

Colas

European runways cleared for UK take off

Colas has exported tried and tested asphalt technology from France for resurfacing and extending – in rapid fashion – Sumburgh Airport’s main runway on the Shetland Islands.

Flights are now on offer from Stansted to Sumburgh Airport, providing a direct link between the Shetland Islands and a London airport. Extension of the main runway at Sumburgh has made this possible, opening up the UK’s most northerly group of islands to larger aircraft and more prosperity from tourism.

Sumburgh operator Highland & Islands Airports Ltd (HIAL) has established its direct link to South East England with an innovative runway extension project incorporating surfacing materials designed, manufactured and laid to French standards. Among the same pressures found at most airports, Colas completed its work, including regulating and reprofiling the runway for main contractor Balfour Beatty, during night time possessions of the runway over a period of just one month.

Surfacing would have taken considerably longer had Colas not been able to apply some technology well established and proven in

France. The plaudits go to Colas for pushing forward with its proposals and completing the job in such a short space of time.

“Air travel is becoming more accessible throughout the UK and more competitive with airport operators under increasing pressure from airlines to maximise the availability of runways,” says Colas’ Business Manager for Airfields Carl Fergusson. “Time available for runway surfacing and maintenance is reducing, so clients of the traditionally conservative UK airfields paving market are looking for more innovation.”

Marshall Asphalt is the traditional material for UK runway surfacing with a 40 year track record. According to Fergusson, due to the type of plant needed to suit the tight aggregate grading of Marshall Asphalt, production is very slow in comparison to materials being used in parts of Europe. Whereas Marshall Asphalt is specified essentially to a recipe mixture with target

stability and flow values for a specific void range, in France greater emphasis is placed on the use of performance based mixtures, often using modified binders.

For the Sumburgh project, Colas used an asphalt developed from the French Béton Bitumeux Aéronautique (BBA) standard. This gives three classes of material specified on the frequency and weight of aircraft, to give the type of aggregate and asphalt mix needed.

“We have demonstrated that European methods and materials can be introduced to the UK.” Carl Fergusson

Colas’ parent company, the French Colas SA, has paved numerous airports worldwide, including Roissy Charles De Gaulle airport near Paris. About 90,000t of BBA asphalt has been used to resurface one runway with Colas SA due to return to resurface a second runway with the same this year. So transfer of the same technology to the Shetlands would seem quite straightforward.

Colas originally tendered for HIAL’s £10M Sumburgh runway extension contract in January 2005 but lost out to Balfour Beatty. Consolation though, came in the form of being selected as BB’s preferred surfacing supplier. Conventional asphalt had originally been specified, but Colas was able to approach the project team with its own ideas developed during the original bidding, including use of BBA asphalt and establishing a quarry within the airport’s boundary for sourcing the high quality stone needed.

(Left and right) Sumburgh Airport has been opened up to larger aircraft with an innovative runway extension project





Colas took the UK's largest mobile asphalt plant to the Shetland Islands to produce up to 200t of BBA asphalt per hour for surfacing Sumburgh's main runway

"The aggregate was found to be suitable with a PSV of 66," Fergusson says. "We tested it fully and the asphalt mix was designed to French standards with the help and advice of our CST (Campus for Science & Techniques) technical centre in France."

Colas also provided a mobile asphalt plant, the UK's largest, according to Fergusson. "It is not unusual for French mobile plants to produce up to 600t per hour and for two to be used on site. We were able to mix up to 200t per hour and lay 200m of surface course over the full 45m width of the runway in one shift which represents considerable advance on the

productivity we would have achieved with Marshall Asphalt."

Colas carried out its work in May this year during the hours between 10pm and 4am, to allow the runway to reopen at seven each morning. The old porous friction course was planed off to a depth of 30mm and 45mm of BBA asphalt was laid in its place, with conventional paving equipment.

"The BBA material was so easy to manufacture and lay," Fergusson enthuses. "With Marshall Asphalt it is more difficult to get the right compaction and air voids, and it is normal to trial lay the material before

replicating the procedure on site. Traditional materials also produce more joints due to slow production. So, in addition to enhanced resistance to cracking and deformation, there are maintenance benefits of BBA asphalt as joints are normally the first part of a pavement to fail."

In France, surface characteristics inherent to BBA materials negate the need for the common UK practice of grooving newly laid runways. At Sumburgh however, Colas grooved the surface to give the maximum possible friction, increasing the 'effective length' of the runway by 10% when wet.

"There are tried and tested alternatives to Marshall Asphalt which provide significant advantages in terms of construction time, cost and whole life performance. We have demonstrated that European methods and materials can be introduced to the UK," Fergusson adds.

"The logistics were complicated by the need to bring bitumen from the mainland. The total trip from the refinery at Dundee to Sumburgh takes 17 hours. We were right on the envelope of opportunity to keep the bitumen at the right temperature but we had five tankers in the loop and 150t of storage capacity at the mobile plant. If it can be done in the Shetlands it can be done anywhere."

