

Adran yr Economi a'r Seilwaith
Department for Economy and Infrastructure



Llywodraeth Cymru
Welsh Government

**THE CHESTER TO BANGOR TRUNK ROAD (A55) (JUNCTIONS 16 AND 16A
IMPROVEMENT REALIGNMENT AND SLIP ROADS) ORDER 202-**

**THE CHESTER TO BANGOR TRUNK ROAD (A55) (JUNCTIONS 16 AND 16A
IMPROVEMENT REALIGNMENT AND SLIP ROADS) (SIDE ROADS) ORDER 202-**

**THE WELSH MINISTERS (THE CHESTER TO BANGOR TRUNK ROAD (A55)
(JUNCTIONS 16 AND 16A IMPROVEMENT REALIGNMENT AND SLIP ROADS))
COMPULSORY PURCHASE ORDER 202-**

SUMMARY PROOF OF EVIDENCE

Note: See Document Reference WG 1.09.02 for full evidence and referencing

CRAIG BARSON BEng (Hons) MIOA

WELSH GOVERNMENT, NOISE AND VIBRATION

DOCUMENT REFERENCE: WG 1.09.01

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1. Author

- 1.1 I am Craig Barson, acoustician. I have over 25 years of acoustic consultancy experience in buildings and environmental acoustics, noise and vibration. I am the noise and vibration consultant for the Scheme.
- 1.2 I provide an overview of the noise and vibration impacts of the Junction 16 scheme and set out the mitigation proposals and residual impacts.

2. Scope and Purpose of this Proof of Evidence

- 2.1 My Proof of Evidence provides an overview of the noise and vibration aspects of the Scheme and sets out the reasons for the proposed environmental mitigation.
- 2.2 I also respond to objections raised in respect of the Scheme.
- 2.3 The opinions expressed are my own unless I state otherwise. I have been assisted by colleagues from within the project team in the various tasks that are reported in this document. Where a topic is covered in detail by the proof of evidence of another specialist, I provide a cross reference to the relevant proof.

3. Assessment Methodology

Methodology

- 3.1 Noise and vibration impact arising from the construction and operation of the Scheme has been assessed. This assessment follows industry best practice to assess the significance of these impacts to nearby sensitive residential receptors.

Operational Noise Impact

- 3.2 Operational impact from road traffic has been based on Design Manual for Roads and Bridges.
- 3.3 This considers the full 3D geometry of the surrounding area, including existing and proposed topography around the A55 and procedures for calculation of noise from traffic flows taking into account the speed and composition (%HGVs), road surface, gradient, distance attenuation and screening. Air and ground absorption are also accounted for along with the effect of buildings.
- 3.4 The approved methodology does not account for the effects of acceleration or deceleration, waiting traffic, roundabouts or other road features such as rumble strips or traffic calming.
- 3.5 Operational impact is assessed in the short term (opening year) and long term (2037 year) scenario and the significance thresholds are different for each. The reason for this is that short term perception of impact is based on the scheme “turning on” instantly in the opening year. Humans are more susceptible to abrupt changes in noise in this way which is why the lower 3dB change threshold for significance is adopted.
- 3.6 In the longer term, the increase in noise is as a result of gradual increase in traffic flows over 15 years rather than any changes in the scheme from the opening year. Humans are more tolerant of gradual changes in noise over time which is why in the long term a 5dB change or more is considered significant.
- 3.7 Revised traffic modelling for the scheme in opening and future years has been undertaken in the run up to the Public Inquiry. I have reviewed the new traffic data and confirm some small changes for the opening year assessment only compared with the numbers used in ES Volume 1 Chapter 13. These changes would result in small reduction in the Scheme impact.
- 3.8 For completeness an ES addendum will be produced prior to the public inquiry covering the changes in the road traffic modelling presented in Nigel Roberts proof of evidence.

Short Term Impact from Construction

- 3.9 Assessment of construction noise impact has been undertaken. Construction noise limits are determined based on the pre-existing ambient noise levels at receptors established as part of the baseline and are therefore relative to current conditions.
- 3.10 The classification of magnitude of impacts is based on any increase in noise above the current ambient noise levels at the receptors.
- 3.11 Construction vibration impact has been assessed by looking at offset distances from elements of the works with high levels of vibration to receptors.

Baseline

- 3.12 Baseline measurements were undertaken to determine significance level for the construction noise impact and verify traffic noise levels. Commentary on differences between predicted and measured baseline noise levels is provided.

4. Summary of Identified Impacts and Effects

Construction Noise and Vibration Impact Assessment

Construction Vibration Impacts

- 4.1 Significant vibration impacts are expected at properties very close to the works. These are limited to finishing works activity for Phase 2 (completion of carriageways) due to the use of vibratory compactors. Such impacts are expected to be short term and temporary in nature. Significance of vibration impacts are determined based on human perception and not at a level that would cause any damage to buildings.

Construction Noise Impacts

- 4.2 No significant construction noise effects are predicted.

Operational Noise Impact Assessment Prior to Mitigation

- 4.3 Operational noise impact as a result of the Scheme resulted in no significant increases in noise in the short term or long term assessment scenarios .
- 4.4 Both long and short term assessments do not show any significant increase in noise levels in the Noise Action Plan Priority Area (NAPPA) around Maes-y-Llan. Here the increase in noise level for both long term and short term is less than 3 dB.

5. Operational Impact Mitigation

Noise Action Plan Priority Area (NAPPA)

- 5.1 Mitigation is provided by means of environmental noise barriers and low noise surfacing to new and resurfaced carriageways as part of the scheme.
- 5.2 The exact specification of the environmental barrier and locations and heights is subject to design development.
- 5.3 Once the mitigation is designed to an appropriate level, some properties may still be subject to noise that has changed by more than 1 dB as a result of the scheme in the long term and is above a threshold which qualifies for mitigation to their properties under Noise Insulation Regulations.
- 5.4 With the proposed mitigation solutions to reduce noise impacts no properties are expected to experience an increase in noise level in the short or long term that is judged as significant in line with the required guidance.
- 5.5 Noise barriers will be provided to properties in the NAPPA area around Maes-y-Llan . A number of options are being explored in response to feedback from residents.

6. Response to Objections

- 6.1 My evidence groups together the objections to the scheme and my responses on particular themes in relation to noise impact from the construction and operation of the scheme.
- 6.2 Objections and comments have been raised regarding the following:
- a) Increased noise due to increase speed on the A55 as a result of the scheme.
 - b) Concern over the height and appearance on noise barriers around Maes-y-Llan.
 - c) Use of low noise surfacing throughout the scheme.
- 6.3 My proof addresses each of these points and provides further information to inform objectors on the residual impact at their properties.

7. Conclusion and Declaration

- 7.1 My proof of evidence includes facts which I regard as being relevant to the opinions which I have expressed, and the Inquiry's attention has been drawn to any matter which would affect the validity of that opinion.
- 7.2 As acoustic expert, I have liaised and sought with the engineering and other environmental specialists in the team, to minimise impacts of the Scheme and to optimise the effectiveness of proposed mitigation to NAPPA areas
- 7.3 In my opinion the Noise and Vibration Assessment, has been carried out and published in accordance with legislation and professional guidance.
- 7.4 In my opinion there are no significant effects as a result of the operation of the scheme.
- 7.5 I believe the facts I have stated in this proof of evidence are true and that the opinions expressed are correct.
- 7.6 I understand my duty to the Inquiry to assist it with matters within my expertise and believe that I have complied with that duty.