TRANSPORT AND WORKS ACT 1992
TRANSPORT AND WORKS (INQUIRIES PROCEDURE) RULES 2004
TOWN AND COUNTRY PLANNING ACT 1990
BOSTON BARRIER ORDER

DOCUMENT EA/10/1
PROOF OF EVIDENCE
OF
MAX FORNI
NOISE AND VIBRATION

FOR
ENVIRONMENT AGENCY

MARCH 2017
1 Qualifications and Experience

1.1 My name is Maxwell Simon Forni. I am a practicing environmental consultant with over 25 years’ experience.

1.2 I have a B.Eng. (Hons) in Engineering Acoustics and Vibration. I am a Chartered Engineer and I am also a Member of the Institute of Acoustics (MIOA).

1.3 I have been responsible for many technical assessments relating to infrastructure projects.

1.4 My role on the environmental impact assessment for the Boston Barrier Scheme (the Scheme) has been to oversee the noise and vibration assessment and the production of the Noise and Vibration Technical Report (A/17/2A).

2 Scope of Evidence

2.1 My evidence covers technical aspects of noise and vibration impacts associated with the construction of the Scheme.

2.2 My evidence will address the following as they relate to noise and vibration:

Matter 6 The likely environmental impacts of constructing and operating the scheme;

Matter 9(a) The measures proposed by the Environment Agency for mitigating any adverse impacts of the scheme, including any measures to avoid, reduce or remedy any major or significant adverse environmental impacts of the scheme; and

Matter 9(b) The measures proposed by the Environment Agency for mitigating any adverse impacts of the scheme, including whether, and if so, to what extent, any adverse environmental impacts would remain after the proposed mitigation.

3 Construction Noise and Vibration Management

3.1 Section 5.3.7 to Section 5.3.23 of the Noise and Vibration Technical Report (A/17/2A) sets out predicted noise and vibration impacts associated with the Scheme.

3.2 My proof identifies where these impacts have the potential to adversely affect local residents and sets out where they are addressed within the Environment Agency’s proposed Construction Noise and Vibration Management Plan (CNVMP) (please see Appendix 1 of the appendices to my evidence (EA/10/2)).

3.3 A CNVMP is the conventional means by which construction noise and vibration controls are introduced at the planning stage. The CNVMP will be subject to revision when precise details of works are available in terms of plant, methodology and duration. Ultimately, it will be submitted to the local planning authority, Boston Borough Council, in accordance with the planning conditions proposed by the Environment Agency (A/10).
**Section 1 of CNVMP**

3.4 Sections 1.1 and 1.2 of the CNVMP set out general requirements for noise mitigation based upon control of noise transmission and control of noise propagation and specifies general measures the Environment Agency will require of the Contractor.

3.5 Section 1.3 of the CNVMP details the requirements of the Environmental Health Officer for managing noise and vibration during construction.

3.6 Section 1.4 of the CNVMP sets out further specific control measures required. These include preliminary identification of construction noise and vibration monitoring locations and a schedule of noise and vibration limits, referenced in Appendix C to the CNVMP, and which contain provision for secondary insulation should certain criteria be met.

**Section 2 of CNVMP**

3.7 Section 2 of the CNVMP sets out mitigation for those specific construction activities identified in the ES that result in adverse impacts in the absence of mitigation. These activities are:

3.7.1 re-cabling of power lines along Wyberton Low Road;

3.7.2 dredging;

3.7.3 widening of the Wet Dock Entrance;

3.7.4 construction traffic; and

3.7.5 piling.

3.8 Section 2 also details criteria for additional mitigation against construction noise in the form of secondary insulation at locations where the duration and noise level cannot be sufficiently controlled using conventional means, such as acoustic barriers.

3.9 The potential for significant impacts prior to mitigation, which were presented in Tables C.2 to C.26 of the Noise and Vibration Technical Report (A/17/2A) have been summarised and re-evaluated in Appendix 2 to this proof of evidence. No residual significant impacts have been identified which would remain following the application of provisions within the CNVMP.

3.10 Further information on the mitigation measures proposed within the CNVMP for the construction activities identified is provided below, as referenced by the table within Appendix 2.

3.11 **Re-cabling power lines along Wyberton Low Road (Note 1 of Appendix 2)**

3.11.1 Section 2.1.4 of the draft CNVMP (Appendix 1) explains that impacts arising from these enabling works will be addressed through temporary screening, secondary insulation, temporary relocation and noise monitoring, as appropriate. Section 1.2 of the CNVMP specifies that residents requiring temporary relocation will be identified prior to works taking place.

3.11.2 Worst-case un-mitigated predicted noise levels in the ES were 95dB during cable-laying operations at nearest properties on Wyberton Low Road. Even with CNVMP mitigation the insulation threshold (in CNVMP) is likely to be exceeded therefore...
temporary relocation will be offered to affected residents identified by the Environment Agency.

3.11.3 With the above mitigation in place, I am confident that best practice will have been adopted, significant adverse impacts will be avoided and residual adverse impacts along Wyberton Low Road will be minimised.

3.12 Bank Sheet Steel Piling (Note 2 of Appendix 2)

3.12.1 Section 5.3.14 of the ES identifies adverse noise impacts to the rear of Wyberton Low Road, while Section 5.3.21 identifies adverse vibration impacts at the same location. Section 2.1.3 of the CNVMP specifies mitigation in the form of press piling, which will reduce predicted noise levels of up to 75dB by approximately 20dB and give rise to negligible vibration, thus reducing both noise and vibration impacts to acceptable levels.

3.12.2 With this mitigation in place and with best practicable means as identified in the CNVMP I am confident that best practice will have been observed, significant adverse impacts will be avoided and any residual adverse impacts will be minimised.

3.13 Dredging (Note 3 of Appendix 2)

3.13.1 Sections 5.3.10 to 5.3.12 of the ES predict adverse impacts arising from dredging activities which are scheduled to take place over the 24-hour period, principally to the rear of properties along Wyberton Low Road during evening and night-time periods for Phase 1 and Phase 3, but also at The Featherworks, Windsor Bank, Alfred Street and Skirkbeck Street for Phase 2. Section 2.11 of the CNVMP identifies specific mitigation at these locations necessary to reduce noise levels to acceptable limits which includes acoustic screening to the rear of Wyberton Low Road and adjacent to the Wet Dock Lock. Noise monitoring will ensure noise levels remain within acceptable limits and will be used to moderate evening and night-time works adjacent to residential properties. Where this cannot be done, secondary noise insulation will be provided.

3.13.2 With this mitigation in place and with best practicable means as identified in the CNVMP I am confident that best practice will have been observed, significant adverse impacts will be avoided and any residual adverse impacts will be minimised.

3.14 Wet Dock Entrance Construction Activities (Note 4 of Appendix 2)

3.14.1 Section 5.3.13 of the ES predicts adverse impacts at Windsor Bank and The Featherworks during evening and night-time works. Section 2.1.2 of the CNVMP identifies specific mitigation necessary at this location to reduce noise levels to acceptable limits.

3.14.2 Acoustic screens will be provided to the north of the construction area of the new Wet Dock Lock. A noise monitoring regime will ensure noise levels remain within limits.
3.14.3 With this mitigation in place and with best practicable means as identified in the CNVMP I am confident that best practice will have been observed and any residual adverse impacts will be minimised.

3.15 Construction Traffic

3.15.1 Section 5.3.17 of the ES identifies the potential for short term impacts at Wyberton low Road due to construction-related traffic during peak movement times. Section 2.1.5 of the CNVMP identifies measures to offset these including restricting delivery areas and times, reducing vehicle speed and appropriate use of access routes such that noise levels are minimised.

3.15.2 With this mitigation in place and with best practicable means as identified in the CNVMP I am confident that best practice will have been observed and any residual adverse impacts will be acceptable to the residents.

4 Response to Statement of Matters

4.1 Statement of Matters 6 is covered in paragraphs 3.1 to 3.7 of this Proof of Evidence with respect to construction and in the Noise and Vibration Technical Report (A/17/2A) with respect to construction and operation.

4.2 Statement of Matters 9 have been covered in paragraphs 3.1 to 3.7 of this Proof of Evidence, in the Noise and Vibration Technical Report (A/17/2A) and in the draft Construction Noise and Vibration Management Plan (Appendix 1).

5 Conclusions

5.1 In my opinion this Construction Noise and Management Plan goes as far as is possible at this stage to mitigate noise and vibration impacts from construction on residential areas near to the Scheme.

5.2 It is my professional opinion that, with the adoption of measures detailed in the CNVMP, the Environment A will have done as much as is reasonably possible to mitigate noise and vibration impacts, and that it will be possible to sufficiently mitigate these impacts.