SKANSKA COSTAIN STRABAG Working on behalf of HS2

FAQ

EXCAVATIONS AND TUNNELLING IN EUSTON APPROACHES

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MAJOR EXCAVATIONS AND TUNNELLING IN EUSTON APPROACHES

WHAT TUNNELLING AND MAJOR EXCAVATIONS ARE YOU CARRYING OUT IN THE EUSTON APPROACHES?

We will carry out major excavations and tunnelling as part of our work in the Euston Approaches.

TUNNELS

We will construct three underground tunnels for HS2 trains in the Euston Approaches using the sprayed concrete lining method. This method involves 24/7 underground concrete works to safely construct and line the tunnels and other underground structures. We will not use tunnel boring machines in the Euston Approaches. We are due to start constructing these tunnels in mid-2022.

We currently know sections of these tunnels will be located underneath Park Village East, however we need to carry out detailed planning to determine exact depths and dimensions of the final tunnels. This planning has started and is due to be finished in spring 2022, with tunnel construction due to start in summer 2022.

We understand residents of Park Village East want to know whether there will be impacts to their property. We will have enough information about the tunnel design by late summer to understand and discuss potential impacts to properties close to the tunnels. We will contact affected property owners to arrange meetings.

MAJOR EXCAVATIONS

To build the supporting structures for the tunnels and the future HS2 railway in the Euston Approaches, we will carry out major excavations. This involves digging out large volumes of earth deeper than three metres below the current ground level.

Our major excavations

- Euston Scissor box – a concrete box between Granby Terrace and Mornington Street bridges, partly above ground and partly below, to accommodate the HS2 tracks as they pass from open air south of Granby Terrace bridge to underground south of Mornington Street bridge
- Euston Portal – an underground chamber, just south of Mornington Street bridge, at the end of the Euston Scissor box where the tunnels dive underground as they travel towards Parkway
- Euston Cavern – a very large, underground structure at the Parkway end of the worksite, to enable one tunnel to split into two, so that trains can access the tunnels from the necessary range of platforms at Euston. A tunnel boring machine will also be dismantled here.
- Euston Cavern Shaft – a vertical shaft structure, next to the Euston Cavern, from below ground to street level, connecting into the tunnels by cross-passages to allow for access into and out of the tunnels in an emergency
- Euston Throat Retained Cut - a retained railway cutting to a depth of about 16m from street level, which allows trains access to the different platforms within Euston Station. This section is open to air.

On top of the Euston Portal and Euston Cavern, we will build headhouses to allow for emergency entry and exit from the HS2 railway below.

WHAT ARE THE IMPACTS OF MAJOR EXCAVATIONS AND TUNNELLING?

Removing large volumes of earth causes ground movement as well as noise, vibration and dust.

We carefully design our infrastructure and construction methods to minimise impacts. We use a variety of protective measures – or mitigations – to help reduce the impact of our works. We have many ways to monitor the works once they are under way to be sure we clearly understand the impacts of our works.

EXAMPLES OF MITIGATION MEASURES

- 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
- Ground and structural investigations to determine where additional measures are needed to strengthen the ground or existing structures ahead of starting major excavations and tunnelling
- Surveys before we start major excavations to understand the condition of buildings, bridges, utilities and other structures and to see if we need to provide any extra protection ahead of starting the major works
- Ground treatment such as injecting grout into the ground to add strength and reduce movement
- Adding support to buildings if needed to protect them from damage when the ground moves more than usual as a result of our works
- 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, which may involve more frequent monitoring, changing our working methods or adding extra support or insulation to structures

NOISE AND VIBRATION

To find out more about what we are doing about noise and vibration from our works, please see the SCS noise and vibration factsheet.

AIR QUALITY

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

GROUND MOVEMENT

For more information about ground movement and settlement deeds, please see the below documents, available on the HS2 website at https://www.hs2.org.uk/ground-settlement/

- HS2 Phase One HS2 Guide to Ground Settlement
- HS2 Works Information Paper C3: Ground Settlement

GROUND MOVEMENT IMPACTS TO PROPERTY IN EUSTON APPROACHES

Many properties in Euston Approaches are already affected by settlement and ground movement, which naturally occurs for a number of reasons including weather changes, proximity of buildings to trees and the make-up of the ground.

We have been monitoring the area for a few years now to understand the usual patterns of movement. Our major excavations and tunnelling will create additional ground movement. Ground movement has the potential to cause changes or damage to above and below-ground structures including utilities and buildings

close to major excavations and tunnels. The likelihood and degree of damage depends on many factors including how the building is constructed, the condition of the structure and its location in relation to major works.

PROPERTIES AT RISK OF DAMAGE – WE WILL CONTACT YOU IF YOU ARE AFFECTED

We have started surveying eligible buildings nearest our works. These surveys help us confirm building details – including condition and type of construction – so we can assess the potential impact to these buildings from the ground movement caused by our future tunnelling and major excavations. The surveys also help us understand if there are any protective measures or additional monitoring we may need to take ahead of starting these works. These impact assessments are known as ground movement assessments. We have now offered surveys to all eligible properties. We also have information about properties from public records and use a conservative design approach to ensure the risk of damage is always minimised.

We expect to have the results of the ground movement assessments in late summer. We will then contact affected property owners to offer meetings. If we determine your property requires protective measures or additional monitoring, we will prioritise a meeting with you. We expect there to be a very small number of properties affected.

You can find out more about the process for assessing potential damage from ground movement, and how to claim for any damage, in HS2 Works Information Paper C3: Ground Settlement.

HOW DO YOU MONITOR GROUND MOVEMENT AT MY PROPERTY

We use measuring devices installed on local properties, structures and in the railway cutting to monitor ground movement. This helps us understand existing levels of movement, and to accurately forecast changes due to our works. Ground movement typically happens slowly allowing time to respond appropriately and safely to any elevated results.

We use a range of methods including prisms installed on the outside of structures and satellite monitoring. We will contact you if your property is eligible for site-specific monitoring.

HOW DO YOU KNOW POTENTIAL IMPACTS OF THE WORKS IF YOU HAVEN'T FINALISED THE DESIGN?

Regardless of the final design, the construction of the Euston cavern, shaft, tunnels, portal and scissor box will involve major excavation works at track-level along the length of the retaining wall, beside the tracks and beneath key structures within the railway cutting.

Large-scale excavation works can cause ground settlement, and ground settlement can potentially cause damage to structures. To prevent damage to structures within the Euston Approaches, we are carrying out structural and ground strengthening mitigation works before we begin planned tunnelling and excavation works.

WHAT PERMISSION DO YOU HAVE FOR THE THESE WORKS?

The HS2 Act gives permission for these tunnels and major excavations in the Euston Approaches.

The Act outlines the location of the HS2 scheme and includes initial designs. As part of SCS' main works contract, we progress that initial design to a final, assured design ready for construction. We can make

changes to the initial design of the scheme included in the HS2 Act if the works are still contained within the boundary, or limits, of the HS2 Act footprint. If the works go beyond the boundary, we would need to apply for approvals outside of the HS2 Act.

If the final design of the HS2 works is a change from the scheme outlined in the Environmental Statement, we must assess the change to see if it has additional impacts. Depending on the significance of any additional impacts, we may be required to apply for alternative approvals outside of the HS2 Act.

We are planning our Euston Approaches design to be within the HS2 Act footprint and we are not planning to create additional impacts. If this changes, we will seek the necessary alternative approvals.