

**SERIOUS INCIDENT**

<b>Aircraft Type and Registration:</b>	Piper PA-28-161, G-RAAM	
<b>No &amp; Type of Engines:</b>	1 Lycoming O-320-D3G piston engine	
<b>Year of Manufacture:</b>	1980 (Serial no: 28-8016276)	
<b>Date &amp; Time (UTC):</b>	16 April 2023 at 1245 hrs	
<b>Location:</b>	Blackbushe Airport, Hampshire	
<b>Type of Flight:</b>	Training	
<b>Persons on Board:</b>	Crew - 1	Passengers - 1
<b>Injuries:</b>	Crew - None	Passengers - None
<b>Nature of Damage:</b>	None	
<b>Commander's Licence:</b>	Private Pilot's Licence	
<b>Commander's Age:</b>	71 years	
<b>Commander's Flying Experience:</b>	6,500 hours (of which 5,000 were on type) Last 90 days - 33 hours Last 28 days - 11 hours	
<b>Information Source:</b>	Aircraft Accident Report Form submitted by the pilot and further enquiries by the AAIB	

**Synopsis**

G-RAAM was on final approach to Runway 25 at Blackbushe Airport when it clipped a tree that may have been above the maximum height for obstacles on the approach path.

Hampshire County Council (HCC) will start the planned works in autumn 2023 to remove the obstacles. The airport has published information to pilots to increase awareness and to exercise caution until the work has been carried out.

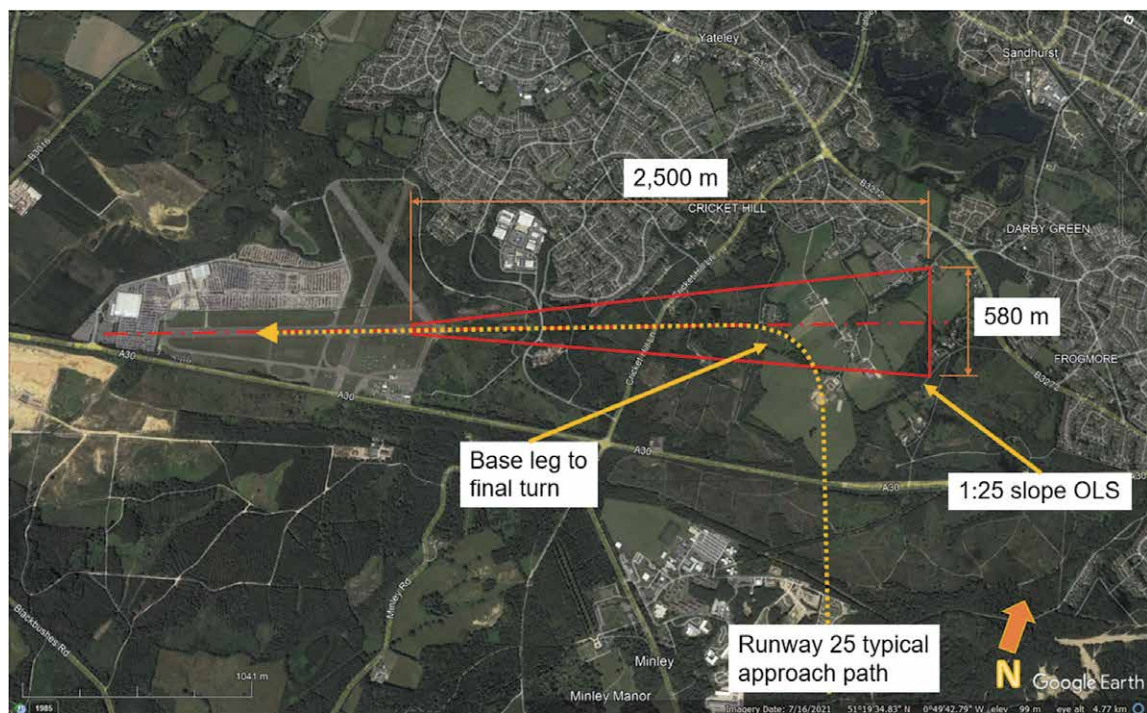
**History of the flight**

The pilot, a qualified flying instructor, was on final approach to Blackbushe Airport Runway 25, when he became aware he might have clipped an obstacle and elected to go-around. The go-around and subsequent landing were successful. After landing it was discovered that there was a twig attached to the left landing gear wheel.

The weather at the time was clear with good visibility, wind from 290° at 7 kt and the pilot described as "gusty".

## Aerodrome information

Civil Aviation Publication (CAP) 168 - 'Licensing of Aerodromes'<sup>1</sup> defines an approach and landing Obstacle Limitation Surface (OLS) to ensure the flight path of aircraft taking off and landing remains free of fixed ground obstacles. The dimensions for the OLS are dependent on the provision of navigation aids for landing and the runway dimensions. Blackbushe Airport has two non-instrument approach runways: 07 and 25, both less than 1,200 m long and 46 m wide. Figure 1 shows the OLS for the Runway 25 approach with a typical light aircraft approach path highlighted. Light aircraft are at approximately 150 m (500 ft) agl and 2,000 m from the runway threshold when they turn onto final, which equates to approximately 70 m (230 ft) above the OLS.



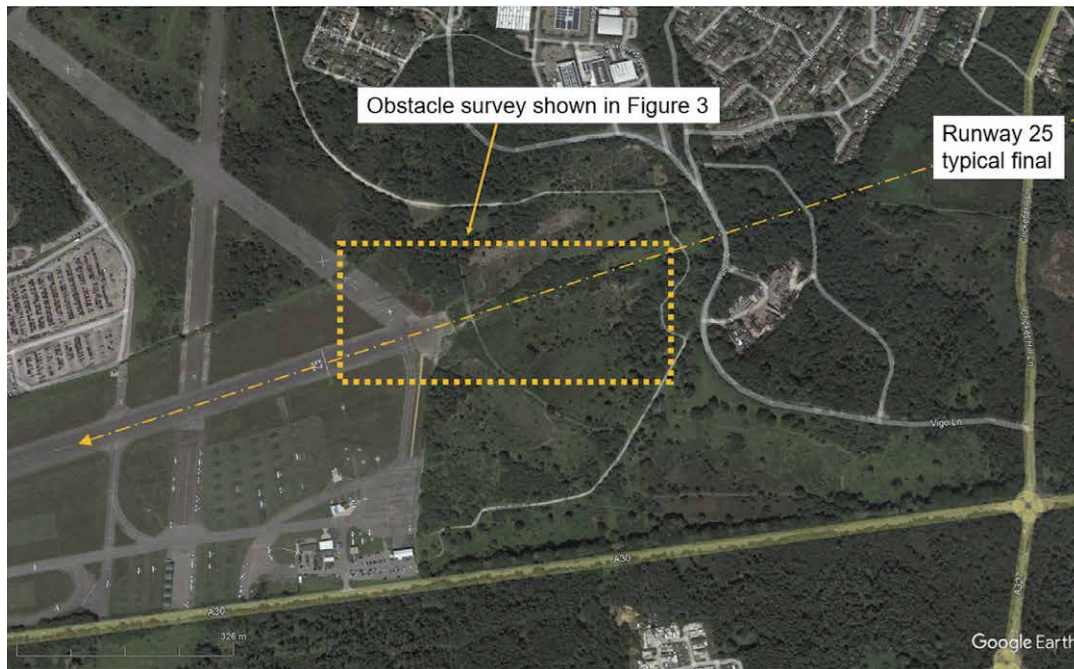
**Figure 1**

OLS and typical light aircraft approach path to Runway 25

The Runway 25 approach path is over Yateley Common (Figure 2), which is described by the Hampshire Countryside Service as an '*extensive heathland complex with areas of open heather, gorse, birch and oak woodland*'<sup>2</sup>.

### Footnote

- <sup>1</sup> [CAP 168 Licensing of Aerodromes \(caa.co.uk\)](https://www.caa.co.uk) Edition 12 (accessed June 2023).
- <sup>2</sup> [Yateley Common | Hampshire County Council \(hants.gov.uk\)](https://www.hants.gov.uk) (accessed June 2023).



**Figure 2**

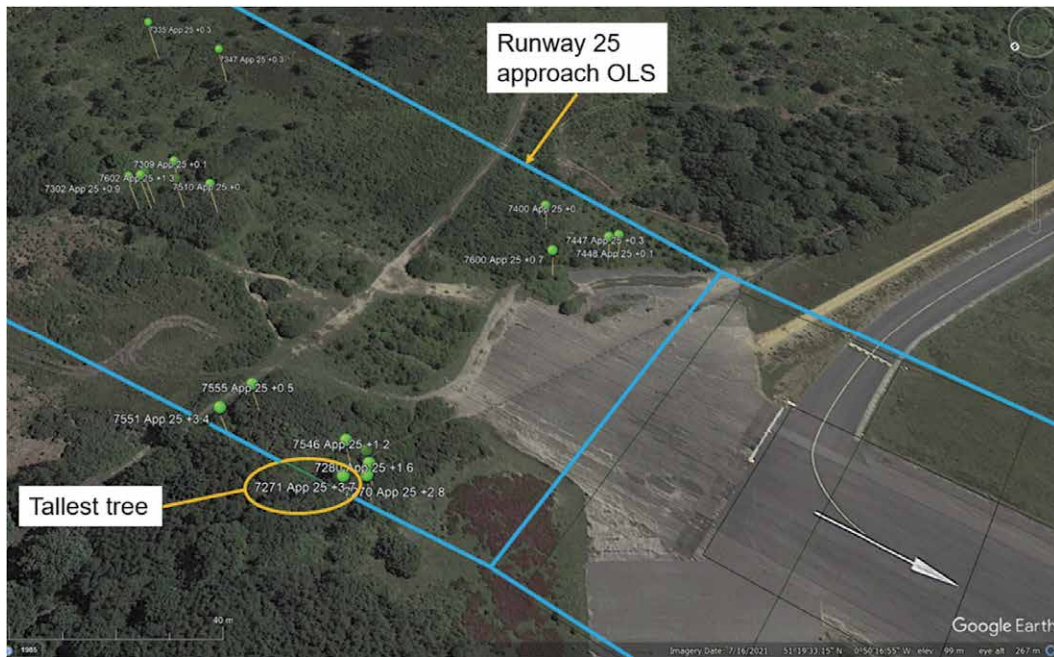
Yateley Common

The airport undertook a tree survey every two to three years, the last of which in 2021 identified many trees penetrating the Runway 25 approach OLS. Following the 2017 survey, a discussion between the airport and HCC identified those trees as a hazard to the approach and arranged for their removal. Although HCC undertook extensive works on the common during the winter of 2017-2018, the airport did not follow up with HCC and verify their removal. Furthermore, they did not formally engage with HCC again, apart from some incidental verbal conversations after the 2021 survey. A further survey was completed in March 2023, and the results for the Runway 25 approach OLS are shown in Figure 3.

From the survey it was found that a total of 19 trees penetrated the Runway 25 approach OLS with three of those penetrating more than 2 m. Two penetrated more than 3 m, with the tallest tree 3.74 m above the OLS, 200 m from the runway threshold. For a light aircraft touching down at the runway threshold on a typical glide slope, there would be approximately 1 m vertical clearance between the top of this tree and the aircraft.

The tree survey also identified trees penetrating the Runway 07 approach and takeoff OLS, and the Runway 25 takeoff OLS. The survey was conducted from the runway thresholds using optical instruments and so it is possible that other trees may be penetrating the OLS but were hidden by taller trees in the foreground. The current survey may therefore not include all penetrations of the OLS and so a further survey would be required to ensure all the trees are identified.

Following this incident, the airport will survey the trees which have been identified as penetrating the OLS with works starting in autumn 2023 after the ground bird nesting season has finished.




**Figure 3**

2023 Obstacle survey results for the Runway 25 approach

To mitigate the risk to pilots during the interim period, Blackbushe Airport Safety Action Group has published the following information:

## Final Approach - Trees

- ▶ Recent MORs submitted (04/22 and 04/23) regarding fixed wing aircraft flying low on RWY25 approach and striking trees.
- ▶ Due to common land status and location, there have historically been challenges when we've tried to reduce the height of these
- ▶ With additional help from the AAIB who investigated the MOR reports, positive conversations with Hampshire County Council and Countryside Services have taken place.
- ▶ Works cannot take place in ground nesting bird season but are planned from mid-August onwards
- ▶ A similar plan is expected on the 07 approach, but these need to be agreed with the Forestry Commission and BCA.
- ▶ This plan will have several phases. A large tree will mask others behind it. A period of cutting and resurveying will begin.
- ▶ Please exercise caution when flying low circuits/glide approaches, especially as the PAPI lights are U/S and expected to remain so in 2023.



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**Figure 4**

Safety information to Blackbushe pilots