ATTACHMENT 9 - APPLICANT NOISE MANAGEMENT PLAN

HOLCIM BRIGGS STREET BATCH PLANT WELSHPOOL

OPERATIONAL NOISE MANAGEMENT PLAN

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FOR

HOLCIM AUSTRALIA Pty Ltd

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1. INTRODUCTION

This Operational Noise Management Plan defines the noise mitigation and operational measures to be applied to the operation of the Holcim Briggs Street Welshpool Batch Plant.

The proposed redevelopment of the existing Holcim batch plant will improve efficiency and incorporate noise mitigation measures to facilitate compliance with the Noise Regulations at all times.

The existing site is within an Industrial Area, with residences on the northern side of Cohn Street. The proposed redeveloped batching plant is to incorporate noise mitigation and design to facilitate operation during the regulation Night-time period as some concrete pours are required during the early morning period. The measures to mitigate noise emissions to noise sensitive receptors include heavy vehicle access via Briggs Street (within the industrial area), and acoustic barriers to effectively attenuate noise towards receptors.

Operating Scenarios under consideration are:

A Day operation of the Batching Plant; and
B Night operation (under night operation management practices).

The neighbouring noise sensitive premises and batch plant location are shown on Figure 1.

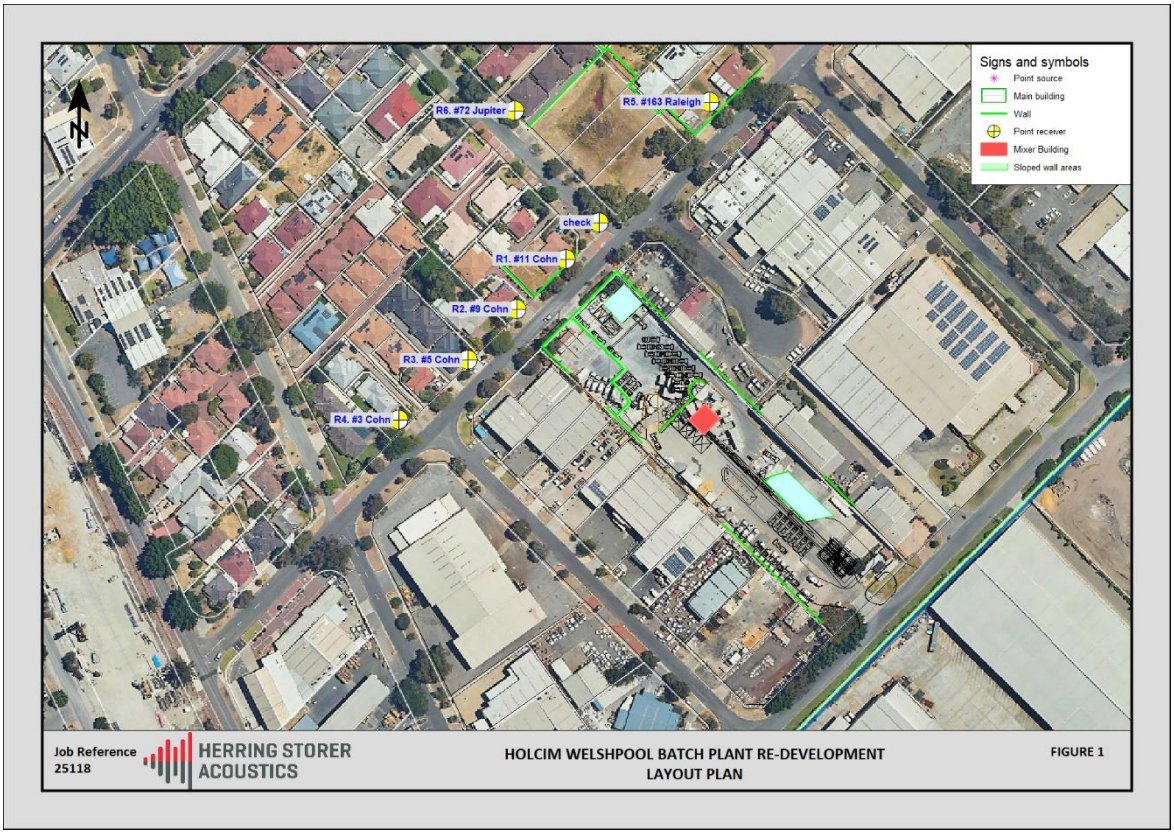

FIGURE 1 – AERIAL VIEW OF SITE AND NOISE SENSITIVE RECEPTORS

An acoustic assessment of the Holcim Briggs Street batch plant has been carried out (Herring Storer Acoustics report *34518-3-25118.* The assessment incorporates the necessary noise mitigation and operational measures to ensure compliance with the requirements of the *Environmental Protection (Noise) Regulations 1997*. Compliance with the requirements of the regulations will maintain the acoustic amenity of surrounding residential receptors.

Noise mitigation measures have been incorporated into the plant design, and operational practises adopted to maintain compliance with the requirements of the noise regulations. Operational measures to minimise noise during the night period have been incorporated within this management plan. During the night period regulation 'assigned levels' are reduced, reflecting an increased receptor sensitivity to noise emissions associated with general reductions in traffic and background noise and potential for sleep disturbance.

This Operational Noise Management Plan outlines the noise mitigation measures adopted to maintain acoustic amenity to surrounding residential receptors, documents these measures for operational personnel and regulators, and provides a basis for progressive review as the site develops.

2. SITE OPERATIONS

2.1 OPERATING HOURS

The Holcim Briggs Street Batch Plant is a 24 hour, 7 days per week operation.

The need for concrete batch operations during the night-time period is in response to specific projects. Some major projects require continuous concrete pours for large slabs, or in order to accommodate restrictive timeframes. These may include the requirement to pour in locations that have essential daytime services or have heavy traffic congestion during the day period (within passenger rail corridors or inner city locations for example).

Concrete pours are often required during the early morning period, when temperatures are lower, prior to the regulation 7am commencement of 'weekday' time period.

2.2 PROCESS AND EQUIPMENT

Operations during the regulation night-time period are modified to reduce agitator noise from the agitator park / traverse area of the site nearest Cohn Street and agitator washing is to occur in one of the multi-purpose slump stands. These measures locate all the night-time noise generating activity behind significant acoustic barriers.

Night-time operation

Noise management measures include planned park up of required agitators at southern materials area during the afternoon prior, and all heavy vehicle operations to be south of the 8m barrier wall during the night-time period. The most southern slump stand includes provision for use as a wash stand for night-time operations.

Day-time operation

Wash stands on the north side of the 8m acoustic barrier wall will operate, and agitators will move through the agitator parking area to the north of the day time wash stands. Day-time operation assessment criteria are based on the Public Holiday / Sunday criteria which is 5 dB(A) more stringent than the weekday criteria. Operations are not normally undertaken on Sundays and Public Holidays, however there may be occasional projects that require concrete pours on such days, thus provision has been made for operating during these periods.

The equipment types and sizes proposed for ongoing extraction operations are similar to those utilised in the past at this site. It is noted that as equipment is replaced, some items are expected to have reduced noise emissions as there has been a progressive reduction in the noise from fixed plant and mobile equipment over time, and this trend is likely to continue in response to world demand.

3. ENVIRONMENTAL RISK ASSESSMENT

Environmental noise emissions have been assessed through acoustic modelling, which is based on measured emissions of existing plant and operations, projected to future development scenarios.

The Holcim Gosnells operations include monitoring of noise at representative locations to the nearest residential receptors.

3.1 ACOUSTIC CRITERIA

The criteria used is in accordance with the *Environmental Protection (Noise) Regulations 1997 (as amended).* These regulations stipulate maximum allowable external noise levels. For the 'highly sensitive area' of a residential premises, this noise level is determined by the calculation of an influencing factor, which is then added to the base levels shown below. The influencing factor is calculated for the usage of land within two circles, having radii of 100m and 450m from the premises of concern. For other areas of a noise sensitive premises, commercial and industrial premises assigned noise levels are fixed. The base assigned noise levels for the 'highly sensitive area' of a residential premises and the assigned noise levels for other areas / premises are listed in Table 3.1.

TABLE 3.1 – ASSIGNED OUTDOOR NOISE LEVELS

Type of premises receiving noise	Time of day	Assigned level (dB)		
		$L_{A\ 10}$	$L_{A\ 1}$	$L_{A\ max}$
Noise sensitive premises: highly sensitive area (i.e within 15m of a dwelling)	0700 to 1900 hours Monday to Saturday	45 + IF	55 + IF	65 + IF
	0900 to 1900 hours Sunday and public holidays	40 + IF	50 + IF	65 + IF
	1900 to 2200 hours all days	40 + IF	50 + IF	55 + IF
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays	35 + IF	45 + IF	55 + IF
Noise sensitive premises: any area other than highly sensitive area	All hours	60	75	80
Commercial premises	All hours	60	75	80
Industrial and utility premises other than those in the Kwinana Industrial Area	All hours	65	80	90
Industrial and utility premises in the Kwinana Industrial Area	All hours	75	85	90

Note: The L_{A10} noise level is the noise that is exceeded for 10% of the time.
The L_{A1} noise level is the noise that is exceeded for 1% of the time.
The L_{Amax} noise level is the maximum noise level recorded.
IF = Influencing Factor

It is a requirement that noise from the site be free of annoying characteristics (tonality, modulation and impulsiveness) at other premises, defined below as per Regulation 9. Where the above characteristics are present and cannot be practicably removed, the following adjustments are made to the measured or predicted level at other premises.

TABLE 3.2 – ADJUSTMENTS FOR ANNOYING CHARACTERISTICS WHEN MUSIC IS NOT PRESENT

Where tonality is present	Where modulation is present	Where impulsiveness is present
+ 5 dB	+ 5 dB	+ 10 dB

Note: The adjustments are cumulative to a maximum of 15 dB.

Influencing Factors for the highly sensitive areas of a noise sensitive premises have been determined based on distance from 'major roads' and proportion of industrial and commercial land within 100m and 450m of representative residences.

It is the L_{A10} parameter which applies to majority of the activities on the Holcim site, including loading and slumping. The nature of batch plant operation is that there will be periods of full operational activity (usually in the morning) but there are often periods of low activity.

The mixing (during the loading phase) and slumping can generate tonal noise emissions.

To be compliant during the night-time period under the regulations, noise emissions from the proposed Holcim operations should not exceed an L_{A10} of 39 dB(A) at night at the nearest residential receptors on Cohn Street, after allowance for tonal characteristic. The influencing factor for these near receptors is 9 dB, with the night-time 'assigned level' being determined as an L_{A10} of 44 dB(A).

3.2 NOISE SENSITIVE RECEPTORS

The Holcim Briggs Street site is shown in Figure 1, together with the nearest identified noise sensitive receptors. The most critical receptor locations are residences on Cohn Street, including receptors R1, R2 and R3.

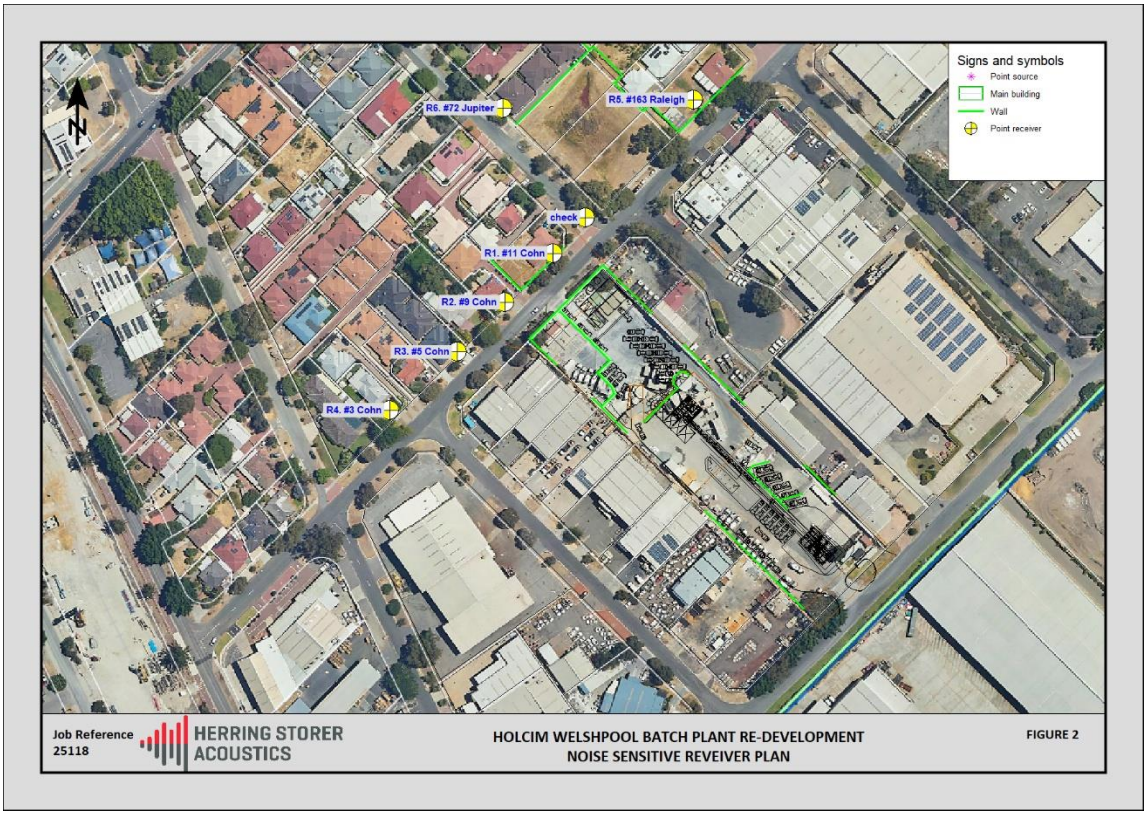

FIGURE 2 – AERIAL VIEW OF SITE AND NOISE SENSITIVE RECEPTORS

3.3 ASSESSMENT OF EMISSIONS

An acoustical assessment of noise emissions from the Holcim Briggs Street Batch Plant has been undertaken. The report (Herring Storer Acoustics report *34518-3-25118*) provides an acoustic assessment of site noise emissions and measures required to achieve compliance with the Noise Regulations.

Issues addressed during the assessment include:

- Prediction and mitigation of noise emissions to highly noise sensitive residential receptors.
- Identification of significant operational noise that needs to be managed to ensure compliance with the regulations. Weekday and Night-time operations were each assessed, taking into consideration the operational measures and 'assigned levels' applicable during these time periods.

3.4 COMPLIANCE WITH REGULATIONS

The acoustic assessment has identified the required noise mitigation and operational measures to ensure compliance with the 'assigned levels' of the *Environmental Protection (Noise) Regulations*. The assessment considers general operations during the day period, and specific operations during the regulation night-time period.

The acoustic assessment concluded that the Holcim Briggs Street Batch Plant operations will be compliant with the regulatory requirements at all times, providing the noise mitigation and management measures are implemented.

The acoustic assessment has been provided to regulators as part of the approvals process.

3.5 SOCIAL SURROUNDINGS - NOISE

The Environmental Protection Authority is mandated to consider the Social Surroundings for prescribed developments. The objective is to protect social surroundings from significant harm. Social surroundings can include public spaces such as parks and footpaths.

Noise emissions can affect the social surrounding in some circumstances. For the Holcim Briggs Street Batch Plant site, the operations have been ongoing for many years, thus activities associated with the operations are part of the normal environment for this region. The noise mitigation measures including significant acoustic barrier walls required for the night-time operations means that weekday noise emissions are expected to be reduced compared to historic noise emissions for this site.

There will be no significant impact from the Holcim Briggs Street operations to social surroundings.

3.6 ENVIRONMENTAL NOISE RISK ASSESSMENT

A summary of the major environmental noise risk sources and comment on how that risk is being managed are tabulated as follows:

TABLE 3.3 – ENVIRONMENTAL NOISE RISK ASSESSMENT

Noise Source	Management	Residual Risk
Materials Operations	Materials deposition locations are behind acoustic barriers, with tip grates and conveyor systems minimizing the duration and noise impact of materials deliveries..	L
Mixing Operations	Mixing is carried out within an enclosed building, with trucks behind acoustic barrier walls.	L
Agitator wash operations	Day operations within dedicated wash bays, with acoustic barriers. Night operations in multi-use slump stand to minimize noise emissions to noise sensitive receptors during the night-time period.	L
Slumping operations	Slump stands have been designed with acoustic barrier walls to mitigate slump noise emissions to receptor locations.	M
Reversing Alarms	Broadband alarms installed on agitators and mobile equipment.	L

Risk Rating: L – Low, M – Medium, S – Significant, H - High
Noise Sources with a risk rating of High require immediate action.

4. TRAINING OF SITE PERSONNEL

As an integral part of staff induction, relevant staff will be made aware of requirements of this Operational Noise Management Plan and what is required to ensure that site operations comply with this plan at all times.

Managers and supervisors will be trained in the process to respond to noise complaints and the need to be responsive in an appropriate timeframe, depending on the nature of the complaint and associated noise source(s).

5. NOISE MINIMISATION MEASURES

5.1 DESIGNED MITIGATION

Figure 3 shows the noise mitigation walls that have been incorporated into design.

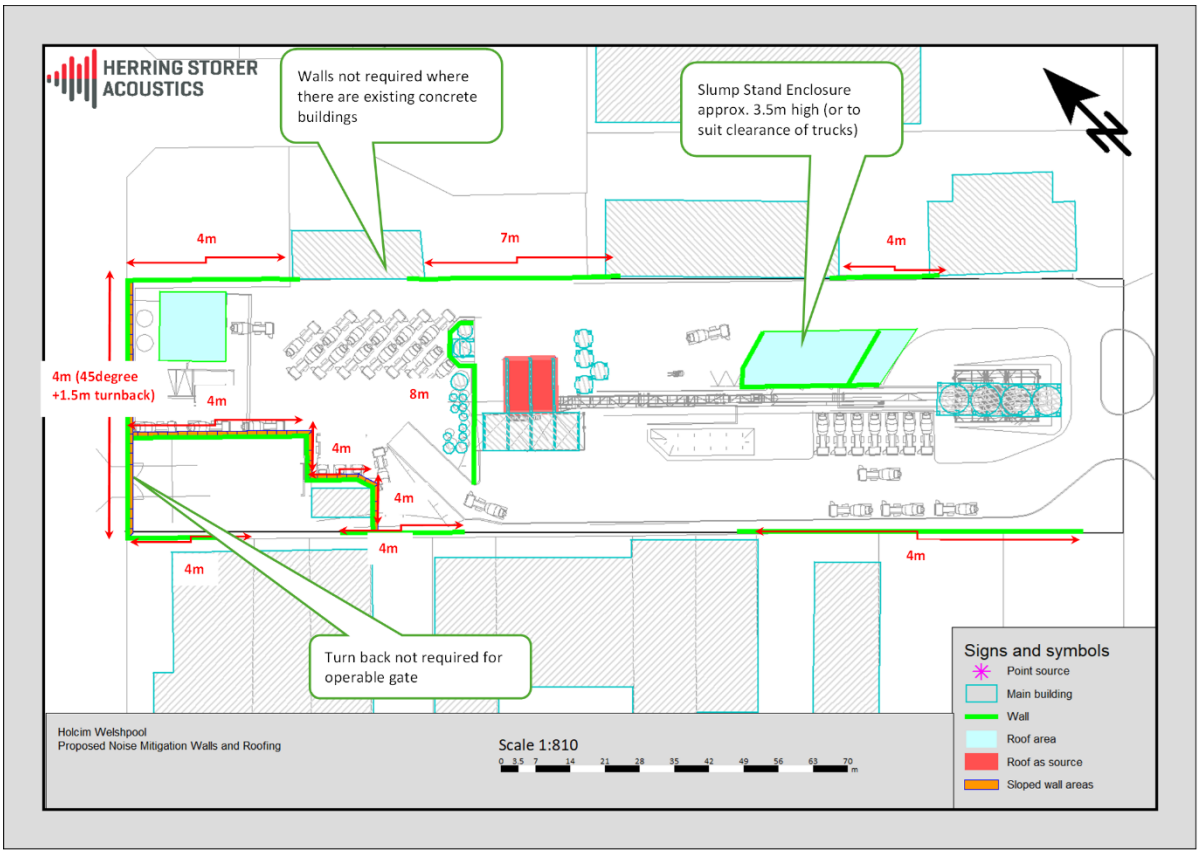

FIGURE 3 – ACOUSTIC MITIGATION WALLS

Walls close to agitators are assumed to be tilt up concrete or similar to at least 4m, with sheet metal above to be at least 0.6mm BMT (bare metal thickness).

5.2 GENERAL OPERATING PRACTISES

- Mobile equipment used during the night period to only be fitted with broadband alarms or alternative systems that do not generate tonal noise (no tonal reversing alarms).
- Equipment to be maintained in good condition, including standard sound attenuation such as exhaust mufflers.
- Noise mitigation enclosures, attenuators and barriers to be maintained and inspected as part of regular maintenance.

5.3 MANAGEMENT MEASURES

The following initial noise controls have been incorporated into the facility and operations:

5.3.1 General

- Mobile equipment enters and exits site via Briggs Street, within the industrial area. Only light vehicles use the Cohn Street entry.

5.3.2 Night Operation Specific

- Night-time noise management measures include planned park up of required agitators at southern materials area during the afternoon prior to the planned night operations, with all heavy vehicle operations to be south of the 8m barrier wall during the night-time period.

6. NOISE MONITORING

The noise monitoring objective is to check emissions to key receptors or representative monitoring locations where emissions have potential to be excessive.

It is usual to undertake noise monitoring once a project has been commissioned, to confirm the acoustic objectives have been achieved, and to identify any unexpected noise emission events / sources so that they can be mitigated / managed.

Ongoing noise monitoring is not usually required for projects that have been designed to achieve acoustic compliance and initial verification has demonstrated that design objectives have been achieved. However, over time operational methods and equipment can change, and in these circumstances additional monitoring may be required in the future.

Noise monitoring can provide input for revision of the Operational Noise Management Plan / operation planning, and information in response to complaints regarding noise emissions.

For the Cohn Street receptors, attended monitoring is usually the most effective method. There are no identified secure locations available to install statistical / short term monitors along Cohn Street.

7. COMPLAINT RESPONSE PROTOCOL

Where possible, the neighbouring residences should be encouraged to, in the first instance, report any complaints directly to Holcim. Holcim is to provide neighbouring residences a contact telephone number which will usually be answered within operating hours.

Any complaints received will be recorded in a log book, stating:

- The time and date of complaint;
- Where the complaint was from;
- Source of complaint if identified;
- If a verbal response was given to the resident, what was it and was the resident satisfied with the response; and
- Did any personnel go to the property to discuss the complaint and what was resolved at this point.

In the first instance the Holcim management are to check that the requirements of the Operational Noise Management Plan are being adhered to, and if practical make changes as soon as possible if the complaint relates to activities which are continuing to occur at that time.

After the complaint has been received and responded to, if there is ongoing complaint (over more than one occasion) then the noise levels representative of the activity of concern will need to be measured / assessed by a person experienced in measurement of noise and if required, appropriate adjustments made to correct any exceedances. The noise levels recorded and the location to be recorded in the log. Once assessed, Holcim shall provide a response to the complainant:

- Maintain a record of the assessments and response to the complainant.