John Skirving
Kier Construction Ltd
Former LBR Trolley Bus Depot,
501 Ley Street,
Ilford, Essex. IG2 7QZ

14th June 2016

Dear John,

Your reference: Abacus Belsize Primary School – Response to the objection queries.
Our reference: PC-14-0368-LT2

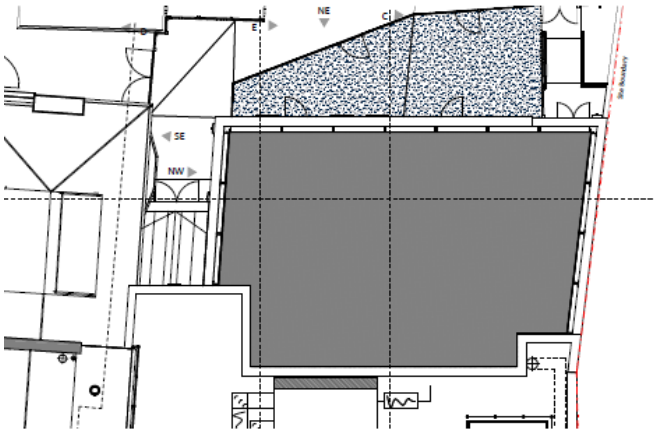
Please find enclosure our response to the objection queries. We have responded to all the queries individually. We understand that the comment refers to our report PC-14-0368-LT1 dated 13th April 2016.

3.8 In terms of the assumptions made by Pace, Ion Acoustics comment that:

- The predicted levels of noise activity in the playground seem low compared to their experience of measuring noise from playgrounds elsewhere;

We disagree with the above comment. The noise emission used within our calculation is a sound power of L_w 83 dB, which is representative of raised voices. We understand that this represents the noise levels which may be generated on site. We have also measured noise levels in different playground areas, and the sound levels used within our calculation are a representative of the expected sound levels at the proposed playground areas.

The sound power is calculated as an area source instead of individual point sources, which we believe is the right assumption to make in this type of assessment. The play area located on the roof has an area source of 147 m^2, and the play area located on the yard has an area source of 50 m^2. The figure overleaf shows the location of the play areas included in our calculation, the location is extracted from drawing 114031 - P106.



- It is not clear from the report where the source is assumed to be located – in the yard or on the play deck. There is no indication as to whether the source relates to one or several children or whether it relates to maximum noise levels or the equivalent continuous sound power;

The source is treated as an area source instead of individual point source. As we have commented above the play area located on the roof has an area source of 147 m^2, and the play area located on the yard has an area source of 50 m^2. Page 3 of our report refers to the noise source used in the calculation, this is similar to raised voices. The sound power is equivalent continuous and not maximum sound power.

- The fact that the whole yard is available as a play area could mean that the source is actually closer to residential properties and windows than shown on page 7;

The above assumption is incorrect; the architectural drawings clearly identify where the play areas are proposed.

- No time period is identified for the results tables and Ion Acoustics consider that play noise should only be considered during the period of play and not over an extended period – clarification of the time periods is required;

We have considered that the representative noise climate affecting the back yard during day time should be included within this assessment.

- No detail is provided on the form of the modelling and sound transmission paths so comments cannot be provided;

Transmission path of the highest calculated sound levels is included in our revised report. (PC-14-0368-LT1 Rev A).

- The noise emissions from the rooftop play area are lower than from the yard due to the distance and the glazed barrier. However, there is no detail provided on the form of the barrier and the application drawings also instead show an open mesh fence;

The updated report has omitted the acoustic screen.

- Key receptors are 52 and 50 Downshire Hill. Pace conclude that there are major negative effects from the yard, but they do not a) compare with the lowest background noise level (as they stated they would), or b) show the change in noise level (as stated in their criteria);

This report was issued to include the noise impact assessment from the plant and the play area. Due to the lack of information available at the time of writing, it was decided not to include the plant roof assessment in this report, and therefore noise assessment of the play decks only.

However, the sentence lowest background was not removed from the report. This sentence should be read as *compared against the representative noise levels affecting the nearest receptors during day time.*

The noise impact assessment from the play areas was assessed against the representative noise climate, all assessment table includes the L_{Aeq}, dB metric.

- Ion Acoustics own assessment demonstrates a major negative level for all levels of the building at 52 Downshire Hill and a moderate negative at all other positions;

We unsure about the basis of the Ion assessment, and therefore we cannot compare their results against our results and conclusions.

- Consideration has also been given to internal noise levels for 52 and 50 Downshire Hill. At present the properties are exposed to relatively low external noise levels at the rear. The proposals would result in a noise level well above any normal guidance levels.

Note a transparent acoustic screen will reduce the noise impact at receptors.

- Time of use. The report states that the play area will only be used during the "mid> morning and early afternoon periods" and that "this should help minimise the impact". But there is no statement of the requested hours of use. Presumably it would be used during lunchtime for example. It is also not unusual for larger schools with small play areas to stagger the playtimes of different year groups which could significantly extend the hours of use. This could mean the playground is used for substantially longer than implied; potentially for a large part of the day.

The client should provide the proposed times of use for the outdoor areas so that we can amend this comment if necessary.

- The noise implications of the main access to the school being via a single gate on Downshire Hill immediately adjacent to a 52 Downshire Hill. We understand this

would be the access for 300 children each day plus parents immediately adjacent to the front windows of 52 Downshire Hill and would certainly introduce a noise source on a relatively quiet road (rather than Rosslyn Hill, which is busier);

Our assessment includes the noise impact assessment from the play areas only. The noise levels affecting Downshire Hill are higher than the levels affecting the rear receptors.

- There is no assessment of noise emissions from any other school activity (for example music rooms, noise from a main hall, outdoor teaching);

Our assessment was completed for play areas only, however additional noise impact assessment can be completed.
Note, It is expected that music rooms, or the main hall will be ventilated mechanically, therefore windows will be closed.

- There is no assessment of noise impact to 24 Rosslyn Hill which is also has a line of sight to the yard and potentially the roof top play area or to other slightly more distant buildings which may be affected by the roof top area noise. 24 Rosslyn Hill also has a garden adjacent to the yard and noise levels in the garden should be considered.

We can include additional receptor or noise sources is these are required.

- The most significantly affected receptors have been considered, but not the wider community including other adjacent properties or the impact on a generally tranquil residential zone;

We have included the nearest receptors to the proposed school, additional receptors can be included. However, we will require further information about the receptors which are considered sufficient to complete the impact assessment.

- There is no assessment of mechanical services plant although the initial report for the school states that mechanical ventilation will be provided. The plant emissions noise limits are stated in the acoustic report, which it is presumed would be conditioned in any potential planning permission to ensure these limits are met.

As we have commented above, our noise impact assessment was completed for the play areas only. As the mechanical plant was not selected during the preparation of our report, therefore this assessment was not included.

Summary

3.10 In summary,

- The report erroneously interprets the significance of a change in noise level, which underestimates the impact and is misleading to the lay reader;

We disagree with the above sentence, it was made very clear in our report that the noise impact from the play areas were assessed against the noise climate affecting the nearest receptors, and not against the lowest background. The result tables include the L_{Aeq} and NOT the L_{A90} metric.

- The assessment has been carried out purely on the basis of noise levels taking no account of the character of the new noise sources;

Our assessment is executed using a representative sound levels which is expected to be on the play areas against a representative noise climate.

- The Pace report sets out how it will assess the noise impact, but then assesses the noise impact differently and in a way that reduces the apparent impact of the playground noise. This is misleading;

We have clearly explained why the sentence containing the *background* typo was included in our report. However, it is make very clear in our report that the noise emission from the play areas was assessed against the L_{Aeq} and NOT against the L_{A90}.

- The report conclusion is not an accurate representation of the numerical findings of the report;

We disagree, the report includes the final L_{Aeq} values, additional information can be included in an updated report if required. However, evidence of the noise emission “worst case” is included in this letter.

- There is no information on the detail of the mitigation measures proposed for the roof top play area. And no information on the hours of use of the play area is provided;

The acoustic screen has been omitted in our revised report.

- Even with these provisos, Pace still concludes that there is a major negative impact from the yard play area. The report also accepts that the level is above that at which there is onset of serious annoyance;

New assessment is included in our revised report.

- The assumed location of the source position is not clear, but it appears possible that areas of the yard closer to residential windows could be part of the play area and source noise levels affecting other residences higher than assumed. Notwithstanding this, using the Pace noise data as published, a reassessment of the noise impact finds a far greater impact than documented in the report;

Play areas location are clearly marked and they are extracted from architectural drawings.

- Additionally an assessment of the internal noise levels in the closest residential receptors has been carried out which indicates noise levels significantly above guideline internal noise limits from BS 8233:2014;

Internal noise levels are difficult to predict under these circumstances. A relatively good assessment should have considered the volume of the room, characteristics of the window(s), including area, absorption in the room, etc. Also, our results include façade reflections which should have been considered during the internal noise levels, as open windows are not reflecting the total noise incident. It is also noted Ion Acoustics has not considered the highest sound reduction that an open windows can provide (R_w 15 dB as included in the BS8233:2014).

- The Pace report data demonstrates that there would be unacceptable noise impact from the yard play area. If the yard were used as a school playground there would be a substantial impact on the amenity of the users of the buildings overlooking the yard. There is little practical mitigation against such noise levels and none are offered in the report.

New assessment is included in our report.

Yours sincerely,

For Pace Consult

Joan-Carles Blanco

Acoustic Consultant