

Acoustic Report

Environmental Noise Survey and Impact Assessment for the Proposed Variation to Condition 4, Planning Application 2015/90708 Unit 17, Flush Mills, Heckmondwike.

Our Reference – J2796-R2
Survey Dates – 29th January to 6th February 2019
Report by – Paul Horsley MIOA

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1.0 Agent

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2.0 Subject

Unit 17, Flush Mills, Westgate, Heckmondwike, WF16 0EN

3.0 Variation Proposal

There is a proposal to vary the existing Planning Permission No 2015/90708 Condition No 4 to allow unrestricted factory operational times within the industrial premises as follows:

Factory Operating Hours

24 hour Monday to Friday; and
06.00 to 18.00 Saturday, Sunday and Bank Holidays

Delivery / Servicing Hours

Unaltered from Planning Consent Condition No 4

The current Planning Permission Condition No 4 restricts the factory use as following:

4. No activities shall be carried out on the premises, including deliveries to or dispatches from the premises, outside the hours of 06:00 and 18:00 Monday to Friday and 08:00 to 13:00 Saturdays. No activities shall take place on Sundays or Bank Holidays.

4.0 Aims

The aim of this report is to determine the existing baseline background noise environment levels affecting the nearby noise sensitive residential premises within the vicinity of the site, in accordance with the requirements of BS4142:2014.

Provide an assessment of the results in accordance with the recommendations laid down in WHO, BS4142:2014 and BS8233:2014 for the site.

Provide an impact assessment of the potential incumbent noise sources with respect to the closest existing noise sensitive residential dwellings due to the site, prior to works extended operational hours commencing.

Provide mitigating noise control advice relating to the achievement of an acceptable internal environment for the residential development as recommended within World Health Organization's "Guidance for Community Noise, 1999" and BS8233:2014.

5.0 Location and Description of Existing Noise Sources

The premises under consideration are located at Unit 17 of the Flush Mills industrial estate and are occupied by Wakefield Acoustics Ltd, a manufacture facility producing noise control equipment primarily for the industrial sector.

The building is positioned on an established industrial estate on the western side of Heckmondwike town centre and measures approximately 62m x 73m and includes an office block inside the main factory building which has a main open plan production area with overhead crane and a mezzanine stores. There is external personnel parking to the south and west of the building.

The site does not have any external fixed ventilation / extraction plant, however, there are internal LEV extraction systems close to the relevant operations.

The building construction comprises of low level blockwork, with the upper portion of the walls and roof being formed from composite profiled metal cladding. To the southwestern facade of the building are 2 No large steel roller shutter doors for vehicular access to load and unload products internally.

The closest noise sensitive residential properties are located to the east of the site at Omar Street. Between the site and the residential properties is a 4m high brickwork wall which provides some level of visual and acoustic screening of the site. The site is in direct view from first floor windows of the properties. The south eastern corner of the building is 32m from the closest properties, with the roller shutter doors of the site approximately 71m from the closest property.

The primary noise source within the vicinity of the site is predominantly due to traffic noise from both commercial and domestic vehicles passing along the A638, Westgate, and the local road network. Industrial noise is audible from other units on the industrial estate and beyond throughout the daytime and nighttime periods.

High altitude aircraft noise is also audible intermittently throughout.

6.0 Guidance on the Assessment of Noise Levels

The purpose of any criterion or standard for environmental noise should be to safeguard against unacceptable levels of community response, deemed as a feeling of annoyance during daytime or disturbance at night. WHO defines annoyance as "...a feeling of displeasure evoked by noise."

The main source of information relating to noise and the community response are field studies including noise measurements and social surveys. These studies then attempt to establish a correlation between the two sets of results.

In the absence of any definitive guidance and in order to establish suitable noise criteria, it is necessary to rely on general guidance and assessment methods used for community noise sources. Discussions on the current methods are given below.

6.1 BS4142:2014 'Method for Rating and Assessing Industrial and Commercial Sound'

The standard describes methods for rating and assessing sound of an industrial and/or commercial nature, which includes:

- a) Sound from industrial and manufacturing processes;
- b) Sound from fixed installations which comprise mechanical and electrical plant and equipment;
- c) Sound from the loading and unloading of goods and materials at industrial and / or commercial premises; and
- d) Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train or ship movements on or around an industrial and / or commercial site.

The methods described in this British Standard use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

The standard compares sound from industrial / commercial sources with the background sound level.

In addition to the above, the standard states that "Certain acoustic features can increase the significance of impact over that expected from a basic comparison between the specific sound level and the background sound level". Such features are taken into account by adding a correction to the specific sound level

depending on the extent to which the distinguishing acoustic characteristics will attract attention. The standard states the following:

Tonality: For sound ranging from not tonal to prominently tonal the Joint Nordic Method gives a correction of between 0 dB and +6dB for tonality. Subjectively, this can be converted to a penalty of 2 dB for a tone that is just perceptible at the noise receptor, 4 dB where it is clearly perceptible, and 6 dB where it is highly perceptible.

Impulsivity: A correction of up to 9 dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3dB for impulsivity which is just perceptible at the noise receptor, 6 dB where it is clearly perceptible, and 9 dB where it is highly perceptible.

Other sound characteristics: Where the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied.

Where tonal and impulsive characteristics are present in the specific sound within the same reference period then these two corrections can both be taken into account. If one feature is dominant then it may be appropriate to apply a single correction. Where both features are likely to affect perception of response, the correction ought normally to be applied in a linear fashion.

Intermittency: When the specific sound has identifiable on/off conditions, the specific sound level ought to be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time. This can necessitate measuring the specific sound over a number of shorter sampling periods that are in combination less than the reference time interval in total, and then calculating the specific sound level for the reference time interval allowing for time when the specific sound is not present. If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3 dB can be applied.

BS4142 provides guidance on the assessment of noise impacts as below:

The significance of sound of an industrial / commercial nature depends upon both the margin by which the rating of the specific sound source exceeds the background sound level and the context in which the sound occurs. An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs / will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context.

Obtain an initial estimate of the impact of the specific sound by subtracting the measured background sound level from the rating level, and consider the following:

- Typically, the greater this difference (variance between impact of background and rating level), the greater the magnitude of impact.
- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending upon the context.
- A difference of around +5 dB is an indication of an adverse impact, depending upon the context.
- The lower the rating level is relative to the measured sound level, the less it is that the specific sound source will have an adverse impact or a significant impact. Where the rating does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending upon context.

The introduction of Uncertainty has been applied to the measured values; again, consideration of this is left to the professional executing the survey and assessment. However, steps are provided within the Standard for the reduction of uncertainty in both measurement and calculations of the sound source and rating value.

Actual meteorological conditions are now required to be recorded and reported upon for the survey and report.

6.2 National Planning Policy Framework, NPPF.

The newly incumbent National Planning Policy Framework, NPPF, provides advice to planning authorities in England on how they must seek to minimise the adverse impact of noisy activities on noise sensitive receptors. This NPPF, replacing PPG 24, and is not prescriptive with respect to specific noise levels, and is mainly concerned with the advising on good practice for environmental noise assessment.

In the absence of definitive noise criterion within the NPPF most Local Authorities in England default to the daytime noise levels inside dwellings not to exceed NR 35; and NR 25, to be achieved inside dwellings at night to avoid sleep disturbance, based upon ingress of external noise sources.

6.3 World Health Organization 1999 "Guidance for Community Noise"

This document provides a review of the effects of noise and a description of the principles of the WHO health criteria and guidelines for Community Noise.

The effects of noise in dwellings are identified as sleep disturbance, annoyance and speech interference. For bedrooms, the critical effect is sleep disturbance. Indoor guideline values for bedrooms are 30 dB LAeq for continuous noise and 45 dB LAm_{ax} for sound events. At night time, outside sound levels about 1 metre from facades of living spaces should not exceed 45 dB LAeq, so that people may sleep with bedroom windows open. This value is equivalent to that specifies in the Criteria 12 document; however it is now assumed that the noise reduction from outside to inside with the window open is 15 dB.

To enable casual conversation indoors during the daytime, the sound level of the interfering noise should not exceed 35 dB LAeq.

To protect the majority of people from being **seriously** annoyed during the daytime, the outdoor sound level from steady, continuous noise should not exceed 55 dB LAeq on balconies, terraces and in outdoor living areas. To protect the majority of people from being **moderately** annoyed during the daytime, the outdoor sound level should not exceed 50 dB LAeq.

Table 1 of the document summarises the guideline values for community noise in specific environments and includes the noise indices to be adopted. Significantly, the corresponding time base to be used for the assessment is also included.

The relevant extracts of Table 1 are reproduced thus:

Specific Environment	Critical health effect (s)	LAeq dB	Time Base hours	LAMax dB
Outdoor living area	Serious annoyance, daytime and evening	55	16	-
	Moderate Annoyance, Daytime and evening	50	16	-
Dwelling, Indoors	Speech intelligibility & moderate annoyance daytime & evening.	35	16	-
	Sleep Disturbance, night-time	30	8	45
Outside Bedroom	Sleep disturbance, window open (Outdoor Values)	45	8	60

6.4 BS 8233:2014, 'Guidance on sound insulation and noise reduction for buildings'

This revised British Standard relates to the requirements necessary to allow for design of new building or refurbished buildings undergoing a change of use. It provides guidance on acoustic criteria appropriate for various types of internal spaces. The criteria as noted within 7.7.2, internal ambient noise levels for dwellings; are reproduced below:

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living Room	35 LAeq, 16 hour dB	-
Dining	Dining Room / Area	40 LAeq, 16 hour dB	-
Sleeping (daytime resting)	Bedroom	35 LAeq, 16 hour dB	30 LAeq, 8 hour dB

These criteria are based upon average data and exclude occasional event noise.

The external noise criterion is noted as 50 dB LAeq,T, with the upper guidance value of 55 dB LAeq,T which would be acceptable for noisier environments. It is also noted that these criteria may not be achievable in noisier environments where developments are desirable, such as city centres or urban areas adjoining strategic transport networks. Where this is the case, the development should be designed to achieve the lowest practicable levels for external amenity spaces, but should not be prohibited.

7.0 Survey Equipment

Casella CEL-663C Sound Level Meter, Serial No 2145392 with Firmware Version V129-09

Microphone CEL-251, Serial No 547

Pre-Amp Filter CEL-495, Serial No 002218

Calibrator CEL-120/1, Serial No 2045165

Windshield

Tripod

All equipment holds a current valid manufacturer's Certificate of Conformity and Calibration issued on 18th July 2018, copy of which is available upon request.

8.0 Survey Method

An attended environmental noise assessment survey was carried out over a typical weekday evening and nighttime period, with additional daytime Sunday monitoring. The noise monitoring was executed between 29th to 30th January and the 3rd and 6th February 2019.

LA_{eq} and LA₉₀ sound measurements were taken using the sound analyser. The sound level meter was calibrated before and after the measurements using the calibrator to ensure accuracy of the results. No variations were noted between calibrations and the results obtained can be deemed to be an accurate representation of the levels recorded.

The measurement indices noted above are defined as follows:

LA_{eq, T} the "A" weighted equivalent continuous noise level of sample period T

LA_{90, T} the "A" weighted level exceeded for 90% of sample period T

In order to determine the existing baseline background noise climate, sound recordings were taken at the selected assessment positions in accordance with BS4142:2014.

Refer to Appendix A for a marked up locational plan of the site and survey point.

9.0 Prevailing Weather Conditions

29/01/2019 – Time 20:00 to 22:00 - 1°C, 88% RH, 1013mb, Wind W, 0-10mph, fair, road surfaces dry

29/01/2019 – Time 22:00 to 00:00 - -1°C, 88% RH, 1013mb, Wind W, 0-7mph, fair, road surfaces dry

03/02/2019 – Time 13.00 to 15.00 - 2°C, 75% RH, 996mb, Wind SW, 0-8mph, fair, road surfaces dry

06/02/2019 – Time 14.00 - 7°C, 81% RH, 989mb, Wind SW, 0-8mph, fair, road surfaces dry

10.0 Noise Survey Results

During the attended monitoring period noise samples were recorded using a 1/1 Octave Centre Band analysis. These monitoring samples were collected from the site boundary closest to the relevant noise sensitive dwelling to the unit.

The table of results on the following page indicate the noise levels recorded for the various locations selected during the monitoring period, with a brief description of the noise sources contributing to the individually monitored noise levels recorded.

An overview of monitoring positions is given below:-

1. Location 1 relates to a position on the industrial estate south eastern site boundary in the Craftstyle car park, closest to the Omar St residential premises.
2. Location 2 relates to a position 5m away from the factory roller shutter doors
3. Location 3 relates to a position at the side of the factory building.

This was to establish the general noise levels experienced by the closest residential premises and therefore likely to experience the worst case noise climate from the site activities.

The table of results on the following page indicates the noise levels recorded during the monitoring period.

The above monitoring location should be read in conjunction with the site plan appearing in Appendix A of this report.

Refer to Appendix B for the survey results frequency analysis table.

10.1 Noise Survey Results Table

WAKEFIELD ACOUSTICS, UNIT 17, FLUSH MILLS - NOISE SURVEY RESULTS TABLE

Location	Description	Survey ID	Duration HH:MM:SS	Start Date & Time	LAeq	LAF 90%	Notes
1	South East Boundary at Craftstyle Car Park Adjacent to Omar St Premises	290	00:15:00	29/01/2019 20:00	53.6	50.5	Traffic noise from A638 dominant noise; roller shutter closed during measurement; sirens during measurement
		291	00:15:00	29/01/2019 20:15	52.6	50.0	Traffic noise from A638 dominant noise
		292	00:15:00	29/01/2019 20:30	52.2	49.5	Traffic noise from A638 dominant noise
		293	00:15:00	29/01/2019 20:45	51.7	49.5	Traffic noise from A638 dominant noise
		294	00:15:00	29/01/2019 21:00	52.6	50.0	Traffic noise from A638 dominant noise
		295	00:15:00	29/01/2019 21:15	52.9	49.5	Traffic noise from A638 dominant noise
		296	00:15:00	29/01/2019 21:40	50.9	48.0	Traffic noise from A638 dominant noise; roller shutter opened during measurement; nearby car movement
		297	00:15:00	29/01/2019 21:55	51.0	48.0	Traffic noise from A638 dominant noise; car door slams
		299	00:15:00	29/01/2019 22:30	52.0	49.0	Traffic noise from A638 dominant noise; occasional FLT reversing alarm from Autoneum
		300	00:15:00	29/01/2019 22:45	55.5	47.0	Traffic noise from A638 dominant noise; intermittent dog barking; police sirens
		301	00:15:00	29/01/2019 23:00	49.7	46.0	Intermittent 'boiler' noise not from WAL but another manufacturing facility on industrial estate - possibly Autoneum?
		302	00:15:00	29/01/2019 23:15	48.9	44.5	Less traffic noise however still audible
		303	00:15:00	29/01/2019 23:30	48.6	44.5	Less traffic noise however still audible
		304	00:15:00	29/01/2019 23:45	47.0	43.0	Plane noise. Intermittent noise from other factory units still present. Distant traffic noise.
		305	00:15:00	30/01/2019 00:05	49.7	44.0	Lorry enters yard near WAL to turn around
		306	00:15:00	30/01/2019 00:20	48.0	43.0	Much lower level of traffic noise. Occasional vehicle on A638
		307	00:15:00	30/01/2019 00:35	47.2	41.5	Occasional vehicle on A638
		308	00:15:00	30/01/2019 00:50	45.2	41.0	Occasional vehicle on A638
		310	00:15:27	03/02/2019 11:51	57.8	51.0	Traffic noise from A638 dominant noise
		311	00:16:46	03/02/2019 12:38	58.2	51.0	Traffic noise from A638 dominant noise
2	5m from WA roller shutter - open	312	00:03:45	06/02/2019 13:48	63.7	62.0	Plant noise; radio audible; traffic from adjacent road; lorry loaded outside craftstyle
2	5m from WA roller shutter - closed	316	00:04:01	06/02/2019 14:04	59.2	55.0	Traffic noise dominant; some breakout noise audible from factory; ambulance siren for approx 10 seconds
3	Eastern Facade Factory Building	317	00:05:01	06/02/2019 14:10	52.8	50.0	Traffic noise dominant; noise from goods movements/forklift

10.2 Results Analysis

The above noise survey, carried out between 29th January and 6th February 2019, and was chosen as a representative period to reflect the typical noise climate for the area surrounding the proposed operational hour's extension.

The noise survey results obtained for the site can, therefore, be deemed to be representative of normal activities for the area and will be used as the base for analysis and assessment purposes below.

Assessments of the individual results indicate that the monitoring positions selected is affected primarily by road traffic movements along the A638, Westgate and the local road network.

Low industrial noise was emanating from the remainder of the industrial estate and from factories beyond during the quieter nighttime periods. Aircraft are also audible and significant noise sources.

From the data acquired during the remote monitoring assessment period the following baseline exposure noise levels have been established for the nearby noise sensitive receptor locations.

Table of Baseline Noise Climate Levels

Exposure Levels	Average Noise Level
Weekday Evening (2000 – 2300 Hrs)	LAeq 52.7 dB LA90 49.2 dB
Weekday Night-time (2300 – 0700 Hrs)	LAeq 48.3 dB LA90 43.7 dB
Sunday Daytime (0600 – 1800 Hrs)	LAeq 58.0 dB LA90 51.0 dB

These baseline noise levels will be utilized within the impact assessments for the proposed extension to the factory operational hours.

11.0 Impact Assessment Analysis

There is a proposal to vary the Planning Permission 2015/90708 Condition No 4 relating to operational time restrictions for the activities at Unit No 17 to allow 24 hour use during weekdays and 06.00 to 18.00 Saturday, Sunday and Bank Holidays. It should be noted that there is no request to alter the delivery / serving hours restrictions already consented within Condition 4.

Based upon this, it will be necessary to ensure that the subsequent operations do not produce undue loss of amenity to the existing nearby noise sensitive residential premises.

In order to ensure that the noise produced by the extended hours is acceptable design target noise levels will be required.

Taking account of the above standards and their recommendations, it would be prudent to set the design target noise levels in accordance with accepted limits recognised both nationally and internationally.

Based upon this the limiting recommendations of BS4142:2014, WHO 1999, NPPF and BS8233:2014 the design target will be to achieve a maximum output from the proposed factory activities equivalent to -5 dB below the existing background, LA90 dB values recorded.

Table of Recommended Design Target Noise Limits

Assessment	Period	Existing Background Noise Levels	External Noise Limits at Residences	Equivalent Internal Noise Limits
1	Weekday Evening (1800 – 2300 Hrs)	49.2 LA90 dB	44.2 LAeq dB	NR 24
2	Weekday Night-time (2300 – 0700 Hrs)	43.7 LA90 dB	38.7 LAeq dB	NR 15
3	Saturday, Sunday & Bank Holidays Daytime (0600 – 1800 Hrs)	51.0 LA90 dB	46.0 LAeq dB	NR 26

Provided that the values are achieved there will be no loss of amenity due to the proposed extension hours. These limitations are maximum upper levels which will provide the necessary internationally and nationally acceptable amenity for the nearby premises.

In order to ensure that the above recommendations are achieved it is necessary to consider the contribution of the additional noise sources resulting from the proposed extension hours.

The noise sources likely to be introduced fall into 3 No primary categories.

- 1 Staff Car Park Noise
- 2 Service Yard Noise
- 3 Internal Factory Activity Noise

We shall deal with each of these sources and advise on the likely effect they will have on the noise sensitive dwellings nearby.

Each assessment will deal with the proposed operational or activity time period relevant to that particular source.

Monday to Friday	24 Hours
Saturday, Sunday & Bank Holidays	06.00 to 18.00

11.1 Impact Assessment from Staff Car Park Noise

Noise from the staff car parking area will be assessed as commercial sources for the purpose of this assessment, and the activity associated with the noise will be restricted to the confines of the site only.

The impact of the car park activities will be assessed to demonstrate that no adverse effect to the amenity of the local residents will result.

The main staff car parking areas lie to the southern façade of the site, as illustrated in Appendix A. The activities of concern centre on arrival and departure of vehicles, together with associated events such as engine start-up, door slamming etc. In order to make predictions of the noise level at some distance from the car park, it is first necessary to establish reference noise levels. A series of detailed measurements have been carried out at a number of other similar sites, the results of which are summarised in the following table. The results are based upon a distance of 1m, for ease of comparison.

Activity	Duration, s	L _{Aeq,T}	L _{Amax}
Open door, get in, close door, start engine, reverse out of parking space, drive away to distance	30	73 dB	85 dB
Drive towards bay, park, switch-off engine, open door, get out and slam door shut	30	69 dB	88 dB

Calculations have been carried out to determine resultant noise levels at the nearest affected existing residential dwellings, as identified during the survey period.

Predicted L_{Aeq}, 1h daytime; L_{Aeq}, 1h nighttime and L_{Amax} nighttime façade noise levels are set out in the table below.

There are 50 No car parking spaces for the entire site. For the purposes of this exercise, consideration of 10 No car parking bays in simultaneous use will be used to predict the likely noise levels at the residential premises. The average distance to the residences from the parking spaces is 45m and a -5 dB reduction for the boundary wall has been applied.

Receiver	Floor	Staff Car Park Activity	Calculated Resultant Contribution Noise Levels	
			L _{Aeq} 1hour	L _{Amax} Nighttime
Omar St Premises	Rooms at 1 st Floor Level	Vehicles arrive and park at bays	27 dB	50 dB
		Vehicles depart from bay	23 dB	
		Cumulative	28 dB	

Comparison of the above calculated noise levels due to car park usage indicates that the calculated values are below the design target levels for all option periods considered and as such there will be no cumulative increase when considered at the nearby residential premises due to the staff car parking activities. The calculated L_{Amax} value of 50 dB is in keeping with the area baseline noise climate and -10 dB below the guideline limitation of WHO set at 60 dBA, again a good indicator that noise will not be an issue.

Since the predicted noise levels fall below the design target limits for all options and as such the staff car parking activities should not give rise to complaints relating to noise from existing residents.

11.2 Impact Assessment for Service Vehicle Noise

There are going to be no material deliveries or goods dispatches carried out during the extended application periods and as such no additional noise will be attributable to these activities. No further assessment is necessary.

11.3 Internal Factory Activity Noise

The internal factory activities consist of general noise associated with the use of tools and equipment in the production of noise control products. The construction of the factory building, being a combination of brick and block at low level and composite steel cladding walls and roof above, is providing a high degree of sound insulation to the transmission of sound to external areas. The primary weakness in the sound insulation of the building fabric is due to the steel roller shutter doors along the southern façade located to the western side of the building.

The noise levels have been monitored along this façade both with the factory roller shutter doors open and closed. We shall deal with both scenarios below to determine if there is any likelihood of an adverse impact on the nearby noise sensitive residential premises.

11.3.1 Open Roller Shutter Door Impact Assessment

The roller shutter doors open position noise breakout was monitored at 63.7 LAeq dB (ID312), however, correcting for existing background the contribution for specific noise has been calculated at 63.3 LAeq dB.

This value is based upon a distance of 5m from the roller shutter doors.

If we calculate the contribution of this value to the nearby residential premises we find the following:

Activity Noise (Roller Shutter Doors Open)	63.3 LAeq dB at 5m
Distance to Residences	71m
Distance Correction $-20 \cdot \log(R1/R2)$	$-20 \cdot \log(71/5) = -23 \text{ dB}$
Perimeter Boundary Wall Correction	-5 dB (Grazing barrier effect)
Resultant Contribution	35.3 LAeq dB

Inspection of the above contribution value indicates that with the roller shutter door in the open position the design target values of -5dB below the pre-existing background level will be achieved for all time period scenarios considered.

In order to determine the effect that the factory activity noise will have on the existing residential premises background a BS4142:2014 rating of the activities is the recognized method, as noted within Section 6.1 above.

For robustness the following is an assessment in accordance with BS4142:2014, which has been based upon the factory activities for the proposed time periods and will consider the closest noise sensitive location deemed as likely to be affected. It will provide an assessment of the 2 No time periods proposed. All readings have been rounded to the nearest whole number.

BS4142:2014 Assessment – Omar Street Premises – Open Roller Shutter Doors

Description	Indices	24 Hours Mon - Fri	Saturday, Sunday and Bank Holiday Working	Comments
Calculated Resultant Contribution Due to Factory Activities	dBA	35 dB	35 dB	Open Roller Shutter Doors
Average Residual Sound Level for each time period	L _{Aeq}	48 dB	58 dB	Traffic dominant source.
Background Noise Level for each time period	L _{A90}	44 dB	51 dB	Background level consisted of sources noted above.
Proposed specific sound source contribution	L _{Aeq}	35 dB	35 dB	Non applicable as this is a calculated value.
Acoustic feature correction		+ 6 dB	+ 6 dB	Tonality +0 dB Impulsivity +3 dB Intermittency +3 dB
Rating Level		41 dB	41 dB	
Background Noise Level	L _{A90}	44 dB	51 dB	
Excess of Rating over background	Plant - BG	-3 dB	-10 dB	

The rating values ranging from -3 dB to -10 dB for the open door scenario is at the level in which the activities will not be above existing background activities and indicate no adverse impact due to the factory activities when considered outside the premises along Omar Street.

Uncertainty of the assessment

There is uncertainty in the calculation as it is based upon a noise value with a correction applied which may account for a minimal variation in the actual values for the activities at this location. The uncertainty is not significant as the rating is low and the value is in context with the actual area for the time periods considered. The measurements presented indicate that the confidence of the rating for the specific source since the values used are based upon actual monitored site data and the background is based upon measured values during weather conditions considered acceptable for executing measurements.

As can be seen from the above BS4142:2014 rating values, the typical noise produced internally inside the factory, with the roller shutter doors open, is not likely to result in any adverse reaction when considered at the nearby residential premises along Omar Street.

This is a clear indication that noise is not likely to result in justifiable complaints following variation to the operational hours, irrespective of scenario considered.

11.3.2 Closed Roller Shutter Door Impact Assessment

The normal position for the roller shutter doors will be the closed position. The noise breakout for the closed roller shutter doors was monitored at 59.2 LAeq dB (ID316), however, correcting for background the contribution of the specific factory activity noise has been calculated at 58.1 LAeq dB.

This value is based upon a distance of 5m from the roller shutter doors.

If we calculate the contribution of this value to the nearby residential premises we find the following:

Activity Noise (Roller Shutter Doors Closed)	59.2 LAeq dB at 5m
Distance to Residences	71m
Distance Correction $-20 \cdot \log R1/R2$	$-20 \cdot \log(71/5) = -23 \text{ dB}$
Perimeter Boundary Wall Correction	-5 dB (Grazing barrier effect)
Resultant Contribution	31.2 LAeq dB

Inspection of the above contribution value indicates that with the roller shutter door in the closed position the design target values of -5dB below the pre-existing background level will again be achieved for all time period scenarios considered.

An assessment in accordance with BS4142:2014, which has been based upon the factory activities, for the proposed extended time periods and will consider the closest noise sensitive location deemed as likely to be affected. It will provide an assessment of the 2 No time periods proposed. All readings have been rounded to the nearest whole number.

BS4142:2014 Assessment – Omar Street Premises – Closed Roller Shutter Doors

Description	Indices	24 Hours Mon - Fri	Saturday, Sunday and Bank Holiday Working	Comments
Calculated Resultant Contribution Due to Factory Activities	dBA	31 dB	31 dB	Closed Roller Shutter Doors
Average Residual Sound Level for each time period	L _{Aeq}	48 dB	58 dB	Traffic dominant source.
Background Noise Level for each time period	L _{A90}	44 dB	51 dB	Background level consisted of sources noted above.
Proposed specific sound source contribution	L _{Aeq}	31 dB	31 dB	Non applicable as this is a calculated value.
Acoustic feature correction		+ 6 dB	+ 6 dB	Tonality +0 dB Impulsivity +3 dB Intermittency +3 dB
Rating Level		37 dB	37 dB	
Background Noise Level	L _{A90}	44 dB	51 dB	
Excess of Rating over background sound level	Plant - BG	-7 dB	-14 dB	
The rating values ranging from -7 dB to -14 dB for the open door scenario is at the level in which the activities will not be above existing background activities and indicate no adverse impact due to the factory activities when considered outside the premises along Omar Street.				
Uncertainty of the assessment There is uncertainty in the calculation as it is based upon a noise value with a correction applied which may account for a minimal variation in the actual values for the activities at this location. The uncertainty is not significant as the rating is low and the value is in context with the actual area for the time periods considered. The measurements presented indicate that the confidence of the rating for the specific source since the values used are based upon actual monitored site data and the background is based upon measured values during weather conditions considered acceptable for executing measurements.				

As can be seen from the above BS4142:2014 rating values, the typical noise produced internally inside the factory and breaking out to atmosphere, with the roller shutter doors closed, is not likely to result in any adverse reaction when considered at the nearby residential premises along Omar Street.

This is a clear indication that noise is not likely to result in justifiable complaints following variation to the operational hours, irrespective of scenario considered.

11.4 Point of Clarification.

The above BS4142:2014 assessment has provided rating values for the factory activities when considered at the nearby noise sensitive premises.

As can be seen from the rating values achieved the factory activities are not likely to produce any adverse impact as the contribution of the activities produce rating values ranging from -3 dB to -14 dB dependent upon specific scenario.

Rating values of these magnitudes are a good indicator that extended period of operation for the factory are not going to produce any adverse impact.

11.5 Rating Summary

Assessment	Specific Period Considered	Specific Rated Contribution Level dBA	Existing Background Level LA90 dB	BS4142 Rating Value dB	Calculated Direct Contribution dBA	Design Target	Variance dB
1	24 Hours Mon to Fri	41 Open 37 Closed	44	-3 Open -7 Closed	35 Open 31 Closed	44	-9 Open -13 Closed
2	Sat, Sun & Bank Holidays 06.00-18.00	41 Open 37 Closed	51	-10 Open -14 Closed	35 Open 31 Closed	46	-11 Open -15 Closed

As can be seen from the above calculation summary, the rating values are classified as below the area background and are in context for both open and closed roller shutter door scenarios.

The specific value of the factory activities is achieving the required design target. The rating values are therefore deemed as negligible and below the level at which sound from the activities would normally be classified as likely to provide an adverse impact on the existing amenity of the nearby noise sensitive residential premises or justifiable with respect to noise complaints arising from the extended factory use.

12.0 Mitigating Noise Control Recommendations

Mitigation measures are not strictly necessary in order to maintain the existing amenity of the nearby residential premises as a result of the proposed alteration to the time restrictions of Condition No 4 of Planning Permission 2015/90708.

However, recommendations have been proposed to ensure that the existing amenity is preserved following the operational hours extension periods.

12.1 General Site Operational Mitigation

Once the operational hours restrictions have been amended the factory activity noise has been demonstrated that there will be no increase to the pre-existing baseline noise levels when considered at the closest noise sensitive residential premises due to the car park activities and factory internal operations. The service yard will not be used outside of pre-existing restricted daytime hours.

No additional mitigation measures are recommended for the site in order to operate without causing any loss of existing amenity for the nearby noise sensitive residential premises.

However, it is good practice to maintain an operational Noise Action Plan for the site as noted below.

It is recommended that a Noise Action Plan is implemented for the site, addressing all aspects of the mitigation measures and procedures for dealing with on-site activities and complaints, should any arise.

The Control of Pollution Act and BS 5228 define a set of Best Practice working methods and mitigation measures, referred to as Best Practicable Means (BPM). The following are examples of what could be included within a Noise Action Plan.

- Selective location of temporary plant so that it is screened by on-site structures, such as site cabins;
- Using modern equipment and ensuring such equipment is properly maintained and correctly operated by trained staff;

- Acoustically enclosing noisy equipment if possible;
- Ensure that mobile plant is well maintained and there are no excessive rattles or vibrations that can be addressed;
- Ensuring plant machinery is turned off when not in use;
- Only operate noisy, impulsive or tonal machinery or plant away from the roller shutter doors;
- Provide local residents with 24-hour contact details for a site representative;
- Inform local residents about any irregular work activities advising of any specific noisy events and provide a contact telephone number, as noted above;
- Keep noisy deliveries to the midday period where possible.

Implementation of a Noise Action Plan will allow for periodic review of procedures and should quickly identify any noise issues allowing for expedient remedial works or operational changes to be actioned prior to an issue escalating into an external neighbourhood complaint.

12.2 Factory Roller Shutter Doors

Even though it has been shown that the open roller shutter door scenario has no adverse impact on the existing amenity of the nearby residential premises.

It is still recommended that the roller shutter doors remain closed wherever possible to reduce the noise breakout to the lowest level available.

The roller shutter doors should only be opened for short periods as necessary to access materials deliveries and goods dispatch, which it is advised will only take place during normal working hours and not during the extended hours considered within this report.

12.3 Internal Factory Activities

The factory noise monitored breaking out of the roller shutter doors has been based upon normal operational activities inside the factory.

It is recommended that should any activities occur in the factory that are considered excessively 'noisy', such as grinding, drilling or impulsive in nature, that these activities take place away from the roller shutter doors further inside the factory to reduce the direct noise transmission contribution and as such minimize their impact on the nearby residential premises.

13.0 Report Summary

An attended noise assessment of the background noise levels has been executed in accordance with BS4142:2014 during the relevant period of consideration for the operational hours' alteration between 29th January and 6th February 2019.

Planning permission is being sought for a variation to Planning Condition No 4 of Planning No 2015/90708 for the change of operation of the activity use for the premises to allow 24 hour operation Monday to Friday; plus Saturday, Sunday and Bank Holiday from 06.00 to 18.00 at Unit 17, Flush Mills, Westgate, Heckmondwike.

The assessment of the site has been made and the potential significant noise sources identified would be the use of the external car park, service yard and factory noise breakout through the existing steel roller shutter doors. There are no external fixed plant items and as such no specific noise source.

It should be noted that the use of the service yard for materials deliveries and goods dispatch is not going to be taking place outside of normal daytime periods for which the site already has permission and as such there will be no alteration to these operations as a consequence of the variation to the Planning Permission.

If we account of all relevant standards and guidelines pertaining to noise, it has been established that the car park activity noise and internal factory breakout through the open and closed roller shutter doors falls below the level at which noise is likely to be considered a justifiable annoyance or nuisance and result in any loss of existing amenity for the nearby residential premises.

BS4142:2014 assessments have been completed for the primary factory breakout noise through the roller shutter doors, including the open and closed door scenarios for all extended operational periods considered. The rating values resulting from the assessments range between -3 dB and -14 dB. These values are a clear indication that noise is not likely to be an issue due to the extended operational use of the premises.

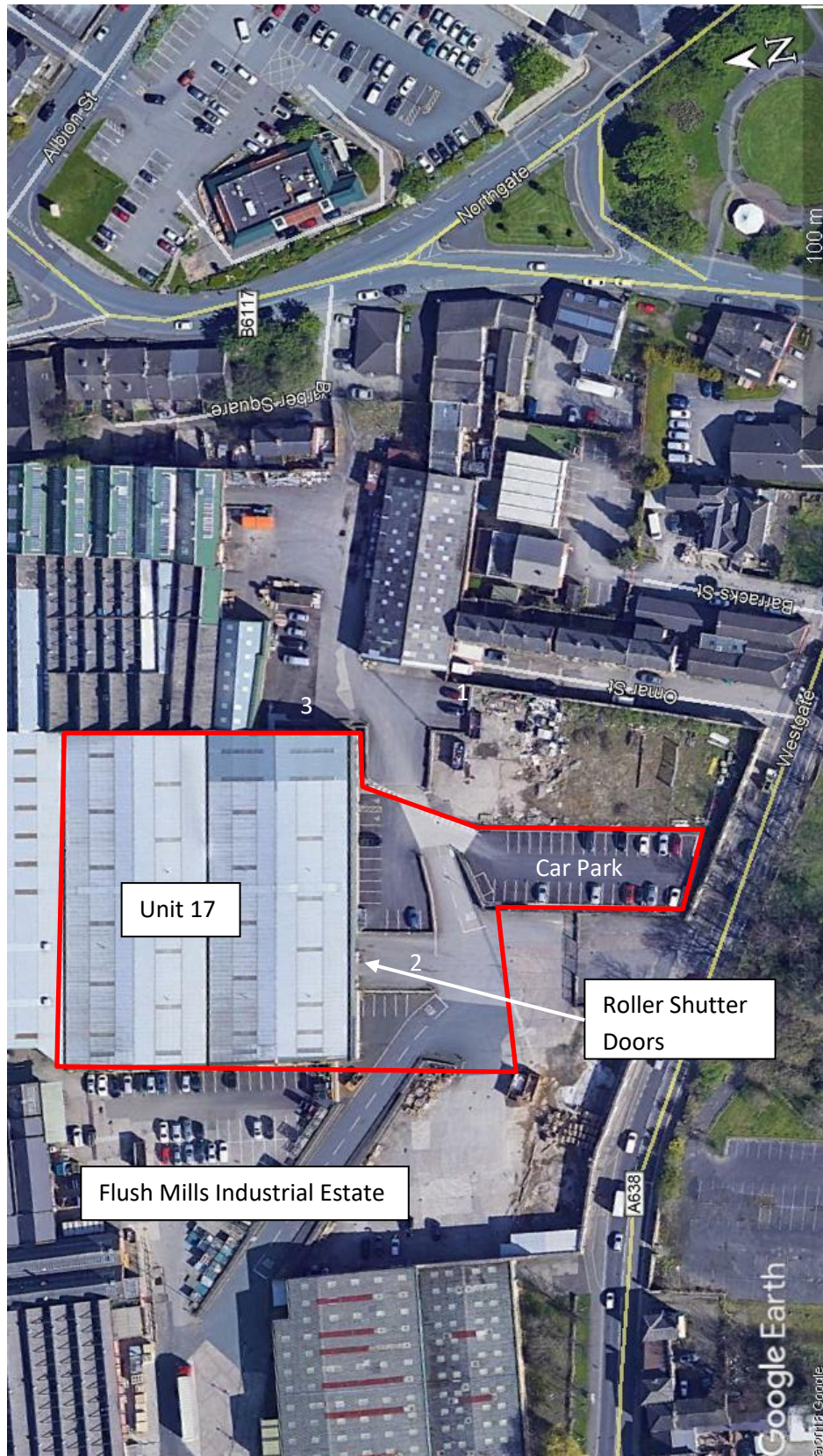
Mitigation recommendations have been proposed for the additional operational use of the site in the form of a Noise Action Plan. Additionally it has been recommended that the roller shutter doors located along

the southern facade of the building remain closed wherever possible to reduce noise breakout and that any noisy internal activities take place away from the roller shutter doors.

No physical mitigation measures in the form of acoustic screening etc. are necessary to achieve the design targets set for the site.

Taking all of the above results for the guidelines into consideration it would be the writer's recommendation to allow variation of the Planning Permission 2015/90708 Condition No 4 to be granted, for either extension time period requested, since it has been shown that the site would be operating within the limitations of relevant guidance, without giving rise to any loss of existing amenity for the nearby residential premises.

APPENDIX A Location Plan and Survey Positions



APPENDIX B Noise Survey Frequency Results Table

WAKEFIELD ACOUSTICS, UNIT 17, FLUSH MILLS - NOISE SURVEY FREQUENCY RESULTS TABLE															
Location	Description	Survey ID	LAeq	LAF 90%	Linear LZeq dB Sound Pressure Levels										
					16 Hz	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 KHz	2 KHz	4 KHz	8 KHz	16 KHz
1	South East Boundary at Craftstyle Car Park Adjacent to Omar St Premises	290	53.6	50.5	58.9	59.7	59.5	53.8	49.4	48.4	50.4	46.7	37.8	24.8	15.3
		291	52.6	50.0	60.8	60.0	57.9	53.0	49.0	48.0	49.5	45.2	34.7	22.0	16.8
		292	52.2	49.5	56.8	58.9	58.1	52.5	48.5	47.5	49.0	44.8	33.6	19.7	14.4
		293	51.7	49.5	58.0	58.3	57.7	51.9	47.7	47.3	48.7	44.2	32.9	19.6	15.0
		294	52.6	50.0	60.6	59.2	58.3	53.6	51.8	47.7	49.3	45.1	33.6	20.0	17.5
		295	52.9	49.5	61.8	59.8	58.3	54.4	50.2	49.3	49.4	45.2	34.1	20.8	18.1
		296	50.9	48.0	62.5	60.0	57.2	51.2	46.6	46.5	47.9	43.3	33.3	23.6	18.1
		297	51.0	48.0	61.8	60.0	58.2	52.1	47.5	46.5	47.9	43.4	32.8	21.0	17.1
		299	52.0	49.0	57.5	58.2	56.6	52.7	47.8	47.5	49.2	44.1	32.5	19.0	14.7
		300	55.5	47.0	56.4	56.8	56.5	52.6	48.2	48.1	51.6	50.4	32.7	19.6	14.7
		301	49.7	46.0	55.6	56.1	55.5	52.0	46.2	44.8	46.6	42.2	31.2	18.3	14.5
		302	48.9	44.5	54.4	57.6	54.8	49.0	46.0	44.1	45.8	41.4	31.4	20.2	15.4
		303	48.6	44.5	56.8	57.3	57.0	47.5	45.3	44.3	45.6	40.6	30.4	18.3	14.5
		304	47.0	43.0	53.2	55.3	53.2	47.0	45.4	43.2	43.6	38.8	29.7	17.9	14.5
		305	49.7	44.0	53.1	57.2	55.3	48.3	46.7	45.8	46.2	42.3	33.6	21.4	14.6
		306	48.0	43.0	54.3	55.5	53.9	46.4	44.5	43.7	44.9	40.3	30.6	19.0	14.9
		307	47.2	41.5	51.3	53.8	53.7	45.1	43.7	42.4	44.1	39.9	29.8	17.5	14.5
		308	45.2	41.0	53.6	53.7	52.1	45.2	43.4	41.3	41.6	37.5	29.1	19.5	15.5
		310	57.8	51.0	81.6	78.2	73.7	67.7	59.3	52.6	51.4	48.2	41.3	34.8	34.7
		311	58.2	51.0	80.9	77.7	73.5	67.3	59.0	51.6	51.7	51.3	39.2	34.2	34.6
2	5m from WA roller shutter - open	312	63.7	62.0	66.0	63.9	64.5	59.3	58.0	59.9	59.6	55.8	53.0	48.4	36.6
		Reading Corrected for Background			66.0	63.9	64.5	59.3	56.8	59.6	59.2	55.5	52.9	48.3	34.6
2	5m from WA roller shutter - closed	316	59.2	55.0	69.8	67.5	66.6	59.7	55.5	55.6	54.8	51.5	47.6	38.3	27.3
		Reading Corrected for Background			69.8	67.5	66.6	46.2	53.2	54.8	53.6	50.5	47.3	37.5	27.3
3	Eastern Facade Factory Building Background Reading	317	52.8	50.0	77.8	74.3	67.9	59.5	51.7	47.8	48.5	44.5	36.2	30.7	53.1