EA Permitting Noise Management Plan

Site Address: Mucklow Hill, Halesowen, B63 8DL

Client Name: Oaktree Environmental

Project Reference: NP-012897-NMP

In partnership with:

Oaktree Environmental
Waste, Planning & Environmental Consultants

Authorisation and Version Control		
Revision	Reported By	Checked By
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Amendment History		
Revision	Date	Summary of Amendments
01	05/01/2026	--

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Delivering sustainable development by promoting good health and well-being through effective management of noise.

Contents

List of Figures

List of Tables

1. Noise Management Plan ('NMP')

This noise management plan outlines the methods by which the site operator will systematically assess and minimise the potential impacts of noise generated by the site. The noise management plan is a working document with the specific aim to ensure that:

- Noise impact is considered as part of routine inspections.
- Noise is primarily controlled at source by good operational practices and 'Best Available Techniques ('BAT'), including physical and management control measures.
- All appropriate measures are taken to prevent or, where that is not reasonably practical, to reduce noise emissions from the site.

The noise management plan addresses the impact of noise, and the control measures employed to mitigate the risk. These are supported through monitoring procedures to identify elevated levels and review complaints should they arise. The complaints management procedure is also addressed, which includes the management responsibilities.

1.1 Site Description & Context

The area surrounding the site is predominantly industrial / commercial in nature, however, various residential developments are scattered around the existing site. These are summarised below.

NSR	Distance from Site Boundary (m)	Description
NSR1	185	No. 3 & 4 Leasowes Lane
NSR2	220	No. 1 & 2 Sylvan Green.
NSR3	360	Properties off Ladypool Close.

Table 1 – NSR Identification

Across all of the above NSRs, road traffic noise from the surrounding networks was the dominant acoustic feature.

Hours of Operation

The following hours of operation shall be adhered to:

Periods	Proposed Operations
Monday – Friday	07:30 – 17:00 hours
Saturday	07:30 – 17:00 hours
Sunday	No operations
Bank & Public Holidays	No operations

Table 2 – Site Operating Hours

1.2 Maintenance and Review of the NMP

- The Site Manager will be responsible for the NMP and ensuring people are trained.
- The NMP will be kept in the site office.
- The NMP will be reviewed annually, or sooner in the event of substantiated complaint related to noise.
- Training needs are defined in the site EMS. Training will be given to all relevant persons to make sure they are competent in completing noise and vibration survey forms, noise and vibration complaint report forms and the site diary to ensure sufficient monitoring of noise and vibration can be carried out and any problems addressed correctly. This will include training to all new staff and re-training via toolbox talks, as applicable.
- Records of complaints and associated investigations will be maintained by the Site Manager, or suitably trained staff member, if the site manager is not available.
- All employees and sub-contractors of the company involved with potentially noise operations will receive training in noise and vibration monitoring and complaint reporting. Training will be given to all relevant persons to make sure they are competent in completing noise and vibration survey forms, noise and vibration complaint report forms and the site diary to ensure sufficient monitoring of noise and vibration can be carried out and any problems addressed correctly.

1.3 Noise Sensitive Receptors

Shown in the following figure are the closest noise sensitive receptors ('NSR').

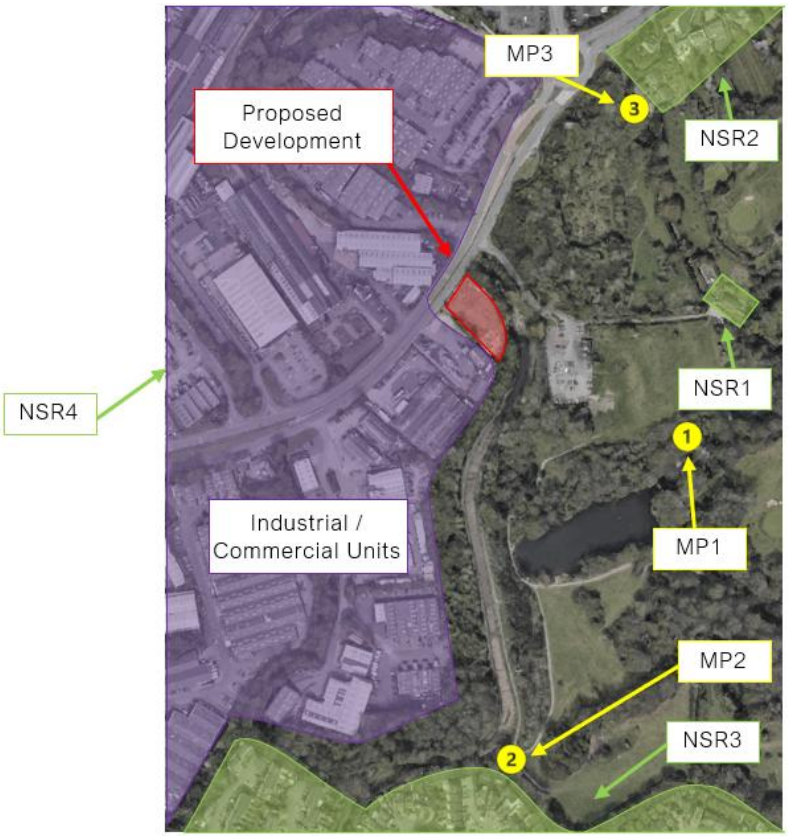

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Figure 1 – Measurement Locations and Site Surroundings

2. Noise Sources & Processes

2.1 NIA Conclusion – NP-012897

A BS4142 assessment has undertaken of the proposed bespoke permit operations in accordance with BS4142:2014+A1:2019, the Environment Agency's requirements and relevant national policy and guidance.

An initial screening assessment indicated that the following BS4142 outcomes are predicted at the following NSRs.

- Daytime 07:30 to 17:00 hours:
  - NSRs 1, 3 & 4 - 'Low Impact'
  - NSR2 - 'Adverse Impact'

Section 3.5 of the NIA report included a scheme of mitigation. The subsequent BS4142 noise impacts have been estimated based on the mitigated scheme:

- Daytime 07:30 to 17:00 hours:
  - NSRs 1, 3 & 4 - 'Low Impact'
  - NSR2 – A low likelihood of 'Adverse Impact'

A discussion was then formed detailing that the noise impact predicted at NSR2 was dominated by the open roller shutter door noise breakout emissions, it is likely that with careful consideration for equipment selection and a scheme of reverberant sound energy control inside the building, noise impact reductions of up to 6dB are possible.

It is important to note that the proposed development is situated within a predominantly commercial/industrial area, where the existing noise climate is already influenced by similar industrial activities. As such, it is reasonable to assume a degree of community acclimatisation to this type of noise sources.

2.2 Noise Sources

Mobile Plant Sources

The below noise sources are based upon previous NOVA Acoustics measurements, which have been used to indicatively model the proposed activities.

Description	1/1 Octave Frequency Band (Hz, L_W dB)								L_{WA} (dB)	On-Time Correction (per 1-hour)
	63	125	250	500	1k	2k	4k	8k		
15-tonne Excavator (JCB JS145LC) Movement [1]	100	101	97	93	89	86	81	78	95	5no.
16-tonne Excavator (clearing site) [3]	106	98	100	96	95	94	101	93	104	30 (min)
Telehandler Pass-by (JCB 542-70) [1][2]	101	101	97	94	92	90	86	86	98	60no.

Truck/Skip Wagon Pass-by [1]	95	87	86	90	92	87	79	71	94	5no.

Notes:
[1] Taken from noise data measured by NOVA Acoustics, as per NP-011281.
[2] This includes a broadband reversing alarm.
[3] Taken from ref no. 13 in Table C.1 of BS5228.

Table 3 – Sound Power Levels of Mobile Plant

Internal Noise Breakout Emissions

Measurements have previously been carried out within a waste sorting building (NP-011281). The building included the use of a trommel, and shredder permanently located inside, as well as associated belts and a cabin used for the sorting of recycled waste by on-site personnel. Excavators and telehandlers also frequented inside the building during the measurements.

A summary of the ambient noise levels measured within the building are shown below. The noise emissions shown below equate to an average of across the building when the loudest items of plant were operating.

Description	1/1 Octave Frequency Band (Hz, L_{eq} dB)								dBA
	63	125	250	500	1k	2k	4k	8k	
Waste Sorting Building	92	83	86	86	86	83	80	77	90

Table 4 – Predicted Internal Ambient Noise Levels

The construction details for the building are unknown at this stage. Outlined in the following table is the assumed sound insulation for each building fabric element.

Located externally are storage bays and a 'lean-to' structure. It will be assumed these are constructed from blockwork.

Description	1/1 Octave Frequency Band (Hz, SRI dB)								R_w (dB)
	63	125	250	500	1k	2k	4k	8k	
AWP/60 with no lining or insulation (Wall)	12	16	19	23	26	22	39	39	25
KS1000 RW/30 with no lining or insulation (Roof)	8	17	20	23	23	23	41	41	25

Table 5 – Assumed Sound Insulation of Building Fabric Elements

2.3 Required Mitigation & Noise Control Measures

It is deemed that to reduce and maintain the predicted noise levels, Best Available Techniques ('BAT') are employed. These have been detailed in the noise impact assessment, however, have been reproduced below for reference.

1. Plant Specification, Procurement & Site Design

- Where practicable, procure quieter plant such as an electrically powered.
- Install exhaust silencers for all excavators and validate its effectiveness via additional measurements.
- Prior to commissioning, undertake on-site verification measurements within the proposed building to confirm compliance with predicted internal ambient noise assumptions.
- The roller shutter door should be capable of providing at least 20dB R_W when closed and remain closed whenever possible.
- The 5m tall acoustic screen should be erected as per Figure 2 overleaf. The screen shouldn't contain any holes or gaps and have a surface mass of at least 15kg/m^2. This should be developed further during a more detailed design stage, and the associated noise impact effects verified prior to commissioning the works.

2. Operational Controls

- Drops heights should be reduced where practicable; this would include excavator operations.
- Rattling of the excavator bucket should be reduced to a minimum.
- Position mobile plant and loading operations away from sensitive boundaries where possible, with preference for shielding provided by buildings and barriers.
- Restrict reversing alarms to broadband or "white noise" types.

3. Ongoing Noise Management

- Implement the site-specific Noise Management Plan including staff training, preventative maintenance, monitoring, complaint procedures, and reporting.
- Establish routine noise monitoring detailed in the Noise Management Plan to validate compliance and support continuous improvement.

4. Review and Continuous Improvement

- Reassess noise performance following commissioning of the building and external mobile plant.
- Where necessary, refine mitigation and operational practices to ensure noise impacts remain within the thresholds consistent with the NPSE and EA permit requirements.

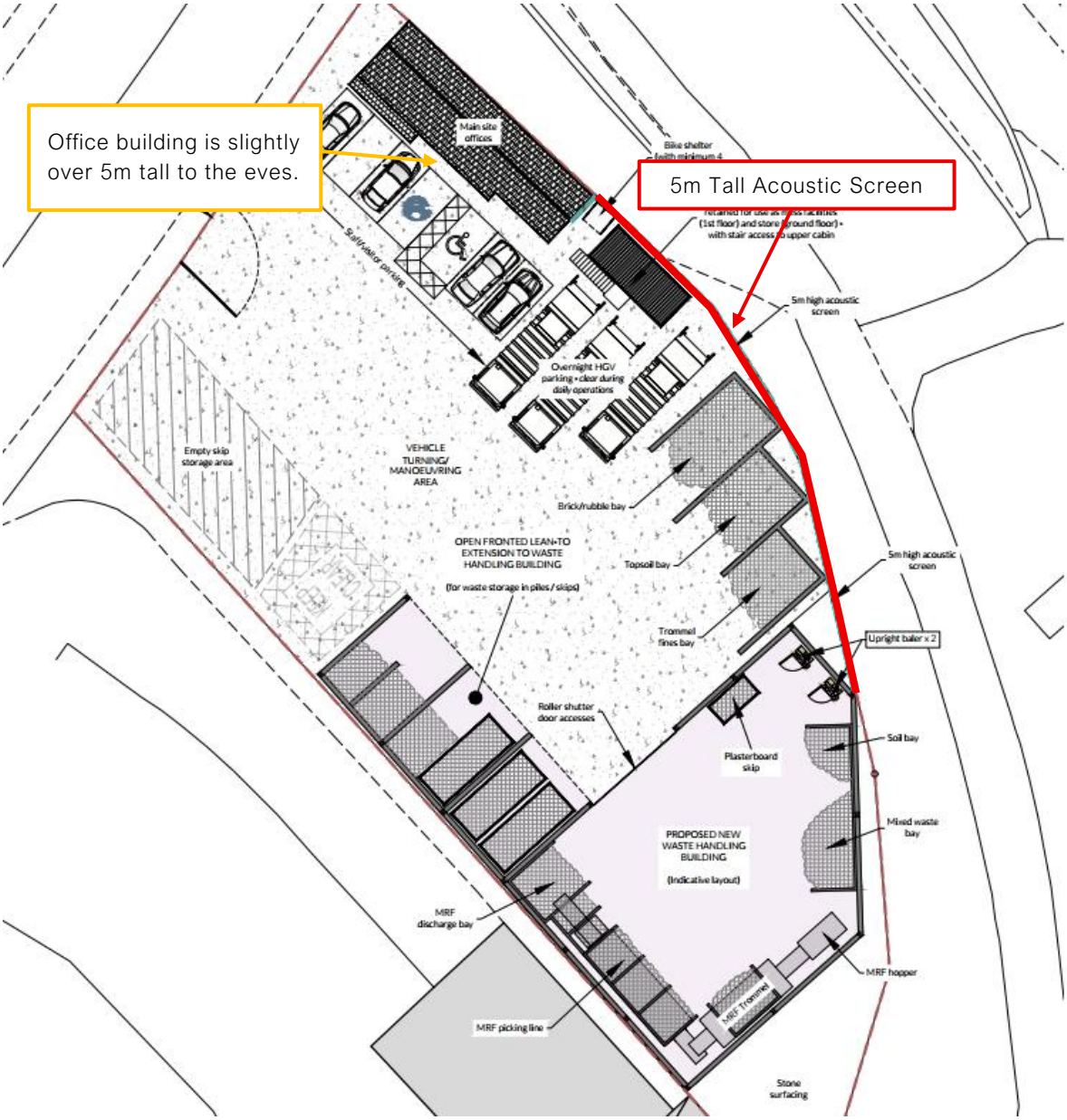

Figure 2 – Proposed Acoustic Screen Location

2.4 Equipment Maintenance

All failed/broken plant and equipment will be replaced with equivalents that produce equal or lower levels of noise. This will be verified with manufacturers technical datasheets or on-site noise measurements.

All plant and machinery will be regularly and properly maintained in accordance with the preventative maintenance schedule of which the appropriate staff will be trained in.

2.5 Operator Monitoring Plan

Monitoring of noise emissions from the site will be undertaken both subjectively and objectively.

Continuous Subjective Noise Monitoring

- All operational staff will, as part of their induction, be made aware of their roles and responsibility. It is the responsibility of all staff to be aware of noise on site and to report any potential noise issues to the sites Operations Manager at the earliest opportunity.
- All staff will have refresher training on noise issues, prevention and management at six-monthly intervals.
- If members of staff report any instances of elevated noise, this should be investigated immediately. In the event that increased noise levels are verified; the source of the noise should be taken out of commission and must be fixed/corrected prior to the equipment being put back into commission.
- A visual inspection of all equipment should be made before use to ensure that there are no obvious faults or malfunctions that could lead to elevated noise levels. It will be ensured that all noise mitigation measures (silencers, etc.) are installed as per manufacturer's guidance.

Objective Noise Monitoring

- A class 2 sound level meter should be purchased to measure sound levels on site. This will take place during typical operations when the site is in use and associated plant vehicles are operating as normal.

Monthly Measurements

Noise levels will be measured at monthly intervals in the locations shown below.

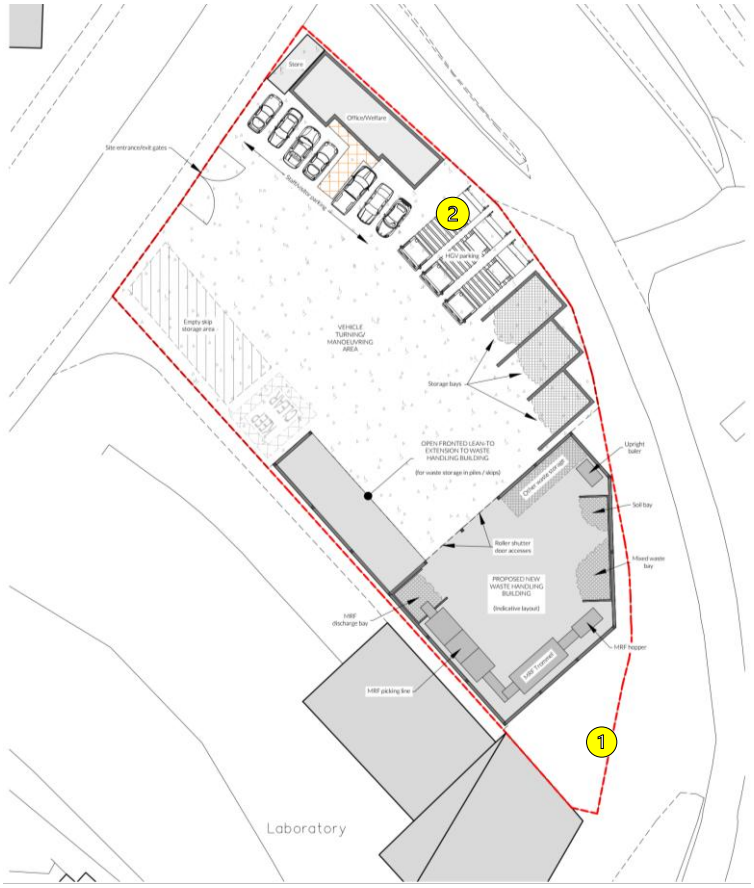

Figure 3 – Proposed Monitoring Locations

- $L_{Aeq,1hour}$ (A-weighted noise levels averaged over a 1-hour assessment period) and L_{AFmax} noise levels will be recorded. Measurements taken on site will be compared with previous measurements. If $L_{Aeq,1hour}$ noise levels increase by more than 3dB from the previous month then the cause of the increase shall be investigated.
- When the source of the elevated noise levels is discovered, remedial work shall be undertaken to reduce noise emissions to 'normal' levels. If complex remedial work is required, the offending equipment will be taken out of commission until repair work is completed. This will be logged in an IMS (Issue Management System).

2.6 Management Control Measures

- Users of on-site plant and equipment complete a daily defect log at the beginning of the working day if they observe that their vehicle is not working to its optimum. An on-site mechanic actions the defect log on the same working day and machines are not used until this action has been completed.
- Tool-box talks are provided by site management on a regular basis to site operatives. These talks include all aspects of the management plans for this site.
- Plant maintenance schedules using the manufacturer's recommendations where vehicles are serviced after 500 hours of operation.
- Pre-use checks are completed prior to using plant and equipment daily.
- Defects are reported and actions are taken to rectify the problem or remove the offending item from service until such time as the issue is resolved.
- All plant and equipment are visually inspected by the operator at the end of the working day.
- Throughout the day operators are vigilant in checking vulnerable areas like exhausts and engine bays.
- Specialist contractors are used to perform maintenance outside the scope and expertise of the site management and operatives.
- All documentation relating to plant and equipment maintenance is retained in the site office for inspection.

2.7 Noise Complaint Investigation

It is understood that an Issue Management System ('IMS') is not currently implemented.

Therefore, this should be completed by a site manager and should include a site diary, plus forms and records of complaints. Further to this, a complaints procedure should be implemented; this procedure would need to allow for all complaints, feedback and requests made by third parties regarding the site's operational activities, as well as the health and safety performance or quality of service/product.

A phone number for the site manager should be available online (it is understood that this available) in order to allow for any member of the public to lodge a complaint without entering the operational site. The operations manager will be specifically assigned to deal with complaints.

All complaints received from third parties including statutory authorities, statutory consultees, members of the general public and representatives of the company will be forwarded to the operations manager to action as below within 2 hours (where feasible). The complaint will be logged in the incident database within 72 hours.

The operations manager will ensure that:

- The complaint is investigated to identify the cause, if necessary, this may involve direct communication with the complainant.
- The noise source will be measured using a class 2 sound level meter and compared with monthly objective monitoring records.
- In the event of elevated noise being detected, the presence of 'abnormal' onsite activity is assessed and if necessary, action is taken immediately to prevent a reoccurrence of the same problem. These actions must be documented.
- The complainant will be contacted and given information on the investigations conducted and actions taken as appropriate.
- All complaints are reported to regional directors and discussed at site meetings.
- Details of other complaints are sent to the other company personnel as appropriate.

If the investigation indicates that the complaint has not been justified this will be clearly recorded on the incident report. All complaints will be logged.

2.8 Reporting Measures

In the event of elevated levels of noise being identified, the event will be reported into the IMS by a member of operational staff. Upon notification of an environmental incident, the site manager will complete an incident reporting form. The completed form is then distributed throughout the company for review at operational, management and health and safety meetings.

All performance failures will be categorised for input into the IMS as follows:

- Minor event: quick fix possible, locally resolved.
- Medium event: brief disruption to service, management intervention required.
- Major event: significant disruption to service.

Each non-conformance category must have a given deadline for rectification. The deadline for each category is:

- Minor Event: within 24 hours
- Medium Event: within 6 hours
- Major Event: within 1 hour

The IMS/EHS will record any actions taken to rectify the issue, ensure that any necessary actions or review are recorded onto the IMS/EHS and ensure that the person reporting the incident is notified. The site manager will investigate the performance failure within a reasonable time frame (ideally 2 hours). Once the issue has been resolved, the corrective action will be entered onto the system, and the issue will be closed.

Appendix A – Acoustic Terminology

A-weighted sound pressure level, L_{pA}	Quantity of A-weighted sound pressure given by the following formula in decibels (dBA). $L_{pA} = 10 \log_{10} (pA/p_0)^2$. Where: pA is the A-weighted sound pressure in pascals (Pa) and $p0$ is the reference sound pressure (20 µPa)
Background Sound	Underlying level of sound over a period, T, which might in part be an indication of relative quietness at a given location
Equivalent continuous A-weighted sound pressure level, $L_{Aeq,T}$	Value of the A-weighted sound pressure level in decibels (dB) of a continuous, steady sound that, within a specified time interval, T, has the same mean-squared sound pressure as the sound under consideration that varies with time
Facade level	Sound pressure level 1 m in front of the facade
Free-field level	Sound pressure level away from reflecting surfaces
Indoor ambient noise	Noise in a given situation at a given time, usually composed of noise from many sources, inside and outside the building, but excluding noise from activities of the occupants
Noise Criteria	Numerical indices used to define design goals in a given space
Noise Rating (NR)	Graphical method for rating a noise by comparing the noise spectrum with a family of noise rating curves
Octave Band	Band of frequencies in which the upper limit of the band is twice the frequency of the lower limit
Percentile Level, $L_{AN,T}$	A-weighted sound pressure level obtained using time-weighting “F”, which is exceeded for N% of a specified time interval
Rating Level, $L_{Ar,Tr}$	Equivalent continuous A-weighted sound pressure level of the noise, plus any adjustment for the characteristic features of the noise
Reverberation time, T	Time that would be required for the sound pressure level to decrease by 60 dB after the sound source has stopped
Sound Pressure, p	root-mean-square value of the variation in air pressure, measured in pascals (Pa) above and below atmospheric pressure, caused by the sound
Sound Pressure Level, L_p	Quantity of sound pressure, in decibels (dB), given by the formula: $L_p = 10\log_{10}(p/p_0)^{2.}$ Where: p is the root-mean-square sound pressure in pascals (Pa) and $p0$ is the reference sound pressure (20 µPa)
Weighted sound reduction index, R_w	Single-number quantity which characterizes the airborne sound insulating properties of a material or building element over a range of frequencies


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