PC Duty Technical Support (DTS) which led to NATS increasing their resources to cover the additional workload caused by the change. It has also led to numerous safety occurrences as described earlier. MOD stakeholders also agree that the current nomenclature can lead to confusion and that the internal segmentation should be simplified in some way to reduce the burden on military and civil information managers, controllers and aircrew to subsequently reduce the risk of introducing a safety occurrence due to overcomplication.

25. NATS and the MOD have a joint and integrated approach to airspace change and have identified this as an area to focus on within their Flexible Use of Airspace State Programme (FSP). Resources have been set aside for a D323 segmentation review and potential ACP, within RP3, which will look to alleviate these concerns from across the stakeholder community.

26. Tactical cancellation of the airspace was another area that NATS believe requires further work. Misunderstandings between NATS and the L3M Cell were caused initially by incorrect data flow, misunderstanding of process and human error. NATS and the MOD resolved this in mid-2019 by agreeing a process for a single point of truth for airspace handbacks. NATS believe that although this issue was resolved at the time, further reviews of the L3M Cell's processes are required to ensure continual improvement for both efficiency and safety. The MOD are happy to support this review and believe that the introduction of LARA into the tactical environment (currently in progress) will be a leading factor in achieving success in streamlining this area.

27. There were reported issues from both NATS and the MOD regarding timescales involved in implementing this change. This was due to competing resources in both organisations and was one of the first examples of a MOD ACP following the CAP1616 process. NATS and the MOD wish to work more closely with each other in future implementations. This has already been taken on board and NATS and the MOD have agreed that the FSP is the most appropriate vehicle for this to occur.

28. NATS also mention that the design orientation allows rapid exit of military aircraft from the D323 complex. This has led to increased workload due to military aircraft remaining high level for recovery to base. This is especially pertinent as the number of military aircraft operating from East Anglia increases over the next few years. Whilst the MOD are happy to review operational procedures with NATS to see if they can be improved, it should be noted that military aircraft, just like their civilian counterparts, need efficient flight profiles too. Today's high-performance aircraft operate more efficiently at higher altitudes. The FSP is once again the correct vehicle for this review.

29. One of the central Design Principles associated with the redesign of D323 was as follows. *The design will provide a sufficient overland portion for siting land-based assets (Training Requirement).* NATS have requested timelines for the siting of land-based assets that will reduce the current dependency on utilising other training areas (specifically north of Newcastle). Given, the priority ascribed to the inclusion of large overland portions within the redesign of D323, based on the MODs asserted training requirements; coupled with the associated amendments to route design and subsequent airline fuel penalties to achieve this, NATS would welcome clarification on the timeline for the 'siting of land-based assets' and thus the cessation of additional temporary airspace requirements. Whilst some of this may have moved on/progressed with the changes made to the arrangement for large scale exercises such as Crimson Warrior etc, NATS still views the principle of airspace review and disestablishment and/or modernisation where possible to be a priority. NATS understands this work is part of wider airspace modernisation under other initiatives and activities such as the FSP and would encourage the MOD to progress this as quickly as possible. The MOD would like to state that future requirements are being identified and fed into the FSP and that they are fully involved in all airspace modernisation initiatives including those looking to disestablish existing airspace. The MOD will not make specific comment at this time reference land-based assets as they are already being dealt with in other ACPs, as detailed later in the report.

30. Feedback was also requested and/or received from various military airfields and civil airports in the region. Humberside Airport provided anecdotal evidence that in the first week of operation aircraft were booking the overland segments but were not seen to be operating in them. Not all of the airspace booked is used by the military air systems during the entire sortie – they have specific profiles that are flown during the different stages of the mission and therefore this leads to poor utilisation at the extremities of the complex. To further complicate the management processes by only asking aircrew to book the elements that they require for that specific time would be counterproductive and place an unacceptable burden on the military. However, as already alluded to, squadrons have been reminded to only book what airspace they require, and the AMC will continue to push this message.

31. Teesside International Airport queried if Segment F was active, as in the original submission (para 7.2.2.) it states that F would only be active once Swanwick (Military) and NATS were on the same operating platform. The MOD can state that no further progress has been made with regards to the planned utilisation of F. The implementation of the IT upgrade has been delayed significantly due to COVID and other external factors; the estimated date is now Q4 2024. The MOD will not operate in this segment of airspace prior to the IT upgrades being implemented at Swanwick. Prior to any activities occurring in this segment, the MOD will ensure appropriate engagement with relevant stakeholders takes place.

32. Eastern Airways were the only airline that provided feedback and stated that the changes

have had a reasonable impact on their operations in that they have not been able to route via waypoint UMBEL, then along the East Coast between Aberdeen and Humberside (it should be noted that these transits are mainly in Class G airspace where there is no recognised Civil Sector). Instead they have had to file via the existing airways structure. This issue is negated when Swanwick(Mil) can accommodate them, in which case Eastern Airways are provided with an ATS by Swanwick(Mil) in that area, under a derogated service. MOD resource shortages have meant that in accordance with extant prioritisation of ATS provision, commercial air traffic in that area have not been afforded an ATS as regularly as in previous years and have therefore had to file through the existing route structure. Therefore, the MOD can conclude that it is not as a result of the airspace change that has led to a reduction in ATS provision, but in available ATS resources.

PIR Data Requirement 6 f – Letters of Agreement (LoAs)

33. There are 4 LoAs related to the management of the D323s and associated airspace coordination practices and protocols. All remain in place and are utilised correctly, having the desired effect and are managed in accordance with extant procedures. Previous comments referring to poor application of current procedures have already been described in the Safety Data section.

PIR Data Requirement 6 g – Impact on MOD Operations

34. Having canvassed opinion from all relevant areas of the MOD, there have been no unforeseen impacts on MOD operations. Overall the changes are positive and allow more effective training to take place. Most users agree that the overland portions have provided excellent air to surface training opportunities in East/North Yorkshire that did not exist previously. However, that is not to say that there haven't been any impacts.

35. Most users agree that sortie aims are not being achieved during periods where segments L to R are restricted to FL300. Tactical management under an ATS, if no GAT is present, may alleviate some of the issues but is not an appropriate solution.

PIR Data Requirement 6 h - Confirmation of Requirement

36. The MOD can confirm that ACP-2018-05 has, for the most part, met the aims and objectives it set out to achieve at the time, given the timescale required to implement the change (due to stakeholder resources). Clearly some form of compromise with the route network and NATS was always going to be required. The change, which has certainly improved the environment in which combat air training takes place, does not consider requirements for airspace that have since been identified, nor cater for all MOD users, all of the time. This report and the evidence gathered demonstrates how the change has performed against the objectives for the change as detailed in the final submission document.

37. The MOD do not wish to revert back to the original airspace prior to this ACP. The requirements of ACP-2020-026 Future Combat Airspace are an entirely separate set of requirements to this ACP, even though the names of the ACPs are similar. The following paragraphs will clarify the situation.

38. The requirement for the expansion of the D323 complex (ACP-2018-05) was centred around 2 things:(1) the arrival into service of F-35B Lighting II and the increased volume of airspace it required in which to train effectively and (2) the overall increased number of fast-jet aircraft (RAF and USAFE) based in the UK.

39. The ACP-2018-05 airspace requirement is for everyday daily training; i.e. a formation or set of formations doing in-house tactical exercises ('part-task training') at limited scale, with the opportunity to increase as required. The splitting up of the D323 into sub-areas enables several squadrons to train at once using different airspace volumes, thereby maximising the throughput of

aircraft in the airspace and hence volume of training objectives achieved each day. Hence why the D323 complex is activated and used on most working days of the year.

40. ACP-2020-026 is for something else entirely: a large volume of airspace which is only activated when required to permit large-scale (up to 80 aircraft), co-operative, high-fidelity tactical training. Whilst D323 allows a large number of daily smaller-scale training tasks, the ACP-2020-026 airspace solution will allow a small number of occasional large-scale training tasks. This is the reason why the core military requirements on ACP-2020-026 are quite bespoke.

41. Whilst ACP-2018-05 was in progress, the MOD had an agreement with NATS for the use of airspace for large scale exercises, therefore that airspace requirement was catered for at the time. The environment has changed since, and a review of the agreement led to the requirement to formalise that airspace structure and has led to the creation of ACP-2020-026. Due to the dynamic nature of military operations and the ever-changing threats to national and international security, the military requirements for airspace will require constant review so what is suitable today may not be suitable in the future. This has been well highlighted by this and other ACPs and should not prejudice any future airspace requests for combat air training that the MOD submit. The MOD have already captured an ACP in the FSP to look into future training requirements for combat air and will engage appropriately as requirements develop.

April 2023 Update

42. Following a request from the CAA in October 2022 the following paragraphs have been added to provide additional information relating to 6a and 6b; specifically safety occurrences and delay data. Additionally in January 2023, evidence of further environmental analysis was requested by the CAA and has been included below. In accordance with the CAA COVID PIR Data Requirements Policy the MOD have only provided additional data collected between 28 Feb 2022 and 30 Sep 2022.

PIR Data Requirement 6 a - Safety Data – April 2023 Update

43. NATS and the MOD reviewed all safety occurrences that mention the airspace (D323) and were recorded on their respective safety management systems for the additional period. NATS and the MOD both reported 3 occurrences each. These occurrences can be described and categorised as follows:

a. 1 x observation where incorrect levels were displayed on information management systems. No safety incident.
b. 2 x observations where the routing of civil aircraft may have taken them through the activated airspace but tactical instructions were passed to resolve the situation. No safety incident.
c. 1 x observation regarding internal deconfliction issues between MOD users. No safety incident.
d. 1 x observation where aircrew mis-read the altitude cap in the NE segments of the airspace. This was noticed during the flight and no safety incident occurred. An amendment to local briefing procedures was undertaken to stop this from happening again.
e. 1 x unrelated occurrence that mentioned returning to base from the D323 complex in the report narrative. No significance to this PIR.

44. What the above safety reports highlight is that there were no significant safety incidents or trends and that the majority were to do with routine processes or procedures which are typically seen within the reporting culture and safety management systems in use. Where appropriate the above occurrences have seen local investigations undertaken and local mitigations put in place to help stop them from occurring in the future. This is business as usual for both NATS and the MOD.

45. An airspace review was undertaken in Dec 21 by DAATM and D323 was noted as fit for purpose regarding its dimensions and segmentation. Any previously encountered internal

segmentation issues and confusion have since been solved or ironed out as comparison of both sets of safety data demonstrate. In summary, the MOD believe that the introduction of the airspace has not introduced a further safety risk to the airspace or its users.

PIR Data Requirement 6 b – Service Provision – April 2023 update

46. Following analysis by NATS, it was reported that there was no recorded delay for the UK En-route network associated with the activation of the D323 Complex. Additionally, a review of previous Airspace Management Steering Group and NATS/MOD Operational Review Group meetings have not mentioned any issues pertaining to the usage of the D323 Complex. This indicates that the associated airspace management protocols, introduced with this ACP, are effective. These protocols are routinely reviewed by the joint UK AMC.

PIR Data Requirement - Environmental Impact Assessment

47. CAP1616 Appendix H refers to the requirement to assess environmental impacts and to consider the validity of any assumptions made in the original assessment, to confirm that the impacts are no worse than anticipated. Given the time between the original assessment and the request for the PIR, only the parameters listed in the information on the CAA Portal for this ACP has been used to assess the impact of the change. The MOD proposed the following methodology to achieve this task, which the CAA agreed to:

a. Comparison of the 'worst-case' number of hours per day that the entire D323 complex would be booked for, according to the original assumptions and data used for the original analysis against actual booked timings.
b. In the ACP Options Appraisal the worst-case scenario was determined as the entire DA complex (all segments A to R) being permanently active between 0645 and 2015 Mon to Fri. This equates to 13.5 hours.
c. This did not include any periods of time where civil suppression of the NE corner of the D323 complex limited MOD activity to FL300.

48. The Military Airspace Management Cell collated information on D323 bookings from 1 Mar to 30 Sep 2022. An example of the data gathered can be seen in Fig 1. Start and finish times of bookings for each segment were gathered. Weekends and Bank Holidays were discounted from the results as the operating protocols preclude the D323 complex from being activated on those days. Any gaps in daily bookings were identified and subtracted from the start and finish times to give a total in hours and minutes for each segment for a particular day.

D323 ACTIVATIONS								
DATE	AREA	START TIME	FINISH TIME	HRS BOOKED	GAP 1	GAP 2	GAP 3	GAP 4
01-Aug-22	D323A	09:15	19:30	08:45	10:15-11:15	15:00-16:00		
01-Aug-22	D323B	09:15	19:30	08:45	10:15-11:15	15:00-16:00		
01-Aug-22	D323C	09:15	19:30	08:45	10:15-11:15	15:00-16:00		
01-Aug-22	D323D	09:15	19:30	08:15	10:15-11:15	14:30-16:00		
01-Aug-22	D323E	09:15	19:30	08:15	10:15-11:15	14:30-16:00		
01-Aug-22	D323G	09:15	19:30	08:45	10:15-11:15	15:00-16:00		
01-Aug-22	D323H	09:15	19:30	08:45	10:15-11:15	15:00-16:00		
01-Aug-22	D323J	09:15	19:30	08:45	10:15-11:15	15:00-16:00		
01-Aug-22	D323K	09:15	19:30	08:15	10:15-11:15	14:30-16:00		
01-Aug-22	D323L	09:15	19:30	08:45	10:15-11:15	15:00-16:00		
01-Aug-22	D323M	09:15	19:30	08:45	10:15-11:15	15:00-16:00		
01-Aug-22	D323N	09:15	19:30	08:45	10:15-11:15	15:00-16:00		
01-Aug-22	D323P	09:15	19:30	08:15	10:15-11:15	14:30-16:00		
01-Aug-22	D323Q	09:15	19:30	08:45	10:15-11:15	15:00-16:00		
01-Aug-22	D323R	09:15	19:30	08:45	10:15-11:15	15:00-16:00		

Fig 1. Example of data gathered

49. Following the methodology agreed with the CAA, this figure was compared with the 13.5 hours 'worst case' scenario from the original assumptions. This equates to 810 minutes. As not all segments were booked for the same amount of time, each day, the segment with the highest number of hours was taken and a separate table created so a comparison could be made against 810 minutes. The results of which can be seen in the graph in Fig 2 and the Table in Fig 3.

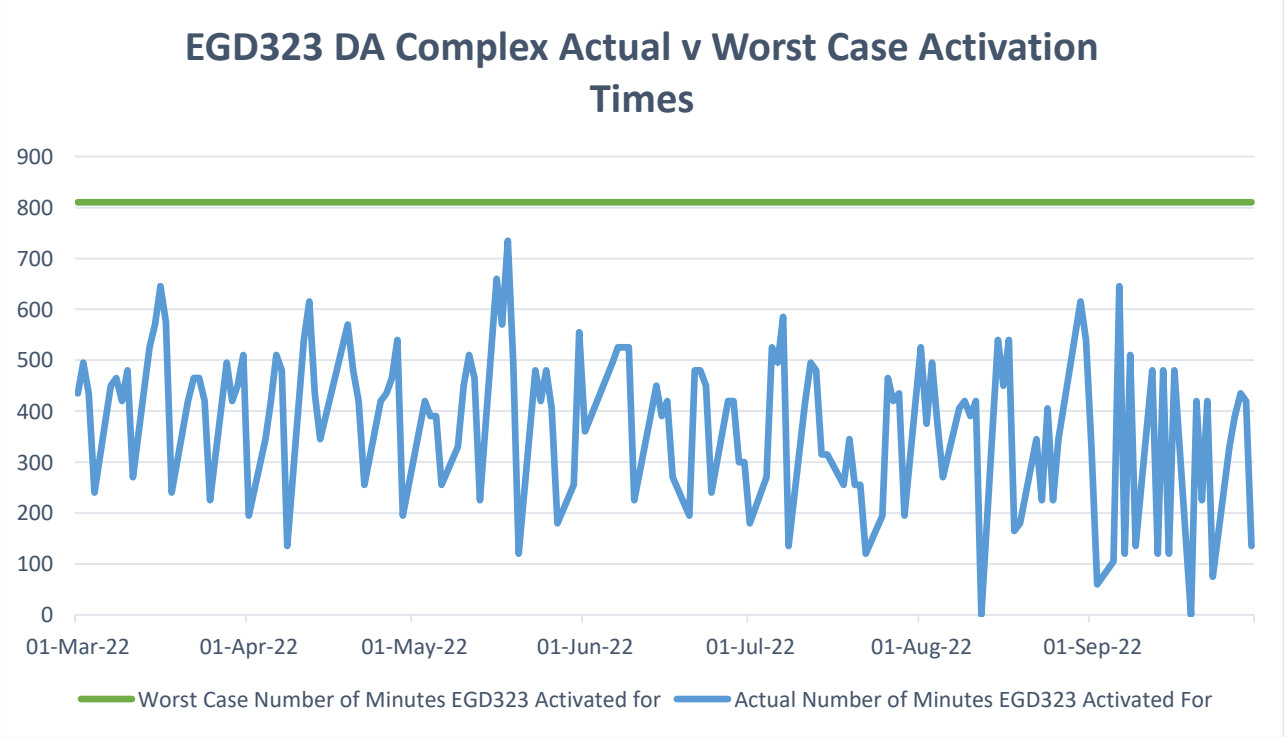

Fig 2. Graph comparing actual and worst-case activation timings in minutes

50. Not a single day exceeded 13.5 hours. Two days had zero hours, likely due to other portions of SUA being activated thus not allowing the activation of the D323 iaw the activation protocols. The analysis does not take into account the following, which would further reduce the impacts on the route network and therefore the environment:

a. The segments of the DA that were not active for the hours shown, due to the analysis taking into account the 'worst-case' hours for the entire complex. To produce analysis for each segment and the myriad of combinations of civil routes available would be too complex and burdensome.
b. The days or times where civil suppression requests were initiated (as shown in the data in Annex A), and the NE segments were capped at FL300.
c. The tactical hand back of airspace by the Level 3 Management Cell. Data is gathered from planned bookings from the AUP/UUP.

51. This analysis clearly shows that actual activation of the D323 complex has been well within the original parameters and assumptions. Therefore, the MOD can conclude that any environmental impacts were well within the original parameters.

Date	Baseline - Worst case activation in mins	Maximum total time DA booked for in mins	Civil Suppression Active?
01-Mar-22	810	435	
02-Mar-22	810	495	
03-Mar-22	810	435	
04-Mar-22	810	240	
07-Mar-22	810	450	
08-Mar-22	810	465	
09-Mar-22	810	420	
10-Mar-22	810	480	
11-Mar-22	810	270	
14-Mar-22	810	525	
15-Mar-22	810	570	
16-Mar-22	810	645	
17-Mar-22	810	575	
18-Mar-22	810	240	
21-Mar-22	810	420	
22-Mar-22	810	465	
23-Mar-22	810	465	
24-Mar-22	810	420	
25-Mar-22	810	225	
28-Mar-22	810	495	YES
29-Mar-22	810	420	
30-Mar-22	810	450	YES
31-Mar-22	810	510	YES
01-Apr-22	810	195	
04-Apr-22	810	345	YES
05-Apr-22	810	420	
06-Apr-22	810	510	YES
07-Apr-22	810	480	YES
08-Apr-22	810	135	
11-Apr-22	810	540	YES
12-Apr-22	810	615	YES
13-Apr-22	810	435	
14-Apr-22	810	345	
19-Apr-22	810	570	YES
20-Apr-22	810	480	
21-Apr-22	810	420	
22-Apr-22	810	255	
25-Apr-22	810	420	YES
26-Apr-22	810	435	
27-Apr-22	810	465	
28-Apr-22	810	540	
29-Apr-22	810	195	YES
03-May-22	810	420	YES
04-May-22	810	390	
05-May-22	810	390	

06-May-22	810	255	
09-May-22	810	330	YES
10-May-22	810	450	YES
11-May-22	810	510	
12-May-22	810	465	
13-May-22	810	225	
16-May-22	810	660	YES
17-May-22	810	570	YES
18-May-22	810	735	YES
19-May-22	810	495	YES
20-May-22	810	120	YES
23-May-22	810	480	YES
24-May-22	810	420	
25-May-22	810	480	YES
26-May-22	810	405	YES
27-May-22	810	180	
30-May-22	810	255	YES
31-May-22	810	555	YES
01-Jun-22	810	360	
06-Jun-22	810	495	YES
07-Jun-22	810	525	YES
08-Jun-22	810	525	YES
09-Jun-22	810	525	YES
10-Jun-22	810	225	YES
13-Jun-22	810	390	YES
14-Jun-22	810	450	YES
15-Jun-22	810	390	YES
16-Jun-22	810	420	
17-Jun-22	810	270	
20-Jun-22	810	195	YES
21-Jun-22	810	480	
22-Jun-22	810	480	
23-Jun-22	810	450	
24-Jun-22	810	240	
27-Jun-22	810	420	YES
28-Jun-22	810	420	
29-Jun-22	810	300	
30-Jun-22	810	300	YES
01-Jul-22	810	180	
04-Jul-22	810	270	YES
05-Jul-22	810	525	
06-Jul-22	810	495	
07-Jul-22	810	585	
08-Jul-22	810	135	
11-Jul-22	810	420	YES
12-Jul-22	810	495	YES
13-Jul-22	810	480	

14-Jul-22	810	315	
15-Jul-22	810	315	YES
18-Jul-22	810	255	YES
19-Jul-22	810	345	YES
20-Jul-22	810	255	YES
21-Jul-22	810	255	YES
22-Jul-22	810	120	YES
25-Jul-22	810	195	YES
26-Jul-22	810	465	
27-Jul-22	810	420	YES
28-Jul-22	810	435	YES
29-Jul-22	810	195	
01-Aug-22	810	525	YES
02-Aug-22	810	375	
03-Aug-22	810	495	
04-Aug-22	810	375	
05-Aug-22	810	270	
08-Aug-22	810	405	
09-Aug-22	810	420	
10-Aug-22	810	390	
11-Aug-22	810	420	
12-Aug-22	810	0	
15-Aug-22	810	540	YES
16-Aug-22	810	450	
17-Aug-22	810	540	
18-Aug-22	810	165	YES
19-Aug-22	810	180	YES
22-Aug-22	810	345	YES
23-Aug-22	810	225	YES
24-Aug-22	810	405	YES
25-Aug-22	810	225	
26-Aug-22	810	345	
30-Aug-22	810	615	YES
31-Aug-22	810	540	
01-Sep-22	810	330	
02-Sep-22	810	60	
05-Sep-22	810	105	
06-Sep-22	810	645	YES
07-Sep-22	810	120	
08-Sep-22	810	510	
09-Sep-22	810	135	
12-Sep-22	810	480	YES
13-Sep-22	810	120	
14-Sep-22	810	480	
15-Sep-22	810	120	
16-Sep-22	810	480	
19-Sep-22	810	0	YES

20-Sep-22	810	420	YES
21-Sep-22	810	225	
22-Sep-22	810	420	
23-Sep-22	810	75	
26-Sep-22	810	330	YES
27-Sep-22	810	390	YES
28-Sep-22	810	435	YES
29-Sep-22	810	420	YES
30-Sep-22	810	135	YES

Fig 3. Table to show highest number of minutes D323 booked for each day and whether civil suppression was initiated