

# DEEP DIG LANDS MENDIPS GOLD

Booming construction traffic prompted Freightliner to completely rethink how stone trains from the Mendips operate. Timetable Strategy and Rail Industry Manager **CHRIS MATTHEWS** and Contract Lead for Mendip Rail **MARK DOWNING** tell **ANDY RODEN** how it has delivered a stunning performance improvement

In December 2023, a radical new timetable was introduced which transformed train operations over a swathe of England from the West Country to the South East – and delivered a double-digit percentage point improvement in punctuality almost immediately. Years in the making, even within the railway it is virtually unknown.

The achievement of Freightliner and Mendip Rail in transforming the performance of stone trains from Whatley and Merehead quarries deserves rather more attention than it has received so far, especially given the operational difficulties on parts of the Great Western main line between Reading and London where many of the trains operate.

Freightliner took on the haulage contract for Mendip Rail

in November 2018 and bought the nine Class 59s (five Class 59/0s originally ordered by Foster Yeoman and four Class 59/1s later ordered by ARC) built for the operations, and later the six former National Power Class 59/2s owned by DB Cargo. It also took over locomotive maintenance at Whatley and Merehead in what is reckoned to be the single largest rail haulage contract in the UK. To add to the loco fleet, Mendip Rail leases around 800 box and hopper wagons from VTG and Touax.

Around 6,000 loaded trains run per year, with 8.5 million tonnes of stone moved in 2023. It is by any standards a very large operation, and a complicated one too. In addition to Whatley and Merehead, trains run from Machen in Wales

and Dagenham (for sea-dredged sand) and Avonmouth, where hard stone is imported. Some trains run across London and others to Cliffe, while all run at least in part on the congested GWML.

How – and just as importantly, why – did Freightliner, Mendip Rail, quarry owners Aggregate Industries and Heidelberg Materials, and Network Rail go to such effort for an operation that has run for so many years?

Freightliner Timetable Strategy and Rail Industry Manager Chris Matthews explains the rationale: 'We inherited a timetable that had largely been the same for decades, and as new terminals came on stream, trains tended to be put into the plan based on network capacity rather than optimal operation.'

Mr Matthews points out that this is not to blame previous operators: many freight timetables are added to and iterated over many years. But as the flows from the Mendips have grown, towards the end of the last decade the plan was starting to creak.

'Loading at quarries is a challenge, with a multitude of departures often close together, and at times that could be a problem when departure times were missed' says Mr Matthews.

In recognition of this, and with a couple of years including the worst of the Covid pandemic under Freightliner's belt, it started looking at performance in detail in 2021. 'We quickly realised the best way to get performance up was to start afresh' says Mr Matthews. 'It became

Bright outlook: in a special livery promoting customer Heidelberg Materials, Freightliner's No 59101 leads the 6C31 Theale to Whatley at Crofton on 20 May 2024. **JAMIE SQUIBBBS**







Right-time departures improved: No 59204 at Whatley quarry. **COURTESY FREIGHTLINER**

obvious the only way we could do anything was to look at the plan from the ground up and start again. It was always going to be a huge project, but it was absolutely vital for Freightliner and the wider industry in terms of improving performance.

‘What was really interesting was that we weren’t just looking at train times: we undertook a fundamental review of how we could operate the service and looked at how we could change the method of operation.’

#### **ENCOURAGING ANALYSIS**

One of the most important aspects of the work was to create new running times to reflect the method of operation envisaged, and here Freightliner’s partnership with the University of Hull, which created a rail emissions calculator, proved of profound importance. This tool helped Freightliner to calculate emissions, fuel usage and run times – and when it came to the relative



Triple-headed: Nos 66415/59202/66569 pass Brimslade Farm on 30 October 2023 with the 7A09 Merehead to Acton. **PETER SQUIBBES**





Coastway freight revival: this view from Chichester on 24 January 2024 features two aggregates workings from the Somerset quarries. No 59103, in Hanson livery, heads along the up line with a Westbury to Crawley working, while in the reception sidings No 59201, a former DB Cargo machine repainted into Genesee & Wyoming livery, was being grab discharged, having arrived from Merehead. Both trains would return empty to Merehead later in the day. **JOHN VAUGHAN**



merits of single- or double-heading, the results were surprising.

With a pair of locomotives hauling a train, fuel consumption was only marginally higher than with one hauling it, reflecting the fact both locomotives would be operating in a more efficient power range than a single loco at full power for much of the time. More important was the vastly increased power available – around 5MW compared to 2.5MW of a single ‘59’. This, in turn, enabled significant journey time improvements (up to an hour) to be made, leading to less time spent in loops and less time idling. Running a pair of locos opened the door to using Classes 59 and 66 interchangeably on the heaviest trains to London, releasing ‘59s’ for duties where their extremely high power output was most important – for example, allowing an extra wagon to be added to formations running via Warminster, enhancing the efficiency of the operation.

The data from this exercise was used to generate new sectional running times between the quarries and the London area, and Freightliner also worked closely with Great Western Railway and other operators on developing revised train planning rules between Reading and the quarries to make the best use possible of route capacity. In the process, timetable conflicts were identified, and remedies sought.

‘We also did a full review of all of the receiving terminals, many of which take aggregates from other sources. We had to

understand how trains could work with other operators’ movements and comply with local rules such as noise abatement orders’ says Mr Matthews.

‘We looked to optimise train lengths and train portions and we realised we could run 22-wagon trains into Acton terminal, rather than between five and eight more often. This meant we could accommodate significant increases in volume in line with customer demand. We now run 22-wagon trains on three days a week rather than eight each day for five days, which allows more trains to run elsewhere.’

Aggregate Industries was particularly enthusiastic about these possibilities as it offered a more cost-effective and efficient way to service the terminals.

The sheer volume and depth of analysis and development of the new timetable – including extensive capacity planning with Network Rail before requests were submitted – took around 18 months from the development of those early sectional running times. The alterations to the Mendip quarry trains would be the biggest in the December 2023 timetable and possibly the first time in decades that freight accounted for the biggest changes nationwide.

‘We had around 250 new train paths per week in the new timetable, which really focused on simplifying it for signallers and operators wherever possible. We were able to remove circa 200 paths in the timetable by operating





Threading through the Thames Valley: No 66589 heads the 7A09 Merehead to Acton working at Maidenhead on 11 September 2023. **ALEX AYRE**

to fixed Monday to Friday times much more often, yet giving customers more flexibility in slots at terminals' Mr Matthews says.

A 'Mendip Command' was established, with twice-weekly

meetings between Freightliner, Network Rail and Mendip Rail to identify issues ahead of the timetable's introduction, and there was close co-operation with Network Rail's capacity

planning team in Milton Keynes to resolve emerging issues jointly.

#### **BOLD PLAN**

The result was that when the December 2023 timetable was

confirmed, it included every train Freightliner had submitted (a tribute to the 'Mendip Command' and both Freightliner and Network Rail's capacity planning teams, says Mr Matthews).

It was a bold plan which reflected current and future requirements rather than historic operational needs, and even guaranteed two working timetable paths into Oxford terminal (previously, stone trains had relied on 'borrowing' paths from other trains, which sometimes led to failed deliveries).

Regular briefings took place with Network Rail control staff and signallers – Thames Valley Signalling Centre and Westbury signal box in particular – to explain how the new timetable would work. In this aspect, the seemingly random set of headcodes describing the trains before was ditched in favour of trains being given a fixed last two digits for all their portions. At Hanwell, where trains split, a train might arrive with a 6A50 headcode, with the onward portions running as 6M52 and 6L52. It

Classic Berks & Hants view: No 59103, in Hanson livery, hauls the first returning empty jumbo train of the afternoon from Wembley yard bound for Merehead, passing Lambridge, Westbury on 6 September 2023. It unusually ran via the station rather than the avoiding line; the famous white horse looks pristine in the strong, albeit hazy, early autumn sun. **STEVE STUBBS**





Supporting the construction sector: a rake of JNA wagons is loaded at Avonmouth. **COURTESY FREIGHTLINER**



makes life easier for signallers to understand what's happening and to regulate trains accordingly. A similar process was adopted at Westbury to help signallers recognise train portions more

easily, and a big communications exercise took place, with videos in NR's weekly newsletter and screens in NR offices.

Freightliner also took the time to brief controllers in Three Bridges, because one of the standout changes in the timetable was running trains to and from Crawley via the West Coastway route to avoid congestion – the first regular commercial flow on the route since the early 1990s. 'This freed capacity for trains on the GWML into London which couldn't run any other way and also meant trains could run into Crawley terminal direct rather than having to run the locomotive around on the main line as before' Mr Matthews explains, adding that the ability to run those trains via London has been retained. An extensive driver route learning exercise took place, and this means Freightliner drivers can divert its trains if required – a significant investment from the company which is likely to pay dividends over the years.

At the quarries, Freightliner staff timed shunting moves with a stopwatch to understand operations and then sought to spread departures throughout the day to reduce pressure on loading teams. This in turn would help reduce pressure on receiving terminals by giving them more time to unload their trains.

It was all in place, but the big question facing Mr Matthews and the Freightliner and Mendip Rail teams was simple: 'Will it work?'

#### **IMMEDIATE IMPACT**

Doubtless with nerves jangling on 9 December 2023, Mr Matthews and colleagues awaited events the following morning. In preparation for possible snags, calls were set up with Western Region control every morning for hot debriefs to address issues.

But in the main, they didn't happen. That week, right time departures from Whatley were 78% – up 20 percentage points on the previous week, while from Merehead the figures were 74% and 15 percentage points. 'By Wednesday of that week, there was nothing to discuss: all of the preparatory work had paid off' says Mr Matthews. These were no flukes, as Table 1 shows. Across all locations served, right-time departures now approach 80%. Furthermore, delays caused to other operators fell by 45% year-on-year.

Freightliner's Contract Lead for Mendip Rail, Mark Downing, says the effects are really significant. 42-wagon trains now run with two locomotives and train lengths of up to 600 metres.

It came just in time, as in 2023 a record 8.5 million tonnes of stone

was carried from the quarries, with 6,000 loaded train starts. Although market conditions have resulted in suppressed demand in the first half of 2024, there is no question the change sets these vital stone flows fair for the future.

Aggregate Industries and Heidelberg are looking to take advantage of the greater flexibility and capacity on offer, with potential flows of concrete products, potential new flows to other terminals and the Sizewell B nuclear power station on the horizon.

It is, says Mr Downing, 'a really collaborative working relationship – a partnership that is striving to develop the contract further and yield further benefits for all parties'.

Rethinking the entire Mendip Rail operation undoubtedly required courage given the adverse effects some major recasts of passenger operations have had in recent years. But, thanks to lengthy and intelligent analysis – plus extensive co-operation with other industry partners, the result has been tremendously positive – so much so that Freightliner is looking at some of its other flows to see if similar benefits can be gained for freight customers, and by extension passengers, who will experience fewer delays. By any measure, this timetable recast has been a truly remarkable effort that will deliver benefits for many years to come. **mr**

**TABLE 1: MENDIP QUARRY RIGHT-TIME DEPARTURE PERFORMANCE (%)**

	March 2023	March 2024	April 2023	April 2024	May 2023	May 2024	June 2023	June 2024
Whatley	44	75	39	76	45	82	41	86
Merehead	45	75	45	64*	45	64*	45	71

\*Affected by loading equipment issues

Source: Freightliner