

PORT PIRIE AERODROME

MASTER PLAN

2023 +



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Port Pirie Aerodrome from the air – Port Pirie Flying Group

1 INTRODUCTION

This Master Plan has been prepared in accordance with the Australian Airports Association REGIONAL AIRPORT MASTER PLANNING GUIDELINE.

1.1 Background

The Port Pirie Aerodrome Masterplan update has been developed by Aerodrome Design Services in conjunction with the Port Pirie Regional Council and local stakeholders.

1.2 Purpose and Objectives of the Master Plan

The key objective of the Master Plan is to provide a planning framework to cover both the aviation and non-aviation development at the aerodrome in the short term and over the next 20 years.

The masterplan aims to ensure that Aviation Related Development of aerodrome infrastructure:

- a) is in accordance with applicable regulations and standards;
- b) enables the potential for growth in all areas of aviation;
- c) enhances aviation safety.

The masterplan aims to ensure that non-aviation development:

- a) is encouraged to achieve value adding development of facilities and business ventures on the airport
- b) is able to support aviation activities at Port Pirie Aerodrome;
- c) does not in any way restrict aviation development or affect compliance of aerodrome facilities.

The masterplan also aims to enable the community aspiration of economic prosperity as defined in the **Port Pirie Growth Plan *Aspire 2027*** by supporting the following goals:

Goal EP1: Grow the regional economy by supporting existing businesses and attracting new businesses and industry sectors

- The masterplan caters for development of new businesses, particularly in the aviation industry sector of flight training, aircraft manufacture and maintenance.

Goal EP4: Mining: Leverage off the mining, petroleum and geothermal energy exploration and operations within the northern areas of Australia

- The masterplan critical design parameters are based around catering for fly in / fly out mining charter operations.

Goal EP5: Infrastructure: Build on the good levels of infrastructure currently in place within the region and encourage the development of new infrastructure that will drive the regional economy

- The masterplan details the general infrastructure required to accommodate increased numbers of aircraft operations and introduction of high passenger number charter operations. The masterplan ensures that the required infrastructure can be developed in a compliant manner and protects required areas for future development.

Port Pirie Community (strategic) Plan 2020-2025

Goal - Infrastructure is renewed and provided that meets current and potential future needs.

- The masterplan includes an implementation plan for renewal of existing aerodrome infrastructure, and implementation of future infrastructure based on demand.

1.3 Overview of the Airport

The city of Port Pirie located 220 kilometres north of Adelaide was founded in 1853. The Airport is located 5 kilometres south of the City of Port Pirie. The airport consists of a 3-runway layout making it ideal for pilot training and also servicing aero medical, aerial firefighting, charter and private flying.



Aerial Image – Port Pirie Aerodrome Location

1.4 Methodology and Consultation

This Master Plan has been prepared for the Port Pirie Regional Council by Aerodrome Design Services in consultation with Council staff and aerodrome users. A draft has been released to Council for public consultation and feedback.

2 MASTER PLAN CONTEXT

2.1 Historical Background

The Port Pirie Aerodrome was used extensively during World War II as a bombing and gunnery training school due to the excellent local weather conditions, flatness of the surrounding area and clearance from adverse terrain and other hazards to aircraft.

In recent times the aerodrome has developed into a base for local flyer and flight training operations, along with providing critical access to services of freight, aerial medical transfers and aerial firebombing operations

2.2 Regional Context

Port Pirie, Port Augusta and Whyalla comprise the three most significant airports in the iron triangle. With moderate flying distances separating each, there is obvious competition to capture future growth, particularly the fly in fly out market servicing the mining sector in the far north of the State.

Of the three:

- Whyalla is the only aerodrome currently receiving Regular Public Transport (RPT) services, as a result of the additional driving distance from Adelaide. RPT services into Whyalla are now limited to the sole operator QantasLink following the withdrawal of REX Airlines earlier in 2023.
- Port Augusta Aerodrome services regular mining charter flights to Prominent Hill, Carrapateena and Beverley.

Port Pirie with a 3 runway layout, clear surrounding airspace and a close proximity to Adelaide, has been an attractive site for various aviation activities including:

- receives the predominate share of the flying training market in comparison to Whyalla and Port Augusta.
- an important base for aerial fire bomber operations with aerial water bombing operations based out of the aerodrome for weeks at a time over previous bushfires in the southern Flinders Ranges.
- Port Pirie Aerodrome has able been used as a major base for army training exercises.

2.3 Socio-Economic Context

The Port Pirie area has a population of approximately 14,000 which has remained steady over the previous 5 years.

Population numbers have no major impact on the planning of aerodrome developments. All possible developments covered in this Masterplan are scalable based on demand from local population levels or external users.

2.4 Regulatory Context

Port Pirie is a Certified Aerodrome and therefore is regulated by Civil Aviation Safety Authority regulations as delegated in the CASA Part 139 (Aerodromes) Manual of Standards 2019.

2.5 Policy Context

Development of the Port Pirie Aerodrome is to be in accordance with the Plan SA *Planning and Design Code*.

Within the Code, noise exposure and building heights overlays should be updated to reflect the future protections required as part of this Masterplan.

National perspective:

Airports are critical pieces of national infrastructure and suitable locations for new sites are scarce. The viability of aviation operations at airport can be threatened by inappropriate development. Communities under flight paths and near airports can be affected by issues including noise, development restrictions and safety risks.

In the interest of safety and public amenity, development near airports needs to be carefully managed in a way that is compatible with airport operations. The National Airports Safeguarding Framework (NASF) was developed with this in mind and comprises overarching Principles and Guidelines. Section 11 of this Master Plan (Airport Safeguarding Plan) provides further detailed information on the Framework.

State-wide Perspective:

The SA Government assists regional aerodromes through the Support Regional Aviation Program. The program aims to improve regional airports ability to comply with regulatory requirements, to accommodate changing airline fleets, to support the growth of regional aviation markets, and deliver regional economic and social benefits through improved air services.

Identifying possible demands for development of the Port Pirie Aerodrome, the facilities required to meet these demands and having the planning in place to cater for development goes a long way towards presenting an attractive option for State Government support.

The Integrated Transport and Land Use Plan allows to actively support local councils and airport owners in maintaining regional and remote aviation assets. It also seeks to work with local councils to identify upgrades of strategically important local airports and aerodromes.

2.6 Previous and Current (Master) Plans

Previous planning studies comprised:

- Port Pirie Aerodrome Masterplan 2015-2035 – *Aerodrome Design & DPTI revised June 2017*
- Port Pirie Aerodrome Planning Study – *Airport Assist 2000*
- Scoping Study for 50 Seat Aircraft Operations – *Aerodrome Design Pty Ltd 2012*

2.7 Key Stakeholders

Organisations and individuals with an interest in the airport include.

- Port Pirie Regional Council
- Port Pirie Flying club
- Fixed based operators and tenants
- Flying schools
- Companies regularly operating into Port Pirie
- Local residents

3 CURRENT SITUATION

3.1 Ownership and Management

The airport is owned and operated by the Port Pirie Regional Council following transfer from the commonwealth in the 1980s. The Director - Infrastructure is responsible for the administration of the airport, while day to day maintenance and operation is delegated to the Aerodrome Manager.

3.2 Site Description

The aerodrome is located 5km south of Port Pirie 17km west of the Spencer Gulf. The airport occupies a site of approximately 394 hectares and is well-connected to the City of Port Pirie, and other major locations in the State through road links.

3.3 Surrounding Land

The site sits on a large area of very flat land. The nearest terrain is the Southern Flinders Ranges 15 km northeast of the aerodrome. The surrounding area is general farming, predominantly crops. Areas to the north are also classified as Rural Living and Residential. These areas have been kept well clear of aircraft flight paths.

3.4 Existing Activities

The primary aviation activities at the aerodrome include freight services, charter, flying training, medical (RFDS) and private flying.

In the 2022 calendar year, there were 542 recorded landings by the Royal Flying Doctor Service including emergency medical retrieval at night. This large number of movements provides a vital link to external health services for the region highlights the importance of this critical piece of infrastructure to remain safe and operational for all weather operations 24 hours a day, 7 days a week.

Aircraft typically using the aircraft on a regular basis include light twin engine Aero Commander, and single engined aircraft such as Cessna 172, 182, 206, RFDS Pilatus PC12, etc. Occasional large aircraft also visit the airport such as military Hercules C130 where operations are restricted to runway 17/35.

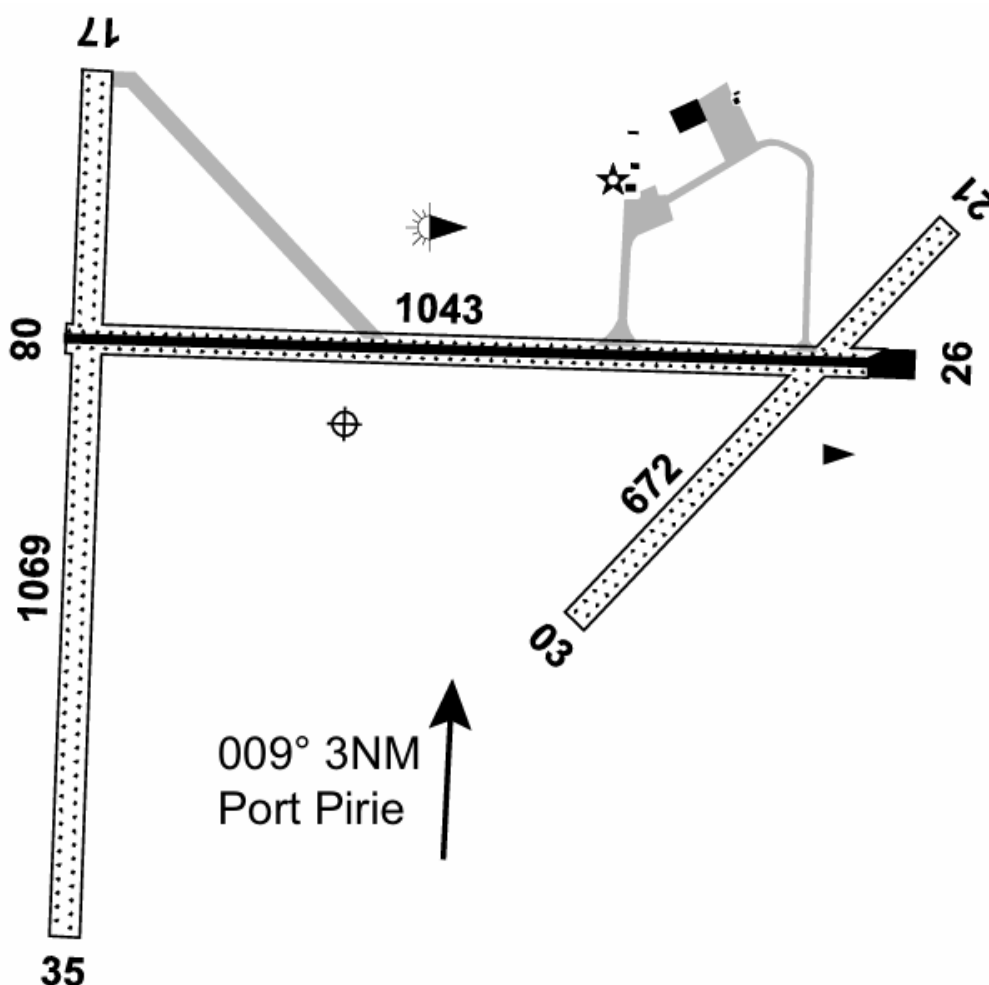
Non-aviation activities conducted on the aerodrome comprise:

- Driver and motorcycle rider training.
- Storage sheds (Rotary, YMCA, BH Club)
- Cropping land leased out to local farmer

3.5 Existing Facilities

The airport features a 3-runway layout:

- Runway 08/26 Length 1043 x 30m (18m sealed)
- Runway 17/35 Length 1069 x 30m Gravel
- Runway 03/21 Length 674 x 30m Grass



Aerodrome Chart – AirServices Australia Aeronautical Information Publication

Runway 08/26 has pilot activated low-intensity runway lights.

The runways are complimented with sealed and unsealed taxiways, 2 sealed aprons and a grassed parking area.

Aircraft refuelling facilities are available with self-service card facilities for turbine and piston aircraft.

Buildings comprise a large Bellman Hangar, passenger waiting rooms, pilot training rooms, manager's residence, and maintenance sheds. Aircraft hangarage is available on short and long term arrangements.

3.6 Ground Transport Access

A sealed road network links the aerodrome to Port Pirie, National Highway One and other local centres such as Port Broughton and Kadina.

3.7 Utility Services

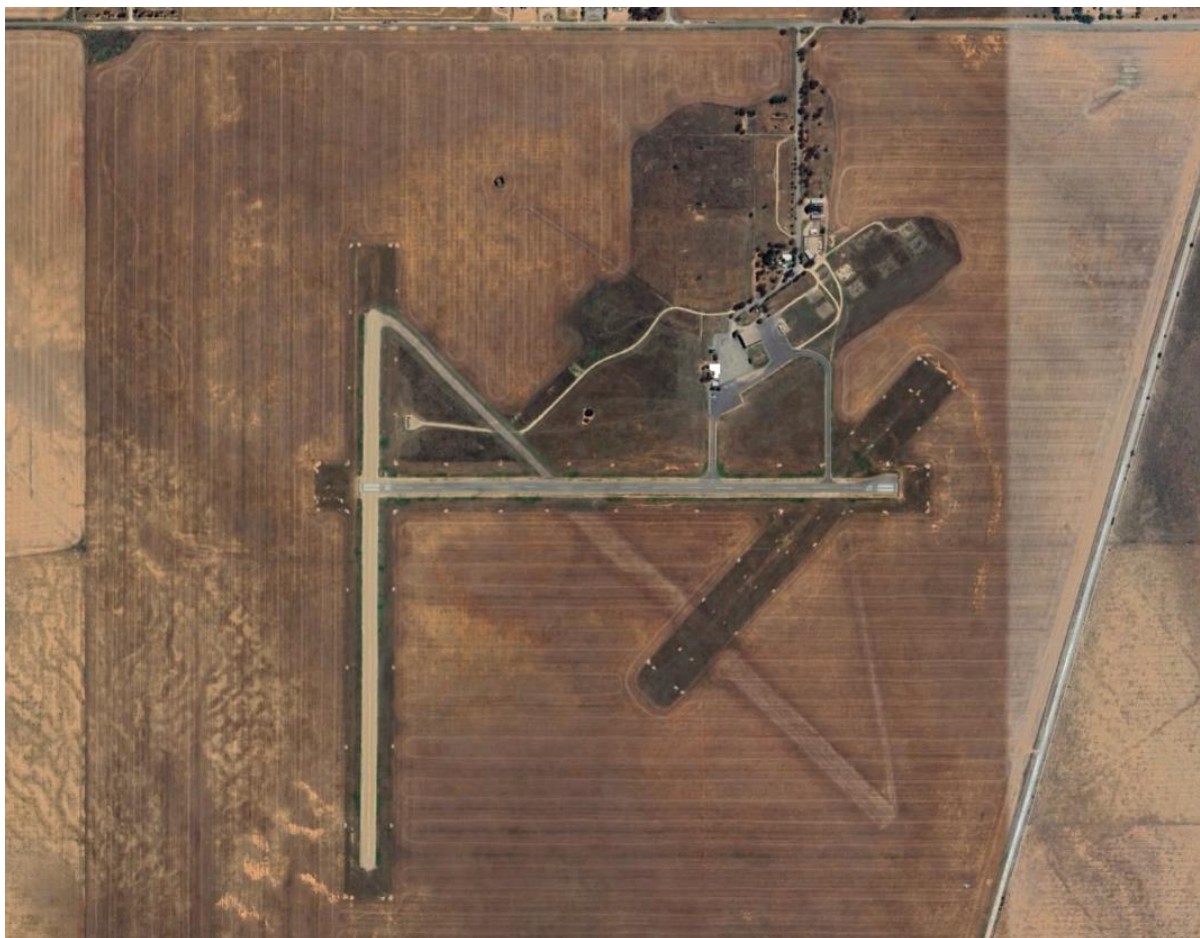
Engineering services are available including 3 phase power, telecommunications, water and sewer (septic).

3.8 Environmental Values

There are no areas of known environmental significance on Port Pirie Aerodrome.

3.9 Heritage Values

There are no areas of known heritage significance on Port Pirie Aerodrome.



Aerial Image – Port Pirie Aerodrome Facilities

4 STRATEGIC VISION AND OBJECTIVES

4.1 Strategic Vision

The strategic vision for Port Pirie Aerodrome is for an increasing role in servicing aircraft charters and flying training and while retaining significant support facilities for aerial fire fighting, aero-medical services and military training exercises.

4.2 Objectives

The three key objectives for the airport are:

1. Encourage on airport aviation business development particularly in regards to aircraft charters, flying training and aviation support including workshops etc.
2. Develop an efficient and safe airport that meets community and industry needs and expectations.
3. Develop the airport in a manner that has minimal adverse impacts on the environment and the surrounding community.
4. Provide efficient use of land for non-aviation activities without restricting future aviation development.



Mix of aircraft on the apron including light aircraft flight training, CFS air-wing and helicopter

5 CRITICAL AIRPORT PLANNING PARAMETERS

5.1 Forecast of Future Operations

Currently there are no Regular Public Transport services at Port Pirie. It is not anticipated RPT services will commence within the master plan time frame.

Estimates of current operations are approximately 30 movements per day by charter and private flying with an additional 80 touch and go movements involving training aircraft. A significant number of the training flights originate from Parafield in addition to those based locally.

A take-off (aircraft departure) or a landing (arrival) is recorded as one aircraft movement. A "touch and go" operation is counted as two movements.

Current charter services using twin-engined light aircraft for passengers and freight are expected to increase at an estimated rate of between 2 and 4 percent per annum.

Larger aircraft currently use the aerodrome on an infrequent basis. Examples include Cessna Citation jet and C130 Hercules military transport.

The predicted range of aircraft movements in the following categories:

- large aircraft - those above 5700kg typically commuter turbo prop with capacity above 10 passenger seats. Typical aircraft in this category are listed under section 5.3 of this Master Plan.
- aircraft below 5700kg this includes twin engined aircraft such as the Cessna Conquest, Aero Commander etc, Beechcraft Chieftain plus single engined aircraft including the RFDS PC 12 and training aircraft.

Largest potential growth areas

External drivers that may significantly increase the number of aircraft movements at Port Pirie Aerodrome include:

- Increase In Flight Training Operations

Training flights are expected to increase as Parafield airspace becomes more crowded and Port Pirie continues to attract aircraft on the basis wide open surrounding areas clear of high terrain, uninterrupted access from Parafield, the availability of 3 runways with a combination of asphalt gravel and grassed surfaces, and a non-precision approach to runway 08/26. A similar growth is suggested of between 2 and 4% per annum.

The flight training operator has a current requirement for 4 aircraft, 12 students and 3-4 instructors based out of Port Pirie. Whether these training aircraft are to be Pt Pirie based or daily commuter has the same requirements for aerodrome infrastructure in terms of aircraft pavements.

The masterplan allows for further increase in flight training movements with the protection of areas for a self-contained flight training facility.

- Introduction of Mining Charter Fly In / Fly Out Operations

Use of Port Pirie as a base for FIFO operations to mine sites in the states north has the potential to drastically increase aircraft and passenger movements. The masterplan allows for development of an air transport area comprising passenger terminal and apron along with expansion of Runway 08/26 to cater for the largest regional commuter aircraft likely to utilise the site. This includes up to 100 seat jet aircraft.

While there is no current demand for such services at Port Pirie, the masterplan can protect for such activities in the long term without detriment to other activities in the area.

A plot of the predicted aircraft movements is shown overleaf. The low forecasts assume an annual growth rate of 2%, the high rates are based on a 4% annual increase. The results are shown in the Table: **Long Term High And Low Forecast Aircraft Movements** overleaf.

Runway capacity

The US Federal Aviation Administration Advisory Circular AC 150/5060-5 provides broad estimates of airport capacity. For a single runway, the annual capacity is of the order of 200,000 aircraft movements.

Based on the 4% projections, this figure will not be reached within the time frame of the Master Plan.

Provision of a parallel taxiway

The ICAO Airport Planning Manual Part 1 Master Planning identifies that provision of a full-length parallel taxiway is needed when aircraft operations reach 30,000 - 60,000 movements per annum.

Long term planning as depicted on the drawings appended to this masterplan include a parallel taxiway serving the key areas of Runways 08/26 and 17/35. The provision of a parallel taxiway allows for potential increases in flight training movements and FIFO charter operations.

Table showing long term high and low forecast aircraft movements

		Low	Low	High	High	Low	High
Year	Large Aircraft	Aircraft below 5700	Touch and Go	Aircraft below 5700	Touch and Go	Total	Total
2023	0	5000	29200	5000	29200	34200	34200
2024	0	5100	29784	5200	30368	34884	35568
2025	0	5202	30380	5408	31583	35582	36991
2026	0	5306	30987	5624	32846	36293	38470
2027	0	5412	31607	5849	34160	37019	40009
2028	624	5520	32239	6083	35526	38384	42234
2029	624	5631	32884	6327	36947	39139	43898
2030	624	5743	33542	6580	38425	39909	45629
2031	624	5858	34212	6843	39962	40695	47429
2032	624	5975	34897	7117	41561	41496	49301
2033	1040	6095	35595	7401	43223	42730	51664
2034	1040	6217	36307	7697	44952	43563	53689
2035	1040	6341	37033	8005	46750	44414	55795
2036	1040	6468	37773	8325	48620	45281	57986
2037	1040	6597	38529	8658	50565	46166	60263
2038	1040	6729	39299	9005	52588	47069	62632
2039	1040	6864	40085	9365	54691	47989	65096
2040	1040	7001	40887	9740	56879	48928	67658
2041	1040	7141	41705	10129	59154	49886	70323
2042	1040	7284	42539	10534	61520	50863	73094
2043	1040	7430	43390	10956	63981	51859	75976

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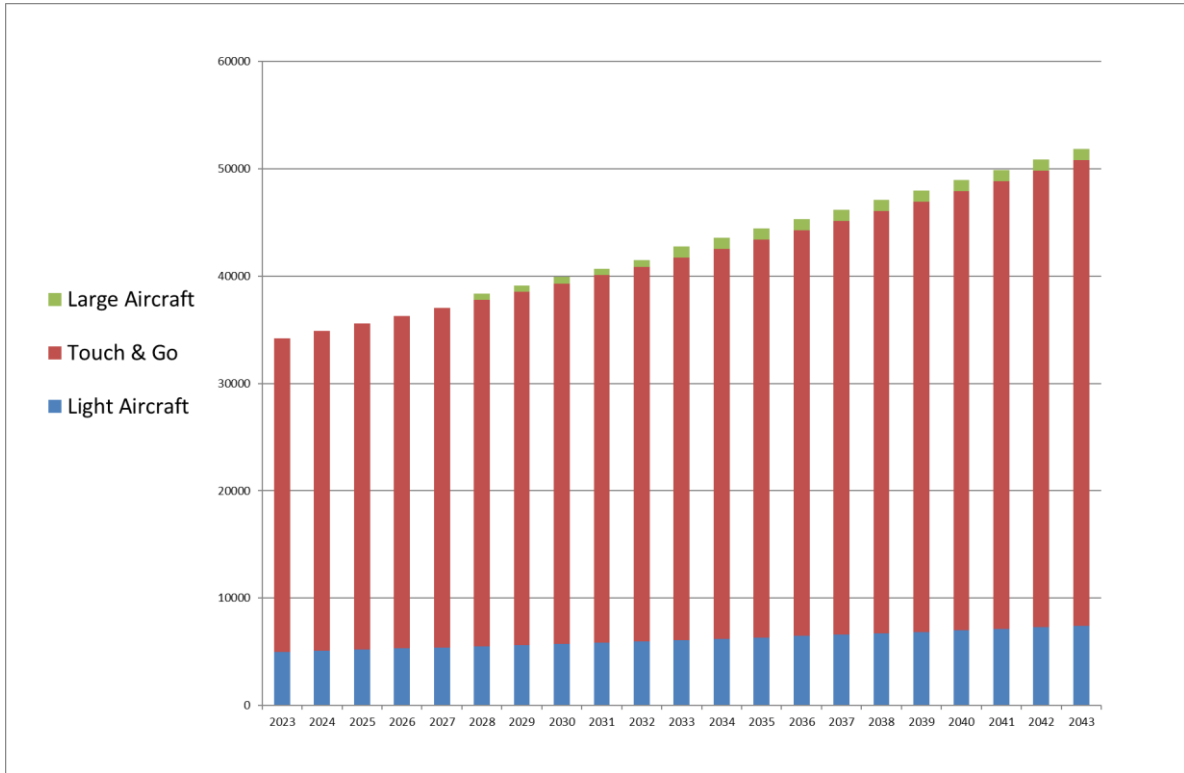


Image: Combined Operations Low Forecast

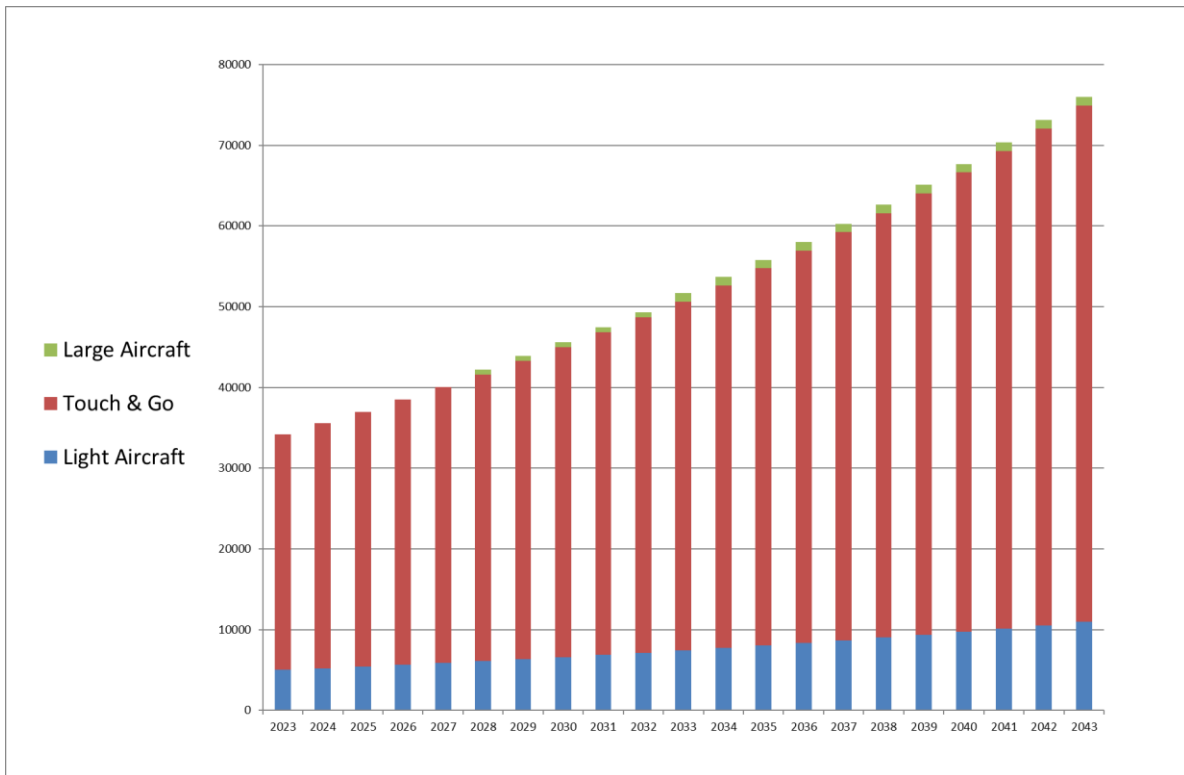


Image: Combined Operations High Forecast

5.2 Aerodrome Reference Code System

The Airport Reference Code is described by International Civil Aviation Organisation (ICAO) as a system that relates the characteristics of Airports to specifications that are suitable for the aeroplanes that are intended to operate from these Airports. The code number relates to the aeroplane reference field length, the code letter is based on the aeroplane wingspan and outer main gear wheel span. Note the aeroplane reference field length is used solely for the selection of the code number and is not intended to influence the actual runway length provided. The table below indicates the aircraft characteristics that determine the Aerodrome Reference Code. *MOS 139*

Aerodrome Reference Code				
Code Element 1		Code Element 2		Code Element 3
Code number	Aircraft reference field length (ARFL)	Code letter	Wing span	Outer main gear wheel span
1	Less than 800m	A	Up to but not including 15m	Up to but not including 4.5m
2	800m up to but not including 1200m	B	15m up to but not including 24m	4.5m up to but not including 6m
3	1200m up to but not including 1800m	C	24m up to but not including 36m	6m up to but not including 9m
4	1800m and over	D	36m up to but not including 52m	9m up to but not including 15m
		E	52m up to but not including 65m	

5.3 Selected Design Aircraft

Planning allowance has been made to accommodate aircraft size up to and including the regional jets including Embraer E190, Fokker F100 and turbo props ATR 42/72, Dash8 300/400 and the Saab 340. These aircraft meet ICAO Aerodrome Reference Code 3C which comprises aeroplanes with a reference field length up to 1800m and wingspans up to 36m.

Typical Aircraft Characteristics

Aircraft	Seats	ARFL (m) ²	MTOW (kg) ³	ACN ⁴	Ref code
EMB 190 ⁵	100	2100	51,800	27	3C
Fokker 100	100	1695	44,450	27	3C
ATR 42	50	1165	18560	10	3C
ATR 72-600	68	1165	21566	12	3C
Challenger 604	12	1780	21617	13	3B
Dash 8-300	50	1122	18642	10	2C
Dash 8 Q400	70	1354	29347	16.5	3C
EMB 120	30	1420	12134	6	3C
Hawker 900	8	1513	12700	7	3B
Jetstream 31	18	1440	6950	4.4	3C
Learjet 55	8	1292	9298	6	3A
Metro 23	19	1341	7484	4	3B
SAAB-340	35	1220	12371	5.7	3C

Note 1: For indicative purposes only. Specific values for particular aircraft should be obtained from the aircraft operator or the aircraft manufacturer.

Note 2: ARFL = Aircraft reference field length.

Note 3: MTOW = Maximum take-off weight.

Note 4: ACN = Aircraft Classification Number. The ACN is based on the aircraft's maximum take-off weight on a flexible pavement with a sub-grade rating of "B".

Note 5: EMB190 ARFL 2100 fits in Code 4 but is commonly operated into Code 3 runways throughout Australia.

5.4 Runway Layout and Orientation

a) Wind data readings

Recordings of wind data (windspeed and direction) have been obtained from the Bureau of Meteorology (BOM) for the purpose of wind analysis and runway useability.

Wind data covers from 2006 to 2023 taken at 9am and 3pm comprising over 12,000 individual records have been used in the wind analysis of this masterplan.

The wind analysis breaks down the readings between 16 cardinal points and 5 knot increments. The data shows that:

- The majority of overall winds (17%) are from the southwest.
- The most common windspeeds (45%) are between 5 and 10 knots.
- The amount of time calm conditions are present include 6.7% when no wind at all is recorded and a total of 62.7% when windspeed is less than 10 knots.
- The highest windspeed recorded of between 35 and 40 knots was only measured once and was from the NNW direction in November 2022.

b) Allowable cross-wind component

Wind analysis has been completed based on a nominated allowable cross-wind component.

An allowable cross wind component of 10 knots has been adopted which is suitable for light aircraft. This very restrictive value has been used based on the anticipated future flight training operations and to ensure the Aerodrome can cater for these operations by light aircraft with inexperienced training pilots.

The allowable cross wind component for the larger 50 seat turbo prop or jet aircraft is in the order of 30-35 knots (55-65 km/h). For these aircraft the runway orientation at Port Pirie is less critical to a point where development of either of the existing 17/35 or 08/26 runways would be a suitable long term option.

c) Runway Usability

Analysis of a percentage useability based on the 10 knot allowable cross-wind component has been completed for all runways.

The following results were derived:

- Runway 03/21 has a useability of 85.5%.
- Runway 08/26 has a useability of 74.8%.
- Runway 17/35 has a useability 86.1%.

When combining available runways the percentage useability increases:

- Runway 03/21 and Runway 08/26 have a combined useability of 90.6%.
- Runway 03/21, 08/26 and 17/35 have a combined useability of 97.7%.

The analysis reveals that for larger aircraft, Runway 08/26 has an acceptable useability percentage and is suitable for development with future demand from air transport aircraft.

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For light aircraft including flight training, the combination of all runways is required to achieve a useability percentage of greater than 95%. For that reason, Runway 03/21 should be retained in its present form without any strengthening or upgrading so that light aircraft can continue to land into winds from the northeast / southwest.

Time Period	Range of Wind speed in knots	Number of Observations																Row Totals
		(N)	(NNE)	(NE)	(ENE)	(E)	(ESE)	(SE)	(SSE)	(S)	(SSW)	(SW)	(WSW)	(W)	(WNW)	(NW)	(NNW)	
	Calm = 0	51	52	52	51	52	52	51	52	51	51	52	52	51	52	51	51	825
9:00 AM	>= 0 and < 5	152	73	71	49	66	59	102	67	86	55	104	58	72	64	118	111	1307
3:00 PM	>= 5 and < 10	964	138	118	41	140	146	487	343	539	225	819	229	290	177	494	386	5536
	>= 10 and < 15	395	66	27	18	17	71	247	188	232	193	552	130	90	61	153	238	2678
	>= 15 and < 20	139	16	4	9	6	20	43	36	64	117	247	62	30	24	33	122	972
	>= 20 and < 25	97	19	7	2	5	9	30	12	36	77	258	31	18	10	35	85	731
	>= 25 and < 30	49	5	0	1	0	0	4	3	9	11	43	6	11	6	11	23	182
	>= 30 and < 35	1	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	4
	>= 35 and < 40	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	Column Totals	1848	369	279	171	286	357	964	701	1017	729	2076	568	562	396	896	1017	12236
Time Period	Range of Wind speed in knots	Percentages																Row Totals
		(N)	(NNE)	(NE)	(ENE)	(E)	(ESE)	(SE)	(SSE)	(S)	(SSW)	(SW)	(WSW)	(W)	(WNW)	(NW)	(NNW)	
	Calm = 0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	6.7
9:00 AM	>= 0 and < 5	1.2	0.6	0.6	0.4	0.5	0.5	0.8	0.5	0.7	0.4	0.8	0.5	0.6	0.5	1.0	0.9	10.7
3:00 PM	>= 5 and < 10	7.9	1.1	1.0	0.3	1.1	1.2	4.0	2.8	4.4	1.8	6.7	1.9	2.4	1.4	4.0	3.2	45.2
	>= 10 and < 15	3.2	0.5	0.2	0.1	0.1	0.6	2.0	1.5	1.9	1.6	4.5	1.1	0.7	0.5	1.3	1.9	21.9
	>= 15 and < 20	1.1	0.1	0.0	0.1	0.0	0.2	0.4	0.3	0.5	1.0	2.0	0.5	0.2	0.2	0.3	1.0	7.9
	>= 20 and < 25	0.8	0.2	0.1	0.0	0.0	0.1	0.2	0.1	0.3	0.6	2.1	0.3	0.1	0.1	0.3	0.7	6.0
	>= 25 and < 30	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.4	0.0	0.1	0.0	0.1	0.2	1.5
	>= 30 and < 35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	>= 35 and < 40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Column Totals	15.1	3.0	2.3	1.4	2.3	2.9	7.9	5.7	8.3	6.0	17.0	4.6	4.6	3.2	7.3	8.3	100

Image: Wind data analysis over 16 cardinal points and 5kt spread

PORT PIRIE AERODROME MASTER PLAN

Wind Rose Diagrams

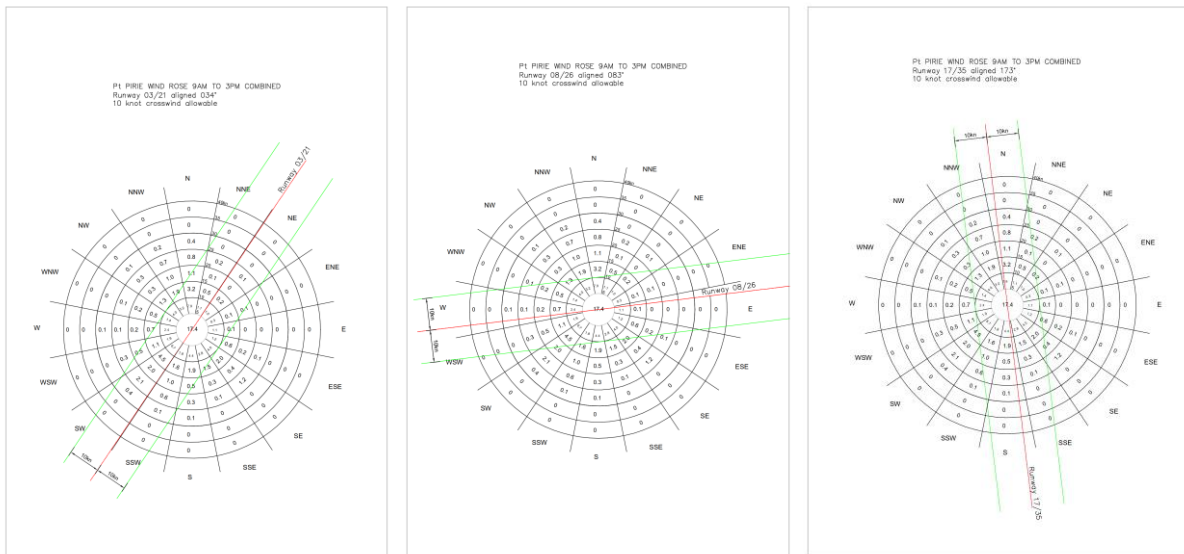


Image: Individual runway useability assessments based on 10knot crosswind component

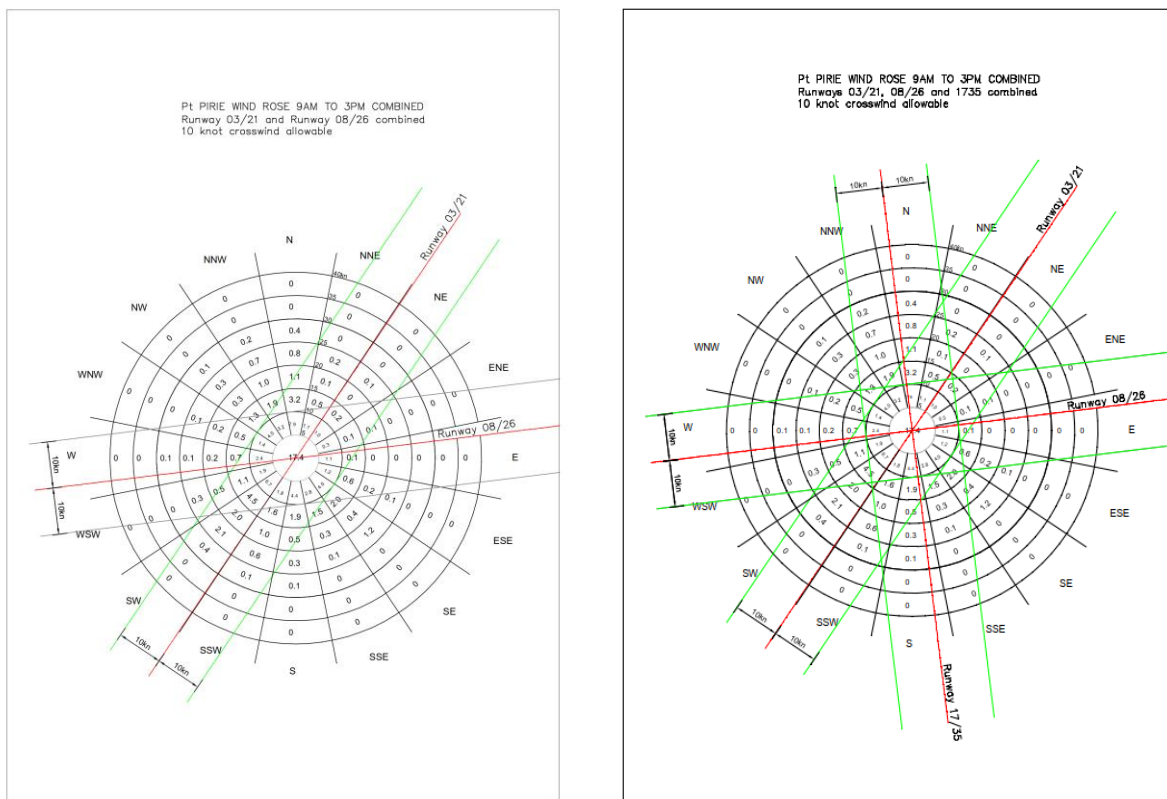


Image: Combined runway useability assessments based on 10knot crosswind component

b) Runway Length

The runway length required depends on aircraft type and model, flying stage route length and subsequent fuel load including holding requirement, passenger and freight payload, atmospheric temperature and pressure, wind speed and direction, and obstacle clearance¹.

¹*Regular Public Transport / air transport aircraft are required under Civil Aviation Order CAO 20.7.1.b to maintain 35ft terrain clearance throughout the various phases of climb with one engine inoperative;*

Without a critical or target destination from Port Pirie, it is not possible to fix a precise runway length requirement although from previous experience at Prominent Hill we know an 1800m runway can support direct flights to Adelaide over a distance of 1200km as the crow flies. With provision of additional clearway* it is likely a length of 1800m would reach most destinations within SA. Some payload limitation may occur on longer hauls once air temperatures rise above 34 degrees Celsius.

**Clearway - a defined area at the end of the take-off run available on the ground or water suitable area over which an aeroplane may make a portion of its initial climb to a specified height.*

b) Pavement Strength

The existing runway pavements at Port Pirie are unrated.

Runway 03/21 is grassed and with ongoing maintenance will remain suitable for use in dry conditions for aircraft below 5700kg. There are no plans to strengthen this runway.

Runway 08/26 has an asphalt surface. The strength of the facility is unknown. The runway, depending on geotechnical testing, may require strengthening and will need to be widened to 30m to accommodate larger aircraft.

For non-precision approaches by Code 3 aircraft the runway strip will need to be widened to a total width of 280m, comprising a 90m graded width and 30m wide flyover areas along each side. For night operations the take off surface will need to be widened to 180m.

Runway 17/35 is gravelled and constructed to an unknown strength although it has been used successfully by C130 aircraft at operating weights greater than those envisaged for the future 50 seat turbo prop aircraft.

The taxiway and aprons required for use by the design aircraft will also require strengthening and widening to meet aircraft load and MOS 139 geometric criteria.

5.5 Obstacle Limitation Surface

The following table details **current** Airport Obstacle Limitation Surface clearance criteria.

RUNWAY	03/21	RWYs 17/35 and 08/26 Existing	RWY 08/26 Planning
Classification	Code 1 Non-instrument approach	Code 2 Non-precision instrument approach	Code 3 Non-precision instrument approach
INNER HORIZONTAL			
Conical			
Slope %	5%	5%	5%
Height above inner horizontal	35	60	75
Inner Horizontal			
Height above ARP	45	45	45
Radius from RWS end	2000	3500	4000
APPROACH SURFACE			
Width of inner edge	60	90	280
Distance from threshold	30	60	60
Divergence %	10%	15%	15%
First Section Length	1600	2500	3000
Slope %	5%	3.3%	2%
2nd Section Length			3600
Slope %			2.5%
Horizontal Section			8400
Total Length	1600	2500	15000
Transitional			
Slope %	20%	20%	14.3%
TAKE OFF SURFACE			
Length of Inner Edge	60	80	180
Distance of Inner Edge from runway end	30	60	60
Rate of Divergence %	10%	10%	12.5%
Final Width	380	580	1800
Overall Length	1600	2500	15000
Slope %	5%	4%	2%

NOTE All dimensions in metres

5.6 Navigation Systems

Port Pirie currently has a GPS non-precision approach to the thresholds of runway 08 and 26. For the purpose of this master plan, allowance has been made for GPS approaches to both ends of the extended Runway 08/26. All future instrument approaches would be designed to accommodate the increased length and revised threshold location of each runway.

There are currently no indications from Air Services Australia for the likely future requirement for a ground-based navaid.

5.7 Aviation Support and Landside Facilities

d) Passenger Terminal

In accompaniment with potential larger aircraft operations and an air transport apron, the master plan provides an air transport terminal precinct which can accommodate passenger terminal facilities to cater for the largest planned aircraft operations.

Additional terminal facilities, or dedicated areas for such facilities, are provided for general aviation light aircraft operations, and flight training facilities.

The development of dedicated air transport terminal or flight training terminal facilities will be directly related to future demand.

e) Security Requirements

Port Pirie is not currently categorised as a ‘security controlled airport’.

The Department of Home Affairs, through the Aviation and Maritime Security Division (AMS), will use the following guidelines to determine the security categorisation of airports.

Tier	Definition
Designated	As determined by the Department and informed by Government intelligence and security agencies.
Tier 1	Annual departing passengers (PAX) greater than 500,000 and not a Designated airport.
Tier 2	Regular public transport (RPT) or open charter services with 40 or more seats and annual departing PAX greater than 30,000. OR Airports with international departures and not a Designated airport or Tier 1 airport.
Tier 3	Airports with annual departing PAX less than 30,000 and serviced by RPT or open charter aircraft with 40 seats or more OR Airports with annual departing PAX greater than 15,000 and serviced by RPT or open charter aircraft with less than 40 seats

Security screening requirements apply to all Designated, Tier 1 and Tier 2 airports.

Tier 3 airports remain security controlled but are not required to undertake screening. Airports that do not meet the criteria for the Tier Model are not subject to a Transport Security Program.

Current security regulations do not require specific passenger or baggage screening for closed charter operations irrespective of aircraft size. Under the current regulations, the masterplan assumes no requirement for security screening based on future implementation of larger aircraft use for FIFO charter operations. Port Pirie Aerodrome can transition to a Tier 3 security controlled airport with no requirement for installation of security screening infrastructure.

To safeguard against the possibility of security requirements becoming more demanding in the future, provision of additional areas for screening of passengers can be accommodated in the future terminal precinct included in this master plan.

Other future security changes may require for example provision of additional lighting, security cameras and CCTV monitoring, security fencing of airside, electronic detection and monitoring. While these components do not take up additional area, the layout of the building areas will need to be conscious of clearance requirements e.g. set back from fences to vehicle parking and storage of equipment etc, control of access through buildings, use of electronic gates etc.

c) Refuelling facilities

The location of the existing refuelling facilities off the eastern edge of the hangar apron is considered consistent with long term planning objectives. The site already provides both aviation gasoline and turbine fuel fed through bowsers linked to credit card facilities.

The existing fuel precinct is also in a suitable location to service the future air transport apron. Development of expanded fuelling facilities within the existing precinct is allowed for in the masterplan.

d) Aircraft hangars

The current hangar location is considered appropriate for aircraft use and fits within the logical long term development of the aerodrome. This master plan incorporates the existing facilities into a larger overall hangar development site. This can be in the form of additional facilities in the area adjacent to the existing hangar and also separate area for potentially a large number of hangars and associated support facilities including workshops for specialist repairs and servicing.

Current interest in a larger hangar / aircraft workshop site has been built into the masterplan layouts. This potential development can be used as the startup development of the future hangar site and associated GA apron.

Previous community consultation revealed interest for the provision of air-park facilities; aircraft hangars on sites that include provision of a residential dwelling. A possible site for such provision is included in the plans allowing landside connection off Aerodrome Road and the entrance road with an airside taxiway connection back to aircraft runways and aprons etc. Consideration to air-park facilities would likely involve separating a parcel of land for development away from the aerodrome site so that freehold properties would become available.

e) Meteorological facilities

A weather station has been used for recording weather observations at Pt Pirie since January 1943 with records continuing to August 2017.

The Bureau of Meteorology (BoM) then installed an Automated Weather Station (AWS) which has been recording weather observations since March 2000. The permanent AWS facility at Port Pirie includes rain gauge, anemometer, qnh and temperature readings.

Recordings of wind data (windspeed and direction) taken at 9am and 3pm comprising over 12,000 individual records have been used in the wind analysis of this masterplan.

Future Upgrades to AWS

Discussions with BOM as part of this masterplan were held to gauge any planned upgrades of their facilities at Port Pirie Aerodrome. Such upgrades may include additional weather monitoring equipment of forecasting services. Other additions such as an audio Aerodrome Weather Information Service AWIS are also possible.

The response from BOM was that Port Pirie does not qualify for their current planned upgrades to C-AWIS which they are currently doing for some aviation and defence sites.

They also advised that the current weather station at Port Pirie is not funded by aviation industry and there is no plan to have an AWIS capability at this site.

Masterplan Impacts on the AWS

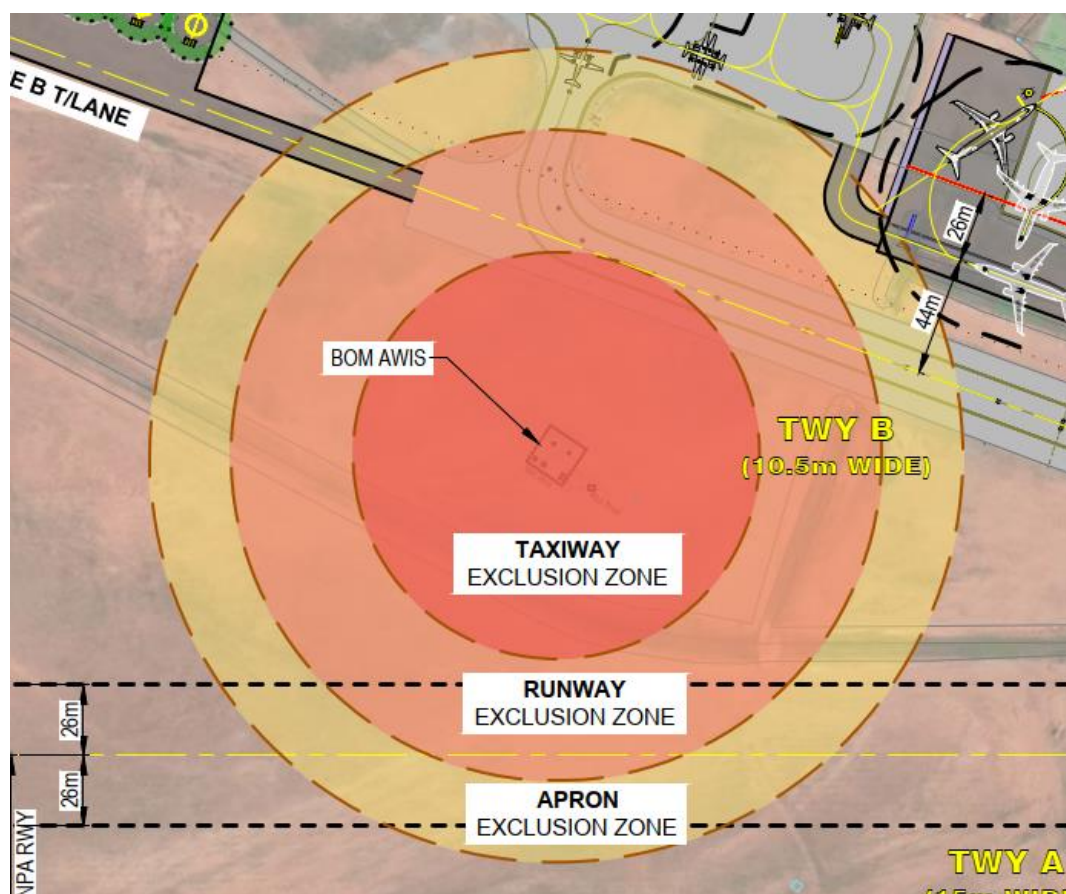
Future development of a parallel taxiway to Runway 08/26 will necessitate relocation of the AWS. A nominal location in open land on the northern side for the aerodrome has been shown on the masterplan future layout drawing. Relocation of the AWS includes allowance for required exclusion areas from taxiways, runways and aprons.

For meteorological Instrument Enclosures at Aerodromes, the minimum distance between turning areas and aprons, runways and taxiways, used by aircraft and the edge of the Instrument Enclosure are as follows:

- Turning areas and aprons = 80 m
- Runways = 60 m
- Taxiways = 30 m

(BOM MA8a Instrument Siting Requirements v5.0 April 2020)

Graphical representation of the required clearances are shown on the following image:



Additional clearances are stated for anemometers
 To minimise the effects of jet blast, prop wash, or other turbulence from aircraft, including helicopters during taxiing and take-off or landing the following clearances apply.

- Turning areas and aprons = 150 m
- Runways = 120 m
- Taxiways = 75 m

BOM MA8a 6.18 Table 2: Anemometer clearances on airports

The nominated location in the masterplan layouts ensures all required clearances are met.

5.8 Airspace Protection Surfaces

Protection of airspace involves the provision of an obstacle limitation surface (OLS) plan (see section 5.5) and protections of Procedures of Air Navigation Operations PANS-OPS surfaces.

OLS plans have been developed as part of this masterplan based on the ultimate masterplan layout.

PANS OPS protection plans have been developed by AirServices Australia (IFP October 2020). The PANS OPS covers non-precision approach to Runway 08 and 26 including Visual Segment Surface (VSS) parameters and obstacle assessment controlling all segments up to 25NM and CAT C circling. Amendments to the instrument approach procedures and therefore the protection surfaces will likely be required following development of future runway extensions and increase in increase in obstacle control parameters.

PANS OPS plans and lists of critical obstacles is contained in drawings listed at the end of the document.

5.9 Aircraft Noise

a) Australian Noise Exposure Forecasts

At capital city and major centres, information on aircraft noise airports has been provided using Australian Noise Exposure Forecasts (ANEF). Modelling of aircraft activity is used to produce ANEF noise contours which identify restriction of land uses in certain ANEF zones, according to the sensitivity of the nominated land use.

The Australian Standard AS 2021 *Acoustics-Aircraft Noise Intrusion-Building Siting and Construction* lists various land uses (e.g. houses through to heavy industrial areas) considered acceptable/unacceptable within the various ANEF contours. The recommended ANEF zones for residential development are shown in the following table extracted from AS 2021.

Building Site Acceptability Based On ANEF Zones

	ANEF zone of site		
Building type	Acceptable	Conditionally acceptable	Unacceptable
House, home unit, flat, caravan park	Less than 20 ANEF (Note 1)	20 to 25 ANEF (Note 2)	Greater than 25 ANEF

NOTES:

1. The actual location of the 20 ANEF contour is difficult to define accurately, mainly because of variation in aircraft flight paths.
2. Within the 20 ANEF to 25 ANEF, some people may find that the land is not compatible with residential or educational uses. Land use authorities may consider that the incorporation of noise control features in the construction of residences or schools is appropriate.
Ref AS 2021-2015

b) Single Event Contours

Because the ANEF is a summation of the total noise over an average day, when applied at aerodromes with small numbers of aircraft movements the results are less than satisfactory, in that the ANEF contours barely go beyond the extent of the airport, whereas it is known aircraft noise will be heard over a far greater area and will, in some situations, be considered intrusive.

Even with higher rates than expected, it is unlikely Port Pirie would receive more than 4 flights per day by larger aircraft. This low level of activity would be insufficient to push the area covered by the ANEF contours to effectively describe the areas subject to potential noise intrusion. This would still be the case even if the number of predicted movements were increased well above the likely growth rate.

An alternative is to plot the aircraft noise as a single noise level event contour, superimposed on the aircraft flight paths. Typically the 70 dB(A) contour is the benchmark used in studies undertaken by Commonwealth Department of Transport and Infrastructure, as it is equivalent to a single event level of 60dB(A) specified in the Australian Standard 2021, as the accepted indoor design sound level for normal domestic dwellings. (An external single noise event will be attenuated by approximately 10 dB(A) by the fabric of a house with open windows) An internal noise level above 60 dB(A) is likely to interfere with conversation or listening to the television.

The following data obtained from AS 2021 provides noise levels appropriate for a particular building site and number of aircraft operations.

BUILDING SITE ACCEPTABILITY BASED ON AIRCRAFT NOISE LEVELS*

Number of flights per day	Aircraft noise level expected at building site dB(A)		
	Acceptable	Conditionally acceptable	Unacceptable
House, home, caravan park, school, university, hospital, nursing home			
>30	<70	70-75	>75
15-30	<80	80-85	>85
<15	<90	90-95	>95
Hotel, motel, hostel, public building			
>30	<75	75-80	>80
15-30	<85	85-90	>90
<15	<95	95-100	>100
Commercial Building			
>30	<80	80-85	>85
15-30	<90	90-95	>95
<15	<100	100-105	>105

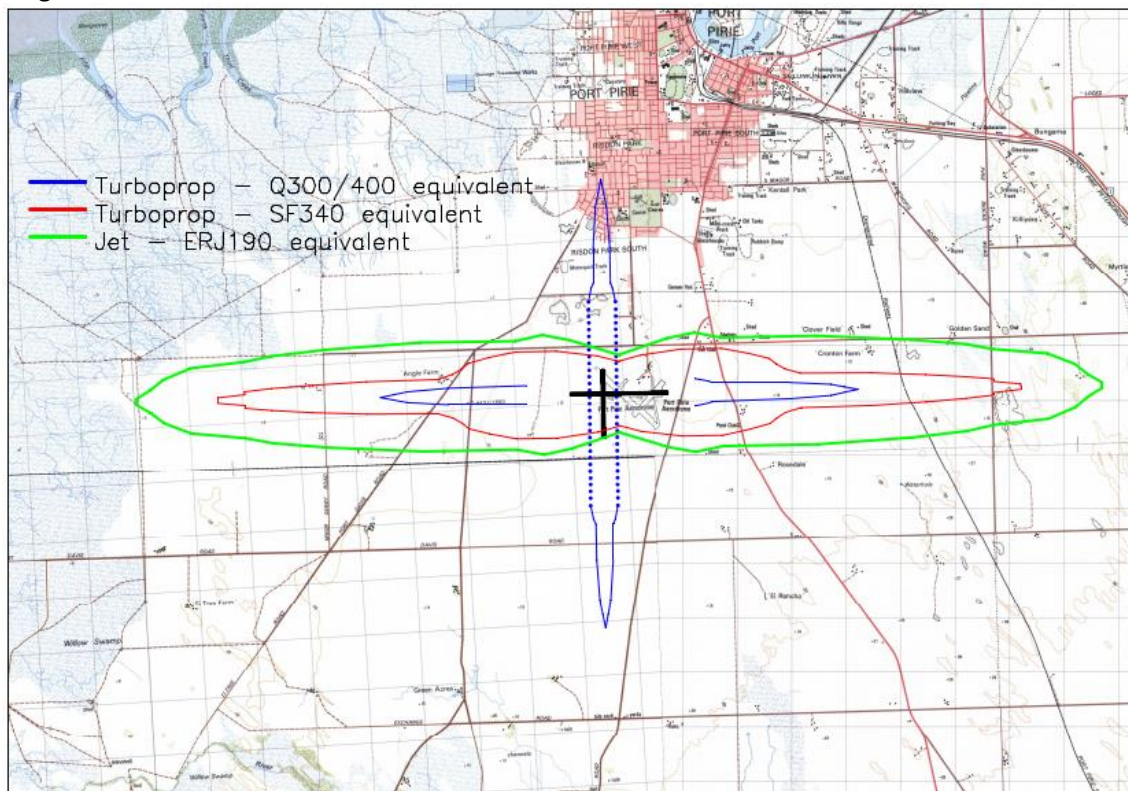
The values in the above table are based on a small aerodrome with a small number of civil, non-jet aircraft movements. They should not be used in any other circumstances.

NOTE: The forecast daily average number of aircraft flights affecting the site should be obtained from the aerodrome owner. However, each night-time flight between 1900 hours and 0700 hours is to count as four operations.

The following assumptions have been made in selection of aircraft for the noise study:

- Regular operations will continue with general aviation single engined and twin engined aircraft.
- Use of the aerodrome by large aircraft such as C130 will remain a one of event. Where operations are to take place during the day, it is unlikely they will create a significant noise effect due to infrequency of the operation.
- The Bombardier Q400 aircraft has been selected as the largest civilian turbo prop aircraft likely to visit the airport within the time frame of this master plan. The single event noise contours represents the worst case noise level event predicted for the next 20 years. The noise footprint is actually less than that currently produced by the RFDS PC12 and the Aero Commander bank plane aircraft
- Land off either end of runway 08/26 is farmland. Aircraft noise over these areas is not considered to be critical due to the absence of noise sensitive development

Single Event Noise Contour



Plot showing extent of 70dB(A) single event noise contour for the largest aircraft likely to be used in on a regular air transport basis into Port Pirie. AS 2021 shows that up to 30 flights per day would be acceptable for houses etc. The optimistic forecast is for an average less than four flights per day for these larger aircraft.

c) Noise Mitigation Strategies:

The location of the Pt Pirie Aerodrome remote from residential areas makes it ideal for aviation activities without imposing undue noise interference to residences. The following noise mitigation strategies are planned to be implemented along with increased aircraft movements to reduce the impact of noise on the wider community:

- Movements on Runway 08/26

Runway 08/26 is aligned away from residential areas and therefore the impact of noise from departing and approaching aircraft on this runway is minimal.

The focus of development and future accommodation of larger aircraft is all based on Runway 08/26.

Runway 08/26 is the only lit runway lighting so all night time operations are restricted to this runway. The situation for night time operations limited to runway 08/26 is planned to continue.

Future Implementation of right-hand circuits for aircraft operating Runway 08 will contain all aircraft circling and noise to south of aerodrome and not over the residential area of Port Pirie.

5.10 Environmental and Heritage Sites

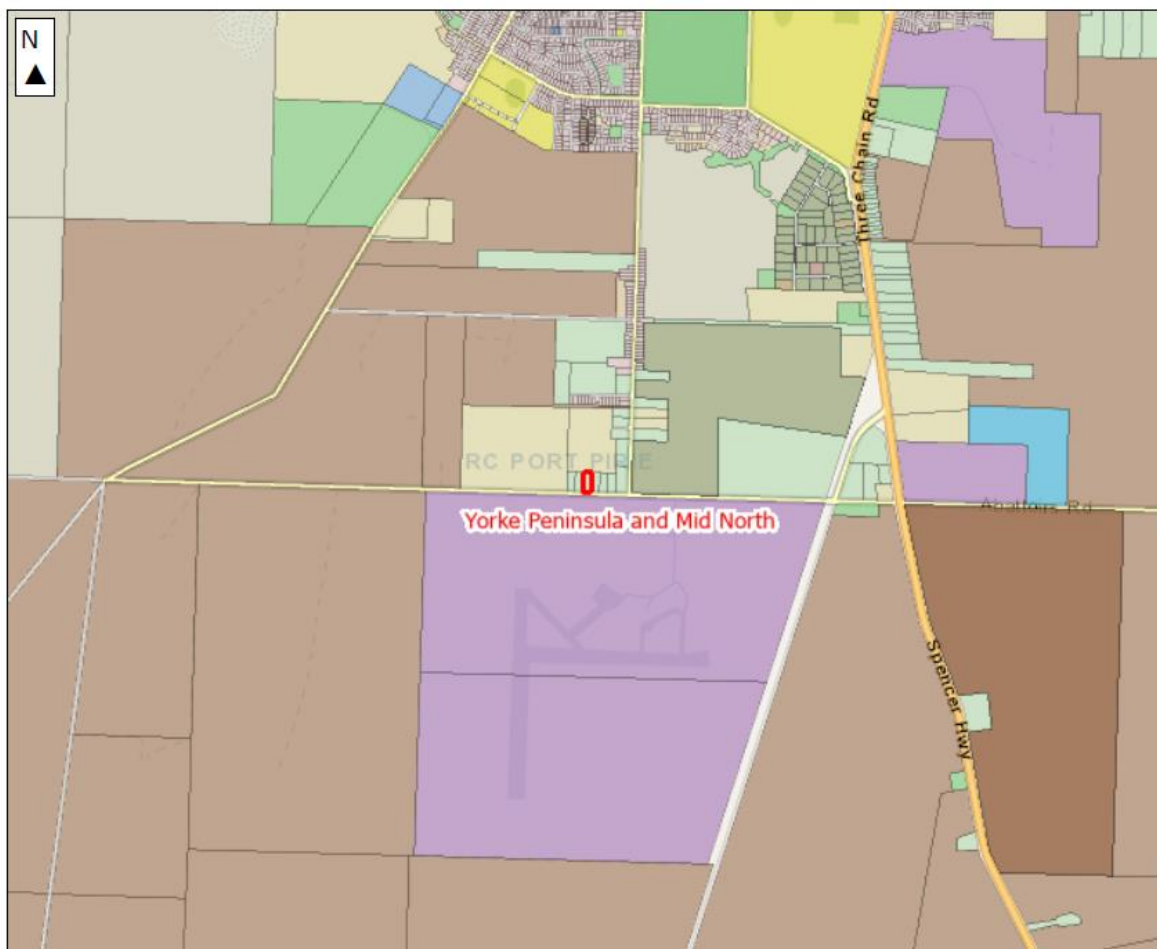
There are no known sites of environmental or heritage significance on the aerodrome.

6 LAND USE PLAN

6.1 Land Use Precincts

The following land use precincts surround the aerodrome:

- North: General Farming (predominant), Rural Living (small) and Residential (small)
 - o Rural
 - o Rural Living
 - o suburban neighbourhood
 - o strategic employment
- East: General Farming
 - o rural
- West: General Farming
 - o rural
- South: shown in Barunga West DC Development Plan as primary production; currently open farm land.
 - o rural



<https://sappa.plan.sa.gov.au/>

6.2 Land Use Precinct Guidelines

a) Principles Of Development Control - Airport Zone

1. Development, including commercial and light industrial development, should be primarily associated with or ancillary to the operations of the Port Pirie Aerodrome.
2. Development within the Airport Zone should:
 - i. facilitate the more efficient operation of the airport and its primary service users;
 - ii. be located in close proximity to the airport terminal but with regard to the safe operations of the airport.
3. Development within the zone should not impede the future or current expansion of the area for aviation use.
4. Buildings and structures should be designed and sited so that the scale and appearance does not detract from the character of the Airport or adjacent zones.
5. Industrial development should be of a scale appropriate to the general use of the area for aviation purposes, and should incorporate suitable set-backs, screen planting and landscaping to avoid incompatibility with surrounding land uses. Noise levels generated by an industrial activity should not exceed the level of noise already present in the locality.
6. Land should not be divided unless it is required to facilitate the more efficient operation of the Port Pirie Aerodrome.

b) Principles Of Development Control Surrounding The Airport

1. The height and location of buildings and structures should not adversely affect the long-term operational, safety and commercial aviation requirements of the airfields.
2. Development in the vicinity of airfields should not create a risk to public safety, in particular through any of the following:
 - lighting glare;
 - smoke;
 - air turbulence;
 - storage of flammable liquids;
 - attraction of birds; and,
 - materials that affect aircraft navigational aids.
3. Lighting within 6 kilometres of an airport should be designed so that it does not pose a hazard to aircraft operations.
4. Development that is likely to increase the attraction of birds should not be located within three kilometres of an airport used by commercial aircraft. If located closer than three kilometres the facility should incorporate bird control measures to minimise the risk of bird strikes to aircraft.
5. Development within areas affected by aircraft noise should be consistent with Australian Standard AS2021-Acoustics-Aircraft Noise Intrusion-Building Siting and Construction.
6. The Port Pirie Development Plan November 2019 identified future planning of areas under the flight paths of the exiting runways. Land beyond the east, west of 08/26 and south of the 17/35 runway are made up of general farming (primary Production) and should remain clear of any developments likely to be affected by aircraft operations.
7. Housing has been developed 1000m north of the 17/35 runway approximately 130m east of the extended runway centreline. Port Pirie Zone MAP PtPi/12 shows Rural Living 2595m from the runway end 190m east of the extended runway centreline.
8. The plan also shows RuDu (Rural Deferred Urban) 31540m north of the runway and extends either side of the extended runway centreline.

7 FACILITY DEVELOPMENT PLAN

7.1 Movement Area Facilities

a) Runways

The existing east-west 08/26 sealed runway is 1043m long. Additional land is available within the aerodrome boundary for extending the runway in both directions. Allowing for 60m of clearway and an additional 90m for runway end safety area plus clearance over perimeter fencing, the runway can be extended approximately 326m to the west and 161m to the east, giving a total length of around 1530m.

There are no terrain issues off either end of the 08/26 runway. Hills to the east are beyond the extent of the approach and take off clearance surfaces as prescribed for Code 3C aircraft. Instrument approach procedures published by Airservices Australia for landing to the west commence 15 nautical miles (27.8km) east of the runway and provide terrain clearance over the ranges for a standard 3 degree approach slope. Shifting the runway 161m to the east will require adjustment to the published procedure but will not adversely affect the ability of aircraft to land or take off from the runway. Take off to the west is clear.

Further extension of the runway is available to the west subject to land acquisition to achieve a total length of 1800m.

The existing north south 17/35 gravel runway is 1069m long. There is 540m of land available to the perimeter fence at the northern end and 390m to the south. Extensions to the north are complicated by the presence of houses approximately 1000m from the runway end on the eastern side of the approach take off area. In addition there is potential for deferred development of housing some 1500m north of the present runway end as shown in the Port Pirie Development Plan.

For planning purposes, it is possible that 17/35 runway could be extended 266m to north for take-off in that direction and 192m to the south giving a potential length for takeoff of 1527m in either direction. Note the extension off both ends allows for 60m of clearway and an additional 90m of runway end safety area.

For this master plan, provision has been included to extend Runway 08/26 only. Development of the runway to Code 3 standard would include widening to 30m along with widening the runway strip to 280m (graded 90m). The pavements would require strengthening to accommodate the design aircraft by either reconstruction and resurfacing, or a possible combination of reconstruction and asphalt overlay.

For night operations, lighting is planned to be retained on Runway 08/26 only. Use of portable lights is available for Runway 17/35 in the case of emergency requirements.

b) Taxiways, taxilanes

The current taxiway layout is a remnant of a more complex wartime pavement network. Some improvement in the efficiency of access to the runways can be achieved by use of additional taxiways designed to match to any future apron expansion.

Development of existing taxiways with new high strength pavement to service a future air transport apron, as well as additional and parallel taxiways have been included in the master plan to cater for possible future high aircraft numbers.

c) Aprons, aircraft parking areas Pavement strength

The existing apron areas provide for the current aircraft demands and can be expanded to meet future light aircraft parking requirement, for example an increased parking demand for flight training aircraft which are to operate regularly out of Port Pirie.

Introduction of larger air transport aircraft operations will involve development of a new aircraft parking area of suitable high strength to cater for the design aircraft.

d) Lighting

The ground lighting on Runway 08/26 has recently been upgraded to LED technology and to the current standard for non-precision approach runways (i.e. 60m runway edge light spacing). There is no requirement for further runway lighting upgrade until such time as the runway is lengthened.

Where there is an appropriate demand such as regular air-transport by Code 3C aircraft, visual approach slope indicator lighting may be installed on Runway 08/26. This is expected to form part of a future runway extension and additional runway lighting project. Such operations would also include lighting on new taxiway and apron facilities.

7.2 Aviation Support Facilities

This Master Plan has included provision for the following aviation related facilities:

1. Passenger terminal
2. Fuel facilities
3. Aircraft hangars
4. Aircraft maintenance support facilities
5. Meteorological facilities
6. Flying training facilities

7.3 Other Facilities

This Master Plan has included provision for the following aviation related facilities:

1. Access roads
2. Car parking short and long term (secured)
3. Aviation and Non-aviation business / commercial development large scale

8 GROUND TRANSPORT PLAN

There is no anticipated change to the current road network. Internal roads will eventually require resealing, widening and geometric upgrades

9 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

At this stage an EMP has not been prepared on the basis that there are no known sites of environmental significance within the aerodrome boundary

10 HERITAGE MANAGEMENT PLAN

At this stage a Heritage Management Plan has not been prepared on the basis that there are no known sites of archaeological or heritage significance within the aerodrome boundary.

11 AIRPORT SAFEGUARDING PLAN

11.1 National Airports Safeguarding Framework (NASF)

The National Airports Safeguarding Framework provides guidance on planning requirements for development that affects aviation operations. This includes building activity around airports that might penetrate operational airspace and/or affect navigational procedures for aircraft.

The National Airports Safeguarding Framework is a national land use planning framework that aims to:

- improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning decisions;
- improve community amenity by minimising noise sensitive developments near airports, including through the use of additional noise metrics; and
- improve aircraft noise-disclosure mechanisms.

The National Airports Safeguarding Advisory Group (NASAG), comprising of Commonwealth, State and Territory Government planning and transport officials, the Australian Government Department of Defence, the Civil Aviation Safety Authority (CASA), Airservices Australia and the Australian Local Government Association (ALGA), has developed the National Airports Safeguarding Framework (the Framework).

The National Airports Safeguarding Framework was developed to provide guidance for Planners to consider potential impact of developments outside the airport on airport operations. Principles of the guideline will be considered in local planning processes when assessing a development application in the vicinity of Port Pirie Aerodrome. The purpose of the framework is to enhance the current and future safety, viability and growth of aviation operations at Australian airports, by supporting and enabling:

- the implementation of best practice in relation to land use assessment and decision making in the vicinity of airports;
- assurance of community safety and amenity near airports;
- better understanding and recognition of aviation safety requirements and aircraft noise impacts in land use and related planning decisions;
- the provision of greater certainty and clarity for developers and land owners;
- improvements to regulatory certainty and efficiency; and
- the publication and dissemination of information on best practice in land use and related planning that supports the safe and efficient operation of airports.

NASF PRINCIPLES

Principle 1. The safety, efficiency and operational integrity of airports should be protected by all governments, recognising their economic, defence and social significance.

Principle 2. Airports, governments and local communities should share responsibility to ensure that airport planning is integrated with local and regional planning.

Principle 3. Governments at all levels should align land use planning and building requirements in the vicinity of airports.

Principle 4. Land use planning processes should balance and protect both airport/aviation operations and community safety and amenity expectations.

Principle 5. Governments will protect operational airspace around airports in the interests of both aviation and community safety.

Principle 6. Strategic and statutory planning frameworks should address aircraft noise by applying a comprehensive suite of noise measures.

Principle 7. Airports should work with governments to provide comprehensive and understandable information to local communities on their operations concerning noise impacts and airspace requirements.

NASF GUIDELINES – Over the long term, inappropriate development around airports can result in unnecessary constraints on airport operations and negative impacts on community amenity due to the effects of aircraft noise. These impacts need to be managed in a balanced and transparent way.

Guideline A provides advice on the use of a supplementary suite of noise metrics, including the Australian Noise Exposure Forecast system and frequency-based noise metrics, to inform strategic planning and provide communities with comprehensive and understandable information about aircraft noise.

Guideline B presents a layered risk approach to the siting and design of buildings near airport runways to assist land use planners and airport operators to reduce the risk of building - generated windshear and turbulence. It also provides options to modify existing buildings.

Guideline C provides advice to help protect against wildlife hazards originating off-airport through appropriate land use planning decisions and the way in which existing land use is managed in the vicinity of airports.

Guideline D provides advice on the location and safety management of wind turbines and other similar structures which can constitute a risk to low-flying aviation operations and can also affect the performance of Communications, Navigation equipment operated by Airservices Australia.

Guideline E provides advice on ensuring lighting in the vicinity of airports is not configured so as to cause distraction or confusion to pilots.

Guideline F provides advice for planners and decision makers about working within and around protected airspace, including obstacle limitation surface (OLS) and Procedures for Air Navigation Services (PANS-OPS) intrusions, and how these can be better integrated into local planning processes.

Guideline G assists land-use planners in their consideration of Communications, Navigation and Surveillance (CNS) facilities when assessing development proposals and rezoning requests and when developing strategic land use plans.

Guideline H provides advice for land use planning in consideration of protecting strategically important Helicopter Landing Sites

Guideline I provides advice on managing the risk in Public Safety Areas (PSAs) at the Ends of Runways. PSAs are designated areas of land at the end of airport runways within which certain planning restrictions may apply. The new PSA Guideline was developed to mitigate the risk of on-ground fatalities from an aircraft incident, by informing a consistent approach to land use at the end of Australian airport runways.

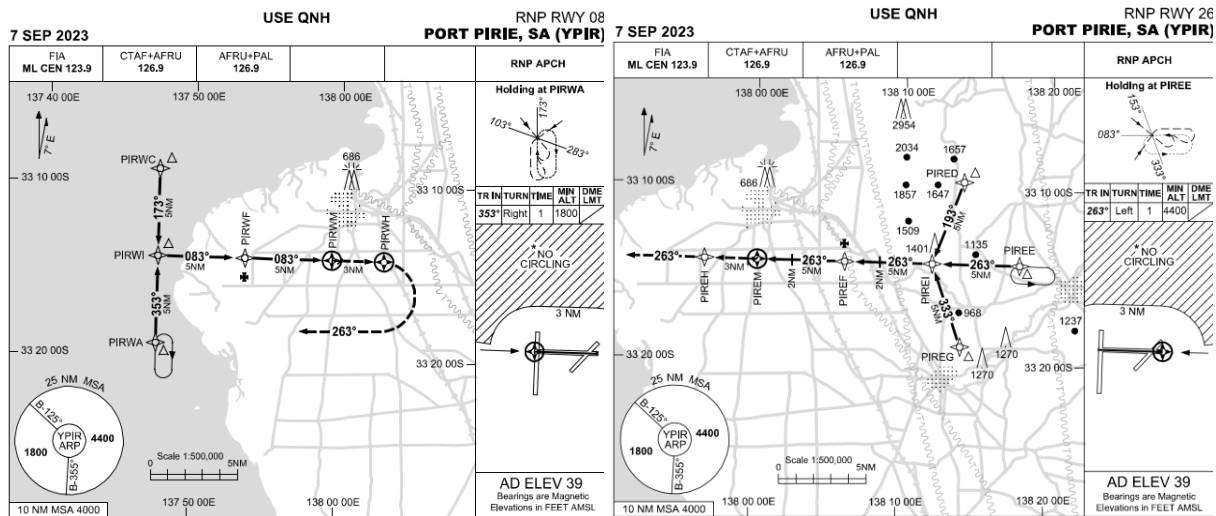
11.2 Airspace Protection Surfaces

– **Obstacle Limitation Surface Plan.**

An airport OLS has been developed for Port Pirie for the protection of the 3 runways. The OLS plans are in 2 forms – Exiting and Future – to cover both the current facilities and protection of future runway expansions as shown in this Masterplan.

– **PANS OPS**

Port Pirie has Required Navigation Performance (RNP) enabled by global navigation satellite system (GNSS) instrument approach procedures for Runways 08 and 26. The clearance surfaces associated with these procedures are covered by the PANS OPS charts.



For the purpose of this Master Plan, allowance has been included for RNP approaches to both ends of the extended Runway 08/26. This will require amendment to the current published procedures and PANS OPS charts.

11.3 Aircraft Noise Contours

Australian Noise Exposure Forecasts have not been prepared for Port Pirie on the basis that the frequency of aircraft movements and the type of aircraft flying are not sufficient to generate a meaningful ANEF even using the most optimistic forecasts. Instead, single event noise contours have been generated using modelling data for aircraft types typically using Port Pirie.

11.4 Planning Policies and Controls

Planning policies and controls relating to safeguarding of the airport are contained within the Plan SA Planning and Design Code. It is anticipated that controls around land use planning in the vicinity of the Port Pirie Aerodrome be developed in line with this Masterplan.

12 STAGING OF AIRSIDE DEVELOPMENTS

The following airside developments are included in the Masterplan layouts. Developments are numbered in order of their expected staging. The order of development is to be driven by demand.

12.1 New Waiting Room / Terminal Building

A new multi facilities building is planned for construction just north of the existing terminal building. The new building can be used as a waiting room for passengers and flyers with planned washroom facilities. An additional kitchen area and large open space makes the building suitable for holding meetings and class training sessions. Multiple rooms are also provided which may serve as offices.

The shared use facility provides an engine bay for CFS vehicle parking. The engine bay is aligned for direct entry from the access road to the north.

The planned building location also provides for a new carpark directly from the airport access road.

Images below show the location of the proposed waiting room / terminal building as an extract from the Masterplan layout as well as a concept floorplan of the building layout:

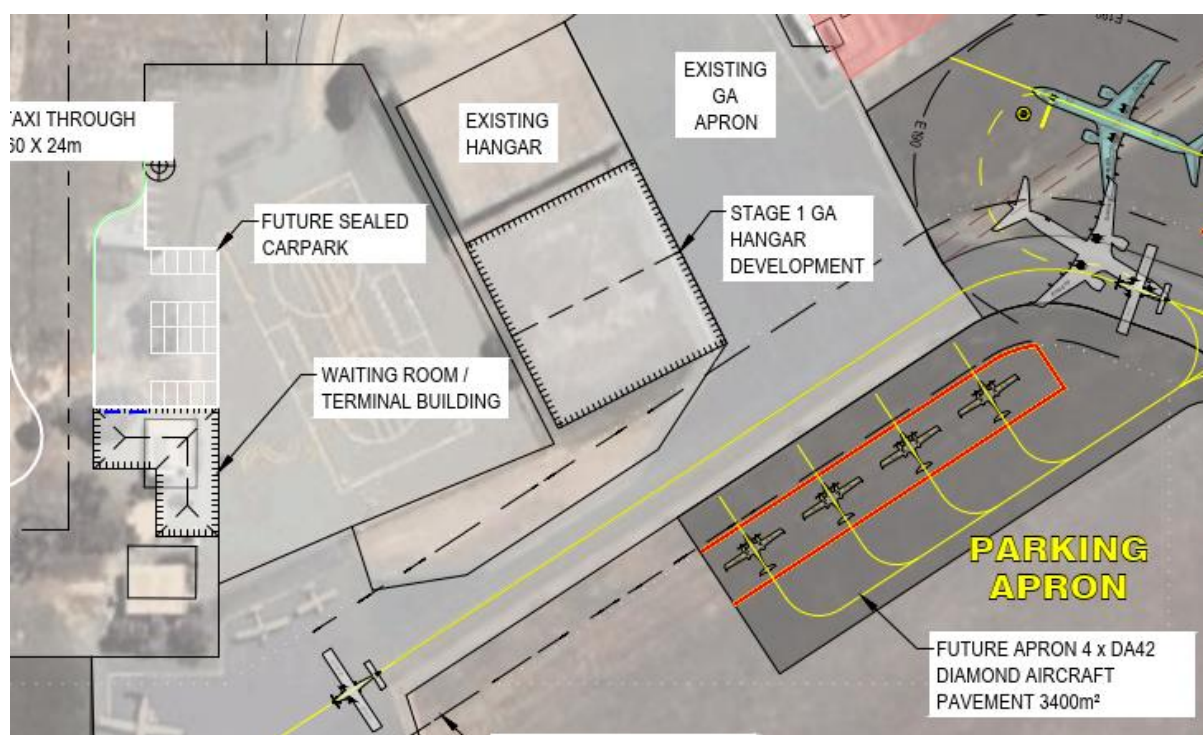


12.2 Extension To General Aviation Parking for Training Aircraft

Expansion of the existing apron area on the south side of the link taxiway between the 2 current aprons. The layout caters for four (4) x DA42 Diamond aircraft which are currently used for training flights operating at Port Pirie Aerodrome.

The parking area allows for daytime use or overnight parking ensuring all adequate clearances from other aircraft operations to ensure that training flight operations have no restriction to other aircraft using the aerodrome.

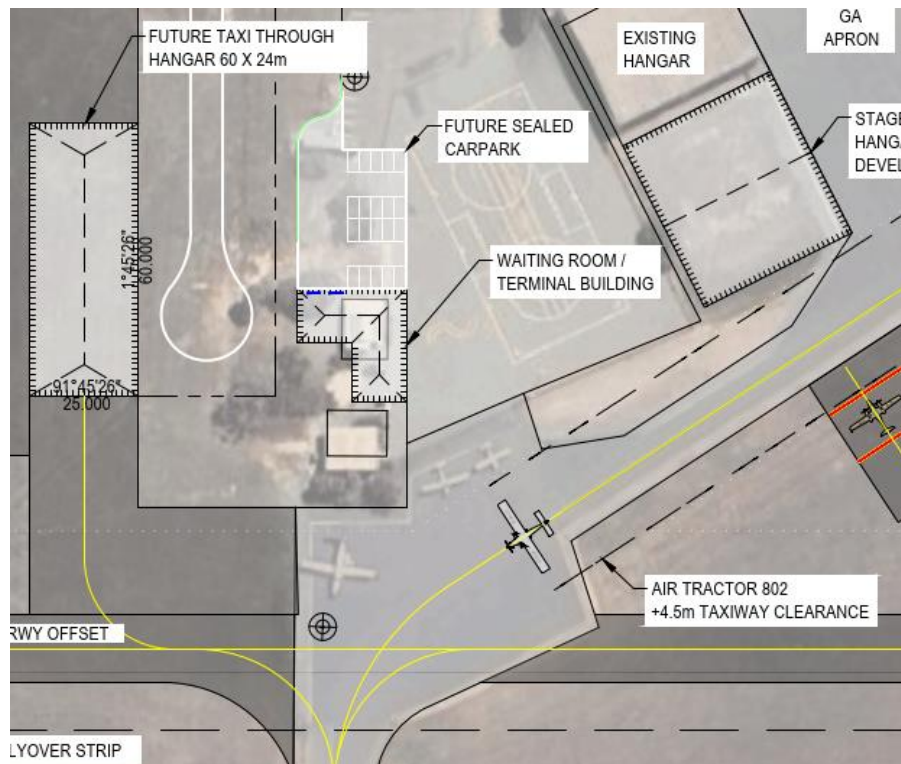
Land is available alongside the GA apron and next to the existing hangar for additional hangar development.



12.3 Large Commercial Hangar and Access

A commercial operator has expressed interest in constructing a large hangar at Port Pirie Airport for the purpose of aircraft manufacturing. The proposed hangar dimensions of 60m x 24m is too large to fit alongside the existing Bellman Hangar in the eastern GA apron area. Construction of the hangar would commence Stage 1 of the western GA hangar development.

With construction of the single large hangar, access shall be provided direct from the existing main apron and Taxiway A. This will require construction of taxiway pavement suitable for light aircraft.



12.4 Western General Aviation Apron / Hangar Site Development Including Area for Future Training Facility.

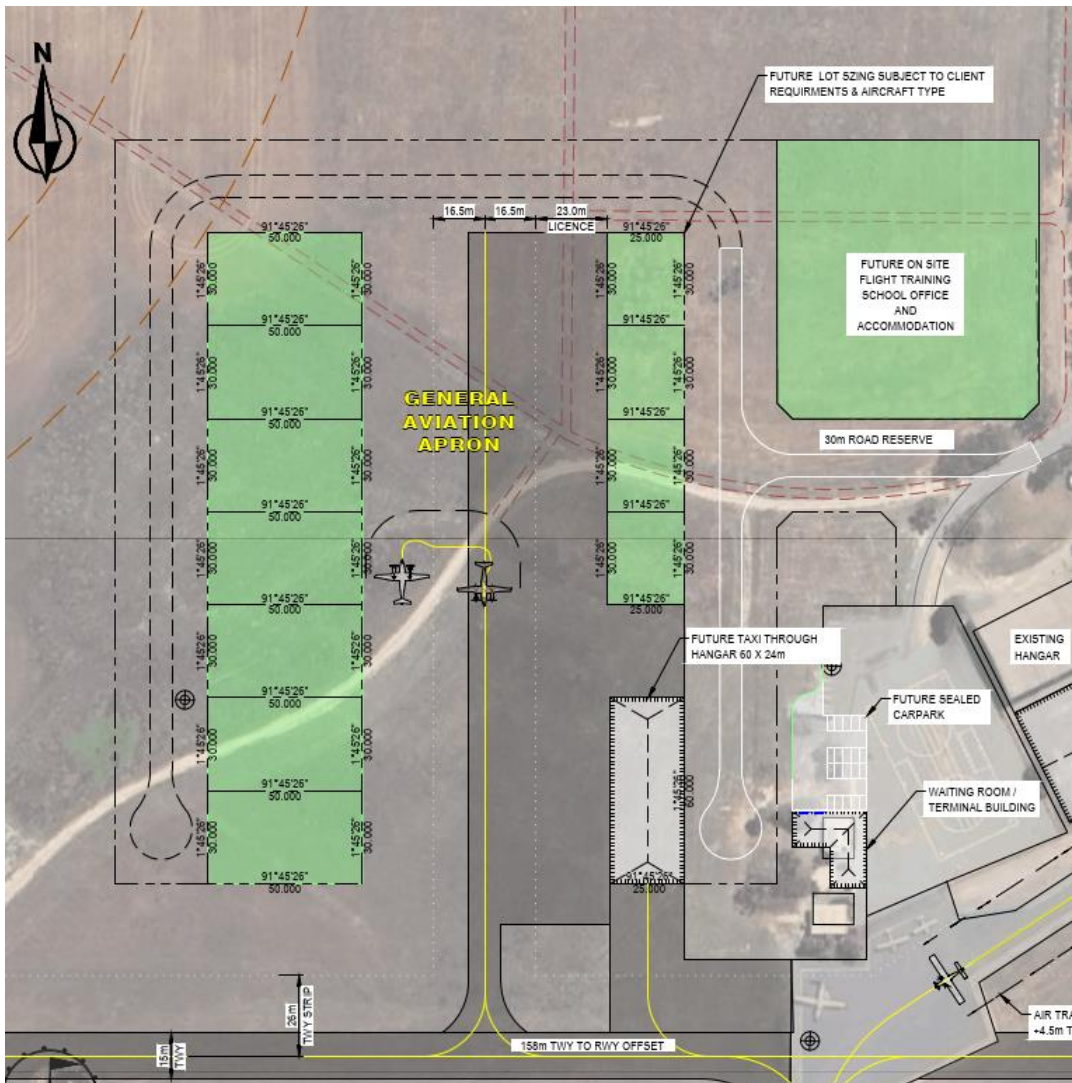
Expansion of the Western GA Apron caters for additional hangar development north of the large commercial hangar with taxiway access on the western side. Hangar development can then be duplicated to the west leaving a central taxilane access.

Access to hangars is via a proposed road reserve which remains landside.

The concept layout includes an initial four hangar allotments of 30m x 25m with the western hangar allotments of 30m x 50m. Lot sizing is flexible to suit aircraft type and future client requirements.

The extents of the hangar and apron area is scalable based on demand and can be extended further north or duplicated further west if demand requires.

An area east of the hangar allotments and north of the main terminal / carpark has been set aside for future flight training school facilities. Flight school facilities may include training rooms, offices or dorm type accommodation. The location has easy access to services and can utilise the Western GA apron and hangars if required.



12.5 Intermediate Runway Extension

An extension of Runway 08/26 can be completed up to a total of 1500m runway length. The extended runway length, including required clearways and Runway End Safety Area (RESA) can all be contained within the existing boundary with no requirement for land acquisition.

Extension to 1500m includes extension from both ends of the runway:

- Extension of 110m to the east
- Extension of 347m to the west

An increased runway length of 1500m allows for operation by larger charter aircraft such as:

- SAAB SF340 – 34 seat turboprop operated by REX / PELAIR
- ATR 42 – 45 seat turboprop operated by Heavilift / Aerlink (QLD)
- Dash8-300 – 50 seat turboprop operated by Qantaslink

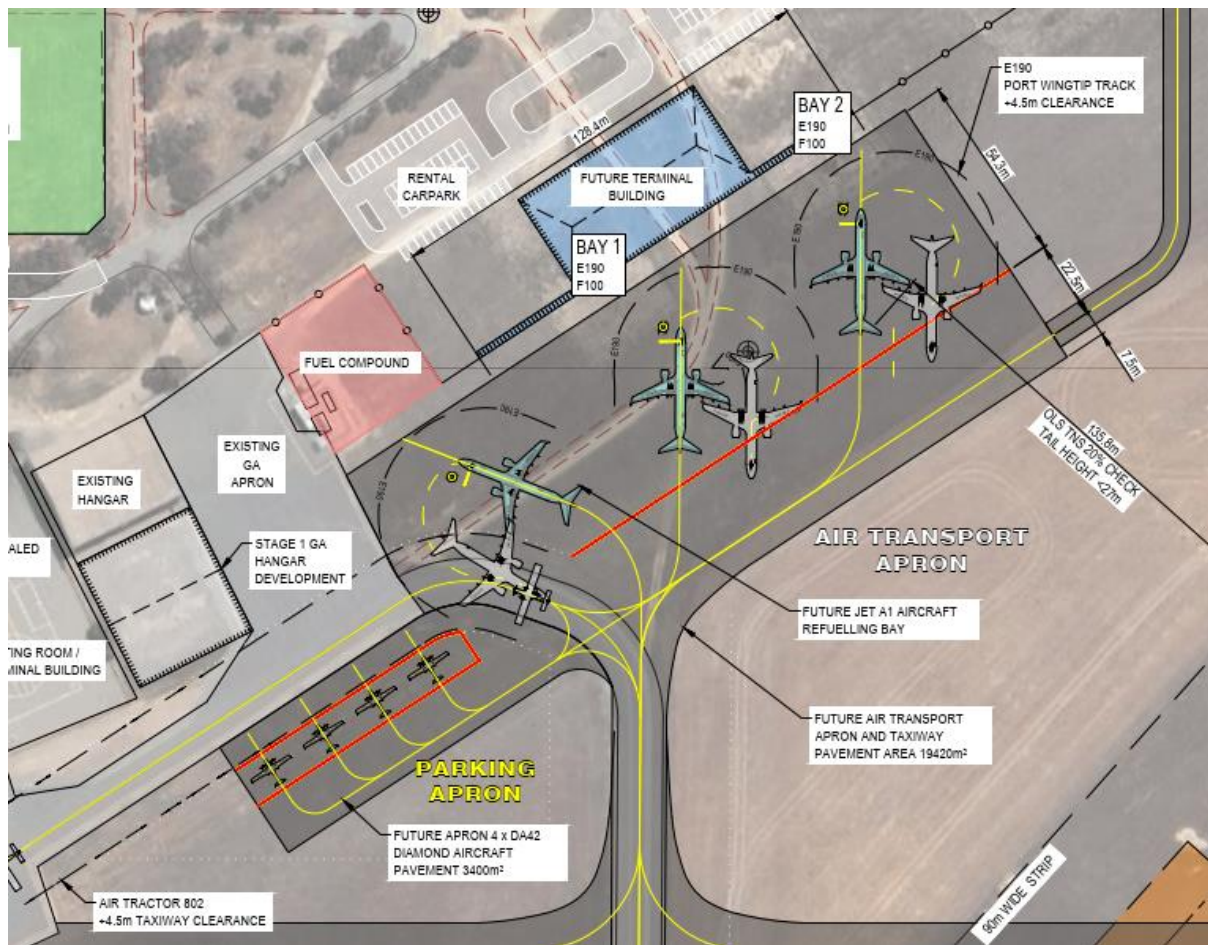


12.6 Air transport apron

Development of an air transport apron would be subject to demand from operations such as FIFO mining charter.

The area east of the existing GA apron and connecting to the fuel compound has been identified for the air transport facility development.

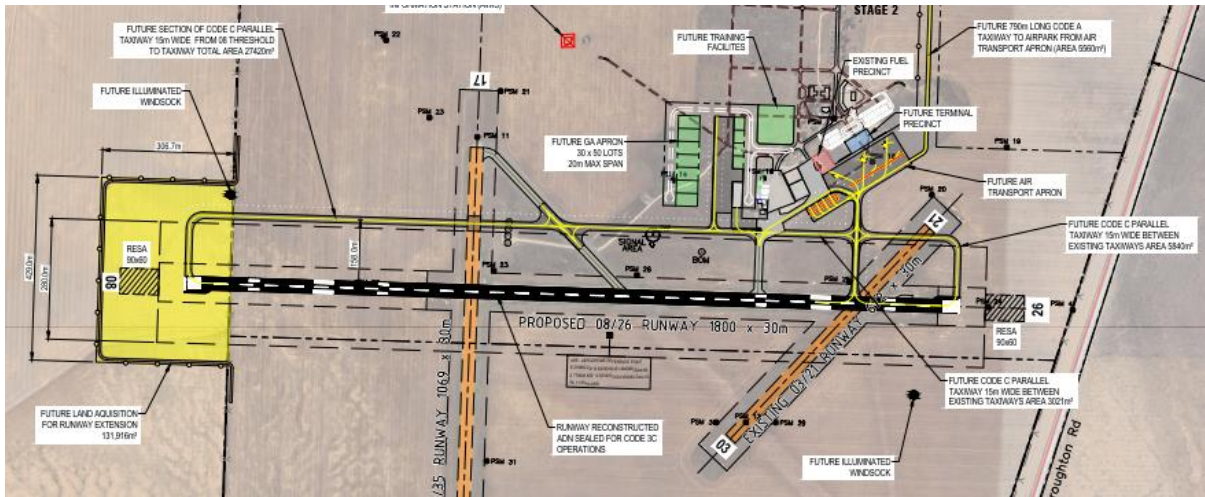
The air transport facility includes new apron pavement, connection from a strengthened eastern taxiway and allowance for a terminal building suitable to the operational demands.



12.7 Ultimate with runway extensions and parallel taxiways.

The ultimate layout identifies areas within the aerodrome along with land acquisition to the west to be protected for future aerodrome development. The footprint is seen as the ultimate layout possible at the Port Pirie Aerodrome site.

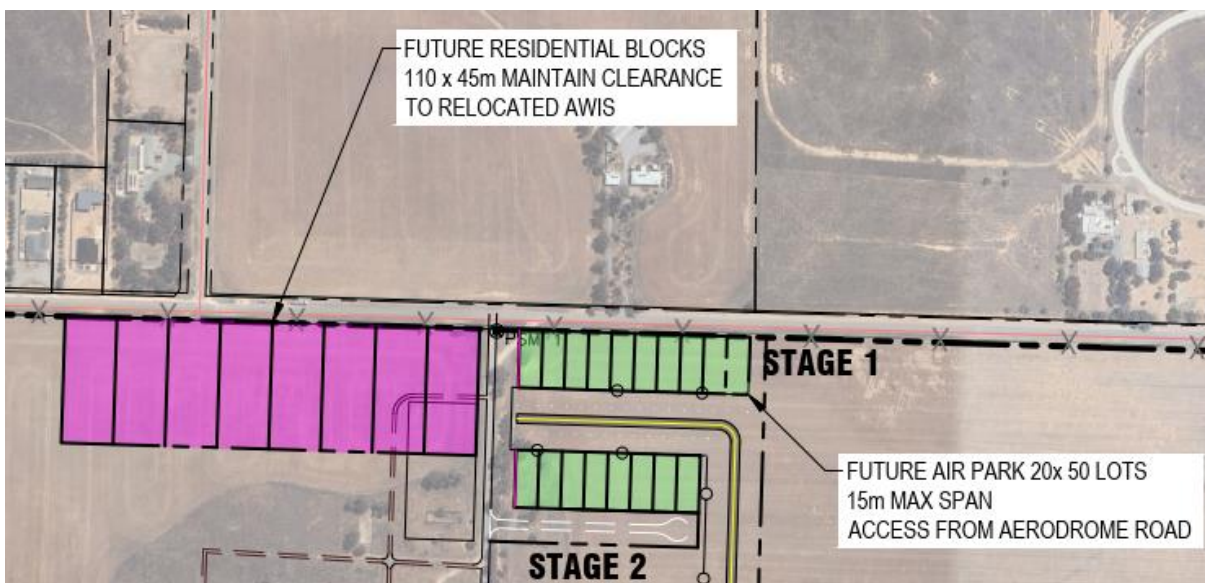
Along with runway extension up to a total runway length of 1800m, the layout includes the air transport facility area as well as additional parallel taxiway to cater for significant numbers of aircraft movements if a full scale flight training facility were to operate out of Port Pirie.



12.8 Residential Blocks and Air Park Allotments

Land alongside the access road at the northern entrance to the aerodrome has been identified for future development of a) residential allotments, and b) air park development.

The location enables access and services directly from Aerodrome Road without affecting other on-airport development.



12.9 Industrial Area Development

An area in the northeast of the aerodrome site has been identified for future industrial development.

The available land totals 263,358m² and does not interfere with any protected areas for future development of aviation facilities.

The industrial site provides access from Aerodrome Road and the Old Pt Broughton Road.

Height limitations within the industrial area apply for the approach and takeoff surfaces of Runway 03/21 but suit expected building heights.



13 IMPLEMENTATION PLAN

13.1 Maintenance

ITEM	TRIGGER	YEAR	ESTIMATED COST
New terminal / shared use facility	Improved space with suitable mutli use areas	2024	\$400,000
Reseal roads and car parks:	Condition of pavement surfaces fall below service standards	2025	\$150,000
Reseal runways and taxiways	Condition of pavement surfaces fall below service standards	2025	\$500,000
Linemarking renewal	Following reseal above or when visibility of linemarking falls below standard	2025	\$50,000

13.2 Capital Projects

ITEM	TRIGGER	Possible Year	Estimated Cost
New terminal / shared use facility	Improved space with suitable mutli use areas	2024	\$400,000
Extension To General Aviation Parking for Training Aircraft	Demand from training aircraft for permanent presence on site	2025	\$200,000
Large Commercial Hangar and Access	Aircraft Access in the form of suitable pavement provided by Council as aerodrome asset. Hangar and associated services costs are the responsibility of developer	2025	\$200,000
Western General Aviation Apron	Demand for new commercial and private hangar development	2030	\$1.3.m
Intermediate Runway Extension	Demand for larger aircraft operations	2030	\$3.5m
Air transport apron	Introduction of regular FIFO charter requiring dedicated parking positions	2030+	\$2.5m
FIFO passenger terminal	Introduction of regular terminal facilities	2030+	\$4.0m
Ultimate runway extension	Introduction of larger FIFO charter aircraft requiring additional runway length.	2050+	\$10.0m
Ultimate parallel taxiways	Introduction of extensive operations requiring parallel taxiways for airside efficiency	2050+	\$5.0m
Residential Blocks and Air Park Allotments	Positive business case by private developer	Beyond 2050	

14 REFERENCES

Census of Population and Housing, *Australian Bureau of Statistics* 2011 / 2016 / 2021
CASA Part 139 (Aerodromes) Manual of Standards 2019
Port Pirie Regional Council - Port Pirie Growth Plan *Aspire 2027*
Port Pirie Regional Council - Port Pirie Community (strategic) Plan 2020-2025
Plan SA – Planning and Design Code
Community Value of Regional Airports in South Australia *AECOM* 2016
Regional Airport Infrastructure Study *Acil Allen Consulting* 2016
Airport Planning Manual - Master Planning *International Civil Aviation Organisation*
Australian Airports Association - Regional Airport Master Planning Guideline.
National Airports Safeguarding Framework *National Airports Safeguarding Advisory Group (NASAG)*
Advisory Circular AC 150/5060-5 Airport Capacity and Delay *Federal Aviation Administration*

15 DRAWINGS

- I. YPIR23MP04 Phase 1 Airside Development
- II. YPIR23MP01 Masterplan Ultimate Layout
- III. YPIR23MP02 Masterplan Ultimate Layout
- IV. YPIR23MP03 (Sheets 1 and 2) Masterplan Obstacle Limitation Surface
- V. YPIR Noise Contour



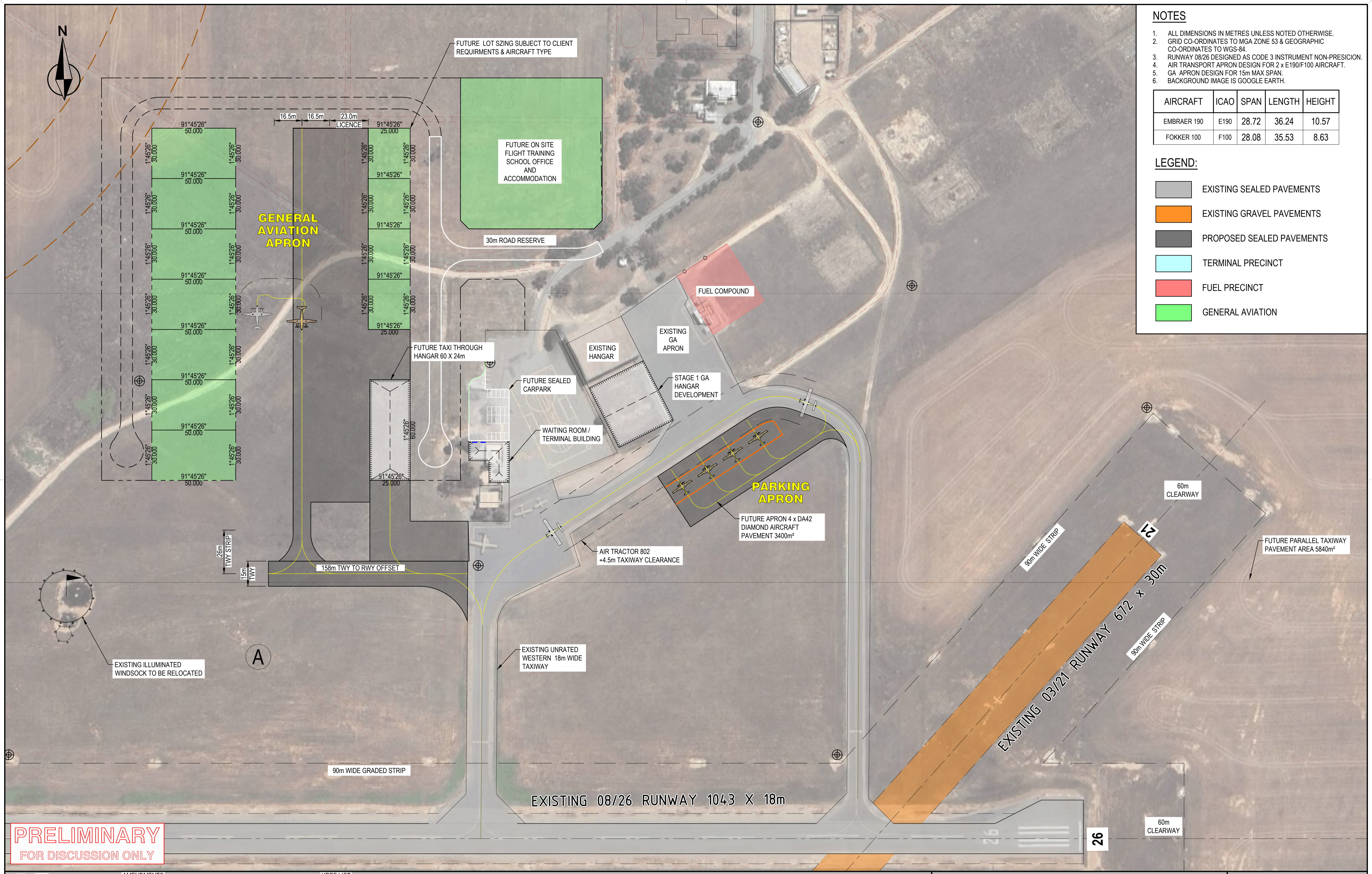
NOTES

1. ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE.
2. GRID CO-ORDINATES TO MGA ZONE 53 & GEOGRAPHIC CO-ORDINATES TO WGS-84.
3. RUNWAY 08/26 DESIGNED AS CODE 3 INSTRUMENT NON-PRECISION.
4. AIR TRANSPORT APRON DESIGN FOR 2 x E190/F100 AIRCRAFT.
5. GA APRON DESIGN FOR 15m MAX SPAN.
6. BACKGROUND IMAGE IS GOOGLE EARTH.

AIRCRAFT	ICAO	SPAN	LENGTH	HEIGHT
EMBRAER 190	E190	28.72	36.24	10.57
FOKKER 100	F100	28.08	35.53	8.63

LEGEND:

- EXISTING SEALED PAVEMENTS
- EXISTING GRAVEL PAVEMENTS
- PROPOSED SEALED PAVEMENTS
- TERMINAL PRECINCT
- FUEL PRECINCT
- GENERAL AVIATION



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REV	DATE	AMENDMENTS
A	07.01.24	FOR INFORMATION

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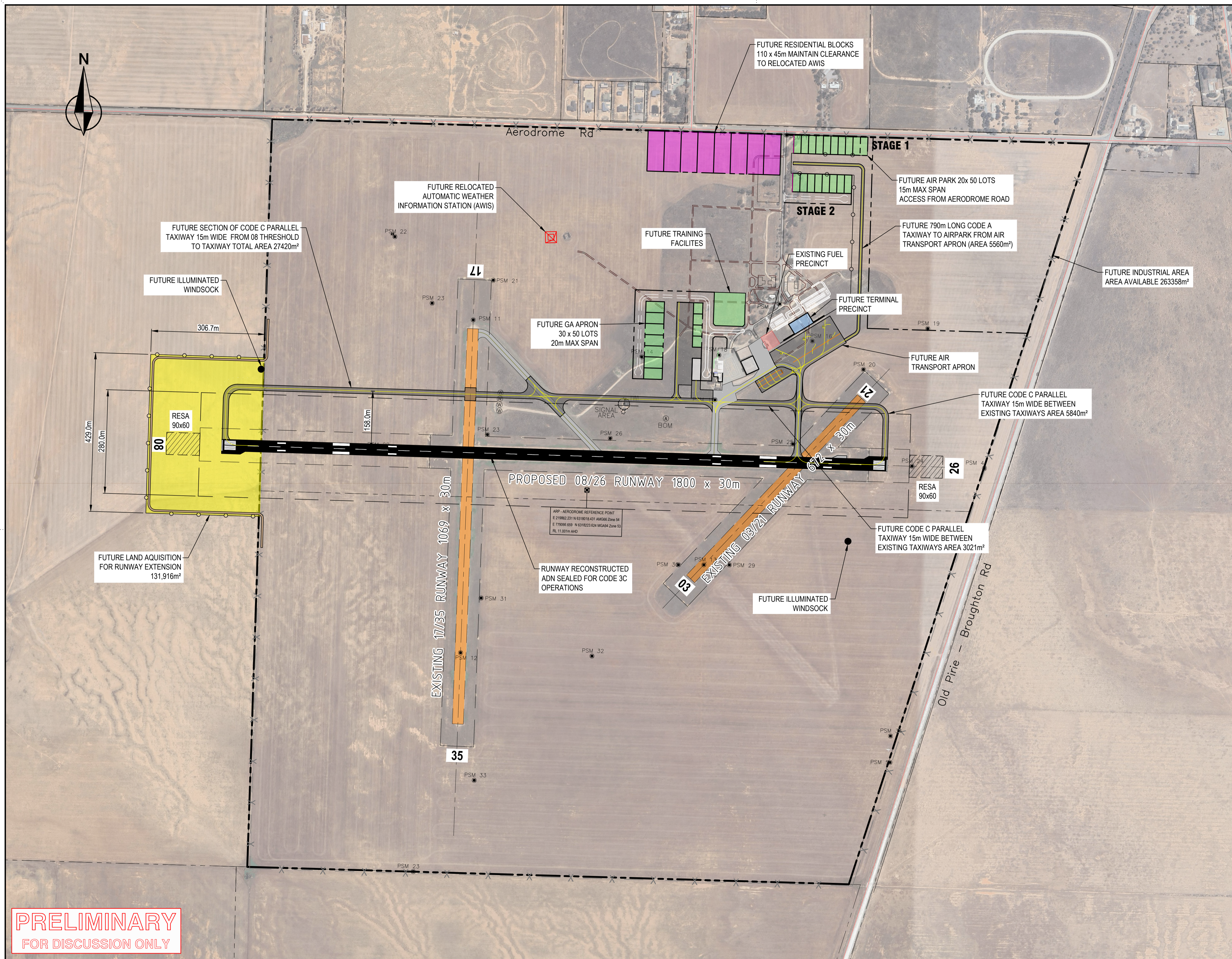
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DESIGNED :	AIRWORKS 07.01.24
ORIGINATOR :	C FRANCIS
COMPANY :	AERODESIGN
APPROVED :	

PORT PIRIE, SA
AERODROME MASTERPLAN
PHASE 1- GENERAL AVIATION WORKS
GENERAL ARRANGEMENT

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A1 SCALE	1:1000
DRAWING No.	YPIR23MP04
REV	A



NOTES

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5. GA APRON DESIGN FOR 15m MAX SPAN.
6. BACKGROUND IMAGE IS GOOGLE EARTH.

EXISTING DECLARED DISTANCES

	TORA	TODA	ASDA	LDA
RWY 03	672	732	672	672
RWY 21	672	732	672	672
RWY 08	1043	1103	1043	1043
RWY 26	1043	1127	1043	1043
RWY 17	1069	1129	1069	1069
RWY 35	1069	1202	1142	1069

PROPOSED DECLARED DISTANCES

	TORA	TODA	ASDA	LDA
RWY 08	1800	1860	1800	1800
RWY 26	1800	1860	1800	1800

LEGEND:

- EXISTING SEALED PAVEMENTS
- EXISTING GRAVEL PAVEMENTS
- PROPOSED SEALED PAVEMENTS
- TERMINAL PRECINCT
- FUEL PRECINCT
- GENERAL AVIATION
- LAND ACQUISITION
- NORTHERN RESIDENTIAL AREA

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REV	DATE	AMENDMENTS
C	23.10.23	AMENDMENTS AFTER CLIENT REVIEW
B	17.09.23	AMENDMENTS AFTER CLIENT REVIEW
A	25.08.23	FOR INFORMATION

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Includes: X YPIR BASE	Images: Mosaic 1-part1x1.png
Includes: X YPIR MAP	
Includes: X YPIR IMG	
Includes: X YPIR MP23DES_A	
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APPROVED :	

PORT PIRIE, SA
AERODROME MASTERPLAN
FULL SITE PLAN
GENERAL ARRANGEMENT

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DRAWING No.	YPIR23MP01
REV	C



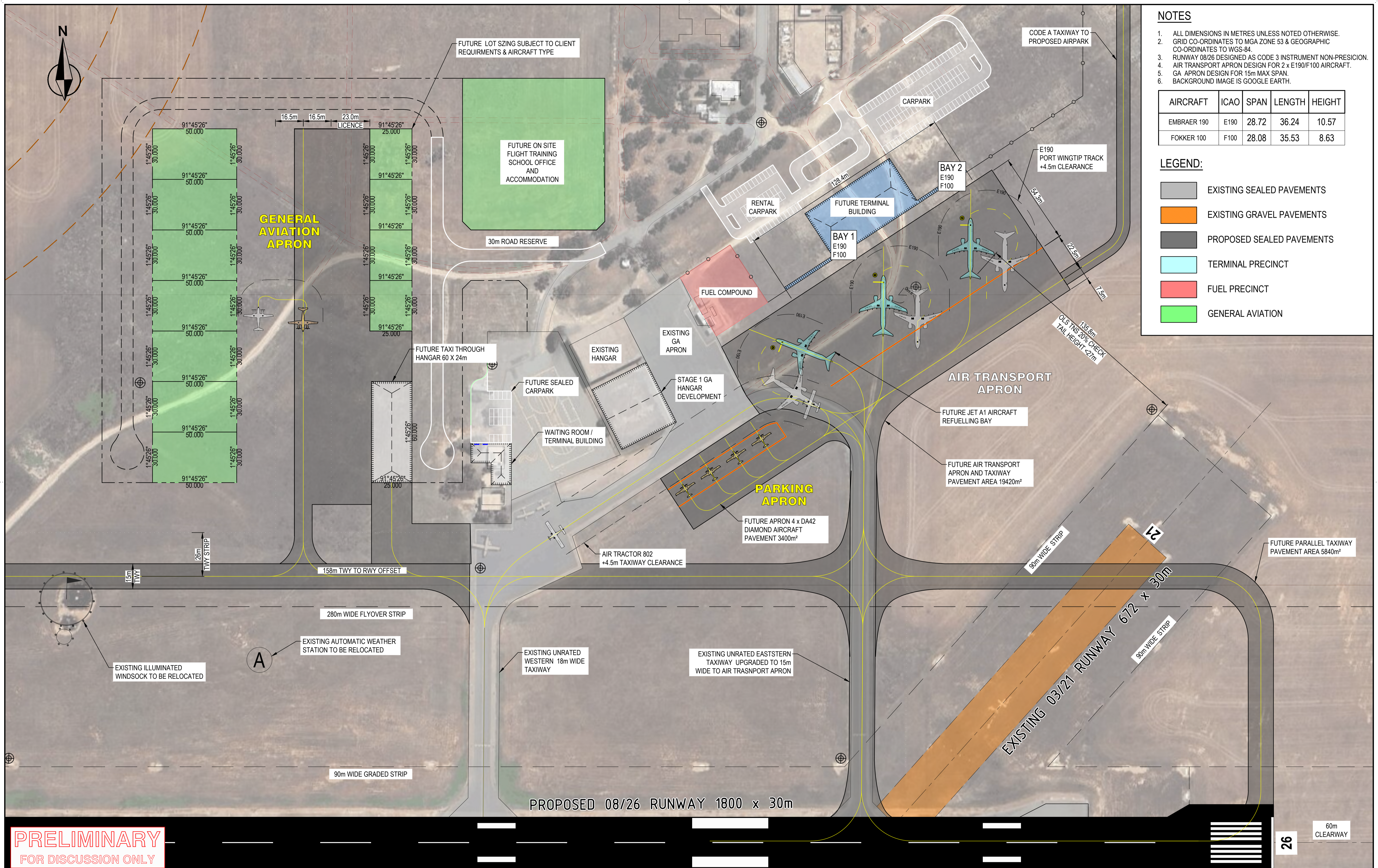
NOTES

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FOKKER 100	F100	28.08	35.53	8.63

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- EXISTING GRAVEL PAVEMENTS
- PROPOSED SEALED PAVEMENTS
- TERMINAL PRECINCT
- FUEL PRECINCT
- GENERAL AVIATION



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B	18.09.23	AMENDMENTS AFTER CLIENT REVIEW
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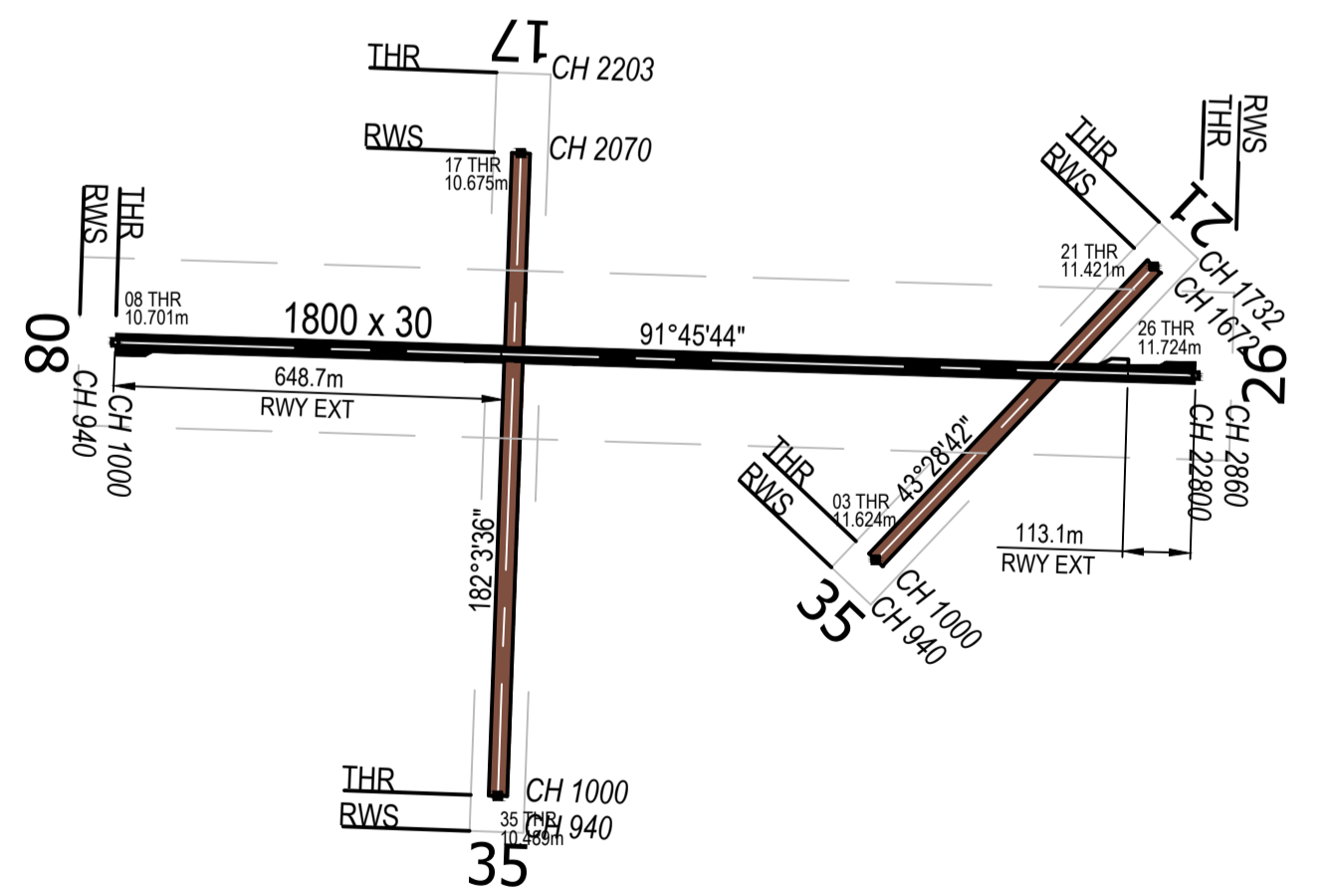
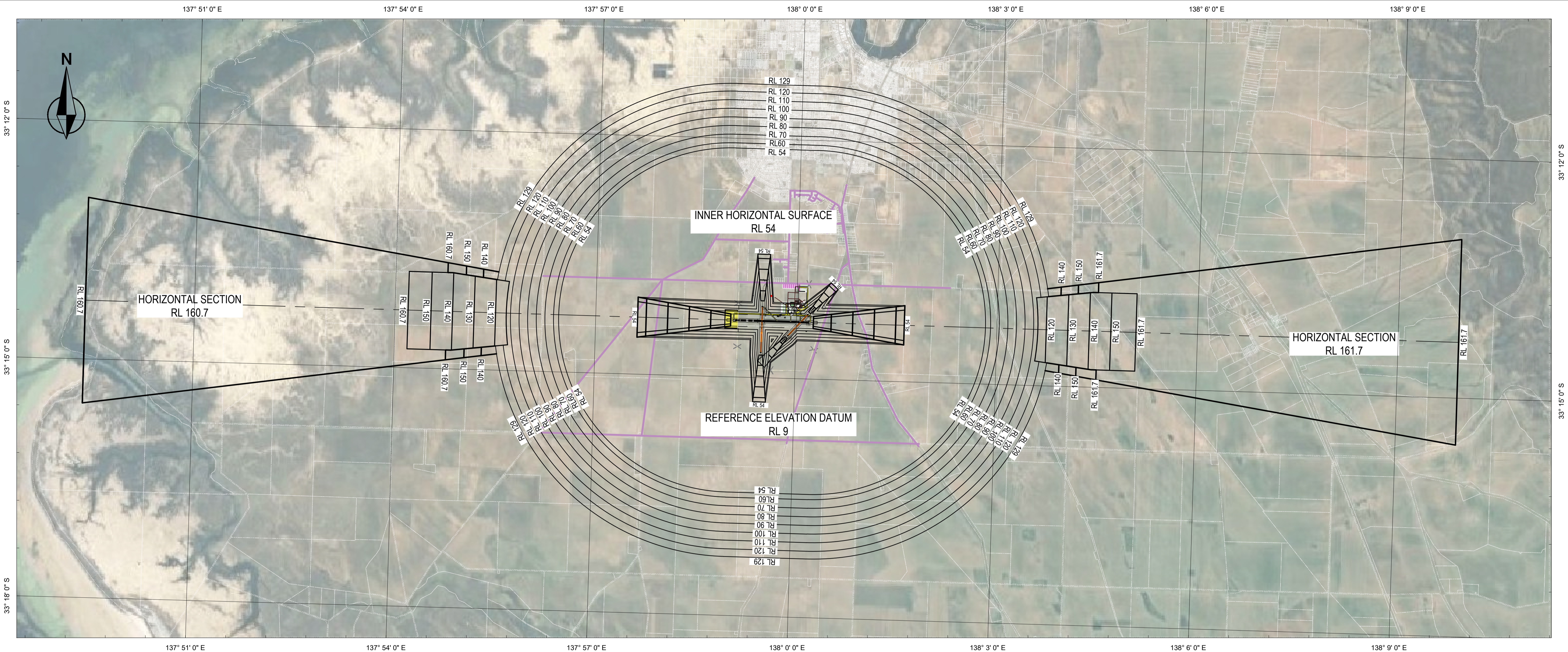


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PORT PIRIE REGIONAL COUNCIL

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APPROVED :

PORT PIRIE, SA
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AIR TRANSPORT APRON & GENERAL AVIATION
GENERAL ARRANGEMENT

SCALE 10 0 10 20 30 40m A1 SCALE 1:1000	DRAWING No. YPIR23MP01	REV C
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PORT PIRIE (YPIR) AIRPORT
SCALE 1:12,500

PORT PIRIE AERODROME (YPIR) OBSTACLE LIMITATION SURFACE DIMENSIONS CO-ORDINATE ARE MGA94 ZONE 53 ARP NOT FOUND. REFERENCE ELVATION DATUM CALCULATED AS AVERAGE OF EXISTING AND FUTURE RUNWAY ENDS (ROUNDED DOWN TO NEARS HALF METRE BELOW)			
<p>RUNWAY 03/21 CODE 1 NON-INSTRUMENT CENTRELINE BEARING 43/223°28'42" (T) 03 THRESHOLD E 779346.104 N 6317983.938 RL 11.624 21 THRESHOLD E 779808.996 N 6318472.097 RL 11.421 APPROACH / TAKEOFF SURFACE LENGTH of INNER EDGE 60m DISTANCE FROM THRESHOLD 60m DIVERGENCE ANGLE 10% SLOPE 5% TRANSITIONAL SURFACE SLOPE 20%</p>	<p>RUNWAY 08/26 CODE 3 INSTRUMENT NON-PRECISION CENTRELINE BEARING 91/271°45'44" (T) 08 THRESHOLD E 778079.749 N 6318346.130 RL 10.701 26 THRESHOLD E 779878.898 N 6318290.775 RL 11.724 APPROACH SURFACE LENGTH of INNER EDGE 280m DISTANCE FROM THRESHOLD 60m DIVERGENCE ANGLE 15% 1st SECTION SLOPE AND LENGTH 2% @ 3000m 2nd SECTION SLOPE AND LENGTH 2.5% @ 3600m HORIZONTAL LENGTH 8400m INNER HORIZONTAL HEIGHT 45m RADIUS 4000m TRANSITIONAL SURFACE SLOPE 14.3%</p>	<p>RUNWAY 17/35 CODE 2 NON-INSTRUMENT CENTRELINE BEARING 002/182°3'36" (T) 17 THRESHOLD E 778716.711 N 6317591.287 RL 10.489 35 THRESHOLD E 778755.323 N 6318660.756 RL 10.675 APPROACH / TAKEOFF SURFACE LENGTH of INNER EDGE 80m DISTANCE FROM THRESHOLD 60m DIVERGENCE ANGLE 10% SLOPE 4% TRANSITIONAL SURFACE SLOPE 20%</p>	<p>NOTES</p> <ol style="list-style-type: none"> LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (AHD). GRID CO-ORDINATES ARE MGA94 ZONE 53 GEOGRAPHIC TO WGS-84. DUE TO LOCAL VARIATIONS IN THE TRANSITIONAL SURFACE OBJECTS LOCATED WITHIN THIS SURFACE MAY REQUIRE A GROUND SURVEY TO CONFIRM CLEARANCE. BACKGROUND IMAGE IS GOOGLE EARTH.

REV	DATE	AMENDMENTS
A	13.11.23	FOR INFORMATION

XREF LIST
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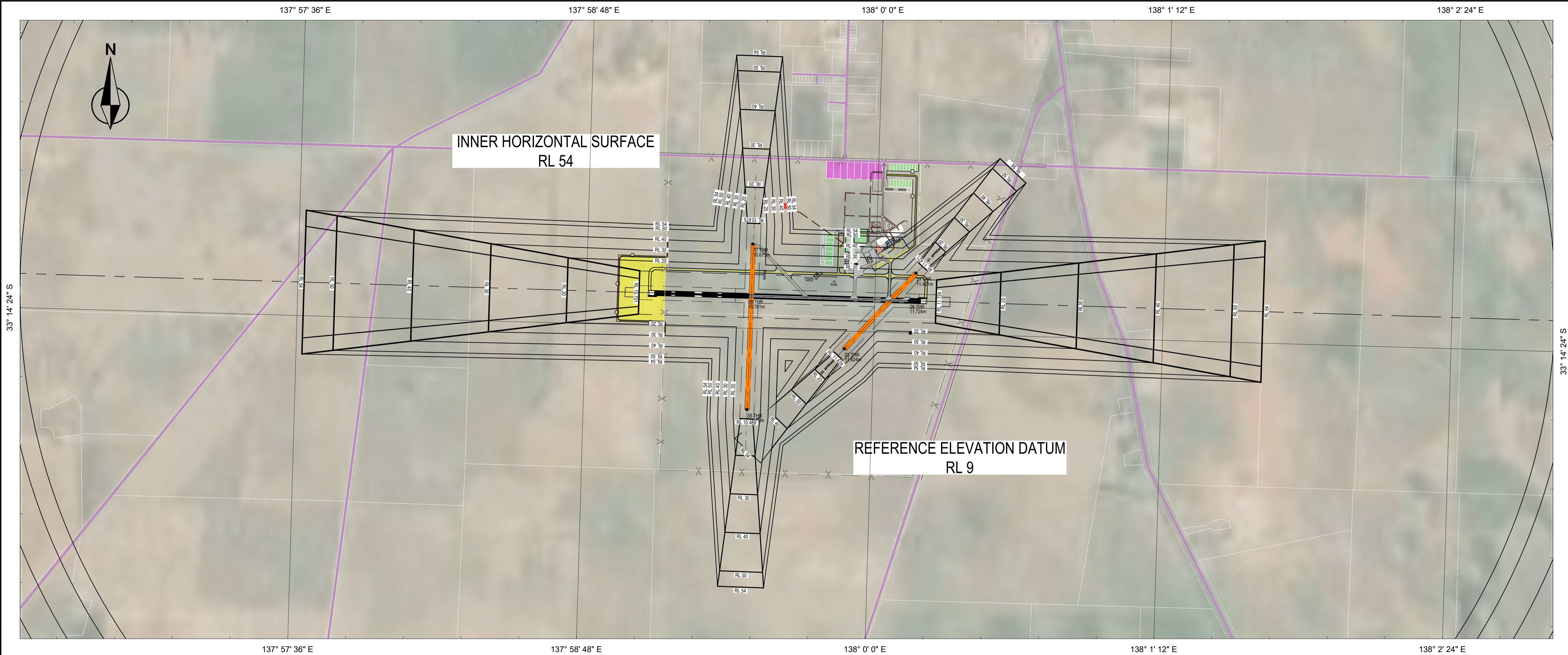
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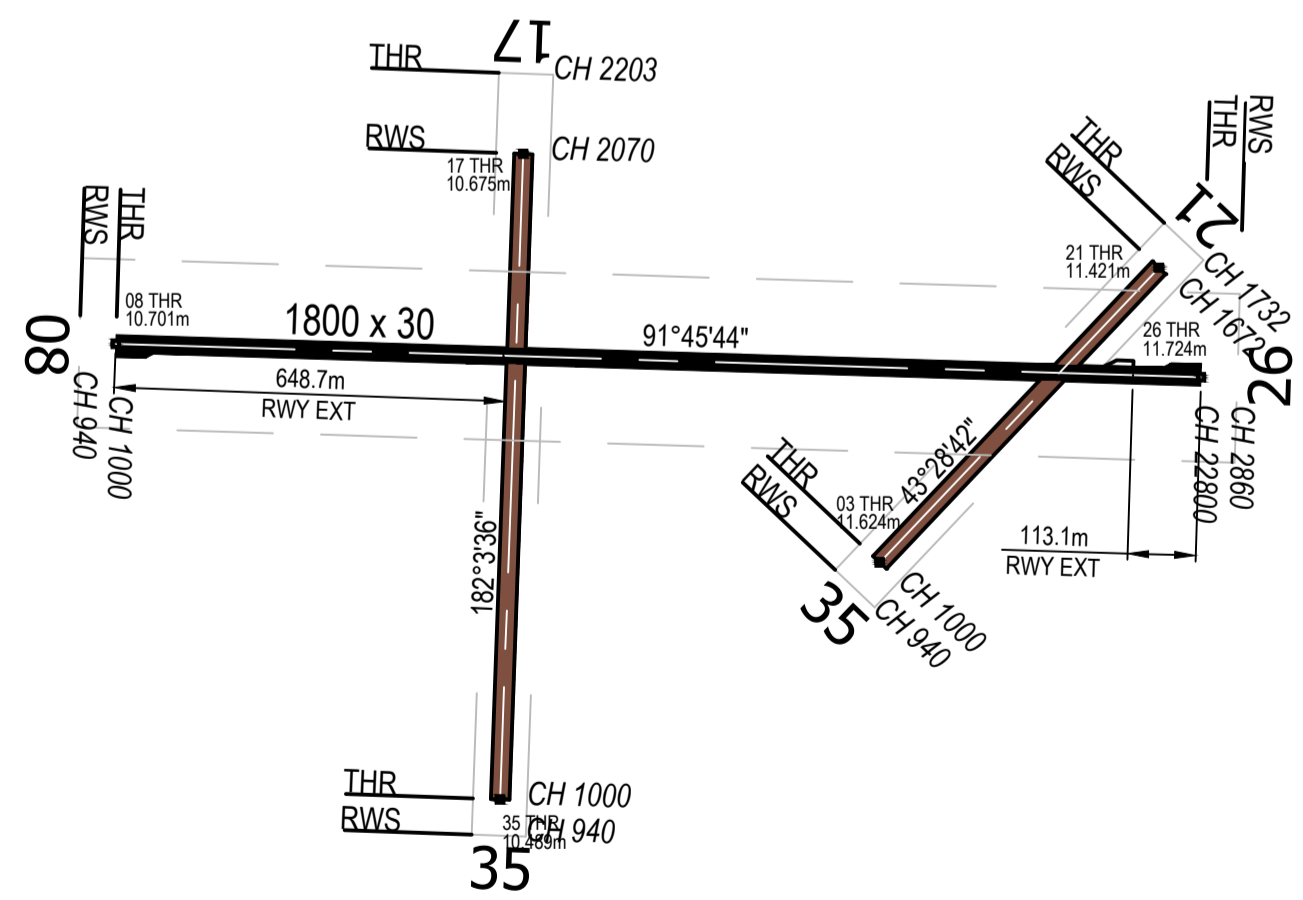
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PORT PIRIE, SA	
AERODROME MASTERPLAN	
FUTURE OBSTACLE LIMITATIONS SURFACE	
TITLE	FULL EXTENT SHEET 1 of 2

SCALE	450 0 450 900 1350 1800m A1 SCALE 1:45000
DRAWING No.	YPIR23MP03
REV	A



137° 57' 36" E 137° 58' 48" E 138° 0' 0" E 138° 1' 12" E 138° 2' 24" E



PORT PIRIE (YPIR) AIRPORT
SCALE 1:12,500

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PORT PIRIE AERODROME (YPIR) OBSTACLE LIMITATION SURFACE DIMENSIONS CO-ORDINATE ARE MGA94 ZONE 53 ARP NOT FOUND. REFERENCE ELVATION DATUM CALCULATED AS AVERAGE OF EXISTING AND FUTURE RUNWAY ENDS (ROUNDED DOWN TO NEARS HALF METRE BELOW)			
RUNWAY 03/21 CODE 1 NON-INSTRUMENT CENTRELINE BEARING 43/223°28'42" (T) 03 THRESHOLD E 779346.104 N 6317983.938 RL 11.624 21 THRESHOLD E 779808.996 N 6318472.097 RL 11.421 APPROACH / TAKEOFF SURFACE LENGTH of INNER EDGE 60m DISTANCE FROM THRESHOLD 60m DIVERGENCE ANGLE 10% SLOPE 5% TRANSITIONAL SURFACE SLOPE 20%	RUNWAY 08/26 CODE 3 INSTRUMENT NON-PRECISION CENTRELINE BEARING 91/271°45'44" (T) 08 THRESHOLD E 778079.749 N 6318346.130 RL 10.701 26 THRESHOLD E 779878.898 N 6318290.775 RL 11.724 APPROACH SURFACE LENGTH of INNER EDGE 280m DISTANCE FROM THRESHOLD 60m DIVERGENCE ANGLE 15% 1st SECTION SLOPE AND LENGTH 2% @ 3000m 2nd SECTION SLOPE AND LENGTH 2.5% @ 3600m HORIZONTAL LENGTH 8400m INNER HORIZONTAL HEIGHT 45m RADIUS 4000m TRANSITIONAL SURFACE SLOPE 14.3%	RUNWAY 17/35 CODE 2 NON-INSTRUMENT CENTRELINE BEARING 002/182°3'36" (T) 17 THRESHOLD E 778716.711 N 6317591.287 RL 10.489 35 THRESHOLD E 778755.323 N 6318660.756 RL 10.675 APPROACH / TAKEOFF SURFACE LENGTH of INNER EDGE 80m DISTANCE FROM THRESHOLD 60m DIVERGENCE ANGLE 10% SLOPE 4% TRANSITIONAL SURFACE SLOPE 20%	TAKE OFF SURFACE LENGTH of INNER EDGE 180m DISTANCE FROM RUNWAY END 60m DIVERGENCE ANGLE 12.5% FINAL WIDTH 1800m OVERALL LENGTH 15000m SLOPE 2%
NOTES 1. LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (AHD). 2. GRID CO-ORDINATES ARE MGA94 ZONE 53 GEOGRAPHIC TO WGS-84. 3. DUE TO LOCAL VARIATIONS IN THE TRANSITIONAL SURFACE OBJECTS LOCATED WITHIN THIS SURFACE MAY REQUIRE A GROUND SURVEY TO CONFIRM CLEARANCE. 4. BACKGROUND IMAGE IS GOOGLE EARTH.			

REV	DATE	AMENDMENTS
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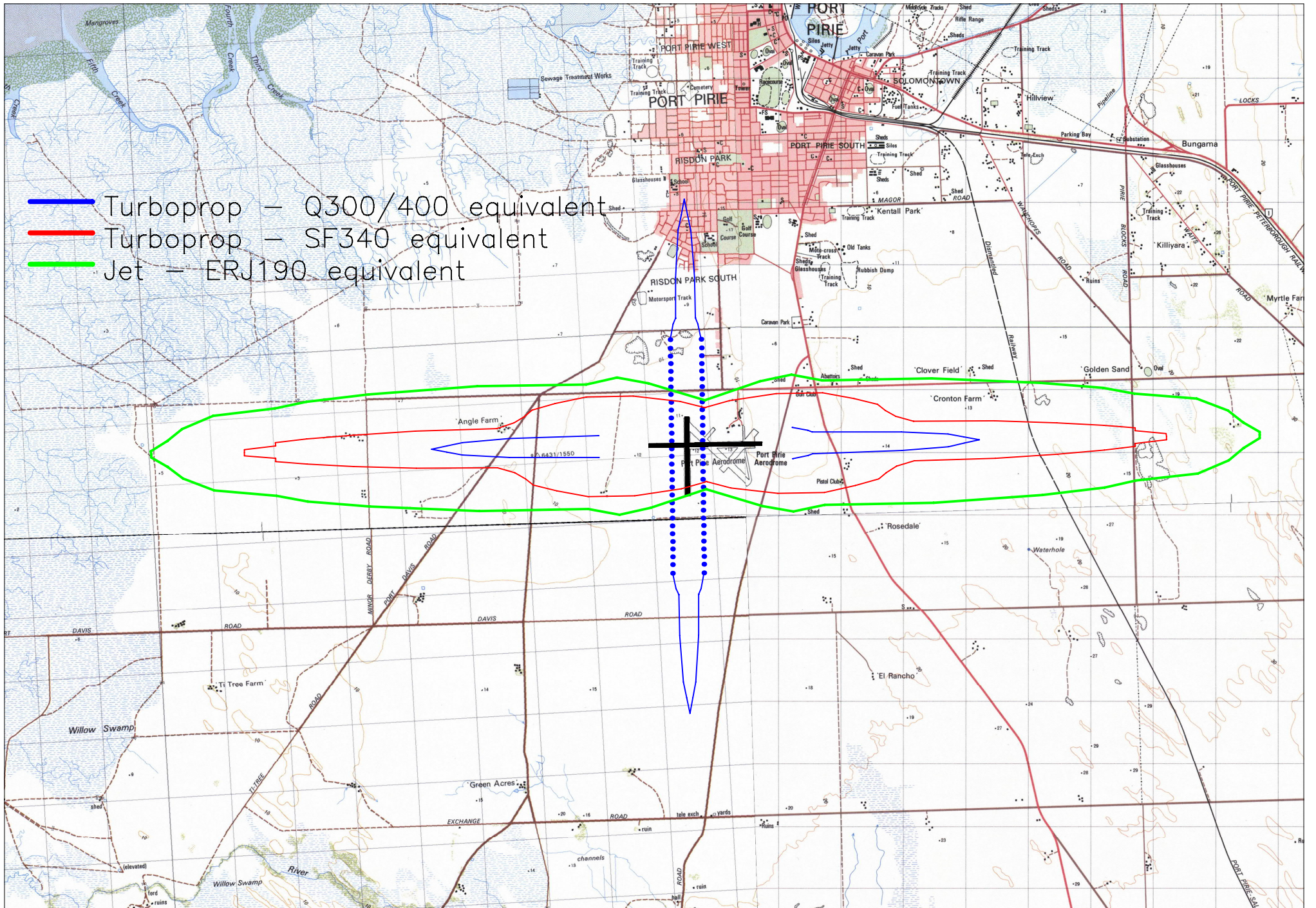


CLIENT	PORT PIRIE REGIONAL COUNCIL
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COMPANY :	AERODESIGN
APPROVED :	

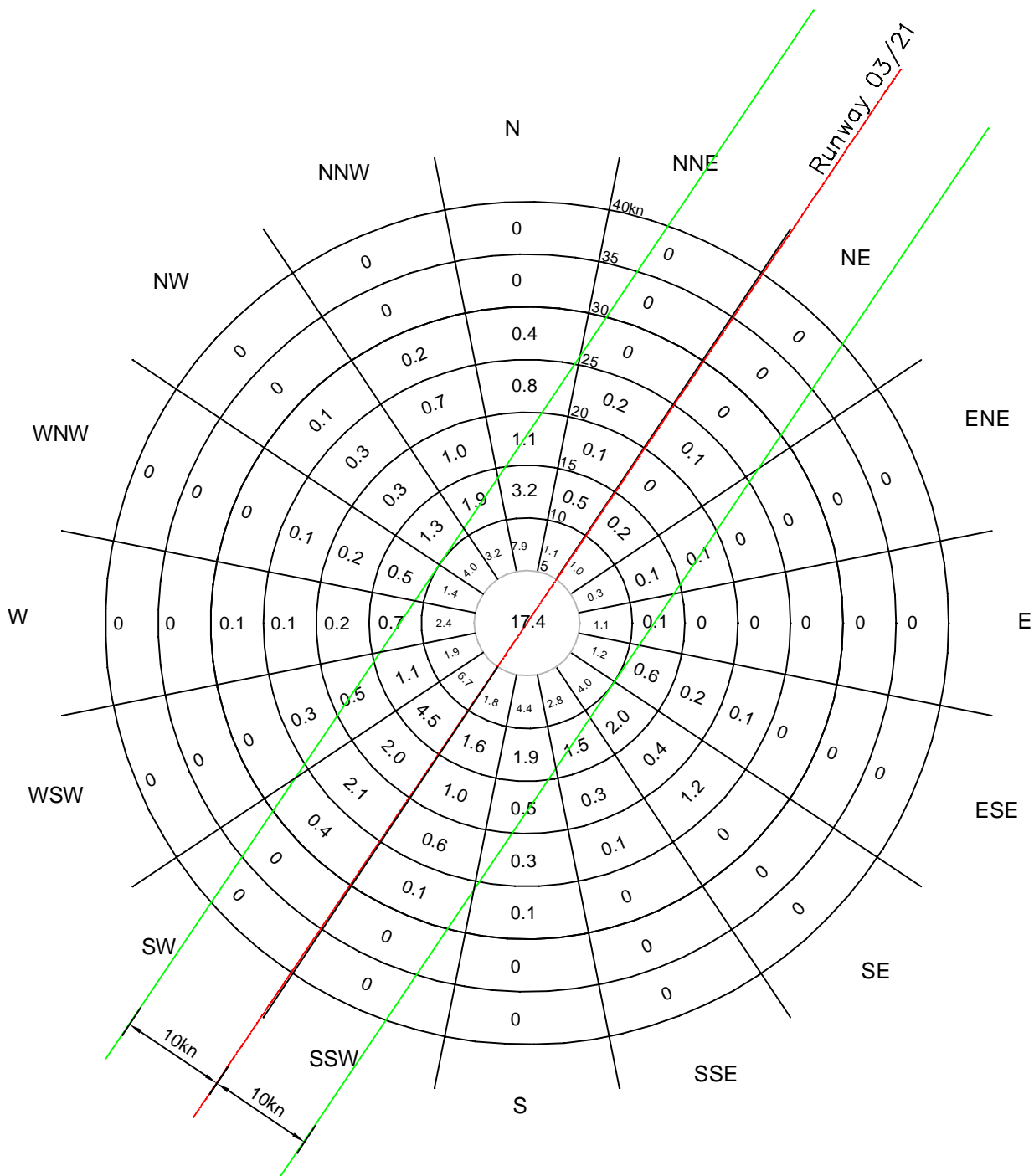
PORT PIRIE, SA	
AERODROME MASTERPLAN	
FUTURE OBSTACLE LIMITATIONS SURFACE	
TITLE	INNER AREA
SHEET 2 of 2	

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REV	A

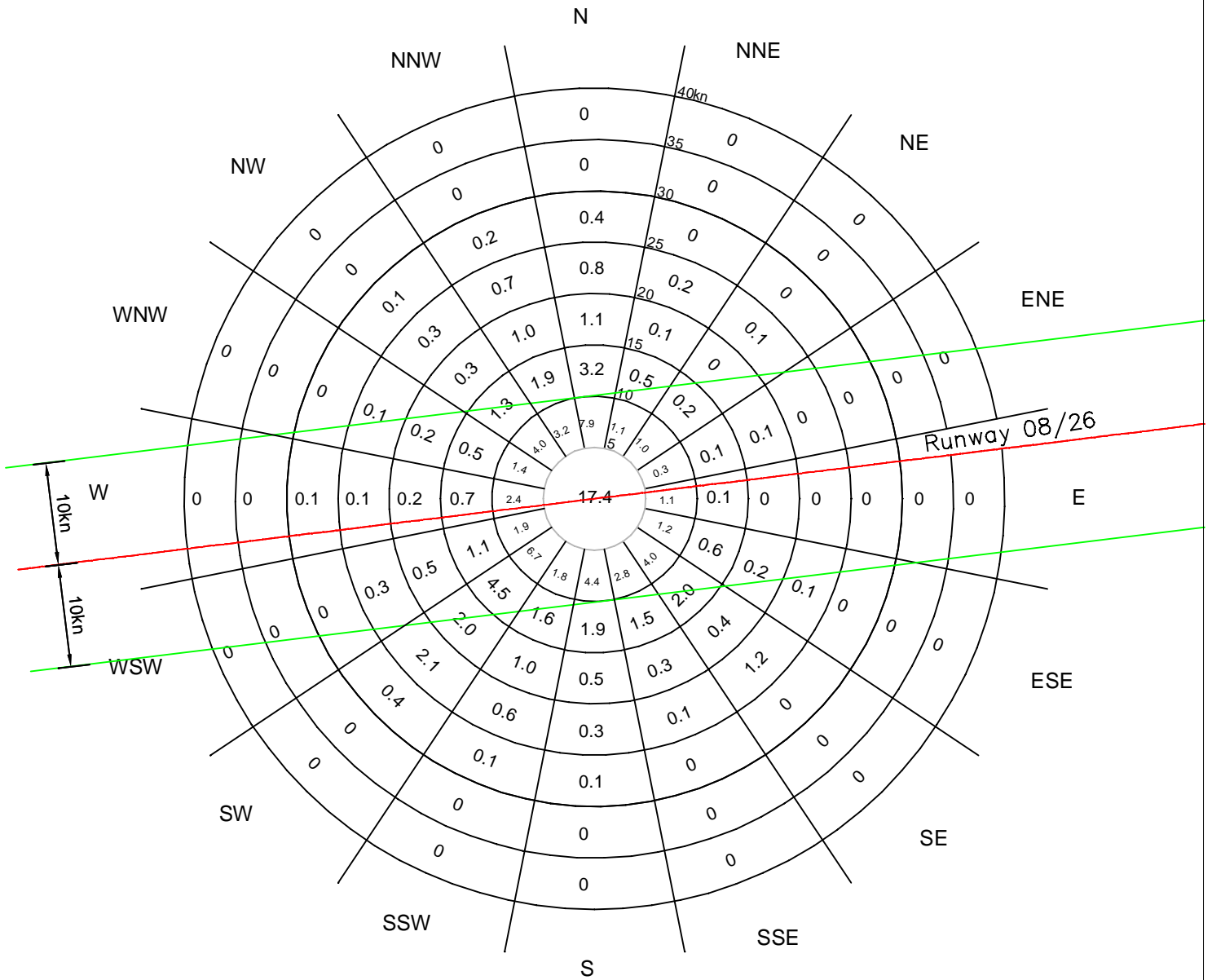
-  Turboprop — Q300/400 equivalent
-  Turboprop — SF340 equivalent
-  Jet — ERJ190 equivalent



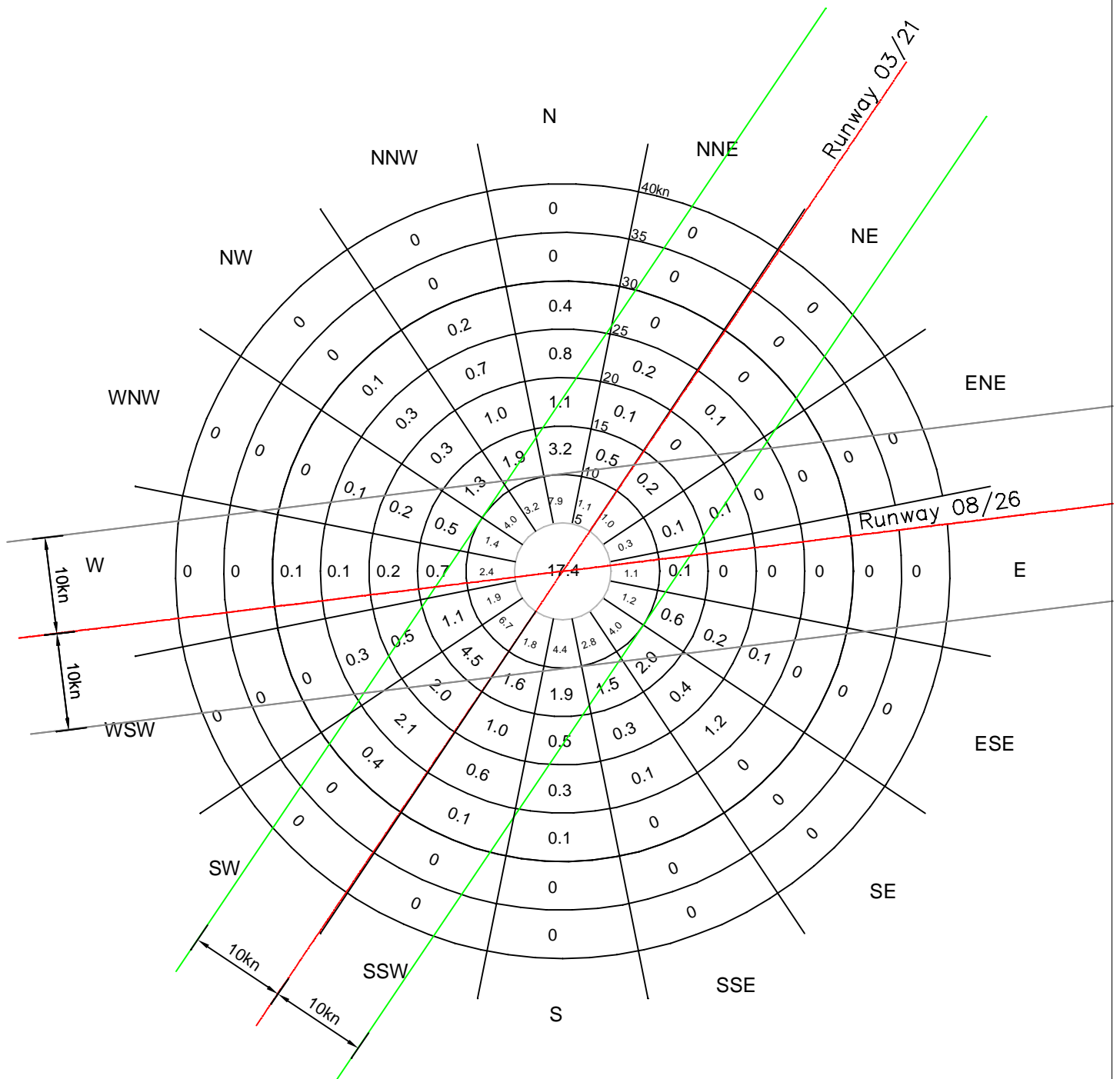
Pt PIRIE WIND ROSE 9AM TO 3PM COMBINED
 Runway 03/21 aligned 034°
 10 knot crosswind allowable



Pt PIRIE WIND ROSE 9AM TO 3PM COMBINED
 Runway 08/26 aligned 083°
 10 knot crosswind allowable



Pt PIRIE WIND ROSE 9AM TO 3PM COMBINED
 Runway 03/21 and Runway 08/26 combined
 10 knot crosswind allowable



Pt PIRIE WIND ROSE 9AM TO 3PM COMBINED
 Runways 03/21, 08/26 and 1735 combined
 10 knot crosswind allowable

