



NOISE ASSESSMENT

on behalf of

THE EVERYTHING LUXURY HAMLET LTD

for the site at

**EVERYTHING RETREAT, PENDLE VIEW,
PRIMROSE LANE, MELLOR BB27EQ**

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Summary

A noise impact assessment has been undertaken in relation to a proposed development at Everything Retreat, Pendle View, Primrose Lane, Mellor BB27EQ. The proposal involves the demolition of the existing stable block, the extension of the existing building to provide purpose built back-of-house accommodation, treatment rooms and yoga studio, the extension of the existing office building and the creation of natural outdoor swimming pool and associated landscaping.

An environmental sound survey was conducted on site to establish the baseline sound conditions within the site/ at the nearest noise sensitive receptors.

CadnaA noise modelling was utilised to predict the impact of environmental sound to the proposed new buildings/ building extension. The 3D model was also used to predict noise related to the Bar/Dining room, i.e., amplified music, amplified speech/talks and patron (customers) noise using the external terrace.


The predicted environmental sound levels at the proposed development were assessed in accordance with British Standard 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings.

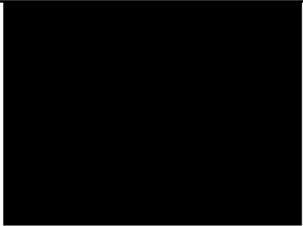
The predicted amplified music, amplified speech/talks and patron (customers) noise at the nearest receptors were assessed in accordance with relevant guidance.

Plant noise limits were provided for any potential plant that might be considered for the new development based on the measured background sound levels.

The outcome of the assessment has shown that a suitable and commensurate level of protection against noise will be provided to the uses of the proposed development and also to the nearest noise sensitive receptors.

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Signed 
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1 Introduction

- 1.1 Miller Goodall Ltd has, on behalf of The Everything Luxury Hamlet Ltd, undertaken a noise impact assessment in relation to a proposed development at Everything Retreat, Pendle View, Primrose Lane, Mellor BB27EQ.
- 1.2 The proposal includes the following
- demolition of the existing stable block
 - the extension of the existing building to provide purpose built back-of-house accommodation, treatment rooms and yoga studio
 - the extension of the existing office building, and
 - the creation of natural outdoor swimming pool and associated landscaping.
- 1.3 It is understood that the current buildings have a planning condition that restricts the hours of operation from Monday to Sunday, 9 am to 10 pm.
- 1.4 The potential noise sources associated with the proposal include speech/talk events, amplified music within the bar/dining area, and ambient music within the yoga studio. The current events are business related workshops, restaurant/cooking experiences and training/seminars.
- 1.5 Noise sensitive receptors (NSRs) that are near the proposed development have the potential to be impacted by operational noise from the development.
- 1.6 An unattended long-term environmental sound survey was undertaken on site to establish the existing baseline sound conditions on site at the nearest NSRs.
- 1.7 A 3D model was built to predict the external noise levels at the proposed development and any noise levels as a result of the operation of the bar/dining area and the yoga studio.
- 1.8 The scope of this report is to assess the impact of operational noise from the proposed development on nearby NSRs.

2 Site Description

2.1 The site is situated off Primrose Hill and occupies a rural setting surrounded primarily by open countryside. It comprises a collection of buildings and accommodation units, accessed via a private internal road. Mellor Lane is located at ca 170 m to the south of the proposed development. Saccary Lane is located at ca 200 m to the east of the proposed development. A site location plan is provided in **Figure 1**.

2.2 The proposed development has the potential to affect the NSRs located at the area surrounding the site. The nearest NSRs that were identified near the site are as follows and shown in **Figure 1**:

- **NSR A**: the residential dwelling along Primrose Hill at ca 10 m to the west of the red line boundary;
- **NSR B**: the residential dwelling along Primrose Hill at ca 32 m to the west of the red line boundary;
- **NSR C**: the residential dwelling along Primrose Hill at ca 75 m to the west of the red line boundary;
- **NSR D**: the residential dwelling along Primrose Hill at ca 58 m to the west of the red line boundary, and
- **NSR E**: the existing lodges within Everything Retreat.

2.3 Further NSRs were identified to the north, east, west and south of the proposed development at 70 m or more from the red line boundary. Therefore, the above NSRs are considered to be the nearest NSRs to the proposed development, and only these receptors will be considered within this assessment.

2.4 The NSRs identified are of high sensitivity in relation to noise effects.

Figure 1 Approximate Site Location and Identified Noise Sensitive Receptors

3 Proposed Development

- 3.1 It is understood that the proposal includes the demolition of the existing stable block (highlighted in orange in **Figure 1**), the extension of the existing building (highlighted in blue in **Figure 1**) to provide purpose built back-of-house accommodation, treatment rooms, yoga studio and the creation of natural outdoor swimming pool and associated landscaping.
- 3.2 Based on the information provided by the design team, some ambient background music to support yoga and retreats that are being held at the proposed building extension is being considered. It is also understood that amplified music and speech is considered for the proposed Bar/Dining studio. The Bar/Dining area of the main building has also some external space/terrace for patrons.
- 3.3 In terms of proposed constructions, the extension to the existing building will be oak frame structure with glass. The new buildings will be finished in a timber cladding, and it is likely that the wall construction may be traditional masonry cavity or timber frame.

- 3.4 The internal finishes for the Bar/Dining room will remain as existing plasterboard and skim finish. The same internal finishes are currently being considered for the yoga/pilates/exercise studio.
- 3.5 The suspended ceiling in the Bar/Dining room will be retained. The meeting room ceiling will be vaulted.
- 3.6 At this stage there is no detailed information in relation to any potential plant for the proposed development. It is understood, though, that an air source heat pump (ASHP) with integrated solar panels might be considered.
- 3.7 The hours of operation of Everything Retreat are 9 am to 10 pm and it is understood that the intention is to keep the same operational hours.
- 3.8 The proposed site layout, including the floorplans and elevations is shown in **Appendix 1**.

4 Policy Context

4.1 Noise Policy Statement for England

- 4.1.1 The Noise Policy Statement for England (NPSE¹), published in March 2010, sets out the long-term vision of Government noise policy. The Noise Policy aims, as presented in this document, are:

“Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- *avoid significant adverse effects on health and quality of life;*
- *mitigate and minimise adverse effects on health and quality of life; and*
- *where possible, contribute to the improvement of health and quality of life.”*

- 4.1.2 The NPSE makes reference to the concepts of NOEL (No Observed Effect Level) and LOAEL (Lowest Observed Adverse Effect Level) as used in toxicology but applied to noise impacts. It also introduces the concept of SOAEL (Significant Observed Adverse Effect Level) which is described as the level above which significant adverse effects on health and the quality of life occur.

- 4.1.3 The first aim of the NPSE is to avoid significant adverse effects, taking into account the guiding principles of sustainable development (as referenced in Section 1.8 of the Statement). The second

¹ Noise Policy Statement for England, Defra, March 2010

aim seeks to provide guidance on the situation that exists when the potential noise impact falls between the LOAEL and the SOAEL, in which case:

“...all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development”.

4.1.4 Importantly, the NPSE goes on to state:

“This does not mean that such adverse effects cannot occur”.

4.1.5 The Statement does not provide a noise-based measure to define SOAEL, acknowledging that the SOAEL is likely to vary depending on the noise source, the receptor and the time in question. NPSE advises that:

“Not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available”

4.1.6 It is therefore likely that other guidance will need to be referenced when applying objective standards for the assessment of noise, particularly in reference to the SOAEL, whilst also taking into account the specific circumstances of a proposed development.

4.2 National Planning Policy Framework

4.2.1 The National Planning Policy Framework (NPPF²) initially published in March 2012, was updated most recently in December 2024. One of the documents that the NPPF replaces is Planning Policy Guidance Note 24 (PPG 24) “Planning and Noise”³.

4.2.2 The revised NPPF advises that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives). One of these is an environmental objective which is described in par. 8 (c):

“to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and

² National Planning Policy Framework, Ministry of Housing, Communities and Local Government, September 2023

³ Planning Policy Guidance 24: Planning and Noise, DCLG, September 1994

pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.”

4.2.3 At par. 187 we are advised that:

“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...”

4.2.4 Par. 193 goes on to state:

“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; ...”

4.2.5 Par. 200 seeks to ensure that any development does not prejudice the legally permitted operations and activities of other, existing non-residential uses, stating:

“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.”

4.3 Planning Practice Guidance – Noise

4.3.1 As of March 2014, a Planning Practice Guidance⁴ for noise was issued which provides additional guidance and elaboration on the NPPF, the guidance was updated in July 2019. It advises that when plan-making and decision-taking, the Local Planning Authority should consider the acoustic environment in relation to:

- Whether or not a significant adverse effect is occurring or likely to occur;
- Whether or not an adverse effect is occurring or likely to occur; and
- Whether or not a good standard of amenity can be achieved.

4.3.2 In line with the Explanatory Note of the NPSE, the PPG goes on to reference the LOAEL and SOAEL in relation to noise impact. It also provides examples of outcomes that could be expected for a given perception level of noise, plus actions that may be required to bring about a desired outcome. However, in line with the NPSE, no objective noise levels are provided for LOAEL or SOAEL although the PPG acknowledges that:

“...the subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation”.

4.3.3 Examples of these factors include:

- The source and absolute noise level of the source along with the time of day that it occurs;
- Where the noise is non-continuous, the number of noise events and pattern of occurrence;
- The frequency content and acoustic characteristics of the noise;
- The effect of noise on wildlife;
- The acoustic environment of external amenity areas provided as an intrinsic part of the overall design;
- The impact of noise from certain commercial developments such as night clubs and pubs where activities are often at their peak during the evening and night.

4.3.4 The PPG also provides general advice on the typical options available for mitigating noise. It goes on to suggest that Local Plans may include noise standards applicable to proposed developments within the Local Authority's administrative boundary, although it states that:

⁴ Planning Practice Guidance – Noise, <https://www.gov.uk/guidance/noise--2> 22nd July 2019.

“Care should be taken, however, to avoid these being implemented as fixed thresholds as specific circumstances may justify some variation being allowed”.

4.3.5 The PPG was amended in December 2014 to clarify guidance on the potential effect of noise from existing businesses on proposed new residential accommodation. Even if existing noise levels are intermittent (for example, from a live music venue), noise will need to be carefully considered and appropriate mitigation measures employed to control noise at the proposed accommodation.

4.4 Ribble Valley Borough Council Local Plan

4.4.1 We have reviewed Ribble Valley Borough Council’s adopted local plan, and no relevant noise specific policies were identified in relation to entertainment noise. It should be mentioned that the British Standards that are mentioned within the Ribble Valley Borough Council Local Validation Checklist for Planning Applications, are covered within Section 5.

4.4.2 In the absence of a specific entertainment noise assessment approach, the Camden Local Plan suggested methodology is presented below as an example of controlling entertainment noise. It should be noted that the Camden Local Plan⁵, Appendix 3 states that:

“Assessments for noise from entertainment and leisure premises must include consideration to amplified and unamplified music, human voices, footfall and vehicle movements and other general activity. Appropriate metrics must be used to measure and assess the noise impact including L_{Aeq} and L_{Amax} metrics and appropriate frequency spectrum. Planning permission will not be granted in instances where it is not possible to achieve suitable and sufficient internal noise levels with reference to the most up to date and appropriate guidance within proposed noise sensitive receptors despite appropriate mitigation proposals due to the totality of noise from existing entertainment venues.”

4.4.3 The Local Plan also provides the following table on noise levels applicable to proposed entertainment premises (customer noise):

⁵ London Borough of Camden Council, Camden Local Plan, 2017.

Table 1: Noise levels applicable to proposed entertainment premises (customer noise)

Noise sensitive receptor	Assessment Location	Design Period	LOAEL (Green)	LOAEL to SOAEL (Amber)	SOAEL (Red)
Dwellings	Garden used for amenity (free field)	Day	The higher of 55 dB $L_{Aeq,5min}$ Or 10 dB below existing $L_{Aeq,5min}$ Without entertainment noise	56 dB to 60 dB $L_{Aeq,5min}$ Or 9 dB to 3 dB below existing $L_{Aeq,5min}$ Without entertainment noise	The higher of 61 dB $L_{Aeq,5min}$ Or 2 dB below existing $L_{Aeq,5min}$ Without entertainment noise
Dwellings	Garden used for amenity (free field)	Evening	The higher of 50 dB $L_{Aeq,5min}$ Or 10 dB below existing $L_{Aeq,5min}$ Without entertainment noise	51 dB to 55 dB $L_{Aeq,5min}$ Or 9 dB to 3 dB below existing $L_{Aeq,5min}$ Without entertainment noise	The higher of 56 dB $L_{Aeq,5min}$ Or 2 dB below existing $L_{Aeq,5min}$ Without entertainment noise

5 Acoustic Standards, Guidance and Assessment Methodology

5.1 Guidelines for Pub Noise

5.1.1 Currently there are no national guidelines or standards for assessing or controlling entertainment noise from pubs and clubs. However, guidance on assessing entertainment noise from pubs and clubs is provided in the following documents:

- Institute of Acoustics (IoA), *“Good Practice Guide on the Control of Noise from Pubs and Clubs”*, March 2003
- Department for Environment, Food and Rural Affairs (DEFRA), *“Noise from Pubs and Clubs – Phase 1”*, DEFRA contract no. NANR 92, 2005
- Department for Environment, Food and Rural Affairs (DEFRA), *“Noise from Pubs and Clubs – Phase 2”* DEFRA contract on. NANR 163, 2006
- Department for Environment, Food and Rural Affairs (DEFRA), *“A Review of Published Research on Low Frequency Noise and its Effects”*, DEFRA contract no. EPG 1/2/50 2003
- Department for Environment, Food and Rural Affairs (DEFRA), *“Proposed criteria for the assessment of low frequency noise disturbance”*, DEFRA contract no. NANR 45, 2011

5.1.2 A summary for the guidance listed above is presented below.

DEFRA – Noise from Pub and Clubs

5.1.3 The Institute of Acoustics (IOA) published a guide⁶ in 2003 providing some general guidelines and advice on measurements, assessment and control of pub noise.

5.1.4 There have been several national studies investigating the relationship between noise and subjective perception in relation to noise from pubs and clubs, including entertainment noise. This is summarised in two reports from the Department for Environment, Food and Rural Affairs (Ref. Phase I⁷ & Phase II⁸) which form the basis for most current assessments of entertainment noise from pub and clubs with recommendations as to which measure to use for assessments of entertainment noise.

5.1.5 The DEFRA Phase I report provides expected levels from internal pub noise as summarised in

5.1.6 below. It also refers to the most used assessment methods being BS 4142:1997⁹ and Noise Rating Curves (NR curves), which are not originally intended for assessing entertainment noise. It should further be noted that there is a newer version of BS 4142:2014+A1:2019.

5.1.7 The DEFRA Phase I report mentions in its paragraph 2.3.1.3 how some other European countries, in addition to a noise criterion, have specified the required sound insulation in terms of a weighted airborne criteria, $D_{nT,W}$ with or without C_{tr} . It is further stated:

“In France (Decret 98-113), D_{nT} is also specified in octave bands, with stringent targets of 66 or 75 dB in the 125 or 250 Hz bands for an emission level of 99 dB in those bands.”

⁶ Institute of Acoustics (IoA), “Good Practice Guide on the Control of Noise from Pubs and Clubs”, March 2003

⁷ Department for Environment, Food and Rural Affairs (DEFRA), “Noise from Pubs and Clubs – Phase 1”, DEFRA contract no. NANR 92, 2005

⁸ Department for Environment, Food and Rural Affairs (DEFRA), “Noise from Pubs and Clubs – Phase 2” DEFRA contract on. NANR 163, 2006

⁹ British Standards Institution. “British Standard 4142:1997 Methods for rating and assessing industrial and commercial sound”, 1997

Table 2: Typical Noise Levels

Type	Reported Noise Levels
Crowd, quiet (no music)	65 to 70 dB L_{Aeq}
Crowd, busy (no music)	up to 88 dB L_{Aeq}
Crowd, music	90 to 95 dB L_{Aeq}
Clubs, dance floor	105 dB L_{Aeq}
Amplified music (dance floor)	Up to 115 dB L_{eq} at 63 Hz
	Up to 110 dB L_{eq} at 125 Hz
Typical difference between L_{eq} and L_{max}	5 – 15 dB (also for A-weighted)

5.1.8 The DEFRA Phase I report suggests a schedule of parameter against which a criterion for entertainment noise can be evaluated. This is summarised in **Table 3** below.

Table 3: Schedule of proposed criteria for validation

Name	Parameter	Type
IOA working group annex	L_{Aeq} vs L_{A90} plus L_{10} vs L_{90} in 40 – 160 Hz 1/3 octave bands	Relative
BS 4142 / Noise Act 1996	L_{Aeq} vs background (L_{A90} , L_{A99} , etc.)	Relative
Noise Rating curve	1/3 octave (L_{eq} , L_{10} , or L_{max}) vs NR curve	Absolute
Absolute L_{Aeq}	L_{Aeq}	Absolute
DIN 45680 / Moorhouse	10 – 160 Hz 1/3 octave L_{eq} vs reference curve	Absolute
Inaudibility	Subjective	Relative

5.1.9 The DEFRA Phase II report considers which assessment method and parameter would be the most useful in relation to entertainment noise. The conclusions or recommendations were:

"D. The noise metric that provided the best overall prediction of subjective ratings of all the entertainment noise types tested by ordinary members of the public was the Absolute L_{Aeq} ."

E. However, during the field testing it was apparent that the "highest performers" from the laboratory testing all had clear disadvantages in use under real world conditions, so there is no clear best option for recommendation which combines optimum correlation with subjective response with ease and rapidity of use."

5.1.10 It then goes on to recommend using the parameters as follows:

*"**Absolute L_{Aeq}** – That is an $L_{Aeq, 5min}$ noise level value set at a single action level. However, an intrusive entertainment noise criteria base on Absolute L_{Aeq} , would be difficult to use where the existing ambient noise level without the entertainment noise was close to, equal to or above the action level. Therefore, we would recommend an action level Absolute L_{Aeq} , with an additional subjective requirement that the entertainment noise itself has a clearly audible (to an ontologically normal listener) contribution to the overall noise e.g. the songs/tracks would be recognisable to a listener familiar with the music and any words intelligible.*

***$L_{A90} - L_{A90}$ (no music)** – That is the difference between $L_{A90, 5min}$ noise level with the intrusive entertainment noise and the equivalent $L_{A90, 5min}$ with no intrusive entertainment noise. This allows consideration of the background level but requires a measurement without intrusive entertainment noise that may not be possible on the night of a complaint. This in itself may be problem enough to make the metric unusable for "on-off" events or as a quick response to a problem.*

***$L_{Aeq} - L_{A99.95}$** or existing Noise Act methodology ($L_{Aeq} - L_{A99.8}$). These metrics include some considerations of the underlying noise level at the same time as any offending noise level is measured, without requiring a separate "no music" measurement to be made. The former is slightly more effective in prediction of subjective response than the latter but not substantially so, and using the latter has logistical advantages. The performance of both these noise metrics was less good than the previous two options, but they also avoid the practical disadvantages highlighted above."*

5.1.11 The DEFRA Phase II report thus provide several parameters that can be used when assessing entertainment noise, but not one single criterion that can be generally applied.

Low Frequency Considerations

5.1.12 Due to the nature of entertainment noise, i.e. the sound source being music, live or amplified, the noise will have a substantial low frequency component. While the majority of the low frequency studies and development of criteria are intended for assessing industrial low frequency and infra sound noise sources, the reasoning should still be considered when addressing entertainment noise and its low frequency content.

5.1.13 DEFRA has published a proposed assessment method of low frequency disturbance including criteria¹⁰. In summary the criteria are as follows:

"If the L_{eq} taken over a time when the noise is said to be present, exceeds the values in Table 9 it may indicate a source LFN (Low Frequency Noise) that could cause disturbance. The character of the sound should be checked if possibly by playing back an audio recording at amplified level.

If the noise occurs only during the day then 5 dB relaxation may be applied to all third octave bands.

If the noise is steady then a 5 dB relaxation may be applied to all third octave bands. A noise is considered steady if either of the conditions a. or b. below is met:

a. $L_{10} - L_{90} < 5dB$

b. *The rate of change of sound pressure level (Fast time weighting) is less than 10 dB per second*

where the parameters are evaluated in the third octave band which exceeds the reference curve values (Table 9) by the greatest margin.

¹⁰ Department for Environment, Food and Rural Affairs (DEFRA), "A Review of Published Research on Low Frequency Noise and its Effects", DEFRA contract no. EPG 1/2/50 2003

Table 4: Proposed reference curve

Hz	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160
dB, L_{eq}	92	87	83	74	64	56	79	43	42	40	38	36	34

5.1.14 A previous study on low frequency noise also published by DEFRA¹¹ provides the following points:

- *“In setting criterion limits it is implicit that these are at levels which protect a certain percentage of the population. Noise levels at which protection is offered typically leave 10 – 20 % of the population annoyed by a noise, since the desire to improve the environment is moderated by technical and economic factors.”*
- *“Two spectra of (Figure 18 are plotted), showing how spectra with different subjective effects may have a similar NR number, in this case a little more than NR 35.*
- *Annoyance is the response to a source considering the listeners social and personal characteristics, and thus a more complex parameter than the normally used objective parameters used for measuring and evaluating noise.”*

5.1.15 World Health Organisation (WHO) has in its publication Community Noise (2000)¹² provided some references to low frequency noise, such as:

- *“For noise with a large proportion of low frequency sounds a still lower guideline (than 30 dBA) is recommended”*
- *“When prominent low frequency components are present, noise measures based on A-weighting are inappropriate”*

¹¹ Department for Environment, Food and Rural Affairs (DEFRA), “Proposed criteria for the assessment of low frequency noise disturbance”, DEFRA contract no. NANR 45, 2011

¹² World Health Organisation (WHO), “Guidelines for Community Noise”, WHO 2000

5.2 BS 4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound'

5.2.1 BS 4142:2014+A1:2019¹³ (BS 4142) provides guidance on the assessment of the likelihood of complaints relating to noise from industrial sources. It replaced the 1997 edition of the Standard in October 2014 and was amended in June 2019. The amended version corrected a number of printing errors and further clarified that the standard is used to assess external noise levels, and not internal noise levels (although this can form part of the discussion regarding context). The key aspects of the Standard are summarised below.

5.2.2 The standard presents a method of assessing potential noise impact by comparing the noise level due to industrial sources (the Rating Level) with that of the existing background noise level at the nearest noise sensitive receiver in the absence of the source (the Background Sound Level).

5.2.3 The Specific Noise Level – the noise level produced by the source in question at the assessment location – is determined and a correction applied for certain undesirable acoustic features such as tonality, impulsivity or intermittency. The corrected Specific Noise Level is referred to as the Rating Level.

5.2.4 In order to assess the noise impact, the Background Sound Level is arithmetically subtracted from the Rating Level. The standard states the following:

- *Typically, the greater this difference, the greater the magnitude of the impact,*
- *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 +5 dB is likely to be an indication of an adverse impact, depending on the context,*
- *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.*

¹³ BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound

5.2.5 In addition to the margin by which the Rating Level of the specific sound source exceeds the Background Sound Level, the 2014+A1:2019 edition places emphasis upon an appreciation of the context, as follows:

“An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context.”

5.2.6 The 2014 edition of BS 4142 also introduced a requirement to consider and report the uncertainty in the data and associated calculations and to take reasonably practicable steps to reduce the level of uncertainty.

5.3 **British Standard 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings (BS 8233)**

5.3.1 This standard¹⁴ provides recommended guideline acoustic design criteria for new dwellings. Advice is given on the desirable internal ambient noise levels for living spaces (including hotels) that should not be exceeded for steady external noise sources. The guideline noise design criteria of BS 8233:2024 apply to external noise *“without a specific character”* (previously and sometimes termed or referred to as *“anonymous noise”*) such as that associated with road and rail traffic.

5.3.2 For gardens and outdoor amenity spaces, the standard suggests that noise levels from steady sources should not exceed 50 dB $L_{Aeq,16hour}$, with an upper guideline value of 55 dB $L_{Aeq,16hour}$ which could be acceptable in noisier environments. It is also recognised that developments should not be prohibited in areas which experience noise levels above 55 dB, where the balance between the benefits of proximity to urban areas and higher noise levels is acceptable.

5.3.3 The desirable internal ambient noise levels for other room types that should not be exceeded for steady external noise sources are given in **Table 5**. For this specific project, the Bar/Dining area should be designed as a restaurant.

¹⁴ British Standards Institution (2014) British Standard 8233:2014 “Guidance on sound reduction for buildings”, 2014, BSI.

Table 5: BS 8233 Indoor ambient noise levels in spaces when they are unoccupied, and privacy is also important

Objective	Activity	Design Range $L_{Aeq,T}$
Typical noise levels for acoustic privacy in shared spaces	Restaurant	40 – 55 dB

5.3.4 Some typical noise levels in non-domestic buildings are given in Table 6 of BS8233 and are reproduced in **Table 6** below. For this specific project, the yoga/pilates/exercise studio and treatment rooms are suggested to be designed meditation rooms and the reception, new meeting room and staff room as staff/meeting room.

Table 6: BS 8233 Typical noise levels in non-domestic buildings

Objective	Activity	Design Range $L_{Aeq,T}$
Speech Communications	Kitchen	50 – 55 dB
Listening	Meditation, relaxation, Counselling	30 – 35 dB
Study and work requiring concentration	Staff/Meeting room	35 – 45 dB

5.4 Consultation

5.4.1 Consultation was undertaken with Kathryn Hughes, the Environmental Health Officer (EHO) of Ribble Valley District Council on 03/02/2026 to agree on the proposed noise impact assessment methodology for the Everything Retreat site in Mellor. During consultation our planned approach was outlined:

- Reference to guidance documents such as the IOA Good Practice Guide and various DEFRA reports relevant to entertainment noise.
- The use of a 3D noise model to predict patron noise and amplified music/speech impacts on nearby residential receptors (NSRs) and the proposed building extension.

- Assessment methodologies aligned with BS8233:2014 for internal noise and BS4142:2014+A1:2019 for any potential plant noise.
- Confirmation that our approach addresses relevant British Standards cited in the Ribble Valley Borough Council’s Local Validation Checklist.
- A request for confirmation of any additional local noise policies not identified in the adopted Local Plan.

5.4.2 As of the time of writing, I have not yet received a response to this consultation.

6 Baseline Sound Levels

6.1 An unattended baseline survey was undertaken at the proposed development site between Thursday 15th January 2026 and Monday 19th January 2026. The survey was carried out at two monitoring locations, i.e., location MP01 and MP02 as seen in

6.2 **Figure 2** to establish the baseline sound levels at the site and the NSRs.

6.3 The established daytime, evening and night-time ambient sound levels $L_{Aeq,12hours}$, $L_{Aeq,4hours}$ and $L_{Aeq,8hours}$ and the typical background sound levels at the monitoring locations MP01 and MP02 are given in **Table 7** below. **Table 7** also shows the representative NSR for each monitoring location. Further details on the equipment used, the weather conditions and the survey observations can be found in **Appendix 2**.

Table 7: Representative Sound Levels Adopted for the Assessment

Representative NSR	Measurement Location	Average* Daytime $L_{Aeq,12\text{ hours}}$	Typical** daytime $L_{A90,15\text{ min}}$ (dB)	Average* Evening $L_{Aeq,4\text{ hours}}$	Typical** evening $L_{A90,15\text{ min}}$ (dB)	Average* Night-time $L_{Aeq,8\text{ hours}}$	Typical** night-time $L_{A90,15\text{ min}}$ (dB)
NSR E (Lodges)	MP01	47	39	42	33	38	29
NSR A, NSR B, NSR C, NSR D	MP02	47	38	40	33	37	32

* logarithmic average ** most frequent

Figure 2 Approximate Site Location and Measurement Locations

7 3D Noise Model

7.1 Computer Modelling

- 7.1.1 The external sound levels at the proposed development and the operational noise levels at the nearest NSRs were predicted using CadnaA noise modelling software (Version 2026).
- 7.1.2 The general layout of the area surrounding the site and including the proposed development site was imported from Google Maps. This was used to determine road positions, neighbouring building footprint areas and relative locations. Building height information was based on site observations and Digital Surface Model (DSM) survey data obtained through Google Earth. Topography for the site and the area surrounding the site was modelled with Lidar Digital Terrain Model (DTM) survey data.
- 7.1.3 The following parameters were applied to the model:

- Propagation model: ISO 9613 (2024)
- Default ground absorption: 0.8 (soft ground)
- Three orders of reflection
- Buildings and barriers are reflective

7.1.4 Based on the assessment methodology presented in Section 5, the noise model was used to predict:

- Façade incident levels at the new building extension;
- External unamplified speech from patrons at the covered outdoor terrace: L_{Aeq} customer noise levels were predicted at the nearest NSRs;
- Amplified music break-out from the Bar/Dining area. L_{Aeq} and L_{AFmax} music levels were predicted at the nearest NSRs
- Amplified speech/ talks break-out from the Bar/Dining area. L_{Aeq} sound levels were predicted at the nearest NSRs.

7.2 Description of sound sources

7.2.1 The modelling of the sound from customers, amplified music and speech/talks was based on information received by the design team and reasonable assumptions based on the proposed floorplan for the Bar/ Dining area. The input acoustic data for these activities were based on the Miller Goodall sound source database.

7.2.2 **Table 8** below summarises the modelling inputs used.

Table 8: Acoustic Data Input

Noise Source	Description
Customer noise (patron noise)	<p>Modelled as point sources with a SWL of 75 dBA Lw with a spectrum based on the Miller Goodall database (raised voice spectrum), at a height of 1.2 m above local ground (assuming seated speakers). A directivity for human voice has been applied to the point sources.</p> <p>As a worst-case approach, 20 speakers were modelled at the outdoor terrace. The location of each speaker was based on the layouts considered for each area.</p>
Loudspeakers (music)	<p>A calculation of the internal noise levels within the Bar/Dining area was made assuming that 6 loudspeakers are located within the area with a SWL of 72 dBA Lw each (a music spectrum from IEC 60268 was used). Then the calculated total indoor level, i.e., the direct and reverberant level, was used to model the noise break-out from the Bar/Dining area, taking into consideration the composite façade transmission loss (TL). The calculation of the composite façade TL was based on information provided by the design team.</p> <p>To consider the impact from low frequency noise from music, a different spectrum has been used, i.e., the music spectrum from IEC 60268, with an SWL of 72 dBA Lw.</p>
Loudspeakers (speech)	<p>A calculation of the internal noise levels within the Bar/Dining area was made assuming that 6 loudspeakers are located within the area with a SWL of 75 dBA Lw each (raised voice spectrum was used). Then the calculated total indoor level, i.e., the direct and reverberant level, was used to model the noise break-out from the Bar/Dining area, taking into consideration the composite façade transmission loss (TL). The calculation of the composite façade TL was based on information provided by the design team.</p> <p>It is considered reasonable that a loudspeaker used to amplify a speaker’s voice will emit similar noise levels as a raised human voice. For this reason, the same SWL as a raised voice has been applied to all 6 loudspeakers.</p>

7.2.3 Details on the sound power levels for the various noise sources within the noise model are presented in **Table 9**.

7.2.4 It should be noted that in case any ambient music is present at the yoga/pilates/exercise studio and treatment rooms, it is expected that it would be calm and quiet music. Any music from the above rooms will therefore have minimal noise break out to the external environment and as such it has been excluded from this assessment.

Table 9: Noise Sources Sound Level Data and Details for the plant items within CadnaA

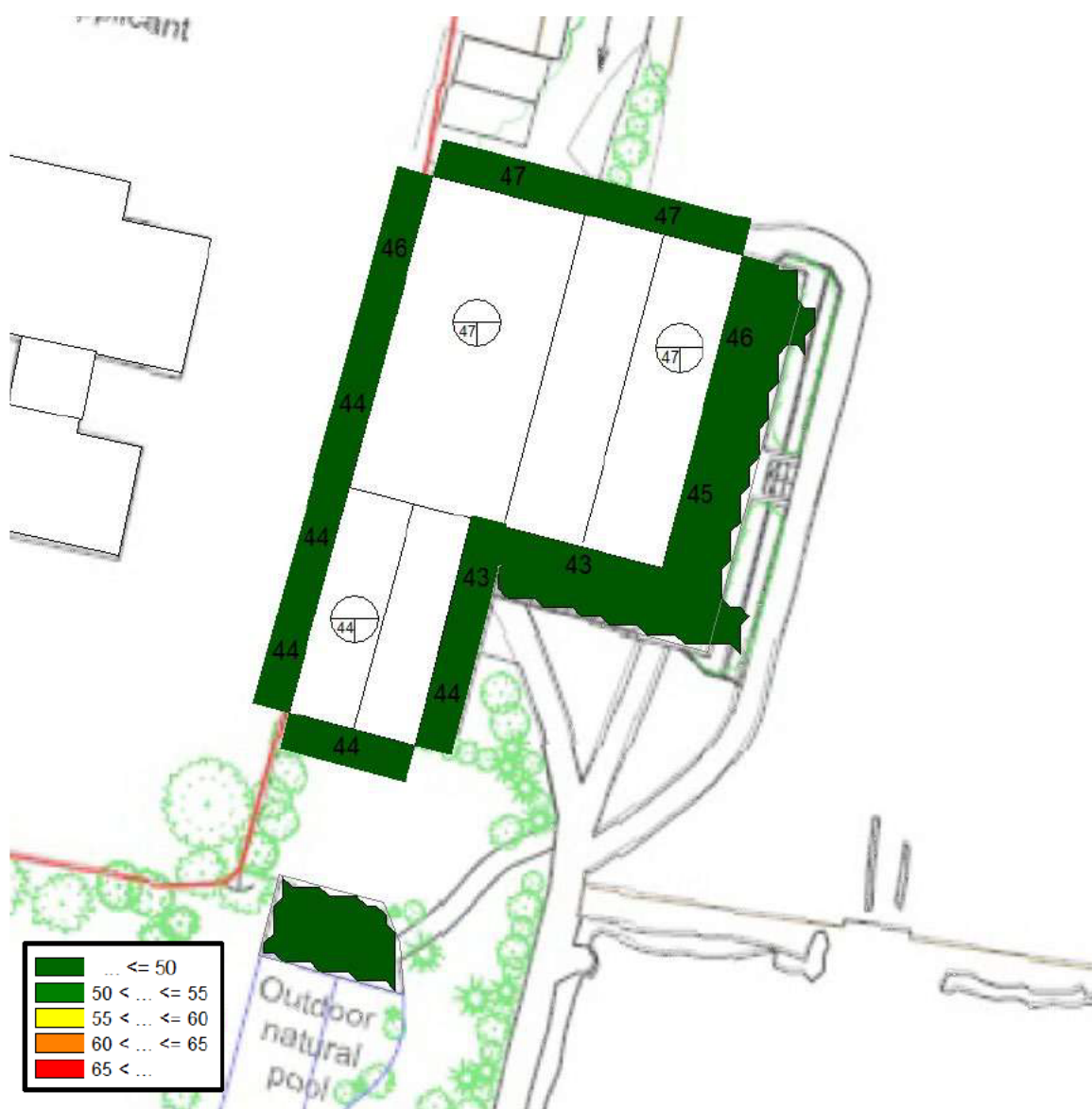
Source	Overall sound power level (dBA)	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Customers (raised voice spectrum)	75 dBA	38	48	61	72	71	64	57	53
Speech/Talk event (raised voice spectrum)	75 dBA	38	48	61	72	71	64	57	53
Loudspeakers (music from IEC 60268)	72 dBA	65	67	67	67	67	66	63	58

8 Results

8.1 Predicted External Sound Levels due to Environmental Noise

8.1.1 The 3D noise model was used to predict the external sound levels and façade incident sound levels from road traffic noise at the proposed development. The results are shown in **Figure 3**. As the proposed extension to the building will be used only during daytime hours, i.e., 09:00 to 22:00 hours, the noise model predicts only daytime sound levels.

Figure 3 Predicted External Sound Levels



8.2 Predicted Patron Noise and Noise Break Out from Bar/Dining Area

8.2.1 The patron outdoor noise at the external terrace and noise break-out from the bar/dining has been predicted at the nearest NSRs, including the yoga/pilates/exercise studio and reception. The worst-case predicted sound levels from patrons, amplified music and amplified speech for each receptor are given in **Table 10**. The façade noise maps for these assessment scenarios are given in **Appendix 3**.

Table 10: Predicted Amplified Music Noise Break Out from Bar/Dining Area

Receptor	Predicted Sound Level (dBA)		
	Unamplified speech (Patron noise) at external terrace $L_{Aeq,T}$	Amplified Music $L_{Aeq,T}$	Amplified speech $L_{Aeq,T}$
Lodges	31	4	5
NSR A	30	17	18
NSR B	19	19	21
NSR C	15	3	4
NSR D	20	0	0
Reception	48	26	27
Yoga/Pilates/Exercise	45	19	19

9 Noise Impact Assessment

9.1 External and Internal Sound Levels due to Environmental Sound

9.2 The predicted external sound levels given in **Figure 3**, show that the proposed new buildings, new building extension and external amenity areas, i.e., the terrace and the outdoor pool, will be exposed to sound levels up to 47 dB during daytime due to existing noise sources.

- 9.3 The extension to the existing building, that will house the new meeting room, will be oak frame structure with glass. The new buildings, that will house the treatment rooms, the yoga/pilates/exercise studio, the staff room and reception will be finished in a timber cladding, and it is likely that the wall construction may be traditional masonry cavity or timber frame.
- 9.4 Given that the external sound levels are at worst 47 dB during daytime it would be easy to achieve the BS8233 indoor ambient sound level design criteria for the Bar/Dining area, i.e., 40–55 dBA, the new meeting room, i.e., 35–45 dBA, and the yoga/pilates/exercise studio and treatment rooms through the proposed constructions.
- 9.5 The predicted sound levels at external amenity areas, i.e., the external terrace and outdoor pool area, are below 50 dBA, which is in accordance with the lowest BS 8233 criterion for amenity spaces.

9.6 Patrons Noise Levels Assessment

- 9.6.1 As seen in **Table 10** the predicted sound levels from patron outdoor noise varies between 15 dB and 30 dB at the nearest residential NSRs, i.e., NSR A to NSR D. The results of the environmental sound survey have shown that the ambient sound levels on site are 47 dB $L_{Aeq,12\text{ hours}}$ for the daytime period, i.e., 09:00 to 19:00 hours, and 40 dB $L_{Aeq,4\text{ hours}}$ for the evening period, i.e., 19:00 to 22:00 hours.
- 9.6.2 In the absence of a specific entertainment noise assessment approach, the Camden Local Plan suggested methodology has been used as a guideline for assessing entertainment noise. Based on this methodology (see **Table 1**), the no observed adverse effect level (NOAEL), the lowest observed adverse effect level (LOAEL) and significant observed adverse effect level (SOAEL) for this assessment are given in **Table 11** below.

Table 11: LOAEL and SOAEL Levels for Entertainment Noise – Daytime and Evening Period

Noise sensitive receptor	Assessment Location	Design Period	NOAEL	LOAEL (Green)	LOAEL to SOAEL (Amber)	SOAEL (Red)
All NSRs	Garden used for amenity (free field)	Day	Below 55 dBA	55 dBA	56 to 60 dB	61 dB
All NSRs	Garden used for amenity (free field)	Evening	Below 50 dBA	50 dBA	51 to 55 dB	56 dB

- 9.6.3 The predicted sound levels from patron noise are below the NOAEL level at all NSRs during both daytime and evening time respectively.
- 9.6.4 It should also be added to the above that the predicted sound levels from patron noise at all residential NSRs is at least 10 dB below the ambient sound levels. Therefore, it is unlikely that patron noise will have a significant impact on these receptors, as it is unlikely that it would be noticeable.
- 9.6.5 The predicted patron levels at the reception are 1 dB above the daytime ambient sound levels and 8 dB above the evening sound levels. The predicted sound levels from patron noise at the yoga studio are 2 dB below the daytime ambient sound levels and 5 dB above the evening sound levels. During daytime hours, patron noise levels are likely to be barely noticeable at these two receptors. During the evening hours, though, patron noise levels are likely to be noticeable at both receptors. However, it should be noted that a worst-case approach has been assumed for this assessment with 20 patrons speaking simultaneously, continuously for one hour and with a raised voice; this scenario is highly unlikely to occur. It is, therefore, considered that the impact from patron noise at these two receptors would be minor and for a limited time.
- 9.6.6 Therefore, it is considered that the impact from patron noise at all NSRs would be negligible to minor.

9.7 Amplified Music Noise Levels Assessment

- 9.7.1 Amplified music noise levels were predicted as an absolute L_{Aeq} noise level at the nearest NSRs and were assessed against the daytime and evening background sound levels. The results given in **Table 12** show that the predicted amplified music noise levels will be significantly below the existing background sound levels at all NSRs during both daytime and evening period. Therefore, the impact from amplified music at all NSRs would be negligible.

Table 12: Assessment of Amplified Music Noise Levels – Daytime and Evening Period

Noise sensitive receptor	Predicted Amplified Music $L_{Aeq, T}$	Daytime Background Sound Levels $L_{A90, T}$	Difference Between Amplified Music and Daytime Background Sound Levels	Evening Background Sound Levels $L_{A90, T}$	Difference Between Amplified Music and Evening Background Sound Levels
NSR A	17	38	-21	33	-16
NSR B	19	38	-19	33	-14
NSR C	3	38	-35	33	-30
NSR D	0	38	-38	33	-33
NSR E – Lodges	4	38	-34	33	-29
Reception	26	38	-12	33	-7
Yoga	19	38	-19	33	-14

9.8 Amplified Speech/Talks Noise Levels Assessment

9.8.1 Amplified speech/talk noise levels were predicted as an absolute L_{Aeq} noise level at the nearest NSRs and were assessed against the daytime and evening background sound levels. The results given in **Table 13** show that the predicted amplified speech/talk noise levels will be significantly below the existing background sound levels at all NSRs during both daytime and evening period. Therefore, the impact from amplified music at all NSRs would be negligible.

Table 13: Assessment of Amplified Speech/Talks Noise Levels – Daytime and Evening Period

Noise sensitive receptor	Predicted Amplified Music $L_{Aeq, T}$	Daytime Background Sound Levels $L_{A90, T}$	Difference Between Amplified Music and Daytime Background Sound Levels	Evening Background Sound Levels $L_{A90, T}$	Difference Between Amplified Music and Evening Background Sound Levels
Lodges	5	38	-33	33	-28
NSR A	18	38	-20	33	-15
NSR B	21	38	-17	33	-12
NSR C	4	38	-34	33	-29
NSR D	0	38	-38	33	-33
Reception	27	38	-11	33	-6
Yoga	19	38	-19	33	-14

9.9 Low Frequency Noise Assessment

- 9.9.1 Given the proposed use of the Bar/Dining, the amplified background music that will be emitted from the loudspeakers is not expected to have a significant low frequency content.
- 9.9.2 The noise model has been used to predict 1/3 octave band noise levels from the amplified music at the nearest NSRs. The outcome of the predicted noise levels indicates that at lower frequencies, i.e., between 25 and 160 Hz, the predicted 1/3 octave band noise levels fall significantly below (28 dB below or more) the values shown in Table 9 of the DEFRA assessment method, relaxed by 5 dB as the amplified music will be present only during daytime (see paragraph 5.1.13).
- 9.9.3 Therefore, the impact from low frequency noise at all NSRs is considered to be negligible and has not been assessed any further.

10 BS 4142:2014+A1:2019 Assessment

- 10.1 At this stage there is no detailed information in relation to any potential plant for the proposed development. It is understood, though, that an air source heat pump (ASHP) with integrated solar panels might be considered. It can also be seen in the proposed development floorplan that a plant/services room is being proposed.
- 10.2 In the absence of detailed plant information, plant noise limits were set based on the measured background sound levels. The plant noise emission limits that are shown in **Table 14** refer to the cumulative noise emission levels of any proposed new plant and apply at 1 m from the façade of the relevant NSR (free-field levels).

Table 14: Plant Noise Emission Limits

Noise Sensitive Receptor	Background Noise Levels $L_{A90,15min}$ (dB)			Plant noise emission limits at 1 m from the facade of the NSR (free-field level) (dBA)		
	Daytime	Evening	Night-time	Daytime	Evening	Night-time
NSR A, NSR B, NSR C, NSR D	38	33	32	38	33	32
NSR E (Lodges)	39	33	29	38	33	32

11 Conclusions

- 11.1 Miller Goodall Ltd undertook a noise impact assessment, on behalf of The Everything Luxury Hamlet Ltd, in relation to a proposed development at Everything Retreat, Pendle View, Primrose Lane, Mellor BB27EQ.
- 11.2 An environmental sound survey was conducted on site to establish the baseline sound conditions within the site/ at the nearest noise sensitive receptors.
- 11.3 CadnaA noise modelling was utilised to predict the impact of environmental sound to the proposed new buildings/ building extension. The 3D model was also used to predict noise related to the Bar/Dining room, i.e., amplified music, amplified speech/talks and patron (customers) noise using the external terrace.
- 11.4 The predicted environmental sound levels at the proposed development were assessed in accordance with BS 8233.
- 11.5 The predicted amplified music, amplified speech/talks and patron (customers) noise at the nearest receptors were assessed in accordance with relevant guidance.
- 11.6 Plant noise limits were provided for any potential plant that might be considered for the new development based on the measured background sound levels.
- 11.7 The outcome of the assessment has shown that the proposed constructions would adequately mitigate the environmental sound levels for the proposed new buildings and building extension. The predicted noise levels in relation to the operation of the Bar/Dining area and external terrace fall significantly below the relevant criteria.
- 11.8 Therefore, a suitable and commensurate level of protection against noise will be provided to the uses of the proposed development and also to the nearest noise sensitive receptors.

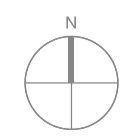
APPENDICES

Appendix 1: Proposed site layout, elevations and floorplans



Existing Site Plan
Scale 1:500

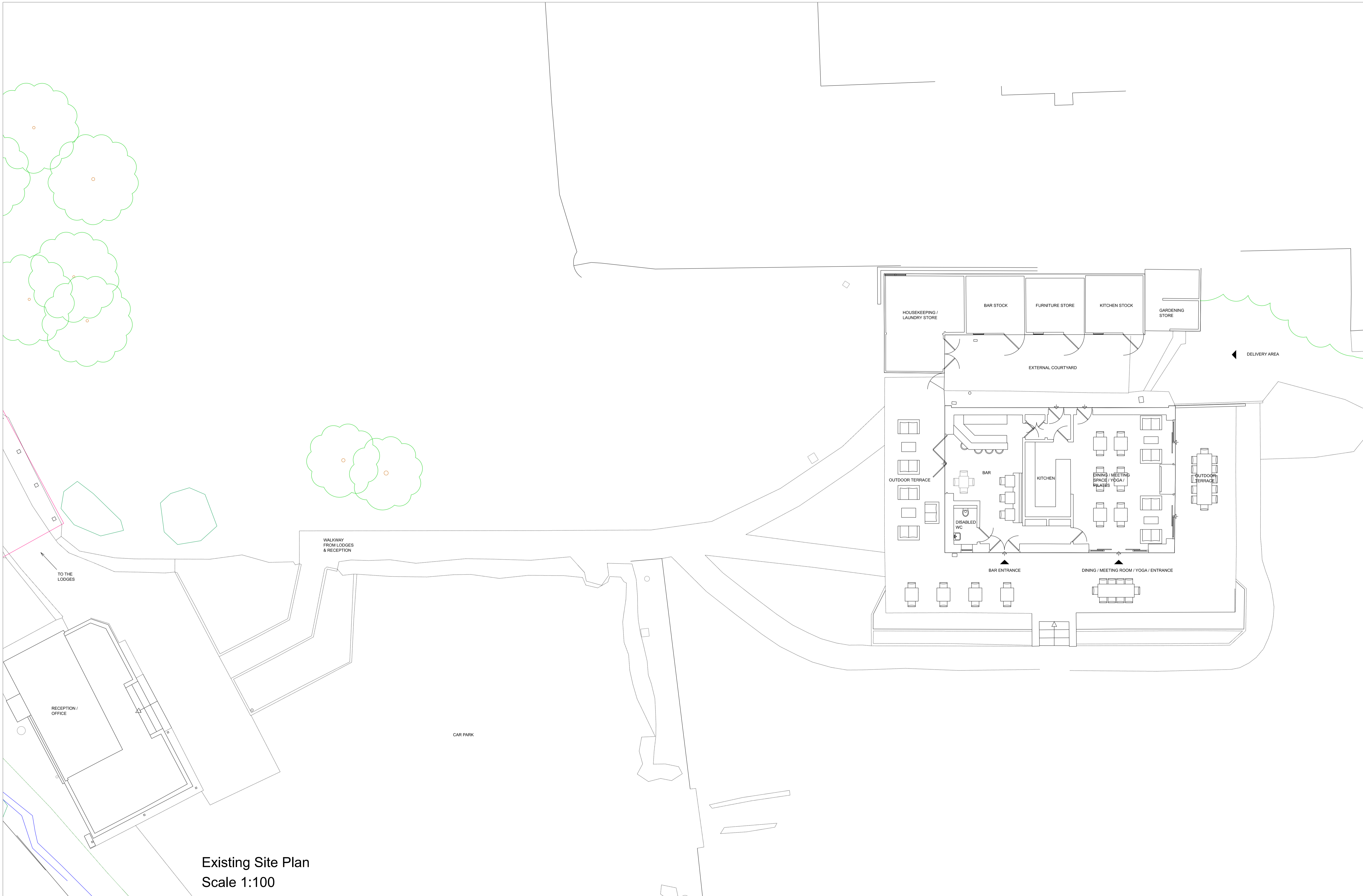
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Proposed Site Plan
Scale 1:500

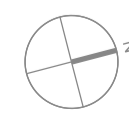
Rev B 200,24 11/26/24
A External equipment on site, such as solar panels, treatment plant, etc. should be installed in a way that does not detract from the natural beauty of the site and does not cause any visual or noise pollution.
The site plan should be updated to reflect any changes to the site plan.
The site plan should be updated to reflect any changes to the site plan.
The site plan should be updated to reflect any changes to the site plan.





Existing Site Plan
Scale 1:100

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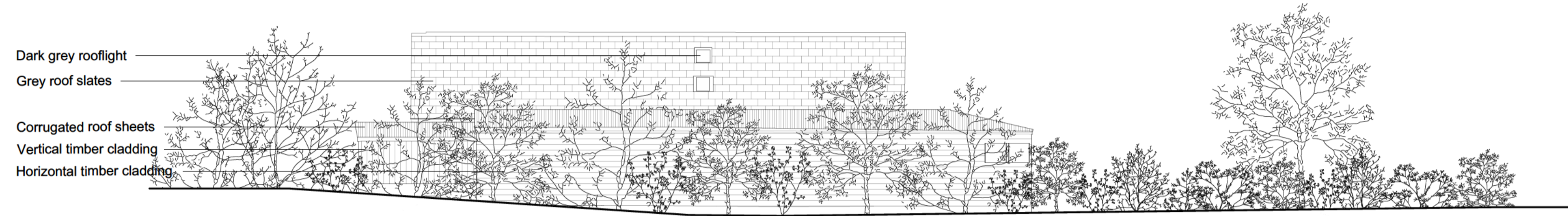


Project Name	Project No.	Stage
Everything Retreat	200.24	Planning Submission
Existing Site Plan - Ground Floor	Scale	1:100 @ A1
03	Date	November 2024
Rev	Drawn	ZM



- Natural random stonework
- Natural stone surrounds
- Vertical timber cladding
- Composite sliding doors, colour dark grey

North-East Elevation
Scale 1:100



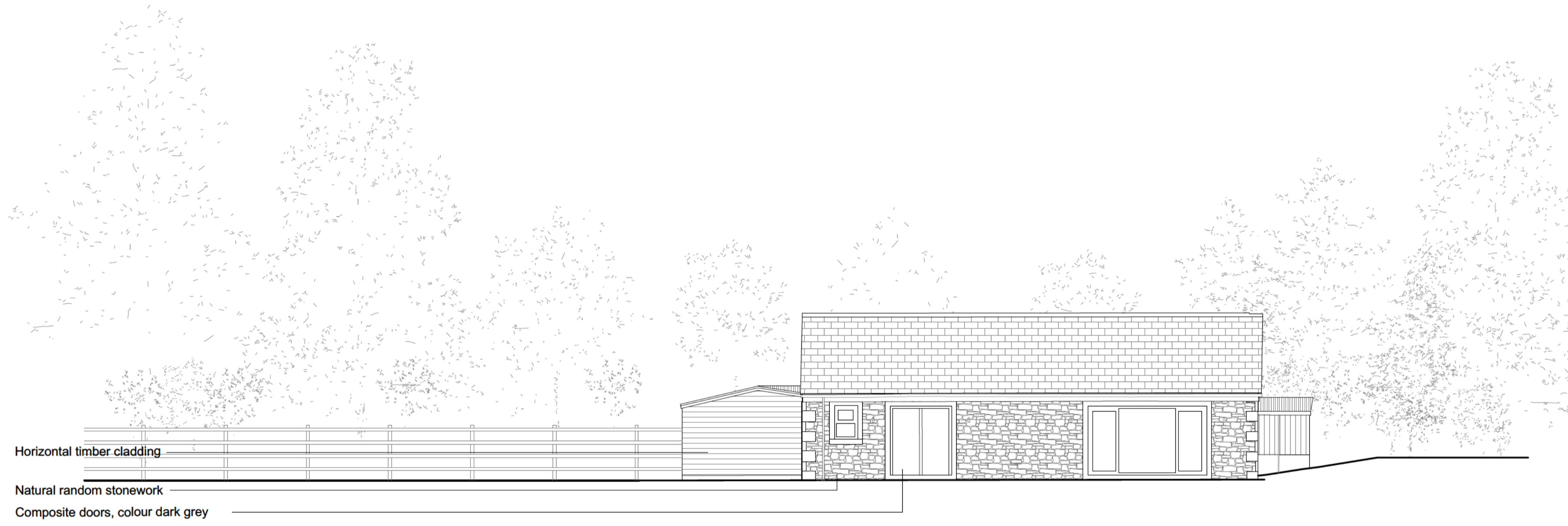
- Dark grey rooflight
- Grey roof slates
- Corrugated roof sheets
- Vertical timber cladding
- Horizontal timber cladding

North-West Elevation
Scale 1:100



- Corrugated roof sheets
- Horizontal timber cladding
- Natural random stonework
- Natural stone surrounds

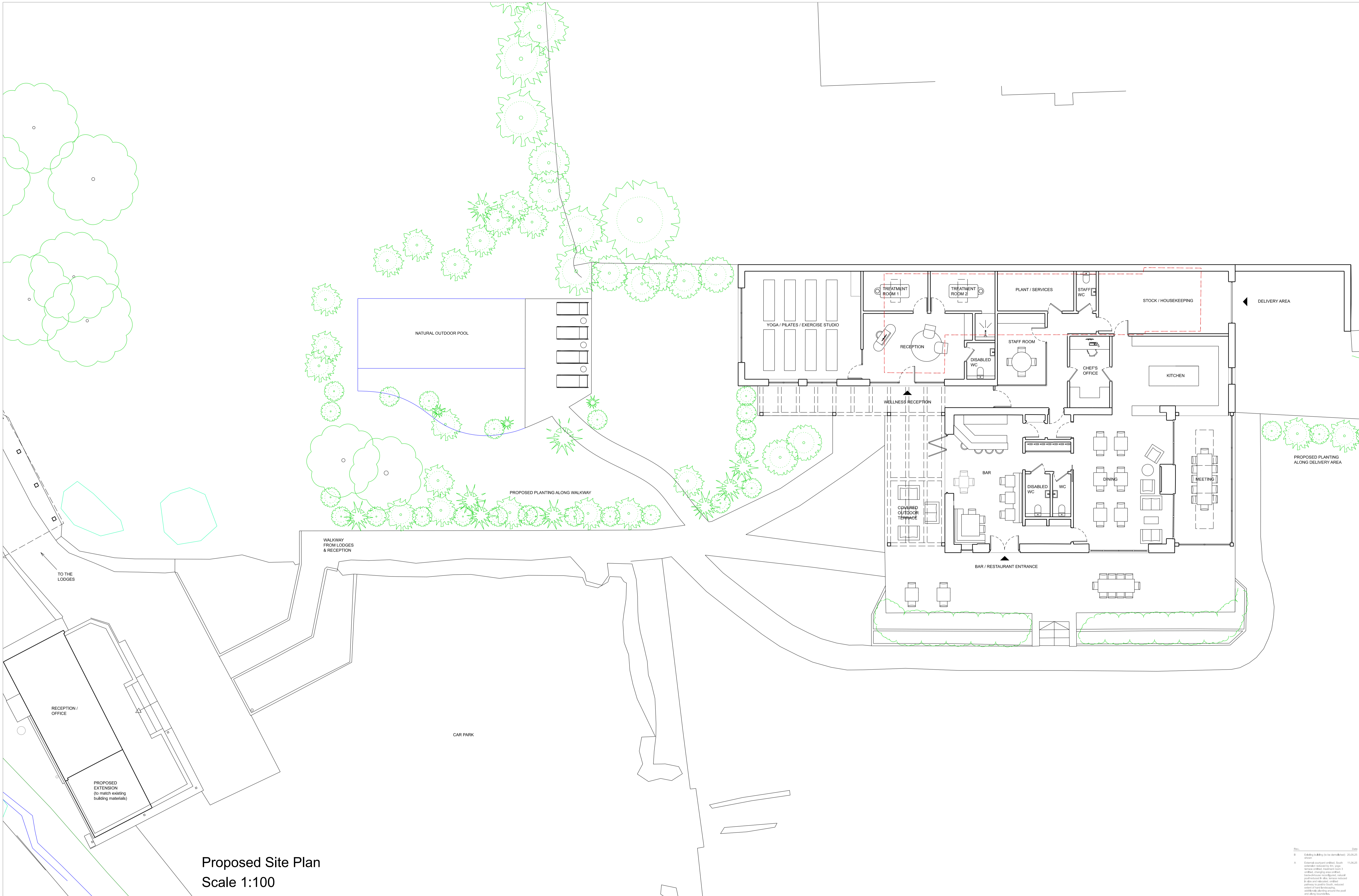
South-West Elevation
Scale 1:100



- Horizontal timber cladding
- Natural random stonework
- Composite doors, colour dark grey

South-East Elevation
Scale 1:100

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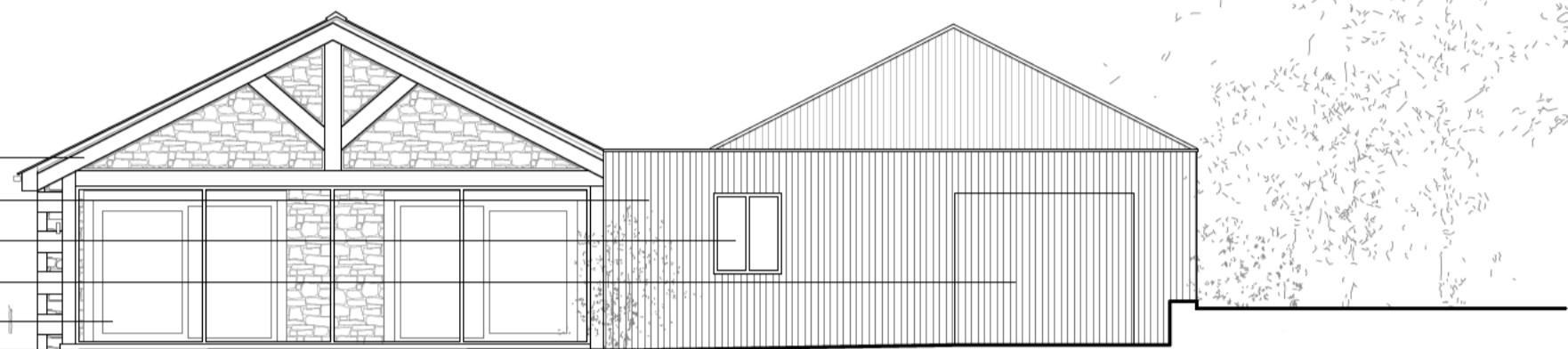


Proposed Site Plan
Scale 1:100

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 - - - Existing building to be demolished

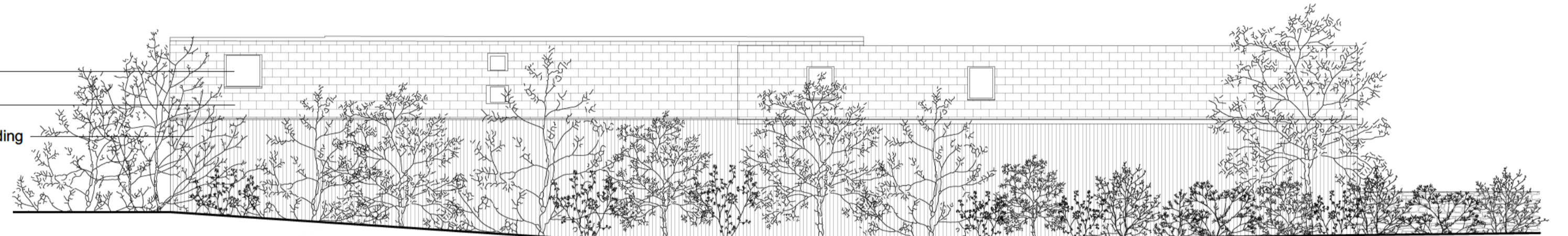
Rev.	Date
B	Existing building to be demolished 20/08/25
A	External courtyard on East, South and West - replaced by 100 trees Internal courtyard on East, South and West - replaced by 100 trees Internal courtyard on East, South and West - replaced by 100 trees Internal courtyard on East, South and West - replaced by 100 trees Internal courtyard on East, South and West - replaced by 100 trees

- Timber framework, colour natural
- Vertical timber cladding
- Composite window, colour dark grey
- Vertical timber clad store doors
- Composite sliding doors, colour dark grey



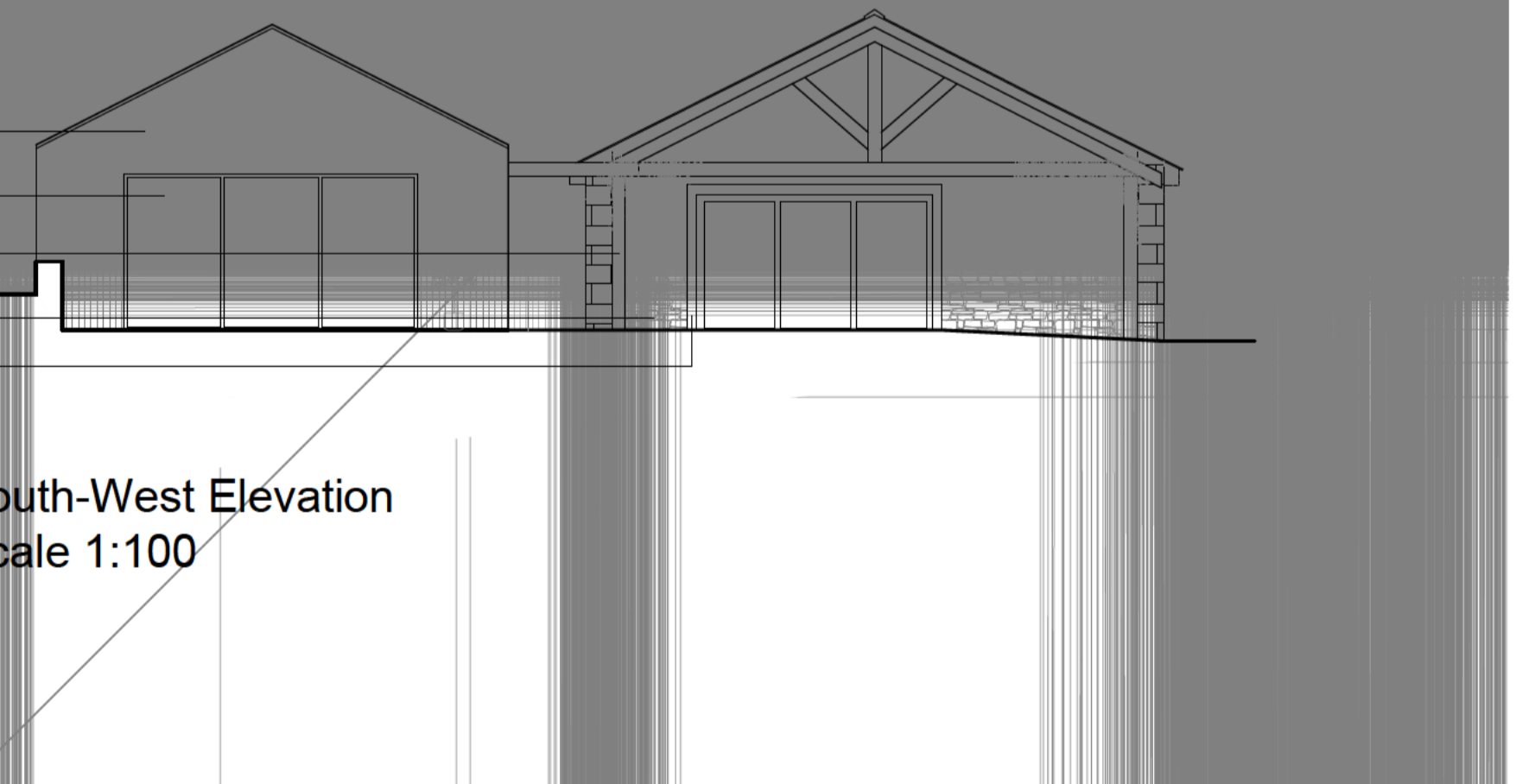
North-East Elevation
Scale 1:100

- Dark grey rooflight
- Grey roof slates
- Vertical timber cladding



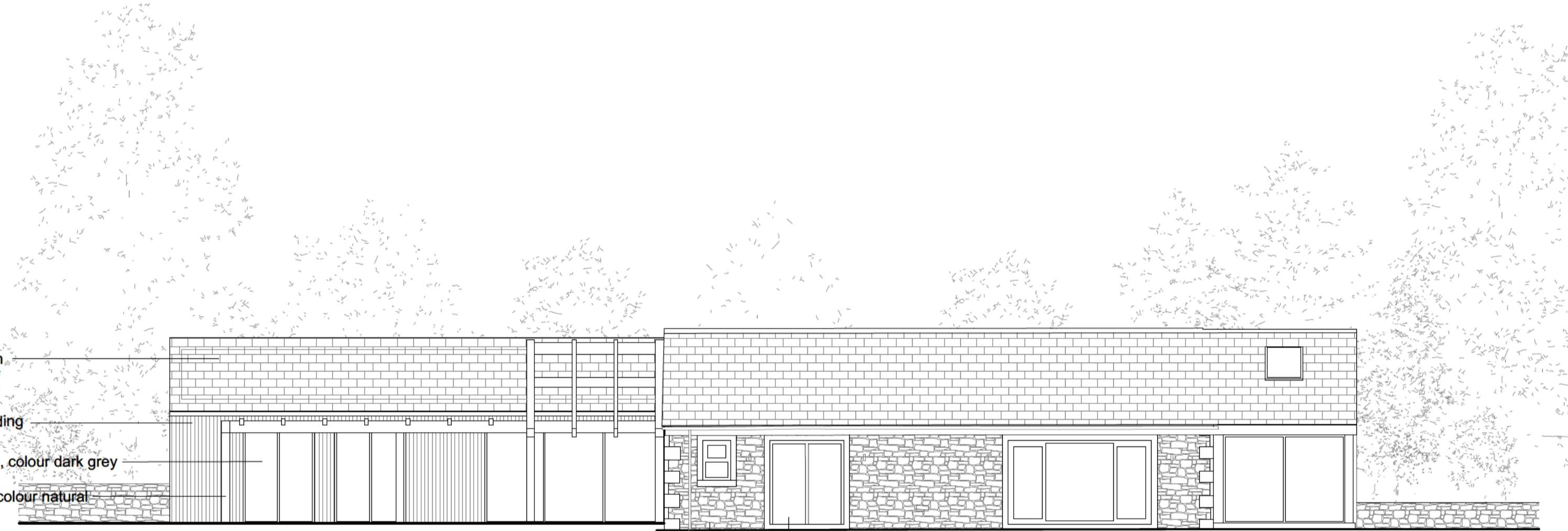
North-West Elevation
Scale 1:100

- Vertical timber cladding
- Composite sliding doors, colour dark grey
- Timber framework, colour natural
- Natural random stonework
- Natural stone surrounds



South-West Elevation
Scale 1:100

- Grey roof slates with integrated solar roof
- Vertical timber cladding
- Composite windows, colour dark grey
- Timber framework, colour natural
- Natural random stonework
- Composite doors, colour dark grey



South-East Elevation
Scale 1:100

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Rev A External courtyard omitted, South entrance omitted, roof edge fence omitted, treatment to rear garden, changing area omitted, back of house reconfig, natural pool retained to site, service retained, path to pool to South, reduced colour of base landscaping, additional planting around the pool and along boundaries.



Project Name	Project No.	Stage
Everything Retreat	200.24	Planning Submission
Proposed Elevations	Scale	1:100 @ A1
06	Date	November 2024
Rev A	Drawn	RP

Appendix 2: Environmental Survey Details and Time History Graphs

1 Noise Monitoring Equipment

1.1 Details of the equipment used are set out in **Table A.1**.

Table A.2: Noise Monitoring Equipment

Location	Equipment Type	Model	Manufacturer	Serial No.	Calibration Date	Certificate No.
MP01	Class 1[7],[8] Integrating	XL2-TA	NTi Audio	A2A-11111-E0	29/10/2025	07414/1
	Pre-amplifier	MA220	NTi Audio	6908	29/10/2025	07414/1
	Microphone	MC230A	NTi Audio	A14423	29/10/2025	07414/1
	Class 1 Field Calibrator	CAL 200	Larson Davies	14154	02/09/2025	07390/1
	Outdoor Microphone Hol	WP30	NTi Audio	N/A	N/A	N/A
MP02	Class 1[10],[11] Integrating	XL2-TA	NTi Audio	A2A-15860-E0	12/03/2025	07095/2
	Pre-amplifier	MA220	NTi Audio	8102	12/03/2025	07095/2
	Microphone	MC230A	NTi Audio	A16445	12/03/2025	07095/2
	Class 1 Field Calibrator	NOR 1251	Norsonic	32798	06/03/2025	07095/1
	Outdoor Microphone Hol	WP30	NTi Audio	NA	NA	NA

1.2 The calibration of the sound level meter was checked before and after the measurements, with negligible deviation (≤ 0.1 dB) recorded.

1.3 Each measurement period consisted of sequential 100 ms samples. The data has been extracted using the relevant software and analysed using an in-house Excel processing sheet to analytically determine representative L_{Aeq} , L_{A90} and $L_{AF,max}$ sound levels. The 100 ms sound levels have not been presented in this report but are kept on file for future reference.

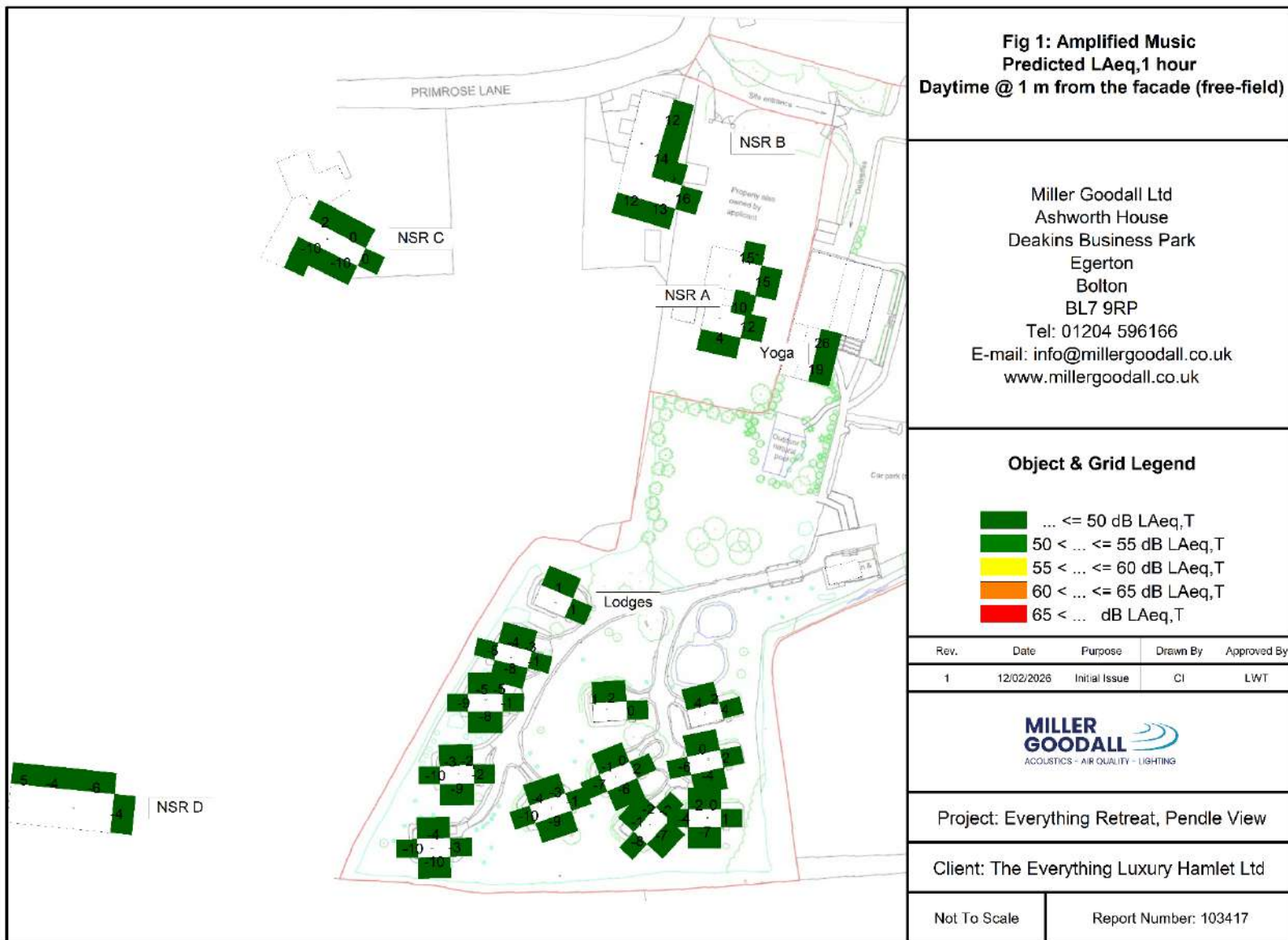
2 Environmental Sound Climate

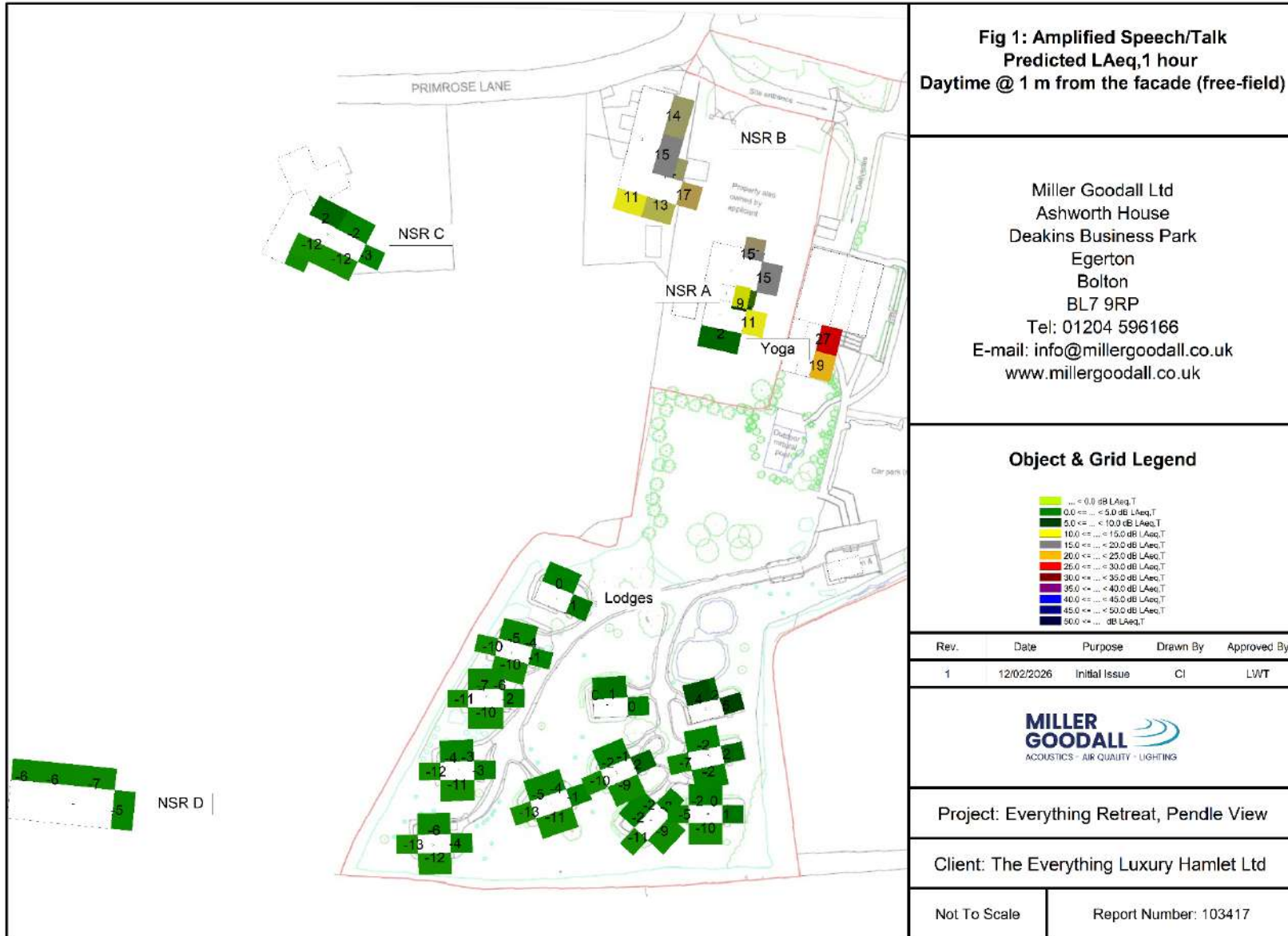
- 2.1 The observations at location MP01 mentioned that background road traffic noise was audible most likely from Mellor Lane to the south of the location. Running water from the small stream located to the back edge of the site was audible at this location. Other noise sources included occasional birdsong, occasional overhead planes and some noise from maintenance people on site driving around a small car.
- 2.2 At location MP02, the same acoustic environment as experienced at location MP01 were noticed.

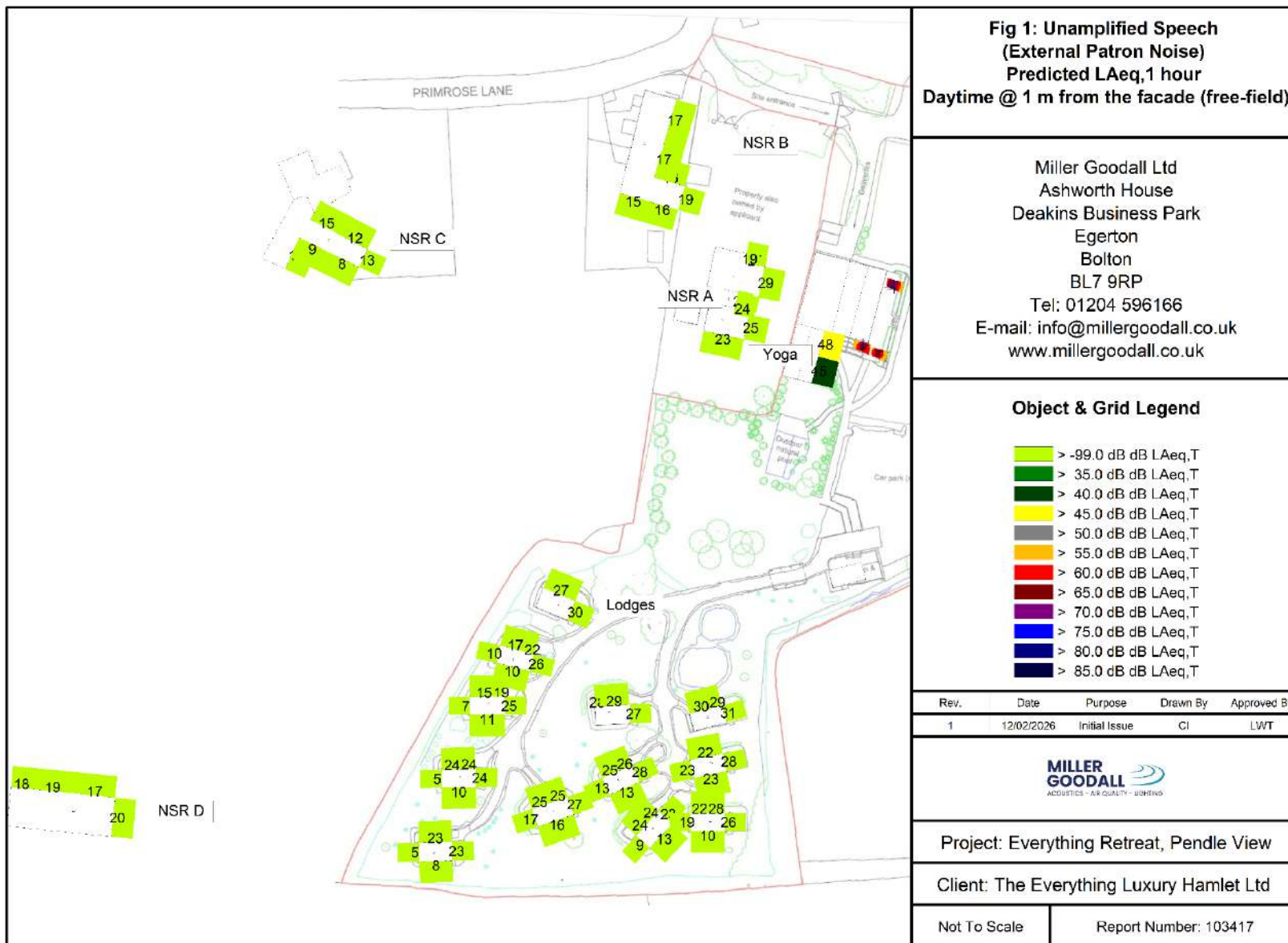
3 Weather Conditions

- 3.1 During installation and collection, weather conditions were observed and recorded.
- 3.2 On the day of the equipment deployment, there was 30% of cloud cover, no precipitation and dry road surfaces. The wind speed was 2.2 m/s in SE direction and the temperature was 6°C.
- 3.3 On the day of the equipment collection, there was 100% of cloud cover, no precipitation and damp road surfaces. The wind speed was 1.6 m/s in SE direction and the temperature was 8°C.

Appendix 3: Façade Noise Maps







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Glossary of Terms

Decibel (dB) The unit used to quantify sound pressure levels; it is derived from the logarithm of the ratio between the value of a quantity and a reference value. It is used to describe the level of many different quantities. For sound pressure level the reference quantity is 20 μPa , the threshold of normal hearing is in the region of 0 dB, and 140 dB is the threshold of pain. A change of 1 dB is usually only perceptible under controlled conditions.

dB L_A Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB L_A broadly agree with an individual's assessment of loudness. A change of 3 dB L_A is the minimum perceptible under normal conditions, and a change of 10 dB L_A corresponds roughly to halving or doubling the loudness of a sound. The background noise level in a living room may be about 30 dB L_A ; normal conversation about 60 dB L_A at 1 meter; heavy road traffic about 80 dB L_A at 10 meters; the level near a pneumatic drill about 100 dB L_A .

$L_{A90,T}$ The A weighted noise level exceeded for 90% of the specified measurement period (T). In BS 4142: 2014+A1:2019 it is used to define background noise level.

$L_{Aeq,T}$ The equivalent continuous sound level. The sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period (T). $L_{Aeq,T}$ is used to describe many types of noise and can be measured directly with an integrating sound level meter.

L_{Amax} The highest A weighted noise level recorded during the time period. It is usually used to describe the highest noise level that occurred during the event.

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