



# A30 CHIVERTON TO CARLAND CROSS



# CASE STUDY – A30 CHIVERTON TO CARLAND CROSS

<b>KEY DISCIPLINE:</b>	Surfacing
<b>CLIENT:</b>	Costain Ltd/National Highways
<b>VALUE OF WORKS:</b>	£330m
<b>SURFACING PACKAGE:</b>	£23.5m
<b>FORM OF CONTRACT:</b>	NEC 4 Engineering and Construction Short Contract
<b>KEY DATES:</b>	2020 - 2023

## PROJECT OBJECTIVES

The A30 is a vital link between Penzance and the M5 motorway at Exeter connecting people, businesses and communities. The section between Chiverton and Carland Cross provides a strategic east-west link and is the only remaining stretch of single carriageway on the A30 between the M5 at Exeter and Cambourne. The £330million route improvement is vital for the Cornish economy and aims to make journeys easier by separating the strategic road network from local traffic; reducing congestion and delays for the travelling public (particularly during the summer); improving journey reliability and safety; and protecting the environment. Funding for the scheme included a contribution from the European Regional Development Fund of £8m towards development costs, with a further £12m allocated for the construction phase. The scheme includes:

- A 14km, high-quality 70mph dual carriageway
- Replacement of Chiverton Cross roundabout with a new grade separated junction
- Grade separated, partial movement junction at Chybucca, with west-facing slip roads
- Replacement of the existing roundabout at Carland Cross with a new grade separated junction
- New bridges and accesses across the new and existing road
- De-trunking and retention of the existing A30 for local traffic
- Provision for pedestrians, cyclists and horse riders

## THE SOLUTION

Aggregate Industries successfully secured the A30 Chiverton to Carland Cross (C2CC) Access Route Surfacing Contract in December 2020. Materials for the scheme are being supplied from our asphalt plants at Melbur (situated 10km away) and Moorcroft, Plymouth (situated 90km miles away). For the duration of the contract, Melbur will provide the primary supply, but to allow continued support to the local markets, Moorcroft will support the project as required.

To meet the daily tonnage outputs required by the scheme and enable warm asphalt mixes to be produced at higher volumes than ever before, £4.4m was invested to upgrade both asphalt plants. This investment enables increased production and efficiencies. Improvements included:

### Melbur

- Design, manufacture and installation of a larger, high efficiency bitumen tank
- Installation of a new control system
- Design, manufacture and installation of an upgraded RAP system to increase levels of recycled asphalt
- Design, manufacture and installation of a 180 TPH hot stone elevator
- Design, manufacture and installation of covered aggregate storage bays

### Moorcroft

- Four additional bins for storage of asphalt allowing a 1500t production increase per week. This enables products to be mixed in advance, resulting in an improved on-demand service

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## SCHEME PROGRESS

As one of Costain's strategic supply chain partners, AI embedded a project team within the client team to support the delivery of the scheme that co-locates at the temporary site office at Mitchell, Newquay. The integrated Project Roadworks Team (PRT) is led by our Project Manager and includes a Planning Manager, Site Surfacing Manager, Engineers and Commercial employees. In addition, we play an active role in both quality and technical aspects of the pavement delivery.

The PRT is involved on a daily basis in the planning and delivery of the works through regular project planning and coordination meetings; providing invaluable support to the project to ensure resources and material supplies are managed effectively. We also actively participate in 'Lessons Learned Forums', where potential risks are identified and mitigation methods implemented to avoid unnecessary delay, disruption and cost.

We commenced the first section of mainline surfacing on 8th August 2022. Since then, we have met our initial high targets to deliver and lay on average 1200t/shift and on occasion we have exceeded these targets, laying >1400t/shift; all with zero incidents and to the highest standard of quality. Night surfacing operations were completed concurrently at critical crossing points to keep the programme on track. By the 14th September, 44,076t (Base, Binder and Surface Course) had been delivered and laid.

## BENEFITS

### Automated quality control

Trimble fully automated machine level control was used for levelling the mainline base layers; a UK first for the bituminous paving. This allows data to be programmed into the system to calculate the different surface tolerance and levels of materials required. In addition, continuous surveying, setting out and compliance checks are all recorded digitally to continuously update live cloud-based quality records and as-built trackers.

### Carbon savings

To assist Costain in identifying/implementing opportunities to reduce carbon emissions and minimise environmental impact, we are using warm-mix asphalt (WMA) which has a lower embodied carbon footprint compared to traditional hot-mix asphalt. Produced at temperatures of up to 40°C lower than hot-mix, it requires less fuel to dry and heat the

aggregate. Typically, there is an 8-10% carbon reduction compared to an equivalent hot mix; equating to an average saving of 6kg CO<sub>2</sub>e/t. Additional benefits of WMA technology include reduced cooling time by over 50% allowing earlier reopening of carriageways and less disruption to the travelling public and reduced fume emissions and odours both at the plant and the paving site; creating a worksite that is cooler and more pleasant for workers during placement and compaction.

### Social and community benefits

We are keen to support Costain in providing apprenticeship and work experience opportunities for local communities. In February 2022, members of the A30 PRT took part in the Cambourne Science and International Academy Careers Fayre event attended by more than 1,250 students, teachers and parents. We offered advice on suitable career paths (apprenticeships/degrees/other qualifications) and promoted the diverse career opportunities within Costain and its supply chain. The PRT received numerous expressions of interest for work experience and apprenticeship opportunities which will be dealt with by the contract Education, Employment and Skills Coordinator.

**'OUR STAFF, STUDENTS AND PARENTS REALLY ENJOYED IT AND LOTS OF STUDENTS HAVE APPROACHED ME REGARDING FUTURE LINKS. OUR POST ON OUR SCHOOL FACEBOOK PAGE HAS RECEIVED THE HIGHEST NUMBER OF HITS OUT OF OUR POSTS.'**

Susan Gellatly, Assistant Principal



