

## HIGH SPEED TWO PHASE 2a INFORMATION PAPER

### E12: OPERATIONAL NOISE AND VIBRATION MONITORING FRAMEWORK

This paper outlines the framework for monitoring noise and vibration from the operation of the Proposed Scheme.

It will be of particular interest to those potentially affected by the Government's proposals for high speed rail.

This paper was prepared in relation to the promotion of the High Speed Rail (West Midlands-Crewe) Bill which is now enacted. It was finalised at Royal Assent and no further changes will be made.

If you have any queries about this paper or about how it might apply to you, please contact the HS2 Helpdesk in the first instance.

**The Helpdesk can be contacted:**

**by email:** [HS2enquiries@hs2.org.uk](mailto:HS2enquiries@hs2.org.uk)

**by phone (24hrs):** 08081 434 434  
08081 456 472 (minicom)

**or by post:** High Speed Two (HS2) Limited  
2 Snowhill, Queensway  
Birmingham  
B4 6GA

# E12: OPERATIONAL NOISE AND VIBRATION MONITORING FRAMEWORK

## 1. Introduction

- 1.1. High Speed Two (HS2) is the Government's proposal for a new, high speed north-south railway. The proposal is being taken forward in phases: Phase One will connect London with Birmingham and the West Midlands. Phase 2a will extend the route to Crewe. Phase 2b will extend the route to Manchester, Leeds and beyond. The construction and operation of Phase One of HS2 is authorised by the High Speed Rail (London – West Midlands) Act 2017.
- 1.2. HS2 Ltd is the non-departmental public body responsible for developing and promoting these proposals. The company works to a Development Agreement made with the Secretary of State for Transport.
- 1.3. In July 2017, the Government introduced a hybrid Bill<sup>1</sup> to Parliament to seek powers for the construction and operation of Phase 2a of HS2 (the Proposed Scheme). The Proposed Scheme is a railway starting at Fradley at its southern end. At the northern end it connects with the West Coast Main Line (WCML) south of Crewe to allow HS2 services to join the WCML and call at Crewe Station. North of this junction with the WCML, the Proposed Scheme continues to a tunnel portal south of Crewe.
- 1.4. The work to produce the Bill includes an Environmental Impact Assessment (EIA), the results of which are reported in an Environmental Statement (ES) submitted alongside the Bill. The Secretary of State has also published draft Environmental Minimum Requirements (EMRs)<sup>2</sup>, which set out the environmental and sustainability commitments that will be observed in the construction of the Proposed Scheme.
- 1.5. The Secretary of State for Transport is the Promoter of the Bill through Parliament. The Promoter will also appoint a body responsible for delivering the Proposed Scheme under the powers granted by the Bill. This body is known as the 'nominated undertaker'. The nominated undertaker will be bound by the obligations contained in the Bill and the policies established in the EMRs. There may be more than one nominated undertaker.
- 1.6. These information papers have been produced to explain the commitments made in the Bill and the EMRs and how they will be applied to the design and construction of the Proposed Scheme. They also provide information about the Proposed Scheme itself, the powers contained in the Bill and how particular decisions about the Proposed Scheme have been reached.

---

<sup>1</sup> The High Speed Rail (West Midlands – Crewe) Bill, hereafter 'the Bill'.

<sup>2</sup> For more information on the EMRs, please see Information Paper E1: Control of Environmental Impacts.

## 2. Overview

- 2.1. This Information Paper sets out the relevant, proportionate and necessary requirements for monitoring the performance of noise and vibration control measures applied to the operational phase of the Proposed Scheme. It also sets out the requirement to share with Local Authorities the predicted and measured data on the operational noise and vibration performance of the Proposed Scheme.
- 2.2. Airborne noise, ground-borne noise and vibration from the operation of the Proposed Scheme could result in adverse impacts on people nearby. Information Papers E9, E10 and E13 describe the application of the aims set out in the Noise Policy Statement for England for noise from the Proposed Scheme. They outline the measures that will be put in place to control the effects of noise and vibration that might otherwise arise from the operation of the Proposed Scheme and set performance objectives.
- 2.3. The likely noise and vibration impact from the operation of the Proposed Scheme has been assessed and the findings reported in the Environmental Statement.

## 3. Operational Noise and Vibration Monitoring

- 3.1. Noise and vibration monitoring will be carried out at different times during the lifetime of the Proposed Scheme at a combination of carefully selected monitoring locations including: adjacent or attached to moving vehicles, at fixed positions or in the vicinity of individual assets; and at locations within the surrounding areas and communities alongside the railway corridor.
- 3.2. A wide range of noise and vibration related data for assets such as trains, tracks, noise fence barriers, earthworks, fixed installations and for how track and overhead catenary systems interact with the rolling stock will be collected. These data, together with noise and vibration measurements will be used to monitor the operational noise and vibration performance of the Proposed Scheme.
- 3.3. Where noise and vibration performance deviates from expected conditions<sup>3</sup>, the following actions will be undertaken:
  - a) If the measured performance<sup>4</sup> is better than the expected conditions:
    - A study to document the reasons why assets are achieving higher performance than expected

---

<sup>3</sup> The predicted noise or vibration levels.

<sup>4</sup> The level of noise or vibration obtained using monitoring instrumentation.

- A review of further improvements to other assets that could potentially benefit from the technology transfer of the high performing assets
- b) If the measured performance is worse than the expected conditions:
- A study to identify the root cause and all possible solutions to the low performance
  - An investigation of other similar assets that could also be underperforming
  - Corrective action to improve existing performance and prevent future loss of performance so far as this may be required to achieve the objectives set out in the Information Papers E9, E10 and E11
- 3.4. The expected conditions will be determined with reference to:
- predictions during the project's development;
  - related noise and vibration data of the Proposed Scheme's assets;
  - baseline noise and vibration monitoring information gathered prior to construction of the Proposed Scheme;
  - laboratory test information; and
  - previous in situ noise and vibration measurements.
- 3.5. The expected noise and vibration performance of the Proposed Scheme, operational noise and vibration measurement data, associated asset information, description of corrective actions, results of measured performance compared to expected conditions, and monitoring reports will be shared with the relevant Local Authorities at appropriate intervals.

## **4. More information**

- 4.1. More detail on the Bill and related documents can be found at [www.gov.uk/HS2](http://www.gov.uk/HS2)