Note

Title	Deadline 4 Noise Responses		
Project	Gatwick Airport DCO		
Reference	28AD.NT.5.0	**Author(s)**	BHo
Date	30 May 2024	**Reviewer**	VC

Overview

1. The Applicant has updated their proposed Noise Insulation Scheme [REP4-017]; this note sets out further clarifications sought. **Table 1** sets out summaries of issues identified by Suono.

2. The Applicant has also produced an 'Updated Central Case' (UCC), which is stated as being the new core case for the Environmental Statement, as set out in 5.1 Environmental Statement Addendum – Updated Central Case Aircraft Fleet Report [REP4-004].

3. The new core case also has a new baseline, meaning that the limited assessment within REP4-004 is entirely new. In our view, therefore, the noise chapter of the ES should be revised and reissued rather than building on the assessments set out in the original [APP-039] and its associated appendices, despite the Applicant's attempt to do this.

4. As was the case with the Deadline 3 documentation provided by the Applicant (as detailed within our response REP4-099), our review has once again identified new highly important matters, with no previously raised matters having been resolved. This note sets out the high-level issues identified within the Deadline 4 documentation; more details can be provided on any of the matters we raise on request from the ExA.

5. Our previous note stated in section 3:

> *Even basic information remains outstanding, as highlighted throughout this note. We request the ExA ask the Applicant to provide this outstanding information at the next deadline, in order to enable as much scrutiny as possible at this relatively late stage of the examination.*

6. The Applicant has, instead of providing basic information, submitted a fresh 'addendum', which leaves the noise chapter with significant gaps in it. A brief outline of the <u>newly missing information</u> is listed below:

<u>Air noise assessment</u>

- 2047 forecasts and assessment of primary metrics for new core case.
- 2029 – 2047 assessment of secondary metrics, including Number Above contours and awakening assessment for new core case.
- 2029 – 2047 detailed information and results of noise assessment at community-representative locations for new core case.

<u>Ground noise assessment</u>

- All quantitative information, including forecasts (within ground noise model), assessments of primary and secondary metrics, assessment results and any discussion or explanation of results.

Road traffic noise assessment

- Any justification that a new fleet mix will lead to the same results, given that the new fleet mix can carry a different number of overall passengers leading to a different number of vehicles on the road network.

7. It is clear from the above list that the information provided by the Applicant is totally inadequate for the needed comprehensive review and we would request that the ExA either disregard REP4-004 entirely or ask the Applicant to provide a replacement noise chapter with all pertinent information.

8. Given that the former option means relying on an assessment now known to be out of date, this option does not appear creditable. We would also expect that the latter option is unlikely to be available within the examination period, let alone for there to be any time to review it. As such, it may be necessary for the Applicant to submit a fresh application when they have the requisite information available to do so.

REP4-017 – Noise Insulation Scheme

9. The numbering within this section follows the Applicant's paragraph numbering (from the tracked change version), for ease of reference.

4.1.5 The Applicant lists out a small number of properties that now fall within the Noise Insulation Scheme (NIS) as a result of ground noise being handled the same way as air noise, but it is not clear if these figures relate to dwellings within the Inner or Outer Zone.

4.2.3 An acoustic ventilator specification is provided as, "*with an acoustic performance to reduce aircraft noise from outside to inside by at least 40dB(A)*". It is more typical to use the dB $D_{n,ew}$ index rather than dB(A). This index would allow for comparison of different products and would not be limited by the performance of other elements of the façade, as the specification currently is.

GAL should update their NIS to ensure that any acoustic specifications would provide a satisfactory level of mitigation.

4.2.5 and 4.2.6 The Applicant states that both acoustically enhanced external doors and ceilings in bedrooms will be offered to dwellings where the elements they would be replacing "*are judged to provide at least 5dB(A) less sound attenuation*". It is not clear how the acoustic performance would be judged, nor how this process would be transparent.

A similar statement is made in 4.3.11 where insulation installed under the previous NIS will only be replaced if "*its acoustic performance has significantly reduced*", with no further explanation provided for how to determine such a reduction.

4.2.8 It is not clear why the Applicant is both limiting the choices of available mitigation measures within the Outer Zone package and offering a smaller grant compared to the Inner Zone. It would appear to be more practicable to keep all available options from the Inner Zone with the smaller grant amount to offer greater flexibility and to be able to best meet the mitigation requirements of each dwelling.

For instance, in 4.2.4, the NIS currently reads that blinds will be available to those in the Inner Zone, but not the Outer Zone. Blinds would also benefit those in the Outer Zone, as these could lower internal temperatures leading to windows being able to be kept closed. It is also not clear in 4.2.4 why blinds might only be available for acoustically upgraded windows.

NIS Table (untitled, page 3) It is not clear how the values for modern double-glazed windows "*would increase the sound attenuation of the window by approximately 15 to 20dB*" has been derived. The Applicant should provide justification for this statement.

4.3.6 The Applicant states:

> *The Inner Zone scheme will be launched at the commencement of works to build the Project (as described above), with the aim of completing the scheme prior to opening of the Northern Runway.*

We request that the ExA consider securing that operations can only commence from the new runway once the full NIS is in place, or at the very least, the Inner Zone is in place. If this is not the case, then the proposed mitigation must be considered compensation rather than mitigation, due to it being put in place after significant effects have already occurred.

4.3.9 The Applicant states that eligibility as a result of ground noise will be "*based on predicted levels*" in line with the approach for air noise. These air noise thresholds are the night-time 55 dB $L_{Aeq,8hour}$ (Inner Zone) and daytime 54 dB $L_{Aeq,16hour}$ (Outer Zone) for the aggregate summer day (or night).

The ground noise assessment does not currently include these contours, instead being limited to easterly or westerly wind operations. Either the air noise thresholds should be updated to match the ground noise thresholds, or vice versa.

The Applicant also states in 4.3.9:

> *In addition, eligibility due to ground noise will be established on the basis of measurements of levels of ground noise carried out after the Project is operating. The areas where this is possible are mainly to the north (Oakfield Cottages) and to the south of the airport (Lowfield Heath) where the Inner Zone runs close to or inside the airfield. Where ground noise is assessed through measurement after opening, the cumulative noise levels from ground noise and air noise will be considered in assessing eligibility for the Inner Zone NIS.*

The SOAEL contour figures provided in in Appendix 2 of Appendix B in REP3-071 would suggest both Oakfield Cottages and Lowfield Heath fall just outside the Inner Zone and would likely be inside the Outer Zone and as such are eligible for noise insulation at a far earlier stage than when the Applicant proposes to review the matter.

This matter could be cleared up by the Applicant providing the requested contour figures.

The last sentence of the above quote also refers to an assessment of cumulative noise for both air and ground sources. This contradicts the Applicant's position for not providing a cumulative assessment, as the two are different sources of noise expressed using metrics derived from quite different assessments, meaning that they cannot be summed. It also contradicts the ground noise assessment methodology, where the Applicant's position is that ground noise and air noise are not comparable.

4.3.13 There is reference to bedrooms only being "*upstairs*", which could potentially rule out bungalows or static caravans from receiving noise insulation.

5.1.3 The approach to conducting noise surveys at schools only once the new runway is in use is not acceptable. As above, this relegates the mitigation to compensation. Any potential significant effects should be assessed as soon as possible during the examination stage, to allow for a clear mitigation strategy should the proposals go ahead.

Untitled contour figure on final page. The figure should be replicated on a map where dwellings are clearly identifiable, to demonstrate which could benefit from mitigation. A website is not a suitable replacement, as this is not traceable in the same way as submitted documents are.

The Zones should also be expanded around settlements bisected by the Zones' boundaries. This would help ensure that certain situations do not occur, such as residents living on either side of the road receiving differing levels of mitigation, or some receiving mitigation while their neighbours do not.

REP4-004 - Environmental Statement Addendum – Updated Central Case Aircraft Fleet Report

10. The numbering within this section follows the Applicant's paragraph numbering, for ease of reference.

Introduction

1.1.3 The Applicant once again states their point that the Slow Fleet Transition (SFT) is simply a delayed rate of transition compared to the Central Case (CC). Review of the provided fleet forecasts within REP3-071, as we set out in REP4-099, indicates that this assertion is not true.

1.2.1 The Applicant states that noise contour results for the Updated Central Case were available in late 2023, before the examination began, yet there has been no mention of them to date within the noise documentation. Given that some of these noise contours are larger in part than their preceding counterparts, and therefore affect a greater number of people in these areas, it is not clear why an assumedly incorrect Environmental Statement was submitted to start with.

1.2.2 It is not clear how the Applicant can state that "*the SFT case remains valid*", as in the Applicant's view, the SFT is a sensitivity test of the CC, which is now to be disregarded.

The Applicant also states, "*Accordingly, it remains the case that the Updated Central Case and the SFT case in combination present the 'worst case scenario' for all ES topics, and the basis on which they do so is explained in this ES Addendum.*".

There are two known instances where the noise effects of the UCC cover a larger extent than has been assessed to date. This can be seen in Figures 3.4 and 3.8 of REP4-004. There are further instances where this may also be true but relevant information has not been provided, such as in 2047. Further detail on this matter, and why it is crucial to the noise assessment, is provided later in this note.

Fleet Forecasts

2.2.2 The Applicant states:

> *A separate Slow Transition Forecast was not prepared for the 2047 year as the assumption was that 100% of the aircraft will be Next Generation (NG) types by that point and this remains the case for the Updated Central Case fleet.*

It is not clear what is meant by this statement as there is a 2047 forecast for the SFT within REP3-071. The reasoning for not providing a 2047 forecast for the UCC is not logical, not only as there is a 2047 SFT forecast but also as the UCC is updating the core case, and so should be compared and contrasted to the CC, for which there is also a 2047 forecast.

The position that the fleet would be entirely next generation does not inevitably lead to a convergence of the UCC and SFT noise contours, as any number of forecasts can be derived from only next generation aircraft, all with differing noise outcomes.

The ExA should request this missing information as soon as possible.

Air Noise

3.1.1 The Applicant states that the UCC will not affect the road traffic noise assessment yet offers no justification for this. As we noted in REP4-099 for the difference between the CC and the SFT, and note again for the UCC, it is not clear how the different fleet forecasts have informed the data input into the road traffic noise assessment.

Despite the overall number of aircraft remaining the same, there are significantly differing numbers of different aircraft types within each forecast. These different types can all carry different numbers of people. For instance, the A320NEO has 186 seats, the A321NEO has 239 seats and the B737MAX8 has 210 seats. Although not yet certified, the B737MAX10 is expected to have a maximum of 230 seats. There is also the case that different operators will have different layouts, which can also affect the number of seats (e.g. business class seats cover the same space as multiple economy class seats).

All these factors can affect the number of passengers moving through the Airport, and therefore the number of vehicles on the road. The UCC should therefore result in a revised road traffic noise assessment, and we request that the ExA to ask the Applicant to provide this.

3.2.1 The Applicant states that the year 2029 has been modelled to provide noise contour areas and populations, but they consider it is not necessary to provide contour plots. It is not clear how the Applicant has calculated any contour areas or enclosed populations without having the corresponding contours, and there is no reason to not provide these. We request that the ExA ask the Applicant to provide these contours. We cannot see how the applicant can justify the claimed areas and populations in their absence.

3.2.4 The Applicant states, "*Updated Central Case fleet modelling was not carried out for 2047 when noise levels are predicted to be lower.*" but offers no justification for how they know noise levels will be lower, as no forecasts have been provided. If the UCC is to replace the CC as the core case, then all assessment years should be replicated in full, rather than the piecemeal approach that has been taken. We request the ExA request this information as soon as possible.

3.2.25 As previously identified, there are two known instances where UCC noise contours cover a larger extent than previously calculated. The Applicant states in the middle of 3.2.25

> *This is not the case in the two instances (Figure 3.4 and Figure 3.8), the baseline and with Project contours for the night in 2038, where parts of a few of the outermost Updated Central Case contours lie at or just outside those for the SFT. This occurs in areas most affected by arrivals noise and is due to some current generation aircraft that decrease in number from the SFT case to the Updated Central Case, showing smaller decreases in noise on arrival than the increases in noise due to the next generation aircraft that replace them and are increasing in number. The variation in Leq 8 hr noise contours are small and whilst they can be seen as contours in slightly different places in the two figures, in these areas they correspond to differences in noise levels at a given location of less than 0.5dB, which would be imperceptible to most people.*

There are multiple matters arising from the above quote, and we take them in turn.

The fact that noise contours are larger in the night-time in the UCC means that the previously undertaken noise assessments are out of date. A larger noise contour is strongly indicative that

there will be larger noise impacts indicated by secondary metrics, such as the Number Above contours and within the awakening assessment.

The secondary metric assessments detailed within APP-039 and the original ES appendices are therefore not representative of the reasonable worst-case and need to be replicated for the UCC, noting our previous commentary that the awakening assessment already has other shortcomings.

UK aviation noise policy is clear that certainty should be provided to local communities with regards to future noise levels. The Applicant's lack of assessment and results for key supplementary metrics does not offer any certainty, given that results could be worse than those presented to date.

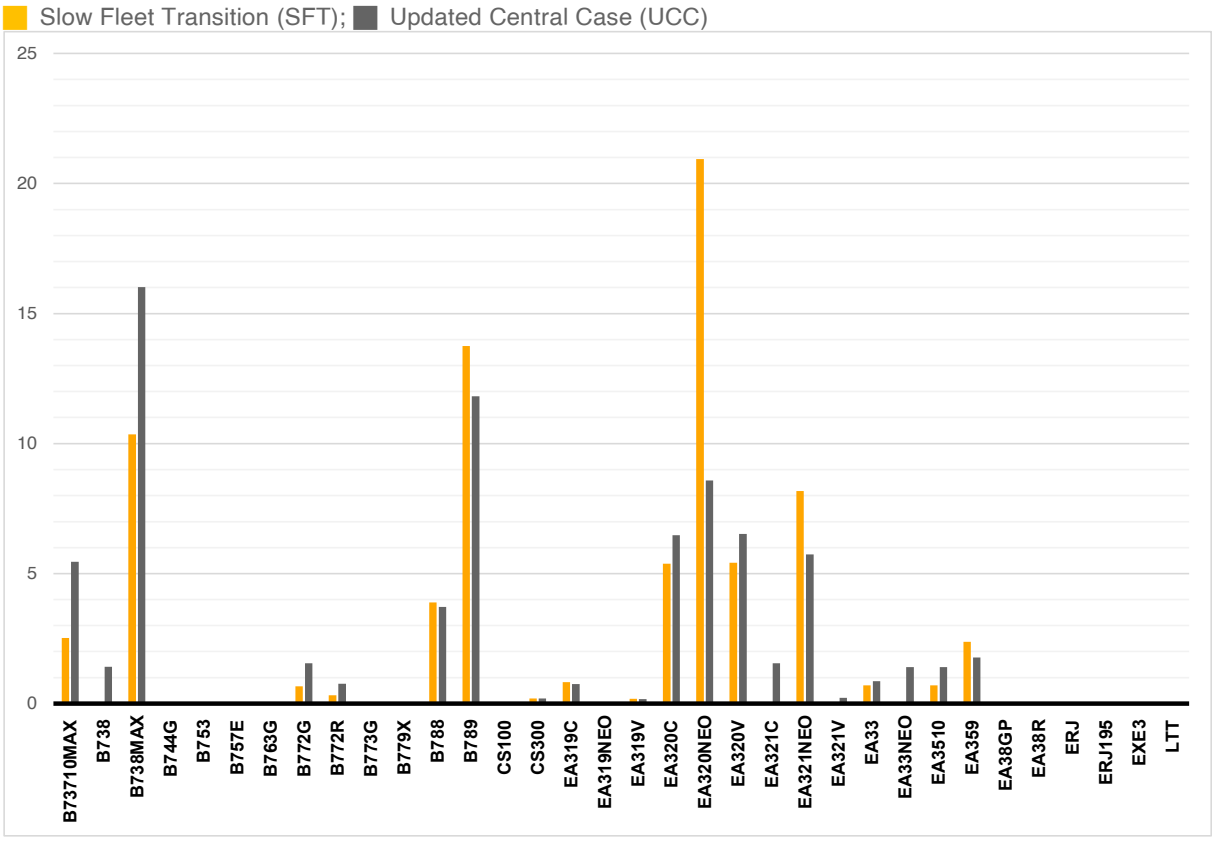
The Applicant appears to be incorrect in the assertion in their second sentence in the above quote that the larger area occurs at night-time as a result of a slower update of next generation aircraft. The assertion is that the UCC contours are larger than the SFT contours as a result of a change in the number of arriving current generation aircraft, with the larger number of noisier aircraft leading to a contour difference.

We have analysed the fleet forecasts provided in REP4-004 and REP3-071 with regards to night-time arrivals for the SFT and the UCC; these can be seen in the two graphs on the page below for 2032 and 2038, respectively.

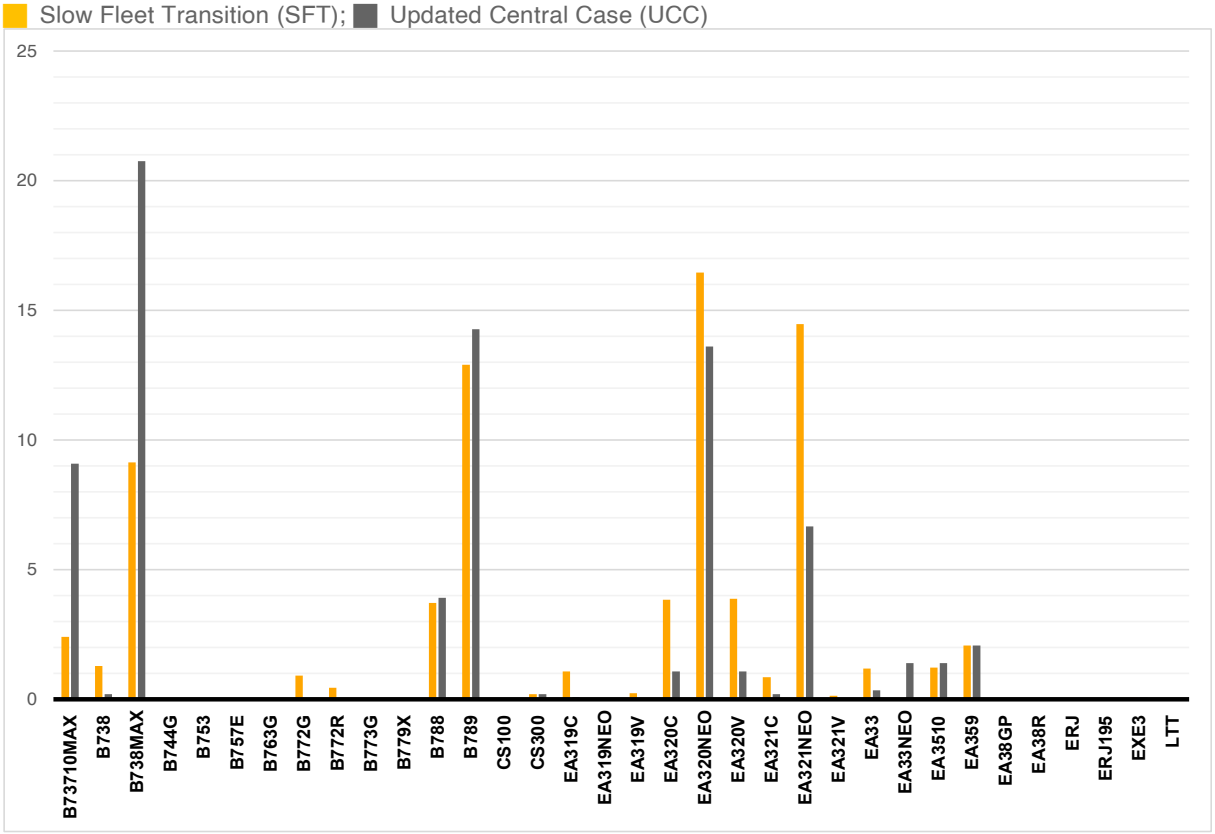
There are four aircraft types that can be seen to have a material change in the number of arrivals between the SFT and the UCC, these are the Boeing MAX8 and MAX10 (labelled below as B7378MAX and B73710MAX) and the Airbus A320NEO and A321NEO. All four of these aircraft types are unambiguously next generation aircraft. No other aircraft types display any material differences in number of arrivals between the SFT and the UCC, not least any current generation aircraft types. If there is no material change in arrivals of current generation aircraft, then the Applicant's position cannot be correct.

This is the second occurrence where the Applicant appears to have incorrectly attributed particular changes in forecasts to noise changes. We have documented the first occurrence in our previous note [REP4-099], specifically relating to the noise contour changes between the SFT and the CC.

Graph 1: 2032 night-time arrivals split by aircraft type



Graph 2: 2038 night-time arrivals split by aircraft type



The final sentence of the above quoted excerpt from 3.2.25 states that there is no concern as there is less than a 0.5 dB difference between the UCC and the SFT. This is misleading.

The UCC contours are in certain circumstances larger than the SFT and, crucially, form the core case and therefore require full assessment, rather than merely comparing the impacts to those arising from the SFT. The Applicant had previously used the same argument as a reason to not assess ground noise for the SFT. They have since changed their stance on and provided (some degree of) results on this topic.

The ExA should request that a full noise assessment be undertaken for the UCC, as was for the CC for air noise.

3.2.26 The Applicant states:

> *In 2029, 2032 and 2038 the Updated Central Case fleet would result in noise impacts above those reported in the ES for the Central Case fleet and below those reported in the ES for the SFT case.*

This is misleading. As previously identified, the UCC comes with its own new baseline. The level of noise impact is determined in part by the change in Do Something vs Do Minimum, and therefore purely considering that the UCC noise contours are between the CC and SFT, both of which also have their own baselines, is not a true test of the level of noise impact.

Ground Noise

3.3.1 The Applicant states:

> *Ground noise in the worst SFT case has been assessed in Supporting Noise and Vibration Technical Notes to Statements of Common Ground, Appendix B - Ground Noise Fleet Assessment [REP3-071] with corresponding updated mitigation measures, submitted at Deadline 3. For ground noise there is no noise envelope policy and mitigation measures have been established for the worst case, so unlike air noise there is no need to remodel ground noise for the Updated Central Case.*

The ground noise assessment set out in REP3-071 is severely limited, as we have set out within our response in REP4-099. The information provided to date is insufficient to enable a proper review the ground noise assessment.

One of the numerous requests that we have raised from the beginning of the examination, for example in REP1-138 section 4.2, is basic descriptive information of how the ground noise assessment has been undertaken. It is of great concern that such rudimentary information was not included within the original ES documentation or provided at soonest convenience after this.

3.3.2 The Applicant states:

> *The ES assessed ground noise using the Central Case fleet. The assessment for the SFT case is similar, more so than for air noise, for several reasons explained in the Supporting Noise and Vibration Technical Notes to Statements of Common Ground, Appendix B - Ground Noise Fleet Assessment [REP3-071].*

The comparison offered by the Applicant is one between the air noise and ground noise assessments, taking this as a reason for not undertaking a full assessment. Yet elsewhere, their argument is that ground noise can be compared to road traffic noise and is not similar to air noise. Such a contradiction highlights the lack of a robust approach.

Section 3.3.2 continues:

> *The Updated Central Case fleet would show similar results, and since mitigation is secured for the worst SFT case, there can be full confidence that adequate mitigation is already secured for the Updated Central Case fleet to mitigate ground noise effects in accordance with policy guidance.*

We hold no confidence in the ground noise assessment.

As has been seen with the air noise UCC results, where some noise contours are larger than their SFT counterparts, this could also be true for ground noise. '*Similar results*' is not offering any certainty to the level of noise impact that is likely to arise as a result of this proposal.

It is not clear what '*policy guidance*' is being referred to, particularly given that the Applicant is at pains to point out there is no specific guidance on how to assess ground noise (if one ignores industry best practice), and even in the paragraph immediately above (3.3.1 of REP4-004) states "*For ground noise there is no noise envelope policy*".

3.4.3 The Applicant states:

> *Ground noise impacts are very similar with all three fleets because their noise differences are small, and because ground noise is assessed with reference to existing ambient noise levels which can be higher than ground noise due to road traffic.*

It is not clear what point is being made in the first half of this sentence, nor is any considered explanation or numerical results provided elsewhere to justify this assertion.

We once again note that the Applicant has not identified any study of community response to aircraft ground noise that clearly identifies levels due to other sources as having a material effect, nor justified how such an approach interacts with the use of absolute levels for LOAEL and SOAEL. Any reference to road traffic within the ground noise assessment appears to be baseless.

For the avoidance of doubt, the three paragraphs quoted above (3.3.1, 3.3.2 and 3.4.3) appear to make up the entirety of the ground noise evidence within REP4-004, which purports to act as an 'ES Addendum'.

If one were to accept that the UCC replaces the CC as core case, then the CC assessment falls away and all that is left for the ground noise assessment results are:

- the 'qualitatively assessed SFT' results in APP-039 [as described by the Applicant in 3.1.4 of REP4-004];
- Tables 3 and 4 of REP3-071; and
- The two figures in Appendix 2 of Appendix B in REP3-071 showing 'SOAEL' contours.

This is simply not a full and accurate assessment of a set of sources capable of generating significant levels of noise that impact the residences surrounding Gatwick Airport. We would suggest that the ExA request the information listed within section 2.2 of our note [REP2-070], as no progress on providing this appears to have been made to date by the Applicant.

Table 1 Noise issues identified by Suono to date

Topic and Issue	Summary of our understanding of Applicant's position	Summary of Suono's position
Identification of core and sensitivity cases	Updated Central Case replaces Central Case.	UCC is not sufficiently assessed.
Air noise: results for all assessment years	The information provided in the Noise Chapter and Addendum is sufficient.	Results are missing for primary and secondary metrics for the new core case.
Noise envelope limits are too flexible	Noise contour limits set for 14 years into the future only.	Noise policy states that residents must be given certainty, which is not the case.
Providing forecasts used in modelling	Set out in REP3-071 Appendix F	Forecasts provided.
Air Noise UAELs	UAELs not set.	UAELs should be set as per previous permitted applications.
Lack of School Assessment	A school assessment is not necessary.	It is not acceptable to ignore a potentially significant noise effect.
Awakening assessment shortcomings	Awakening assessment only needs to consider air noise.	Awakening assessment should consider air and ground noise together.
Future generation aircraft noise levels not justified	Applicant has not provided any justification, so position is unclear.	Justification should be provided.
Air noise: model assumptions and clarifications	The assumptions used are sufficiently accurate.	Justifications should be provided.
Total aviation noise for air and ground assessments	There is no need to consider both sources cumulatively.	Comparable contours for both assessments should be provided.
Flightpaths	The existing flightpaths can be used.	It has not been demonstrated that the flightpaths are the reasonable worst-case.
Additional noise controls	No additional noise controls are necessary.	There is not enough information to inform what noise controls are necessary.
Noise contour figures (air and ground)	The figures provided are sufficient.	Noise contour figures should be provided using a high-quality Ordnance Survey underlay to allow the identification of residences.

Noise Insulation Scheme: worsening	The Applicant has updated their NIS as a result of Suono's comments.	There remain outstanding improvements to be made.
Noise Insulation Scheme: policy	The NIS is sufficient.	The Inner Zone should be expanded to cover the 60 dB $L_{Aeq,16hour}$ daytime contour area.
Noise Insulation Scheme: funding	The NIS is sufficient, having been revised as a result of Suono's comments.	The level of funding should be revised upwards to at least match industry best practice.
Noise Insulation Scheme: overheating	The NIS is sufficient.	Mitigation, such as blinds or cooling mechanisms, should be made available to the whole scheme.
Noise Insulation Scheme: ground noise	The NIS is sufficient, having been revised as a result of Suono's comments.	It is not possible to inspect the proposals, as the noise contours provided are insufficient.
Noise Insulation Scheme: clarifications	The NIS is sufficient, having been revised as a result of Suono's comments.	Multiple requests for clarification have been set out in this note.
Noise Insulation Scheme: schools	The NIS is sufficient, having been revised as a result of Suono's comments.	The 'mitigation' offered is actually compensation and does not reduce the likelihood of significant effects occurring.
Fixed mechanical plant noise errors	The Applicant has not updated their original assessment.	The assessment should be updated to account for fundamental errors.
Ground noise: model and assessment descriptions	The information provided in the Noise Chapter is sufficient.	We request a full description and details of the noise model and assessment.
Ground noise: LOAELs and SOAELs	These thresholds should match the air noise assessment.	The Applicant's approach does not align with these thresholds.
Ground noise: EGR splits	The Applicant has provided 60% of split locations.	100% of how locations are split in model should be provided.
Ground noise: providing contours	The Applicant has provided contours at one value only.	Full sets of noise contours should be provided.
Ground noise: results for all assessment years	The Applicant has provided results for only a selection of assessment years.	Results are missing for primary and secondary metrics for the new core and sensitivity cases.
Ground noise: figures showing modelled locations	The information provided in the Noise Chapter is sufficient.	A figure showing where noise sources are located in the ground noise model should be provided.
Ground noise: baseline measurements	The baseline measurements provided are representative.	The baseline measurements are potentially not representative due to a changing noise climate since 2016.

Ground noise: wind corrections	The wind corrections within the noise model are sufficient.	The wind corrections are not the reasonable worst-case, nor standard industry practice.
Ground noise: taxi speeds	The Applicant states two inconsistent positions in their documentation.	Taxi speeds in APP-075 and APP-173 differ, and the ground noise model could be underpredicting noise effects.
Ground noise: bund heights	The bund and barrier height can be reduced from 12m to 10m.	Reducing the barrier height is contrary to aviation noise policy.
Road traffic noise: assessment traffic flows	There is no need to update the road traffic flows within the noise model with the new core case.	Justification should be provided as to why the road traffic noise model does not need to be updated.