

Environmental Sustainability Data Appendix

April 2020 – March 2021

Environmental sustainability performance data,
assurance statement and Global Reporting
Initiative (GRI) index.



Introduction

This Environmental Sustainability Data Appendix is a supplement to our Environmental Sustainability Progress Report. Covering the period April 2020 to March 2021, it contains environmental sustainability performance data on HS2 including our methodology and scope, independent assurance statement and our Global Reporting Initiative (GRI)¹ Standards index.

Lloyd's Register (LR) has provided limited assurance on all the key performance indicators (KPIs) and data within this document. The independent assurance statement is on **page 16**.

Further context and narrative supporting the data of this report, progress against our commitments and our approach to environmental sustainability can be found in the **Environmental Sustainability Progress Report**.

Further reading

We offer a full suite of corporate reporting and disclosures in relation to sustainability. Where possible, references to these documents have been built into this report. Key reference documents are also linked here:

- **Environmental Sustainability Progress Report 2020 – 2021**
- **Corporate Plan 2021 – 2024**
- **Annual Report 2020 – 2021**

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Front cover image: Newly planted saplings at Finemere Wood, Buckinghamshire.

¹ [globalreporting.org](https://www.globalreporting.org)

Scope and methodology

The HS2 Environmental Sustainability Data Appendix covers the period April 2020 to March 2021. This appendix supplements our first **Environmental Sustainability Progress Report**. We will continue to publish reports on an annual basis.

For any enquiries, please contact HS2 [here](#).

Reporting period

The reporting period is April 2020 to March 2021. However, due to the way data is reported by our main reporting platform, the data used is from March 2020 to February 2021 unless stated otherwise. This is in line with our annual corporate reporting period.

Methodology

We have presented the data in line with our Environmental Policy Objectives:

- HS2 Green Corridor;
- climate change;
- community experience;
- historic environment;
- responsible consumption and production; and
- overarching commitments.

We have not provided data for historic environment in this appendix due to the nature of the topic. Progress against this objective can be found in the **Environmental Sustainability Progress Report**. The value of our heritage cannot be quantified easily. Archaeological works vary in size but can be equally informative. We are considering meaningful measures to assess our work in this area.

This is our first year reporting environmental sustainability data. This should therefore be taken as our baseline year and in future reports we will provide progress comparison and trend analysis including multi-year data.

Our environmental sustainability data has been prepared with reference to the Global Reporting Initiative (GRI) Standards: Core option. The **GRI Standards index on page 19** of this appendix can be used as a reference for our disclosures against the relevant requirements.

This report has also been written in line with the considerations and recommendations of the HM Treasury Sustainability Reporting Guidance 2020 – 2021¹.

¹ assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/907011/Sustainability_Reporting_Guidance_2020-21.pdf

Scope and methodology

Data collection/calculation

Specific methodological notes, including any detail on data collection and/or calculation, have been included next to the relevant data table.

Scope

All data is related to Phase One of HS2. The only exemptions are the no net loss (NNL) calculation on [page 4](#), for which we also have the Phase 2a baseline, and the carbon footprint data on [page 6](#), which includes the Phase 2a rail systems (including depots). This has been noted next to the relevant data points.

Phase One data has been grouped into three categories.

- Enabling works contractors (EWCs) – CSJV, Fusion, LMJV
- Main works civil contractors (MWCCs) – SCS, Align, EKFB, BBV
- Stations (Euston, Old Oak Common*)

* Interchange and Curzon Street stations are still at design stage so they are only included in the BREEAM/CEEQUAL datasets.

The Phase One project data only refers to current contracts. When more contracts are awarded (e.g. for rail systems and rolling stock) the dataset of future reports will include these.

Geographic cover of works and partners

Contract type	Partnership	Contractors	Geographic cover of works
EWC	CSJV	Costain Group Plc, Skanska Construction UK Ltd	Within M25
	Fusion	Morgan Sindall Construction & Infrastructure Ltd, BAM Nuttall Ltd, Ferrovial Agroman (UK) Ltd	Leamington Spa to M25
	LMJV	Laing O' Rourke Construction, J Murphy & Sons	Birmingham to Leamington Spa
MWCC	SCS JV	Skanska Construction UK Ltd, Costain Group Plc, STRABAG SE	Within M25
	Align JV	Bouygues Travaux Publics, Volkerfitzpatrick, Sir Robert McAlpine	Chilterns tunnel and associated works
	EKFB	Eiffage, Kier, Ferrovial Construction and BAM Nuttall	Leamington Spa to M25
	BBV JV	Balfour Beatty Group, VINCI Construction UK Ltd	Birmingham to Leamington Spa
Stations	MDJV	Mace Limited and Dragados S.A.	Euston Station
	BBVS	Balfour Beatty Group Ltd, VINCI Construction UK Ltd, VINCI Construction Grands Projects SAS and SYSTRA Ltd	Old Oak Common Station

Utility companies are excluded from our reporting, but we are working towards gathering data from these partners in future years.

External assurance

Lloyd's Register (LR) has provided limited assurance on all key performance indicators (KPIs) included in this appendix under Performance Data. We have also included our [independent assurance statement](#). The GRI Standards index is outside the scope of LR verification.

Performance data

HS2 Green Corridor



Progress on no net loss in biodiversity calculation

Phase	Pre-construction		Post-construction		Summary		
	Area (ha)	Biodiversity units baseline	Area (ha)	Biodiversity units generated	Area difference (ha) (pre vs post)	Biodiversity unit difference (pre vs post) ¹	Percentage change in biodiversity units
Phase One (2017 baseline)	6,775	22,059	6,777	20,484	+2	-1,575	-7.14%
Phase One (Q3 2020 update)	6,361	21,091	6,419	20,423	+58	-668	-3.17%
Phase 2a (2019 baseline)	2,979	7,887	2,973	6,545	-4	-1,342	-17.01%

1 This is the difference in biodiversity units as calculated before construction of the railway (pre) compared with completion of the railway (post). It is based on the design at that point in time. As the design evolves and improvements or savings are made, this number will change.

Notes:

About this KPI

- HS2 Ltd is seeking to achieve the goal of the HS2 Project resulting in no net loss (NNL) in biodiversity, excluding irreplaceable habitats such as ancient woodlands, at a route-wide level. In order to gauge progress towards its goal of NNL in biodiversity, HS2 Ltd developed a modified version of the Department for Environment, Food & Rural Affairs (Defra) pilot biodiversity offsetting metric, in consultation with Defra and Natural England, called 'the HS2 metric'. The HS2 metric uses habitats as a proxy for considering losses and gains of biodiversity and measures these losses and gains in 'biodiversity units'. The HS2 metric was updated in 2019 for Phase 2a to capture updates associated with the Defra Biodiversity Metric 2.0 (beta-testing version).

Methodology

- The HS2 metric has not been used to define the level of biodiversity compensation that has been included in the scheme. It has been used as an 'accounting tool' and applied to the habitats present pre- and post-construction of the scheme to compare the losses and gains in biodiversity units as a consequence of the scheme. This accounting process has been referred to as the 'no net loss calculation'. (For more information please see the [HS2 London-West Midlands, No net loss in biodiversity calculation](#) report).
- Ancient woodlands are considered irreplaceable and measures to compensate are not included in this calculation to make clear that all losses are irreplaceable. These results will be the subject of separate reporting. A report, which is under development in consultation with the Woodland Trust and other environmental stakeholders, will cover issues relating to ancient woodlands and will be published later this year.
- The metric calculates losses and gains to biodiversity on an area basis, except for linear features, hedgerows and watercourses. Separate calculations are made for these based on the length of the habitats affected. (See the [HS2 London-West Midlands, No net loss in biodiversity calculation](#) report).
- Methods are outlined in the technical notes that accompany each of the published Environmental Statements:
 - [Phase One](#) (Page 364)
 - [Phase 2a](#) (Page 203)

These outline technical approaches as well as changes made to calculation between each phase.

Limitations

- The NNL data represents a snapshot in time. Contractors are still progressing design work.
- Although achievement of NNL in biodiversity is being considered by contractors throughout the design stage, the calculation of NNL is only realised toward the end of a design stage. Only assets which have reached an approved design stage have been taken into account.
- Due to contractors undertaking and completing different stages of design at different timescales, the level of maturity of design and therefore the resulting NNL figures, are not consistent across all of Phase One. For example, some design elements have completed proposed scheme design while other elements have completed detailed design or 'as-built' design.

Performance data

Notes continued from previous page:

Performance commentary

- We have a target of no net loss of biodiversity (i.e. 0%), which means that any biodiversity losses will have been cancelled out by gains that we have been able to make. Since 2017, HS2 Ltd has been refining the design and construction of Phase One to reduce losses in habitats and to deliver gains in habitat creation and restoration. This has resulted in an improvement from a -7.14% biodiversity deficit to -3.17% by December 2020. Although we are not yet meeting our target, this indicates that we are moving in the right direction of removing this deficit in biodiversity units.
- The same approach will be implemented for Phase 2a, where our biodiversity baseline is -17.01%.

Number of trees and shrubs planted

Year	Trees planted	Trees replaced	Net trees planted
2017 – 2018	218,624	–	218,624
2018 – 2019	125,852	6,553	119,299
2019 – 2020	169,850	45,125	124,725
2020 – 2021	271,707	30,405	241,302
Total	786,033	82,083	703,950

Notes:

Methodology

- This data refers to Phase One.
- The annual planting season is from November to March. We replace every tree that fails to grow.

Woodland Fund

Phase One Woodland Fund £5m	No. agreements	Value	New woodland creation	Ancient woodland restoration
Completed (as at March 2021)	25	c. £756k	92ha (c. 156k trees)	52ha (c. 57k trees)
Committed	22	c. £1.3m	120ha (c. 213k trees)	46ha (c. 61.5k trees)
In pipeline	7	c. £511k	c. 50ha	c. 12ha

Notes:

Methodology

- This data refers to Phase One as at 30 March 2021.

Definitions

- Completed: new woodland creation or ancient woodland restoration projects that have been delivered.
- Committed: new woodland creation or ancient woodland restoration projects where funding has been allocated (either firmly or tentatively), however the projects have not yet been delivered.
- In pipeline: new woodland creation or ancient woodland restoration projects that have been submitted and are in the determination process for funding.

Performance data

Climate change



Whole life carbon footprint – progress against targets per contract type

Contract type	Total carbon reduction target	Baseline carbon footprint (tCO ₂ e)	Current carbon footprint (tCO ₂ e) – March 2021	Current percentage reduction against baseline – March 2021
Phase One				
EWC	30%	216,000	163,000	24.5%
MWCC	50%	8,905,000	5,928,000	33.4%
Stations	50%	1,429,000	770,000	46.1%
Rail systems (including depots)*	50%	1,887,000	1,887,000	0.0%
Rolling stock*	50%	2,107,000	2,107,000	0.0%
Phase One total		14,544,000	10,855,000	25.4%
Phase 2a				
Phase 2a Rail systems (including depots)*	50%	478,000	478,000	0.0%
Phase 2a total		478,000	478,000	0.0%
Programme to date total		15,022,000	11,333,000	24.6%

* Carbon data not yet available. Contracts either not yet awarded or at an early design stage, hence 0% progress against targets reported.

Notes:

Methodology

- The above tables show the contract types with baselines produced to date. For Phase 2a and future phases, contract types will be added in future years when these contracts have baselines.
- Carbon reduction targets apply to the whole life carbon footprint and are to be delivered during the contract period.

Limitations

- Life-cycle assessments (LCAs) exclusions:
 - HS2 civil assets (e.g. bridges, embankments, cuttings, etc.) do not possess operational energy demand and therefore do not have operational energy impacts.
 - In general, repair impacts are excluded from the programme-wide assessment. However, when LCA is conducted using LCA software, the repair impacts are often integrated into the maintenance reporting.
- For HV Power, traffic management and comms packages, HS2 Ltd has applied cut off rules for the life-cycle assessment.

Performance data

Energy and fuel consumption data

Contract type	Total grid electricity	On-site renewables	Petrol (100% mineral)	Petrol (average fuel blend)	Diesel (average bio-fuel blend)	Gas oil (red diesel)	LPG	LNG	Other fuel types	Other fuel types
	kWh	kWh	litres	litres	litres	litres	litres	litres	kWh	litres
EWC	42,132	4,000	10,968	38,763	851,886	3,164,306	0	20	0	1,442
MWCC	996,052	323	5,526	8,328	532,654	5,997,937	1,175	0	104,874	14,960
Stations	0	0	192	0	15,943	126,909	0	0	0	0
Total Phase One contracts	1,038,184	4,323	16,686	47,091	1,400,483	9,289,152	1,175	20	104,874	16,402

Notes:

Definitions

- Petrol (average fuel blend): Standard grade petrol sold in the UK contains a blend of just under 5% bioethanol and around 95% petrol.
- Diesel (average bio-fuel blend): The most common biodiesel blend is B20, which ranges from 6% to 20% biodiesel blended with petroleum diesel. However, B5 (a biodiesel blend of 5% biodiesel, 95% diesel) is also commonly used in fleet vehicles.
- LPG: Liquefied petroleum gas.
- LNG: Liquefied natural gas.
- The 'Other' categories include:
 - natural gas received through the gas mains grid network in kWh;
 - hydrotreated vegetable oil (HVO) in litres; and
 - white diesel (i.e. taxed diesel) in litres.
- For more information about the supply of renewable road fuels in the UK please visit the [renewable fuel statistics](#) webpage.

Performance data

Community experience



Air quality

Contract type	Vehicle type	Requirements	Percentage	
			Target	Proportion that were compliant in 2020/21
EWC	Non-Road Mobile Machinery	Proportion of NRMM that meets HS2's emission standards	100%*	99.9%
	Heavy Goods Vehicles	Proportion of HGVs that are Euro VI or better	100%*	98.4%
	Light Duty Vehicles	Proportion of LDVs that are Euro 6 diesel or Euro 4 petrol	100%	77.7%
MWCC	Non-Road Mobile Machinery	Proportion of NRMM that meets HS2's emission standards	100%*	99.7%
	Heavy Goods Vehicles	Proportion of HGVs that are Euro VI or better	100%*	99.5%
	Light Duty Vehicles	Proportion of LDVs that are Euro 6 diesel or Euro 4 petrol	100%	94.2%
Stations	Non-Road Mobile Machinery	Proportion of NRMM that meets HS2's emission standards	100%*	100%
	Heavy Goods Vehicles	Proportion of HGVs that are Euro VI or better	100%*	99.8%
	Light Duty Vehicles	Proportion of LDVs that are Euro 6 diesel or Euro 4 petrol	100%	82.3%
Total Phase One contracts	Non-Road Mobile Machinery	Proportion of NRMM that meets HS2's emission standards	100%*	99.8%
	Heavy Goods Vehicles	Proportion of HGVs that are Euro VI or better	100%*	99.2%
	Light Duty Vehicles	Proportion of LDVs that are Euro 6 diesel or Euro 4 petrol	100%	83.9%

* Including approved exemptions.

Notes:

Methodology

- HS2 emission standards are included in both the [Code of Construction Practice](#) (Chapter 7) as well as the [HS2 Information Paper E31](#).
- The reporting period is April 2020 to March 2021.

Definitions

- Non-Road Mobile Machinery Emissions Standards:
 - HS2 has applied [NRMM engine emission requirements](#), route-wide, for all machines with an engine power of between 37kW and 560kW.
- NRMM: Non-Road Mobile Machinery (NRMM) refers to all mobile machines and transportable industrial equipment or vehicles which are fitted with an internal combustion engine, not intended for transporting goods or passengers on roads, for example excavators, cranes and dump trucks.
- LDV: Light Duty Vehicles: vehicles with a permissible maximum weight less than or equal to 3.5 tonnes.
- HGV: Heavy Goods Vehicles: vehicles with a permissible maximum weight greater than 3.5 tonnes.

Performance data

Notes continued from previous page:

Performance commentary

- Progress in meeting the HGV requirements has been made through working with contractors to identify opportunity areas and action plans in meeting the emission requirements. Non-compliances predominately relate to specialist vehicles where an exemption may have been suitable but has not been applied for.
- Challenges around LDV compliance are linked to Covid-19, where personal vehicles were used to access sites during lockdown periods where it was advised to avoid public transport.
- NRMM non-compliances relate to non-compliant plant arriving on site failing to be preregistered with HS2 Ltd. While the machines were not used on site, and were removed and replaced, this is recorded as a non-compliance. Further to this, specialist NRMM, without approved exemptions in place, are recorded as non-compliant.
- 62% of Non-Road Mobile Machinery out-performed HS2's emission standards.

Performance data

Responsible consumption and production



Responsible sourcing

Contract type	Material	Proportion responsibly sourced (percentage)	Tonnes	Percentage
		Target	Total purchased in 2020/21	Proportion responsibly sourced in 2020/21
EWC	Timber	100%	4,052	100%
	Concrete	100%	23,818	100%
	Steel	100%	92,069	100%
	Other materials	25%	244,423	32.3%
MWCC	Timber	100%	5,105	99.9%
	Concrete	100%	464,684	100%
	Steel	100%	814,317	100%
	Other materials	25%	318,102	96.4%
Stations	Timber	100%	1,404	99.7%
	Concrete	100%	13,257	100%
	Steel	100%	754	100%
	Other materials	25%	23,266	100%
Total Phase One contracts	Timber	100%	10,561	99.9%
	Concrete	100%	501,759	100%
	Steel	100%	907,140	100%
	Other materials	25%	585,791	69.8%

Notes:

Methodology

- Responsible sourcing schemes are those identified in **BREEAM Guidance Note GN18**.
- The 'other' section includes all applicable materials apart from timber, concrete and steel. For a list of applicable materials please refer to table 9.13 on page 243 of the **BREEAM 2018 technical manual**.

Performance data

Construction and demolition (C&D) waste

Contract type	Target (proportion of C&D waste diverted from landfill percentage)	Tonnes				Percentage
		Total construction waste diverted from landfill in 2020/21	Total demolition waste diverted from landfill in 2020/21	Total C&D waste diverted from landfill in 2020/21	Total C&D waste in 2020/21	Proportion C&D waste diverted from landfill in 2020/21
EWC	95%	22,208	6,462	28,670	30,238	94.8%
MWCC	95%	30,244	1,979	32,223	32,512	99.1%
Stations	95%	279	0	279	279	100%
Total Phase One contracts	95%	52,732	8,441	61,173	63,030	97.1%

Excavated material

Contract type	Target (proportion of excavated material beneficially reused percentage)	Tonnes	Percentage
		Total excavated material in 2020/21	Proportion of excavated material beneficially reused in 2020/21
EWC	95%	328,809	89.7%
MWCC	95%	511,169	97.3%
Stations	95%	40,787	99.3%
Total Phase One contracts	95%	880,764	94.6%

Notes:

Definitions

- Definition of beneficial reuse of materials:

For an excavated material management activity to be classified as beneficial reuse it must meet the following tests:

- The activity would lead to a beneficial reuse and bring land back into use or provide ecological benefit.
- In the case of quarries or landfill sites, the activity has a planning requirement to be restored.
- The material is suitable for its intended use and would not harm human health or the environment.
- The minimum amount of material would be used to achieve the restoration required by any planning consent.
- Alternative material (whether waste or not) would be required if material was not to be used.

Performance data

Beneficial reuse of timber

Contract type	m ³	Percentage
	Total felled timber	Proportion of felled timber beneficially reused
EWC	53,630	10.8%
MWCC	1,993	50%
Stations	6	100%
Total Phase One contracts	55,629	12.2%

Notes:

Methodology

- The beneficial reuse of timber includes:
 - Reused on site.
 - Provided for community uses.
 - Used for solid wood production.
- The beneficial reuse of timber does not include:
 - Used for reconstituted board production.
 - Used for biomass.
 - Other reuse (not disposal).
 - Landfill.
- There is no set target for this KPI. Contractors look to beneficially reuse timber when it is possible.

Performance data

Water usage		
Contract type	m ³	Percentage
	Total water use	Proportion of water consumption that is non-potable
EWC	271,522	4.7%
MWCC	440,180	15.7%
Stations	2,359	0%
Total Phase One contracts	714,060	11.5%

Notes:

Methodology

- Non-potable water is the sum of raw and abstracted water.
- Water use is a challenge for infrastructure projects and we use mains water, or potable water, as long as there is capacity, in part due to the cost of transporting water. This means our use of non-potable water – that is recycled or ‘grey’ water and water taken directly from the environment – is small.

Definitions

- Water types definitions:
 - Potable water: i.e. from mains.
 - Raw water: recycled and grey water.
 - Abstracted water: water abstracted directly from the environment.

Performance data

Overarching commitments



Environmental incidents

Contract type	Level 1 incidents	Level 2 incidents	Level 3 incidents	Level 4 incidents	Working hours	Weighted Environmental Incident Rate (average over 2020/21)
EWC	0	5	78	134	10,704,867	13.2
MWCC	0	7	28	95	10,911,672.7	9.9
Stations	0	0	6	11	1,259,093.3	5.6
Total Phase One contracts	0	12	112	240	22,875,633	11.2

Notes:

Methodology

- The reporting period for this dataset is from April 2020 to March 2021.
- The incident rate methodology is as follows: $(\text{Level 1} \times 1000) + (\text{Level 2} \times 100) + (\text{Level 3} \times 10) + (\text{Level 4} \times 1) / (\text{Total Hours worked} / 100000)$.

Definitions

- The definition of the incident levels is the following:
 - Level 1: number of incidents with a significant and extensive event or failure to comply with legislation likely to result in prosecution.
 - Level 2: number of incidents with damage/disturbance event or failure to comply with legislation with potential to result in regulatory enforcement action.
 - Level 3: number of minor incidents/disturbances. Breach of monitoring threshold or trigger level attributable to site activities.
 - Level 4: number of incidents which resulted in no harm, loss or damage. Failure to comply with HS2 Code of Construction Practice.

Considerate Constructors Scheme (CCS)

Contract type	CCS Score (average for site visits in 2020/21)
EWC	44/50
MWCC	46/50
Stations	47/50
Total Phase One contracts	45/50

Notes:

About this KPI

- HS2's target is for all sites to achieve a score of at least 40/50.
- The **Considerate Constructors Scheme** is a not-for-profit, independent organisation founded to raise standards in the construction industry.

Methodology

- Only includes those sites that have been visited in 2020 – 2021.
- Where a site was assessed more than once in the reporting period, only the most recent score was used for the contract-wide average.

Performance data

BREEAM/CEEQUAL

BREEAM buildings

Contract	Target rating	Design rating (as at March 2021)	Post-construction rating (as at March 2021)
Euston	Excellent (70%)	On target	On target
Old Oak Common	Excellent (70%)	On target	On target
Interchange	Excellent (70%)	Outstanding achieved (86%)	On target
Curzon Street	Excellent (70%)	On target	On target

BREEAM/CEEQUAL

BREEAM infrastructure/CEEQUAL

Contract	Target rating	Design rating (as at March 2021)	CEEQUAL Post-construction rating (as at March 2021)
SCS JV	Excellent (70%)	Excellent achieved (82.6%)	On target
Align JV	Excellent (70%)	On target	On target
EKFB JV	Excellent (70%)	On target	On target
BBV JV	Excellent (70%)	On target	On target

Notes:

Methodology

- EWCs don't have a separate BREEAM/CEEQUAL environmental assessment but feed information to the MWCCs.

Definitions

- Environmental Assessments definitions:
 - **BREEAM** is the world's leading sustainability assessment method for master planning projects, infrastructure and buildings. It recognises and reflects the value in higher performing assets across the built environment lifecycle, from new construction to in-use and refurbishment.
 - **CEEQUAL** is the evidence-based sustainability assessment, rating and awards scheme for civil engineering, infrastructure, landscaping and public realm projects.
- An 'Excellent' rating is achieved if the projected score is $\geq 70\%$ for BREEAM infrastructure and $\geq 75\%$ for CEEQUAL.
- 'On target' achieved if 'current projected score' – 'credits targeted, high risk' $\geq$ target rating.
- High Risk definition:
 - For a credit to be classified as high risk one or more of the following criteria must be associated to it at the time when the quarterly progress report is submitted to HS2:
 - The evidence for the credit should have been in place prior to the current stage in the programme, hence immediate action is required to avoid losing the credit.
 - The credit, or at least one of its compliance details, is unlikely to be achievable due to non-compliance, technical uncertainty, design changes or programme changes.
 - The credit, or at least one of its compliance details, is prohibitively expensive and there is a low financial return (outside of agreed budget).
 - The credit is complex and there are a number of compliance details that are often missed or can easily be lost through not obtaining one piece of evidence or the project team have little experience of gaining the credit.

Performance commentary

- The target rating for the Interchange station is 'Excellent' but we have achieved a design rating of more than 85%, which is the threshold for the 'Outstanding' rating.



LR Independent Assurance Statement

Relating to the Environmental Sustainability Data Appendix of the HS2 Ltd Environmental Sustainability Report for the period from April 2020 to March 2021

This Assurance Statement has been prepared for High Speed Two Ltd (HS2) in accordance with our contract but is intended for the readers of this Report.

Terms of engagement

Lloyd's Register Quality Assurance Limited (LR) was commissioned by High Speed Two Ltd (HS2) to provide independent assurance on selected information and key performance indicators within the Environmental Sustainability Data Appendix ("the data download") of the HS2 Ltd Environmental Sustainability Report against the assurance criteria below to a limited level of assurance using LR's verification procedure.

Our assurance engagement covered HS2 Enabling Works Contracts, Main Works Civil Contracts and Stations Contracts in Phase One of the project. The only exemptions are the whole life carbon footprint and no net loss in biodiversity datasets which include Phase 2a baseline data. Specifically, we verified conformance with HS2 Ltd Technical Standards for Environmental Sustainability Reporting for the following selected datasets:

- Progress on no net loss in biodiversity calculation
- Number of trees and shrubs planted
- Woodland Fund
- Whole life carbon footprint
- Energy and fuel consumption data
- Air quality
- Responsible sourcing
- Construction and demolition waste
- Excavated material
- Beneficial reuse of timber
- Water
- Environmental Incidents
- Considerate Constructors Scheme
- BREEAM buildings
- BREEAM infrastructure/CEEQUAL

Note: Ancient Woodland and Material Efficiency Metric datasets were withdrawn from the initial scope of engagement by HS2. It is our understanding HS2 will publish a report on Ancient Woodland in 2022.



The scope of our assurance engagement reflects the current stage of the HS2 Phase One programme and did not include other programmes such as the Rail Systems and Rolling Stock programmes where HS2 has not awarded the contracts.

LR's responsibility is only to HS2. LR disclaims any liability or responsibility to others as explained in the end footnote. HS2 responsibility is for collecting, aggregating, analysing and presenting all the data and information within the report and for maintaining effective internal controls over the systems from which the report is derived. Ultimately, the report has been approved by, and remains the responsibility of HS2.

LR's Opinion

Based on LR's approach, except for the effect of the matters described in the Basis for Qualified Opinion, nothing has come to our attention that would cause us to believe that HS2 has not, in all material respects:

- Met the requirements above
- Disclosed accurate and reliable performance data and information as no errors or omissions were detected

The opinion expressed is formed on the basis of a limited level of assurance and at the materiality of the professional judgement of the verifier.

Note: The extent of evidence-gathering for a limited assurance engagement is less than for a reasonable assurance engagement. Limited assurance engagements focus on aggregated data rather than physically checking source data at sites. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

Basis for Qualified Opinion

Data and information is self-assured by contractors in accordance with the HS2 Technical Standards for Environmental Sustainability Reporting. Non-material errors were noted in the reporting of Number of Trees Planted, Responsible Sourcing, Air Quality, Construction and Demolition Waste, Excavated Material and Beneficial Reuse of Timber. HS2 should reduce the probability of errors by assessing the reliability and quality of contractor environmental sustainability data in Technical Assurance Reviews.

LR's approach

LR's assurance engagements are carried out in accordance with our verification procedure. The following tasks were undertaken as part of the evidence gathering process for this assurance engagement:

- Interviewing HS2 Subject Matter Experts who were responsible for the HS2 Technical Standards for Environmental Sustainability Reporting which enable efficient and effective environmental sustainability reporting.
- Auditing the HS2 data management systems to confirm that there were no significant errors, omissions or mis-statements in the report. We did this by reviewing the effectiveness of data handling procedures, instructions and systems, including those for internal verification.
- Reviewing data and information submitted by Enabling Works Contractors, Main Works Civil Contractors and Stations Contractors into the HS2 data management system (HORACE).
- Interviewing the HS2 Environmental Management System & Reporting Analyst who was responsible for reviewing and assuring the contractor data submissions.
- Interviewing the HS2 Senior Environmental Managers of the Project Delivery Team who were responsible for the collation of data and information disclosed in the data download.



Observations

Further observations and findings, made during the assurance engagement, are:

- Effective processes are established to assure contractor No Net Loss in Biodiversity and Life Cycle Assessment data submissions.
- The methodology used for the No Net Loss in Biodiversity for Replaceable Habitats calculation is based on consultation with the Department for Environment, Food & Rural Affairs (DEFRA) and Natural England. Ancient Woodland is considered to be irreplaceable and is not included in the calculation.
- HS2 should retain clear and transparent audit trails to reduce the time required to verify data reported in Climate Change, Environmental Incidents and Number of Trees Planted.

LR's standards, competence, and independence

LR ensures the selection of appropriately qualified individuals based on their qualifications, training and experience. The outcome of all verification and certification assessments is then internally reviewed by senior management to ensure that the approach applied is rigorous and transparent.

LR is HS2's certification body for ISO9001, ISO14001, ISO45001 and PAS2080. The verification and certification assessments are the only work undertaken by LR for HS2 and as such does not compromise our independence or impartiality.

A handwritten signature in black ink, appearing to read 'S. J. Fletcher'.

Steve Fletcher

LR Lead Verifier

On behalf of Lloyd's Register Quality Assurance

1 Trinity Park, Bickenhill Lane, Birmingham, B37 7ES, UK.

Dated: 14th December 2021

LR reference: LRQ00004067

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GRI Standards index

The Environmental Sustainability Progress Report and the Data Appendix have been prepared with reference to the Global Reporting Initiative (GRI) Standards: Core option. The full list of disclosures covered can be found in the GRI index below.

Disclosure	Disclosure title	Location	Direct answers, notes and omissions
GRI 101: Foundation			
GRI 102: General disclosures (2016)			
Organisational profile			
102-1	Name of the organisation	Environmental Sustainability Progress Report (ESPR) , Front cover	
102-2	Activities, brands, products, and services	ESPR, About HS2, p4	
102-3	Location of headquarters	Annual Report and Accounts , p74	
102-4	Location of operations	Direct answer	HS2 Ltd is operational in the United Kingdom.
102-5	Ownership and legal form	Annual Report and Accounts, p74	
102-6	Markets served	ESPR, About HS2, p4	Disclosure of geographic locations where products and services are offered.
102-7	Scale of the organisation	Annual Report and Accounts, p86, p88	Disclosure of total number of employees and net revenues offered.
102-11	Precautionary Principle or approach	Direct answer	Our risk management approach incorporates the 'precautionary principle', which implies our responsibility to protect the natural environment from harm where there is a plausible risk.
Strategy			
102-14	Statement from senior decision maker	ESPR, Reviewing our progress, p2	
Ethics and integrity			
102-16	Values, principles, standards, and norms of behaviour	Our guiding principles and values	
Governance			
102-18	Governance structure	ESPR, Environmental sustainability governance, p53	
Stakeholder engagement			
102-40	List of stakeholder groups	ESPR, Stakeholder and community engagement, p57	
102-42	Identifying and selecting stakeholders	ESPR, Stakeholder and community engagement, p57	
102-43	Approach to stakeholder engagement	ESPR, Stakeholder and community engagement, p57	Disclosure on our approach to stakeholder engagement is offered.

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Disclosure	Disclosure title	Location	Direct answers, notes and omissions
Reporting practice			
GRI 102: General disclosures (2016)			
102-45	Entities included in the consolidated financial statements	Annual Report and Accounts, p74	Disclosure of all entities included in HS2 Ltd's consolidated financial statements or equivalent documents can be found in the reference cited here. All entities included in HS2 Ltd's consolidated financial statements or equivalent documents are covered in this report.
102-46	Defining report content and topic Boundaries	ESPR, About this report, p63; ESPR, Prioritising environmental sustainability topics, p55	
102-47	List of material topics	ESPR, Prioritising environmental sustainability topics, p55	
102-48	Restatements of information	Direct answer	There are no restatements of information.
102-49	Changes in reporting	Direct answer	Since this is the first Environmental Sustainability Progress Report published about HS2, there are no changes in reporting to declare.
102-50	Reporting period	ESPR, About this report, p63; Environmental Sustainability Data Appendix (ESDA), Scope and methodology, p2	
102-51	Date of most recent report	Direct answer	This is the first Environmental Sustainability Progress Report published about HS2.
102-52	Reporting cycle	ESPR, About this report, p63; ESDA, Scope and methodology, p2	
102-53	Contact point for questions regarding the report	ESPR, About this report, p63; ESDA, Scope and methodology, p2	
102-55	GRI content index	ESDA, GRI Standards index, p20	
102-56	External assurance	ESPR, LR independent assurance statement, p64; ESDA, LR independent assurance statement, p16	
HS2 Green Corridor (Material topics: net change in biodiversity, protecting the countryside, protected species, ancient woodland, water impacts)			
GRI 103: Management approach (2016)			
103-1	Explanation of the material topic and its Boundary	ESPR, Progress on the HS2 Green Corridor, p13-21	
103-2	The management approach and its components	ESPR, Progress on the HS2 Green Corridor, p13-21	
103-3	Evaluation of the management approach	ESPR, Progress on the HS2 Green Corridor, p13-21	

GRI Standards index

Disclosure	Disclosure title	Location	Direct answers, notes and omissions
HS2 Green Corridor (Material topics: net change in biodiversity, protecting the countryside, protected species, ancient woodland, water impacts)			
GRI 304: Biodiversity (2016)			
304-3	Habitats protected or restored	ESPR, Progress on the HS2 Green Corridor, p13-21; ESDA, Performance data, Progress on no net loss in biodiversity calculation, p4	Disclosure on partnerships with third parties to protect or restore habitat areas distinct from where the organisation has overseen and implemented restoration or protection measures. Location of biodiversity work and HS2's Green Corridor can be found here: hs2.org.uk/building-hs2/hs2-green-corridor
Climate change (Material topics: carbon, resilience)			
GRI 103: Management approach (2016)			
103-1	Explanation of the material topic and its Boundary	ESPR, Progress on climate change, p22-28	
103-2	The management approach and its components	ESPR, Progress on climate change, p22-28	
103-3	Evaluation of the management approach	ESPR, Progress on climate change, p22-28	
Community experience (Material topics: air quality, noise, flooding, traffic and transport, Community and Environment Fund)			
GRI 103: Management approach (2016)			
103-1	Explanation of the material topic and its Boundary	ESPR, Progress on community experience, p29-36	
103-2	The management approach and its components	ESPR, Progress on community experience, p29-36	
103-3	Evaluation of the management approach	ESPR, Progress on community experience, p29-36	
Historic environment (Material topics: built heritage, historic landscape, archaeology)			
GRI 103: Management approach (2016)			
103-1	Explanation of the material topic and its Boundary	ESPR, Progress on the historic environment, p37-40	
103-2	The management approach and its components	ESPR, Progress on the historic environment, p37-40	
103-3	Evaluation of the management approach	ESPR, Progress on the historic environment, p37-40	

GRI Standards index

Disclosure	Disclosure title	Location	Direct answers, notes and omissions
Responsible consumption and production (circular economy, waste, responsible sourcing, resource efficiency)			
GRI 103: Management approach (2016)			
103-1	Explanation of the material topic and its Boundary	ESPR, Progress on responsible consumption and production, p41-47	
103-2	The management approach and its components	ESPR, Progress on responsible consumption and production, p41-47	
103-3	Evaluation of the management approach	ESPR, Progress on responsible consumption and production, p41-47	
GRI 306: Waste (2020)			
306-1	Waste generation and significant waste-related impacts	ESPR, Progress on responsible consumption and production, p41-47	
306-2	Management of significant waste-related impacts	ESPR, Progress on responsible consumption and production, p41-47	Disclosure for parts a. and b. of disclosure requirement offered.
GRI 301: Materials (2016)			
301-3	Reclaimed products and their packaging materials	ESDA, Performance data, Excavated material, p11; ESDA, Performance data, Beneficial reuse of timber, p12	Disclosure of percentage of reclaimed products offered and disclosure on how this data was collected offered.
GRI 303: Water and Effluents (2018)			
303-5	Water consumption	ESDA, Performance data, Water usage, p13	Disclosure of total water consumption from all areas offered. Water consumption measured in m ³ .

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