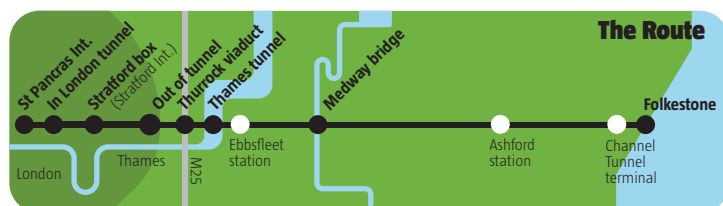


THE JOURNEY

From 14 November it will take just two hours 15 minutes to get from London to Paris by train, after the second section of High Speed 1, opens. It will take a Eurostar train only 31 minutes to reach Folkestone from St Pancras, shaving 15 minutes off the journey time. Here you can travel through this remarkable project.

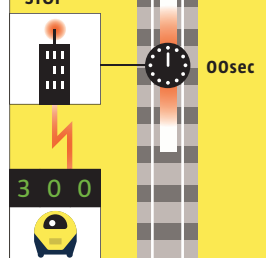


Fast through London and Kent: HS1 is Britain's first dedicated high-speed line. It will carry Eurostar trains between London St Pancras and the Channel Tunnel at speeds of up to 300km/h.

SYSTEM WIDE SIGNALLING

300 km/h to 0 in 120 secs
HS1 trains travel so fast that the driver would not see a line side signal. Instead he relies on an in-car display. A track sensor triggers a remote radio transmitter telling the train what speed to travel.

Train over sensor. Radio tells train computer to STOP



00sec
120sec
Train halts and waits for radio transmitter to tell train computer to GO

1200 ST PANCRAS INTERNATIONAL

Platforms at the new home of Eurostar

- 3 Midland Mainline
- 6 Eurostar
- 4 high speed commuter
- 2 Thameslink box

The undercroft will house shops, cafés and Europe's longest Champagne bar

London launch pad: The station was built on top of a vast undercroft, originally used to store beer barrels, which has been opened up for use as a concourse. A steel and glass extension was added to the Victorian train shed to cover the entire length of an 18 car Eurostar train.

1202 LONDON TUNNELS

- Caledonian Road:** 1 of 4 tube stations en route
- Buildings:** There are 2,600 properties en route
- Pipes:** There are 600 gas, water and sewage pipes en route
- Bridges:** There are 67 bridges en route

St Pancras, Highbury, Graham Rd vent, Hackney, Stratford box, A102(M)

Tunnel trace: On their way from St Pancras to Dagenham the line's twin-bored tunnels pass beneath 50 retaining walls, 12km of surface railway, 12 existing tunnels (including four Tube stations) and 600 gas, water and sewer pipelines. Ground was challenging; 60% of the tunnels were driven through Upnor and Thanet Sands, under water pressures of up to 3.3 bar.

1213 THURROCK VIADUCT

There is 5.7m clearance between Thurrock viaduct and the Dartford tunnel exit viaduct, and a just workable 750mm clearance between the HS1s overhead power lines and the soffit of the QEII approach viaduct.

Labels: QE2 bridge, Thurrock viaduct, Dartford tunnel exit viaduct, Thurrock viaduct, Dartford tunnel exit viaduct, QE2 bridge

Launch it: Approaching the Thames, HS1 is threaded between the Dartford tunnel exit viaduct and the approach to the QEII Bridge. The 1km long Thurrock viaduct was constructed in reinforced concrete and push launched.

1214 THAMES TUNNEL

Cutting edge: Two Herrenknecht cutter heads, changeable for each tunnel, were used cope with hard flint buried within the chalk

Under pressure: Because the ground under the Thames is waterlogged the TBM's had to work hard under up to 4bar pressure

Cross section: The 3km long tunnels were 8.5m in diameter and driven with a Herrenknecht mixshield slurry tunnel boring machine

Tough it: Highly fissured, flint-laden chalk made the Thames tunnel the single most risky element of HS1. Fissures meant the ground was saturated. Flints threatened to wreck the TBM. To control risk a slurry machine with rock crushers was used.

1207 THE STRATFORD BOX

Measurements: 1,075m long, 55m wide, 16m to 22m deep

Labels: Olympic village 1km, Olympic stadium 1km, Stratford city regeneration, Stratford Regional 1km, Back in London tunnel, Out of London tunnel, Stratford International

Heavyweight boxing: Stratford box breaks the London tunnels in two. Tunnelling started here, with TBMs moving off in opposite directions. Constructing the box involved some of the largest diaphragm walls built in the UK. It contains Stratford International station. To stop the base slab floating on rising ground water there is a permanent dewatering system.

1220 MEDWAY BRIDGE

Traveling at 300km/h the trains takes only 15 seconds to cross the full 1250m length

Labels: 0m, 152m, River Medway, Medway valley, Passengers get wonderful views of the Medway valley

Beautiful engineering: The 1.25km long Medway Crossing straddles the River Medway and Maidstone to Strood Railway track. Its central balanced cantilever deck runs 65m south and parallel to the M2 viaduct.

1231 CHANNEL TUNNEL

Labels: CHANNEL, Eurostar train

18 car Eurostar trains measure 400m in length