KR07606

Tesco Express Reading

Noise Impact Assessment…

Standard: British Standard 4142: 2014

Site: Tesco Express Reading

Address: 7 Loddon Vale Centre
Hurricane Way
Woodley
Reading

Postcode: RG5 4UL

Customer: Tesco Stores Ltd

Address: Shire Park
Kestrel Way
Welwyn Garden City
Hertfordshire

Postcode: AL7 1GA

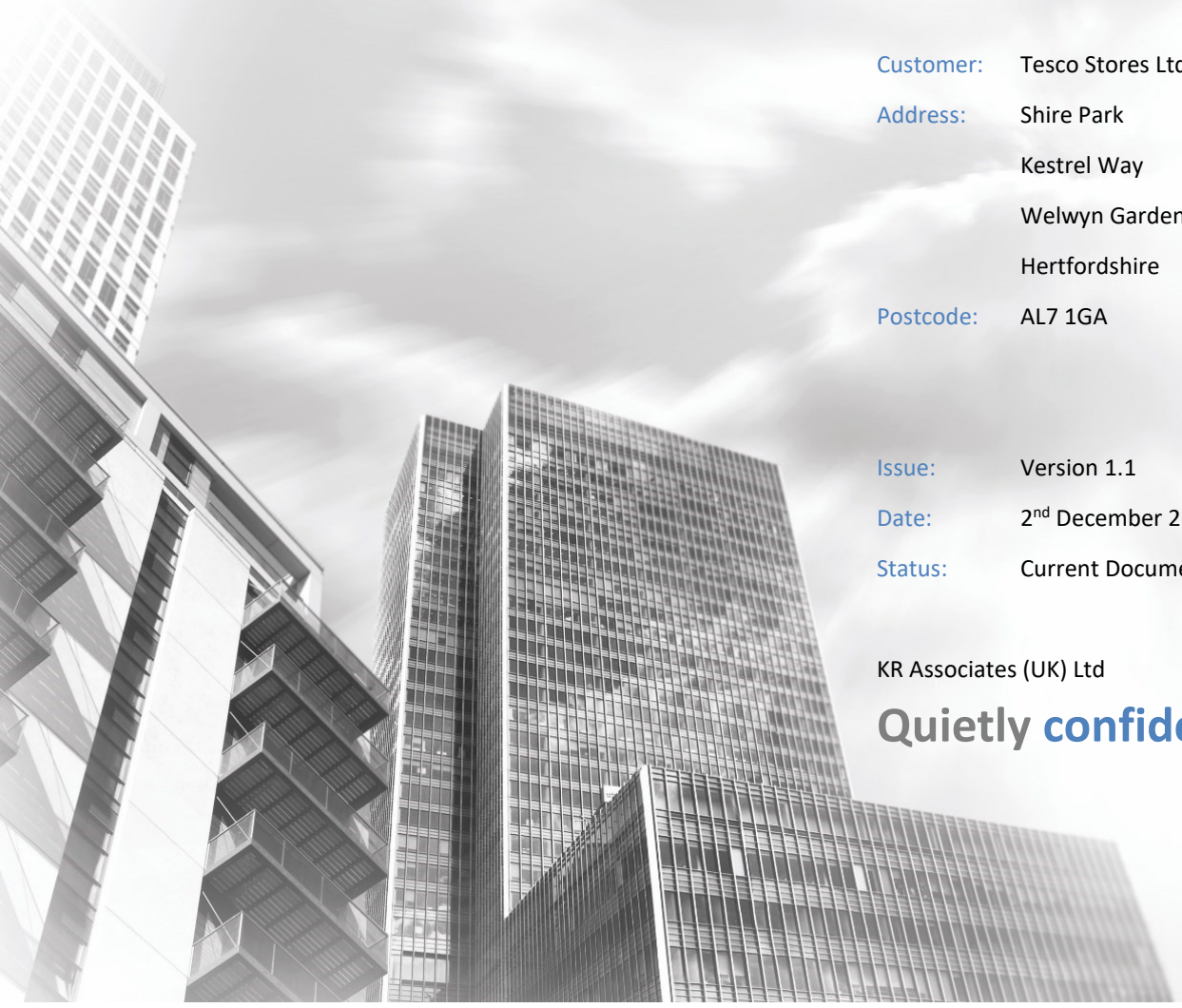
Issue: Version 1.1

Date: 2nd December 2024

Status: Current Document

KR Associates (UK) Ltd

Quietly confident…



Revisions…

KR07606		Project	Tesco Express Reading		
		Title	Noise Impact Assessment - Proposed Replacement Plant		
		Standard	British Standard 4142: 2014 + A1: 2019		
Issue	Date	Details of Revision			
v1_1	02/12/2024	Description	Report issue for submission to Local Authority		
		Signature	[redacted]		
		Name	Mr. R. Scrivener	Miss N Truman	Mr R Scrivener
		Position	Technical Director	Project Manager	Technical Director

Disclaimer…

This report is strictly confidential and is designed to meet the requirements of the customer. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party. No Liability is accepted outside the scope of this report in strict accordance with the standard terms and conditions.

KR Associates…

KR Associates (UK) Ltd (Company No. 04813349) registered office at 56 Bassett Green Road, Southampton. SO16 3DX.

Table of Contents….

1. Executive Summary….

1.1. Instruction

KR Associates (UK) Ltd have been instructed by Tesco Stores Ltd to undertake an environmental noise survey at the Tesco Express located at 7 Loddon Vale Centre off Hurricane Way in the Woodley area of Reading. The report will determine if the installation of the replacement plant required to support the extension of the store into the empty retail Unit 6 have a significant adverse impact in terms of noise on the flats directly above.

1.2. Executive Summary (Repeated at Section 6)

1.2.1 Assessment Position

The 1st floor flat over unit 6 which is to form part of the extended Tesco Express has a direct line of sight to the new plant area to be located within the two parking spaces.

1.2.2 Background Noise Measurements

Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
$L_{Amax,1h}$	$L_{Aeq,1h}$	$L_{A90,1h}$	$L_{Amax,1h}$	$L_{Aeq,1h}$	$L_{A90,1h}$	$L_{Amax,15m}$	$L_{Aeq,15m}$	$L_{A90,15m}$
65 - 93 dB	51 - 65 dB	45 - 61 dB	61 - 80 dB	47 - 59 dB	38 - 52 dB	38 - 81 dB	33 - 62 dB	31 - 49 dB
Minimum Background		45 dB	Minimum Background		38 dB	Minimum Background		31 dB

1.2.3 Criterion at Assessment Position

To comply with the revised version of the National Planning Policy Framework (“NPPF”) and the guidance within the Local Plan, the resultant noise levels at the nearest residential dwellings are below the minimum background noise levels when assessed in accordance with British Standard 4142: 2014 + A1: 2019.

1.2.4 Mitigation Measures

The plant has been designed to meet the specific requirements of the Local Authority and therefore additional acoustic mitigation measures will not be required.

1.2.5 Assessment of Noise Levels

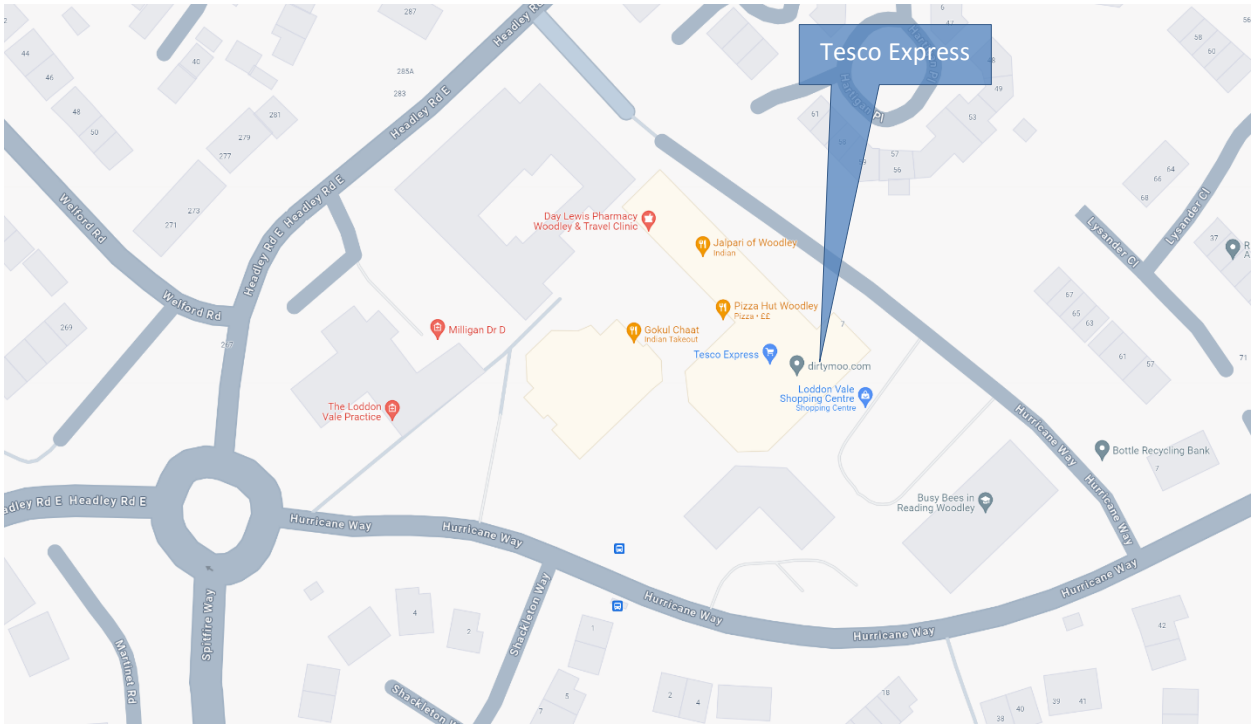
Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
$L_{Aeq,1h}$	$L_{A90,1h}$	BS4142	$L_{Aeq,1h}$	$L_{A90,1h}$	BS4142	$L_{Aeq,1h}$	$L_{A90,1h}$	BS4142
38 dB	45 dB	-7 dB	38 dB	38 dB	0 dB	31 dB	31 dB	0 dB

1.2.6 Conclusions

The resultant noise levels from the proposed mechanical equipment will result in noise levels that comply in full with the Local Plan and are at levels that are very unlikely to give rise to complaints from residents.

2. Site Location…

2.1. General Location of Site



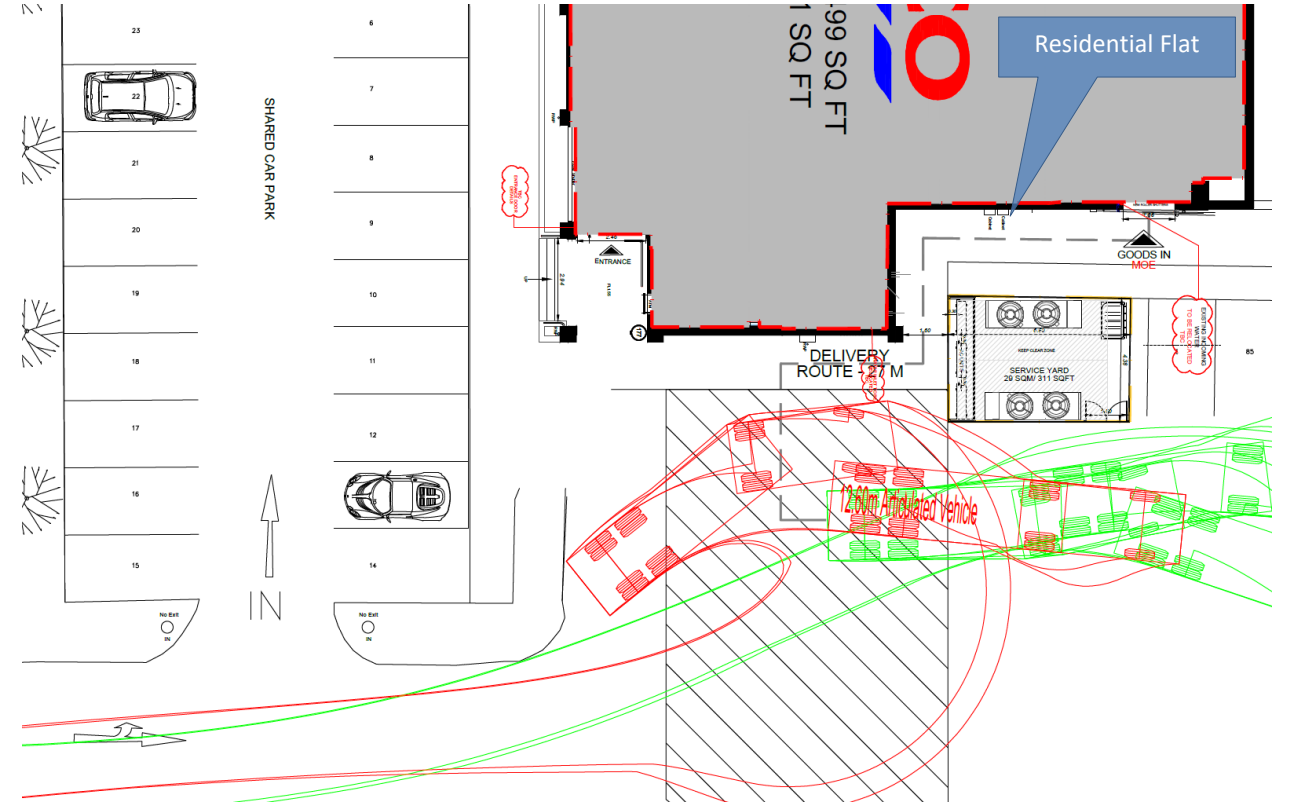
Site Plan (Imagery © Google 2024)

The Tesco Express is currently located within the Loddon Vale Centre off Hurricane Way. It is proposed to extend the Tesco Express into the vacant Unit 6 at the rear of the site. The proposed replacement refrigeration and air conditioning equipment will be located within the two car park spaces adjacent to the rear of the store around 6 to 7m from the 1st floor residential flat.

2.2. Key Positions (Source, Assessment & Background)

Position	Description	Latitude	Longitude	Elevation
Sources	Dedicated plant area in the two parking spaces adjacent to the rear of the store.	51.455034^0	-0.888026^0	2 m
Assessment	1m from the 1st floor flat over unit 6 with a direct line of site to the new plant area.	51.455017^0	-0.888077^0	6 m
Background	Within the car park fixed to the lighting post.	51.454767^0	-0.887740^0	4 m

2.3. Drawing of Plant Layout



2.4. Locations and Distances of Individual Source Positions

Position	Relative Distance	Latitude	Longitude	Elevation
Source 1	6 m to assessment position	51.455034^0	-0.888026^0	2 m
Source 2	6 m to assessment position	51.455048^0	-0.888046^0	2 m
Source 3	7 m to assessment position	51.455049^0	-0.888021^0	2 m

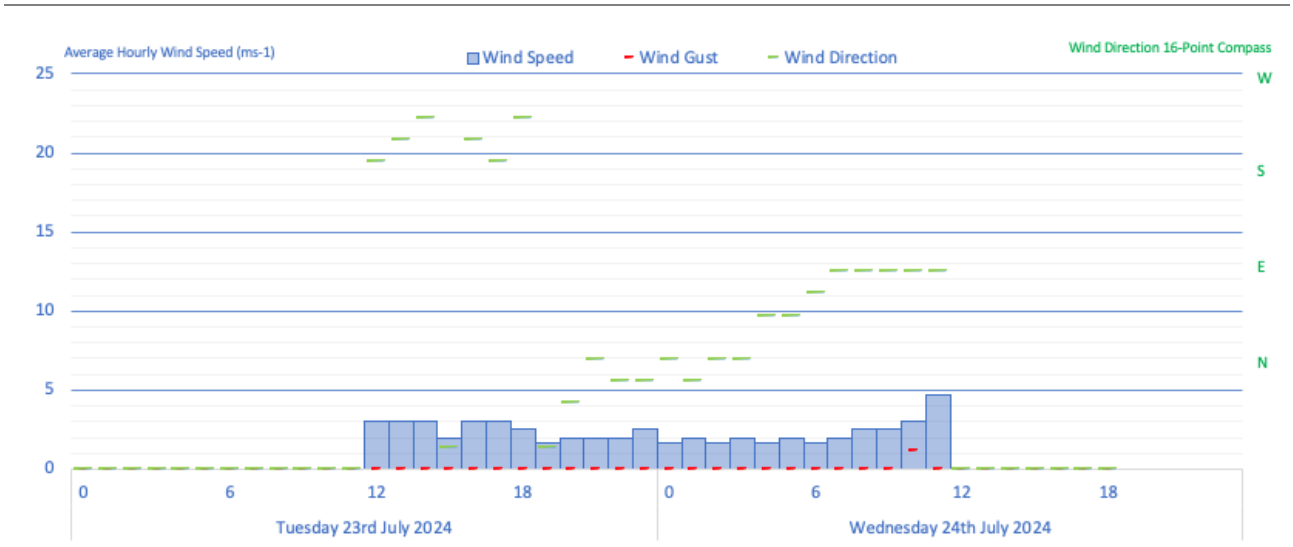
2.5. Free Field Source Sound Pressure Levels at 10m

Source	Description of Source	Sound Pressure at 10m – Annex C 13487: 2003		
		07:00 – 19:00	19:00 – 23:00	23:00 – 07:00
Source 1	Remote CO2 Gas Cooler	$L_{p(10)}$ 23 dB	$L_{p(10)}$ 23 dB	$L_{p(10)}$ 23 dB
Source 2	Remote CO2 Gas Cooler	$L_{p(10)}$ 23 dB	$L_{p(10)}$ 23 dB	$L_{p(10)}$ 23 dB
Source 3	3 No Daikin AZAS 140 AC units	$L_{p(10)}$ 36 dB	$L_{p(10)}$ 36 dB	Not Operating

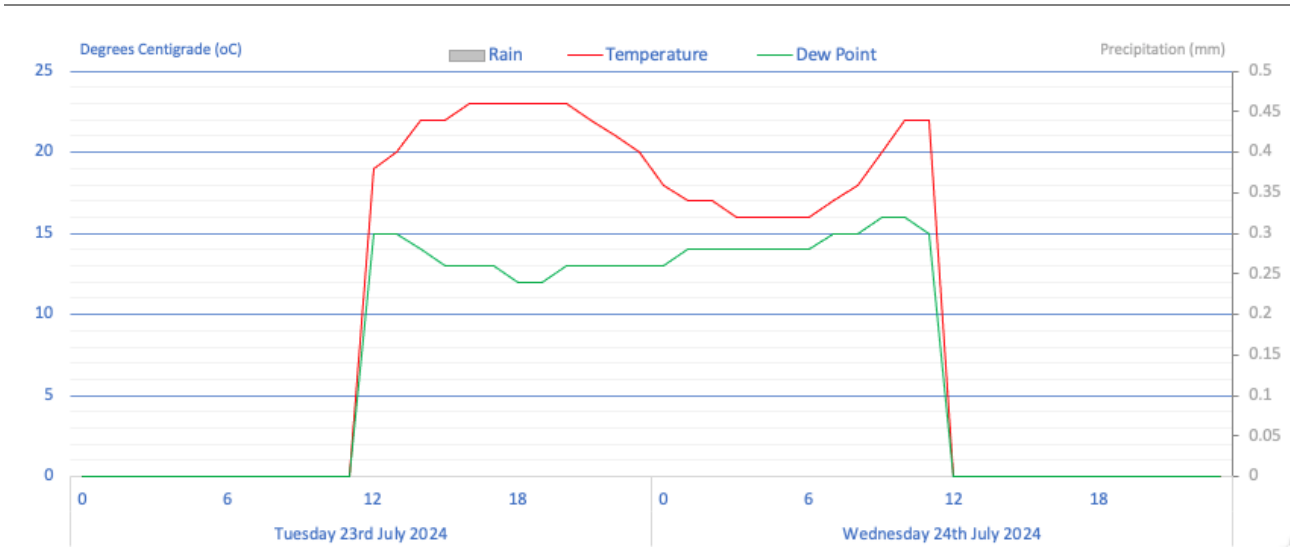
3. Background Noise Levels…

3.1. Weather During Survey

3.1.1 Wind Speed, Gust and Direction



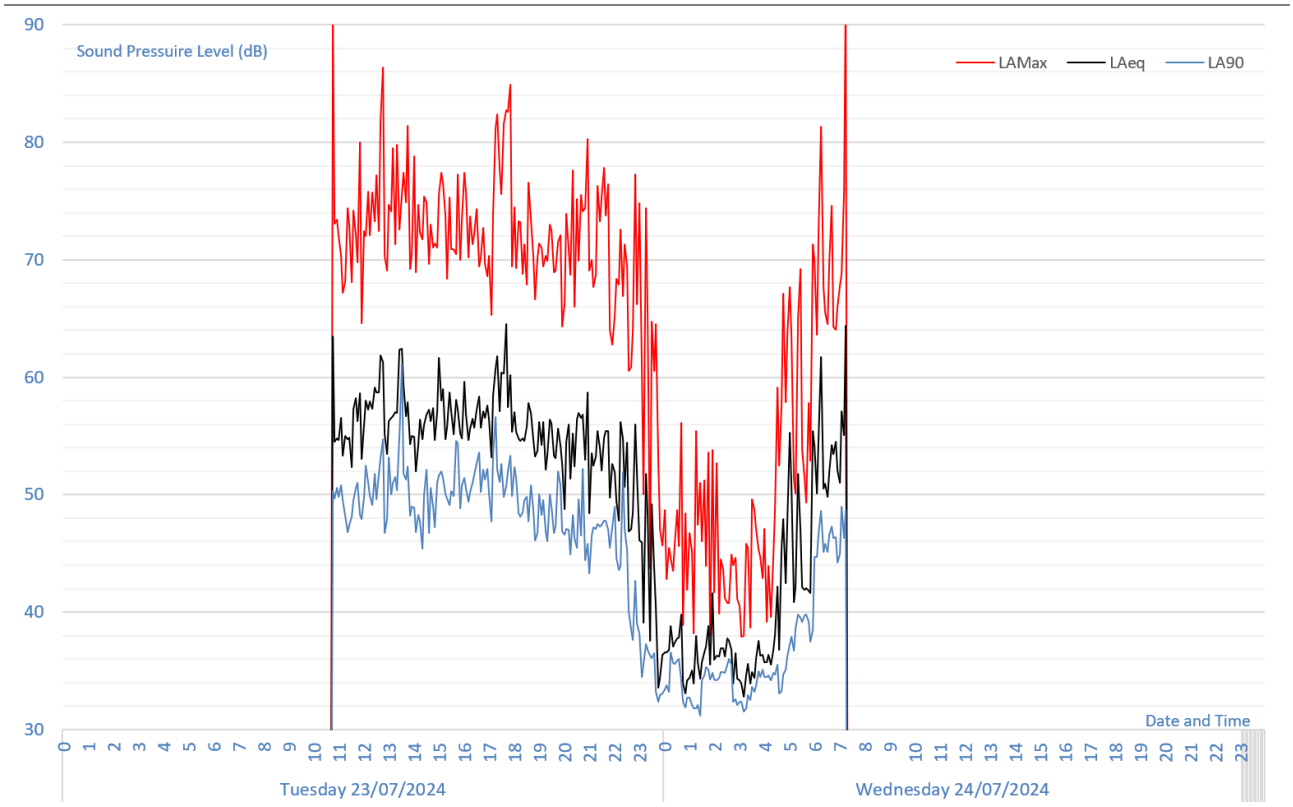
3.1.2 Rainfall, Temperature and Dew Point



3.1.3 Impact of Weather

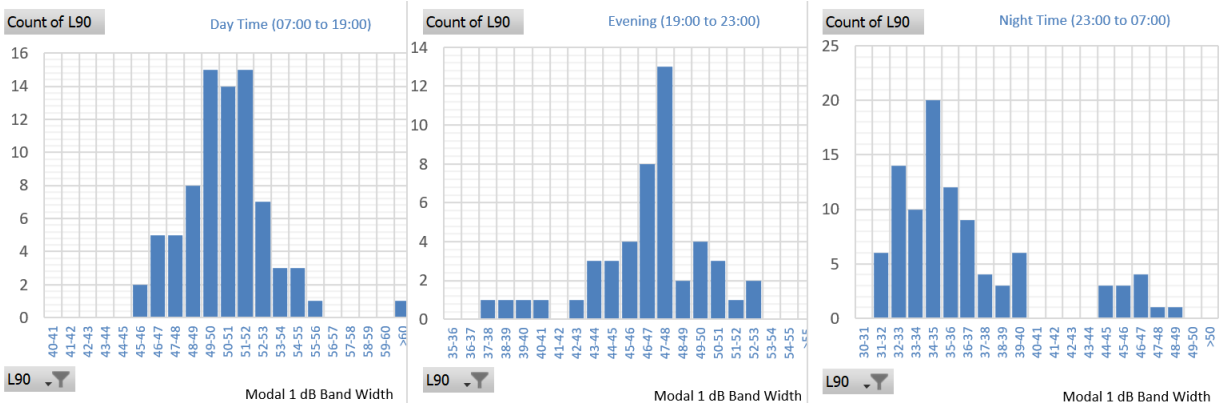
An analysis of the background data recorded on site indicates that the prevailing weather did not adversely impact the results. The wind speed was on average below 5.0ms^{-1} and there was no precipitation during the survey period.

3.2. 24-hour Background Measurements



Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
$L_{Amax,1h}$	$L_{Aeq,1h}$	$L_{A90,1h}$	$L_{Amax,1h}$	$L_{Aeq,1h}$	$L_{A90,1h}$	$L_{Amax,15m}$	$L_{Aeq,15m}$	$L_{A90,15m}$
65 - 93 dB	51 - 65 dB	45 - 61 dB	61 - 80 dB	47 - 59 dB	38 - 52 dB	38 - 81 dB	33 - 62 dB	31 - 49 dB

3.3. Modal Analysis of Background Data



Day Time (07:00 to 19:00)		Evening (19:00 to 23:00)		Night Time (23:00 to 07:00)	
Standard Deviation (σ)	2.41	Standard Deviation (σ)	3.15	Standard Deviation (σ)	4.23
Geometric Average	50 dB	Geometric Average	47 dB	Geometric Average	36 dB
Minimum Value	45 dB	Minimum Value	38 dB	Minimum Value	31 dB

4. Criterion…

4.1. National Planning Policy Framework 2023

4.1.1 Scope of Standard

The revised National Planning Policy Framework published in December 2023 provides an assumption in favour of sustainable development that meets the three overarching objectives: economic, social, and environmental. Paragraph 11 provides guidance for decision makers:

> *"For decision-taking this means:…*
> *c) approving development proposals that accord with an up-to-date development plan without delay; or*
> *d) …granting permission unless…*
> *i) the application of policies in this Framework… provides a clear reason for refusing development proposed; or*
> *ii) any adverse impacts of doing so would significantly and demonstrably outweigh the benefits…..''*

4.1.2 Conserving and Enhancing the Natural Environment

Paragraph 180 of the NPPF provides the following guidance on noise:

> *"Planning policies and decisions should contribute to and enhance the natural and local environment by:*
> *e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of …noise pollution…"*

4.1.3 Appropriate Development

Paragraph 191 of the NPPF requires the development to be appropriate for its location:

> *"Planning… decisions should also ensure that new development is appropriate for its location…*
> *a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development - and avoid noise giving rise to significant adverse impacts on health and the quality of life[69.]*
> *b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value…*
>
> *69 See Explanatory Note to the Noise Policy Statement for England: 2010"*

4.2. Noise Policy Statement for England: 2010

4.2.1 Scope of Standard

The Noise Policy Statement for England published in 2010 defines three aims:

> *"**Avoid** significant adverse impact on health and the quality of life.*
> ***Mitigate** and minimise adverse impacts on health and quality of life; and*
> ***Contribute** to the improvement of health and the quality of life."*

4.2.2 Criterion

The NPSE defines significant adverse and adverse impact in terms of noise:

> *"**LOAEL** – Lowest Observed Adverse Effect Level*
>
> *This is the level above which adverse effects on health and quality of life can be detected.*
>
> ***SOAEL** – Significant Observed Adverse Effect Level*
>
> *This is the level above which significant adverse effects on health and quality of life occur."*

4.3. Night Noise Guidelines ("NNG")

The European Union and the World Health Organisation published the document *"Night Noise Guidelines for Europe"* in 2009.

4.3.1 Recommendation for Health Protection

> *"Below the level of 30 dB $L_{night,\ outside}$ no effects on sleep are observed except for a slight increase in the frequency of body movements during sleep due to night noise.*
>
> *…. 40 dB $L_{night,\ outside}$ is equivalent to the lowest observed adverse effect level (LOAEL) for night noise.*
>
> *Above 55 dB the cardiovascular effects become the major public health concern."*

For reference the $L_{night,\ outside}$ is the average outside noise level calculated over an 8-hour period (EU: 2002/49/EC).

4.3.2 Description of Effect of Change in Noise Level

Noise Level Change (dB)	Subjective Response	Significance
0.1 – 2.9	Barely perceptible	Minor Impact
3.0 – 5.9	Noticeable	Moderate Impact
6.0 – 9.9	Up to a doubling of loudness	Substantial Impact
10.0 or more	More than a doubling of loudness	Major Impact

4.4. British Standard 4142: 2014 + A1: 2019

4.4.1 Testing Standard…

British Standard 4142: 2014 + A1: 2019 provides a method for assessing the likely effects of sound from industrial or commercial nature on *"people who might be inside or outside a dwelling used for residential purposes."*

4.4.2 Criterion

The standard provides 3-levels of impact based on the calculated Rating Levels:

> *"A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*
> *A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.*
> *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."*

4.4.3 Feature Correction

It is appropriate to add a character correction where there is a new source that cannot be measured in line with British Standard 4142: 2014 + A1: 2019. The 3 methods for approaching this are the subjective, objective, and reference methods. In this report the subjective method is used.

Section 9.2 Subjective Method	Perceptibility to noise sensitive façades	Correction
Tonality Ranging from not tonal to prominently tonal	Not tonal	+0
	Just perceptible	+2
	Clearly perceptible	+4
	Highly perceptible	+6
Impulsivity Considering both the rapidity and any overall change in sound levels	Not impulsive	+0
	Just impulsive	+3
	Clearly impulsive	+6
	Highly impulsive	+9
Readily Distinctive Characteristic is neither tonal nor impulsive	Is not present	+0
	Is present	+3
Intermittency Identifiable "on/off" conditions	Is not present	+0
	Is present	+3

4.5. Local Authority Requirements

4.5.1 Local Plan

The Wokingham Borough Council Managing Development Delivery Local Plan was fully adopted in February 2014 including Policy CC06 entitled *"Noise."*

> *"1. Proposals must demonstrate how they have addressed noise impacts to protect noise sensitive receptors (both existing and proposed) from noise impacts in line with Appendix 1 of the MDD.*
>
> *2. Noise impact of the development must be assessed. Where there is no adverse impact (No Observed Effect Level) then noise will not be a material consideration.*
>
> *3. Where there is an adverse effect (Lowest Observed Adverse Effect Level to Significant Observed Adverse Effect Level), then*
>
> *a) The development layout must be reviewed. Where this results in there no longer being an adverse impact then design and mitigation measures should be incorporated accordingly.*
>
> *b) Where there is still an adverse impact then internal layout must be reviewed. Where this results in there no longer being an adverse impact then design and measures should be incorporated accordingly.*
>
> *c) Where there is still an adverse impact then physical mitigation measures such as barriers/mechanical ventilation must be reviewed. Where this results in there no longer being an adverse impact then design and mitigation measures should be incorporated accordingly.*
>
> *d) Where there is still an adverse impact and the development falls within the significant observed adverse effect level then planning permission will normally be refused.''*

Reference should be made to Appendix 1 of the Managing Development Delivery Local Plan entitled *''Noise and Vibration.''*

> *''**Annex 1: Establishing Effect Levels***
>
> *1. When assessing the acceptability of a proposed noise sensitive development, the Council will determine the effect of noise from any adjacent and nearby sources will have on the noise sensitive receptors (NSRs) taking into account both daytime and night-time noise levels.*
>
> *2. When assessing the acceptability of a proposed development that emits noise, the Council will determine the effect the noise will have on nearby NSRs taking into account both daytime and night-time noise levels….*

New Noise Sources near Noise Sensitive Receptors (NSRs)

11. Where a new industrial or commercial development is proposed near a residential area, the effect of the new noise source on the surrounding area shall be assessed in accordance with currently available and appropriate standards. External noise levels at the nearest NSRs should meet the NOEL levels as set out above. Where possible, noise should be mitigated at source and through appropriate site layout.

12. In many cases where a new source of noise is to be introduced by a project that requires environmental impact assessment (EIA), the effect of noise will be considered in this context; but it must be accepted that in these circumstances the options to control noise are likely to be more limited than where residential development is proposed in an area with an existing noise source. It must also be borne in mind that when dealing with new roads, railways and aerodromes, schemes may exist to provide insulation in specified circumstances.

13. The planning system can be used to impose conditions to protect new noise sensitive receptors from an existing noise source but, in general, developers are under no statutory obligation to offer noise protection measures to existing receptors which will be affected by a proposed new noise source. Moreover, there would be no obligation on affected receptors to take up such an offer, and therefore no guarantee that all necessary noise protection measures would be put in place….''

Annex 2: Information on Noise from Different Sources….

Noise from industrial and commercial developments

12. The likelihood of complaints about noise from proposed development can be assessed using guidance in BS 4142. Tonal or impulsive characteristics of the noise are likely to increase the scope for complaints and this is taken into account by the "rating level" defined in BS 4142. The likelihood of complaints is indicated by the difference between the noise from the new development (expressed in terms of the rating level) and the existing background noise. The Standard currently states that: "A difference of around 10 dB or higher indicates that complaints are likely. A difference of around 5 dB is of marginal significance." Since background noise levels vary throughout a 24-hour period it will usually be necessary to assess the acceptability of noise levels for separate periods (e.g. day and night) chosen to suit the hours of operation of the proposed development. Similar considerations apply to developments that will emit significant noise at the weekend as well as during the week. This can be appropriate if the existing ambient background levels are already above the NOEL outlined above…''

Reference should also be made to the Core Strategy Development Plan Document which was adopted in January 2010 including policy CP1 entitled *''Sustainable development.''*

> *''Planning permission will be granted for development proposals that:*
>
> *1) Maintain or enhance the high quality of the environment;*
>
> *2) Minimise the emission of pollutants into the wider environment;…*
>
> *8) Avoid areas where pollution (including noise) may impact upon the amenity of future occupiers;''*

4.5.2 Proposed Criterion

It would be recommended that the proposed noise emissions are below the minimum 15-minute background noise level at the nearest noise sensitive property.

5. Calculations of Noise Levels…

5.1. ISO 9613 – Part 2:1996

The International Standards Organisation ("ISO") published ISO 9613 – Part 2: 1996 entitled *"Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculations"* details the corrections that are required to establish the resultant noise levels of the existing and proposed plant at the assessment position.

5.1.1 Source Directivity (D_c)

A correction is made to account for the location of the source and the effect of additional reflective surfaces excluding the ground and is contained within section 6 of ISO 9613 - Part 2: 1996.

Number of Surfaces	Correction in dB (D_c)
1 Reflective Surface	+3 dB
2 Reflective Surfaces	+6 dB
3 Reflective Surfaces	+9 dB

5.1.2 Geometric Divergence (A_{div})

A correction is made for the distance between the source and assessment position using the following formula defined in section 7.1 of ISO 9613-Part 2: 1996.

Formula	Symbols
$A_{div} = 20 . Log_{10} (d/d_0) +11$	A_{div} = Reduction due to Geometric Divergence (dB) d = Distance from source to receiver (m) d_0 = reference distance (1m)

5.1.3 Ground Absorption (A_{gr})

A correction is made for the effect of the ground between the source and receiver depending on whether it is considered hard or soft ground.

Type of ground	Correction in dB (A_{gr})
Hard Ground	+ 3 dB
Soft Ground	+ 0 dB

5.1.4 Atmospheric Absorption (A_{atm})

As the source was less than 100m from the receiver position (assessment position) no correction was made for atmospheric absorption.

5.1.5 Barrier Effect (A_{bar})

A correction is made for any barrier in the direct line of sight between the source and the assessment position and is detailed in section 7.4 of ISO 9613-Part 2: 1996. For clarity, the K_{met} meteorological correction has been ignored and C_2 equals 40 and C_3 equals 1.

Formula	Symbols
$A_{bar} = 10 . Log_{10} [3 + (40 . \delta / \lambda) - A_g]$ *Note 1 where $\delta = a + b - r$ and $\lambda = c / f$	A_{bar} = Effective barrier attenuation (dB) A_{gr} = Total Ground Absorption (dB) *Note 1: Only apply the A_{gr} correction if $A_{gr} > 0$ δ = Path difference (m) a = Distance from source to barrier head (m) b = Distance from barrier head to assessment position (m) r = Distance from source to assessment position (m) λ = Wavelength of sound (m) c = Speed of sound – Assumed to be 342 ms^{-1} f = Octave band centre frequency (Hz)

5.2. Calculation of Plant Noise Levels

5.2.1 Day Time (07:00 to 19:00)

Day Time (07:00 to 19:00)		Source	ISO 9613 – Part 2: 1996 Corrections					Assessment
Ref	Description	L_w	D_c	A_{div}	A_{gr}	A_{atm}	A_{bar}	Lp
1	Remote CO2 Gas Cooler	51 dB	+3 dB	-26 dB	+3 dB	-0 dB	-5 dB	26 dB
2	Daikin AZAS 140 AC Heat Pump	51 dB	+3 dB	-26 dB	+3 dB	-0 dB	-5 dB	26 dB
3	3-No Daikin AZAS 140 AC Heat Pumps	64 dB	+3 dB	-27 dB	+3 dB	-0 dB	-5 dB	38 dB

5.2.2 Night Time (23:00 to 07:00)

Night Time (23:00 to 07:00)		Source	ISO 9613 – Part 2: 1996 Corrections					Assessment
Ref	Description	L_w	D_c	A_{div}	A_{gr}	A_{atm}	A_{bar}	Lp
1	Remote CO2 Gas Cooler	51 dB	+3 dB	-26 dB	+3 dB	-0 dB	-5 dB	26 dB
2	Remote CO2 Gas Cooler	51 dB	+3 dB	-26 dB	+3 dB	-0 dB	-5 dB	26 dB

5.3. Assessment of Average Noise Levels (BS 4142: 2014 + A1: 2019)

BS 4142: 2014	Day Time - 07:00 to 19:00	Evening – 19:00 to 23:00	Night Time – 23:00 to 07:00
Residual Noise Levels	$L_{Aeq,1\ hour}$ 57 dB	$L_{Aeq,1\ hour}$ 53 dB	$L_{Aeq,15\ minutes}$ 41 dB
Specific Noise Levels	$L_{Aeq,1\ hour}$ 38 dB	$L_{Aeq,1\ hour}$ 38 dB	$L_{Aeq,\ 15\ minutes}$ 29 dB
Impulsivity Feature	+0 dB	+0 dB	+2 dB
Tonality Feature	+0 dB	+0 dB	+0 dB
Rating Noise Levels	$L_{Aeq,1\ hour}$ 38 dB	$L_{Aeq,1\ hour}$ 38 dB	$L_{Aeq,\ 15\ minutes}$ 31 dB
Background Noise Levels	$L_{A90,1\ hour}$ 45 dB	$L_{A90,1\ hour}$ 38 dB	$L_{A90,\ 15\ minutes}$ 31 dB
BS 4142 Assessment	-7 dB (Low Impact)	0 dB (Low Impact)	0 dB (Low Impact)
Uncertainty (95% Confidence, k=2)	+- 1.84 dB	+- 1.92 dB	+- 2.02 dB

6. Conclusions…

6.1. Assessment Position

The 1st floor flat over unit 6 which is to form part of the extended Tesco Express has a direct line of sight to the new plant area to be located within the two parking spaces.

6.2. Background Noise Measurements

Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
$L_{Amax,1h}$	$L_{Aeq,1h}$	$L_{A90,1h}$	$L_{Amax,1h}$	$L_{Aeq,1h}$	$L_{A90,1h}$	$L_{Amax,15m}$	$L_{Aeq,15m}$	$L_{A90,15m}$
65 - 93 dB	51 - 65 dB	45 - 61 dB	61 - 80 dB	47 - 59 dB	38 - 52 dB	38 - 81 dB	33 - 62 dB	31 - 49 dB
Minimum Background		45 dB	Minimum Background		38 dB	Minimum Background		31 dB

6.3. Criterion at Assessment Position

To comply with the revised version of the National Planning Policy Framework ("NPPF") and the guidance within the Local Plan, the resultant noise levels at the nearest residential dwellings are below the minimum background noise levels when assessed in accordance with British Standard 4142: 2014 + A1: 2019.

6.4. Mitigation Measures

The plant has been designed to meet the specific requirements of the Local Authority and therefore additional acoustic mitigation measures will not be required.

6.5. Assessment of Noise Levels

Day Time (07:00 – 19:00)			Evening (19:00 – 23:00)			Night Time (23:00 – 07:00)		
$L_{Aeq,1h}$	$L_{A90,1h}$	BS4142	$L_{Aeq,1h}$	$L_{A90,1h}$	BS4142	$L_{Aeq,1h}$	$L_{A90,1h}$	BS4142
38 dB	45 dB	-7 dB	38 dB	38 dB	0 dB	31 dB	31 dB	0 dB

6.6. Conclusions

The resultant noise levels from the proposed mechanical equipment will result in noise levels that comply in full with the Local Plan and are at levels that are very unlikely to give rise to complaints from residents.

6.7. Uncertainty

Day Time (07:00 – 19:00)	Evening (19:00 – 23:00)	Night Time (23:00 – 07:00)
+-1.84 dB (k=2, 95% Confidence)	+-1.92 dB (k=2, 95% Confidence)	+-2.02 dB (k=2, 95% Confidence)

7. Appendix A - BS 4142:2014 + A1: 2019 Information to Be Reported…

7.1. a) Competency

	Name	Role	Competency
1)	Mr. R. Scrivener	Director	Master of Science Degree in Acoustics and Noise Control (MSc) Member of the Institute of Acoustics (MIOA)

7.2. b) Source Under Investigation

1)	Source Number	Description		
	Source 1	Remote CO2 Gas Cooler		
	Source 2	Remote CO2 Gas Cooler		
	Source 3	3 No Daikin AZAS 140 AC Heat Pumps		
2) 3) 4) 5)	Description of Source	Source Location	Hours of Operation	Mode of Operation
	Source 1	Dedicated plant area in the two parking spaces adjacent to the rear of the store.	24-hour	Continuously on Demand
	Source 2		24-hour	
	Source 3		07:00 - 23:00	
	Description of Operation	Period	Conditions	Load
	All Sources	Day Time (07:00 to 19:00)	Ambient Temp 32°C	Maximum Load (100%)
		Evening (19:00 to 23:00)	Ambient Temp 28°C	Part Load (60%)
		Night Time (23:00 to 07:00)	Ambient Temp 24°C	Part Load (40%)
	Description of Premises	The Tesco Express is currently located within the Loddon Vale Centre off Hurricane Way. It is proposed to extend the Tesco Express into the vacant Unit 6 at the rear of the site. The proposed replacement refrigeration and air conditioning equipment will be located within the two car park spaces adjacent to the rear of the store around 6 to 7m from the 1st floor residential flat.		

7.3. c) Subjective Impression of Source at Assessment Position

1)	Dominance	Source will not be dominant at residential facade
	Audibility	Source will not be audible at residential facade
2)	Residual Noise Sources	Residual noise due to local road traffic

7.4. d) Existing Contexts

	Type of Receptor	Period	Sensitivity	Description
1)	Residential	Day Time (07:00 to 19:00)	Low	Noise can disturb outside amenity space and internal living space
		Evening (19:00 to 23:00)	Moderate	Noise can interrupt people trying to get to sleep
		Night Time (23:00 to 07:00)	High	Noise can disturb sleeping

7.5. e) Relative Positions

1)	Assessment Position	1m from the 1st floor flat over unit 6 with a direct line of sight to the new plant area.		
		BS 4142:2014 Criteria	Details	Compliance with Criteria
		Section 6	1.0m from façade (external)	Position is valid
2)	Source Measurement	The source sound power levels were supplied by the client. It is believed the sound power levels were established in accordance with BS EN 13487:2003.		
	Justification	The client supplied the noise levels for the proposed plant.		
3)	Background Position	Within the car park fixed to the lighting post.		
	Justification	BS 4142:2014 Criteria	Details	Compliance with Criteria
		Section 6.2	3.5m to any reflecting surface	Complies
		Section 6.2	Height 1.2m to 1.5m	Complies
		Section 6.2	1st floor 1m to facade	Not applicable
		Section 6.2	Measurement Height	3.5m
			Distance to Reflecting Surface	1.0m
		To record remote background levels, the noise meter had to be left in a secure position. The position represented the assessment position within the constraints of the site.		
4)	Topography, surfaces etc.	Hard and Flat		
5)	Relative Distances	The plant is located approximately 5.7 m to 6.6 m from the assessment position.		
6)	Dimensioned sketch	See maps and images.		

7.6. f) Noise Measurement Equipment Calibration

1)	Type	Sound Level Meter	Microphone	Calibrator
		KRE/07/01	KRE/07/02	KRE/07/04
2)	Manufacturer	Casella CEL 633	Casella CEL 251	Casella CEL 120/1
3)	Serial Number	2206846	00663	2839212
4)	Certificate Number	Certificate: U44755	Certificate: 44754	Certificate: U44749
	Calibration Due Date	04/07/2025	04/07/2025	04/07/2025

7.7. g) Noise Measurement Equipment Operation Test

1)	Ref. Level of Calibrator	94 dB
2)	Meter Reading Before	94 dB – Meter operation checked. Meter in good working order.
	Meter Reading After	94 dB - Meter operation checked. Meter in good working order.

7.8. h) Weather Conditions

1)	Wind Speed	See weather information
	Wind Direction	
2)	Temperature Inversion	Unlikely to have occurred
3)	Precipitation	None – See section 3.1
4)	Fog	None
5)	Wet Ground	Not within the measurement period – See section 3.1
6)	Frozen Ground or Snow	Not within the measurement period – See section 3.1
7)	Temperature	See section 3.1
8)	Cloud Cover	Partly Cloudy

7.9. i) Date of Measurements

1)	Source Measurements	Unknown
	Background Measurements	23/07/2024

7.10. j) Measurement Time Interval

1)	Source Measurements	T_m = 15 minutes	
	Background Measurements	Day Time (07:00 to 19:00)	T_m = 12 hours
		Evening (19:00 to 23:00)	T_m = 4 hours
		Night Time (23:00 to 07:00)	T_m = 8 hours

7.11. k) Reference Time Interval

1)	Reference Time Interval	Day Time (07:00 to 19:00)	T_r = 1 hour
		Evening (19:00 to 23:00)	T_r = 1 hour
		Night Time (23:00 to 07:00)	T_r = 15 minutes

7.12. l) Specific Noise / m) Background Noise / n) Rating / o) Assessment / p) Conclusions

These details are all included within the body of the report and are not replicated within this section.

END OF REPORT (1st and last page not numbered)

KR Associates (UK) Ltd

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