CAA Operational Assessment

Title of airspace change proposal	Swanwick Airspace Improvement Programme - Airspace Deployment 6 (SAIP AD6)
Change sponsors	NATS En Route Ltd (NERL)/London Luton Airport Operations Ltd (LLA) (EGGW) – The Sponsors
Project reference	ACP 2018 - 65
Account Manager	[redacted]

Instructions

In providing a response for each question, please ensure that the 'status' column is completed using the following options:

- YES
- NO
- PENDING
- N/A

To aid the SARG Lead it may be useful that each question is also highlighted accordingly to illustrate what is:

resolved YES not resolved PENDING not compliant NO not applicable N/A

Executive Summary

The final Statement of Need (SoN) (Ref 2781 v3) for this ACP was submitted 12 Apr 2019. At the Assessment Meeting (AM) held in January and carried over to February 2019, the CAA were informed by NERL about the findings of an internal safety survey and as a result of this survey, NERL had identified a 'latent risk' within the TC Essex Sectors 'Essex Radar' (the sector responsible for controlling most London Luton Airport (EGGW) and London Stansted Airport (EGSS) inbounds). EGGW and EGSS airports currently share the capacity of the same arrival flows (Holds and Standard Instrument Arrivals (STARs)) and as traffic has increased over time, the Air Traffic Management (ATM) associated with separating the inbound flows to these airports has become steadily more difficult to manage. NERL informed the CAA (Feb 2019) that based upon the projected traffic increases, the sectors concerned would not be able to safely manage the flow of traffic, without imposing 'overly penalising measures', by the end of 2020. At the time of the AM NERL stated that in order to reduce the risk, flow restriction measures would be used during predicted peak traffic periods; however, the use of flow restriction measures was not a long-term solution and caused consequential delays. NERL informed the CAA that they had considered if the issue(s) could be addressed with a change to airspace above 7000ft only, however, they believed that any suitable option could also impact the airspace design below 7000ft. At the time, the CAA agreed to prioritise the ACP accordingly. The desired outcome was stated as '*a reduction in complexity, workload and delays in relation to arriving traffic at Luton and as a consequence, Stansted*'.

Since the AM, the CV-19 pandemic has altered the increase in traffic projections, as projected in 2019 and has led to severe drop in flights for the Sponsors of this ACP. NERL and EGGW (the Sponsors) assert that the '…need to change the design of this airspace remains…', despite the impacts of the CV-19 pandemic.

The Eurocontrol 7-year forecast for ECAC Members (published 15 Oct 21) set out a base-line recovery scenario which continues to show that IFR traffic movements, across the EU, will return to 89% of the 2019 peak, by 2022. This is relevant as it demonstrates a continued appetite for flying across EU airspace and arguably demonstrates a sustainted increase in traffic levels.

The CAA asked the Sponsors for validation of the forecast EGGW figures (arrivals) published in the ACP submission and the Sponsors confirmed their projections in the Clarification Question Q&A document, Q1. Additional clarification questions regarding environmental impacts were answered 21 Oct 21 and uploaded to the CAA Portal.

This ACP is proposing STARs into a new hold for EGGW. There will be a requirement for new controlled airspace (CAS) to contain the hold and some of the STARs. The Sponsors have also proposed raising the levels of some current Class D/A CAS to the south east of EGSS, which will result in the airspace becoming Class G airspace.

The Sponsors proposed an altered design (Option 1A) in response to the consultation responses received. The summary of the changes, post consultation, are some shorter STARs, the newly proposed EGGW hold (ZAGZO) moving c.2.5km northwest and re-orientated c.20^{o} anti-clockwise, and a reduction in the volume of required CAS to contain the hold and some of the STARs. From an operational perspective the alterations, post consultation, have not altered the application of the design and therefore the CAA agrees with the Sponsors assessment that there is no requirement for re-consultation.

28 Sep 21 – The Sponsors informed the CAA that if the proposal was approved, and the airspace to the south-east of EGSS was re-classified to Class G (raised the base levels of the CAS) then a number of the Standard Instrument Departures (SIDs) from EGSS would no longer afford aircraft sufficient containment in accordance with CAA Policy[1]. The Sponsors proposed altering the vertical profiles of the SIDs in order to ensure containment. The CAA were provided with 1 months' worth of data to show that c.96% of aircraft using the effected SIDs already climbed a profile that would meet the proposed changes required for containment of the SIDs. The CAA asked the Sponsors to provide further evidence to provide assurance that raising the SID climb profiles would result in no discernible impacts to operators and stakeholders. The CAA had to ask a number of clarification questions (5,9,11 and 17 Nov 21) which resulted in the Sponsors providing a number of ACP Supplements in order to demonstrate to the CAA that by altering the SID vertical climb profiles, there would be no additional adverse impacts. The CAA was required to seek further clarification from the Sponsor in order to ensure the robustness of the evidence provided, which resulted in a final v1.4 of the Supplement being submitted to the CAA 18 Nov 21.

12 Oct 21 – The Sponsors informed the CAA that they intended to amend the easterly STARs (entry into the ZAZGO hold) due to flyability issues identified during a simulation. The CAA asked the Sponsors for an impact assessment of the amends (15 Oct 21). The first response received stated that there would be no impacts as a result of the STAR amendments. The CAA has asked for further clarification on the modelling which had been used to show that there will be no additional impacts (2 Nov 21). Updates posted on the CAA Portal 5 Nov 21.

[1] CAA Controlled Airspace Containment Policy

2 Nov 21 – The Sponsors were asked to clarify the potential workload increases to other controllers (Sectors) as a result of the proposed changes and amendments. The Sponsors were also asked a number of further clarification questions regarding the EGSS SIDs supplement.

8 Nov 21 – An additional set of clarification questions regarding the Stansted SID Climb Performance Evidence Issue 1.1 was sent to the Sponsors. The response did not provide certainty regarding the interpretation of the mode C data (the data that shows the level of an aircraft, on a radar screen, based on its altimeter information).

10 Nov 21 – Following a review of the updated Route Spacing Assurance Document (RSAD Issue3, Commercially Sensitive) and due to the lack of certainty regarding how the level passing data had been analysed for the aircraft flying the impacted EGSS SIDs, the CAA sent two further clarification questions to the Sponsors. The Sponsors asserted, that despite their claimed minimum containment of 2NM (ACP page 31) being reduced to 1.94NM (Procedure Design Report v2.1), there would be no increase in risk, beyond that which would be expected, due to this reduction only occurring when aircraft are at FL140 when entering the hold, in certain wind conditions, and that the aircraft would be monitored by air traffic controllers in accordance with procedures. The CAA asked the Sponsors to confirm their assertions by simulator testing[2], which was done.

A.	Justification for change and options analysis (operational/technical)	Status
A.1	Is the explanation of the proposed change clear and understood?	YES
	The Sponsors have proposed the introduction of revised and distinct STARs for EGGW that will end at a new EGGW hold (ZAGZO). There will also be new CAS and 2 new outer holds (WOBUN and MUCTE) which form part of the STARs. Following clarification questions the Sponsors provided an updated Final Design Technical Map v2.0, which provided the missing detail from the diagram (Figure 4 page 15) in the ACP which has lines showing the STARs but does not provide the names of the STARs or levels of the outer holds. The new CAS can be seen clearly in figure 6 page 17 of the ACP. There are diagrams showing the vectoring swathes and shortcuts (figure 7 page 19 ACP), which show the areas impacted and expected heights of aircraft. The CAA asked the Sponsors to provide clarification on what exactly was being proposed, as it was arguably not very clear in the ACP issue 1 document, and they provided a summary in the Public Evidence Session Summary as well as new version of their interactive Step 4a(ii) Design Technical Map (final version 5 Nov 21), further detail was also provided by answering the clarification questions asked by the CAA. The Sponsors informed the CAA, during stage 5, that they would be proposing amendments to the vertical profiles for 8 standard instrument departures (SIDs) from EGSS in order to provide containment[3] as a result of proposing the re-classification of airspace to the south east of EGSS to Class G. The CAA asked the Sponsors to provide an impact assessment[4] of the SID amendments and to detail the	

[2] See minutes of meeting with NATS for simulator actions.
[3] As described in the CAA Controlled Airspace Containment Policy
[4] This resulted in a number of supplements, following clarification questions, the final v1.4 was published 19 Nov 21.

	proposed amendments. The Sponsors also informed the CAA that they intended to amend the STAR designs, during Stage 5. The CAA asked the Sponsors to provide an explanation supplement and an update to the Technical Map in order for relevant stakeholders to understand the technical changes. These were added to the CAA Portal (5 Nov 21). The Sponsors are proposing 10 EGGW area navigation performance 1 (RNAV 1) STARs, the removal of 2 EGGW STARs, a new distinct hold for EGGW, 2 new outer holds, 4 new Class C control areas (CTAs), 1 revised (volume) CTA, 2 RNAV 1 transitions (for emergency use only, alters ILS procedure plates), 2 volumes of CAS adjacent to EGSS will be reclassified as Class G airspace, 8 EGSS SIDs will have their vertical profile climb restrictions raised and there will be consequential administrative changes to the AIP.	
A.2	Are the reasons for the change stated and acceptable?	**YES**
	The Sponsors state the reason for this ACP is to address the 'latent risk', described in the revised SoN, that is deemed to exist within the air traffic control sectors that manage the arrivals into EGGW and EGSS (TC Essex Sectors). The described risk has been managed, at peak times, by utilising flow restrictions, which can cause delays to arrivals[5]. The Sponsors assert that 'do nothing' is not an option and have provided the CAA with clarification on the question of justifying the proposals implementation at this juncture, given the impacts of CV-19. See below for justification. The current airspace design is described as 'complex' due to EGGW and EGSS sharing the same 'arrival flows' and the same holds. The Sponsors have asserted, that due to the projected growth in arrivals to both EGGW and EGSS (in 2018/2019) that there is a safety imperative (SoN) to split the arrival flows into these airports. The result would be a better airspace design due to having a distinct hold for EGGW and increased resilience in the TC Essex sectors as a result of reducing the air traffic controllers (ATC) workload[6]. The ACP intends to maintain a high standard of safety, by reducing overall controller workload and increasing resilience by better design (distinct EGGW Hold and STARs) within the TC Essex sectors. These reasons are stated and acceptable. The Sponsors have clarified that the proposed changes will likely cause increases in work-load within other adjacent sectors; however, they state that this managed due to the existing flexibility within adjacent sectors (see ATM clarification question).	
A.3	Have all appropriate alternative options been considered, including the 'do nothing' option?	**YES**
	Yes, all appropriate alternative options have been considered. As part of stage 2 of the CAP1616 process, the Sponsors considered different options and evaluated them against the design principles (DPs) in order to determine the most suitable option(s) for addressing the issue(s) in the SoN. The 'do-nothing' option has been ruled out, as the Sponsors assert the change must be made asap, despite the impacts of CV-19. Following a review of the clarification question answers, the CAA agrees that the do-nothing option, is not an appropriate option given the intent of the ACP to resolve the issues stated in the SoN.	

[5] See Para 3.19 of CAP1711 Airspace Modernisation Strategy (AMS)
[6] See Para 3.12 of CAP1711 AMS

A.4	Is the justification for the selection of the proposed option sound and acceptable?	**YES**
	The CAA asked the Sponsors to provide an update, within the clarification questions, with regard to the assertion in the submission, that the proposal is still required at this juncture given the impacts of CV-19. The Sponsors provided some analysis of the Aug 21 figures, '*In August 2021 (up to Week 3), LLA has been operating at c.35-40% of pre-pandemic (2019) traffic levels. Stansted has been operating at c.50%.*' This shows that traffic levels are significantly lower than 2019; however, the Sponsors also provided evidence that despite these traffic levels the ATC sectors that controls the EGGW and EGGS inbounds had 2 peak hours on 13 Aug 21, that were only 3 and 1 aircraft less, respectively, than their busiest periods on the same day in 2019 (Please see Clarification Q&A Q1 answer for full detail). These figures highlight the risk of reaching the monitoring value[7] (MV) max, even during overall low traffic levels into EGGW and EGGS. The Sponsors have clearly stated that the current airspace design (STARs and holds for EGGW and EGSS) can cause increased workload (see para 4.3 ACP) for the controllers and that in order to maintain safety, aircraft may have to be delayed through use of flow restrictions (see para 3.5 ACP). The CAA has considered the impacts of CV-19 in terms of recovery traffic forecasts; however, this change is not required to deal with intensity (number of aircraft) in isolation. The current airspace design (shared holds and STARs) does require enhancing due to the complexity it can create which in turn increases the risk of the associated air traffic controller becoming over-loaded[8] resulting in penalising flow restriction measures being put in place. The CAA has considered if, given the environmental dis-benefits of the proposals in terms of fuel burn and CO_2 output, the change needs to take place within the timeframe proposed by the Sponsors. Unlike one option not ultimately taken forward by the Sponsors as their proposal for consideration by the CAA, the option proposed in this ACP does not introduce RNAV1 transitions for everyday use[9] (which if introduced would deliver against one of the CAA's objectives in its Airspace Modernisation Strategy). It is noted that the Sponsor made that decision due to the discarded option's higher impact on CO_2 emissions and the level of feedback from community stakeholders. The option in the proposal has not altered air-space design below 4000ft for EGGW arrivals, which aligns with the Air Navigation Guidance 2017 (Para 3.3.b).	

[7] Broadly, MV indicates the number of movements per hour which can be safely handled by the controllers operating the flows in each associated airspace sector; if reached, there is consideration of applying flow restriction measures.
[8] See Para 3.12 of CAP1711 AMS.
[9] The RNAV1 Transitions will be restricted to use in the event of a Radio Communications Failure (RCF) situation only.

	The Sponsors state that they believe the traffic levels are going to recover '*albeit delayed by a year*[10]' (2022). Given the up-to-date data provided in the clarification questions, the Sponsors have shown that there is still a requirement for the change and the likelihood of applying flow control restrictions during traffic peaks, which causes delays, will remain until the current design is improved. The risks associated with the current complex airspace design remains and it's resolution is a priority under s.70(1) TA 2000, despite the stated environmental dis-benefits of Option 1A in terms of fuel burn and CO_2 output. The CAA will apply its statutory duties as set out in Section 70 Transport Act 2000 in the manner described in appendix G of CAP 1616. The Sponsors have proposed volumes of new Class C airspace which they believe are required to safely contain the proposed hold and new STARs from the east. The Sponsors state that the proposed increase in CAS is mitigated[11] by the re-classification of volumes of CAS adjacent to EGSS to Class G. Given the CAA's containment policy[12], the low impact of the new CAS on other airspace users and the off-set created by re-classification, the CAA accepts the justification for the proposed CAS changes. The Sponsors have been clear that the new hold may be used daily and at peak hours[13], however, overall airborne holding is less likely to be required as a result of the revised STARs (and the Stage 5 amendments), which will lead to a reduction in delays (estimate. 10,200 mins in 2022, ACP para 6.2.15). The Sponsors will be publishing the lowest useable level in the new hold as flight level (FL) 80 (approx. 8000ft depending on the pressure setting applied); however, they state that in response to the consultation the controllers will not use FL80 unless absolutely necessary and therefore the lowest available routine level will be FL90. The usage of the hold will be monitored and reviewed under Stage 7 of the CAP1616 process (Post Implementation Review). The Sponsors were asked to confirm what the consequential impacts of the proposed changes would be to other ATC Sectors and as a result of the Stage 5 amendments in a clarification question. The Sponsors confirmed that there would likely be extra workload within the Terminal Control operation, however, due to the staffing flexibility already contained in the adjacent impacted sectors, no changes were required. The Sponsors also confirmed that the Stage 5 amendments did not alter the stated resilience gain (c.30%) in the TC Essex sectors, if the proposal is approved. In order to reduce the requirement to apply flow restriction measures, which result in delays and to increase controller resilience by c.30% (in the TC Essex sectors), thus reducing risk and maintaining a high standard of safety, the justification for this change is sound and acceptable.

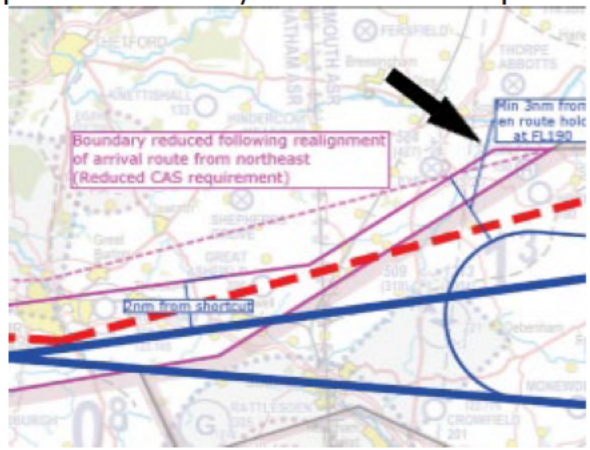
[10] Para 2.6 of ACP Document Issue 1.
[11] Para 3.17 of the ACP
[12] CAA Controlled Airspace Containment Policy
[13] See answer to Clarification Q & A No.2

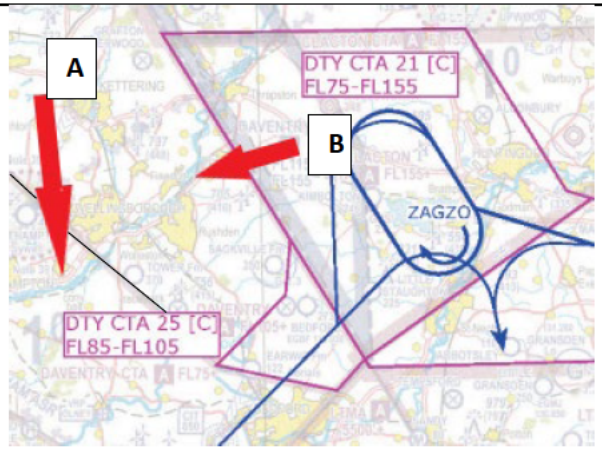
B.	Airspace description and operational arrangements	Status
B.1	Is the type of proposed airspace design clearly stated and understood?	YES
	Following clarification from the Sponsors, the Design Technical Map v2.0, Tech Map Update and the Clarification Q&A, which provide a clearer explanation of the proposed CTAs and why Class C airspace has been selected. The CAA accepts that Class C airspace provides the best balance in terms of access to transiting aircraft and protection for EGGW inbounds using the proposed procedures. The re-classification of 2 volumes of CAS, adjacent to EGSS, to Class G is described as a 'mitigation'[14] to the proposed new Class C airspace. The Sponsors confirmed that EGSS have been engaged on this and that they are content for it to be part of the SAIP AD6 proposal.	
B.2	Are the hours of operation of the airspace and any seasonal variations stated and acceptable?	YES
	The operation will be H24.	
B.3	Is any interaction with adjacent domestic and international airspace structures stated and acceptable including an explanation of how connectivity is to be achieved? Has the agreement of adjacent States been secured in respect of High Seas airspace changes?	YES
	There is no interaction with international airspace structures. The proposed CTAs will adjoin and be below current published airspace structures. The connectivity is acceptable and ensures the least complex structure in order to provide the required containment for the proposed procedures.	
B.4	Is the supporting statistical evidence relevant and acceptable?	YES
	Yes. The CAA also asked the Sponsors (9 Aug 21) to provide most up-to-date data available at this juncture in order to support their assertions that traffic levels will return to their described figures in line with their request to implement the changes by Feb 22 (AIRAC 2/2022).	
B.5	Is the analysis of the impact of the traffic mix on complexity and workload of operations complete and satisfactory?	YES

[14] Para 3.17 of the ACP.

	The Sponsors state that the proportion of aircraft types and operators that arrive at EGGW is not expected to change as a consequence of this proposal being implemented. The Sponsors have considered the monitoring value (MV) of the ATC sectors that control aircraft into EGGW and EGSS. They have described the MV as '*broadly [...] the number of movements per hour which can be safely handled by the controllers operating the flows in each associated sector*' (Final Options Appraisal p11). The Sponsors have also described the number of radio exchanges, between ATC and pilots, in order to indicate the increase in resilience, which will be afforded to the sectors in the 'upper system' as a result of the change. The analysis provided, for the proposed Option (1A) is against the base-line, do nothing. The analysis shows that there will be a 'c.30%' increase in resilience, in the TC Essex sectors, as a result of implementing Option 1A. Resilience will be the same for the lower system, under Option 1A as it is no different to what was stated during the consultation for Option 1, as the aircraft will be vectored by ATC. If the traffic mix, as described, remains as projected then the reduction in airspace design complexity in the upper system will increase overall resilience and reduce the work-load of the associated air traffic controllers. Following the answer to the CAA clarification questions the Sponsors have shown that despite the overall down-turn in traffic volume, the risk of reaching the MV for the control sectors in question remains an issue and therefore the risk of controller over-load due to complexity, resulting penalising flow restriction measures, also remains. The new airspace design reduces the interactions and shared holding for EGGW, EGSS and Cambridge City Airport (EGSC) arrival traffic so this naturally reduces the complexity and spreads the workload across two separate volumes (radar manoeuvring areas) of airspace in proximity to the airfields. The changes at higher levels splits the inbound route structures through an allocation of dedicated holds for the airports. This naturally reduces the workload for the approach functions, however, passes the deconfliction of traffic to the en-route TMA sectors. The TMA sectors have a greater vertical and lateral volume of airspace in which they can resolved destination conflicts through the application of radar separations or the application of speed control. This helps simplify the traffic patterns earlier although does add to the complexity interactions of the other TMA sectors. This was explained further in the answer to the ATM clarification question the CAA asked the Sponsors. The Sponsors confirmed that the workload would likely increase in adjacent sectors (North, Capital, Midlands and East), however, this was mitigated due to the flexibility already within the position staffing schedule (PSS) for these sectors. The Sponsors confirmed that the EGSS SIDs and STAR amendments, that have occurred during stage 5, will not impact workload.	
B.6	Are any draft Letters of Agreement and/or Memoranda of Understanding included and, if so, do they contain the commitments to resolve ATS procedures (ATSD) and airspace management requirements?	**YES**
	The Sponsors have provided the CAA with draft LoAs, in accordance with process. They include USAFE (RAF Lakenheath), No. 78 Sqn RAF (Swanwick Military ATC Unit), EGSC, Cranfield University Airport (EGTC) and The East Anglian Rocketry Society. It will be a condition of approval, that the LoAs are finalised and agreed/signed prior to implementation.	

B.7	Should there be any other aviation activity (low flying, gliding, parachuting, microlight site etc) in the vicinity of the new airspace structure and no suitable operating agreements or ATC Procedures can be devised, what action has the change sponsor carried out to resolve any conflicting interests?	**N/A**
	The Sponsors have not provided any details of a conflict of interests between themselves and other aviation activity, as result of the proposal, other than those addressed in the LoAs. The CAA have not been made aware, by a third party, of any conflicts and therefore accept the proposal does not produce a conflict in aviation activity.	
B.8	Is the evidence that the airspace design is compliant with ICAO SARPs, airspace design & FUA regulations, and Eurocontrol guidance satisfactory?	**YES**
	The Sponsor's procedure designers have provided compliant airspace designs and where there is a request to derogate within the CAA policies, the Sponsors will have provided justification and evidence as to how the risks of derogation will be safely mitigated. The CAA asked the Sponsor to provider further assurance regarding the flyability of the STARs, which was done (see details of the requests).	
B.9	Is the proposed airspace classification stated and justification for that classification acceptable?	**YES**
	The Sponsors have provided an explanation for the selection of Class C airspace, which provides a satisfactory balance between access to transit aircraft and protection for the aircraft utilising the proposed procedures.	
B.10	Within the constraints of safety and efficiency, does the airspace classification permit access to as many classes of user as practicable?	**YES**
	The Sponsors have selected Class C airspace; this is controlled airspace (CAS, requires ATC permission to access), but it also affords access to aircraft who wish to fly under visual flight rules (VFR), unlike Class A airspace. Class A airspace would ensure that the access and service applied would be the same as some of the adjacent CAS structures (CLN CTA1, LTMA CTAs 9 and 10), however, the STARs contained within the proposed Class C are all above FL75 and the Sponsors have draft LoAs in place with the stakeholders they believe to be most impacted by the proposed Class C CAS volumes. The proposed revised DTY CTA 21 and proposed DTY CTA 25 will sit under current Class A and Class C airspace. The proposed CLN CTAs (10, 11, 12) will all sit under Class C airspace. All newly proposed airspace is currently Class G, apart from a section of DTY CTA 21, which is currently Class C airspace. The proposed classification of the airspace is both safe and efficient in terms of the requirements for containment of the procedures, and in terms of impacts to other airspace users, given the flight levels of the proposed airspace structures. In order to provide the appropriate level of safety to the aircraft flying the standard terminal arrival routes (STARs), but also to allow VFR access to other airspace users, Class C is accepted as the most appropriate classification for the proposed structures.	

B.11	Is there assurance, as far as practicable, against unauthorised incursions? (This is usually done through the classification and promulgation.)	YES
	Yes; the Sponsors have proposed the minimum volume of CAS in order to provide containment for the revised STARs and new hold. In the picture below (Fig 1) the Sponsors have proposed a 'ledge' design to the airspace, which is different from what was proposed in the consultation. The Design Principle (DP) 15 should have ensured that the airspace construct was 'simple', in order to reduce the risk of infringements. This DP also had to balance with the need for a safe airspace design in terms of containment and minimising the required volume. The proposed shape is considered to be acceptable, despite the introduction of an extra side to the shape, as it is the minimum size required for containment of a procedure and the risk of infringement by non -participating aircraft (outside CAS) is mitigated due the proposed base-level being at FL125 (see Fig 1 below). In Figure 2 below arrow A is to show that Class G airspace south of the black line is surface to FL75. The airspace between the blackline western edge of DTY CTA 21 as shown by arrow B is Class G from surface to FL105. This proposal will create a 3000ft 'hump' of Class G airspace, approximately 8 miles wide. This is acceptable as the hold position had to take into consideration the current northerly flows of aircraft west of the proposed DTY CTA21. No 78 Sqn RAF Swanwick Mil have a radar corridor (the DTY RC) that passes through this portion of class G at FL110 (FL100 on occasion). No 78 Sqn RAF Swanwick Mil have a draft LoA in place with the NATS in order to address any issues regarding aircraft passing through this area of class G and are aware of the implications. The Sponsors have not highlighted that they perceive there is any increased risk of airspace incursions as result of this airspace proposal.  Fig 1.	

	 Fig 2.	
B.12	Is there a commitment to allow access to all airspace users seeking a transit through controlled airspace as per the classification, or in the event of such a request being denied, a service around the affected area?	YES
	The proposed CTAs are contiguous with the current CTA structures. Class C will afford access to aircraft operating under VFR, provided it is safe to do so. The proposed CTA structures will adjoin the current London Terminal Manoeuvring Area (LTMA) structure (Class A) and the DTY CTA (Class A and D); as such there is no way 'around' however, aircraft wishing to transit through the proposed CTAs will be able to request a service as per current transit procedures and in accordance with the LoAs between impacted stakeholders and the Sponsors.	
B.13	Are appropriate arrangements for transiting aircraft in place in accordance with stated commitments?	YES
	Yes; the arrangements will remain the same as today, comparable to transiting the LTMA. The Sponsors state that '*NATS commits to provide the same level of access post-implementation in line with forecast growth.*' (Page 28 ACP). However, it is accepted that during periods of hold usage, there is likely to be an impact on transiting aircraft. Draft LoAs, in order to facilitate specific and detailed regular airspace access, have been proposed with impacted stakeholders such as No 78 Sqn RAF Swanwick Mil and the USAFE bases (RAF Mildenhall and RAF Lakenheath). These LoAs will need to be signed prior to implementation.	
B.14	Are any airspace user group's requirements not met?	NO
	The Sponsors have engaged with a number of other local airspace users (USAFE Lakenheath/Mildenhall, 78 Sqn Swanwick Mil, Cambridge Marshall Airport (EGSC), National Flying Laboratory Cranfield NFLC, East Anglian Rocketry Society (EARS)) in order to develop LoAs, which should ensure that their requirements can be met safely within and around the proposed new airspace construct.	

B.15	Is any delegation of ATS justified and acceptable? (If yes, refer to Delegated ATS Procedure).	N/A
	N/A	
B.16	Is the airspace design of sufficient dimensions with regard to expected aircraft navigation performance and manoeuvrability to contain horizontal and vertical flight activity (including holding patterns) and associated protected areas in both radar and non-radar environments?	YES
	All the proposed procedures and holds are contained with CAS, however, following an amendment to the STARs (5 Nov 21) during Stage 5, the CAA asked the Sponsors to update the route spacing assurance document (RSAD) which is a commercially sensitive document that provides the CAA with technical details and assurance that the proposed STARs and new holds are safely separated from current procedures. This document was reviewed 8 Nov 21 and found not to provide consistent explanations regarding the containment of the amended STARs when compared to the ACP (Page 31) and the Procedure Design Report (CAA IFP only). A clarification question asking for confirmation on the containment of the STARs was sent to the Sponsors 9 Nov 21 and a response was received 10 Nov 21. The STARs, when tested within certain parameters, did not meet the desired containment of 2NM within the proposed CAS around the ZAGZO hold. The Sponsors was asked to confirm that their safety case for reduced containment remained valid and to ensure transparency in terms of explaining the minimum possible containment and the impacts of this. The Sponsors asserted, that despite the minimum containment of 2NM being reduced to 1.94NM, there will be no increase in risk due to this reduction only occurring when aircraft are at FL140, in certain wind conditions, when flying the STAR into the hold and the aircraft will be monitored by air traffic controllers in accordance with procedures. The CAA accepts the analysis and the proposed mitigation. The amendments to the EGSS SIDs are compliant and acceptable. The proposed Class C airspace construct is sufficient to provide safe containment of aircraft flying the proposed RNAV1 STARs. Where there are requested reductions in terms of containment[15], the Sponsors have justified the request and applied suitable mitigations such as controller monitoring or stipulated when certain holds cannot be used concurrently. This is acceptable and does not increase the controller's workload beyond that which is expected. The airspace is in area where there is both multiple Secondary Surveillance Radar (SSR) and Primary Surveillance Radar (PSR) coverage at a level well below the lowest flight level for the proposed area of airspace. The Sponsors have analysed the separation between the new holds and existing holds in a consistent manner. In a number of cases the primary protection areas of the holds overlap (ZAGZO vs LOREL, ZAGZO vs BOMBO, WOBUN vs BNN) however, the analysis is based on the existing interactions between the LAM vs BIG holds and where the proposed new holds in this proposal interact in a similar way to the LAM vs BIG, the Sponsors have deemed the interaction as 'considered separated'. Where there is no mitigation in terms of horizontal separation, vertical separation or controller monitoring, the holds are deemed 'not separated' and cannot be used independently. The CAA will expect	

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	the Sponsors to provide details of the ATM procedures to be used to ensure safe hold usage, as part of the ongoing ATM regulatory oversight see B.18 below.	
B.17	Have all safety buffer requirements (or mitigation of these) been identified and described satisfactorily (to be in accordance with the agreed parameters or show acceptable mitigation)? (Refer to buffer policy letter.)	**N/A**
	There is no proposed Special Use Airspace (SUA) or requirement for a buffer.	
B.18	Do ATC procedures ensure the maintenance of prescribed separation between traffic inside a new airspace structure and traffic within existing adjacent or other new airspace structures?	**NO**
	The drafting of ATC instructions together with charts for inclusion in the UK AIP and Swanwick Manual of ATC Part 2 will cover these details (the procedures for the interacting holds, RCF transitions, lowest useable level in the ZAGZO hold, aircraft monitoring for containment, etc) and be managed through the units SMS with submissions to the CAA. Any inclusion into the Luton, Stansted and Swanwick MATS Part 2's will be submitted to the respective ATS Inspectors via the SRG1430 form. This notification will be reviewed and approved, where necessary. This is part of the CAA's ongoing oversight of Air Navigation Service Providers and Change Management in accordance with UK Regulation (EU) 373/2017. Any ATC Instructions including charts must be submitted at least 30 working days prior to implementation of the change so are not visible at this time to be reviewed.	
B.19	Is the airspace structure designed to ensure that adequate and appropriate terrain clearance can be readily applied within and adjacent to the proposed airspace?	**YES**
	The proposed airspace structures are all above 7000ft; the highest point within 200 miles of EGGW is Mt Snowdon which is 3560ft high.	
B.20	If the new structure lies close to another airspace structure or overlaps an associated airspace structure, have appropriate operating arrangements been agreed?	**YES**
	The new airspace structures are managed by NERL, therefore, operating arrangements will be maintained and managed by the Sponsors.	
B.21	Where terminal and en-route structures adjoin, is the effective integration of departure and arrival routes achieved?	**YES**

	The EGGW CTR is below the LTMA (3A and 19A). There are no changes to EGGW departure routes and under the proposal (Option 1A) all integration between the LTMA and the CTR will be achieved through radar vectoring within the current airspace construct. 28 Sep 21 – The Sponsors informed us that this proposal will impact some EGSS SIDs. The Sponsors produced a supplement that has evidenced how EGSS departures using 8 SIDs that pass through current CAS to the SE of EGSS flew their vertical profiles for a 121 period over the summer of 2019. The CAA has assessed the SID vertical profile amendments and the Sponsors have confirmed that despite altering the vertical profiles of the procedures, there will be no impacts on other routes or procedures.

C.	Supporting resources and communications, navigation and surveillance(CNS) infrastructure	Status
C.1	Is the evidence of supporting CNS infrastructure together with availability and contingency procedures complete and acceptable? The following are to be satisfied:	
	• **Communication:** Is the evidence of communications infrastructure including RT coverage together with availability and contingency procedures complete and acceptable? Has this frequency been agreed with AAA Infrastructure?	YES
	Yes, evidence is complete and acceptable. The increase to FL180 for TC GW INT can be completed on the current frequency 129.550 MHz, using the same circular coverage (40NM) however if a new polygon or increase range is required a new frequency may be required.	
	• **Navigation:** Is there sufficient accurate navigational guidance based on in-line VOR or NDB or by approved RNAV-derived sources, to contain the aircraft within the route to the published RNP value in accordance with ICAO/ Eurocontrol standards? For example, for navaids, has coverage assessment been made, such as a DEMETER report, and if so, is it satisfactory?	YES
	Yes, based on the details provided adequate navigational coverage is available for the new routes.	
	• **Surveillance:** Radar provision – have radar diagrams been provided, and do they show that the ATS route/airspace structure can be supported?	YES
	Yes, there is both multiple SSR and PSR coverage at a level well below the lowest flight level for the proposed area of airspace.	
C.2	Where appropriate, are there any indications of the resources to be applied, or a commitment to provide them, in line with current forecast traffic growth acceptable?	YES

	The proposed airspace construct will be part of NATS Terminal Control and will therefore have 24hr support. The Sponsors state that, (ACP Para 6.2.2) '*A comprehensive Operational Conversion Training (OCT) activity is planned as part of the transition from the current to the proposed airspace arrangements and operating procedures. This activity will support the training and briefing of more than 200* operational *controllers and support staff at the London Terminal Control operations room at Swanwick and for controllers and support staff in the visual control room (VCR) at London Luton Airport*'. The Sponsors were also asked to clarify the consequential resource impacts as a result of the ACP and the amendments that have taken place during Stage 5. They confirmed that the adjacent ATC sectors have the flexibility to absorb any extra workload and that the Stage 5 amendments will not alter the gains in claimed resilience (see Clarification ATM).

D.	Maps/charts/diagrams	Status
D.1	Is a diagram of the proposed airspace included in the proposal, clearly showing the dimensions and WGS84 co-ordinates? (We would expect sponsors to include clear maps and diagrams of the proposed airspace structure(s) – they do not have to accord with aeronautical cartographical standards (see airspace change guidance), rather they should be clear and unambiguous and reflect precisely the narrative descriptions of the proposals.)	YES
	Figure 18 on p35 of the Consultation Response Document shows the proposed CTAs, their 2D shape and proposed levels on an aviation map which shows adjoining airspace. Figure 6 on p17 of the Airspace Change Proposal also shows the proposed airspace structure in the same format. There are no published WGS84 co-ordinates in the main submission document. The Aero-data Spreadsheet (v7.1), which provides assurance on the integrity of the co-ordinates will be provided to AIS once approved.	
D.2	Do the charts clearly indicate the proposed airspace change?	YES
	The Sponsors provided a Step 4A(ii) Final Design Option 1A Technical Map that showed details of the consulted proposal and the post-consultation proposal. It showed the detail of the proposal close to EGGW and provided graphics of the revised STARs, but without any labelling. This document required a suitable PDF reader and some technical experience to understand which STARs are which when compared to the table of revised STARs on page 21 of the ACP document (issue 1.0). The Sponsors were asked a clarification question to provide the CAA with a clearer statement of what the proposed changes are and to offer more clarity on the diagram showing the revised/proposed STARs. The Step 4A(ii) Technical Map v.2 provided more detail including labelling the revised STARs and adding the levels of the holds. Following the amendments to the STARs (5 Nov 21), the Sponsors provided a further Technical Map, which showed how the easterly STARs, if flown completely, would route across the proposed hold and back round to ZAGZO.	
D.3	Has the change sponsor identified AIP pages affected by the change proposal and provided a draft amendment?	YES

	The Sponsors have provided the CAA with a spreadsheet of the draft proposed AIP changes (subject to ACP approval). They have also provided a summary of the 'main' AIP changes in the ACP Document.	
D.4	Has the change sponsor completed the WGS84 spreadsheet and submitted to the CAA for approval?	YES
	The CAA have approved v7.1 of the Aero-data spreadsheet, which will be used to validate the co-ordinates of the proposed CAS volumes within the AIP submission.	

E.	Operational impact	Status
E.1	Is the change sponsor's analysis of the impact of the change on all airspace users, airfields and traffic levels, and evidence of mitigation of the effects of the change on any of these, complete and satisfactory? Consideration should be given to:	
	a) Impact on IFR General Aviation traffic, on Operational air traffic or on VFR General Aviation traffic flow in or through the area.	YES
	The Sponsors Identified key ANSP stakeholders early in the CAP 1616 process and have engaged with them throughout, incorporating them into their design principle (DP) 9, they are the MoD (other than USAFE Lakenheath), MoD (USAFE Lakenheath), Stansted Airport (EGSS), Cambridge Airport (EGSC) and Cranfield Airport (EGTC). Under DP15 NATS stated, '*...that we should minimise negative impact on other airspace users by keeping CAS requirements to a minimum, investigating potential release of existing CAS, keeping new airspace boundaries simple where possible, and FUA if possible*'. The proposal will impact IFR GA, that wish to transit through the new volumes of CAS; however, provided it is safe to do so, NATS are obliged to provide an air traffic service (ATS), commensurate with the classification of airspace that they manage. In Class G airspace, up to FL100, an IFR GA transit could request an air traffic service outside CAS (ATSOCAS) from an appropriate unit (most likely to be EGLF(N) in the proposed area). The Sponsors have agreed a draft LoA with No 78 Sqn RAF Swanwick Mil, in order to facilitate their Operational Taskings through the DTY Radar Corridor and access to the new CTAs would be afforded in accordance with current procedures. Other draft LoAs have been completed as previously mentioned, with the other key ANSPs. VFR GA that is above FL75 can ask for a transit through the proposed airspace subject to ATC constraints, such as providing it is safe to do so. As a result of the consultation the Sponsors have chosen not to propose the consulted Option 2 and therefore will not require	

	additional CAS below 7000ft. The Sponsors have also proposed the re-classification of 2 areas of CAS (currently Class A and C) to Class G. They are proposing that EGSS CTA 3 (Class D) be raised by 500ft and that the base of LTMA 2 (Class A) is raised by 1000ft also, making it cogent with the base of LTMA 3 (Class A) and therefore removing the requirement for LTMA 2, so the Sponsors are proposing that it is 'deleted'. The Sponsors state that if this is approved then 88nm² of CAS will become Class G airspace. The Sponsors are requesting c.424nm² of new CAS and have stated that the re-classification of CAS to the SE of EGSS mitigates the impact of the proposed volume of Class C CAS. The 'new' class G airspace will allow greater airspace access, and the Sponsors assert ATC behaviours will not change as a result of altering the SID vertical profiles. The CAA is satisfied that there will be minimal impacts due to the levels of the proposed CAS and the LoAs that will be in place.	
	b) Impact on VFR Routes.	**N/A**
	There are no VFR routes impacted as a result of this change.	
	c) Consequential effects on procedures and capacity, i.e. on SIDs, STARs, holds. Details of existing or planned routes and holds.	**YES**
	One of the effects of this ACP will be to enhance ATC capacity, by splitting the arrival flows to EGGW and EGGW earlier than the current design, this will allow the current sector monitoring values (MV) for EGGW and EGSS to be de-coupled. The proposal will introduce 10 EGGW STARs, introduce 3 new holds and amend the altitude restrictions of 8 SIDs from EGSS, but not alter them laterally. This proposal was not intended to alter the design of any published procedures for EGSS or departure procedures for EGGW. However, the Sponsors informed the CAA at the end of Sep 21 that they would need to alter the climb profiles of eight EGSS SIDs in order to maintain containment as the airspace bases will be raised (Supplement – Stansted SID Climb Performance Evidence Issue v1.4 uploaded to the CAA Portal). This was re-submitted by the Sponsors following clarification questions, which are all published on the CAA Portal. The Sponsors have confirmed that altering the vertical profile of the 8 EGSS SIDs that are impacted by the re-classification of the airspace is, *'fully compatible with procedures serving adjacent aerodromes.'* (clarification questions). The Sponsors also confirmed that the likely consequential extra controller workload, in other adjacent TC sectors will be managed without any changes, due the flexibility already existing within these sectors.	
	d) Impact on airfields and other specific activities within or adjacent to the proposed airspace.	**YES**
	Yes, the Sponsors have considered local airfields, ANSPs and other specific activities; this evidenced by the LoAs mentioned above.	
	e) Any flight planning restrictions and/ or route requirements.	**YES**

	The Sponsors are requesting that the new STARS are RNAV 1; (table 11, p 30 ACP Document) '*LLA expects arrivals to be RNAV1 compatible, with infrequent RNAV5 arrivals routing via ABBOT only*'. This means that older and less capable aircraft will not be able to fly the proposed STARs; the Sponsors will amend the RAD/SRD[16] accordingly. This is accepted given that the Sponsors have shown that 99% of EGGGW inbounds are RNAV1 capable. Their analysis and the data from Eurocontrol's PRISME (Pan European Repository of Information Supporting the Management of EATM) supports the assertion that approximately 1% EGGW arrivals will be RNAV5 only. This shows that specifying the STARS as RNAV1 is the correct approach.	
E.2	Does the change sponsor consultation material reflect the likely operational impact of the change?	NO
	As the Sponsors have proposed Option 1A, which has the same lower element as Option 1, as consulted, the operational impacts are minimised when compare to the 'do-nothing' option. By proposing Option 1A and not Option 2 (their preferred option as consulted) the operational changes are reduced below 7000ft, and will not alter the current operation below 4000ft, as the EGGW arrivals will be vectored from the new ZAGAO hold into EGGW, which is similar to today's operation (do nothing). The Operational changes, above 7000ft, have not altered the application of the design as a result of the Consultation. The Sponsors have moved and re-orientated the ZAGZO hold in their final ACP, to move away from St Neots and Huntingdon and to allow a less acute entry point for the STARs. This was in response to the feed-back received during the consultation and controller feed-back following simulations of the proposed design (post consultation). Consequentially, the Sponsors have reduced the amount of CAS required and increased the distance of the ZAGZO hold from the published LOREL hold by approx. 1nm. The proposed MUCTE outer hold has moved following the consultation as part of the re-aligned STARs post consultation and to ensure containment within the proposed reduced volume of CAS. The changes made to the upper elements, post consultation, include shortening some of the STARs as consulted, except the revised BARMI STAR, which the Sponsors state is between 0.9nm and 2.7nm longer, depending if the 'tactical shortcut' is used. The Sponsors have stated that they have 'reduced the disbenefit in fuel consumption and CO_2' output above 7000ft from Option 1 to Option 1A, while endeavouring to meet the intent of the SoN, which has resulted in a proposed option with the potential for EGGW inbounds to fly further than they do today. The overall operational impact has been reduced if compared to Option 1 as consulted, by responding to the consultation and proposing Option 1A. The Sponsors have shown that the amendments to the STARs and EGSS SIDs, proposed during Stage 5 (STARs and EGSS SIDs), would not lead to any additional adverse environmental impacts or a shift in lateral distribution that would warrant consultation. The CAA was provided with supplementary information, following clarification questions, that provided the required assurance. The STARs supplement explains the lengthening of the easterly STARs would have no measurable change based on the modelling of fuel/CO2 impacts which had	

[16] Route Availability Document/Standard Route Document

	already considered the likelihood of flying the complete procedure, the Sponsors stated the impacts would be '*de minimis*' (para 2.9 of the STARs Supplement). The EGSS SIDs supplements (final v1.4) provided evidence that confirmed that 19,543 flights flew the impacted SIDs in the summer of 2019. The CAA were satisfied that this evidence showed that proposed SID vertical restriction amendments would have no additional adverse environmental impacts.

PART F – Stage 5 Recommendations/Conditions/PIR Data Requirements		
F.1	Are there any Recommendations which the change sponsor **should try** to address either before or after implementation (if approved)? If yes, please list them below.	**YES**
	1) The Frequency for access to the new CAS should be publicised such that it is easily accessible to GA pilots. **2) The Sponsors should produce an AIC Sup to publicise the new volumes of CAS in order to inform other airspace users.**	
F.2	Are there any Condition(s) which the change sponsor **must fulfil** either before or after implementation (if approved)? If yes, please list them below.	**YES**
	1) All the draft Letters of Agreement (LoAs), shared with the CAA, must be finalised prior to implementation. **2) The training of the requisite staff to safely implement the changes must be completed.** **3) ATC Instructions which include the proposed ATC mitigation procedures, charts, etc must be submitted at least 30 working days prior to implementation of the change.** **4) Assurance that Human Performance monitoring on controller performance post implementation will be presented at Stage 7 (Post implementation review).**	
F.3	Are there any specific requirements in terms of the data to be collected by the change sponsor for the Post Implementation Review (if approved)? If yes, please list them below (key points, more detail in PIR Letter)	**YES**
	1) How often the new holds are used. **2) Evidence to show that the claimed increase of c.30% resilience (see Final Options Appraisal) is met.** **3) Dispersion of traffic from the ZAGZO hold to 4000ft.** **4) Fuel usage and CO2 output compared to the stated Option 1A figures.** **5) Airspace incursions/excursions.** **6) Amended EGSS SIDs data to confirm no discernible impacts.** ***7)* Human Performance Monitoring information on controller performance.**	

F.4	Has the change sponsor met the SARG airspace change proposal requirements and airspace regulatory requirements above?	YES
	Yes.	

PART G – Operational Assessment Summary and Recommendation

This ACP was submitted to address a specific latent risk related to the design of the current procedures used for arrivals into EGGW and EGSS. The current airspace design for EGGW and EGSS arrivals can result in the air traffic controllers, within the TC Essex sectors, having to operate at a higher-than-expected work-rate, that increases the risk of them being unable to manage the air traffic safely and efficiently, as described in the ACP, as they separate the aircraft that are arriving to either airport. This increase in risk can be mitigated through flow-control measures, however, this can result in penalising delays. By separating EGGW inbounds from EGSS inbounds using distinct arrival flows (STARs), the risk of controllers becoming over-loaded is reduced, resulting in the reduced likelihood of flow restriction measures being applied.

The geographical location of EGGW (most arrivals come from the south) coupled with the current construct of the airspace in the LTMA and the positions of adjacent airfields, constrains the location for a distinct hold for EGGW. It is acknowledged that there is a perception that a hold or 'stack' creates noise and is inefficient in terms of fuel burn. The CAA understands that a hold, as proposed in this ACP, is an accepted airspace procedure design used to reduce risk, as it affords the air traffic controller an effective method for holding/delaying aircraft during the occasions that they cannot arrive at an airport as planned. The CAA has also acknowledged that as result of the constraints (including current LTMA airspace and geographical location of EGGW) explained by the Sponsors and as a result of the consultation responses, stated in the ACP submission documents, that the Sponsors have had to propose an option which is likely to result in more aircraft flying further to arrive at EGGW than they do currently.

The CAA recognises that the Sponsors have responded to the consultation in certain areas that they believe were feasible, this includes the decision not to pursue the Option which included RNAV1 transitions which could have been used as a matter of course (what was Option 2). The RNAV1 transitions that have been proposed will only be used rarely, such as if an aircraft lost comms while in the ZAGZO hold. Had the Sponsors not taken account of the consultation responses, the RNAV1 transitions could have increased systemisation, however, this would have likely concentrated traffic below 7000ft where traffic is not currently concentrated and had a higher detrimental impact on carbon emissions than the option ultimately pursued.
This proposal will change the way current arrivals are managed into EGGW and as such the air traffic controllers will require training in order to implement the design safely and efficiently. The Sponsors have acknowledged the training burden, also taking account of the impacts of Covid-19 on staffing.

The CAA recognises that this change has been progressed during a global pandemic which has severely impacted aviation. However, it is acknowledged, based on up-to-date statistical evidence[17], that air travel is recovering and as such the Sponsor's assertion that an improvement to the airspace design is still required, is accepted. The CAA accepts that once the changes are implemented, the design will maintain a high standard of safety for aircraft arriving into EGGW and as a consequence EGSS, which will in turn reduce the likelihood of delays, as a result of reduced complexity in the sectors that currently manage the airports air traffic. Operationally, the proposal will meet the intent of the SoN as it will reduce controller work-load within the TC Essex Sectors regardless of traffic levels. The Sponsors have acknowledged that controller workloads are likely to increase in other adjacent sectors as a result of the proposed changes, however, they assert that these impacts are mitigated due to the existing flexibility within those sectors. The Sponsors also assert that the amendments to the STARs and EGSS SIDs, will not alter their claimed increase in controller resilience of c.30% (see clarification question).

The impact of CV-19 does not alter the fact that the current design causes complexity, resulting in the requirement for more controller intervention. The risk of being unable to maintain safety occurs when the controller is unable to provide critical intervention(s) due to conflicting priorities as a result of shared airport arrival procedures coupled with intensity, which can lead to flow restrictions being applied in order to mitigate risk.

The Sponsors responded to and took account of the consultation which resulted in RNAV1 transitions to EGGW not being proposed for everyday usage, which could have increased systemisation but also had higher impacts on carbon emissions than the option which the Sponsors ultimately pursued. However, the intent of the proposal is to reduce the latent risk within the TC Essex Sectors, and because of the proposed improved airspace design in the relevant sectors, the CAA accepts that the proposal maintains a high standard of safety, which outweighs the environmental and economic disbenefits as well as the perceived impacts of the hold location.

The Sponsors requested technical changes to the proposed easterly STARs during Stage 5, following a flyability simulation. This resulted in the STARs being amended and an impact assessment being uploaded to the CAA airspace change portal. However, the Sponsors have made it clear that they intend to vector aircraft into EGGW off the STARs (ACP para 6.2.12) and not to use the hold unless required during peak hours (possibly daily). The CAA therefore accepts that the amendments to the STARs during Stage 5 do not require re-consultation. The Sponsors have also provided assurance (clarifications and further simulator testing[18]) that the amendments are safely contained within the proposed CAS volumes and that their modelling method would show no increase in fuel/CO2 as a result of the technical amendments.

The Sponsors had not intended to alter any procedures at EGSS as part of this ACP; however, in order to safely re-classify airspace to the south east of EGSS, 8 SIDs have been submitted for amendment. The vertical restrictions of the SIDs will need to be raised in order to ensure airspace containment, there will be no changes to lateral distribution. The Sponsors provided 5 supplements (final v1.4) that finally evidenced that 19,543 flights, were used to consider the impacted SIDs in the summer of period of 2019. The CAA were satisfied that the evidence showed how and where aircraft have already

[17] CAA are privy to updated traffic forecasting from Eurocontrol.

[18] See minutes of meeting with NATS for simulator actions.

been flying the proposed SID vertical restrictions and therefore are satisfied that there will be no additional adverse environmental impacts as result of the proposed changes. The CAA, based on the evidence provided, agrees with the Sponsors.

The changes proposed, including the Stage 5 STAR and EGSS SIDs amendments, are recommended for approval as they address the latent risk described, by increasing controller resilience through the introduction of distinct RNAV1 arrival procedures above 7000ft for EGGW and reduce the likelihood of delays into both EGGW and EGSS.

Airspace Regulator (Technical)	[redacted]	[redacted]	19/11/21

Manager Airspace Regulation comments:

The Sponsors have set out their arguments and rationale for this Airspace Change Proposal (ACP) and how it is intended to meet their stated need for the reduction in Air Traffic Controller (ATC) workload within the TC (terminal control) Essex sectors within which they have identified as a "latent risk". The Sponsors' proposal seeks to develop options to "address safety issues identified", amongst other proposed changes, through new STARs (including a new dedicated hold) into Luton airport, thereby decoupling air traffic flows into Luton and Stansted airports.

The CAA have undertaken a robust analysis of the material provided by the Sponsors. I recommend that the CAA concludes that the aims and objectives (to maintain a high standard of safety by reducing complexity in the airspace and a reduction on controller workload) be endorsed and, subject to the terms of the regulatory and policy framework within which the CAA must take this decision, the CAA should consider approving this proposal.

In making my recommendation, I have considered the Sponsors' traffic forecasting (see below) and the impact of the COVID-19 pandemic on traffic levels in the area of the proposal and globally. I have also taken into account the ongoing uncertainty around forecasting future traffic levels. I am aware that forecasting cannot provide for a definitive value. Nevertheless, and noting this uncertainty, my view is however, that the latent risk, identified by the Sponsors needs to be addressed by an airspace design change, and should be resolved, subject to consideration of our other statutory duties, as set out in the Sponsors' proposal before traffic levels begin to rise again. Subject to consideration of our statutory duties, it is my recommendation that by decoupling the arrival traffic flows into Luton and Stansted, as proposed by the Sponsors, the latent risk of not maintaining safety associated with current ATC workload and complexity be addressed by approving this proposal.

I note that the Sponsors have stated that they anticipate forecast traffic levels should return to 2019 levels in 2022. Whilst forecasts may change, I note that the European Network Operations Plan dated 12 November 2021 suggested an increase in December 2021 to 81% of 2019 traffic levels across ECAC.

The Sponsors have conducted the ACP in a manner consistent with the process requirements laid out in the CAA's CAP 1616. CAA's Consultation regulators concluded that the Sponsors have provided a meaningful consultation. The amount of feedback indicated a good rate of responses. The Sponsors revised their proposal after considering the consultation feedback. Some stakeholders felt that the information was complex and difficult to understand. The Sponsors took steps to ensure that the consultation material was more readily understood. Once the impact of the proposed design on EGSS SIDs (see below) was identified further targeted engagement with aviation stakeholders was undertaken. I consider this was a proportionate requirement with which the Sponsors complied given the nature of the proposed changes and our determination that overall, there

would be no additional adverse environmental impacts as a consequence of this amendment.

The CAA Airspace Regulation team have undertaken a robust analysis of the information provided by the Sponsors. The Sponsors have been forthcoming with this information throughout the process on an iterative basis. Adherence to the process has been considered at each Gateway throughout the process, and the CAA's gateway decisions are published on the CAA's portal. In my view, the Sponsors have adhered to the CAP 1616 process which has been applied by the CAA in a proportionate manner.

In my view, the impact of the proposal will be to reduce complexity in the airspace and reduce ATC workload. This in turn will help to mitigate against the latent safety risk commensurate with current controller workload. In coming to my recommendation, I have relied on the assessment of the Sponsors and on the CAA's assessment set out in Safety Review Summary Letter of Acceptance.

I note that maintaining a high standard of safety is the CAA's primary duty and is to have priority over the application of all our other statutory duties in s.70 Transport Act 2000.

Nonetheless, I have considered the impact of our other statutory duties on the proposed change to airspace design.

In coming to my overall recommendation, I have taken into account the identified anticipated negative impact on carbon emissions.
The Sponsors have identified that overall, there could be a net-disbenefit to CO_2 output and fuel usage compared with the baseline do nothing scenario. The Sponsors have been clear that the purpose of the proposal is to address a "latent risk within the sector" and "to look at options to address the safety issues identified". Options for development to maintain a high standard of safety without such a negative impact on CO_2 emissions could not be identified by the Sponsors due to the constraints of the current wider LTMA airspace design. In particular, these limitations, constrained the Sponsors in the placement of the arrival routes necessary to achieve the aimed for separation between the two airports' arrival flows. The geographical location of EGGW coupled with the location of other major UK airports has resulted in the sponsors proposing that aircraft inbound to EGGW fly further north in order to be safely deconflicted from other adjacent airports and their extant procedures. I acknowledge the airspace design constraints. I note the anticipated benefit in terms of reduced complexity as a result of increased systemisation within the TC Essex sectors.

I note that for the reasons set out in the CAA's SAIP AD6 Environmental Assessment, it is anticipated there will be no additional adverse impact (as that is described in that document) on the noise experienced, as a consequence, of the change proposed.

Turning to the CAA's duty to satisfy the requirements of operators and owners of all classes of aircraft, I highlight that the Sponsors have shown through their analysis that it is anticipated that there will be a 30% increase in resilience overall within TC Essex Sectors as a result of the proposed airspace design leading to less likelihood of delays. However, part of the design introduces a new hold for EGGW arrivals. If implemented I note this will result in an increase in controlled airspace within this area. The Sponsors proposal sets out that this increase in controlled airspace is "mitigated by an 88nmsq reduction in the area of controlled airspace below 4000ft". In my view, all these factors including the release of this portion of controlled airspace and the proposed classification of the new areas of CAS as Class C is relevant to the CAA's application of our duty "to satisfy the requirements of operators and owners of all classes of aircraft"

During the CAA's assessment of the Sponsor's proposal, it was identified that part of the proposal (the removal of some controlled airspace in the vicinity of EGSS), could result in some aircraft utilising some of the published SIDs from EGSS being no longer contained within controlled airspace which does not align with the CAA's published Controlled Airspace Containment policy. For this reason, the scope of the proposal was revised to

include an amendment to the vertical profile of eight EGSS SIDs. I noted that 94.4 – 100% of traffic utilising the impacted SIDs during the summer period of 2019 were within the proposed profile of the revised new SIDs. In my view, this revision to the proposal is in accordance with our duties to take account of the interests of other persons.

In coming to my conclusions prior to making my recommendation I have considered all the material provided by the Sponsors and the analysis of the CAA Airspace Regulation team attached to this recommendation set out in:

SAIP AD6 Consultation Assessment;

SAIP AD6 Final Options Appraisal Assessment;

SAIP AD6 Environmental Assessment;

SAIP AD6 Operational Assessment; and

SAIP AD6 Safety Review Summary Letter of Acceptance.

It is my recommendation that for the reasons above, including the impact on our duty to maintain a high standard of safety which is our primary statutory duty, the CAA approves this proposal in the form proposed by the Sponsors.

Manager Airspace Regulation	[redacted]	[redacted]	22/11/2021

Head AAA comments:

I endorse the comments and rationale supporting the recommendation of the Manager Airspace Regulation to accept this proposal. I accept that recommendation and approve this proposal. I am satisfied that this ACP has been properly assessed and that this assessment has been carried out in accordance with CAA's statutory duties.

I recognise that this ACP has been shaped by consultation and I have decided that the final design, which I have today approved reflects this. In due course, the Sponsors will need to assess, through the Post Implementation Review (PIR) part of the process, that the ACP operates as planned.

Head AAA	[redacted]	[redacted]	23/11/2021