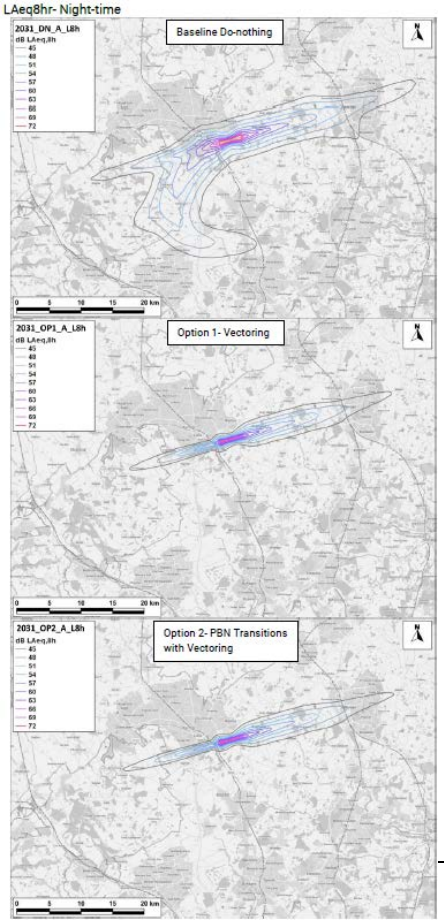
#	Submission Document Name, Page/Para	Question/Issue	Tech/ Conslt/ Env/Econ/ ATM/IFP/ General	Date of response	Response – State if and where a submitted document will be changed.
1	Consultation Response Document, 8/4.2, 4.3, 4.4 FOA 22/6 Airspace Change Proposal 18/Table 3 18/6.2.19, 28/9 Table row e, 18/6.2.13	These paragraphs reference returning to pre-pandemic traffic levels, the recovery period and assumptions for stabilisation and recovery. The assertion that traffic will return to pre-pandemic levels appears to be based on analysis completed last year. Why are these traffic level assumptions still valid, given that they were made in Sep 2020? (Full/Final Options Appraisals state 70,740 LLA Arrivals for example). What analysis has been done since Sep 2020 to support the assertions of a recovery to the point of requiring this change to be implemented in Feb 22? See CAP1616a (Para 1.11) The Final Options appraisal still has the same line from the IOA in 2019 'This is the current situation and is managed safely but is not sustainable in the medium term hence the initiation of this airspace change proposal and the reason why this option was discounted' This references do nothing; what is the medium term now? The assertion that the analysis remains valid references the Full Options Appraisal which was completed in Sep 20; please provide us with your most up-to-date analysis. See CAP1616a (Para 1.11) 'Should air traffic recover from the effects of the coronavirus pandemic more slowly, then these numbers per day and per hour would be lower and the impacts would be lesser.' Please confirm you mean noise, fuel burn, etc impacts? Is there a quantifiable figure, based on the peak per hour figure of 24, of when the ZAGZO hold might be used? Or will the hold be used purely at the controllers discretion?	Gen	27/08/2021	<u>Traffic level forecasts</u> We acknowledged the likely temporary impacts of the Covid-19 coronavirus on aviation, and that there would be a stabilisation and recovery period. As stated in the Stage 3 Full Options Appraisal document (p.28 paras 6.4, 6.5 and 6.7) this proposal **must** be consistent with London Luton Airport Ltd (LLAL)'s forecasts used for their DCO. (Reminder: LLAL is the airport owner, and is a separate business organisation from NATS' co-sponsors of this ACP, London Luton Airport Operations Ltd LLAOL, who operate the airport). At the time of writing the ACP (and this clarification document), LLAL's DCO traffic forecasts remain unchanged. Therefore there is no more up-to-date forecast than that stated in the submitted material. However, the **peak** use of shared airspace for arrivals is relevant, from an airspace infrastructure point of view. <u>August 2021 Up-To-Date Analysis: Arrival peaks</u> 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%. On Friday 13th August 2021 from 2000-2059UTC, LLA landed **15** flights (**only 3 fewer** than their busiest period on the same day in 2019). On Friday 13th August 2021 from 2205-2305UTC, Stansted landed **27** flights (**only 1 fewer** than their busiest period on the same day in 2019). As per 4A(iii) Final Options Appraisal p.11, when LLA is predicted to reach **16** arrival flights per hour (known as the Monitor Value, or MV), or when Stansted is predicted to reach an MV of **28** arrival flights per hour, flow restrictions are considered, and – separately – are considered should the combined total reach an MV of 40 per hour (upstream). These two peaks happened to be offset by about an hour, however the peak hours could have overlapped. The upstream ATC Sector could have experienced up to 42 arrivals per hour, above the upstream MV of 40. From 01-23 August 2021, LLA had 13 or more arrivals in one hour on 21 days (and twice on Friday 13th). 13 arrivals is only 3 below LLA's MV of 16. From 01-23 August 2021, Stansted had 25 or more arrivals in one hour 3 times. 25 arrivals is only 3 below Stansted's MV of 28. On those 3 days, LLA also had 13+ arrivals per hour at least once, fortunately these peak hours did not quite coincide with Stansted's peak hours. Thus, it is clear that both airports have hourly peaks approaching their MVs even with the reduced overall traffic levels, especially LLA which is almost daily in August. Those peaks could coincide, meeting or exceeding the upstream MV. In all three cases, this could trigger a flow restriction even with reduced overall traffic levels. As already noted in the ACP, it is not possible to consider the LLA and Stansted MVs in parallel because the shared arrival airspace prevents it – they must always be added together in order to calculate the true impact on the air traffic control sectors. Only by separating the arrival airspace can the two arrival flows be considered in parallel, reducing the likelihood of triggering flow restrictions. Finally in this section, in general, traffic peaks cannot be simply and directly controlled or smoothed out by either airport, or NATS. They can, however, be identified with enough notice to apply flow restrictions if the air traffic control supervisor deems it necessary by studying predicted hourly rates and MVs.

					Phrases such as **short term, medium term and longer term** in the various materials are broadly qualitative to illustrate relative timescales and we acknowledge that there is some inconsistency between documents, or occasionally within the same document. We contend that the broad context for each individual use is not confusing and that there is no need to update documents as the same phrases have been used in similar ways in previous stages. We contend that the overall timeline for this proposal, and the generalised descriptions of the timeline for FASI-S, are sufficiently clear. **Recovery** 'Should air traffic recover from the effects of the coronavirus pandemic more slowly, then these numbers per day and per hour would be lower and the impacts would be lesser.' The primary impacts would be noise and fuel burn but would apply to all impacts and benefits, should this scenario manifest. For the avoidance of doubt, the proposed hold ZAGZO may be used daily and some holding may be expected during peak hours. We do not expect the hold to be 'full' at all altitudes from c.9,000ft-14,000ft unless there is an unusual event. The outer holds would be used rarely. We cannot, however, put a more accurate description of how often, when, and in which holds holding may occur. **In summary** The CAA's own guidance highlights the uncertainty in traffic forecasting: *Forecasting is not an exact science and no one pretends that the future will turn out exactly as predicted. There are many factors outside the control of the change sponsor and it would not be reasonable to hold the change sponsor to account for deviating from forecasts* (extract from CAP1616A p.5 para 1.8.) *There are considerable uncertainties in forecasting growth in air traffic. Traffic forecasts will be affected by consumer demand, industry confidence and a range of social, technological and environmental considerations.* (extract from CAP1616A p.6 para 1.11.) We contend that this proposal's forecasts must align with data already made available to us as part of LLAL's DCO (consistent with CAP1616A p.6 para 1.10) and the fact that LLAL has not changed its forecast, there is no more up-to-date forecast to provide, and no change to the document is possible given this alignment. We contend that analysis of August 2021's arrivals is robust evidence that both LLA and Stansted's individual peak arrival hours **almost reached their respective MVs, even while operating at 35-50% overall traffic levels.** Therefore the progression of this ACP remains justified to handle the peak periods, even if overall traffic levels are below those stated in the forecasts.
2	Airspace Change Proposal 5/3.6 Airspace Change Proposal 12/4.3.6, 4.3.8, 4.3.9	You state; '…the intensity of air traffic control workload may become unsustainable for air traffic controllers in the longer term.' This appears to contradict the statement above; please confirm the analysis used to determine when you predict intensity will impact controller workload. These paragraphs, use phrases such as, '…predicted to become too intense…' '…air traffic control workload may become unsustainable for air traffic controllers in the longer term…' Are there new forecasts that back up these statements?	Gen/Tech	27/08/2021	See above (answers to Q1)
3	Consultation Response Document, 8/4.7	What makes these responses 'common to airspace change consultations'?	Conslt	18/08/2021	Experience with low-altitude airspace change consultations means that many response types can be predicted. For example, pre CAP1616, under CAP725, see Farnborough, LAMP1 and TC North which also provided comparable responses. These response types are also predicted for future Level 1 (low-altitude) airspace change consultations. A change to the document is not considered necessary.
4	Consultation Response Document, 10/6.7	You state that you cannot interrupt the flows to the west of the boundary in the diagram; however, you have requested DTY CTA25 which sits in this flow; why is this CTA viable?	Tech/Gen/Conslt	18/08/2021	DTY CTA25 lies beneath that northwestbound flow, not within it, allowing a new LLA arrival flow to cross perpendicular beneath the main flow (which is FL110+) while the LLA flow descends from FL100-FL90. A change to the document is not considered necessary.
5	Consultation Response Document, 11/6.8.2	Where does it state that you are required to minimise the amount of CAS and 'where possible, use existing CAS Boundaries'?	Tech/Gen	18/08/2021	There is not an explicit requirement-statement in the guidance regarding CAS, however this sentence refers to the general convention for all airspace change proposals that they should minimise impacts where possible, while being transparent.

					Minimising increases in CAS, and reusing existing CAS boundaries where possible, is the convention for minimising impacts on other airspace users, and for this proposal was considered as a relevant project requirement. A change to the document is not considered necessary because the intent to minimise impacts is clear, however we acknowledge there is not a CAP-based requirement.
6	Consultation Response Document, 14/6.11	What is a 'typical holding pattern size'? Could the size change? There was a TAG on changing the size of the hold in the consultation feed-back (1.18)	Tech/Gen/Consult	18/08/2021	A typical holding pattern is based on the shape overflown by an aircraft in 4 minutes, starting at the hold location, turning 180° in 1min (right, in this case), flying straight for 1min, turning 180° (right) in 1min back towards the hold location, then 1min straight to the hold location, repeating until the controller brings the aircraft out of the hold towards the runway. This is the standard definition of racetrack-type terminal holds, and is the minimum size for this proposal, with other holding types (such as linear holds) excluded at Stage 2. For technical reasons, the holding location is fixed, and the pattern size varies slightly with altitude due to how aircraft speeds are measured relative to the air and to the ground. At the lowest typically-available FL90 (c.9,000ft), and using appropriate aircraft airspeed, the holding pattern would be c.8.5nm (15.6km) long and 4.2nm (7.7km) wide. We would not redefine the hold size to be non-standard. This size minimises CAS requirements and ensures pilots are not expected to carry out non-standard holding manoeuvres. Also, aircraft may be instructed to leave the hold from any point on, or near, the racetrack. Thus, while the racetrack pattern would be generally flown when the hold is in use, aircraft could be present anywhere in the vicinity of the racetrack (inside or out), at the altitudes illustrated in Step 4B ACP Fig5 (lower) on p.16, which is consistent with the FL90 dimensions above. A change to the document is not considered necessary, as it is reasonable for us to expect the reader to understand that the illustrations are typical holding patterns.
7	Consultation Response Document, 19/6.27, 23/6.40	What is a holding patterns 'lowest holding standard altitude'? What will the AIP charts describe?	Tech/Gen	18/08/2021	Using the standard vertical reference of Flight Levels, this hold would be technically defined in the AIP as FL80-FL140. However, in the air traffic controller's instruction manual known as MATS2, FL90 would be written as the standard lowest level available under normal circumstances. The use of FL80 would be reserved for unusual circumstances, and those scenarios cannot be specified in order to provide maximum flexibility as described in the Consultation Response Document 4A(i) para 6.24.2 page 18. Fig13 on that page describes the predicted altitudes of aircraft. A change to the document is not considered necessary, as it is reasonable for us to expect the reader to understand that aircraft in the northern region of Fig13 are likely to be 1,000ft higher than originally consulted, but that this cannot be absolutely guaranteed all the time, with para 6.24.2 explicitly highlighting the caveat.
8	Consultation Response Document, 20/6.29.8	What does, 'they could not be kept higher than as consulted upon' mean?	Gen	18/08/2021	Para 6.29 and Fig14 describe the opportunity to keep aircraft higher. This opportunity can only apply to the east-to-west arrival flow in Fig14, which does not include the arrival flows from the south, west and northwest because those arrival flows are altitude-constrained by other flows. This is the intent of that text in para 6.29.8; "they could not be kept higher than as consulted upon" means that the other consulted-upon flows could not be raised due to these constraints. A change to the document is not considered necessary, as para 6.29.9 explains that the east-to-west flow is the only flow where this opportunity exists.
9	Consultation Response Document, 22/6.40	What is a 'main arrival route'? How often will this route be used?	Tech/ATM	18/08/2021	The context of this sentence is linked to the previous query above. The sentence's wider context, "adjusting one of the main arrival routes", singles out one of the generic arrival flows illustrated in all the various consultation materials and feedback documents, arriving at the proposed new hold. Its intent was to explain, as per the previous query, that only one of the consulted-upon arrival flows could be raised. To answer the second part of the query, para 8.8.1 and 8.8.2 and Fig17 (p.30-31) describe that the combined arrivals from the east would expect to be used by c.52% of all LLA arrivals. A change to the document is not considered necessary.

10	20200806 ACP2018-65 SAIP AD6 Consultation Document page 102/Annex F-3	Confirm that options 1 and options 2 LAeq,8h contour figures on page 102 includes departures? The contours appear to only show arrivals, whereas the D-N Baseline includes arrivals and departures.	Env/Consul	27/08/2021

LAeq8hr- Night-time



Despite multiple reviews by NATS, LLA and approval to publish by the CAA, two incomplete arrival-only contour maps were placed in the document and were not identified prior to publication. We apologise for this.

Mitigating circumstances are:

1. Two images on page F-3 were incomplete. All the associated tables of data on page F-4, and the raw data used for WebTAG and Full/Final Options Appraisals, were correct.
   We contend that this reduces the impact of this error to pictorial-only.

2. The images used are correct for arrivals, for both Options, but do not include departures as is usual for LA_{eq8hr} contours. This means it was not easy to compare the baseline do-nothing contours with Option 1 or Option 2. However it was straightforward for stakeholders to compare the two arrival Options with each other.
   We contend that this reduces the impact of this error, because this consultation is specifically about LLA arrivals, and also specifically asked consultees to state a preference for either Option 1 or Option 2, with the baseline do-nothing scenario not a viable option.

3. The correct raw data files (in KMZ file-type) were published in the Virtual Exhibition (link). Therefore, anyone wishing to closely examine this data could download the files into a GIS application such as Google Earth, and view the correct contours at all levels of detail.
   We contend that this further reduces the impact of this error because those who wish to study the contours in greater detail have access to correct data.

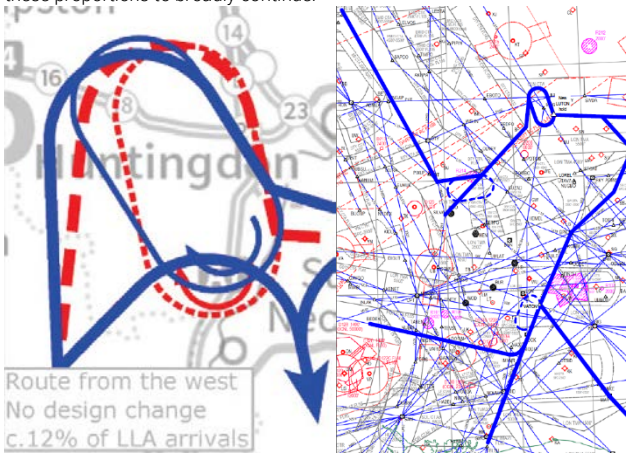
4. No consultation feedback was received regarding this error. If it had, we would have contacted the CAA, and would also expect to replace the consultation document with a new issue highlighting any differences.

The consultation closed in February 2021. Feedback analysis documents have been written and published. The ACP has been submitted for Option 1A (same noise data as Option 1) and is currently under CAA study. Therefore there would be no benefit in replacing the consultation document with a corrected version. We contend that this error did not affect the outcome of the consultation, the decisions made, nor the ACP itself.

11	Options Appraisals and Air Space Change Proposal 12/4.3.6	You state that capacity can be increased my removing the EGGW MV from the EGSS MV and creating a new 'up-stream' MV, and that you have to currently apply temporary limits (flow restrictions) during high workload periods. How many times in 2019/2018 was flow control applied to the TC sectors controlling EGGW and EGSS inbounds through the TMA? How many MORs were submitted by air traffic controllers, who work these sectors, since 2018 that reference complexity and workload?	Gen/Tech	27/08/2021	**How many times in 2019/2018 was flow control applied to the TC sectors controlling EGGW and EGSS inbounds through the TMA?** See also our answer to Q1. For the purpose of this ACP (see Full Consultation Document p.7 para 2.10): *During periods when the workload of air traffic controllers is predicted to become too intense, safety dictates that temporary limits (flow restrictions) are applied to the numbers of aircraft that a controller can manage before sage limits are exceeded.* The controller manages a defined volume of airspace known as an airspace 'Sector', and the airspace of the entire country consists of multiple Sectors. The geographically smaller Sectors are usually dedicated to solving complex interactions such as arrivals and departures for major airports, or more than one airport. Luton and Stansted arrivals are predominantly controlled by combinations of the following airspace Sectors: TC ESSEX, TC SABER, TC JACKO, Combined TC SABER/JACKO, and Combined TC JACKO/IDESI. In **2018** there were **174** flow control capacity regulations applied to these sectors. On 05/12/2018, a combination of technology updates (known as EXCDS), updated staffing allocations and moderation of traffic flows caused by flight restrictions (regulation) in Europe reduced that number to **64** in the calendar year **2019**. The current TC ESSEX MV of 40 was considered the maximum possible, given the combined arrival flows (as illustrated the Capacity and Resilience section of the Full Consultation Document in Annex I, and in Document 4A(iii) Final Options Appraisal pages 11 and 16). It remains less than the sum of Luton (16) and Stansted (28), which must be treated as a combined potential maximum flow of 44 (greater than the upstream 40) because they cannot be separated without an airspace change. To be clear, 64 regulations per year is a large number caused by one set of flows, and is part of the reason for progressing this ACP. For additional data on August 2021 peak hours, see Row 1. **How many MORs were submitted by air traffic controllers, who work these sectors, since 2018 that reference complexity and workload?** Answered directly to the CAA due to legitimate protection of commercial interests via safety management methodology, and not for FOIA disclosure.

12	Consultation Response Document, 26/7.7-7.13 3D Collate and Review Responses 25/Pie chart, 29/Pie Chart.	You State: 'from the step 3D report, Option 1 was clearly preferred. Comments indicated a greater perceived fairness of shared impacts via vectoring dispersal, similar to LLA's pre-pandemic arrival operation at lower altitudes, rather than Option 2's daily use of PBN routes with some vectoring.' In the Step 3D document 29.7% (257/865) of people in the 8000ft below preferred option 1 (Pie Chart p29, 3D Collate and Review Responses, Q5). If you add the total number of people for both above and below 8000ft areas (total 1903 people), of those who expressed a preference between Option 1 and 2 (Q5) it is 15.7% who actually preferred Option 1 (300 out of 1903). 7.9% (150 out of 1903) preferred Option 2. A total of 1453 out of 1903 people either did not know which option they preferred or had no preference, this is 76%. Given these statistics to a direct 'do you prefer question', what is you rational for stating Option 1A was clearly preferred? How do you justify Progressing Option 1A based on the Consultation when Option 2 was your preferred option and aligned, to a greater extent, with the AMS? Was there any consideration for any other options regarding PBN transition use?	Conslt/Gen	18/08/2021	**Re Option 1 preference:** Of the two pie charts referenced in this query, the greatest number of responses were 'No Preference' or 'Don't Know'. In some comments received, these were stated to be proxies for 'neither option' or 'do nothing', which were not options (see 3D document p.25 paras 10.2.1-10.2.2). By definition, we could not study those responses who had no preference or who did not know what answer to provide. Our rationale is that we studied those who did state a preference, of which the total pool was 450 as per the CAA interpretation of the statistics. The proportions of those within that pool of 450 indicated the clear Option 1 preference. Of those who stated a preference, twice as many preferred Option 1 over Option 2. At & Above 8,000ft / Below 8,000ft / Total (%) Option 1 — 43 — 257 — 300 (66.7%) Option 2 — 45 — 105 — 150 (33.3%) Total — 88 — 362 — 450 (100%) We inferred that those in the region 'At & Above 8,000ft' understood that there would be no difference between Options in their upper region, with the greatest number of responses 'Below 8,000ft' where those Option differences would manifest in their lower region. Additionally, we combined this interpretation with the interpretation of Figure 17 on p.27 (Option 2 Negative comments), Figure 26 on p.30 and Figure 28 on p.31 (Option 1 Positive comments). 3D document paras 10.7.5-10.7.8 (p.33) provides a full explanation of our interpretations, and Option 1 became Option 1A as detailed in the 4A(i) Consultation Response document. **Re progressing our non-preferred Option 1:** Both options were viable. We are required by the process to identify a preferred option, but the actual final design was informed by how we interpreted, and actioned, the consultation feedback (see above). Paraphrasing the full consultation document para 2.41 on p.11, this proposal was not driven by the AMS, unlike the separate FASI-S proposals in progress by all LTMA airports. Our justification remains as per the third-from-last paragraph on p.26 of the 4A(i) Consultation Response document: *Option 1 was not our preferred option, and is less aligned with the Government's Airspace Modernisation Strategy AMS (Ref 14). However we acknowledge that Option 1 is a viable solution to the latent issue identified as the root cause of this airspace change proposal.* On balance, the final proposal progressed Option 1A in accordance with the process.. **Re PBN transitions** Option 1(developed into Option 1A) means that vectoring would be the primary delivery method for aircraft from the holding region to the runway (except under rare emergency circumstances, para 7.17 p.29 of 4A(i)). This decision was explained in 4A(i) para 7.13 on p.26 and subsequent paras/pages, meaning that there was no further consideration of PBN route design. No change to the document is considered necessary – we stand by our interpretation of the consultation feedback, and our progression of Option 1 Vectoring even though it was not the preferred option.

13	Consultation Response Document, 26/7.7-7.13 32/9.8 Airspace Change Proposal 24/7.4.6, 7.5	You state; 'ATC complexity of the region would be significantly reduced', yet in para 7.6 of the FOA, Option 1A only increases resilience by c.30%. You say that radio exchanges are an indicator or resilience, in that resilience increases if radio exchanges can be reduced (FOA page 12). The SoN states: '…the complexity, (number of interactions within the sector) has also significantly increased. How is complexity significantly reduced if resilience is only increased by c.30%? You state that, 'Part of the reason Option 2 did not progress was several responses from the local gliding community…' P 15, was the lowest priority DP. You also state, 'Their contribution combined with other factors, led us to not progress Option 2…' However, 5 out of 7 Operators and the British airline Pilots Association 'expressed a preference for Option 2'; can you provide your reasoning for the weight attached to the response from the gliding community, compared to the weight attached to the Operators, et al?	Tech/Conslt	27/08/2021	<u>Resilience</u> We strongly disagree that a remarkable 30% improvement in resilience, via reduced airspace complexity, should be diminished with the word 'only'. As noted in the Full Consultation Document Annex B page B-2: *There are many elements to resilience, including capacity, delay, staffing, the nature of the disruption, and airspace complexity. These factors are so interlinked that a metric for the concept of resilience cannot be provided – it is not proportional to perform a quantitative assessment, nor to monetise it, and there are no market prices for air traffic control resilience. However, the ability of a controller to react to, and manage the impacts of, a disruptive event is an indicator of resilience. This is proportional to the balance of a controller's 'thinking time' vs. 'doing time', with that balance proportional to the number of radio transmissions the controller makes, per flight.* Of that list of elements in the first sentence, airspace complexity via infrastructure redesign is the item that this ACP is aiming to directly resolve. It is clear in the narrative on Resilience that radio exchanges are a broad indication to illuminate how each Option could be compared with the baseline – they are not a defined metric. For the avoidance of doubt, a 30% increase in resilience via a 30% reduction in radio exchanges (caused by reduced airspace complexity) is considered a remarkable achievement. <u>Aviation stakeholders and Option 1 vs Option 2</u> It is reasonable to state that part of the reason Option 2 did not progress was due to one or more stakeholder responses, especially given that we stated their contribution was combined with other factors – the same could be said of many stakeholder responses. In this case we simply wished to highlight the most local GA group, as GA-type responses were far outnumbered by non-GA types of responses. Highlighting and weighting should not be conflated; all responses were taken into account. In response to the statement '5 out of 7 operators expressed a preference for Option 2', it is also true that 5 out of 7 operators agreed that either Option would be an acceptable solution. All responses were taken into account for the decision to progress a version of Option 1.
14	Consultation Response Document, 29/7.19.1 Airspace Change Proposal 18/6.2.17	In a commercially sensitive document, that you have shared with us, you state that the Radar Manoeuvring Area (RMA) for RWY 25 changed following a simulator validation, but was still with the consulted area; you state here that 'there are no changes to the vectoring are design below 8,000ft'; confirm that the RMA is still within the black-line swathe displayed for RWY 25 in the ACP submission (p19). '…the greatest concentration is still expected to be between the black lines as per the consultation…'	Tech/Gen	27/08/2021	Confirmed. RMAs are defined to provide safe regions within which controllers may control aircraft exclusively for one airport. Technical changes to the RMAs for this proposal did not impact the consulted-on operational diagrams, consisting of the coloured polygons and the black-line swathes within which the greatest concentration of traffic would be expected to fly.

15	Consultation Response Document, 30/8.8, 31/Figure 17	There are %'s used to describe how often STAR segments will be flown. This figure has %'s for use by EGGW arrivals; where have these %'s come from? Will 12% come from the South West?	Gen	18/08/21	The proposed STARs start at the same location as existing STARs. The proportions are based on pre-pandemic typical STAR usage for LLA arrivals and were originally provided in Step 2B Initial Options Appraisal Technical Appendix (link, see Slide 51 lower left). They reflect the typical pre-pandemic, arrival routes to LLA and we expect these proportions to broadly continue.  Figure 17 contains a label "Route from the west, no design change, c.12% of arrivals" (screenshot extract above left). This "route from the west" includes arrivals from the northwest, and some from the west. Other arrivals from the west and southwest would use the route D-F on Figure 17. The main design map, Document 4A(ii) Final Design, gives greater details of the STARs (see page 3 of that document (link), screenshot extract above right). No change to the document is considered necessary.
16	Consultation Response Document, 33/ 9.15.1	9.15.1 – What does 'semi-regularly' mean?	Gen	27/08/2021	9.15.1 'Semi-regularly' means 'somewhat regularly'. In this context, the National Flying Laboratory Cranfield uses the airspace in question above FL75 during University term-time based on their engineering course schedule and the vagaries of weather. Therefore there are elements of regularity and elements of randomness. The phrase is appropriate for this context. No changes to the document are considered necessary.
17	Consultation Response Document, 36/11.1 Airspace Change Proposal 26/7.8	Please be clear, that the Option, 1A has a -£10,864,000 (NPV 10 Year without DCO) disbenefit. Although useful to see, the difference between one of the consulted options (1) and the proposal (1A) does not make it clear to the reader that the proposal still has a monetary NPV disbenefit. This paragraph states c.£10.9m negative NPV. It is a significant figure and arguably difficult to find. You again draw the readers attention to the difference between Option 1 and Option 1A; however, the negative NPV is the critical figure. Even, with this overall, negative NPV vs the baseline, why is Option 1A still the best solution?	Econ	27/08/2021	This proposal's purpose was to resolve a latent safety issue. We did this by consulting on two Options, neither of which was the baseline do-nothing. Both viable Options were shown to cause a monetary NPV disbenefit. The progression of a modified version of Option 1 (i.e. Option 1A) was described, and the NPV disbenefit of Option 1A was compared with that of Option 1 in order to demonstrate that the disbenefit would be reduced. 4A(iii) Final Options Appraisal p.19 para 5.2 is clear that negative numbers indicate a cost or disbenefit. Para 5.4 clearly states that Option 1A would provide a significantly reduced disbenefit compared with consulted Option 1, therefore Option 1A is the best solution. We contend that it is clear there would be an NPV disbenefit. There does not appear to be a requirement for ACPs to provide a positive NPV benefit. We contend that the important point is the comparison – we have compared the consulted design with the final design and have supplied appropriate cost-benefit data and drawn appropriate conclusions from those data. No changes to the document are considered necessary.
18	Airspace Change Proposal 22/Table 6, 25/Table 7, 7.7.6, 7.7.5.	You have put the Fuel and CO2 net disbenefits in 't' not '£'; this would arguably be clearer by adding monetised values. The Figure you have used in £ for the overall noise benefit is not the same figure as in the FOA?	Econ/Gen	27/08/2021	p.22 Table 6 Para 7.1 Net Impacts Summary We disagree that the table would be clearer if monetised values were added. Consultation feedback on fuel/CO_2 disbenefit was always about the quantity itself and never about the monetised value.

		The reduction in delay figure is stated in minutes as c.10,200mins, but is also monetised in the FOA; please provide clarity.			Noise benefits in the summary table were rounded to the nearest thousand, from the WebTAG numbers: £471,306 rounded to £471,000 (no DCO) and £572,196 rounded to £572,000 (with DCO). Delay in minutes, and also monetised: Both are correct, with delay reduction c.10,200 minutes increasing to c.11,200 minutes after ten years, linearly interpolated for the cost-benefit analysis. As stated in 4A(iii) Full Options Appraisal 'Economic impact from increased effective capacity', NATS monetises airline delay costs at £3.68 per minute. No changes to the document are considered necessary.
19	Consultation Response Document, 34/9.18 Airspace Change Proposal 28/9 row i	You state that, ' 9.18.1. Most responses to the consultation stated they had no preference on the airspace classification in the upper region' – Was there a preference? See above where most responses did not have a preference for Option 1 or 2 for example. You state the classification, but there is no clear justification, you reference para 6.2 on p14, but there is no clear justification as to why Class C. The reference to the Consultation response Doc (para 9.18-9.19) offers come explanation, in that most response had no preference; however, Class C was actually the least favoured classification? Please provide further justification for choosing Class C airspace?	Conslt/Tech	27/08/2021	Airspace classification questions were aviation-technical, clearly targeting aviation experts. 3D Collate and Review Responses p.41 para 12.2 and 12.4 describe our inference that many responses to this question were not from aviation specialists and used the technical questions to provide additional negative feedback. We contend it is reasonable for us to give greater weight to responses identified as aviation experts. The MoD's letter of response stated that Class A would not be suitable for one operation, but Class C could be. Stansted Airport preferred Class C, with Cambridge preferring Class E. The National Flying Laboratory Cranfield also preferred Class E, but wrote in the text box beneath that Class C could be acceptable via LoA. 5 of 7 aircraft operators preferred Class A, however consultation is not a referendum. We contend that we have justified Class C by balancing the benefits and impacts with the mixed feedback preferences from aviation experts (see 4A(i) Consultation Response Document p.34 para 9.18.2). Our choice of the 'least favoured' considers both Aircraft Operator feedback and access for GA. Paras 9.18.3, 4 and 5 describe that Class A would be excessively restrictive on GA, Class D not restrictive enough, with Class C the best balance. . There would be no significant impacts on non-aviation stakeholders regardless of the resulting classification.
20	Airspace Change Proposal 29/10 last para	You refer to a 'dedicated delay absorption area'; you also use the term 'hold' and 'stack' throughout the documents.	Gen	18/08/2021	This text is common to all three Stage 2 documents, during the design options develop/assess stage. 'Delay absorption' was used as an umbrella term, including the classic racetrack hold, linear hold (point-merge), technology-driven concept and tactical-vectoring concept. It was repeated unchanged, for consistency. No change to the document is considered necessary.
21	Consultation Document 11/2.43 Airspace Change Proposal 6/3.15	In the Consultation document you stated that '….should a version of Option 1 progress, another significant change to low altitude arrival flight paths is more likely to be required in the medium to longer term. That second change would progress under LLA's separate FASI-S proposal, because Option 1 only partially aligns with the AMS.' There is no clear explanation of the impact of Option 1A with regard to the statement above; please provide an explanation.	Gen	27/08/2021	Option 1A is clearly a version of Option 1 therefore para 2.43 of the Full Consultation Document applies exactly as written. However, a note will be added to the PES Summary document. No change to the other documents is considered necessary.
22		CAP2091 Noise Modelling Category Page C-3 of the consultation document says "modelling has also taken into account the categories of noise modelling described in the CAA's 2020 consultation on the minimum requirements". This statement relates to CAP1875: Consultation on CAA Minimum Requirements for Noise Modelling. Noting that CAP2091 (the minimum modelling requirements) does not apply to this ACP, for clarity purposes please can you confirm the CAP1875/2091 noise modelling category? If category B or above, please confirm the method for modification of ICAO datasets with local noise monitor data.	Env	26 Jul 21 Previously Answered	The approach taken to all modelling for AD6 has been to utilise datasets and approaches which satisfy the requirements of Category A as presented in Table 2.1 of CAP2091. This is evidenced in the attached Annex A which is provided in confidence. Based on the results of the noise modelling, the worst case population exposure for day and night-time LOAELs in the forecast years in 2021 onwards were approximately 70,000 and 86,000 respectively. With reference to the noise modelling categories presented in Tables 4.1 and 4.2 of CAP2091 this level of population exposure relates to Category C for daytime noise and Category C for night-time noise. As such, modelling has been carried out to a standard higher than required under CAP2091.

23		CAP1616a Modelling requirements Page C-3 of the consultation document says "all noise modelling has had regard for CAP1616a". CAP1616a requires terrain adjustments to be included in the calculation process. Please confirm that terrain adjustments have been made for both the noise and overflight contours? This is particularly pertinent for the assessment of overflight over elevated areas of the Chilterns AONB.	Env	26 Jul 21 Previously Answered	Terrain has been used for the modelling of noise metrics and overflight. This is evidenced on Pages 2 and 3 of the attached Annex A. The data product used to account for terrain is the Ordnance Survey Terrain 50 product which provides terrain elevations on a 50m grid.
24		Modelling assumptions What data/assumptions has informed the proportion of aircraft given vectors and shortcuts shown in Table C14 of the consultation document?	Env	26 Jul 21 Previously Answered	Please see the attached Section 2 which is provided in confidence. This describes the proportion of aircraft using vectors and shortcuts which has been reflected in the modelling.
25		Modelling assumptions Do the noise and overflight models assume CDA for arriving aircraft? This question primarily relates to assumptions that impact noise below 4,000ft as this is the height that typically starts to impact key noise metrics	Env	26 Jul 21 Previously Answered	Both the noise and overflight models assume CDA. As per Annex A, the profiles for arriving aircraft have been validated from radar data.
26		Modelling assumptions What modal split was used to inform the noise modelling. CAP1616a says "Where sufficient data is available this should be based on the last 20 years' runway usage. If less than 20 years' data is available, it should be based on available data."	Env	26 Jul 21 Previously Answered	It was agreed that our modelling would be as consistent as possible with the assumptions being used by LLAL's consultants as per their DCO application. Section 9.5 of the Preliminary Environmental Information Report (PEIR) (available here LINK) states that for all future scenarios a five-year average runway modal split was adopted. This was taken with reference to Luton's 2018 Annual Monitoring Report (available here LINK).
27		Population data sets has regard been given for local plans, such as what is anticipated under Local Development Frameworks, for example developments in the area that might change the number of properties within the presented population counts?	Env	26 Jul 21 Previously Answered	The population counts do not specifically have regard for local plans or local development frameworks. We have interpreted this requirement of CAP1616 with reference to the primary decision-making noise metrics. For all options, the LOAEL contours were found to be consistent with each other and do-nothing/baseline conditions. As such the impact of local development plans would be inconsequential to impacts of the airspace change options against the primary decision-making metric (WebTAG).
28		Population data sets - Follow up clarification to above question: As stated in response 27, population growth is unlikely to result in a material change in adverse noise impacts (i.e. above LOAEL) as any changes to tracks over the ground below 4,000ft are similar. However, population growth also applies to overflight (see CAP1616 Stage 2 para 139). The definition of overflight described in CAP1498 defines overflight as starting at 7,000ft. Therefore are there any change in tracks over the ground between 4,000ft and 7,000ft (i.e. within the scope of the overflight contour) and if so why were local plans not taken account of?	Env	27/08/2021	The population data used for the assessment work has considered general population growth as forecast by CACI but has not specifically considered local plans. Local plans were not considered within the overflight contours outside the LOAEL (and between 4,000ft and 7,000ft) as to do so was considered disproportionate given general population growth has already been accounted for. While these contours occur in areas where policy (see ANG2017) indicates noise effects are not 'adverse' according to the technical definition, we have modified our proposal to reduce overflight noise impacts in the 4,000ft-7,000ft region of this proposal, by reducing the likelihood of flight concentration.
29		Population data sets Does the population dataset account for natural increases in population over the 10 year forecast period?	Env	26 Jul 21 Previously Answered	The population dataset utilised has taken into account population growth as forecast by CACI having regard for local authority, regional and national projections. As such, where population and household data is presented for the assessment year of 2031, this has utilised a 2031 population forecast.
30		Population data sets Are population and area counts shown in the consultation report and options appraisal cumulative counts? (for example, the population for 51 dB LAeq will include residents living in all higher contours)	Env	26 Jul 21 Previously Answered	The counts presented are cumulative.
31		Noise sensitive buildings What dataset has been used to inform the noise sensitive building counts (i.e. schools, place of worship and hospitals)?	Env	26 Jul 21 Previously Answered	The dataset used to inform the counts of noise sensitive buildings is the 'PointX' (Points and Interest dataset) as available Landmark Information.

32		Assessment of CO2 Page C-3 of the consultation document says "The average path stretching for each arrival airport was calculated and it was assumed that this would take place at FL80 for all aircraft as this was the average holding level pulled from NATS data". What does 'NATS data' relate to?	Env	26 Jul 21 Previously Answered	FL80 is the standard (lowest) holding level for LLA arrivals in this region (as defined in the controller's standard operating instruction Manual of Air Traffic Services Part 2 for this sector). It was assumed to be appropriate for the path-stretching part of the analysis, and was confirmed by the ATC Lead for this project (a senior Group Supervisor in Terminal Control Operations).
33		Noise Modelling As per CAP2091, the sponsor should assess the noise modelling category for each year in the forecast period and for both day and night contours. In addition, as stated within CAP2092 in determining the noise call-in criterion, the CAA will consider the largest such increase expected in the 10 years following the introduction of the proposed airspace change. The consultation document only shows noise modelling outputs for the opening year and the +10 year scenarios. Was noise for each year within the 10-year forecast period assessed and/or which year in the forecast period is the worst-case? I.e. the highest number of people exposed to noise for the do-something scenario and the scenario with the greatest change between do-nothing and do-something.	Env	27/08/2021	The guidance in CAP1616, CAP1616A, CAP2091 and CAP2092 has been complied with. Our interpretation of this guidance is that there is no requirement to model noise within the 10-year forecast, and the call-in criterion is to be determined based on the forecasts which are provided. However, we are happy to clarify that the greatest number of flights, hence the greatest change in noise, would be +10 years in the 'with-DCO' scenario. For traffic forecasts see the Full Consultation Document (**link**) p.C-2 Table C13, row "LLA Arrivals with DCO", column "2032". The noise of this traffic scenario would result in a net increase of fewer than 300 people exposed to aircraft noise above 54 dB LAeq,16hr. The CAA has, however, already published its assessment of the noise call-in criterion (see CAP2233, **link**, para 2.26-2.27 and Table 1) and this clarification is therefore considered to be closed.
34		WebTAG Noise Please can the sponsor explain why household data has been used for the WebTAG noise workbook when population data is available and used elsewhere within the submission? If household is relevant, please can the sponsor confirm why the national average of 2.3 people per household has been assumed? Also please can the sponsor confirm the data used to estimate households in the TAG workbooks and explain how the TAG noise workbooks have households in decimals?	Env/Eco	27/08/2021	This is a limitation of the WebTAG workbooks in so fact they allow only a number of dwellings to be input. It is therefore not possible to account for specific population densities within this workbook. Decimal households is however an artifact of accounting for population growth whereby population increase has been converted back into a household which has resulted in a fractional household value. This is based on forecasts provided by CACI. All population exposure data presented in the ACP include population growth based on counts and forecasts at each postcode.
35		Option 1 v 1A Option 1A is the sponsor preferred option. The consultation and full options appraisal was based on Option 1. WebTAG workbooks have not been updated between Stage 3 and Stage 4 and therefore please can the sponsor confirm that the outputs presented for Option 1A are an accurate reflection of that option?	Env/Eco	18/08/2021	The outputs are confirmed to be an accurate reflection. Both WebTAG noise and CO_2e workbooks were updated using newer versions published by the DfT. The same source data for noise was used, because Option 1 (as consulted) and Option 1A (final design) are identical below 5,000ft, i.e. there would be no difference between Option 1 and Option 1A WebTAG-wise for noise. See 4A(i) para 7.16 on p.28-29. For CO_2e, the same source data was used for Option 1 (as consulted) in the newer WebTAG workbook, for comparison with the updated source data for Option 1A (final design) also in the newer workbook 'like for like'. No change to the document is considered necessary.
36	Options Appraisals	Option 1 vs 1A -Suggestion for the sponsor: We appreciate that the sponsor has update the WebTAG tables and reported the results of Option 1, that was discounted after the consultation. It is worth moving that part of the assessment into an Appendix and avoiding misleading refences to the difference in benefits/disbenefits between Option 1 and Option 1A	Econ	18/08/2021	We believe readers of the full options appraisal document 4A(iii) will be able to understand the comparisons between Option 1 as consulted, and Option 1A final design. We also believe it is necessary to be clear that we are comparing the two options using the same, most recent, WebTAG workbooks, instead of Option 1 using an older workbook version and Option 1A using a newer version which would not be 'like for like'. No change to the document is considered necessary.
37	Airspace Change Proposal 15/Figure 4 17/Figure/6 21/	It is not clear how many new (revised) STARs are being proposed or the levels of the 'en-route' holds (or how often will they be used?). It is not easy to ascertain, in a summary, exactly what the proposal is; please provide a summary of the changes, under this Airspace Change Proposal.	Gen	27/08/2021	We believe the 4A(ii) Final Design layered map, combined with 4B ACP p.21 Tables 4 and 5, are adequate summaries within the already-published material. **However**, we accept that an additional plain-English summary of the changes would help illustrate them, alongside an updated 4A(ii) map with more annotation on the STAR pages 2, 3, 4.

					We propose to add a short plain-English section to the PES Summary Document to answer this query, and will add a new version of the 4A(ii) STAR maps to directly associate with the PES for ease of use.
38	ACP Document p30, Table 11 row e	By email: Operational Impact you state: 'LLA expects arrivals to be RNAV1 compatible, with infrequent RNAV5 arrivals routing via ABBOT only' Are you able to, as part of your up-to-date analysis of traffic, give an estimated percentage of aircraft that may still route via ABBOT (RNAV5 only) in order to support this statement? As discussed, we would expect to see the vast majority of aircraft utilising the revised RNAV1 STARs.		18/08/2021	Eurocontrol's PRISME (Pan European Repository of Information Supporting the Management of EATM) provided data on the capability of LLA traffic to be 99.0% RNAV1 or greater for Jul-Sep 2019, and for Apr-Jun 2021 that proportion was 98.9%. NATS' internal Analytics data also concurs that 99% of LLA arrivals were RNAV1 or better equipped, for 2019. Therefore, c.1% of arrivals may be expected to file via ABBOT. No change to the document is considered necessary.
39	Consultation Response Document30/8.8.1 and 31/Figure 17	By email: Para 8.8.1 has distance between the consulted (red dash) route and the blue route segment A-C as 0.9nm-2.7nm. Figure 7 has red dash route as 72.1nm and the Blue route A-C as Max 74.7, min 73; this gives a range of 0.9nm -2.6nm. Please can you confirm which figures are correct and that the calculations are correct, therefore not effecting any figures used to produce the calculations in the FOA?		18/08/2021	The nautical-mile distances between segments were rounded to one decimal place and then added together for the Blue route A-C, 74.7nm, as displayed. Measuring the distance of the maximum route as a continuous line, rounded to two or more decimal places, puts the Blue route A-C as 74.63nm. The unrounded distances were used in the FOA calculations, which are unaffected. We are happy to clarify this rounding issue, but no change to the document is considered necessary.