Appendix 8: Qualitative noise assessment

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Memo

Project number	MON.024.b
Project name	Sheffield Permitting Support
To	Mondelez UK Confectionery Production Ltd
From	Project Environmental Solutions Ltd
Date	17 July 2026
Subject	Qualitative Noise Assessment

Qualitative Noise Assessment

As part of pre-application discussion, the Environment Agency (EA) carried out a qualitative noise screening assessment for the Mondelez Sheffield site. This concluded that a noise impact assessment does not need to be provided with this permit application. However, noise should still be considered qualitatively in the risk assessment and Mondelez must meet the requirements of BAT 14. Refer to enhanced pre-application letter included as Appendix 1. In line with this guidance, a qualitative risk assessment for noise is provided below and a review against BAT 14 requirements is provided in Section III: Supporting Information in response to Form B2, Q6.

In completing the qualitative noise risk assessment for site activities, the following factors have been considered:

- The proximity and sensitivity of nearby receptors
- The existing environmental sound climate at the receptors
- The operational characteristics of the sources
- Any recorded complaints.

Receptors

Potential noise sensitive receptors, due to sensitivity and/or distance from site, have been identified in all cardinal directions. Due to shielding by other dwellings and buildings, receptors beyond this distance are less likely to be affected. Assessing those closest to the site and confirming no impacts will imply no impacts for receptors further away. Sensitive receptors are presented in Table 1 below and are shown in Figure A:

Table 1 Noise and Vibration Sensitive Receptors

Receptor Reference	Receptor Description	Receptor Type	Approximate Distance/Direction from Site Boundary (m)
A	Dwellings at the end of Broughton Rd	Residential	200 m W
B	Dwellings along Penrith Rd	Residential	300 m NE
C	Dwellings along A61 Penstone Rd	Residential	185 m W
D	Parkwood springs	Open land used for recreation	175 m E
E	Hillsborough Park	Open land used for recreation	265 m W
F	Hillsborough College (School)	School	240 m S
G	Traveller site, Club Mill Road	Residential	120 m E

Figure A: Location of nearest noise sensitive receptors



Existing Environmental Sound Climate

Mondelez Sheffield is in an urban location close to a major city centre. Traffic and general background noise levels are noticeable, especially during daytime hours. The site is located within a predominantly industrial / commercial area, beyond which lies a variety of land uses including residential and amenity areas. The River Don runs adjacent to, and also splits the site. To the east beyond the River Don is Parkwood Springs, a large area of natural land including woodland and heath. Hillsborough Park recreation area is located approximately 265 m to the west and the nearest school is located approximately 240 m to the south.

Residential housing is located approximately 185 m and 200 m to the west of the site (receptors A and C) but these residential areas are separated from the site by other industrial / commercial sites and by the main A61 trunk road, which are likely to be a significant source of noise. Residential housing is also located approximately 300 m to the northeast and at a greater distance to the north and southwest. A travellers' site on Club Mill Road, is located approximately 120 m to the east of the site.

Operational Characteristics

The sources of noise associated with this installation include:

- Raw materials deliveries and finished product despatch, including vehicle movements on site.
- Operation of plant items including boilers, refrigeration equipment and various fans and pumps.

All of the activities described within the permit variation application are existing and will continue to operate in the same manner as their established use (e.g. hours of operation and load).

There are no sources of vibration from the site that have the potential to impact off-site receptors.

Complaints History

There are no records of substantiated noise complaints associated with site operations.

Risk Matrix

Table 2 details a risk matrix setting out overall risk levels associated with the site operations with regards to noise. In completing the assessment consideration has been given to the distance from site of potential sensitive receptors and the existing background noise characteristics of the area. Due to there being no sources, vibration is not considered further in the risk assessment.

The combined assessment of site operations, in terms of noise impacts, is that the probability of exposure is unlikely, the consequence is mild, with the overall risk level being low. The risk assessment methodology used in this assessment is provided in Appendix A.

On the basis of the qualitative risk assessment, and in light of the operating history of the plant including no previously recorded noise complaints, no further controls are considered necessary in respect of the permitted operations. Site management practices included within Mondelez management systems, which include provisions for plant maintenance and complaints handling, will continue to be applied.

In line with the Food, Drink and Milk Industry BAT conclusions document statement that a noise management plan is only applicable to cases where a noise nuisance at sensitive receptors is expected and/or has been substantiated, a noise management plan is not considered necessary at this time. In the event of material changes to the local noise environment, or location or sensitivity of nearby receptors, or should substantiated complaints arise, this position should be reviewed as part of normal site management reviews and controls.

Table 2 Risk Matrix

Hazard	Receptor	Pathway	Risk Management Techniques	Probability of Exposure	Consequence	Overall Risk
Boiler operations and steam systems	Residential	Airborne	All boilers are located internally within the boiler house building, providing attenuation of noise. Noise from the boiler stacks is not considered significant. A planned maintenance system is in operation ensuring that equipment is appropriately maintained thereby avoiding excessive noise generation.	Unlikely	Mild	Low
Refrigeration / chiller plant operation	Residential	Airborne	Refrigeration plant are located either internally or in some cases externally, either at roof or ground level. A planned maintenance system is in operation ensuring that equipment is appropriately maintained thereby avoiding excessive noise generation.	Unlikely	Mild	Low
Operation of dust handling units	Residential	Airborne	The dust handling units are at ground level in a central location on site, located such that surrounding structures shield potential receptors from the noise source. The exhausts are fitted with a silencer. A planned maintenance system is in operation ensuring that equipment is appropriately maintained thereby avoiding excessive noise generation.	Unlikely	Mild	Low
Vehicle movements associated with materials delivery, despatch of finished product, waste collections and on site shunting operations	Residential	Airborne	Vehicle movements associated with deliveries (including ingredients and packaging), waste collections and product despatch take place primarily during the daytime hours when background sound levels are higher. Despatch of finished products takes place at dedicated loading docks which are fully enclosed, ensuring that any external noise associated with loading activities is minimal.	Unlikely	Mild	Low
General noise breakout from internal production areas	Residential	Airborne	Due to stringent food hygiene restrictions, production takes place internally and windows and doors are kept closed at all times. Ventilation is provided by a range of either mechanical or passive systems. A planned maintenance system is in operation ensuring that equipment is appropriately maintained thereby avoiding excessive noise generation.	Unlikely	Mild	Low
Operation of pumps and motors (various) including raw material and effluent pumps	Residential	Airborne	Pumps and motors are located primarily within internal location, in below ground pits (effluent pumps) or otherwise within contained or covered environment, minimising potential for excessive noise generation. A planned maintenance system is in operation ensuring that equipment is appropriately maintained thereby avoiding excessive noise generation.	Unlikely	Mild	Low
Operation of compressed air systems – compressor operations, compressed air use including leaks	Residential	Airborne	The compressors are located at ground level adjacent to the boiler house and within a brick building. The compressors are new plant and have a low noise specification. A planned maintenance system is in operation ensuring that equipment is appropriately maintained thereby avoiding excessive noise generation.	Unlikely	Mild	Low
Operation of air handling units, air extraction, exhaust and ventilation systems	Residential	Airborne	Air handling units are generally located at roof with other extraction and ventilation systems on building facades. The design of fans and ducts considers turbulence and obstructions, which could lead to higher noise generation potential. A planned maintenance system is in operation ensuring that equipment is appropriately maintained thereby avoiding excessive noise generation.	Unlikely	Mild	Low

Appendix A: Risk Assessment Methodology

A generic environmental risk assessment methodology employed for the qualitative risk assessments undertaken as part of this application. This is provided in Tables A1 to A4 below. Within the context of noise, the primary issue would be impacts to human health ranging from nuisance to permanent health damage, and/or potential disruption or damage to sensitive habitat locations or protected species.

The overall risk rating for each of the identified risk scenarios is determined on the basis of the probability of the scenario occurring (the probability/likelihood score) and the environmental consequence(s) if the scenario were to occur (the consequence score). The probability and consequence categories used in this methodology are provided in Tables A1 and A2 below.

Table A1 Classification of Consequences

Classification	Definition
Severe	• Acute risks to human health. • Short-term risk of pollution of water resource (e.g. major spillage or release of highly polluting substance). • Ecological system effects – substantial or irreversible adverse changes to a protected location. Immediate risks • Catastrophic damage to buildings or property (e.g. explosion causing building collapse).
Medium	• Chronic risks to human health. • Moderate pollution of water resources (e.g. moderate spillage volumes or release of materials with moderate potential for damage). • Ecological system effects – adverse changes to a protected location. • Significant damage to buildings, structures and services (e.g. damage rendering a building unsafe to occupy, such as foundation damage).
Mild	• Non-permanent health effects to human health. • Minor pollution of non-sensitive water resources. • Damage to non-sensitive environments (unprotected ecosystems e.g. crops). • Minor damage to buildings, structures and services
Minor / Negligible	• Negligible, non-permanent health effects to human health easily prevented by appropriate use of PPE. • Minor damage to non-sensitive environments (unprotected ecosystems e.g. crops). • Easily repairable effects of damage to buildings, structures, services or the environment (e.g. discoloration of concrete, loss of plants in a landscaping scene).

Table A2 Classification of probability / Likelihood

Classification	Definition
High Likelihood	An event is very likely to occur in the short term, and is almost inevitable over the long term.
Likely	It is probable that an event will occur. It is not inevitable, but possible in the short term and likely over the long term.
Unlikely	Circumstances are possible under which an event could occur. It is by no means certain that even over a longer period such an event would take place, and less likely in the short term.
Highly Unlikely	It is improbable that an event would occur even in the long term.

Table A3 below provides the matrix used to identify the overall risk category using these consequence and probability categories.

Table A3 Risk Matrix and Terminology Used for Risk Assessments

		Consequence			
		Severe	**Medium**	**Mild**	**Minor / Negligible**
Probability (Likelihood)	**High Likelihood**	Very high risk	High risk	Moderate risk	Moderate / Low risk
	Likely	High risk	Moderate risk	Moderate / Low risk	Low risk
	Unlikely	Moderate risk	Moderate / Low risk	Low risk	Negligible risk
	Highly Unlikely	Moderate / Low risk	Low risk	Negligible risk	Negligible risk

The overall risk categories are described in Table A4 below.

Table A4 Description of Risk Categories

Term	Description
Very high risk	Severe harm to a receptor may already be occurring OR a high likelihood that severe harm will arise to a receptor, unless immediate remedial action works / mitigation measures are undertaken.
High risk	Harm is likely to arise to a receptor, and is likely to be severe, unless appropriate remedial actions / mitigation measures are undertaken. Remedial works may be required in the short term, but likely to be required over the long term.
Moderate risk	Possible that harm could arise to a receptor but low likelihood that such harm would be severe. Harm is likely to be medium. Some remedial works may be required in the long term.
Moderate / low risk	Possible that harm could arise to a receptor, but where a combination of likelihood and consequence results in a risk that is above low, but is not of sufficient concern to be classified as medium. It can be driven by cases where there is an acute risk which carries a severe consequence, but where the exposure is unlikely.
Low risk	Possible that harm could arise to a receptor. Such harm would at worse normally be mild.
Negligible risk	Low likelihood that harm could arise to a receptor. Such harm unlikely to be any worse than mild.