

**LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL**

<b>Reference Number</b>	CA18/2/3/10305						
<b>Classification</b>	Accident	<b>Date</b>	14 May 2023		<b>Time</b>	1245Z	
<b>Type of Operation</b>	Operation of Non-type Certificated Aircraft (Part 94)						
<b>Location</b>							
Place of Departure	Worcester Aerodrome (FAWC), Western Cape Province			Place of Intended Landing	Worcester Aerodrome (FAWC), Western Cape Province		
Place of Occurrence	Private farm near Villiersdorp, Western Cape Province						
GPS Co-ordinates	Latitude	33°58'09.53" S	Longitude	019°18'14.07" E	Elevation	1 250 feet	
<b>Aircraft Information</b>							
Registration	ZS-GMK						
Make; Model; S/N	Alexander Schleicher GmbH & CO, ASW-20 (Serial Number: 20349)						
Damage to Aircraft	Substantial			Total Aircraft Hours	2 111.0		
<b>Pilot-in-command</b>							
Licence Type	Glider Pilot Licence		Gender	Male		Age	75
Licence Valid	Yes	Total Hours	1 900.0		Total Hours on Type	238.0	
Total Hours 90 Days	7.0		Total Flying on Type Past 90 Days	7.0			
<b>People On-board</b>	1 + 0	<b>Injuries</b>	1	<b>Fatalities</b>	0	<b>Other (on ground)</b>	0
<b>What Happened</b>							
<p>On Sunday afternoon, 14 May 2023, a pilot on-board an ASW-20 glider with registration ZS-GMK was aerotowed by a tug aircraft from Worcester Aerodrome (FAWC). The glider pilot intended to return to FAWC. The private flight was conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 94 of the Civil Aviation Regulations (CAR) 2011 as amended.</p> <p>The ZS-GMK glider was the first of the two gliders to be towed by the same tug aircraft from FAWC. The glider pilot stated that the wind was brisk at the time, and he needed only 10 minutes of aerotowing before releasing the tow rope from the tug aircraft. It took him two passes to reach the cloud base, which was at a height of approximately 4 300 feet (ft). According to the glider pilot, the flight was normal for the terrain but once the glider passed Villiersdorp, the lift started to deteriorate due to topography (see Figure 3). The glider lost lift and height despite the glider pilot's attempts to maintain it. It headed further down the valley, continuing to lose lift and, at that point, the glider pilot realised that an out landing was imminent. He then selected an open field to land, lowered the undercarriage, and selected the landing flaps. The glider pilot further stated that whilst he manoeuvred the glider for landing, it had turned right at that time and, during the turn, it stalled and the right wing dropped. The glider impacted the terrain in a right-wing low nose-down attitude, and was damaged beyond economical repair (see Figure 2).</p>							

The glider pilot stated that after the glider came to a stop, there was a change in wind direction of approximately 180° to what he had initially accessed it to be from the air prior to the out landing. The pilot was seriously injured during the accident sequence. He was stabilised by the emergency medical personnel before he was taken to hospital. The wind was still blowing from the same direction as when the glider came to rest approximately three hours earlier.

During an interview with the tug pilot, he stated that they took off at approximately 1200Z and, after approximately 10 minutes of aerotowing, the glider pilot disconnected from the tug aircraft. The tug pilot then returned to FAWC for landing, and another glider was attached to the tow rope. Approximately 35 minutes since the tug pilot's first take-off (with ZS-GMK), he was contacted by a person on the ground to look for ZS-GMK glider in Villiersdorp area. The tug pilot located the wreckage from the air approximately 20 nautical miles (nm) south-west of FAWC where it had crashed on an open piece of ploughed farmland. Thereafter, he informed the relevant parties who responded by road to the scene.

The accident occurred during daylight at Global Positioning System (GPS) co-ordinates determined to be 33°58'09.53" South, 019°18'14.07" East at an elevation of 1 250 feet (ft).



**Figure 1:** Aerial picture taken by the tug pilot with the glider in the yellow window. (Source: Tug pilot)



**Figure 2:** The glider as it came to rest with the pilot still trapped inside. (Source: ARCC)

1. Meteorological Information

- 1.1 An official weather report was obtained from the South African Weather Service (SAWS), and the information below is an extract from the weather report.

Surface observational data and forecast

*When looking at the FACT available METARs between 1200Z and 1400Z, there was no significant change in the wind direction. The wind speed at the time was a south-westerly wind with strong surface speeds of between 20 and 23 knots, gusting 32 knots at times. The weather conditions reported at the time of the accident were CAVOK.*

*The SYNOPTIC message recorded at 1300Z contains the following weather variables.*

<i>Wind direction:</i>	<i>145°-154°</i>
<i>Wind speed:</i>	<i>17 KT</i>
<i>Temperature:</i>	<i>19.6°C</i>
<i>Dew point temperature:</i>	<i>7.9°C</i>
<i>Pressure at sea level:</i>	<i>1026.2hPa</i>



The METAR messages recorded at Cape Town International Aerodrome (FACT) between 1200Z and 1400Z were as follows:

FACT 141200Z 15023KT CAVOK 20/09 Q1026 NOSIG=  
FACT 141230Z 15022G32KT CAVOK 20/08 Q1026 NOSIG=  
FACT 141300Z 15021KT CAVOK 20/08 Q1026 NOSIG=  
FACT 141330Z 15022KT CAVOK 19/08 Q1026 NOSIG=  
FACT 141400Z 15021KT CAVOK 19/07 Q1026 NOSIG=

The Terminal Aerodrome Forecast (TAF) for FACT was as follow:

FACT 141000Z 1412/1518 15020KT CAVOK  
TX211512Z TN09/1505Z  
PROB20 TEMPO 1412/1515 15022G35KT  
BECMG 1502/1504 19005KT  
BECMG 1512/1514 18015KT=

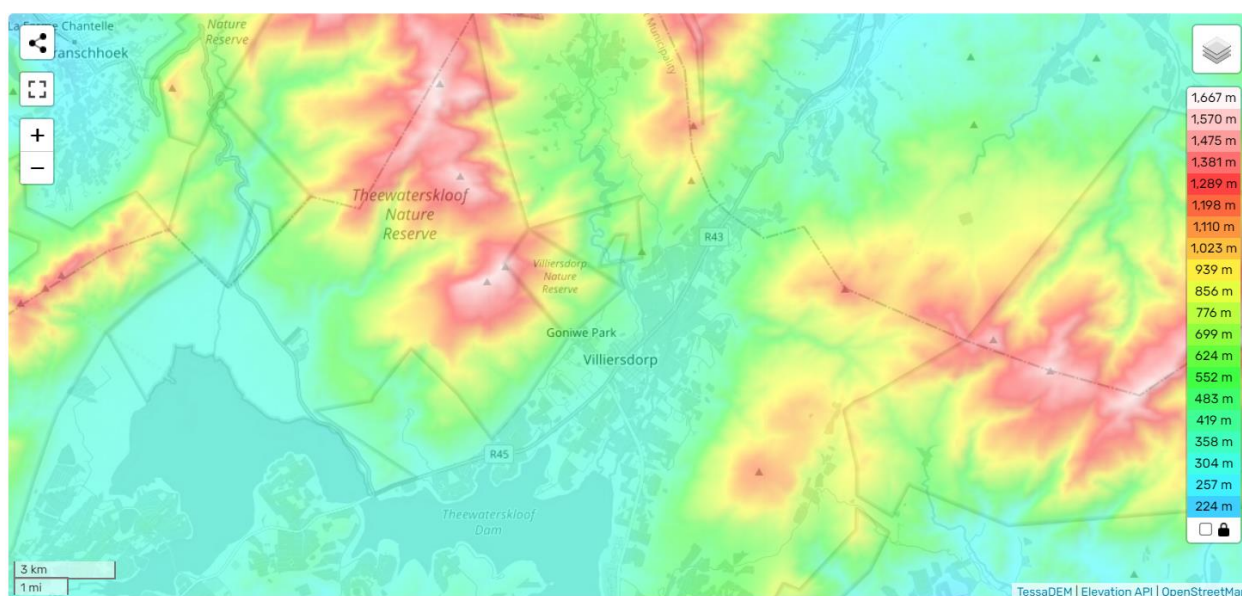
## 2. Topography Villiersdorp area

Source: [https://en.wikipedia.org/wiki/Riviersonderend\\_Mountains](https://en.wikipedia.org/wiki/Riviersonderend_Mountains)

The Riviersonderend Mountains are a mountain range in the Cape Fold Belt of the Western Cape province of South Africa. They run east to west from Riviersonderend to Villiersdorp, separating the Breede River Valley from the Overberg region. They are composed of Table Mountain Sandstone and attain a maximum height near McGregor and Riviersonderend at Pilaarkop, which is 5 427ft (1 654m) high.

### Villiersdorp topographic map

Click on the map to display elevation.



**Figure 3:** Villiersdorp topography map. (Source: <https://en-za.topographic-map.com/map-9Intf/Villiersdorp/>)

<b>Findings</b>	
3.	<u>Personnel Information</u>
3.1	The pilot had a Glider Pilot Licence. The latest renewal of the pilot's licence was issued on 3 October 2021 with an expiry date of 2 October 2023. The pilot had flown a total of 1 900.0 hours of which 238.0 hours were on the glider type.
3.2	The pilot had a Class 4 aviation medical certificate that was issued on 14 October 2022 with an expiry date of 31 October 2023.
3.3	The pilot was properly licensed and medically fit to conduct the flight in accordance with the existing regulations.
3.4	The pilot fractured his right ankle during the impact sequence and was admitted to hospital where he underwent surgery.
4.	<u>Aircraft Information</u>
4.1	The last maintenance inspection that was carried out on the glider prior to the accident flight was certified on 17 July 2022 at 2 057.0 airframe hours by an approved person. Since the inspection, a further 54.0 hours were flown on the glider.
4.2	The glider had a valid Authority to Fly (ATF) that was issued on 10 August 2019 with an expiry date of 30 September 2023. The glider was airworthy when it dispatched for the flight.
4.3	The glider Certificate of Registration (C of R) was issued on 24 October 2019.
4.4	The glider was issued a Certificate of Release to Service (CRS) on 16 July 2022 with an expiry date of 15 July 2023 or at 2 157.0 airframe hours, whichever occurs first.
4.5	The glider lost lift and height and, during a right turn, the aircraft stalled and the pilot could not recover due to the low height of the glider. The glider subsequently crashed in a right-wing low nose-down attitude.
<b>Probable Cause</b>	
The glider stalled and crashed during a right turn after losing lift and height. The pilot could not recover due to the glider's low height.	

<b>Contributing Factors</b>
(i) Improper flight planning. (ii) The pilot did not obtain reliable weather forecasts to ensure the soaring flight could be completed safely. (iii) The out landing was performed downwind.
<b>Safety Action</b>
None.
<b>Safety Recommendation/Message</b>
None.
<b>About this Report</b>
<i>Decisions to conduct a limited investigate is based on factors, including whether the cause is known and the evidence supporting the cause is clear, the level of safety benefit likely to be obtained from an investigation and that will determine the scope of an investigation. For this occurrence, a limited investigation has been conducted, and the Accident and Incident Investigations Division (AIID) has relied on the information submitted by the affected person/s and organisation/s to compile this limited report. The report has been compiled using information supplied in the initial notification, as well as from follow-up desk top enquiries to bring awareness of potential safety issues to the industry in respect of this occurrence, as well as possible safety action/s that the industry might want to consider in preventing a recurrence of a similar occurrence.</i>
<i>All times given in this report are Co-ordinated Universal Time (UTC) and will be denoted by (Z). South African Standard Time is UTC plus 2 hours.</i>
<b>Purpose</b>
<i>In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011 and ICAO Annex 13, this report was compiled in the interest of the promotion of aviation safety and the reduction of the risk of aviation accidents or incidents and not to apportion blame or liability.</i>
<b>Disclaimer</b>
<i>This report is produced without prejudice to the rights of the AIID, which are reserved.</i>

**This report is issued by:**  
**Accident and Incident Investigations Division**  
**South African Civil Aviation Authority**  
**Republic of South Africa**