**SL-1 VOLTO SYSTEM ADAPTABILITY ENHANCES HS2 TUNNEL CONSTRUCTION**

**Doka’s SL-1 Volto secondary lining formwork system provided the time-effective solution for HS2’s Canterbury Road Ventilation Shaft,** a complex and challenging project in South Kilburn, London and one of many key asset**s of the UK’s High-Speed 2 (HS2) rail infrastructure project.** The construction of the ventilation shaft, was carried out by SCS JV (a joint venture between Skanska, Costain and Strabag),

The SL-1 Volto’s adjustable steel formwork panels were ideal for accommodating the changing geometries between the ADITS’s and TID’s which are short connecting tunnels built to control airflow from track level through to the ventilation shafts. Assembly of the tunnel formwork was completed on the surface at the top of the ventilation shaft before being lowered on to a Doka working platform that was anchored to the shaft’s secondary lining.

The Canterbury Road Headhouse acts as a ventilation shaft and emergency access point for a 4.5-mile stretch of HS2 rail tunnel between Euston and Old Oak Common. It is the first completely diesel-free HS2 site, following the introduction of sustainable technologies and equipment initiative including a 160 tonne emissions-free fully electric crawler crane and biofuel-powered site machinery.

The SL-1 Volto solution has been developed to improve the efficiencies when forming secondary lining of differing geometries with safe, quick easy adjustment of the spindles connected to the unit’s steel forming plates. This was essential to overcome one of the main challenges of the Canterbury Works project. The same project also included the use of Doka’s D22 single-sided climbing formwork system to help construct the vertical shaft secondary lining. Again, another challenging aspect for this project which was successfully overcome.

Great attention also needed to be paid to the interfaces between the ADITS & TIds to accommodate the curved, straight and conical sections which presented an additional challenge for the Doka design team. This would potentially be an onerous task for some other tunnelling formwork systems that work to different minimum or fixed radii however, the SL-1 Volto has a minimum capability of 1.7m with almost no maximum, giving it a wide application range to speed up the casting process.

To form the challenging conical sections the SL-1 carriage was attached to a special steel conical shutter designed and supplied by Doka with the design also enabling easy access between the TID’s and adits. In addition to the tunnels’ complex geometric requirements being met, the formwork was separated into smaller sections to aid the installation and striking process. This same equipment was used across all four TID’s.

In total, five concrete pours were implemented for the secondary lining’s formation. Key to this aspect’s timely completion was Doka’s early and continued engagement with SCS JV to pre-empt any potential issues. This, along with the exceptional buildability and adaptability of the SL-1 Volto system, ensured a high-quality concrete finish for the ventilation shaft’s management of air circulation, smoke extraction, and safety within the HS2 tunnels.

**Ends**

**About Doka**

Doka is a world leader in innovative formwork, solutions, and services in all areas of construction. The company is also a global supplier of well-thought-out scaffolding solutions for a varied spectrum of applications. With more than 180 sales and logistics facilities in over 58 countries, Doka has a high-performing distribution network for advice, customer service and technical support on the spot and ensures that equipment is swiftly provided – no matter how big and complex the project. Doka employs 9,000 people worldwide and is a company of the Umdasch Group, which has stood for reliability, experience, and trustworthiness for more than 150 years.