1MC04 Main Works - Contract Lot S2

Noise and Vibration Management Plan - Waste Transfer and Treat Station - Ruislip Southern Sustainable Placement S2

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			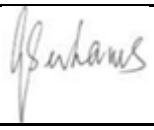		
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	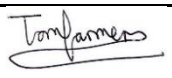	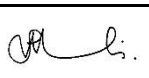	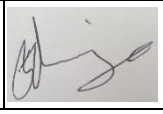		

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Tables

1 Definitions and abbreviations

1.1.1 The tables below outline abbreviations and technical terms used within this management plan.

1.1 Abbreviations

Table 1 - Abbreviations

Abbreviation	Definition
BPM	Best practicable means
CoCP	Code of Construction Practice
EMRs	Environmental Minimum Requirements
EMS	Environmental Management System
ES	Environmental Statement
EWC	Early Works Contract
GPCN	General Principle Compliance Notes
HORACE	HS2 Online Reporting, Assurance, COSHH and Environment Reporting System
HS2	High Speed 2 Ltd
ITT	Invitation to Tender
LA	Local authority
LBH	London Borough of Hillingdon
LEMP	Local Environmental Management Plan
MWCC	Main Works Construction Contract
NVMP	Noise and Vibration Management Plan
PQQ	Pre-qualification Questionnaire
RAMS	Risk Assessment Method Statements
RSSP-WTS	Ruislip Southern Sustainable Placement - Waste Transfer Station
SCSJV	Skanska Costain Strabag Joint Venture
SSECP	Site Specific Environmental Control Plan

1.2 Technical Definitions

Table 2 - Technical Definitions

Term	Definition
Noise	Is defined as unwanted sound and will generally radiate in all directions from a construction noise source and will find its way (curve) around and over walls, buildings, and fencing. Sound waves will also deflect from solid surfaces like walls. Noise causes more complaints than any other environmental topic and can result in working hours being restricted, community relations ruined, a notice to stop work being served or possibly a prosecution or fine.
Section 60	A Section 60 is an abatement or improvement notice that is served by the Local Authority on the person responsible for the noise requiring specific controls to be put into place to minimise noise and vibration.
Sound	Any pressure variation (in air, water or other medium) that the human ear can detect.
Vibration	Is oscillation of a body around its point of rest and is therefore measured in terms of acceleration (m/s2). Vibration levels that may result in building damage can be expressed in terms of the Peak Particle Velocity (PPV), which is the maximum velocity measured over the measurement period. Where the effect of vibration on humans is assessed, and the source of vibration is of an intermittent nature, vibration levels may be expressed in terms of the Vibration Dose Value (VDV).

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2 Introduction

2.1 Background

2.1.1 Phase One of HS2 will provide dedicated high speed rail services between London, Birmingham, and the West Midlands. It will extend for approximately 230km (143 miles). Just north of Lichfield, high speed trains will join the West Coast Main Line for journeys to and from Manchester, the North West and Scotland.

2.1.2 Phase One of HS2 is the first phase of a new high speed railway network proposed by the Government to connect major cities in Britain. It will bring significant benefits for inter-urban rail travellers through increased capacity and improved connectivity between London, the Midlands, and the North. It will release capacity on the existing rail network between London, Birmingham and the West Midlands and so provide opportunities to improve existing commuter, regional passenger, and freight services.

2.1.3 HS2 Ltd has developed an integrated design approach that uses excavated material to satisfy the engineering and environmental mitigation earthworks material requirements to reduce the need for imported materials and reduce the amount of excavated material requiring offsite disposal.

2.1.4 As part of the approach to the management of excavated materials, the Waste Transfer and Treat Station – Ruislip Southern Sustainable Placement (RSSP-WTS) will be used as a waste transfer station, operated by Skanska Costain STRABAG Joint Venture (SCSJV).

2.1.5 In line with current waste legislation, the handling of excavated material at the site will need to be undertaken in line with the Environmental Permitting (England and Wales) Regulations 2016. In accordance with the HS2 guidance the screening process for the proposed waste facility at RSSP-WTS has identified the need for a Bespoke Permit application.

2.2 Purpose

2.2.1 The environmental permit application comprises a suite of supporting documentation of which this Noise and Vibration Management Plan (NVMP) is a part as required by the Environment Agency. The NVMP provides a summary of the site-specific Noise Impact Assessment undertaken for the site (included in Appendix B) and details how the operator (Skanska Costain STRABAG Joint Venture (SCSJV)) and its supply chain will manage potential noise and vibration impacts from the operation of the RSSP-WTS facility and how this will be managed in accordance with relevant legislation, regulations and HS2 Project Requirements Specification for Phase One.

2.2.2 The NVMP defines how SCSJV intend to:

- Comply with relevant legislation, regulation (EPR Regulations) and HS2 Company

Standards;

- Comply with permits/consents/licences or obligations related to the work;
- Record how all significant environmental aspects and impacts will be dealt with;
- Compliance with the undertakings and assurances detailed in the register;
- Achieve a high level of environmental performance; and
- Detail how environmental performance will be monitored and reviewed.

2.2.3 The NVMP outlines the responsibilities assigned to SCSJV that specifically relate to noise and vibration. It shall also act as an assurance document for the Client, providing detail in response to how SCSJV intend to manage these responsibilities on behalf of the Client.

2.2.4 The NVMP is a live document and will be reviewed and updated every six months or when deemed necessary.

2.2.5 This document will be kept on site along with the other suite of permit documents.

2.3 Associated Documents

2.3.1 This report should be read in conjunction with the following documents:

- Environmental Permit Application Forms (1MC04-SCJ_SDH-EV-FRM-SS05_SL07-000011);
- Non-technical summary (1MC04-SCJ_SDH-EV-NOT-SS05_SL07-000008);
- Site Condition Report (1MC04-SCJ_SDH-EV-REP-SS05_SL07-000009);
- Site Operating Plan (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000016);
- Management Systems and Procedures (1MC04-SCJ_SDH-EV-PRO-SS05_SL07-000004);
- Dust and Emissions Management Plan (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000013); and
- Noise Impact Assessment (1MC04-SCJ_SDE-EV-REP-SS05_SL07-000018).

2.4 Relationship with other documents

2.4.1 This NVMP has been written to support the permit application for the RSSP-WTS. This document is intended to be a stand-alone document for the management of noise and vibration at RSSP-WTS and as such it is consistent with the overarching requirements of other relevant HS2 specific legislation and guidance, including:

- Local Environmental Management Plan (LEMP) – London Borough of Hillingdon [R1]

2.4.2 In November 2013, HS2 Ltd deposited a hybrid Bill with Parliament to seek powers for the construction and operation of Phase One of HS2; which was thereafter enacted. The Secretary of State has published Environmental Minimal Requirements (EMRs), which set out the environmental and sustainable commitments that will be observed in the construction of the Phase One of Hs2. Information papers have been produced which detail how the commitments will be applied to the design and construction of Phase One. The following Information Papers have been referred to in the production of this NVMP:

- High Speed Two Phase One Information Paper E22: Control of noise from the operation of stationary systems [R2]
- High Speed Two Phase One Information Paper E23: control of construction noise and vibration [R3]

2.5 Environmental Management System

2.5.1 The Noise Quality Management Plan is drafted in line with SCSJV's EMS, certified to BS EN ISO 140001:2015.

3 Roles and Responsibilities

3.1.1 There are three key parts to the SCSJV's organisational structure critical to the delivery of the noise and vibration management requirements of the HS2 main works civils contractor (MWCC). These are:

- Environmental Managers/Advisors;
- Construction Teams; and
- Noise and Vibration Specialists.

3.1.2 The overarching noise and vibration management roles for the wider project and therefore the operation of the RSSP-WTS are summarised below in Table 3.

Table 3 - Roles and Responsibilities

Role	Responsibility
SCSJV Environmental Managers and Advisors	Develop scopes of works incl. provision of required technical standards, Pre-qualification Questionnaire (PQQ) and Invitation to Tender (ITT) questionnaires and ultimately instruct the noise and vibration specialist work package. Ensure the appointed noise and vibration Specialist meets the appropriate competencies and can meet the resourcing needs to deliver contract Topic requirements Review requirements of the Environmental Minimum Requirement (EMRs) and specifically the CoCP to identify Topic management commitments relevant to the MWCC. Communication of the noise and vibration management related requirements in the CoCP and Hs2 Technical Standards to construction teams and the noise and vibration specialist. Assurance activities such as audit and inspection of work sites (for CoCP, EMR, EMP, HS2 Technical Standards and other control plan conformance). Lead, support and advise the construction team to ensure they have the required training, competences, and resources and that they are suitably deployed for the successful delivery of the NVMP. Support site meetings as required. Review/ QA and agree scope of works within noise and vibration deliverables prior to submission to HS2. Consultation on Local Environmental Management Plans (LEMPs). Support complaint and incident investigation and closeout within 5 working days (using the HS2 On-line incident reporting system (HORACE)).

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	Support all site meetings and regular monthly (or when required) meetings with HS2 (including Local Authorities other HS2 Contractors). Sharing of good practice and noise and vibration related innovations with other sites and HS2 contracts. Provide support and direction to Stakeholder manager to ensure compliance with Undertakings and Assurances is achieved.
Environmental Team	Responsible for working collaboratively throughout design and construction to advise the Project Team and monitoring compliance, for obtaining and managing consents (and variations), the provision of training, and for managing communications with each of the appropriate local authority. Lead on the investigation of any breaches of Trigger Action Levels and report to the local authority/HS2. This will include maintaining overall assurance of the works anticipated on both Lot S1 and S2, this includes, but not limited to: - Ensuring Contractors and Specialist Consultants have the required competences and resource. Undertaking site inspections and audits to ensure the adoption of Best Practical Means. Liaison with local authorities. Review and assurance of design and construction works to assure compliance with Best Practical Means (BPM), Environmental Minimum Requirements (EMRs), Undertakings and Assurances (U&As) etc. Identification and evaluation (in conjunction with NV Specialists) potential NITR qualification. Specific training to Construction disciplines Develop scopes of works incl. provision of required technical standards, PQQ and ITT questionnaires and ultimately instruct the noise and vibration specialist work package. Ensure the appointed noise and vibration Specialist meets the appropriate competencies and can meet the resourcing needs to deliver contract Topic requirements Review requirements of the Environmental Minimum Requirement (EMRs) and specifically the CoCP to identify Topic management commitments relevant to the MWCC. Communication of the noise and vibration management related requirements in the CoCP and Hs2 Technical Standards to construction teams and the noise and vibration specialist. Assurance activities such as audit and inspection of work sites (for CoCP, EMR, EMP, HS2 Technical Standards and other control plan conformance) Lead, support and advise the construction team to ensure they have the required training, competences, and resources and that they are suitably deployed for the successful delivery of the noise and vibration management Plan. Support site meetings as required.

	Review/ QA and agree scope of works within noise and vibration deliverables prior to submission to HS2. Consultation on Local Environmental Management Plans (LEMPs). Support complaint and incident investigation and closeout within 5 working days (using the On- line incident reporting system (HORACE)). Support all site meetings and regular monthly (or when required) meetings with HS2 (including Local Authorities other HS2 Contractors). Sharing of good practice and noise and vibration related innovations with other sites and HS2 contracts.
Construction Managers, Supervisors and Engineers	Responsible for managing construction and producing Method Statements which include information and requirements, covered by Site Environmental Control Plans. They have the responsibility for the management of construction activities and for ensuring Best Practicable Means (BPM) are identified and implemented, including; - Responsible for the day-to-day implementation of the BPM mitigation measures required to minimise the impact arising from the works. Development of work methodologies and mitigation in accordance with best practicable means (BPM) to control noise and vibration. Implementation of control measures. Undertaking incident/complaint investigation and resolution, in conjunction with the Environment and Stakeholder Interface teams. Implementation and delivery of the necessary roles/ resourcing/ meetings to ensure adherence to the HS2 Technical Standards as listed in this document and the requirements of the CoCP Attend site inspections and meetings with Noise & Vibration Specialist and Environmental Managers/ Advisors as requested, to identify any issues and reduce risks, including technical issues (surveys / monitoring); access; risks; good practice; and H&S issues. Seek Environmental Manager/ Advisor approval for Environment sections of risk assessments and method statements (RAMS). Daily records of operations undertaken, together with noise and vibration conditions. Self-certification of site activities. Provide site supervision/ support through site inspections, identification, and delivery of environmental toolbox talks (TBTs). Attendance at community meetings as required. Undertake investigation of complaints or incidents (actions commenced within 2 hours during core working hours, within 12 hours outside these times) and implement additional mitigation measures as required. Production of incident investigation report and submission to S1/ S2 Environmental Manager/ Advisors (within 5 working days).

	Production of complaint investigation report (to Community Liaison Manger) and closeout (within 5 working days).
Site Managers	Responsible for communicating the NVMP requirements to subcontractors and the effective management of the works in line with the NVMP.
Noise and Vibration Specialist (General)	Provide technical expertise and competence for project advice and guidance on noise and vibration related matters through-out design and construction to ensure works are delivered in accordance with the HS2 contractual and legal requirements. Lead on the development Noise and Vibration designs solutions suitable to relevant work activities and construction methodologies. Support the development and review of this NVMP, including regular updates and revisions to reflect changes and developments of the project. Provision of specialist noise and vibration services and management support to the MWCC including: Modelling of noise and vibration from construction works (including cumulative impacts from other HS2 works) and noise insulation / temporary rehousing assessment. Installation (or adoption), set-up, maintenance and reporting of continuous real time monitoring of noise and vibration around project work sites Advise construction and consents teams on how to meet legal and contractual requirements; Check all results for compliance with requirements and advise construction teams on actions required and follow-up; Assist Environmental Manager /Advisors with data gathering for reporting purposes in advance of deadlines; Review, update, and report to Environment Team on noise and vibration performance; Provide reports on progress and any problems with noise and vibration management on site to Environmental team and Construction teams. Deliver TBT/training (as required) to construction teams; Attendance at community meetings as required. Provide input with investigation of complaints of incidents and with the production of incident investigation reports (where required) Provide support and direction to Stakeholder manager to ensure compliance with Undertakings and Assurances is achieved.

Noise and Vibration Specialist (Construction N&V)	Advise and instruct construction teams on how to meet noise and vibration requirements, including the HS2 Noise and Vibration Mitigation Scheme, including potential changes in eligibility for Noise Insulation or Temporary Rehousing; Work closely with construction teams, particularly the construction planning team; Work with Environmental Team and other contractors to ensure that potential cumulative noise issues are considered; Identify and undertake baseline noise and vibration surveys (where required); Locate, set-up and oversee permanent noise and vibration monitoring stations; Train nominated staff to undertake basic monitoring tasks correctly, such as downloading data and undertaking initial checking of results for compliance with requirements; Check all results for compliance with requirements and advise construction teams on action required and follow-up; Provide reports on progress and any problems with noise and vibration issues; Liaise with Local Authorities as necessary and in conjunction with the Project Manager and Stakeholder Interface Manager.
Noise and Vibration Specialist (Construction N&V Monitoring)	Undertake attended monitoring of noise and vibration to demonstrate compliance. Manage the installation of permanent monitoring equipment and complete weekly monitoring reports (either adopted equipment or installation of additional monitoring equipment). Advise and instruct construction teams on how to meet noise and vibration requirements. BPM checks will be carried out during attended monitoring.
All project staff	Responsible for complying with Risk Assessment Method Statements Risk (RAMS) Environmental Control Plans and instructions given by supervision in relation to the work they are undertaking and for reporting and responding to **ANY** incident.

4 Requirements and Obligations

4.1 Legislation and Policy

4.1.1 The SCSJV EMS (adopted from Costain's EMS) includes a legal register which is a live document maintained by the Costain corporate head office. The MWCC Aspects and Impacts Register identifies which sections of the legal register are applicable to this project and these are shown in the HS2 MWCC Legal Register.

4.1.2 The Control of Noise (Code of Practice for Construction and Open Sites) (England) Order 2015 [R12], approves the following guidance for the purpose of this management plan:

- BS 4142:2014+A1:2019. Methods for rating and assessing industrial and commercial sound [R4]
- BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites –Part 1: Noise [R5]
- BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites –Part 2: Vibration [R6]

4.1.3 **Best Practicable Means (BPM)** will be applied during construction works to reduce noise and vibration impacts as far as is reasonably practicable, BPM defined as:

"'practicable' means reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to the financial implications;

4.1.4 The means to be employed include the design, installation, maintenance and manner and periods of operation of plant and machinery, and the design, construction and maintenance of buildings and structures."

The Noise Insulation (Railways and Other Guided Transport Systems) Regulations 1995

4.1.5 The Noise Insulation (Railways and Other Guided Transport Systems) Regulations 1995 [R8] give a discretionary power to railway authorities to provide insulation or grant for insulation where noise from the construction of a new or altered railway is expected seriously to affect residential and other buildings for a substantial time. Schedule 1 to the Regulations sets out construction and performance specifications for the noise insulation package. SCSJV will have regard to these specifications in implementing the HS2 noise insulation and temporary rehousing policy as set out in the Guidance Document E23 [R3]. Please refer to Section 6.3 for further information.

4.1.6 It is noted that noise insulation is being offered for qualifying buildings as defined in the noise insulation and temporary rehousing policy within HS2 Information Paper E23 [R3]. Noise insulation or temporary rehousing will mitigate residents being significantly affected by levels of construction noise inside their dwellings.

High Speed Rail (London - West Midlands) Act 2017

4.1.7 On 23 February 2017, Royal Assent was granted for Phase One of HS2. The High Speed Two Bill is now an Act of Parliament (law) and called the High Speed Rail (London - West Midlands) Act 2017 [R10].

Environmental Minimum Requirements - General Principles

4.1.8 The Environmental Minimum Requirements - General Principles require that the controls to be implemented in delivering the scheme (including the internal EMRs, powers contained in the Act and Undertakings) will ensure that impacts which have been assessed in the ES will not be exceeded. If the significant adverse impacts identified in the ES are likely to be exceeded, all reasonable steps will be taken to minimise or eliminate those additional impacts.

4.1.9 Annex 1 to the EMRs comprises a Code of Construction Practice (CoCP), which shall be adopted and implemented by the SCSJV and its Contractors in delivering the works, the high-level requirements of which are set out below.

4.1.10 In developing the scheme through the Parliamentary process and beyond into the detailed design stage, site specific control measures are being developed in conjunction with local authorities. Such measures are to be set out in each of the Local Environmental Management Plans (LEMPs) and shall be implemented in delivering the works. The high-level requirements of the LEMP for the London Borough of Hillingdon [R1] are set out below.

Code of Construction Practice (CoCP)

4.1.11 The CoCP sets out the general control measures to be implemented and the standards to which the nominated undertaker and its Contractors will comply in delivering the scheme. Its aim is to ensure that likely significant construction effects that are reported in the Environmental Statement will either be avoided or mitigated. Notwithstanding this, SCSJV and its Contractors will adopt appropriate measures to design and construct the scheme so that noise and vibration from the construction does not give rise to adverse effects, as identified in the ES. Where reasonably practicable, environmental mitigation will be integrated within the design and implemented by the contractors within the works.

4.1.12 This approach is considered to align with the noise policy aims set out in the Noise Policy Statement for England and the principles of Best Practicable Means.

4.1.13 The general control measures and monitoring arrangements for noise and vibration identified in the CoCP have been considered in the development of this management plan and, where appropriate, are incorporated in section 5.

4.1.14 Site specific controls are to be developed in conjunction with local communities, local authorities, and other stakeholders.

Local Environmental Management Plan - London Borough of Hillingdon (LEMP - Hillingdon)

4.1.15 The LEMP for Hillingdon sets out control measures specific to HS2 works within the local authority's jurisdiction to be adopted by SCSJV that will be developed further following consultation with relevant stakeholders. This includes items such as requirements for construction site layout and good housekeeping, hoardings, fencing and screening, and specific requirements relating to noise and vibration (as outlined in Section 13 of the LEMP for Hillingdon Borough). The requirements of the LEMP will be implemented and certified to BS EN ISO 14001: 2015.

4.1.16 The area specific noise and vibration arrangements identified in the LEMP-Hillingdon have been considered for the development of this NVMP and, where appropriate, are incorporated in Section 6.

4.2 Undertakings and Assurances

4.2.1 Undertakings and Assurances (U&As) in relation to the NVMP exist route wide and within the MWCC for SCSJV. Requirements or mitigations needed to meet applicable Undertakings and Assurances, which will be set out in the site environmental control plans and briefed to site teams to ensure they are met. Evidence of compliance against Undertakings and Assurances will be submitted by SCSJV to HS2 Ltd through commitment compliance plans. NVMP related U&As are captured in Appendix A of this document.

4.2.2 The register of undertakings and assurances details all commitments offered throughout the parliamentary process for the High-Speed Rail (London - West Midlands) Bill up until Royal Assent. The relevant MWCC noise and vibration related U&As are detailed in Appendix A.

4.2.3 In the summary, the noise and vibration related U&As for MWCC commit to:

- Reducing the impacts and effects of noise and vibration;
- Implementation of Best Practicable Means in the control of noise and vibration;
- Implementation of a noise insulation and temporary rehousing policy, including special cases;
- Prediction methodologies for noise and vibration;
- The noise and vibration performance of control measures;
- Development of site-specific noise and vibration monitoring protocols and trigger action plans;

- Further mitigation measures;
- Monitoring of noise and vibration, including reporting; and
- Compliance and intervention processes

4.2.4 SCSJV and its Contractors will comply with the requirements and terms of U&As entered into by the nominated undertaker, as detailed in the "HS2 Register of Undertakings and Assurances" published by the Department for Transport or as otherwise notified. Specific details of such U&As, including requirements and terms, will be identified in the applicable Site-Specific Environmental Control Plan. Individual Commitment Compliance Plans will be prepared to record how each applicable U&A is being complied with.

5 Site Specific Details

5.1 Introduction

5.1.1 The following section presents a summary of the findings of the Noise Impact Assessment 1MC04-SCJ_SDE-EV-REP-SS05_SL07-000018 (NIA) (Appendix B) for the site considering the BPM mitigation measures adopted by SCSJV as part of their commitments to the measures set out in the relevant undertakings and assurances, CoCP and LEMP. As such the following BS4142:2014+A1:2019 assessment predicted sound levels from the storage and treatment area includes all relevant noise and vibration BPM and 2.4m to 3.6m high noise barriers. The provision of noise insulation at the nearest residential receptors has also been considered further in the assessment conclusions. These BPM measures are discussed in Section 6.2. The assessment has also taken account of the measures included in the HS2 Information Paper E22: Control of noise from the operation of stationary systems [R2].

5.1.2 The methodology in line with BS4142:2014+A1:2019 for the assessment of noise impact is detailed in Appendix B. The BS4142:2014+A1:2019 standard also looks at the local acoustic environment and context into which the sound sources are being introduced.

5.1.3 The initial noise assessment concluded that there were a number of significant adverse impacts at the receptors. Therefore, further discussions were undertaken with the construction team and additional mitigation measures were implemented. The findings from the reassessed noise assessment will be discussed further in the following sections (see Section 6, Appendix B).

5.2 Identified Receptors

5.2.1 The receptors considered include: Shorthill Cottage (R1), Harvil Farm (R2), Brackenbury House (R3), Brackenbury Barn (R4), The Bungalow (R5), 160 Hoylake Crescent (R6), 178 Hoylake Crescent (R7), 77 The Greenway (R8) and Oak Farm (R9). These have been identified as potentially affected by sound due to their relative proximity to the RSSP-WTS area boundaries. As such these receptors will be considered representative locations for the basis of the Noise Impact Assessment. The location of these receptors is shown within figure 1 of the NIA in 1MC04-SCJ_SDE-EV-REP-SS05_SL07-000018 (Appendix B).

5.2.2 Semi-permanent unattended noise monitoring systems were installed at monitoring positions MP01 and MP04, and MP05 and temporary monitors were installed at MP02 and MP03 to obtain ambient and background sound levels and provide representative data to receptors not represented by semi-permanent monitors.

5.2.3 The time periods for each monitoring position that have been analysed to determine representative background noise levels at the nearby sensitive receptor groups are presented

in section 3.3 of Appendix B. In summary, data from each monitoring position covered a period of at least 7 days.

5.2.4 The MP01 monitoring location was considered to represent the ambient and background noise levels for R1 - Shorthill Cottage.

5.2.5 Monitoring location MP02 was considered to represent the ambient and background noise levels for R2 - 2 Harvil Farm.

5.2.6 MP03 was considered to represent the ambient and background noise levels for the receptors R3 - Brackenbury House, R4 - Brackenbury Barn and R5 - The Bungalow due to its proximity to the neighbouring road network.

5.2.7 MP04 location was considered to represent the ambient and background noise levels for the receptors R6 - 160 and R7 - 178 Hoylake Crescent and R9 - Oak Farm, due to their proximity to residential roads and the undeveloped area to the North.

5.2.8 MP05 location was considered to represent the ambient and background noise levels for the receptors represented by R8 - 77 The Greenway.

5.2.9 Further information on noise monitoring systems and locations is included in 1MC04-SCJ_SDE-EV-REP-SS05_SL07-000018 (Appendix B).

5.3 Site Procedure

5.3.1 The following sections provide an overview of the operating procedure at the site in relation to activities that may generate noise and/or vibration which will require specific mitigation measures.

5.3.2 The site is required to manage waste soils arising from the nearby Tunnel Boring Machines (TBM) operating at West Ruislip Portal. As these are required to operate 24hrs a day, 7 days a week, some areas of the site will be required to operate to this schedule too.

5.3.3 The RSSP-WTS facility will receive TBM arisings via two possible routes.

5.3.4 The first is via a conveyor system extending from Northolt Tunnels West and the West Ruislip Portal. The incoming material will be temporarily stored in sheltered storage bins (should no treatment be required, location on 1MC04-SCJ-EN-SKE-SS05_SL07-650028), which will be deposited into the bins off of the conveyor by a tipper unit. A designated, separate materials quarantine area will be present at the end of the conveyor, should any materials not meet the permitted waste criteria.

5.3.5 Once the materials are treated at the RSSP-WTS facility, onward transport of treated materials will be via a return conveyor, to be used as reinstatement material for Copthall backfill. Materials will be transported to the Ruislip Southern Sustainable Placement (RSSP) mounds to the south of the treatment area via dump trucks along haul roads.

5.3.6 The second possible route for the receipt of TBM arisings at the RSSP-WTS facility will be via heavy goods vehicle (HGV). The HGVs will enter the site via the Northolt Tunnel Gate 1 (S23G11), located to the west of the site off Harvil Road. TBM arisings that are delivered via this means will have been treated, as required, at an alternative off-site treatment facility, and as such will not require lime treatment at the RSSP-WTS facility.

5.3.7 Further details pertaining to the site configuration and general processes in operation are included within the Site Operating Plan (1MC04-SCJ_SDH-EV-PLN-SS05_SL07-000016).

5.4 Likely Noise and Vibration Sources

5.4.1 The following sources of noise and vibration are anticipated at the RSSP-WTS facility during its operation:

- Noise and vibration from the delivery of construction plant and mobile working plant (also out of normal core hours), general site traffic during the operation of the site;
- Noise and vibrations from haulage vehicles departing the site, idling or manoeuvres at the site compound and reception, audible reversing warnings, movement within the site via dedicated haulage route and tipping waste (increased throttle);
- Noise and vibrations from earthworks machinery and conveyor machinery operating on site; and
- Noise from the tipping of materials at the site from conveyors, and haulage vehicles (e.g., that generated from the materials itself rather than the machinery noise).

5.4.2 It should be noted that noise and vibration from the lime treatment facility on-site and the conveyor machinery are not expected if the TBM arisings are delivered to site via HGV.

5.4.3 The data and sources for the noise levels assumed in the Noise Impact calculations that this assessment is based on are included in the NIA included as 1MC04-SCJ_SDE-EV-REP-SS05_SL07-000018 (Appendix B).

5.5 Background sound levels

5.5.1 In order to ascertain an understanding of the baseline ambient and background sound levels at the nearby sensitive receptors, sound levels have been obtained from the semi-permanent and unattended noise monitoring systems. The measurements at MP01 and MP05 were undertaken during Covid-19 lockdowns periods and therefore are considered to represent worst case measurements when general activity, and particularly road traffic, was likely reduced. All measurements were undertaken during periods of no significant site activity and therefore are considered representative of levels in the absence of construction noise (see Section 3.3, Appendix B).

5.5.2 Summary and statistical analysis of the background sound levels are provided at Appendices A and C of the NIA (Appendix B) for each monitoring location.

5.5.3 Raw background monitoring data is also provided in Appendix B and in a supplementary Microsoft Excel spreadsheet provided to the EA.

5.6 Noise Impact Assessment Findings

Noise Level Calculations of Plant at Nearest Receptors

5.6.1 Appendix B presents a calculation of sound pressure levels at each receptor, associated with the activities at RSSP-WTS.

5.6.2 The sound modelling has been undertaken using SoundPLAN (version 8.2) sound modelling software. SoundPLAN is a propriety software package which allows the calculation of sound levels using acoustical ray-tracing techniques through implementing the prediction procedure detailed in ISO 9613-2: 1996.

5.6.3 The assessment considers a number of assumptions based on the activities associated with the RSSP-WTS.

5.6.4 This includes any design features associated with the treatment facility that may impact noise levels at the receptor (both positively and negatively). This includes aspects such as noise barriers, e.g., *2.4 m and 3.6 m high noise barriers installed at strategic locations to provide mitigation to the residential receptors.* See Appendix B (Section 6) for the list of assumptions included in the model and a figure showing the location of the noise barriers is presented as figure 8 of Appendix B.

5.6.5 The modelled specific sound levels are for construction noise only (i.e., they exclude any ambient noise). Resulting levels are presented in Appendix B (Tables 14 - 19).

Further assessment considerations

5.6.6 Acoustic character corrections have been applied to the assessment of noise in this case, in accordance with the guidance in BS 4142:2014+A1:2019. The justification for the acoustic character application is presented in Appendix B (Section 6.3).

5.6.7 The results of the BS4142:2014 assessment are presented in Appendix B (Tables 20 - 125. This includes assessment at each receptor, including the representative background sound levels, the predicted construction noise levels (the specific sound levels), any character correction applied, the resulting BS 4142 Rating Levels and the difference between the Rating Levels and the representative background sound levels (which indicates magnitude of the impact).

5.6.8 Both uncertainty and context were considered in the assessment of noise for the purpose of the BS4142 assessment, presented in Appendix B (Sections(s) 6.6 and 6.7 respectively).

5.6.9 To put the BS 4142 assessment initial magnitude of impact in context (as required by BS 4142), a separate assessment following the principles of BS 5228 was undertaken, which allows an assessment of the effects of noise from the S&T relative to the ambient noise levels using a matrix of established noise thresholds above which a potential significant effect is expected. This assessment is presented in Appendix D of the NIA (Appendix B).

Conclusions

5.6.10 Detailed assessment conclusions are provided in Appendix B (Section 7). From the BS4142 assessment findings, the comparison between mitigated construction levels and pre-existing background sound levels indicates that during the operation of the conveyor system for TBM arisings and associated use of the on-site lime treatment facility:

- one receptor group will experience a significant adverse impact (R1,), four receptor groups (R2, R3, R4, R5) will experience an adverse impact, and four receptor groups (R6, R7, R8, R9) will experience a low impact from construction during daytime (07.00-19.00);
- During evening periods (19.00-23.00) a significant adverse impact is expected at three receptor groups (R1, R3 and R4), an adverse impact is expected at two receptor groups (R2 & R5), and four receptor groups (R6, R7, R8, R9) will experience a low impact;
- During night-time periods (23.00-07.00) a significant adverse impact is expected at five receptor groups (R1, R2, R3, R4, R5), an adverse impact is expected at one receptor group (R6), and three receptor groups (R7, R8, R9) will experience a low impact.

5.6.11 During the option of deliveries of TBM arisings by road rather than conveyor:

- During the daytime (07.00-19.00), two receptor groups will experience an impact of less than adverse (R1, R2), and the remaining seven receptor groups will experience a low impact;
- During evening periods (19.00-23.00), a significant adverse impact, depending on the context, is expected at R2, an adverse impact is expected at two receptor groups (R3, R5), impacts at R1 and R4 will be less than adverse and the remaining four receptor groups (R6 to R9) will experience a low impact;
- During night-time periods (23.00-07.00), all receptors will experience a low impact, since the predicted noise levels are significantly below pre-existing background levels. This is primarily because vehicle movements of TBM arisings are not expected to happen on-site at this time.

5.6.12 Overall, the noise impact of the delivery of TBM arisings by road is lower than the conveyor option, particularly at night. This is primarily due to the fact the lime treatment plant on-site will not be in use when arisings are delivered by road since the material will have been treated elsewhere prior to arrival on-site.

5.6.13 Based upon the findings of the contextual assessment which follows the principles of BS5228, the noise from the S&T activities would not exceed the thresholds relative to ambient noise levels during daytime, evening or night-time periods for any of the receptors considered.

5.6.14 When the results of the BS 4142 assessment are considered in the context of both the pre-existing ambient noise levels (which are higher than the predicted construction noise levels at all receptors during the day, evening and night) and the results of the supplementary BS 5228 style assessment for these temporary activities, it is considered that receptor locations **R1 to R5** would have impacts reduced to the **adverse level**, impacts at receptor groups **R6** would be **less than adverse**, and there would be **low impacts** at receptor groups **R7, R8 and R9**.

5.6.15 See Section 7 for potential mitigation measures.

6 Noise and Vibration Control Measures

6.1 Introduction

6.1.1 A summary of the noise assessment (Appendix B) is provided in Section 5 of this document.

6.1.2 The following section provides details of the proposed mitigation measures which will be adopted as part of SCSJVs commitment to the relevant undertakings and assurances (Refer to Appendix A), CoCP and LEMP.

Section	Controls in the management of noise and vibration
6.2 6.6 6.3 6.4 8.1.12	Best Practicable Means (development of noise and vibration control measures) Assessment and Site-Specific Mitigation Noise insulation and temporary rehousing Innovation and Best Practice Community notification
6.5 7 8.2	Noise and vibration monitoring and reporting Complaint and incident management Training and awareness
8	Communications

6.2 Best practicable means

6.2.1 Best Practicable Means (BPM) will be applied during construction works to reduce noise (including vibration) at neighbouring residential properties and other sensitive receptors (including local businesses and any quiet areas designated by the local authority) arising from construction activities. BPM are defined in Section 72 of the Control of Pollution Act 1974 [R8] and Section 79 of the Environmental Protection Act 1990 [R7] as those measures which are "reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to financial implications".

6.2.2 SCSJV and its Contractors will consider mitigation in the following order:

- Evaluation of design to identify potential for reduction in construction impacts through modifications;
- BPM, including noise and vibration control at source e.g., the selection of quiet and low vibration equipment, review of construction programme and methodology to consider quieter methods, location of equipment on site, control of working hours, the provision of acoustic enclosures and the use of less intrusive alarms, such as broadband vehicle reversing warnings; screening: e.g., local screening of equipment, perimeter hoarding ; and
- The recommendations of BS 5228-1:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites*, parts 1 and 2 will be implemented. The requirements and control measures set out within the CoCP will also be implemented by the SCSJV and its Contractors in delivering the scheme.

6.3 Noise insulation and temporary rehousing

6.3.1 As identified in High Speed Two Information Paper E23: Control of Construction Noise and Vibration [R3], HS2 are required to operate a noise insulation and temporary re-housing policy with the aim that noise and vibration from the construction of the scheme does not give rise to significant adverse effects on health and quality of life. In order to do so, where noise or vibration from the construction of the scheme is found to exceed the significant observed adverse effect levels set out in Appendix A of Information Paper E23, noise insulation or temporary re-housing is to be offered to the occupiers of eligible properties. In the first instance, however, the SCSJV and its Contractors will implement BPM to minimise the extent to which noise insulation or temporary re-housing of occupiers will be required.

6.3.2 Eligibility and qualification criteria for noise insulation and temporary re-housing is detailed within Appendix B of Information Paper E23 [R3], including consideration of special cases.

6.3.3 It should be noted that the goal of the noise assessment (Appendix B) is to determine the noise impact associated with the proposed works and act as a means of supporting the associated permit application. Eligibility of properties surrounding areas of SCSJV works for noise insulation is continually reviewed in line with the HS2 technical standard as the works progress in the area, and a number of properties exposed to noise from material transfers and other construction activities (including properties on Hoylake Crescent, the Greenway and Breakspear Road South) are currently being considered for provision of noise insulation in line with the criteria of determination outlined in the technical standard.

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6.4 Innovation and Best Practice

6.4.1 Through-out the design phase and the development of construction methodologies consideration will be given to the environmental/sustainable opportunities as part of the processes. Design will be developed with consideration to cost, fitness for purpose, aesthetics, buildability, and maintainability. As part of this process, regular environmental review will be undertaken. This will include, as a minimum, a regular environmental design review against the HS2 Environmental Minimum Requirements.

6.4.2 In addition to this SCSJV Environmental and Construction team will work collaboratively to identify best practices opportunities and innovation to enhance the implementation of BPM the noise exposure exceeds the criteria defined in the CoCP, in particular where the works have activated the requirement to offer noise insulation or temporary rehousing.

6.5 Noise and vibration monitoring and reporting

6.5.1 SCSJV and its Contractors will undertake noise and vibration monitoring (as well as acquiring weather data) as necessary to comply with the requirements of the CoCP and applicable U&As. Such monitoring will be undertaken for the following purposes:

- monitoring the impact of construction works;
- to investigate noise complaints, incidents, and exceedance of trigger levels;
- monitoring the effectiveness of noise and vibration control measures; or
- collection of additional baseline data.

6.5.2 Reporting of resulting noise and vibration data shall be carried out in accordance with the requirements stated therein, in addition to the requirements of the EMRs or U&As. All data reports issued to HS2 shall be uploaded to the electronic document management system.

6.5.3 In addition to the foregoing requirements, SCSJV and its Contractors will support HS2 in the provision of noise and vibration monitoring data and other related information to the local community, as necessary under the Community Engagement Framework.

6.6 Assessment and Site-Specific Mitigation

6.6.1 Specific mitigation relating to noise and vibration was stated as part of the NIA (1MC04-SCJ_SDE-EV-REP-SS05_SL07-000018 (Appendix B)) including 2.4m and 3.6m high noise barriers, and reductions in plant use .

6.6.2 The BS4142:2014 assessment indicates that the noise from site activities would still have an adverse impact at some receptors during the conveyor and lime treatment station operation; however mitigation has been maximised as far as reasonably practicable.

6.6.3 The following BPM will be adopted at the site:

- Within the site, internal haulage will be restricted to clearly delineated routes, on a prepared surface, and vehicle speeds will be regulated on site. The haul route runs around the perimeter of the site and includes laybys for vehicles waiting to park and turn off their engines;
- Selection of modern quiet/low vibration equipment, equipped with silencers and operated in accordance with the manufactures specifications and maintained in good working order – plant found to have defective silencing systems will be stood down until the system is rectified;
- Daily inspections will be carried out to all plant;
- Vehicles delivering waste will be in good working order;
- Vibratory compaction exclusion zone when carrying out vibratory compaction near existing sensitive receptors:
  - Large Roller (Single roller JCB Type) on high setting – 70m
  - Large Roller (Single roller JCB Type) on low setting – 35m
  - Small Ride-on Roller – 25m
- Equipment will be located on site in order to reduce noise and vibration impact to identified receptors as much as possible;
- Drop heights from conveyors will be kept to the reasonably practical minimum to prevent excessive noise from falling soils;
- Conveyors will be fully enclosed;
- Where practicable, mobile plant will not be left idling when not mobile;
- All SCSJV site vehicles will use smart alarms, which use a white noise system which can only be heard over short distances. Waste vehicles will be directed around the site in such a way to minimise the necessity for reversing;
- The larger holding compound will have a concrete base with a 3.75m high concrete wall which will reduce noise from the transfer of waste. Waste will be kept at least 0.5m below the top of the wall height. This has been included as an assumption within the noise assessment model (Appendix B);
- The isolation holding bunded compound will have a concrete base with a 3.75m high concrete wall which will reduce noise from the transfer of waste. Waste will be kept at least 0.5m below the top of the wall height. This has been included as an

assumption within the noise assessment model (Appendix B);

- Control of working hours in line with the CoCP (See Sections 6.6.4 to 6.6.10);
- Restrictions on working periods for specific activities will be in force;
- Hoardings will be used where practicable to do so (see section 6.6.13 to 6.6.15);
- Localised screening of plant and equipment to mitigate noise at source;
- Use of noise insulation for identified receptors (see section 6.3);
- Real time monitoring of noise and vibration (using existing noise monitoring locations identified in 1MC04-SCJ_SDE-EV-REP-SS05_SL07-000018 (Appendix B)); and,
- Training for the SCSJV team to ensure appropriate monitoring and response to alerts and triggers.

Working hours

6.6.4 The HS2 CoCP sets out the provisions for core working hours. These core working hours are 08:00-18:00 Monday to Friday (excluding Public Holidays) and 08:00 to 13:00 on Saturday. However, the CoCP sets out provisions for site-specific variations to core house and/or additional hours where these are likely to be required to be included within the LEMP following consultation with the relevant Local Authority.

6.6.5 In addition, section 5.2.6 of the CoCP provides for Additional Working Hours. In this it sets out that tunnelling and directly associated activities (such as removal of excavated materials, supply of materials and maintenance of tunnelling equipment) will be carried out on a 24-hour day, seven days a week basis.

6.6.6 Noise from activities in the northern area which includes muck bins, conveyors and lime treatment station will be operational on a 24-hour day. . The noise model (Appendix B) includes these working hour assumptions.

6.6.7 The LEMP-Hillingdon [R1] identifies that certain work activities at specific locations within the Local Authority area will need to take place outside of the core working hours for safety and engineering purposes. The work activities specific to RSSP-WTS listed in the LEMP-Hillingdon [R1] include:

- Continuous operation of conveyors, pumping equipment, and essential generators; and
- Excavated material handling for railhead formation and transport of excavated material.

6.6.8 Repairs or maintenance of construction equipment will be carried out within core working hours, or offsite where practicable. Where these works are required to be carried out outside of core working hours, this will be carried out on Saturday afternoons between 13.00 and 18.00 or Sundays between 10:00 and 17:00.

6.6.9 Only essential repairs or maintenance works will be undertaken on Sundays. Major plant associated with the activity, and the expected operational hours are included in Appendix B.

6.6.10 In the case of work required in response to an emergency or which, if not completed, would be unsafe or harmful to the works, staff, the public or the local environment, the relevant Local Authority will be informed as soon as reasonably practicable of the reasons for the works and their likely duration. This information will also be made available to the HS2 helpline. Examples of the type of work envisaged include where unexpectedly poor ground conditions, encountered while excavating, require immediate stabilisation.

Abnormal deliveries

6.6.11 Abnormal loads or those that require a police escort may require to be delivered outside core working hours, with such movements not permitted in London between 07:00-19:00 hours Monday to Friday, or 10:00-19:00 hours Saturday.

Construction site layout and good housekeeping

6.6.12 To reduce the likelihood of noise and vibration incidents or complaints, the following control measures will be implemented by SCSJV and its Contractor:

- the use of less intrusive noise alarms that meet the particular safety requirements of the site, such as broadband reversing warnings, or proximity sensors to reduce the requirement for traditional reversing alarms;
- management of staff congregating outside the site prior to commencing or leaving work;
- avoidance of the use of loudspeaker or loudhailer devices.

Hoardings, fencing and screening

6.6.13 As part of the BPM, the following mitigation measures will be applied, as appropriate:

- use of different types of fencing, including hoardings used for noise control.

6.6.14 Hoarding for noise mitigation is proposed or has been installed at strategic locations to provide mitigation to residential receptors. Hoarding will be 2.4m or 3.6m in height depending on practicability

6.6.15 Earlier assessments indicated that Shorthill cottage was impacted by site activities due to its close proximity to the works. Therefore, noise barriers were installed both to the north and south of this receptor. The northern barrier is 3.6m high to provide additional screening during

the night-time operation of the lime treatment station which is required to operate 24 hours per day during conveyor use.

6.6.16 It has also been identified that Brackenbury House (R3) and Farm (R4) are potentially impacted by Lime Station operations. To mitigate this as far as is reasonably practicable a 2.4m high barrier has been installed along the eastern boundary. Following feedback from the EA, two further sections of 2.4m high hoarding have been confirmed. The first in an extension to the 2.4m high hoarding along the eastern boundary, although it will be necessary for access reasons to leave a small gap in this barrier to allow vehicle passage to the northeast portion of the site. The second additional hoarding is a short section of 2.4m high hoarding located as close as practicable to the hopper. This was identified as one of the key plant items impacting receptors R3 and R4and therefore some specific screening has been applied to this item to maximise the mitigation provided.

6.6.17 The screening applied above and presented in figure 8 of the NIA (Appendix B) is considered to be maximum that practicably can be achieved.

7 Complaints and incident management

7.1 Incident Response

7.1.1 The SCS JV has adapted its incident management procedures to align with the HS2 incident management process which, in summary includes:

- A three-tier response command structure (Gold, Silver, Bronze) to manage an incident;
- A single process for the management of all events that constitute an incident, with defined levels to help frame the response – Levels 1 to 4 (Level 1 being the most serious incidents);
- A 24-hour, 365-day Help Desk, operated by HS2, to start the co-ordination of HS2's response to an incident and to support the SCS JV where appropriate. The help desk is the first point of contact (08081 434 434) to HS2. for all Level 1 and 2 incidents on the programme; and
- An on-line incident reporting system (HORACE) that records the details of an incident and supports communications, investigation, and follow-up activities to avoid a recurrence.

7.1.2 The Environmental Incident Control Plan is consistent with the requirements, definitions and terminology used in WI1600: Incident Management.

Pollution Incident Control Plan

7.1.3 SCSJV will implement the Pollution Incident Control Plan, aligned with the HS2 Ltd incident management process which, in summary includes:

- A three-tier incident response command structure (Gold, Silver, Bronze) to manage an incident;
- A single process for the management of all events that constitute an incident, with defined levels to help frame the response – Levels 1 to 4, with Level 1 being the most serious incidents;
- Report any incidents to the Environment Agency;
- A 24-hour, 365-day Help Desk, operated by HS2Ltd, to start the co-ordination of HS2 Ltd's response to an incident and to support the SCSJV where appropriate. The help desk is the first point of contact (08081 434 434) to HS2 Ltd. for all Level 1 and 2 incidents on the programme; and
- An online incident reporting system (HORACE) that records the details of an incident and supports communications, investigation, and follow-up activities to avoid a recurrence.

Exceedance of noise and vibration trigger levels

7.1.4 As part of the assurance process, the SCSJV will be undertaking extensive noise and vibration monitoring throughout the duration of works. Amongst other reasons, this monitoring will be used to demonstrate compliance with the EMRs, and specific requirements of U&As (notably compliance with Trigger Action Plans prepared for the protection of certain sensitive receptors).

7.1.5 Long term noise and vibration monitoring (at locations to be agreed with HS2, local authorities and other stakeholders, as necessary) will be configured to provide real time access to data and allow alerts (by text, email, or other means) to be sent to designated recipients when levels approach or exceed predetermined thresholds. These thresholds are based upon identified levels within Trigger Action Plans, or vibration thresholds for the protection of building occupants or building damage (as defined at 13.2.21 et seq. of the CoCP). Through this process any exceedance, or potential exceedance, of noise and vibration thresholds will trigger an alert and subsequent investigation.

7.1.6 Following the exceedance of an agreed trigger levels HS2 and the Environment Agency shall be notified within 24 hours, or as soon as practicable thereafter. SCSJV will coordinate investigation of any exceedances, with the SCSJV contractor being required to consider the immediate cause of any exceedance and, where necessary, implement suitable control measures. The Specialist NV Consultant shall provide monitoring data and interpretation to support the investigation.

7.1.7 The monthly noise and vibration monitoring report to be provided to HS2 will include a summary of agreed trigger level, the measured exceedance level, the likely causes of the exceedance, a description of relevant on-site activities, actions taken for verification/remediation, weather data and comparison with the baseline monitoring data recorded at prior to the start of works.

7.2 Complaints

7.2.1 HS2 operate the HS2 Public Help Desk 24 hours per day, 7 days a week, to manage all complaints, handle enquiries and co-ordinate incident response. The SCS JV community engagement team will maintain a 24/7 contact with the helpdesk and be available to answer any queries or liaise with site supervisors for investigation and resolution of complaints.

7.2.2 All complaints received will be recorded, investigated and corrective actions implemented, and feedback given to the complainant. The local authority will be advised of any complaint and the actions taken to investigate the validity and, any actions which have been put in place to rectify the situation if this is found necessary. Where appropriate any noise complaint will be referred to the Site Manager for investigation to check whether all BPM are being used to control noise and vibration and to assess whether any corrective action taken was sufficient.

7.2.3 This will be achieved on site through the use of a complaints tracker by the Community Relations Representative (CRR). They will pass on any environmental (including noise and vibration) related complaints to the Environmental Team who will investigate the complaints and report back to the CRR to provide feedback to the complainant. The Environment Team will use the assistance of the Noise and Vibration Specialists to investigate and effectively resolve any complaints and will also keep a tracker of complaints related to noise and vibration which will be provided on a monthly basis to the appropriate local authority, the Project Manager and the HS2 Noise Specialist.

7.2.4 The CRR will manage and resolve complaints or enquiries directed to the Community Relations Representative from the HS2 Public Helpdesk or Project Manager and advise of the outcome of action taken within 24 hours.

7.2.5 SCSJV shall respond promptly to emergencies, complaints or other contacts made via the HS2 Helpdesk or any other recognised means and if possible, the SCSJV staff shall rectify the problem directly. SCSJV cooperates with and provides information to the HS2 Community Relations Team to resolve enquiries and complaints. In all cases the HS2 Community Relations Team and the Project Manager shall be kept fully informed of actions taken.

Response time to complaints

7.2.6 The following timescales will be adhered to when responding to complaints:

- Initial response to complainant by phone or email within 24 hours.

- Written response within 5 working days unless a lengthy investigation is required. Then the response time will be extended to 5 days after completion of the investigation.

7.2.7 SCSJV will implement the MWCC Community Engagement Strategy, which requires the development of Local Community Engagement Plans. All community relations issues will be managed in accordance with the principles of the strategy and local plans and be led by the Community Relations Manager in collaboration with HS2.

7.2.8 Section 8.1.12 contains further information regarding community notifications, and Section 7.2.1 contains further information on the handling of complaints.

8 Communication

8.1 Site-Specific Environmental Control Plans

8.1.1 Site-specific environmental control plans (SSECP) will set out the procedures to be followed for construction activities which will address, amongst other matters the noise and vibration control measures necessary to comply with the requirements of the EMRs and U&A's. Prior to commencement of works activities, the SSECP will be approved by the Environmental Manager and briefed to the site team. The SSECP will be updated after each quarterly environmental audit (see 1MC04-SCJ_SDH-EV-PRO-SS05_SL07-000004).

8.1.2 The SCSJV Noise & Vibration Specialist, along with other members of the SCSJV Project team will work closely with the Contractors on a day-to-day basis to ensure the contract requirements are suitably addressed. Site inductions, Work Package Plans and task briefing documents will be used to communicate key noise and vibration requirements to the Contractors, as appropriate.

Communication between SCSJV and Contractors

8.1.3 The contents and requirements of this Noise and Vibration Management Plan (NVMP) will be communicated to the SCSJV Project team and its Contractors. Site inductions, Work Package Plans and task briefing documents will be used to communicate key noise and vibration requirements to the Contractors, as appropriate.

8.1.4 The SCSJV Noise & Vibration Specialist, along with other members of the SCSJV Project team will work closely with the Contractors on a day-to-day basis to ensure the contract requirements are suitably addressed.

Communication with HS2

8.1.5 The SCSJV Noise & Vibration Specialist will maintain day to day communications with counterparts in the HS2 Environment Team at both strategic and operational levels. More formal arrangements in the shape of monthly meetings will be implemented to ensure effective management of ongoing noise and vibration matters and continual improvement.

8.1.6 In addition, joint meetings will be held between HS2, SCSJV, relevant local authorities and other HS2 Contractors. The frequency of these meetings will be determined by the nature and extent of works.

8.1.7 Other formal communications will relate to deliverables, including noise insulation and temporary rehousing, noise and vibration monitoring reports, incident, and complaint investigation / close-out.

Local Authorities

8.1.8 In order to build trusted relationships, the SCSJV will undertake full and early engagement with relevant Local Authorities on noise and vibration related matters, including advanced discussion of proposed construction and engineering works, the methodologies and control measures to be implemented.

8.1.9 Joint meetings will also be held between HS2, SCSJV, relevant local authorities and other HS2 Contractors, there frequency of which will be determined by the nature and extent of works.

Liaison with the Local Community

8.1.10 SCSJV will implement the MWCC Area South Community Engagement Strategy which requires the development of Local Community Engagement Plans. All community relations issues will be managed in accordance with the principles of the strategy and local plans and be led by the Community Relations Manager in collaboration with HS2.

Community engagement

8.1.11 The Project Management Team recognises the importance of maintaining good relations with the local community. SCSJV will undertake frequent inspections of the site to ensure that it remains in a good state, with all housekeeping issues under control resulting in the development of a positive perception of the public in respect to the project. As part of this process SCSJV has developed an SCSJV MWCC Interface Management Plan which provides details on key contract contacts and information on the local catchment area in relation to construction works.

Community notification

8.1.12 A proactive approach to the management of noise and vibration requires appropriate coordination with community relations activities. Local stakeholders and Local Authorities will be kept informed of site activities prior to and over the course of the works. A general project update of works will be sent out periodically to inform the residents and businesses in the area of upcoming works and what to expect over a 3-month period (or more, where necessary for specific stakeholders).

8.1.13 More locally to work sites, information will be communicated to the residents and businesses, through information sheets, including as a minimum, the start date, a site plan, nature, and duration of the works, and will specify occurrences of night and weekend works, and the HS2 Ltd helpline details. Such information sheets will be distributed at least 2 weeks prior to commencement of works and will extend to a catchment area of up to 300 metres from worksites (radius of catchment may vary depending on location).

8.1.14 In the case of work required in response to an emergency, local residents and businesses will be advised as soon as practicable that emergency work is taking place. This will be done by the Community Relations Representative.

8.2 Training and Awareness

Project and site inductions

8.2.1 All staff will receive a HS2 MWCC Induction. SCSJV and HS2 staff and operatives engaged on-site will undertake a site-specific health, safety, and environmental management induction prior to visiting or commencing work on site.

8.2.2 The induction will include the main requirements of the Overarching EMP or SSECP respectively and inform staff and operatives of the main environmental risks and controls to be implemented on site. Where relevant this will include identification of specific noise and vibration risks.

Specific noise and vibration training

8.2.3 Where specific high noise and vibration risks are identified, site-specific training modules will

8.2.4 be delivered that are relevant to operatives' roles and responsibilities.

Start of Shift Briefings

8.2.5 Site Supervisors/Managers will hold daily start of shift briefings to ensure suitable coordination of site activities. Relevant noise and vibration risks and control measures identified in the Environmental Control Plans will be communicated as required.

Work Package Plans / Risk Assessment Method Statement

8.2.6 Having regard to the information contained in SCSJV EMPs, SCSJV and its Contractors will set out the procedures to be followed for construction activities in Risk Assessment Method Statements (RAMS) which will address, amongst other matters, noise, and vibration control measures necessary to comply with the requirements of EMRs and U&As. Prior to commencement of works activities RAMSs developed by the WP Contractor will be approved by SCSJV.

Toolbox Talks

8.2.7 Environment related Toolbox Talks will be delivered at least once a month to highlight and maintain awareness about relevant topics. Toolbox talks will, on occasion, address key noise and vibration risks and control measures associated with certain site activities. A record of attendance at these toolbox talks will be kept and used to update the site personnel training records.

8.3 Interface

8.3.1 Each work site has individual sensitivities and different levels surrounding stakeholders and residents. Under stage 2 of the MWCC, construction activities are programmed to commence in early 2019, at this time SCSJV will become the Principal Contractor for the majority of the work areas where they will be undertaking activities. However, as part of the design

development there are some locations where SCSJV require to work collaboratively with other HS2 contracts, in particular the EWC to provide access for surveys, site familiarisation and undertake the impact of overlapping scopes of works. At these worksites, liaison to implement a site-specific Interface management to facilitate an integrated approach towards the requirements of both the SCSJV and Other Employer's contractors as defined within the SCSJV Interface Management Plan (IMP) and its associated documents.

8.3.2 Interfacing will include the exchange of information between SCSJV and Other HS2 subcontractors relating to the design process, access and egress and collaborative working.

8.3.3 SCSJV will also interface with third parties including, but not limited to Local Authorities, Consenting Bodies (e.g., Environment Agency) and Stakeholders. This may include, but not limited, timely updates on design progress and options, land quality management and mitigation measures.

9 Assurances

9.1 Document Review

9.1.1 This NVMP will be reviewed as often as is necessary to include significant changes in risk, scope of works, circumstances, or personalities. As a minimum, this NVMP will be reviewed every six months and changes recorded.

9.1.2 The suitability of, and performance against, the NVMP will be reviewed to ensure that it remains valid and reflects the arrangements for managing current activities on site.

9.1.3 Following revision, copies of amendments will be forwarded to the HS2 Project Manager for acceptance via SCSJV document control process. Once accepted by HS2 the revised EMP will be formally issued to the project sub-contractors.

9.2 Compliance Audits

9.2.1 The NVMP will be audited at least annually as part of the Internal Audits programmed throughout the year and detailed in the SCSJV Audit Plan.

10 References

10.1.1 The following documents are client and industry related documents from which the above information is drawn or to be referred to:

Reference	Title	Document Number
R1	Local Environmental Management Plan - London Borough of Hillingdon	P1S-HS2-EV-REP-S000-000007
R2	High Speed Two Information Paper E22: Control of noise from the operation of stationary systems	LWM-HS2-HY-PPR-000-000057
R3	High Speed Two Information Paper E23: Control of Construction Noise and Vibration	LWM-HS2-HY-PPR-000-000057
R4	Methods for rating and assessing industrial and commercial sound	BS 4142:2014+A1:2019
R5	Code of practice for noise and vibration control on construction and open sites – Part 1: Noise	BS 5228-1:2009+A1:2014
R6	Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration	BS 5228-2:2009+A1:2014
R7	The Environmental Protection Act 1990	https://www.legislation.gov.uk/ukpga/1990/43/contents
R8	The Noise Insulation (Railways and Other Guided Transport Systems) Regulations 1995	http://www.legislation.gov.uk/uksi/1996/428/contents/made
R9	Register of Undertakings and Assurances	https://www.gov.uk/government/publications/high-speed-rail-london-west-midlands-bill-register-of-undertakings-and-assurances
R10	High Speed Rail (London - West Midlands) Act 2017	http://www.legislation.gov.uk/ukpga/2017/7/contents/enacted
R11	Control of Pollution Act 1974	https://www.legislation.gov.uk/ukpga/1974/40
R12	The Control of Noise (Code of Practice for Construction and Open Sites) (England) Order 2015	https://www.legislation.gov.uk/uksi/2015/227/made?view=plain
R13	High Speed 2 Information Paper E22: Control of noise from the operation of stationary systems	HS2 Information Paper E22

Appendix A - Undertakings and Assurances

The following U&As have been identified as being applicable to this discipline topic and will be managed through the mitigations detailed in this management plan.

Reference	To Whom	Detail
1832	London Borough of Hillingdon	1.1 The Secretary of State will require the Nominated Undertaker to engage actively with TfL and the Council in a study to reduce HGV movements in the Ickenham area of Hillingdon during the construction of HS2, and in carrying out the study in accordance with the 'Brief'. The study would include, but not be limited to, the following proposals: (a) maximising as far as reasonably practicable, the volume of excavated and construction material from the construction of HS2 to be removed by rail so as to reduce the volumes on the road; (b) changes to the gradient of the Copthall cutting to reduce the amount of spoil removal; (c) greater reuse of excavated material locally to reduce the volume of material that has to be removed from site; (d) changes to the Harvil Road railhead design and footprint; (e) Bringing forward the completion of Harvil Road sidings earlier in the construction programme so as to reduce the volume of material excavated by road; and (f) explore measures to reduce the number of road vehicles associated with workforce travel. 1.2 For the avoidance of doubt the 'Brief was agreed by the Promoter, TfL and the Council during a meeting on 22 January 2016. The agreed version of the Brief is appended to this letter. 1.3 Upon completion of the study, it will be submitted to TfL, the Council and the Promoter for comment. This will be no later than May 2016.

		1.4 The study will then be submitted to the Promoter for his consideration who will use reasonable endeavours to implement the plan, taking into account the safe, economic and timely delivery of the railway. The Promoter will notify both TfL and the Council to what extent the study will be implemented, no later than one month after the plan's submission. 1.5 If not satisfied with the Promoter's decision regarding implementation of the findings of the study, or if the Council has not been notified of the decision in accordance with the timescales set out above, the Council will be able to petition the House of Lords HS2 Select Committee for resolution.
1993	Mr Fred Dawson and Mrs Jean Valerie Dawson	4. The Secretary of State for Transport shall, prior to completion of the detailed design of the Northolt tunnel and earthworks construction compound, require the Nominated Undertaker to engage with the Petitioners, or their nominated representative to take account of any reasonable proposals made by the Petitioners to, so far as reasonably practicable, reduce the visual, noise and dust impacts of the earthworks compound located across Harvil Road from Harvil Farm, on the residential dwellings within Harvil Farm. 5. The assurance in paragraphs 4 above are subject to the Nominated Undertaker obtaining all necessary approvals and consents. In these assurances: "Plot AP4-21" means Plot AP4-21 as shown on replacement sheet 1-49 of the deposited plans for Additional Provision 4 in the London Borough of Hillingdon
2095	General	The design of the conveyors, for example whether they are open or enclosed systems, will take into consideration the potential noise generated by the conveyors and further assessment of the predicted effects on any receptors within close proximity. The Nominated Undertaker will carry out such noise predictions with reference to the Environmental Minimum Requirements.
2096	General	The Promoter will look to provide sound barriers in this area that will perform to the standards set out in the Environmental Statement and, in accordance with the design policy, their appearance will be sympathetic to their local context, environment and setting.
2517	Mrs Beryl Upton	In these assurances: "the Conveyor" means the temporary conveyor system represented by Work No. 1/63 in the London Borough of Hillingdon, shown on Sheet No. 1-34, 1-35 and 1-36 of the plans deposited with the Bill, operating between Northolt tunnel and West Ruislip railhead

		The Secretary of State will require the Nominated Undertaker to, in accordance with its duty to employ Best Practicable Means to control noise and dust during the HS2 Works, pay particular attention to the following matters when designing the Conveyor to be used between Northolt tunnel and West Ruislip railhead: (i) the precise route and elevation of the Conveyor within the limits and powers of the Bill; and (ii) the positioning and screening of the Conveyor drive motors.
2517	Mrs Beryl Upton	In these assurances: "the Conveyor" means the temporary conveyor system represented by Work No. 1/63 in the London Borough of Hillingdon, shown on Sheet No. 1-34, 1-35 and 1-36 of the plans deposited with the Bill, operating between Northolt tunnel and West Ruislip railhead The Secretary of State for Transport will require the Nominated Undertaker to cover the Conveyor where it is above ground and in the areas adjacent to The Greenway and Hoylake Crescent.

Appendix B – RSSP-WTS Site-Specific Noise Impact Assessment

Please refer to the SCSJV Noise Impact Assessment - Northolt Storage & Treatment Area - Material Treatment (Document no.: 1MC04-SCJ_SDE-EV-REP-SS05_SL07-000018)