New Waitrose Store, Southam Road, Banbury

Noise Impact Assessment

On behalf of **Barwood Capital and Mondelez International**.

barwoodcapital

Delivering *Real* Property Potential

Mondelēz International

Project Ref: 26004/007 | Rev: 02 | Date: March 2015

Office Address: Caversham Bridge House, Waterman Place, Reading, Berkshire RG1 8DN
T: +44 (0)118 950 0761 F: +44 (0)118 959 7498 E: reading@peterbrett.com

Document Control Sheet

Project Name: **New Waitrose Store, Southam Road, Banbury**
Project Ref: **26004/007**
Report Title: **Noise Impact Assessment**
Doc Ref: **02**
Date: **March 2015**

	Name	Position	Signature	Date
Prepared by:	Janec Lillis-James	Graduate Acoustician		March 2015
Reviewed by:	Teli Chinelis	Senior Associate		March 2015
Approved by:	David Walker	LLP Director		March 2015
For and on behalf of Peter Brett Associates LLP				

Revision	Date	Description	Prepared	Reviewed	Approved
01	13/02/15	Revision 1	JL	TC	DW
02	05/03/15	Revision of Generic Information	JL	TC	DW

Contents

Figures

Tables

Appendices

Executive Summary

Peter Brett Associates LLP (PBA) has been instructed by Barwood Capital and Mondelez International to provide a Noise Impact Assessment to support a feasibility study associated with the proposed development of a new Waitrose store at the land near Mondelelez International, Southam Road in Banbury.

PBA has been commissioned to undertake an assessment of the likely noise impact from Lorry Deliveries, HGV/Car Park activities in relation to the change of ambient noise levels at the nearby noise sensitive receptors. PBA has also been commissioned to propose suitable plant noise emission criteria based on the results of the noise survey.

Fully automated environmental noise monitoring was undertaken from approximately 11:00 hours on Wednesday 19 November 2014 to 11:00 hours on Thursday 20 November 2014.

Due to the nature of the survey, i.e. unmanned, it is not possible to accurately describe the dominant noise sources, or specific noise events throughout the entire survey period. However, at the beginning and end of the survey period the dominant noise source was noted to be local road traffic movements and activities at the nearby industrial site.

The noise impact assessment due to vehicles associated with store deliveries indicates that there could be a worst case increase of ambient noise levels of around 0.1 dB during the night-time. This level of impact should be considered negligible and therefore acceptable.

Plant noise emissions criteria have been recommended based on the results of the noise survey and the typical requirements of the Local Authority. Due to the associated distance with nearby residential premises, compliance with the above criteria should not be too onerous.

This executive summary contains an overview of the key findings and conclusions. However no reliance should be placed on any part of the executive summary until the whole of the report has been read.

1 Introduction

1.1 Background

1.1.1 Peter Brett Associates (PBA) has been instructed to provide a noise impact assessment for a site near the A361, Banbury where a new Waitrose store with car parking and access arrangements is proposed. The issues with regards to noise impact include noise generated by delivery vehicles and mechanical building services.

1.1.2 PBA has been commissioned to undertake an assessment of the likely noise impact of these activities with regards to the existing noise climate and in the appropriate context.

1.1.3 This document contains the results of our assessment at the worst affected residential windows and discusses the likely noise impact to the local noise environment.

1.1.4 Full details of the proposed plant to be used, including the relevant published manufacturers plant noise emission data are not yet available. At this stage plant noise limits have been presented in the report to be achieved at the nearest residential window in line with typical Local Authority requirements. A quantitative assessment would be completed at detailed design stage.

1.2 Objectives

1.2.1 To establish, by means of detailed 24 hour daytime and night-time fully automated environmental noise monitoring, the existing A-weighted (dBA) L_{10}, L_{90}, L_{eq} and L_{max} environmental noise levels at a selected accessible position, thought to be representative of the noise climate outside the nearest affected residential window.

1.2.2 To undertake a noise impact assessment of proposed delivery vehicle movements to the nearest noise sensitive receptor and comment upon the acceptability of the impact. Noise level data for the proposed delivery vehicle movements have been taken from previous similar projects undertaken by Peter Brett Associates.

1.2.3 To propose suitable plant noise emission criteria based on the results of the noise survey and the likely typical requirements of the local authority.

1.2.4 To suggest outline mitigation measures if required.

1.3 Acoustic Terminology

1.3.1 For an explanation of the acoustic terminology used in this report please refer to **Appendix A** enclosed.

2 Site Description

2.1 Location

2.1.1 The development site is located at land at Mondelez International, Southam Road, Banbury. The Location Map below presents the approximate site boundary.

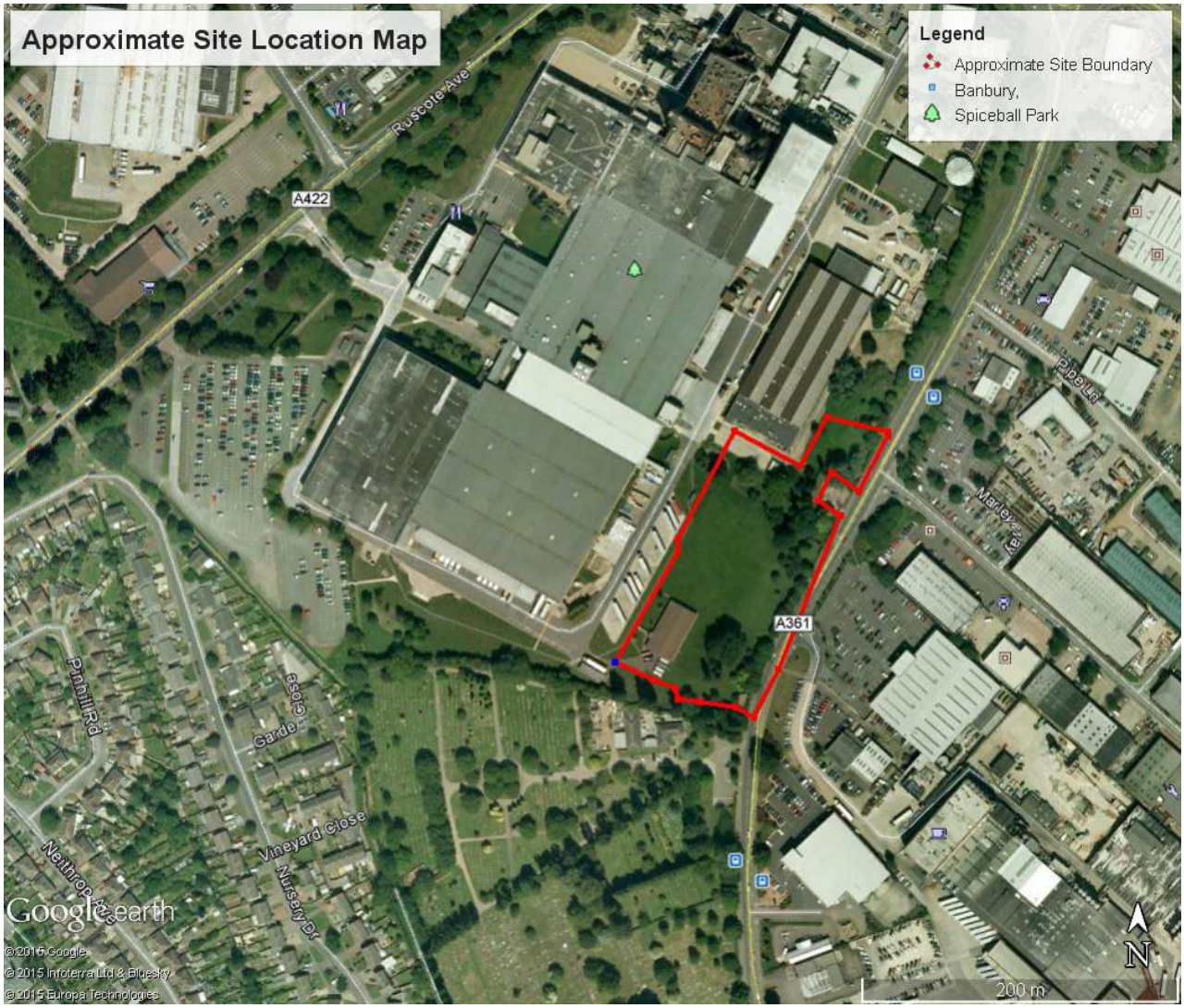


Figure 1: Aerial Photography of Approximate Site Location (© 2015 Europa Technologies, © 2015 Google, Image © 2015 Infoterra Ltd & Bluesky. Aerial Photo Image Reproduced from a Copy of Google Earth.)

2.2 Description

2.2.1 The site is located next to the A361 in Banbury. There are commercial areas surrounding the area with the closest residential dwelling located approximately 200 m from the development site boundary. A cemetery is located to the southwest.

3 Environmental Noise Survey

3.1 Procedure

3.1.1 Fully automated environmental noise monitoring was undertaken from approximately 11:00 hours on Wednesday 19 November 2014 to 11:00 hours on Thursday 20 November 2014.

3.1.2 Due to the nature of the survey, i.e. unmanned, it is not possible to accurately comment on the weather conditions throughout the entire survey period. However at the beginning and end of the survey period the wind conditions were moderate and the sky was generally patchy cloud. We understand that generally throughout the survey period the weather conditions were mainly overcast with some rainfall. These conditions are considered suitable for obtaining representative measurement results.

3.1.3 Measurements were taken continuously of the A-weighted (dBA) L_{10}, L_{90}, L_{eq} and L_{max} sound pressure levels over 15 minute periods.

3.2 Measurement Position

3.2.1 The noise level measurements were undertaken at a single position at the proposed site. The sound level meter was located to the west of the site at a position to represent the noise climate at the nearest residential noise sensitive receptor. The microphone was attached to a tripod and was located approximately 1.5 m above the ground level and away from any reflecting surfaces.

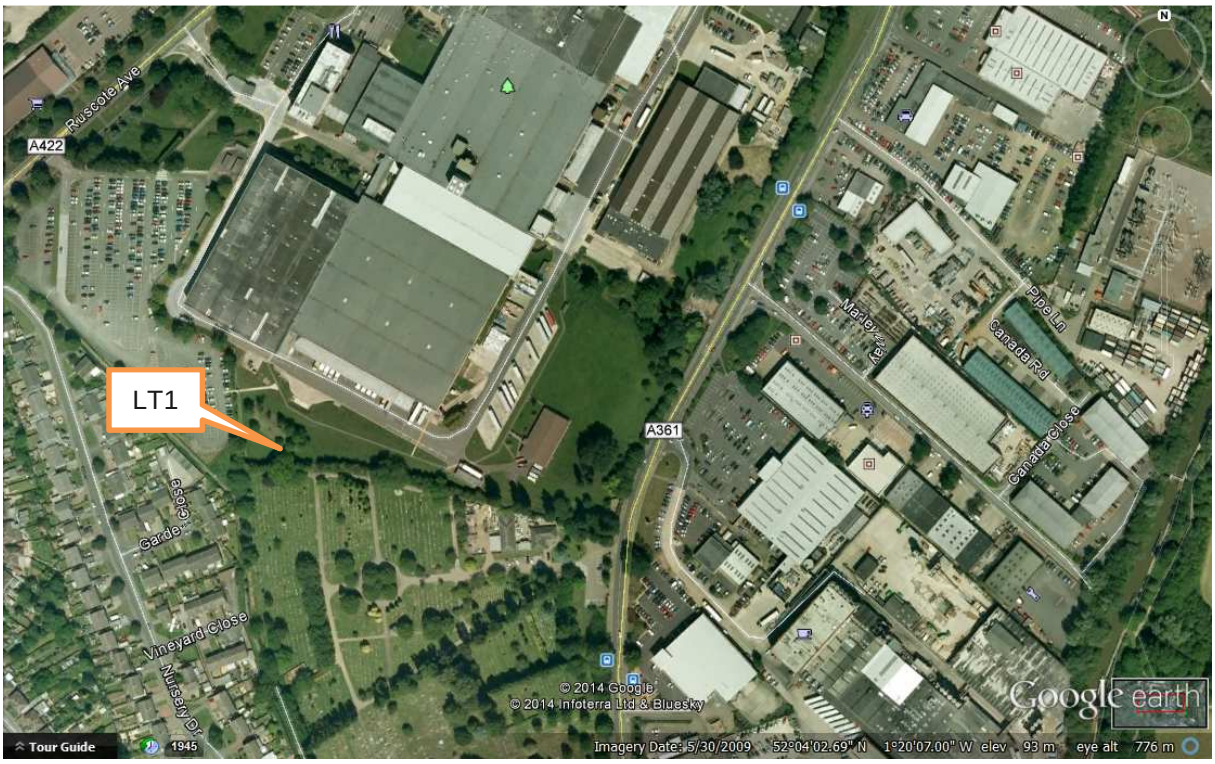


Figure 2: Aerial Photograph Showing Approximate Location of Measurement Position (courtesy of google earth)

3.3 Instrumentation

3.3.1 The instrumentation used during the survey is presented in **Table 3.1** below:

Table 3.1: Instrumentation used during the survey

Description	Manufacturer	Type	Serial Number	Latest Verification
Type 1 Data Logging Sound Level Meter	*Brüel & Kjær*	2250	2626232	Last calibration on 22/01/14
Type 1 Calibrator	*Brüel & Kjær*	4231	2619375	Last calibration on 30/08/2013
½ inch Microphone	*Brüel & Kjær*	4231	2621212	Last calibration on 22/01/14

3.3.2 The sound level meter, including the extension cable, was calibrated prior to and on completion of the surveys. No significant change was found to have occurred (no more than 0.3 dB).

3.3.3 The sound level meter was located in an environmental case with the microphone connected to the sound level meter via an extension cable. The microphone was fitted with a Brüel & Kjær windshield.

4 Results

4.1 Results of Noise Survey

4.1.1 The results have been plotted on Time History Graphs 32121/TH1 to 32121/TH2 enclosed in Appendix B, presenting the 15 minute A-weighted (dBA) L_{10}, L_{90}, L_{eq} and L_{max} levels at the measurement position throughout the duration of the survey.

4.2 Discussion of Noise Climate

4.2.1 Due to the nature of the survey, i.e. unmanned, it is not possible to accurately describe the dominant noise sources, or specific noise events throughout the entire survey period. However, at the beginning and end of the survey period the dominant noise source was noted to be local road traffic movements and noisy activities in the nearby industrial site. .

4.3 Assumptions/ Limitations

4.3.1 The survey was undertaken during the weekday when typical road traffic flows for the area are expected.

4.3.2 The site engineer noticed nothing unusual in terms of the noise climate at the beginning and end of the attended survey. This report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times.

5 Noise Impact Assessment

5.1 National Planning Policy Framework

5.1.1 Paragraph 123 of the National Planning Policy Framework (NPPF) advises the following:

"123. Planning policies and decisions should aim to:

- Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
- Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;
- Recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established, and
- Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason."

5.2 Planning Practice Guidance

5.2.1 The following table is produced from the Planning Practice Guidance based upon the Noise Policy Statement for England.

Table 5.1: Planning Practice Guidance

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No effect	No observed effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No observed adverse effect	No specific measures required
		Lowest observed adverse effect level	
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; closing windows for some of the time because of the noise. Potential for non-awakening sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life	Observed adverse effect	Mitigate and reduce to a minimum
		Significant observed adverse effect level	

Perception	Examples of Outcomes	Increasing Effect Level	Action
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. having to keep windows closed most of the time, avoiding certain activities during periods of intrusion. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant observed adverse effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. Regular sleep deprivation/awakening; loss of appetite, significant, medically definable hard, e.g. auditory and not auditory	Unacceptable adverse effect	Prevent

5.3 Effect of Changes in Noise Levels

5.3.1 The classification of magnitude of noise impacts are given in the following table, and equate to the Planning Practice Guidance effect levels. Advice from the Design Manual for Roads and Bridges amongst other sources has been used in order to produce the guidance contained in Table 5.2.

Table 5.2: Effect of Changes in Noise Levels

Noise change	Magnitude of Impact	Perception From Increase	Increasing Effect Level
0	No Change	Not Noticeable	No Observed Effect
0.1-2.9	Negligible	Noticeable and not intrusive	No Observed Adverse Effect
3-4.9	Minor	Noticeable and intrusive	Observed Adverse Effect
5-9.9	Moderate	Noticeable and disruptive	Significant Observed Adverse Effect
10+	Major	Noticeable and very disruptive	Unacceptable Adverse Effect

5.4 Assessment Assumptions

5.4.1 We understand typical daily deliveries would be as follows:

Table 5.3: Typical Daily Deliveries

Delivery	Frequency
Daytime (07:00 – 23:00)	1/hr
Night-time (23:00 – 07:00)	1

5.4.2 During the delivery the dominant source of noise is movement of roll cages from the lorry to the store.

5.4.3 The following is assumed:

- Proposed delivery times: 24 hours
- All deliveries are made on site.
- Roll case movement could potentially be screened from the nearest receptor by the delivery vehicle. However, for the purpose of our calculations, we have assumed no screening losses.
- Due to the length of time deliveries take, we have assumed all deliveries could potentially take place in any one hour.
- Nearest noise receptors are residential properties west of the site approximately 200 m away

Appendix C presents the proposed store location and predicted route for the deliveries (worst case scenario).

5.5 Noise Sources

5.5.1 Noise generating delivery activities at the proposed site associated with the Waitrose store will include the following:-

i. Delivery vehicles arriving, parking and departing

ii. General loading activities (loading/unloading/movement of trolleys)

5.6 Delivery Vehicle Noise Levels

5.6.1 Peter Brett Associates has previously undertaken noise measurements of delivery vehicle noise and loading activities on other developments. From the measurements we have compiled a "database" of these activities which have been successfully applied to similar assessments.

Table 5.4: Noise levels Associated with Deliveries

Measurement Description	Sound Pressure Level SEL (dB) at 3 metres
Lorry driving in and stopping	85
Lorry door slam	66
Lowering tail lift	65
Raising tail lift	73
Lorry shutter opening and removing support bars	78
Moving roll cages inside lorry	77
Loading tail lift with two roll cages	74
Lowering tail lift	64
Lowering tail lift ramp and wheeling 2 roll cages off into store	89
Wheeling four empty roll cages from inside the store to outside	91
Loading empty roll cages onto tail lift	77
Raising tail lift	73
Moving empty roll cages from tail lift into the lorry and securing support bars	73
Closing lorry shutter	71
Lowering tail lift	64
Raising tail lift	73
Door slam	75
Lorry driving away	82

5.7 Noise Impact Assessment

5.7.1 We have included the following noise generating activities within our impact assessment calculations for each hourly period.

Table 5.5: Assumed Noise Generating Activities

Activity	Maximum Number of Hourly Events
Lorry driving in and stopping	1
Lorry door slam	1
Lowering tail lift	1
Raising tail lift	1
Lorry shutter opening and removing support bars	1
Moving roll cages inside lorry	7
Loading tail lift with two roll cages	7
Lowering tail lift	7
Lowering tail lift ramp and wheeling 2 roll cages off into store	7
Wheeling four empty roll cages from inside the store to outside	3
Loading empty roll cages onto tail lift	3
Raising tail lift	7
Moving empty roll cages from tail lift into the lorry and securing support bars	7
Closing lorry shutter	1
Lowering tail lift	1
Raising tail lift	1
Door slam	1
Lorry driving away	1

5.7.2 The summarised noise impact calculations are presented in **Appendix D**.

5.7.3 The 1 hourly noise impact assessment over a 24 h period due to the delivery vehicles noise indicates that there may be a worst case increase of 0.14 dB during the night time at the worst affected residential window (located around 200 m the west of the proposed delivery location).

5.7.4 This indicates that for a worst case likely scenario, noise due to deliveries could be unlikely to be perceived, and should not cause any change in behaviour or attitude. The noise can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.

5.7.5 Based on the above, the Planning Practice Guidance advises ‘no specific measures required’.

5.8 BS 4142:2014

5.8.1 A simple assessment generally based on the guidance methodologies the methodologies within BS 4141:2014 has also been undertaken. This method involves comparing the typical $L_{A90,\ night,\ 15\ min}$ against the worst case predicted $L_{Aeq,\ 15\ min}$ level due to delivery noise.

Table 5.7 BS 4142 assessment.

Typical L90, 15 min during the night-time	Predicted LAeq, 15 min due toa deliver at 200 m	Difference
45.0	37.3	-8

5.8.2 The procedure contained in BS4142 assesses the significance of sound which depends upon the margin by which the rating level of the specific sound sources exceeds the background sound level and the context in which the sound occurs/will occur.

5.8.3 An initial estimate of the impact of the specific sound is obtained by subtracting the measured background sound level from the rating level and considering the following:

a. Typically, the greater this difference, the greater the magnitude of the impact.

b. A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.

c. A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.

5.8.4 The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context..

5.8.5 It should be noted that section 9.2 of BS 4142:2014 states that:

'*Where appropriate, establish a rating penalty for sound based on a subjective assessment of its characteristics. This would also be appropriate where a new source cannot be measured because it is only proposed at that time, but the characteristics of similar sources can subjectively be assessed.*

Correct the specific sound level if a tone, impulse or other characteristic occurs, or is expected to be present, for new or modified sound sources.'

The commentary on this section goes on to state:

'***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 3 dB 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.'

Base on this, a penalty of + 9 dB will need to be added to the rating level calculated in Table 5.7. This would result in a rating level of +1 dB which could be deemed as a negligible impact.

6 Plant Noise Emissions Criteria

6.1 Plant Noise Emissions Criteria

6.1.1 Based on the results of the noise survey and the typical requirements of the local authority, we would propose that the future plant noise emissions criteria presented in **Table 6.1** to be achieved (with all relevant plant operating simultaneously) at 1 metre from the nearest residential windows.

Table 6.1: Proposed Plant Noise Emissions Criteria

	Cumulative Plant Noise Emissions Criteria		
Location/Time	Day time (07:00 – 23:00 hours)	Night Time (23:00 – 07:00 hours)	24-Hours
Residential windows	40 dBA	35 dBA	35 dBA

6.1.2 It should be noted that the above proposed plant noise emissions criteria are subject to final approval by the environmental health department of Bassetlaw District Council.

6.1.3 It should be noted that the above criteria assume that the plant will be intermittent in operation.

6.1.4 Due to the associated distance with nearby residential premises, compliance with the above criteria should not to be too onerous.

6.1.5 Full details of the proposed plant to be used, including the relevant published manufacturer's plant noise emission data and the exact location of all proposed building services are not yet available at this stage. A further, more detailed assessment may be required. This would be completed at the detailed design stage.

7 Conclusions

7.1.1 A detailed 24-hour daytime and night-time fully automated environmental noise survey has been undertaken in order to establish the currently prevailing environmental noise climate around the site.

7.1.2 The noise impact assessment of the delivery vehicles noise indicates that there could be a worst case increase of ambient noise levels of around 0.14 dB during the night-time. This impact is not considered to be significant.

7.1.3 Plant noise emissions criteria have been recommended based on the results of the noise survey and the typical requirements of the Local Authority. Due to the associated distance with nearby residential premises, compliance with the above criteria should not be too onerous.

7.1.4 No mitigation measures are proposed.

Appendix A Acoustic Terminology

The acoustic terms used in this report are as follows:

dB : Decibel - Used as a measurement of sound pressure level. It is the logarithmic ratio of the noise being assessed to a standard reference level.

dB(A) : The human ear is more susceptible to mid-frequency noise than the high and low frequencies. To take account of this when measuring noise, the 'A' weighting scale is used so that the measured noise corresponds roughly to the overall level of noise that is discerned by the average human. It is also possible to calculate the 'A' weighted noise level by applying certain corrections to an un-weighted spectrum. The measured or calculated 'A' weighted noise level is known as the dB(A) level.

Because of being a logarithmic scale noise levels in dB(A) do not have a linear relationship to each other. For similar noises, a change in noise level of 10dB(A) represents a doubling or halving of subjective loudness. A change of 3dB(A) is just perceptible.

L_{10} & L_{90}: If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time, hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the average minimum level and is often used to describe the background noise.

It is common practice to use the L_{10} index to describe traffic noise, as being a high average, it takes into account the increased annoyance that results from the non-steady nature of traffic noise.

L_{eq} : The concept of L_{eq} (equivalent continuous sound level) has up to recently been primarily used in assessing noise in industry but seems now to be finding use in defining many other types of noise, such as aircraft noise, environmental noise and construction noise.

L_{eq} is defined as a notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the actual, fluctuating sound measured over that period (e.g. 1 hour).

The use of digital technology in sound level meters now makes the measurement of L_{eq} very straightforward.

L_{max} : L_{max} is the maximum sound pressure level recorded over the period stated. L_{max} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the L_{eq} noise level.

Free-field : A sound level determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces can be described as a 'free-field' measurement.

SEL : Sound Exposure Level - Used for assessing the acoustic energy of a particular event, such as an individual train or car passby. It is the notional steady sound level which over a one second period would contain the same amount of acoustic energy as the actual event recorded over a specified time period.

The SEL is related to the L_{eq} by the equation:

$SEL = L_{eq} + 10\log_{10}(T)$

where T = time period of the measurement in seconds

Also:

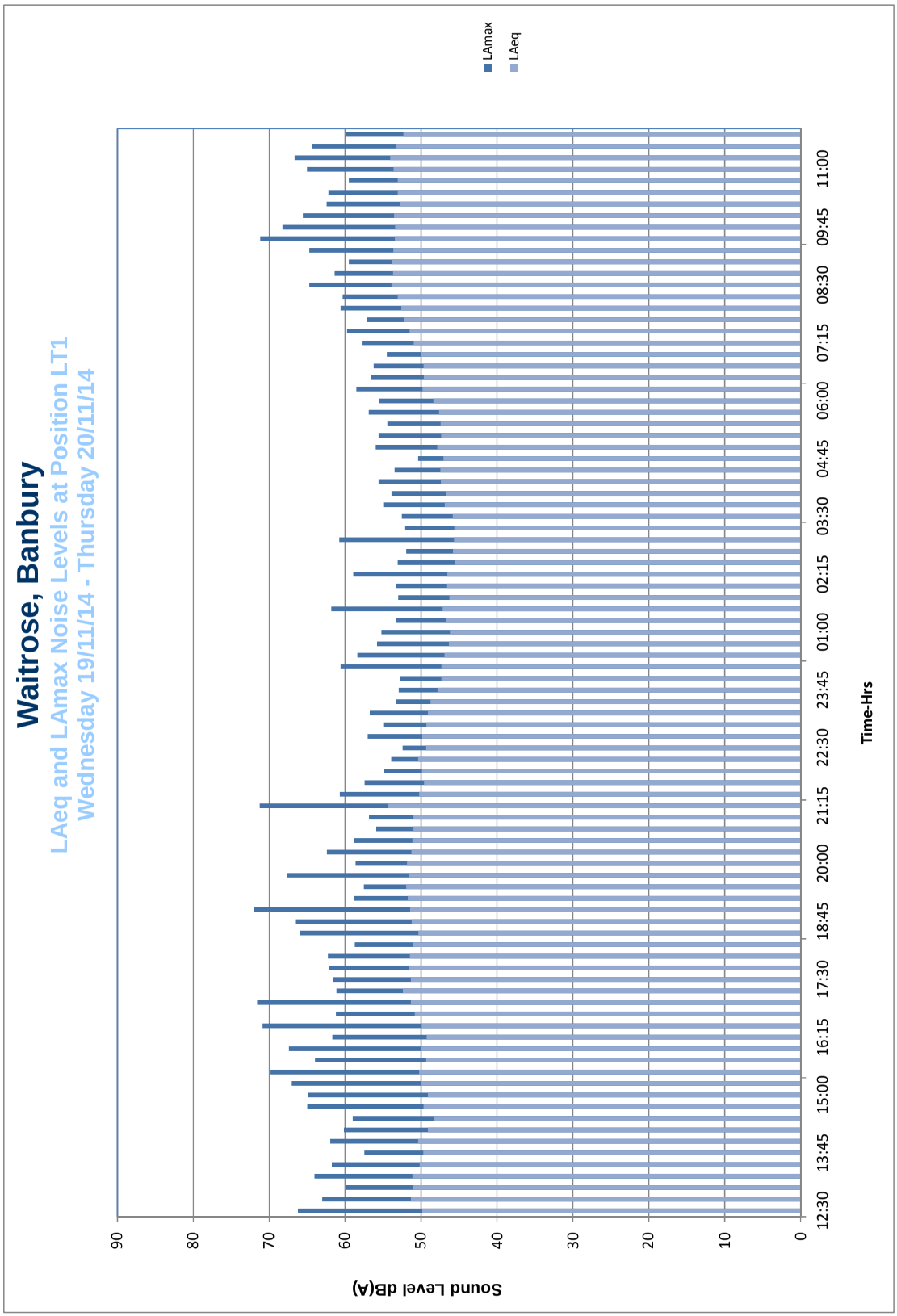
$L_{eq} = SEL + 10\log_{10}(N) - 10\log_{10}(T)$

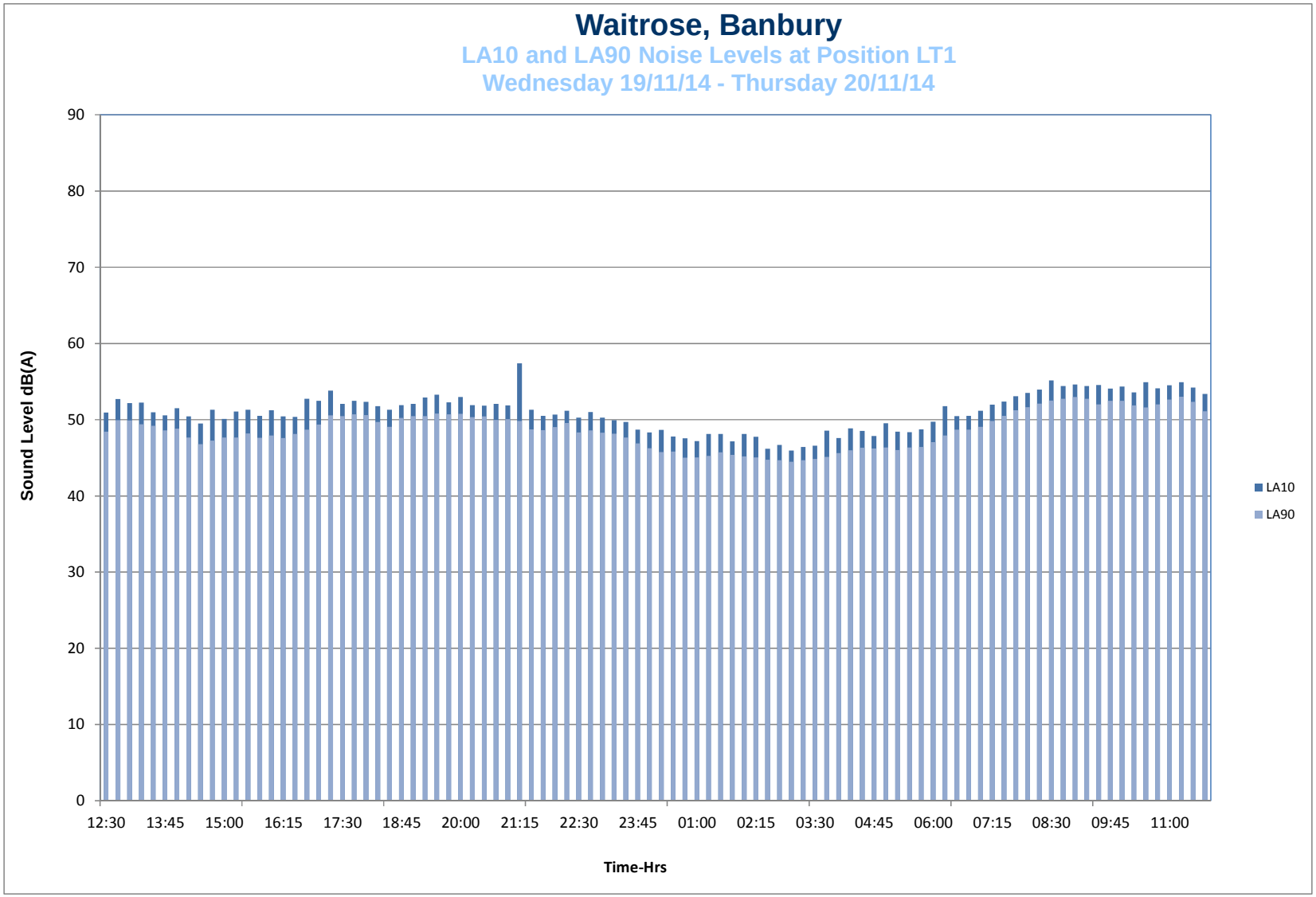
where N = number of events during time period, T
T = time period of interest in seconds (e.g. 5 minutes, 1 hour)

Ambient Noise : Totally encompassing sound in a given situation at a given time usually composed of sound from many sources near and far.

Background Noise Level (L_{A90}): The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90% of a given time interval, T, measured using time weighting, F, and quoted to the nearest whole number of decibels.

Appendix B Time History Graphs




Waitrose, Banbury
LA10 and LA90 Noise Levels at Position LT1
Wednesday 19/11/14 - Thursday 20/11/14
Sound Level dB(A)
90
80
70
60
50
40
30
20
10
0
12:30
13:45
15:00
16:15
17:30
18:45
20:00
21:15
22:30
23:45
01:00
02:15
03:30
04:45
06:00
07:15
08:30
09:45
11:00
Time-Hrs
LA10
LA90

Appendix C Proposed Site Plan


WAITROSE STORE
3576 sqm GIA
FFL 95.350
WAITROSE
CAR PARK 220No SPACES
WAITROSE
SERVICE YARD
Reinforced concrete to service yard brushed finish throughout
8No. eCommerce
MARLEY WAY
Access Road
Storage Area
Sub-Station
Depot
existing FFL
brook
1:20 ramp down
Dense bitumen macadam to car park bays and aisles
Marshalls Perfecta paving slabs to pedestrian area
New stone wall. Stone to match store feature masonry
steps and ramp in concrete paving to match area to front of store
New stone clad retaining wall to structural engineer's details. Stone to match store feature masonry
Lockable car park barrier/ gate
totem
TROLLIES
HORTICULTURE DISPLAY
CUSTOMER CYCLE PARKING
COVERED DECK AREA 50 sqm
TEMP STORAGE CONTAINER
CYCLE SHELTER
SMOKING SHELTER
BASE FOR GENERATOR
PUMP HOUSE
SPRINKLER TANK
WET WASTE 10 sqm
COVERED BALE STORAGE 26 sqm
external plant area
Tarmac Footpath
Grass
N

Figured dimensions only to be taken from this drawing. DO NOT SCALE.
All contractors must visit the site and be responsible for checking all setting out dimensions and notifying the architect of any discrepancies prior to any manufacture or construction work.

NOTES:

REV	DATE	NOTES
F	05.05.15	Entrance from Southam Road revised,
E	09.04.15	Trolley bays relocated, bins added, customer drop off realigned. Entrance from Southam Road revised, car park barrier / gate added to Southam Road
D	24.03.15	Customer cycle hoops added, lobby reduced.
C	09.03.15	Tree retention and locations revised
B	05.03.15	Pedestrian ramp re-aligned, tree retention revised
A	24.02.15	Service yard access road revised,walls to carpark entrance omitted

Client

BARWOOD CAPITAL and
MONDELEZ INTERNATIONAL

Project

NEW WAITROSE STORE
SOUTHAM ROAD,
BANBURY

Drawing Title

PROPOSED SITE PLAN

Drawn	Checked	Paper Size	Scale	Date
CW	W	A0	1:250	23.01.2015

Project No.	Drawing No.	Revision
14334	6000	F

CORSTORPHINE
+WRIGHT
ARCHITECTS

Brook Hall • Brook Street • Warwick • CV34 4BL
t 01926 658444 • w www.corstorphine-wright.com

Appendix D Noise Impact Assessment Calculations for Deliveries

Time	Measured 1hr LAeq (weekday)	1hr LAeq of delivery at Waitrose, Banbury (at closest receptor)	Resultant LAeq (weekday)	Weekly Difference
00:00 - 01:00	47	31	47	0.12
01;00 - 02:00	46	31	46	0.13
02:00 - 03:00	46	31	46	0.14
03:00 - 04:00	47	31	47	0.10
04:00 - 05:00	48	31	48	0.09
05:00 - 06:00	49	31	49	0.06
06:00 - 07:00	51	31	51	0.04
07:00 - 08:00	53	31	53	0.02
08:00 - 09:00	54	31	54	0.02
09:00 - 10:00	53	31	53	0.03
10:00 - 11:00	53	31	53	0.02
11:00 - 12:00	51	31	51	0.05
12:00 - 13:00	51	31	51	0.05
13:00 - 14:00	49	31	49	0.06
14:00 - 15:00	50	31	50	0.06
15:00 - 16:00	50	31	50	0.05
16:00 - 17:00	52	31	52	0.04
17:00 - 18:00	51	31	51	0.04
18:00 - 19:00	52	31	52	0.04
19:00 - 20:00	51	31	51	0.04
20:00 - 21:00	52	31	52	0.04
21:00 - 22:00	50	31	50	0.06
22:00 - 23:00	49	31	49	0.07
23:00 - 24:00	47	31	47	0.11