



Town & Country Planning Act 1990

**APPEAL
ON BEHALF OF
SATNAM MILLENNIUM LIMITED**

**IN RESPECT OF
Land at Peel Hall, Warrington**

RE-OPENED PUBLIC INQUIRY 14th September 2020

**PLANNING INSPECTORATE REF:
APP/M0655/W/17/3178530**

LOCAL AUTHORITY PLANNING APPLICATION REFERENCE: 2016/28493

**Proof of Evidence of Mr Matthew Wilson
Of Miller Goodall Ltd.**

NOISE

Vol 1: PROOF OF EVIDENCE

Matthew Wilson

Date: 6th August 2020

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Abbreviations

The following abbreviations are used within this report: -

$D_{n,e} + C_{tr}$	The weighted element-normalized level difference is a single figure rating used to describe the sound insulation of small elements within a larger construction. It is most often used to rate the sound insulation performance of ventilator units e.g. trickle vents. C_{tr} refers to the urban traffic spectrum.
EIA	Environmental Impact Assessment
ES	Environmental Statement
$L_{A10,18h}$	A-weighted noise level exceeded for 10% of the time, used as a metric for the measurement of road traffic noise
$L_{Aeq,16h}$	A-weighted equivalent continuous level over a 16 hour period, used as a metric to measure typical daytime noise
$L_{Aeq,8h}$	A-weighted equivalent continuous level over an 8 hour period, used as a metric to measure typical night time noise
L_{AFMAX}	A weighted maximum level, used as a metric to measure typical maximum night-time levels from discreet events
LPA	Local Planning Authority
MGL	Miller Goodall Ltd
$R_w + C_{tr}$	Single number rating used to describe the sound insulation of building elements. It is derived by measurement under laboratory conditions and does not take into account the effects of flanking transmissions. C_{tr} refers to the urban traffic spectrum.
WBC	Warrington Borough Council

Appendices

The following appendices are referenced in this Proof: -

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1.0 Introduction

- 1.1 I am an Environmental Consultant and Team Leader of Acoustics at Miller Goodall Ltd (MGL), a private company engaged by Satnam Millennium Ltd to advise on acoustic matters in respect of this appeal. MGL are based at Ashworth House, Deakins Business Park, Egerton, Bolton BL7 9RB.
- 1.2 I hold a Bachelor of Science degree with Honours in Forensic Engineering, a Master of Science degree in Environmental and Energy Engineering and a Post Graduate Diploma in Acoustics and Noise Control. I am a Corporate Member of the Institute of Acoustics. I have been professionally engaged in acoustics, in the private sector for 10 years.
- 1.3 MGL works within the fields of air quality and acoustics and provides services to local authorities and private clients. MGL was formed by Joanne Miller and Lesley Goodall in September 2004 and I joined in June 2018. Since that time I have been involved in assessing planning applications in respect of noise impact for local authorities, as well as acting on behalf of developers in respect of their planning applications.
- 1.4 I have been involved with this project since January 2019. I am retained to replace Mr Nick Hawkins of Hawkins Environmental as he is unable to continue with this project.
- 1.5 Since the appeal was heard, technical updates to the main inputs used in Mr Hawkins' noise assessment have been produced in terms of updated traffic information which has been agreed with the LPA. Noise monitoring and modelling has, therefore, been undertaken using the latest inputs.
- 1.6 In addition, with the knowledge of the LPA, further noise monitoring has been undertaken along the northern boundary of the proposed development

- site to measure baseline noise emissions from the M62 to inform appropriate stand-off distances for the Parameters Plan [Appendix 1].
- 1.7 A new noise and vibration assessment and supporting appendices has been produced which reviews both the impact of traffic associated with the development on local noise levels and the impact of noise on future residents of the site. I will refer to the ES Chapter prepared in 2020 as well as its Figures, Tables and Appendices. I will also refer to paragraphs in the Inspector's Report to the Secretary of State for Housing, Communities and Local Government, dated 1st October 2018. All references are appended to this document.
- 1.8 The effects of vibration have not been assessed as the phasing and methodology for the construction phase is not yet determined. Vibration will not arise as a result of the operational site, or cause impact to future users due to existing sources.
- 1.9 A Statement of Common Ground has been prepared with WBC in relation to noise aspects. It has been agreed that the effect of changing traffic flows due to the development will not cause significant effect to the wider existing residential areas, and that the effect of existing noise levels on the site from the M62 and Peel Hall Farm dog kennels can be mitigated which would be enforced by way of condition. All elements of the assessment have been agreed.
- 1.10 On 1st July 2020 the Council's Development Management Committee resolved not to raise any objections to the development on noise grounds.
- 1.11 The evidence which I have prepared and provide for this appeal reference APP/M0655/W/17/3178530 in this proof of evidence is true and has been prepared and is given in accordance with the guidance of my professional

institution and I confirm that the opinions expressed are my true and professional opinions.

2.0 The Site and the Surroundings

2.1 The development is described as:

“Outline planning application for a new mixed use neighbourhood comprising residential institution (residential care home - use Class C2); up to 1200 dwelling houses and apartments (Use Class C3); local centre including food store up to 2000 square metres (Use Class A1); financial & professional services; restaurants and cafes; drinking establishments; hot food takeaways (Use Classes A2-A5 inclusive); units within Use Class D1 (non-residential institution) of up to 600 sq m; and family restaurant / pub of up to 800 sq m (Use Classes A3/A4); primary school; open space including sports pitches with ancillary facilities; means of access (including the demolition of 344; 346; 348; 458 and 460 Poplars Avenue) and supporting infrastructure. (All detailed matters other than access reserved for subsequent approval.) (Application is accompanied by an Environmental Impact Assessment)”

2.2 The planning application was submitted in outline with all matters other than access reserved for future consideration.

2.3 The development is located at:

“Land at Peel Hall; South of the M62 bounded by Elm Road; Birch Avenue; Poplars Avenue; Newhaven Road; Windermere Avenue; Grasmere Avenue; Merewood Close; Osprey Close; Lockerbie Close; Ballater Drive and Mill Lane, Poplars and Hulme, Warrington.”

2.4 Reason 1 for refusal specifically mentions noise:

"It is considered that insufficient information has been submitted to enable the local planning authority to confirm that the potential impacts of the [proposed development on the transport network would not be severe, in the terms set out in paragraph 32 of the National Planning Policy Framework. In the absence of adequate information to accurately forecast potential impact, it is not considered possible to design and deliver suitable highways/transport mitigation, nor consequently, to confirm that the proposal would be acceptable in terms of its air quality and traffic noise effects. The submitted information contains no agreed base year model, forecast year models or Local Model Validation report. In these circumstances, therefore, the local planning authority cannot confirm that there would not be serious conflict with the following policies in the Local Plan Core Strategy for Warrington....."

3.0 The Case for Satnam Millennium Ltd

3.1 A new noise assessment has been undertaken following an updated baseline noise survey and modelling exercise utilising updated traffic data. In this section, I will state the existing baseline acoustic conditions of the site, discuss the impact of those conditions on the proposed development for the site and discuss the impact of the proposed development itself on the wider area, in terms of residential living conditions and the character of the area.

Baseline

3.2 The existing acoustic environment in the area on and around the proposed development site ("the Site") is dominated by road traffic noise. On the Site, the M62 dominates the ambient noise levels, with additional contributions from aircraft and occasional birdsong. To the southern eastern and western portions of the site, local road traffic on other parts of the road network is occasionally audible.

- 3.3 In the residential area to the south of the site, local road traffic is dominant. I observed the area to be characterised by a network of residential streets branching off main link roads such as Poplars Avenue and Capesthorne Road.
- 3.4 I noted that all roads have periods of lower flow when vehicles on the road are not audible. During these times, I noted that road traffic on the wider network is the dominant background noise contribution. The specific road or roads responsible for background contributions was not always obvious but was generally noted to be the M62, A49, A50, Poplars Avenue, Capesthorne Road or Blackbrook Avenue, depending on my location within the area.

Impacts of existing ambient Noise on the development

- 3.5 In this section I will discuss the impact of the existing road traffic noise and how the stand-off distance from the M62 has been determined.
- 3.6 The following criteria for internal and external ambient noise levels will be referred to in this proof of evidence, they are derived from *Professional Practice Guidance on Planning & Noise - New Residential Development* [Appendix 2] and *BS8233: 2014 Guidance on sound insulation and noise reduction for buildings* [Appendix 3]:
- Daytime: 35 dB $L_{Aeq,16h}$ - applicable to living rooms and bedrooms (0700 - 2300)
 - Daytime: 55 dB $L_{Aeq,16h}$ - applicable to private outdoor space (0700 - 2300)
 - Night time: 30 dB $L_{Aeq,8h}$ - applicable to bedrooms (2300 - 0700)
 - Night time: 45 dB L_{AFMax} - applicable to bedrooms (2300 - 0700)
- 3.7 A noise survey undertaken in 2019 was used to characterise the noise levels directly from the M62 during the day and night. The data measured has

been utilised in a CadnaA computer noise model. The noise model was used to determine the acceptable stand-off distance from the M62 for a residential receptor in an apartment.

3.8 As no plot design work has been undertaken to date, I used an indicative small bedroom dimension of approximately 21m³ with a 3.0m noise facing façade and 1.2m² glazed window. Calculations [Appendix 4] show that a room such as this will be able to achieve an appropriate internal noise level of 30dB(A) at night when exposed to a façade level of 67dB(A).

3.9 Mitigation measures will include closed windows with suitable glazing specifications, alternative forms of ventilation such as acoustically rated trickle ventilation units, appropriate building envelope and roof detailing. The calculations shown in Appendix 4 of this proof are for a typical small bedroom (3m façade length, 21m³ volume and 1.2m² glazed area). They show that acceptable internal ambient noise levels can be achieved using the following example façade element design:

- Glazing - 10/12/6 with Sound Reduction Index (SRI) of 33dB $R_w + C_{tr}$
- Ventilation - Acoustic rated trickle ventilation with Level Difference $D_{n,e} + C_{tr}$ of 44 dB
- External Wall - Double leaf 112mm brickwork, 50mm cavity, rigid wall ties with SRI of 48 dB $R_w + C_{tr}$
- Roof and Ceiling - Tiles on felt, pitched roof with 270 mm wool on plasterboard ceiling consisting of 2 x 12.5mm plasterboard with SRI of 42 dB $R_w + C_{tr}$

3.10 A window, open to provide ventilation, is recognised as providing between 10 to 15 dB of attenuation. Open windows should therefore not be relied upon for ventilation in this situation, and should remain closed when the internal noise criteria set out above are desired. It is not necessary for

windows to be permanently sealed, and residents will be able to open them as desired in situations where rapid purge ventilation is required, i.e. to evacuate smoke resulting from burnt toast. All façade mitigation calculations in Appendix 4, have been undertaken with windows closed.

- 3.11 The indicative mitigation calculations show that where noise levels exceed 67dB $L_{Aeq,8hr}$ at night, residential buildings should be avoided. The 67 dB contour line has been predicted as a worst case at 9.0 m, the height of a window on the top of a 4-story residential building, where no mitigation is provided by the motorway barrier. The contour line has been used as the stand-off distance for 4-story residential buildings in the site Parameters Plan [Appendix 1].
- 3.12 The stand-off distance is between 40 and 50m from the southern kerb of the M62 and represents the closest possible residential façade to the carriageway. The noise modelling includes a noise barrier of 4.0m on the northern site boundary.
- 3.13 The 4.0m acoustic barrier along the northern boundary is shown on the Parameters Plan [Appendix 1] for the site. This forms part of the embedded mitigation plan for the site and is discussed in the ES Chapter, Paragraph 11.6.6. to 11.6.9.

11.6.6

It is proposed that a noise barrier of at least 4.0 m in height will be located along the northern boundary of the site. It is intended that a 4.0 m fence be erected along the northern boundary, which will be designed to avoid conflict with the existing National Grid infrastructure.

11.6.7

The barrier is to be constructed from continuous, imperforate material with a minimum mass of 12 kg/m² and is to extend from the existing ground level

to a minimum height of 4.0 m. Close-boarded or overlapped timber panelling would also be suitable. Alternatively, a proprietary acoustic fence with a minimum weighted sound reduction index of 25 dB Rw would be appropriate.

11.6.8

A buffer zone will be included on the southern side of the barrier to allow further attenuation of road traffic noise from the M62. Detailed design of the residential developments to be constructed on the site will be required to follow the principals of good acoustic design when positioning, orienting and designing the layout of future residential plots.

11.6.9

It is proposed that all plots immediately south of the barrier be four stories tall, and in a tight configuration to allow building massing to provide a further noise barrier. Private outdoor amenity spaces, such as gardens, should be designed in areas with protection from the proposed building massing (south facing).

3.14 External living conditions will be mitigated to below 55 dB $L_{Aeq,16h}$ using building massing to protect private outdoor spaces. This value is taken from the criteria detailed above, it is the upper guideline value for private amenity areas. Plots in close proximity to the M62 will require appropriate orientation at detailed design stage. Each wider parcel of land to be developed will utilise good acoustic design to shield gardens and other private amenity spaces such as balconies.

3.15 In my ES chapter at Paragraph 11.6.14 [Appendix 5], I conclude that noise would be a significant effect if not appropriately mitigated, i.e. internal ambient noise levels would be predicted to be above the thresholds set out in BS8233:2014. Table 11.9 of the ES [Appendix 6] sets out the appropriate criteria for day and night against the relative Magnitude of Impact.

- 3.16 Use of proper construction techniques and façade elements with appropriate specifications are common practices in the construction of modern housing schemes and 'mitigation by design' of plots and material selection will be appropriate to determine that existing ambient noise is not a significant residual effect.
- 3.17 The Inspector's Report discusses in Paragraph 13.4 [Appendix 7] the agreed position between the main parties that the impact of highways noise on living conditions for future occupiers could be addressed satisfactorily by condition, ensuring that the living conditions for future residents of the site will be satisfactory.
- 3.18 I do not see any reason for this position to change and I support the text of the draft condition 29 in the Inspector's Report [Appendix 8].
- 3.19 The existing commercial dog boarding kennels at Peel Hall Farm, in the north central part of the wider Appeal Site, will continue to operate. The location of the kennels is on the north western boundary of that property and is located within the buffer zone (ecology park). The closest proposed receptors to the kennels would be approximately 40 - 55m to the west and comprise apartment buildings up-to 12.0m in height.
- 3.20 It is well understood that barking dogs can be a source of noise complaint due to the impulsive and unpredictable nature of the animals. As the proposed residential areas closest to the boarding kennels will also be close to the M62, the designers of the site will be required to carefully consider the layout of individual plots with regard to noise.
- 3.21 Provided good acoustic design principles are applied to the individual plots, there will not be a significant impact on the residents due to noise emissions from the kennels. Such mitigation measures would give protection to

internal residential amenity from the dog kennel noise, however further consideration will be required from plot designers to ensure building massing is utilised appropriately to shield outdoor amenity space from activity within the boundary of the Peel Hall Farm dog boarding kennels.

- 3.22 My position concerning the operation of the boarding kennels, is supported in Paragraph 13.93 [Appendix 9] of the Inspector's Report which discusses the operations at Peel Hall Farm as being a requirement for careful consideration at the relevant reserved matters stage(s). A suitable planning condition has been prepared in collaboration with WBC and is presented in the Statement of Common Ground.
- 3.23 It is my view that the site is suitable for residential development and that with appropriate mitigation designed into each dwelling, an appropriate noise environment on Site can be achieved.

Impacts of the development on local noise levels

- 3.24 In this section I will discuss the impact of changes in noise levels due to traffic generated by the development. I will discuss the findings of the ES Chapter when considering changes in noise level as predicted at residential facades and in addition, discuss changes to the noise level for pedestrians which would equate to an assessment of the change in character of the area. Predicted changes at residential facades are calculated at 4.0 m, the typical height of a bedroom as required by DMRB. Predicted changes for pedestrians are calculated at a height of 1.5 m, an approximate adult ear height.
- 3.25 The impact of off-site traffic noise due the operation of any development is determined by comparing the change in noise level due to traffic. A change is considered a potentially significant effect when the predicted levels due to operation of a site increase the noise levels by 3.0dB $L_{A10,18h}$ or more.

This threshold is therefore utilised for assessment of change in façade noise levels and the change experienced by pedestrians.

- 3.26 During cross examination at the previous inquiry, Mr Smith, for the Council agreed that a change in noise levels of 3dB is only just perceptible. This is referenced in the Inspector's Report at Paragraph 9.87 [Appendix 10].
- 3.27 I will first discuss the findings of the ES chapter which assesses the predicted change in noise level at existing residential facades. An assessment of short-term change, i.e. the with and without scenario at the year of opening, can be visually expressed with reference to (N7) [Appendix 11] and Table 11.4 [Appendix 12] of the ES. The predicted change in noise level is below 3dB at all receptors along the existing road network. The modelling output in Appendix 11 show predicted noise levels without any localised mitigation in place.
- 3.28 Where a new road link is proposed over the existing playing fields at Mill Lane / Blackbrook Avenue, within the site redline, existing residential receptors to the north, at receptor points R_15 and R_38, would be exposed to changes in noise level above 3dB and therefore a significant effect is predicted. Table 11.17 [Appendix 13] of the ES shows the number of dwellings by the predicted magnitude of impact.
- 3.29 Section 11.7.7 - 11.7.8 of the ES chapter, reproduced below, describes the proposed location and composition of an acoustic barrier, which would reduce the impact of traffic on the new link road and reduce the magnitude of change to below 3dB, and the residual effect to not significant. Table 11.19 [Appendix 14] of the ES shows the predicted noise levels with and without the proposed mitigation at the two identified receptors.

11.7.7

At this location it will not be possible to remove or replace the proposed new traffic noise source and as such the best form of mitigation will be a barrier along the north side of the new road. This should be 2.0 m in height and can be formed of a bund, acoustic fence or a combination of the two. An indicative location is identified on Figure 11.5.

11.7.8

Where a fence is required it is to be constructed from continuous, imperforate material with a minimum mass of 12 kg/m² and is to extend from the existing ground level, or top of a bund to a minimum height of 2.0 m above the existing ground level. Close-boarded or overlapped timber panelling would also be suitable. Alternatively, a proprietary acoustic fence with a minimum weighted sound reduction index of 25 dB R_w would be appropriate.

- 3.30 Secondly I will discuss the impact on changing traffic noise levels on the character of the area.
- 3.31 Figure A1.1 of the Neighbourhood Character Assessment [Appendix 15] shows the change in noise levels at a height of 1.5m typical of a pedestrian at street level. The figure shows that at no position on the existing road network will the level of noise increase by 3dB or more.
- 3.32 The output from the noise modelling exercise, as shown in N7 of the ES [Appendix 11] also demonstrates that the road traffic noise level in the wider area away from the through routes would be expected to reduce slightly. This is due to the anticipated barrier effect generated by the development against noise levels from the M62. The barrier effect will be most noticeable at residential receptors facing onto the proposed development site during times when more local traffic on other roads in the network is reduced.
- 3.33 Paragraph 13.48 of the Inspector's Report states:

... Most vehicles do not appear to travel at speed, streets are straightforward to cross and it is a pleasant area through which to walk (although this situation changes on some streets during the peak hours). Aside from the constant background noise from the M62 in places, the area is relatively quiet.

- 3.34 The noise levels in the residential area through which people walk will not increase by 3dB or more, which has been agreed as just about perceptible. The constant background noise from the M62 will be reduced.
- 3.35 Noise modelling undertaken shows clearly that the predicted worst-case change in noise levels on the existing road network will not exceed 3dB at any residential façade [Appendix 11] or pedestrian footpath [Appendix 15]. It is my opinion that any change in noise level of less than 3dB should not be considered as a significant adverse impact on living conditions.
- 3.36 Noise modelling undertaken should be considered as worst-case and conservative as the “Do Something” scenario considered, utilises traffic data predicted for the fully built out development at the year of opening, 2022 and compares this to a baseline scenario of “Do Minimum” in the same year. The current projections for the phasing of the proposed development at the year of opening do not include development of the new link road over the existing playing fields at Mill Lane / Blackbrook Avenue, within the site redline. However the fully built out scenario in 2022 has been used so that new traffic using this route can be fully assessed.

Mitigation

- 3.37 The mitigation measures I have discussed are broken down into the following: acoustic barrier along the northern boundary of the development area; façade mitigation and detailed design of plots; and an acoustic barrier along the northern boundary of the site access off Mill Lane / Blackbrook Avenue.

3.38 There is a preference in the Inspector's Report to avoid non-opening windows and mechanical ventilation [Appendix 7]. The mitigation detailed above includes openable windows and acoustically rated trickle ventilation units. Developers may wish to investigate the opportunity to utilise alternative forms of ventilation. Such alternatives are listed in the ES Chapter, Paragraph 11.7.5:

- Through wall ventilation units with acoustic covers, linings and internal structure;
- Positive input ventilation (PIV) from a roof space;
- Mechanical ventilation drawing air from a quiet façade;
- Acoustic trickle ventilation in window frames using specialist acoustic products.

4.0 Summary and Conclusions

4.1 The updated noise assessment has been undertaken using the most up-to-date guidance, monitoring data and road traffic flow figures. The assessment uses traffic flows from a worst-case traffic scenario and as such is extremely conservative.

4.2 I have concluded that appropriate façade elements for glazing and ventilation can be utilised to protect the future residents to provide acceptable internal noise levels and that the site is suitable for residential development.

4.3 It has been previously agreed with WBC and the appellant that the existing noise impacting the development site can be controlled via a planning condition. The planning condition has been agreed within the Statement of Common Ground and will ensure that noise is assessed and mitigated as part of each reserved matters application.

- 4.4 When considering the effects of changing traffic flows outside of the Appeal site, I have shown through noise modelling at 4.0 m and 1.5 m above ground that the predicted changes in road traffic noise levels impacting on the existing living conditions and the character of the area for pedestrians will be below 3dB.
- 4.5 Whilst modelling shows that areas immediately adjacent to roads are predicted to have an increase in noise levels as a result of altered traffic flows, the change would not be perceptible and would not cause a change in the character of the area.
- 4.6 Existing residential areas adjacent to the proposed development site, which are exposed to noise directly from the M62 are likely to be benefited by the proposals.
- 4.7 I see no reason why outline planning permission should be withheld for the development of this site due to noise.

Town & Country Planning Act 1990

**APPEAL
ON BEHALF OF
SATNAM MILLENNIUM LIMITED**

**IN RESPECT OF
Land at Peel Hall, Warrington**

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**PLANNING INSPECTORATE REF:
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LOCAL AUTHORITY PLANNING APPLICATION REFERENCE: 2016/28493

**Proof of Evidence of Mr Matthew Wilson
Of Miller Goodall Ltd.**

NOISE

Vol 2: APPENDICES

Matthew Wilson

Date: 6TH August 2020

Appendices

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Appendix 1

Peel Hall Warrington - Parameters Plan
Appletons Drawing No. 1820_35 - Rev A



KEYS

Site Boundary	Boundary between the historic townships of Arbury and Winwick (Important Hedgerow)	Existing Culvert	10m Foraging bat corridor	CH. Location for Care Home	Location for Bus Gate	Radley Common	4metre High Acoustic Barrier (In line with noise assessment)	Proposed Sports Pitches/ Public Open Space
Areas with the Site excluded from the development	Peel Hall Manor Farm Moat Area (Archeological Feature)	Proposed Allotments	Existing Pond to be retained	LC. Location for Local Centre	R. Developable Land to include for pedestrian and cycle links between plots.	Boundary to Buffer Zone (In line with noise assessment)	Proposed Tree/ Shrub Planting	
Public right of way	Gas Main and Easement	Existing areas of off site vegetation	Proposed Attenuation Pond	S. Location for Primary School	A. Area suitable for apartments (In line with noise assessment)	Boundary to Area Suitable for apartments (In line with noise assessment)		
Boundary between the historic townships of Arbury and Houghton (Important Hedgerow)	8m Water Vole buffer zone to Spa Brook.	Existing areas of woodland, trees, hedgerows and vegetation to be retained.	Proposed Great Crested Newt Mitigation Pond	Location for Community Facility	Indicative Road Line	Proposed wildlife corridor		

*Note: Heights shown are proposed from ground level. Heights shown are fixed and take precedent over number of storeys shown.

PEEL HALL, WARRINGTON

Parameters Plan

Proof of Evidence of Matthew Wilson - Appendices

Project PEEL HALL, WARRINGTON		
Title Parameters Plan		
Client Satnam Millennium Ltd		
Date January 2020	Scale 1:2,500@A1	
Drawn SW/ DS	Drawing No. 1820_35	
Checked DA/ DS	Revision A	

Appendix 2

Environmental Statement Addendum 2, Chapter 11 (Vol 8)
Paragraph 11.2.17 to 11.2.21
Including Table 11.1

Professional Practice Guidance on Planning & Noise – New Residential Development

Paragraph 11.2.17

ProPG [Ref 11.1] is guidance with the aim of delivering sustainable development and promoting good health and well-being through the effective management of noise which may impact on new residential developments. The guidance aims to complement the national planning policy and encourages the use of good acoustic design at the earliest phase of the planning process. It builds upon the recommendations of various other guidance documents including NPPF, NPSE and PPG-Noise, BS 8233 and WHO.

Paragraph 11.2.18

The guidance is applicable to new residential developments which would be exposed predominantly to noise from existing transport sources. The ProPG advocates a risk-based approach to noise using a two-stage process:

- Stage 1 – an initial noise risk assessment of the proposed development site; and
- Stage 2 – a systematic consideration of four key elements: –
 - Element 1 – demonstrating a ‘Good Acoustic Design Process’;
 - Element 2 – observing internal ‘Noise Level Guidelines’;
 - Element 3 – undertaking an ‘External Amenity Area Noise Assessment’; and
 - Element 4 – consideration of ‘Other Relevant Issues’.

Paragraph 11.2.19

The ProPG approach is underpinned by the preparation and delivery of an ‘Acoustic Design Statement’ (ADS), whereby the higher the risk for noise at the site, the more detailed the ADS. The ADS should address the following issues:

- Present the initial site noise risk assessment, including the pre-development acoustic conditions prior to development;
- Describe the external noise levels that occur across the site both before and after any necessary mitigation measures have been incorporated. The external noise assessment with mitigation measures in place should use an informed judgement of typical worst-case conditions;
- Demonstrate how good acoustic design is integrated into the overall design and how the proposed acoustic design responds to specific circumstances of the site;
- Confirm how the internal noise level guidelines will be achieved, including full details of the design measures and building envelope specifications;
- A detailed assessment of the potential impact on occupants should be undertaken where individual noise events are expected to exceed 45 dB $L_{AF,max}$ more than 10 times a night inside bedrooms;

- Priority should be given to enable the use of openable windows where practical across the development. Where this is not practical to achieve the internal noise level guidelines with windows open, then full details of the proposed ventilation and thermal comfort arrangements must be provided;
- Present the findings of the external amenity area noise assessment;
- Present the findings of the assessment of other relevant issues;
- Confirm for a low risk site how adverse impacts of noise will be mitigated and minimised;
- Confirm for a medium or high noise risk site how adverse impacts of noise will be mitigated and minimised and clearly demonstrate that a significant adverse noise impact has been avoided.

Paragraph 11.2.20

ProPG target noise levels are based on existing guidance from BS 8233 and WHO (see below). Table 0.1 below outlines the guidance noise levels for different room types during day and night times.

Table 0.1: ProPG guideline indoor ambient noise levels for dwellings

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living Room	35 dB $L_{Aeq,16hr}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16hr}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,8hr}$ 45 dB $L_{Amax,F}$

Paragraph 11.2.21

The footnotes to this table suggest that internal noise level limits can be relaxed by up to 5 dB where development is considered necessary or desirable, and still represent “reasonable” internal conditions. They also suggest that in such cases, external levels which exceed WHO guidance target levels (see WHO section below) may still be acceptable provided that reasonable internal noise levels are achieved. Although, where the acoustic environment of external amenity areas is intrinsic to the overall design, “noise levels should ideally not be above the range 50 – 55 dB $L_{Aeq,16hr}$ ”. The wording of ProPG (and BS 8233:2014) is clear that exceedance of guideline noise levels in external areas should not prohibit the development of desirable developments in any event.

Appendix 3

Environmental Statement Addendum 2, Chapter 11 (Vol 8)
Paragraph 11.2.22 to 11.2.24
Including Table 11.2

BS8233:2014+A1:2019 Guidance on Sound Insulation and Noise Reduction for Buildings

Paragraph 11.2.22

This standard [Ref 11.2] provides recommended guideline values for internal noise levels within dwellings which are similar in scope to guideline values contained within the World Health Organisation (WHO) document, Guidelines for Community Noise (1999). These guideline noise levels are shown in Table 11.2, below

Table 11.2: BS 8233: 2014 guideline indoor ambient noise levels for dwellings

Location	Activity	07:00 to 23:00	23:00 to 07:00
Living Room	Resting	35 dB $L_{Aeq,16hr}$	-
Dining room/area	Dining	40 dB $L_{Aeq,16hr}$	-
Bedroom	Sleeping (daytime resting)	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,8hr}$

Paragraph 11.2.23

BS 8233:2014 advises that:

“regular individual noise events...can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$ depending on the character and number of events per night. Sporadic noise events could require separate values”.

Paragraph 11.2.24

BS 8233:2014 adopts guideline external noise values provided in WHO for external amenity areas such as gardens and patios. The standard states that it is “desirable” that the external noise does not exceed 50 dB $L_{Aeq,T}$ with an upper guideline value of 55 dB $L_{Aeq,T}$ whilst recognising that development in higher noise areas such as urban areas or those close to the transport network may require a compromise between elevated noise levels and other factors that determine if development in such areas is warranted. In such circumstances, the development should be designed to achieve the lowest practicable noise levels in external amenity areas

Appendix 4

Environmental Statement Addendum 2, Noise Appendix 11.5 N4 (Vol 9) FAÇADE MITIGATION - Night

Indicative Façade Calculations for a small bedroom dimension of approximately 21m³ with a 3.0m noise facing façade and 1.2m² glazed window.

Miller Goodall Environmental Services: Noise Ingress Calculation													
Project:					Calcs By:								
Description:					Date:								
Calculation is based on methodology within BS 8233:2014 & BSEN ISO 12354-3. The following equation is utilised: $L_{interna} = L_{external} - 2R + 10 \log S/A - DL_{fs} + 3$ where $A = 0.16V/T$ and DL_{fs} is a correction to account for the influence of façade shape (e.g. where balconies or terraces are present) This can be broken down further to: $L_{eq,2} = L_{eq,ff} + 10 \log \left(\frac{A_w}{S_w \times 10^{-(D_{w,eff}/10)}} + \frac{S_{wv}}{S_w \times 10^{-(R_{wv}/10)}} + \frac{S_{wrr}}{S_w \times 10^{-(R_{wrr}/10)}} + \frac{S_r}{S_w \times 10^{-(R_r/10)}} \right) + 10 \log (S/A) - DL_{fs} + 3$													
The above terms are described below:													
Description	Term	Value	Room assessed:										
Total facade area (m2)	S_f	6.9											
Window area (m2)	S_{wi}	1											
External wall area ($S_f - S_{wi}$)	S_{fw}	5.9	Height: 2.3										
Area of ceiling (m2)	S_{r1}	9											
Total area of elements ($S_f + S_{rr}$)	S	15.9	Width: 3							Width is horizontal length of façade in question			
Volume of receiving room (m3)	V	20.7											
Reference absorption area (m2)	A_0	10	Length: 3										
Number of ventilators in facade:		1											
Façade shape correction	DL_{fs}	0	See Annex C of BS EN 12354-3										
Input	Octave band centre frequency, Hz								dBA	R_w	C_r	$R_w + C_r$	Description
	63	125	250	500	1k	2k	4k	8k					
External Leq, freefield (dB Leq,ff)	61	57	59	64	65	56	47	36	67	-	-	-	Freefield night-time level
External Lmax, freefield (dB Lmax,ff)									#VALUE!	-	-	-	loudest Lmax Freefield night-time level
Dne of each ventilator	29	33	40	45	56	67	75	69	-	50	-6	44	Caice acoustic trickle vent
Total Dne of all ventilators	29	33	40	45	56	67	75	69	-	#####	#####	#NAME?	
SRI of window (Rwi)	22	28	36	45	52	52	63	63	-	47	-7	40	13/12/13 Audioscreen
SRI of external wall (Rew)	35	37	42	52	60	63	68	68	-	54	-6	48	Double leaf 112 mm brickwork, 50 mm cavity, rigid wall ties
SRI of roof and ceiling (Rrr)	25	31	37	43	48	52	58	58	-	47	-5	42	Tiles on felt, pitched roof with 270 mm wool on plasterboard ceiling consisting of 2 x 12.5mm
Rev time of receiving room (T) - secs	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5					Habitable room ref Part E
All ventilators [eqn. B]	8E-04	0.00032	0	0	0	0	0	0					$A_0/S \times 10^{-(D_{ne}/10)}$
Glazing [eqn. C]	4E-04	1E-04	0	0	0	0	0	0					$S_{wi}/S \times 10^{-(R_{wi}/10)}$
External wall [eqn. D]	1E-04	7.4E-05	0	0	0	0	0	0					$S_{fw}/S \times 10^{-(R_{fw}/10)}$
Ceiling [eqn. E]	0.002	0.00045	0	0	0	0	0	0					$S_{rr}/S \times 10^{-(R_{rr}/10)}$
All ventilators [10 x log "B"]	-31.0	-35.0	-42.0	-47.0	-58.0	-69.0	-77.0	-71.0					
Glazing [10 x log "C"]	-34.0	-40.0	-48.0	-57.0	-64.0	-64.0	-75.0	-75.0					
External wall [10 x log "D"]	-39.3	-41.3	-46.3	-56.3	-64.3	-67.3	-72.3	-72.3					
Ceiling [10 x log "E"]	-27.5	-33.5	-39.5	-45.5	-50.5	-54.5	-60.5	-60.5					
All elements combined [eqn. F]	-25.1	-30.3	-36.7	-42.8	-49.5	-53.7	-60.0	-59.7					Log sum of equations B,C,D,E
Equip. absorption area of rec. room (m ²)	7	7	7	7	7	7	7	7					
10 x log(S/A) [eqn. G]	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8					
Façade shape correction, DL_{fs}	0	0	0	0	0	0	0	0					

Linear Spectra												
	63	125	250	500	1k	2k	4k	8k	dBA	Target	Exc.	
Internal Leq,2	42	34	29	28	22	9	-6	-17	28	30	-2	Equations (A+F+G) - $DL_{fs} + 3$ dB
Internal Lmax,2	#####	#VALUE!	#####	#####	#####	#####	#####	#####	#VALUE!	45	#VALUE!	Equations (A+F+G) - $DL_{fs} + 3$ dB

A-weighted spectra												
	63	125	250	500	1k	2k	4k	8k	dBA	Target	Exc.	
Internal LAeq,2	16	18	20	25	22	10	-5	-18	28	30	-2	
Internal LAmax,2	#####	#VALUE!	#####	#####	#####	#####	#####	#####	#VALUE!	45	#VALUE!	

Appendix 5

Environmental Statement Addendum 2, Chapter 11 (Vol 8)
Table 11.13 and Paragraph 11.6.14

Table 11.13: Predicted worst case façade levels

Floor	Height	Daytime				Night-time			
		Façade $L_{Aeq,16h}$	BS8233 criteria	Internal $L_{Aeq,16h}$	Impact	Façade $L_{Aeq,8h}$	BS8233 criteria	Internal $L_{Aeq,8h}$	Impact
Ground	1.5 m	67	35	52	Major	62	30	47	Major
1 st	4.0 m	69	35	54	Major	65	30	50	Major
2 nd	6.5 m	70	35	55	Major	66	30	51	Major
3 rd	9.0m	72	35	57	Major	67	30	52	Major

Paragraph 11.6.14

It can be seen from Table 11.13, that the internal noise levels in living rooms and bedrooms the magnitude of impact will be Major.

Appendix 6

Environmental Statement Addendum 2, Chapter 11 (Vol 8) Table 11.9

Table 11.9: BS 8233: noise level criteria and magnitude for internal and external noise

Magnitude of Impact	Activity	07:00 to 23:00	23:00 to 07:00
Major	Road Traffic	<p>Noise levels > 40 dB $L_{Aeq,16hr}$ living rooms and bedrooms</p> <p>Noise levels > 45 dB $L_{Aeq,16hr}$ in dining rooms</p> <p>Noise levels > 55 dB $L_{Aeq,16hr}$ for external amenity space</p>	<p>Noise levels > 35 dB $L_{Aeq,8hr}$ in bedrooms</p> <p>Noise levels > 50 dB L_{AFmax} in bedrooms</p>
Moderate	Road Traffic	<p>Noise levels > 35 ≤ 40 dB $L_{Aeq,16hr}$ living rooms and bedrooms</p> <p>Noise levels > 40 ≤ 45 dB $L_{Aeq,16hr}$ in dining rooms</p> <p>Noise levels > 50 ≤ 55 dB $L_{Aeq,16hr}$ for external amenity space</p>	<p>Noise levels > 30 ≤ 35 dB $L_{Aeq,8hr}$ in bedrooms</p> <p>Noise levels > 45 ≤ 50 dB L_{AFmax} in bedrooms</p>
Minor	Road Traffic	<p>Noise levels ≤ 35 dB $L_{Aeq,16hr}$ living rooms and bedrooms</p>	<p>Noise levels ≤ 30 dB $L_{Aeq,8hr}$ in bedrooms</p>
Negligible	Road Traffic	<p>Noise levels ≤ 40 dB $L_{Aeq,16hr}$ in dining rooms</p> <p>Noise levels ≤ 50 dB $L_{Aeq,16hr}$ for external amenity space</p>	<p>Noise levels ≤ 45 dB L_{AFmax} in bedrooms</p>

Appendix 7

Report to the Secretary of State for Housing, Communities and Local Government,
File Ref: APP/M0655/W/17/3178530
1st October 2018

Paragraph 13.4

Paragraph 13.4

Nonetheless, on the basis of all that I heard, and having regard to what became a joint position between the main parties on this matter, it appears that these considerations could be addressed satisfactorily by condition (notwithstanding my overall conclusions on the wider issue of air quality). Even so, I do not regard this position as ideal, and feel obligated to reiterate the strong proviso that I made at the Inquiry. That is to say, any mitigation in relation to noise and air quality should be addressed through building situation and orientation rather than through such means as non-opening windows and mechanical ventilation. Others may form a different view, but I do not consider that such mechanisms can be regarded as conducive to the provision of optimum living conditions for future residents.

Appendix 8

Report to the Secretary of State for Housing, Communities and Local Government,
File Ref: APP/M0655/W/17/3178530
1st October 2018

Draft Condition 29

A design and layout led scheme, informed by the principles of ProPG: Planning & Noise (May2017) (or revisions/replacements thereof), for insulating residential dwellings from noise sources, to include any transportation, industrial, commercial and entertainment noise both within and outside the properties, shall be submitted to the local planning authority for approval in writing before construction above ground floor slab level commences on any phase. The scheme must achieve the internal noise levels set out below and shall be based on findings from an appropriate noise assessment. The development shall thereafter be constructed in accordance with the approved scheme.

The following noise levels will need to be achieved in habitable rooms and outdoor areas as set out in BS8233:2014 and/or WHO Guidelines (or any replacements thereof):

- Daytime Noise (0700 to 2300) Living Rooms & Bedrooms - 35 dB $L_{Aeq,16hr}$
- Daytime Noise (0700 to 2300) Dining Areas - 40 dB $L_{Aeq,16hr}$
- Daytime Noise (0700 to 2300) Outdoor Amenity Areas - 50 dB $L_{Aeq,16hr}$. 55dB $L_{Aeq,16hr}$ may be accepted in exceptional cases where normal mitigation cannot reach the 50dB level.
- Night time Noise (2300 to 0700) Bedrooms - 30 dB $L_{Aeq,8hr}$,
- Night time noise (2300 to 0700) Bedrooms – 45 dB L_{Amax} no more than 10-15 times per night (WHO guidelines)

These levels must be capable of being achieved with windows open (except for short term purge ventilation) or, as a last resort if a design led solution is not achievable, alternatively with passive ventilation systems in the open position. For the purposes of calculation, noise insulation achieved by a partially open window should be assumed to be 15 dBA.

If the above levels cannot be achieved in a design led scheme with open windows or with ventilators open, then the scheme must identify how the potential for overheating of affected buildings during warmer months will be mitigated in accordance with the principles of ProPG: Planning and Noise (May 2017).

Prior to the first occupation of any dwelling on any individual phase of development, the developer shall submit a validation report to the local planning authority for approval in writing demonstrating the inclusion of all previously agreed mitigation measures, which shall be maintained and retained thereafter.

Appendix 9

Report to the Secretary of State for Housing, Communities and Local Government,
File Ref: APP/M0655/W/17/3178530
1st October 2018

Paragraph 13.93

Paragraph 13.93

I have no reason to doubt that Peel Hall Farm is run as a successful boarding kennels. Nor do I doubt that when the kennels are full the boarded dogs can be noisy. Again, if planning permission were to be granted very careful consideration would need to be given at the relevant reserved matters stage(s) to the relationship between any new dwellings and Peel Hall Farm. One would need to be fully assured that the living conditions of any future occupiers would not be adversely affected and that, equally importantly, the business would not suffer as a result of complaints in relation to noise. The Framework²¹¹ is explicit that:

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 ... in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.

Appendix 10

Report to the Secretary of State for Housing, Communities and Local Government,
File Ref: APP/M0655/W/17/3178530
1st October 2018

Paragraph 9.87

Paragraph 9.87

As Mr Smith (for the Council) agreed in cross-examination, a change in noise levels of 3dB is generally considered to be only just perceptible. A doubling in traffic flows would be required to reach that magnitude of change. Mr Smith accepted that the predicted increases in traffic levels as a result of the appeal proposals would have to be “significantly higher” in order for there to be a perceptible change in noise levels.

Appendix 11

Environmental Statement Addendum 2, N7 (Vol 9)
Figure 11.3 - Short Term Assessment DSOY 2022 - DMOY 2022

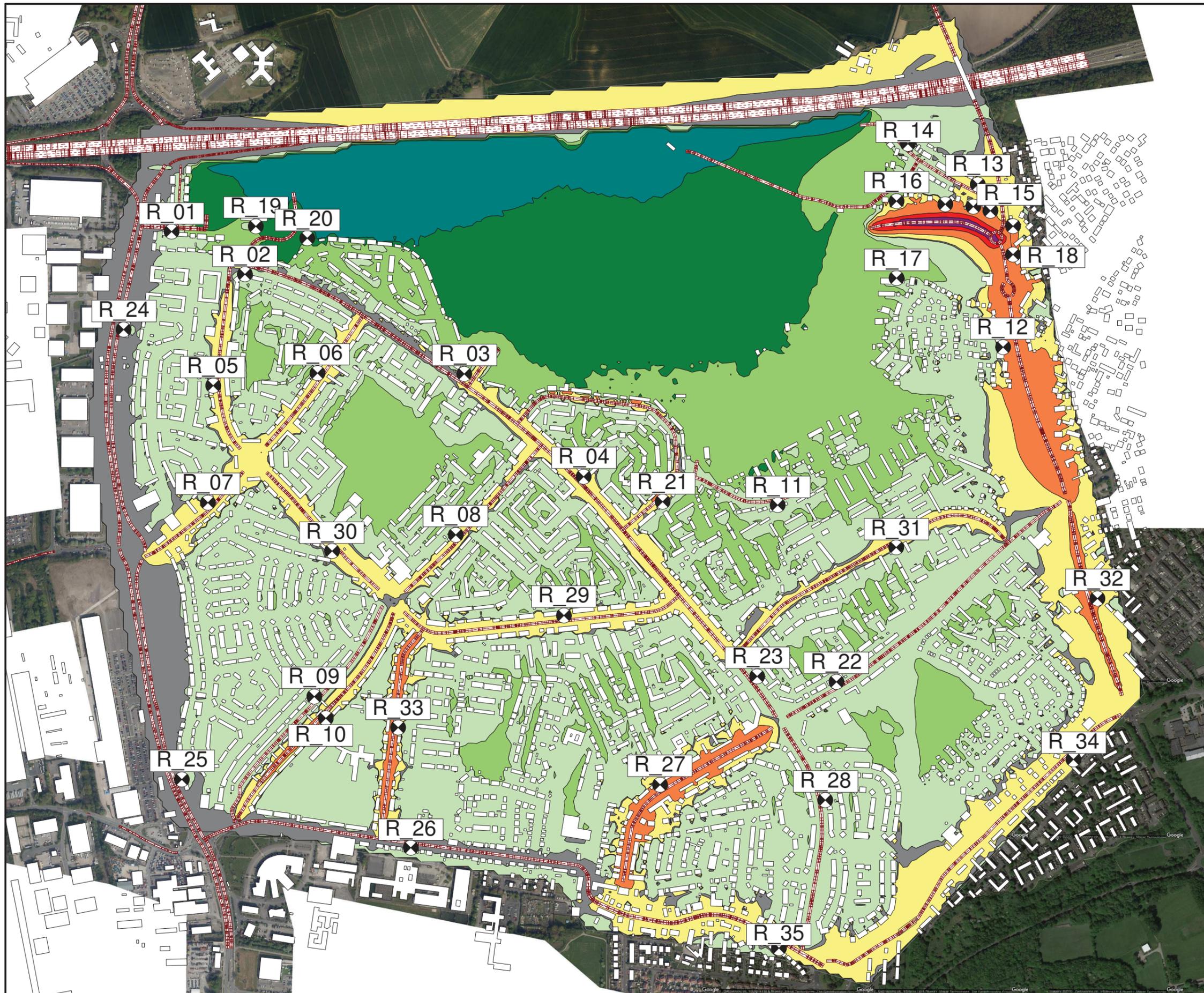
The figure on the next page is a graphical representation of the change in noise levels in the area.

The predicted levels are modelled at 4.0m above ground level.

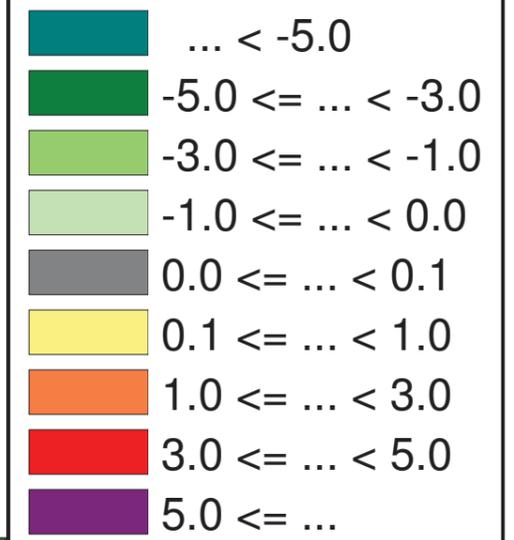
The figure displays coloured contours showing predicted reductions in noise level (greens), where no change is predicted (grey) and where noise levels are predicted to increase (yellow - red).

DSOY - Do Something Opening Year

DMOY - Do Minimum Opening Year



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Rev.	Date	Purpose	Drawn By	Approved By
1	28/02/2020	Draft	MJW	JLM

Project: PEEL HALL

Client: SATNAM MILLENIUM

Figure 11.3

Short Term Assessment
 DSOY 2022 - DMOY 2022
 Prediction at 4.0m

Report Number: 102037

Appendix 12

Environmental Statement Addendum 2, Chapter 11 (Vol 8) Table 11.4

Table 11.14: Short Term Assessment (DSOY – DMOY)

Receptor	Address	dB L _{A10,18h} DMOY	dB L _{A10,18h} DSOY	dB L _{A10,18h} Difference	Impact
R_01	5 Birch Avenue	61.5	61.1	-0.4	Negligible beneficial
R_02	375 Poplars Ave	62.2	61.9	-0.3	Negligible beneficial
R_03	352 Poplars Ave	61.0	61.3	0.3	Negligible adverse
R_04	264 Poplars Ave	63.0	63.4	0.4	Negligible adverse
R_05	28 Cotswold Road	58.1	58.5	0.4	Negligible adverse
R_06	54 Cleveland Road	60.9	61.8	0.9	Negligible adverse
R_07	6 Sandy Lane West	63.7	64.7	1.0	Minor adverse
R_08	31 Howson Road	52.4	53.5	1.1	Minor adverse
R_09	84 Northway	59.0	58.8	-0.2	Negligible beneficial
R_10	79 Northway	58.5	59.4	0.9	Negligible adverse
R_11	221 Grasmere	56.6	56.2	-0.4	Negligible beneficial
R_12	57 Coldstream Close	59.6	61.5	1.9	Minor adverse
R_13	34 Mill Lane	55.5	56.1	0.6	Negligible adverse
R_14	6 Mill Lane	62.1	59.4	-2.7	Minor beneficial
R_15	55 Mill Lane	53.4	56.4	3.0	Moderate adverse
R_16	12 Radley Lane	51.9	54.1	2.2	Minor adverse
R_17	45 Ballater Drive	58.2	56.2	-2.0	Minor beneficial
R_18	37 Shetland Close	60.3	62.1	1.8	Minor adverse
R_19	Fairhaven Care Home	53.6	54.5	0.9	Negligible adverse
R_20	141 Newhaven Road	64.8	60.0	-4.8	Moderate beneficial
R_21	21 Windermere Avenue	54.1	54.4	0.3	Negligible adverse
R_22	126 Capesthorne Road	60.6	60.3	-0.3	Negligible beneficial
R_23	136 Poplars Avenue	64.1	64.0	-0.1	Negligible beneficial
R_24	713 Winwick Road	74.1	74.1	0.0	No Change
R_25	463 Winwick Road	72.1	72.2	0.1	Negligible adverse
R_26	70 Long Lane	67.8	67.9	0.1	Negligible adverse
R_27	60 Capesthorne Road	63.2	64.8	1.6	Minor adverse

Receptor	Address	dB L _{A10,18h} DMOY	dB L _{A10,18h} DSOY	dB L _{A10,18h} Difference	Impact
R_28	72 Poplars Avenue	65.6	65.0	-0.6	Negligible beneficial
R_29	59 Statham Avenue	63.3	63.9	0.6	Negligible adverse
R_30	100 Sandy Lane	63.1	63.5	0.4	Negligible adverse
R_31	323 Greenwood Crescent	59.1	59.4	0.3	Negligible adverse
R_32	8 Lancaster Close	62.1	63.1	1.0	Minor adverse
R_33	39 Fisher Avenue	60.4	61.8	1.4	Minor adverse
R_34	22 St Mawgan Court	66.4	66.7	0.3	Negligible adverse
R_35	14 Orford Green	65.9	66.2	0.3	Negligible adverse
R_36	61 Mill Lane	57.4	59.3	1.9	Minor adverse
R_37	Dundee Close	56.5	56.6	0.1	Negligible adverse
R_38	Lavender Barn, Mill Lane	51.8	55.8	4.0	Moderate adverse

Appendix 13

Environmental Statement Addendum 2, Chapter 11 (Vol 8)
Table 11.17

Table 11.17: Summary of short-term operational noise assessment

Short Term (2022 DMOY vs 2022 DSOY)			
Change in Noise Level			Daytime
			Number of dwellings
Increase	Negligible	0.1-0.9	16
	Minor	1.0-2.9	9
	Moderate	3.0-4.9	2
	Major	5.0+	0
No Change		0	1
Decrease	Negligible	0.1-0.9	7
	Minor	1.0-2.9	2
	Moderate	3.0-4.9	1
	Major	5+	0
Total			38

Note – the properties counted in the table are those selected representative properties as agreed with WBC. The total number of properties in each magnitude band will be higher.

Appendix 14

Environmental Statement Addendum 2, Chapter 11 (Vol 8)
Table 11.19

Table 11.19: Short Term Assessment (DSOY – DMOY) with and without mitigation

Receptor	Address	dB L _{A10,18h} DMOY	dB L _{A10,18h} DSOY	dB L _{A10,18h} Difference	Impact
Without Mitigation					
R_15	55 Mill Lane	53.4	56.4	3.0	Moderate adverse
R_38	Lavender Barn, Mill Lane	51.8	55.8	4.0	Moderate adverse
With Mitigation					
R_15	55 Mill Lane	53.4	55.1	1.7	Minor adverse
R_38	Lavender Barn, Mill Lane	51.8	54.6	2.8	Minor adverse

Note – Receptor locations are shown on Appendix 11 of this proof of evidence

Appendix 15

Neighbourhood Character Assessment

Figure A1.1 - Short Term Assessment DSOY 2022 - DMOY 2022

The figure on the next page is a graphical representation of the change in noise levels in the area.

The predicted levels are modelled at 1.5m above ground level to represent the ear height of a pedestrian

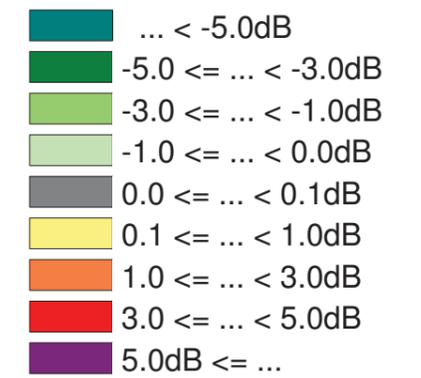
The figure displays coloured contours showing predicted reductions in noise level (greens), where no change is predicted (grey) and where noise levels are predicted to increase (yellow - red).

DSOY - Do Something Opening Year

DMOY - Do Minimum Opening Year



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1	02/03/2020	Draft	MJW	JLM

Project: PEEL HALL

Client: SATNAM MILLENIUM

Character of the Area
 Appendix 1 - Noise Issues
 Figure A1.1

Short Term Assessment
 DSOY 2022 - DMOY 2022
 Model @1.5m

Report Number: 102037