

Mission accomplished

To increase lifespan and reduce downtime on a conveyor at Hanson Aggregates Whatley Quarry, UK, a change of conveyor belt supplier has transformed production output.

■ by **Dunlop Conveyor Belting**, The Netherlands



The CV07 conveyor at Hanson Aggregates' Whatley Quarry in the UK carries crushed limestone aggregate and is central to operations

In May 2019 the management of Whatley Quarry, owned by Hanson Aggregates, located near Frome in Somerset, UK, approached Vulcanising South West Ltd (VSW), a distributor for The Netherlands-based Dunlop Conveyor Belting, and asked it to carry out a belt calculation on the producer's CV07 conveyor.

The conveyor carries crushed limestone aggregate and is central to the site's operation as without it, all primary and secondary crushing operation comes to a dead halt. Its concern was that the maximum expected operational life of the 1000/4 6+2 belts being used on this conveyor was an average of 6-12 months.

To make matters worse, the belts also required an abnormally high number of repairs, especially splice repairs, with each repair carrying extra cost and causing serious downtime.

“Total belt life is currently estimated at 18 months, which is a 75-100 per cent increase in life, tonnage and an annual 45 per cent cost saving.”

Hanson Aggregates

Over-dimensioned

The first thing that the VSW team identified was that the belt appeared to be over-dimensioned for the application, possibly as a result of past efforts to increase belt life. One indication of this was that the snub roller diameters were too small for the 1000/4 6+2 specification belt that

was being used. Under normal running conditions, the 1200mm wide belt carries between 500-1400tph of material depending on the number of crushers in operation. Average volume in normal operation is 1200tph with a maximum material size of 150mm, flowing onto the belt from a 600mm height.

The VSW team determined that a Dunlop 630/4 6+2 RA (DIN Y) Superfort or a Dunlop Ultra X3 specification belt would be more than capable of dealing with the demands of the application. However, in light of the historical data, it decided to increase the specification to 800/4 6+2, as added 'insurance' to help maximise the life of the belt whilst still falling within the range of Dunlop's 'Safety Factor'. VSW and Dunlop were confident that the Superfort belt would provide a significant increase in lifespan as well as a reduction in downtime

About the Whatley Quarry

Operating since the 1960s, the Whatley Quarry is the largest of Hanson's quarries in the UK. It employs over 60 people, along with a wide range of support staff and contractors.

The quarry supplies crushed limestone aggregate to local markets by road and to depots in London and southeast England via a dedicated rail link. Operating 24h-a-day, five-days-a-week, it produces between 4-5Mta of aggregate. There are further on-site plants producing asphalt and ready-mixed concrete. Limestone reserves are in the order of 100Mt. The site extends to 173ha, of which 12ha is covered by the limestone extraction area.

The Whatley Quarry produces 4-5Mta of aggregate and has further on-site asphalt and ready-mix concrete plants



and operating costs compared to previous belts installed.

A report, supported by technical datasheets and containing their findings and recommendations, was discussed and agreed with the team at Whatley Quarry and a quote accepted for VSW to supply and install the Dunlop Superfort belt.

Installation

Prior to the VSW team arriving on site a SSoW (Safe Systems of Work) survey was completed by Craig Jones, health and safety manager. On arrival, a job-specific risk assessment and method statement prior to starting the installation work was undertaken. In coordination with the team at Hanson all the lifting and handling equipment had been arranged for prior to VSW's arrival on site. The splice was hot vulcanised using a Shaw Almex press.

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Savings on downtime and maintenance

Commenting on the project, Hanson Aggregates said: "In June 2019 a Dunlop Superfort 800/4 6+2 RA belt was supplied and fitted by Vulcanising South West. The belt was operational for 12 months and only changed due to a mechanical failure of a liner plate, which cut the belt along its full length 8in (200mm) from its edge. During its time in operation, maintenance and inspection activities continued as normal with a significant reduction in repair and belt maintenance costs.

"The Dunlop Superfort belt has outperformed the previously used belt and saved as a result on both downtime and additional maintenance costs during its life. Total belt life is currently estimated at 18 months, which is a 75-100 per cent increase in life, tonnage and an annual 45 per cent cost saving."

Andries Smilda, Dunlop Conveyor Belting director of sales and marketing, adds: "I am naturally delighted that the team at Whatley Quarry are so pleased with the performance of our Superfort belts. For me, this case study epitomises what we are always trying to get across to the end-user market, which is that our belts may not be the cheapest you can buy, but they certainly provide the lowest lifetime cost and most productive output by a considerable margin.

"I would like to say a big thank you to everyone at Vulcanising South West, who are flying the flag so well for us in the

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Andries Smilda,
Dunlop Conveyor Belting
director of sales & marketing

UK, and a special thank you to Whatley Quarry and Hanson Aggregates. It is refreshing to see a case study conducted as professionally as they have done." ■