

A large orange and white planing machine is shown in operation on a race track. A worker in a high-visibility yellow suit stands on the machine's platform. Another worker in an orange suit is visible in the distance on the track. The background shows a green bridge structure over the track.

Proven performance

± 2mm level tolerance planing, Silverstone Race Circuit

Challenge

Silverstone race circuit needed a new asphalt surface. It had to be smooth, fast and would require planing to varied depths, on banks and flat straights. The reprofile of the track demanded depths to vary from 0 to 140mm. The work programme was time limited, scheduled to the minute and then it rained. Hard. For days.

Solution

The new gradients and inclines were achieved by milling the entire circuit to the new design profile to increase the level of surface water drainage that had been an issue with the existing track. To achieve the new profile a combination of GPS (for coordinates) and radio control (for level), were utilised on the planing machines. This achieved time saving

efficiencies and an accuracy of plus-minus two millimetres from design with 13m averaging beams.

A 3D model of the circuit was uploaded at the start of the shift. Two digital surfaces were created, defining the planing depth on 1m x 1m grid. Latest technology, the Topcon Smooth Ride system, interpreted the design and controlled the planing machine, following the 3D model.

Using GPS position control the planer knew its exact location and the precise depth to cut. The planer speed, pick spacing and drum speed were optimized to ensure the exact smooth finish required.

Technology, profile mapping and planning negated the impacts of torrential rain that lasted for days.

Due to the accuracy of the milled surface this then allowed for the paving train to adopt the principles of paving to achieve the surface regularity required and produce a surface with an IRI (International Roughness Index) of 0.28.

Results and benefits

± 2mm level tolerance was achieved across circuit. Final longitudinal and transverse profiles were created by expertise and latest technology driven planing.

The precision planing helped to deliver excellent ride quality and, a record-breaking new circuit. Most importantly for our roads the technology piloted at Silverstone proved itself to be transferable to the strategic road network.