

DRAFT ENVIRONMENTAL STATEMENT

Glossary of terms and list of abbreviations

HS2 London-West Midlands

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ENGINE FOR GROWTH

DRAFT ENVIRONMENTAL STATEMENT

Glossary of terms and list of abbreviations

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Glossary of terms

Term	Meaning
abutment	A point where two structures meet, which support or anchor the end of a bridge.
accommodation road or track	A road/track that serves a piece of land or residential property which is not considered a public highway.
Agricultural Land Classification	Agricultural land classification developed by the Ministry of Agriculture, Fisheries and Food. It classifies agricultural land into five categories according to versatility and suitability for growing crops, where 1 is considered excellent quality land and 5 is considered very poor quality.
Agri-environment Scheme	A mechanism by which landowners and other individuals and bodies responsible for land management can be incentivised to manage their land in a manner sympathetic to the environment.
air quality action plan	A plan that must be compiled by local authorities for a declared air quality management area.
air quality exceedence	A period of time during which the concentration of a pollutant is greater than, or equal to, the appropriate air quality criteria. For air quality standards, an exceedence is a concentration greater than the standard value. For air pollution bandings, an exceedence is a concentration greater than, or equal to, the upper band threshold.
air quality management area	If a local authority identifies any locations within its boundaries where the air quality objectives are not likely to be achieved, it must declare the area as an air quality management area. The local authority is subsequently required to put together a local air quality action plan.
air quality objective	A statement of policy intentions or targets on the acceptable levels of pollutants in the air. The objectives are set out in the UK Government's Air Quality Strategy for the key air pollutants.
air quality sensitive receptors	People, property or designated sites for nature conservation that may be at risk from exposure to air pollutants that could potentially arise as a result of a proposed development.
air quality standard	'Air quality standards' refers to pollution concentrations recorded over a given period, which are considered acceptable in terms of what is scientifically known about the effects of each pollutant. They can also be used as a benchmark to indicate whether air pollution is getting better or worse.
as low as reasonably practicable	A principle which involves weighing a risk against the time and cost needed to control it.
ambient sound	Totally encompassing sound in a given situation over a given period, measured as an equivalent continuous sound level.
anaerobic	Oxygen-deficient.
ancient woodland	Land that has been continually wooded since at least 1600.
annual average rainfall	Average amount of rain falling at a specified site over a year-long period, recorded by the Meteorological Office.

Term	Meaning
appraisal of sustainability	An assessment of the impact of plans, policies and programmes from an environmental, economic and social perspective.
appropriate assessment	An assessment (required under regulation 48 of the Conservation (Natural Habitats, &c.) Regulations 1994) of the effects of a plan or project on the Natura 2000 network of European sites of nature conservation significance. The assessment focuses on the plan or project implications for the site and any potential adverse impacts on site integrity.
aquifer	A rock formation that is sufficiently porous and permeable to yield a significant quantity of water to a borehole, well or spring.
archaeological priority areas	English Heritage defines 'archaeological priority areas' as areas specified by the local planning authority to help protect archaeological remains that might be affected by development.
Area of Outstanding Natural Beauty	Area designated under section 82(1) of the Countryside and Rights of Way Act 2000 for the purpose of conserving and enhancing its natural beauty.
at-grade	On the same level. For example, when a railway line is on the current ground level.
auto-transformer feeder station	Permanent compounds which are located adjacent to railways which contain equipment to enable the transfer of electrical power between the National Grid network and the railway.
balancing pond	Part of a drainage system that is used for temporarily storing flood waters.
ballast	Material (most commonly stone) which forms the track bed upon which the railway sleepers are laid.
base flow index	The proportion of river flow that comes from groundwater sources. Base flow sustains a river flow in dry weather.
bentonite	Absorbent clay, formed by the breakdown of volcanic ash. Used temporarily in liquid form during the construction of retaining walls. It helps to prevent the sides from collapsing before concrete is poured to permanently reinforce the walls.
best and most versatile land	Land defined as grades 1, 2 and 3a of the Agricultural Land Classification. This land is considered the most flexible, productive and efficient and is most capable of delivering crops for food and non-food uses.
best practicable means	Management of an activity in a way that, as far as practicable, minimises the adverse impacts of the activity, whilst taking into account social and environmental factors, along with cost effectiveness. Defined in section 79(9) of the Environmental Protection Act 1990.
biodiversity	The variety of life in the world or in a particular habitat or ecosystem.
biodiversity action plan	An internationally used programme that addresses threatened species and habitats and seeks to protect and restore biological systems.
bored tunnel	Tunnel constructed by using a tunnel boring machine.
borehole	A deep hole bored into the ground as part of investigations, typically to test depth and quality of groundwater.
bridge deck	The road or pedestrian walkway that forms the surface of the bridge.
bridge soffit	The underside of a bridge.

Term	Meaning
built heritage	A structure or building of historic value. These structures are visible above the land surface.
bund	An embankment which acts as a visual or noise screen.
buried heritage	A heritage asset beneath the land surface and which may include earthworks.
cantilever	A structure anchored at one end only.
calcareous soil	Soil which contains accumulations of calcium and magnesium carbonate, formed by the weathering of calcareous rocks and fossil shell beds.
captive trains	High speed trains designed to be used across the European high speed rail network only.
carbon budgeting system	A carbon budget is the total quantity of greenhouse gas emissions permitted in the UK over a specified time period.
catalytic effects (economic)	The stimulation of additional economic activity through the introduction of new infrastructure, such as a high speed rail network.
catenary system	Generalised term used to describe the whole overhead line equipment in the rail corridor.
circa	Meaning 'approximately', often used in a historic context in reference to a date.
clay	A soil consisting of particles less than 0.002mm in diameter.
classic line	The term that describes the existing UK rail network (excluding HS1). Can also be referred to as a 'conventional line'.
Code of Construction Practice	A code of construction practice sets out the standards and procedures to which a developer or contractor must adhere in order to manage the potential environmental impacts when undertaking construction.
cofferdam	A temporary enclosure built within a body of water to regulate in-flow and out-flow of water.
Committee on Climate Change	Independent advisory body, established under section 32 of the Climate Change Act 2008, tasked with helping the UK Government set and meet carbon budgets and adapt to climate change.
community forum area	Defined areas along the proposed HS2 Phase One route (e.g. Colne Valley community forum area).
compensation (ecology)	Measures taken to make up for the loss of, or permanent damage to, biological resources through the provision of replacement areas. Any replacement area should be similar to – or, with appropriate management, have the ability to reproduce – the ecological functions and conditions of those biological resources that have been lost or damaged.
conceptual site model	<p>Method used to identify the various types of risk relating to contaminated land. The conceptual site model includes:</p> <ul style="list-style-type: none"> • Categorisation of sources of contamination; • Categorisation of potential receptors; and • Identification of potential contamination pathways (i.e. linking sources to receptors).

Term	Meaning
connectivity (ecology)	A measure of the functional availability of the habitats needed for a particular species to move through a given area. Examples include the flight lines used by bats to travel between roosts whilst foraging.
conservation area	An area designated under section 69 of the Planning (Listed Buildings and Conservation Areas) Act 1990 as being of special architectural or historic interest and with a character or appearance which it is desirable to preserve or enhance.
construction person year	Used to report construction labour, where one construction person year represents the work done by one person in a year composed of a standard number of working days.
contiguous bored pile wall	Closely spaced bored piles which are used to form an underground wall, for the construction of a deep basement or cut-and-cover tunnel.
continuous monitoring station	Stations used for air quality monitoring which measure the levels of pollutants.
controlled waters	Rivers, streams, estuaries, lakes, canals, ditches, ponds and groundwater as far out as the UK territorial limit. The statutory definition is provided in section 104 (1) of the Water Resources Act 1991 and section 30A (d) of the Control of Pollution Act 1974.
conurbation	A region comprising a number of cities, large towns, and other urban areas that, through population growth and physical expansion, have merged to form one continuous urban and industrially developed area.
conventional line	The term that describes the existing UK rail network (excluding HS1). Can also be referred to as a 'classic line'.
Crossrail	A new east-west rail line linking Maidenhead and Heathrow Airport in the West, to Shenfield and Abbey Wood in the east, via tunnels under central London.
county wildlife site	A site of important nature conservation value within a county context, but which is not protected under the Wildlife and Countryside Act 1981.
cut-and-cover tunnel	A tunnel constructed by cutting a trench into the ground surface, constructing the tunnel within the trench and covering with the material that was excavated.
cutting	Excavation of earth material to lower the ground level to allow the route to remain at the same level.
demographic character area	Areas used to collect baseline data below community forum area level. The purpose of the DCA is to build up a descriptive, contextual profile of local communities (e.g. living in villages, towns, neighbourhoods).
decibel(s)	Between the quietest audible sound and the loudest tolerable sound there is a million to one ratio in sound pressure (measured in Pascal (Pa)). Because of this wide range, a level scale based on a logarithmic ratio is used in sound measurement called the decibel (dB) scale. Audibility of sound covers a range of approximately 0-140dB.

Term	Meaning
decibel(s) A-weighted	The human ear system does not respond uniformly to sound across the detectable frequency range and consequently instrumentation used to measure sound is weighted to represent the performance of the ear. This is known as the 'A weighting' and annotated as dB(A).
deck beams	A structural support element that is capable of withstanding a load.
deck slab	The material that lies on top of the deck beams to create a surface.
Department for Transport	Government department responsible for transport issues in the UK (where not devolved).
deposition index	A dimensionless index value that considers the extent of sediment coverage on the stream bed.
design development	Ongoing process in which technical specialists (engineers and environmental specialists) continue to refine the design for the various elements of HS2 Phase One.
development plan document	Documentation which seeks to guide development and planning in a local authority area for a set period of time.
diaphragm wall	Structures inserted into the ground which can be used as foundation walls, groundwater barriers or to isolate portions of contaminated ground.
diffusion tube	Diffusion tubes (samplers) are used in air quality monitoring.
Directive	European Commission Directives impose legal obligations on European member states.
discharge consent	Permission granted by the Environment Agency to discharge sewage or trade effluent directly into surface waters, groundwater or the sea.
displacement (economic)	Loss of local economic activity as a direct consequence of a proposed development.
tunnel drive launch shaft	Vertical excavation to form the start point for tunnel boring machine launch.
drop inlet culverts	A culvert is a drain or covered channel that allows water to flow under a road, railway or pedestrian walkway. If the water level drops to enter this channel, then it is referred to as a drop inlet culvert.
dust	Particulate matter up to 75 micrometres in diameter.
ecological status	The state of a water body, derived from a number of factors, including: the abundance of aquatic flora and fish fauna, nutrient availability, salinity, temperature and chemical pollution levels.
ecosystem	Biological community of interacting organisms (e.g. plants and animals) and their environment.
effluent	Treated wastewater discharged from a sewage treatment works.
electromagnetic compatibility zones	A bounded area in which specific levels of electromagnetic energy exist. Some EMC zones contain higher levels of electromagnetic energy than others. In the railway environment the zone containing most energy in these EMC zones exists on the trackside of the railway.
electromagnetic field	The field of force associated with electric charge in motion, which has both electric and magnetic components and contains electromagnetic energy.

Term	Meaning
electromagnetic interference	Disturbance that affects an electrical system due to magnetic and electric fields, electromagnetic induction or electromagnetic radiation emitted from an external source.
embankment	Artificially raised ground, commonly made of earth or stone.
English Heritage	Executive non-departmental public body created under section 32 of the National Heritage Act 1983 to: <ul style="list-style-type: none"> • Secure the preservation of ancient monuments and historic buildings situated in England; • Promote the preservation and enhancement of the character and appearance of conservation areas situated in England; and • Promote the public's enjoyment of, and advance their knowledge of, ancient monuments and historic buildings situated in England and their preservation.
English Woodland Grant Scheme	The Forestry Commission's suite of grants designed to encourage the creation and stewardship of woodlands.
entry level stewardship	One element of Defra's Environmental Stewardship Scheme intended to encourage a large number of farmers across a wide area to adopt simple environmental management practices such as hedgerow management, low input grassland, buffer strips and arable options.
environmental impact assessment	A process to systematically assess the potential environmental effects of proposed projects. EIA is a legal requirement for certain public and private projects in EU countries under Directive 2011/92/EU.
environmental statement	Suite of documents providing the necessary environmental information in respect of an EIA undertaken for a proposed project. It must include all information that is reasonably required to assess the potential environmental effects.
equivalent continuous sound pressure level	An index for assessment of overall sound exposure is the equivalent continuous sound pressure level, denoted L_{peq} . This is a notional steady level which would, over a given period of time, deliver the same sound energy as the actual time-varying sound over the same period. Hence fluctuating levels can be described in terms of a single figure level.
European Union Emissions Trading System	GHG emissions framework, designed to reduce emissions across EU countries.
excavated material	Soil and rock material that is removed from the ground during construction.
Exceptional Hardship Scheme	Compensation scheme introduced by the Government to assist those living on or close to the Proposed Scheme who, for reasons of exceptional hardship, need to sell their home but who cannot do so at a fair price because of HS2.
falsework	Temporary structures used to support construction components until the construction is sufficiently advanced to allow the structure to support itself.
fill	Material used to artificially change the elevation of existing ground levels.
floodplain	Land adjacent to a watercourse over which water flows, or would flow but for defences in place, in times of flood.

Term	Meaning
Flood Zones 1, 2 and 3	<p>A floodzone area classification system devised by the Environment Agency:</p> <ul style="list-style-type: none"> • Flood Zone 1: Land outside the floodplain. There is little or no risk of flooding in this zone; • Flood Zone 2: The area of the floodplain where there is a low to medium flood risk; and • Flood Zone 3: The area of the floodplain where there is a high risk of flooding.
fragmentation (ecology)	The breaking up of a habitat, ecosystem or land-use types into smaller parcels.
future baseline	The situation that would prevail if a proposed development does not proceed. Predicted impacts are compared against this theoretical scenario.
gabion	Large wire baskets filled with rock, used as retaining walls.
gleying	The process in which gley soils are created.
Grade 1 (ALC)	'Excellent' quality agricultural land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.
Grade 2 (ALC)	'Very good' quality agricultural land with minor limitations that affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown, but on some land in the grade there may be reduced flexibility due to difficulties with the production of more demanding crops, such as winter-harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.
Grade 3 (ALC)	Land with 'moderate' limitations. This affects the choice of crops that can be grown, timing and type of cultivation, and harvesting or yield levels. The yields of more demanding crops are generally lower or more variable than on land in grades 1 and 2. See subgrade 3a and 3b.
Grade 4 (ALC)	'Poor' quality agricultural land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops), the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.
Grade 5 (ALC)	'Very poor' quality agricultural land with very severe limitations which restrict use to permanent pasture or rough grazing.
Grade I building	A listed building of exceptional interest, sometimes considered to be internationally important.
Grade II* building	A listed building of particular importance, of more than special interest.
Grade II building	Nationally important buildings that are of special interest.
grade separation	Vertical separation of a transport junction. For example, a bridge to carry vehicles over a railway line.

Term	Meaning
green belt	A designation for land around certain cities and large built-up areas, which aims to keep this land permanently open or largely undeveloped.
green spaces	Areas of natural or semi-natural land. For example, parks, gardens and woodlands.
greenhouse gas	Atmospheric gases such as carbon dioxide, methane, chlorofluorocarbons, nitrous oxide, ozone, and water vapour that interfere with the earth's natural atmospheric exchange processes.
gross direct jobs	Jobs created during different phases of a project. In relation to the HS2 Phase One construction phase, gross impacts cover the construction workforce. During the operational phase, gross impacts refer to staffing of stations/interchanges and trains and infrastructure maintenance.
ground-borne sound	Vibration generated by moving vehicles (e.g. trains) in tunnels. Passing through the ground, it propagates into buildings where it causes building elements to vibrate, causing sound to be radiated inside a building.
groundwater	All water which is below the surface of the ground.
groundwater body	A distinct volume of groundwater within an aquifer.
groundwater dependent terrestrial ecosystems	Wetlands which are directly dependent upon water from a groundwater body to maintain their form and function.
groundwater source protection zone	Areas defined by the Environment Agency which show the risk from contamination/pollution to groundwater that is extracted for drinking water.
Habitat Suitability Index	A numerical index evaluating habitat quality and quantity for a particular species, where a value of 1 represents optimum habitat and 0 represents a habitat of no value.
haul roads	Temporary roads provided within the contractor's site area to allow for the movement of material around the site.
heritage asset	A building, monument, site, place, area or landscape of historic value.
higher level stewardship	An element of the Environmental Stewardship Scheme which is targeted towards achieving significant environmental benefits in high priority areas.
High Speed One	High speed rail link from St Pancras International station in London, to the Channel Tunnel (formerly known as the Channel Tunnel Rail Link).
High Speed Two	Proposed high speed rail line between London and the West Midlands (Phase One) and on to Manchester and Leeds (Phase Two).
High Speed Two (HS2) Limited (HS2 Ltd)	The company set up by the Government to develop proposals for a new high speed railway line between London and the West Midlands and to consider the case for new high speed rail services linking London, northern England and Scotland.
Historic Environment Record	A record of all known archaeological finds and features and historic buildings in an area, relating to all periods from the earliest human activity to the present day.
hybrid bill	Hybrid bills mix the characteristics of public and private bills. The provisions in a hybrid bill would affect the general public, but would also have particular effects on specific individuals or groups.

Term	Meaning
hydrogeology	The distribution and movement of groundwater in soils and rocks, including in aquifers.
inert waste	Defined in Article 2(e) of EU Landfill Directive (1999/31/EC) as follow: <ul style="list-style-type: none"> • Waste that does not undergo any significant physical, chemical or biological transformations; • Inert waste does not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm to human health; and • The total leachability and pollutant content and the ecotoxicity of its leachate are insignificant and, in particular, do not endanger the quality of any surface water and/or groundwater.
infrastructure maintenance depot	Facility for the logistical support for the maintenance and repair of the railway.
integrity (ecology)	The ecological health of an area.
interlocking system	A signalling system to ensure the safe running of trains.
interoperability	Trains designed to operate across the European high speed network.
in-situ preservation (cultural heritage)	Preserving archaeological remains in the original position.
January 2012 announced route/scheme	Proposed HS2 Phase One route/scheme announced in January 2012, following public consultation between February and July 2011.
$L_{pA10(T)}$	L_{pA10} is the A-weighted sound pressure level exceeded for 10% of the measurement period, and is generally used to describe road traffic noise.
$L_{pA90(T)}$	A parameter that is widely accepted as reflecting human perception of ambient noise is the background level, L_{pA90} . This is the A-weighted sound pressure level exceeded for 90% of the measurement period and generally reflects the sound level in the lulls between individual events. Over a 1-hour period, the L_{pA90} will be the sound level exceeded for 54 minutes.
$L_{pAeq(T)}$	The equivalent continuous A-weighted sound pressure level, L_{pAeq} , is the single number that represents the average sound energy measured over that period. The L_{pAeq} is the sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period. It is commonly used to express the energy value from individual sources that vary in level over their operational cycle.
L_{pAmax}	L_{pAmax} is the maximum instantaneous sound pressure level attained during a measurement period (30 seconds, 5 minutes etc.) and can be measured using slow or fast weighting. It is generally used when assessing the likelihood of night-time sleep disturbance.
landscape character areas	Areas of landscape that have a broadly consistent pattern of topography, land use and vegetation cover.

Term	Meaning
leakage (economic)	The amount of economic benefit that leaks out of the area of impact through processes such as commuters or the supply chain spending outside the local area.
light goods vehicle	A motor vehicle used to carry goods of up to 3.5 tonnes.
listed building	A building of special architectural or historic interest. Listed buildings are graded I, II* or II, with Grade I being the highest. Listing includes the interior as well as the exterior of the building, and any buildings or permanent structures (e.g. wells within its curtilage).
local planning authority	The local authority or council that is empowered by law to exercise planning functions.
local development framework	Spatial planning strategy introduced in England and Wales by the Planning and Compulsory Purchase Act 2004. The local development framework contains a number of development plan documents prepared by the local planning authority that set the policies and development allocations for an area.
local wildlife site	Non-statutory sites of nature conservation value that have been designated 'locally'. These sites are referred to differently between counties with common terms including site of importance for nature conservation (SINC), county wildlife site (CWS), site of biological importance (SBI) and sites of metropolitan importance (SMI).
main construction site	Strategic hubs for core project management (engineering, planning and construction delivery), commercial and administrative staff associated with the construction of HS2 Phase One.
main river	A river maintained directly by the Environment Agency. They are generally larger arterial watercourses.
maximum sound level	The maximum sound level identified during a measurement period. It is commonly measured using either the fast or slow time constant.
mined tunnel	Tunnelling method where self-supporting subsurface material (e.g. rock) is present. It involves the use of drill and blast techniques to advance the excavation.
mineral planning authorities	In England the responsibility for mineral planning resides with unitary authorities, which deal with all planning issues within their areas. In parts of England with two tiers of local government (counties and districts), mineral planning authorities (MPA) are the county councils. National Parks are also mineral planning authorities.
mineral safeguarding area	Areas defined by mineral planning authorities with known mineral resources that are of sufficient economic or conservation value.
multiplier (economic)	An effect in economics in which an increase in direct spending produces an increase in national income and consumption that is greater than the initial amount spent. For example, building a factory will lead to the employment of construction and factory workers. This new employment will stimulate growth and employment in local services in the surrounding areas (e.g. cafes, restaurants, shops etc.), as new demand will be generated.
National Trust	A UK conservation charity protecting historic places and green spaces.

Term	Meaning
National Vegetation Classification	A comprehensive classification and description of the plant communities of Britain, administered by the Joint Nature Conservation Committee.
natural area	Sub-divisions of England, defined by Natural England, each with a characteristic association of wildlife and natural features. They provide a way of interpreting the ecological variations of the country in terms of natural features, illustrating the distinctions between one area and another.
Natural England	Body constituted under section 1 of the Natural Environment and Rural Communities Act 2006 (section 2(1)) to ensure that the natural environment is conserved, enhanced and managed for the benefit of present and future generations, thereby contributing to sustainable development.
net	After all deductions have been made.
nitrogen dioxide	A poisonous brown gas, often present in smog and car exhaust fumes. It is also an irritant to the respiratory system.
nitrogen oxide	A chemical compound formed during the combustion of compounds containing nitrogen, from any high-temperature combustion in the presence of air, and by secondary processes in the atmosphere.
nitrogen oxides	A group of chemical compounds which may be interconverted in the atmosphere. The principal oxides of nitrogen are nitric oxide and nitrogen dioxide.
non-government organisation	Legally constituted organisation which is independent of government. It is ordinarily non-profit and may be organised at a local, national or international level.
non-hazardous waste	Any waste not defined as 'hazardous' under Directive 91/689/EEC. Examples include soils from ground/site clearance and demolition wastes.
non-technical summary	A report which briefly describes the main points discussed in an environmental statement in a clear manner without the use of technical language.
niche (ecology)	The role a species plays in an ecosystem. Dimensions of a species niche include their food and time of feeding and the chemical and physical make-up of their environments (e.g. water salinity, temperature).
nitrate vulnerable zone	Areas designated under the EU Nitrates Directive (91/676/EEC) in order to reduce the level of nitrates in surface and groundwater. Farmers with land in NVZs have to follow mandatory rules to manage nitrate loss from agriculture.
offline	Not connected or currently in use. Used in engineering in relation to railways, roads, pipelines etc.
online	Connected or currently in use. Used in engineering in relation to railway, roads, pipelines etc.
Ordnance Survey	The official map-making body of the Government.
output areas	Geographically defined areas based on postcode units which have been used since the 2001 census for statistical purposes. They provide socio-economic information and feed in to super lower output areas.
overbridge	A bridge crossing over a transport corridor (e.g. a rail line).
overhead line equipment	The equipment fixed above railway tracks to transmit electrical energy from an energy supply point to trains.

Term	Meaning
palaeoenvironmental	Of or pertaining to the environment at a particular time in the geologic past.
parapets	A barrier at the edge of a structure (e.g. a bridge).
particulate matter	Discrete particles in ambient air, sizes ranging between nanometres (nm, billionths of a metre) to tens of micrometres (µm, millionths of a metre).
pathways	The routes by which pollutants are transmitted through air, water, soils or plants and organisms to their receptors.
peak particle velocity	The peak particle velocity is the maximum velocity that is recorded during a particular vibration event. It is commonly used to assess the potential for damage to structures due to ground-borne vibration.
phase 1 habitat survey	A habitat classification and field survey technique to record semi-natural vegetation and other wildlife habitats.
Phase One	Phase One of the proposed HS2 network, a high speed railway between London and the West Midlands with a connection via the West Coast Main Line at conventional speeds to the North-West and Scotland and to the Channel Tunnel via HS1. Phase One includes stations at London Euston, Old Oak Common (West London), Birmingham Interchange (near National Exhibition Centre, Birmingham Airport) and Curzon Street (Birmingham city centre).
Phase Two	Phase Two of the proposed HS2 network extends the high speed railway beyond the West Midlands to Manchester and Leeds with connections to conventional railway lines via the West Coast and East Coast Main Lines.
plant (construction)	Portable construction machinery and equipment.
PM_{2.5}	PM _{2.5} is any particulate matter with an aerodynamic diameter equal to or less than 2.5µm.
PM₁₀	PM ₁₀ is any particulate matter with an aerodynamic diameter equal to or less than 10µm.
porous (tunnel) portal	Porous portals are perforated structures at tunnel portals, usually formed of concrete, designed to allow the passage of air from the tunnel. These are required to reduce both air pressure changes and noise generated when a high speed train enters or leaves the tunnel.
possessions	When a section of rail line is required for maintenance, repair or renewal and when trains cannot run, it is handed over by the operators to the engineering contractors, who take possession for a specified period of time.
principal aquifer	These are layers of rock or drift deposits that have high intergranular and/or fracture permeability, meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifers.
Proposed Scheme	Proposed high speed rail line between London and the West Midlands (i.e. Phase One of HS2).
public realm	Outdoor areas accessible to the public.
public rights of way	A way where the public has a right to walk, and in some cases ride horses, bicycles, motorcycles or drive motor vehicles, which will be designated either as a footpath, a bridleway, a road used as a public path or a byway.

Term	Meaning
Q95 flow	A measure of low flow, defined as the flow in a water course equalled or exceeded 95% of the time.
Quiet Areas	The definition of a 'Quiet Area' is contained in the Environmental Noise (England) Regulations 2006. Identified 'Quiet Areas' are contained in the Defra Noise Action Plans.
Ramsar site	Wetland sites that are of international importance, as designated under Article 2(1) of the Convention on Wetlands of International Importance especially as Waterfowl Habitat. Ramsar (Iran), 2 February 1971. UN Treaty Series No. 14583.
receptor	A component of the natural or built environment (such as human being, water, air, a building, or a plant) that is affected by an impact of construction and/or operation of a proposed development.
retained cutting	Additional structural support provided to a cutting.
registered battlefield	The English Heritage Register of Historic Battlefields identifies important English Battlefields. Its purpose is to offer them protection and to encourage a greater understanding of their significance.
Register of Historic Parks and Gardens	The English Heritage Register of Historic Parks and Gardens of special historic interest in England, established in 1983, currently identifies over 1,600 sites assessed to be of national importance.
restoration (ecology)	The re-establishment of a damaged or degraded system or habitat to a level similar to its pre-degraded condition.
riparian area	The interface between land and a river or stream.
risk assessment	An assessment of the likelihood and severity of an occurrence.
river basin	The area of land from which all surface runoff flows through a sequence of streams, rivers and lakes into the sea at a single river mouth, estuary or delta.
river basin management plan	Plans developed under the EU Water Framework Directive setting out environmental objectives for all groundwater and surface water bodies and protected areas within a river basin district.
river corridor survey	The mapping of vegetation and physical features along the watercourse corridor using standard symbols, with cross-sections of river channel form.
river habitat survey	A survey method designed to characterise and assess the physical structure of watercourses.
road rail vehicle	A vehicle which can operate both on rail tracks and road. They are often used for railway maintenance.
rolling stock	Passenger or freight vehicles that operate on a railway.
Royal Assent	The final step required for any parliamentary bill to become law.
ruderal vegetation	Vegetation that is able to grow despite poor soil quality or limited soil cover. Often the first to colonise previously disturbed land.
runoff	The flow of water over the ground surface.
sand	A component of soil comprising particles of between 0.06mm-2.0mm in equivalent diameter.

Term	Meaning
satellite construction site	Smaller in size than the main construction site, providing office accommodation for limited numbers of engineering/delivery staff associated with the construction of HS2 Phase One.
saved policies	Policies within unitary development plans, local plans and structure plans that are saved for a time period during replacement production of local development documents.
scheduled monument	Important sites and monuments that are given legal protection by being placed on a schedule by English Heritage.
silt	A component of soil consisting of particles between 0.002mm- 0.06mm in diameter.
Sites and Monuments Record	A record of sites and monuments of archaeological interest.
secant pile wall	Method of construction using interlocking piles. After a first set of primary piles are inserted, secondary piles are set using concrete to fill the space between the primary piles.
secondary aquifer	There are two designations: <ul style="list-style-type: none"> • Secondary A: Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers; and • Secondary B: Predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.
section 61 consent	Consent obtained (pursuant to section 61 of the Control of Pollution Act 1974) from a local authority for measures for the control of noise and vibration on construction sites.
scoping	An initial stage in the EIA process to determine the nature and potential scale of environmental effects arising as a result of a development, and an assessment of what further studies are required to establish their significance.
setting (cultural heritage)	The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive, negative or neutral contribution to the significance of an asset and may affect the ability to appreciate that significance.
severance	The act of severing a piece of land from a larger tract of land. For example, part of a field may become cut off from the rest of the field as a result of road or railway installations.
site of biological importance	A non-statutory designation used by some local planning authorities to protect locally valued sites of biological diversity which are described as local wildlife sites by the UK Government.
site of borough importance	A site of importance for nature conservation within London for sites of importance from a borough perspective

Term	Meaning
site of importance for nature conservation	An important wildlife site in London recognised by the Greater London Authority and London borough councils. There are three tiers of sites: sites of metropolitan, borough and local importance.
site of metropolitan importance	A site of importance for nature conservation within London for sites of importance at a London-wide level. They contain examples of London's habitats, may have rare species, or have significance in built-up areas.
site of special scientific interest	Area of land notified by Natural England under section 28 of the Wildlife and Countryside Act 1981 as being of special interest due to its flora, fauna or geological or physiological features.
site waste management plan	The Site Waste Management Plans Regulations 2008 require any person intending to carry out a construction project with an estimated cost greater than £300,000 to prepare a site waste management plan. A site waste management plan should identify the types and quantities of waste that will be generated and discuss the potential to reduce, re-use and recycle all materials wherever possible.
slowly permeable layer	A layer at least 15cm in thickness with the upper boundary within 80cm of the ground surface and with soils that impede the downward movement of excess rainfall.
soil association	A group of soil types or series developed on a similar source material.
soil compaction	Compaction of subsoil or topsoil, often due to trampling through the use of heavy construction machinery, preventing the passage of roots, air and water through soil.
soil erosion	The detachment and movement of soil by the action of water and/or wind.
soil moisture deficit	The difference between the maximum amount of water stored in a drained soil and the amount remaining after some of the water has been used by growing vegetation.
soil profile	A vertical section through soil.
sound exposure level	The level at a receiver which, if maintained for a constant period of one second, would cause the same sound energy to be received as is actually received from a given event.
sound power level	The sound power level (L_w) of a source is a measure of the total acoustic power radiated by a source. The sound power level is an intrinsic characteristic of a source (analogous to its volume or mass), which is not affected by the environment within which the source is located.
sound pressure level	The sound power emitted by a source results in pressure fluctuations in the air, which are heard as sound. The sound pressure level (L_p) is ten times the logarithm of the ratio of the measured sound pressure (detected by a microphone) to the reference level of $20\mu\text{Pa}$ (the threshold of hearing). Thus $L_p (\text{dB}) = 10 \log (P_1/\text{Pref})^2$ where Pref , the lowest pressure detectable by the ear, is 0.00002 pascals (i.e. $20 \mu\text{Pa}$). The threshold of hearing is 0dB , while the threshold of pain is approximately 120dB . Normal speech is approximately 60dB and a change of 3dB in a time-varying sound signal is commonly regarded as being just detectable. A change of 10dB is subjectively twice, or half, as loud.
span	The distance between the support structures (i.e. piers) of a bridge or viaduct.

Term	Meaning
statutory consultee	Organisations and bodies, defined by statute, which must be consulted on relevant planning matters.
statutory undertaker	Defined in section 98(6) of the Environmental Protection Act 1990 as: <ul style="list-style-type: none"> Any person authorised by any enactment to carry on any railway, light railway, tramway or road transport undertaking; Any person authorised by any enactment to carry on any canal, inland navigation, dock, harbour or pier undertaking; or Any relevant airport operator (within the meaning of Part V of the Airports Act 1986).
structure plan	The planning policy document prepared by a county council, which sets out the strategic policy framework for the county.
Subgrade 3a (ALC)	'Good quality' agricultural land that is capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.
Subgrade 3b (ALC)	'Moderate quality' agricultural land that is capable of producing moderate yields of a narrow range of crops, principally cereals and grass, or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.
subsoil	Weathered soil layer extending between the natural topsoil.
substructure	The foundations or supporting part of a structure below ground level.
superstructure	The part of a structure above ground.
surface water	Waters including rivers, lakes, lochs, loughs, reservoirs, canals, streams, ditches, coastal waters and estuaries.
sustainable drainage systems	Measures designed to control surface runoff close to its source, including management practices and control measures such as storage tanks, basins, swales, ponds and lakes. Sustainable drainage systems allow a gradual release of water and thereby reduce the potential for downstream flooding.
topsoil	Upper layer of a soil profile.
Transport for London	A statutory body, created under section 154 of the Greater London Authority Act 1999, with responsibility for London's transport system.
tree preservation order	An order made by a local planning authority, under the Town and Country Planning Act 1990, in respect of trees or woodlands. The principal effect of a TPO is to prohibit the cutting down, uprooting, topping, lopping, wilful damage, or wilful destruction of trees without the local planning authority's consent.
tunnel boring machine	A machine that uses a boring mechanism to excavate tunnels.
tunnel portal	Tunnel entrances and exits.
underbridge	A bridge crossing under a transport corridor (e.g. a rail line).
unitary development plan	A statutory document that sets out the council's planning policies that will be used to guide development, conservation, regeneration and environmental improvement activity.

Term	Meaning
unexploded ordnance	Explosive that did not explode when it was deployed and still poses a risk of detonation.
vent shafts	Ventilation and intervention shafts.
vibration dose value	Defined in BS6472-1(2008) as: <ul style="list-style-type: none"> used to estimate the probability of adverse comment which might be expected from human beings experiencing vibration in buildings. Consideration is given to the time of day and use made of occupied space in buildings, whether residential, office or workshop.
West Coast Main Line	Intercity rail line connecting London, Birmingham, Manchester, Liverpool and Glasgow.
Y network	Completed HS2 network (both Phase One and Two), comprising a high speed rail line between London and the West Midlands, then splitting into two lines, one continuing to Manchester and the other to Leeds via the East Midlands. Currently planned to be fully operational by 2033.
zone of theoretical visibility	The likely (or theoretical) extent of visibility of a development, usually shown on a map.
zone of visual significance	Defined during field survey assessment as the area within which a proposed development is considered likely to draw the eye of the casual observer, taking into account those aspects missing from the zone of theoretical visibility tests.

Units of measurement

Symbol	Meaning
A/m	amperes per metre
cm	centimetre(s)
dB	decibel(s)
dB(A)	decibel(s) A-weighted
GHz	gigahertz
h	hour(s)
ha	hectare(s)
Hz	hertz
km	kilometre(s)
km ²	square kilometre(s)
kph	kilometres per hour
kV	kilovolts
m	metre(s)
m ²	square metre(s)
m ³	cubic metre(s)
µg/m ³	micrograms per cubic metre
µT	microtesla(s)
min	minute(s)
mm	millimetre(s)
mph	miles per hour
pa	per annum
tph	trains per hour
vpd	vehicles per day
vph	vehicles per hour

List of abbreviations

Abbreviation	Meaning
ALC	Agricultural Land Classification
AOD	Above Ordnance Datum
AONB	area of outstanding natural beauty
AoS	appraisal of sustainability
AQAP	air quality action plan
AQMA	air quality management area
BAP	biodiversity action plan
BCC	Birmingham City Council
BCR	benefit cost ratio
BDP	Birmingham Development Plan
BGS	British Geological Survey
BMV	best and most versatile (agricultural land)
BNS	biological notification sites
BPM	best practicable means
BS	British Standard
C&I	commercial and industrial
CDEW	construction demolition and excavation waste
CFA	community forum area
CH ₄	methane
CIRIA	Construction Industry Research and Information Association
CLA	Country Land and Business Association
CL:AIRE	contaminated land: applications in real environments
CML	Chiltern Main Line
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
CoCP	Code of Construction Practice
CoW	City of Westminster
CPG	Camden Planning Guidance
DCA	demographic character area
DCLG	Department for Communities and Local Government
DECC	Department of Energy and Climate Change
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport

Abbreviation	Meaning
DMRB	Design Manual for Roads and Bridges
DPD	development plan document
DSA	delivery and site allocations
EC	European Commission
ECML	East Coast Main Line
EHP	environmental health practitioner
EIA	environmental impact assessment
ELS	Entry Level Stewardship
EMC	electromagnetic compatibility
EMF	electromagnetic field
EMI	electromagnetic interference
EqIA	equality impact assessment
ES	Environmental Statement
ETS	emissions trading scheme
EU	European Union
EWRL	East-West Rail Line
FRA	flood risk assessment
FTE	full-time equivalent
GCR	Great Central Railway
GDP	gross domestic product
GHG	greenhouse gas
GIS	geographical information system
GLA	Greater London Authority
GLAAS	Greater London Archaeological Advisory Service
GSPZ	groundwater source protection zone
GWML	Great Western Main Line
GWR	Great Western Railway
GWDTE	groundwater-dependent terrestrial ecosystems
HER	historic environment record
HFC	hydrofluorocarbons
HGV	heavy goods vehicle
HIA	health impact assessment
HRA	habitat regulations assessment
HS1	High Speed One
HS2	High Speed Two
HS2 Ltd	High Speed Two (HS2) Limited

Abbreviation	Meaning
HSE	Health and Safety Executive
HSI	Habitat Suitability Index
IAQM	Institute of Air Quality Management
ICNIRP	International Commission on Non-Ionizing Radiation Protection
ICS	International Classification for Standards
IEEM	Institute of Ecology and Environmental Management
IMD	infrastructure maintenance depot
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organisation for Standardisation
JLR	Jaguar Land Rover
JNCC	Joint Nature Conservation Committee
L_{pAeq}	equivalent continuous A-weighted sound pressure level
$L_{pAeq,T}$	equivalent continuous A-weighted sound pressure level for the time period T
L_{peq}	equivalent continuous sound pressure level
$L_{pAeq, day}$	equivalent continuous sound pressure level [day – 07:00-23:00]
$L_{pAeq, night}$	equivalent continuous sound pressure level [night – 23:00-07:00]
L_{pAFmax}	maximum A-weighted sound pressure level measured with a fast time constant
L_{pASmax}	maximum A-weighted sound pressure level measured with a slow time constant
LAQM	local air quality management
LAQN	London Air Quality Network
LBAP	local biodiversity action plan
LBB	London Borough of Brent
LBC	London Borough of Camden
LBE	London Borough of Ealing
LBH	London Borough of Hillingdon
LBHF	London Borough of Hammersmith and Fulham
LBI	London Borough of Islington
LCA	landscape character area
LDD	local development document
LDF	local development framework
LEMP	local environmental management plan
LEZ	low emission zone
LGBCE	Local Government Boundary Commission for England
LGS	local geological site (formerly RIGS)

Abbreviation	Meaning
LGV	light goods vehicle
LIGS	locally important geological site
LiDAR	light detection and ranging
LNR	local nature reserve
LPA	local planning authority
LUL	London Underground Limited
LWM	London-West Midlands
LWS	local wildlife site
M&E	mechanical and electrical
MAFF	Ministry of Agriculture, Fisheries and Food
MML	Midland Main Line
MOD	Ministry of Defence
MSA	mineral safeguarding area
N	Nitrogen
NBR	National Buildings Record
NCA	national character area
NEC	National Exhibition Centre
NGO	non-governmental organisation
NIRR	Noise Insulation (Railway and Other Guided Transport Systems) Regulations 1996
NLL	North London Line
NMR	National Monuments Record
NNR	national nature reserve
N ₂ O	nitrous oxide
NO	nitrogen oxide
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NPPF	National Planning Policy Framework
NR	Network Rail
NTS	non-technical summary
NVC	National Vegetation Classification
NVZ	nitrate vulnerable zone
NWBC	North Warwickshire Borough Council
NWLP	North Warwickshire Local Plan
NWLPCS	North Warwickshire Local Plan Core Strategy
OAPF	opportunity area planning framework

Abbreviation	Meaning
OLE	overhead line equipment
ONS	Office for National Statistics
OS	Ordnance Survey
PFLA	preliminary flood risk assessment
PM ₁₀	particulate matter (with aerodynamic diameter of less than 10 micrometres)
PM _{2.5}	particulate matter (with aerodynamic diameter of less than 2.5 micrometres)
PPG	pollution prevention guidelines [Environment Agency]
PPV	peak particle velocity
PRoW	public rights of way
PWS	public water supply
QRA	quantitative risk assessment
RAF	Royal Air Force
RBD	river basin district
RBKC	Royal Borough of Kensington and Chelsea
RDA	regional development agency
RFRA	regional flood risk assessment
RIGS	regionally important geological and geomorphological sites
RMD	rolling stock maintenance depot
RPG	regional planning guidance
RSS	regional spatial strategy
SA	sustainability appraisal
SAC	special area of conservation
SBI	sites of biological importance/ site of borough importance
SDLP	Solihull Draft Local Plan
SFRA	strategic flood risk assessment
SINC	site of importance for nature conservation
SLA	special landscape area
SLI	site of local importance
SMBC	Solihull Metropolitan Borough Council
SMI	site of metropolitan importance
SMR	scope and methodology report
SMINC	site of metropolitan importance for nature conservation
SNCI	site of nature conservation interest
SO27A	Standing Order 27A of the House of Commons relating to private business (environmental assessment)

Abbreviation	Meaning
SPA	special protection area
SPD	supplementary planning document
SPG	supplementary planning guidance
SPZ	groundwater source protection zone
SPZ1	source protection zone 1
SSSI	site of special scientific Interest
SuDS	sustainable drainage systems
SWMP	site waste management plan
TBM	tunnel boring machine
TEMPRO	Trip End Model Presentation Programme
TfL	Transport for London
TPO	tree preservation order
TTWA	travel to work area
UDP	unitary development plan
UK APIS	UK Air Pollution Information System
UKCCRA	UK Climate Change Risk Assessment
VDV	Vibration Dose Value
WDC	Warwick District Council
WCC	Westminster City Council
WCML	West Coast Main Line
WebTAG	Web Transport Analysis Guidance
WHO	World Health Organisation
WLWA	West London Waste Authority
WMRSS	West Midlands Regional Spatial Strategy
WPZ	Water Protection Zone
WRAP	Waste and Resources Action Programme
WSI	written scheme of investigation
ZTV	zone of theoretical visibility
ZVI	zone of visual influence
ZVS	zone of visual significance