

ULTISHIELD HD

Proven performance

Innovative HGV resisting surface on this challenging quarry access road

The challenge

A new long-lasting surfacing solution was required for this challenging section of road, to break the recurring cycle of failure and repair that was draining the council's budget and causing disruption to local people. Frequent HGV traffic of up to 100 vehicle movements per day from a busy local quarry exerted high stresses on the road surface, particularly at a 90° traversed right hand bend as HGV traffic joined from Warrens Hill. As a result, frequent patched repairs were needed every 6-8 weeks, causing repeated disruption to local residents and quarry traffic along with high ongoing road maintenance costs for the council. The client needed a hardwearing surfacing solution that would be able to withstand the heavy loading, intense scuffing and the occasional fuel spillage associated with large commercial vehicles. Another key priority was to complete the work quickly, to avoid delays for residents and to deliver the project cost effectively within a modest allocated budget.

Our solution

Alternative heavy-duty surfacing materials were considered, including concrete, but this was quickly ruled out due to cost and the fact that it would involve long curing times and extended site closure. After detailed discussions between Tarmac's Contracting division and Technical Product Support Manager, an innovative pavement design was proposed to the client. This would combine a 70mm ULTILAYER heavy duty binder course using 0/14mm aggregate high-performance polymer modified binder, with a 50mm ULTISHIELD HD surface course using a durable PSV 60 steel slag aggregate. This solution would offer improved flexibility and deformation resistance, with a higher softening point to avoid deformation in hot weather and better resistance to fuel spillage than the conventional asphalt it replaced. This would in turn deliver far better long-term resistance to surface rutting and to the intense lateral tyre scuffing that had caused such severe damage to the previous road surface.

Results and benefits

Resurfacing work was completed successfully in June 2018. Since then, despite an estimated 80,000 journeys by HGV's using the new road, it is still in good condition and no further repairs or road closures have been required. Given the history of the site and the heavy daily trafficking it receives, this is an exceptional result. It demonstrated how close collaboration, innovative thinking and careful matching of materials to the local conditions can deliver a long-term solution on challenging roads. Having saved so many repair interventions over three years by the local highways team, it is also helping to deliver excellent value for money. The use of steel slag as a recycled or secondary aggregate also has a number of sustainability benefits, offering lower embodied carbon emissions than primary aggregates and helping to offset the carbon emissions in the high-performance binder.



Building our future