DOCUMENT
GSM-G-CPL.022

DOCUMENT TITLE

GENERAL OPERATIONS, FLIGHT PLANNING AND PERFORMANCE

CHAPTER 13 –
ERSA ENTRIES FOR A LICENSED AIRFIELD

Version 1.0
January 2013

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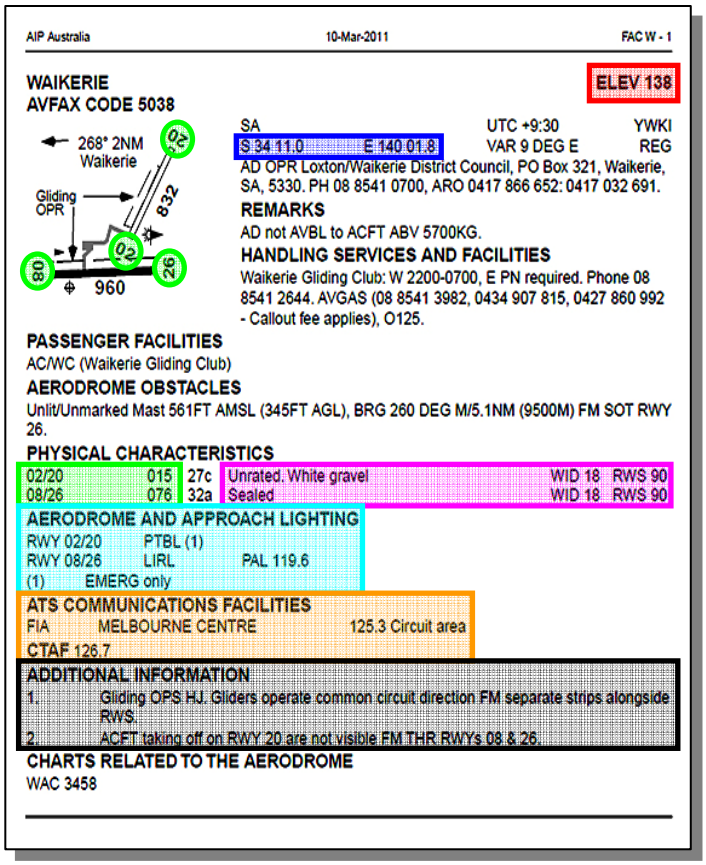
ERSA ENTRIES FOR A LICENSED AIRFIELD

Detailed guidance on how to extract essential airfield information is given in the introduction section of the ERSA and in AU-1 of Jeppesen. The presentation of the information should be as compact and as readable as possible so that the pilot may gather the essential information quickly and accurately. Some close study of the conventions and abbreviations used is essential at this early stage. The immediately obvious detail should be the most important.

Look for the following information given in the ERSA entry example of Waikerie.

- Elevation
- Location
- Orientation
- Length and surface
- Communication frequencies
- Lighting
- Special procedures and potential obstacles



AIP Australia 10-Mar-2011 FAC W - 1

WAIKERIE
AVFAX CODE 5038

ELEV 138

268° 2NM Waikerie
Gliding OPR
02 32 08 26 960

SA UTC +9:30 YWKI
S 34 11.0 E 140 01.8 VAR 9 DEG E REG
AD OPR Loxton/Waikerie District Council, PO Box 321, Waikerie, SA, 5330. PH 08 8541 0700, ARO 0417 866 652: 0417 032 691.

REMARKS
AD not AVBL to ACFT ABV 5700KG.

HANDLING SERVICES AND FACILITIES
Waikerie Gliding Club: W 2200-0700, E PN required. Phone 08 8541 2644. AVGAS (08 8541 3982, 0434 907 815, 0427 860 992 - Callout fee applies), O125.

PASSENGER FACILITIES
AC/WC (Waikerie Gliding Club)

AERODROME OBSTACLES
Unlit/Unmarked Mast 561FT AMSL (345FT AGL), BRG 260 DEG M/5.1NM (9500M) FM SOT RWY 26.

PHYSICAL CHARACTERISTICS

02/20	015	27c	Unrated. White gravel	WID 18	RWS 90
08/26	076	32a	Sealed	WID 18	RWS 90

AERODROME AND APPROACH LIGHTING
RWY 02/20 PTBL (1)
RWY 08/26 LIRL PAL 119.6
(1) EMERG only

ATS COMMUNICATIONS FACILITIES
FIA MELBOURNE CENTRE 125.3 Circuit area
CTAF 126.7

ADDITIONAL INFORMATION
1. Gliding OPS HJ. Gliders operate common circuit direction FM separate strips alongside RWS.
2. ACFT taking off on RWY 20 are not visible FM THR RWYs 08 & 26.

CHARTS RELATED TO THE AERODROME
WAC 3458

RUNWAY DISTANCE SUPPLEMENT 10-Mar-2011 RDS W - 1

WAIKERIE

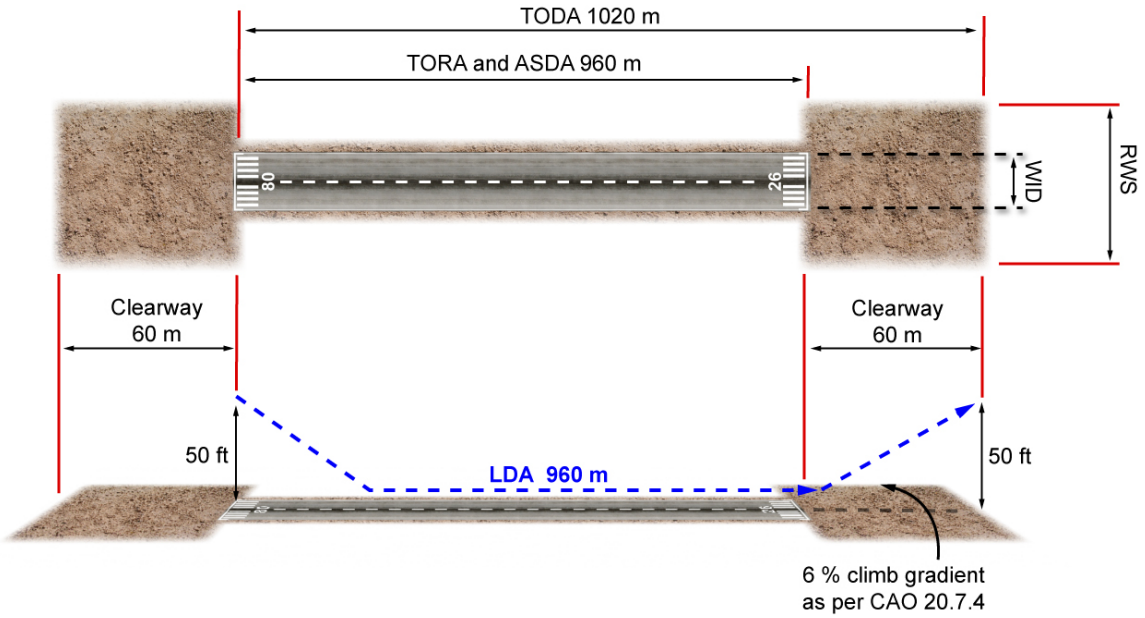
RWY	(CN)	TORA	TODA	ASDA	LDA
02	(2)	832 (2730)	892 (2926) (3.09%)	832 (2730)	832 (2730)
20	(2)	832 (2730)	892 (2926) (1.97%)	832 (2730)	832 (2730)
	Slope 0.5% from centre down to ends. RWY WID 18 RWS WID 90				
08	(2)	960 (3150)	1020 (3346) (2.42%)	960 (3150)	960 (3150)
26	(2)	960 (3150)	1020 (3346) (2.63%)	960 (3150)	960 (3150)
	Slope 0.1% down to E. RWY WID 18 RWS WID 90				

SUPPLEMENTARY TAKEOFF DISTANCES

RWY02 -	842(2762)(1.9)	891(2923)(2.2)	
RWY20 -	874(2867)(1.9)		
RWY08 -	837(2746)(1.6)	919(3015)(1.9)	983(3225)(2.2)
RWY26 -	800(2625)(1.9)	926(3038)(2.2)	996(3268)(2.5)

Very specific runway dimensions must be studied. At Waikerie runway 08 has a Runway Surface (RWS) of 90 metres wide while the Runway (WID) is 18 metres wide. The Runway is sealed but "unrated". *The load bearing strength of a runway is "rated" where there is an intention to operate heavy aircraft or those with very high tyre pressures*.

For this runway, the TORA, ASDA and LDA are all 960 metres and because there is a 60 metre clearway the TODA is 1020 metres.



Further examination of the ERSA pages show that the slope of 0.1% down to the East will not have an appreciable effect upon the take-off or landing.

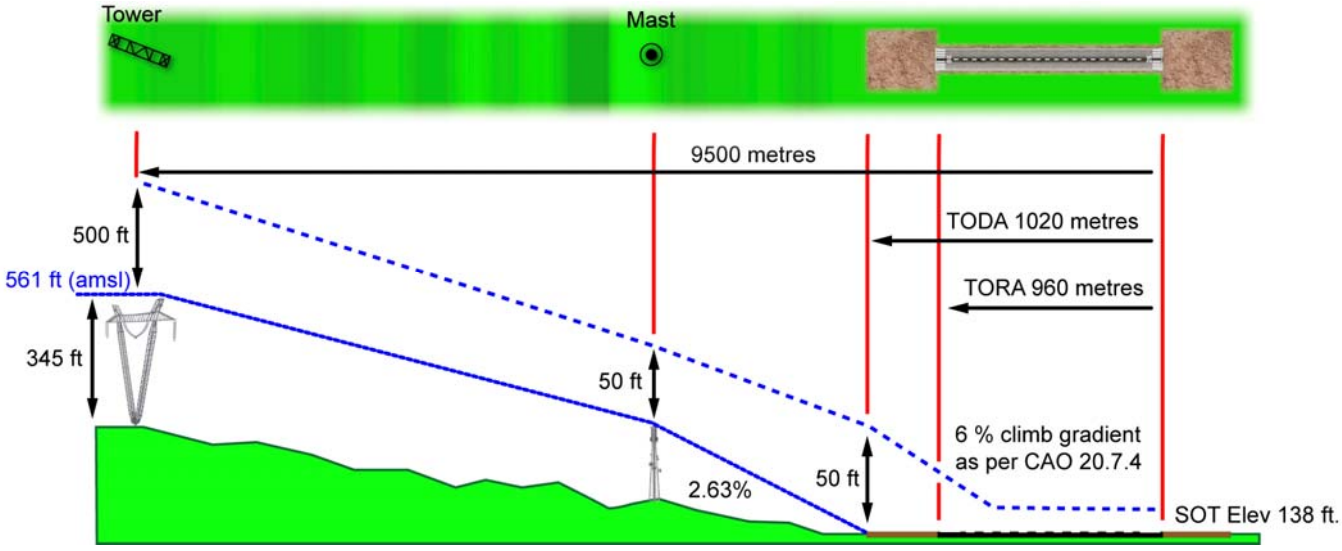
There is, however when considering runway 26 a requirement to achieve or maintain a climb gradient of 2.63% to ensure clearing a tower that is within the take-off climb surface. Although there is no information on this tower, the dimensions of the take-off climb surface and the gradient is enough to ensure the safety of the aircraft.

The dimension of the take-off climb area is obtained using the take-off runway code number (CN), in Waikerie's case CN 2, and the information regarding the dimensions of the surveyed take-off climb area (ERSA Intro).

Take-off Climb Surface Dimensions	Take-off Runway Code Number			
	1	2	3 or 4	MIL
Length of inner edge	60M	80M	180M	RWS WID
Minimum distance of inner edge from runway end	30M	60M	60M	CWY DIST
Rate of divergence (each side)	10%	10%	12.5%	13.2%
Final Width	380M	580M	1200M	2518M
Overall length	1600M	2500M	15000M	15000M

From the information for Waikerie the gradient of 2.63% must be maintained from the end of the clearway to 2500 metres past the end of the clearway.

Furthermore, the ERSA also give information on an unlit tower that is 345 ft (561 ft AMSL) tall and 9500 metres from the start of take-off (SOT). Aircraft departing from runway 26 and maintaining runway direction after take-off will also need to stay clear of this tower. The pilot has two options, either fly a track that takes the aircraft 600m away from the tower or be at an altitude of 1061ft, 600m before reaching the tower.



In the event where the pilot chooses to clear the top of the second tower by at least 500ft the minimum climb gradient required beyond the take-off climb surface can be calculated.

Gradient = Rise divided by Run can be applied.

Rise :

Elevation at the start is:

	138ft	-	SOT
+	**50ft**	-	height at end of clearway
+	**216ft**	-	height gained maintaining 2.63% for 2500m
	404ft		

Elevation 600m from the tower is:

	561ft	-	elevation of the tower
+	**500ft**	-	clearance height
	1061ft		

The rise is then:

	1061ft
-	**404ft**
	657ft

Run :

The run is:

	9500m	-	distance of the tower from SOT
-	**1020m**	-	TODA
-	**2500m**	-	take off climb surface length
-	**600m**	-	Distance from the tower to reach minimum height
	5380m		

The conversion of **1 metre = 3.28 ft** is used

The gradient is 657 feet in 5380 metres (17647 feet)

$$\textbf{The \% gradient} = \frac{657}{17647}$$

$$= 3.7\%$$

This gradient is required to clear the tower that is 5.1 nm from the airfield, it should not be confused with the 2.63% that is required to clear obstacles that is close to the runway

Having lifted off after a ground run of about 770 m and climbing initially at 6%, the aircraft will be at 50 ft. at the end of the TODA and the Clearway. Then the aircraft should maintain a minimum gradient of 2.36% to clear the obstacles in the take off area. After this the aircraft should maintain a gradient of at least 3.7% to be 500ft above the second mast, or the route should be altered so steer the aircraft at least 600m past the tower.

An approximation of gradient can be determined by dividing the rate of climb as indicated on the Vertical Speed Indicator, by the Indicated Air Speed (this assumes that 1 knot = 6000 ft). For example; an aircraft climbing at 70 knots and at 500 ft per minute will have a climb gradient of about 7% (or more if travelling into wind).

Calculating runway slope is also achieved by using the gradient formula