Excavations and Tunnelling in Camden

Frequently Asked Questions

High Speed Two (HS2) is the new high-speed railway for Britain.

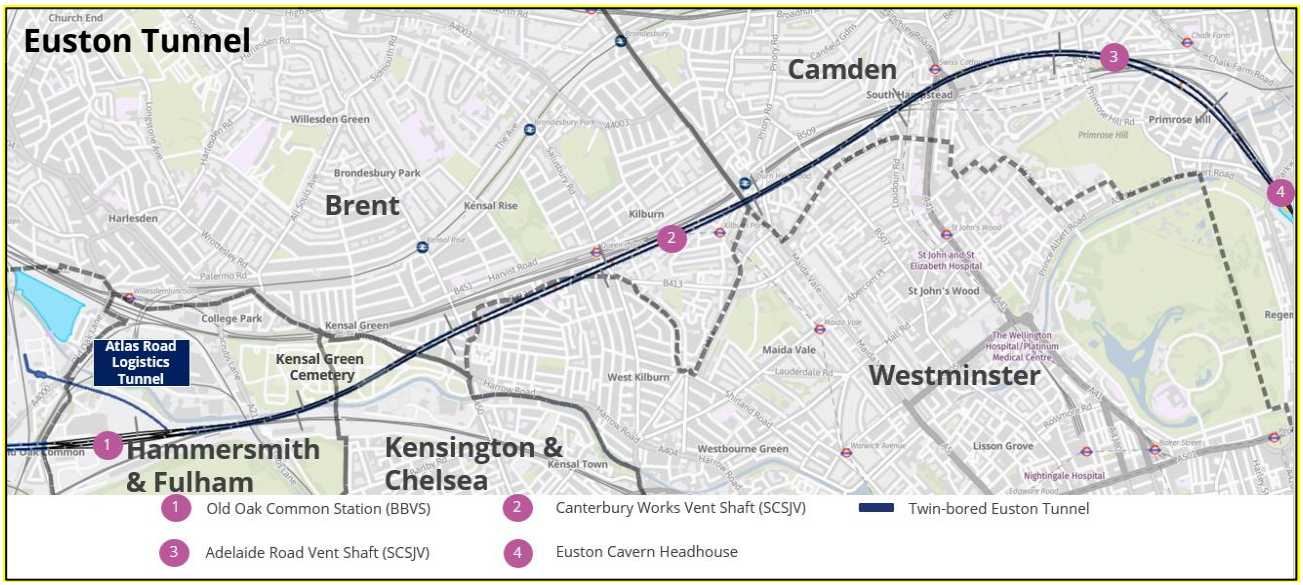
Skanska Costain STRABAG (SCS) is the main works contractor working on behalf of HS2 Ltd. SCS are responsible for the design and construction of bridges, embankments, tunnels, ventilation shafts and headhouses for the Greater London section of the new railway.

What tunnels are you building?

We are building the **Euston Tunnel**, from Old Oak Common to Euston in the London Borough of Camden. From Parkway, the tunnel branches into two, resulting in a total of three tunnels called the **Euston Approaches Tunnels** that emerge into Euston Station.

The Euston Tunnel consists of two bored tunnels – an upline and a downline – that will run for about 4.5 miles (7.2 km) and carry high-speed trains between the London Euston Station and Old Oak Common Station. The twin-bore tunnel enters the London Borough of Camden at Kilburn High Road.

The twin-bore tunnel will reach depths of up to 60m below ground. It will be excavated using two tunnel boring machines (TBMs), Madeleine and Karen, which start their tunnelling journeys from the eastern section of HS2's Old Oak Common Station in January and March 2026 respectively. We expect both TBMs to complete their journey to the Euston Cavern by late June 2027. There will also be a shaft excavated at the Adelaide Road Ventilation Shaft site to connect the shaft to the twin-bore tunnel. Works at this site will start in Winter 2026.

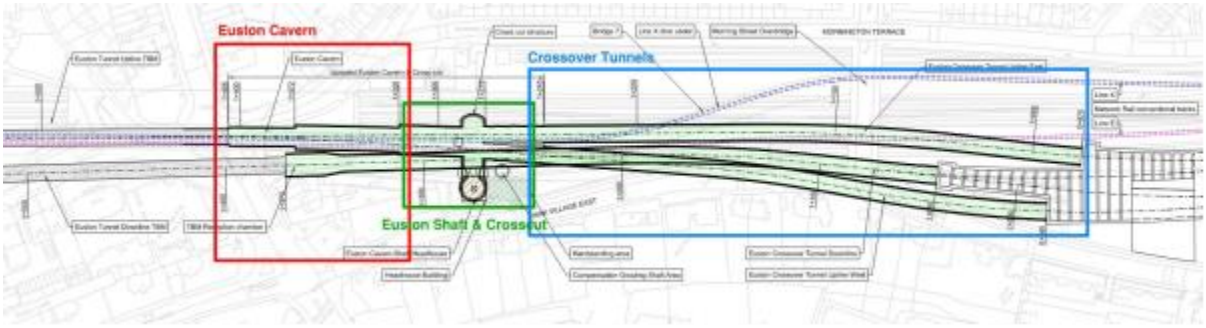


Euston Approaches tunnels

We will build three underground tunnels for HS2 trains in **Euston Approaches** using the sprayed concrete lining method. These will run from Parkway to Mornington Street bridge. Two tunnels will be used by trains travelling from Birmingham to London (upline), and one tunnel will be used by trains travelling from London to Birmingham (downline).

The in-bound tunnel will split into two so that trains can easily access all the platforms needed at Euston Station. Only one tunnel is needed for trains leaving the station.

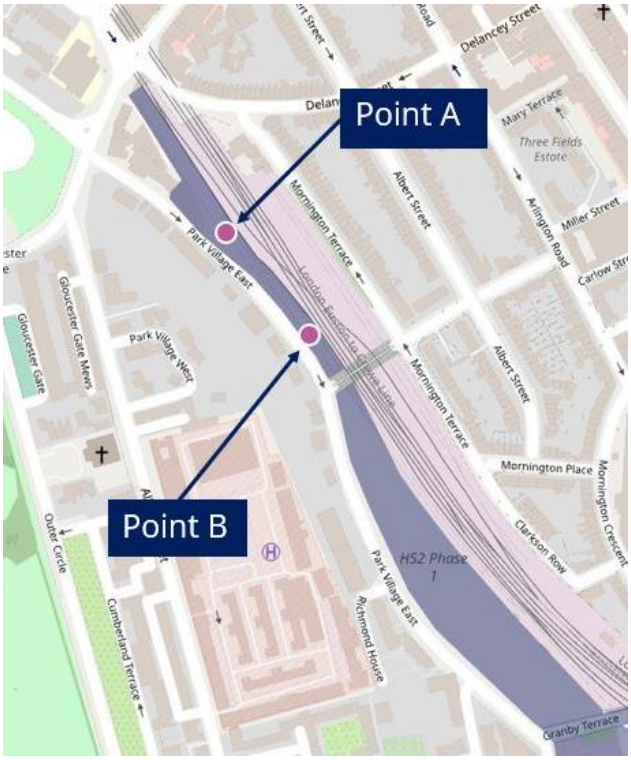
Tunnelling involves major excavation. In Euston, the tunnels will mainly run underneath the railway cutting, with a portion of one tunnel passing under Park Village East. All tunnel locations are within the area permitted under the HS2 Act.



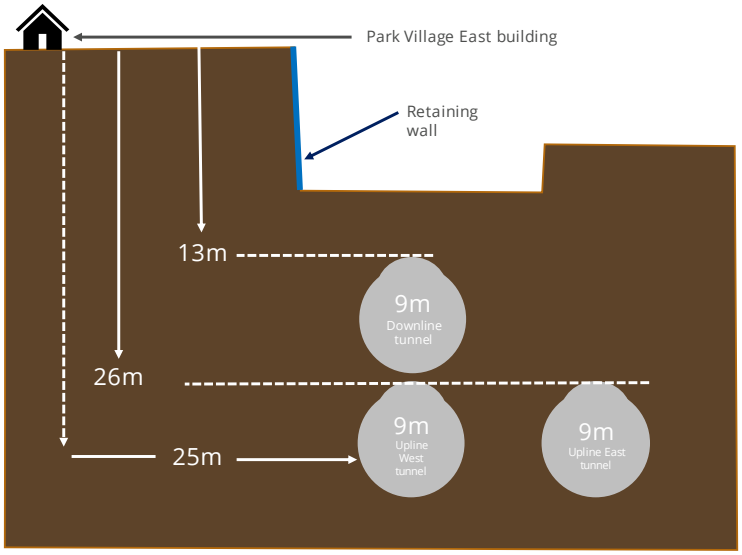
Euston Approaches tunnels

Overhead view of the tunnel design

The images below give an indication of the depth of our tunnels from street level and distance from Park Village East property boundary.



Point A – cross-cut of Euston Approaches tunnels



Depth of tunnels

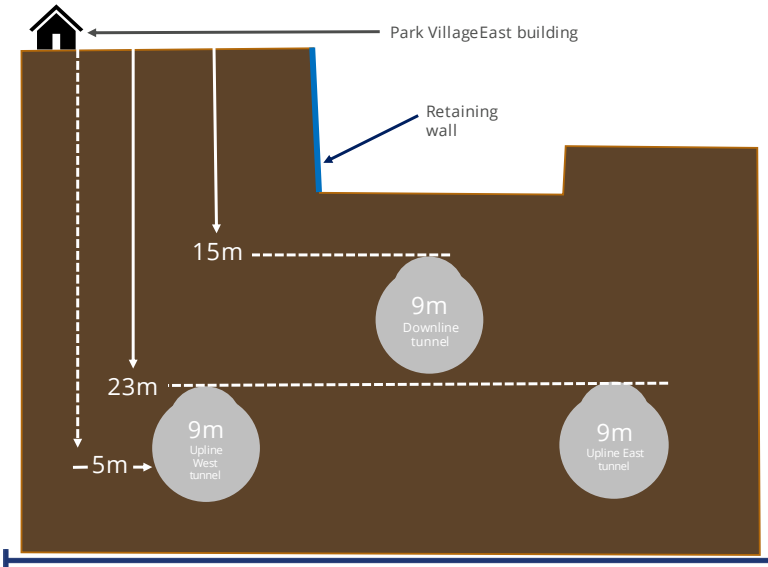
- 13m – top of the shallowest tunnel (downline tunnel) is 13m below Park Village East street level
- 26m – top of the upline East and West tunnels are 26m below Park Village East street level

Distance from building

- 25m – edge of the nearest tunnel (upline West tunnel) is 25m from building on Park Village East

Image for indicative purposes only

Point B – cross-cut of Euston Approaches tunnels



Depth of tunnels

- 15m – top of the shallowest tunnel (downline tunnel) is 15m below Park Village East street level
- 23m – top of the upline East and West tunnels are 23m below Park Village East street level

Distance from building

- 5m – edge of the nearest tunnel (upline West tunnel) is 5m from building on Park Village East

Image for indicative purposes only

How will the tunnels be constructed?

Euston Tunnels

Two Tunnel Boring Machines (TBMs) are the specialist pieces of equipment used for constructing the twin-bore Euston Tunnel. The TBMs commence tunnelling from the Old Oak Common Station site and end their journey at the Euston Cavern Shaft in Camden.

Twin tunnels will be bored: one for trains travelling from the West Midlands to London, known as the London Tunnel (or "upline"), and one for trains travelling from London to the West Midlands known as the Birmingham Tunnel (or "downline").

Excavated material from the HS2 London tunnels will be removed by conveyor to the Willesden Euroterminal site in the Old Oak and Park Royal area, and will be transported to locations in Cambridge, Kent and Bedfordshire.

The depth of the Euston Tunnel between Old Oak Common Station and Euston will vary between 12 metres and 60 metres. Each tunnel will have an inner diameter of 7.55 metres.

If you would like specific tunnelling depth information, please get in touch by contacting the HS2 Helpdesk on 08081 434 434 or email HS2enquiries@hs2.org.uk

The first Euston Tunnel TBM started tunnelling in January 2026, the second will be launched in March. It will take about 18 months for the TBMs to complete their journey. Once the TBMs are launched, they will operate 24 hours a day, 7 days a week until the construction of the tunnel is complete.

Euston Approaches tunnels

We will excavate the three tunnels and spray them with a concrete lining. This is a tried and tested method on major tunnelling projects known as sprayed concrete lining (SCL) tunnelling. This involves excavating a very small section of tunnel with diggers and then immediately lining it with concrete before moving forward and repeating the process.

Concrete cannot be allowed to dry out between sprayed sections so the team must work continuously with shifts operating 24 hours a day, seven days a week.

To build each of the three tunnels, we will first make a pilot tunnel that is narrower than the final tunnel diameter. We will then enlarge this to create the final tunnel. This staged approach helps us to control the ground movements generated by the tunnel excavation.

Tunnelling and other major excavations in Euston Approaches are planned to start in 2027, with preparatory works under way beforehand. We will keep the community updated with details and any changes.

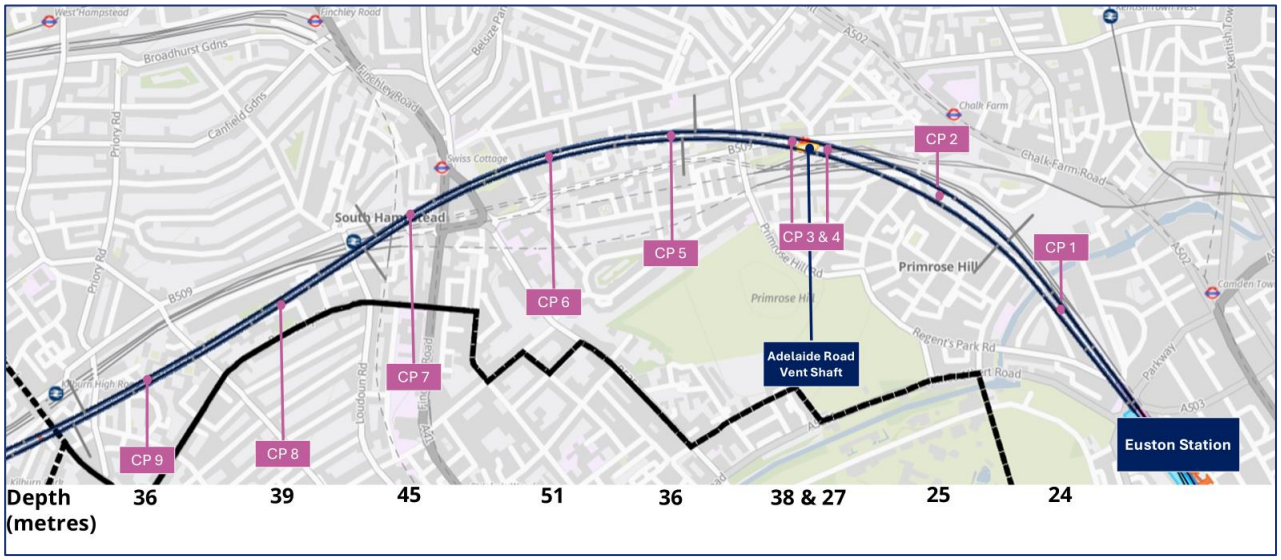
We are in contact with property owners and protective work to properties is under way.

How are the tunnel segments for the Euston Tunnels being delivered to the TBMs?

The TBMs need to be fed a constant supply of segments which will form the tunnel. Six pre-cast concrete segments comprise a tunnel ring. Segments for the Euston Tunnel are prepared, cast and cured at an off-site facility in Hartlepool. The concrete segments are delivered by rail to the Willesden Euroterminal site in the Old Oak & Park Royal area. The concrete segments are then transported to the Atlas Road site via a logistics bridge over the Grand Union Canal. From the Atlas Road site, the segments are transported via the Atlas Road Logistics Tunnel to the Euston Tunnel.

What are Cross Passages?

Cross passages are short tunnels which connect two parallel running tunnels and provide a safe evacuation of trains in an emergency. Cross passages will be located about every 500 metres along the tunnel route and will be between 24 to 51 metres below ground. There are eighteen cross passages along the Euston Tunnel route, nine are within Camden (see map below). The cross passages will be constructed once the TBMs have completed tunnelling.

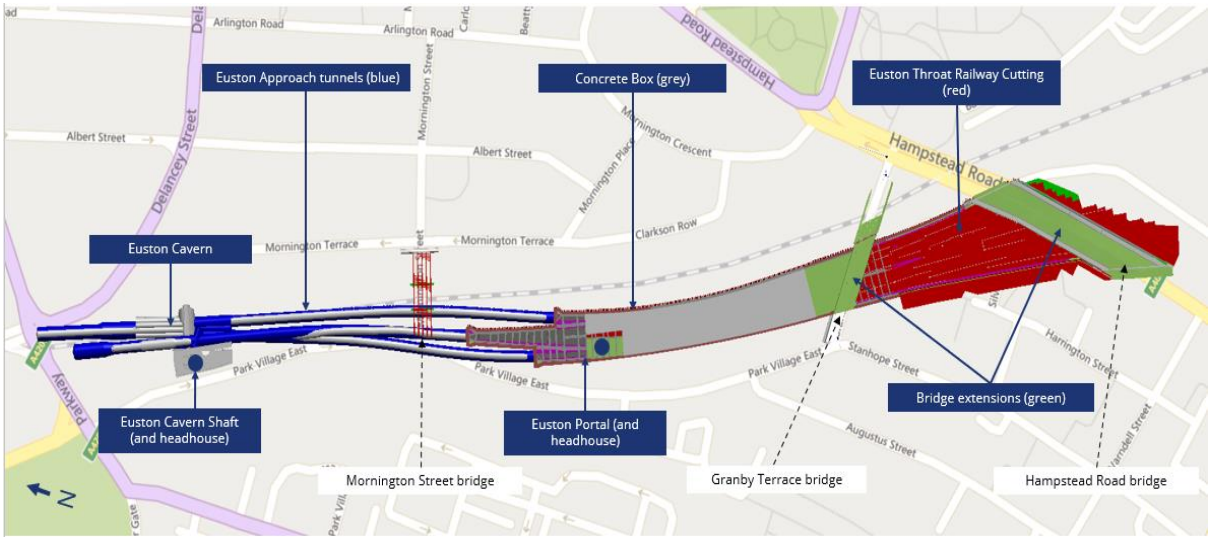


Cross passages in Camden

How are cross passages constructed?

Cross passage construction involves breaking into the side of the completed tunnel. The ground is dug out in short lengths, and a sprayed concrete lining is used to form the interconnecting tunnel. After each section is mined and lined, a temporary concrete face forms the end of the cross passage. This method is a proven, safe way to create cross passages between the tunnels. The temporary face will then be removed, and the above cycle is repeated until the cross passage is completed. This process will take around one week per cross passage.

What are the other major excavations in Euston Approaches?



To build the supporting structures for the tunnels and the future HS2 railway in Euston Approaches, we will also carry out other major excavations. This involves digging out large volumes of earth several metres below the current ground level and removing the spoil by lorries. Removal by rail is not possible in this location without causing unacceptable disruption to existing rail services.

Our major excavations include;

- Euston Cavern – a large, underground structure at the Parkway end of the worksite, to enable one tunnel to split into two, so that trains can access the various platforms at Euston Station. One of the tunnel boring machines will also be dismantled here and removed.
- Euston Cavern Shaft – a vertical shaft structure, next to Euston Cavern, going from below ground to street level and connecting into the tunnels by cross-passages, to allow for access into and out of the tunnels in an emergency.
- Euston Portal – the point at which the railway tracks will pass from underground to above ground. This will also include an underground chamber.
- Euston Concrete Box – a concrete box between Mornington Street and Granby Terrace bridges, partly above ground and partly below, to accommodate the HS2 tracks as they pass from the underground track into the open air, south of Granby Terrace bridge.
- Euston Throat Railway Cutting – a railway cutting with a depth of about 16m from street level, which allows trains access to the different platforms within Euston Station. This section is open air.

To accommodate the excavation in the Euston Throat railway cutting area, we -are extending Granby Terrace and Hampstead Road bridges. We will build headhouses on top of the Euston Cavern and the portal area of the Euston Concrete Box. This will allow for emergency entry and exit from the HS2 railway below.

What are you building at the Adelaide Road site in Camden?

The Adelaide Road Vent Shaft site is located between Chalk Farm and Primrose Hill Road in Camden. The site is in the Network Rail embankment area opposite the junction connecting Eton Road with Adelaide Road, next to the Adelaide Nature Reserve. The site does not include the nature reserve. We will build a ventilation shaft and headhouse in this location. We will restart works at this site in winter 2026.

Adelaide Road site location

What are the impacts of tunnelling and excavations?

Major excavations cause changes in the ground level nearby, known as ground movement or settlement.

We carefully design our structures and plan our construction methods to minimise disruption to our neighbours. We use a variety of protective measures – or mitigations – to help reduce such impacts. We also closely monitor our works so that we clearly understand the effects of anything we are doing.

The process of removing large volumes of earth can cause some noise, vibration, and dust. Our works require a significant amount of equipment on site and periods of 24 hour working.

In recent years, there have been several large projects that have involved tunnelling in built up areas. These include the Eurostar High Speed line, London Underground extensions, and London's Crossrail.

We have been doing detailed studies that will predict the amount of ground movement we will cause, any impact these movements will have on surrounding buildings, and how to manage this.

We continue to monitor ground movement and nearby structures to verify predicted movement levels and potential impacts from HS2 works.

Some structures will need preparing before we start tunnelling or other major excavations nearby. We are in contact with the owners of any structures which this could apply to.

What is ground movement?

Ground movement – or settlement – is the technical term given to the way the ground moves around a hole after it has been dug out. It also occurs naturally when trees drink a lot of water for example. Building tunnels, shafts, and basements causes a small amount of extra movement to the ground nearby.

We know how to limit the effects of this movement on buildings. In most cases, ground movement does not cause damage to properties. In some cases, there may be small cracks in plaster, and in a few cases doors or windows may stick. In very rare instances, settlement can affect the structure of the building. For more information about ground movement, please read the HS2 Phase One HS2 Guide to Ground Settlement.

How do you monitor ground movement?

We use satellite monitoring, laser and physical monitoring via prisms, stick-on targets and sensors installed on local properties, structures and in the railway cutting. We use these methods to monitor ground movement across the local area which helps us understand existing levels of movement, and to accurately predict changes due to our works. Ground movement typically happens slowly, allowing time to respond appropriately and safely to any changes.

We also install small metal studs in publicly accessible spaces, such as on footpaths and roadways, which enable us to monitor levels very accurately and determine trends over long periods.

Will your works cause ground movement?

We have been monitoring the area for a few years now to understand these usual patterns of movement in the area.

Our major excavations, such as tunnelling, will create additional ground movement – beyond that caused by seasonal change or large trees drawing water from the ground for example. This additional movement has the potential to cause changes or damage to structures such as utilities, buildings, bridges and rail lines. The likelihood and degree of damage to a structure depends on many factors, including how it is constructed, the condition of the structure and its location in relation to major works. It is also dependent on the type and scale of excavation work itself.

We continue to monitor ground movement and nearby structures to verify predicted movement levels and potential impacts from HS2 works.

There will be occasions where we will strengthen or mitigate structures prior to nearby major excavations to protect against potential damage.

What are you doing to limit the impacts on residents and buildings?

In building the new railway, we are committed to being a good neighbour, by respecting the people and communities we affect and being sensitive to their needs. We have been implementing measures to reduce the impacts of our upcoming major excavations.

Firstly, we aim to cause as little ground movement as possible by controlling the way the excavation work is carried out and if necessary, treating the ground or the structures themselves to reduce movement.

Measures to address ground movement and potential damage include:

- Employing industry best practice when undertaking the major excavations. The application of in-tunnel mitigation measures has been shown to reduce ground movements generated by construction works. For example, installing our concrete tunnel linings to support the ground as quickly as possible, limits the amount of time the ground is exposed and can move.
- Carefully planning the works and choosing the best equipment to avoid or reduce noise, vibration, dust, and ground movement within the worksite – and therefore the surrounding area – as much as we can.
- Surveying and investigating before we start major excavations to understand the condition of the ground, buildings, bridges, utilities and other structures, and to assess if we need to provide any extra protection ahead of starting the major works.
- Ground treatment, such as injecting grout or installing ground anchors to add strength and reduce or offset movement.
- Designing specific solutions for buildings or structures that we have identified as being at risk. These solutions can provide additional strength to help the structures accommodate the ground movements or lessen the effect of the ground movements.
- Monitoring to be sure our forecasts and baseline measurements are in line with the actual situation once major works start. If there are unexpected monitoring results, we assess the situation and decide on next steps. These may involve more frequent monitoring, changing our working methods, or adding extra support or insulation to structures.

Is my property at risk?

If your property requires additional measures to protect against damage from additional ground movement, our team will have already been in contact with you. If you have not heard from us and are worried about damage from tunnelling, please contact HS2 Helpdesk and we can tell you what to expect from tunnelling.

Should your property be identified in future studies as one that may benefit from extra monitoring or protective measures, we will contact you.

Most properties will not experience additional ground movement or damage as a result of HS2 works. We do understand many properties in the area already experience cracks and sticking doors and windows from seasonal and other types of ground movement. Our technical review panel monitors all HS2 works and associated ground movement. This data is used to assess building damage claims submitted to HS2 Helpdesk.

Is the tunnel alignment and design complete?

The alignment and design for the tunnels is complete.

What permission do you have for these works?

The HS2 Act gives permission for the tunnels and major excavations. The Act outlines the location of the HS2 scheme and includes initial designs.

The tunnel alignment remains within the Act limits and the changes to the initial design do not create any new significant impacts, which means the tunnels are permitted to be built under the existing legislation.

What is a settlement deed?

Some property owners may want a settlement deed as an official document to reassure potential buyers or insurers, for example, that HS2 will repair any damage to their property proved to be caused by HS2 works.

However, you do not need a settlement deed to be eligible for these repairs. The HS2 Act already requires us to fix – or pay to fix – any damage caused by HS2 works as long as you follow the correct procedure. Find out more about the process for assessing potential damage from ground movement, and how to claim for any damage, in the HS2 Works Information Paper C3: Ground Settlement.

The settlement deed process provides the owner with a settlement report, which explains the predicted ground movement near your property and, if applicable, any impact this may have.

How do I get a settlement deed?

Settlement deed offer letters have been sent to all eligible properties affected by works within Euston Approaches. Offer letters are also being sent to all eligible properties in the London Borough of Camden; some have already been issued, and the remaining will be issued during 2026.

Please email HS2enquiries@hs2.org.uk if you would like to take up this offer, or do not recall seeing a letter and believe your property is eligible. Please include your name, contact details and the address of the property owner.

Where can I find more information?

For more information about ground movement and settlement deeds, please see the below documents, available on the HS2 website

HS2 Phase One HS2 Guide to Ground Settlement

HS2 Works Information Paper C3: Ground Settlement

HS2 Ground Settlement – Information for homeowners and insurers

HS2 Euston Tunnel - Settlement Deeds Frequently Asked Questions

Information on our works in Camden in general can be found on the HS2 website. A good source of up-to-date information is the Works in Euston Approaches and Euston Tunnel pages.

For more information about how we manage air quality, please see the HS2 Air Quality Factsheet.

Contact us?

If you have a question about this topic, HS2, or our works, you can contact our HS2 Helpdesk team 24 hours a day on 08081 434 434, or email HS2enquiries@hs2.org.uk. For those who have speech or hearing difficulties we offer a minicom service on 08081 456 472.

Appendix

- In your area map – High Speed 2 (hs2.org.uk) – Here you can view our latest works notifications for your local area
- HS2 mailing list - Here you can sign up to receive HS2 updates for your local area
- Euston Approaches text messaging service - We have launched a new SMS messaging service for the Euston Approaches to share information on our planned works, changes or delays to works, and extended working hours. Each text message will contain a short summary of the key information and a link to the full update on the HS2 website. Should you wish to receive our SMS updates please complete a short online form which
- Need to sell scheme – Here you will find information about a scheme available to owner-occupiers who can show that they have a 'compelling reason' to sell their property but have been unable to do so (other than at a greatly reduced price) as a direct result of the announcement of the route of HS2.
- Using subsoil for HS2 – Here you will find information which will explain:
    - how and why, we obtain and use subsoil that is beneath land and properties;
    - the legal permission we need and your rights to compensation;
    - how we will build the tunnels; and
      how we will keep you informed.
- HS2 Guide to ground settlement – This guide tells you about settlement on HS2 and provides information on:
    - how your property might be affected;
    - what we will do to protect your property or pay for repairs;
    - how we will keep you informed; and
    - how to apply for a settlement deed.
- Environmental Statement (ES) - Further information about the environmental minimum requirements for HS2 Phase One.
- Information Paper E21 - Further information about the control of ground-borne noise and vibration from the operation of temporary and permanent railways.
- Information paper - E22 – Further information about the control of noise from the operation of stationary systems.
- Information Paper E23 - Further information about the control of construction noise and vibration
- Code of Construction Practice (CoCP) - The CoCP contains control measures and the standards to be implemented throughout Phase One of HS2.

Keeping you informed

We are committed to keeping you informed about work on HS2. This includes making sure you know what to expect and when to expect it, as well as how we can help.

Residents' and Construction Commissioner

The independent Residents' and Construction Commissioner oversees and monitors our **community engagement strategy**, making sure we fulfil our commitments to you.
The commissioner monitors the way we manage and respond to complaints about construction and advises members of the public how to make complaints.
The commissioner helps settle disputes involving individuals and organisations that we can't resolve.
You can find the commissioner's report and our responses at:
www.gov.uk/government/collections/independent-hs2-commissioner
The commissioner can be contacted on:
hs2commissioner@dft.gov.uk

Property and compensation

You can find out all about HS2 and properties along the route by visiting:
www.gov.uk/government/collections/hs2-property
Find out if you're eligible for compensation at:
www.gov.uk/claim-compensation-if-affected-by-hs2

Holding us to account

If you are unhappy for any reason, you can make a complaint by contacting our HS2 Helpdesk team.

For more details on our complaints process, please visit our website:
www.hs2.org.uk/contact-us/how-to-complain

Contact us

Our HS2 Helpdesk team are available all day, every day. You can contact them by:

Freephone **08081 434 434**

Minicom **08081 456 472**

Email **hs2enquiries@hs2.org.uk**

Write to:

FREEPOST
HS2 Community Engagement

Website **www.hs2.org.uk**

To keep up to date with what is happening in your area, visit:

www.hs2inyourarea.co.uk

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