Appendix EP2 of the Proof of Evidence of Esme Portsmith

(Noise Proof of Evidence prepared by Matthew Muirhead)

Leicestershire County Council (A511 Growth Corridor) (Side Roads) Order 2023

Leicestershire County Council (A511 Growth Corridor) Compulsory Purchase Order 2023

PINS Ref: NATTRAN/EM/HAO/299

Proof of Evidence of Matthew Muirhead

Noise

dated 20 May 2024

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1 Introduction

1.1 Qualifications and experience

1.2 I, Matthew Muirhead, am the Lead Noise Consultant for the A511 Bardon Link Road. I have been in this role since 2021. In my role I led the team undertaking the noise impact assessment. I have previously worked as the lead noise consultant on road traffic for a number of major projects including:

(a) The A27 Arundel Bypass;

(b) The London Luton Airport Expansion;

(c) Silvertown Tunnel (Monitoring and Mitigation Strategy);

(d) St Austell to A30 Link Road.

1.3 I have extensive experience in road traffic noise and am recognised across the industry where I am often asked to present papers or provide an official response to government consultation. I am a member of the BSI committee EH/1/2 on transport noise and the ISO TC43/SC1/WG33 on pavement noise and WG42 on vehicle noise. I currently chair the road noise working group, for a new British Standard on the calculation of road and rail sound levels outdoors and have worked in the industry for over 20 years.

1.4 This proof of evidence is made in respect of the Leicestershire County Council (A511 Growth Corridor) (Side Roads) Order 2023 (the **SRO**) and the Leicestershire County Council (A511 Growth Corridor) Compulsory Purchase Order 2023 (the **CPO**) (together, the **Orders**) in connection with the Leicestershire County Council A511 Growth Corridor (also referred to in this Proof of Evidence as the **Scheme**).

1.5 The facts and matters set out in this proof of evidence are within my own knowledge. The facts set out below are true to the best of my knowledge and belief. Where reference is made to facts which are outside my knowledge, I set out the source of my information and I believe such information to be true.

1.6 I have been assisted by other professional advisors and officers of the Council with the preparation of this proof of evidence, some of whom will also provide evidence to the inquiry.

1.7 Involvement with the Scheme

1.8 I have been working on the Scheme, comprised of various alterations to the network and the addition of the Bardon Link Road as part of my role at AECOM since 2021. The majority of my input, for the reasons set out and explained below, was in respect of the Original Bardon Link Road Planning Application. My role involved:

(a) Scoping the approach to be taken in the noise assessment.

(b) Supervising and checking the noise assessment, including the detailed noise model and final report.

(c) Determining the need for noise mitigation and scoping the environmental barriers to be included with the wider team.

2 Scope of Evidence

2.1 I set out the following in my evidence:

(a) Relevant planning policy

(b) A summary of noise assessment, including the recommended mitigation measures.

2.2 Within this evidence I address matters relating to noise and vibration for the Scheme as a whole given it is a single proposal. In Noise and Vibration terms however, the reality of the proposal is that for much of the route between Hoo Ash roundabout in the east and Field Head roundabout in the west the changes which are intended within the Scheme give rise to limited if any effect at all on noise and vibration.

2.3 The following Projects (described in full within in the Proof of Evidence of Ann Carruthers) will give rise to no meaningful change in the current noise environment:

(a) A511 / Hoo Ash Roundabout (widened entry and exit to the roundabout allowing two ahead lanes for the A511 in both directions);

(b) A511 / Thornborough Road Roundabout (widened entry and exit to the roundabout allowing two ahead lanes for the A511 in both directions);

(c) A511 Stephenson Way Dualling (alter the existing single lane road to a dual carriageway on Stephenson Way between the Thornborough Road and Whitwick Road roundabouts);

(d) A511 / Whitwick Road Roundabout (widened approaches and exits allowing two ahead lanes for A511 in both directions and from Thornborough Road from the south);

(e) A511 / Broom Leys Road Junction (altering the existing left turn lane on Stephenson Way into Broom Leys Road (eastbound) to enable ahead and left traffic; carriageway widening that will provide two ahead lanes for traffic travelling northbound on Stephenson Way);

(f) A511 / Birch Tree Roundabout (widened entry and exit lanes allowing three lanes around part of the roundabout to enable an additional lane on the exit towards Coalville; widening on the A511 southbound approach to facilitate an additional lane on the exit of the A511 eastbound);

(g) A511 / Flying Horse Roundabout (modification of the current partially signalised roundabout so that traffic from Stanton Road and traffic from Copt Oak Road can only turn left onto the A511);

(h) A50 / Field Head Roundabout (introduction of part time signals on the A50 approaches to the roundabout. A two-lane exit is proposed on Launde Road).

2.4 There will be no meaningful effect as the improvement works are dealing with existing traffic flows in the same location, and all works are within the existing highway boundary or subject to small adjustments. The works in those locations benefit from deemed planning permission under the Town and Country Planning (General Permitted Development)(England) Order 2015 (Document L6 in the List of Documents) and there is no requirement to assess noise

in carrying out such work. Therefore, in noise terms these locations do not require any further assessment.

2.5 This evidence therefore focuses on the works to create the Bardon Link Road and the new roundabout on Bardon Road, for which express planning permission has been granted (The Original Bardon Link Road Planning Permission and the S73 Bardon link Road Planning Permission), as it is in this location and this Project which has the potential for noise and vibration issues to materially change as a result of the Scheme, as such a comprehensive assessment has been undertaken.

3 Assessment of Scheme Proposals

3.1 Planning Policy

3.2 The National Planning Policy Framework (**NPPF**) has been updated in 2023 (Document NP5 in the List of Documents), however, no change to the wording on noise has been made, and hence there is no reason to change the contents of the information within the noise assessment. The NPPF sets out the Government's planning policies for England and how these are expected to be applied.

3.3 The NPPF states that planning policies and decisions should:

"ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

a) mitigate and reduce to a minimum, potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life; and
b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason."

3.4 With regards to 'adverse impacts' and 'significant adverse impacts', the NPPF refers to the Noise Policy Statement for England (**NPSE**) (Document NP7 in the List of Documents).

3.5 Noise Policy Statement England

3.6 The Explanatory Note within the NPSE introduces the following concepts to aid in the establishment of significant noise effects:

(a) No Observed Effect Level : the level below which no effect can be detected. Below this level no detectable effect on health and quality of life due to noise can be established;

(b) Lowest Observable Adverse Effect Level (**LOAEL**): the level above which adverse effects on health and quality of life can be detected; and

(c) Significant Observed Adverse Effect Level (**SOAEL**): the level above which significant adverse effects on health and quality of life occur.

3.7 The NPSE sets out the governments Noise Policy Vision to: "Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development".

3.8 The long-term vision is supported by the Noise Policy Aims: "Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

(a) avoid significant adverse impacts on health and quality of life;

(b) mitigate and minimise adverse impacts on health and quality of life; and

(c) where possible, contribute to the improvement of health and quality of life."

3.9 The NPSE recognises that "it is not possible to have a single objective noise-based measure that is mandatory and applicable to all sources of noise in all situations". The levels are likely to be different for different noise sources, for different receptors and at different times of the day.

3.10 Mitigation measures to reduce adverse impacts must be considered in the context of sustainable development. Other factors such as engineering practicality, cost versus benefit and other potential impacts such as landscape, visual or ecological impacts must be balanced against any noise benefits.

3.11 The web-based resource Department for Communities and Local Government Planning Practice Guidance on Noise (**PPG-N**) (Document NP8 in the List of Documents) supports the NPPF. The guidance provides some additional detail including example outcomes for the LOAEL and SOAEL:

3.11.1 LOAEL - Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.

3.11.2 SOAEL - The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.

3.12 **Construction impacts**

3.13 The noise impacts of the Schema were considered in the Noise Assessment prepared by AECOM submitted as part of the Original Bardon Link Road Planning Application (document P19 in the List of Documents). The Noise Assessment considered noise and vibration impacts during the construction of the Bardon Link Road and operational impacts following its completion.

3.14 Construction noise and vibration was assessed qualitatively, focussing on the guidance in BS 5228:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites' (Document NP23 in the List of Documents), considering the proximity of receptors to the works, the potential works involved, potential working hours/duration, existing noise levels from the baseline measurement survey, and best practice mitigation measures.

3.15 The assessment concluded that the impact of construction activities on nearby noise sensitive receptors will vary. For instance, earthworks, drainage installation and road pavement construction will be transitory, with high noise levels only experienced for a limited amount of time. However, other activities, such as demolition, will be confined to specific

locations for longer periods and hence impacts of these activities may be greater due to the noise exposure.

3.16 The potentially worst affected locations are residential properties situated close to the existing A511 on Bardon Road and on John Cooper Way. There is the potential for these properties to experience noise levels above the SOAEL and hence likely to experience moderate or major impacts during the daytime, evening/weekend and/or night as a result of construction activities.

3.17 However, the transitory and short-term nature of the construction activities are unlikely to result in duration trigger thresholds[1] for significant adverse effects being met with respect to evening/weekend or night-time works. Significant adverse effects are possible during the daytime at these residential properties. Scheme design drawings indicate the requirement to demolish four residential buildings currently situated on Bardon Road. It is anticipated that this activity will exceed the SOAEL levels at dwellings situated directly next to the demolition.

3.18 Further consideration of the potential effects and identification of appropriate measures to minimise effects as far as practicable will be reviewed within the Construction and Environmental Management Plan (**CEMP**), which is required as per condition 20 of the S73 Bardon Link Road Planning Permission (to be submitted to and approved by the planning authority – see Document P27 in the List of Documents)) as detailed information relating to construction plant, timings and programme become available. The mitigation measures in the CEMP will be implemented and this is secured by planning condition.

3.19 Given that the major access points to the works will be directly off the A511, which has existing high traffic volumes, significant increases in traffic noise levels as a result of construction traffic are not anticipated.

3.20 In terms of annoyance due to vibration, depending on the size and type of vibratory roller used, there is the potential for the closest properties to the works to experience vibration levels above the SOAEL of 1 mms^{-1}, which would be identified as a potential significant adverse effect, assuming the duration trigger thresholds are met. However, the risk of damage to buildings is considered to be negligible.

3.21 **Operational impacts**

3.22 The operational traffic noise predictions were completed using the standard UK traffic noise prediction methodology (Calculation of Road Traffic Noise). The assessment of the impacts was carried out in accordance with the Design Manual for Roads and Bridges (Document N21 in the List of Documents), the standard methodology for assessing road schemes in the UK.

3.23 The assessment of the operational traffic noise impacts of the scheme, as reported in the Noise Assessment, included traffic noise predictions at all identified potentially sensitive receptors within a 600 m study area from the scheme. Significant adverse effects are predicted at 18 properties, covering the closest properties on Bardon Road, John Cooper Way and Cave Crescent, due to increases in road traffic noise from vehicles using the link

[1] 10 days in any 15 or 40 days over 6 months, as specified in DMRB LA111 Noise and Vibration Revision 2, 2020.

road. No significant adverse effects, with respect to operational road traffic noise, are expected elsewhere.

3.24 **Mitigation measures**

3.25 A CEMP will be prepared and implemented by the Principal Contractor appointed to construct the Bardon Link Road. The CEMP would include relevant noise criteria, proposed surveys and a range of best practice measures associated with mitigating potential noise and vibration impacts. Such measures may include:

(a) implementation of a system of community engagement with local residents;

(b) implementation of a complaints management system to investigate any noise and vibration complaints and ensure appropriate action is taken as required;

(c) implementation of a noise insulation and temporary re-housing policy;

(d) the selection of quiet and low vibration equipment and methodologies;

(e) a review of construction programme and methodology to consider low noise/low vibration methods (including non-vibratory compaction plant where required);

(f) the optimal location of equipment on site to minimise noise disturbance;

(g) the provision of acoustic enclosures around static plant, where necessary;

(h) the use of less intrusive alarms, such as broadband vehicle reversing warnings;

(i) compliance with working hours, as agreed with the local authority;

(j) limiting out of hours works to those that cannot be reasonably carried out during the daytime; and

(k) designation and enforcement of appropriate routes for construction traffic (HDVs and staff) including restricting HDV movements, outside the immediate vicinity of the works, to the strategic highway network.

3.26 There may be a requirement to undertake works on evenings/ weekends/ nights, such as to tie the Bardon Link Road into existing roads or working on existing roads. This would be determined by the contractors and agreed with the local authority.

3.27 During the construction phase of the Bardon Link Road, appropriate mechanisms to communicate with local residents would be set up to highlight potential periods of disruption. Residents would be provided with a point of contact for any queries or complaints. Any noise and vibration complaints would be investigated, and appropriate action taken as required. The complainant would be provided with a response outlining the results of the investigation and any action taken.

3.28 The Scheme includes the installation of 1.8 m high environmental barriers either side of the Bardon Link Road. These barriers would reduce traffic noise levels on the facades facing the Bardon Link Road for some of the closest properties on Bardon Road and John Cooper Way. The extent of the environmental barriers is shown on Figure MRS A511.000-H1-1P-1H_Overview Revision H, Scheme Overview (Document P37 in the List of Documents). The barrier would reduce the number of significant adverse effects for noise from 18 to 11 properties. It is not possible to completely eliminate significant adverse effects for noise due to the close proximity of the Bardon Link Road to some local residents and engineering constraints governing the extent of the environmental barrier. The proposed environmental barriers will not impede the access to the diverted Public Right of Way and will feature gaps in the appropriate locations to facilitate access.

3.29 The height and locations of the proposed barriers have been devised in conjunction with the design, landscape and biodiversity teams; no visual or BNG impacts are expected due to their inclusion.

3.30 **Noise Insulation Regulations**

3.31 A preliminary assessment identified that no residential buildings are eligible for noise insulation works under the Noise Insulation Regulations. A full Noise Insulation Regulations assessment will be completed in accordance with the timescales set out in the Regulations, following the opening of the Scheme.

4 Conclusion

4.1 National noise policy acknowledges that the promotion of good health and a good quality of life through the effective management of noise should be achieved within the wider context of sustainable development. This requires that the potential impact of noise and vibration mitigation be considered holistically, accounting for factors such as visual intrusion, amenity, cost and engineering practicality.

4.2 Although some local properties would be subject to an increase in road traffic noise as a result of the Scheme, given the policy context and the embedded mitigation measures, I consider that the Scheme complies with policy in meeting the aims of the NPSE within the context of sustainable development.

5 Statement of Truth and Declaration

5.1 Statement of Truth

5.1.1 I confirm that I have made clear which facts and matters referred to in this report are within my own knowledge and which are not. Those that are within my own knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matters to which they refer.

5.2 Declaration

5.2.1 I confirm that my report has drawn attention to all material facts which are relevant and have affected my professional opinion.

5.2.2 I confirm that I understand and have complied with my duty to the inquiry as an expert witness which overrides any duty to those instructing or paying me, that I have given my evidence impartially and objectively, and that I will continue to comply with that duty as required.

5.2.3 I confirm that I am not instructed under any conditional or other success based fee arrangement.

5.2.4 I confirm that I have no conflicts of interest.

5.2.5 I confirm that I am aware of and have complied with the requirements of the rules, protocols and directions of the inquiry.

Signed:  Dated: 20th May 2024

Matthew Muirhead