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PROJECT: LIDL - Newcastle Retail Store
SUBJECT: Design Modification Acoustic Impact
FOR: LIDL Ireland GmbH
REF: 22/0557T01
DATE: 2 March 2023

TECHNICAL NOTE

1.0 INTRODUCTION

Following receipt of a Clarification of Additional Information request (Decision Order #0034) and Planning Report (#PR/0034/23) for the new LIDL retail store proposed to be constructed in Newcastle, Co. Dublin (Register Reference SD22A/0312), a couple of modifications were incorporated into the design of the proposed development which have a slight bearing on the content of the acoustic report submitted by CLV Consulting (CLV Report Ref #22/0557R01A).

This document summarises the concerns raised in both the Clarification of Additional Information request and the Planning Report, details the subsequent design modifications provided and assesses the residual noise impact of same.

2.0 REVIEWED PLANNING DOCUMENTS

The portion of the Clarification of Additional Information request (issued 9 January 2023) pertaining to the potential noise impact of the development is as follows:

3. *The Applicant is requested to revise the proposed boundary treatment as follows:*

(i) In order to achieve the most optimum amount of noise reduction the wall height at the southern end of the proposed development should be increased in line with the recommendations of the Environmental Health Officer.

The portion of the Planning Report (issued 9 January 2023) pertaining to the potential noise impact of the development is as follows:

Additional Information Item No. 13

The Applicant has provided a revised Noise Impact Assessment in response to Additional Information Item No. 13. The revised Assessment includes the development lands to the east.

The HSE Environmental Health Officer has reviewed the revised Assessment and indicated no objection, subject to the following CONDITIONS:

1. The Environmental Health Department request that the boundary wall at the southern end of the development be raised above the currently proposed 2 metres. The currently proposed 2-metre high wall provide minimal mitigation against the noise impacts outlined above. In order to achieve the most optimum amount of noise reduction the wall height should be increased to the maximum level to be agreed by relevant engineers and acoustic experts.

2. No equipment or machinery (to include pneumatic drills, construction vehicles, generators, etc) shall be operated on or adjacent to the construction site before 08:00 hours on weekdays and 09:00 hours on Saturdays nor after 19:00 hours on weekdays and 13:00 hours on Saturdays, nor at any time on Sundays, Bank Holidays or Public Holidays.

Any work outside of these hours shall only be permitted following a written request to the Planning Authority and subsequent receipt of the written consent of the Planning Authority, having regard to the reasonable justification and circumstances and a commitment to minimise as far as practicable any unwanted noise outside the hours stated above.

3. Noise levels arising from construction activities shall not be so loud, so continuous, so repeated, of such duration or pitch or occurring at such times as to give rise to a noise nuisance affecting a person in any premises in the neighbourhood.

4. Once under construction the site is to be surrounded by a solid hoarding to a minimum height of 2.4m as specified in the acoustic report reference 22/0557R01 and dated 20th of July 2022.

5. Noise due to the normal operation of the proposed development, expressed as Laeq over 15 minutes at the façade of a noise sensitive location, shall not exceed the daytime background level by more than 10 dB(A) and shall not exceed the background level for evening and night-time. Clearly audible and impulsive tones at noise sensitive locations during evening and night shall be avoided irrespective of the noise level.

6. The building services plant area located on the roof of the development must be enclosed with a 2 metres high boundary wall as specified in the acoustic report reference 22/0557R01 and dated 20th of July 2022.

7. Following commencement of the development the applicant is required to submit an Acoustic Verification report to South Dublin County Council. The report must confirm whether the development complies with Councils noise criteria relevant to this proposal:

Noise due to the normal operation of the proposed development, expressed as Laeq over 15 minutes at the façade of a noise sensitive location, shall not exceed the daytime background level by more than 10 dB(A) and shall not exceed the background level for evening and night time.

- (a) Acoustic design criteria or performance specifications that have arisen from the acoustic report or any subsequent acoustic assessment shall be finalised and verified by a suitably qualified acoustic consultant.
- (b) The acoustic verification report must assess the impact of noise associated with deliveries with respect to existing and future receivers. Where modifications are required to reduce the noise impact these modifications must be included as clear recommendations for the subject development.
- (c) This Acoustic Verification report should comprise of noise monitoring data at any noise sensitive locations. It should also include the cumulative noise level whereby the existing noise levels are included in assessment of the developments overall impact.

8. The development shall be so operated that there will be no emissions of malodours, gas, dust, fumes or other deleterious materials, no noise or noise vibration on site as would give reasonable cause for annoyance to any person in any residence, adjoining premises, or public place in the vicinity.

3.0 DESIGN MODIFICATIONS

Following receipt of the subject documents detailed in the previous section, a number of modifications were subsequently made in the design; two of which influenced the predictions that were detailed in the CLV Noise & Vibration Impact Assessment Report (CLV Report Ref #22/0557R01A) which was issued with the development's FI request. These two design modifications are summarised in the following sections.

2.1 Southern & Eastern Boundary Treatments

Following review of the subject documents, the biggest concern from the Council is seemingly the potential for development noise emissions to impact the future residential development area to the south. In the original design, a 1.2m high rail fence was provided along the top of the concrete retaining wall along the development's southern boundary. In the revised design submission, this boundary has been modified to enhance the solid concrete wall, raising it by up to 600mm.

See Figure 1 below.

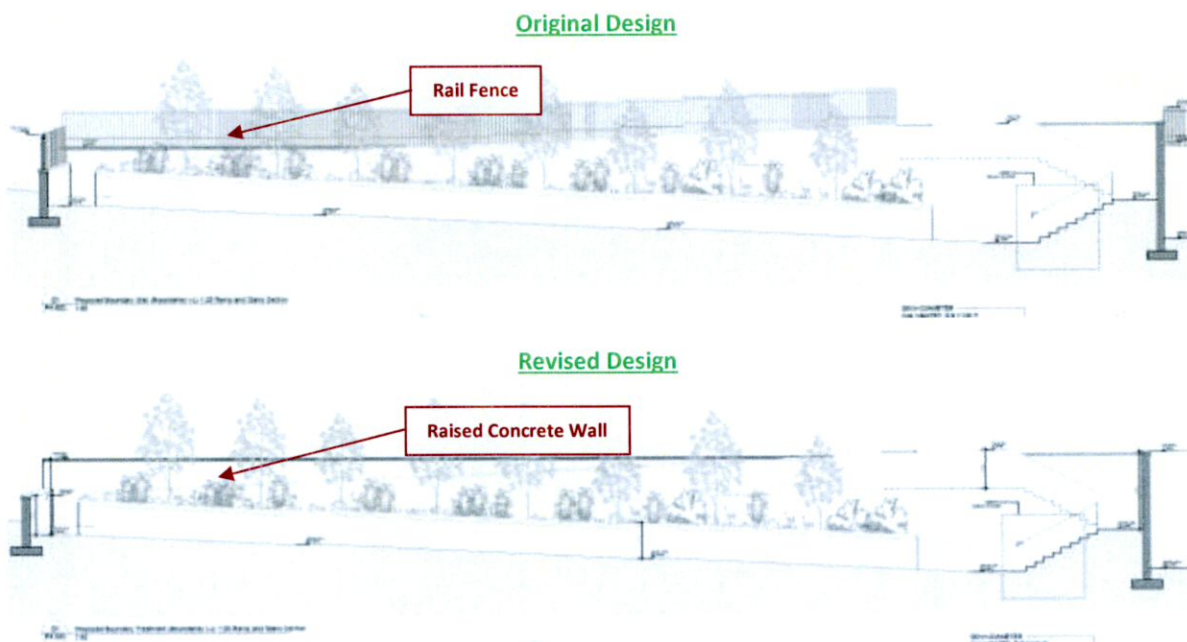


Figure 1 Development Southern Boundary Elevation

The eastern boundary wall has similarly been enhanced with the concrete wall raised to replace the previous railing detail.

See Figure 2 on the following page.

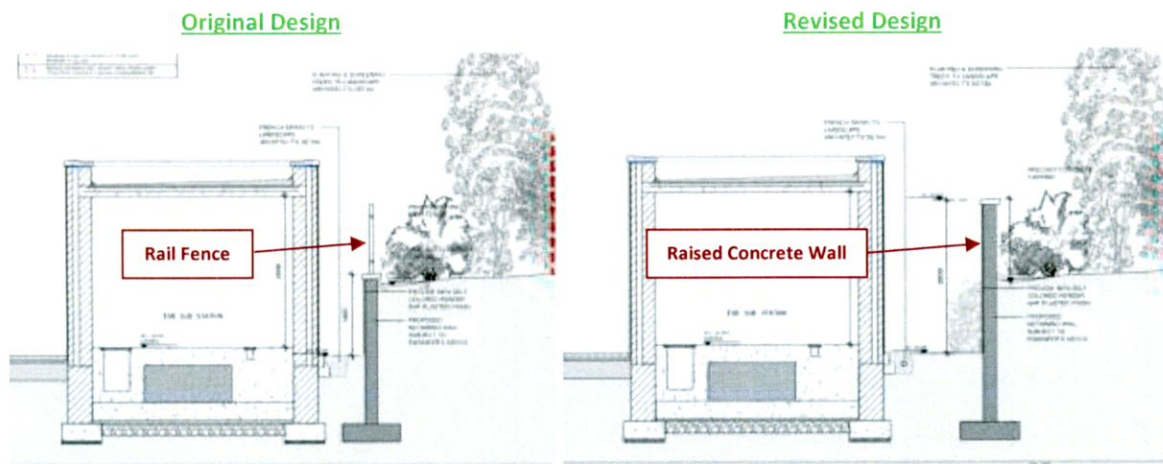


Figure 2 Section through Development Eastern Boundary

Given that the ground level of the LIDL development is already significantly below the elevation on the south side of the southern boundary, this enhanced concrete wall will effectively range between 3 - 4 m in height. A noise barrier wall height of this order would be considered both significant and effective in providing appropriate acoustic screening for the development from the future residential development buildings to the south. Although the predicted development noise emission levels in the CLV Noise & Vibration Impact Assessment Report at the future residential area to the south are already well below established best practice guidance criteria, the modification of this wall should reduce development noise emission levels even lower.

Similarly, the raising of the concrete wall to the east will, in conjunction with the raised elevation at the eastern boundary, create a solid boundary wall that is approximately 2.6m in height. Although the predicted development noise emission levels in the CLV Noise & Vibration Impact Assessment Report at the future residential area to the south are already well below best practice established criteria, The modification of this wall will also reduce predicted development noise emission levels even lower than the predicted levels in the CLV Noise & Vibration Impact Assessment Report (which are similarly within the established best practice guidance criteria) in potential future residential areas to the east.

2.2 External Plant Area

The external plant area in the original design was located adjacent to the delivery area along the southern façade of the retail building. However, in the revised design submission, the external plant area has now been split up with the refrigeration dry air coolers being shifted slightly to the north with both plant areas locating at ground level.

See Figure 3 on the following page.



Figure 3 External Plant Area Location(s)

Revised noise prediction calculations conducted to each of the nearest noise sensitive receptors resulted in no significant change (i.e. $\leq \pm 0.2\text{dB}$ in all instances) from the levels predicted in the CLV #22/0557R01A report. The primary reason for this is that the dry coolers are significantly quieter than the AC and DX units so they contribute very little to the overall composite noise level of all the external plant. However, there is also an increased acoustic shielding benefit provided by the perimeter and boundary walls for the future residential dwellings to the east that offsets the decreased distance. The distance from the shifted dry coolers to all other noise sensitive receptors either increased (e.g. noise sensitive receptors to the west) or remained of the same order (e.g. noise sensitive receptors to the north and south).

This design modification therefore has negligible impact on the findings of the development's noise impact assessment.

5.0 PLANNING DOCUMENT CONCERN RESPONSES

In addition to the comprehensive discussion of the design modifications detailed in the previous section, we have also specifically addressed each of the concerns raised in the Planning Documents as follows:

Clarification of Additional Information Item #1

3. The Applicant is requested to revise the proposed boundary treatment as follows:

(i) In order to achieve the most optimum amount of noise reduction the wall height at the southern end of the proposed development should be increased in line with the recommendations of the Environmental Health Officer.

CLV Response:

The southern boundary rail fence area was enhanced by raising the solid concrete wall up to 600mm. This wall will therefore give an effective noise barrier wall height of 3 - 4m. A wall of

this height would be considered both significant and effective in providing appropriate acoustic screening for the development from the future residential development buildings to the south.

Planning Report Item #1

1. The Environmental Health Department request that the boundary wall at the southern end of the development be raised above the currently proposed 2 metres. The currently proposed 2-metre high wall provide minimal mitigation against the noise impacts outlined above. In order to achieve the most optimum amount of noise reduction the wall height should be increased to the maximum level to be agreed by relevant engineers and acoustic experts.

CLV Response:

As discussed in the previous response, the southern boundary rail fence area was enhanced by raising the solid concrete wall up to 600mm which will give an effective noise barrier wall height of 3 - 4m. A wall of this height would be considered both significant and effective in providing appropriate acoustic screening for the development from the future residential development buildings to the south.

Although a small degree of additional attenuation would naturally be realized with further height increases, any additional height increases would be governed by the law of diminishing returns and would not be considered significant.

Planning Report Item #2

2. No equipment or machinery (to include pneumatic drills, construction vehicles, generators, etc) shall be operated on or adjacent to the construction site before 08:00 hours on weekdays and 09:00 hours on Saturdays nor after 19:00 hours on weekdays and 13:00 hours on Saturdays, nor at any time on Sundays, Bank Holidays or Public Holidays.

Any work outside of these hours shall only be permitted following a written request to the Planning Authority and subsequent receipt of the written consent of the Planning Authority, having regard to the reasonable justification and circumstances and a commitment to minimise as far as practicable any unwanted noise outside the hours stated above.

CLV Response:

These hours are similar to those recommended by British Standard *BS 5228 - 1: 2009+A1: 2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites - Part 1: Noise* and detailed in the CLV report. The only difference is that *BS 5228* allows works to commence at 07:00hrs on weekdays and Saturday (instead of 08:00 & 09:00hrs respectively).

Planning Report Item #3

3. Noise levels arising from construction activities shall not be so loud, so continuous, so repeated, of such duration or pitch or occurring at such times as to give rise to a noise nuisance affecting a person in any premises in the neighbourhood.

CLV Response:

The predicted noise levels from the development's various construction phases did not exceed the worst case adopted criterion of 65dB L_{Aeq} for construction activities at the facades of any of the nearby residential dwellings (and child care building) during any of the construction phases.

The only potential impact that was identified was on commercial tenants of the Kelly's Estates building given that portions of the building's extensions are to be demolished. We would therefore only recommend that demolition works are coordinated with Kelly's Estates to ensure as minimal disruption as possible and that the recommended guidance for reducing construction noise emissions in the CLV report (Section 6.1) be followed in order to ensure that Demolition Phase noise emissions are reduced as far as practical.

Planning Report Item #4

4. Once under construction the site is to be surrounded by a solid hoarding to a minimum height of 2.4m as specified in the acoustic report reference 22/0557R01 and dated 20th of July 2022.

CLV Response:

This is good practice and as recommended in the CLV report.

Planning Report Item #5

5. Noise due to the normal operation of the proposed development, expressed as Laeq over 15 minutes at the façade of a noise sensitive location, shall not exceed the daytime background level by more than 10 dB(A) and shall not exceed the background level for evening and night-time. Clearly audible and impulsive tones at noise sensitive locations during evening and night shall be avoided irrespective of the noise level.

CLV Response:

The recommended daytime criteria would be considered acceptable and consistent with or less stringent than the criteria established in the CLV report. However, it is unrealistic for a development located in a town centre with building services running for 24-hour periods to make zero contribution to the ambient noise level. Although the only development noise source that will be in operation during night time hours will be building services and noise from the selected building services plant are predicted to be below the ambient noise levels at the nearest noise sensitive receptors, they will still naturally have a contributory factor that could be construed as being non-compliant if a zero increase criteria is applied (even if technically complying with the intent of the condition).

We would therefore recommend that the recommended night time criterion is changed to '*shall not exceed the ambient noise level +3dB(A)*' in order to ensure a reasonable assessment datum. *Clearly audible and impulsive tones at noise sensitive locations during evening and night shall be avoided irrespective of the noise level* should also be applied accordingly.

Planning Report Item #6

6. The building services plant area located on the roof of the development must be enclosed with a 2 metres high boundary wall as specified in the acoustic report reference 22/0557R01 and dated 20th of July 2022.

CLV Response:

The building services plant areas will actually be located at ground level but will have 2m high boundary walls surrounding them as recommended in the CLV report.

Planning Report Item #7

7. Following commencement of the development the applicant is required to submit an Acoustic Verification report to South Dublin County Council. The report must confirm whether the development complies with Councils noise criteria relevant to this proposal:

Noise due to the normal operation of the proposed development, expressed as *L_{aeq}* over 15 minutes at the façade of a noise sensitive location, shall not exceed the daytime background level by more than 10 dB(A) and shall not exceed the background level for evening and night time.

(a) Acoustic design criteria or performance specifications that have arisen from the acoustic report or any subsequent acoustic assessment shall be finalised and verified by a suitably qualified acoustic consultant.

(b) The acoustic verification report must assess the impact of noise associated with deliveries with respect to existing and future receivers. Where modifications are required to reduce the noise impact these modifications must be included as clear recommendations for the subject development.

(c) This Acoustic Verification report should comprise of noise monitoring data at any noise sensitive locations. It should also include the cumulative noise level whereby the existing noise levels are included in assessment of the developments overall impact.

CLV Response:

An Acoustic Verification report is good practice. We would just again reiterate the recommendation to modify the night time criterion to 'shall not exceed the ambient noise level +3dB(A)' in order to ensure a reasonable assessment datum is provided.

Planning Report Item #8

8. The development shall be so operated that there will be no emissions of malodours, gas, dust, fumes or other deleterious materials, no noise or noise vibration on site as would give reasonable cause for annoyance to any person in any residence, adjoining premises, or public place in the vicinity.

CLV Response:

As stated in the CLV Noise & Vibration Impact Assessment Report, the predicted levels of noise and vibration emissions from the proposed development are within the established criteria at all adjacent noise sensitive receptors during both daytime and night time periods. There are therefore no significant noise impacts that are expected from the proposed development on any of the identified adjacent noise sensitive receptors during any time period.