

Adran Seilwaith yr Economi  
Department for Economic Infrastructure



Llywodraeth Cymru  
Welsh Government

**THE LONDON TO FISHGUARD TRUNK ROAD (A40) (LLANDDEWI  
VELFREY TO PENBLEWIN IMPROVEMENT AND DE-TRUNKING) ORDER  
201-**

**THE LONDON TO FISHGUARD TRUNK ROAD (A40) (LLANDDEWI  
VELFREY TO PENBLEWIN IMPROVEMENT) (SIDE ROADS) ORDER 201-**

**THE WELSH MINISTERS (THE LONDON TO FISHGUARD TRUNK ROAD  
(A40) (LLANDDEWI VELFREY TO PENBLEWIN IMPROVEMENT))  
COMPULSORY PURCHASE ORDER 201-**

**PROOF OF EVIDENCE**

**DAVID HILLER, BSc MSc PhD CEng MIOA MIMMM FGS**

**WELSH GOVERNMENT, NOISE**

**DOCUMENT REFERENCE: WG 1.6.2**

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## 1. Author

1.1 My name is David Michael Hiller. I am an Associate Director with Ove Arup and Partners Ltd (Arup), my employer since June 2000. I have been Leader of Arup's acoustics practice in Manchester since 2005. My experience encompasses a wide spectrum of acoustics with my main specialism being in environmental noise and vibration. I have given expert evidence to several litigation and planning inquiries in the UK and Ireland. Prior to joining Arup I worked for 12 years with the Transport Research Laboratory (TRL).

1.2 My qualifications are:

- a) BSc Honours (1st Class) Geophysics, University of Liverpool, 1987;
- b) BSc Geotechnical Engineering, University of Surrey, 1991;
- c) PhD, University of Surrey, 2000 (Thesis entitled 'The prediction of groundborne vibration caused by mechanised construction works').

1.3 I am a Chartered Engineer, a Corporate Member of the Institute of Acoustics and a Corporate Member of the Institute of Materials, Minerals and Mining. I am a Fellow of the Geological Society.

1.4 I was an invited member of the BSI committees that revised British Standard BS 5228 'Code of practice for noise and vibration control on construction and open sites', published in January 2009 and amended in 2014' and BS 8233 'Guidance on sound insulation and noise reduction for buildings' 2014.

1.5 I have over 30 years of experience and have published many reports and papers, mostly in relation to groundborne vibration and noise.

### **Role in the project**

1.6 I am part of the team responsible for the delivery of the A40 Llanddewi Velfrey to Penblewin Improvement Scheme (subsequently described in my evidence as 'the proposed scheme') and I am acting as an expert witness on matters relating to noise and vibration at this inquiry. The

evidence I have prepared and provide in this proof is true and the opinions expressed are my true and professional opinions.

## **2. Scope and Purpose of this Proof of Evidence**

- 2.1 My evidence is presented in three sections. In the first I will provide a summary of the noise and vibration assessment reported in Chapter 14 (Doc. 3.14.01) of the Environmental Statement (ES) (Doc. 3.01.01). I will then respond to the objections raised by Mr Rayner Peett and Mrs Carol Peett (R024) and by Sally Amooore (R069)
- 2.2 In Appendix A of my evidence, I have provided an explanation of some of the technical terminology used in my evidence.

## **3. Summary of the Noise and Vibration Assessment**

- 3.1 This section of my evidence provides a brief summary of the noise and vibration assessment described in chapter 14 (Doc 3.14.1) and supporting appendices (Doc 3.14.3) of the ES. For convenience, ES chapter 14 is included as Appendix B of my evidence.
- 3.2 The ES (Doc 3.01.01) identified that the proposed scheme has the potential to cause:
- a) Temporary, short term increases in noise and vibration at some sensitive receptors during construction works; and
  - b) During operation of the highway, changes in traffic noise levels (both increases and decreases) due to the proposed changes to the road alignment.

### **Assessment Method**

- 3.3 The assessment included a baseline noise survey, calculation of construction noise and vibration impacts and 3D computer modelling to determine the operational (traffic) noise impacts.

- 3.4 Calculations of construction noise and vibration impacts followed the methods set out in British Standard BS5228<sup>1</sup>.
- 3.5 The construction assessments were based on assumptions of the construction plant, process and programme set out in ES Volume 3 Appendix 14.3 (Doc. 3.14.03).
- 3.6 The traffic noise assessment for the proposed scheme was undertaken using modelled traffic noise levels calculated by the Calculation of Road Traffic Noise (CRTN)<sup>2</sup> method, which is consistent with the Welsh Government's procedures set out in Design Manual for Roads and Bridges HD213/11<sup>3,4</sup> (which I will refer to as DMRB (Doc 4.01.61)).
- 3.7 Traffic noise calculations and mapping used the software package NoiseMap<sup>5</sup>, which is a well-established, industry-standard, 3D noise modelling package. NoiseMap implements CRTN procedures and takes account of traffic flows, speeds and composition; road surface; road gradient; distance attenuation; and screening. The 3D model includes not only the sound sources, but also the topography, ground cover and buildings.
- 3.8 The modelling was therefore robust and appropriate for this assessment.
- 3.9 The assessment of noise from construction and operation of the proposed scheme was assessed in accordance with legislation, policy and guidance as set out in paragraphs 14.3.1 to 14.3.21 of the ES (see Appendix B of my evidence).
- 3.10 For the construction period, the provisions of the Environmental Protection Act 1990 (Doc.4.01.71) and the Control of Pollution Act 1974

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<sup>1</sup> British Standard BS5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – part 1: noise.

<sup>2</sup> Calculation of Road Traffic Noise, Department of Transport Welsh Office, 1988. HMSO.

<sup>3</sup> Design Manual for Roads and Bridges Volume 11, Section 3, Part 7, HD 213/11 – Revision 1, 2011. The Highways Agency, Transport Scotland, Welsh Assembly, DRD.

<sup>4</sup> Note that HD213/11 was the extant guidance at the time the ES was written but has since been superseded by DMRB LA111 f

<sup>5</sup> See <http://www.noisemap.ltd.uk/wpress/>

(Doc. 4.01.72) apply. In particular, construction noise and vibration will be controlled by the requirement to adhere to best practicable means of working (BPM), which would include the interventions set out in Section 8 of British Standard BS5228-1 (see Appendix C).

3.11 Planning Policy Wales Edition 10 (Doc. 4.01.30) describes the requirement to minimise adverse effects from transport infrastructure<sup>9</sup>. It also discusses the importance of considering the negative impacts of noise on public health, wellbeing and amenity<sup>10</sup>. Llanddewi Velfrey is a Noise Action Plan Priority Area (NAPPA). The Welsh Government's Noise and Soundscape Action Plan 2018-2023 (Doc. 4.6.39) notes<sup>11</sup>, in relation to NAPPAs:

*it is still important to understand where these highly localised situations exist, so that public bodies can take them into account when making traffic management or land use planning decisions that may increase or decrease public exposure to road traffic noise.*

### **Summary of Identified Impacts and Effects**

3.12 ES Table 14.9 (Doc. 3.14.01) identifies construction noise impacts, their magnitude and duration at selected residential receptors representative of the length of the proposed scheme. These impacts were calculated as would arise without any noise mitigation applied, other than working according to best practicable means principles. ES Paragraph 14.6.10 (Doc. 3.14.01) identifies those receptors at which it has been calculated that the assessment criterion would be exceeded without mitigation. Paragraphs 14.6.11 to 14.6.12 of the ES (Doc. 3.14.01) report that, with additional mitigation applied, the construction noise could be reduced to levels such that no significant effects would arise during construction.

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<sup>9</sup> Section 5.3.4 Planning Policy Wales Edition

<sup>10</sup> Section 6.7.3 Planning Policy Wales Edition

<sup>11</sup> Paragraph 6.4.2 Noise and Soundscape Action Plan 2018-2023, Welsh Government 2018, <https://gov.wales/sites/default/files/publications/2019-04/noise-and-soundscape-action-plan.pdf>

3.13 The full traffic noise assessment results are tabulated in ES Volume 3 Appendix 14.4 (Doc. 3.14.03) and presented graphically in ES Volume 2 Figure 14.1 (Doc. 3.14.02). Figures 14.2 to 14.4 in of the ES (Doc. 3.14.01) illustrate the predicted changes in noise level determined by the modelling.

3.14 Tables 14.10 to 14.12 in the ES (Doc. 3.14.01) summarise the number of properties (dwellings and other noise sensitive receptors) that would be subject to a change in noise level as a result of the scheme. As noted in 14.6.36 of the ES (Doc. 3.14.01), most of the dwellings that experience a change will experience a noise decrease with the scheme.

3.15 Table 1 below summarises the daytime changes in noise levels and the magnitudes of impacts<sup>12</sup> that would arise at dwellings as a consequence of the proposed scheme.

*Table 1 Summary of daytime changes in noise levels and the magnitudes of impacts*

DMRB impact category	Short term (2021)		Long term (2036)	
	Noise change (dB(A))	Number of dwellings	Noise change (dB(A))	Number of dwellings
Major adverse	+5 or greater	3	+10 or greater	1
Moderate adverse	+3 to +4.9	4	+5 to +9.9	6
Minor adverse	+1 to +2.9	6	+3 to +4.9	1
Negligible	-0.9 to +0.9	49	-2.9 to +2.9	92
Minor beneficial	-1 to -2.9	29	-3 to -4.9	13
Moderate beneficial	-3 to -4.9	20	-5 to -9.9	27
Major beneficial	-5 or greater	43	-10 or greater	14

3.16 It is clear that the proposed scheme would reduce traffic noise at many dwellings in the Llanddewi Velfrey NAPPA. The significance of effect of these changes was assessed using the levels of impact and other

<sup>12</sup> The descriptors of magnitudes of impact are taken from DMRB and presented in ES Table 14.3 (short term) and Table 14.4 (long term).

factors as described in paragraphs 14.3.77 and 14.3.78 of the ES (Doc. 3.14.01).

3.17 In the absence of the scheme (described as the Do-Minimum scenario) no dwellings would experience a long term change in traffic noise level categorised as greater than negligible according to DMRB. Increases in traffic flows are predicted to lead to a negligible (up to 2.9dB(A)) increase in noise at 106 residential and five other properties in 2036 compared to 2021 in the Do-Minimum scenario. For the same scenario, negligible (up to 2.9dB(A)) traffic noise decreases are predicted at 43 residential and one other properties as a result of assumed resurfacing of the section of the existing highway that is currently surfaced with hot rolled asphalt. It is expected that by 2036 this would be resurfaced with a lower noise surface irrespective of the proposed scheme.

3.18 The night time assessment considered only those dwellings experiencing noise levels in excess of 55dB<sub>Lnight,outside</sub>, following the methods in DMRB (refer to paragraphs ES 14.6.59 and 14.6.60 (Doc. 3.14.01)). Only one property was predicted to be exposed to 55dB<sub>Lnight,outside</sub> and it was predicted to experience a reduction in night time noise level with the proposed scheme.

3.19 In summary, the EIA demonstrated that

- a) During construction and ensuring that best practicable means of working are followed and appropriate mitigation is included, no significant effects of construction noise or vibration would arise; and.
- b) The community of Llanddewi Velfrey would experience significant permanent beneficial effects through a reduction in traffic noise as a result of the scheme. No significant adverse effect of traffic noise was indicated from the assessment.

#### **4. Responses to Points Raised by Mr and Mrs Peett (R024)**

4.1 In this section I respond to the issues raised in the objection relating to the impacts at the residential property at Caermaenau Fawr, Clynderwen, Pembrokeshire, SA66 7HB owned by Mr Rayner Peett and Mrs Carol Peett (R024). I refer to this as ‘The Property’ in the rest of my evidence. Item 5 of the objection, submitted on behalf of Mr Rayner Peett and Mrs Carol Peett, states:

*Noise monitoring surveying has not been undertaken at Caermaenau Fawr. Whilst software based noise modelling has been undertaken, this is inadequate and a flawed approach that potentially underplays the impact on our retained property, particularly as all bedrooms and the garden are on the A40 side of the property. An on-going and comprehensive noise survey at Caermaenau Fawr must be undertaken.*

4.2 Although tranquillity is not solely related to noise, I will also respond to item 2 of the objection in respect of noise, which states:

*Our clients run a B&B business from their home and both during construction and after, the nature of its setting will be adversely affected having a serious negative impact on our clients’ business. The business is highly successful; its USP and one of its main selling points is its tranquil location.*

4.3 I will address the following points:

- a) the adequacy of the noise modelling undertaken for the EIA;
- b) the predicted noise impacts at the property and the assessment for the side of the property facing the A40;
- c) noise monitoring undertaken following submission of the ES and in response to comments from Mr and Mrs Peett;
- d) noise monitoring carried out for the EIA and why measurements were not taken at The Property for the EIA; and
- e) the tranquillity of the location.

### **Adequacy of the noise modelling**

4.4 As I have described above (paragraph 3.3 to 3.8) the assessment methods and modelling techniques used standard procedures and complied with the relevant requirements. In my opinion, therefore, the modelling of the impacts and effects for the whole scheme, including The Property, was robust and appropriate for this assessment.

### **Predicted noise impacts and effects at The Property**

4.5 The Property is approximately 360m from the proposed scheme and falls within the noise study area defined by DMRB.

4.6 The construction noise and vibration assessments were carried out consistent with British Standard BS5228 as described in the ES<sup>13</sup> (Doc. 3.14.01). The baseline noise survey data was used for the construction noise assessment as required by the method set out in BS5228-1 Annex E.3.2 (see Appendix C).

4.7 As I have described above (paragraph 3.6) the traffic noise assessment for the whole scheme, including The Property, was undertaken by calculation using the method required by DMRB. The method specifies the use of modelled baseline noise levels and predicted future noise levels with the scheme. This approach, using modelled data, enables a direct comparison to be made of the change in levels of noise generated only by changes in the road traffic resulting from the scheme. The predictive method is based on annual average weekday traffic (AAWT) flows. Measured traffic noise levels are variable in the short-term due to variability in traffic or weather-related effects. Measured noise results could therefore be greater or less than the levels predicted based on AAWT.

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<sup>13</sup> See ES paragraphs 14.3.28 *et seq.*

- 4.8 Furthermore, measured data could include contributions to the total levels from any other sources of noise. These other sources would affect the baseline but could not be included in the calculated future traffic noise levels and so could lead to an under reporting of the change in noise level due to the scheme. Using modelling allows impacts to be quantified on the basis of only the changes in traffic noise that would arise due to the scheme proposals, thereby providing a like for like comparison for the assessment of effects.
- 4.9 Measured baseline data is therefore not used for the traffic noise assessment. DMRB paragraph A7.16 states:
- “During the assessment process, measurements should not routinely be compared with calculations for the purpose of predicting changes in noise level. There is currently no methodology available to take account of the potential errors associated with comparing measurements with calculations, especially when the receptor is some distance from the noise source.”*
- 4.10 Referring to the traffic noise assessment results tabulated in Appendix 14.4 of the ES<sup>14</sup>, a short term change in noise level at the façade of The Property facing the A40 was predicted to be 1.0dB (for both daytime and night time). In the long term, predicted changes were 0.3dB daytime and 0.6dB night time. DMRB identifies a 1dB or greater change in the short term as a ‘minor’ noise impact<sup>15</sup> and the long term change would be a ‘negligible’ impact<sup>16</sup>.
- 4.11 The calculated daytime absolute noise levels at The Property, with or without the scheme are around 48dBL<sub>A10,18hr</sub> (approximately equivalent to 43dBL<sub>Aeq,16hr</sub><sup>17</sup>) daytime and at night 37dBL<sub>night</sub>.

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<sup>14</sup> The Property is receiver ID 508.

<sup>15</sup> DMRB Table 3.1, page 3/5

<sup>16</sup> DMRB Table 3.2, page 3/5

<sup>17</sup> This conversion is set out in Appendix D

4.12 These levels are well below outdoor noise guidance levels given by the World Health Organization<sup>18</sup>, with or without the scheme.

4.13 Therefore in terms of:

- a) absolute noise levels and
- b) noise level change,

there is predicted to be no more than a minor impact at The Property.

4.14 Furthermore, DMRB paragraph 3.37 states that a 'change in road traffic noise of 1dBL<sub>A10,18h</sub> in the short term (e.g. when a project is opened) is the smallest that is considered perceptible'<sup>19</sup>.

### **Noise monitoring since submission of the ES**

4.15 For the EIA for this proposed scheme, no survey was undertaken at The Property, as I will describe in the following section.

4.16 Subsequently a noise survey has been undertaken at The Property to advise the separate assessment for the adjacent A40 Penblewin To Redstone Cross Improvements scheme and following a request from Mr and Mrs Peett. Although there was no technical need for these measurements for the EIA for either scheme, a logging sound level meter was installed to the southern side of The Property and facing generally south, towards the A40. Details of the survey and the results are included in Appendix E.

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<sup>18</sup> The World Health Organization Environmental Noise Guidelines for the European Region recommend traffic noise levels below 53dBL<sub>den</sub> for daytime and at night 45dBL<sub>night</sub>.

[http://www.euro.who.int/\\_data/assets/pdf\\_file/0008/383921/noise-guidelines-eng.pdf](http://www.euro.who.int/_data/assets/pdf_file/0008/383921/noise-guidelines-eng.pdf)

<sup>19</sup> This statement is not included in the document (LA111) that has superseded DMRB HD213/11. Current guidance from Guidelines for Environmental Noise Impact Assessment published by the Institute of Environmental Management and Assessment states '*a change or difference in noise level of 1 dB is just perceptible under laboratory conditions, 3 dB is perceptible under most normal conditions*'.

4.17 Table 2 below provides a comparison of the measured weekday baseline levels and those calculated from the AAWT traffic flows, according to DMRB.

*Table 2 comparison of the measured weekday baseline levels and those calculated from the AAWT traffic flows*

	Calculated 2020 baseline levels <sup>20</sup>	Mean measured weekday baseline
Day (dBL <sub>A10,18hr</sub> )	45.3	46.3
Night (dBL <sub>night</sub> )	34.3	39.5

4.18 The measurement data set out in Appendix E reflect the variability in baseline levels day to day. The measured noise levels suggest that the modelling led to a slight under prediction (relative to the measured baseline levels) particularly at night. Irrespective of the differences and the causes of the differences, the use of either the measured or the predicted baseline would not affect the traffic noise assessment conclusions of the ES as they relate to significant effects of noise at The Property.

### **Noise monitoring for the EIA**

4.19 At the time of the EIA, noise surveys were undertaken at the locations shown in Figure 14.1A and 14.1B of the ES (Doc. 3.14.02). These locations were mainly chosen to be representative of properties or groups of properties most likely to be affected by the construction or operation. Additionally, measurements were also taken at a number of other locations within the study area at a range of distances from the scheme<sup>21</sup>. The dominant noise source was road traffic on the A40. Other sources noted in the surveys were distant farm vehicles and aircraft<sup>22</sup>.

<sup>20</sup> The tabulated levels above are 'freefield' levels. The calculated baseline levels have been adjusted by 2.5dB from those reported in Appendix 14.4 of the ES to account for the calculations yielding 'façade' noise levels, since the measurements were made in the 'freefield'. DMRB Annex 2 specifies a 2.5dB conversion.

<sup>21</sup> See paragraph 14.4.5 to 14.4.6 of the ES

<sup>22</sup> See paragraph 14.4.7 of the ES

4.20 As set out in paragraph 14.4.2 of the ES (Doc. 3.14.01), the measured baseline was established to “*supplement the traffic noise predictions and to provide baseline data for the construction noise assessment*”. The baseline data were reviewed against the predicted noise climates in the study area<sup>23</sup>. For example, measurement data can be used to establish whether the noise climate in any parts of the study area were dominated by noise from sources other than road traffic as this could influence the reliability of the predicted effects.

4.21 The measured baseline data were not used directly for the assessment of impacts, which is consistent with the Welsh Government’s procedures set out in DMRB as I shall describe below.

4.22 Requirements for traffic noise assessment are set out in DMRB which says “*for the prediction of road traffic noise the methodology given in the CRTN should be used*”<sup>24</sup>.

4.23 Whilst a baseline noise survey may be an integral part of the DMRB Detailed assessment procedure (paragraph A7.1), the guidance also notes that (A7.16):

*‘During the assessment process, measurements should not routinely be compared with calculations for the purpose of predicting changes in noise level. There is currently no methodology available to take account of the potential errors associated with comparing measurements with calculations, especially when the receptor is some distance from the noise source.’*

4.24 Furthermore, Annex 4 of DMRB (paragraph A4.45) states:

*‘The preferred method for calculating noise levels from road traffic is by prediction rather than by measurement (CRTN, paragraph 3). There are several reasons why the prediction method is preferred. In particular noise levels, although generally dominated by traffic noise, can be*

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<sup>23</sup> See paragraph 14.3.50 of the ES

<sup>24</sup> DMRB paragraph 3.43

*affected by non-traffic sources. Unless the extraneous noise from other sources is edited the results may lead to an over-estimation of traffic noise levels. However, there are occasions when it is necessary to resort to measurements (CRTN, paragraph 38)'.*

### **Tranquillity at The Property**

- 4.25 Paragraph 14.3.7 et seq. of the ES notes that Planning Policy Wales Edition 10 considers tranquillity and tranquil areas and that 'the planning system must protect amenity'<sup>25</sup>. Similarly, paragraph 14.3.70 of the ES (Doc. 3.14.01) notes that, in areas formally recognised for their tranquillity due to low noise levels, small increases in noise may be considered significant. There is no formal recognition (by any formal designation) of tranquillity at The Property or its environs.
- 4.26 There is no general consensus on the definition of tranquillity, although a low level of noise from human activity and a dominance of the soundscape by natural sounds is generally considered a requirement<sup>26</sup>. Natural Resources Wales<sup>27</sup> describes tranquillity as 'An untroubled state, which is peaceful, calm and free from unwanted disturbances. This can refer to a state of mind or a particular environment. Tranquillity can be measured in terms of the absence of unwanted intrusions, or by a balancing of positive and negative factors. These include the presence of nature, feeling safe, visually pleasing surroundings and a relaxing atmosphere'.
- 4.27 As I have noted previously (paragraph 4.10) the traffic noise level at The Property is predicted to change by no more than 1dB, a change that is

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<sup>25</sup> PPWE section 6.7.3

<sup>26</sup> For example see Jones K 2012. Tranquillity: An Overview. ECRD Report 1207. Environmental Research and Consultancy Department, Civil Aviation Authority. (Doc. 4.06.02)

<sup>27</sup> Natural Resources Wales 2016. The State of Natural Resources Report (SoNaRR): Assessment of the Sustainable Management of Natural Resources. Annex. Acronyms and Glossary of terms <https://naturalresources.wales/media/679406/annex-acronyms-abbreviations-glossary-final-for-publication.pdf> accessed 3 January 2020.

generally considered to be imperceptible under normal conditions<sup>28</sup>. It is therefore my opinion that this change in noise level would not change the perception of tranquillity at The Property.

4.28 During construction, there may be some temporary increase in daytime noise levels and the temporary introduction of new sounds. These could be audible at The Property and so may have a temporary and short term impact on the occupants' perception of tranquillity. There is no significant effect from construction identified in the ES at The Property.

## **5. Responses to Points Raised by Sally Amoores (R069)**

5.1 The submission made by Sally Amoores (R069), whose address is given as Cyncoed, Llanddewi Velfrey, SA67 7EG. The submission includes, in relation to noise:

*'There will be an increase in the noise level however much the planners profess to this not being the case'.*

5.2 As I have described above in paragraphs 3.13 to 3.19, the ES describes and illustrates the changes in traffic noise level as a result of the proposed scheme. ES Volume 2 Figure 14.3 and 14.4 in particular provide a graphical illustration of the extent of noise changes, which I have summarised above in the table in paragraph 3.15. The property called Cyncoed is just outside the study area and therefore has not been assessed for the ES. A separate calculation of the traffic noise for Cyncoed indicates that there would be a minor (approximately 1dB) reduction in the traffic noise level in the assessment year (2036) with the scheme.

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<sup>28</sup> Paragraph 2.7 of the Institute of Environmental Management and Assessment *Guidelines for Environmental Noise Impact Assessment* (2014) says 'a change or difference in noise level of 1dB is just perceptible under laboratory conditions, 3dB is perceptible under most normal conditions and a 10dB increase generally appears to be twice as loud'. (Doc. 4.06.03)

5.3 It is clear from ES Volume 2 Figure 14.3 and 14.4 (Doc. 3.14.02) that the large majority of the area would experience a reduction in traffic noise levels, particularly in the centre of the village where most of the dwellings are located. Many of the dwellings would experience a reduction of more than 5dB with 14 properties benefiting from a reduction of 10dB or more in the long term. Where increases in noise levels are predicted, these are in areas where there are fewer properties.

## **6. Conclusion**

6.1 In my opinion, the noise modelling and assessment reported in the ES was appropriate, robust and consistent with relevant legislation, policy, standards and guidelines.

6.2 With suitable mitigation, the construction noise could be controlled such that no significant effects would arise during the works.

6.3 The traffic noise assessment showed that a much larger number of properties would experience a reduction in noise levels with the scheme than the few that would experience an increase.

6.4 A baseline noise survey was undertaken as part of the assessment, principally to inform the construction noise assessment and to review the traffic noise predictions.

6.5 Specifically in respect of the objection from Mr and Mrs Peett:

- a) It was not, in my opinion, necessary to measure baseline noise levels at The Property.
- b) In common with all other buildings assessed, the assessment for The Property considered noise impacts at the façade that would be most exposed to a noise increase, usually the side of the property facing the proposed scheme.
- c) Noise monitoring undertaken following submission of the ES for the A40 Llanddewi Velfrey to Penblewin Improvements scheme indicate

that the assumed (modelled) traffic noise baseline for 2020 was sufficiently close to the measured baseline that the conclusions in respect of significant effects at The Property would not be altered had the measured baseline been used.

- d) There would be no change in the perception of tranquillity at The Property arising out of the noise changes predicted.

6.6 In respect of the suggestion that with the proposed scheme there 'will be an increase in the noise level', the noise assessment has clearly shown that the majority of properties will experience a reduction in traffic noise in the long term, particularly those alongside the existing A40 through Llanddewi Velfrey, which is a Noise Action Plan Priority Area (NAPPA).