Traveller's Transit Site

Noise Assessment

Westhampnett Depot, Chichester

For Chichester District Council






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1 Introduction

1.1 The Acoustics Team at the Brighton office of RPS Planning and Development has been appointed by Chichester District Council (CDC) to provide an acoustics assessment for a proposed Traveller's Transit Site (TTS) on a site currently occupied by the Westhampnett Waste Depot. The proposal site is located within the administrative area of CDC, the TTS will part occupy the Waste Depot.

1.2 The assessment has been undertaken based upon appropriate information on the proposed development provided by MH Architects on behalf of CDC and the project team. The assessment has been undertaken with integrity, objectivity and honesty in accordance with the Code of Conduct of the Institute of Acoustics.

1.3 The proposed TTS consists of 9 hard standing plots for moveable homes with parking spaces for vehicles and trailers, wash facilities and refuse and fuel gas storage areas. The main access to the TTS would be from the northern boundary of the site off Stane Street. A brick wall approximately 2 m in height currently forms part of the boundary of the proposed TTS, and as part of the proposal this wall would be extended to all boundaries of the TTS, where there are no existing adjoining buildings that would be retained.

1.4 This report contains a description of the baseline survey which was undertaken in order to determine the existing noise climate at the proposal site and a presentation of the results thereof, the assessment methodology used to assess the proposal site for residential suitability, a summary of the standards, guidance, legislation & policy upon which the assessments are based, the results of the assessments undertaken and a summary and conclusions section which summarises the findings of the report.

2 Assessment Methodology

Basis for the Assessment

2.1 The assessment methodology is based upon current national planning policy and legislation and national standards which are summarised in Appendix A. As described and justified in paragraph A.26 of Appendix A, the assessment of residential suitability for moveable homes has been undertaken in accordance with the guidance contained in British Standard (BS) 8233 [1], using the same guidance as for conventional dwellings.

Establishing Baseline Conditions

2.2 To establish the baseline conditions at the proposal site a number of short-term attended measurements were undertaken. This approach has been taken because the noise environment at the proposal site is dominated by activity in the adjacent Waste Depot. As such, measurements have been made which are considered representative of the worst case noise levels that might be expected at the proposal site and it is these worst case noise levels which have been assessed.

Noise Level Criteria

2.3 As described under paragraph A.19 of Appendix A, if the development is considered to be necessary or desirable, then a relaxation of the internal noise level criteria of up to 5 dB may be applied, whilst still achieving reasonable internal conditions. Such a relaxation has been applied to the criteria used in the assessment, although the desirable criteria of BS 8233 is also considered. Criteria for the L_{Amax} noise level has been determined with reference to the Night Noise Guidelines for Europe [2] in paragraph A.21 of Appendix A.

Attenuation due to Partially Open Windows and Screening

2.4 Internal noise levels have been predicted assuming $D_W + C_{tr}$ 17 dB attenuation provided by a partially open window. The attenuation value of $D_W + C_{tr}$ 17 dB is taken from the data provided for window type E in Table 6.1 of NANR116: 'Open/Closed Window Research – Sound Insulation through Ventilated Domestic open Windows' [3], which is considered to be the most representative of a typical window which would be used in a caravan of the window types presented in Table 6.1 of NANR116.

2.5 In all of the assessments, an assumed -10 dB correction has been applied for screening and angle of view. The bases for this assumption are that the boundary wall of the proposed TTS would provide significant screening to the homes which are to be situated in close proximity to the wall, and that any opened windows would be located on façades which face away from the main noise sources: traffic on Stane Street and activities in the Waste Depot.

3 Baseline Conditions

Site Location

3.1 The site of the proposed TTS is currently occupied by car parking areas and buildings associated with the Waste Depot. The proposal site lies approximately 700 m west of the centre of the village of Westhampnett and approximately 2 km north east of the centre of Chichester. The approximate outline of the proposal boundary is provided in Figure 1 at the end of the report.

Baseline Noise Survey

3.2 An attended baseline noise survey was carried out on the morning of Wednesday 12th March 2014 at a number of locations. Locations 1, 4 and 5 are considered representative of proposed Noise Sensitive Receptors (NSRs) where moveable homes would be located and the results for these locations have been used in the assessment with no corrections for propagation distance. All measurement locations are identified in Figure 1.

3.3 Measurements were carried out using Rion NA-28 Type-1 Sound Level Meter, mounted on a tripod, 1.5 m above local ground level. The meter was checked for calibration prior to and following the measurements using a Rion NC-74 calibrator. All equipment was within a two year calibration period.

3.4 Weather conditions at the time of the survey were measured following completion of the baseline noise survey using a handheld device and were recorded as follows:

- Relative humidity: 70%
- Air temperature: 9.5 ºC
- Wind speed: 0 m/s

3.5 The results of the baseline noise survey are presented in Table 3.1 overleaf.

Table 3.1: Baseline Noise Survey Data

ID	Location	Start Date/ Time	Duration (mm:ss)	Broadband Sound Pressure Level (dBA)						Audible Sources
				$L_{Aeq,T}$	$L_{A10,T}$	$L_{A50,T}$	$L_{A90,T}$	L_{Amin}	L_{Amax}	
1	1	13/03/2014 05:48	02:23	66	69	64	63	60	72	3 wagons idling - warming up, @ 30 m
2	1	13/03/2014 05:50	00:24	67	70	66	64	63	71	As above, one truck in high rev's
3	2	13/03/2014 05:55	00:29	68	71	64	62	60	76	Wagon exiting site @ 15 m. Some cars passing also.
4	2	13/03/2014 05:59	00:18	61	60	56	55	54	77	L_{max} level: personnel gate clanging shut (PG).
5	2	13/03/2014 06:01	00:17	68	72	65	61	60	76	Wagon exiting site @ 15 m.
6	2	13/03/2014 06:02	00:12	62	65	56	54	53	76	Small van exiting site, 2* PG clangs.
7	2	13/03/2014 06:04	00:24	66	69	65	62	61	70	Wagon exiting site @ 15 m.
8	2	13/03/2014 06:06	00:22	60	62	60	58	57	67	2* small van leaving site. Some cars passing.
9	2	13/03/2014 06:08	00:03	69	74	62	59	59	79	PG clanging shut L_{max}.
10	2	13/03/2014 06:08	00:32	66	70	65	52	48	79	Wagon exiting site @ 15 m. PG clanging shut.
11	3	13/03/2014 06:10	01:37	69	70	69	69	68	72	2* wagon idling. 1 @ 10 m, 1 @ 20 m.
12	3	13/03/2014 06:14	00:06	73	75	73	70	70	75	Wagon passby at very low speed @ 10 m
13	1	13/03/2014 06:15	03:06	63	65	62	60	59	71	Wagon idling & being cleaned @ 15 m
14	4	13/03/2014 06:21	01:11	62	65	61	57	55	72	4* wagons leaving site. HGV passby. Some cars. PG clanging shut.
15	2a	13/03/2014 06:32	00:21	75	79	74	64	62	82	Wagon pulling away @ 5 m.
16	5	13/03/2014 06:37	00:15	61	64	58	57	56	67	Viridor passby.
17	5	13/03/2014 06:38	00:06	64	66	62	60	59	67	Wagon pasby.
18	5	13/03/2014 06:40	00:10	63	68	59	54	53	71	Viridor passby, clanging.
19	6	13/03/2014 06:42	00:06	53	54	53	52	52	56	Line of sight to PG. PG clang L_{max}.
20	5	13/03/2014 06:44	01:20	60	63	58	55	54	70	Engine idling nearby. Wagon leaving site. Viridor passby. Some cars passing.
21	5	13/03/2014 06:50	10:00	58	61	56	52	49	66	4* wagons leaving site. 3* Viridor passby. Cars motorbikes in distance. Birdsong.
22	5	13/03/2014 07:49	10:00	58	61	56	54	52	72	Cars passing by. Road traffic & motorbike in distance. 3* Viridor passby. Reverse beeper.

4 Assessment of Residential Suitability

4.1 The results of the assessment are presented in Table 4.1 below with full calculations provided in Appendix B. Note that measurements which recorded the noise level due to the personnel gate swinging shut have not been included, as it has been confirmed that should the proposal be consented, noise from the personnel gate will be mitigated against through the provision of soft padding which will serve to reduce or eliminate the noise of the gate shutting.

Table 4.1: Residential Suitability Assessment

Measurement ID	Measurement Location	Start Time (hh:mm:ss)	Duration (mm:ss)	Assessment Location	Predicted Internal Broadband Sound Pressure Level (dB)		Internal Noise Level Criteria (dB) (Desirable - Upper Limit)		Difference between predicted internal noise level and criteria (dB) (Desirable - Upper Limit)	
					$L_{Aeq,T}$	L_{Amax}	$L_{Aeq,T}$	L_{Amax}	$L_{Aeq,T}$	L_{Amax}
1	1	05:48:29	02:23	Pitch 6	39	45	30 - 35	42 – 47	+9 – +4	+3 – -2
2	1	05:50:56	00:24	Pitch 6	40	44	30 - 35	42 – 47	+10 – +5	+2 – -3
13	1	06:15:55	03:06	Pitch 6	36	44	30 - 35	42 – 47	+6 – +1	+2 – -3
14	4	06:21:25	01:11	Pitch 9	35	45	30 - 35	42 – 47	+5 – 0	+3 – -3
16	5	06:37:36	00:15	Pitch 1	34	40	30 - 35	42 – 47	+4 – -1	-2 – -7
17	5	06:38:07	00:06	Pitch 1	37	40	30 - 35	42 – 47	+7 – +2	-2 – -7
18	5	06:40:17	00:10	Pitch 1	36	44	30 - 35	42 – 47	+6 – +1	+2 – -4
20	5	06:44:34	01:20	Pitch 1	33	43	30 - 35	42 – 47	+3 – -2	+1 – -4
21	5	06:50:01	10:00	Pitch 1	31	39	30 - 35	42 – 47	+1 – -5	-3 – -8
22	5	07:49:13	10:00	Pitch 1	31	45	30 - 35	42 – 47	+1 – -4	+3 – -2

4.2 With reference to the final column in Table 4.1, the results indicate that there are no predicted exceedances of the upper L_{Amax} limit.

4.3 With reference to the penultimate column in Table 4.1, the results indicate that there are five predicted exceedances of the $L_{Aeq,T}$ upper limit out of 10 individual assessments. It is noted that the assessments which indicate significant exceedances of the upper limit are based on very short term measurements. This issue is addressed in paragraph 4.4 below.

4.4 The measurements upon which the assessments are based are of very short duration. Therefore, it is necessary to consider the contribution of the higher noise levels due to the wagons idling and warming up to the $L_{Aeq,8hr}$ noise level in the context of the lower noise levels that will occur for the remainder of the night-time assessment period. It is assumed that the noise levels due to wagons idling, warming up and being cleaned lasts for approximately 1 hour between 05.30 and 06.30 hours, and that the noise level due to these activities is adequately represented by the predicted internal noise level of 39 dBA as calculated in assessment ID 1. It is further assumed that for the final half an hour of the night time period between 06.30 – 07.00 hours that the worst case noise level is represented by the internal noise level of 31 dBA, as calculated in assessment ID 21 and ID 22. With these two assumed levels between 05.30 – 07.00 hours calculations have shown that the internal equivalent continuous noise level for the remainder of the night time period (23.00 – 05.30 hours) would have to equal or exceed 35 dB $L_{Aeq,6.5hr}$ in order to exceed the upper limit night time criterion of 35 dB $L_{Aeq,8hr}$. It is unlikely that night-time noise levels between 23.00 and 05.30 hours exceed 35 dB $L_{Aeq,6.5hr}$.

4.5 It is considered that the final assessment (ID 22) is representative of the worst case daytime, as this measurement captured part of the morning peak of road traffic activity. As this period is considered representative of peak hour traffic, it is further considered that for the majority of the night time period (23.00 – 07.00 hours) the noise received at the worst affected receptor will be significantly below the levels predicted in this assessment (ID 22), which is 31 dB $L_{Aeq10mins}$. This provides additional support to the assessment presented in paragraph 4.4 above.

4.6 Furthermore the assessments have been undertaken assuming partially open windows, and whilst it is understood that alternative means of ventilation to a moveable home may be limited, it is considered that, during the colder times of year when noise from the refuse wagons warming up will be at a peak, it is likely that windows will be closed and that the internal noise environments will benefit from a reduction in received noise levels.

Assessment Summary

4.7 With regards to the desirable internal noise level criterion the results of the assessment indicate that there would be some short term exceedances of the criterion, but this would be unlikely to result in regular exceedances of the desirable night time $L_{Aeq,8hr}$ noise level criterion. With regards to the upper limit the results of the assessment indicate that the upper limit would rarely, if ever, be exceeded in the short term, and as such the upper limit $L_{Aeq,8hr}$ would be highly unlikely to be exceeded. In consideration of L_{Amax} noise levels, the results of the assessment indicate that there are no predicted exceedances of the upper limit.

4.8 With reference to the NPPF, NPSE and NPPG, and on the basis that should the proposal be consented the noise of the personnel gate shutting will be mitigated, it is considered that the noise impact on proposed NSRs is, at worst, above the LOAEL but below the SOAEL. This is because there may be short periods at certain times of the year when residents may experience

some disturbance to sleep when windows are partially open, resulting in the requirement to shut the windows when they would have otherwise been left open for ventilation purposes.

5 Summary & Conclusions

5.1 The Acoustics Team at the Brighton office of RPS Planning and Development has been appointed by Chichester District Council (CDC) to provide an acoustics assessment for a proposed Traveller's Transit Site (TTS) on a site currently occupied by the Westhampnett Waste Depot. The proposal site is located within the administrative area of CDC, the TTS will part occupy the Waste Depot.

5.2 The proposed TTS consists of 9 hard standing plots for moveable homes with parking spaces for vehicles and trailers, wash facilities and refuse and fuel gas storage areas.

5.3 The assessment of residential suitability has been undertaken with reference to the desirable noise level criterion and an upper limit criterion which has been used on the basis that the development is desirable or necessary. The assessment has focussed on the more sensitive night time period, particularly on the end of the night time period when refuse wagons are warming up and egressing from the Waste Depot.

5.4 The results of the assessment indicate that, with windows partially open, the desirable internal night time noise level criterion of 35 dB $L_{Aeq,8hr}$ would be unlikely to be regularly exceeded, and the upper limit of 40 dB $L_{Aeq,8hr}$ would be highly unlikely to be exceeded. Assessment of peak L_{Amax} noise levels indicates that the upper limit criterion is not predicted to be exceeded with windows partially open. With reference to the NPPF, NPSE and NPPG it is considered that the noise impact on proposed NSRs is, at worst, above the LOAEL but below the SOAEL.

5.5 On the basis of the above, and on the basis that the proposed development is considered to be desirable, the proposal should be acceptable with regards to noise.

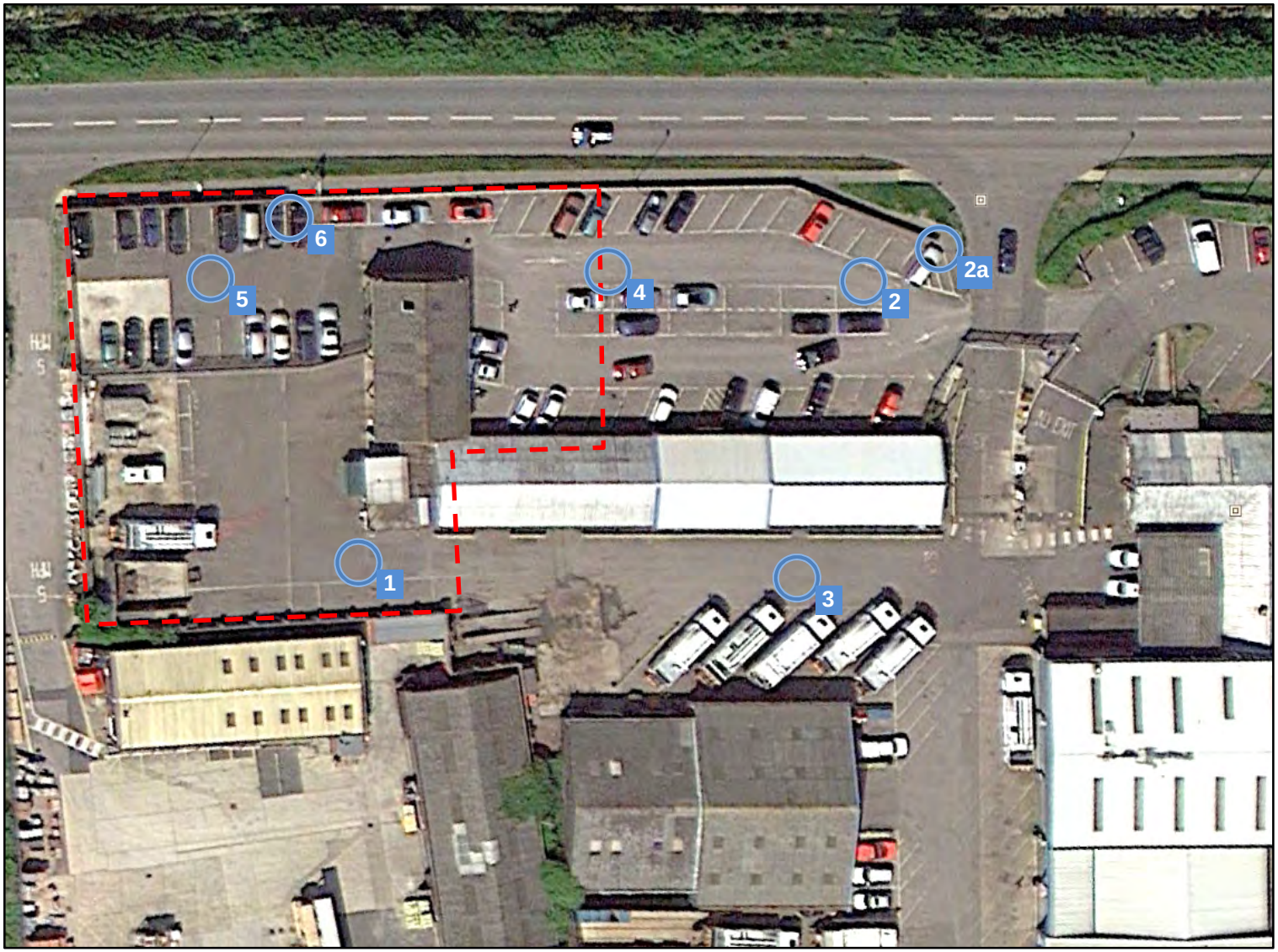
References

1 British Standards Institution. British Standard 8233: Guidance on sound insulation and noise reduction for buildings. 2014.

2 Bruni, O. et al. Night Noise Guidelines (NNGL) for Europe. World Health Organisation. 2009.

3 Defra Report NANR116. Open/Closed Window Research – Sound Insulation through Ventilated Domestic open Windows. The Building Performance Centre, School of the Built Environment, Napier University. 2007.

Figures



Key

Proposal boundary (approx.)

1

Noise Monitoring Location (NML)

Figure 1: Baseline Noise Monitoring Locations

Image source: Google Earth © 2013

Appendices

Appendix A: Policy, Standards, Legislation & Guidance

National Planning Policy Framework

A.1 The National Planning Policy Framework (NPPF)[1], published in March 2012, sets out the Governments planning policies for England.

A.2 The document does not contain any specific noise policy or noise limits, but it provides a framework for local people and local authorities to produce their own local and neighbourhood plans, which reflect the needs and priorities of their communities.

A.3 In Section 11, 'Conserving and enhancing the natural environment', paragraph 123 relates to noise and states:

'123. Planning policies and decisions should aim to:

- *avoid noise from giving rise to significant adverse impacts[27] on health and quality of life as a result of new development;*
- *mitigate and reduce to a minimum other adverse impact[28] on health and quality of life arising from noise from new development, including through the use of conditions;*
- *recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established;[28] and*
- *identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.'*

27 See Explanatory Note to the Noise Policy Statement for England (Department for the Environment, Food and Rural Affairs).

28 Subject to the provisions of the Environmental Protection Act 1990 and other relevant law.'

A.4 In addition to the NPPF and the Noise Policy Statement for England (NPSE) described below, the Department for Communities & Local Government released National Planning Practice Guidance (NPPG) on noise in March 2014. The NPPG provides guidance on determining the significance of noise effects to support the requirements of the NPPF.

Noise Policy Statement for England

A.5 The Noise Policy Statement for England (NPSE)[2], published in March 2010 by Defra, aims to provide clarity regarding current policies and practices to enable noise management decisions to be made within the wider context, at the most appropriate level, in a cost-effective manner and in a timely fashion.

A.6 Paragraph 1.6 of the NPSE sets out the long-term vision and aims of Government noise policy:

[1] Department for Communities and Local Government. National Planning Policy Framework: HMSO. March 2012.
[2] Department for Environment, Food and Rural Affairs. Noise Policy Statement for England. Defra. 2010.

"Noise Policy Vision

Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development."

"Noise Policy Aims

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

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

A.7 The aims require that all reasonable steps should be taken to avoid, mitigate and minimise adverse effects on health and quality of life whilst also taking into account the guiding principles of sustainable development, which include social, economic, environmental and health considerations.

A.8 With regard to the terms 'significant adverse' and 'adverse' included in the 'Noise Policy Aims', these are explained further in the 'Explanatory Note' as relating to established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation which are:

'NOEL – No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on human health and quality of life due to noise.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.'

Defra has then extended these concepts for the purpose of the NPSE to introduce the concept of:

'SOAEL – Significant Observed Adverse Effect Level'

A.9 This is the level above which significant adverse effects on health and quality of life occur. The accompanying explanation states:

'It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available'.

A.10 With regard to 'further evidence', Defra has commissioned research to try and identify the levels at which the above effects occur but this is not yet in the public domain. However, early indications are that this research has been largely inconclusive. On this basis, and until further guidance becomes available, and given that there is no specific guidance in the NPPF on noise, there is no justification to vary assessment methods and criteria from those previously adopted from British Standards etc.

National Planning Practice Guidance - Noise (NPPGN)

A.11 The Government has published Planning Practice Guidance on a range of subjects including noise[3]. The guidance is intended to support and complement the NPPF and provide advice on how to deliver its policies. Once the full suite of planning practice guidance is in place, the Technical Guidance to the NPPF will be withdrawn. The NPPGN reiterates general guidance on noise policy and assessment methods provided in the NPPF, NPSE and British Standards (BSs) and contains examples of acoustic environments commensurate with various effect levels.

A.12 The NPPGN describes noise that is not noticeable to be at levels below the NOEL. It describes a range of noise exposure that is noticeable but not to the extent there is a perceived change in quality of life. Noise exposures in this range are below the LOAEL and need no mitigation. On this basis, the audibility of noise from a development is not, in itself, a criterion to judge noise effects that is commensurate with national planning policy.

A.13 The NPPGN suggests that noise exposures above the LOAEL cause small changes in behaviour. An example of noise exposures above the LOAEL provided in the PPGN is having to turn up the volume on the television; needing to speak more loudly to be heard; or, where there is no alternative ventilation, closing windows for some of the time because of the noise. In line with the NPPF and NPSE, the NPPGN states that consideration needs to be given to mitigating and minimising effects above the LOAEL but taking account of the economic and social benefits being derived from the activity causing the noise.

A.14 The NPPGN suggests that noise exposures above the SOAEL cause material changes in behaviour. An example of noise exposures above the SOAEL provided in the PPGN are, where there is no alternative ventilation, keeping windows closed for most of the time or avoiding certain activities during periods when the noise is present. In line with the NPPF and NPSE, the NPPGN states that effects above the SOAEL should be avoided and that whilst the economic and social benefits being derived from the activity causing the noise must be taken into account, such exposures are undesirable.

A.15 The NPPGN suggests that a noise impact may be partially offset if the residents of affected dwellings have access to a relatively quiet part of their dwelling, private external amenity area and/or external public or private amenity space nearby.

[3] Department for Communities and Local Government (2014) National Planning Practice Guidance

British Standard 8233 'Guidance on sound insulation and noise reduction for buildings', 2014

A.16 British Standard (BS) 8233 'Guidance on sound insulation and noise reduction for buildings'[4] draws on the results of research and experience to provide information on the design of buildings to provide internal acoustic environments appropriate to their functions. It deals with control of noise from outside the building, noise from plant and services within it, and room acoustics in non-critical situations.

A.17 BS 8233 defines a range of indoor ambient noise levels for spaces when they are unoccupied. A summary of the levels recommended in BS 8233 Table 4 for rooms used for resting and sleeping is provided in Table A.1 below – the levels are for anonymous noise only.

A.18 The noise levels defined within BS 8233 are based on guidance published by the World Health Organisation (WHO).

Table A.1: BS 8233 Indoor Ambient Noise Levels in Unoccupied Spaces

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

A.19 There are a number of notes attached to the guideline criteria, one of which is pertinent to the assessment of the proposed Traveller's Transit Site:

'NOTE 7 Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.'

A.20 With regard to L_{Amax} instantaneous maximum noise levels Note 4 of BS 8233 Table 4 offers the following guidance:

'Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or L_{AmaxF}, depending on the character and number of events per night. Sporadic noise events could require separate values.'

Noise Night Guidelines for Europe

A.21 The 'Night Noise Guidelines (NNGL) for Europe'[5] presents the conclusions of the WHO working group responsible for preparing guidelines for exposure to noise during sleep. The report provides a summary of the results of research into the mental and physical effects of

[4] British Standards Institution. British Standard 8233: Guidance on sound insulation and noise reduction for buildings. 2014.
[5] Bruni, O. et al. Night Noise Guidelines (NNGL) for Europe. World Health Organisation. 2007.

environmental night-time noise to people. NNGL provides observed effect thresholds, i.e. the level above which an effect starts to occur or shows itself to be dependent on the exposure level, or, in the terminology of the NPPGN, the LOAEL. For waking up in the night and/or too early in the morning, NNGL suggests the LOAEL is an internal sound level of 42 dB L_{Amax}.

NANR116: 'Open/ Closed Window Research' Sound Insulation through Ventilated Domestic Windows6

A.22 Attenuation values for partially open windows have been used from data provided in the Defra report NANR116 'Open/Closed Window Research – Sound Insulation through Ventilated Domestic open Windows'. NANR116 contains the results of an investigation into the sound insulation provided by various types of domestic window, in various states of openness. Internal noise levels have been predicted for the 5 cm^2 open area, in accordance with recommended window open area for summer night time ventilation requirements.

The Noise Insulation Regulations 1975 (as amended 1988)[7]

A.23 This description is provided as an introduction and pre-amble to the section on Moveable Homes below. The highways authority has a duty under these Regulations to offer sound insulation for residential properties with respect to new roads, and discretionary powers in relation to altered roads. Various discretionary powers are also available in relation to facades or parts of facades contiguous with a qualifying facade. The authority also has discretionary powers to offer insulation against construction noise. The Regulations apply to residential habitable rooms and so exclude bathrooms, toilets, halls and smaller kitchens that do not include dining areas. Some residential buildings are not eligible under the Regulations and these include houses first occupied after the 'relevant date' of the scheme.

A.24 To qualify for sound insulation, three conditions have to be satisfied: The combined expected maximum traffic noise level, referred to as the relevant noise level, up to 15-years after the scheme opens, from the new or altered highway together with other traffic in the vicinity must not be less than 68 dB $L_{A10,18hr}$; the relevant noise level is at least 1.0 dB(A) more than the prevailing noise level, i.e. the total traffic noise level existing before the works to construct or improve the highway were begun; and the contribution to the increase in the relevant noise level from the new or altered highway must be at least 1.0 dB(A).

[6] Defra Report NANR116. Open/Closed Window Research – Sound Insulation through Ventilated Domestic open Windows. The Building Performance Centre, School of the Built Environment, Napier University. 2007.

[7] Statutory Instrument No. 1763. The Noise Insulation Regulations 1975. Statutory Instrument No. 2000. The Noise Insulation (Amendment) Regulations 1988. HMSO. 1975 Amended 1988.

The Highways Noise Payments and Movable Homes (England) Regulations 2000[8]

A.25 The highways authority, the Secretary of State for Transport and Local Government has a duty under these Regulations to offer payments to owner occupiers of movable homes with respect to noise from construction or use of public works.

A.26 The assessment method and criteria by which eligibility for payments under these regulations is determined is identical to that described in The Noise Insulation Regulations. There are no concessions made in terms of lowering the criteria despite the fact that movable homes do not usually benefit from the same level of façade attenuation as afforded by bricks and mortar. It is therefore considered that the assessment of residential suitability for movable homes can be undertaken using the same methods and criteria used for conventional homes.

[8] Statutory Instrument No. 2887. The Highways Noise Payments and Movable Homes Regulations 2000. HMSO. © Crown Copyright 2001.

Appendix B: Assessment Calculations

Measurement ID	Measurement Location	Start Time (hh:mm:ss)	Duration (mm:ss)	Comment	Measured Broadband Sound Pressure Level (dB)		Assessment Location	Assumed Attenuation due to Screening & Angle of View (dBA)	Assumed Façade Attenuation provided by a Partially Open Window (dBA)	Additional Attenuation due to Propagation distance (dBA)	Predicted Internal Broadband Sound Pressure Level (dB)		Internal Noise Level Criteria (dB) (Desirable - Upper Limit)		Difference between predicted internal noise level and criteria (dB) (Desirable - Upper Limit)	
					L_{Aeq}	L_{Amax}					$L_{Aeq,T}$	L_{Amax}	$L_{Aeq,T}$	L_{Amax}	$L_{Aeq,T}$	L_{Amax}
1	1	05:48:29	02:23	3 wagons idling - warming up, @ 30 m	66	72	Pitch 6	-10	-17	0	39	45	30 - 35	42 – 47	+9 – +4	+3 – -2
2	1	05:50:56	00:24	As above, one truck in high rev's	67	71	Pitch 6	-10	-17	0	40	44	30 - 35	42 – 47	+10 – +5	+2 – -3
13	1	06:15:55	03:06	Wagon idling & being cleaned @ 15 m	63	71	Pitch 6	-10	-17	0	36	44	30 - 35	42 – 47	+6 – +1	+2 – -3
14	4	06:21:25	01:11	4* wagons leaving site. HGV passby. Some cars. PG.	62	72	Pitch 9	-10	-17	0	35	45	30 - 35	42 – 47	+5 – 0	+3 – -3
16	5	06:37:36	00:15	Viridor passby.	61	67	Pitch 1	-10	-17	0	34	40	30 - 35	42 – 47	+4 – -1	-2 – -7
17	5	06:38:07	00:06	Wagon pasby.	64	67	Pitch 1	-10	-17	0	37	40	30 - 35	42 – 47	+7 – +2	-2 – -7
18	5	06:40:17	00:10	Viridor passby, clanging.	63	71	Pitch 1	-10	-17	0	36	44	30 - 35	42 – 47	+6 – +1	+2 – -4
20	5	06:44:34	01:20	Engine idling nearby. Wagon leaving site. Viridor passby. Some cars passing.	60	70	Pitch 1	-10	-17	0	33	43	30 - 35	42 – 47	+3 – -2	+1 – -4
21	5	06:50:01	10:00	4* wagons leaving site. 3* Viridor passby. Cars motorbikes in distance. Birdsong.	58	66	Pitch 1	-10	-17	0	31	39	30 - 35	42 – 47	+1 – -5	-3 – -8
22	5	07:49:13	10:00	Cars passing by. Road traffic & motorbike in distance. 3* Viridor passby. Reverse beeper.	58	72	Pitch 1	-10	-17	0	31	45	30 - 35	42 – 47	+1 – -4	+3 – -2

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