

High Speed Rail (Crewe – Manchester) Environmental Statement

Glossary, abbreviations and references

HS2

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Department for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

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1 Glossary

Term	Definition
10mm settlement contour	The area in which ground settlement is estimated to be 10mm in depth.
absolute vibration criteria	Threshold levels that identify whether vibration is, for example, likely to affect a person's activities or the operation of vibration sensitive equipment.
abutment	A point where two structures meet, which support or anchor the end of a bridge.
accommodation bridge	A bridge under or over the route of the Proposed Scheme that serves an area of land or residential property and is not considered a public highway.
accommodation/access road or track	A new or altered access road or track serving a piece of land or residential property affected by the Proposed Scheme. Such accesses are not public highways.
accumulated temperature	The average temperature above 0°C recorded between January and June for any given year. This is a measure of the relative warmth of a locality and can be used to calculate soil drying potential and correlates with crop growth and yield.
active provision	The provision of non-HS2 infrastructure for future use.
Additional Provision	An amendment to a hybrid Bill being considered by Parliament. Additional Provisions cover changes that involve the acquisition or use of land outside the original limits of the Bill, additional access rights, or other changes to the powers conferred by the Bill.
adit	A horizontal or near-horizontal passage or tunnel that provides access to and from underground workings in a tunnel or mine.
advisory cycle lane	An area intended for, but not legally restricted to, cyclists' use. Other vehicles are permitted to enter or cross it if it is safe to do so.
advisory cycle route	Any infrastructure that can be legally used by cycles, including, cycle tracks, stepped cycle tracks, cycle lanes, light segregated cycle lanes and carriageways.
aftercare	The ongoing management of a restored site to ensure that the restoration is established, is sustainable and delivers the proposed after use. It is usually used in the context of restoration of agricultural land and borrow pits.
aggregate	Granular material (e.g. sand and gravel or crushed rock) that can be used for building and/or civil engineering purposes (e.g. to produce concrete).
Agricultural Land Classification	The system devised and introduced by the Ministry of Agriculture, Fisheries and Food (in England and Wales) to classify agricultural land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. Land is graded from 1 (excellent quality) to 5 (very poor quality), with grade 3 subdivided into agricultural subgrades 3a and 3b. See 'best and most versatile land', 'Grade 1-5' and 'Subgrade 3a and 3b'.
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 a local authority if it declares an air quality management area.

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Term	Definition
air quality exceedance	An instance of pollutant concentrations exceeding an air quality standard.
air quality limit value	A maximum concentration to be achieved in the atmosphere, either without exception or with a permitted number of exceedances. Limit values are defined in European Union Directives and implemented in United Kingdom legislation.
Air Quality Management Area	An area within a local authority boundary where the air quality objectives are not likely to be achieved. The local authority is required to declare the area as an air quality management area and to prepare a local air quality action plan.
air quality objective	Objectives are policy targets generally expressed as a maximum ambient pollutant concentration to be achieved. The objectives are set out in the UK Government's Air Quality Strategy for the key air pollutants.
air quality sensitive receptors	People, property, species or designated sites for nature conservation that may be at risk from exposure to air pollutants potentially arising as a result of a proposed development.
air quality standard	Air quality limit values and objectives.
ALARP principle	As low as reasonably practicable - A rule which involves weighing a risk against the time and cost needed to control it.
alluvial deposits	Natural materials deposited within and adjacent to rivers.
alluvium	Loose, unconsolidated material comprising clay, silt, sand, gravel deposited by flowing water, typically in floodplain areas, which can contain layers of peat.
ambient sound	The all-encompassing sound at a given location and time. It will generally include sound from many sources near and far. Ambient sound can be quantified in terms of the equivalent continuous sound pressure level, LpAeq,T.
anaerobic	Absence of oxygen.
ancient tree	An ancient tree is one that has passed maturity and is old, or aged, in comparison with other trees of the same species.
Ancient Tree Inventory	A map-based record of ancient trees and veteran trees that have been recorded in the UK.
ancient woodland	Land that has been continually wooded since at least 1600 AD in England and Wales and 1750 AD in Scotland.
Ancient Woodland Inventory	A map-based record of all ancient woodland in England and Wales.
annual average rainfall	Average amount of precipitation falling at a specified site recorded by the Meteorological Office. It gives a measure of the overall wetness of the local climate.
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 by the Habitats Directive and the Habitat Conservation and Conservation Regulations 2017 where a project (or plan) would be likely to have a significant effect on a European site, either alone or in combination with other plans or projects (part of the Habitats Regulations Assessment process).
aqueduct	A system of pipes, ditches, canals, tunnels, and supporting structures used to convey water from its source to its main distribution point.

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aquifer	A geological formation that is sufficiently porous and permeable to store and yield a significant quantity of water to a borehole, well or spring.
aquitard	A geological formation that restricts the flow of groundwater from one aquifer to another.
ArcGIS	Computer software-based geographic information system used for: creating maps; analysing information that has been mapped; and managing and compiling geographic data.
archaeological anomaly	A location identified during a geophysical survey that indicates the presence or possible presence of an archaeological feature or features.
archaeological potential	A location where the data collected and reviewed indicate that archaeological assets may be present.
Archaeological Priority Area	An area specified by a local planning authority to help protect archaeological remains that might be affected by development.
Area of Outstanding Natural Beauty	An 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.
assemblage (ecology)	A group of species found in the same location.
at grade	At the same height (e.g., when a railway line is at the same height as the existing ground level).
attenuation tank	An attenuation tank is usually installed within a drainage system just prior to the point of discharge from a site to help control the rate of water flow during high flow conditions.
auger	A drilling device, or drill bit, that usually includes a rotating helical screw blade. The rotation of the blade causes the material to move out of the hole being drilled.
auto-transformer feeder station	A compound located next to the high speed railway that contains equipment to transfer electrical power between the National Grid network and the high speed railway's overhead line equipment.
auto-transformer station	A compound located next to the high speed railway at approximately 5km (3 mile) intervals. It contains electrical equipment to provide distribution of power along the high speed railway.
avoidance	Prevention of impacts occurring, having regard to predictions about potentially negative environmental effects (e.g. project decisions about site location or design).
balancing pond	Part of a drainage system that is used to temporarily store, and thereby attenuate, the flow of surface water runoff.
ballast	Graded stone, used for drainage and to form the track bed upon which railway sleepers are laid.
basal layer	Unweathered parent material beneath subsoil. A layer upon which subsoil may be re-spread.
base flow index	The proportion of a river's flow that comes from groundwater sources. Base flow sustains a river flow in dry weather.
baseline	Existing environmental conditions present on, or near a site, against which future changes can be measured or predicted.
beam bridge	A beam bridge consists of structural sections spanning longitudinally between piers or abutments.
bedrock	Rock that underlies loose deposits such as soil or alluvium.

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Bentonite	A natural clay that, when mixed with water, swells and forms a thixotropic gel (a particular type of viscous behaviour exhibited by some liquids). It can be used temporarily to support trenches or retaining walls, and helps to prevent collapse when they are being backfilled (i.e. refilled) or concreted.
best and most versatile land	Land defined as grade 1, 2 or 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 available techniques	The available techniques which are the best for preventing or minimising emissions and impacts on the environment. Techniques include both the technology used and the way an installation is designed, built, maintained, operated and decommissioned.
best practicable environmental option	The outcome of a systematic and consultative decision-making procedure which emphasises the protection and conservation of the environment across land, air and water. The best practicable environmental option procedure establishes, for a given set of objectives, the option that provides the most benefits or the least damage to the environment as a whole, at acceptable cost, in the long-term as well as the short-term.
best practicable means	Defined in the Control of Pollution Act 1974 and Environmental Protection Act 1990. Used to describe measures that are 'reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to financial implications'.
biodiversity	The biological diversity of the earth's living resources. The total variability among organisms and ecosystems.
biodiversity action plan	A nationally established programme that seeks to protect and restore threatened species, habitats and biological systems.
blockade	Where construction or maintenance requires the total closure of a railway line or station usually to allow engineering works.
bored tunnel	A tunnel constructed using a tunnel boring machine.
borehole	A hole bored into the ground, usually as part of investigations, typically to test the depth and quality of soil, rock and groundwater. A borehole can also be used to dewater the ground.
borrow pits	Areas excavated to provide material for construction purposes.
bridge deck	The road, railway or pedestrian walkway that forms the surface of a bridge.
bridge soffit	The underside of a bridge.
brine	A concentrated salt solution, formed by the combination of groundwater and rock salt.
brinefield	An area of brine extraction, typically by pumping.
Bronze Age	The period between 2,600 and 700 BC.
British Horse Society	A charity that seeks to protect the interests of horses (including their welfare) and horse riders (equestrians), for example, through increasing bridleway access.
built heritage	A heritage asset (historic asset in Scotland) that is a structure or building visible above ground level.
bulk building materials	Construction materials, such as concrete, aggregates or steel.

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Term	Definition
bund	An embankment that acts as a visual or noise screen, or as a barrier to control the spillage of fluids.
buried heritage	A heritage asset (historic asset in Scotland) beneath ground level.
byway open to all traffic	A highway over which the public have a right of way for vehicular and all other kinds of traffic, but which is used by the public mainly for the purpose for which footpaths and bridleways are so used (i.e. walking, horse-riding, cycling).
calcareous soil	Soil containing accumulations of calcium and magnesium carbonate, formed by the weathering of calcareous rocks and fossil shell beds.
calcicole species	A plant which grows only or mainly on acidic soils.
cantilever	A structure supported or fixed at one end only.
captive trains	Trains that are designed to run only on the new High Speed Two rail network.
carbon budget	The total quantity of greenhouse gas emissions permitted in the United Kingdom over a specified period.
carbon dioxide equivalent	A measure used to compare the emissions from various greenhouse gases based on their global warming potential relative to that of carbon dioxide.
carbon emission	The release of carbon dioxide into the atmosphere.
carbon footprint	The total carbon dioxide emissions associated with a particular policy or development.
Carboniferous period	The period between 359 million years ago and 299 million years ago.
carrying capacity	The maximum number of organisms or amount of biomass that can be supported in a given area or by an ecosystem.
catchment (water)	The area of land from which water flows into a watercourse or waterbody.
Category A listed building (Scotland)	Buildings of special architectural or historical interest which are outstanding examples of a particular period, style or building type.
Category B listed building (Scotland)	Buildings of special architectural or historic interest which are major examples of a particular period, style or building type.
Category C listed building (Scotland)	Buildings of special architectural or historic interest which are representative examples of a period, style or building type.
circa	Meaning 'approximately'. Often used in a historic context in reference to a date.
civil engineering	A branch of engineering that deals with the design, construction and maintenance of the physical and naturally built environment. Examples of civil engineering works include construction of roads, railways and dams.
Class 1 to Class 3.1 (Land Capability for Agriculture) (Scotland)	Land capable of supporting arable agriculture.
Class 3.2 to Class 4.2 (Land Capability for Agriculture) (Scotland)	Land capable of supporting mixed agriculture.
Class 5.1 to Class 5.3 (Land Capability for Agriculture) (Scotland)	Land capable of supporting improved grassland.
Class 6.1 to Class 7 (Land Capability for Agriculture) (Scotland)	Land capable of supporting only rough grazing.

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climate change mitigation	Action to reduce the likelihood of an event occurring or to reduce the impact if it does occur. This can include reducing the causes of climate change (e.g. emissions of greenhouse gases), as well as reducing future risks associated with climate change.
climate change projections	Projections of changes in climate variables expressed in terms of the difference between the absolute future climate and a baseline climatology for a given location, time period and emissions scenario of greenhouse gases.
climate change resilience	The capacity of natural and human systems to retain their original form and function, and to survive and adapt in the context of the stresses and shocks imposed upon them by climate change.
climate change risk assessment	A Government-commissioned assessment of the risks posed to the United Kingdom by the changing climate.
Coal Authority	The Coal Authority manages the effects of past coal mining, including subsidence damage claims which are not the responsibility of licensed coal mine operators. It deals with mine water pollution and other mining legacy issues. The Coal Authority is an executive non-departmental public body, sponsored by the Department for Business, Energy and Industrial Strategy.
Code of Construction Practice	A document setting out the measures and standards to which a developer or contractor must adhere in order to provide effective planning, management and control of potential impacts on individuals, communities and the environment during construction.
cofferdam	A watertight enclosure built within water-filled ground or a body of water that can be pumped dry to enable construction activities below the water line.
collapse breccia	Collapse breccia is formed where groundwater has circulated in the strata and dissolved the salt (a process called dissolution), so only insoluble rock remains above intact strata. With the salt removed and softening of the rock due to further groundwater flow, these insoluble rocks collapse and are broken up (brecciated).
colliery	A coal mine, including its associated buildings and equipment.
combinable crops	All types of crop gathered using a combine harvester.
combined two-way vehicle trips	Two-way trips refer to the total number of vehicle movements in both directions (i.e. with 200 westbound vehicles and 100 eastbound there would be 300 two-way trips).
combustion plant	An installation that combusts fuel to generate energy.
commercial and industrial waste	Commercial waste is defined as any waste arising from a property used for the purposes of trade or business, while industrial waste is as any waste arising from an industrial activity, such as workshops, and waste from construction or demolition works.
committed development	A development that has full or outline planning permission, or is allocated in an adopted development plan.
Committee on Climate Change	An 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 area	Defined areas along the Proposed Scheme (e.g. Hough to Walley's Green community area). They are used as a geographical basis for reporting

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	local community and environmental impacts and effects in the Environmental Statement.
compensation (ecology)	Measures taken to make up for the loss of, or permanent damage to, ecological features despite mitigation. Replacement areas should be similar in terms of biological features and ecological functions to that lost or damaged, or with appropriate management have the ability to reproduce the ecological functions and conditions of those biological features.
Compensation Code	The collective term for the principles derived from both statute and case law, relating to compensation for compulsory acquisition.
concentration response	A known functional relationship between exposure to a stressor (e.g. a pollutant or chemical) and the effect on a biological receptor (e.g. number of people who experience ill health or death).
conceptual site model	The method used to identify the various types of risk relating to contaminated land. The conceptual site model includes: categorisation of sources of contamination; categorisation of potential receptors; and identification of potential contamination pathways (i.e. linking sources to receptors).
concrete batching plant	A machine that combines various ingredients to form concrete.
confined aquifer	An aquifer that is confined beneath a layer of soil or rock that is much less pervious than the underlying aquifer.
congestion	When an increase in vehicular traffic disrupts free movement, causing reduced speeds, increased journey times and increased vehicular queuing.
conglomerate	A rock that contains gravel or cobble-sized material within a finer grained matrix.
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	The preservation or enhancement of a species/habitat or building/structure.
conservation area	An area designated under Section 69 of the Planning (Listed Buildings and Conservation Areas) Act 1990 or the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 as being of special architectural or historic interest and with a character or appearance which is desirable to preserve or enhance.
Considerate Constructors Scheme	A UK-wide scheme promoting good construction site practice. Its codes of considerate practice commit the users of registered sites to be: considerate and good neighbours; respectful; environmentally conscious; responsible; and accountable.
construction	The works necessary to build a proposed development.
construction compound	An enclosed area providing facilities for construction staff and storage of construction equipment. See 'satellite compound' and 'main compound' for further information.
construction person year	Used to report construction labour, where one construction person year represents the work done by one person in a year, comprising a standard number of working days.
construction plant	Portable construction machinery and equipment.

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construction worksites	Sites where the construction of the various elements of the Proposed Scheme (e.g. viaducts and tunnels) is undertaken.
contiguous bored pile wall	Closely spaced, bored piles used to form an underground wall, for the construction of a deep basement or green tunnel.
continuous monitoring station	An air quality monitoring site that continuously measures 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 compatible trains	Trains that are designed to run on both the new High Speed Two rail network and the existing rail network.
conventional line/railway network	The existing UK rail network (excluding High Speed One and High Speed Two).
conventional trains	Trains that are designed to run on the existing conventional speed rail network.
core paths	Key routes that are part of the wider path network of long distance walking and cycling routes, and local and community paths in Scotland.
Country Land and Business Association	A membership organisation for owners of land, property and business in rural England and Wales.
Country Park	Country Parks were established as a result of the Countryside Act 1968. Natural England recognises Country Parks as significant places that contribute to England's accessible natural greenspace.
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 (as amended).
crop-adjusted available water capacity	A measure of the moisture available for plants to extract from the soil, as they grow. It is related to the texture, structure, stoniness and depth of the soil that roots can exploit.
crop-mark	Differential growth patterns in vegetation, often visible from the air, caused by differences in soil moisture availability due to the presence of underlying near-surface archaeological deposits.
Crossrail	A new east-west rail line (also known as the Elizabeth line) linking Reading and Heathrow Airport in the west, to Shenfield and Abbey Wood in the east, via tunnels under central London.
Crossrail 2	A proposed new rail line linking Surrey and Hertfordshire, via tunnels under central London, including an interchange at London Euston Station.
culvert	A pipe or small underbridge carrying a watercourse under a road or railway.
cumulative	A combination of effects. The EIA Scope and Methodology Report for HS2 Phase 2b defines a cumulative effect as: "incremental effects that result from the accumulation of a number of individual effects. They may result either from:

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	<ul style="list-style-type: none"> • a combination of effects arising from the Proposed Scheme (intra-project effects). For example, intra-project effects may arise during construction in cases where the occupiers of residential properties experience noise, visual and traffic effects, resulting from construction activities or the passage of construction vehicles on the local road network; or • an interaction between the effects of the Proposed Scheme with the effects of other developments that are likely to be under construction or to have been completed during construction or operation of the Proposed Scheme (inter-project effects). For example, construction of the Proposed Scheme and Phase One and Phase 2a may give rise to inter-project effects at the interfaces between the two schemes”.
cut-and-cover tunnel	<p>A tunnel constructed by excavating a cutting constructing a box-type structure and reinstating the ground over the top to its original level. Cut-and-cover tunnels can be constructed in two ways:</p> <ul style="list-style-type: none"> • ‘bottom up’ where an excavation is created from the surface, before the tunnel floor, walls and roof are then built and the entire structure buried and the surface restored; and • ‘top down’ where the tunnel walls are inserted into the ground and the roof added, before the material within the tunnel is excavated from either end.
cutting	A linear excavation of soil or rock to make way for a new railway or road. Cuttings can help reduce the noise and/or visual impact of passing trains or road vehicles.
Cryoturbation	The mixing of soils due to alternate freezing and thawing of water (see also: ‘solifluction’).
decibel	A unit used to express relative differences in sound power or intensity. There is a million to one ratio in sound pressure (measured in Pascal (Pa)) between the quietest audible sound and the loudest tolerable sound. The decibel (dB) scale, based on a logarithmic ratio, is used in sound measurement because of this wide range. Audibility of sound covers a range of approximately 0-140dB.
decibel A-weighted	Instrumentation used to measure sound can have its frequency response weighted to represent the performance of the ear, which does not respond uniformly to sound across the detectable frequency range. This is known as the ‘A weighting’ and is written as ‘dB(A)’.
deck beam	A horizontal structural support element that is capable of withstanding a vertical load.
deck slab	The material that lies on top of the deck beams to create a surface.
Defra	The Government Department for Environment, Food and Rural Affairs. The department is responsible for safeguarding the natural environment, supporting the food and farming industry and sustaining a thriving rural economy.
delay (pedestrians)	Change in the ‘person-minutes’ of the journey times of pedestrians and other non-motorised travellers.
delay (traffic)	An increase in journey time for drivers and passengers due to increased congestion.
Department for Transport	Government department responsible for transport matters in the UK (where powers have not been devolved).

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deposition index	A dimensionless index value that indicates the extent of sediment coverage on a stream bed.
design development	Process in which technical specialists (e.g. engineering, environmental, socio-economic, community and health specialists) collaboratively refine the design for the various elements of HS2 Phase 2b.
design life	The life expectancy of a proposed development.
detailed design	The process in which the finer details of the design of a proposed development are developed.
development plan document	Documentation that seeks to guide development and planning in a local authority area for a set period.
dewatering	Removal or draining of groundwater from soils, superficial deposits or bedrock, typically by pumping, gravity drainage and/or compression.
diamicton	Very poorly sorted sediment, often the result of glacial activity, that can contain material from clay to boulder size.
diaphragm walls	Embedded walls inserted into the ground. They can be used as foundation walls, groundwater barriers or to isolate areas of contaminated ground.
diffusion tube	A passive device used in air quality monitoring to measure weekly or monthly average pollutant concentrations.
digital elevation model	A digital model of the surface of the earth without any objects on it (e.g. trees and buildings).
digital surface model	A digital model of the surface of the earth with all objects on it (e.g. trees and buildings).
dipolar anomaly	A single positive anomaly with an associated negative response identified during a geophysical survey. There should be no separation between the two polarities of response. These responses will be created by a single feature. A very strong anomaly is likely to be caused by a ferrous object.
Directive	A legal act of the European Union. Legal obligations imposed on European member states by the European Commission following approval by the European Parliament and European Council.
disability-adjusted life year	Indicates the estimated number of healthy life years lost in a population from premature mortality or morbidity, i.e. the health burden. For the Proposed Scheme, this will be calculated using the central disability weighting values from the World Health Organization and an assumption of 2.3 people per residential dwelling.
disamenity dust	Coarse dust particles that can reduce amenity in the local community due to visible dust plumes and dust soiling.
discharge consent	Permission granted by the Environment Agency to discharge material, such as sewage, trade effluent or excess rainwater, directly into surface waters, groundwater or the sea.
displacement (economic)	Loss of local economic activity as a direct consequence of a proposed development.
disruptive possession	A possession requiring disruption to passenger and/or freight services. See 'possession'.
distribution	The geographic presence of a feature. This can depend on factors such as climate and altitude.

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Term	Definition
dive under	A railway junction at which one or more diverging or converging tracks in a multiple-track route pass under a structure containing other tracks on the route to avoid conflicting train movements.
diversion	Used throughout this Environmental Statement to refer to a significant change to the route or direction of a road due to the location of the route of the Proposed Scheme. (See also: 'realignment').
down line	The line of the route heading away from Euston Station, London.
drainage stilling pond	A small basin into which water flow is discharged that is used to either dissipate energy or trap solids.
Drinking Water Safeguard Zone	A designated area in which the use of certain substances must be carefully managed to prevent the pollution of raw water sources that are used to provide drinking water.
drop inlet culvert	A form of culvert used on sloping ground where the water level has to be lowered to pass under a railway or road.
droughtiness	A physical limitation to the agricultural use of soils. It is a defined calculation in the Agricultural Land Classification guidelines which uses soil and climatic parameters to provide an estimate of likely moisture stress in 'representative' crops. Moisture stress can arise when the crop's requirements for water exceed the available water capacity of the soil.
dry valley	A valley, formed by water erosion, with no permanent surface stream. These valleys typically occur in areas where porous rock (i.e. rock which absorbs water, such as chalk and limestone) is present.
dust	All airborne particulate matter.
early medieval period	The period between 410 AD and 1066 AD.
earthworks	The removal or placement of soils and other excavated material (e.g. rocks), such as in cuttings, embankments and environmental mitigation.
East Coast Main Line	The existing rail route connecting London King's Cross, Peterborough, Doncaster, Wakefield, Leeds, York, Darlington, Newcastle and Edinburgh.
ecological status	The state of a water body, derived from a number of factors, including: the abundance of aquatic flora and fauna; nutrient availability; salinity; temperature; and chemical pollution levels.
economic displacement	The proportion of intervention outputs/outcomes accounted for by reduced outputs/outcomes elsewhere in the target area.
economic leakage	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.
economic substitution	This effect arises where a firm substitutes one activity for a similar one (such as recruiting a jobless person while another employee loses a job) to take advantage of public sector assistance. It can be thought of as "within firm" displacement.
economically active	People who are either in employment or unemployed but actively seeking employment.
ecosystem	A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.
ecosystem services	The benefits that people derive from the natural environment. The natural environment can be considered as a stock of 'natural capital' from which many benefits flow - social, health-related, cultural or economic.

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edge effect (ecology)	Effects that occur on the edge of a habitat due to increased exposure to wind and light.
effect	Used throughout this Environmental Statement to refer to the consequence of an impact to the receiving environment (see also: 'impact').
effluent	Liquid waste or sewage.
electricity pylon	A tall lattice-like structure (usually made of steel) that is used to support overhead power lines. Also known as a transmission tower.
electromagnetic field	The field of force associated with electric charge in motion, which has both electric and magnetic components and contains electromagnetic energy.
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 rock or compacted soil, on which a new railway or road is constructed.
EMC zone	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 close to traction or non-traction power distribution equipment.
employment density ratio	Standard average floorspace per full-time equivalent member of staff, which varies by building use. It is used to estimate the number of jobs that are accommodated in any given building.
employment rate	The proportion of 16-64 year-old residents in employment. Employment comprises the proportion of the total resident population who are 'in employment' and includes full-time students who are employed.
English Heritage	English Heritage Trust is a charity, which cares for the National Heritage Collection of more than 400 historic places and their collections.
English Woodland Grant Scheme	A portfolio of grants managed by the Forestry Commission to help promote the stewardship of existing woodlands, the creation of new woodlands and the delivery of public benefits from England's woods.
enhancement	Improved management of ecological features or provision of new ecological features, resulting in a net benefit to biodiversity, which is unrelated to a negative impact or is 'over and above' that required to mitigate/compensate for an impact.
enterprise zone	A geographical area (agreed between the local enterprise partner and Government) that has been designated for specific economic development. The aim is to attract investment, drive economic growth and employ local people.
entry level stewardship	The basic level 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 more sustainable arable options.
Environment Agency	An executive non-departmental public body, sponsored by the Government Department for Environment, Food & Rural Affairs, which has core responsibilities for the protection and enhancement of the environment in England.

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Term	Definition
environmental impact assessment	A process of systematically assessing the likely environmental effects of proposed development projects. An EIA must fulfil the requirements of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (SI 2017/571) (the 'EIA Regulations 2017'), which reflect the European Union (EU) EIA Directive (2014/52/EU) (the 'EIA Directive 2014') requirements for assessment of the effects of certain public and private projects on the environment. The Environmental Impact Assessment (Scotland) Regulations 2017 transpose the EIA Directive, as amended, into the Scottish planning system. There is no substantive difference between the two Regulations as they both transpose the EIA Directive. An EIA is reported in a suite of documents known as an Environmental Statement. In the case of hybrid Bills, Private Business Standing Order 27A of the Houses of Parliament requires that the hybrid Bill is accompanied by a set of supporting documents, including an Environmental Statement describing the likely significant effects of the Proposed Scheme on people and the environment together with a report on the reasonable alternatives studied.
environmental permit	Many activities that can cause pollution are prohibited unless authorised by a permit. When either the Environment Agency or a local authority gives someone an environmental permit, they are allowing that person to carry out an activity under certain conditions. A business may need to apply to the Environment Agency for an environmental permit if it uses, recycles, treats, stores or disposes of waste or mining waste.
Environmental Statement	A suite of documents produced as part of an environmental impact assessment. It must include all information that is reasonably required to assess the likely significant environmental effects of a proposed development.
Environmental Stewardship and Countryside Stewardship	A scheme run by the Department for Environment, Food, and Rural Affairs in England that aims to promote responsible use and protection of the natural environment through conservation and sustainable practices. This is a type of agri-environment scheme.
equality impact assessment	A predictive assessment of the possible equality effects of the Proposed Scheme on protected characteristic groups during construction and operation.
equivalent continuous sound pressure level, LpAeq,T	An index used internationally for the assessment of environmental sound impacts. It is defined as the notional unchanging level that would, over a given period of time (T), deliver the same sound energy as the actual time-varying sound over the same period. Hence fluctuating sound levels can be described in terms of an equivalent single figure value.
Euro VI engines	Engines certified to have substantially lower emissions of NOx and particulate matter than older engines. (Euro VI as defined by EU Directive 2007/46/EC, and amended by subsequent regulations).
European Union Emissions Trading System	A system designed to reduce greenhouse gas emissions using a cap-and-trade framework.
excavated material	Soil, rock and other material that has been removed from the ground during construction.
Exceptional Hardship Scheme	A compensation scheme introduced by the Government in order to assist those living on or close to the proposed route who wish to sell their properties before a final decision is made on the project.
express feeder auto-transformer station	A compound located next to a high speed railway that receives power from an auto-transformer feeder station via along-track express feeder

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Term	Definition
	cables and distributes power to a high speed railway's overhead line equipment.
external amenity spaces	As referred to in the Planning Practice Guidance – Noise (2014), these are relatively quiet outdoor areas: for sole use by residents as part of the amenity of their dwellings; protected for sole use by a limited group of residents as part of the amenity of their dwelling; or protected as publicly accessible for residents as part of the amenity of their dwelling that are nearby.
extreme weather	Unusual, severe or unseasonal weather; or weather at the extremes of the range of weather seen in the past.
façade sound/noise level	The predictions and measurements of sound/noise levels 1m from the building, including an allowance for the sound reflected from the façade to the sound/noise prediction location.
false cutting	A means of screening a linear feature (e.g. a railway) by forming embankments on both sides of the feature.
falsework	Scaffolding or other temporary structures used to support construction components until the construction is sufficiently advanced to allow the structure to support itself.
farmstead	The part of a farm containing most of its buildings, including the farmhouse.
ferrous anomaly	A response obtained from geophysical survey that indicates the presence of ferrous (iron based) material that may result from items within the topsoil or larger buried objects such as pipes.
field capacity days	A meteorological parameter used to quantify the duration of the period when soils are wet. Soils usually return to field capacity during the autumn or early winter. The field capacity period, measured in days, ends in the spring when evapotranspiration exceeds rainfall and a moisture deficit begins to accumulate in the soil. Opportunities for mechanised fieldwork are then possible without damaging the soil.
fill	Material used to artificially raise existing ground levels.
findspot	The location where an object/artefact/ecofact was found which contributes to understanding of the occupation by humans of an area.
Flood Risk Framework (Scotland)	<p>A system devised by The Scottish Environment Protection Agency that aids decision-making in spatial planning. Areas are filtered into three categories based on their level of potential risk of flooding. The categories are:</p> <ul style="list-style-type: none"> • Little or No Risk Area: Annual probability of watercourse, tidal or coastal flooding is less than 0.1% (1 in 1000 years); • Low to Medium Risk Area: Annual probability of watercourse, tidal or coastal flooding in the range 0.1% - 0.5% (1 in 1000 years to 1 in 200 years); and • Medium to High Risk Area: Annual probability of watercourse, tidal or coastal flooding greater than 0.5% (1 in 200 years).
Flood Zones 1, 2 and 3	<p>A system devised by the Environment Agency to aid decision-making in spatial planning. Flood zones are areas at potential risk of flooding from rivers or the sea, ignoring the presence of flood defences and the potential impacts of climate change. The zones are:</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;

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Term	Definition
	<ul style="list-style-type: none"> • 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.
floodplain	Land adjacent to a watercourse that is subject to flooding.
footfall	The total number of pedestrians walking past a specific point (in either direction) within a period of time.
footpath	A public right of way that the public can travel on by foot. These are often unpaved waymarked paths running through the countryside.
footway	A path that runs alongside a road that the public can travel on by foot, often paved in more urban areas, but can also include unpaved routes on roadside grass verges.
Forestry and Land Scotland	The Scottish Government agency responsible for managing Scotland's national forests and land (previously undertaken by Forestry Commission Scotland and Forest Enterprise Scotland).
Forestry Commission	The Government department responsible for the protection, expansion and management of forests and woodland in England.
formation (land quality)	A group of related rock strata with some common properties.
formwork	Temporary or permanent moulds into which concrete or similar materials are poured.
fragmentation (ecology)	The breaking up of a habitat, ecosystem or land-use type into smaller parcels with the consequent impairment of ecological function.
freeboard allowance	The height from the maximum design level of a watercourse to: <ul style="list-style-type: none"> • the adjacent banks of an open channel, to provide a factor of safety against flooding; or • the soffit (underside) of any culvert or bridge above, to reduce the risk of blockage by floating debris, etc.
free-field sound/noise levels	A sound pressure level measured at a position more than 3.5m from all sound-reflecting surfaces (other than the ground) or predicted at a building in the absence of a correction for the sound reflected from the building façade.
full-time equivalent (employment)	Combines full- and part-time employment to provide a standard measure of employment by working week. Someone who works 2.5 days a week, for instance, would be counted as 0.5 full-time equivalent.
future baseline	The situation that would prevail if the proposed development that is the subject of the environmental impact assessment does not proceed. The predicted impacts of the development are compared against this theoretical scenario.
gabion	Large wire basket filled with rock or aggregate, used in multiples to construct retaining walls or for erosion protection.
gazetteer	A dictionary that lists geographical features such as road names, hills, rivers and places.
geophysical survey	The collection of information associated with subsurface features (e.g. buried archaeology) using various techniques (such as magnetometer-a survey technique used to detect and map changes in the earth's magnetic field caused by concentrations of ferrous-based minerals within soils and subsoil, and buried materials). They enable the identification and survey of subsurface features without having to excavate.

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Term	Definition
glacial deposits	Natural materials laid down during the ice ages (i.e. of the Quaternary period).
glacial till	An unsorted glacial sediment deposited directly by a glacier.
glacio-lacustrine deposits	Natural materials laid down within lakes during the ice ages (i.e. of the Quaternary period).
glaciofluvial deposits	Natural materials relating to, or coming from, streams deriving much or all of their water from the melting of a glacier or ice sheet.
gleying	The process in which anaerobic conditions arising from poorly drained soils result in the reduction of iron and other elements in the soil, causing soils to turn a largely grey-brown or grey colour, with ochreous mottles in localised aerated zones.
goit	A small artificial channel carrying water. Usually used with respect to channels built to feed mills.
Grade 1 (Agricultural Land Classification) (England)	'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, commonly including top fruit, soft fruit, salad crops and winter-harvested vegetables. Yields are high and less variable than on land of lower quality.
Grade 2 (Agricultural Land Classification) (England)	'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. However, 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 (Agricultural Land Classification) (England)	'Good' to 'Moderate' limitations, which affect the choice of crops, timing and type of cultivation and harvesting or yield levels. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.
Grade 4 (Agricultural Land Classification) (England)	'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 (Agricultural Land Classification) (England)	'Very poor' quality agricultural land with very severe limitations that restrict use to permanent pasture or rough grazing.
Grade I listed building (England)	A listed building of exceptional interest, sometimes considered to be internationally important. Grade I listed buildings are of more importance than Grade II* listed and Grade II listed buildings.
Grade II listed building (England)	A listed building of special interest.
Grade II* listed building (England)	A listed building of particular importance. Grade II* listed buildings are of more importance than Grade II listed buildings.
grade separation	Vertical separation of a transport junction. For example, a bridge to carry vehicles over a railway line.
grain (landscape)	The degree to which the pattern arising from the arrangement of components in a landscape (fields, woods, blocks of buildings etc) may be either large and infrequent (coarse grain) or small and frequent (fine grain).

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Term	Definition
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 bridges	Green bridges are typically footbridges, road bridges or agricultural access bridges which have been adapted to allow wildlife to safely cross the route of the Proposed Scheme.
green infrastructure	A network of high quality, multifunctional green space, both urban and rural, which is capable of delivering a wide range of environmental and quality of life benefits for local communities.
green spaces	Areas of natural or semi-natural land such as parks, gardens and woodlands.
green tunnel	A cut-and-cover tunnel with soil spread on top to integrate it into the landscape, thus reducing visual impacts and making the presence of a railway less noticeable. Access tracks and vegetation can be placed on the surface above the tunnel and it can be used for amenity, parkland and agricultural uses etc.
green/brown roof	A specific type of roof that may be partially or fully covered in vegetation to benefit ecology.
greenhouse gas	A gas such as carbon dioxide, methane, nitrous oxide, tropospheric ozone, chlorofluorocarbons, hydrochlorofluorocarbons or sulphur hexafluoride that contributes to the greenhouse effect by absorbing infrared radiation.
gross direct jobs	Jobs created during different phases of a project. In relation to construction of the Proposed Scheme, gross direct jobs cover the construction workforce. During the operational phase, gross direct jobs refer to jobs directly related to the operation of the Proposed Scheme including the staffing of stations, trains and depots.
gross domestic product	Measure of the total economic activity in a country.
gross value added	Measure of the contribution to the economy of each individual producer, industry or sector in a country.
ground anchor	A device, usually a steel tube or rod, used in both permanent and temporary applications that is driven into the ground to provide additional support to a structure (such as a retaining wall or foundation), from lateral (sideways) or vertical forces.
ground gas	Gases such as carbon dioxide and methane that are generated within the ground and/or within landfills (commonly from the breakdown of vegetative matter).
ground-borne noise	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 noise to be radiated inside a building.
ground-borne sound	Sound generated inside a building by ground-borne vibration.
ground-borne vibration	Ground or building element vibration caused by vibration propagating through the ground from a source.
ground-penetrating radar survey	A non-destructive survey technique used to identify underground features (often utilities services) using radio waves.
groundwater	All water that is below the surface of the ground and within the permanently saturated zone.
groundwater body	A distinct volume of groundwater within an aquifer.

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Term	Definition
groundwater dependent terrestrial ecosystems	Ecosystems that directly depend upon groundwater to maintain their form and function.
groundwater source protection zone	A defined area around an abstraction point, within which groundwater is extracted for potable water supply. The area is defined by the Environment Agency on the basis of the length of time taken for groundwater to migrate from a point below the water table to the abstraction point.
grouting shaft	Constructed to allow the injection of grout from horizontal tubes to control ground settlement.
habitat	The place or type of site where an organism or population naturally occurs. Often used in the wider sense referring to major assemblages of plants and animals found together.
habitat priority inventory	A spatial dataset that describes the geographic extent and location of Natural Environment and Rural Communities Act (2006) Section 41 habitats of principal importance.
habitat regulations assessment	An assessment of projects (or plans) potentially affecting European sites in the UK, required under the Habitats Directive and Regulations.
Habitat Suitability Index	A numerical index used to evaluate habitat quality and quantity for a particular species. A value of one represents optimum habitat and a value of zero represents a habitat of no value.
ha-ha	A boundary to a garden designed not to interrupt the view from the main property. It is formed of a grassy ditch which has gently sloping land to one side and a vertical retaining wall or barrier to the other, which stops at ground level.
hazardous waste	The Waste Framework Directive (2008/98/EC) defines hazardous waste as waste possessing one or more of the 15 hazardous properties set out in Annex III of the directive. These properties include being explosive, oxidizing, highly flammable, an irritant etc.
head	A natural material formed by solifluction which comprises poorly sorted angular rock debris, often in a silty, sandy, clay matrix.
headhouse	The above-ground structure that typically sits at the top of a ventilation shaft or tunnel portal. These structures can be used for housing control equipment or for providing emergency access to tunnels.
headshunt	A length of track generally provided to hold locomotives or rolling stock in order to allow trains to be released in the direction from which they originated.
headwall	A supporting, protecting or retaining wall built at the front or top of a structure or area.
headway	A measure of the minimum technical or planned time between trains travelling in the same direction along the same section of track.
health determinants	Factors affecting health, including the social and economic environment, the physical environment, and a person's individual characteristics and behaviours.
heavy goods vehicle	A motor vehicle weighing over 3.5 tonnes that is used to transport goods, including construction material. In most cases in the construction of the Proposed Scheme, these are over 8.5 tonnes, which are also described as large goods vehicles.

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Term	Definition
heavy metals	A loosely defined term which refers to a group of metals and metalloids, many of which are toxic to some degree.
hedgebank	A rubble or earth bank with bushy shrubs on top to form a hedgerow.
heritage asset (England)/historic asset (Scotland)	A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. Heritage assets include designated heritage assets and assets identified by the local planning authority (including local listings).
hibernaculum	The winter den of a hibernating animal or insect.
high pressure gas distribution pipeline	A gas pipeline operating above 7 bar(g) (a unit of pressure) that distributes gas within a region.
high pressure gas transmission pipeline	A gas pipeline operating at above 7 bar(g) that transmits gas throughout Great Britain. This gas is pumped at high pressure through the use of compressor stations. The gas then leaves the transmission system and enters the distribution network. Within the distribution network, the gas is then transported through a number of reducing pressure tiers to the consumer.
High Speed One	High speed rail line 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 network connecting major cities in Britain.
High Speed Two Limited	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.
higher level stewardship	A specialist element of the Environmental Stewardship Scheme that is targeted at achieving significant environmental benefits in high priority areas, and involves more complex environmental management.
Highways England	The Government company that operates, maintains and improves England's motorways and major A roads.
Historic England	Executive non-departmental public body, sponsored by the Department for Digital, Culture, Media, and Sport, which has core responsibilities in the protection and enhancement of the historic environment of England and helps people understand, value and care for historic places.
Historic Environment Scotland	Non-departmental public body created under the Historic Environment Scotland Act 2014. Established to investigate, care for and promote Scotland's historic environment. Are responsible for more than 300 properties of national importance.
historic environment record	A record of all known archaeological finds and features and historic buildings and historic/landscape features, relating to all periods from the earliest human activity to the present day; maintained by each county and unitary authority in the UK.
historic landscape characterisation (England)	Mapping the present day landscape to establish how it has been shaped by the past. Rather than focusing on particular designated sites, this technique focusses on the wider landscape in general to get an understanding of historical value. This method can help to identify areas that should be conserved and protected. Equivalent to historic land-use assessment in Scotland.
historic land-use assessment (Scotland)	A systematic and rigorous means of 'reading' and recording mapable features that survive from past activities which can be identified in

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Term	Definition
	patterns of current land use. Equivalent to historic landscape characterisation in England.
hoarding	A temporary screen or barrier erected around a construction site.
Holocene epoch	An epoch of geological time, approximately beginning 11,650 cal year before present.
hop-overs	The use of planting or other artificial measures such as fences to encourage bats to maintain height as they cross roads.
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.
hydraulic bound layer	Soil type materials (granular or cohesive) improved by the addition of various cementitious/asphaltic materials. It can be produced in-situ or elsewhere, and is used in constructing slab track.
hydrogeology	The nature, distribution and movement of groundwater in soils and rocks, including in aquifers.
hydromorphology	The physical characteristics of the shape, boundaries and content of a water body.
hyperspectral survey	A survey that utilises sensors that detect wavelengths of the electromagnetic spectrum that are not visible to the human eye. They are used in archaeological surveys to detect features within the historic landscape (e.g. field systems) that cannot be detected in visible wavelengths.
impact	Used throughout this Environmental Statement to refer to changes to the environment that have the potential to occur as a result of the construction and/or operation of the Proposed Scheme. (See also: 'effect'.)
Impact Risk Zone	A tool developed by Natural England to make a rapid initial assessment of the potential risks to Sites of Special Scientific Interest (SSSI) posed by development proposals.
important hedgerow	A hedgerow that is at least 30 years old and meets criteria set out in the Hedgerow Regulations 1997 (includes both ecological and historic environment criteria).
in-combination climate change effects	The combined significant effects of the Proposed Scheme and potential climate change impacts on the receiving environment and community.
in-combination effects	A combination of environmental effects on community or business establishments (e.g. from sound, noise and vibration; dust and air quality).
index of multiple deprivation	The official measure of relative deprivation for small areas (or neighbourhoods) in England. The index of multiple deprivation ranks every small area in England from 1 (most deprived) to 32,844 (least deprived). The level of deprivation is based on 37 separate indicators, organised into seven distinct groups (e.g. employment deprivation, education deprivation, etc.).
inert waste	Defined in Article 2(e) of the EU Landfill Directive (1999/31/EC) as waste that does not undergo significant physical, chemical or biological transformations.
infrastructure maintenance base – rail	A permanent facility for maintenance trains servicing the HS2 railway, once operational.

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Term	Definition
infrastructure maintenance depot	A facility providing logistical support for the maintenance and repair of the HS2 railway track and associated infrastructure (excluding trains).
inorganic (contaminant)	Contaminants comprised primarily of metals, metal compounds, certain minerals, acids and alkalis.
preservation in situ (historic environment)	Preserving archaeological remains in their original position.
interchange	A point where people travelling either transfer between the same transport mode (for example, rail to rail), or from one transport mode to another (for example, from bus to rail).
Intercity Express Programme	An initiative by the Department for Transport (DfT) to produce new trains to replace the InterCity 125 fleet on the East Coast Main Line and Great Western Main Line.
Interdepartmental Analysts Group	A cross-government multi-disciplinary peer review forum for policy appraisals and other analysis.
Intergovernmental Panel on Climate Change	A scientific intergovernmental body, tasked with the production of assessments of our overall understanding of the scientific, environmental, technical and socio-economic risks from and likely responses required to climate change.
interlocking system	A signalling system to ensure the safe running of trains.
interoperability	The ability of trains to operate across the European high speed network.
inter-project effects	The cumulative interaction of the Proposed Scheme with other projects (committed developments).
intimate landscape	A landscape with enclosed spaces created by nearby vegetation, topography or a combination of both, often of small scale.
intrusive investigation (land quality)	An in-depth investigation involving further sampling and analysis, such as the gathering of samples from the ground, walls or ceilings for the detection of contamination, asbestos and/or archaeological remains.
intrusive site investigation (historic environment)	A survey undertaken for the purpose of determining the presence or absence, condition and nature of a heritage asset using intrusive techniques, such as archaeological trenching or built heritage investigations.
Inventory battlefields (Scotland)	Historic Environment Scotland's non-statutory list of nationally important historic battlefields.
Inventory gardens and designed landscapes (Scotland)	Historic Environment Scotland's non-statutory list of nationally important gardens and designed landscapes that provide a major resource for stimulating further research, promoting education and enhancing appreciation and understanding of nationally important gardens and designed landscapes.
inverted siphon	A form of culvert used on level ground where the water level has to be lowered to pass under the Proposed Scheme, other railways or a road access.
Iron Age	The period between 800 BC and 43 AD.
isolation (community and socio-economic)	Physical and psychological barriers faced by users in accessing socio-economic and community resources, which may affect their tendency to use them.
kiss-and-ride (traffic and transport)	Drop-off/pick-up point for car users at stations, airports and interchanges.

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Term	Definition
Land Capability for Agriculture (Scotland)	Classification system used to rank land on the basis of its potential productivity and cropping flexibility, determined by the extent to which the physical characteristics of the land (soil, climate and relief) impose long term restrictions on its use.
land drainage area	A type of shallow balancing pond used for land drainage purposes. The area may be dry for much of the year and will often be suitable for livestock grazing once returned to landowners.
landscape	Landscape is an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors. It reflects the interplay of the physical, natural and cultural elements of our surroundings and the way that people perceive these interactions. Different combinations of these elements create the distinctive character of landscapes in different places.
Landscape Character Area	Areas of landscape that have a broadly consistent pattern of topography, land use and vegetation cover.
laydown area	An area used for the temporary storage of construction equipment and supplies.
lead contractor	A construction company that is directly contracted for the works by the nominated undertaker.
LiDAR	Light detection and ranging (LiDAR) is a high resolution remote sensing technology which uses a laser to measure distance between a satellite, aerial, terrestrial or mobile source and the ground, buildings and vegetation to create a three-dimensional model.
light goods vehicle	A motor vehicle used to carry goods with a total mass of up to 3.5 tonnes.
listed building	A building of special architectural or historic interest, listed pursuant to the Planning (Listed Buildings and Conservation Areas) Act 1990 or the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997, and the Enterprise and Regulatory Reform Act 2013. Listed buildings are graded I, II* or II in England and Category A, B or C in Scotland with Grade I and Class A being the highest. Listings include the interior, exterior and the setting of the building.
lithostratigraphy	The study, description and classification of stratified rocks based on their physical properties.
load balancers	Electrical equipment used to balance the electrical loads so that the unbalance is kept within acceptable limits set by the supply authority.
local access forum	Set up under the Countryside and Rights of Way Act 2000 to advise local highway or national park authorities on the improvement of public access for the purpose of outdoor recreation and enjoyment of the area.
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 Geological Site	Non-statutory geological (including geodiversity and geomorphological) sites which have been identified as being of regional or local importance by, for example, local geo-conservation groups.
local placement area	Land already required for construction of the scheme to be used for the permanent placement of surplus excavated materials, which will subsequently be restored for agricultural use.

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Term	Definition
local planning authority	The local authority or council that is empowered by law to exercise planning functions.
Local Wildlife Site	A non-statutory site of nature conservation value that has been designated 'locally'. These sites are referred to differently between counties. Common terms including Site of Importance for Nature Conservation, County Wildlife Site, Site of Biological Importance, Site of Local Importance and Sites of Metropolitan Importance.
locally listed building	A building which is not listed under Section 69 of the Planning (Listed Buildings and Conservation Areas) Act 1990 but has been recognised by the local planning authority as making a positive contribution to its local character and sense of place because of its heritage value.
loess	A loosely compacted wind-blown sediment deposit.
lower super output area	An area built up from output areas typically consisting of 400-1,200 households.
LpA10,T	The A-weighted sound pressure level that is exceeded for 10% of a given time interval, T, measured using the fast time-weighting. It is generally used to describe road traffic noise.
LpA90,T	A parameter that is widely used to quantify background noise and generally reflects the soundscape in the lulls between individual events. It is the A-weighted sound pressure level that is exceeded for 90% of a given time interval, T, measured using the fast time-weighting (F). Over a one-hour period, the LpA90 will be the sound level exceeded for 54 minutes.
LpAeq,T	See 'equivalent continuous sound pressure level'.
LpASmax, T, LpAFmax, T	The maximum A-weighted sound pressure level attained during a given time interval, T. It is normally measured using slow or fast (F) time-weighting. With F weighting it is generally used when assessing the likelihood of night-time sleep disturbance from airborne noise events. With S weighting it is generally used in the measurement and assessment of ground-borne noise from railways.
made ground	Land where natural and undisturbed soils have been replaced or combined with man-made or artificial materials. It may be composed of a variety of materials including imported natural soils and rocks with or without residues of industrial processes (such as ash) or demolition material (such as crushed brick or concrete).
main compound	A strategic construction hub for core project management (engineering, planning and construction delivery), commercial and administrative staff associated with the construction of the Proposed Scheme. These compounds will include an area for equipment and materials storage, as well as providing main welfare facilities for construction staff, with some compounds also providing overnight sleeping accommodation for construction staff.
main river	A river maintained directly by the Environment Agency. They are generally larger arterial watercourses.
maintenance loop	Additional track that will run for a short distance alongside the main HS2 rail line. The loops will be used for the storage of maintenance trains during operation. They will also provide a safe stopping location for any HS2 train that develops a fault.
managed motorway	See 'smart motorway'.

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Term	Definition
Manchester Metrolink	A tram system network owned by Transport for Greater Manchester, which connects major railway stations and other destinations within the Greater Manchester area.
material recovery facility	A facility that takes mixed and segregated waste and sorts it for onwards reprocessing, recycling or energy recovery.
maximum sound level	The maximum level of sound identified during a given time interval, T.
medieval period	The period between 1066 AD and 1540 AD.
metapopulation	A group of spatially separated populations of the same species which interact at some level.
Mesolithic period	The period between 10,000 - 4,000 BC.
micron	An alternative term for micrometre (μm).
mid-point auto-transformer station	A compound located next to a high speed railway that allows the overhead line to be sectioned at the boundary between two electrical sections fed by different auto-transformer feeder stations.
mine gas	Harmful gases produced in mines that can have toxic and/or flammable properties. This will be from underground coal mines that are no longer operational and are either unmanaged or are being managed by the Coal Authority to control mine gas and mine water.
mine shaft	A deep narrow vertical hole that gives access to a mine.
mine water	Water that has picked up naturally occurring minerals from mine workings, which have become inundated following closure of the mine.
mine workings	All areas where minerals have been or are being extracted underground. These can be deep or shallow underground workings and can include coal mines, limestone mines, salt mines etc.
mined tunnel	Tunnelling method where self-supporting subsurface material (e.g. rock/hard clay) is present. It involves the use of drill and blast techniques or excavation/sprayed concrete lining to advance the excavation.
mineral plan allocation	Provides guidance about the most appropriate locations for mineral extraction and outlines the long-term direction for the development of minerals and the plan to deliver the strategy.
mineral planning authority	A unitary authority that deals with all mineral planning issues within their area. In parts of England with two tiers of local government (counties and districts), mineral planning authorities are the county councils. National Parks are also mineral planning authorities.
mineral reserve	The part of a mineral resource, which has been fully evaluated, is deemed commercially viable to work and is also accessible based on legal permission to extract the mineral.
mineral resource	A concentration of naturally occurring solid, liquid, or gaseous material found in or on the ground in such form and amount that are, or may become, of potential economic interest due to their inherent properties.
mineral safeguarding area	An area designated by a mineral planning authority which covers known deposits of minerals to be kept safeguarded from unnecessary sterilisation by non-mineral development.
mitigation	The proposed means to avoid, prevent or reduce the likely adverse effects of development on the environment.

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Term	Definition
modal (mode) shift	A shift from one transport type to another, e.g. from road travel to rail travel.
mode share	The proportion of passengers travelling to/from a station by, for example, car, taxi, bus, and cycle.
Modern period	The period between 1901 AD and the present.
moisture deficit (potatoes)	The calculated deficit between the water supplied by average summer rainfall at a location and the quantity of water required to grow a crop of potatoes, assumed to root to 70cm depth, at that location (without suffering from a lack of water). The larger the moisture deficit, the greater the likelihood of yields being reduced by droughtiness. In practice the deficit has to be met from soil water reserves, irrigation and/or by the crop wilting; the last reduces yields.
moisture deficit (wheat)	As above but for a wheat crop assumed to root to a depth of 120cm.
monopile	A single large diameter pile with significant vertical and lateral load carrying capacity. It is used as an alternative to a pile group.
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 and shops), as new demand will be generated.
National Adaptation Programme	A programme established by the Government, industry and non-government organisations to help the UK adapt successfully to future weather conditions, by dealing with the risks and making the most of the opportunities.
National Farmers Union	Member organisation/industry association for Welsh and English farmers.
National Farmers Union Scotland	Member organisation/industry association for Scottish farmers.
National Forest Inventory	A record of the size and distribution of forests and woodlands in Great Britain and information on key forest attributes run by the Forestry Commission.
national grid	The high-voltage electricity transmission network in the UK.
National Grid plc	A plc that owns and manages the national grid (electricity) and the national transmission system (gas) within England and Wales.
National Institute for Health Protection	The impending United Kingdom government agency for public health protection and infectious disease capability.
National Nature Reserve	Sites of national importance that are designated by Natural England as key places for wildlife and natural features in England.
National Park	A protected area designated under the National Parks and Access to the Countryside Act 1949 because of its scenic, recreational, scientific or historical importance with development control managed by a national park authority.
National Trust (England) and National Trust for Scotland (Scotland)	Conservation charities protecting historic places and gardens and areas of countryside.
National Vegetation Classification	A comprehensive classification and description of the plant communities of Britain, administered by the Joint Nature Conservation Committee.

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Term	Definition
National Vocational Qualification	A qualification in a vocational subject set at various levels. For example, levels two and three correspond to GCSE and A-level respectively.
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	Executive non-departmental public body constituted under 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.
NatureScot	Formerly known as Scottish Natural Heritage, NatureScot is the public body responsible for Scotland's natural heritage, especially its natural, genetic and scenic diversity.
neighbourhood quality	A combination of aspects that have the potential to affect residents' experience of and feelings about their local environment.
Neolithic period	The period between 4,000 and 2,200 BC.
net	After all deductions have been made.
Network Rail	The not-for-dividend owner and operator of Britain's railway infrastructure. Network Rail runs, maintains and develops Britain's rail tracks, signalling, bridges, tunnels, level crossings and many key stations.
niche (ecology)	The role that 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) with the aim of reducing the level of nitrates in surface and groundwater. Farmers with land in nitrate vulnerable zones have to follow mandatory rules to manage nitrate loss from agriculture.
nitrogen dioxide	A gas produced when fuels are burned and is often present in motor vehicle and boiler exhaust fumes. It is an irritant to the respiratory system.
nitrogen oxides	A group of chemical compounds consisting only of nitrogen and oxygen which may be interconverted in the atmosphere. The principal oxides of nitrogen are nitric oxide and nitrogen dioxide.
noise barrier	A solid construction that reduces unwanted sound. It may take many forms including: engineering cutting; retaining wall; noise fence barrier; landscape earthworks; barrier on a viaduct; a parapet barrier on a viaduct; or any combination of these measures.
nominated undertaker	The body or bodies appointed to implement the powers of the hybrid Bill to construct and maintain the Proposed Scheme.
non-government organisation	A legally constituted organisation that 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.

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Term	Definition
non-intrusive survey (historic environment)	A survey undertaken for the purpose of determining the presence or absence, condition and nature of a heritage asset without causing any below ground disturbance or disturbing built heritage or archaeology.
non-motorised user	Pedestrians, cyclists and horse riders (equestrians). These are also referred to as 'vulnerable road users'.
non-plastic soil	A soil with coarse textures, i.e. sands and loamy sands, which do not exhibit plasticity (i.e. the ability of a soil to be deformed beyond the point where it cannot recover its original shape) at any moisture content.
non-technical summary	A report that briefly describes the main points discussed in an Environmental Statement without using technical language.
Northern Powerhouse	A Government initiative aimed at attracting investment to towns and cities in the north of England.
Northern Powerhouse Rail	The Government and Transport for the North' s vision for a strategic rail programme that will significantly improve the capacity, frequency and journey time of rail links between the main economic centres in the North of England.
offline	Not connected or currently in use. Also used in engineering in relation to railways, roads, pipelines etc. to denote a route (or a structure on a route, such as a bridge) away from the original alignment.
off-route effects	Effects of the Proposed Scheme that are in locations outside the route corridor.
Oil and Gas Authority	The Oil and Gas Authority is a Government company established to regulate, influence and promote the UK oil and gas industry in order to achieve the statutory principal objective of maximising the economic recovery of the UK's oil and gas resources.
online	Connected or currently in use. Also used in engineering in relation to railway, roads, pipelines etc. to denote a route (or a structure on a route, such as a bridge) on the original alignment.
Open Spaces Society	A campaign group which aims to protect common land in the UK, including village greens, rights of way and commons.
ordinary watercourse	Any watercourse not classified as a main river.
ordnance datum	The height above mean sea-level, taken from a reference point at Newlyn, Cornwall. This is the national height system for Britain.
Ordnance Survey	The national mapping agency for Britain.
organic (contaminant)	Carbon-based contaminants, for example oils, tars and solvents.
organic entry level stewardship	A specialist element of the environmental stewardship scheme that is open to all organic farmers with land registered as organic or in organic conversion, and with similar management options to entry level stewardship.
output areas	Geographically defined areas based on postcode units which have been used since the 2001 Census for statistical purposes in relation to socio-economic information.
overbridge	A bridge crossing over a transport corridor such as a railway line.
overburden	Rock or soil overlying a mineral deposit.
overhead catenary system	General term used to describe all the overhead line equipment in the rail corridor.

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Term	Definition
overhead line equipment	Electric wires suspended over the track, supplying traction power to trains.
overrun	The distance allowed beyond a normal stopping point in case a train fails to stop in the correct position (the distance is dependent upon the speed and braking capacity of the train).
oversail	During works to overhead power lines, cranes will often be used. If part of the crane extends into the airspace above a surrounding property (e.g. the garden of a nearby residential property), this is referred to as oversailing. Where overhead power lines overlap property or land, this is also referred to as oversailing. During normal operations in high winds, overhead power lines can sometimes be blown, such that they swing out from their normal alignment. When this covers a property, this is referred to as oversailing.
package sub-station	A small remote sub-station providing electrical power to track-side equipment.
pad foundations	A foundation structure that spreads the imposed loads over a sufficient area to reduce stress on foundation material. Often described as shallow foundations.
palaeoenvironmental remains	The organic remains of plants, animals and sediments which are studied in order to examine past environments and human interaction with past environments.
Palaeolithic period	The period between 1,000,000 and 10,000 BC.
pantograph	A device that is attached to the roof of an electric train to collect power through contact with the overhead catenary wire.
parapets	A low wall along the edge of a structure (e.g. a bridge), to protect people from falling.
park pale	An historic palisade used to enclose deer within a defined area.
particulate matter	Discrete particles in ambient air, with diameters ranging between nanometres (billionths of a metre) to micrometres (millionths of a metre).
passive provision	The delivery of HS2 infrastructure that provides allowance for non-HS2 infrastructure to be delivered at a future date.
pathways (pollution)	The routes by which pollutants are transmitted through air, water, soils, plants and organisms to their receptors.
peak particle velocity	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.
peat	A partially decomposed superficial deposit comprising of a mass of semi-carbonised vegetation which has grown under waterlogged, anaerobic conditions, usually in bogs or swamps.
pendolino trains	Trains that tilt to enable them to travel around curves faster than trains without this technology.
Permian period	The period between 299 million years ago and 251 million years ago.
permissive path	A path that is not a public right of way, but which the landowner permits the public to use. The landowner can close the path for periods of time.
person trip	A one-way journey by one person by any mode of transport, including walking, cycling, privately operated motor vehicle or any public transport mode.

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Term	Definition
Phase 1 Habitat Survey	A habitat classification and field survey technique to record semi-natural vegetation and other wildlife habitats.
Phase 2a	The section of the Phase Two route between the West Midlands and Crewe. It will include a connection with Phase One at Fradley, to the north-east of Lichfield, and a connection with the West Coast Main Line south of Crewe.
Phase 2b	The section of the Phase Two route from Crewe to Manchester and the West Midlands to Leeds, with stations at Manchester Airport, Manchester Piccadilly, the East Midlands and Leeds, connections onto the West Coast Main Line and East Coast Main Line and a number of works required beyond the route corridors, such as to the existing conventional rail network.
Phase 2b Eastern Leg	The section of Phase 2b from the West Midlands to Leeds, via the East Midlands and South Yorkshire with new stations at East Midlands and Leeds and a connection onto the East Coast Main Line.
Phase 2b Western Leg	The section of Phase 2b from Crewe to Manchester, with new stations at Manchester Airport and Manchester Piccadilly, a connection onto the West Coast Main Line and a number of works required beyond the route corridor, such as to the existing conventional rail network.
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. Phase One includes stations at London Euston, Old Oak Common (West London), Birmingham Interchange (near the National Exhibition Centre and Birmingham Airport) and Curzon Street (Birmingham city centre).
Phase Two	Phase Two of the proposed HS2 network to extend the high speed railway beyond the West Midlands to Manchester and other northern cities, including via connections with the conventional rail network.
photomontage	The process and result of inserting an image of the Proposed Scheme onto a photograph to show how existing views could be changed by the Proposed Scheme.
pier	A vertical loadbearing structure, which supports adjacent ends of bridge or viaduct spans.
piezometric level	The level to which the water level will rise in wells penetrating an aquifer.
pile cap	A concrete structure used to link a number of discrete pile elements into a single arrangement to support significant loads that the pile elements are not capable of supporting individually.
piled foundation	Deeper foundations such as piles, and diaphragm walls, where loads are distributed through the ground at depth by drilled or driven structures. Often described as embedded or deep foundations.
piled retaining wall	Constructed using long piles to allow a steeper overall slope gradient than would be naturally possible.
piling	Driving and embedding piles of wood, concrete or steel deep into the ground, to support buildings/structures at the foundation level.
plantation on ancient woodland	Areas of ancient woodland where the former native tree cover has been felled and replaced by planted trees, predominantly of species not native to the area.

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Term	Definition
plastic soil	Soil with a relatively high proportion of silt and clay that, within a certain moisture content range, is capable of being moulded or deformed without rupture.
platform infill	An existing railway station platform that has the track(s) removed and is then backfilled up to platform level.
Pleistocene epoch	The epoch between 2.58 million years ago and 11,650 cal years ago.
PM ₁₀	Any particulate matter with an aerodynamic diameter equal to or less than 10 micrometres.
PM _{2.5}	Any particulate matter with an aerodynamic diameter equal to or less than 2.5 micrometres.
polarity	Term used to describe the measurement of the magnetic response identified during a geophysical survey. An anomaly can have a positive or negative polarity.
polytunnel	An elongated polythene covered frame under which plants are grown outdoors.
ponding	The collection of standing water at the ground surface due to the presence of an impermeable layer within the soil.
porous (tunnel) portal	Perforated structures at tunnel portals (entrances), usually formed of concrete, designed to allow the passage of air from the tunnel. These reduce both air pressure changes and the noise generated when a high speed train enters a tunnel.
portal ramp	A ramp that takes the rail track from ground-level down to the tunnel level.
possession	Where construction or maintenance cannot safely be undertaken while trains are running on section of the conventional railway, trains are diverted or stopped and possession of a section of railway is taken for a specified period. Each closure period is known as a 'possession'.
post-medieval period	The period between 1540 AD and 1901 AD.
powers (legal)	The right, ability or authority to perform an act.
pre-cast pile	A driven pile produced from pre-cast concrete.
preferred route	The Phase 2b Route as announced by the Secretary of State for Transport in July 2017.
Prehistoric period	The period between 1,000,000 BC and 43 AD.
Principal aquifer	A subsurface layer or layers of rock or other geological strata of sufficient porosity and permeability to allow either a significant flow of groundwater or the abstraction of significant quantities of groundwater. 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 and transmission. They may support water supply and/or river base flow on a strategic scale and are considered by the Environment Agency to be critical to existing or future water supplies. In most cases, Principal aquifers are aquifers previously designated as major aquifers.
promoted routes	Local, regional or national trails that have been devised by local authorities and walking organisations to help promote the public right of way network.
promoter	The person promoting the hybrid Bill for Phase 2b of HS2, i.e. the Secretary of State for Transport.

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Term	Definition
Proposed Scheme	The scheme which is the subject of the High Speed Rail (Crewe – Manchester) hybrid Bill. It includes the section of Phase 2b from Crewe to Manchester, with new stations at Manchester Airport and Manchester Piccadilly, a connection onto the West Coast Main Line and a number of works required beyond the route corridor, such as to the existing conventional rail network.
protected characteristics groups	Groups identified in the Equality Act 2010 as sharing a particular characteristic against which it is illegal to discriminate.
Public Health England	An executive agency, sponsored by the Department of Health. Its purpose is to protect and improve the nation's health and wellbeing, and reduce health inequalities.
Public Health Observatories	Public Health Observatories produce information, data and intelligence on people's health and health care for practitioners, commissioners, policy makers and the wider community. The Network of Public Health Observatories is part of Public Health England.
public realm	Outdoor areas, other than highways, accessible to the public in towns and cities.
public right of way	A highway where the public has the right to walk; and, depending on its class, use for other modes of travel. It can be a footpath (used for walking only), a bridleway (used for walking, riding a horse and cycling), a restricted byway (as a bridleway, but use by non-motorised vehicles also permitted) or a byway that is open to all traffic (including motor vehicles).
pylon	A tall lattice-like structure (usually made of steel) which is used to support overhead power lines. Also known as an electricity transmission tower.
Q95 flow	A measure of low flow, defined as the flow in a watercourse equalled or exceeded 95% of the time.
quarry	All areas where minerals have been or are being extracted from the surface. For example, sand and gravel quarries, rock quarries etc.
Quaternary	The most recent period of geological time, approximately equated to the last 2.6 million years.
Quiet Area	An external space identified as such by local authorities under the Environmental Noise (England) Regulations.
rail threader	A mechanical tool used to position a new rail or move a used rail during construction or maintenance activities.
Railhead	A site at locations along the route with connections to the National Rail network. They will be used as the delivery location for bulk rail-borne materials, such as ballast, rails and sleepers.
railway corridor	The area in which the railway tracks are located. In the case of HS2, this corridor will in general include two tracks, overhead line equipment, track drainage, electricity cables, lineside paths and ducting for fibre optic communications.
raking piles	Piles installed at an angle to the vertical. They are usually installed alongside regular vertical piles where additional support is required when ground conditions are likely to result in lateral (sideways) movement.
raking props	Props (posts to give support under a load) installed at an angle to laterally support the side walls of an open excavation or an internal or external wall when other support structures have been removed.

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Term	Definition
Ramblers	A charity which aims to protect the ability of people to enjoy outdoor walking and to protect and expand walking infrastructure and places to walk.
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.
realignment	Used throughout this Environmental Statement to refer to a slight change to the route or direction of a road due to the location of the route of the Proposed Scheme. (See also: 'diversion').
receptor	A component of the natural or built environment (such as a human being, water, air, a building, an animal or a plant) affected by an impact of the construction and/or operation of a proposed development.
reconductoring	The process of installing or replacing conductors (i.e. wires) on a stretch of overhead power line. This will be done through the use of winches.
refurbishment (overhead line)	Replacement of some or all of the components/materials (e.g. steelwork for pylons, wires, fittings) that make up overhead lines. The refurbishment can be full (i.e. replacing all of the components that make up the overhead line), or partial (e.g. replacing some fittings only).
Register of Historic Battlefields (England)	Historic England's non-statutory register which 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 (England)	Historic England's non-statutory register which identifies over 1,600 sites of historic interest in England assessed to be of national importance. Its purpose is to offer them protection and to encourage a greater understanding of their significance.
reinstatement	Returning a route to its former alignment following a temporary diversion.
remediation	The process of treating or managing contamination in the ground or groundwater to make land suitable for use.
replacement flood storage area	An area of low-lying land designed to temporarily fill with flood water to replace an area of existing floodplain lost due to development.
residual effects	Effects to an environmental receptor following the implementation of mitigation proposals.
residual impacts	Those impacts of the development that cannot be mitigated following implementation of mitigation proposals.
resource	Resources are residential dwellings, community facilities and infrastructure such as educational and health facilities, emergency services, places of worship, sports and recreational facilities, open spaces, and public rights of way.
restoration (ecology)	The re-establishment of a damaged or degraded system or habitat to a level similar to its original condition.
restoration (ground)	The works delivered following completion of excavation, including regrading of excavations, the placement and preparation of soils, and landscape treatment.
retained cutting	A cutting constructed with additional structural support that allows a steeper overall slope gradient than would otherwise be possible. This may be a partially retained cutting, which would include an element of

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Term	Definition
	naturally supported slope (usually above the retained element) or a fully retained cutting, which usually has vertical sides.
retained embankment	An embankment constructed with additional structural support (usually in the form of a retaining wall) that allows a steeper overall slope gradient than would otherwise be possible. This may be a partially retained embankment, which would include an element of naturally supported slope (usually above the retained element) or a fully retained embankment, which usually has vertical sides.
riparian area	The interface between land and a river or stream.
ripping	Loosening soil or rock by drawing a forked/pronged implement through it.
risk assessment	A systematic process of evaluating potential risks that may be involved in construction and operation of the Proposed Scheme.
river basin management plan	Plans developed under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 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, including land to either side of the river channel.
river habitat survey	A survey method designed to characterise and assess the physical structure of watercourses involving the recognition of vegetation types and an understanding of basic geomorphological principles.
road rail vehicle	A vehicle that can operate both on rail tracks and roads. Such vehicles are often used for railway maintenance.
rolling stock	Passenger or freight vehicles that operate on a railway.
rolling stock depot	An operational and maintenance hub within which train stabling, servicing (including interior and exterior cleaning) and light and heavy maintenance would take place.
rolling work site	A work site that moves over time across a geographic area as works are completed in one location to then enable works in an adjacent location.
Roman period	The period between 43 AD and 410 AD.
route sifting	A sequential appraisal of route options undertaken during the design of a proposed development. At each stage of appraisal, or sift, sustainability/environmental performance is considered alongside cost and constructability, operational and engineering information, and the preferred option for progression to the next level of design are selected.
route-wide effects	Effects of the Proposed Scheme that may occur at a geographical scale greater than the community area level.
Royal Assent	The final step required for any Parliamentary Bill to become law.
Royal Society for the Protection of Birds	A UK charity which works to secure a healthy environment for birds and all wildlife.
ruderal vegetation	Vegetation that is able to grow despite poor soil quality or limited soil cover. It is often the first to colonise previously disturbed land.
runoff	The flow of water over the surface of the ground.
Rural Payments Agency	The Defra agency that administers payments to farmers and traders.

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Term	Definition
salt dissolution	The process whereby natural salt-bearing strata is incorporated into circulating groundwater to form a solution (brine).
sand	Soil particles from 0.06mm-2.0mm in equivalent diameter. Fine sand particles are from 0.06mm-0.2mm; medium sand from 0.2mm-0.6mm; and coarse sand from 0.6mm-2.0mm.
satellite compound	A compound that is smaller in size than the main compounds. Satellite compounds provide office accommodation for limited numbers of staff involved in the construction of the Proposed Scheme. Welfare facilities for staff are also provided.
saved policies	Policies within unitary development plans, local plans and structure plans that are saved for a period of time whilst replacement local development documents are produced.
scheduled monument	Nationally significant heritage assets protected by the Ancient Monuments and Archaeological Areas Act 1979 in England, Wales and Scotland.
scoping	An initial stage in the environmental impact assessment process to determine the nature and potential scale of environmental effects arising as a result of a proposed development, and an assessment of what further studies are required to establish their potential environmental impacts and effects. This will often include the identification of the proposed methodologies for the further studies.
Scottish Ancient Woodland Inventory	A map-based tool that shows the location of valuable woodlands in Scotland, including ancient woodland.
Scottish Environment Protection Agency	A non-departmental public body of the Scottish Government constituted under the Environment Act 1995. Scotland's principal environmental regulator, protecting and improving Scotland's environment.
Scottish index of multiple deprivation	The official measure of relative deprivation for small areas (or neighbourhoods) across all of Scotland in a consistent way. It allows effective targeting of policies and funding where the aim is to wholly or partly tackle or take account of area concentrations of multiple deprivation.
Scottish Natural Heritage	Executive non-departmental public body constituted under the Natural Heritage (Scotland) Act 1991 (section 1(1)) to secure the conservation and enhancement of; and to foster understanding and facilitate the enjoyment of the natural heritage of Scotland.
screening	The first stage in an environmental impact assessment. It is used to determine if further assessment is necessary.
secant pile wall	A 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 types of Secondary aquifer designation. 'Secondary A' are 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. 'Secondary B' are 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. 'Secondary (Undifferentiated)' are assigned in cases where it has not been possible to attribute either category A or B to a rock type.

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	In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.
Section 61 consent	A consent issued under Section 61 of the Control of Pollution Act 1974. The application for consent details how noise is to be managed on-site.
sectioning auto-transformer station	A compound located next to a high speed railway that contains electrical equipment to provide distribution of power along the high speed railway. Used when larger sectioning equipment is required at an auto-transformer station to enable electrical sectioning of the railway.
selected fill	Good quality granular material (e.g. limestone), which is primarily intended for engineering works and is also suitable for environmental mitigation earthworks.
setting (historic environment)	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 or negative contribution to the heritage value of an asset, may affect the ability to appreciate that value or may be neutral.
severance	A change in ease of access for non-motorised users due to, for example, a change in travel distance or travel time or a change in traffic levels on a route that makes it harder for non-motorised users to cross it (traffic related severance). A reference to severance in this Environmental Statement does not necessarily imply that a route is closed to access.
shear wall	A structural wall made up of braced panels to counter the effects of lateral (sideways) load acting on a structure.
shelterbelt	A group of trees and shrubs planted to provide protection from wind.
siding	A section of track forming a branch off the main railway line. A siding can be used to store a train, or to allow trains to reverse and enter the main railway line running in the opposite direction from which they entered the siding.
significant environmental effect	A term used to express the consequence of an impact, which is determined by correlating the magnitude of the impact to the importance, or sensitivity of the receptor or resource in accordance with the defined significance criteria, as described in the HS2 Phase 2b Environmental Impact Assessment Scope and Methodology Report.
silt	Soil particles from 0.002mm to less than 0.06mm in equivalent diameter.
site haul route	Temporary roads provided within the area of land required for construction to allow for the movement of construction material, construction machinery and/or construction workers between the construction compounds and work sites.
Site of Biological Importance	A non-statutory designation used by some local planning authorities to protect locally valued sites of biological diversity described as local wildlife sites by the UK Government.
Site of Importance for Nature Conservation	A site that supports locally important wildlife, also referred to as a local wildlife site. Many of these sites contain habitats and species that are priorities under the county or UK biodiversity action plans.
Site of Special Scientific Interest (England)	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.

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Term	Definition
Site of Special Scientific Interest (Scotland)	A statutory designation made by Scottish Natural Heritage under the Nature Conservation (Scotland) Act 2004. Sites of Special Scientific Interest are those areas of land and water that Scottish Natural Heritage considers to best represent natural heritage - its diversity of plants, animals and habitats, rocks and landforms, or a combination of such natural features.
site waste management plan	The Site Waste Management Plans Regulations 2008 were repealed on 1 December 2013. The purpose of a site waste management plan was to identify opportunities to design out waste; as well as identifying the types and quantities of waste likely to be produced during construction of a project; the opportunities for sustainable management of the waste to be identified; and to monitor and report on the actual management of these wastes throughout the construction period. HS2 Ltd will apply these principles to the construction of the Proposed Scheme ensuring an integrated approach to the design of the Proposed Scheme, aiming to maximise the beneficial reuse of excavated material where possible, and minimise the generation of waste.
slab track	A type of railway track which uses either pre-cast or cast-in-situ concrete elements to support the track, instead of graded stone.
slewing	The horizontal re-aligning of existing track without full reconstruction.
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.
smart motorways	A smart motorway uses technology to monitor traffic congestion, increase capacity and smooth traffic flows by activating signs, opening the hard shoulder to traffic and changing speed limits.
SMART targets	Targets or objectives set against a five-point-criteria: specific, measurable, attainable, realistic and time-bound.
social capital	The connections between the individuals within communities, and the inclination that arises through these networks for individuals to feel valued, to feel a sense of belonging, to have companionship and to tangibly support each other.
soil	The upper layer of the earth's crust, in which plants grow. It consists of weathered rock, organic matter, air spaces and water. Descriptions usually identify the relevant characteristics of its (usually) horizontal layers in terms of their significance for soil characteristics and crop growth, usually to a depth of 1.2m.
soil association	A group of related soil types or soil series developed from a similar geological parent material.
soil compaction	The removal of pore spaces within soil structures and drainage channels between soil structures. This inhibits root penetration and the movement of air and water in soil.
soil erosion	The detachment and movement of soil by the action of water and/or wind.
soil-mark	Traces of archaeological features, which are visible in ploughed or harrowed fields, usually where there are periods before the crops grow.
soil moisture deficit	The difference between the maximum amount of water potentially stored in drained soil and the amount remaining after some of the water has been transpired by growing vegetation.

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Term	Definition
soil nailing	Insertion of reinforcement rods into the ground to increase stability.
soil profile	A vertical cross-section through a soil, showing the different layers or horizons. In most soils there are three soil horizons, 'A', 'B' and 'C'. Engineers consider the 'A' and 'B' horizons to be 'Topsoil' and the 'C' horizon as 'Subsoil', whereas in agricultural terms the 'B' horizon is normally considered to be the upper subsoil and the 'C' horizon is the lower subsoil. Agricultural practitioners generally consider a soil profile to be about 1.2m in depth, unless an impenetrable layer (e.g. hard rock) occurs at shallower depths.
soil resource	The textures, structures and volume of different qualities of topsoil and subsoil that have a potential for beneficial reuse.
soil resource plan	Describes how displaced soil resources will be conserved and subsequently used for the reinstatement of agricultural land, landscape planting and ecological habitat creation. They identify the areas and types of topsoil, upper subsoil and lower subsoil, where applicable, to be stripped during engineering works and the construction of site haul routes. These plans set out the soil handling methods to be used, the volumes of each resource, and the locations and management of soil storage areas.
soil sealing	Covering the soil surface with an impermeable material.
soil structure	The combination or aggregation of soil particles into larger compound units (known as peds) with pore spaces and channels between that allow the flow of air and water and the penetration of roots. The secondary units are characterised and classified on the basis of size, shape and degree of development.
soil texture	The relative proportion of the various size fractions of particles in a soil (sand, silt and clay).
solifluction	The gradual and slow, downhill movement of soil and rock as a mass (mass wasting) following freeze-thaw weathering.
sound exposure level (Lp)	The sound level which, if maintained at a constant level for a period of one second, would have the same amount of energy as a given event (of any duration) at the same receptor.
sound power level (Lw)	A parameter that represents the total acoustic power radiated by a sound 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 (LpA)	The parameter by which sound levels are measured in air. It is measured in decibels. The threshold of hearing has been set at 0dB, while the threshold of pain is approximately 120dB. Normal speech is approximately 60dB at a distance of 1 metre 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 horizontal distance between two supports of a structure (e.g. piers of a bridge or viaduct).
spur	A section of railway track connecting to the main line.
stabling	The parking of trains whilst out of operational service.
statutory consultee	Organisations and bodies that must be consulted on relevant planning matters, as defined by statute.

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Term	Definition
statutory undertaker	A term used to refer to public and private bodies such as railway, electricity, gas, water, sewerage or telecommunications companies that have been given statutory powers to undertake certain works or functions under permitted development rights.
steel screw pile	A displacement pile screwed into the ground in order to transfer vertical load into the ground.
stockpile	An area where materials excavated during construction of the Proposed Scheme will be stored temporarily before being reused, or where construction plant and machinery associated with the construction is stored.
stopped-up	The permanent closure of a public right of way.
strata	A layer or series of layers of rock or soil.
strategic alternative	Alternatives to the proposed HS2 network, including 'without the Proposed Scheme' and improvements to aviation and road network.
Strategic Road Network	The network of motorways and major trunk roads in England.
stressing tendon	A high yield steel bar used to apply a compressive force to concrete such that under service conditions there is no net tension within the element.
structure plan	The planning policy document prepared by a county council that sets out the strategic policy framework for the county.
Subgrade 3a (Agricultural Land Classification) (England)	'Good' quality agricultural land 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 (Agricultural Land Classification) (England)	'Moderate' quality agricultural land 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	The weathered layer of soil between the natural topsoil at the ground surface and the unweathered rock below. Subsoil has a lower organic matter and plant nutrient content than topsoil. In some places there is an upper subsoil layer or horizon, which is transitional in texture between the topsoil and a lower subsoil.
subsoiler	A tractor-mounted implement used to loosen and break up soil at depths below the level of a traditional plough, disk harrow or rototiller.
substructure	The foundations or supporting part of a structure below ground level.
superficial deposit	A geological deposit that was laid down during the Quaternary period. Such deposits were largely formed by river and glacial processes but can also include wind-blown deposits known as loess.
superstructure	The part of a structure above ground.
surface water	Waters including rivers, lakes, loughs, reservoirs, canals, streams, rainfall runoff, ditches, coastal waters and estuaries.
surface water flooding	Flooding caused by the volume of rainfall exceeding the capacity of either the drainage network, or rate that water can infiltrate into the ground, resulting in water that lies on or flows over the ground. Surface water flooding is not usually associated with a watercourse.
surplus excavated material	Excavated material becomes surplus if: its irrecoverable physical, chemical or biochemical quality prevents it from being used in the

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Term	Definition
	Proposed Scheme; there is more material than required for the Proposed Scheme or other permitted scheme; or the requirement for a type of material is too far away from the excavation point to make its use practicable.
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.
sustainable transport	Any type of transport that has lower impacts on the environment and is more fuel efficient than traditional travel by single occupancy private motor vehicle. This includes walking, cycling, public transport and car sharing.
Sustrans	A charity that works with communities, policy-makers and organisations to make it easier for people to walk and cycle.
switchgear	Electrical equipment used to control and isolate the flow of electricity to a circuit.
tamper unit	A machine used to compact graded stone and maintain geometric alignment of railway tracks.
temporary construction railway	A temporary railway used to transport material, personnel and equipment to and from a tunnel boring machine (TBM) during the construction and fit-out of a tunnel.
tension piles	A tension pile is installed to resist being pulled out of the ground instead of supporting a load.
threshold	A level of effect above which an assessment will be taken of whether any changes to procedures need to be made.
topography	The natural or artificial features, level and surface form of the ground surface.
topsoil	Upper layer of a soil profile, usually darker in colour (because of its higher content of organic matter) and more fertile than subsoil, and which is a product of natural biological and environmental processes.
townscape	The landscape within the built-up area, including the buildings, the relationship between them, the different types of urban open spaces, including green spaces and the relationship between buildings and open spaces.
trackout	The movement of dust and dirt from the construction/demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network.
track crossover	A pair of switches connecting two parallel rail tracks, allowing a train on one track to cross over to the other.
track sectioning cabin	A compound located next to a railway that contains equipment to section the overhead line equipment for the purpose of limiting the impact of a fault, and to provide distribution of power between different overhead line circuits.
track switch	A mechanical installation enabling railway trains to be guided from one track to another, such as at a railway junction.
trackside storage area	A location alongside track crossovers for the storage of equipment and parts to be used in future maintenance and replacement of the crossovers.

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Term	Definition
traction power	Power provided primarily for the purpose of moving trains.
traffickability	The capability of a soil to bear traffic (vehicles, livestock or people) without causing any physical damage to it or impairing its functions.
transfer node	A location where bulk deliveries or excavated materials leave or enter the construction work sites from public roads.
translocation	The transporting and release of species or habitats from one location to another. For example, if an area of land is required permanently for a new development, species can be moved from that site to a suitable alternative location.
transmission tower	See 'electricity pylon'.
Transport for the North	The organisation formed to transform the transport system across the North of England, providing the infrastructure needed to drive economic growth.
Transport Scotland	The national transport agency for Scotland that support and advise Scottish Ministers on strategy and policy options for transport in Scotland, and increase sustainable economic growth through the development of national transport projects.
Travel to Work Area	A statistical tool used by UK Government agencies and local authorities, especially by the Department for Work and Pensions and Job centres, to indicate an area where the population would generally commute to a larger town, city or conurbation for the purposes of employment.
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 tree preservation order is to prohibit the cutting down, uprooting, topping, lopping, wilful damage or wilful destruction of trees without the local planning authority's consent.
Triassic period	The period between 251 million years ago and 200 million years ago.
truss	A framework of beams, posts and struts that support a structure (e.g. a roof), or span an opening.
tunnel boring machine	A tunnelling machine, which consists of a rotary cutting head that occupies the full face of the tunnel. A system of conveyors or pumps is used to remove the excavated material.
tunnel drive	The process of tunnel excavation and lining.
tunnel drive launch shaft	Vertical excavation to form the starting point to launch a tunnel boring machine.
tunnel portal	Tunnel entrances and exits.
turnback	A facility that allows a train to reverse. A turnback can be a crossover on the main railway line, or a reversing siding, which branches off the main railway line.
turning head	An area of road or access to allow vehicles to turn back where temporary and permanent road closures as part of the construction and operation of the Proposed Scheme has created dead ends.
two-way trips	Two-way trips refer to the total number of vehicle movements in both directions (i.e. with 200 westbound vehicles and 100 eastbound, there would be 300 two-way trips).
ultra low emissions vehicle	A vehicle that produces lower emissions than standard vehicles. They produce 75g or less of carbon dioxide per kilometre and are capable of a

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Term	Definition
	minimum 10 miles of zero-emission driving. This includes electric vehicles.
underbridge	A bridge crossing under a transport corridor such as a railway line.
unemployment	Refers to people without a job who were available to start work in the two weeks following their interview and who had either looked for work in the four weeks prior to interview or were waiting to start a job they had already obtained.
unemployment rate	The proportion of residents unemployed and actively seeking employment as a percentage of the economically active population.
unexploded ordnance	Explosives that did not explode when deployed and thus still pose a risk of detonation.
unitary development plan	A statutory document that sets out a council's planning policies for development, conservation, regeneration and environmental improvement activity.
United Kingdom Climate Impacts Programme	Established in 1997 by the United Kingdom Government to coordinate and influence research into adapting to climate change, and to disseminate knowledge and tools for users to consider their climate risks and plan to adapt.
United Kingdom Climate Projections	The United Kingdom Climate Projections provide future projections of climate change for different time periods and different possible scenarios of greenhouse gas emissions. These illustrate a range of possible future changes to the United Kingdom's climate. The United Kingdom Climate Projections 2009 (UKCP09) are the most current climate projections for the UK. They are being updated and will be replaced by a new suite of projections, UKCP18, in 2018.
unproductive strata	Low permeability strata that are unable to store or transmit large quantities of water and have a negligible significance for water supply.
up line	The line of the route heading towards Euston Station, London.
upgrade (overhead line)	Increasing the power flow along an overhead power line.
utility	A commodity or service, such as electricity, gas or fuel that is provided by a public or private service provider. These are often delivered to customers via pipes, cables etc. under the ground. They can also be delivered above the ground, for example, via overhead power lines.
utility diversion	Utilities may be diverted, or have their height or depth altered, where their current alignment, either above or below ground, would prevent the construction of certain components of the Proposed Scheme.
vehicle movement	A journey made by a vehicle that can either be a one-way or two-way trip.
ventilation (and intervention) shafts	Shafts located at intervals along the length of a tunnel and used for ventilation and emergency access/exit.
veteran tree	A tree which shows 'ancient characteristics'. The tree may be of great age; great age relative to others of the same species; existing in an ancient stage of life or due to its biological, aesthetic or cultural interest. Physical characteristics include crown retrenchment and signs of decay in the trunk, branches or roots.
viaduct	A type of bridge composed of a series of spans, used to carry roads and railways across valleys or other infrastructure.
vibration dose value	Defined in BS6472-1(2008) as a relationship that yields a consistent assessment of vibration which correlates well with subjective response. It

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Term	Definition
	is used to estimate the probability of adverse comment expected from people experiencing vibration in buildings. Consideration is given to the time of day and use made of occupied space in buildings (e.g. residential, office or workshop).
viewpoint	A place from which something can be viewed.
visual amenity	The enjoyment or benefit that people derive from a particular view or area in terms of what is seen. When a landscape (or townscape) is changed in some way, the change will be seen by people - often by several different groups of people i.e. visual receptors - and this may affect their views and their visual amenity overall.
visual receptor	People who may have a view of the Proposed Scheme during construction or operation.
vulnerable groups	<p>Groups of individuals who are made vulnerable by the situations and environments they are exposed to (as opposed to any inherent weakness or lack of capacity). This includes groups of people who may be more likely to be exposed to a change in a health determinant, or to experience health effects as a result of exposure. Consideration of vulnerable groups will take into account:</p> <ul style="list-style-type: none"> • how an impact on a health determinant is shown (in scientific literature) to affect a particular section of the community; • whether the affected community is already facing existing deprivation (social, economic or environmental) that could serve to intensify or change the impact(s) of the Proposed Scheme; and • characteristics such as age, health conditions, or other physical or mental characteristics that make people more likely to be exposed to adverse impacts resulting from the Proposed Scheme.
vulnerable road users	Defined in this Environmental Statement as all pedestrians, cyclists and equestrians.
watercourse diversion	A route of a watercourse, where either the start or the finish point changes due to modification, which results in changes to the flow regime within a discrete section of channel.
watercourse realignment	The route of a watercourse, modified between two points, where the start and finish points remain the same.
waste	The Waste Framework Directive (Directive 2008/98/EC) defines waste as "... any substance or object which the holder discards or intends or is required to discard...".
waste hierarchy	The revised EU Waste Framework Directive (2008) sets out five steps for dealing with waste, ranked according to their environmental impact. Prevention, which offers the best outcomes for the environment, is at the top of the priority order, followed by preparing for re-use, recycling, other recovery and disposal, in descending order of environmental preference.
Water Framework Directive surveys	A survey of surface water and groundwater bodies to establish their current condition or 'status or potential' as per the Water Framework Directive (as defined by EU Directive 2000/60/EC, and amended by subsequent regulations).
Web Transport Analysis Guidance	Department for Transport guidance on the role of transport modelling and appraisal.
wellbeing	A general term for the condition of an individual or group, for example their social, economic, psychological, spiritual or medical state. High wellbeing means that, in some sense, the individual or group's

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Term	Definition
	experience is positive, while low wellbeing is associated with negative conditions.
well treed	A landscape with an abundance of tree cover.
West Coast Main Line	Inter-urban rail line connecting London, Birmingham, Manchester, Liverpool and Glasgow.
wetness class	Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six wetness classes are identified, ranging from 'very well drained' to 'very poorly drained'.
wetness limitation	A soil wetness limitation exists where the soil water regime adversely affects plant growth or imposes restrictions on cultivations or grazing by livestock.
wheel lathe	A machine used for re-profiling wheels of heavy rail vehicles without dismantling wheel sets from trains.
winches	Mechanical devices that pull in or let out wires (conductors). They also adjust the tension of wires on the overhead power line.
wing wall	A smaller wall attached or next to a larger wall or structure.
world heritage site	A natural, and/or cultural, area or structure recognised as being of outstanding universal value and therefore as deserving special protection. Sites are nominated to and designated by the World Heritage Convention (an organisation of UNESCO).
world heritage site buffer zone	A buffer zone is an area surrounding a world heritage site that gives an added layer of protection to the site. They include the immediate setting of the nominated site, important views and other areas or attributes that are functionally important as a support to the site and its protection. Buffer zones are not formally a part of the inscribed world heritage site, however, they are required to have restrictions placed on development within them.
Y network	Proposed network 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.
zone of influence (ecology)	The area over which ecological features may be affected by the biophysical changes caused by the Proposed Scheme and associated activities.
zone of theoretical visibility	The likely (or theoretical) extent of visibility of a development, usually shown on a map.

2 Abbreviations

2.1 Symbols and units of measurement

Abbreviation	Meaning
<	is less than
≤	is less than or equal to
>	is more than
≥	is more than or equal to
©	Copyright
%	per cent
£	pound sterling
ASPT	average score per taxon
A/m	amperes per metre
Bqm ⁻³	becquerels per cubic metre
CaCO ₃	calcium carbonate
CH ₄	Methane
Cm	Centimetre
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
DALY	disability-adjusted life year
dB	Decibel
dB(A)	decibel A-weighted
µg/m ³	micrograms per cubic metre
gCO ₂ e	grams of carbon dioxide equivalent
GHz	Gigahertz
g/yr	grams per year
Hr	Hour
Ha	Hectare
Hectad	an area of 10km ²
Hz	Hertz
Kg	Kilogram
Km	Kilometre
km ²	square kilometre
Kph	kilometres per hour
kV	Kilovolt
kV/h	kilovolts per hour
kWh	kilowatt hour
µm	Micrometre

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Abbreviation	Meaning
M	Metre
m ²	square metre
m ³	cubic metre
m ³ /d	cubic metres per day
m ³ /s	cubic metres per second (also known as cumecs)
m/s	metres per second
mm/s	millimetres per second
N	Nitrogen
NO	nitrogen oxide
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
Min	Minute
Mm	Millimetre
Mph	miles per hour
MtCO ₂ e	mega tonne of carbon dioxide equivalent
MW	Megawatt
Pa	per annum
p/hr	per hour
Pkm	passenger kilometre
PM _{2.5}	particulate matter (with aerodynamic diameter of less than 2.5 micrometres)
PM ₁₀	particulate matter (with aerodynamic diameter of less than 10 micrometres)
PPMS	passengers per metre square
PPV	peak particle velocity
μT	Microtesla
RFC	ratio of flow to capacity (traffic and transport)
SO ₂	sulphur dioxide
T	Tonne
tCO ₂ e	metric tonne of carbon dioxide equivalent
Tph	trains per hour
V	Volt
v/c	volume to capacity ratio (traffic and transport)
Vpd	vehicles per day
Vph	vehicles per hour

2.2 Acronyms and initialisms

Abbreviation	Meaning
AA	Appropriate Assessment
AADT	annual average daily traffic
AAR	annual average rainfall
AAWT	annual average weekday traffic
ACA	Archaeological Character Area
ACM	asbestos containing material
AD	Anno Domini
ADMS	atmospheric dispersion modelling system
ADS	Archaeology Data Service
ADT	articulated dump truck
AEP	annual exceedance probability
ALARP	as low as reasonably practicable
ALC	Agricultural Land Classification
AOD	above Ordnance Datum
AONB	Area of Outstanding Natural Beauty
AoS	appraisal of sustainability
AP	Additional Provision
APHA	Animal and Plant Health Agency
APHO	Association of Public Health Observatories
APW	available profile water
AQAP	air quality action plan
AQMA	Air Quality Management Area
ARP	adaptation reporting power
ASC	adaptation sub-committee
ASL	advanced stop line
ASLV	Area of Special Landscape Value
AStSWF	area susceptible to surface water flooding
ASZ	archaeological sub-zone
ATC	automatic traffic count
ATO	accumulated temperature above 0°C
AURN	Automatic Urban and Rural Network
AWC	available water capacity
AWI	Ancient Woodland Inventory
AWIS	Ancient Woodland Inventory Site
BAME	black, asian and minority ethnic people
BAP	biodiversity action plan
BAS	biodiversity alert site
BAT	best available technique

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Abbreviation	Meaning
BBSBD	British Bryological Society Bryophyte Database
BC	Before Christ
BCCL	The Bridgewater Canal Co Ltd
BCO	British Council for Offices
BCR	benefit-cost ratio
BEIS	(Department for) Business, Energy and Industrial Strategy
BFI	Base Flow Index
BFIHOST	Base Flow Index derived using the HOST soil classification
BGL	below ground level
BGS	British Geological Survey
BID	Background Information and Data
BLS	British Lichen Society
BMV	best and most versatile (agricultural land)
BMWP	Biological Monitoring Working Party
BNS	biological notification site
BOAT	byway open to all traffic
BoCC	birds of conservation concern
BPA	British Pipeline Agency
BPM	best practicable means
BREEAM	Building Research Establishment Environmental Assessment Method
BS	British Standard
BSI	British Standards Institute
BT	British Telecommunications plc
BTO	British Trust for Ornithology
BWML	British Waterways Marinas Limited
C&I	commercial and industrial
c.	Circa
CA	community area
CAAV	Central Association of Agricultural Valuers
CAS	Cheshire Agricultural Society
CAZ	Clean Air Zone
CBC	Church Buildings Council
CBM	coal bed methane
CBOA	Commercial Boat Operators Association
CC	climate change
CCA+R	climate change adaptation and resilience
CCC	Committee on Climate Change
CCG	Clinical Commissioning Group
CCHRBA	Culcheth and Croft Horse Riders and Bridleways Association
CCI	Community Conservation Index

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Abbreviation	Meaning
CCR	climate change resilience
CCRA	climate change risk assessment
CCT	Cheshire Canal Trust
CCTV	closed-circuit television
CDA	critical drainage area
CDEW	construction, demolition and excavation waste
CDM	Construction (Design and Management) 2015 Regulations
CEMFAW	Control of Electromagnetic Fields at Work
CET	controlled emission toilet
CfBT	Campaign for Better Transport
CFMP	catchment flood management plan
CGT	Cheshire Gardens Trust
CHP	combined heat and power
CI	cast iron
CIEEM	Chartered Institute of Ecology and Environmental Management
CIfA	Chartered Institute for Archaeologists
CIRIA	Construction Industry Research and Information Association
CL:AIRE	Contaminated Land: Applications in Real Environments
CLA	Country Land and Business Association
CLEA	contaminated land exposure assessment
CoA	Coal Authority
CoCP	Code of Construction Practice
CoE	Church of England
COMAH	Control of Major Accident Hazards
COMEAP	Committee on the Medical Effects of Air Pollutants
COP21	21st Conference of the Parties of the United Nations Framework Convention on Climate Change
CoPA	Control of Pollution Act 1974
CPRE	Campaign to Protect Rural England
CPZ	controlled parking zone
CRE	contract requirements environment
CRN	calculation of railway noise
C&RT	Canal & River Trust
CRTN	calculation of road traffic noise
CSM	conceptual site model
CSM-RA	EU Regulation 402/2013 on the Common Safety Method on Risk Evaluation and Assessment (as amended by Regulation EU 2015/1136)
CSS	Countryside Stewardship Scheme
DAI	directly affected individual
DALY	disability-adjusted life years

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Abbreviation	Meaning
DAS	deliverable approach statement
DCLG	Department for Communities and Local Government
DCMS	Department of Digital, Culture, Media, and Sport
DECC	Department of Energy and Climate Change
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DIO	Defence Infrastructure Organisation
DMRB	Design Manual for Roads and Bridges
DMV	deserted medieval village
DoS	degree of saturation (traffic and transport)
DPD	development plan document
DPLBAR	index describing catchment size and drainage path configuration (km)
DPSBAR	index of catchment steepness (m/km)
DRN	detailed river network
DSA	delivery and site allocation
DSM	digital surface model
DTM	digital terrain model
EC	European Commission
EclA	ecological impact assessment
ECML	East Coast Main Line
EDI	equality, diversity and inclusion
eDNA	environmental DNA
EFA	Education Funding Agency
EfW	energy from waste
EH	English Heritage
EHP	environmental health practitioner
EHRC	Equality and Human Rights Commission
EHS	Exceptional Hardship Scheme
EIA	environmental impact assessment
ELC	European Landscape Convention
ELS	entry level stewardship
EM	Electromagnetic
EMC	electromagnetic compatibility
EMF	electromagnetic field
EMI	electromagnetic interference
EMR	environmental minimum requirements
EMS	environmental management system
EN	European Standard (Euro norm)
EPA	Environmental Protection Act 1990
EPD	environmental product declaration

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Abbreviation	Meaning
EPO	Environmental Protection Officer
EPS	European Protected Species
EPUK	Environmental Protection UK
EQIA	equality impact assessment
ERTMS	European Rail Traffic Management System
ES	Environmental Statement
ETCS	European Train Control System
ETS	emissions trading scheme
EU	European Union
EUS	extensive urban survey
EU ETS	European Union Emissions Trading Scheme
EWRL	East West Rail Line
FARL	FEH index of flood attenuation due to reservoirs and lake
FC	TUFLOW Flow constriction layer
FCD	field capacity days
FEH	Flood Estimation Handbook
FERA	FERA Science Limited (formerly Food and Environment Research Agency)
FMD	foot and mouth disease
FMfSW	Flood Map for Surface Water
FoE	Friends of the Earth
FoMLG	Friends of Marie Louise Gardens
FPEXT	floodplain extent, the fraction of the catchment inundated by a 1 in 100 (1%) annual probability event
FRA	flood risk assessment
FRR	The Flood Risk Regulations 2009
FSMS	Field Survey Methods and Standards
FTA	Federal Transit Administration
FTE	full-time equivalent
FTP	framework travel plan
FZM	Flood Zone Map (Environment Agency)
GCN	great crested newt
GDP	gross domestic product
GHG	greenhouse gas
GI	ground investigation or galvanised iron
GIS	geographical information system
GP	general practitioner
GRIP	Governance for Railway Investment Projects
GSM-R	Global System for Mobile Communications - Railway
GSP	grid supply point
GVA	gross value added

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Abbreviation	Meaning
GWDTE	groundwater dependent terrestrial ecosystem
GWML	Great Western Main Line
GWSI	Generic written scheme of investigation
HAWRAT	Highways Agency Water Risk Assessment Tool
HCA	Homes and Communities Agency
HDV	heavy duty vehicle
HER	historic environment record
HERDS	Historic Environment Research and Delivery Strategy
HES	Historic Environment Scotland
HFC	hydrofluorocarbons
HGV	heavy goods vehicle
HHA	Historic Housing Association
HIA	health impact assessment
HLA	Historic Land-use Assessment (Scotland)
HLC	historic landscape character (England)
HLCA	Historic Landscape Character Area (England)
HLS	Higher Level Stewardship
HoPI	habitat of principal importance
HOST	Hydrology of soil types
HPI	habitat priority inventory
HPS	Health Protection Scotland
HRA	habitat regulations assessment
HS1	High Speed One
HS2	High Speed Two
HS2 Ltd	High Speed Two Limited
HSE	Health and Safety Executive
HSI	Habitat Suitability Index
HSR	High Speed Rail
HSWA	Health and Safety at Work etc. Act 1974
HUDU	Healthy Urban Development Unit
HVAC	heating, ventilation and air-conditioning
IAG	Interdepartmental Analysts Group
IAQM	Institute of Air Quality Management
ICCI	in-combination climate change impact
ICE	Institution of Civil Engineers
ICNIRP	International Commission on Non-Ionizing Radiation Protection
ICOMOS	International Council on Monuments and Sites
ICS	International Classification for Standards
ID	Identification
IEEM	Institute of Ecology and Environmental Management

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Abbreviation	Meaning
IEMA	Institute of Environmental Management and Assessment
IEP	Intercity Express Programme
IHBC	Institute of Historic Building Conservation
IMB-R	infrastructure maintenance base - rail
IMD	infrastructure maintenance depot
IoMD	Index of Multiple Deprivation
IPC	integrated pollution control
IPCC	Intergovernmental Panel on Climate Change
IPCC AR5	IPCC's 5th Assessment Reports
IPEG	increased potential for elevated groundwater
IPPC	integrated pollution prevention control
ISIS	one-dimensional hydraulic modelling software developed by Halcrow
ISO	International Organisation for Standardisation
ITA	Integrated Transport Authority
IWA	Inland Waterways Association
JNCC	Joint Nature Conservation Committee
LAF	Local Access Forum
LAPPC	local authority pollution prevention and control
LAQM	local air quality management
LBAP	local biodiversity action plan
LCA	Landscape Character Area
LCLIP	Local Climate Impacts Profile
LDA	Landscape Design Approach
LDD	local development document
LDF	local development framework
LDV	light duty vehicle
LEAP	locally equipped area of play
LEMP	local environmental management plan
LEP	local enterprise partnership
LEZ	low emission zone
LFRMS	local flood risk management strategy
LGBCE	Local Government Boundary Commission for England
LGS	Local Geological Site (formerly regionally important geological sites)
LGV	light goods vehicle
LiDAR	light detection and ranging
LIFE	Lotic-invertebrate Index for Flow Evaluation
LIP	local implementation plan
LLAU	Limits of land to be acquired or used
LLFA	lead local flood authority
LOAEL	lowest observed adverse effect level

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Abbreviation	Meaning
LNR	Local Nature Reserve
LOS	Leigh Ornithological Society
LPA	local planning authority
LpAeq	equivalent continuous A-weighted sound pressure level
LpAeq, day	equivalent continuous sound pressure level [day - 07:00-23:00]
LpAeq, night	equivalent continuous sound pressure level [night - 23:00-07:00]
LpAeq,T	equivalent continuous A-weighted sound pressure level for the time period T
LpAFmax	maximum A-weighted sound pressure level measured with a fast time constant
LpASmax	maximum A-weighted sound pressure level measured with a slow time constant
Lpeq	equivalent continuous sound pressure level
LSOA	lower super output area
LTP	local transport plan
LULUCF	Land use, land use change and forestry
LWS	Local Wildlife Site
M and E	mechanical and electrical
MAFF	Ministry of Agriculture, Fisheries and Food
mAOD	metres above Ordnance Datum
MAP	maintenance access point
MATTE	Major Accident to the Environment
mbgl	metres below ground level
MCA	mineral consultation area
MCC	manual classified count (traffic and transport)
MDU	maintenance delivery unit
MEP	mechanical and electrical plant
MLP	minerals local plan
MMG	Mercia Mudstone Group
MMP	materials management plan
MNA	monitored natural attenuation
MoD	Ministry of Defence
MOL	metropolitan open land
MPA	mineral preferred area
MRF	material recycling facility
MSA	mineral safeguarding area
MTBE	methyl tertiary-butyl ether
MUGA	multi-use games area
MWIA	Mental wellbeing impact assessment
N/A	not applicable
NABO	National Association of Boat Owners

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Abbreviation	Meaning
NAEI	National Atmospheric Emissions Inventory
NAP	National Adaptation Programme
NBR	National Buildings Record
NCA	National Character Area
NCN	National Cycle Network
NCR	National Cycle Route
NE	Natural England
NFC	National Forest Company
NFPD	national fish population database
NFU	National Farmers Union
NGCLC	National Groundwater & Contaminated Land Centre
NGO	non-governmental organisation
NHLC	National Historic Landscape Characterisation
NHLE	National Heritage List for England
NHS	National Health Service
NI/TR Policy	noise insulation and temporary re-housing policy
NMR	National Monuments Record
NMU	non-motorised users
NNR	National Nature Reserve
NOMIS	Service provided by the Office for National Statistics to provide UK labour market statistics
NPE	National Parks England
NPF3	National Planning Framework for Scotland (Third edition)
NPPF	National Planning Policy Framework
NPPG	National Planning Practice Guidance
NPR	Northern Powerhouse Rail
NPS	National Pond Survey
NPSE	Noise Policy Statement for England
NPV	Net Present Value
NR	Network Rail
NT	National Trust
NTEM	National Trip End Model
NTM	National Transport Model
NTS	non-technical summary
NVC	National Vegetation Classification
NVQ	National Vocational Qualification
NVZ	nitrate vulnerable zone
OA	optimised alternative
OAPF	opportunity area planning framework
OBR	Office for Budget Responsibility

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Abbreviation	Meaning
OCS	overhead catenary system
OD	Ordnance Datum
OELS	Organic Entry Level Stewardship
Ofsted	Office for Standards in Education
OfWAT	The Water Services Regulation Authority
OGA	Oil & Gas Authority
OLE	overhead line equipment
ONR	Office for Nuclear Regulation
ONS	Office for National Statistics
ORR	Office of Rail Regulation
OS	Ordnance Survey
OSS	Open Spaces Society
P/A	presence/absence
PAH	polycyclic aromatic hydrocarbons
PAS	Publicly Available Specification
PAWS	plantation on ancient woodland site
PCB	polychlorinated biphenyls
PCU	passenger car unit
PDFH	Passenger Demand Forecasting Handbook
PDM	Post Development Model
PEDL	Petroleum Exploration and Development Licence
PFM (also referred to as PLANET)	Planet Framework Model (also referred to as PLANET - Planning network transport forecast model)
PFRA	preliminary flood risk assessment
PHE	Public Health England
PLD	PLANET long distance
PLM	persons with limited mobility
PM	PLANET Midlands
PMA	private means of access
PN	PLANET North
POS	public open space
POT	peak over a threshold
PPE	personal protective equipment
PPG	pollution prevention guidelines (Environment Agency)
PPGN	Planning Guidance on Noise
PPS	Planning Policy Statement
PROPWET	Index of proportion of time that soils are wet
PRoW	public right of way
PRU	Pupil Referral Unit
PS	PLANET South

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PSC	population size class
PSED	Public Sector Equality Duty
PSI	proportion of sediment-sensitive invertebrates
PSYM	Predictive System for Multimetrics
PV	present value
PVB	present value of benefits
PVC	present value of costs
PWS	public water supply
QLS	queue length survey
QMED	Median annual flood {with 1 in 2 (50%) annual probability event}
QRA	quantitative risk assessment
RA	rapid assessment
RAF	Royal Air Force
RBD	river basin district
RBMP	river basin management plan
RC	Roman Catholic
RCS	river corridor survey
RDA	regional development agency
REB	relocatable equipment building
ReFH	Revitalised Flood Hydrograph
REPIIR	Radiation Emergency Preparedness and Public Information Regulations
RESTATS	Department of Energy and Climate Change Renewable Energy Statistics
RFI	radio frequency interference
RFRA	regional flood risk appraisal
RHS	river habitat survey
RICT	River Invertebrate Classification Tool
RIGS	regionally important geological and geomorphological site
RIM	reservoir inundation mapping
RIMAG	Risley Moss Action Group
RIR	The Railways (Interoperability) Regulations 2011 (as amended)
ROF	Royal Ordnance Factory
ROGS	The Railways and Other Guided Transport Systems (Safety) Regulations 2006 (as amended)
RP	Rail Package
RPG	registered park and garden
RPZ	root protection zone
RRB	route refinement baseline
RSD	rolling stock depot
RSPB	Royal Society for the Protection of Birds
RSS	regional spatial strategy

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RSSB	Rail Safety and Standards Board
RTMP	route-wide traffic management plan
RU	railway undertakings
RUS	route utilisation strategy
S&T	signalling and telecommunications
SA	sustainability appraisal
SAAR	Standard Average Annual Rainfall
SAB	SuDS Approval Body
SAC	Special Area of Conservation
SAM	Scheduled Ancient Monument
SAPT	Scottish Association for Public Transport
SAT	Specific assemblage type
SBI	Site of Biological Importance
SBI. I	Site of Biological Importance - Grade I
SBI. II	Site of Biological Importance - Grade II
SCADA	supervisory control and data acquisition
SCM	station choice model
SDP	Strategic Development Plan
SEE	skills, employment and education
SEGI	Site of Ecological or Geological Importance
SEN	special educational needs
SEPA	Scottish Environment Protection Agency
SES	Supplementary Environmental Statement
SFRA	strategic flood risk assessment
ShPA	Shale Prospective Area
SI	Statutory Instrument
SIL	strategic industrial land
SINC	Site of Importance for Nature Conservation
SLA	Special Landscape Area
SLI	Site of Local Importance
SLINC	Site of Local Importance for Nature Conservation
SMI	Site of Metropolitan Importance
SMINC	Site of Metropolitan Importance for Nature Conservation
SMP	Smart Motorways Programme
SMR	Scope and Methodology Report
SMS	safety management system
SNCI	site of nature conservation interest
SNH	Scottish Natural Heritage
SNRHW	stable non-reactive hazardous waste
SO27A	Parliament's Private Business Standing Order 27A

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SOAEL	significant observed adverse effect level
SoS	Secretary of State
SPA	Special Protection Area
SPD	supplementary planning document
SPG	supplementary planning guidance
SPL	slowly permeable layer
SPP	Statement of Public Participation
SPR	Standard percentage runoff
SPRHOST	Standard percentage runoff derived using the HOST soil classification
SPZ	Source Protection Zone
SPZ1	Source Protection Zone 1
SPZ2	Source Protection Zone 2
SPZ3	Source Protection Zone 3
SRM	safety risk model
SRN	strategic road network
SRP	soil resource plan
SSSI	Site of Special Scientific Interest
STEM	science, technology, engineering and mathematics
STM	SATURN transport model
STP	station travel plan
SUCS	Shropshire Union Canal Society
SuDS	sustainable drainage system
SVOC	semi-volatile organic compounds
SWC	surface water crossing
SWMP	site waste management plan
SXZ	Point layer providing 1D-2D link within TUFLOW
TA	Transport Assessment
TBM	tunnel boring machine
TDM	Technical Design Manual
TEMPro	Trip End Model Presentation Program
TfL	Transport for London
TfN	Transport for the North
TGV	Train à Grande Vitesse (English: 'high-speed train'), France's high-speed rail service
TIN	technical information note
TMP	traffic management plan
Tp(0)	Time to peak of the instantaneous unit hydrograph
TPC	travel plan coordinator
TPO	Tree Preservation Order
TRaCCA	Tomorrow's Railway and Climate Change Adaptation

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TRANSEC	Transport Security and Contingencies Directorate (regulator)
TRL	Transport Research Laboratory
TSI	Technical Specification for Interoperability
TSI-SRT	Technical Specification for Interoperability-Safety in Railway Tunnels
TSS	train service specification
TTWA	travel to work area
TUFLOW	Two-dimensional hydraulic modelling software built by BMT WBM
UAD	Urban Archaeological Database
UCZ	utilities construction zone
UDP	unitary development plan
uFMfSW	Updated Flood Map for Surface Water
UID	unique gazetteer identifier
UK	United Kingdom
UKAPIS	UK Air Pollution Information System
UKCCRA	UK Climate Change Risk Assessment
UKCIP	United Kingdom Climate Impacts Programme
UKCP09	United Kingdom Climate Projections 2009
UKFS	UK Forestry Standard
ULEV	Ultra Low Emission Vehicle
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
URBAN	Flood Studies Report index of fractional urban extent
URBEXT1990	FEH index of fractional urban extent
URBEXT2000	Revised index of urban extent, measured differently from URBEXT1990
UST	underground storage tank
UXO	unexploded ordnance
VCP	vitriified clay pipe
VDV	vibration dose value
VOA	Valuation Office Agency
VOC	volatile organic compound
VRS	vehicle restraint system
WC	wetness class
WCA	Wildlife and Countryside Act
WCC	white-clawed crayfish
WCML	West Coast Main Line
WCRM	West Coast Route Modernisation
WCS	water cycle strategy
WDES	working draft Environmental Statement
WebTAG	Web Transport Analysis Guidance
WFD	Water Framework Directive

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Abbreviation	Meaning
WG	Weather Generator
WHO	World Health Organisation
WPD	Western Power Distribution
WPZ	water protection zone
WRAP	Waste and Resources Action Programme
WSI	written scheme of investigation
ZTV	zone of theoretical visibility

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