

HS2 prepares for arrival of first tunnelling machines at Chiltern tunnel site

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Preparation for the arrival of HS2's first giant tunnelling machines has passed a major milestone with the completion of the 17m high headwall and ground reinforcement at what will become the south portal of the 10-mile long Chiltern tunnel.

A specialist team, led by HS2's main works contractor Align JV – a joint venture formed of three companies: Bouygues Travaux Publics, Sir Robert McAlpine, and VolkerFitzpatrick – spent seven months excavating more than 160,000 m³ of material in order to create a level surface from which the two enormous machines will launch early next year.

Weighing in at 2,000 tonne and stretching for 170m – the two tunnel boring machines (TBMs) are being built by world-leading German tunnelling specialists Herrenknecht – and due to arrive at the site, near to the M25, later in the year.

Alongside the excavation, a specialist team of subcontractors including Roadbridge and KV JV – formed from Keller Group plc and VSL International – also constructed a 17m high headwall through which the TBMs will break to begin their three-year long tunnel drive.

In order to reinforce the ground behind the headwall, more than 636 'soil nails' – some up to 20m long – were driven into the wall and connected to the concrete lining. The nails, consisting of steel or glass fibre reinforced polymer tendons, were inserted using a specialised drilling rig in a delicate operation which can take up to two hours.

This reinforcement is required to hold the ground and the surface of the wall in place as the TBMs begin to break through.

Welcoming the milestone, Mark Clapp, HS2 Ltd's C1 Senior Project Manager said: "Once complete, HS2 will transform rail travel across the UK, offering fast, reliable and low carbon journey options for millions of people across the country. The completion of the headwall and ground reinforcement is a major step towards the start of tunnelling and delivering on that goal.

"Safety is of course our top priority. The new covid-19 processes and procedures put in place by Align ensured that we were able to keep to schedule while keeping everyone safe – and I'd like to thank the whole team for pulling together during what has been a difficult few months for the whole construction industry."

Daniel Altier, the Align Project Director added: "The completion of the soil nailing is a very visual example of how we are preparing our South Portal site for the arrival of the TBMs later this year. It is now clear for all to see where the TBMs will start their journey.

"This has been a great team effort by all concerned, considering the challenges caused by Covid-19, including HS2, Align and our colleagues at Roadbridge and the KVJV."

Align is delivering the C1 portion of HS2 phase 1 which includes the 10 mile long (16km) twin bore Chiltern tunnel and the 3.4km Colne Valley Viaduct. The work is being led by an integrated project team based at the site just inside the M25.

Work on site was paused for four days at the start of the coronavirus lockdown in order to deep clean the work site and put in place new hygiene and social distancing procedures in line with government advice and industry best practice.

Once work is complete, the whole construction site will be landscaped with material excavated from the tunnels and trees planted in order to blend it in with the surrounding countryside.

Photo credit: HS2 Ltd

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