

# Alderney Airport - UK

Alderney Airport is operated by the States of Guernsey. The runway was heavily oxidised and routine FOD sweeps were collecting on average over 400kg each month.

The States of Guernsey sought a detailed solution for redeveloping Alderney's runway. Treatment with RHINOPHALT® would provide a major improvement in the surface quality of Alderney Airport's runway, aprons and taxiway for aircraft.



## Airfield Preservation

### The Challenge

Built in 1935, Alderney Airport was the first airport in the Channel Islands (UK).

The main runway, 08/26 is 880 m (2,887 ft) long and is asphalt. The two secondary runways are both grass.

Runway 08/26 asphalt surface is approximately 18 – 20 years old and heavily oxidised. Some large areas have been resurfaced over the last few years. Routine FOD sweeps were collecting on average >300 kg each month since 2013, with a noticeable increase during the winter months.

The States of Guernsey wanted a solution that would seal the surface and prevent further aggregate loss until full rehabilitation could take place.

### The Solution

An application rate of 0.45 litre/m<sup>2</sup> was recommended for all surfaces. This was determined by spraying 1m<sup>2</sup> panels at various application rates on the different asphalt surfaces.



The contract was to preserve 28,000m<sup>2</sup> of asphalt surface with RHINOPHALT®.

- Runway and turn pads – 19000m<sup>2</sup>
- Bravo Taxiway – 3000m<sup>2</sup>
- Apron – 6000m<sup>2</sup>

Application was carried out using a large combi-truck that was able to apply fine Rhino-Dust at a calibrated rate in conjunction with the RHINOPHALT®.



The fine Rhino-Dust enables immediate friction recovery on the treated surfaces. The fine dust is locked into the treated surface and at <1mm it does not pose a risk to FOD.

A line laser was also used for applying RHINOPHALT® in smaller areas, and for finishing and edging.

Following on-site truck calibration, a 100m section was applied for reference friction testing.



Using a Findlay Irvine MK2 Grip Tester the 100m section was recorded at **0.93**, compared to pre-application grip level of **0.83**

## ➔ Fast process minimises disruption

### Contract

Application commenced in September 2018 and was programmed for 5 night shifts.

Bad weather caused delays, and full credit goes to the contractor as the job was completed in 3 shifts and still met the 28,000m<sup>2</sup> contract deadlines.

All lines, piano keys and landing markers were re-instated within the same shifts once the RHINOPHALT® had cured.



## ➔ Friction recovery

A fresh application of RHINOPHALT® covers the aggregate micro-texture, effectively reducing the current grip value of the pavement surface, similar to a freshly laid asphalt surface course.

Fine Rhino-Dust is applied at the same time as the RHINOPHALT® which maintains grip and helps to abrade the RHINOPHALT® from the aggregate surface under trafficking. Once the aggregate micro-texture is exposed, the grip values are returned to pre-application levels.

A friction run was completed on 18 September 2018, 2 days after treatment, and the results can be compared favourably to the pre-application run taken on 02 August 2018.

- 02 August 2018 = **0.83**
- 18 September 2018 = **0.94**

Both results are well in excess of the airfield MPL of 0.55.

## ➔ Extended pavement life of 3-5 years

### FOD Reduction

Any loose aggregate particles pose a significant FOD risk to aircraft.



The treated asphalt surface will become more resistant to abrasion, stone loss, water ingress and the severe ageing effects of extreme temperatures.

One application of RHINOPHALT® on older asphalt surfaces can extend pavement life by an additional 3 to 5 years, delaying the massive cost and disruption of a resurfacing intervention.

In 2018, the average monthly FOD mass collected was 321kg before treatment.

Following treatment in September 2018, the FOD mass has now reduced to a monthly average of just 34kg.

YEAR	FOD Mass (kg)
2013	2105
2014	2197
2015	3155
2016	4342
2017	3227
2018	3014
2019*	177

\* up to, and including June 2019

## ➔ Customer satisfaction

"The results in reduction of FOD Mass are evident from our continued monitoring and maintenance of the runway, taxiway and apron surfaces. To date we have seen a near 90% reduction in material being shed from the surface and this is a very visible measure of the effectiveness of the product".

Alderney airport have reduced the FOD sweeps to just one per month due to the effectiveness of the RHINOPHALT® treatment. The runway, taxiway and apron has been sealed and protected and will last until full rehabilitation is planned.

## ➔ Key Benefits

Substantial financial benefits are achieved through improved asset management because RHINOPHALT®:

- Adds years to the life of asphalt, delaying expensive cost of replacement
- Reduces unplanned maintenance intervention
- Minimises the FOD sweeping costs associated with aggregate loss
- Maximises airfield availability. This delays the need for major resurfacing operations and reduces whole life cost.

"This project will result in a major improvement in the surface quality of Alderney Airport's runways, aprons, and taxiway for aircraft and it represents a significant investment in the island's transport infrastructure.

All of the existing paint markings have been enhanced, new markings have also been added to help visual references for pilots, and some historic non-conformance with current standards have also been dealt with. The runway surfaces have been grip-tested each day to ensure continued safe operations and the results show no significant change in friction levels compared to results taken before the work commenced. All of the works took place at night after the airport closed and this has enabled us maintain services during the day."

Colin Le Ray  
General Manager of Ports  
States of Guernsey