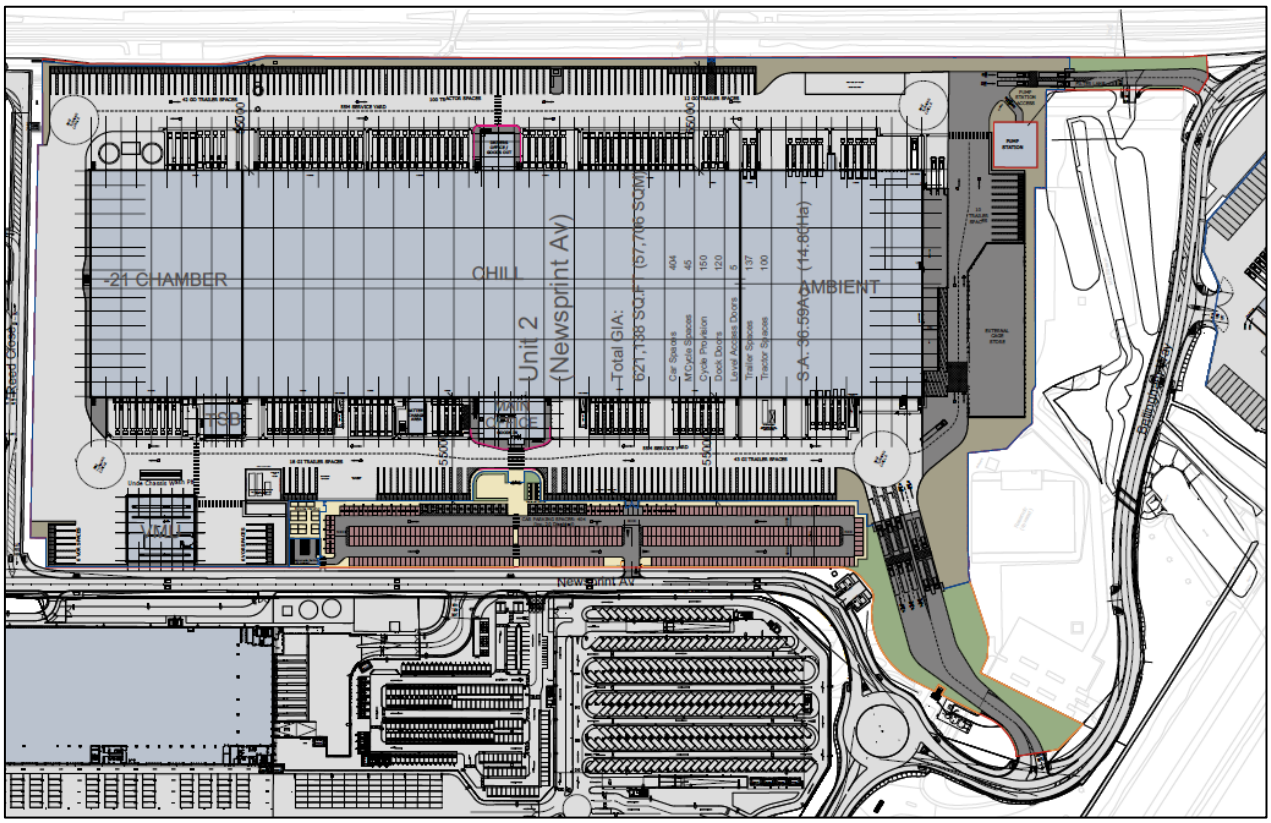
2.2.2 Noise Assessment

Unit 2, Newsprint Avenue, Aylesford, ME20 7DL

Noise Assessment

784-B031822



CP Logistics UK Aylesford Propco Limited

July 2023

Document prepared on behalf of Tetra Tech Group Limited. Registered in England number: 6595608

TETRA TECH

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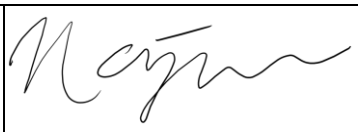
Revision:	0	**Prepared by:**	Najwa Adnan-Smith Environmental Assistant	
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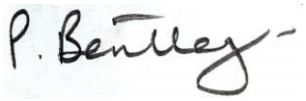
Status:	First Issue	**Approved By:**	Paul Bentley Associate	
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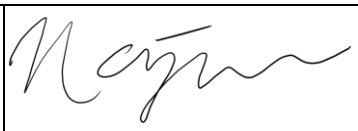
Revision:	1	**Prepared by:**	Najwa Adnan-Smith Environmental Assistant	
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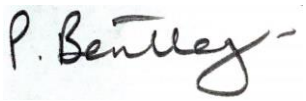
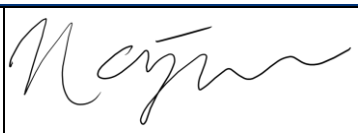
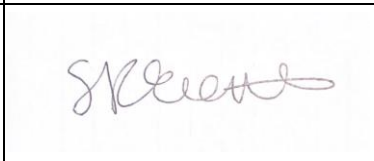
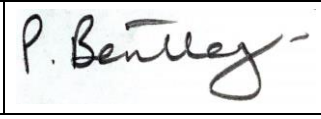
Status:	Second Issue	**Approved By:**	Paul Bentley Associate	
Description of Revision:	Minor amendments			

Revision:	2	**Prepared by:**	Najwa Adnan-Smith Environmental Assistant	
Date:	19/07/2023	**Checked by:**	Suzy Everett Senior Environmental Consultant	
Status:	Third Issue	**Approved By:**	Paul Bentley Associate	
Description of Revision:	Updated number of HGV movements			

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1.0 INTRODUCTION

1.1 PURPOSE OF THIS REPORT

This report presents the findings of a noise assessment for a reserved matters application pursuant to hybrid planning permission ref. TM/20/01820/OAEA for the erection of a warehouse building for B8 (Storage and Distribution) uses, ancillary office accommodation, associated ancillary structures, parking, drainage and areas of landscaping at the former Aylesford Newsprint site, Newsprint Avenue, Aylesford, ME20 7DL.

This report considers the potential noise impact by assessing the following sources associated with Unit 2:

- HGV activity (movements, parking and loading/unloading)
- Staff car parking
- Building services plant

Noise surveys have been undertaken and the results used to verify predictions of the short-term and long-term effects of noise. The noise levels from the proposed development have been predicted at local representative receptors using CadnaA noise modelling software which incorporates ISO 9613-2 methodologies and calculations.

A list of acoustic terminology and abbreviations used in this report is provided in Appendix A and Report Conditions are presented in Appendix B.

1.2 LEGISLATIVE CONTEXT

This report is intended to provide information relevant to the local planning authority and their consultees in support of a planning application for the above proposed development. Policy guidance with respect to noise is found in the National Planning Policy Framework (NPPF), published in July 2021. With regard to noise and planning, the NPPF contains the following statement at paragraph 174:

> *"174 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 soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans…"*

A further two short statements are presented at paragraph 185, which state:

> *"185. Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*
>
> > *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;*

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason…"

Furthermore, paragraphs 187 and 188 state:

"187. Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

188. The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities."

Practice Guidance (PPG): Noise provides further guidance with regard to the assessment of noise within the context of Planning Policy. The overall aim of this guidance is, tying in with the principles of the NPPF and the Explanatory Note of the Noise Policy Statement for England (NPSE), is to, *'identify whether the overall effect of noise exposure is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation.'*

A summary of the effects of noise exposure associated with both noise generating developments and noise sensitive developments is presented within the PPG and repeated below in Table 1.1.

Table 1.1: NPPG Noise Exposure Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not present	No Effect	No Observed Effect	No Specific Measures Required
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No Specific Measures Required
Lowest Observed Adverse Effect Level (LOAEL)			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum

Perception	Examples of Outcomes	Increasing Effect Level	Action
Significant Observed Adverse Effect Level (SOAEL)			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. 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
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

The NPPF, NPSE and PPG do not, however, present absolute noise level criteria which define SOAEL, LOAEL and NOEL which is applicable to all sources of noise in all situations. Therefore, within the context of the Proposed Development, national planning policy and appropriate guidance documents including 'BS 8233 – Guidance on Sound Insulation and Noise Reduction for Buildings' (2014) and 'BS 4142: 2014 Methods for Rating and Assessing Industrial and Commercial Sound'. Section 2.0 presents the noise level criteria used as a basis of this assessment.

The PPG also states that neither the NPSE nor the NPPF (which reflects the Noise Policy Statement) expects noise to be considered in isolation, separately from the economic, social and other environmental dimensions of the proposed development.

1.3 ACOUSTIC CONSULTANTS' QUALIFICATIONS AND PROFESSIONAL MEMBERSHIPS

The lead project Acoustic Consultant is Najwa Adnan-Smith. The report has been checked by Suzy Everett and verified by Paul Bentley. Relevant qualifications, membership and experience are summarised in Table 1.2 below.

Table 1.2: Acoustic Consultants' Qualifications & Experience

Name	Education	Experience in Undertaking Noise Assessments (Start date of working in noise & acoustics)	Attained Associate Membership of the Institute of Acoustics (date)	Attained Membership of the Institute of Acoustics (date)
Najwa Adnan-Smith	BSc 2016	Oct 2022	-	-
Suzy Everett	BEng 2018	Jul 2018	Aug 2018	Sep 2022
Paul Bentley	BSc 2004 MSc 2005 PgDip 2012	Feb 2008	Jun 2012	Aug 2016

2.0 ASSESMENT CRITERIA

2.1 NATIONAL PLANNING PRACTICE GUIDANCE

To enable the assessment of the proposed development in terms of LOAEL and SOAEL, Table 2.1 presents equivalent noise levels and associated actions with the target noise level criteria identified. The noise level criteria detailed below have been derived from standards and design guidance:

- BS 4142:2014, 'Methods for rating and assessing industrial and commercial sound'
- BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings – Code of practice'
- World Health Organisation 'Guidelines for Community Noise' 1999.

Table 2.1: Noise Level Criteria and Actions

Effect Level	Assessment	Noise Level Criteria	Action / Justification
No Observed Adverse Effect Level (NOAEL)	Building Services Plant/Goods Deliveries/Car Parking	Source noise levels below background L_{A90} noise levels	Action: None Justification: A difference which is ≤0dB from the background sound level is an indication that the noise will have a low impact.
		Noise levels are below: *Bedrooms: 30 dB$L_{Aeq,8hours}$/* 45 dBL_{Amax} *Living Rooms: 35 dB$L_{Aeq,16hours}$*	Within BS8233 / WHO guideline criteria
Lowest Observed Adverse Effect Level (LOAEL)	Building Services Plant/Goods Deliveries/Car Parking	Difference between source noise levels and existing background levels of >0 to ≤5 dB	Action: None Justification: A difference of >0dB to ≤5dB above the background is an indication that noise is less likely to have an adverse or significant adverse impact depending on context.
		Noise levels are below: *Bedrooms: 30 dB$L_{Aeq,8hours}$* /45 dBL_{Amax} *Living Rooms: 35 dB$L_{Aeq,16hours}$*	Within BS8233 / WHO guideline criteria
Significant Observed Adverse Effect Level (SOAEL)	Building Services Plant/Goods Deliveries/Car Parking	Difference between source noise levels and existing background levels of between >5dB and ≤10dB	Action: Mitigate to achieve at least 10 dB above background if possible: Justification: A difference of >5 to ≤10dB above the background is an indication of potential adverse impact depending on context.
		Noise levels are exceeded: *Bedrooms: 30 dB$L_{Aeq,8hours}$/45 dBL_{Amax} (More than 15 times per night)* *Living Rooms: 35 dB$L_{Aeq,16hours}$*	Mitigate and reduce to a achieve: Bedrooms: 30 dB$L_{Aeq,8hours}$/45 dB L_{Amax} Living Rooms: 35 dB$L_{Aeq,16hours}$

Effect Level	Assessment	Noise Level Criteria	Action / Justification
Unacceptable Observed Adverse Effect Level (UOAEL)	Building Services Plant/Goods Deliveries/Car Parking	Difference between source noise levels and existing background levels of >10 dB	Action: Reduce as far as practicable depending on context Justification: A difference of >10dB above the background is an indication of potential significant adverse impact depending on context.
		Internal noise levels exceed: *Bedrooms: 51 dB $L_{Aeq,8hours,}$ /67 dB L_{Amax}* *Living Rooms: 57 dB $L_{Aeq,16hours}$*	Mitigate and reduce to a achieve: Bedrooms: 30 dB $L_{Aeq,8hours}$/45 dB L_{Amax} Living Rooms: 35 dB $L_{Aeq,16hours}$

3.0 ASSESSMENT METHODOLOGY

3.1 NOISE MODELLING METHODOLOGY

Three-dimensional noise modelling has been undertaken based on the monitoring data to predict noise levels at a number of locations both horizontally and vertically. CadnaA noise modelling software has been used. This model is based on ISO 9613-2 noise propagation methodology and allows for detailed prediction of noise levels to be undertaken for large numbers of receptor points and different noise emission scenarios both horizontally and vertically. The modelling software calculates noise levels based on the emission parameters and spatial settings that are entered. Input data and model settings as given in the table below have been used.

Table 3.1: Modelling Parameters Sources and Input Data

Parameter	Source	Details
Horizontal distances – around site	Ordnance Survey	Ordnance Survey
Ground levels – around site	DEFRA	LIDAR 1m DTM
Building heights – around site	Tetra Tech Observations	8 m height for two storey residential properties, and 4 m for Bungalows.
Receptor positions	Tetra Tech	1 m from façade, height of 1.5 m for ground floor, 4 m for first floor properties, 6m for second floor properties.
Proposed Plans	Ashton Smith	Drawing Title: Shell Works Site Plan Drawing No: Queen-ASA-30-ZZ.ZZ-D-A-3000_(S0-P13) Revision P13 Dated: 16/06/2023
Ground Absorption	Tetra Tech	G = 0.5
Order of Reflections	Tetra Tech	2 no.

It is acknowledged that a number of the values of parameters chosen will affect the overall noise levels presented in this report. However, it should be noted that the values used, as identified above, are worst-case.

3.2 MODEL INPUT DATA

3.2.1 HGV Activities

Noise of a delivery event has been known to vary from site to site by as much as 22 dB $L_{Aeq,T}$ at 3m distance even with the same vehicle type. Similarly, individual events using the same vehicle and at the same location have been recorded to vary by as much as 14 dB.

As such, Table 3.2 summarises the modelled noise sources and the sound pressure levels for the HGV activities associated with Unit 2. All measurements were undertaken by Tetra Tech during a noise survey at another site and were in free-field conditions. In addition to noise from the unloading process, the levels used in the assessment include noise from the vehicle pulling up to the unloading bay, manoeuvring into

position and then pulling away once unloading/loading is complete, together with other sources such as trolleys and reversing alarms.

The number of HGV movements and therefore HGV parking and unloading/loading have been based on the daily departures data provided by Vectos, the transport consultant. For this assessment, the worst-case one-hour period for daytime and 15minute period for night-time have been used.

Table 3.2: Modelled Sound Pressure Levels for HGV Activities

Noise Level	Data Source	Modelled Source Type	Details	Sound Pressure Level Per Point at 3m Distance (dB)		
				Daytime $L_{Aeq,1hour}$	Night-time $L_{Aeq,15minutes}$	Night-time L_{Amax}
HGV Parking	Tetra Tech Survey	Point Source	1 per Space Daytime Occupancy: 100% Night-time Occupancy: 50%	52.7	58.7	89.4
HGV Unloading/Loading		Point Source	1 per Space Daytime Occupancy: 102 + 18 docks Night-time Occupancy: 40 + 18 docks	73.8	76.3	89.4
HGV Movements		Line Source (Moving Point)	Daytime: 47no. HGVs Night-time: 20no. HGVs	73.0		

3.2.2 Car Park Noise Data

Worst-case noise levels from car parking at the proposed development have been based upon observations and measurements taken at the centre of an existing distribution centre car park during a shift change. This has been modelled using area sources. It is assumed that 100% of the carpark areas are in use during a worst-case daytime 1-hour period and a worst-case night-time 15-minute period.

$L_{Aeq,T}$ = 54.0 dB at 1.0 m height

3.2.3 Plant Noise Limit

It has been noted that several items such as building services plant, fuel island and vehicle wash are to be installed under fit out and therefore it is not possible to undertake predictions to determine whether appropriate standards might be met. Instead, appropriate plant noise emission limits have been set which can feed into the future detailed design.

3.2.4 Other Developments

The developments in Table 3.3 below have been included in the cumulative assessment presented in Section 5.2.

Table 3.3: Other Developments Considered

Development	Reference	Noise Sources Assessed
Wider Panattoni development of the former Aylesford Newsprint site (Units 1 – 7)	Hybrid planning permission ref. TM/20/01820/OAEA	Operational noise based on the noise assessments previously undertaken by TT.
Installation of a new treatment building for water transmission and treatment purposes directly to the south of Unit 2	Planning permission ref. 23/00139/FL	6no. HGV movements based on the submitted Butler WTW Transport Technical Note South East Water dated 15th September 2022 by Atkins Limited.

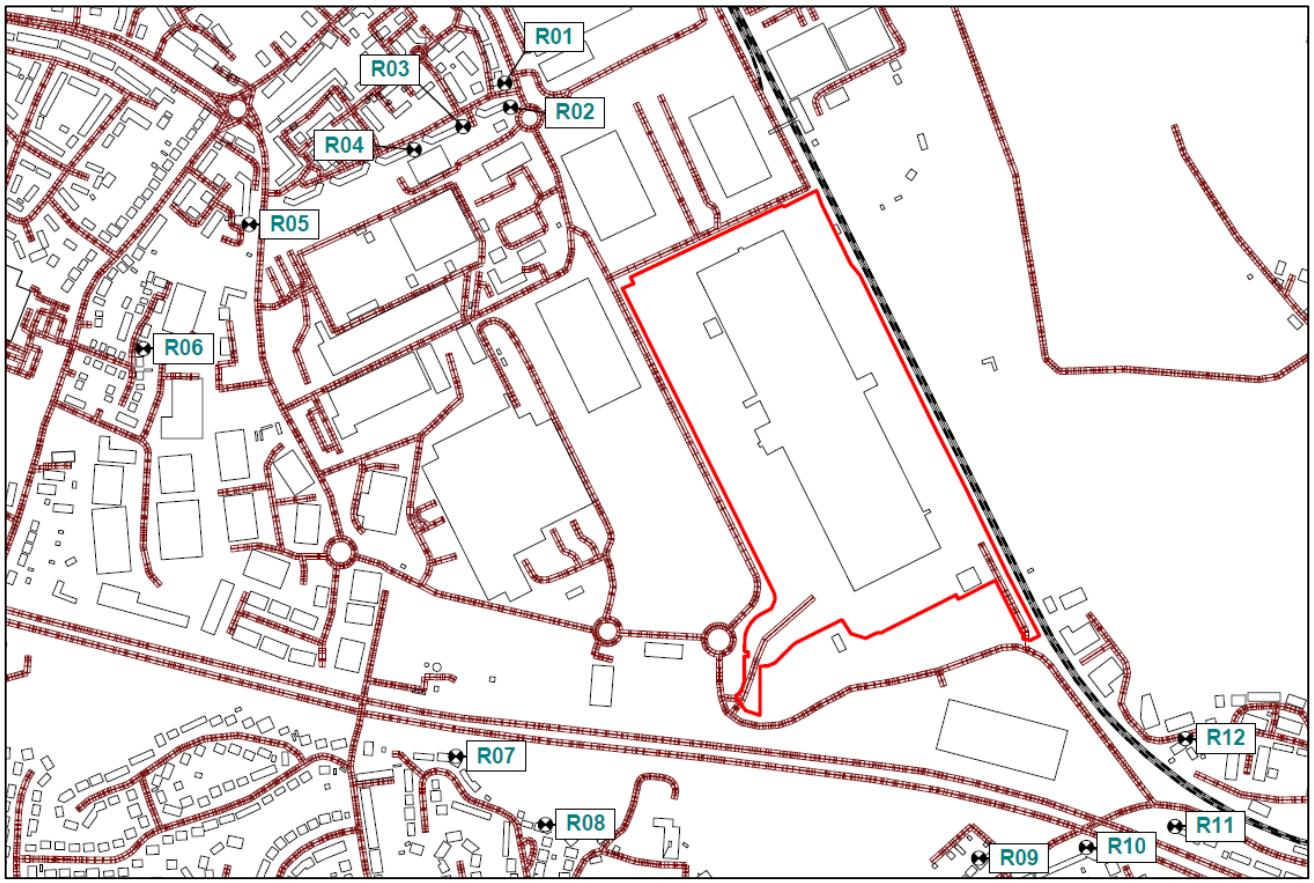
3.3 SENSITIVE RECEPTORS

Table 3.4 below summarises receptor locations that have been selected to represent worst-case sensitive receptors with respect to direct noise from the site. Façades of the nearest noise sensitive properties to the development site have been represented. The locations of the receptors are shown in Figure 3.1 below.

Table 3.4: Existing Receptor Locations

Ref.	Description	Type of Use	Height (m) Daytime / Night-time
R01	10 Sherwood Avenue	Residential	1.5/6.0
R02	154 Abery Drive	Residential	1.5/6.0
R03	128 Abery Drive	Residential	1.5/6.0
R04	88 Abery Drive	Residential	1.5/6.0
R05	10 Mercer Close	Residential	1.5/4.0
R06	30 Albion Drive	Residential	1.5/4.0
R07	43 Cobdown Close	Residential	1.5/4.0
R08	25 Cobdown Close	Residential	1.5/4.0
R09	127 Station Road	Residential	1.5/4.0
R10	108a Station Road	Residential	1.5/4.0
R11	156 Station Road	Residential	1.5/4.0
R12	87 Mill Hall	Residential	1.5/4.0

Figure 3.1: Sensitive Receptor Locations



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4.0 BASELINE CONDITIONS

4.1 BASELINE NOISE SURVEY

A monitoring survey was undertaken to characterise baseline ambient noise levels currently experienced on the site and to establish the relative local background and traffic noise levels. Equipment used during the survey included:

Rion NL-52	Environmental Noise Analyser	s/n	1221575
Rion NL-52	Environmental Noise Analyser	s/n	620858
Rion NL-52	Environmental Noise Analyser	s/n	1043466
Rion NL-52	Environmental Noise Analyser	s/n	264488
Rion NL-52	Environmental Noise Analyser	s/n	976224
Rion NC-74	Sound Calibrator	s/n	35046823
Rion NC-75	Sound Calibrator	s/n	35480543

The measurement equipment was checked against the appropriate calibrator at the beginning and end of the measurements, in accordance with recommended practice, a maximum drift of 0.1 dB was observed. The accuracy of the calibrators can be traced to National Physical Laboratory Standards, calibration certificates for which are available on request.

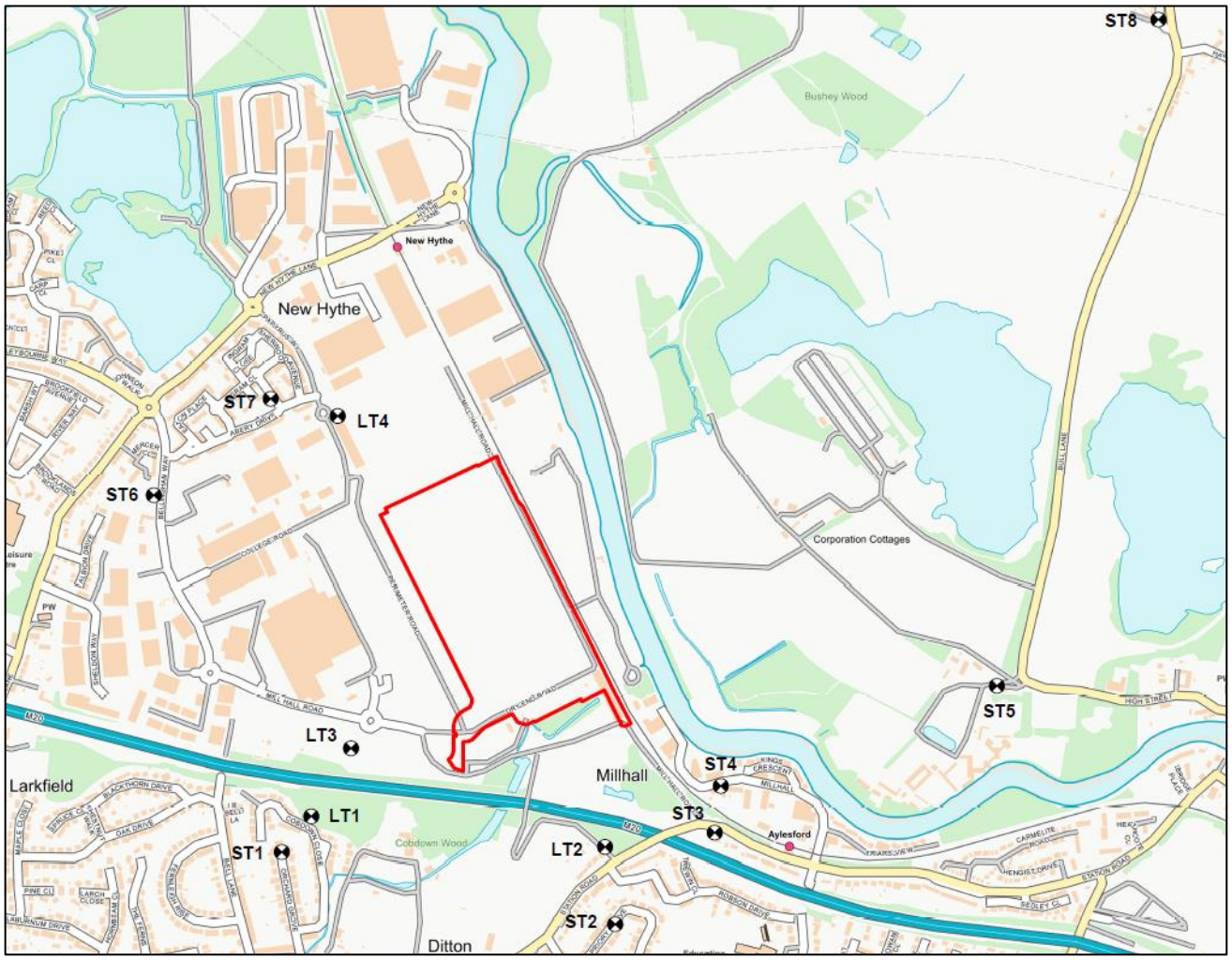
A baseline monitoring survey was undertaken at twelve locations (as specified in Table 4.1 and shown in Figure 4.1 below) from Friday 6th March 2020 to Wednesday 11th March 2020. Attended short-term (ST) measurements were undertaken at eight locations during daytime, evening, and night-time periods with four additional long-term (LT) locations being measured unattended over a 118-hour period. The raw data collected from the long-term monitoring are available upon request.

Measurements were taken in general accordance with BS 7445-1:2003 The Description and Measurement of Environmental Noise: Guide to quantities and procedures. Weather conditions during the survey period were observed as being dry with scattered showers. Anemometer readings confirmed that wind speeds were less than 5 ms^{-1} at all times during the survey, with a predominant south-westerly wind direction.

Table 4.1: Noise Monitoring Locations

Ref	Description
LT1	In-between Cobdown Close and the M20
LT2	On footpath off Station Road, up from the top of Robson Drive
LT3	On the northern side of the M20, near SIG Distribution entrance roundabout
LT4	Southeast of the Papyrus Way-College Road roundabout
ST1	Outside 45 Orchard Grove
ST2	Outside 20 Priory Grove
ST3	Outside 156 Station Road
ST4	Outside 77 Mill Hall
ST5	On High Street, east of The Friar's Tea Room and Gift Shop
ST6	On Bellingham Way, 100m south of the top of Abery Drive
ST7	Halfway up Ingram Close, in-between Ingram Close roundabout and Abery Drive
ST8	On the corner of Bull Lane and Bull Lane cul-de-sac

Figure 4.1: Noise Monitoring Locations



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4.1.1 Noise Survey Results

The ambient noise climate found in the area includes road traffic noise (RTN) from the M20, A20, Station Road and Bellingham Way, footfall (off Station Road), bird call and bird song, and occasional industrial activity including moving HGVs and forklifts. It is understood that temporary motorway closures were in place during certain night-time periods and as such typical ambient L_{Aeq} and background L_{A90} noise levels are expected to be higher during the night-time period than measured.

Ambient and background noise levels are usually described using the L_{Aeq} index (a form of energy average) and the L_{A90} index (i.e. the level exceeded for 90% of the measurement period) respectively. Road traffic noise is generally described using the L_{A10} index (i.e. the level exceeded for 10% of the measurement period). For the LT locations, the presented $L_{Aeq,T}$ and $L_{A10,T}$ are average noise levels whilst the L_{A90} is the modal noise level of each 5 minute measurement over the stated survey period.

Table 4.2: Meteorological Conditions During the Survey

Survey Location	Date & Time	Temperature (°C)	Wind Speed (m/s)	Wind Direction	Cloud Cover (Oktas)	Dominant Noise Source
Daytime ST1	10/03/2020 13:33	13	0.5-2.5	S	8	Distant RTN (M20, A20), distant shop activity, birdsong, and wind.
Daytime ST2	10/03/2020 13:59	13	1.5-3.8	SW	8	Distant RTN (M20, A20, Station Road), birdsong, wind, and footfall.
Daytime ST3	10/03/2020 14:22	13	1.5-3.2	SW	8	RTN (Station Road, M20), birdsong, and footfall.
Daytime ST4	10/03/2020 14:47	13	1.0-3.2	SW	8	Construction noise, train passes, wind, and occasional vehicle (Mill Hall).
Daytime ST5	10/03/2020 16:09	13	0.0-1.7	SW	8	Occasional vehicle (High Street), birdsong, and distant RTN (M20).
Daytime ST6	10/03/2020 15:15	13	0.0-2.5	SW	7	Distant RTN (M20), occasional vehicle (Bellingham Way), and industrial activity mainly forklifts.
Daytime ST7	10/03/2020 15:34	13	0.0-2.5	S	8	Distant industrial activity mainly forklifts, distant RTN (M20, New Hythe Lane), birdsong, children in park, occasional vehicle (Ingram Close), and footfall.
Daytime ST8	10/03/2020 16:31	13	1.3-4.7	SW	8	Occasional vehicle (Bull Lane), footfall, birdsong, bicycles, and footfall.
Evening ST1	10/03/2020 20:43	12	0.0-1.9	SSE	7	Distant RTN (M20, A20), planes, and wind.
Evening ST2	10/03/2020 21:03	12	0.8-3.9	SW	7	Distant RTN (M20, Station Road, A20), occasional vehicle (Priory Grove), distant chatter, and footfall.
Evening ST3	10/03/2020 21:24	12	0.0-2.8	SW	8	Occasional vehicle (Station Road), RTN (M20), and industrial activity including lorries moving.
Evening ST4	10/03/2020 21:43	12	0.0-3.3	SW	8	Distant industrial activity including forklifts, distant RTN (M20), and wind.
Evening ST5	10/03/2020 22:12	12	0.0-1.5	SW	8	Occasional vehicle (Bull Lane), RTN (M20), planes, and distant industrial activity.
Evening ST6	10/03/2020 20:10	12	0.0-1.5	SW	8	Occasional vehicle (Bellingham Way), distant industrial activity mainly forklifts, bicycles, and footfall.
Evening ST7	10/03/2020 19:46	12	1.0-3.5	SW	8	Planes, distant RTN (M20), occasional vehicle (Bellingham Way, New Hythe Lane, Ingram Close), and footfall.
Evening ST8	10/03/2020 22:34	12	1.5-4.1	SW	8	Very distant industrial noise, distant RTN (M20), and occasional vehicle (Bull Lane).
Night-time ST1	11/03/2020 00:48	12	0.0-2.3	SW	8	RTN (A20)*, distant industrial activity including forklifts, and occasional

Survey Location	Date & Time	Temperature (°C)	Wind Speed (m/s)	Wind Direction	Cloud Cover (Oktas)	Dominant Noise Source
						vehicle (Orchard Grove).
Night-time ST2	11/03/2020 00:26	12	0.0-3.8	SW	8	RTN (Station Road, A20)*, and very distant industrial activity.
Night-time ST3	10/03/2020 23:44	12	0.0-3.4	SW	8	Occasional vehicle (Station Road)*, and industrial activity mainly lorries moving.
Night-time ST4	11/03/2020 00:03	12	0.0-1.9	SW	8	RTN (A20, Station Road)*, and distant industrial activity mainly lorries moving.
Night-time ST5	10/03/2020 23:21	12	0.0-2.0	SW	8	Distant industrial activity, RTN (M20)*, and wind.
Night-time ST6	11/03/2020 01:12	12	0.0-1.5	SW	8	RTN (A20)*, occasional industrial activity, occasional vehicle (Bellingham Way), and noise from drain.
Night-time ST7	11/03/2020 01:34	12	0.0-1.5	SW	8	RTN (A20)*, and birdsong.
Night-time ST8	10/03/2020 23:00	12	0.0-4.1	SW	8	Occasional vehicle (Bull Lane), planes, and very distant industrial noise.

* M20 closed after 23:30 on 10/03/2020

The results of the statistical measurements and frequency measurements conducted during the survey are summarised in the following table. All values are sound pressure levels in dB (re: 2 x 10^{-5} Pa).

Table 4.3: Results of Baseline Noise Monitoring Survey (Average Levels)

Period	Duration (T)	Monitoring Date and Times	Location	$L_{Aeq,T}$ (dB)	$L_{Amax,T}$ (dB)	$L_{Amin,T}$ (dB)	$L_{A10,T}$ (dB)	$L_{A90,T}$ (dB)
Weekday Daytime 07:00 - 23:00	45 Hours	06/03/2020 – 11/03/2020 07:00 – 23:00	LT1	56.4	79.8	42.0	57.5	54.0
Weekday Night-time 23:00 – 07:00	24 Hours	06/03/2020 – 11/03/2020 23:00 – 07:00		53.8	82.4	34.1	52.1	44.0
Weekend Daytime 07:00 - 23:00	32 Hours	07/03/2020 – 08/03/2020 07:00 – 23:00		54.3	83.1	40.8	55.3	51.0
Weekend Night-time 23:00 – 07:00	16 Hours	07/03/2020 – 08/03/2020 23:00 – 07:00		52.3	80.0	38.2	52.9	48.0
Weekday Daytime 07:00 - 23:00	45 Hours	06/03/2020 – 11/03/2020 07:00 – 23:00	LT2	60.1	87.3	39.4	61.1	58.0
Weekday Night-time 23:00 – 07:00	24 Hours	06/03/2020 – 11/03/2020 23:00 – 07:00		57.6	88.2	34.4	56.1	41.0

Period	Duration (T)	Monitoring Date and Times	Location	$L_{Aeq,T}$ (dB)	$L_{Amax,T}$ (dB)	$L_{Amin,T}$ (dB)	$L_{A10,T}$ (dB)	$L_{A90,T}$ (dB)
Weekend Daytime 07:00 - 23:00	32 Hours	07/03/2020 – 08/03/2020 07:00 – 23:00		58.2	86.5	40.4	59.2	56.0
Weekend Night-time 23:00 – 07:00	16 Hours	07/03/2020 – 08/03/2020 23:00 – 07:00		54.9	86.7	37.7	55.2	48.0
Weekday Daytime 07:00 - 23:00	45 Hours	06/03/2020 – 11/03/2020 07:00 – 23:00	LT3	62.8	85.8	39.0	64.1	61.0
Weekday Night-time 23:00 – 07:00	24 Hours	06/03/2020 – 11/03/2020 23:00 – 07:00		58.4	76.2	33.6	56.0	44.0
Weekend Daytime 07:00 - 23:00	32 Hours	07/03/2020 – 08/03/2020 07:00 – 23:00		61.1	83.7	39.8	62.6	58.0
Weekend Night-time 23:00 – 07:00	16 Hours	07/03/2020 – 08/03/2020 23:00 – 07:00		56.1	83.8	38.0	56.8	44.0
Weekday Daytime 07:00 - 23:00	46 Hours	06/03/2020 – 11/03/2020 07:00 – 23:00	LT4	56.9	85.5	41.4	57.5	50.0
Weekday Night-time 23:00 – 07:00	24 Hours	06/03/2020 – 11/03/2020 23:00 – 07:00		52.9	77.3	36.4	52.8	46.0
Weekend Daytime 07:00 - 23:00	32 Hours	07/03/2020 – 08/03/2020 07:00 – 23:00		52.3	81.9	37.9	52.6	46.0
Weekend Night-time 23:00 – 07:00	16 Hours	07/03/2020 – 08/03/2020 23:00 – 07:00		51.1	78.5	35.7	51.1	45.0
Daytime 07:00 - 19:00	15 Mins	10/03/2020 13:33	ST1	50.0	64.5	45.8	51.1	48.1
	15 Mins	10/03/2020 13:59	ST2	52.4	74.0	46.0	51.7	47.7
	15 Mins	10/03/2020 14:22	ST3	70.8	83.7	53.2	75.3	58.5
	15 Mins	10/03/2020 14:47	ST4	63.0	78.4	56.3	64.7	59.2
	15 Mins	10/03/2020 16:09	ST5	60.6	87.6	50.1	59.1	52.2
	15 Mins	10/03/2020 15:15	ST6	68.9	86.4	49.6	73.8	51.6
	15 Mins	10/03/2020 15:34	ST7	52.2	65.8	47.8	53.4	49.8
	15 Mins	10/03/2020 16:31	ST8	63.7	86.8	44.8	68.1	47.4
Evening 19:00 - 23:00	15 Mins	10/03/2020 20:43	ST1	47.2	59.2	39.8	49.0	44.2
	15 Mins	10/03/2020 21:03	ST2	50.5	75.9	40.2	48.4	43.5
	15 Mins	10/03/2020 21:24	ST3	69.4	82.8	42.5	74.9	50.2
	15 Mins	10/03/2020 21:43	ST4	46.8	73.6	37.8	48.4	40.7

Period	Duration (T)	Monitoring Date and Times	Location	$L_{Aeq,T}$ (dB)	$L_{Amax,T}$ (dB)	$L_{Amin,T}$ (dB)	$L_{A10,T}$ (dB)	$L_{A90,T}$ (dB)
	15 Mins	10/03/2020 22:12	ST5	47.8	68.1	38.7	50.1	41.5
	15 Mins	10/03/2020 20:10	ST6	61.5	79.2	44.6	61.7	46.9
	15 Mins	10/03/2020 19:46	ST7	52.8	73.9	45.2	53.5	46.8
	15 Mins	10/03/2020 22:34	ST8	57.9	80.1	34.6	52.9	36.3
Night-time 23:00 - 07:00	15 Mins	11/03/2020 00:48	ST1	43.1	71.7	32.8	44.6	36.1
	15 Mins	11/03/2020 00:26	ST2	43.2	59.4	34.1	46.1	38.1
	15 Mins	10/03/2020 23:44	ST3	66.0	88.1	38.6	68.8	40.8
	15 Mins	11/03/2020 00:03	ST4	44.4	62.0	36.4	47.3	39.3
	15 Mins	10/03/2020 23:21	ST5	42.9	64.8	37.0	44.5	39.2
	15 Mins	11/03/2020 01:12	ST6	59.9	81.4	36.0	53.1	37.5
	15 Mins	11/03/2020 01:34	ST7	41.2	54.3	34.8	43.2	38.4
	15 Mins	10/03/2020 23:00	ST8	52.6	77.1	35.0	44.6	37.0

All values are sound pressure levels in dB re: $2x\ 10^{-5}$ Pa.

4.1.2 Representative Background Levels

Using the data collected during the baseline survey, representative background noise levels have been derived for all receptor locations presented in Figure 4.1. Table 4.4 presents the representative background noise levels considered appropriate for the existing sensitive receptors within the area. The representative noise levels presented in Table 4.4 have been used to inform the assessment presented in Section 5.0.

Table 4.4: Representative Background Noise Levels (All Receptors)

Receptors	Monitoring Location	Time Period	Representative Background Noise Level ($L_{A90,T}$ dB)*
R01 to R06	LT4	Daytime (07:00 – 23:00)	46.0
		Night-time (23:00 – 07:00)	45.0
R07 and R08	LT1	Daytime (07:00 – 23:00)	51.0
		Night-time (23:00 – 07:00)	44.0
R09 to R12	LT2	Daytime (07:00 – 23:00)	56.0
		Night-time (23:00 – 07:00)	41.0

*Lowest $L_{A90,T}$ value selected from either Weekday or Weekend.

5.0 ASSESSMENT OF EFFECTS

5.1 OPERATIONAL PHASE – UNIT 2

5.1.1 Plant Noise Limits

Based on the baseline noise monitoring data detailed in Section 4 of this report, noise limits for building services fixed plant have been set in terms of a Noise Rating Level ($L_{Ar,T}$) at nearby noise sensitive properties relative to the measured background sound level (L_{A90}) in order to control impacts to an acceptable level. Noise limits apply at a free-field locations representative of sensitive facades.

In order to reduce the risk of fixed plant noise making a significant contribution to background noise levels in the area, the target for fixed plant Rating Level ($L_{A,Tr}$) is set at 10 dB below background sound level during the daytime and night-time periods. The maximum permissible external noise levels from the potential plant are presented in Table 5.1.

Table 5.1: Recommended Rating Level for Plant Noise at Nearby Existing Receptors

Receptors	Measurement Location	Representative Background Noise Level L_{A90} (dB(A))		Proposed Fixed Plant Criteria (dB(A))	
		Daytime 07:00 – 23:00	Night-time 23:00 – 07:00	Daytime 07:00 – 23:00	Night-time 23:00 – 07:00
Existing Receptors R01 to R06	LT4	46	45	36	35
Existing Receptors R07 and R08	LT1	51	44	41	34
Existing Receptors R09 to R12	LT2	56	41	46	31

5.1.2 Operational Noise Assessment – Unit 2

This assessment has been undertaken to establish noise from the external operations associated with Unit 2 only, including HGV activities and staff carparking. The assessment compares the typical existing background $L_{A90,T}$ sound levels (assuming 24-hour operation) at nearby sensitive receptor locations.

No character corrections have been applied as the identified sensitive receptors are situated adjacent to the local road and rail networks and nearby existing industrial areas. Therefore, any potential impulsive feature of the noise from the proposed development is not likely to be perceptible at receptors.

Table 5.2 presents the BS4142:2014 assessment results.

Table 5.2: BS4142 Assessment for Operational Noise – Unit 2

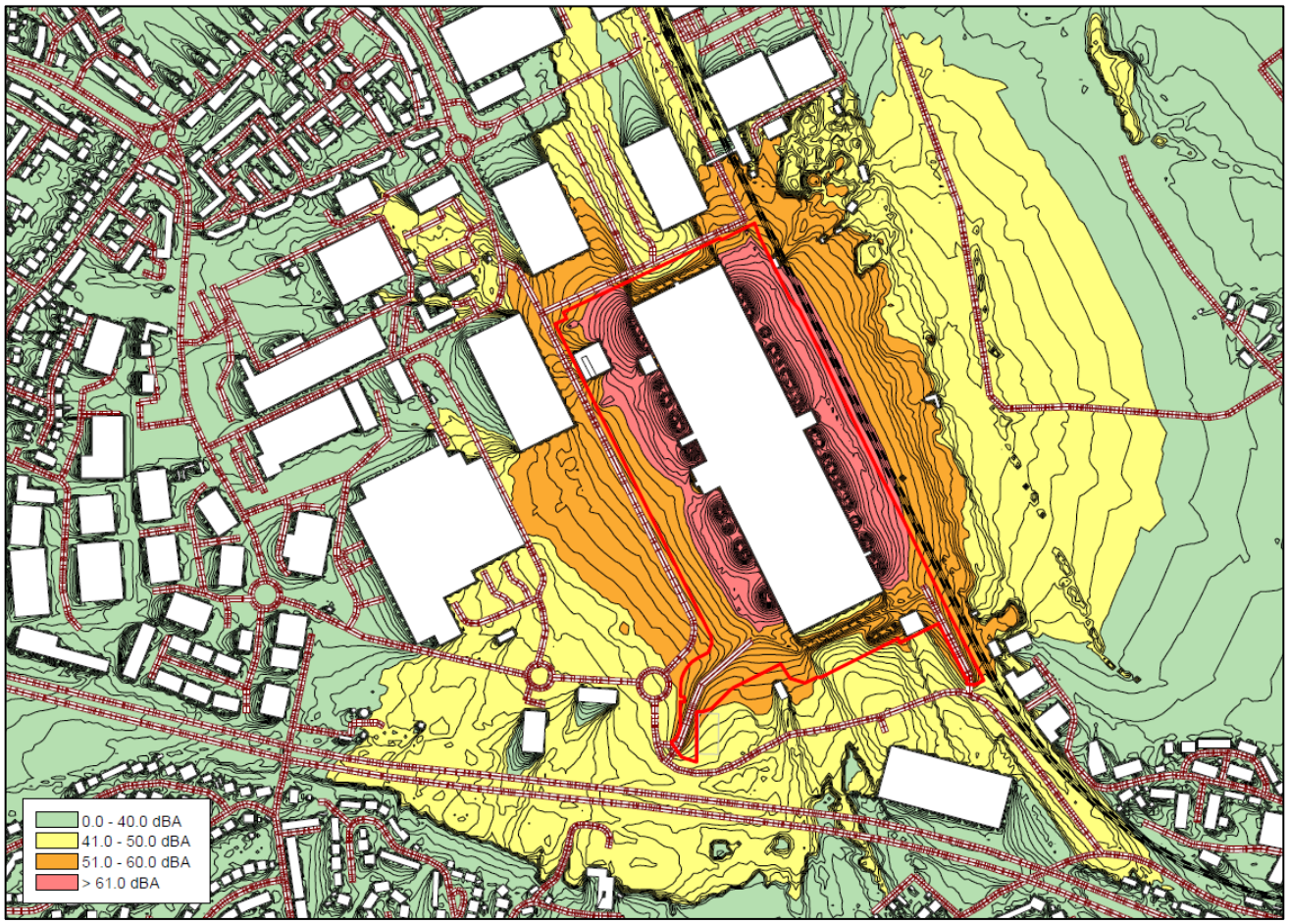
Receptor Reference	Existing Measured Background $L_{A90,T}$ dB(A)		Predicted Noise Level $L_{Aeq,T}$ dB(A)		BS 4142 Score dB(A)	
	Daytime	Night-time	Daytime	Night-time	Daytime	Night-time
R01	46	45	36	37	-10	-8
R02	46	45	37	37	-9	-8
R03	46	45	36	39	-10	-6
R04	46	45	32	37	-14	-8
R05	46	45	38	38	-8	-7
R06	46	45	37	37	-9	-8
R07	51	44	39	39	-12	-5
R08	51	44	34	35	-17	-9
R09	56	41	37	36	-19	-5
R10	56	41	38	37	-18	-3
R11	56	41	38	42	-19	+1
R12	56	41	34	35	-22	-6

All values are sound pressure levels in dBA re: 2x 10^{-5} Pa. All calculations used to derive the above table (including averaging of background noise levels and predicted source noise levels) have been undertaken to 1 decimal place to avoid perpetuation of rounding errors. However, in accordance with BS4142 para 8.6 the levels are expressed as integers (with 0.5 dB being rounded up). This may mean that the arithmetic's in the above table may appear to be up to 1 dB incorrect due to this rounding.

The result of the BS 4142 assessment above indicates that the predicted noise levels from Unit 2 of the proposed development will be below or no more than +1 dB above the existing background noise levels during the daytime period and the night-time period respectively.

Based on the context of the site location, the predicted noise levels would result in the Lowest Observed Adverse Effect Level (LOAEL) at the closest existing sensitive receptors during the daytime and night-time periods. The night-time noise levels associated with Unit 2 are illustratively shown in Figure 5.1.

Figure 5.1: $L_{Aeq,15min}$ Night-time Noise Contour Plot – Unit 2 (4.0m Grid Height)



Not to scale

5.2 CUMULATIVE ASSESSMENT

The assessments presented below have been undertaken to include contributions from the wider Panattoni development (Units 1-7) of the former Aylesford Newsprint site within the consented hybrid planning application (planning reference: TM/20/01820/OAEA), associated reserved matters applications (planning reference: 21/02706/RM, 21/0207/RM and TM/21/03341/RM respectively) and receipt of further details regarding the layout and operations of the wider site, including mitigation in the form of 4.0 - 4.5m high acoustic barriers for the southern unit and 5.0m high acoustic barrier for the unit to the north of the proposed site. The assessment also includes the consented planning application for the new treatment building directly to the south of the proposed site (planning reference: 23/00139/FL). It is assumed that all other units with the exception of Unit 2 would be operating at 100% capacity during the daytime and 50% capacity during the night-time.

5.2.1 Cumulative Noise Intrusion Assessment

Internal noise levels at existing sensitive receptor locations, from all noise sources associated with the proposed development and other developments mentioned above including HGV activities and staff carparking have been assessed both with windows open, where a reduction from a partially open window of 15 dB has been used, and with windows closed where an assumption of glazing with specification R_w 30 dB (e.g 6/12/6mm double glazing or equivalent) has been used. Table 5.3-5.5 below present the results of the assessment. Cumulative night-time noise levels are illustratively shown in Figure 5.2.

Table 5.3: Daytime Noise Intrusion Levels $L_{Aeq,16hours}$ - Cumulative

Location	External $L_{Aeq,T}$	Internal $L_{Aeq,T}$ with windows open	Internal $L_{Aeq,T}$ with windows closed	Criteria $L_{Aeq,T}$
R01	41.7	26.7	11.7	35
R02	43.0	28.0	13.0	35
R03	40.8	25.8	10.8	35
R04	36.8	21.8	6.8	35
R05	40.0	25.0	10.0	35
R06	38.6	23.6	8.6	35
R07	40.7	25.7	10.7	35
R08	36.4	21.4	6.4	35
R09	38.9	23.9	8.9	35
R10	40.7	25.7	10.7	35
R11	39.3	24.3	9.3	35
R12	39.9	24.9	9.9	35

Predicted average daytime noise levels are below the BS8233/WHO daytime $L_{Aeq,16hours}$ internal criterion of 35 dB(A) at the identified closest existing sensitive receptor locations.

Table 5.4: Night-time Noise Intrusion Levels $L_{Aeq,8hours}$ - Cumulative

Location	External $L_{Aeq,T}$	Internal $L_{Aeq,T}$ with windows open	Internal $L_{Aeq,T}$ with windows closed	Criteria $L_{Aeq,T}$
R01	43.9	28.9	13.9	30
R02	43.7	28.7	13.7	30
R03	43.4	28.4	13.4	30
R04	41.4	26.4	11.4	30
R05	41.1	26.1	11.1	30
R06	39.7	24.7	9.7	30
R07	42.7	27.7	12.7	30
R08	39.4	24.4	9.4	30
R09	39.7	24.7	9.7	30
R10	41.3	26.3	11.3	30
R11	43	28.0	13.0	30
R12	42.2	27.2	12.2	30

Predicted average night-time noise levels are below the BS8233/WHO night-time $L_{Aeq,8hours}$ internal criterion of 30 dB(A) at the identified closest existing sensitive receptor locations.

Table 5.5: Night-time Noise Intrusion Levels L_{Amax} - Cumulative

Location	External L_{Amax}	Internal L_{Amax} with windows open	Internal L_{Amax} with windows closed	Criteria L_{Amax}
R01	50.0	35.0	20.0	45
R02	52.4	37.4	22.4	45
R03	47.9	32.9	17.9	45
R04	44.8	29.8	14.8	45
R05	39.3	24.3	9.3	45
R06	36.8	21.8	6.8	45
R07	44.2	29.2	14.2	45
R08	40.1	25.1	10.1	45
R09	47.9	32.9	17.9	45
R10	45.3	30.3	15.3	45
R11	43.2	28.2	13.2	45
R12	43.8	28.8	13.8	45

Predicted night-time L_{Amax} noise levels are below the BS8233/WHO night-time L_{Amax} internal criterion of 45 dB(A) at the identified closest existing sensitive receptor locations.

Considering the results above, noise levels at all existing receptors are predicted to fall within the No Observed Adverse Effect (NOAEL).

Figure 5.2: $L_{Aeq,8hours}$ Night-time Noise Contour Plot – Cumulative (4.0m Grid Height)

Not to scale

6.0 ADDITIONAL MITIGATION

The BS4142 and noise intrusion assessments presented above shows that the impact is no greater than the Lowest Observed Adverse Effect Level. Therefore, no additional mitigation is required.

7.0 CONCLUSIONS

A noise assessment was undertaken for a reserved matters application pursuant to hybrid planning permission ref. TM/20/01820/OAEA for the erection of a warehouse building for B8 (Storage and Distribution) uses, ancillary office accommodation, associated ancillary structures, parking, drainage and areas of landscaping at the former Aylesford Newsprint site, Newsprint Avenue, Aylesford, ME20 7DL.

The impact from the development has been assessed in accordance with the requirements of the National Planning Policy Framework and Planning Practice Guidance: Noise. The following conclusions can be drawn in relation to each of these documents;

National Planning Policy Framework

The NPPF provides test points against which the proposed development has been assessed. Considering these points, the following conclusions can be made:

NPPF paragraphs 174 (e) and 185 (a)

The results of the BS4142 and noise intrusion assessments undertaken to assess the operational noise impact on existing sensitive receptors indicate that noise associated with the proposed development and the wider development would result in an impact no greater than the Lowest Observed Adverse Effect Level (LOAEL) at the closest existing sensitive receptors and therefore the development will have a low impact in relation to noise and is therefore compliance with NPPF policy 174(e) and 185(a).

NPPF paragraph 187

Considering the existing use of the site and wider development site, it is not considered that any existing businesses wanting to develop would be restricted by the proposals and is therefore compliance with NPPF policy 187.

Planning Practice Guidance: Noise

It has been predicted that on-site operational noise effects associated with the Development will be no greater than the Lowest Observed Adverse Effect Level (LOAEL) for the two closest receptors and therefore the development will have a low impact in relation to noise.

APPENDICES

APPENDIX A – ACOUSTIC TERMINOLOGY AND ABBREVIATIONS

Acoustic Terminology

dB — Sound levels from any source can be measured in frequency bands in order to provide detailed information about the spectral content of the noise, i.e. whether it is high-pitched, low-pitched, or with no distinct tonal character. These measurements are usually undertaken in octave or third octave frequency bands. If these values are summed logarithmically, a single dB figure is obtained. This is usually not very helpful as it simply describes the total amount of acoustic energy measured and does not take any account of the ear's ability to hear certain frequencies more readily than others.

dB(A) — Instead, the dBA figure is used, as this is found to relate better to the loudness of the sound heard. The dBA figure is obtained by subtracting an appropriate correction, which represents the variation in the ear's ability to hear different frequencies, from the individual octave or third octave band values, before summing them logarithmically. As a result the single dBA value provides a good representation of how loud a sound is.

L_{Aeq} — Since almost all sounds vary or fluctuate with time it is helpful, instead of having an instantaneous value to describe the noise event, to have an average of the total acoustic energy experienced over its duration. The $L_{Aeq,\ 07:00\ -\ 23:00}$ for example, describes the equivalent continuous noise level over the 16 hour period between 7 am and 11 pm. During this time period the L_{pA} at any particular time is likely to have been either greater or lower that the $L_{Aeq,\ 07:00\ -\ 23:00}$.

L_{Amin} — The L_{Amin} is the quietest instantaneous noise level. This is usually the quietest 125 milliseconds measured during any given period of time.

L_{Amax} — The L_{Amax} is the loudest instantaneous noise level. This is usually the loudest 125 milliseconds measured during any given period of time.

L_n — Another method of describing, with a single value, a noise level which varies over a given time period is, instead of considering the average amount of acoustic energy, to consider the length of time for which a particular noise level is exceeded. If a level of x dBA is exceeded for say. 6 minutes within one hour, then that level can be described as being exceeded for 10% of the total measurement period. This is denoted as the $L_{A10,\ 1\ hr}$ = x dB.

The L_{A10} index is often used in the description of road traffic noise, whilst the L_{A90}, the noise level exceeded for 90% of the measurement period, is the usual descriptor for underlying background noise. L_{A1} and L_{Amax} are common descriptors of construction noise.

R_w — The *weighted sound reduction index* determined using the above *measurement* procedure, but weighted in accordance with the procedures set down in BS EN ISO 717-1. Partitioning and building board manufacturers commonly use this index to describe the inherent sound insulation performance of their products.

Abbreviations

CADNA – Computer Aided Noise Abatement

DMRB – Design Manual for Roads and Bridges

HGV – Heavy Goods Vehicle

PPG – Planning Practice Guidance

UDP – Unitary Development Plan

UKAS – United Kingdom Accreditation Service

APPENDIX B – REPORT CONDITIONS

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